

A J Cope

По вопросам продаж и поддержки обращайтесь:

Алматы (7273)495-231
Архангельск (8182)63-90-72
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89
Иваново (4932)77-34-06
Ижевск (3412)26-03-58
Иркутск (395)279-98-46
Россия (495)268-04-70

Казань (843)206-01-48
Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04
Липецк (4742)52-20-81
Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижний Новгород (831)429-08-12
Киргизия (996)312-96-26-47

Новокузнецк (3843)20-46-81
Новосибирск (383)227-86-73
Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Пермь (342)205-81-47
Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
Севастополь (8692)22-31-93
Симферополь (3652)67-13-56
Казахстан (7172)727-132

Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Сургут (3462)77-98-35
Тверь (4822)63-31-35
Томск (3822)98-41-53
Тула (4872)74-02-29
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Ярославль (4852)69-52-93

Some Useful Information

Pipettes Colour Coding

One Mark		Graduated		
Cap ml	Colour code	Cap ml	Sub-divis ml	Colour code
1.0	Blue	0.1	0.001	2 Green
2.0	Orange	0.2	0.002	2 White
5.0	White	0.5	0.05	2 Black
10.0	Red	0.5	0.005	Green
15.0	Green	1.0	0.01	Yellow
20.0	Yellow	1.0	0.1	Red
25.0	Blue	2.0	0.02	Black
50.0	Red	5.0	0.05	Red
100.0	Yellow	5.0	0.1	Blue
		10.0	0.1	Orange
		25.0	0.1	White
		25.0	0.2	Green

Ingress Protection (IP) Ratings

The two figure IP-- rating number comprises the following combined elements. An "X" can replace the other digit if there is only one class of protection.

First number

Protection level against solid objects.

IP0- Not protected

IP1- Protected against objects over 50mm (hand)

IP2- Protected against objects over 12mm (finger)

IP3- Protected against objects over 2.5mm (tools)

IP4- Protected against objects over 1mm (wires)

IP5- Protected against dust, limited ingress (no harmful deposit)

IP6- Totally protected against dust

Second number

Protection level against liquids.

IP-0 Not protected

IP-1 Protected against vertically falling droplets of water (condensation)

IP-2 Protected against sprays of water up to 15° from vertical

IP-3 Protected against sprays of water up to 60° from vertical

IP-4 Protected against sprays of water from all directions, limited ingress

IP-5 Protected against low pressure jets of water from all directions, limited ingress

IP-6 Protected against strong jets of water from all directions

IP-7 Protected against effects of immersion between 0.15 and 1m deep for up to 1/2 hour

IP-8 Protected against long periods of immersion under pressure

pH/Ref. Electrodes

Preparation for use

All sensors are shipped with the measuring end covered with a soaker teat filled with storage solution. Remove the soaker teat from the electrode and keep in a safe place for future long term storage. There may also be dried crystals of the storage solution present following leakage from the teat during transport. This is normal and they should be rinsed away using deionised water.

After rinsing the measuring end with deionised water, the electrode is ready for use.

During shipment it is possible for air bubbles to move into the glass bulb. To remove the air, shake down the electrode in the same manner as a clinical thermometer until the glass bulb is filled with solution.

Electrode Storage

pH glass electrodes should be stored in a pH4.0 Buffer for both overnight and long term storage.

Reference and Glass/Plastic combination electrodes should be stored in a 3.0 Molar KCl solution (pH adjusted to 4.0) if they are single junction types. Use a 3.0 Molar solution of the appropriate salt if double junction types.

Electrode Care and Cleaning

Slow response and non-reproducible measurements are signs that the electrodes have become coated or clogged.

If the glass becomes coated or clogged the time taken to make a measurement will increase (normally 95% of final reading should be achieved in less than 10 seconds).

Rinsing with methyl alcohol should remove the coating and restore the speed of response.

If the methyl alcohol rinse does not restore the response, soak in 0.1M HCl for five minutes. Remove and rinse with water and place in 0.1M NaOH for five minutes. Remove, rinse again, and soak in pH4.0 buffer for 10 minutes before use.

Common Solvents

(Approximate data)

	Boiling point °C	Flash point °C	Wt/ml g
Acetone	56.5	-20	0.790
Benzene	80	-11	0.877
Butan-1-ol (n-butyl alcohol)	117	+29	0.809
Carbon tetrachloride	77	—	1.593
Chloroform	61	—	1.476
Diethyl ether	34.5	-40	0.714
Ethyl acetate	77	-4	0.900
Ethanol	78	+13	0.790
Butanone (methyl ethyl ketone)	80	-1	0.805
Propan-1-ol (n-propyl alcohol)	97	+15	0.804
Propan-2-ol (iso-propyl alcohol)	82	+12	0.785
Toluene	110	+7	0.865
Xylene	140	+25	0.863

Absorption

Tower

All dimensions for Tower and Tubes are nominal.

Tower

Glass, with ground 24/29 socket neck and 19/26 socket base tubulure. Overall height 310mm, diameter 45mm.

AB050-10 Tower

Tubes

Straight Form

Glass, with one bulb and tube for bending. Dimensions are length excluding narrow tube x external diameter.

	Dimensions
AB090-10	100 x 12mm
AB090-15	150 x 20mm
AB090-20	200 x 25mm

Plain U-Form

Glass, dimensions are overall length x diameter of the U.

	Dimensions
AB110-10	100 x 12mm
AB110-15	125 x 15mm
AB110-20	150 x 20mm

U-Form with Side Arms

Glass, dimensions are overall length x diameter of the U, side arms approx. 6mm diameter.

	Dimensions
AB130-10	100 x 12mm
AB130-15	125 x 15mm
AB130-20	150 x 20mm

Absorption Tubes, U, angled, straight – see *Quickfit* section.

Gas Washbottles – see *Gas Collection and Quickfit* sections.

Arnold

Borosilicate glass, two bulbs, overall height 125mm, diameter 26mm, side arms 6mm diameter.

AB180-10 Arnold



AB050



AB090



AB110

AB130



AB180

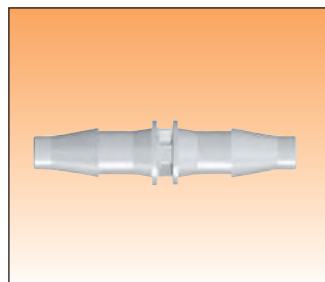
Adapters

Plastic, Micro

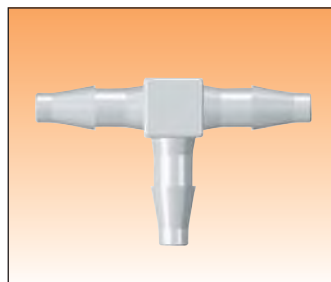
Micro tubing adapters. Natural polypropylene[†]. Precision moulded. For low pressure applications. Supplied in packs of 100.

	Limb size, to fit tubing i.d.
Straight	
AD062-05	1.6mm
AD062-10	2.4mm
AD062-15	3.2mm
AD062-20	4.0mm
AD062-25	4.8mm
Elbow, 90° bend	
AD064-05	1.6mm
AD064-10	2.4mm
AD064-15	3.2mm
AD064-20	4.0mm
AD064-25	4.8mm
T-shape	
AD066-05	1.6mm
AD066-10	2.4mm
AD066-15	3.2mm
AD066-20	4.0mm
AD066-25	4.8mm
Y-shape	
AD068-05	1.6mm
AD068-10	2.4mm
AD068-15	3.2mm
AD068-20	4.0mm
AD068-25	4.8mm
X-shape, 90° cross	
AD069-05	1.6mm
AD069-10	2.4mm
AD069-15	3.2mm

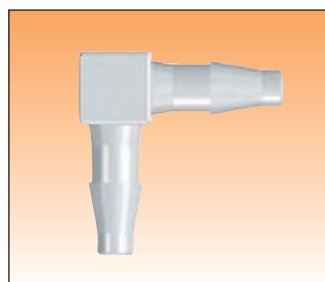
[†]Other materials, such as coloured nylon, clear or radiation-stable polycarbonate, or Kynar are available subject to minimum quantity requirements. Reduction/expansion adapters are also available - *details on request*.



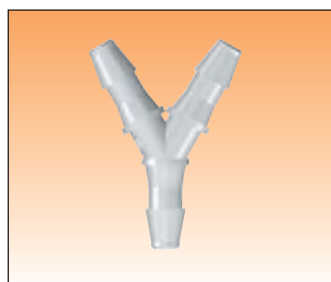
AD062



AD066



AD064



AD068

Luer micro tubing connectors. Natural polypropylene[†]. Precision moulded. Allow secure, easy connection and disconnection of microtubing with different diameters. For low pressure applications. Supplied in packs of 100.

	Luer type*	Barb for tubing i.d.
AD085-05	Male	1.6mm
AD085-10	Male	2.4mm
AD085-15	Male	3.2mm
AD085-20	Male	4.0mm
AD085-25	Male	4.8mm
AD085-80	Female Luer plug closure with thread	
AD087-05	Female	1.6mm
AD087-10	Female	2.4mm
AD087-15	Female	3.2mm
AD087-20	Female	4.0mm
AD087-25	Female	4.8mm
AD087-80	Male Luer plug closure with locking collar	

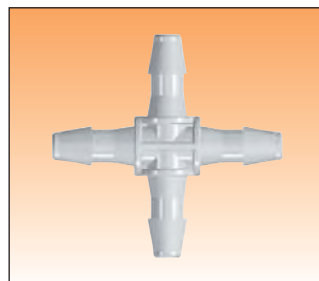
*With thread (female) or locking collar (Male).

Adapters, Luer

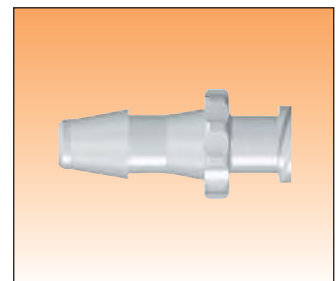
For low pressure applications. Straight pattern. Non-sterile. Natural nylon. With male luer-lock and 6mm o.d. ferrule. Supplied in packs of 100.

AD095-11 Adapters

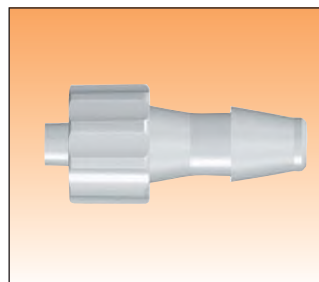
[†]Other materials, such as coloured nylon, clear or radiation-stable polycarbonate, or Kynar are available subject to minimum quantity requirements. Reduction/expansion adapters are also available - *details on request*.



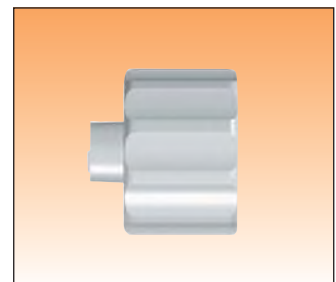
AD069



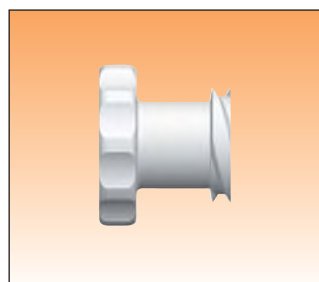
AD087-05 to AD087-25



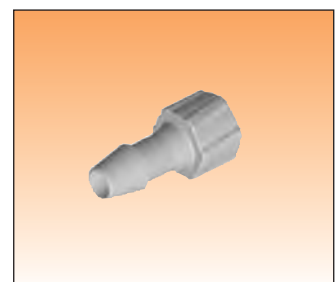
AD085-05 to AD085-25



AD087-80



AD085-80



AD095-09

Adapters

Plastic

Kartell

All dimensions are nominal. These adapters are for low pressure applications.

T-pattern

With rigid, tapered arms. Autoclavable polypropylene. Supplied singly.

	<i>o.d.</i> <i>mm</i>
AD100-12	4/5
AD100-17	6/7
AD100-22	8/9
AD100-27	10/11

Y-pattern

With rigid, tapered arms. Autoclavable polypropylene. Supplied singly.

	<i>o.d.</i> <i>mm</i>
AD105-12	4/5
AD105-17	6/7
AD105-22	8/9
AD105-27	10/11

Azlon

All dimensions are nominal. These adapters are for low pressure applications.

Straight pattern

With tapered stepped arms. Autoclavable polypropylene. Dimensions stated are the minimum and maximum for each end of the adapter. Supplied in packs of 10.

	<i>Ref.</i> <i>CW/H-</i>	<i>o.d.</i> <i>mm</i>
AD110-12	602	4/7 & 7/12
AD110-18	604	7/12 & 7/12
AD110-20	608	7/12 & 10/15
AD110-24	610	10/15 & 10/15

PORTEX

All dimensions are nominal. These adapters are for low pressure applications.

Straight pattern

With tapered and stepped ribbed arms. Dimensions given are the minimum external diameters for each arm, in mm. Autoclavable. Supplied singly.

Polypropylene

AD190-17	6/6
AD190-22	10.5/10.5

Standard Joint Adapters – see *Quickfit* section.



AD100



AD105



AD110



AD190-17 and -22

Adapters, Adhesives

Adapters, Plastic



Tubing Connectors

High quality polypropylene. Can be autoclaved. Supplied in packs of 10.

	For tubing bore mm
Straight	
AD220-10	3 to 5
AD220-13	5 to 7
AD220-16	7 to 9
AD220-19	9 to 11
AD220-22	11 to 13
AD220-25	13 to 15
T-shape	
AD220-40	3 to 5
AD220-43	5 to 7
AD220-46	7 to 9
AD220-49	9 to 11
AD220-52	11 to 13
AD220-55	13 to 15
Y-shape	
AD220-70	3 to 5
AD220-73	5 to 7
AD220-76	6 to 8
AD220-79	7 to 9
AD220-82	9 to 11
AD220-85	11 to 13
AD220-88	13 to 15



Screwthread Connectors

For use with 13mm GL13 screwthread outlets. Designed to reduce breakage and increase safety when fitting flexible tubing to side arms of suitably converted condensers etc. For 9mm bore flexible tubing. Polypropylene for use up to 140°C maximum or PTFE for enhanced chemical resistance and use up to 200°C maximum, as indicated.

AD255-10 Ref 4510/02, polypropylene
AD255-15 Ref 4510/04, PTFE

Spare Viton sleeve for AD255 connectors

AD256-06 Ref 4511/02

Screwthread holder for AD255 connectors

Facilitates connection and removal of AD255 adapters to, or from, tubing.

AD256-09 Ref 4512/02

Standard Joint Adapters – see *Quickfit* section.

Adhesives

The following adhesives can be exported by sea freight, deck cargo only.

Araldite – Rapid

Epoxy resin and hardener in pack containing tube of resin, tube of hardener and instructions.

AD700-10

Evo-Stick Impact adhesive

Neoprene/resin solution in an ester/hydrocarbon solvent. 32g tube.

AD710-10

Adhesive Labels, Plain – see *Labels* section.

Adhesive film for microplates – see *Microtitration* section.



AD220-10



AD220-40



AD220-70



AD255-10

AD255-15



AD700

AD710

Air Samplers, Aluminium

Portable Microbiological Air Samplers

Microflow

For sampling air biocontaminants within critical environments such as cleanrooms, food production areas, fermentation rooms, hospitals and treatment plants to quantify the presence of micro-organisms. Comply with ISO 14698-1 requirements. Comprise disinfectable, polyurethane pump housing/controller with push-on, autoclavable, anodised aluminium or stainless steel, perforated sampling head which holds either 60mm diameter contact plates or 90mm diameter petri dishes. The internal surfaces of the sampling chamber are coated with antibacterial silver ions. A rechargeable, battery-operated pump allows portability and operation for up to 4 hours. The controller allows manual, sequential and programmed (1 to 2000 litres) sampling, delayed start, preset sampling flow rates, memory storage of up to 99 sampling procedures, graphical display with a choice of languages, USB interface and low battery alarm. The housing design allows horizontal or vertical operation and the unit can be switched on or off remotely using an infra-red control.

<i>Model</i>		Microflow 60	Microflow 90/C	Microflow 60-90/C
<i>Head apertures, No. x diameter</i>		219 x 1mm	380 x 1mm	219 and 380 x 1mm
<i>For dish diameter</i>	<i>mm</i>	60, ±2	90, ±2	60 or 90, ±2
<i>Sampling flow rate, programmable</i>	<i>litres/minute</i>	30, 60, 90, 100, 120 — all models		
<i>Total sample, programmable</i>	<i>litres</i>	1 to 2000 — all models		
<i>Display languages</i>		English, Italian, French, German, Spanish		
<i>Overall W x D x H</i>	<i>mm</i>	310 x 130 x 170 — all models		
<i>Weight</i>	<i>kg</i>	1.9 — all models		

As described. Supplied as a kit with infra-red remote switch, battery charger for 100-240V 50/60Hz a.c. single phase supplies, mini gas torch for flaming the sampling head, instructions, calibration certificate and carrying case.

Aluminium sampling head

- AG103-10** Microflow 60
- AG103-20** Microflow 90/C
- AG103-30** Microflow 60-90/C

Stainless steel sampling head

- AG106-10** Microflow 60
- AG106-20** Microflow 90/C
- AG106-30** Microflow 60-90/C

Accessories

Nozzles for Coliform counting in 35mm diameter ducts.

- AG108-04** For 60mm diameter heads
- AG108-07** For 90mm diameter heads
- AG108-26** Interface cable and downloading software*

* Please note: The software can only be used with one sampler individually. If multiple samplers are ordered an equal number of accessory software packages must also be ordered.

Petri dishes - see PD100-30 to -48.

Culture Media - see CX900-/CX902-/CX904-series.

Hygiene monitoring products - see HT802-IHT808-IHT840-series.



AG103/AG106

Aluminium

Aluminium Foil

Suitable for a wide variety of laboratory applications including tube sealing, column wrapping, shaping into weighing boats, etc. In roll, dimensions are thickness x foil width x roll length.

- AL200-11** 0.018mm x 100mm x 75 metres
- AL200-13** 0.020mm x 450mm x 60 metres

Aluminium Foil

With one side polished and the other matt finished. In rolls or dispenser boxes and in widths and thicknesses as indicated.

	Thickness mm	Width m	Length m	Pack
AL202-05	0.013	300	20	roll
AL202-10	0.013	300	100	box
AL202-15	0.015	300	10	roll
AL202-20	0.015	450	10	roll
AL202-25	0.015	450	150	box
AL202-30	0.015	450	150	roll*
AL202-35	0.030	300	10	roll
AL202-40	0.030	500	100	box
AL202-45	0.050	500	200	roll

* Refill roll for AL202-25

Aluminium Basin - see BF550-15.

Aluminium Beakers - see BN170-series.

Aluminium Bottles - see BS980-series.

Aluminium Foil Dishes - see DH798-series.

Aluminium Racks and trays - see SM450/SM470.



AL200



AL202

Anaerobic Jar, Anemometers

Anaerobic System

Anaerobic Jar

Transparent polycarbonate jar, 3 litres, which accepts up to 15 plastic petri dishes of 60 to 100mm diameter using an accessory rack. The lid incorporates two valves and pressure gauge and is secured by spring clamps. Overall 120 x 270mm diameter x height.

AN205-15 For up to 15 dishes

Accessories

AN207-10 Petri dish rack for up to 15 dishes of 60 to 100mm diameter

AN207-25 "Anaerobic" generator kits. Produces oxygen-free atmosphere in approx. 30 minutes with <1% O₂ and 9 to 13% CO₂. Pack of 10 sachets.

AN207-35 "CO₂" generator kits. Produces CO₂ atmosphere in approx. 60 to 90 minutes with approx. 10% CO₂ and 15% O₂. Pack of 10 sachets.

Anemometers

For measuring wind speeds and air flows in ducts and tunnels.

Anemometer, vane, compact

Compact hand-held, vane-type anemometer and thermometer with rugged ABS housing and large, clear, backlit LCD readout.

Ranges:-

Wind speed: 0.4 to 30m/s (alternative ranges: mph, knots, km/h)

Temperature: -30 to +60°C (alternative range: -22 to 140°F)

Precision: ±3%. Other functions include maximum and minimum values and battery status readout. Overall 175 x 52 x 35mm L x W x D. Weight 115g. Supplied with battery.

AN450-25 Vane anemometer, compact

BL610-25 Spare battery, 9V

continued on next page.



AN205-15 in use with AN207-10



AN450-25

Anemometers

Anemometers

For measuring wind speeds and air flows in ducts and tunnels.

Anemometers, Testo 435 series

Multifunction instruments for measuring airflow using hot-wire or vane-type probes, humidity, or temperature using accessory thermocouple probes.

Max. Ranges:- 0 to 40m/s, -60 to +400°C
(dependent on probes selected),
0 to 100% R.H.

Resolution:- 0.01m/s, 0.1°C and 0.1% R.H.

Choice of model:-

- 435-1: Basic unit with menu-driven operation, dual display and infra-red download to accessory printer with printout of results, date and time
- 435-2: Generally as 435-1 but additionally with 10,000 reading storage, USB output port, cable and PC software

As described. Overall 225 x 74 x 46mm (L x W x D). Weight 0.45kg. Supplied with 4 x 1.5V AA batteries, calibration protocol and instructions. Without probes.

- AN470-10** 435-1
- AN470-20** 435-2

Spares and accessories for AN470-series

- BL610-15** Spare 1.5V AA battery (4 required)

Telescopic hot-wire air velocity/temperature probe, 7mm diameter head x maximum extended length 820mm (ranges 0 to 20m/s, -40 to +150°C).

- AN472-04** Hot-wire probe

Telescopic vane air velocity probe, 60mm diameter head x maximum extended length 910mm (range 0.25 to 20m/s).

- AN472-06** 60mm probe

Telescopic hot-wire air velocity/temperature/humidity probe, head diameter 12mm x maximum extended length 745mm, (ranges 0 to 20m/s, -20 to +70°C, 0 to 100% R.H.

- AN472-09** m/s, °C, R.H., probe

Humidity/temperature probe, range 0 to 100% R.H. and -20 to +70°C. Overall 115 x 12mm length x diameter.

- AN472-12** Humidity/temperature probe

Temperature probes

Supplied with handle, cable and connector. All probes are 115 x 5mm length x diameter.

- TJ802-17** NTC air probe, -50 to 150°C
- TJ822-10** Type K thermocouple immersion probe, -60 to +400°C,
- TJ822-19** Type K thermocouple surface probe, sprung, -60 to +300°C, with 12mm dia. tip

Thermal paper printer

With infra-red cordless data communication. Supplied with 4 x AA batteries and 1 roll of paper.

- AN472-40** Printer

Spare thermal paper for AN472-40, pack of 6 rolls.

- AN472-45** Paper
- BL610-15** Spare 1.5V AA battery for AN472-40 (4 required)

Rechargeable battery charger for AN470-meters and AN472-40 printer

With 4 x NiMH rechargeable batteries and built-in mains adapter requiring a 100-240V 50/60Hz single phase supply.

- AN472-15** Battery charger/pack

Apparatus for the determination of Arsenic can be found in the Quickfit section – see Q1AD/1.

Anemometer/Thermohygrometer, Testo 410-2

Rugged, pocket-sized meter with integral vane anemometer, humidity and temperature sensors with LCD readout of wind, airflow, or humidity and temperature. With timed mean value calculations, hold function, max./min. values and windchill calculation. Stainless metal display and keyboard surround includes on/off, mode and 'hold' buttons.

Airflow			
range	m/s	0.4 to 20	
resolution	m/s	0.1	
accuracy	m/s	±0.2	
units		m/s, km/h, mph, knots, Beaufort, perceived temperature (windchill)	
Temperature			
range	°C	-10 to +50	
resolution	%	0.1	
accuracy	%	±0.5	
units		°C/°F	
Humidity			
range	% R.H.	0 to 100	
resolution	% R.H.	0.1	
accuracy	% R.H.	±2.5 (5 to 95% R.H.)	
units		% R.H. wet bulb, dew point	
Overall, L x W x D		mm	133 x 46 x 25
Weight		g	90
Power			2 x 1.5V AAA batteries

As described. Supplied with calibration protocol, wrist strap, belt clip holder, metal protection shroud for the display and keyboard and 2 x 1.5V AAA batteries.

- AN458-30** Testo 410-2
- BL610-08** Spare 1.5V AAA battery (2 required)



AN470-10 in use with AN472-09



AN458-30

Aquaria

Aquaria and accessories Aquarium pumps

Suitable for fresh or salt water. Dimensions and capacities are nominal.

Aquarium

Transparent plastic, 15 litres. 220 x 370 x 250mm H x W x D.

AQ100-11 Plastic tank

Diffuser Stone

With inlet tube.

AQ140-10 25 x 25 x 25mm

Tanks, glass

Rectangular. Suitable for use as aquaria or vivaria. Moulded, heavy wall, flint glass with smooth-ground rim.

	Capacity litres	W x D x H mm
TB350-15	2	100 x 150 x 150
TB350-20	3	130 x 180 x 180
TB350-25	6	180 x 250 x 220

Aeration Pump, diaphragm

Output approximately 1.5 litres/minute free air. With 5mm o.d. air delivery tubes. Suitable for continuous operation. Overall 90 x 50 x 65mm. For 200-240V a.c. single phase supplies, 3W.

AQ180-02 1.5 litres/minute

Liquid pumps – see *PX700/PX890*.

Continuous use pumps

Housed in robust splashproof metal cases (except PX330 and PX365) complete with carrying handle. Each unit has a built-in inlet filter, silencer and is supplied with a long IEC mains lead. They can be run continuously making them ideal for circulating systems and long term experiments.

Cat. No.	Vac mbar	Pressure Bar	Flow l/min	Inlet/Outlet
PX330*	550	2.0	7.5	8mm
PX332	280	2.0	8.0	8mm
PX365*	80	2.5	18	8mm
PX367	80	2.5	18	8mm
PX368	80	2.5	35	8mm

*These pumps are uncased for building into equipment.

For 230V 50Hz single phase supplies. Dimensions given are overall H x W x L.

PX330-10 Uncased, 40 x 88 x 158mm

PX332-20 Cased, 212 x 136 x 265mm

PX365-10 Uncased, 178 x 132 x 202mm

PX367-10 Cased, 216 x 210 x 283mm

PX368-10 Cased, 235 x 230 x 230mm



AQ100-11



AQ180-02



TB350



PX330

Aspirator Bottles

Pyrex® Glass



Dimensions given are nominal and maxima, including stopper if supplied.

Pyrex 1531 series

With unground neck and bottom side arm for connecting 10mm bore flexible tubing. Without stopper.

	Ref.	Capacity ml	Neck i.d. mm	Bottle dia. x h mm
AS100-06	1531/06	250	18	73 x 131
AS100-08	1531/08	500	23	89 x 163
AS100-10	1531/10	1000	28	111 x 200
AS100-12	1531/12	2000	28	138 x 248

Pyrex 1541 series

With unground neck and 29/32 bottom side socket. Without stopper or stopcock.

	Ref.	Capacity ml	Neck i.d. mm	Bottle dia. x h mm
AS110-16	1541/16	5000	44	181 x 318
AS110-18	1541/18	10000	59	227 x 398
AS110-22	1541/22	20000	59	288 x 492

Pyrex 1569 series

With glass stopper and 29/32 bottom side socket. Without stopcock.

	Ref.	Capacity ml	Neck size NS	Bottle dia. x h mm
AS120-16	1569/16	5000	45/40	181 x 333
AS120-18	1569/18	10000	60/46	227 x 414
AS120-22	1569/22	20000	60/46	288 x 508

Accessories

Stopcock 1571/02, cone 29/32, bore 4mm. For 1541 and 1569 aspirators.

AS135-06 1571/02

Stopcock, Rotaflo 1568/04, cone 29/32, bore 3mm. With PTFE key. For 1541 and 1569 aspirators.

AS135-10 1568/04

Rubber bung stoppers for 1531 and 1541 series aspirator – see *Stoppers section*.

Flexible tubing, 10mm bore for 1531 outlets – see *Tubing section*.

Joint clips for securing 1571/02 and 1568/04 stopcocks into aspirators – see *QKC29 in the Quickfit section*.



AS135-06



AS135-10



AS100



AS110



AS120

Aspirator Bottles

Plastic

Azlon

Aspirator bottles, Azlon wide neck

Polyethylene HDPE, with screw cap, two handles and removable stopcock. Neck i.d. 240mm.

- AS320-25** 30 litre, BGH 068
- AS320-30** 50 litre, BGH 070
- AS320-35** 100 litre, BWX 072

Aspirator bottles, Azlon autoclavable, heavy wall, medium neck

Polypropylene, octagonal shape, with offset screw cap for easy pouring, integral handle and removable, boss-fitting stopcock.

	Ref. BNP-	Capacity litres	Neck i.d. mm
AS340-15	05A	5	45
AS340-20	10A	10	90
AS340-25	20A	20	90

- AS340-75** Spare stopcock for AS340 series

Plastic

Aspirator bottles, narrow neck

Polyethylene HDPE, with screw cap and 12mm bore stopcock. Hexagonal shape, neck i.d. 49mm.

- AS300-15** 5 litre
- AS300-20** 10 litre

Aspirator bottles, narrow neck

Polyethylene. With screw cap, hinged handle at neck and 8mm bore stopcock.

- AS390-10** 2.5 litre
- AS390-15** 5 litre
- AS390-20** 10 litre
- AS390-50** Spare stopcock for AS390-series

Aspirator bottles, narrow neck

Polyethylene. With screw cap, neck bore 50mm, side lifting handles and 12mm air-vented stopcock.

- AS400-20** 20 litre
- AS400-25** 25 litre
- AS400-75** Spare stopcock for AS400 series

Large Capacity Plastic Bottles – see *Bottles* section.

Aspirator pump with trap flask – see *PX800-15*.

Plastic

NALGENE® 

Aspirator Bottles, Nalgene Lowboys™,

Polyethylene (HDPE). Low profile, with integral handgrip for safe, easy transport. Same size can be stacked three high. With polypropylene spigot tap and leakproof screw cap. Can be used with strong acids, bases, alcohols and ketones but not suitable for use with other organic solvents.

- AS500-15** Ref 2323-008. Capacity 8 litres. Overall 368 x 305 x 165mm W x D x H
- AS500-20** Ref 2323-015. Capacity 15 litres. Overall x 368 x 368 x 203mm W x D x H

bürkle

Aspirator bottle, Bürkle Flachmann

Polypropylene. Space saving design which is only 65mm wide. Stable, rigid structure with integral carrying handle and tamper-evident closure, neck i.d. 41mm. A 3/4" threaded connector at the base accepts an accessory stopcock which is rotatable about 180° to avoid dripping. Overall 65 x 335 x 335mm W x D x H. Accessory graduated scale and support stands are also available.

- AS530-15** Flachmann, 5 litre
- AS532-13** Support stand for 2 x AS530-15
- AS532-17** Support stand for 3 x AS530-15

Spare stopcock for AS530 - see *SV944-20*



AS300



AS320



AS340



AS390



AS400



AS500



AS530/AS532 in use

Auto-Analyser Consumables

Sample Cups

Elkay

Polystyrene. Compatible with Bayer, Hitachi, I.L., Kodak and Olympus analysers (except AT150-40 which is compatible with Hitachi only). Supplied in packs of 1000.

- AT150-15** 0.5ml conical
- AT150-20** 2ml conical
- AT150-40** 2ml Hitachi

Ezee-Nest cups, Elkay

Polystyrene. For use with blood tubes of diameters as indicated. Samples are poured from blood collection tubes into the cup which is then placed inside the tube, eliminating the need to re-label. Supplied in packs of 1000.

- AT155-25** 1ml, for 13mm blood tubes
- AT155-35** 2ml, for 16mm blood tubes

Sample cups

Polystyrene. AT160-12 is compatible with Gensaeac analysers, AT160-15 and AT160-35 are compatible with Technicon analysers. Supplied in packs of 1000.

- AT160-12** 0.5ml conical
- AT160-15** 1.5ml conical
- AT160-35** 4.5ml conical

Autosampler vials – see *Chromatography section*.

Tubing



Manifold Pump Tubing

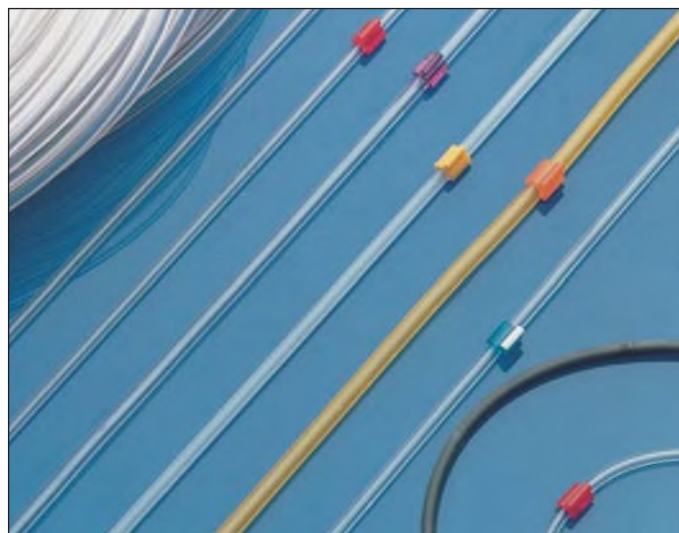
Specially formulated PVC tubing which is heat treated for increased operating life, and resistant to a broad range of inorganic chemicals. For use with continuous flow analyser peristaltic pumps. Identified by the colour of the bridges which corresponds to the colour and location of the original equipment manufacturer. Distance between bridges is 152mm. Supplied in packs of 12 tubes each 406mm long.

ACCU-rated for use where flow consistency and accuracy are critical.

	Flow rate ml/min	Bridge colours
AT175-17	0.05	orange/blue
AT175-23	0.10	orange/green
AT175-26	0.16	orange/yellow
AT175-29	0.23	orange/white
AT175-32	0.32	black
AT175-35	0.42	orange
AT175-38	0.60	white
AT175-41	0.80	red
AT175-44	1.00	grey
AT175-47	1.20	yellow
AT175-50	1.40	blue/yellow
AT175-53	1.60	blue
AT175-56	2.00	green
AT175-59	2.50	purple
AT175-62	2.90	purple/black
AT175-65	3.40	purple/orange
AT175-68	3.90	purple/white



Sample cups



Manifold pump tubing

Autoclaves

Portable Top Loading Autoclaves

- ◆ Suitable for sterilising both instruments and glassware
- ◆ Stainless steel construction
- ◆ All models operate at 121°C
- ◆ Capacities 15 or 30 litres
- ◆ All models include:
 - adjustable pressure relief safety valve
 - pressure and temperature dial gauges
 - air release cock and drain syphon
 - resettable thermal cut-out (electric models only)

The drain tube removes steam and water and the partial vacuum created after sterilisation is used to dry the contents of the chamber.

Gas models require an external heat source which is not supplied. Temperature control is manual by adjustment of a pressure release valve.

Electric models have a built-in, 2kW electric heater. ST1528 and ST3028 models feature electronic temperature control. Alternative 'Vario' automatic cycle control models are available with a choice of three pre-set and one operator programmable cycles including adjustable temperature maximum 121°C and time from 1 to 99 minutes. Additionally a free-steaming facility with self-sealing aircock allows unattended operation. All electric models are supplied for use on 230-250V a.c. single phase supplies.

Lid closures. All models have a quick access twist locking lid mechanism with nylon handled wingnuts and separate nylon lid handle.

Stainless steel, 15 litres

Chamber 280mm diameter x 245mm deep. With fittings as described and aluminium liner. Accepts, but not supplied with, either two small or one large accessory drums, or one basket.

- AU112-02** Electrically heated, ST1528
- AU112-05** For gas heating, ST1528G
- AU112-07** 'Vario' controller, ST1528V

Stainless steel, 30 litres

Chamber 280mm diameter x 490mm deep. With fittings as described and aluminium liner. Accepts, but not supplied with, either four small or two large accessory drums, or two baskets.

- AU116-02** Electrically heated, ST3028
- AU116-05** For gas heating, ST3028G
- AU116-07** 'Vario' controller, ST3028V

Autoclave Consumables

Deodorising Capsules – see AU600.

Disposal Bags – see BA030/064.

Indicator Tape – see AU630.

Sterilising Bags/Pouches – see AU660/695.

Accessories and Spare Parts

Drum, small, stainless steel, 240mm diameter x 120mm deep.

AU117-06 Drum

Drum, large, stainless steel, 240mm diameter x 240mm deep.

AU117-08 Drum

Stainless steel wire mesh basket, with single lifting handle, 240mm diameter x 220mm deep.

AU117-10 Basket

Bottle carrier, holds 4 x 1 litre media bottles. For 30 litre autoclaves, AU116 models only.

AU117-12 Bottle carrier

Lid gasket, spare for all models.

AU117-24 Gasket

Heating element. 2kW. For 230-250V a.c. single phase supplies. Spare for electrically heated models only.

AU117-27 Heater, 2kW

Safety valve, spare, for all models.

AU117-30 Safety valve

Sterilisation Indicator Strips TST

Colour changes yellow to purple/blue on completing a successful sterilisation cycle. For use only in autoclaves providing an air-free, saturate steam environment.

AU127-29 TST indicator strips 121°C/15 minutes and 134°C/3.5 minutes. Box of 100

Accessory gas rings and stands – details on request.



AU112



AU116



'Vario' controller in use

Autoclaves

Swiftlock Automatic Autoclaves

Astell 

- ◆ A choice of models:
 - Front or top loading chamber
 - Ecofill automatic, or manual filling
- ◆ Variable temperature range, 100 to 138°C (0.2 to 2.4bar)
- ◆ Fully automatic once filled with water
- ◆ Stainless steel vessel
- ◆ Manufactured in accordance with PED97/23EC

Construction

Chamber: Grade 316L stainless steel to B55500 cat. 3, with thermocouple entry port and chamber cleaning drain.

Outer case: Epoxy-coated, zinc-primed, steel panels on corrosion resistant, light alloy internal frame.

Door closure: Patented 'Swiftlock' single action closure mechanism. Only when the door/lid is fully closed will the programmer commence the cycle and a safety locking bolt is automatically engaged.

Controls and fittings: 'Securetouch' programmer and cycle monitor with five pre-set programmes providing ideal sterilisation conditions for typical loads; liquids, instruments, glassware and discard. A large, 145mm, colour touchscreen display allows easy control of processes, continuous readout of programme information, times, temperatures, warnings with audible alarms, pressure, cycle stage, cycle count and a graphical output of the current cycle. A "virtual printer" function stores cycle details for easy down-load to an accessory PC or external printer via two USB ports, ethernet or RS232 interfaces provided. Additional selectable parameters include timed free steaming, and controlled drying for instrument and glassware cycles (Ecofill models only). 'Classic' models additionally feature a media Holdwarm function to maintain culture media in a liquid state after processing. A PIN-protected programme lock enables re-programming of pre-set parameters by authorised personnel. A separate analogue pressure gauge is also provided.

Condensate drainage:

Ecofill models feature an automatic water fill/recirculation system with reservoir that provides sufficient water for up to 20 cycles. Condensate and residue chamber water is returned to the reservoir after each cycle for re-use, providing a self-contained system.

Classic models have a removable, integral condensate drain bottle. Alternatively when using liquid or discard cycles waste water can be fed to an external vent rather than the drain bottle, useful where blockage or contamination is anticipated. Note: the autoclave must be refilled after every cycle in this mode.



AU170 top loading models



AU170 front loading models

Safety features:

- Pressure activated door lock
- Overheat protection
- Two thermal cooling locks in compliance with HSE.PM73
- Audio-visual end of cycle, cycle fault, cycle interruption
- Sterilisation failure, water low and door unlocked alarm

Capacity	litres	43	63	63
Loading type		Front	Front	Top
Chamber dia. x depth	mm	350 x 460	350 x 660	350 x 640
Overall	W, mm	520	520	530
	D, mm	780	980	700
	H, mm	540	540	1040
Weight	kg	95	125	100

As described. With 'Securetouch' 5-programmer/controller, 'Swiftlock' door closure and automatic or manual filling as indicated. Front loading models are supplied with base shelf, the top loading models with a basket support plate. For 230V 50/60Hz single phase 13A supply.

AU170-17 Swiftlock Ecofill, 43 litres, front loading

AU170-23 Swiftlock Ecofill, 63 litres, front loading

AU170-42 Swiftlock Ecofill, 63 litres, top loading

AU170-56 Swiftlock Classic, 43 litres, front loading

AU170-63 Swiftlock Classic, 63 litres, front loading

AU170-72 Swiftlock Classic, 63 litres, top loading

Options for both models

FACTORY FITTED and MUST BE ORDERED AT THE SAME TIME AS THE AUTOCLAVE.

AU174-05 Load sensed process timing module, with 'wandering probe'

AU174-08 Fan assisted cooling

Accessories

AU176-03 RS232 interface

Shelf racks for front loading chambers

AU177-14 5-position, with 3 shelves for AU170-17 and -56

AU177-18 5-position, with 3 shelves for AU170-23 and -63

Discard containers and Basket

AU177-34 For AU170-17 (accepts 2) and AU170-23 (accepts 3)

AU177-39 Half-depth stainless steel basket, for AU170-42 and -72

AU177-44 Half-depth Morrison discard container, for AU170-42 and -72

Autoclaves

Swiftlock Automatic Autoclaves continued



- ◆ A choice of front or top loading chamber models
- ◆ Variable temperature range 100 to 138°C (0.2 to 2.4bar)
- ◆ Grade 316L stainless steel chamber vessel
- ◆ 'Swiftlock' single action door closure mechanism
- ◆ Manufactured in accordance with PED97/23EC

Capacity	litres	95	120	120
Loading type		Top	Front	Top
Chamber diameter x depth	mm	456 x 448	450 x 680	456 x 588
Overall	width	mm	660	660
	depth	mm	840	840
	height	mm	940	1150
Weight	kg	185	230	200

Controls and fittings: 'Securetouch' programmer and cycle monitor with ten pre-set programmes and memory function providing ideal sterilisation condition, for typical loads; liquids, instruments, glassware and discard. A large, 145mm, colour touchscreen display allows easy control of processes, continuous readout of programme information, times, temperatures, warnings with audible alarms, pressure, cycle stage, cycle count and a graphical output of the current cycle. A "virtual printer" function stores cycle details for easy down-load to an accessory PC or external printer via two USB ports, ethernet or RS232 interfaces provided. Additional selectable parameters include timed freesteaming, holdwarm and delayed start. A PIN-protected programme lock enables re-programming of pre-set parameters by authorised personnel. A separate analogue pressure gauge is also provided.

Condensate drainage: All models have a drain port requiring plumbing into a low level drain able to withstand free flowing steam.

Safety features:

- Pressure activated door lock
- Two thermal cooling locks in compliance with HSE.PM73
- Audio end of cycle alarm
- Over-pressurisation safety valve
- Low water sensor
- Insulated lid cover

As described. With 'Securetouch' 10-programme controller with memory function and 'Swiftlock' door closure. The front loading model is supplied with one base shelf, the top loading models are supplied with a basket support plate. For 230V 50/60Hz single phase 30A supplies.

AU180-46 Swiftlock 95 litres, top loading

AU180-59 Swiftlock 120 litres, front loading

AU180-67 Swiftlock 120 litres, top loading

Options

FACTORY FITTED and MUST BE ORDERED AT THE SAME TIME AS THE AUTOCLAVE.

Integral Data Printer. Provides a permanent record of temperature, pressure, cycle date and time and identification

AU183-06 Data Printer

AU183-07 Fan assisted cooling

Accessories

AU176-06 RS232 interface

AU186-17 Morrison discard container, 390 x 355mm diameter x height for AU180-46 and AU180-67

AU186-19 Wire basket stainless steel, 400 x 400mm diameter x height for AU180-46 and AU180-67

AU186-30 2-position shelf kit for AU180-59 only. With 2 shelves and frame

Steriliser, quartz bead - see *SP850-10*.



AU180- top loading



AU180- front loading in use

Autoclave Accessories

Autoclave Accessories

Autoclave Deodoriser Capsules

Eliminate offensive odours generated from autoclaving organic waste. Available in a choice of fragrances as indicated. One or two capsules is sufficient to deodorise one load. Supplied in packs of 100 capsules.

- AU604-35** Rose fragrance
- AU604-40** Citrus fragrance

Autoclave Tape

Self adhesive paper with indicating stripes which change colour after being autoclaved. Conforms to European Standard EN867. Dimension stated is tape width. Supplied in rolls of 55 metres.

- AU630-10** 18mm
- AU630-12** 24mm
- AU630-95** Tape dispenser for 18/24mm wide autoclave tape

Sterilising Pouches, self-seal/transparent

Equally suitable for autoclave or ethylene oxide gas sterilisation. The pouch has a two-ply polyester/ polypropylene laminated transparent front bonded to a medical grade white sterilisation paper. The paper used conforms to BS6256 and the complete pouch meets the requirements of DHSS specification TSS/S/ 330.010. Dual arrows are printed on each pouch; pink changes to brown under normal autoclaving conditions and blue changes to yellow when gas sterilised.

A self-seal adhesive band, which is on the shortest side, is used to seal the pouch. Heat sealing is not required.

	Pouch size mm	Pack qty
AU660-17	90 x 203	200
AU660-22	90 x 230	200
AU660-32	130 x 254	200
AU660-37	130 x 360	200
AU660-42	190 x 330	200
AU660-47	300 x 390	200

Biohazard bags suitable for autoclaving – see *Bags* section.



AU604



AU630

Sterilising Bags, paper

For autoclave sterilising. To BS6257 and using medical grade white sterilisation paper to BS6256. Available with alternative closures:-

Heat seal (AU690 series) – supplied with an adhesive band on the inside of the bag for sealing using a suitable heat seal machine. A pink indicator on each bag changes to brown under normal autoclaving conditions.

Plain closure (AU695 series) – are folded and secured using the accessory indicating autoclave tape.

All bags are gusseted and strongly constructed with a double turn at the bottom for extra safety. The opening is on the shortest side.

W x L mm	Gusset mm	Pack qty	Heat seal closure	Plain top closure
90 x 170	50	1000	AU690-15	AU695-16
110 x 190	30	1000	—	AU695-21
140 x 250	75	1000	AU690-52	AU695-52
140 x 330	50	500	AU690-55	AU695-55
180 x 380	95	500	AU690-64	AU695-64
180 x 530	75	250	—	AU695-67
190 x 330	65	500	AU690-74	—
250 x 380	100	250	—	AU695-79
300 x 610	125	250	—	AU695-88

Autoclave tape for securing the plain top closure bags – see *AU630*.

Heat resistant gloves – see *SA704* in the *Safety* section.

Sealing film – see *SE162*.



SA704



AU660

AU690, AU695

Bags

Disposal Bags

All dimensions are nominal.

Sterilin

Non-sterile.

Ref.	Size mm	Pack
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Polyethylene. Can withstand up to 121°C.

BA030-10	509	305 x 660	200
BA030-17	510	305 x 660	500
BA030-20	509L	406 x 610	200
BA030-27	510L	406 x 610	500
BA030-30	511	610 x 810	200

Polypropylene. Can withstand up to 135°C.

BA030-40	509HT	307 x 660	200
BA030-44	510HT	307 x 660	500
BA030-50	509LHT	406 x 610	200
BA030-54	510LHT	406 x 610	500
BA030-60	511HT	610 x 810	200

Holders For Sterilin bags

Wire type

BA032-06 For 509/510 bags

Box type

Cardboard. Self assembly. Supplied in pack of 10.

BA032-15 For 511 bags

Autoclave Bags, Elkay

Polyethylene. Non-sterile. Can be autoclaved at 121°C. Printed with biohazard symbol.

	Ref.	Size mm	Pack
BA045-20	1826	460 x 660	100
BA045-30	2430	610 x 760	100

Disposal Bags, Nylon

Withstands up to 170°C. Suitable for autoclaving surgical equipment, instruments, dressings etc. Dimensions stated are length x width in mm. Thickness 0.05mm.

	Size mm	Pack
BA064-20	300 x 100	100
BA064-30	300 x 150	100
BA064-60	460 x 300	100

Waste Sacks

Black plastic. Dimensions 450 x 725 x 975mm. Supplied in a pack of 100.

WD300-20 Waste sacks

"Hazardous Waste" Sacks

Yellow polyethylene bags with ties, printed with "Hazardous Waste" text and warning symbols. Dimensions stated are nominal flat width x depth. Supplied in packs as indicated.

WD315-10 460 x 900mm, pack of 100

WD315-20 600 x 1100mm, pack of 50



BA030 with BA032-06 in use



BA045



WD315



BA030 with BA032-15



BA064



WD300

Bags

Sample Bags

All dimensions are nominal.

Sample, plain

Polyethylene, lightweight. Supplied in packs of approximately 100.

	Size mm
BA055-20	100 x 150
BA055-34	150 x 200
BA055-47	200 x 350
BA055-52	250 x 375

Bag Ties

Plastic covered wire 150mm long for closing bags. Supplied in packs of 1000.

BA095-15 Bag ties

Sample, reseal

Polyethylene. With rim-channel closure, which can be opened and resealed repeatedly. Supplied in bags of 100.

	Size mm
Plain	
BA100-19	80 x 120
BA100-33	100 x 150
BA100-39	120 x 170
BA100-51	200 x 300
BA100-56	300 x 400

With writing panel

BA102-16	70 x 100
BA102-33	100 x 150
BA102-39	120 x 170
BA102-51	200 x 300

Biohazard Sample Bags

Clear polyethylene, with grip seal, rim-channel closure and printed with symbol. Supplied with dimensions as indicated and in packs of 1000.

BA103-10	140 x 150mm
BA103-15	225x 150mm



BA055 with BA095



BA100 in use

Sealing Film and Sealers

Nylon sealing film

- ◆ Resistant to bacterial contamination, heat, oils and greases
- ◆ Maintains sterility of wrapped item for long periods after autoclaving
- ◆ Non-toxic, odourless and tasteless

A non-toxic, elastic nylon film which is ideal for most packaging applications. Working temperature range -70 to +180°C. Permeable to steam allowing use as a wrapping for autoclaving. Available in a variety of layflat widths to accommodate various item shapes and sizes. Thickness 0.05mm (Gauge C). Supplied in a roll of 30 metres.

	Approx. layflat width, mm
SE162-13	25
SE162-16	50
SE162-19	75
SE162-21	100
SE162-24	125
SE162-27	150
SE162-30	200
SE162-33	250
SE162-36	300
SE162-42	500



BA102 in use



SE162



BA103



TS400-30, TS400-20 is similar

Impulse Heat Sealers

For heat sealing polyethylene film and other low melting point plastics, metallised film laminates etc. With hand operated hinged sealing bar and automatic control for adjusting the weld time. Will seal film up to 250 microns thick (1000 gauge). For 220-240V 50Hz single phase supplies.

Single timer model

TS400-20 Seal length 230mm

Dual timer model

Provides additional control of the cooling part of the weld cycle. Includes also a cutter for layflat tubing.

TS400-30 Seal length 300mm

Bags

Sample Bags



Polyethylene with tab and wire frame at top which allows bag to be opened wide. The bag is sealed by pulling the tabs and whirling the bag around the wire. Can be opened and closed as required. Ethylene oxide gas sterilised. Suitable for solids and liquids. Available with or without writing panel. Supplied in packs as indicated.

D x W, mm	Capacity, ml	Plain	Writing Panel	Writing panel, Self-standing	Pack qty.
125 x 65	29	—	BA105-11	—	500
125 x 75	58	BA104-13	BA105-13	—	500
185 x 75	118	BA104-15	BA105-15	BA107-15	500
185 x 75	118	—	BA106-15*	—	500
180 x 95	207	BA104-16	BA105-16	—	500
230 x 115	532	BA104-17	BA105-17	BA107-17	500
230 x 115	532	—	BA106-17*	—	500
230 x 150	710	BA104-19	BA105-19	BA107-19	500
230 x 150	710	BA104-21**	—	—	500
305 x 125	798	BA104-23	—	—	500
380 x 125	1065	BA104-25	—	BA107-25†	500
380 x 150	1242	BA104-27	—	BA107-27†	500
380 x 190	2041	BA104-29	BA105-29	BA107-29†	500
380 x 254	2721	—	BA105-31	—	250
508 x 254	3637	—	BA105-33	—	250
508 x 380	5441	—	BA105-36	—	100

*With flat wire band.

**With separate external pocket for holding sample paperwork.

†Supplied in a pack of 250.

Additional Whirl-Pak® bags:

Hygiene sampling bags - see *HT845-IHT850-series*.

Blender bags - see *MS865-series*.

Water sample test bags - see *WR290-series*.

Locking Pipe Closures, Nasco

Autoclavable plastic, locking tubes that allow temporary air- and water-tight closure of Whirl-Pak bags without whirling the bag and folding the tabs. The bag is wrapped around the inner core and clamped using the outer sleeve. Can also be used with other sample bags up to 190mm wide. Supplied in a pack of 50.

BA110-08 Locking pipe closures

Whirl-Pak® Wire racks, Nasco

For convenient storage or transportation of samples within Whirl-Pak® bags. Dimensions shown are number of apertures x dimensions and to hold bags with capacities as indicated.

- BA110-10** 21 x (40 x 50mm), up to 207ml bags
- BA110-20** 18 x (50 x 50mm), up to 207ml bags
- BA110-30** 20 x (64 x 64mm), 532-1065ml bags
- BA110-40** 6 x (114 x 114mm), 710-2041ml bags
- BA110-60** Carrying handle for BA110-racks

Whirl-Pak® Scoop bags, Nasco

Comprises 532ml Whirl-Pak® bag, 230 x 115mm, containing a sterile, polystyrene, 60ml scoop. Supplied in a pack of 50.

BA115-10 Scoop bags

Biohazard Specimen bags, Nasco

Whirl-Pak® Trans-Pak® clinical specimen transport bags, non-sterile. Bag dimensions 230 x 150mm. With external pouch 146 x 137mm and biohazard label. Accessory security tape is made of destructible material which cannot be removed in one piece and immediately tears if removal is attempted, indicating any tampering. Supplied in packs as indicated.

BA118-15 Biohazard specimen bags, pk.500

BA118-17 Security tape strips, pk.100

Soil Sample bags, Nasco

Used in sample submission for analytical assessment. Bleached paper with polyethylene liner and heat sealed base so that no sample sifting occurs. Capacity 769ml. With attached, folding tin strap tie. Supplied in a pack of 500.

BA120-25 Soil sample bags



BA105 in use, BA104 are similar



BA107-27 in use



BA115-08



BA115-10



BA110-40 in use with BA110-60



BA118-15



BA118-17



BA120-25 in use

Balances

Spring

Spring, flat form, Little Samson

With large easy to read 77mm scale, zero adjuster, overload protection and hook. In ABS housing with metal hook and suspension ring.

- BA300-25** 1000g x 10g
- BA302-25** 10N x 0.1N

Spring, tubular form, Super Samson

With long easy to read 120mm scale, protected when not in use, low friction movement, zero adjuster, overload protection and hook. In tough glass-filled nylon case. With suspension hook.

- BA305-25** 1kg x 5g
- BA305-30** 2kg x 10g
- BA305-35** 5kg x 25g
- BA305-40** 10kg x 50g

Spring, dial, extension

With 156mm diameter dial. Case is robust ABS plastic with polycarbonate dial cover. Zero adjustment is provided. With suspension hook.

- BA315-40** 25kg x 100g
- BA315-55** 50kg x 200g
- BA315-65** 100kg x 500g

Spring, dial, compression

With 110mm diameter dial, flat pan 135 x 95mm L x W and zero adjustment. Overall 135 x 95 x 160mm L x W x H. Weight 0.24kg.

- BA319-25** 1kg x 10g

Heavy Duty, General Purpose

Weighing scales, digital, washdown

EC Type-approved (2nd stage verification available at extra cost) except SK5001WP. With washable stainless steel body and pan, 232 x 192mm W x D, dust and waterproof to IP65, and large 25mm high LCD readout with net weight and stability indicators. Battery operated using 6 x 1.5V 'D' batteries (not supplied). Overall 226 x 280 x 156mm W x D x H. Weight 2.9kg.

	Model SK-	Cap. kg	Read-ability, g
BA514-30	1000WP-EC	1	0.5
BA514-40	2000WP-EC	2	1
BA514-50	5000WP-EC	5	2
BA514-60	5001WP	5	1
BA514-70	10KWP-EC	10	5
BA514-80	20KWP-EC	20	10
BL610-20	1.5V battery (6 required)		

Weighing scales, mechanical

With large, easily read dial and dual scale 10kg/22lb x 50g/2oz. Robust all-steel construction, available with either a 220mm square flat platter or 406 x 280mm dished pan, both in stainless steel.

- BA515-25** Flat platter
- BA515-35** Dished pan

Heavy duty electronic balances – see *BB865-series*.



BA300



BA305



BA319-25



BA514



BA515-25



BA315

Balances

Mechanical Beam Single Pan Models

OHAUS®

Sliding mass

With single suspended pan, diameter 90mm, height of stirrup 175mm. The beam movement is magnetically damped and zero adjustment is provided. A platform recessed in the case can be positioned for specific gravity measurements. No additional masses are required.

Readability 0.01g. BB100-10 has 4 beams. BB100-50 has 2-beams plus vernier dial reading 10g x 0.01g.

BB100-10 Cent-O-Gram 311.
Capacity 311g

BB100-50 Dial-O-Gram 310.
Capacity 310g

Model 1119-DO

Capacity 20kg. Sensitivity 1g with top loading stainless steel pan 280mm diameter, magnetic damping, graduated beam with sliding poise, 2270g tare and auxiliary weights. A very robust balance for heavy duty laboratory and industrial weighing. Overall dimensions 800 x 250 x 250mm. Weight 20kg.

BB200-10 1119-DO

Triple Beam Series 700

Top loading, with magnetically damped beams and zero adjustment. Weighing range 610g. Balance range can be extended to 2610g using accessory weight set BB150-10. Readability on all models is 0.1g. Tare where specified is 225g.

	Model	Capacity	Tare	Pan
BB120-10	750-50	2610g	No	Flat stainless steel 150mm diameter
BB120-30	760-00	2610g	Yes	
BB125-10	710-00	2610g	No	Stainless steel removable pan 150 x 20mm deep

Dial-O-Gram Model 1650-00

Top loading, with magnetically damped beams and zero adjustment. Weighing range 610g. Weighing range can be extended to 2610g using accessory weight set BB150-10. Readability is 0.1g.

	Model	Capacity	Pan
BB145-12	1650-00	2610g	Stainless steel plate 150mm dia.

Accessories

BB150-10 Weight set, 2 x 1000g and 1 x 500g, to extend weighing range to 2610g

BA714-06 Rod and clamp assembly for specific gravity measurements

Accessory Scoop

	Material	Ref.	Approx. capacity	Counterweight
BB155-25	Polypropylene	1101-20	800ml	No



BB100-50

BB100-10



BB145 with weight set BB150-10



BB120



BB200

Balances

Mechanical Beam Single Pan Models

OHAUS®

Triple Beam Series Junior and Pro

- ◆ Choice of models
 - Junior: Notched and tiered beams for easy reading, magnetic damping and zero adjustment compensator
 - Pro: Additionally to the features of the Junior model, has positive poise positioning, weight set with integrated storage within the balance and rod and clamp for under-balance weighing
- ◆ Plastic construction with stainless steel plate
- ◆ Readability 0.1g
- ◆ 2610g capacity models supplied with weight set

As described. Top loading with magnetically damped beams and zero adjustment.

	Model	Capacity	Tare	Pans
BB110-15	Junior TJ611	610g	No	Flat, 150mm dia.
BB110-25	Junior TJ2611	2610g	No	Flat, 150mm dia.
BB110-45	Pro TP2611	2610g	No	Flat, 147 x 147mm



BB110-15



BB110-45

Mechanical Beam Double Pan Models

OHAUS®

Double Beam Harvard Junior

- ◆ Ergonomic, carrying handle
- ◆ Plastic construction with metal beam
- ◆ Stackable
- ◆ Includes 8-piece weight set
- ◆ Readability 0.5g

As described. Top loading with manually damped beam and two 150mm diameter, plastic pans. Supplied with 8-piece weight set.

	Model	Capacity	Tare	Pans
BB225-10	Junior HJ2001	200g	No	Flat, 150mm dia.

Harvard Trip Series 1400/1500

Top loading, with magnetically damped beams and two 150mm diameter, stainless steel plate pans. Model 1450 has a single beam. Other models have two beams.

Accessory weights are necessary for weighing above the weighing range specified. Tare where specified is 225g. Readability is 0.1g.

	Model	Weighing range	Capacity	Tare
BB250-10	1450-SD	10g	2000g	No
BB250-30	1550-SD	210g	2000g	No
BB250-50	1560-SD	210g	2000g	Yes

Scoop for 1400 and 1500 series balances

	Material	Ref.	Approx. capacity and dimensions	Counter-weight
BB155-25	Polypropylene	1101-20	800ml (300 x 150 x 70mm)	No



BB225-10



BB250

Balance Selector



OHAUS®



sartorius



Cap. g	Make	Model	Cat. No
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Readability 0.01mg

120	Ohaus	EX125	BB608-20
220	Ohaus	EX225/AD	BB608-50

Readability 0.01/0.1mg

42/210	A & D	GR-202	BD235-25
52/120	Ohaus	EX125D	BB608-10
120/220	Ohaus	EX225D	BB608-30
120/220	Ohaus	EX225D/AD	BB608-40

Readability 0.1mg

102	A & D	HR-100A	BD225-40
102	A & D	HR-100AZ	BD225-60
110	Ohaus	DV114C	BB590-10
120	Ohaus	PR124/E	BB584-08
120	Ohaus	PR124	BB584-44
120	Ohaus	PX124/E	BB587-08
120	Ohaus	PX124	BB587-44
120	A & D	GR-120	BD235-10
120	Ohaus	AX124/E	BB576-03
120	Ohaus	AX124	BB576-51
120	Ohaus	EX124	BB610-12
120	Sartorius	Practum 124	BD300-05
152	A & D	HR-150A	BD225-45
152	A & D	HR-150AZ	BD225-65
210	A & D	GR-200	BD235-20
210	Ohaus	DV214C	BB590-20
220	Ohaus	PX224/E	BB587-14
220	Ohaus	PR224/E	BB584-14
220	Ohaus	PR224	BB584-48
220	Ohaus	PX224	BB587-48
220	Ohaus	AX224/E	BB576-07
220	Ohaus	AX224	BB576-55
220	Ohaus	EX224	BB610-22
220	Sartorius	Practum 224	BD300-10
252	A & D	HR-250A	BD225-50
252	A & D	HR-250AZ	BD225-70
310	A & D	GR-300	BD235-30

Cap. g	Make	Model	Cat. No
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Readability 0.1mg continued

310	Ohaus	DV314C	BB590-30
320	Ohaus	EX324	BB610-32
1100	A & D	GF-1000	BD265-31
1100	A & D	GX-1000	BD260-40

Readability 0.001g

120	Ohaus	SKX123	BB535-11
120	Ohaus	STX123	BB540-62
122	A & D	FX-120i	BD207-15
220	A & D	GF-203A	BD265-17
220	A & D	GX-203A	BD260-12
210	Sartorius	Practum 213	BD304-15
120	Ohaus	STX223	BB540-64
220	Ohaus	PR223/E	BB584-16
220	Ohaus	PR223	BB584-30
220	Ohaus	AX223/E	BB576-11
220	Ohaus	AX223	BB576-59
220	Ohaus	EX223	BB625-12
220	Ohaus	EX223/E	BB629-12
310	Sartorius	Practum 313	BD304-25
320	A & D	FX-300i	BD207-30
320	Ohaus	PX323/E	BB587-18
320	Ohaus	PX323	BB587-52
420	A & D	GF-403A	BD265-27
420	A & D	GX-403A	BD260-22
420	Ohaus	AX423/E	BB576-15
420	Ohaus	AX423	BB576-63
420	Ohaus	EX423	BB625-17
420	Ohaus	EX423/E	BB629-17
520	Ohaus	PR523/E	BB584-20
520	Ohaus	PR523	BB584-56
520	Ohaus	AX523/E	BB576-19
520	Ohaus	AX523	BB576-67
520	Ohaus	PX523/E	BB587-20
520	Ohaus	PX523	BB587-56
620	A & D	GF-603A	BD265-30
620	A & D	GX-603A	BD260-32
620	Ohaus	EX623	BB625-27
1100	Ohaus	EX1103	BB625-29
1100	A & D	GF-1003A	BD265-33
1620	A & D	GF-1603A	BD265-37

Readability 0.01g

100	A & D	HL-100	BD185-10
150	Ohaus	TA152	BB525-10
200	A & D	EK-200i	BD200-15
220	Ohaus	NV222	BB555-15
220	Ohaus	SKX222	BB535-21
220	Ohaus	STX222	BB540-67
300	A & D	EK-300i	BD200-17
300	Ohaus	TA302	BB525-15
400	A & D	EK-410i	BD200-21
420	Ohaus	SKX422	BB535-31
420	Ohaus	STX422	BB540-71
610	Sartorius	Practum 612	BD304-35
1100	Sartorius	Practum 102	BD304-50
1200	Ohaus	SKX1202	BB535-50
1200	Ohaus	STX1202	BB540-81

Cap. g	Make	Model	Cat. No
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Readability 0.01g continued

1220	A & D	FX-1200i	BD207-45
1520	Ohaus	AX1502/E	BB576-27
2100	Sartorius	Practum 2102	BD304-60
2200	Ohaus	PR2202/E	BB584-26
2200	Ohaus	PR2202	BB584-62
2200	Ohaus	AX2202/E	BB576-31
2200	Ohaus	AX2202	BB576-79
2200	A & D	GF-2002A	BD265-47
2200	A & D	GX-2002A	BD260-57
3200	Ohaus	PX3202/E	BB587-28
3200	Ohaus	PX3202	BB587-64
3200	A & D	GF-3002A	BD265-57
3200	A & D	FX-3000i	BD207-60
4200	A & D	GX-4002A	BD260-67
4200	Ohaus	PR4202/E	BB584-28
4200	Ohaus	PR4202	BB584-66
4200	Ohaus	AX4202/E	BB576-35
4200	Ohaus	AX4202	BB576-83
4200	Ohaus	EX4202	BB625-42
4200	Ohaus	EX4202/E	BB629-42
5200	Ohaus	PX5202/E	BB587-32
5200	Ohaus	PX5202	BB587-68
6200	A & D	GX-6002A	BD260-77
6200	Ohaus	EX6202	BB625-65
6200	Ohaus	EX6202/E	BB629-65

Readability 0.1g

200	A & D	HL-200i	BD180-10
220	Ohaus	CX221	BB557-10
220	Ohaus	CR221	BB559-10
300	Ohaus	TA301	BB525-20
400	A & D	HL-400	BD185-25
420	Ohaus	SKX421	BB535-36
420	Ohaus	STX421	BB540-74
500	Ohaus	TA501	BB525-25
620	Ohaus	NV621	BB555-25
620	Ohaus	CX621	BB557-15
620	Ohaus	CR621	BB559-15
620	Ohaus	SKX621	BB535-43
620	Ohaus	STX621	BB540-78

Continued on next page



Balance Selector

Cap. g	Make	Model	Cat. No
Readability 0.1g continued			
1200	Ohaus	NV1201	BB555-40
1200	Ohaus	CX1201	BB557-20
1200	A & D	EK-1200i	BD200-24
1500	Ohaus	TA1501	BB525-30
2000	A & D	EK-2000i	BD200-27
2200	Ohaus	NV2201	BB555-55
2200	Ohaus	SKX2201	BB535-60
2200	Ohaus	STX2201	BB540-86
3000	A & D	EK-3000i	BD200-29
3000	Ohaus	TA3001	BB525-35
4000	A & D	EK-4100i	BD200-30
4200	Ohaus	NVT4201	BB555-70
4200	Ohaus	PR4201/E	BB584-36
4200	Ohaus	PR4201	BB584-72
4200	Ohaus	PX4201/E	BB587-31
4200	Ohaus	PX4201	BB587-72
5100	Sartorius	Practum 5101	BD304-70
6200	A & D	GF-6001A	BD265-67
6200	A & D	GX-6001A	BD260-82
6200	Ohaus	NVT6201	BB555-85
6200	Ohaus	PR6201/E	BB584-40
6200	Ohaus	PR6201	BB584-76
6200	Ohaus	STX6201	BB540-89
10200	A & D	GX-100001A	BD260-87
10200	Ohaus	EX10201	BB626-27
12000	Ohaus	EX12001	BB626-31
24000	Ohaus	EX24001	BB626-39
35000	Ohaus	EX35001	BB626-48

Readability 0.5g			
1000	A & D	SJ-1000HS	BD187-20

Cap. g	Make	Model	Cat. No
Readability 1g			
2000	A & D	HL-2000i	BD180-25
2000	A & D	SJ-2000HS	BD187-40
2200	Ohaus	CX2200	BB557-25
2200	Ohaus	CR2200	BB559-25
4000	A & D	HL-4000	BD185-45
5000	A & D	SJ-5501-HS	BD187-55
5000	Ohaus	TA5000	BB525-40
5200	Ohaus	CX5200	BB557-30
5200	Ohaus	CR5200	BB559-30
6000	A & D	EK-6000i	BD200-32
8200	Ohaus	SKX8200	BB535-75
8200	Ohaus	STX8200	BB540-94
12000	A & D	EK-12Ki	BD200-36

Readability 2g			
5000	A & D	SJ-5000HS	BD187-60
6000	Ohaus	C51XE6R	BB560-14

Readability 5g			
12000	A & D	SJ-12KHS	BD187-80
30000	Ohaus	D31 P30BR	BB865-10

Cap. g	Make	Model	Cat. No
Readability 10g			
30000	Ohaus	C51XE30R	BB560-21
60000	Ohaus	D31 P60BR	BB865-20
60000	Ohaus	D31 P60BL	BB865-30

Readability 20g			
50000	Ohaus	C51XE50R	BB560-26
50000	Ohaus	C51XE50L	BB560-36
150000	Ohaus	D31 P150BL	BB865-40

Readability 50g			
100000	Ohaus	C51XE100L	BB560-48

Readability 100g			
200000	Ohaus	C51XE200L	BB560-58



Balances

Portable Electronic Balances Traveller™ TA Series

OHAUS®

- ◆ Battery or mains operation
- ◆ Capacities up to 5kg maximum
- ◆ Clear plastic, hinged protective cover for the weighing pan and cell allows stacking, with removable centre piece for draught-free weighing
- ◆ Full range tare
- ◆ Weigh-below facility
- ◆ Two selectable units: g or N
- ◆ Choice of accessory USB or RS232 interfaces
- ◆ Integral transportation lock and calibration lockout
- ◆ Auto shut-off prolongs battery life
- ◆ Digital calibration from the keypad
- ◆ Impact resistant plastic case and draught shield with stainless steel pan

As described. Supplied with weigh-below hook and a.c. mains adapter (Models up to 300g are also supplied with calibration weight). Without batteries (4 x 1.5V AA required). Overall 149 x 224 x 73mm W x D x H. Weight 0.75kg. A 240V 50/60Hz a.c. single phase supply is required for the adapter.

	Model	Capacity g	Readability g	Pan size mm
BB525-10	TA152	150	0.01	120 diameter
BB525-15	TA302	300	0.01	120 diameter
BB525-20	TA301	300	0.1	120 diameter
BB525-25	TA501	500	0.1	120 diameter
BB525-30	TA1501	1500	0.1	120 x 135
BB525-35	TA3001	3000	0.1	120 x 135
BB525-40	TA5000	5000	1.0	120 x 135

Accessories

- BL610-15** Battery 1.5V, AA (4 required)
- BB527-05** USB interface with cable
- BB527-09** RS232 interface with cable

Dot matrix printer, SF40A

With paper rolls, RS232 cable, adapter, ribbon and mains adapter for 100-240V 50/60Hz supplies.

- BB528-14** Printer SF40A
- BB528-28** Paper rolls for BB528-14, pack of 2
- BB528-29** Ink ribbon cassette for BB528-14, pack of 1
- BD722-26** Calibration weight, OIML class M2, 500g
- BD722-28** Calibration weight, OIML class M2, 1kg
- BD722-30** Calibration weight, OIML class M2, 2kg



BB525

Portable Electronic Balances Scout® SKX Series

OHAUS®

Compact, reliable and rugged balances primarily for educational use.

- ◆ Battery or mains operation
- ◆ Capacities up to 8200g maximum
- ◆ Full range tare
- ◆ Weigh-below facility
- ◆ User selectable units g, kg, N, oz, lb, lb:oz
- ◆ Large, backlit LCD display and four-key operation for ease of use
- ◆ Application modes: weighing, density determination, Mole weighing
- ◆ Choice of accessory USB, RS232, Bluetooth® or ethernet interfaces
- ◆ Impact resistant plastic case with stainless steel pan

As described. Supplied with weigh-below hook and a.c. mains adapter (Models up to 620g are also supplied with calibration weight). Without batteries (4 x 1.5V AA required). Overall 202 x 224 x 54mm W x D x H (except 120g model with draught shield which is 103mm high. Weight 1kg. A 240V 50/60Hz a.c. single phase supply is required for the adapter.

	Model	Capacity g	Readability g	Pan size mm
BB535-11	SKX123	120	0.001	93 diameter
BB535-21	SKX222	220	0.01	120 diameter
BB535-31	SKX422	420	0.01	120 diameter
BB535-36	SKX421	420	0.1	120 diameter
BB535-43	SKX621	620	0.1	120 diameter
BB535-50	SKX1202	1200	0.01	170 x 140
BB535-60	SKX2201	2200	0.1	170 x 140
BB535-75	SKX8200	8200	1.0	170 x 140

Accessories

- BL610-15** Battery 1.5V, AA (4 required)
- BB542-20** USB device interface kit for connecting the balance to the user's computer
- BB542-24** RS232 interface kit
- BB542-28** Bluetooth® interface kit
- BB542-32** Ethernet interface kit

Dot matrix printer, SF40A

With paper rolls, RS232 cable, adapter, ribbon and mains adapter for 100-240V 50/60Hz supplies.

- BB528-14** Printer SF40A
- BB528-28** Paper rolls for BB528-14, pack of 2
- BB528-29** Ink ribbon cassette for BB528-14, pack of 1
- BD722-28** Calibration weight, OIML class M2, 1kg for BB535-50 and BB535-60
- BD722-30** Calibration weight, OIML class M2, 2kg for BB535-60 and BB535-75



BB535-21 to -43

Balances

Portable Electronic Balances Scout® STX Series

OHAUS®

Highly featured, versatile balances for laboratory and industrial applications.

- ◆ Battery or mains operation
- ◆ Capacities up to 8200g maximum
- ◆ Full range tare
- ◆ Weigh-below facility
- ◆ User selectable units g, mg, kg, ct, N, oz, ozt, dwt, lb, lb:oz, gm, tl, tc, tla, custom
- ◆ Application modes: weighing, % weighing, parts counting, check weighing, dynamic/animal weighing, totalisation, density determination, Mole weighing, display hold
- ◆ Full colour, touchscreen WQVGA display with QWERTY keyboard and numeric keypad input
- ◆ Choice of accessory USB, RS232, Bluetooth® or ethernet interfaces
- ◆ Features include: level indicator and adjustable feet, menu lock switch, stability, overload and underload indicators, auto shut-off for battery saving
- ◆ Impact resistant plastic case with stainless steel pan

As described. Supplied with weigh-below hook and a.c. mains adapter (Models up to 620g are also supplied with calibration weight). Without batteries (4 x 1.5V AA required). Overall 202 x 224 x 54mm W x D x H (except 120g and 220g models with draught shield which are 103mm high. Weight 1kg. A 240V 50/60Hz a.c. single phase supply is required for the adapter.

	Model	Capacity g	Readability g	Pan size mm
BB540-62	STX123	120	0.001	93 diameter
BB540-64	STX223	220	0.001	93 diameter
BB540-67	STX222	220	0.01	120 diameter
BB540-71	STX422	420	0.01	120 diameter
BB540-74	STX421	620	0.1	120 diameter
BB540-78	STX621	620	0.1	170 x 140
BB540-81	STX1202	1200	0.01	170 x 140
BB540-86	STX2201	2200	0.1	170 x 140
BB540-89	STX6201	6200	0.1	170 x 140
BB540-94	STX8200	8200	1.0	170 x 140

Accessories

- BL610-15** Battery 1.5V, AA (4 required)
- BL542-20** USB device interface kit for connecting the balance to the user's computer
- BL542-24** RS232 interface kit
- BL542-28** Bluetooth® interface kit
- BL542-32** Ethernet interface kit

Dot matrix printer, SF40A

With paper rolls, RS232 cable, adapter, ribbon and mains adapter for 100-240V 50/60Hz supplies.

- BB528-14** Printer SF40A
- BB528-28** Paper rolls for BB528-14, pack of 2
- BB528-29** Ink ribbon cassette for BB528-14, pack of 1
- BD722-28** Calibration weight, OIML class M2, 1kg for BB540-81 and BB540-86
- BD722-30** Calibration weight, OIML class M2, 2kg for BB540-86, BB540-89 and BB540-94



BB540-67 to -74



BB540-62 to -64



BB540-78 to -94

Balances

Portable Electronic Balances, Navigator® Series

OHAUS®

Versatile, portable balances with features designed for ease-of-use and resilience whether working within the laboratory or in the field.

- ◆ Mains or battery operation
- ◆ Touch-free sensors on either side of the keypad control zero, print function, or tare operations and can be set up to control up to 36 combinations of operations
- ◆ Capacities up to 6200g
- ◆ User selectable units: g, kg, lb, oz, ozt, lb:oz, gn, N, ct, dwt, tl, tc, tla
- ◆ Large, backlit LCD readout provides excellent visibility in any lighting conditions
- ◆ One second stabilisation time
- ◆ Full subtractive tare
- ◆ Mechanical overload protection allows balance to withstand loads up to 400% or rated capacity and an integral transport lock protects the weighing cell from damage during transportation
- ◆ Illuminated levelling bubble
- ◆ Auto shut-off prolongs battery life
- ◆ Impact resistant plastic case with stainless steel pan

As described. Supplied with a mains adapter. Without batteries (4 x 1.5V AA required). Overall 204 x 212 x 134mm W x D x H. Weight 0.9kg. A 240V 50/60Hz a.c. single phase supply is required for the adapter.

	Model	Capacity g	Readability/ repeatability g	Linearity ±g	Pan size mm
BB555-15	NV222	220	0.01	0.02	120 diameter
BB555-25	NV621	620	0.1	0.2	190 x 138
BB555-40	NV1201	1200	0.1	0.2	190 x 138
BB555-55	NV2201	2200	0.1	0.2	190 x 138
BB555-70	NVT4201	4200	0.1	0.2	190 x 138
BB555-85	NVT6201	6200	0.1	0.2	190 x 138

Accessories and spares

- BB527-05** USB interface with cable
- BB527-09** RS232 interface with cable
- BB555-92** Ethernet interface with cable
- BB555-95** Field carrying case
- BL610-15** Spare battery 1.5V, AA (4 required)

EC Type approved versions are available - details on request.

Calibration weights - see BD912.



BB555-15



BB555-25 to -85

Balances

Portable Electronic Balances Compass CX/CR Series

OHAUS®

- ◆ Battery or mains (using accessory adapter) operation
- ◆ Choice of models:
 - CX: with stainless steel pan, 128 x 142mm and g, N, oz, lb:oz units
 - CR: with plastic pan, 125 x 132mm and g, ozt, dwt, lb:oz units
- ◆ Large LCD readout (backlit: CX-models only)
- ◆ Full subtractive tare

Overall 135 x 201 x 41mm W x D x H, weight 0.5kg (CX-models), 140 x 205 x 41mm, 0.4kg (CR-models). Supplied with 3 x 1.5V AA batteries.

	Model	Capacity g	Readability g
BB557-10	CX221	220	0.1
BB557-15	CX621	620	0.1
BB557-20	CX1201	1200	0.1
BB557-25	CX2200	2200	1.0
BB557-30	CX5200	5200	1.0
BB559-10	CR221	220	0.1
BB559-15	CR621	620	0.1
BB559-25	CR2200	2200	1.0
BB559-30	CR5200	5200	1.0

Accessories

- BB552-26** Container, plastic, capacity approx. 1050ml
- BB557-90** Mains adapter with UK plug for CX-models only. Requires a 230V 50/60Hz a.c. single phase supply
- BB559-85** Mains adapter with UK plug for CR-models only. Requires a 230V 50/60Hz a.c. single phase supply
- BL610-15** Spare battery 1.5V, AA (3 required)

Calibration weights to OIML class M2.

- BD722-22** 100g
- BD722-28** 1kg
- BD722-30** 2kg



BB557



BB559

Heavy Duty Electronic Balances Catapult 5000 C51XE Series

OHAUS®

- ◆ Low-profile, heavy duty, rugged balances for weighing up to 200kg
- ◆ User selectable units kg, g, lb, oz
- ◆ Easy to read 20mm high LED readout
- ◆ 3-way mounting bracket allows the indicator to be mounted on or above the platform base, or on a wall
- ◆ Four button operation
- ◆ Mains or battery operation using accessory, rechargeable, 6V 4Ah lead acid battery

Supplied with indicator mounting bracket, stainless steel platform and a.c. mains adapter. A 240V 50/60Hz a.c. single phase supply is required for the adapter.

	Model	Capacity kg	Readability g	Platform size, mm
BB560-14	C51XE6R	6	2	310 x 270
BB560-21	C51XE30R	30	10	310 x 270
BB560-26	C51XE50R	50	20	310 x 270
BB560-36	C51XE50L	50	20	520 x 400
BB560-48	C51XE100L	100	50	520 x 400
BB560-58	C51XE200L	200	100	520 x 400

Accessories

- BB564-08** Rechargeable lead-acid battery, 6V 4Ah, for C51XE-series balances

Dot matrix printer, SF40A

Multifunction, dot matrix printer with statistics, and totalisation functions, date, time and GLP/GMP-compliant printout on non-fading, temperature-resistant paper. Up to 10 print languages can be selected. Supplied with RS232C interface cable, software and adapter to fit Ohaus laboratory balances, paper roll, ribbon cartridge and a.c. adapter for 100-240V 50/60Hz a.c.

- BB528-14** Printer SF40A
- BB528-28** Paper rolls for BB528-14, pack of 5
- BB528-29** Ink ribbon for BB528-14, pack of 1



BB560-14/BB560-26



BB560-36/BB560-58

Balances

Electronic Balances, Adventurer® Series

OHAUS®

Advanced, general purpose balances combining inventive features with straightforward operation for laboratory, industrial and educational requirements.

- ◆ Colour touchscreen, graphical display with wide viewing angle showing weight and application information
- ◆ Additional six fixed button controls initiate power on/off, print, zeroing and calibration with the tare function opened by keys on either side of the control panel
- ◆ User selectable units g, mg, msg, mo, N, oz, dwt, Ba, ct, gn, lb, tl, tc, tla, troy oz. and custom
- ◆ Application modes include: parts counting, % weighing, check weighing, dynamic weighing, totalisation and display hold (for situations where the display might be momentarily obscured)
- ◆ Full range automatic tare function
- ◆ RS232, USB device and host ports with GLP/GMP data output and cloning feature which allows user and application settings to be saved to an accessory USB flash drive and used to configure another Adventurer® balance
- ◆ 0.1/1mg readability models have a draught shield with two-piece, wide opening, side doors and sliding top panel for easy access and requiring minimal space on the benchtop
- ◆ Choice of AutoCal™ internal calibration with daily routine or external calibration models
- ◆ Weigh-below hook for density/specific gravity determination

As described. With touchscreen display and six button operation, bidirectional RS232 and USB interfaces, weigh-below facility, stability error and "below minimum weight" indicators, adjustable feet, levelling bubble and a.c. adapter for 100-240V 50/60Hz single phase supplies.

With external calibration

BB576-03	AX124/E, Analytical
BB576-07	AX224/E, Analytical
BB576-11	AX223/E, Precision
BB576-15	AX423/E, Precision
BB576-17	AX422/E, Precision
BB576-19	AX523/E, Precision
BB576-26	AX822/E, Precision
BB576-27	AX1502/E, Precision
BB576-31	AX2202/E, Precision
BB576-32	AX2201/E, Precision
BB576-35	AX4202/E, Precision
BB576-36	AX4201/E, Precision
BB576-45	AX8201/E, Precision

With internal calibration

BB576-51	AX124, Analytical
BB576-55	AX224, Analytical
BB576-59	AX223, Precision
BB576-63	AX423, Precision
BB576-64	AX422, Precision
BB576-67	AX523, Precision
BB576-73	AX822, Precision
BB576-75	AX1502, Precision
BB576-79	AX2202, Precision
BB576-80	AX2201, Precision
BB576-83	AX4202, Precision
BB576-84	AX4201, Precision
BB576-89	AX8201, Precision

Accessories

Dot matrix printer, SF40A

Multifunction, dot matrix printer with statistics, and totalisation functions, date, time and GLP/GMP-compliant printout on non-fading, temperature-resistant paper. Up to 10 print languages can be selected. Supplied with RS232C interface cable, software and adapter to fit Ohaus laboratory balances, paper roll, ribbon cartridge and a.c. adapter for 100-240V 50/60Hz a.c.

BB528-14 Printer SF40A

BB528-28 Paper rolls for BB528-14, pack of 5

BB528-29 Ink ribbon for BB528-14, pack of 1

Calibration weights - see *BD912 series*.

see next page for specification tables

EC Type Approved versions and alternative capacity or readability models are available - details on request.



BB576 Analytical with BB528-14



BB576 Precision

Balances

Electronic Balances, Adventurer® Series continued

OHAUS®

Model, external calibration* internal calibration	AX124/E AX124	AX224/E AX224	AX223/E AX223	AX423/E AX423	AX422/E AX422	AX523/E AX523	AX822/E AX822
Capacity	g 120	220	220	420	420	520	820
Readability	g 0.0001	0.0001	0.001	0.001	0.01	0.001	0.01
Repeatability std	±g 0.0001	0.0001	0.001	0.001	0.01	0.001	0.01
Linearity	±g 0.0002	0.0002	0.002	0.002	0.02	0.002	0.02
Pan diameter	mm 90	90	130	130	175 x 195	130	175 x 195
Stabilisation time	secs. ≤3	≤3	≤2	≤2	≤1.5	≤2	≤1.5
Overall,	W mm 230	230	230	230	230	230	230
	H mm 340	340	100	340	340	340	340
	D mm 354	354	354	354	354	354	354
Net weight	kg 5.1	5.1	5.8	5.8	4.6	5.8	4.6

* Calibration weight not supplied.

Model, external calibration* internal calibration	AX1502/E AX1502	AX2202/E AX2202	AX2201/E AX2201	AX4202E AX4202	AX4201/E AX4201	AX8201/E AX8201
Capacity	g 1520	2200	2200	4200	4200	8200
Readability	g 0.01	0.01	0.1	0.01	0.1	0.1
Repeatability std	±g 0.01	0.01	0.1	0.01	0.1	0.1
Linearity	±g 0.02	0.02	0.2	0.02	0.2	0.2
Pan size	mm 175 x 195	175 x 195	175 x 195	175 x 195	175 x 195	175 x 195
Stabilisation time	secs. ≤1.5	≤1.5	≤1.5	≤1.5	≤1.5	≤1.5
Overall,	W mm 230	230	230	230	230	230
	H mm 100	100	100	100	100	100
	D mm 354	354	354	354	354	354
Net weight	kg 4.6	4.6	4.6	4.6	4.6	4.6

* Calibration weight not supplied.



BB576 rear outputs panel



BB576 weigh-below facility



BB576

Balances

Electronic Balances, PR Series

OHAUS®

Featuring an uncomplicated design which provides competitive performance in essential laboratory, industrial or educational weighing applications at an economical price level.

- ◆ Choice of InCal™ internal or external calibration models
- ◆ Large, backlit LCD readout
- ◆ Choice of selectable units: mg, g, oz, ct, dwt, ozt, N, gn (precision models can additionally weigh in kg and lb units)
- ◆ Application modes include: parts counting, percentage weighing functions and full range tare
- ◆ 4-button operation with simple user interface
- ◆ RS232 data output port
- ◆ Front visible levelling bubble
- ◆ Weigh-below hook for density/specific gravity determination
- ◆ Selectable environmental filter settings

Model, external calibration* internal calibration	PR124/E PR124	PR224/E PR224	PR223/E PR223	PR523/E PR523	PR2202/E PR2202	PR4202/E PR4202	PR4201/E PR4201	PR6201/E PR6201
Capacity	g 120	220	220	520	2200	4200	4200	6200
Readability	g 0.0001	0.0001	0.001	0.001	0.01	0.01	0.1	0.1
Pan diameter	mm 90	90	120	120	180	180	180	180
Stabilisation time	secs. ≤3	≤3	≤2	≤2	≤1	≤1	≤1	≤1
Overall,	W mm	207	207	207	201	201	201	201
	H mm	531	531	531	531	93	93	93
	D mm	387	387	387	387	317	317	317
Net weight	kg 4.5	4.5	4.5	4.5	3.5	3.5	3.5	3.5

* Calibration weight not supplied.

As described. With four button operation, RS232 output interface and a.c. adapter for 100-240V 50/60Hz a.c. single phase supplies.

With external calibration

- BB584-08** PR124/E, Analytical
- BB584-14** PR224/E, Analytical
- BB584-16** PR223/E, Semi-micro
- BB584-20** PR523/E, Semi-micro
- BB584-26** PR2202/E, Precision
- BB584-28** PR4202/E, Precision
- BB584-36** PR4201/E, Precision
- BB584-40** PR6201/E, Precision

With internal calibration

- BB584-44** PR124, Analytical
- BB584-48** PR224, Analytical
- BB584-50** PR223, Semi-micro
- BB584-56** PR523, Semi-micro
- BB584-62** PR2202, Precision
- BB584-66** PR4202, Precision
- BB584-72** PR4201, Precision
- BB584-76** PR6201, Precision

Accessories

Dot matrix printer, SF40A

Multifunction, dot matrix printer with statistics, and totalisation functions, date, time and GLP/GMP-compliant printout on non-fading, temperature-resistant paper. Up to 10 print languages can be selected. Supplied with RS232C interface cable, software and adapter to fit Ohaus laboratory balances, paper roll, ribbon cartridge and a.c. adapter for 100-240V 50/60Hz a.c.

- BB528-14** Printer SF40A
- BB528-28** Paper rolls for BB528-14, pack of 5
- BB528-29** Ink ribbon for BB528-14, pack of 1

EC Type Approved versions and alternative capacity or readability models are available - details on request.

Calibration weights - see *BD912 series*.



BB584 Analytical semi-micro



BB584 Precision

Balances

Electronic Balances, Pioneer Series

OHAUS®

Designed for routine weighing tasks in a variety of laboratory, industrial and educational applications.

- ◆ Choice of InCal™ internal or external calibration models
- ◆ Large, backlit, twin-line, LCD display with wide viewing angle
- ◆ Choice of selectable units*: mg, g, kg, mg, ct, N, lb, oz, ozt, dwt, ti, tl, mo, Ba, gn, tla, mesgl and custom
- ◆ Parts counting, percentage weighing and dynamic weighing functions
- ◆ 4-button operation of multiple application modes
- ◆ GLP output via RS232 or USB of balance ID, with spaces for recording user and project ID's, time and date
- ◆ Selectable environmental filter settings
- ◆ Analytical models have an easily dismantled draught shield for easy cleaning with a static removal bar to discharge any static that has accumulated prior to handling samples
- ◆ Weigh-below hook for density/specific gravity determination
- ◆ Integral menu and calibration lock
- ◆ Front visible levelling bubble

*Note: analytical and semi-micro models do not have a kg weighing unit mode. Precision balances do not have a mg weighing unit mode.

EC Type Approved versions are available - details on request.



BB587 analytical/semi-micro models

Analytical series

Model	ext. cal. [†] int. cal.	PX124/E PX124	PX224/E PX224	PX323/E PX323	PX523/E PX523
Capacity	g	120	220	320	520
Readability	g	0.0001	0.0001	0.001	0.001
Linearity	±mg	0.2	0.3	2	2
Pan diameter,	mm	90	90	120	120
Stabilisation time	sec.	4	4	2	2
Overall	W x H x D, mm	209 x 321 x 309 — all models			
Net weight	kg	4.5 — all models			
Power		a.c. adapter requiring a 230V 50Hz single phase supply — all models			

[†]Weight not supplied.

Precision series

Model	ext. cal. [†] int. cal.	PX3202/E PX3202	PX5202/E PX5202	PX4201/E PX4201
Capacity	g	3200	5200	4100
Readability	g	0.01	0.01	0.1
Linearity	±mg	20	20	200
Pan diameter,	mm	180	180	180
Stabilisation time	sec.	1	1	1
Overall	W x H x D, mm	209 x 321 x 98 — all models		
Net weight	kg	3.5 — all models		
Power		a.c. adapter requiring a 230V 50Hz single phase supply — all models		

[†]Weight not supplied.

As described. With four button operation, RS232 and USB output interfaces, weigh below facility and a.c. adapter for 230V 50Hz single phase supplies.

With external calibration

BB587-08	Model PX124/E
BB587-14	Model PX224/E
BB587-18	Model PX323/E
BB587-20	Model PX523/E
BB587-28	Model PX3202/E
BB587-32	Model PX5202/E
BB587-36	Model PX4201/E

With InCal™ internal calibration

BB587-44	Model PX124
BB587-48	Model PX224
BB587-52	Model PX323
BB587-56	Model PX523
BB587-64	Model PX3202
BB587-68	Model PX5202
BB587-72	Model PX4201

Accessories

Dot matrix printer, SF40A

Multifunction, dot matrix printer with statistics, and totalisation functions, date, time and GLP/GMP-compliant printout on non-fading, temperature-resistant paper. Up to 10 print languages can be selected. Supplied with RS232C interface cable, software and adapter to fit Ohaus laboratory balances, paper roll, ribbon cartridge and a.c. adapter for 100-240V 50/60Hz a.c.

BB528-14	Printer SF40A
BB528-28	Paper rolls for BB528-14, pack of 5
BB528-29	Ink ribbon for BB528-14, pack of 1

Calibration weights - see *BD912-series*.



BB587 precision models

Balances

Explorer Series, Semi-Micro Analytical Balances

OHAUS®

- ◆ Brilliant, backlit, high resolution, VGA, touchscreen display programming
- ◆ Multiple application modes and user application setting library
- ◆ Application modes:
 - Parts counting
 - Check weighing
 - Filling
 - Pipette adjustment
 - Totalisation
 - Differential weighing
 - Ingredient costing
 - Dynamic weighing
 - Percentage weighing
 - Gross-Net-Tare
 - Density determination
 - Formulation
 - Peak hold
 - Under/over filling
- ◆ Internal autocalibration, with temperature and time-sensitive initialisation
- ◆ Built-in ioniser to eliminate static electricity around the sample
- ◆ 11 language display text options, including: English, Spanish, French, German and Italian
- ◆ GLP and GMP compliant outputs through USB or RS232 ports
- ◆ Touchless operation sensors (-/AD models also have automatic door opening, triggered via front and side sensors or a touchscreen button)
- ◆ Detachable display/control module for remote use (cable included)

Model	EX125D	EX125	EX225D	EX225D/AD	EX225/AD
Capacity	g 52/120	120	120/220	120/220	220
Readability	mg 0.01/0.1	0.01	0.01/0.1	0.01/0.1	0.01
Weighing modes	g, mg, oz, ozt, ct, dwt, tael, mo, gn, ti, N, custom units - all models				
Pan size	mm 80 diameter - all models				
Height above pan	mm 220 - all models				
Stabilisation time	seconds <3 - 0.1mg readability, <8 - 0.01mg readability				
Dimensions, W x D x H	mm 230 x 350 x 393 - all models				
Weight	kg 7	7	7	7.5	7.5

Explorer Series Semi-Micro Balances

As described. With high resolution, backlit, colour dot matrix touchscreen display, with protective in-use cover, 500mm extension cable for detachable module, RS232 and USB interfaces and a.c. adapter for 100-240V 50/60Hz single phase supplies.

- BB608-10** Model EX125D
- BB608-20** Model EX125
- BB608-30** Model EX225D
- BB608-40** Model EX225D/AD
- BB608-40** Model EX225/AD

Accessory dot matrix printer, SF40A

Multifunction, dot matrix printer with statistics, and totalisation functions, date, time and GLP/GMP-compliant printout on non-fading, temperature-resistant paper. Up to 10 print languages can be selected. Supplied with RS232C interface cable, software and adapter to fit Ohaus laboratory balances, paper roll, ribbon cartridge and a.c. adapter for 100-240V 50/60Hz a.c.

- BB528-14** Printer SF40A
- BB528-28** Paper rolls for BB528-14, pack of 5
- BB528-29** Ink ribbon for BB528-14, pack of 1

EC Type Approved versions are available - details on request.



BB528-14

Balances

Explorer Series Analytical Balances

OHAUS®

- ◆ Brilliant, backlit, high resolution, VGA, touchscreen display programming
- ◆ Multiple application modes and user application setting library
- ◆ Application modes:
 - Parts counting
 - Check weighing
 - Filling
 - Pipette adjustment
 - Totalisation
 - Differential weighing
 - Ingredient costing
 - Dynamic weighing
 - Percentage weighing
 - Gross-Net-Tare
 - Density determination
 - Formulation
 - Peak hold
 - Under/over filling
- ◆ Internal autocalibration, with temperature and time-sensitive initialisation
- ◆ 11 language display text options, including: English, Spanish, French, German and Italian
- ◆ GLP and GMP compliant outputs through USB or RS232 ports
- ◆ Touchless operation sensor
- ◆ Detachable display/control module for remote use (cable included)
- ◆ 3-door draught shield with removable panels and internal light (0.0001 and 0.001g readability models only)

Model		EX124	EX224	EX324
Capacity	g	120	220	320
Readability	mg	0.1	0.1	0.1
Weighing modes		g, mg, oz, ozt, ct, dwt, taels, mo, gn, ti, N, custom — all models		
Pan size	mm	90 diameter — all models		
Height above pan	mm	220 — all models		
Dimensions, W x D x H	mm	230 x 393 x 350 — all models		

Explorer Series Analytical Balances

As described. With high resolution, back-lit, dot matrix display with protective in-use cover, 500mm extension cable for detachable module, RS232 and USB interfaces, below balance weigh facility and a.c. adapter for 100-240V 50/60Hz single phase supplies.

- BB610-12** Model EX124
- BB610-22** Model EX224
- BB610-32** Model EX324

Accessory dot matrix printer, SF40A

Multifunction, dot matrix printer with statistics, and totalisation functions, date, time and GLP/GMP-compliant printout on non-fading, temperature-resistant paper. Up to 10 print languages can be selected. Supplied with RS232C interface cable, software and adapter to fit Ohaus laboratory balances, paper roll, ribbon cartridge and a.c. adapter for 100-240V 50/60Hz a.c.

- BB528-14** Printer SF40A
- BB528-28** Paper rolls for BB528-14, pack of 5
- BB528-29** Ink ribbon for BB528-14, pack of 1

Calibration weights – see *BD912-series*.



BB528-14

BB610

Balances

Explorer Series Top Loading Balances

OHAUS®

- ◆ Brilliant, backlit, high resolution, VGA, display touchscreen programming
- ◆ Multiple application modes and user application settings library
- ◆ Application modes:
 - Parts counting
 - Check weighing
 - Filling
 - Pipette adjustment
 - Totalisation
 - Differential weighing
 - Ingredient costing
 - Dynamic weighing
 - Percentage weighing
 - Gross-Net-Tare
 - Density determination
 - Formulation
 - Peak hold
 - Under/over filling
- ◆ Choice of models with internal autocalibration, with temperature and time-sensitive initialisation or external calibration using accessory weights
- ◆ 11 language display options, including: English, Spanish, French, German and Italian
- ◆ GLP and GMP compliant outputs through USB or RS232 ports
- ◆ Touchless operation sensor for hands-free operation of print, calibration, tare and selectable functions
- ◆ Detachable display/control module for remote use (cable included)
- ◆ 3-door draught shield with removable panels and internal light (0.0001 and 0.001g readability models only)

Model, internal calibration external calibration	EX223 EX223/E	EX423 EX423/E	EX623 -	EX1103 -	EX4202 EX4202/E	EX6202 EX6202/E
Capacity	g 220	420	620	1100	4200	6200
Readability	g 0.001	0.001	0.001	0.01	0.01	0.01
Weighing modes	g, mg, kg, lb., oz, ozt, ct, dwt, taels, mo, gn, ti, N, custom — all models					
Pan size	mm 130 dia.	130 dia.	130 dia.	130 dia.	190 x 200	190 x 200
Dimensions, W x D x H	mm 230 x 393 x 350 — all models			230 x 393 x 98 — all models		

Model	EX10201	EX12001	EX24001	EX35001
Capacity	g 10200	12000	24000	35000
Readability	g 0.1	0.1	0.1	0.1
Weighing modes	g, kg, lb, oz, ozt, ct, dwt, taels, mo, gn, ti, N, custom — all models			
Pan size	mm 190 x 200	377 x 311— all models		
Dimensions, W x D x H	mm 230 x 393 x 98	377 x 443 x 120 — all models		

Explorer Series Top Loading Balances

As described. With high resolution, back-lit dot matrix display with protective in-use cover, 500mm extension cable for detachable module, RS232 and USB interfaces, below balance weighing facility and a.c. adapter for 100-240V 50/60Hz single phase supplies.

With internal calibration

- BB625-12** Model EX223
- BB625-17** Model EX423
- BB625-27** Model EX623
- BB625-29** Model EX1103
- BB625-42** Model EX4202
- BB625-65** Model EX6202
- BB626-27** Model EX10201
- BB626-31** Model EX12001
- BB626-39** Model EX24001
- BB626-48** Model EX35001

With external calibration

- BB629-12** Model EX223/E
- BB629-17** Model EX423/E
- BB629-42** Model EX4202/E
- BB629-65** Model EX6202/E

Calibration weights - see *BD912-series*.

EC Type Approved versions are available - *details on request*.

Accessory dot matrix printer, SF40A

Multifunction, dot matrix printer with statistics, and totalisation functions, date, time and GLP/GMP-compliant printout on non-fading, temperature-resistant paper. Up to 10 print languages can be selected. Supplied with RS232C interface cable, software and adapter to fit Ohaus laboratory balances, paper roll, ribbon cartridge and a.c. adapter for 100-240V 50/60Hz a.c.

- BB528-14** Printer SF40A
- BB528-28** Paper rolls for BB528-14, pack of 5
- BB528-29** Ink ribbon for BB528-14, pack of 1



BB625/BB626/BB629



BB626-31 to -48

Balances

Defender™ 3000 Bench Scale Balances

OHAUS®

- ◆ Selectable weighing units: kg, g, lb, oz, lb:oz
- ◆ Parts counting mode with selectable samples sizes: 5, 10, 20, 50, 100 piece, with memory of last sample size and weight
- ◆ Rugged construction with tubular, painted carbon steel frame, aluminium loadcell protected to IP67 and Grade 304 stainless steel platform
- ◆ Adjustable non-slip rubber levelling feet with external level indicator
- ◆ ABS indicator housing and backlit, high-resolution LCD readout with 25mm high digits
- ◆ Stabilisation time: 2 seconds
- ◆ Fitted with bidirectional RS232 interface
- ◆ Span capacity 5lb/kg to 100% capacity
- ◆ Internal rechargeable lead acid battery and a.c. adapter
- ◆ Additional features include auto-off for battery power conservation, auto-zero tracking, environmental filtering and gravitational force adjustment

Model		D31 P30BR	D31 P60BR	D31 P60BL	D31 P150BL
Capacity	kg	30	60	60	150
Readability	g	5	10	10	20
Platform size	mm	355 x 305	355 x 305	550 x 420	550 x 420
Tower mount height	mm	350	350	700	700
Weight	kg	16.4	16.4	24.5	24.5

Defender 3000 series

As described. Supplied with indicator and tower mount. a.c. adapter and rechargeable battery. A 240V 50/60Hz a.c. single phase supply is required for the adapter.

- BB865-10** Model D31 P30BR
- BB865-20** Model D31 P60BR
- BB865-30** Model D31 P60BL
- BB865-40** Model D31 P150BL

Impact printer, SRP275

With paper rolls, ribbon and mains adapter for 230V 50Hz supplies. Requires printer cable adapter for connection to balances with RS232 output only.

- BB528-12** Printer SRP275
- BD166-48** Paper rolls for BB528-12, pack of 5
- BB528-26** Ink ribbon cassette for BB528-12, pack of 1
- BB605-97** Printer cable adapter for connecting BB865 balances to BB528-12 printer



BB865



BB528-12

Balances

Portable Electronic Balances, HL-i, HT and SJ-HS series

AND

HL-i series

- ◆ Compact, basic weighing scales with large, 13.5mm high, LCD readout
- ◆ Choice of weighing modes: g, oz, tl, ct (HL-200i only)
- ◆ External calibration using accessory weight
- ◆ Full range tare by subtraction
- ◆ Overload, low battery and reading stability indicators
- ◆ Battery or mains operation (using accessory adapter)

HT-series

- ◆ Rugged design
- ◆ Battery or mains operation (using accessory adapter)
- ◆ Large 13.5mm high LCD display
- ◆ Large, rectangular pan
- ◆ Tare function
- ◆ Multiple weighing units
- ◆ External calibration using accessory weights

SJ-HS-series

- ◆ High resolution balances with rapid stabilisation (<1 second)
- ◆ Large 25mm high LCD readout
- ◆ Large, stainless steel weighing pan
- ◆ External calibration using accessory weights
- ◆ Battery or mains operation (using accessory adapter)
- ◆ Adjustable feet and levelling bubble for accurate weighing

Cat. No.	Model	Capacity g	Readability g	Linearity g	Weighing modes	Power	Pan mm	Overall, H x W x D mm	Weight g
BD180-10	HL-200i	200	0.1	±0.2	g, oz, ct, tl	4 x 1.5V AA batteries or	130 dia.	51 x 130 x 192	0.5
BD180-25	HL-2000i	2000	1	±2	g, oz, tl	a.c. adapter — all models	130 dia.	51 x 130 x 192	0.5
BD185-15	HT-300	310	0.1	±0.4	g, lb, oz,	4 x 1.5V AA batteries or	132 x 130	44 x 195 x 136	0.5
BD185-20	HT-500	510	0.1	±0.4	lb:oz, tl, tla	a.c. adapter — all models	132 x 130	44 x 195 x 136	0.5
BD185-35	HT-3000	3100	1	±2	— all models		132 x 130	44 x 195 x 136	0.5
BD185-44	HT-5000	5100	1	±2			132 x 130	44 x 195 x 136	0.5
BD187-20	SJ-1000HS	1000	0.5	±1	g, lb, oz, lb:oz	4 x 1.5V D batteries or	230 x 190	103 x 265 x 250	2.1
BD187-40	SJ-2000HS	2000	1	±2	g, lb, oz, lb:oz	a.c. adapter — all models	230 x 190	103 x 265 x 250	2.1
BD187-55	SJ-5001HS	5000	1	±5	g, lb, oz, lb:oz		230 x 190	103 x 265 x 250	2.1
BD187-60	SJ-5000HS	5000	2	±5	g, lb, oz, lb:oz		230 x 190	103 x 265 x 250	2.1
BD187-80	SJ-12K-HS	12000	5	±10	g, lb, oz, lb:oz		230 x 190	103 x 265 x 250	2.1

HL-i series

- BD180-10** Model HL-200i
- BD180-25** Model HL-2000i

Accessories for BD180 balances

- BD183-08** Accessory mains adapter for 230V 50/60Hz a.c.
- BL610-15** 1.5V AA battery (4 required)
- BD722-24** Calibration weight, 200g for BD180-10
- BD722-30** Calibration weight, 2kg for BD180-25

HT-series

- BD185-15** Model HT-300
- BD185-20** Model HT-500
- BD185-35** Model HT-3000
- BD185-44** Model HT-5000

Accessories for BD185 balances

- BL610-15** 1.5V AA battery (4 required)
- BD185-90** Stainless steel pan MUST BE ORDERED WITH BALANCE
- BD183-08** Accessory mains adapter for 230V 50/60Hz a.c.
- BD722-22** Calibration weight, 100g for BD185-15 (3 required)
- BD722-26** Calibration weight, 500g for BD185-20
- BD722-28** Calibration weight, 1kg for BD185-35 (3 required)
- BD722-32** Calibration weight, 5kg for BD185-44

SJ-HS-series

- BD187-20** Model SJ-1000HS
- BD187-40** Model SJ-2000HS
- BD187-55** Model SJ-5001HS
- BD187-60** Model SJ-5000HS
- BD187-80** Model SJ-12K-HS

Accessories for BD187 balances

- BL610-22** 1.5V D battery (4 required)
- BD183-08** Accessory mains adapter for 230V 50/60Hz a.c.
- BD722-24** Calibration weight, 1kg for BD187-20
- BD722-30** Calibration weight, 2kg for BD187-40
- BD722-32** Calibration weight, 5kg for BD187-55 and -60
- BD722-35** Calibration weight, 10kg for BD187-80



BD180



BD185



BD187

Balances

Portable Electronic Balances, EK-i series

AND

- ◆ Compact, lightweight design
- ◆ High resolution
- ◆ RS232C interface
- ◆ GLP output with I.D. and series number (using accessory printer)
- ◆ Clear, backlit, 16mm high LCD
- ◆ Full range tare
- ◆ Adjustable stability filters
- ◆ Integral applications programmes for:
 - Piece counting
 - Check weighing
 - Percentage
- ◆ Supplied with WinCT software to allow result downloading to the users' PC in a Windows™ manageable format
- ◆ Stainless steel weighing pan

Model	EK-200i	EK-300i	EK-410i	EK-1200i	EK-2000i	EK-3000i	EK-4100i	EK-6000i	EK-12Ki
Capacity	g 200	300	400	1200	2000	3000	4000	6000	12000
Readability	g 0.01	0.01	0.01	0.1	0.1	0.1	0.1	1.0	1.0
Reproducibility	±g 0.01	0.01	0.01	0.1	0.1	0.1	0.1	1.0	1.0
Linearity	≤±g 0.01	0.02	0.02	0.1	0.1	0.1	0.2	0.2	1.0
Weighing modes	g, oz, ozt, dwt, ct, mo, GN, tael			g, oz, ozt, dwt, ct, mo, GN, tael			g, oz, lb, ozt, dwt, mo, GN, tael		
Weighing applications	Piece counting, check weighing, percentage — all models								
Weighing pan	mm 110 dia. — all models			mm 133 x 170 — all models					
Operating temp.	°C -10 to +40 at 85% RH or less — all models								
Overall W x D x H	mm 190 x 218 x 55 — all models				mm 190 x 218 x 53 — all models				
Weight	kg 1.1 — all models				kg 1.5 — all models				

As described. Supplied with a.c. adapter for 230V 50/60Hz single phase supplies and instruction manual.

BD200-15 Model EK-200i
BD200-17 Model EK-300i
BD200-21 Model EK-410i

BD200-24 Model EK-1200i
BD200-27 Model EK-2000i
BD200-29 Model EK-3000i

BD200-30 Model EK-4100i
BD200-32 Model EK-6000i
BD200-36 Model EK-12Ki

Accessories

Rechargeable battery pack, EK/Wi-OP-09. Enables balance to operate independently of mains supply for up to 9 hours. Recharged using balance mains adapter.

BD203-08 Battery Pack

Below balance weighing hook, EK/Wi-OP-07. For use with BD200-32 and BD200-36 only.

BD203-14 Weighing hook

BD203-20 Hard carrying case for all models, CC-EKW-i

Printer, AD-8121B. Impact dot matrix printer with built-in statistical functions: weight, total weight, counting operations, standard deviation, date/time, chart and interval printing facilities. Supplied with connecting cable, alkaline batteries, a.c. adapter requiring a 230V 50/60Hz supply and print roll.

BD237-40 Printer AD-8121B

BD237-42 Print rolls for BD237-40, pack of 10



BD200-17



BD200-32

Balances

Precision Electronic Balances, FX-i and FX-i-WP series



- ◆ Weighing unit modes: g, oz, ozt, ct, mo, dwt, gn, tl, tla, lb, oz, with %, lb:oz, animal weighing, comparator, statistics and counting functions
- ◆ Digital calibration using accessory external weight
- ◆ GLP/GMP/GCP/ISO compliant output
- ◆ Large, bright, vacuum fluorescent display
- ◆ Supplied with WinCT software to provide result downloading to the users' PC in a Windows™ format using the built-in RS232C interface
- ◆ FX-i-WP models have a sealed housing to IP65 protection level, allowing use in wet and dusty environments
- ◆ Accessory USB-2 interface available for high-speed output (FX-i models only)

Model		FX-120i	FX-300i	FX-1200i	FX-3000i
Capacity	g	122	320	1220	3200
Readability	g	0.001	0.001	0.01	0.01
Reproducibility	±g	0.001	0.001	0.01	0.01
Linearity	≤±g	0.002	0.002	0.02	0.02
Pan size	mm	130	130	150	150
Operating temp.	°C	+5 to +40 at 85% RH or less — all models			
Overall	W, mm	194	194	194	194
	D, mm	263	263	263	263
	H, mm	175*	175*	85	85
Weight	kg	2.5 — all models			

*Supplied with low-profile draught shield, maximum internal height 84mm.

As described. Supplied with built-in RS232C bidirectional interface, data transfer software, a.c. adapter for 230V 50/60Hz single phase supplies and instruction manual.

FX-i series

- BD207-15** Model FX-120i
- BD207-30** Model FX-300i
- BD207-45** Model FX-1200i
- BD207-60** Model FX-3000i
- BD207-95** Accessory USB-2 interface for BD207-series only

FX-i-WP series, water/dustproof

- BD209-15** Model FX-120i-WP
- BD209-30** Model FX-300i-WP
- BD209-45** Model FX-1200i-WP
- BD209-60** Model FX-3000i-WP
- BD209-80** Accessory IP65 RS232 cable for BD209-series only

Calibration weights - see BD722-series.



BD207-60



BD209-30



BD225

Analytical Electronic Balances, HR-A/HR-AZ series



- ◆ Choice of autocalibration (HR-AZ) or external calibration using accessory weights (HR-A) models
- ◆ Weighing unit modes: g, mg, oz, ozt, ct, mo, dwt, gn, tl, tla, with %, counting, density and custom unit modes
- ◆ GLP-, GMP-, GCP- and ISO-compliant output
- ◆ Plastic draught shield with rotary sliding doors complies with FDA/HACCP "glass-free requirements" and unclips for easy cleaning and balance use in confined spaces
- ◆ Selectable weighing filters
- ◆ High contrast, reverse-backlit LCD readout

Model	ext. cal. int. cal.	HR-100A HR-100AZ	HR-150A HR-150AZ	HR-250A HR-250AZ
Capacity	g	102	152	252
Readability	g	0.0001	0.0001	0.0001
Reproducibility	±g	0.0001	0.0001	0.0001 (0 to 200g), 0.0002 (rest of range)
Linearity	±g	0.0002	0.0002	0.0003
Pan size	mm	90 dia.	90 dia.	90 dia.
Operating temp.	°C	+5 to +40 at 85% RH or less — all models		
Overall	W, mm	198	198	198
	D, mm	294	294	294
	H, mm	315	315	315
Weight	HR-A, kg	3.5	3.5	3.5
	HR-AZ, kg	3.9	3.9	3.9

As described. Supplied with an a.c. adapter for 230V 50/60Hz single phase supplies, instruction manual and RS232C interface.

External calibration models (require weight)

- BD225-40** HR-100A
- BD225-45** HR-150A
- BD225-50** HR-250A

Autocalibration models (internal weight)

- BD225-60** HR-100AZ
- BD225-65** HR-150AZ
- BD225-70** HR-250AZ
- BD230-25** USB adapter
- BD230-35** LAN ethernet adapter
- BD900-55** Calibration weight class F1, 50g
- BD900-58** Calibration weight class F1, 100g
- BD900-62** Calibration weight class F1, 200g

Balances

Analytical Electronic Balances, GR- series



- ◆ Compact, ergonomic design
- ◆ Weighing unit modes: g, mg, oz, ozt, ct, mo, dwt, gn, tl, t, m with % and counting application programmes
- ◆ Selectable weighing filters allow configuration to a variety of environmental conditions
- ◆ Clear wide angle liquid crystal display
- ◆ Dual layer ABS/aluminium construction gives robust housing and minimises the effect of ambient temperature changes
- ◆ EC Type approved (2nd stage verification available at extra cost)
- ◆ Programmable logging facility holds up to 200 sets of data
- ◆ Automatic self calibration triggered by ambient temperature change beyond set limits, or one touch calibration using accessory calibration weight
- ◆ Built-in GLP software allows output of balance serial number, user-set i.d. number, calibration data and date/time using the built-in RS232C interface
- ◆ Unique door opening system allows easy access to the weighing chamber from left or right
- ◆ Below balance weighing hook

Model		GR-120-EC	GR-200-EC	GR-202-EC	GR-300-EC
Capacity	g	120	210	42/210	310
Readability	g	0.0001	0.0001	0.00001/0.0001	0.0001
Reproducibility	±g	0.0001	0.0001	0.00002/0.0001	0.0001
Linearity	±g	0.0002	0.0002	0.00003/0.0002	0.0002
Pan size	mm	85 diameter — all models			
Free height above weighing pan	mm	219 — all models			
Operating temp.	°C	+5 to +40 at 85% RH or less — all models			
Overall W x D x H	mm	249 x 330 x 327 — all models			
Weight	kg	6 — all models			

As described. With built-in RS232C bi-directional interface, data transfer software, a.c. adapter for 230V 50/60Hz single phase supplies and instruction manual.

- BD235-10** Model GR-120-EC
- BD235-20** Model GR-200-EC
- BD235-25** Model GR-202-EC
- BD235-30** Model GR-300-EC

Accessories

Printer, AD-8121B. Impact dot matrix printer with built-in statistical functions: weight, total weight, counting operations, standard deviation, date/time, chart and interval printing facilities. Supplied with connecting cable, alkaline batteries, a.c. adapter requiring a 230V 50/60Hz supply and print roll.

- BD237-40** Printer AD-8121B
- BD237-42** Print rolls for BD237-40, pack of 10
- BD900-55** Calibration weight, class F1, 50g
- BD900-58** Calibration weight, class F1, 100g
- BD900-62** Calibration weight, class F1, 200g



BD235



BD237-40

Balances

Analytical Electronic Balances, GX-A series



- ◆ Smart Super Hybrid Sensor technology gives rapid response and high performance with minimum maintenance
- ◆ Weighing unit modes: g, oz, lb, lb:oz, ozt, ct, mo, dwt, GN, with %, counting, specific gravity and user-programmable unit
- ◆ Automatic self calibration triggered by ambient temperature change beyond set limits, or one touch calibration using accessory calibration weight
- ◆ Automatic adjustable environment setting adapts balance response to the most appropriate for operational conditions
- ◆ Large, reverse-backlit display allows easy reading even with low ambient light, and automatically switches off after 10 minutes without use
- ◆ Impact shock detection (ISD) gives feedback of impact shocks with warning and logging/documentation
- ◆ Electronically controlled load (ECL) provides self-diagnostic and repeatability checks at a single keypress without requiring an internal calibration weight
- ◆ EC Type approved models (2nd stage verification available at extra cost)
- ◆ Built-in GLP software allows output of balance serial number, user-set i.d. number, calibration data and date/time using the built-in RS232C and USB interfaces
- ◆ Below balance weighing hook
- ◆ Programmable logging facility holds up to: 200 sets of weighing data, or: 100 sets of weighing/time:date data, or: 50 sets of GLP data, or: 20 sets of unit weight for counting mode
- ◆ Supplied with WinCT software to allow result downloading to the users PC in a Windows™ manageable format

Model		GX-203A	GX-403A	GX-603A	GX-2002A	GX-4002A	GX-6002A	GX-6001A	GX-100001A
Capacity	g	220	420	620	2200	4200	6200	6200	10200
Readability	g	0.001	0.001	0.001	0.01	0.01	0.01	0.1	0.1
Reproducibility	±g	0.001	0.001	0.001	0.01	0.01	0.01	0.1	0.1
Linearity	±g	0.002	0.002	0.003	0.02	0.02	0.02	0.1	0.1
Pan size	mm	128 x 128 — all models			165 x 165 — all models				
Operating temp.	°C	+ 5 to +40 at 85% RH or less — all models							
Overall W x D x H	mm	210 x 317 x 220* — all models			210 x 317 x 93 — all models				
Weight	kg	5.0 — all models			5.1 — all models				

*Supplied with a draught shield.

As described. With internal autocalibration, built-in RS232C bi-directional and USB interfaces, WinCT data transfer software, below-balance weighing hook, a.c. adapter for 230V 50/60Hz single phase supplies and instructions.

- BD260-12** Model GX-203A
- BD260-22** Model GX-403A
- BD260-32** Model GX-603A
- BD260-57** Model GX-2002A
- BD260-67** Model GX-4002A
- BD260-77** Model GX-6002A
- BD260-82** Model GX-6001A
- BD260-87** Model GX-100001A

Accessories

Printer, AD-8127. Impact dot matrix printer with built-in statistical functions: weight, total weight, counting operations, standard deviation, date/time, chart and interval printing facilities. Supplied with connecting cable, alkaline batteries, a.c. adapter requiring a 230V 50/60Hz supply and print roll.

- BD265-90** Printer AD-8127
- BD265-92** Print rolls for BD265-90, pack of 10
- BD265-94** Print ribbons for BD265-90, pack of 5
- BD265-92** Printer cable, RS232C for BD260/BD265-series

External calibration weights - see **BD900/BD912**.



BD260-12 to -32



BD260-57 to -87

Balances

Precision Electronic Balances, GF-A series



- ◆ Smart Super Hybrid Sensor technology gives rapid response and high performance with minimum maintenance
- ◆ Weighing unit modes: g, oz, lb, lb:oz, ozt, ct, mo, dwt, GN, with %, counting, specific gravity and user-programmable unit
- ◆ One touch calibration using accessory calibration weight
- ◆ Automatic adjustable environment setting adapts balance response to the most appropriate for operational conditions
- ◆ Large, reverse-backlit display allows easy reading even with low ambient light, and automatically switches off after 10 minutes without use
- ◆ Impact shock detection (ISD) gives feedback of impact shocks with warning and logging/documentation
- ◆ Electronically controlled load (ECL) provides self-diagnostic and repeatability checks at a single keypress
- ◆ EC Type approved models (2nd stage verification available at extra cost)
- ◆ Built-in GLP software allows output of balance serial number, user-set i.d. number, calibration data and date/time using the built-in RS232C and USB interfaces
- ◆ Below balance weighing hook
- ◆ Programmable logging facility holds up to: 200 sets of weighing data, or: 100 sets of weighing/time:date data, or: 50 sets of GLP data, or: 20 sets of unit weight for counting mode
- ◆ Supplied with WinCT software to allow result downloading to the users PC in a Windows™ manageable format

Model		GF-203A	GF-403A	GF-603A	GF-1003A	GF-1603A	GF-2002A	GF-3002A	GF-6001A	
Capacity	g	220	420	620	1100	1620	2100	3100	6100	
Readability	g	0.001	0.001	0.001	0.001	0.001	0.01	0.01	0.1	
Reproducibility	±g	0.001	0.001	0.001	0.001	0.001	0.01	0.01	0.1	
Linearity	±g	0.002	0.002	0.002	0.002	0.002	0.02	0.02	0.1	
Pan size	mm	128 x 128 — all models					165 x 165 — all models			
Operating temp.	°C	+5 to +40 at 85% RH or less — all models								
Overall W x D x H	mm	210 x 317 x 1220* — all models					210 x 317 x 93 — all models			
Weight	kg	5.0 — all models					5.1 — all models			

*Supplied with a low-profile draught shield.

As described. With WinCT data transfer software, RS232C bi-directional and USB interfaces, below-balance weighing hook, a.c. adapter for 230V 50/60Hz single phase supplies and instructions.

- BD265-17** Model GF-203A
- BD265-27** Model GF-403A
- BD265-30** Model GF-603A
- BD265-33** Model GF-1003A
- BD265-37** Model GF-1603A
- BD265-47** Model GF-2002A
- BD265-57** Model GF-3002A
- BD265-67** Model GF-6001A

Accessories

Printer, AD-8127. Impact dot matrix printer with built-in statistical functions: weight, total weight, counting operations, standard deviation, date/time, chart and interval printing facilities. Supplied with connecting cable, alkaline batteries, a.c. adapter requiring a 230V 50/60Hz supply and print roll.

- BD265-90** Printer AD-8127
- BD265-92** Print rolls for BD265-90, pack of 10
- BD265-94** Print ribbons for BD265-90, pack of 5
- BD265-92** Printer cable, RS232C for BD260/BD265-series

External calibration weights - see *BD900/912*.



BD265-17 to -37



BD265-47 to -67

Balances

Analytical and Precision Electronic Balances, Practum® Series



- ◆ Compact, robust design
- ◆ Touchscreen operation with graphical interface and password protection of authorised user settings
- ◆ Weighing unit modes: mg, g, oz, kg, lb, ct, t, GN, mo
- ◆ Application modes:
 - Check weighing
 - Density
 - Percentage
 - Peak hold
 - Counting
 - Unstable conditions
- ◆ Below balance weighing facility
- ◆ Overload protection
- ◆ External calibration using accessory weights
- ◆ 10 language display options, including: English, Spanish, French, German and Italian
- ◆ Mini USB interface for data transfer
- ◆ Glass levelling indicator and anti-theft lock

Practum® Series Balances

As described. Touchscreen operation, external calibration, with USB interface and a.c. adapter for 100-240V 50/60Hz single phase supplies.

- BD300-05** Model 124
- BD300-10** Model 224
- BD304-15** Model 213
- BD304-25** Model 313
- BD304-35** Model 612
- BD304-50** Model 1102
- BD304-60** Model 2102
- BD304-70** Model 5101

Accessories

Rechargeable battery pack, YRB11Z, for use with all models of balance. Enables mains supply - independent operation. Recharged using adapter supplied with the balance.

- BD312-15** YRB11Z

Standard laboratory printer, YDP40. Prints out data output from the balance with data/time and statistical functions.

- BD315-10** YDP40
- BD166-48** Paper rolls, pack of 5

External calibration weights - see *BD905-series*.

Analytical - Readability 0.0001g

Catalogue No.	BD300-05	BD300-10
Model, Practum	124	224
Readability	mg 0.1	0.1
Capacity	g 120	220
Repeatability	±mg 0.1	0.1
Linearity	±mg 0.3	0.3
Stabilisation time, typical	secs. 4	4
Weighing pan	mm 90 dia.	90 dia.
Available height above pan	mm 209	209
Overall W x D x H	mm 216 x 360 x 320	— both models
Weight	kg 4.5	— both models

Precision - Readability 0.001/0.01g

Catalogue No.	BD304-15	BD304-25	BD304-35
Model, Practum	213	313	612
Readability	g 0.001	0.001	0.01
Capacity	g 210	310	610
Repeatability	±g 0.001	0.001	0.01
Linearity	±g 0.003	0.003	0.03
Stabilisation time, typical	secs. 3	3	3
Weighing pan	mm 120 dia.	120 dia.	180 dia.
Available height above pan	mm 209	209	—
Overall W x D x H	mm 216 x 360 x 320	— both models	216 x 360 x 95
Weight	kg 4.9	4.9	3.1

Precision - Readability 0.01/0.1g

Catalogue No.	BD304-50	BD304-60	BD304-70
Model, Practum	1102	2102	5101
Readability	g 0.01	0.01	0.1
Capacity	g 1100	2100	5100
Repeatability	±g 0.01	0.01	0.1
Linearity	±g 0.003	0.003	0.3
Stabilisation time, typical	secs. 3	3	3
Weighing pan	mm 180 dia.	180 dia.	180dia.
Overall W x D x H	mm 216 x 360 x 95	— all models	
Weight	kg 3.1	— all models	



BD300, BD304-15 and -25 are similar



BD304-50 to -70

Balance Accessories

Weighing Boats, Paper, Bottles, Scoops, Dishes

Weighing Boats

Polystyrene, disposable, can be shaped to form a pouring funnel. Available in white or black. Supplied in packs as specified.

White

- BD750-01** 5ml, pack of 1000
- BD750-02** 30ml, pack of 500
- BD750-04** 100ml, pack of 250

Black

- BD750-61** 5ml, pack of 1000
- BD750-62** 30ml, pack of 500
- BD750-64** 100ml, pack of 250

Weighing Boats

Antistatic, diamond shape. Generally as BD750 series but manufactured to eliminate the problems caused by static when weighing fine powders. Supplied in packs as specified.

White

- BD753-01** 5ml, pack of 1000
- BD753-02** 30ml, pack of 500
- BD753-04** 100ml, pack of 250

Black

- BD753-61** 5ml, pack of 1000
- BD753-62** 30ml, pack of 500
- BD753-64** 100ml, pack of 250

Quickfit Lunge-Rey Weighing Pipette — see *QWB1/0*.

Weighing Boats

Polystyrene, disposable, square shape with flat bottom, can be shaped to form a pouring funnel. Supplied in packs of 1000. White.

- BD755-05** 7ml, 44 x 44mm
- BD755-10** 100ml, 80 x 80mm
- BD755-15** 250ml, 140 x 140mm

Weighing Boats

Antistatic, square shape. Generally as BD755 series but manufactured to eliminate the problems caused by static when weighing fine powders. Supplied in packs of 1000. White.

- BD757-05** 7ml, 44 x 44mm
- BD757-10** 100ml, 80 x 80mm
- BD757-15** 250ml, 140 x 140mm

Weighing Boats

Paper. Ideal for weighing and transporting a variety of sample types, particularly pastes and creams. Nitrogen-free, parchment paper allows use in nitrogen or fat determination procedures and dissolves during Kjeldahl digestions. Overall 55 x 10 x 10mm L x W x H. Supplied in a pack of 100.

- BD764-25** Weighing boats, paper



BD750/BD753

BD755/BD757



BD764-25

Balance Accessories

Weighing Paper, Bottles, Scoops, Dishes

Weighing Paper, Whatman Grade 2122

Inert, Pergamyn material. Supplied as sheets with width x depth dimensions as indicated, within boxes of 500 sheets.

BD766-10 100 x 100mm

BD766-20 150 x 150mm

Weighing Paper, Whatman Grade B-2

Low nitrogen, parchment paper for weighing and transporting samples during nitrogen or fat determination procedures and dissolves during Kjeldahl digestions. Supplied as sheets with width x depth dimensions as indicated, within boxes of 500 sheets.

BD767-10 100 x 100mm

BD767-20 150 x 150mm

Weighing Bottles

Glass with ground-in hollow stopper. Dimensions stated are height x diameter.

Squat form

BD770-04 30ml, 25 x 50mm

BD770-06 55ml, 30 x 60mm

Tall form

BD772-02 8ml, 40 x 20mm

BD772-04 15ml, 50 x 25mm

BD772-06 28ml, 60 x 30mm

BD772-08 60ml, 80 x 40mm

BD772-10 135ml, 100 x 50mm

Weighing Scoops

Pyrex glass, designed primarily for use where small quantities of powder are to be weighed. Powder can be introduced into the receiving vessel via the tubular stem.

	Ref.	Capacity
BD780-02	2115/02	3ml
BD780-04	2115/04	6ml
BD780-06	2115/06	10ml

Dishes, aluminium foil

Disposable, lightweight. With rim. Pack quantity is approximate.

	Top dia. x Depth mm	Pack qty.
BD790-04	90 x 8	50
BD790-06	90 x 8	80
BD790-12	100 x 7	80

Alternative aluminium foil dishes – see *DH798*.



BD766, BD767 are similar



BD780



BD770/BD772



BD790

Balance accessories

Weights

Weight Sets, OIML M1

General purpose, brass with aluminium fractions up to 500mg. Supplied in a plastic case with forceps.

BD700-20	1mg to 100g
BD700-25	1mg to 200g
BD700-30	1mg to 500g
BD700-35	1mg to 1000g

Weights, OIML M2

Finely turned brass. Supplied singly.

BD722-10	1g	BD722-24	200g
BD722-12	2g	BD722-26	500g
BD722-14	5g	BD722-28	1kg
BD722-16	10g	BD722-30	2kg
BD722-18	20g	BD722-32	5kg
BD722-20	50g	BD722-35	10kg
BD722-22	100g		

Forceps

Nickel plated brass with curved ends.

BD725-10

Weights

Iron hexagonal shape, with ring.

BD735-02	50g
BD735-04	100g
BD735-06	200g
BD735-08	500g



BD722

BD725

BD735

Calibration Weights, UKAS

OIML Class F1 Certified

- ◆ Supplied with certificate traceable to United Kingdom Accreditation Service (UKAS)
- ◆ Calibration carried out in accordance with the requirements of ISO9002
- ◆ Shape conforms with OIML standard

Individual Weights

OIML Class F1. Complete with UKAS traceable certificate. Weights 1mg to 5mg are aluminium. Weights 10mg to 20kg are highly polished stainless steel supplied in a plastic box.

BD900-10	1mg	BD900-49	10g
BD900-12	2mg	BD900-52	20g
BD900-16	5mg	BD900-55	50g
BD900-19	10mg	BD900-58	100g
BD900-22	20mg	BD900-62	200g
BD900-25	50mg	BD900-65	500g
BD900-28	100mg	BD900-68	1kg
BD900-32	200mg	BD900-72	2kg
BD900-35	500mg	BD900-75	5kg
BD900-40	1g	BD900-78	10kg
BD900-43	2g	BD900-82	20kg
BD900-46	5g		

Weight Sets

OIML Class F1. Complete with UKAS traceable certificate. Sets are highly polished stainless steel (weights 1mg to 5mg are aluminium). Supplied in a plastic box.

BD903-12	1mg to 500mg
BD903-15	1mg to 100g
BD903-24	1g to 1kg
BD903-27	1g to 2kg
BD903-30	1g to 5kg
BD903-33	1g to 10kg

OIML - International Organisation for Legal Metrology.

UKAS - United Kingdom Accreditation Service (formerly NAMAS).

DAkkS - Deutsche Akkreditierungsstelle GmbH.

Further balance accessories can be found in other sections:

- Spatulas and scoops – see SH200 to SH305.
- Vibrasorb® anti-vibration platform – see FZ990.



BD900

Balance Accessories

Calibration Weights, UKAS continued

Calibration weights, OIML Class E2 Certified

Recommended for the re-calibration of micro, semi-micro and analytical balances where high accuracy is required.

- ◆ Supplied with certificate traceable to United Kingdom Accreditation Service (UKAS)
- ◆ Calibration carried out in accordance with the requirements of ISO9002
- ◆ Shape conforms with OIML standard

Individual weights

OIML class E2. Complete with UKAS traceable certificate. Weights 1mg to 5mg are aluminium. Weights 10mg to 20kg are highly polished, stainless steel. Supplied in a plastic box.

BD905-10 1mg	BD905-40 1g
BD905-12 2mg	BD905-43 2g
BD905-16 5mg	BD905-46 5g
BD905-19 10mg	BD905-49 10g
BD905-22 20mg	BD905-52 20g
BD905-25 50mg	BD905-55 50g
BD905-28 100mg	BD905-58 100g
BD905-32 200mg	BD905-62 200g
BD905-35 500mg	

Weight sets

OIML class E2. Complete with UKAS traceable certificate. Sets are highly polished stainless steel (weights 1mg to 5mg are aluminium). Supplied in a box.

BD907-14 1mg to 500mg
BD907-16 1mg to 100g
BD907-26 1g to 1kg

Re-calibration of class E2 and F1 weights is available - *details on request.*

Calibration Weights, DAkKS (DKD)

A competitively priced range of precision weights and weight sets conforming and certified to OIML Class F1.

- ◆ Supplied with certificate issued under the supervision of DAkKS (formerly DKD), the German national calibration authority and is accepted as having full authority by UKAS under the European co-operation for Accreditation of Laboratories (EAL).

Individual Weights

OIML Class F1. Complete with DAkKS traceable certificate. Weights 1mg to 50mg are aluminium, weights 100mg to 500mg are nickel-silver. Weights 1g to 20kg are highly polished, non-magnetic stainless steel and supplied in a plastic box.

BD912-10 1mg	BD912-49 10g
BD912-12 2mg	BD912-52 20g
BD912-16 5mg	BD912-55 50g
BD912-19 10mg	BD912-58 100g
BD912-22 20mg	BD912-62 200g
BD912-25 50mg	BD912-65 500g
BD912-28 100mg	BD912-68 1kg
BD912-32 200mg	BD912-72 2kg
BD912-35 500mg	BD912-75 5kg
BD912-40 1g	BD912-78 10kg
BD912-43 2g	BD912-82 20kg
BD912-46 5g	

Weight Sets

OIML Class F1. Complete with DAkKS traceable certificate. Weights up to 50mg are aluminium, weights 100mg to 500mg are nickel-silver. Weights 1g to 10kg are highly polished, non-magnetic stainless steel. Supplied in a wooden box.

BD918-10 1mg to 500mg
BD918-13 1mg to 100g
BD918-18 1g to 1kg
BD918-22 1g to 2kg
BD918-26 1g to 5kg
BD918-30 1g to 10kg



Barometers

Analogue

Analogue Barometer/Weather station

Indoor use. Bench or wall-mounting, with three, 45mm diameter dials. From top to bottom these indicate humidity (scaled 0 to 100% RH), atmospheric pressure (scaled 970 to 1050hPa x 1hPa) and temperature (scaled -20 to +60°C), respectively. Overall 55 x 33 x 165mm W x D x H. Weight 116g.

BF105-40 Analogue barometer/
weather station

Analogue Barometer/Weather station

Outdoor use. Wall-mounting, aluminium/glass housing with rain shield. 3-dial white face with main dial indicating atmospheric pressure from 960 to 1040hPa x 1hPa and smaller subsidiary dials indicating temperature from -40 to +60°C x 1°C and humidity from 0 to 100%RH x 1%RH, respectively. Overall 145 x 70 x 215mm W x D x H. Weight 500g.

BF105-60 Analogue barometer/
weather station

Hygrometers – see *HY160 to HY650-series*.

NOTE

Atmospheric pressure is now commonly measured in the metric unit of hPa (hectoPascals). 1hPa = 1mb.



BF105-40



BF105-60

Aneroid

Aneroid Barometer

Dual scaled 940 to 1060hPa x 1hPa and 71 to 80cm x 0.1cm. Brass finish case 100mm diameter. With manually adjustable pointer, to aid pressure trend indication, and hanging ring.

BF108-15 960 to 1060hPa

Anemometer, vane, compact

Compact hand-held, vane-type anemometer and thermometer with rugged ABS housing and large, clear, backlit LCD readout.

Ranges:-

Wind speed: 0.4 to 30m/s (alternative ranges: mph, knots, km/h)

Temperature: -30 to +60°C (alternative range: -22 to 140°F)

Precision: ±3%. Other functions include maximum and minimum values and battery status readout. Overall 175 x 52 x 35mm L x W x D. Weight 115g. Supplied with battery.

AN450-25 Vane anemometer, compact

BL610-25 Spare battery, 9V



BF107-45



BF108-15

Digital

Digital Barometer/Weather station

With multiline LCD display indicating temperature (indoor, and outdoor using radio communication sensor supplied) with Max/Min facility, indoor humidity, barometric pressure with graphic icon indication of next 12 hours weather, pressure development profile for the previous 12 hours shown in a bar chart format, storm warning indicator, moon phase graphic, clock with time zone adjustment, date, month and year calendar. Wall or desk mounting. Overall 158 x 119 x 26mm H x W x D (display unit), 104 x 40 x 26mm (remote sensor). Supplied with batteries.

◆ Ranges

- 800 to 1100hPa x 1hPa
- -50 to +70°C outdoor
- -10 to +50°C indoor
- 1 to 99%RH

BF107-45 Digital Barometer/
Weather station

Accessories

BL610-08 Battery, AAA, 1.5V
(3 required for display module, 2
required for sensor)



AN450-25

Basins

Glass

All dimensions and capacities are nominal.

Evaporating

Pyrex 1450 series, flat bottom, curved sides, with spout.

	Ref. 1450	Cap. ml	Dia. x Ht. mm
BF500-10	/01	15	50 x 25
BF500-15	/03	45	60 x 30
BF500-20	/04	90	80 x 45
BF500-25	/06	170	95 x 55
BF500-30	/10	320	115 x 65
BF500-35	/14	600	140 x 80

Evaporating

Pyrex 1470 series, flat bottom, cylindrical, without spout.

	Ref. 1470	Cap. ml	Dia. x Ht. mm
BF505-10	/02	100	70 x 40
BF505-15	/04	150	80 x 45
BF505-20	/08	300	95 x 55
BF505-25	/10	500	115 x 65
BF505-30	/12	900	140 x 75
BF505-35	/16	2000	190 x 90



BF500



BF505

Metal

All dimensions and capacities are nominal.

Aluminium

Round bottom, with spout.

	Cap. ml	Dia. x Ht. mm
BF550-15	130	80 x 40

Nickel

Flat bottom, with drop-on cover with knob.

	Cap. ml	Dia. x Ht. mm
BF570-10	40	60 x 16
BF570-15	95	90 x 16

Platinum (97%) - Iridium (3%)

Flat bottom. Approximate weights are 50ml, 22g and 90ml, 32g.

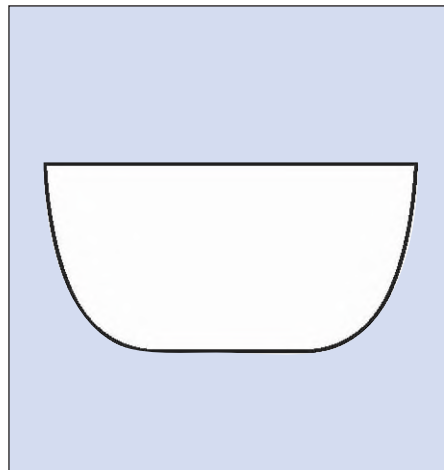
	Cap. ml	Dia. x Ht. mm
BF585-12	50	60 x 30
BF585-19	90	70 x 35

Dressing Containers, with lids

	Cap. ml	Dia. x depth, mm
MF325-26	700	100 x 100
MF325-42	2500	150 x 150



BF550/570



BF585

Instrument Boxes, with lid

	L x W x D, mm	Cap., ml
MF430-17	200 x 100 x 50	1000
MF430-27	220 x 120 x 50	1300
MF430-37	300 x 220 x 50	3300

Glass Dishes

Instrument – see *Boxes* section.

Metal Dishes

Foil – see *Dishes* section.

Instrument – see *Medical* section.

Kidney – see *Medical* section.

Trays – see *Trays* section.

Plastic Dishes

Petri – see *Petri dish* section.

Photographic – see *Dishes* section.



MF325



MF430

Basins

Porcelain Basins

All dimensions and capacities are nominal.
Maximum operating temperature 1000°C.

Evaporating

Round bottom, shallow form, with spout.

	Cap. ml	Dia. x Ht. mm
BF662-12	35	63 x 25
BF662-14	50	70 x 28
BF662-18	75	80 x 32
BF662-22	95	85 x 35
BF662-28	170	105 x 42
BF662-33	285	125 x 50
BF662-37	420	150 x 55
BF662-46	1000	200 x 80

Note:

BF662-12 to BF662-33 are glazed except rim.
BF662-37 to BF662-46 are glazed except outside base.

Evaporating

Round bottom, deep form, with spout.

	Cap. ml	Dia. x Ht. mm
BF667-12	50	70 x 34
BF667-17	150	97 x 50
BF667-19	250	110 x 52

Evaporating

Flat bottom, shallow form, with spout.

	Cap. ml	Dia. x Ht. mm
BF678-12	20	63 x 13
BF678-18	45	80 x 16
BF678-24	100	100 x 20
BF678-32	260	125 x 25
BF678-36	520	160 x 40

Ignition Capsule

Flat bottom, deep form, without spout. Capacity 20ml. Diameter 40mm. Height 20mm.

BF685-25 Capsule

Casserole

With handle and spout. Capacity 140ml. Diameter 80mm. Height 45mm.

BF690-30 Casserole

Silica Basins

All dimensions and capacities are nominal.
Maximum operating temperature 1050°C (1300°C for short periods).

Shallow form

Translucent, glazed with spout.

	Cap. ml	Dia. x Ht. mm
BF802-10	20	55 x 23
BF802-15	45	75 x 27
BF802-20	70	87 x 33
BF802-25	100	100 x 38

Deep form

Translucent, glazed, with spout. Capacity 90ml. Dia 80mm x Ht 45mm.

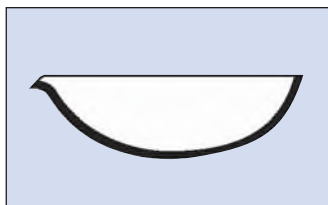
BF807-20 Deep

Flat form

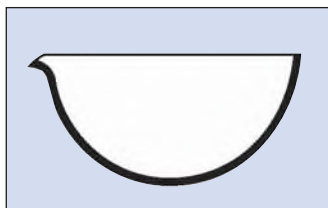
Translucent, glazed, with spout.

	Cap. ml	Dia. x Ht. mm
BF812-10	25	79 x 15

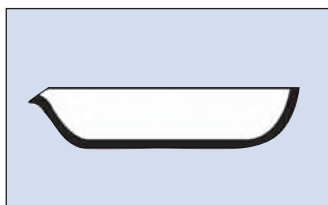
Silica trays – see Trays section.



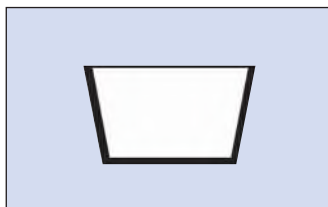
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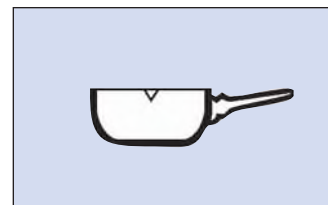
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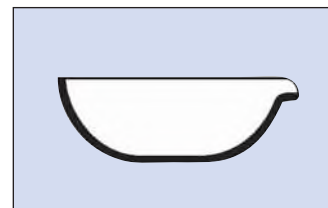
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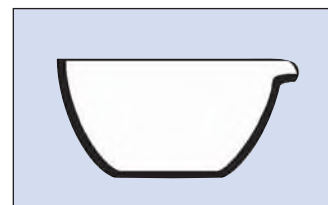
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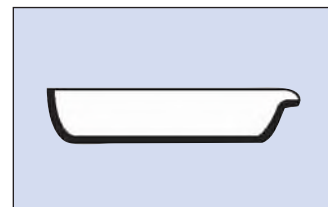
BF690



BF802



BF807



BF812

Baskets, Baths

Baskets

Rectangular. For holding a wide variety of small glassware and plasticware.

L x W x H

Nylon coated wire

BG225-12	100mm cube
BG225-17	125mm cube
BG225-22	150mm cube
BG225-32	200mm cube

Stainless steel wire

BG234-10	100mm cube
BG234-15	125mm cube
BG234-20	150mm cube
BG234-30	200mm cube

Polypropylene tapered for stacking

BG235-10	143 x 120 x 109mm
BG235-20	162 x 162 x 155mm
BG235-30	225 x 225 x 230mm



BG225



BG234

Boiling Water Baths

With concentric rings to support a wide range of flasks.

Bath, Circular

Stainless steel, with integral 1kW heating element, connector with cable, constant level and set of concentric rings. For 220-240V a.c. single phase supplies.

Dia. x depth

BH105-14	203 x 127mm
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Baths, Rectangular

Stainless steel, with integral heating element, connector with cable, constant level and set of concentric rings. All baths are 90mm deep. Maximum hole diameter 76mm except BH120-12 which is 108mm. For 220-240V a.c. single phase supplies; rating 1kW.

Places L x W

BH120-08	6	321 x 216mm
BH120-12	6	425 x 321mm
BH120-16	12	425 x 321mm

BH125-15 Spare element, 1kW, for

BH105 and 120 series

BH125-40 Energy regulator for

BH105 and 120 series. For

220-240V single phase supplies



BH105



BH120 series



BG235

Power Controllers For use with electrically heated baths to control energy input – see *EE500 series* in the *Electrical* section.

Fluidised Baths, for high temperature applications – see *BK502/512 series*.

Block Thermostats, for dry heating of Eppendorf and test tubes – see *BK205/340 series*.

Baths

Unstirred Thermostatic Water Baths



A range of robust, general purpose, unstirred water baths for routine applications.

- ◆ Temperature range ambient +5°C to 99.9°C
- ◆ 6, 15 or 24 litre capacities
- ◆ Digital display and temperature selection with recessed controls
- ◆ Low level water sensor
- ◆ Stainless steel tanks with heating under base
- ◆ Integral drain for easy emptying
- ◆ Supplied with moulded, transparent, polycarbonate lid

Dimensions

Cap. litres	Internal L x W x D mm	Overall L x W x D mm	Weight kg
6	300 x 150 x 200	335 x 270 x 280	6.5
15	300 x 325 x 200	335 x 408 x 280	9.0
24	300 x 500 x 200	335 x 584 x 280	12.8

Water Baths, Unstirred

With stainless steel tanks and polycarbonate lids. Maximum temperature 99.9°C. Temperature stability $\pm 0.5^\circ\text{C}$. For 230V 50Hz single phase supplies.

- BH170-10** SWB6D, 6 litres
- BH170-20** SWB15D, 15 litres
- BH170-30** SWB24D, 24 litres

Spare Polycarbonate lids

- BH176-10** For 6 litre bath
- BH176-20** For 15 litre bath
- BH176-30** For 24 litre bath

Spheres

Polypropylene, 20mm diameter. Supplied in pack of 300. Packs required to provide a single layer.

- 6 and 15 litre baths – 1 pack
- 24 litre bath – 2 packs

- B177-03** Spheres



BH170 in use



BH180 in use

Shaking Water Bath



- ◆ Temperature range ambient +5°C to 99.9°C
- ◆ Temperature stability $\pm 0.5^\circ\text{C}$ ◆ Hydraulic safety thermostat
- ◆ Press-set and read electronic thermostat with LED display
- ◆ Orbital or linear movement dictated by accessory trays
- ◆ Variable speed 20 to 200rpm with analogue dial setting
- ◆ Stroke: 16mm (orbital or linear) ◆ Controls recessed into exterior case

Shaking Water Bath

Capacity 24 litres, stainless steel tank. Maximum temperature 99.9°C. With digital electronic thermostat and safety thermostat. Variable shaker speed 20 to 200rpm. Internal 500 x 300 x 200mm (L x W x D). External 580 x 335 x 330mm (L x W x D). Weight 17kg. For 230V 50Hz single phase supplies, 1400W. Requires accessory tray (not included).

- BH180-20** Shaking bath SBS40

Accessories for BH180-20

Trays and Lid

Stainless steel, with network of cross-springs allowing different sizes and shapes of vessel to be shaken at the same time. Typically hold 8 x 250ml, 6 x 500ml or 4 x 1litre conical flasks. Tray type dictates shaking action.

- BH180-44** Orbital motion tray
- BH180-72** Linear motion tray
- BH168-20** Gabled lid, stainless steel

Test tube racks

Stainless steel. For attachment to BH180-44/72 trays which hold two racks only. For tubes number x o.d. as indicated.

	Ref.	For tubes
BH180-74	SBS40/5	143 x 1.5ml microtubes
BH180-77	SBS40/6	120 x 13mm
BH180-80	SBS40/7	72 x 16mm
BH180-83	SBS40/8	56 x 15ml centrifuge tubes
BH180-86	SBS40/9	30 x 26mm
BH180-89	SBS40/10	25 x 50ml centrifuge tubes



BH180 trays in use



BH180 racks in use

Baths

NE4 Series Stirred Thermostatic Water Baths

Clifton

◆ Choice of models:

-D: Stirred water baths featuring bridge-mounted thermoregulator with digital setting and display, 0-999 minute timer, with powerful heater and stirrer, stainless steel tank and sturdy, powder-coated, chemically-resistant outer cases.

-P: Generally as -D models but with pump for external circulation of temperature controlled liquids, providing a flow rate (using water) of 10 litres/minute in closed circuits.

◆ Operating range: ambient +5°C to +99°C* (-20°C achievable with accessory cooling)

◆ Sensitivity $\pm 0.1^\circ\text{C}$

◆ Uniformity $\pm 0.01^\circ\text{C}$

◆ Safety features include user-resettable low liquid level safety cut-out and audible overtemperature alarm

◆ Removable, perforated false base aids circulation and improves temperature uniformity

Dimensions

Model	Capacity litres	Working space W x D x H mm	Overall W x D x H mm
NE4-8D/-8P	8	129 x 298 x 150	271 x 332 x 170
NE4-14D/-14P	14	219 x 298 x 150	361 x 332 x 170
NE4-22D/-22P	22	395 x 298 x 150	537 x 332 x 170
NE4-28D/-28P	28	395 x 298 x 200	537 x 332 x 240

Stirred water baths, NE4-D series

Maximum temperature 99°C*. With user resettable safety cut-out device and bridge-mounted thermoregulator. For 230V 50Hz single phase supplies, 1250W.

	Ref.	Litres
BH206-12	NE4-8D	8
BH206-19	NE4-14D	14
BH206-24	NE4-22D	22
BH206-28	NE4-28D	28

Stirred water baths, NE4-P series

Maximum temperature 99°C*. With user resettable safety cut-out device and bridge-mounted thermoregulator. For 230V 50Hz single phase supplies, 1250W.

	Ref.	Litres
BH207-10	NE4-8P	8
BH207-15	NE4-14P	14
BH207-18	NE4-22P	22
BH207-26	NE4-28P	28

Thermoregulators

Thermostatic control units only, without tank or bridge mounting plate. Can be used on any tank with a maximum wall thickness of 30mm in conjunction with mounting bracket BH208-09.

BH208-04	NE4-D, digital
BH208-06	NE4-P, digital with pump
BH208-09	Mounting bracket for above thermoregulators

*At temperatures above 60°C a lid should be fitted or a layer of polypropylene spheres

Accessories

Stainless steel racks

	Holes
SM390-12	36 x 13mm
SM390-16	26 x 17mm
SM390-19	18 x 19mm
SM390-25	16 x 26mm

Max number of racks per bath

Bath Capacity	Racks
8 litres	1
14 litres	2
22/28 litres	5

Gabled lids, stainless steel

	For bath
BH208-77	8 litre
BH208-79	14 litre
BH208-82	22/28 litre

Flat lids, stainless steel

	For bath
BH208-86	8 litre
BH208-89	14 litre
BH208-93	22/28 litre

Raised shelves

	For bath
BH208-95	14 litre
BH208-96	22/28 litre

Thermometer Clip

Fits flush with the bath top without obstructing the lid. With spirit-filled, right angle thermometer, range 0 to 100°C x 2°C.

BH208-99 Thermometer clip

Polypropylene spheres - see BJ177-03



BH206-12



BH207-18 with SM390 and BH208-96 in use

Baths

Unstirred Thermostatic Water Baths

Grant
IN THE LABORATORY

Heater and temperature sensors for the JB and SUB Aqua Pro units are bonded to the underside of the tank, optimising working space and temperature uniformity. JB Nova and SUB Aqua Pro baths are supplied with clear polycarbonate, gabled lids to minimise evaporation and energy loss (except SAP34, which has a stainless steel lid) and a polycarbonate base tray to promote heat convection and optimise temperature uniformity. SBB Aqua Plus units are similar, but the heater is located inside the stainless steel tank and covered by a stainless steel, perforated shelf. JB Academy baths have no lid, nor drain tap and are intended for educational use.

JB Academy Baths, ambient +5°C to 95°C

With stainless steel tanks in outer cases of zinc-treated steel. A digital controller with simple keypad operation, wide-angled LED display and 0.5°C resolution enables rapid and easy setting and a front panel lock disables the panel to stop inadvertent temperature changes. Also incorporates a fixed thermal cut-out to guard against dry running or controller failure and a single point, user calibration function. Stability at 70°C (DIN 12876) ±0.5°C.

JB Nova Baths, ambient +5°C to 95°C

Similar to JB Academy series but additionally supplied with clear polycarbonate lids and drain taps (12 to 26 litre capacity tanks only). Stability at 70°C (DIN 12876) ±0.5°C.

SUB Aqua Pro Baths, ambient +5°C to 99°C

Stainless steel tanks in outer cases of painted zinc-treated steel (12 to 34 litre tanks are additionally fitted with drain taps). Digital PID temperature control with simple push-button setting and wide-angled LED display, indicating the status of heating, 3 programmable temperature presets, front panel lock-out to prevent accidental adjustment to settings and 0 to 999 minute countdown timer with audible alarm at end of timed period. With adjustable dial setting, overtemperature cut-out and separate, fixed, thermal cut-out. The user can also calibrate the bath at one or two points to optimise uniformity. Stability at 70°C (DIN 12876) ±0.2°C.

SBB Aqua Plus Baths for Boiling, 100°C

As SUB Aqua Pro baths but with an analogue energy regulator in place of the thermostat. Boiling can be maintained without violent agitation or excessive steam. Two fixed overtemperature cut-outs are fitted for safety. A constant level device and non-drip polycarbonate lid are provided. These baths must be used with a lid or a layer of polypropylene spheres.

Specifications

Model	litres	Working space L x W x D mm	Rack series accepted	Lids accepted
SAP2	2	125 x 140 x 115	—	AQL2
SAP2S*	2	145 x 290 x 30	—	AQL5, LU6
JBA/JBN/SAP/SBB5	5	145 x 290 x 115	1 x J2	AQL5, LU6
JBA/JBN/SAP/SBB12	12	315 x 290 x 115	2 x J2	AQL12, LU14
JBA/JBN/SAP/SBB18	18	495 x 290 x 115	3 x J2	AQL26, LU28
JBA/JBN/SAP/SBB26	26	495 x 290 x 165	4 x J2	AQL26, LU28
SAP34	34	630 x 290 x 160	6 x J2	LU36
SAP Dual†	5 and 12	145 x 290 x 115 315 x 290 x 115	1 and 2 x J2	AQL5, AQL12, LU6 and LU14

*Low-form, shallow bath for use with microtubes and small vessels.

† Dual bath model for two-temperature procedures. With separate tanks and lids.

Water Baths, Grant, unstirred

As specified. For 230V 50Hz single phase supplies.

Digital control, ambient + 5°C to 95°C

JB Academy

- BJ152-05** JBA5, 0.35kW, without lid or drain tap
- BJ152-12** JBA12, 0.80kW, without lid or drain tap
- BJ152-18** JBA18, 1.40kW, without lid or drain tap

JB Nova

- BJ156-05** JBN5, 0.25kW, with lid, without drain tap
- BJ156-12** JBN12, 0.80kW, with lid, without drain tap
- BJ156-18** JBN18, 1.05kW, with lid and drain tap
- BJ156-26** JBN26, 1.05kW, with lid and drain tap

Digital control, ambient + 5°C to 99°C

SUB Aqua Pro (SAP)

- BJ158-02** SAP2, 0.25kW, with lid, without drain tap
- BJ158-04** SAP2S, 0.35kW, with lid, without drain tap
- BJ158-05** SAP5, 0.35kW, with lid, without drain tap
- BJ158-12** SAP12, 0.80kW, with lid and drain tap

- BJ158-18** SAP18, 1.05kW, with lid and drain tap
- BJ158-26** SAP26, 1.05kW, with lid and drain tap
- BJ158-34** SAP34, 1.30kW, with lid and drain tap
- BJ158-40** SAP Dual, 1.15kW, with lid and drain tap

Analogue control, for Boiling

- BJ162-05** SBB Aqua 5 Plus, 1.5kW
- BJ162-12** SBB Aqua 12 Plus, 1.5kW
- BJ162-18** SBB Aqua 18 Plus, 2.0kW
- BJ162-26** SBB Aqua 26 Plus, 2.0kW



BJ156 series, BJ152 are similar



BJ162-18



BJ158 series

Baths

Unstirred Thermostatic Water Baths

Grant
IN THE LABORATORY

Accessories

Lids, sloping

- BJ175-02** AQL2, polycarbonate
- BJ175-05** AQL5, polycarbonate
- BJ175-11** AQL12, polycarbonate
- BJ175-26** AQL26, polycarbonate

- BJ175-40** LU6, stainless steel
- BJ175-42** LU14, stainless steel
- BJ175-44** LU28, stainless steel
- BJ175-46** LU36, stainless steel

Lids, flat with ring sets

Giving apertures of 31, 43, 59, 78, or 105mm diameter.

	Ref.	Holes	For bath
BJ176-20	LF6	2	JB/SAP/SBB5/Dual
BJ176-22	LF14	4	JB/SAP/SBB12/Dual
BJ176-24	LF28	6	JB/SAP/SBB18/26

Spheres

Polypropylene, 20mm diameter. Supplied in pack of 300. Packs required to provide a single layer.

- 2 to 16 litre and dual tank baths – 1 pack
- 18 to 26 litre and Dual baths – 2 packs
- 34 litre baths – 3 packs

BJ177-03 Spheres

Raised Shelves

Stainless steel with perforated mesh shelf. Used to alter the effective depth of the bath. Each occupies half the area of the bath specified and so allows both deep and shallow vessels to be accommodated.

	Ref.	For bath
BJ177-25	RS14H	JB/SAP/SBB12/Dual
BJ177-28	RS18H	JB/SAP/SBB18
BJ177-30	RS28H	JB/SAP/SBB26
BJ177-35	RS36H	SAP34

Racks, Stainless Steel

Racks

J2 racks for the JB/SUB/SBB Aqua Plus baths, stand on the perforated shelf of the bath, or on the floor of the tanks.

	Ref.	Holes
BJ178-04	P1-13	12 x 13mm
BJ178-08	P1-16	10 x 16mm
BJ178-12	P1-19	9 x 19mm
BJ178-16	J2-10	84 x 10mm
BJ178-20	J2-13	55 x 13mm
BJ178-24	J2-16	36 x 16mm
BJ178-28	J2-19	32 x 19mm
BJ178-32	J2-25	18 x 25mm
BJ178-36	J2-30	12 x 30mm

For microcentrifuge tubes

- BJ178-80** J2-SE 105 x 0.5ml
- BJ178-82** J2-LE 65 x 1.5ml

Bains Marie – see *BH105/108 series*.

Fluidised baths, for high temperature applications – see *BK502/512 series*.



BJ177-03 in use



BJ177-30 in use



BJ178 in use



BJ175-46 with BJ158-34



BJ178 in use within BJ162-12

Baths

Optima Series

Grant
IN THE LABORATORY

A comprehensive, modular family of thermostatic controllers, bath tanks and accessories providing a wide range of specifications to meet the majority of laboratory requirements. Sophisticated electronics and the latest materials combine to ensure optimum performance, accuracy and stability.

- ◆ Choice of four thermostatic controller levels with digital programming
- ◆ Choice of plastic (P) or stainless steel (S) tanks
- ◆ Temperature scope of range -15 to +200°C depending on controller, bath and accessory cooling chosen (TX150 and TXF200 controllers can operate down to -50°C if required)
- ◆ Stirred circulation provides good temperature stability and uniformity
- ◆ Accessory Labwise™ control software allows remote programming, datalogging and real-time graphing of programmable models
- ◆ Digital and programmable controllers feature a novel, soft-touch navigator rotor and push-buttons for menu selection and operation

Safety feature include:

- ◆ Low liquid protection by float switch
- ◆ Visual alarm (and audible - digital and programmable controllers)
- ◆ Fixed (T100), or user-adjustable, overtemperature cut-out (TC120, TX150, TXF200 models only)

Thermostatic controllers have an injection moulded case, with heater, stirrer, pump (if provided) and Pt1000 temperature sensor projecting down into the liquid.

Lids are available as accessories. At temperatures below ambient or above +60°C to 100°C a lid should be fitted, or a layer of polypropylene spheres used. Above 100°C only a lid must be used.

Labwise™ control software, available as an accessory for TX150 and TXF200 controllers, can be used to set all parameters, including programmes, via the users' PC running Windows™ software and in English, French, German, Spanish or Italian languages. It also features real-time status windows, a graphical display of the controllers performance during a run, and allows data to be logged for future recall and analysis.



Baths

Optima Series Thermostatic Controllers

Grant
IN THE LABORATORY

Each controller is supplied without clamp. An accessory clamp (BJ180-95) allows the controller to be used with almost any type of vessel where it can be attached to the vessel wall. When the controller is to be used with Optima bath tanks the clamp is unnecessary as a bridge plate is provided.

Model		T100	TC120	TX150	TXF200
Temperature ranges [†]	without tank	°C 0 to 100*	-25 to 120*	-50 to 150*	-50 to 200*
	using S tanks	°C 0 to 100*	0 to 120*(5/12/18L) -15 to 120* (26/38L)	0 to 150* (5/12/18L) -15 to 150* (26/38L)	0 to 200* (5/12/18L) -15 to 200* (26/38L)
	using P tanks	°C ambient +15 to 99	TC120-P5/TX150-P5/TXF200-P5, ambient +5 to 99 — rest of range		
Stability, S tanks (DIN 58966)	@ 70°C	±°C 0.05	0.05	0.01	0.01
Uniformity, S tanks	@ 70°C	±°C 0.1	0.1	0.05	0.05
Setting resolution		°C 0.1	0.1	0.1 (0.01 using Labwise)	0.1 (0.01 using Labwise)
Display		4 digit LED	4 digit LED	Full colour QVGA TFT	Full colour QVGA TFT
Display resolution	°C	0.1	0.1	0.01	0.01
No. of stored temperature values		3	3	3	3
Two point re-calibration		yes	yes	yes	yes
Offset adjustment		no	no	yes	yes
External probe socket		no	no	yes	yes
USB interface		no	no	yes	yes
Programmable		no	no	yes via PC	yes via PC/direct
No. of stored programmes		none	none	1 x 30 segment	10 x 100 segment
Relays		none	none	1	2
Heater power, 220-240V	kW	1.3	1.3	1.9	1.9
Pump (water)	max. pressure	mbar no pump	210	310	530
	max. flow	L/min no pump	16	18	23 adj. flow rate
Inlet/outlet	pipe bores	mm n/a	6/11	6/11	6/11
Overall dimensions, excluding clamp	mm	115 x 145 x 315 W x D x H — all models			
Height above tank rim	mm	200 — all models			
Depth below tank rim	mm	135 — all models			

[†]A lid or layer of polypropylene spheres must be used when operating between 60°C and 100°C, and is recommended for use below room temperature. Above 100°C, a lid must always be used.

*Minimum operating temperature without accessory cooling is ambient plus 5°C, except in the 5 litre tanks, in which it is ambient plus 15°C. Minimum and maximum temperatures achievable are dependent upon the tank insulation and the minimum operating temperature depends on the accessory immersion cooler selected.

continued on next page



BJ180-18



BJ180-28 in use on tank with lid



BJ180-28

Baths

Optima Series Thermostatic Controllers continued

Grant
IN THE LABORATORY

Digital model, T100

Operating range 0 to +100°C. With PID control, soft-touch rotary selector and push-button setting, LED display and simple user interface with fault indication and visual alarm. Supplied without clamp. For 230V 50/60Hz single phase supplies.

BJ180-18 T100

Digital model, TC120

Operating range -25 to +120°C. Generally as TC100 but with powerful external circulation pump, timer function for reaction timing from 0 to 9999 minutes, and variable high temperature alarm setting. Supplied with two pump connector plates with outlets for 6mm or 11mm tubing bores. Supplied without clamp. For 230V 50Hz single phase supplies.

BJ180-28 TC120



BJ180-18 in use on tank with lid



BJ180-37



BJ180-49



BJ180-49 in use on tank with lid

Programmable model, TX150

Operating range -50 to +150°C. Full colour QVGA TFT screen which displays actual and set temperatures, pump speed and memory icons for programming with choice of operating languages (English, French, German, Spanish and Italian). With 99 hours 59 minute timer function and heater control fault indicator, audible and visual alarms, USB interface allowing remote control via an external PC, accessory Labwise™ software, programmable relay for ancillary equipment switching during a procedure (external cooling or remote alarm for example), high/low temperature alarm setting and temperature limiting for selected liquid type. Also includes memory storage of 10 programmes each of up to 100 segments. A built-in, powerful external circulation pump is provided with two pump connection plates with outlets for 6mm or 11mm tubing bores, and a socket for an accessory external Pt1000 temperature probe. Supplied without clamp. For 230V 50Hz single phase supplies.

BJ180-37 TX150

Programmable model, TXF200

Operating range -50 to +200°C. Generally as TX150-series but with variable flow rate, external circulation pump, on-board programming facility via the control panel, including temperature ramping rate to target temperature, storage of 10 programmes, each of up to 100 segments, USB interface, and additional programmable relay for ancillary equipment switching during a procedure. Supplied without clamp. For 230V 50/60Hz single phase supplies.

BJ180-49 TXF200

Clamp

For use with BJ180-series to enable attachment of thermostatic controllers to alternative models/makes of bath (not required when used with Optima P- or ST-series tanks). The maximum vessel wall thickness is 35mm for rectangular and 30mm for circular (300mm diameter) tanks. Maximum vessel volume is 50 litres.

BJ180-95 Clamp

Baths

Optima Series Bath Tanks

Grant
IN THE LABORATORY

P series tanks

Cost effective, robust plastic tanks for applications in the range ambient +5°C to +99°C. Supplied with bridge mounting plate for Optima T-series controllers without clamps and carrying handles recessed into the ends of the case.

Ref.			P5	P12	P18
Tank capacity		litres	5	12	18
Top opening	L x W	mm	120 x 150	210 x 280	280 x 325
Liquid depth	min/max	mm	80/140	80/140	80/140
Inner tank dimensions	L x W x H	mm	240 x 160 x 150	325 x 280 x 150	510 x 290 x 150
Outer case dimensions	L x W x H	mm	330 x 240 x 180	415 x 350 x 870	600 x 365 x 180
Overall dimensions (including controller)	L x W x H	mm	390 x 200 x 360	415 x 350 x 360	600 x 350 x 360

- BJ182-05** Tank only, P5
- BJ182-10** Tank only, P12
- BJ182-15** Tank only, P18

ST series tanks

Stainless steel tanks with outer cases of glass-reinforced plastic which has excellent insulating properties and is resistant to acids and laboratory solvents. Operating temperature ranges are as indicated. Supplied with bridge mounting plate for Optima T-series controllers and configured to allow dual-positioning, either facing along the length or away from the width of the bath, for convenient access. Also include a recessed drain tap (except 5 litre size).

Ref.			ST5	ST12	ST18	ST26	ST38
Operating range	°C		0 to 200	0 to 200	0 to 200	-15* to 200	-15* to 200
Suitable immersion cooler			C1G	C1G	C1G	C1G, C2G	C1G, C2G
Tank capacity		litres	5	12	18	26	38
Top opening	L x W	mm	150 x 150	205 x 300	385 x 300	385 x 300	575 x 300
Liquid depth	min/max	mm	85/140	85/140	75/130	125/180	125/180
Inner tank dimensions	L x W x H	mm	300 x 150 x 150	325 x 300 x 150	505 x 300 x 150	505 x 300 x 200	690 x 300 x 200
Outer case dimensions	L x W x H	mm	330 x 180 x 180	360 x 330 x 180	540 x 330 x 230	540 x 330 x 230	730 x 333 x 230
Overall dimensions (including controller)	L x W x H	mm	330 x 180 x 395	360 x 330 x 395	540 x 330 x 395	540 x 330 x 405	730 x 333 x 405

*Using C2G immersion cooler, BJ240-52.

- BJ182-36** Tank only, 5 litres, ST5
- BJ182-41** Tank only, 12 litres, ST12
- BJ182-46** Tank only, 18 litres, ST18
- BJ182-51** Tank only, 26 litres, ST26
- BJ182-56** Tank only, 38 litres, ST38



Recessed drain tap



BJ182-10



BJ182-51

Baths

Optima Series Thermostatic Baths

Grant
IN THE LABORATORY

Complete units including plastic or stainless steel tank, bridge mounting plate and controller. Please refer to controller specifications for supply requirements. Accessory cooling as appropriate is required at low temperature. Accessory polypropylene spheres or a lid should be used at temperatures between +60 and +100°C. Above 100°C only a lid must be used.

	Ref.	Tank cap. litres	Tank material*	Temp. range °C
BJ185-48	T100-P5	5	P	ambient +5 to +99
BJ185-51	T100-P12	12	P	ambient +5 to +99
BJ185-53	T100-P18	18	P	ambient +5 to +99
BJ185-55	T100-ST5	5	S	0 to +100
BJ185-57	T100-ST12	12	S	0 to +100
BJ185-60	T100-ST18	18	S	0 to +100
BJ185-63	T100-ST26	26	S	0 to +100
BJ185-66	T100-ST38	38	S	0 to +100
BJ185-67	TC120-P5	5	P	ambient +5 to +99
BJ185-70	TC120-P12	12	P	ambient +5 to +99
BJ185-72	TC120-P18	18	P	ambient +5 to +99
BJ185-73	TC120-ST5	5	S	0 to +120
BJ185-76	TC120-ST12	12	S	0 to +120
BJ185-78	TC120-ST18	18	S	0 to +120
BJ185-80	TC120-ST26	26	S	-15 to +120
BJ185-82	TC120-ST38	38	S	-15 to +120

* P = plastic, S = stainless steel.

	Ref.	Tank cap. litres	Tank material*	Temp. range °C
BJ186-21	TX150-ST5	5	S	0 to +150
BJ186-26	TX150-ST12	12	S	0 to +150
BJ186-31	TX150-ST18	18	S	0 to +150
BJ186-36	TX150-ST26	26	S	-15 to +150
BJ186-41	TX150-ST38	38	S	-15 to +150
BJ186-61	TXF200-ST5	5	S	0 to +200
BJ186-68	TXF200-ST12	12	S	0 to +200
BJ186-71	TXF200-ST18	18	S	0 to +200
BJ186-76	TXF200-ST26	26	S	-15 to +200
BJ186-81	TXF200-ST38	38	S	-15 to +200

* P = plastic, S = stainless steel.



BJ185-53



BJ186-76 in use

Baths

Optima Series - Accessories

Grant
IN THE LABORATORY

Lids

Available in moulded plastic or stainless steel, either curved, flat, or gabled with hinge as indicated.

	Ref.	For baths	Material*	Type
BJ187-62	PL5	P5	S	Flat
BJ187-64	PL12	P12	P	Curved
BJ187-66	PL18	P18	P	Curved
BJ187-67	STL5	ST5	S	Flat
BJ187-71	STL12	ST12	S	Gabled
BJ187-73	STL26	ST18/ST26	S	Gabled
BJ187-77	STL38	ST38	S	Gabled

*S = stainless steel P = moulded plastic.

Spheres provide an alternative to a lid at temperatures between +60°C and +100°C. Packs required to provide a single layer.

5 litre tank: 1 pack 18 litre tank: 2 packs 38 litre tank: 3 packs

12 litre tank: 1 pack 26 litre tank: 2 packs

Polypropylene spheres - see BJ177-03.

Raised shelves

These reduce the effective liquid depth to allow shallow vessels to be placed in the baths. The effective liquid depth can be between 0 and 90mm only in 12 and 18 litre baths, and between 0 and 50mm or 85 and 135mm in 26 and 38 litre baths, achieved by inverting the shelf as required.

BJ226-14 RS14 for 12 litre baths

BJ226-22 RS22 for 18 litre baths

BJ226-28 RS28 for 26 litre baths

BJ226-38 RS38 for 38 litre baths

Draining Syphon

Enables bath to be emptied quickly.

BJ242-12 Ref. SY1

Remote Temperature Probes

Pt1000 external temperature probes for use with TX150 and TXF200 thermostat controllers in remote heating/cooling applications. With 3 metres of cable.

BJ242-20 TXPEP, fast response, nylon, 100mm x 4.5mm length x dia.

BJ242-25 TXSEP, robust, stainless steel, 125mm x 5mm length x dia.

Tube Racks

Stainless steel, with lifting handles, available for 10 to 13mm, 16 to 19mm or 24mm o.d. test tubes, 0.5ml or 1.5ml microcentrifuge tubes. QR racks can only be used with 5 litre baths. VR racks can be used with 12, 18, 22, 26 and 38 litre baths.

Maximum number of racks per bath:

5 litre: 1 x QR 18 litre: 4 x VR 38 litre: 6 x VR
12 litre: 2 x VR 26 litre: 4 x VR

Maximum number of tubes per rack

Tube dia. mm	VR	QR	Tube dia. mm	VR	QR
10 - 13	65	30	24	23	10
16 - 19	36	16	30	14	5

QR-series for 5 litre Baths only

	Ref.	Holes
BJ188-10	QR-13	30 x 10/13mm
BJ188-13	QR-19	16 x 16/19mm
BJ188-16	QR-24	10 x 24mm
BJ188-18	QR-30	5 x 30mm
BJ188-20	QR-SE	44 x 0.5ml microtubes
BJ188-23	QR-LE	35 x 1.5ml microtubes

VR-series for 12, 18, 26 and 38 litre baths only

	Ref.	Holes
BJ188-30	VR-13	65 x 10/13mm
BJ188-33	VR-19	36 x 16/19mm
BJ188-36	VR-24	23 x 24mm
BJ188-38	VR-30	14 x 30mm
BJ188-40	VR-SE	102 x 0.5ml microtubes
BJ188-43	VR-LE	75 x 1.5ml microtubes

Labwise software

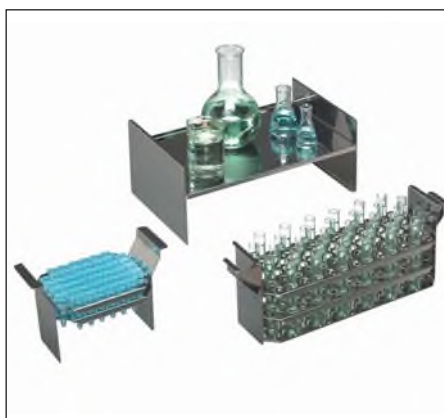
Allows remote set-up and programming of the TX150 and TXF200 thermostat controllers from the users' PC, real-time temperature/time profiles and graphical representation of process to be displayed, logging of profiles and programme storage to disk. Requires Windows™ software. Supplied with connection cable.

BJ189-75 Labwise software

continued on next page



BJ187-71



BJ188 and BJ226 in use



BJ189-75

Baths

Optima Series Bath Cooling Systems

Water-cooled and refrigerated systems are available. Both systems have a coil which can be placed under the heater/stirrer unit in 12, 18, 26 and 38-litre baths, so that the working space is not reduced.

Water Coil CW5

For use with mains tap water, suitable for all applications where the required temperature is 2°C or more above that of the tap water used.

BJ240-10 Ref. CW5

Refrigerated Coolers, C1G and C2G

- ◆ R134a CFC-free refrigerant

Catalogue No.		BJ240-32	BJ240-52
Model		C1G	C2G
Liquid temp. range*	°C	0 to +40	-20 to +40
Extraction rate	at 20°C	W 350	400
	at 0°C	W 110	320
	at -10°C	W —	170
Power consumption	W	300	500
Case L x W x H	mm	460 x 305 x 225	460 x 305 x 225
Coil diameter x length	mm	77 x 55	77 x 105
Flexible pipe length	mm	925	925

*Note: C1G and C2G will achieve the lowest specified temperatures provided they are used with a well insulated bath. Please refer to the tank specification table for information on the lowest operating temperature for Optima baths.

Refrigerated Cooler, C1G

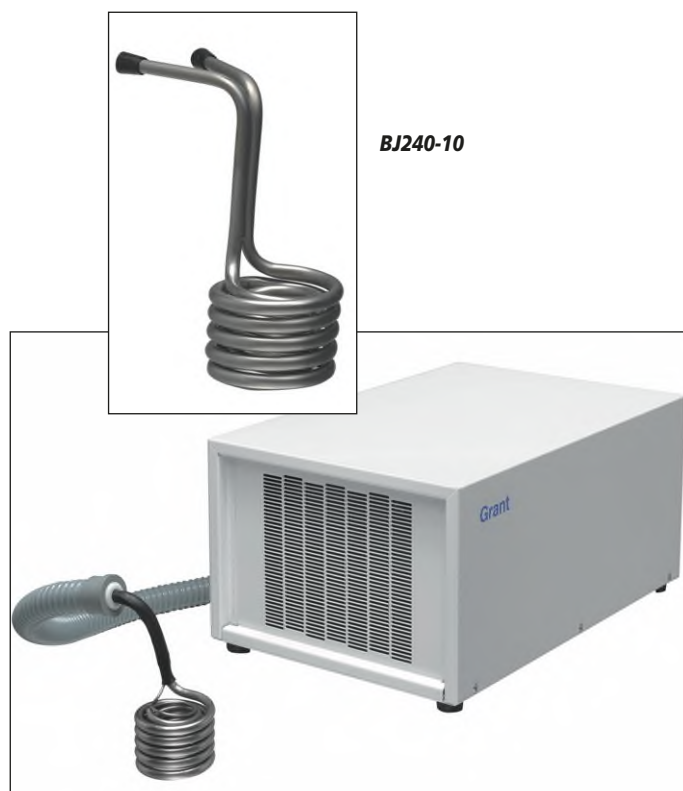
For use with all Optima baths over the range 0 to +40°C. For 220-240V 50Hz single phase supplies.

BJ240-32 Model C1G

Refrigerated Cooler, C2G

For use with all Optima baths over the range -20 to +40°C*. A bath lid must be used below 0°C in order to achieve optimum performance. For 220-240V 50Hz single phase supplies.

BJ240-52 Model C2G



BJ240-32, BJ240-52 is similar

Refrigeration Units

- ◆ Choice of model ranges:-
 - -20 to +100°C, -25 to +150°C, -30 to +200°C
 - Tank volumes: 5 or 6 litres
- ◆ Active cooling throughout the whole temperature range
- ◆ High power (up to 500W) cooling available if required
- ◆ Controller includes digital display of set/actual temperature, three temperature pre-sets, 1 minute to 99 hour 59 minute timer and high (and low – CL120-70/-85 only) temperature alarm settings
- ◆ “Eco” mode operation provides up to 80% energy saving compared to standard chillers with compressor on/off modes
- ◆ High pressure pumping up to 2 bar
- ◆ Adjustable overtemperature cut-out
- ◆ Models LT ecocool 150 and 200 additionally have USB interfaces for remote control via the user’s computer using accessory Labwise software and DIN sockets for connection to external temperature probes

Refrigeration units, LT ecocool

As described. Supplied with built-in controller and pump, stainless steel tank, lid and connectors and adapters for super seal, tubing ferrule, M16 or BSP connections. For 230V 50Hz single phase supplies.

CL120-45 LT ecocool 100

CL120-70 LT ecocool 150

CL120-80 LT ecocool 200

Full details of this range are given in the Circulators section.



CL120-45

Baths

LSB Aqua Pro Shaking Water Baths

Grant
IN THE LABORATORY

- ◆ Linear shaking action
- ◆ Magnetically coupled shaking trolley for use with separate trays
- ◆ Range: ambient + 5°C to 99°C
- ◆ Adjustable stroke speed, 20 to 200 strokes per minute (dependent on load) with 20mm stroke length
- ◆ Temperature stability (DIN 58966) and uniformity at 37°C to ±0.1°C
- ◆ Programmable temperature and shaking speed presets with precise PID electronic control, digital setting and display
- ◆ Choice of bath capacities: 12 or 18 litres (working capacities: 5 or 8 litres)
- ◆ Front panel lock-out to avoid inadvertent adjustment of controls
- ◆ Supplied with non-drip, polycarbonate, gabled lid and universal flask tray
- ◆ 1 to 999 minute countdown timer with audible alarm at end of timed period
- ◆ User resettable sample protection, fixed thermal and low liquid level cut-outs
- ◆ Drain tap provided for easy emptying of the tank
- ◆ Can be converted to an unstirred water bath using accessory base tray

Model litres	Working vol. mm	Shaking tray area	Overall L x W x D mm	Weight kg
LSB12	5	240 x 235	380 x 335 x 270	9.2
LSB18	8	420 x 235	570 x 335 x 270	11.2

Shaking Water Baths, Grant LSB Aqua Pro

As described. Supplied with non-drip, polycarbonate, gabled lid and universal flask tray. Maximum flask immersion 60mm. For 220-240V 50/60Hz single phase supplies. Power ratings as indicated.

- BJ380-12** LSB12, 0.8kW, with TU12 tray
BJ380-22 LSB18, 1.4kW, with TU18 tray

Spares and Accessories

Universal flask trays

Designed to accommodate a variety of vessels including conical flasks up to 1litre. An adjustable network of cross-springs secures the vessels firmly whilst allowing easy insertion and removal.

- BJ384-03** TU12 for BJ380-12
BJ384-08 TU18 for BJ380-22

Plain or test tube trays

Accommodate containers, bags, miscellaneous vessels or SR series test tube racks as indicated.

- BJ384-14** TS12, up to 3 x SR racks, for BJ380-12
BJ384-17 TS18, up to 5 x SR racks, for BJ380-22

Racks SR series

Stainless steel, for test tubes as indicated and BJ384-14/BJ384-17.

- BJ386-05** SR-10, 48 x 10mm **BJ386-21** SR-25, 12 x 25mm
BJ386-09 SR-13, 44 x 13mm **BJ386-25** SR-30, 10 x 30mm
BJ386-13 SR-16, 24 x 16mm **BJ386-32** SR-SE, 119 x 0.5ml microtubes
BJ386-17 SR-19, 21 x 19mm **BJ386-36** SR-LE, 48 x 1.5ml microtubes

Flask or Plate trays

With tapped apertures threaded to accommodate screw-in, SC/SH series flask clips or deep well microplates with wells of at least 2ml, as indicated..

- BJ387-35** TF12, for BJ380-12
BJ387-37 TF18, for BJ380-22

Clips SC/SH series

Stainless steel, for a single conical flask or deep well microplate with 2ml well size minimum as indicated and BJ387-35/BJ387-37.

	Ref.	Flask capacity, ml	TF12 capacity (max. number)	TF18 capacity (max. number)
BJ388-06	SC-25	25	20	35
BJ388-08	SC-50	50	16	28
BJ388-10	SC-100	100	16	28
BJ388-12	SC-250	250	9	15
BJ388-14	SC-500	500	6	8
BJ388-16	SC-1000	1000	4	6

Base trays

Stainless steel. Can be used to replace the shaking trolley and convert the tank to an unstirred bath. Provides a platform over the heater on which vessels and racks can be placed.

- BJ389-39** SBT12 for BJ380-12
BJ389-41 SBT26 for BJ380-22



BJ380-22

BJ380-12

OLS26 Aqua Pro Shaking Water Bath

Grant
IN THE LABORATORY

- ◆ Orbital or linear shaking action selectable
- ◆ Quiet running, magnetically coupled shaking trolley for use with separate trays
- ◆ 0 to 99°C operation using accessories
- ◆ Adjustable shaking speed, 20 to 200rpm (orbital), 20 to 200 strokes per minute (linear), depending on load, with variable stroke length (3 settings)
- ◆ Temperature stability (DIN 58966) and uniformity to $\pm 0.1^{\circ}\text{C}$
- ◆ Precise electronic control of temperature and shaking speed with digital setting and separate LED displays of speed and temperature
- ◆ 1 to 999 minute countdown timer with audible alarm at end of timed period
- ◆ 26 litre capacity stainless steel tank and drain tap for easy emptying
- ◆ Can be converted to an unstirred water bath using accessory tray
- ◆ Supplied with non-drip, polycarbonate, gabled lid and universal flask tray

Linear motion

A choice of three stroke length settings are available by simple adjustment within the tank.

Setting	Stroke length mm
A	18
B	28
C	36

Orbital motion

Adjustable from 20 to 200rpm with a 9mm fixed radius.

Shaking Water Bath, Grant OLS26

As described. Tank dimensions 505 x 300 x 200mm deep. Overall 555 x 325 x 300mm deep. Supplied with non-drip, polycarbonate, gabled lid and TU26 universal flask tray. Maximum flask immersion 70mm (30mm at fastest speed setting). Weight 13.8kg. For 220-240V 50/60Hz single phase supplies, 1.4kW.

BJ404-30 OLS26



BJ404-30 in use

Spares and Accessories

Universal flask tray, TU26

Versatile stainless steel tray, designed to accommodate a variety of vessels including 'sandwich boxes' for hybridisation and conical flasks up to 1litre. An adjustable network of cross-springs secures the vessels firmly whilst allowing easy insertion and removal.

BJ410-51 Universal flask tray, TU26

Plain or test tube tray, TS26

Accommodates containers, miscellaneous vessels, bags or up to 5 x SR series test tube racks.

BJ412-55 TS26

Racks SR series

Stainless steel, for test tubes as indicated and BJ412-55.

BJ386-05 SR-10, 48 x 10mm

BJ386-21 SR-25, 12 x 25mm

BJ386-09 SR-13, 44 x 13mm

BJ386-25 SR-30, 10 x 30mm

BJ386-13 SR-16, 24 x 16mm

BJ386-32 SR-SE, 119 x 0.5ml microtubes

BJ386-17 SR-19, 21 x 19mm

BJ386-36 SR-LE, 48 x 1.5ml microtubes

Flask or Plate tray, TF26

With tapped apertures threaded to accommodate screw-in, SC/SH series flask clips or deep well microplates with wells of at least 2ml, as indicated.

BJ412-60 TF26

Clips SC/SH series

Stainless steel, for a single conical flask or deep well microplate with 2ml well size minimum as indicated and BJ412-60.

	Ref.	Flask capacity, ml	TF12 capacity (max. number)	TF18 capacity (max. number)
BJ388-06	SC-25	25	20	35
BJ388-08	SC-50	50	16	28
BJ388-10	SC-100	100	16	28
BJ388-12	SC-250	250	9	15
BJ388-14	SC-500	500	6	8
BJ388-16	SC-1000	1000	4	6

Base tray, SBT26

Stainless steel. Can be used to replace the shaking trolley and convert the tank to an unstirred bath. Provides a platform over the heater on which vessels and racks can be placed.

BJ389-41 Base tray, SBT26

Sloping lid, LS200

Stainless steel. For use at temperatures above 60°C.

BJ418-10 Sloping lid, LS200

Water coil, CW26

For use with mains tap water or refrigerated circulator. Suitable where the required temperature is 2°C or more above that of the coolant used. Fits underneath the shaking trolley.

BJ422-27 Water coil, CW26

Immersion cooler, CC26

Refrigerated cooler, fixed cooling, with coil designed to fit under the shaking trolley of the OLS200. Overall dimensions (cooler only) 410 x 285 x 225mm L x W x H. For 220-240V 50Hz single phase supplies. We suggest that lid BJ418-10 is also purchased as this has an access hole for the cooling coil supply.

BJ422-35 Immersion cooler, CC26

Baths

Unstirred Thermostatic Water Baths



- ◆ High contrast, full colour TFT digital readout provides excellent clarity and easy viewing from distance across the laboratory, with set and actual temperatures simultaneously displayed
- ◆ Up to 5 programmable presets allow memory of frequently used time and temperature settings for re-use
- ◆ Digital control panel with angled keypad and display ensures comfortable access and navigation of the intuitive interface
- ◆ All baths feature a steeply gabled, transparent, hinging lid to accommodate media bottles and provide adequate clearance when opening/closing
- ◆ Primary and automatic safety thermostats with alarm
- ◆ Stainless steel tank within a coated steel housing with recessed carrying handles (10 litre models and larger feature a built-in drain tap)

Ref.		WBE02	WBE05	WBE10	WBE20	WBE28	
Operating range	°C	Ambient +5 to 99 – all models					
Tank capacity	litres	2	5	10	20	28	
Stability	±°C	0.1 – all models					
Display resolution	°C	0.1 – all models					
Timer		Up to 99 hours 59 minutes – all models					
Inner tank dimensions	L x W x H	mm	99 x 109 x 152	127 x 274 x 152	269 x 295 x 152	241 x 432 x 152	241 x 432 x 203
Accessory racks accepted			1	2	4	5	5
Overall dimensions	L x W x H	mm	305 x 229 x 267	305 x 368 x 267	432 x 393 x 305	445 x 572 x 305	445 x 572 x 356
Heater	kW	0.12	0.38	1.08	1.44	1.44	
Weight	kg	4.1	604	10	11.3	12.7	

Unstirred Thermostatic Water Baths, Polyscience

As described. For 240V 50Hz single phase supplies.

- BJ433-02** WBE02
- BJ433-05** WBE05
- BJ433-10** WBE10
- BJ433-20** WBE20
- BJ433-28** WBE28

Accessory test tube racks

For baths up to 5 litres capacity.

- BJ434-04** for 15 tubes 10-13mm diameter
- BJ434-06** for 15 tubes 14-18mm diameter

For baths 10 to 28 litres capacity.

- BJ434-08** for 15 tubes 10-13mm diameter
- BJ434-11** for 15 tubes 14-18mm diameter

Spheres

Polypropylene, 20mm diameter. Supplied in pack of 300. Packs required to provide a single layer. 2 to 10 litre baths require 1 pack, 20 and 28 litre baths require 3 packs.

- BJ177-03** Spheres



Baths

Open Tank Water Baths



A wide-ranging family of combined thermostatic controllers and bath tanks with high-performance features and modern components to ensure reliable operation with premium accuracy and stability.

- ◆ Choice of four thermostatic controller levels; MX, Standard Digital (SD), Advanced Digital (AD) and Advanced programmable (AP)
- ◆ Maximum temperature up to +200°C, dependent on the controller, bath tank and bath fluid chosen
- ◆ All controllers feature pumped, closed-circuit circulation with AD and AP units additionally offering open-circuit circulation with return suction and remote monitoring/control using accessory Pt100 temperature probes
- ◆ Safety features include high/low temperature limits with alarms and indicators, low liquid level safety cut-out and power outage reset
- ◆ Choice of polycarbonate or stainless steel tanks with recessed carrying handles and supplied with flat lids. All stainless steel tanks and polycarbonate tanks greater than 14 litres also have built-in drain taps

Thermostatic Controllers

Ref.		MX	SD	AD	AP
<i>Operating ranges[†],</i>					
	<i>polycarbonate tanks</i>	°C Ambient +10 to +85 – all models			
	<i>stainless steel tanks</i>	°C Ambient +10 to +135 (MX controller), +150 (rest of range)			
<i>Stability</i>	±°C	0.07	0.04	0.01	0.005
<i>Display (backlit), resolution</i>	°C	LCD, 0.1	LCD, 0.1	LCD, 0.01	Colour LCD, 0.01
<i>Pump max. pressure (water)</i>	mbar	120	200	250	250
<i>Max. pump flow rate</i>	l/min.	11.9	10.2	16.7	16.7
<i>Max. suction flow rate</i>	l/min.	—	—	12.2	12.2
<i>Pump speed</i>		single	two	variable	variable
<i>Temperature calibration points</i>		1	1	1	10
<i>Programming capability?</i>		—	—	—	Yes
<i>Timer?</i>		—	—	Yes	Yes
<i>Interfaces</i>		—	RS232	RS232/RS485, USB, ethernet - both models	
<i>Inlet/outlet tubing bores</i>	mm	13 - all models			
<i>Supply requirement</i>		240V 50Hz single phase - all models			

[†] Dependent on bath/controller/bath fluid combination and using a lid/cover for temperatures over +60°C

Continued on next page



Open Tank Water Baths, continued



Polycarbonate tank models

Catalogue no.,	MX controller AP controller	BJ440-30 BJ440-65	BJ440-40 BJ440-75	BJ440-60 BJ440-85
Tank capacity	litres	8	14	23
Working access	L x W x D, mm	105 x 156 x 203	314 x 156 x 203	210 x 305 x 203
Overall	L x W x H, mm	322 x 207 x 441	532 x 208 x 441	457 x 345 x 441
Weight,	kg	7.2	10.9	20.4

Open Tank Water Baths, Polyscience, polycarbonate tanks

As described. For 240V 50Hz single phase supplies.

- BJ440-30** MX08P100, 8 litres, ambient + 10 to +85°C
- BJ440-40** MX14P100, 14 litres, ambient + 10 to +85°C
- BJ440-60** MX23P100, 23 litres, ambient + 10 to +85°C

- BJ440-65** AP08P100, 8 litres, ambient + 10 to +85°C
- BJ440-75** AP14P100, 14 litres, ambient + 10 to +85°C
- BJ440-85** AP23P100, 23 litres, ambient + 10 to +85°C

Stainless steel tank models

Catalogue no.,	MX controller AD controller AP controller	BJ442-03 BJ442-33 BJ442-42	BJ442-06 BJ442-36 BJ442-46	BJ442-09 BJ442-39 BJ442-49	BJ442-12 BJ442-40 BJ442-52
Tank capacity	litres	6	10	20	28
Working access	L x W x D, mm	100 x 110 x 152	99 x 255 x 152	264 x 228 x 152	257 x 214 x 203
Overall	L x W x H, mm	340 x 206 x 406	353 x 342 x 406	531 x 342 x 406	531 x 342 x 457
Weight,	kg	9.1	17.7	24.5	29.9

Open Tank Water Baths, Polyscience, stainless steel tanks

As described. For 240V 50Hz single phase supplies.

- BJ442-03** MX06S135 6 litres, ambient + 10 to +135°C
- BJ442-06** MX10S135 10 litres, ambient + 10 to +135°C
- BJ442-09** MX20S135 20 litres, ambient + 10 to +135°C
- BJ442-12** MX28S135 28 litres, ambient + 10 to +135°C
- BJ442-33** AD06S150, 6 litres, ambient + 10 to +150°C
- BJ442-36** AD10S150, 10 litres, ambient + 10 to +150°C
- BJ442-39** AD20S150, 20 litres, ambient + 10 to +150°C
- BJ442-40** AD28S150, 28 litres, ambient + 10 to +150°C

- BJ442-42** AP06S150, 6 litres, ambient + 10 to +150°C
- BJ442-46** AP10S150, 10 litres, ambient + 10 to +150°C
- BJ442-49** AP20S150, 20 litres, ambient + 10 to +150°C
- BJ442-52** AP28S150, 28 litres, ambient + 10 to +150°C

Other tank/controller combinations are available - *details on request.*



Accessory Pt100 Temperature Probes

For use with AD/AP controllers only when monitoring/controlling the contents of remotely heated vessels in open-circuit operation. With cable lengths as indicated.

- BJ443-92** Pt100 probe, 0.6m cable
- BJ443-96** Pt100 probe, 2m cable
- BJ443-98** Pt100 probe, 8m cable

Open Tank Water Baths, continued



Polycarbonate tank models

Catalogue no.,	MX controller AP controller	BJ440-30 BJ440-65	BJ440-40 BJ440-75	BJ440-60 BJ440-85
Tank capacity	litres	8	14	23
Working access	L x W x D, mm	105 x 156 x 203	314 x 156 x 203	210 x 305 x 203
Overall	L x W x H, mm	322 x 207 x 441	532 x 208 x 441	457 x 345 x 441
Weight,	kg	7.2	10.9	20.4

Open Tank Water Baths, Polyscience, polycarbonate tanks

As described. For 240V 50Hz single phase supplies.

- BJ440-30** MX08P100, 8 litres, ambient + 10 to +85°C
- BJ440-40** MX14P100, 14 litres, ambient + 10 to +85°C
- BJ440-60** MX23P100, 23 litres, ambient + 10 to +85°C

- BJ440-65** AP08P100, 8 litres, ambient + 10 to +85°C
- BJ440-75** AP14P100, 14 litres, ambient + 10 to +85°C
- BJ440-85** AP23P100, 23 litres, ambient + 10 to +85°C

Stainless steel tank models

Catalogue no.,	MX controller AD controller AP controller	BJ442-03 BJ442-33 BJ442-42	BJ442-06 BJ442-36 BJ442-46	BJ442-09 BJ442-39 BJ442-49	BJ442-12 BJ442-40 BJ442-52
Tank capacity	litres	6	10	20	28
Working access	L x W x D, mm	100 x 110 x 152	99 x 255 x 152	264 x 228 x 152	257 x 214 x 203
Overall	L x W x H, mm	340 x 206 x 406	353 x 342 x 406	531 x 342 x 406	531 x 342 x 457
Weight,	kg	9.1	17.7	24.5	29.9

Open Tank Water Baths, Polyscience, stainless steel tanks

As described. For 240V 50Hz single phase supplies.

- BJ442-03** MX06S135 6 litres, ambient + 10 to +135°C
- BJ442-06** MX10S135 10 litres, ambient + 10 to +135°C
- BJ442-09** MX20S135 20 litres, ambient + 10 to +135°C
- BJ442-12** MX28S135 28 litres, ambient + 10 to +135°C
- BJ442-33** AD06S150, 6 litres, ambient + 10 to +150°C
- BJ442-36** AD10S150, 10 litres, ambient + 10 to +150°C
- BJ442-39** AD20S150, 20 litres, ambient + 10 to +150°C
- BJ442-40** AD28S150, 28 litres, ambient + 10 to +150°C

- BJ442-42** AP06S150, 6 litres, ambient + 10 to +150°C
- BJ442-46** AP10S150, 10 litres, ambient + 10 to +150°C
- BJ442-49** AP20S150, 20 litres, ambient + 10 to +150°C
- BJ442-52** AP28S150, 28 litres, ambient + 10 to +150°C

Other tank/controller combinations are available - *details on request.*



Accessory Pt100 Temperature Probes

For use with AD/AP controllers only when monitoring/controlling the contents of remotely heated vessels in open-circuit operation. With cable lengths as indicated.

- BJ443-92** Pt100 probe, 0.6m cable
- BJ443-96** Pt100 probe, 2m cable
- BJ443-98** Pt100 probe, 8m cable

Baths

Thermostatic Baths



A revised range of circulation baths comprising any combination of five basic tank sizes and four thermoregulator controllers.

- ◆ Digital control models
- ◆ Five basic tank sizes 8 to 48 litres
- ◆ TU20D digital model is programmable via a built-in bi-directional RS232 interface
- ◆ Built-in circulating pump with external connections (except TU-20HT)
- ◆ Wide temperature range -40 to +250°C
- ◆ Control stability up to $\pm 0.005^\circ\text{C}$
- ◆ Adjustable overtemperature cut-out
- ◆ Highly insulated, liquid calibration bath (LCB) tanks available for maintaining precise temperatures at 200°C or above

Construction All models comprise an immersion heating element, temperature sensor, solid-state control circuit and circulating pump, built into a rugged, splash-proof case. All submerged parts are made either of stainless steel or high temperature self-extinguishing plastic. The tank interior is stainless steel.

Controllers Temperature control is by one of either of the various Tempette or Tempunit controllers described on the following pages.

Circulation A powerful pressure circulation pump with external connection is fitted as standard to each model except TU-20HT.

Safety Techne thermoregulators are designed and manufactured under BS-EN ISO 9001. They conform with all important international RF interference and electrical safety regulations, including the EMC and Low Voltage Directives, and carry the CE-mark.

Tanks

Nominal dimensions and weights.

Model		B-8	B-12	B-18	B-26	B-48
Tank capacity	litres	8	12	18	26	48
Overall dimensions						
— length/width	mm	265/325	354/325	530/325	530/325	594/365
— height (bath)	mm	172	172	172	222	298
Internal dimensions						
— working length/width \neq	mm	115/300	205/300	380/300	380/300	430/330
— depth max./min.	mm	130/100	130/100	130/100	180/150	255/224
Working capacity max./min.	litres	8.0/6.0	11.6/8.4	18.0/13.2	26.0/20.5	48.5/42.5
Weight, net	kg	3.6	4.2	5.4	6.6	11.6

\neq 8, 12, 18 and 26 litre tanks taper slightly towards the base. Dimensions given are those at the top of the bath.

Liquid Calibration Bath (LCB) Tanks

Nominal dimensions and weights.

Model		LCB-5	LCB-7	LCB-12
Tank capacity	litres	5	7	12
Bath opening	mm	140 x 140 — all models		
Overall dimensions, L x W x H	mm	351 x 260 x 183	351 x 260 x 233	351 x 260 x 358
Weight, net	kg	5	6	9

Thermoregulators

Specifications to DIN 58966.

Model		TE-10A	TE10D	TU-20D	TU-20HT
Operating temp. range*	$^\circ\text{C}$	-20 to +95	-40 to +120	-40 to +200	-40 to +250
Temperature selection		Analogue	Digital	Digital	Digital
Stability using water at 40°C	$^\circ\text{C}$	± 0.01	± 0.01	± 0.005	± 0.005
Method of control		Proportional	PID	PID	PID
Temperature sensor		Thermistor	PRT	PRT	PRT
Pump capacity, pressure, litres/min.		10	10	10	—
suction, litres/min.		—	—	—	—
	mbar	145	145	145	—
RS232 Interface		—	—	Standard	Standard
Cooling coil		Accessory	Accessory	Accessory	Accessory
Dimensions (W x D x H)	mm	237 x 124 x 260 — all models			
Weight, net	kg	3.7	3.9	4.0	4.2

* Cooling water or refrigeration as appropriate is required at low temperatures.

continued on next page



Baths

Portable Thermoregulators



"Clip on" temperature controllers with mounting clamp suitable for vessels with wall thickness up to 25mm. All models incorporate a splash-proof case, coiled immersion heater and pressure circulating pump (except TU-20HT). In addition they are fitted with an adjustable overtemperature cut-out and conform to international standards for radio frequency interference.

TE10D, TU20D and TU20-HT models have a low liquid level cut-out.

TU-20D and TU20-HT have a built-in RS232 interface which allows them to communicate with the users' personal computer if required using Therisoft PC control freeware.

All 230V units are supplied with both UK and European Schuko plugged mains supply leads.

Tempunit® is a registered trade marks of Techne Ltd.

Tempunit® Model TE-10D Digital

Versatile controller for accurate repeatability of temperature settings.

Range -40 to +120°C*
Stability (DIN 58966) ±0.01°C
Pump capacity 10 litres/minute
Overall L x W x H 237 x 124 x 260mm
For 230V 50/60Hz single phase supplies.

BJ765-25 TE-10D Digital

Tempunit® Model TU-20D Digital

High precision, digital controller with wide temperature range and fine temperature adjustment. Fitted with bi-directional RS232 interface for programming by a personal computer.

Range -40 to +200°C*
Stability (DIN 58966) ±0.005°C
Pump capacity 10 litres/minute
Overall L x W x H 237 x 124 x 260mm
For 230V 50/60Hz single phase supplies.

BJ770-25 TU-20D Digital

* Accessory cooling is required for operation near or below ambient temperature.

Tempunit® Model TU-20HT Digital

Ultra-wide ranging, high accuracy, digital controller with adjustable over-temperature cut-out and alarm, bi-directional RS232 interface and fitted cooling coil.

Range -40 to +250°C*†
Stability (DIN 58966) ±0.005°C
Overall L x W x H 237 x 124 x 260mm
For 230V 50/60Hz single phase supplies.

BJ775-30 TU-20HT

Notes:

* Accessory cooling is required for operation near or below ambient temperature.

†TU-20HT does not have an external circulation facility, and for use above 200°C, a Techne liquid calibration bath tank must be used.

Accessories

Cooling coil for all models. Requires a supply of cold water.

BJ778-06 Cooling coil

Dip coolers – see *BJ925 series*.

Polypropylene spheres to minimise evaporation – see *BJ177-03*.

Tanks with bridge mounting plates for use with controllers – see *BJ816/BJ819*.

Refrigerated Circulator Baths – see *CL160/CL162*.



BJ770-25, BJ765-25 and BJ775-30 are similar

Baths

Bath Tanks



Stainless steel tanks with stoved enamel steel outer cases incorporating carrying handles (except B-48). With bridge mounting plate for Techne controllers.

Model		B-8	B-12	B-18	B-26	B-48	
Tank capacity	litres	8	12	18	26	48	
Overall length	mm	265	354	530	530	594	
	width	mm	325	325	325	365	
	height	mm	172	172	172	222	296
Internal length	mm	115	205	380	380	430	
	width [†]	mm	300	300	300	330	
	depth max.	mm	130	130	130	180	255
	min.	mm	100	100	100	150	224
Weight, net	kg	3.6	4.2	5.4	6.6	11.6	

[†] 8, 12, 18 and 26 litre tanks taper slightly towards the base and have radiused internal corners. The 48 litre tank is of welded construction, with square corners. Dimensions given are those at the top of the bath.

- BJ816-08** Tank only Model B-8
- BJ816-12** Tank only Model B-12
- BJ816-18** Tank only Model B-18
- BJ816-26** Tank only Model B-26
- BJ816-48** Tank only Model B-48

Liquid Calibration Bath (LCB) Tanks

Heavily insulated tanks for low or high temperature operation with lid, drain tap and built-in cooling coil. (Please note: when fitted with a TU-20HT controller, these tanks cannot be used with Techne flow coolers). Operating range* -35 to +250°C.

*Cooling water or refrigeration as appropriate is required at low temperatures.

Model		LCB-5	LCB-7	LCB-12	
Tank capacity	litres	5	7	12	
Bath opening	mm	140 x 140 — all models			
Overall dimensions,	length x width	mm	351 x 260	351 x 260	
	height	mm	183	233	358
	Weight, net	kg	5	6	9

As described. Supplied with lid, built-in cooling coil and drain tap.

- BJ819-05** Tank only Model LCB-5
- BJ819-07** Tank only Model LCB-7
- BJ819-12** Tank only Model LCB-12

Cooling coil – see BJ778-06.

Polypropylene spheres – see BJ177-03.

Controllers – see BJ765/BJ775.



BJ816

Thermostatic Baths, complete*

*Now supplied as separate components - please select a tank and thermoregulator separately.

Accessories for Thermostatic Baths

A range of flat and gabled stainless steel lids are offered to suit all sizes of constant temperature baths. They provide complete coverage of the open bath surface for additional safety, reducing heat loss and evaporation, and containing steam or fumes.

Flat lids

- BJ853-08** for 8 litre baths
- BJ853-12** for 12 litre baths
- BJ853-18** for 18 and 26 litre baths
- BJ853-48** for 48 litre baths

Gabled lid

The gabled lid offers extra working headroom within the bath, and the angled top directs condensate to the side of the bath.

- BJ856-18** for 18 and 26 litre baths

Dip Coolers



For use with thermostatic baths and controllers to provide controlled temperatures near or below ambient.

Catalogue No.		BJ925-10	BJ925-40	
Model		RU-200	RU-500	
Minimum temperature	°C	-20	-35	
Cooling capacity at	20°C	W	145	240
	0°C	W	145	240
	-10°C	W	110	230
Coil L x D	mm	85 x 75	85 x 75	
Hose length	mm	1250	1250	
Overall	mm	235 x 420 x 300	370 x 430 x 325	
Weight, net	kg	17.7	31	

As detailed. With mains on/off switch, power indicator lamp and compressor on lamp. For 230V 50/60Hz single phase supplies.

- BJ925-10** RU-200
- BJ925-40** RU-500

Refrigerated Circulator Baths – see CL160.



BJ819-12 with BJ770-25



BJ925

Dip Coolers



For use with thermostatic baths and controllers to provide controlled temperatures near or below ambient.

Dip Coolers, Techne

Catalogue No.		BJ925-10	BJ925-40
Model		RU-200	RU-500
Minimum temperature	°C	-20	-35
Cooling capacity at	20°C	W 145	240
	0°C	W 145	240
	-10°C	W 110	230
Coil L x D	mm	85 x 75	85 x 75
Hose length	mm	1250	1250
Overall	mm	235 x 420 x 300	370 x 430 x 325
Weight, net	kg	17.7	31

As detailed. With mains on/off switch, power indicator lamp and compressor on lamp. For 230V 50/60Hz single phase supplies.

BJ925-10 RU-200

BJ925-40 RU-500

Refrigerated Circulator Baths – see CL160/CL162.



BJ925

Baths

Block Thermostats

Grant

IN THE LABORATORY

For controlled, dry heating of test tubes, microplates and Eppendorf tubes in aluminium blocks.

◆ Choice of models:

- QBD; range ambient +5°C to +130°C, with a novel interactive control interface using a dial rotor and two keys with a bright LED display, reaction timer from 1 to 4320 minutes, delayed start-up or switch-off function, offset adjustment to optimise accuracy, adjustable high temperature alarm, fault indication and alarm, socket for an accessory external Pt1000 temperature probe and thermal fuse overtemperature protection
- QBH; range ambient +5°C to +200°C, with all the features of the QBD series and two-point calibration of internal (or accessory external) temperature probes, front panel programming interface allowing set-up of up to three temperature/time segments plus an end-of-programme segment for control of audible alert and 'rest' temperature, and additional overtemperature protection by adjustable thermal cut-out

Model		QBD1	QBD2	QBD4	QBH2
Control		Digital	Digital	Digital	Digital
Range (resolution)	°C	Ambient +5 to 130 (0.1) — all models			Ambient +5 to 200 (0.1)
Stability (at 37°C)	±°C	0.1	0.1	0.1	0.1
Uniformity (at 37°C)	±°C	within block			
		0.1	0.1	0.1	0.1
		across similar blocks			
		0.2	0.2	0.2	0.2
Blocks accepted		1	2	4	2
Overall	L mm	230	280	380	280
	W mm	200	200	200	200
	H mm	100	100	100	100
Power	W	150	300	600	300
Supply		230V 50/60Hz single phase supply — all models			

As described. Supplied with block extraction tool. Requires, but do not include, interchangeable QB-series blocks.

- BK205-20** QBD1
- BK205-30** QBD2
- BK205-40** QBD4
- BK205-70** QBH2

Accessory covers

Clear polycarbonate. Protect the operator against accidentally touching blocks whilst hot.

- BK206-72** QBL1, for QBD1 only
- BK206-74** QBL2, for QBD2 and QBH2 only
- BK206-76** QBL4, for QBD4 only

External Pt1000 Probe UBEP

Allows in-block temperature of QBD/QBH series to be monitored and controlled directly.

- BK206-97** QBEP probe

Blocks, QB-series

Interchangeable. Machined aluminium, 140 x 50 x 62.5mm (L x W x H). Holes drilled as indicated.

	Ref.	No.	Dia. x depth, mm
BK217-03	QB-10	24	10 x 50
BK217-06	QB-12	24	12 x 50
BK217-07	QB-13	12	12 x 50
BK217-09	QB-16	12	16 x 50
BK217-12	QB-18	12	18 x 50
BK217-15	QB-24	5	24 x 50
BK217-16	QB-H	56 x 0.2ml centrifuge tubes	
BK217-18	QB-E0	24 x 0.5ml Eppendorf tubes	
BK217-21	QB-E1	24 x 1.5ml Eppendorf tubes	
BK217-23	QB-E2	24 x 2.0ml Eppendorf tubes	
BK217-24	QB-0	Solid for user to drill	
BK217-40	QB-50	4 x 50ml non-skirted centrifuge tubes	

Blocks for microtitration plates and PCR tubes - see MN663 on page 363.



BK205-40 in use with BK206-76, BK205-20 to BK205-40 are similar



BK217 in use

Baths

Block Thermostats

Grant

IN THE LABORATORY

Digital Block Thermostats, BT5D series, 400°C

- ◆ Precise digital setting and display with high clarity LED and recessed controls
- ◆ Integral fixed aluminium block
- ◆ 0 to 9999 minute timer or continuous operation
- ◆ Adjustable overtemperature cut-out with indicator

Maximum temperature 400°C, with stability $\pm 0.5^\circ\text{C}$. Digital setting and display to 1°C resolution. With 0 to 9999 minute timer, adjustable in 1 minute increments or for continuous operation, one fixed anodised aluminium block, drilled with holes as indicated. Overall 410 x 205 x 150mm. For 220-240V 50/60Hz single phase supplies, 750W.

	Model	No.	Dia. x depth mm
BK230-15	BT5D-16	38	16.5 x 60
BK232-15	BT5D-26	22	26.5 x 60

Digital Block Thermostat, BTD, 100°C

A low cost, analogue control, fixed block, dry heater for precision heating of microtubes, particularly in life sciences. With rapid heat up and digital control.

- ◆ Unique circular block which accommodates up to 49 samples in microtubes:
24 x 1.5/2ml 15 x 0.5ml 10 x 0.2ml
- ◆ Range: ambient $+5^\circ$ to $+100^\circ\text{C}$, stability $\pm 0.1^\circ\text{C}$
- ◆ Block uniformity: $\pm 0.2^\circ\text{C}$
- ◆ Heat up from $+25^\circ\text{C}$ to $+100^\circ\text{C}$ in 16 minutes, $+25^\circ$ to $+37^\circ\text{C}$ in 2 minutes
- ◆ Dual display of set and actual temperature
- ◆ Built-in timer from 1 minute to 96 hours with audible alarm at end of timed period
- ◆ Small footprint and compact design

As described. With circular fixed block. Overall 230 x 210 x 110mm (L x W x H). For 230V 50/60Hz single phase supplies, 200W.

BK245-20 BTD



BK230/BK232 in use



BK245-20 in use

Baths

Block Heaters



For uniform and stable heating of test tubes, Eppendorf tubes and cuvettes.

- ◆ Choice of
 - maximum temperature 130°C or 200°C
 - analogue dial or digital control with bright LED display
- ◆ Dual control model SBH130DC provides individual heating/control to two blocks

- ◆ 'Hot warning' light illuminates whenever block temperature exceeds 70°C even when unit is switched off (but remains connected to the mains supply socket)
- ◆ Heat to 100°C in less than twelve minutes

Model	SBH130	SBH130D	SBH130D/3	SBH130DC*	SBH200D	SBH200D/3
Range	°C ambient +8 to +130 — all models				°C ambient +8 to +200 — both models	
Stability (at 37°C)	±°C 0.1 — all models					
Uniformity	at 37°C ±°C 0.1 — all models					
	at 130°C ±°C 1.0 — all models					
Control	Analogue dial	Digital	Digital	Digital (x 2)*	Digital	Digital
Blocks accepted	2	2	3	2	2	3
Heater power	W 300	300	300	2 x 150*	300	450
Overall, W x D x H	mm 235 x 280 x 115	235 x 280 x 115	310 x 280 x 115	310 x 280 x 115	235 x 310 x 115	310 x 280 x 115
Weight	kg 2.1	2.3	3.2	2.9	2.3	3.2

*Dual control model with separate block heating.

Block Heaters, Stuart

As described. With 'power on' and 'hot warning' lamps and block extraction tool. For 230V 50Hz single phase supplies. Without blocks.

- BK280-40** SBH130
- BK280-45** SBH130D
- BK280-50** SBH130DC

- BK280-52** SBH130D/3
- BK280-55** SBH200D
- BK280-60** SBH200D/3



BK280-40 in use



BK280-45 in use

Accessories

Aluminium blocks

Supplied singly.

- BK282-04** for 20 x 10.5mm diameter tubes
- BK282-08** for 20 x 12.6mm diameter tubes
- BK282-12** for 12 x 16.5mm diameter tubes
- BK282-16** for 8 x 19.5mm diameter tubes
- BK282-19** for 6 x 25.5mm diameter tubes

- BK282-21** for 6 x 28mm diameter tubes
- BK282-25** solid for user to drill as required
- BK282-26** for 48 x 0.2ml centrifuge tubes
- BK282-27** for 30 x 0.5ml tubes
- BK282-28** for 20 x 1.5ml Eppendorf tubes

- BK282-30** for 20 x 2.0ml Eppendorf tubes
- BK282-35** for 15 x 10mm cuvettes. Separations can be removed to take larger cells
- BK282-40** for 1 x 96-well microplate
- BK282-42** for 1 x 384-well microplate

Safety covers

Perspex covers protect the operator from 'spitting tubes' and against accidentally touching the blocks whilst hot.

- BK282-85** SBH/2, for 2-block models except dual control
- BK282-95** SBH/3, for 3-block and dual control models

Thermometers - see TG150.



BK280-50 in use

Baths

Dri-Blocks



Economical, compact, constant temperature heaters with choice of analogue or digital setting, maximum temperatures 100°C or 200°C and blocks held, suitable for test tubes, cuvettes and other small containers in a variety of applications.

- ◆ Analogue or digital setting
- ◆ Temperature stability:
Analogue models: $\pm 0.2^\circ\text{C}$ at 40°C
Digital models: $\leq \pm 0.1^\circ\text{C}$ at 37°C
- ◆ Digital models have a countdown timer with audible and visual alarms at the end of the timed period, faster heating rate and venting panels to reduce housing temperature and allow safe handling
- ◆ Model DB200/3 has a user-adjustable, overtemperature cut-out which can be set below the default overtemperature point of 210°C . This allows sensitive samples to be protected. A secondary safety thermal fuse is also fitted to all models
- ◆ Wide variety of accessory blocks available

Without blocks. For 230V 50/60Hz single phase supplies. Heater power as indicated.

- BK340-30** DB-2A, 0.3kW
- BK340-36** DB100/2, 0.3kW
- BK340-40** DB-3, 0.45kW
- BK340-45** DB-3A, 0.45kW
- BK340-52** DB200/3, 0.45kW
- BK340-86** DB100/4, 0.6kW

- BK360-20** 12 x 15mm
- BK360-24** 12 x 16mm
- BK360-28** 8 x 19mm
- BK360-32** 6 x 24mm
- BK360-36** 6 x 25mm
- BK360-40** 6 x 26mm

- BK360-50** 10 x 9mm/20 x 7mm
- BK362-04** 2 x 10mm cuvettes
- BK364-04** 20 x 1.5ml Eppendorf
- BK364-06** 30 x 0.5ml Eppendorf

Accessory Aluminium Blocks

For tubes as indicated. Dimension given is tube diameter. Overall 95 x 76 x 51mm except where stated.

- BK360-04** 30 x 6mm
- BK360-08** 20 x 10mm
- BK360-12** 20 x 12mm
- BK360-16** 20 x 13mm

- BK366-04** Solid user to drill
- BK366-12** Solid plastic spacers, for BK340-series, pack of 2
- BK368-04** Solid but with thermometer hole

Catalogue No.	BK340-30	BK340-36	BK340-40	BK340-45	BK340-52	BK340-86
Model	DB-2A	DB100/2	DB-3	DB-3A	DB200/3	DB100/4
Temperature range	$^\circ\text{C}$ ambient +5 to 100 - all models			ambient +5 to 200 - both models		ambient +5 to 100
Temperature stability	at 37°C	$\leq \pm 0.1$	—	—	$\leq \pm 0.1$	$\leq \pm 0.1$
	at 40°C	± 0.2	± 0.2	± 0.2	—	—
Temperature setting	Rotary Knob	Push button	Rotary Knob	Rotary Knob	Push button	Push button
Temperature display	—	Orange LED	—	—	Orange LED	Orange LED
Heating time to max., minutes	12	8	18	30	19	7
Timer, 1 min. to 99h 59minutes	no	yes	no	no	yes	yes
Blocks accepted	2	2	3	3	3	4
Overall	Length	202	279	279	279	356
	Width	260	260	260	260	260
	Height	105	105	105	105	105
Weight	kg 4	5	6	6	6	7

Further model sizes are available - details on request.

Programmable block heaters – see *Molecular Biology* section



BK340-36 in use



BK340-30 in use



BK340-86 in use

Baths

Block Heater Cooler, BL^oCKICE



- ◆ Range 0 to 40°C x 0.1°C (°F display facility)
- ◆ Holds two standard Techne aluminium blocks
- ◆ Integral timer from 1 second to 9 days
- ◆ Overtemperature cut-out with alarm
- ◆ LED temperature/time display

As described. With Peltier cooling module, accuracy $\pm 1^{\circ}\text{C}$ with block variation (identical blocks) $\pm 0.2^{\circ}\text{C}$, digital temperature or time display and lid. Overall 240 x 190 x 225mm W x D x H. Weight 3kg. For 100-230V 50/60Hz single phase supplies. Without blocks.

BK370-05 BL^oCKICE

Accessory Aluminium Blocks

For tubes as indicated. Dimension given is tube diameter. Overall 95 x 76 x 51mm except where stated.

BK360-04 30 x 6mm
BK360-08 20 x 10mm
BK360-12 20 x 12mm
BK360-16 20 x 13mm

BK360-20 12 x 15mm
BK360-24 12 x 16mm
BK360-28 8 x 19mm
BK360-32 6 x 24mm
BK360-36 6 x 25mm

BK360-40 6 x 26mm
BK360-50 10 x 9mm/20 x 7mm
BK362-04 2 x 10mm cuvettes
BK364-04 20 x 1.5ml Eppendorf

BK364-06 30 x 0.5ml Eppendorf
BK366-04 Solid user to drill
BK366-12 Solid plastic spacers, for BK370- series, pack 2
BK368-04 Solid but with thermometer hole

Dry Bath Heater/Cooler, N^oICE



Allows small tubes up to 15ml to be incubated on the bench at sub-ambient temperatures without the inconvenience of ice baths such as melting and soaked labels.

- ◆ Range 0 to 40°C x 0.1°C (°F display facility)
- ◆ Heats/cools using removable aluminium tank filled with small diameter, ceramic-coated beads
- ◆ Overtemperature cut-out with alarm
- ◆ LED temperature/time display

As Described. With Peltier cooling module, accuracy $\pm 1^{\circ}\text{C}$, removable aluminium tank and beads, digital temperature display and lid. Overall 240 x 190 x 225mm W x D x H. Weight 4.5kg. For 100-230V 50/60Hz single phase supplies.

BK380-10 N^oICE
BK380-55 Spare tank for BK380-10
BK380-60 Bead charge for BK380-55



BK370-05 in use



BK380-10 in use

Baths, Batteries

Fluidised Baths



High temperature dry baths which are pollution free and safer replacements for traditional oil and salt baths.

Fluidised principle

A fluidised bath consists of a loosely packed mass of solid particles through which an upward flow of gas is passed. In this fluidised state the particles become mobile, and the bath as a whole displays many of the properties of a liquid. However, since the bath is composed of tiny inert aluminium oxide particles, freezing, boiling and evaporation are totally eliminated.

The dry, inert particles do not adhere to immersed objects, neither do they cause corrosion. The particles have a gentle motion that is non-abrasive.

The mobility of the bath ensures rapid heat transfer and excellent temperature uniformity.

These baths require fluidising particle media and a clean air supply at a pressure of 21KN/m² (3psi) and maximum flow of 57 litres/minute.

Catalogue No.	BK502-12	BK512-12
Model	SBS-4	SBL-2D
Range	°C 50 to 500	50 to 600
Stability	±°C 1 — both models	
Internal* depth	mm 140	350
diameter	mm 178	228
Rating	kW 1.5	4

*To the top of the fluidised medium.

Fluidised Baths, Techne

As described. For 220-240V 50/60Hz single phase supplies. Without fluidising media or air supply.

BK502-12 SBS-4 500°C

BK512-12 SBL-2D 600°C

Alundum aluminium oxide fluidising particle media - *details on request.*



BK502-12, BK512-12 is similar

Batteries/Battery Hydrometer

Dimensions are Height x Diameter or H x W x D in mm.

Lithium Manganese

Coin-type. Supplied singly.

	Type	Capacity mAh	Volts	Dimensions
BL590-05	CR1220	35	3	2 x 12.5
BL590-10	CR1620	50	3	2 x 16
BL590-15	CR2016	60	3	1.6 x 20
BL590-20	CR2025	130	3	2.5 x 20
BL590-25	CR2032	180	3	3.2 x 20
BL590-30	CR2430	260	3	3 x 24.5

Dry-alkaline Manganese

All have cap and can contact, except BL610-04 which is a button cell.

	Type	Equivalent	Volts	Dimensions
BL610-04	LR44	—	1.4	5.4 x 11.6
BL610-08	MN2400 (size AAA)	HP6	1.5	45 x 11
BL610-15	MN1500 (size AA)	HP7	1.5	51 x 15
BL610-20	MN1400 (size C)	HP11	1.5	50 x 26
BL610-22	MN1300 (size D)	HP2	1.5	62 x 34
BL610-25	MN1604	PP3	9	49 x 27 x 18

Silver Oxide

Button cell type.

	Type	Capacity mAh	Volts	Dimensions
BL630-06	SR41	38	1.5	3.6 x 7.9
BL630-18	SR44	170	1.5	5.4 x 11.6

Battery Hydrometer

For lead-acid accumulators. Pipette type; range 1.100 to 1.300 with coloured zones indicating charged, partly charged, and uncharged conditions. With float, plastic jacket and rubber suction bulb and nozzle. Length 203mm.

BL710-08 Battery hydrometer



BL710-08

Beakers

Pyrex® Borosilicate Glass

Pyrex® 1000 series, low form

With approximate graduations (except 10 litre size), marking spot, trace code to access a downloadable batch certificate and spout. To ISO 3819.

	Ref.	Capacity ml	Dia. x Ht. mm
BN100-10	1000/03	5	22 x 30
BN100-15	1000/05	10	26 x 35
BN100-20	1000/11	25	34 x 50
BN100-25	1000/02	50	42 x 60
BN100-30	1000/04	100	50 x 70
BN100-35	1000/06	150	60 x 80
BN100-40	1000/10	250	70 x 95
BN100-45	1000/14	400	80 x 110
BN100-50	1000/18	600	90 x 125
BN100-55	1000/20	800	100 x 135
BN100-60	1000/22	1000	105 x 145
BN100-65	1000/28	2000	130 x 185
BN100-70	1000/30	3000	150 x 210
BN100-75	1000/34	5000	170 x 270
BN100-80	1000/38*	10000	217 x 350

*Supplementary to ISO range.

Pyrex® 1015 series, tall form

With approximate graduations, marking spot and spout. To ISO 3819.

	Ref.	Capacity ml	Dia. x Ht. mm
BN120-25	1015/02	50	38 x 70
BN120-30	1015/04	100	48 x 80
BN120-35	1015/06	150	54 x 95
BN120-40	1015/10	250	60 x 120
BN120-45	1015/14	400	70 x 130
BN120-50	1015/18	600	80 x 150
BN120-60	1015/22	1000	95 x 180



BN100

Pyrex® 1020 series, conical

With spout. Top diameter is approximately 16mm less than the base diameter.

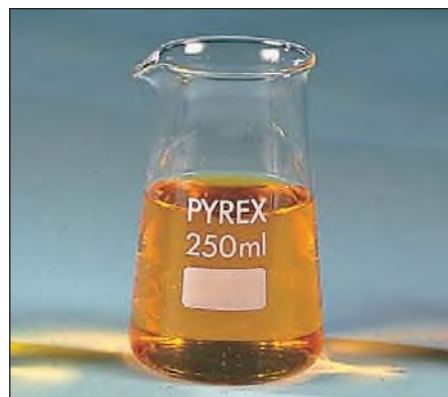
	Ref.	Capacity ml	Base Diameter x height mm
BN130-40	1020/06	250	68 x 105
BN130-47	1020/16	500	86 x 142

Pyrex® 1003 series, heavy duty, low form

Designed to provide high mechanical strength and increase the working life when used under harsh conditions. Have a reinforced rim plus a thicker wall and heavier base than the normal glass beaker. All capacities have a spout, marking spot and approximate graduations.

	Ref.	Capacity ml	Diameter x height mm
BN135-35	1003-150	150	57 x 89
BN135-40	1003-250	250	68 x 90
BN135-45	1003-400	400	77 x 110
BN135-50	1003-600	600	90 x 124
BN135-60	1003-1L	1000	108 x 156
BN135-65	1003-2L	2000	131 x 179
BN135-75	1003-4L	4000	160 x 250

All dimensions and capacities are nominal.



BN130

Pyrex® 1004 series, heavy duty, tall form

Designed to provide high mechanical strength and increase the working life when used under harsh conditions. Have a reinforced rim plus a thicker wall and heavier base than the normal glass beaker. All capacities have a spout, marking spot and approximate graduations.

	Ref.	Capacity ml	Diameter x height mm
BN137-35	1004-150	150	95 x 54
BN137-40	1004-250	250	120 x 60
BN137-50	1004-600	600	150 x 80

Pyrex® 1025 series, jacketed

For maintaining samples at a constant temperature, cooling or warming. With external jacket, through which a thermostatically controlled medium can be circulated via the inlet/outlet side arms, and approximate graduations.

	Ref.	Cap. ml	Overall diameter x height mm	Side-arm o.d. mm
BN140-40	1025/10SC	250	70 x 138	11
BN140-50	1025/18SC	600	95 x 180	11
BN140-60	1025/22SC	1000	110 x 235	14
BN140-65	1025/28SC	2000	130 x 280	14



BN137



BN120



BN135



BN140

Beakers

Rasotherm® Borosilicate Glass

Rasotherm®, low form

With approximate graduations, marking spot and spout. To ISO 3819.

	Ref.	Capacity ml	Dia. x Ht. mm
BN150-10	93206001	5	22 x 30
BN150-15	93206002	10	26 x 35
BN150-20	93206003	25	34 x 50
BN150-25	93206004	50	42 x 60
BN150-30	93206005	100	50 x 70
BN150-35	93206006	150	60 x 80
BN150-40	93206007	250	70 x 95
BN150-45	93206008	400	80 x 110
BN150-50	93206009	600	90 x 125
BN150-55	93206014	800	100 x 135
BN150-60	93206010	1000	105 x 145
BN150-65	93206011	2000	130 x 185
BN150-70	93206012	3000	150 x 210
BN150-75	93206013	5000	170 x 270

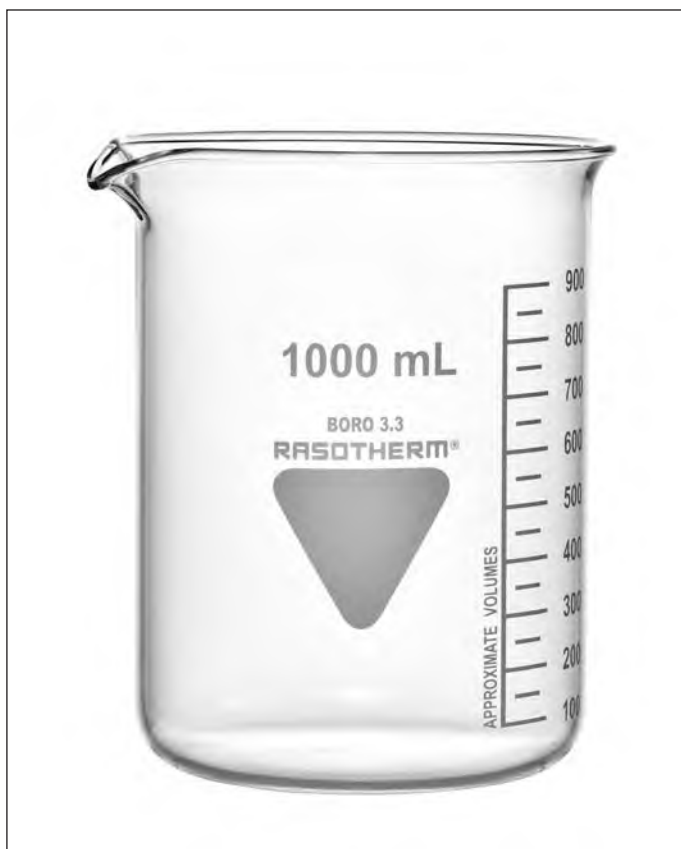
Rasotherm®, tall form

With approximate graduations, marking spot and spout. To ISO 3819.

	Ref.	Capacity ml	Dia. x Ht. mm
BN154-20	9336001	25*	30 x 55
BN154-25	9336002	50	38 x 70
BN154-30	9336003	100	48 x 80
BN154-35	9336004	150	54 x 95
BN154-40	9336005	250	60 x 120
BN154-45	9336006	400	70 x 130
BN154-50	9336007	600	80 x 150
BN154-55	9336008	800	90 x 175
BN154-60	9336009	1000	95 x 180
BN154-65	9336010	2000	120 x 240
BN154-70	9336011	3000	135 x 280

*Supplementary to ISO range.

All dimensions and capacities are nominal.



BN150



BN154

Beakers

Duran® Borosilicate Glass

Duran® 21 106 series, low form

With approximate graduations (except 10 litre size) marking spot and spout. To ISO 3819.

	Ref.	Capacity ml	Dia. x Ht. mm
BN160-10	21 106/07	5	22 x 30
BN160-15	21 106/08	10	26 x 35
BN160-20	21 106/14	25	32 x 48
BN160-25	21 106/17	50	42 x 60
BN160-30	21 106/24	100	50 x 70
BN160-35	21 106/29	150	55 x 81
BN160-40	21 106/36	250	69 x 95
BN160-45	21 106/41	400	82 x 100
BN160-50	21 106/48	600	90 x 125
BN160-55	21 106/53	800	98 x 136
BN160-60	21 106/54	1000	105 x 145
BN160-65	21 106/63	2000	132 x 185
BN160-70	21 106/68	3000	153 x 210
BN160-75	21 106/73	5000	170 x 270
BN160-80	21 106/86	10000	217 x 350

Duran® 21 116 series, tall form

With approximate graduations marking spot and spout. To ISO 3819.

	Ref.	Capacity ml	Dia. x Ht. mm
BN163-25	21 116/17	50	38 x 70
BN163-30	21 116/24	100	47 x 80
BN163-35	21 116/29	150	53 x 96
BN163-40	21 116/36	250	60 x 120
BN163-45	21 116/41	400	70 x 130
BN163-50	21 116/48	600	80 x 150
BN163-55	21 116/53	800	89 x 175
BN163-60	21 116/54	1000	95 x 180
BN163-65	21 116/63	2000	118 x 240
BN163-70	21 116/68	3000	135 x 280

Metal

Aluminium squat form

With spout.

	Capacity ml	Dia. x Ht. mm
BN170-40	250	69 x 76
BN170-47	500	84 x 103
BN170-60	1000	102 x 124

Stainless steel

With spout.

	Capacity ml	Dia. x Ht. mm
BN180-38	200	60 x 75
BN180-43	350	65 x 115
BN180-48	550	75 x 125
BN180-53	700	75 x 165
BN180-60	1000	110 x 125
BN180-63	1250	100 x 165
BN180-65	2000	125 x 180
BN180-68	2500	150 x 160
BN180-75	5000	185 x 220

Stainless Steel Storage Containers – see *Storage* section.

Graduated Measuring Jugs, Plastic and Metal, capacities up to 5000ml – see *Measures* section.

All dimensions and capacities are nominal.



BN160

BN163



BN180, BN170 is similar

Beakers

Plastic

Polystyrene, disposable, opaque

Without spout, but with pouring lip. Separate snap on lids are available in clear polystyrene. Supplied in packs of 1000.

- BN250-05** 100ml, 47mm high
- BN250-06** Lids for BN250-05

Tri-corner, polypropylene

With tri-cornered rim for ease of pouring. Can be autoclaved and used at temperatures up to 120°C. With approximate graduations. Supplied in packs of 25.

- BN260-28** 50ml
- BN260-33** 100ml
- BN260-43** 250ml
- BN260-48** 400ml
- BN260-58** 800ml
- BN260-63** 1000ml

Polypropylene, low form

A budget range of translucent polypropylene, low form beakers with spout and approximate graduations printed in blue. Can be autoclaved and used up to 121°C. To ISO 7056. Supplied singly.

- BN265-20** 25ml
- BN265-25** 50ml
- BN265-30** 100ml
- BN265-35** 150ml
- BN265-40** 250ml
- BN265-45** 400ml
- BN265-50** 600ml
- BN265-60** 1000ml
- BN265-65** 2000ml

Polypropylene, low form

A simple, budget range of translucent polypropylene, low form beakers with approximate, moulded-in graduations and spout. Can be autoclaved to 121°C. Supplied singly.

- BN267-20** 25ml
- BN267-25** 50ml
- BN267-30** 100ml
- BN267-40** 250ml
- BN267-47** 500ml
- BN267-60** 1000ml
- BN267-65** 2000ml

Polypropylene, low form, Kartell

Translucent (almost clear) with approximate, moulded-in graduations and spout. Can be autoclaved to 121°C. To ISO 7056. Supplied singly.

- BN270-19** 25ml
- BN270-24** 50ml
- BN270-29** 100ml
- BN270-39** 250ml
- BN270-49** 500ml
- BN270-60** 1000ml
- BN270-65** 2000ml
- BN270-70** 3000ml
- BN270-75** 5000ml

Polypropylene, low form, Azlon

Translucent, with spout and approximate printed graduations. Can be autoclaved to 121°C. To BS5404 Pt1 1976. Supplied singly.

- BN280-15** BDA208P 10ml
- BN280-20** BDA212P 25ml
- BN280-25** BDA218P 50ml
- BN280-30** BDA224P 100ml
- BN280-40** BDA230P 250ml
- BN280-45** BDA234P 400ml
- BN280-47** BDA236P 500ml
- BN280-50** BDA238P 600ml
- BN280-60** BDA240P 1000ml
- BN280-65** BDA242P 2000ml

Polypropylene, low form, sets, Azlon

Generally as individual BN280- series beakers but supplied in convenient sets of different sizes as indicated.

	Ref.	Sizes, ml
BN280-94	BDA1199	10, 25, 50, 100, 250



BN250



BN265



BN270



BN260



BN267



BN280

Beakers

Plastic continued

Polypropylene, Azlon

High clarity polypropylene beakers with spout and approximate moulded-in graduations, tapered sides and vertical ribs to allow easy stacking without "gripping", and non-slide, anti-suction bases. Can be autoclaved and used up to 121°C. To ISO7056. Supplied singly.

BN285-20	BPM0025P	25ml
BN285-25	BPM0050P	50ml
BN285-30	BPM0100P	100ml
BN285-40	BPM0250P	250ml
BN285-45	BPM0400P	400ml
BN285-47	BPM0500P	500ml
BN285-50	BPM0600P	600ml
BN285-60	BPM1000P	1000ml
BN285-65	BPM2000P	2000ml

PMP (TPX), low form, Azlon

"Griffin" pattern. Transparent with spout and approximate printed graduations. Autoclavable and suitable for use up to 150°C. To ISO7056 (400ml and 800ml sizes are supplementary to ISO7056). Supplied singly.

BN356-20	BDD312P	25ml
BN356-25	BDD318P	50ml
BN356-30	BDD324P	100ml
BN356-40	BDD330P	250ml
BN356-47	BDD336P	500ml
BN356-60	BDD340P	1000ml
BN356-65	BDD342P	2000ml

PTFE

Opaque with spout. Rigid and non-porous with smooth surfaces. Suitable for use up to 260°C or 300°C for short periods. With flat base.

BN400-15	10ml
BN400-20	25ml
BN400-25	50ml
BN400-30	100ml
BN400-35	150ml
BN400-40	250ml
BN400-47	500ml
BN400-60	1000ml

SAFETY WARNING

It is not advisable to use PTFE beakers on a hotplate as fluorine gas can be emitted at high temperatures.



BN285



BN356



BN400

Beaker Accessories

Watch Glasses

Clear glass with ground edges. Diameters are nominal.

	<i>Dia. mm</i>
WG100-10	30
WG100-15	40
WG100-20	50
WG100-25	60
WG100-30	70
WG100-35	80
WG100-40	90
WG100-45	100
WG100-50	130
WG100-55	150
WG100-60	200

Watch Glasses, Pyrex

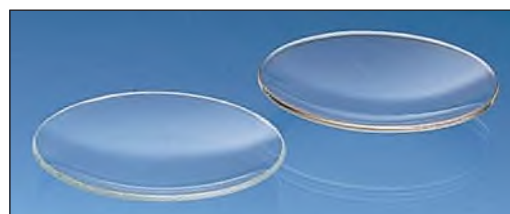
Borosilicate glass. Diameters are nominal.

	<i>Ref.</i>	<i>Dia. mm</i>
WG130-13	1060/04	40
WG130-18	1060/06	50
WG130-23	1060/09	60
WG130-38	1060/10	80
WG130-48	1060/14	100
WG130-52	1060/18	125
WG130-58	1060/20	150
WG130-63	1060/21	200
WG130-70	1060/24	250

Watch glasses

Polypropylene. Transparent with stable ring base. Autoclavable at 121°C.

	<i>Dia. mm</i>
WG145-23	60
WG145-38	80
WG145-48	100
WG145-52	125



WG100

WG130



WG145

Bell jars, Bellows, Boats

Bell Jars

Bell Jars, 29/32 socket top

Glass. Without stopper or stopcock. Dimensions stated are approximate height to shoulder x inside flange diameter in mm.

BP100-10 200 x 150
BP100-20 300 x 200

For suitable stopper SB29 or stopcock MF11/4 – see *Quickfit* section.

Bell Jars, knob top

Glass. Dimensions stated are approximate height to shoulder x inside flange diameter in mm.

BP102-12 200 x 150
BP102-22 300 x 200

Note: Bell jars are not intended to be pressurised or evacuated.

Bellows

Bellows, hand

With non-return valve and outlet tubing. Approximate capacity given is for the bulb.

	Capacity
Single spray	
BP200-15	65ml
BP200-20	100ml
BP200-25	130ml
Double spray	
BP205-10	30ml
BP205-15	65ml
BP205-20	100ml
BP205-25	130ml

Bellows

With non-return valve and connectors for 6mm bore tubing. Suitable for use with the Orsat apparatus.

BP210-10 Bellows

Bench Taps – see *Furniture* section.

Boats, Combustion

For use in furnace combustion tubes. With handle. Dimensions stated are the length x width x height in mm.

	Size mm
Glazed porcelain	
BP300-58	85 x 12 x 8
BP300-66	102 x 13 x 10
BP300-72	130 x 19 x 12
Glazed silica	
BP327-10	50 x 15 x 9
BP327-25	78 x 17 x 11
BP327-40	103 x 20 x 12
Alumina	
BP344-10	50 x 12 x 20
BP344-17	86 x 15 x 13
BP344-25	108 x 20 x 17
BP344-35	119 x 30 x 19

Boats, Weighing

Weighing Boats

Polystyrene, disposable, can be shaped to form a pouring funnel. Available in white or black.

	Cap. ml	Pack qty.
White		
BD750-01	5	1000
BD750-02	30	500
BD750-04	100	250
Black		
BD750-61	5	1000
BD750-62	30	500
BD750-64	100	250

Weighing Boats

Polystyrene, disposable, square shape with flat bottom. Supplied in packs of 1000. White.

BD755-05 7ml, 44 x 44mm
BD755-10 100ml, 80 x 80mm
BD755-15 250ml, 140 x 140mm

Weighing Boats

Antistatic, square shape. Generally as BD755 series but manufactured to eliminate the problems caused by static when weighing fine powders. Supplied in packs of 1000. White.

BD757-05 7ml, 44 x 44mm
BD757-10 100ml, 80 x 80mm
BD757-15 250ml, 140 x 140mm

Weighing Boats

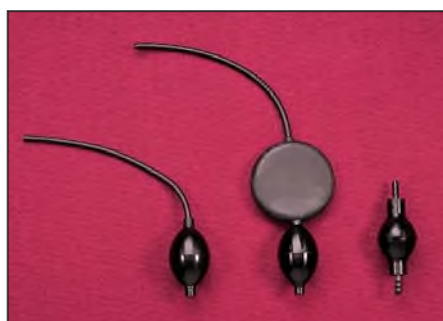
Paper. Ideal for weighing and transporting a variety of sample types, particularly pastes and creams. Nitrogen-free, parchment paper allows use in nitrogen or fat determination procedures and dissolves during Kjeldahl digestions. Overall 55 x 10 x 10mm L x W x H. Supplied in a pack of 100.

BD764-25 Weighing boats, paper



BP100

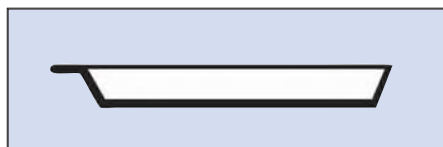
BP102



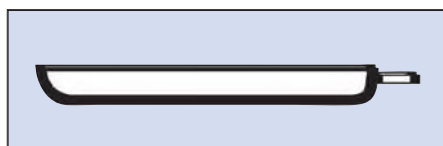
BP200

BP205

BP210



BP300



BP327, BP344 are similar



BD750

BD755/BD757



BD764-25

Bottles, Glass, Uncapped

Flat

Bottles, flat

Sloping shoulder, without cap.

	Cap. ml	Neck	Pack qty.
Clear glass			
BR100-31	100	R3/24	90
BR100-46	300	R3/28	36

Safety Coating

The tough PVC safety coating can be applied to many bottles. If you need a particular type of bottle coated, please let us have details.

Important Warning Sterilising Bottles

Some bottles where indicated can be sterilised by autoclaving. However BEFORE AUTOCLAVING (or sterilising by gas or dry heat) the cap or closure must either be removed or just set on top of the container **WITHOUT ENGAGING THE THREAD.**

Winchester

Bottles, Winchester pattern

Narrow mouth (except BR122-97 which is wide mouth), without cap.

	Cap. ml	Neck	Pack qty.
Clear glass			
BR120-17	30	R3/20	138
BR120-50	500	R6/31	24
BR120-80	1000	R6/31	12
Amber glass			
BR122-07	10	R3/20	163
BR122-10	15	R3/20	138
BR122-18	30	R3/20	130
BR122-30	100	R3/24	86
BR122-34	150	R3/24	68
BR122-50	500	R6/31	24
BR122-80	1000	R6/31	12
BR122-97	2500	45mm*	11
Amber glass, ribbed			
BR124-90	2000	R6/31	12

*Menshen-style neck.

Medical

Bottle, DIN for sterile fluids

Clear flint sulphated lightweight type II glass. Without stopper or cap.

	Cap. ml	Pack qty.
BR140-30	100	99

Stopper with pull ring, pk 1500.

BR142-06 Stopper

Stopper 31mm, infusion, rubber, pk 100.

BR142-08 Stopper

Snap cap 31mm, aluminium/polypropylene, pk 100.

BR142-12 Cap

Bottles, medical dispensing

Narrow mouth, without cap.

	Cap. ml	Neck	Pack qty.
Amber glass			
BR150-18	50	R3/22	99
BR150-28	100	R3/22	56
BR150-34	150	R3/22	49
BR150-50	500	R3/28	25



BR100



BR122-97



BR124



BR150



BR120

BR122-07 to -80



BR140 with BR142-06 and BR142-12

Bottles, Glass, Uncapped

Pharmaceutical

Bottles, Alpha Sirop

Narrow mouth, without cap.

	Cap. ml	Neck ROPP-*	Pack qty.
Clear glass			
BR154-30	100	28mm	80
BR154-45	300	28mm	48
BR154-50	500	28mm	32
Amber glass			
BR157-23	60	28mm	132
BR157-30	100	28mm	104
BR157-35	150	28mm	84
BR157-40	200	28mm	67
BR157-42	250	28mm	63
BR157-45	300	28mm	48
BR157-50	500	28mm	35

*For Roll-on aluminium, or plastic, Pilfer Proof (ROPP) caps. Will also accept R3/28 cap.

Powder

Bottles, powder

Wide mouth, without cap.

	Cap. ml	Neck	Pack qty.
Clear glass			
BR160-16	30	R3/33	80
BR160-18	30	R3/33	132
BR160-24	60	R3/38	72
BR160-33	4oz	R3/38	80
BR160-36	175	R3/48	53
BR160-41	250	R3/48	42
BR160-49	500	R3/58	33
Amber glass			
BR162-10	15	R3/28	140
BR162-17	30	R3/33	127
BR162-23	60	R3/38	72
BR162-31	100	R3/38	72
BR162-34	4oz	R3/38	68
BR162-37	175	R3/48	53
BR162-41	250	R3/48	42
BR162-50	500	R3/58	28

Ointment and Tablet

Bottles (Jars) ointment

Extra wide mouth without cap.

	Cap. ml	Neck	Pack qty.
Clear glass			
BR165-18	30	R3/38	110
BR165-24	60	R3/51	72
BR165-30	120	R3/58	54
BR165-42	250	R3/83	48

Bottles tablet

Wide mouth, cylindrical shape without cap.

	Cap.	Neck	Pack qty.
Amber glass			
BR174-14	¾ oz/20ml	R3/24	126
BR174-30	3 oz/100ml	R3/33	64

Caps – see BR220 etc.

Plastic tablet bottles – see BR670.



BR154



BR160



BR165



BR157



BR162



BR174

Bottles, Glass, Capped

Accessory Caps for Glass Bottles

All caps are supplied in packs of 100.

For neck

Black Plastic with woodpulp faced PVDC liner

BR220-06	R3/20
BR220-09	R3/22
BR220-12	R3/24
BR220-15	R3/28

BR220-18	R3/33
BR220-21	R3/38
BR220-27	R3/48
BR220-30	R3/51

BR220-33	R3/58
BR220-36	R3/63
BR220-39	R3/83
BR220-42	R3/100

Black Plastic with polyethylene cone liner

BR222-06	R3/20
BR222-09	R3/22
BR222-12	R3/24
BR222-15	R3/28
BR222-51	R6/31

White Polypropylene, Wadless

Can be autoclaved to 121°C.

BR230-06	R3/20
BR230-09	R3/22
BR230-12	R3/24

BR230-15	R3/28
BR230-18	R3/33
BR230-21	R3/38

BR230-24	R3/48
BR230-51	R6/31

For neck

Enamelled Metal, Black, with waxed wood pulp liner

BR240-18	R3/33
BR240-36	R3/63

Aluminium with rubber liner

BR247-03	R3/18
BR247-06	R3/20
BR247-15	R3/28

Security Caps, Clic-Loc

Must be pressed down and turned to remove. Polyethylene with polypropylene inner (BR255-60 has an EPE inner).

For neck

BR255-06	R3/20
BR255-09	R3/22
BR255-12	R3/24

BR255-15	R3/28
BR255-18	R3/33
BR255-21	R3/38
BR255-60	PP28*

*To fit ROPP style 28mm neck.

Security Caps, tamper-evident

For ROPP style 28mm neck bottles only. White polypropylene with EPE liner and red tamper ring collar which separates from the cap when first opened. Pack of 100.

BR264-15 ROPP 28mm

For Menshen-style 45mm diameter neck bottles only. Black polypropylene with PTFE liner and red, tamper-evident ring collar which separates from the cap when first opened. Supplied singly.

BR264-26 Menshen 45mm

Glass Bottles with Caps

	Cap. ml	Neck/cap	Pack qty.
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Clear, sloping shoulder with aluminium cap and rubber liner

BR350-46	300	R3/28	36
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Clear sloping shoulder with black plastic cap and PVDC liner

BR352-42	200	R3/28	56
BR352-46	300	R3/28	36

Aluminium caps

For Bijou and Universal Bottles – see BR247.

Plug stoppers – see SW505 series.



BR264-15 in use



BR350



BR264-26 in use



BR352

Bottles, Glass, Capped

Glass Bottles with Caps continued

Amber winchester pattern

With black polyethylene cap and cone liner.

	Cap. ml	Neck/cap	Pack qty.
BR372-50	500	R6/31	24
BR372-80	1000	R6/31	12

Wide mouth powder

With black plastic cap and PVDC liner.

	Cap. ml	Neck/cap	Pack qty.
Clear glass			
BR400-16	30ml	R3/33	80
BR400-24	60ml	R3/38	72
BR400-33	4oz	R3/38	80
BR400-36	175ml	R3/48	53
BR400-41	250ml	R3/48	42
BR400-49	500ml	R3/58	33

Amber glass

BR402-17	30ml	R3/33	127
BR402-23	60ml	R3/38	72
BR402-34	4oz	R3/38	68
BR402-41	250ml	R3/48	42
BR402-50	500ml	R3/58	28

Wide mouth powder

With white polypropylene wadless cap.

	Cap. ml	Neck/cap	Pack qty.
Clear glass			
BR404-33	4oz	R3/38	80
BR404-41	250	R3/48	42
Amber glass			
BR406-34	4oz	R3/38	68
BR406-41	250ml	R3/48	42

Ointment jar

Extra wide mouth with black plastic cap.

	Cap. ml	Neck/cap	Pack qty.
Clear glass			
BR410-24	60	R3/51	72
BR410-30	120	R3/58	54
BR410-42	250	R3/83	48

Important Warning Sterilising Bottles

Some bottles where indicated can be sterilised by autoclaving. However BEFORE AUTOCLAVING (or sterilising by gas or dry heat) the cap or closure must either be removed or just set on top of the container **WITHOUT ENGAGING THE THREAD.**

Alternative bottle/cap combinations are available – details on request.



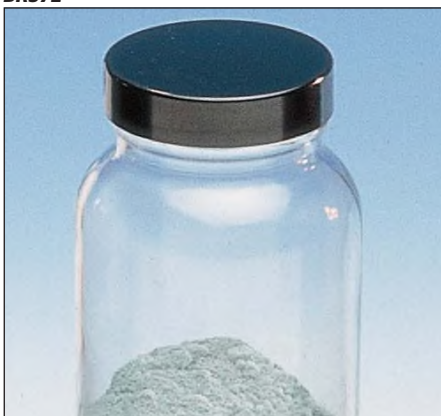
BR372



BR402



BR406



BR400



BR404



BR410

Bottles, Plastic

Plastic, Narrow Mouth with Screwcap

Bottles, polyethylene

Narrow mouth with polypropylene cap.

BR600-30	100ml
BR600-42	250ml
BR600-50	500ml
BR600-80	1000ml

Bottles, polyethylene, leakproof

High quality translucent bottles of sturdy construction designed for laboratory use at an economical price. Narrow mouth with sloping shoulders and leakproof cap.

	Cap. ml	Pack qty.
BR604-24	50	50
BR604-30	100	20
BR604-36	250	10
BR604-40	500	50
BR604-52	1000	4
BR604-62	2000	1

Bottles, Azlon LDPE

Narrow mouth low density polyethylene with polypropylene leakproof cap.

	Ref. BNL-	Cap. ml	Pack qty.
BR610-18	0030PN	30	10
BR610-24	0060PN	60	10
BR610-30	0100PN	100	10
BR610-32	0125PN	125	10
BR610-36	0150PN	150	10
BR610-43	0250P	250	10
BR610-52	0500P	500	10
BR610-82	1000P	1000	5
BR610-92	2000P	2000	5

Bottles Azlon HDPE

Narrow mouth, high density polyethylene. With polypropylene leakproof cap. Has a chemical resistance superior to ordinary low density polyethylene.

	Ref. BNH-	Cap. ml	Pack qty.
BR615-18	0030PN	30	10
BR615-24	0060PN	60	10
BR615-30	0100PN	100	10
BR615-31	0125PN	125	10
BR615-43	0250P	250	10
BR615-52	0500P	500	10
BR615-82	1000P	1000	5
BR615-92	2000P	2000	5

Bottles Nalgene HDPE

Narrow mouth, high density polyethylene. With polypropylene cap designed to be leakproof.

	Ref. 2002-	Cap. ml
BR618-06	9125	4
BR618-08	9025	8
BR618-10	9050	15
BR618-17	0001	30
BR618-23	0002	60
BR618-30	0004	125
BR618-36	0006	175
BR618-42	0008	250
BR618-50	0016	500
BR618-53	9016	500*
BR618-80	0032	1000*

*Bottles BR618-53 and BR618-80 have a longer neck and wider mouth to fit Eppendorf and Oxford bottle dispensers.

Bottles Nalgene polycarbonate

Narrow mouth. Transparent square shape with approximate permanent graduations. Can be autoclaved. With leakproof cap. The 2000ml size has moulded-in handgrips for easier pouring.

	Ref. 2015-	Cap. ml
BR626-17	0030	30
BR626-23	0060	60
BR626-30	0125	125
BR626-35	0250	250
BR626-50	0500	500
BR626-80	1000	1000
BR626-85	2000	2000

Bottles, Nalgene PET[†], Sterile

Square shape, transparent, narrow neck with high density, polyethylene leakproof screw closure. Inexpensive alternative to glass for storage of media. Bottles and closures are non-pyrogenic and supplied radiation sterilised. The 2000ml size has moulded-in handgrips for easier pouring. Packed in shrink-wrapped trays within an outer pack. Supplied in the pack quantity only.

	Ref. 2019-	Cap. ml	Neck mm	Pack qty.
BR632-17	0030	30	20	96
BR632-20	0060	60	24	96
BR632-23	0125	125	38	48
BR632-28	0250	250	38	48
BR632-34	0500	500	38	24
BR632-37	1000	1000	38	24
BR632-40	2000	2000	53	12

[†]PET = Polyethylene terephthalate copolyester.



BR600



BR610, BR615 is similar



BR626, 30 to 1000ml



BR626, 2000ml



BR604



BR618



BR632, 30 to 1000ml

Bottles, Plastic

Plastic with Screwcap continued

Bottles, polyethylene

White HDPE. With sloping shoulder and leakproof tamper-evident PP cap with PTFE cap seal. The 2500ml size has a carrying handle. Supplied in packs of 4.

	Cap. ml	Neck i.d. mm
BR642-41	500	29
BR642-51	1000	29
BR642-95	2500	29

Bottles, polypropylene, leakproof

High quality, sturdy, translucent bottles designed for laboratory use at an economical price. Narrow mouth with sloping shoulders and leakproof cap. Can be autoclaved to 132°C. Supplied in packs as indicated.

	Cap. ml	Pack qty.
BR644-08	10	100
BR644-12	20	100
BR644-17	30	100
BR644-24	50	1
BR644-30	100	1
BR644-34	250	50
BR644-42	500	1
BR644-52	1000	1
BR644-62	2000	1

PTFE bottles are available – details on request.



BR642



BR644

Bottles, Azlon polypropylene

Narrow mouth with leakproof cap. Translucent and can be autoclaved to 121°C. Supplied in packs as indicated.

	Ref. BNP-	Cap. ml	Pack qty.
BR650-18	0030PN	30	10
BR650-30	0100PN	100	10
BR650-36	0150PN	150	10
BR650-44	0250P	250	10
BR650-52	0500P	500	10
BR650-82	1000P	1000	5
BR650-92	2000P	2000	5

Bottles, Azlon polycarbonate.

Narrow mouth. Transparent, shatterproof polycarbonate with approximate graduations and leakproof polypropylene cap. Suitable as an alternative to glass for biological media, aqueous solutions and reagent storage. Square shape ensures economic use of storage space. Can be autoclaved at 121°C, up to 10 times. Supplied in packs as indicated.

	Cap. ml	H x W x D mm	Neck i.d. mm	Pack qty.
BR662-43	250	139 x 59 x 59	28	24
BR662-52	500	172 x 73 x 73	28	12
BR662-82	1000	213 x 92 x 92	28	12
BR662-92	2000	266 x 115 x 115	40	6



BR650



BR662

Plastic, Tablet/Vials

Bottles, tablet. Without Cap.

Amber polystyrene. Supplied in packs as indicated.

	Cap. ml	Neck	Pack qty.
BR670-12	16	R3/20	200
BR670-15	25	R3/22	200
BR670-18	32	R3/22	200
BR670-19	48	R3/24	200
BR670-24	66	R3/28	100
BR670-29	90	R3/28	100
BR670-31	112	R3/28	100
BR670-32	125	R3/28	100

Caps – see BR220 etc.

Vials

Amber polystyrene with polyethylene push-on closure. Supplied in packs as indicated.

	Cap. ml	Pack qty.
BR680-10	15	200
BR680-17	30	200
BR680-18	45	200
BR680-23	60	100
BR680-30	120	50

Important Warning Sterilising Bottles

Some bottles where indicated can be sterilised by autoclaving. However BEFORE AUTOCLAVING (or sterilising by gas or dry heat) the cap or closure must either be removed or just set on top of the container **WITHOUT ENGAGING THE THREAD.**



BR670



BR680

Bottles, Plastic

Plastic, Wide Mouth

Bottles, Powder, Azlon HDPE

High density polyethylene. Wide mouth with black plastic cap. Ideal for containing powders or granules. Supplied singly.

	Ref. BGC-	Cap. ml
BR750-35	428P	150
BR750-42	430P	250
BR750-50	436P	500
BR750-80	440P	1000

Bottles, Azlon HDPE

High density polyethylene. Wide mouth with polypropylene leakproof cap.

	Ref.	Cap. ml	Pack qty.
BR752-18	BWH0030PN	30	10
BR752-24	BWH0060PN	60	10
BR752-30	BLH0100P	100	10
BR752-31	BWH0125P	125	10
BR752-36	BLH0150P	150	10
BR752-44	BWH0250PN	250	10
BR752-52	BWH0500PN	500	10
BR752-82	BWH1000PN	1000	5
BR752-92	BWH2000PN	2000	5

Bottles, polyethylene, leakproof

High quality, sturdy translucent bottles, designed for laboratory use at an economical price. Wide mouth with square shoulders and leakproof cap.

	Cap. ml	Pack qty.
BR756-24	50	50
BR756-30	100	20
BR756-36	250	10
BR756-42	500	10
BR756-52	1000	4
BR756-62	2000	1

Bottles, polyethylene

Wide mouth with polyethylene cap and sealing ring. Supplied singly.

BR760-10	300ml
BR760-20	700ml
BR760-30	1250ml

Bottles, Azlon amber polypropylene

Wide mouth with polypropylene leakproof cap. Autoclavable to 121°C.

	Ref. BWP-	Cap. ml	Pack qty.
BR764-24	0060AP	60	10
BR764-36	0150AP	150	10
BR764-44	0250AP	250	10
BR764-52	0500AP	500	10
BR764-82	1000AP	1000	5
BR764-92	2000AP	2000	5

Important Warning Sterilising Bottles

Some bottles where indicated can be sterilised by autoclaving. However BEFORE AUTOCLAVING (or sterilising by gas or dry heat) the cap or closure must either be removed or just set on top of the container **WITHOUT ENGAGING THE THREAD.**



BR750



BR756



BR764



BR752



BR760

Bottles, Plastic

Plastic, Wide Mouth continued

Bottles, polypropylene, leakproof

High quality, sturdy translucent bottles designed for laboratory use at an economical price. Wide mouth with square shoulders and leakproof cap and blue printed graduations. Can be autoclaved to 121°C.

	Cap. ml	Pack qty.
BR767-80	100	50
BR767-85	250	25
BR767-90	500	25
BR767-95	1000	10

Bottles, Azlon polypropylene

Wide mouth with polypropylene leakproof cap. Autoclavable to 121°C.

	Ref.	Cap. ml	Pack qty.
BR770-18	BWVP0030PN	30	10
BR770-24	BWVP0060PN	60	10
BR770-30	BLP0100P	100	10
BR770-32	BLP0125P	125	10
BR770-36	BLP0150P	150	10
BR770-44	BWVP0250PN	250	10
BR770-52	BWVP0500PN	500	10
BR770-82	BWVP1000PN	1000	5
BR770-92	BWVP2000P	2000	5

Bottles, Nalgene HDPE

Wide mouth with leakproof polypropylene screw cap. Suitable for dry materials or liquids.

	Ref. 2104-	Cap. ml
BR775-17	0001	30
BR775-23	0002	60
BR775-32	0004	125
BR775-42	0008	250
BR775-50	0016	500
BR775-80	0032	1000

Bottles, Kartell HDPE

Wide mouth high density polyethylene with polypropylene cap, insert plug and tagging points. Square shape and with approximate graduations. Suitable for use with foodstuffs acc. EC regulation 10/2011. Supplied singly.

	Cap. ml
BR790-15	25
BR790-20	50
BR790-30	100
BR790-42	250
BR790-50	500
BR790-80	1000
BR790-90	2000

Bottles, HDPE

Wide mouth, square shape high density polyethylene bottles with polyethylene cap and push-in seal. Supplied singly.

	Cap. ml
BR792-50	500
BR792-80	1000
BR792-90	2000

Labelled plastic reagent bottles – see BS600.

Important Warning Sterilising Bottles

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BR767



BR775



BR792



BR770



BR790

Bottles, Plastic

Plastic, Wide Mouth continued

Bottles, HDPE

Wide mouth with leakproof closures in HDPE having LDPE foam inlay wads. Designed for the storage of powders. Square shape. Supplied singly.

	Ref. BGE-	Cap. ml
BR800-23	—	60
BR800-42	—	250

Bottles, Nalgene HDPE

Wide mouth with leakproof polypropylene cap. Withstand freezer use down to -100°C.

	Ref. 2114-	Cap. ml
BR807-42	0008	250
BR807-50	0016	500
BR807-80	0032	1000

Bottles, Nalgene PPCO

Polypropylene co-polymer. Wide mouth with leakproof polypropylene screw cap. Can be autoclaved at 121°C.

	Ref. 2110-	Cap. ml
BR809-23	0002	60
BR809-34	0006	175
BR809-42	0008	250
BR809-50	0016	500
BR809-80	0032	1000

Bottles, HDPE

Wide mouth, square shaped, in natural or white high density polyethylene, with blue polypropylene tamper-evident cap with conical internal seal. UN-approved for the transport of solids (except 50ml sizes). Supplied singly.

	Cap. ml
Natural	
BR815-15	50*
BR815-25	100
BR815-37	250
BR815-45	500
BR815-75	100
BR815-81	1500
BR815-94	2500
White	
BR817-15	50*
BR817-25	100
BR817-37	250
BR817-45	500
BR817-75	1000
BR817-81	1500
BR817-94	2500

*Not UN-approved

Bottles, PVC

Transparent or amber PVC, extra-wide neck with leakproof black PP cap with PE-foam liner. Ideal for viewing contents, and easy to fill and clean. The amber versions are suitable for storing light-sensitive products. Supplied singly.

	Cap. ml	Neck i.d. mm
Transparent		
BR865-20	50	23
BR865-30	100	31
BR865-45	300	41
BR865-50	500	54
BR865-80	1000	69
BR865-92	2000	69
Amber		
BR867-20	50	23
BR867-30	100	31
BR867-45	300	41
BR867-50	500	54
BR867-80	1000	69
BR867-92	2000	69

Important Warning Sterilising Bottles

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BR800



BR809



BR865

BR867



BR807



BR815, BR817 are similar

Bottles, Plastic

Plastic, Large Capacity, Cylindrical

Bottles, polyethylene

Robust medium wall with screw cap. All have one handle except the 50 litre which has two. The 5 and 10 litre are hexagonal. Supplied singly.

	Cap. litres
BR900-10	5
BR900-20	10
BR900-30	25
BR900-40	50

Bottles, Nalgene polypropylene

With integral carrying handles, leakproof polypropylene screw cap and approximate graduations. Can be autoclaved. Not recommended for use with hazardous materials. Supplied singly.

	Ref. 2250-	Cap. litres
BR914-20	0020	10
BR914-30	0050	20
BR914-40	0130	50

Bottles, Nalgene Clearboys™ polycarbonate

Transparent. With leakproof polypropylene screw cap and approximate graduations. Can be autoclaved. Not recommended for use with hazardous materials. Supplied singly.

	Ref. 2251-	Cap. litres
BR917-22	0020	10
BR917-32	0050	20

Bottles, Kartell HDPE

Robust, heavy walled, wide mouth, ideal for liquids or powders. With insert plug, tagging points and carrying handle. Supplied singly.

BR922-15	5 litres
BR922-25	10 litres

Carboys, Kartell HDPE

Strong, lightweight cylindrical carboys suitable for holding foodstuffs, with narrow mouth central filling/vent cap and handle in blue (25 litre and 50 litre sizes have 2 handles).

BR927-05	5 litre
BR927-12	10 litre
BR927-15	25 litre
BR927-25	50 litre

Kegs, HDPE

White. With extra-wide mouth for easy filling. Ideal for waste disposal or storage of liquids, powders or granules. With red, leakproof PE cap, suitable for tag sealing. UN-approved to schedule X cat. I, II and III. Supplied singly.

	Cap. litres	Dia. x ht. mm	Neck i.d. mm
BR928-30	10	270 x 240	200
BR928-35	26	316 x 424	204
BR928-43	33	338 x 450	295

Important Warning Sterilising Bottles

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BR900



BR917-22/BR917-32



BR927



BR914



BR922



BR928 in use

Bottles, Plastic & Culture/Specimen

Plastic, Large Capacity, Square, Octagonal and Rectangular

Bottle, HDPE, square

Natural HDPE. Ideal for storage and transport of solid materials. Space saving square design with moulded-in handgrip for safe convenient carrying. Wide neck for easy filling and supplied with blue PP cap with internal conical seal and tamper-evident ring. Overall 135 x 135 x 195mm high, neck i.d. 69mm. Supplied singly.

BR931-05 2300ml

Bottles, Azlon polypropylene, octagonal

Heavy duty rigid construction with offset neck, leakproof screwcap, approximate graduations and integral carrying handle. Can be autoclaved.

	Ref.	Capacity litres
BR932-30	BNP05B	5
BR932-40	BNP10B	10
BR932-50	BNP20B	20

Jerrycans, Azlon rigid polyethylene, rectangular

Robust, lightweight with screw cap and integral handle.

BR935-30 5 litre
BR935-50 25 litre

Jerrycans, rigid polyethylene, UN certified

Robust, stackable, food grade polyethylene jerrycans with tamper-evident screw cap.

	Capacity litres	Cap type
BR937-30	5	DIN51
BR937-40	10	DIN51
BR937-50	20	DIN61
BR937-55	30	DIN61

Aspirator stopcocks to fit BR937 jerrycans - see SV942.

Glass, Culture and Specimen

Bottles, culture

Clear glass. All caps where specified have a rubber liner.

		Capacity	Pack qty.
With aluminium screw cap, plain			
BS150-10	Bijou	7ml (¼oz)	288
BS150-25	Universal	28ml (1oz)	144
Without cap			
BS152-10	Bijou	7ml (¼ oz)	255
BS152-25	Universal	28ml (1oz)	150

Caps for BS150/152

Aluminium with rubber liner. Supplied in packs of 100.

BR247-06 For 7ml and 14ml Bijou size R3/20
BR247-15 For 28ml Universal size R3/28

Caps, Sterilin, polypropylene

Wadless, non-sterile. Supplied in pack of 2850.

BS165-10 For 28ml Universal size R328

Culture vials, Universal, tubular glass

Tubular formed, Type III soda glass vials, capacity 30ml. With R3/24 neck and fitted white PP caps. Supplied in pack of 500.

BS170-25 Tubular vials, 30ml Universal size

Important Warning Sterilising Bottles

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BR931-05



BR935



BS150



BS170



BR932



BR937



BS152

Bottles, Culture/Specimen



Disposable Specimen Containers

◆ CE-marked in accordance with the in-vitro diagnostic (I.V.D.) medical devices directive (93/42/EC). ◆ Leak-free in accordance with EN14254 Annexe D.

The table below is coded as follows:

Ir = Gamma Irradiation **-L** = Leak proof cap **Me** = Metal **NS** = Non Sterile
Pe = Polyethylene **Pp** = Polypropylene **Ps** = Polystyrene **S** = Sterile aseptic production

	Ref.		Container/Description	Cap	Pack qty.
BS200-07	128A [†]	S	30ml Universal, no label	Ps/Pp-L	400
BS200-12	128B [†]	S	30ml Universal, printed label	Ps/Pp-L	400
BS200-17	128C [†]	S	30ml Universal, plain label	Ps/Pp-L	400
BS200-30	128SA	S	30ml Universal, Spoon, no label	Ps/Pe-L	400
BS200-35	128SB	S	30ml Universal, Spoon, printed label	Ps/Pe-L	400
BS200-40	128SC	S	30ml Universal, Spoon, plain label	Ps/Pe-L	400
BS200-47	128BBAC [†]	S	30ml Universal, Boric Acid, labelled	Ps/Pp-L	400
BS204-05	129B-BAC	S	7ml Bijou, Boric Acid, labelled	Ps/Pe	700
BS204-10	129A	S	7ml Bijou, no label	Ps/Pe	700
BS204-15	129B*	S	7ml Bijou, plain label	Ps/Pe	700
BS208-05	125AM [†]	S	60ml, no label,	Ps/Me-L	300
BS208-10	125BM* [†]	S	60ml, printed label	Ps/Me-L	300
BS208-15	125CM [†]	S	60ml, plain label	Ps/Me-L	300
BS208-20	125AP	S	60ml, no label	Ps/Pe	300
BS208-25	125BP	S	60ml, printed label	Ps/Pe	300
BS208-30	125CP	S	60ml, plain label	Ps/Pe	300
BS212-05	185AM	S	100ml, no label	Ps/Me-L	200
BS212-10	185BM*	S	100ml, printed label	Ps/Me-L	200
BS212-15	185CM	S	100ml, plain label	Ps/Me-L	200
BS212-17	185AP	S	100ml, no label	Ps/Pe	200
BS212-19	185BP	S	100ml, printed label	Ps/Pe	200
BS212-22	185CP	S	100ml, plain label	Ps/Pe	200
BS212-25	165A	S	150ml, no label	Ps/Me-L	120
BS212-30	165B*	S	150ml, printed label	Ps/Me-L	120
BS212-35	165C	S	150ml, plain label	Ps/Me-L	120
BS216-05	190A	S	250ml, unlabelled	Ps/Me-L	50
BS216-07	190A/1	S	250ml, unlabelled, tray packed, shrink wrapped	Ps/Me-L	50
BS216-10	190B*	S	250ml, printed label	Ps/Me-L	50
BS216-12	190B/1	S	250ml, printed label, tray packed, shrink wrapped	Ps/Me-L	50
BS216-15	190C	S	250ml, plain label	Ps/Me-L	50
BS216-35	191	Ir	30ml Dippa – sampler with integral handle	Ps/Pp-L	50
BS216-37	194I/W	Ir	100ml Dippa – sampler with integral handle	Ps/Me-L	100
BS216-40	192	Ir	250ml Dippa – sampler with integral handle	Ps/Me-L	50
BS240-62	Z5PE	NS	5ml, blood specimen, printed label, skirted base	Ps/Pp	1000
BS240-65	Z5PSNL	NS	5ml, blood specimen, no label	Ps/Pp	1000
BS240-70	Z10PS	NS	10ml, blood specimen, printed label	Ps/Pp	500
BS240-75	Z10PSNL	NS	10ml, blood specimen, no label	Ps/Pp	500

*Non-pyrogenic versions of these containers are available - *details on request*.

[†]Certified to remain leak-free at 95kPa pressure differential.

Double-bagged containers for sterile sampling of tissue and fluids - see *Clinical section*.



Bottles, Culture/Specimen

Disposable Specimen Containers

- ◆ CE-marked in accordance with EU 98/79/EC
- ◆ Leak-tested in accordance with BS-EN14254

The table below is coded as follows:

-L = Leak proof cap **Me** = Metal **Pe** = Polyethylene **Pp** = Polypropylene **Ps** = Polystyrene **S** = Sterile aseptic production

		Container/Description	Cap	Pack qty.
BS241-07	S	30ml Universal, no label	Ps/Pp-L	400
BS241-12	S	30ml Universal, printed label	Ps/Pp-L	400
BS241-17	S	30ml Universal, plain label	Ps/Pp-L	400
BS241-25	S	30ml Universal, no label	Pp/Pp-L	400
BS241-27	S	30ml Universal, printed label	Pp/Pp-L	400
BS241-29	S	30ml Universal, plain label	Ps/Pp-L	400
BS241-32	S	60ml, no label [†]	Pp/Me-L	300
BS241-34	S	60ml, printed label [†]	Pp/Me-L	300
BS241-36	S	60ml, plain label [†]	Pp/Me-L	300
BS241-40	S	60ml, no label	Pp/Pe	300
BS241-43	S	60ml, printed label	Pp/Pe	300
BS241-46	S	60ml, plain label	Pp/Pe	300
BS241-51	S	100ml, no label [†]	Ps/Me-L	160
BS241-54	S	100ml, printed label [†]	Ps/Me-L	160
BS241-57	S	100ml, plain label [†]	Ps/Me-L	160
BS241-59	S	150ml, no label [†]	Ps/Me-L	120
BS241-62	S	150ml, printed label [†]	Ps/Me-L	120
BS241-65	S	150ml, plain label [†]	Ps/Me-L	120
BS241-70	S	250ml, no label [†]	Ps/Me-L	48
BS241-74	S	250ml, printed label [†]	Ps/Me-L	48
BS241-78	S	250ml, plain label [†]	Ps/Me-L	48

[†]Certified to remain leak-free at 95kPa pressure differential.



Bottles, Culture/Specimen

Blood Specimen Containers

Disposable Blood Specimen Containers

Polystyrene or polypropylene specimen containers with wadless, leakproof polypropylene screw caps and printed label. Prefilled with anticoagulant as indicated. Non sterile.

	Description	Pack qty.
Polystyrene containers		
BS242-05	2.5ml EDTA	1000
BS242-15	4ml EDTA	1000
BS242-40	5ml Lithium Heparin	1000
BS242-50	10ml Lithium Heparin	500
BS242-80	2.5ml Fluoride Oxalate	1000
Polypropylene containers		
BS248-05	2.5ml EDTA	1000
BS248-15	4ml EDTA	1000
BS248-40	5ml Lithium Heparin	1000
BS248-50	10ml Lithium Heparin	500
BS248-80	2.5ml Fluoride Oxalate	1000

Plastic Specimen Tubes

Polystyrene Specimen Tubes, Azlon

Transparent. With snap-on polyethylene cap. Flat bottom. Dimensions are nominal height x diameter. Supplied in packs as indicated.

	Ref.	Size, mm	Pack qty.
TW225-20	BGG444P	33 x 36	10
TW225-50	BGG456P	87 x 65	5
TW225-55	BGG458P	100 x 100	5

Polyethylene Specimen Tubes, Azlon

With captive hinged cap. Flat bottom. Dimensions are nominal height x diameter. Supplied in packs of 10.

	Ref.	Size, mm
Squat form		
TW240-20	BGG308	32 x 29
TW240-25	BGG311	36 x 32
Tall form		
TW244-25	BGG304	40 x 12
TW244-30	BGG306	49 x 15
TW244-35	BGG312	78 x 25

Tissue Culture Roller Bottles - see *Tissue Culture* section.



BS242/BS248



TW225



TW240/TW244

Bottles, Glass Reagent

Glass Reagent, Plain Neck

Narrow Mouth

Bottles, reagent

Narrow mouth with stopper.

	Cap. ml	Stopper size
Clear glass, polypropylene stopper		
BS400-17	30	16/16
BS400-20	50	16/16
BS400-30	100	16/16
BS400-42	250	24/20
BS400-50	500	24/20
BS400-80	1000	29/32
Amber glass, polypropylene stopper		
BS404-23	50	16/16
BS404-30	100	16/16
BS404-42	250	24/20
BS404-50	500	24/20
BS404-80	1000	29/32

Accessory amber glass solid stoppers

For BS400/BS404 series, with sizes as indicated. Supplied singly.

- BS406-92** Size 16/16
- BS406-94** Size 24/20
- BS406-96** Size 29/32



BS400



BS404



BS400 with glass stopper



BS404 with glass stopper

Narrow Mouth, Pyrex®

Bottles, reagent, Pyrex 1526 series, unstoppered

Narrow mouth with unground neck and without stopper. Comply with ISO4796.

	Ref.	Cap. ml
BS415-30	1526/04	100
BS415-42	1526/06	250
BS415-50	1526/08	500
BS415-80	1526/10	1000
BS415-90	1526/12	2000
BS415-93	1526/16	5000
BS415-95	1526/18	10000
BS415-96	1526/20	15000
BS415-97	1526/22	20000

Bottles, reagent, Pyrex 1521 series, glass stoppered

Narrow mouth with ground neck and glass stopper. Comply with ISO4796.

	Ref.	Cap. ml	Stopper size
BS420-30	1521/04	100	14/15
BS420-42	1521/06	250	19/26
BS420-50	1521/08	500	24/29
BS420-80	1521/10	1000	29/32
BS420-90	1521/12	2000	29/32
BS420-93	1521/16	5000	45/40
BS420-95	1521/18	10000	60/46
BS420-97	1521/22	20000	60/46



BS415

BS420

Bottles, Glass Reagent

Glass Reagent, Screw Neck, Pyrex®

Pyrex 1515 series, narrow mouth, round shape

With SVL black polybutylene terephthalate (PBT) screw cap and PTFE faced sealing disc. Can be dry heat or steam sterilised at 180°C. With approximate graduations.

	Ref.	Capacity ml	Cap size mm
BS430-15	1515/01	25	20
BS430-20	1515/02	50	25
BS430-30	1515/04	100	25
BS430-42	1515/06	250	30
BS430-50	1515/08	500	30
BS430-80	1515/10	1000	42
BS430-90	1515/12	2000	60
BS430-93	1515/16	5000	60
BS430-95	1515/18	10000	60

Spare SVL Screwcaps

SW460-20	Size 20
SW460-25	Size 25
SW460-30	Size 30
SW460-42	Size 42
SW460-60	Size 60

Important Warning Sterilising Bottles

Some bottles where indicated can be sterilised by autoclaving. However BEFORE AUTOCLAVING (or sterilising by gas or dry heat) the cap or closure must either be removed or just set on top of the container **WITHOUT ENGAGING THE THREAD.**

Glass Reagent, Screw Neck, Wide Mouth, Square Shape, Pyrex®

Pyrex 1520 series, wide mouth, square shape

With polypropylene screw cap and clear pouring ring which ensure smooth transfer of contents without drips. Square shape allows closer fitting in water baths or on shelves and offers up to 20% saving of space in comparison to similar round bottles. Can be used up to 140°C. With approximate graduations.

	Ref.	Capacity ml	Cap size mm
BS432-30	1520/04	100	32
BS432-42	1520/06	250	45
BS432-50	1520/08	500	45
BS432-80	1520/10	1000	45

Culture Bottles – see *Tissue Culture* section.

Dropper Bottles, Eye Dropper Bottles – see *Medical* section.

Reagent bottles, plastic – see *BR756*.

Safety Signs and Tapes – see *Safety* section.

Specimen Tubes – see *Tubes* section.

Spill mats and bench protection – see *Safety* section.

Trays – see *TT210*.

Washbottles – see *Washing* section.



BS430



BS432

Bottles, Glass Reagent

Glass Reagent, Screw Neck, Wide Mouth, Round shape

Bottles, Glass Reagent, Screw neck, Wide Mouth

Clear borosilicate (3.3) glass. Supplied with GL45 blue polypropylene screw cap and pouring ring for drip free pouring. Bottle, cap and pouring ring can be autoclaved up to 140°C. With approximate graduations, writing patch and retrace code with certificate available on request. In pack sizes as indicated.

Capacity ml	Cap size mm	Catalogue number	Pack quantity
100	45	BS431-30	10
250	45	BS431-42	10
500	45	BS431-50	10
1000	45	BS431-80	10
2000	45	BS431-90	1
5000	45	BS431-93	1
10000	45	BS431-95	1

Rasotherm®, capped. To ISO4796

Clear borosilicate (3.3) glass. Supplied with GL45 polypropylene screw cap and clear pouring ring which ensures smooth transfer of contents without drips. Can be used up to 110°C. With approximate graduations and writing patch. Supplied singly.

Capacity ml	Ref.	Catalogue number
100	95206001	BS434-30
250	95206002	BS434-42
500	95206003	BS434-50
1000	95206004	BS434-80
2000	95206005	BS434-90
5000	95206006	BS434-93
10000	95206007	BS434-95

Important Warning Sterilising Bottles

Some bottles where indicated can be sterilised by autoclaving. However **BEFORE AUTOCLAVING** (or sterilising by gas or dry heat) the cap or closure must either be removed or just set on top of the container **WITHOUT ENGAGING THE THREAD.**



BS431



BS434

Bottles, Glass Reagent

Glass Reagent, Screw Neck, Wide Mouth, Round Shape, Pyrex®

Pyrex 1516 series, capped. To ISO4796

Supplied with polypropylene screw cap and clear pouring ring (except 25ml size) which ensures smooth transfer of contents without drips. Can be used up to 140°C. With approximate graduations and trace code which allows a bottle to be traced to its point of production.

Pyrex 1517 series, uncapped

As 1516 series but supplied without cap and pouring ring.

Pyrex 1518 series, safety coated, uncapped

As 1517 series but with plastic coating to protect against mechanical damage. The coating remains transparent after repeated autoclaving up to 135°C and is UV absorbent to 380nm. This allows use in a similar way to amber bottles. Supplied without cap or pouring ring.

Pyrex 1519 series, amber, uncapped

As 1517 series but manufactured from amber borosilicate glass. UV absorbent to 500nm. Without cap and pouring ring.

Cap. ml	Cap size mm	Size Ref. (Series Code-)	Series Code 1516	Series Code 1517	Series Code 1518	Series Code 1519
25	25	/01	BS435-15	BS440-15	—	BS444-15
50	32	/02	BS435-20	BS440-20	—	BS444-20
100	45	/04	BS435-30	BS440-30	BS443-32	BS444-30
250	45	/06	BS435-42	BS440-42	BS443-44	BS444-42
500	45	/08	BS435-50	BS440-50	BS443-52	BS444-50
1000	45	/10	BS435-80	BS440-80	BS443-65	BS444-80
2000	45	/12	BS435-90	BS440-93	BS443-70	BS444-93
5000	45	/16	BS435-93	BS440-95	BS443-77	BS444-95
10000	45	/18	BS435-95	BS440-97	BS443-90	BS444-97
15000	45	/20	BS435-97	—	—	—
20000	45	/22	BS435-99	—	—	—

Standard Spares and Accessories

All items are polypropylene.

- [BS437-04](#) Screw cap size 25, blue
- [BS437-06](#) Screw cap size 32, blue
- [BS437-09](#) Screw cap size 45, blue
- [BS437-12](#) Pouring ring size 32
- [BS437-15](#) Pouring ring size 45

High Temperature Accessories

Enable bottles to be used up to 200°C.

- [BS437-17](#) PBTP screw cap size 25, red
- [BS437-18](#) PBTP screw cap size 32, red
- [BS437-21](#) PBTP screw cap size 45, red
- [BS437-24](#) ETFE pouring ring size 32
- [BS437-27](#) ETFE pouring ring size 45

PBTP - Polybutylene terephthalate

ETFE - Ethylenetetrafluoroethylene copolymer

Important Warning Sterilising Bottles

Some bottles where indicated can be sterilised by autoclaving. However BEFORE AUTOCLAVING (or sterilising by gas or dry heat) the cap or closure must either be removed or just set on top of the container **WITHOUT ENGAGING THE THREAD.**



BS435

BS440

BS443

BS444

Bottles, Glass Reagent

Glass Reagent, Screw Neck, Wide Mouth, Round shape, Duran®

Duran 21801 series, capped

Supplied with polypropylene screw cap and pouring ring (except 25ml size) for drip free pouring. Bottle, cap and pouring ring can be autoclaved up to 140°C. With approximate graduations.

Duran 21805 series, safety coated, uncapped

Similar to 21801 series but with plastic coating to protect against mechanical damage. The coating remains transparent after repeated autoclaving up to 135°C and is UV absorbent to 380nm. This allows use in a similar way to amber bottles. Without cap or pouring ring.

Cap. ml	Cap size mm	Plain	Ref.	Safety coated	Ref.
25	25	BS445-15	21801-145	—	—
50	32	BS445-18	21801-175	—	—
100	45	BS445-20	21801-245	BS445-60	21805-24
250	45	BS445-23	21801-365	BS445-63	21805-36
500	45	BS445-26	21801-445	BS445-66	21805-44
1000	45	BS445-30	21801-545	BS445-70	21805-54
2000	45	BS445-33	21801-635	BS445-73	21805-63
5000	45	BS445-36	21801-735	BS445-76	21805-73
10000	45	BS445-40	21801-865	—	—

Standard Spares and Accessories

All items are polypropylene. Vented caps are perforated, fitted with a 0.2µm filter membrane filter and are autoclavable up to 121°C.

- BS447-55** Screw cap size 25, blue
- BS447-56** Vented screw cap size 25, blue
- BS447-57** Screw cap size 32, blue
- BS447-58** Vented screw cap size 32, blue
- BS447-60** Screw cap size 45, blue
- BS447-61** Vented screw cap size 45 blue
- BS447-62** Pouring ring size 32
- BS447-63** Pouring ring size 45

High Temperature Accessories

Enable bottles to be used up to 200°C. Size 45 is also available with aperture that takes an accessory pierceable, bromobutyl rubber, self-sealing stopper.

- BS447-65** PBTP screw cap size 25, red
- BS447-67** PBTP screw cap size 32, red
- BS447-70** PBTP screw cap size 45, red
- BS447-72** ETFE pouring ring size 32
- BS447-73** ETFE pouring ring size 45
- BS447-80** PBTP screw cap with aperture, size 45, red
- BS447-85** Pierceable bromobutyl stopper*

*Note: the stopper is only autoclavable at 121°C

Important Warning Sterilising Bottles

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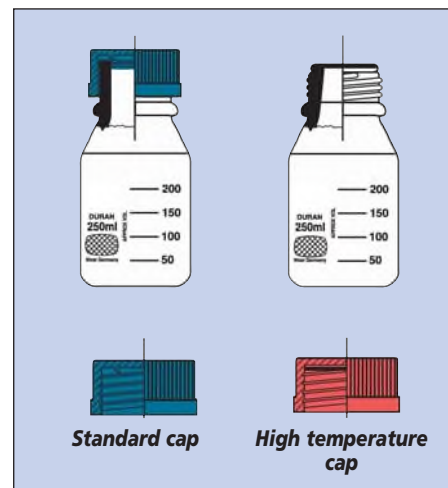
PBTP - Polybutylene terephthalate

ETFE - Ethenetetrafluoroethylene copolymer



BS445-23

BS445-60



BS445-23

BS445-63



BS447-56, -58, -61



BS447-80



BS447-85

Bottles, Glass Reagent

Glass Reagent, Plain Neck, Wide Mouth

Bottles, reagent, wide mouth

Clear glass with glass dustproof stopper.

	Capacity, ml
BS450-20	50
BS450-25	100
BS450-42	250
BS450-50	500
BS450-80	1000



BS450

Glass Reagent, Screw Neck, Extra Wide Mouth, Round Shape, Pyrex®

Pyrex 1523 series, extra wide mouth

Supplied with polypropylene screw cap and pouring ring which ensures smooth transfer of contents without drips. Can be used to 140°C. With approximate graduations and trace code which allows a bottle to be traced to its point of production.

	Ref. 1523/-	Capacity ml	Cap Size mm
BS465-42	06	250	80
BS465-50	08	500	80
BS465-80	10	1000	80
BS465-90	12	2000	80
BS465-93	16	5000	80
BS465-95	18	10000	80
BS465-99	22	20000	80

Spares

All items are polypropylene.

BS467-10 Screw cap size 80

Important Warning Sterilising Bottles

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BS465

Bottles, Glass and Plastic Reagent

Glass Reagent, Sandblast Labelled

With sandblasted letters within a border. BS520 series have a plain sandblast area, easily marked by the user with most types of pen or pencil.

Bottles, reagent, sandblast labelled

Clear glass with interchangeable polypropylene stopper except where otherwise stated.

Title	Capacity 250ml	Capacity 500ml
Plain sandblast area for marking	BS520-03	BS520-05
Acetic Acid Dil.	BS522-03	BS526-03
Acetic Acid, Glacial	BS522-05	BS526-05
Acetone	BS522-08	BS526-08
Alcohol	BS522-12	BS526-12
Ammonia Sol. Conc.	BS522-15	BS526-15
Ammonia Sol. Dil.	BS522-17	BS526-17
Ammonium Carbonate	BS522-22	BS526-22
Ammonium Chloride	BS522-25	BS526-25
Ammonium Hydroxide Conc.	BS522-28	BS526-28
Ammonium Hydroxide Dil.	BS522-30	BS526-30
Ammonium Sulphate	BS522-36	BS526-36
Barium Chloride	BS522-45	BS526-45
Calcium Hydroxide	BS522-59	BS526-59
Carbon Tetrachloride	BS522-65	BS526-65
Chloroform (A),(G)	BS522-68	BS526-68
Copper Sulphate	BS522-72	BS526-72
Ether (A),(G)	BS522-80	BS526-80
Ethyl Acetate	BS522-83	BS526-83
Fehlings Sol. No. 1	BS522-88	BS526-88
Fehlings Sol. No. 2	BS522-90	BS526-90
Ferric Chloride	BS523-04	BS527-04
Hydrochloric Acid Conc.	BS523-15	BS527-15
Hydrochloric Acid Dil.	BS523-17	BS527-17
Hydrogen Peroxide (A)	BS523-20	BS527-20
Lead Acetate	BS523-25	BS527-25
Lime Water	BS523-32	BS527-32
Nitric Acid Conc. (A),(G)	BS523-36	BS527-36
Nitric Acid Dil.	BS523-38	BS527-38
Potassium Hydroxide	BS523-52	BS527-52
Potassium Iodide	BS523-55	BS527-55
Potassium Permanganate	BS523-58	BS527-58
Silver Nitrate (A),(G)	BS523-65	BS527-65
Sodium Carbonate	BS523-68	BS527-68
Sodium Chloride	BS523-72	BS527-72
Sodium Hydroxide	BS523-75	BS527-75
Sodium Hydroxide Dil.	BS523-77	BS527-77
Sulphuric Acid Conc.	BS523-83	BS527-83
Sulphuric Acid Dil.	BS523-85	BS527-85

(A) Indicates amber glass bottles. (G) Indicates glass stopper.



BS522/BS523



BS526/BS527

Plastic Reagent, Labelled

Azlon

- ◆ Graduated in ml and fl.oz
- ◆ Leakproof wide mouth
- ◆ Autoclavable to 121°C
- ◆ Transparent — easy to view contents
- ◆ Large, white, plain writing area

Bottles, reagent, plastic, labelled

Transparent polypropylene. With dual graduations (ml and fl.oz), plain writing area and cap. Supplied in packs as indicated.

	Ref.	Cap. ml	Pk. qty.
BS600-24	BWP0060PGRAD	60	10
BS600-31	BLP0125PGRAD	125	10
BS600-43	BWP0250PGRAD	250	10
BS600-52	BWP0500PGRAD	500	10
BS600-82	BWP1000PGRAD	1000	5

Ink Markers, Laboratory

Ideal for marking polystyrene petri dishes, metal, glass and most plastics, cold (above 0°C) or moist surfaces. Water and alcohol resistant, autoclavable ink. Can be removed from non-porous surfaces by scrubbing with detergent. Colours as indicated. Supplied singly.

LA620-04	Black
LA620-08	Red
LA620-12	Blue
LA620-16	Green



BS600

Bottles, Glass, Dropping/Dispensing

Glass, Dropping and Dispensing

Bottles, dropper

Amber glass, round shape with plastic cap, rubber teat and glass pipette.

Cap. ml	Pack qty.
------------	--------------

Soda-lime amber glass

BS707-14	15	25
BS707-15	15	100
BS707-16	30	100

Bottles, dropping

Clear glass with plastic stopper, vinyl teat and glass pipette.

Cap. ml

BS722-17	30ml
BS722-24	50ml
BS722-30	100ml

Bottles, dropping TK Pattern

With ground-in slotted flat-head stopper.

Clear glass

BS740-20	50ml
BS740-30	100ml

Amber glass

BS742-20	50ml
BS742-30	100ml

Bottles, dispensing

Clear glass with plastic stopper, vinyl teat and graduated pipette.

Cap. ml	Pipette ml
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BS750-30	100	1 x 0.5
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Tilt Pipettes

Borosilicate glass. Kipps pattern, with 29/32 cone joint for attachment to 1 litre soda glass reservoir supplied.

	Capacity, ml
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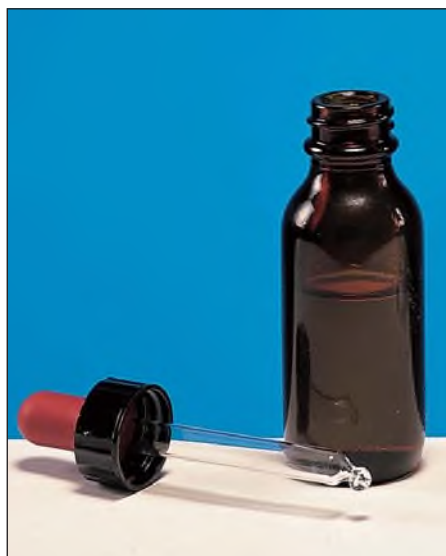
PP739-20	5
PP739-25	10
PP739-30	20
PP739-35	25
PP739-40	50
PP739-45	100

QKC29 Joint clip to secure head on bottle

Bottle mounting Dispensers – see *Dispensers section*.

Dispensing Measures – see *Measures section*.

Pipettors – see *Pipettes section*.



BS707



BS740

BS742



PP739



BS722



BS750

Bottles, Plastic, Dispensing, Special

Plastic, Dropping and Dispensing

Bottles, Azlon dropping

Polyethylene with bellows dropping pipette. Capacities are bottle volume/dispensed volume.

	Ref.	Cap. ml
BS805-35	BGE628P	150/4
BS805-42	BGE630P	250/4

Bottles, Azlon dispensing

Polyethylene with pivoting nozzle which can be raised to give a directable jet of liquid as the bottle is squeezed.

	Ref.	Cap. ml
Natural polyethylene		
BS815-17	BGE514P	30
BS815-24	BGE520P	60
BS815-35	BGE528P	150
BS815-42	BGE530P	250
BS815-50	BGE536P	500

Bottles, Azlon dispensing

LDPE with dropper nozzle and captive cap.

	Ref.	Cap. ml
BS820-17	BGE814PNC	30
BS820-24	BGE820PNC	60
BS820-32	BGE828PNC	150
BS820-42	BGE830PNC	250
BS820-50	BGE836PNC	500

Polyethylene bottle (except BS825-50 which is PVC) with polypropylene closure and pump. Capacities are bottle volume/dispensed volume.

	Cap. ml
BS825-32	125/0.5
BS825-42	250/4
BS825-50	500/4

Bottles, spray atomising

Polyethylene (except BS830-50 which is PVC). Produces fine spray when top is pumped.

	Cap. ml
BS830-17	30
BS830-24	60
BS830-32	125
BS830-42	250
BS830-50	500

Bottles, trigger-action, LaboPlast®, Bürkle

LDPE bottle and PP, trigger-action spray head with adjustable nozzle and stainless steel ball valve. Each stroke dispenses approximately 1.2ml. Supplied singly.

	Bottle Cap. ml	Overall height mm
BS835-42	250	220
BS835-50	500	240
BS835-82	1000	295

Special Purpose

Bottles, B.O.D.

Clear glass with hollow glass peg stopper with cone point. Used for the Biological Oxygen Demand test on water samples.

	Capacity
BS900-42	250ml
BS900-50	500ml

B.O.D testing – see *Dissolved oxygen* section.

Cooled Incubators for B.O.D. testing – see *Incubator* section.

Bottles, Kilner type

Clear glass with a lacquered metal plate with flowed-in plastic seal on the underside and separate metal screw collar.

BS910-40	500ml
BS910-75	1000ml

Bottles, Kilner type

Clear glass with flat glass top and rubber sealing ring. The flat top is held in place by a wire clamp.

BS910-85	1500ml
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Bottle, oil sample

Clear glass. Neck sealed by a cork.

BS920-10	225ml
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Eye-Wash Bottles – see *Safety* section.

Washbottles – see *Washing* section.

Safety signs and tapes – see *Safety* section.



BS805



BS820



BS830



BS900

BS920



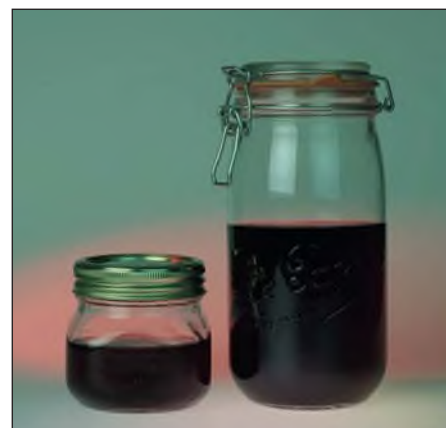
BS815



BS825



BS835



BS910-40 and BS910-75

BS910-85

Bottles, Bottle Accessories

Aluminium bottles

- ◆ Pure aluminium (Al 99.5)
- ◆ Seamless
- ◆ Lightweight

Ideal for transportation or storage of sensitive materials or reference samples that must remain contamination-free. Odourless, impermeable to light and corrosion resistant. Comply with the PCB regulations. With polypropylene, tamper-evident screw cap with internal aluminium sealing wad. Supplied singly.

	Cap. ml	Dia. x H, mm
BS980-15	38	35 x 70
BS980-25	60	40 x 88
BS980-35	120	57 x 97
BS980-45	300	57 x 160
BS980-55	600	74 x 192
BS980-65	1200	88 x 248

Aluminium foil - see AL200.

Aluminium basins - see BF550.

Bottle Carriers

Bottle carriers, wire, Azlon

Epoxy coated steel wire for carrying up to six bottles or washbottles.

	Ref.	For bottles max. diameter
BT512-10	BGS040	60mm
BT512-20	BGS042	74mm

Bottle carriers, wire

Nylon coated steel. Accept bottles with capacities and diameters as indicated. With handle.

BT520-20	4 x 1L, maximum 105mm diameter
BT520-30	2 x 2.5L, maximum 160mm diameter

Safety bottle carrier

Heavy-duty, chemically resistant HDPE, single bottle carrier comprising two interlocking shells that can hold 2.5 litre Winchester of traditional or 'Euro' patterns. A rugged carrying handle allows safe transport and enables pouring from the bottle without dismantling the carrier. Supplied singly.

BT540-25 Safety bottle carrier

Bottle store

Stove painted, heavy gauge steel with hinged lid, toggle catch and swivel castors for mobility. Contains a removable stainless steel spillage tray accommodating 8 x 2.5L winchester or 'Euro'-type bottles. Internal dimensions 620 x 320 x 360mm high.

BT550-37 Bottle store

Spill Containment

We offer a wide range of products for containing spillage safety.

- Absorbent Papers for protecting benches
- Highly Absorbent Powders and Pads for containing and binding spillage rapidly

For full details of these products - see SA200 to SA235 in the Safety Section.

Safety Stores for storing small quantities of acids and flammable liquids - see SB840 to SB875 in the Safety Section.

Spill trays

Tough deep trays in white polypropylene. Resistant to most common acids, alkalis and solvents. With polished surface which is easy to clean.

	Cap. litres	External L x W x D, mm
TT210-12	0.5	180 x 230 x 42
TT210-15	1.5	250 x 310 x 65
TT210-18	3	310 x 370 x 75
TT210-24	10	420 x 520 x 120
TT210-28	21	534 x 634 x 140
TT210-32	39	648 x 846 x 160



BS980



BT520-20 in use, BT520-30 is similar



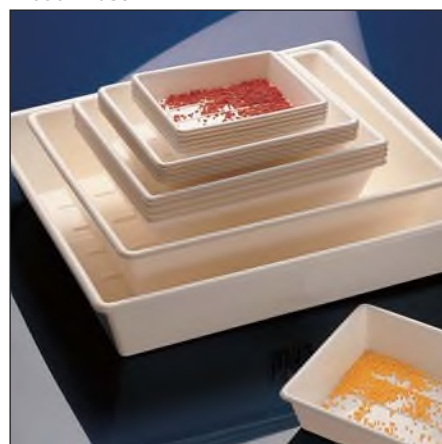
BT550 in use



BT512 in use



BT540 in use



TT210

Bowls, Boxes

Bowls

Lotion Bowls, polypropylene

Blue. Autoclavable to 135°C. With internal, moulded-in graduations. Capacities and dimensions as indicated.

	Capacity ml	Diameter x height mm
BT800-10	900	150 x 70
BT800-20	2000	200 x 90
BT800-30	3000	250 x 150

Wash Bowl, polypropylene

Natural. Autoclavable to 135°C. For use as a temporary bath or pneumatic trough. With internal, moulded-in graduations. Capacities and dimensions as indicated.

BT810-25 5 litres, 350 x 120mm diameter x height

Boxes

All dimensions are nominal and are length x width x height in mm.

Boxes, glass, rectangular

	Dimensions
Without lid	
BU100-32	220 x 150 x 55
BU100-36	200 x 100 x 100
BU100-42	275 x 150 x 60
BU100-54	350 x 150 x 70

With stainless steel drop-on lid

BU104-32	220 x 150 x 55
BU104-36	200 x 100 x 100
BU104-42	275 x 150 x 60
BU104-54	350 x 150 x 70

Boxes, Azlon, polyethylene

With snap-on tight fitting lids.

	Ref.	Dimensions
BU120-10	BWY030	100 x 100 x 65
BU120-15	BWY032	100 x 100 x 125
BU120-20	BWY034	210 x 100 x 65
BU120-25	BWY036	210 x 100 x 90
BU120-30	BWY038	210 x 210 x 65
BU120-35	BWY039	210 x 210 x 90

Glass troughs - see *GE310*.

Instrument Boxes - see *Medical section*.

Microscope Slide Boxes - see *Microscopy section*.

Petri Dish Boxes - see *Petri Dish section*.

Pipette Boxes - see *Pipette section*.

Stainless steel lotion bowl - see *Medical section*.

Storage Containers 0.2 to 30 litres - see *Storage section*.

Tool roll - see *Tools section*.



BT800



BU104 in use



BT810



BU120

Brushes

Brushes

All dimensions are nominal.

Brushes, Beaker

Bristle head 70mm diameter x 150mm long, on wood handle. Overall length 400mm. Supplied in pack of 10.

BU400-12 Beaker brushes

Brushes, Bottle

Fibre or nylon head on wire handle. Supplied in packs of 10.

	Head dia. x length mm	Overall length mm	For bottle ml
Fibre			
BU410-12	45 x 65	300	125
BU410-22	50 x 75	350	250
BU410-32	65 x 100	400	500
BU410-42	75 x 150	460	1000
Nylon			
BU410-17	45 x 65	300	125
BU410-27	50 x 75	350	250
BU410-37	65 x 100	400	500
BU410-47	75 x 150	460	1000

Brushes, Burette

Bristle head on wire handle. Supplied in packs of 10.

	Head diameter mm	Overall length mm	For burette ml
BU425-12	13	500	10
BU425-17	16	600	25
BU425-22	19	750	50
BU425-27	25	900	100

Brushes, Cylinder

Nylon fan shaped end on wire handle. Supplied in packs of 5.

	Head dia. x length mm	Overall length mm
BU430-12	65 x 120	650
BU430-17	75 x 140	650



BU400

BU410

BU425

BU430

BU435

Brushes, Flask

Curved bristle head 50mm diameter x 100mm long. With hinged centre joint and rubber covered stem on a wooden handle. Overall length 380mm. Supplied in pack of 5.

BU435-12 Flask brush

Brushes, Test tube

Bristle or nylon fan shaped head on wire handle. Supplied in packs of 10.

	Head dia. mm	For tubes dia. mm
Bristle		
BU450-12	10	10 to 12
BU450-22	30	16 to 25
Nylon		
BU450-17	10	10 to 12
BU450-27	30	16 to 25

Brushes, Test tube

Bristle or nylon with cotton tip head on wire handle. Supplied in packs of 10.

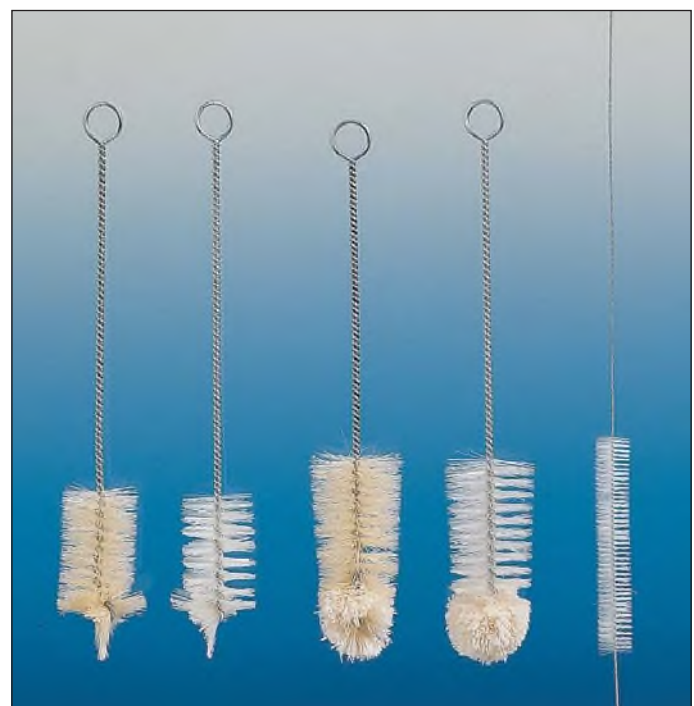
	Head dia. mm	For tubes dia. mm
Bristle		
BU455-12	16	12 to 16
BU455-22	30	19 to 25
Nylon		
BU455-17	16	12 to 16
BU455-27	30	19 to 25

Brushes, Tube

Nylon brush 70mm long set in the centre of wire handle. Supplied in packs of 10.

	Brush dia. mm	Overall length, mm
BU465-12	3	400
BU465-17	6	400
BU465-22	12	600

Cleaning materials – see *Cleaning section*.



BU450

BU455

BU465

Brushes, Buckets

Brushes continued

Brushes, Tube (pipe cleaner), small

Flexible cord approximately 3mm diameter for cleaning capillaries, stopcocks, etc. 15 metre length.

BU470-10 Pipe cleaner

Brushes, Tube (pipe cleaner), large

Flexible fluffy cord stem, 300mm long. Approximate diameter as stated. Supplied in packs of 50 lengths.

BU470-15 Pipe cleaner, 9mm

BU470-25 Pipe cleaner, 12mm

Brush, Tube (pipe cleaner), heavy duty

Cord/nylon filament stem, approximately 3mm diameter. 10 metre length.

BU470-65 Pipe cleaner, cord/nylon

Brush, Tube (pipe cleaner), double action

As BU470-10 but 150mm length divided half cord, half cord/nylon filament. Supplied in pack of 100 lengths.

BU470-85 Pipe cleaner, double action

Brush, Flat form

For general dusting. Hair bristles 25mm wide in metal mount on wood handle.

BU480-10 Flat brush

Brushes, Round form

For general dusting. Soft hair bristles in quill mount.

	Head dia. mm	Overall length, mm
BU485-10	4	60
BU485-20	8	80

Brushes, Pencil form

Soft hair bristles approximately 7mm long in metal mount on wood handle.

BU490-10 Pencil brush

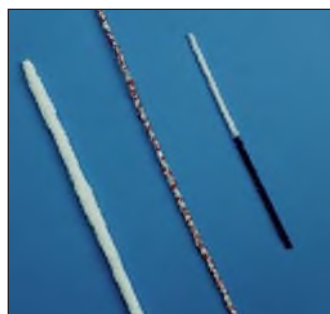
Brushes, Dabber/Mop form

Soft hair bristles in metal mount on wood handle.

	Head dia. mm	Head length, mm
BU495-10	9	30
BU495-15	11	34
BU495-20	14	38



BU470-10 in use



BU470-25 BU470-65 BU470-85



BU480 BU485 BU490 BU495

Buckets

Buckets, Plastic

With handle and approximate graduations as indicated. With spout.

	Capacity	Material	Graduations
BU700-12	10 litres	White polyethylene, heavy duty with plastic coated steel handle	1 litre
BU700-14	10.5 litres	White polyethylene	0.5 litre
BU700-16	12 litres	Natural polypropylene	1 litre
BU700-17	15 litres	White polyethylene, heavy duty with plastic coated steel handle	1 litre
BU700-18	15 litres	Natural polypropylene	1 litre
BU700-22	17 litres	White polyethylene	0.5 litre

Buckets, stainless steel

With handle and approximate graduations at 1 litre intervals from the 5 litre mark.

BU715-10 10 litre

BU715-15 12.5 litre

BU715-20 15 litre

Lids

Stainless steel, for BU715 buckets.

BU717-10 10 litre

BU717-15 12.5 litre

BU717-20 15 litre

Kegs and drums – see **BR922, BR928**.

Large capacity jugs – see **MD758**.

Storage/Mixing containers – see **SX310**.



BU700-12I-17



BU700-14I-22



BU700-16I-18



BU715

Bulbs

Bulbs

Bulbs, PVC, pear shape

	Size	Bulb dia. mm	Capacity ml	Neck bore mm
BU800-10	0	34	15	6.5
BU800-15	1	43	30	4
BU800-20	2	58	60	5
BU800-25	3	68	100	13
BU800-30	4	80	150	15

Bulbs (teats) rubber

For dropper pipettes.

	Size	Capacity ml	Neck bore mm
BU810-10	0	1.5	4
BU810-15	1	2	5
BU810-20	3	2.75	6
BU810-25	5	5	6

Bellows – see *BP200* to *BP210*.

Bulb condensers, Allihn – see *Quickfit* section.

Bulb pipettes – see *PM102* to *PM230*.

Graduated pipettes – see *PM402* to *PM854*.

Droppers and teats – see *ME770*.

Latex tube policemen – see *RS260*.

Pipette controllers – see *PP820* to *PP895*.

Pipette Bulbs

Pipette Bulbs

Small capacity, chemically resistant rubber bulbs for rapid and easy pipetting. Colour-coding aids identification.

	Capacity ml	Colour
PP845-09	2	Grey
PP845-14	5	Grey

Pipette Bulbs

Chemically resistant rubber with valves for suction, emptying and air release controlled by thumb and finger pressure.

PP850-10 Standard model. For bulb and graduated pipettes up to 10ml

PP852-10 Universal model. With extended cone which accommodates all sizes of bulb and graduated pipettes

Pipette Bulb, automatic venting

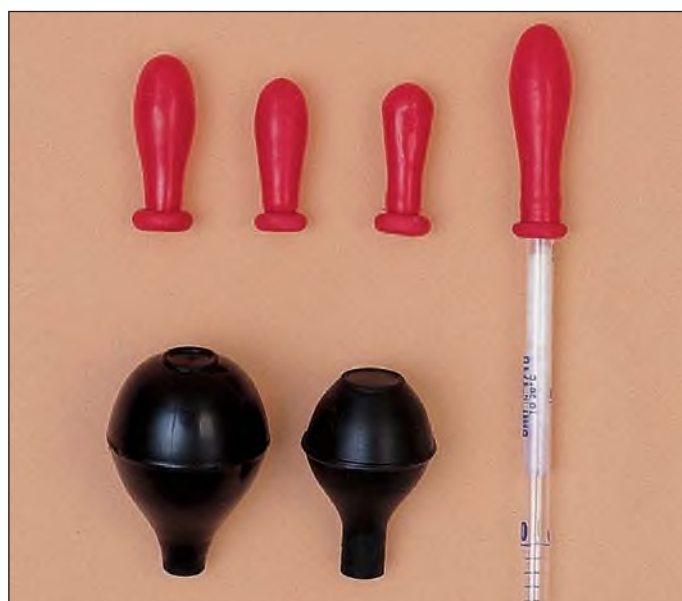
For bulb and graduated pipettes up to 100ml capacity. Reservoir bulb incorporates one-way valve which allows it to vent when squeezed and reseal when released. The valve is removable, allowing easy internal cleaning should accidental contamination occur.

PP854-12 Pipette bulb, automatic venting

Safety Bulb Pipette Filler

For bulb and graduated pipettes up to 25ml capacity, and is particularly suitable as an aspirator for Westergren and Wintrobe sedimentation pipettes. The tapered silicone rubber seal prevents loss of suction. Easily cleaned and can be autoclaved.

PP860-25 Pipette filler



BU800 bottom

BU810 top

PP845



PP850/852

PP854

PP860

Burettes

Burettes, Glass, Single Bore, MBL®

Glass Burettes

Unless otherwise stated single and double bore burettes:

- ◆ Conform to ISO385

Works Certified Burettes

- ◆ Each burette is supplied with a certificate stating the actual volume delivered at five points on the scale

Burettes, MBL, Class B

With PTFE key stopcock. Borosilicate glass. Blue enamel graduations.

	Ref. BRB-	Capacity x grads., ml
BW105-10	070P	10 x 0.02*
BW105-22	074P	25 x 0.10
BW105-23	075P	25 x 0.10*
BW105-26	076P	50 x 0.10
BW105-27	077P	50 x 0.10*

* With funnel top.

Burettes, MBL, Class B

With funnel top for easier and safer filling, PTFE stopcock connected to burette tube and jet, with self-locking nuts. Borosilicate glass burette tube and jet. Blue enamel graduations.

	Ref. BRB-	Capacity x grads., ml
BW112-22	264P	25 x 0.10
BW112-26	266P	50 x 0.10

Spare jets for BW112 series burettes

BW116-09 Borosilicate glass

Burettes, MBL, Class B

With interchangeable glass stopcock. Borosilicate glass. Blue enamel graduations.

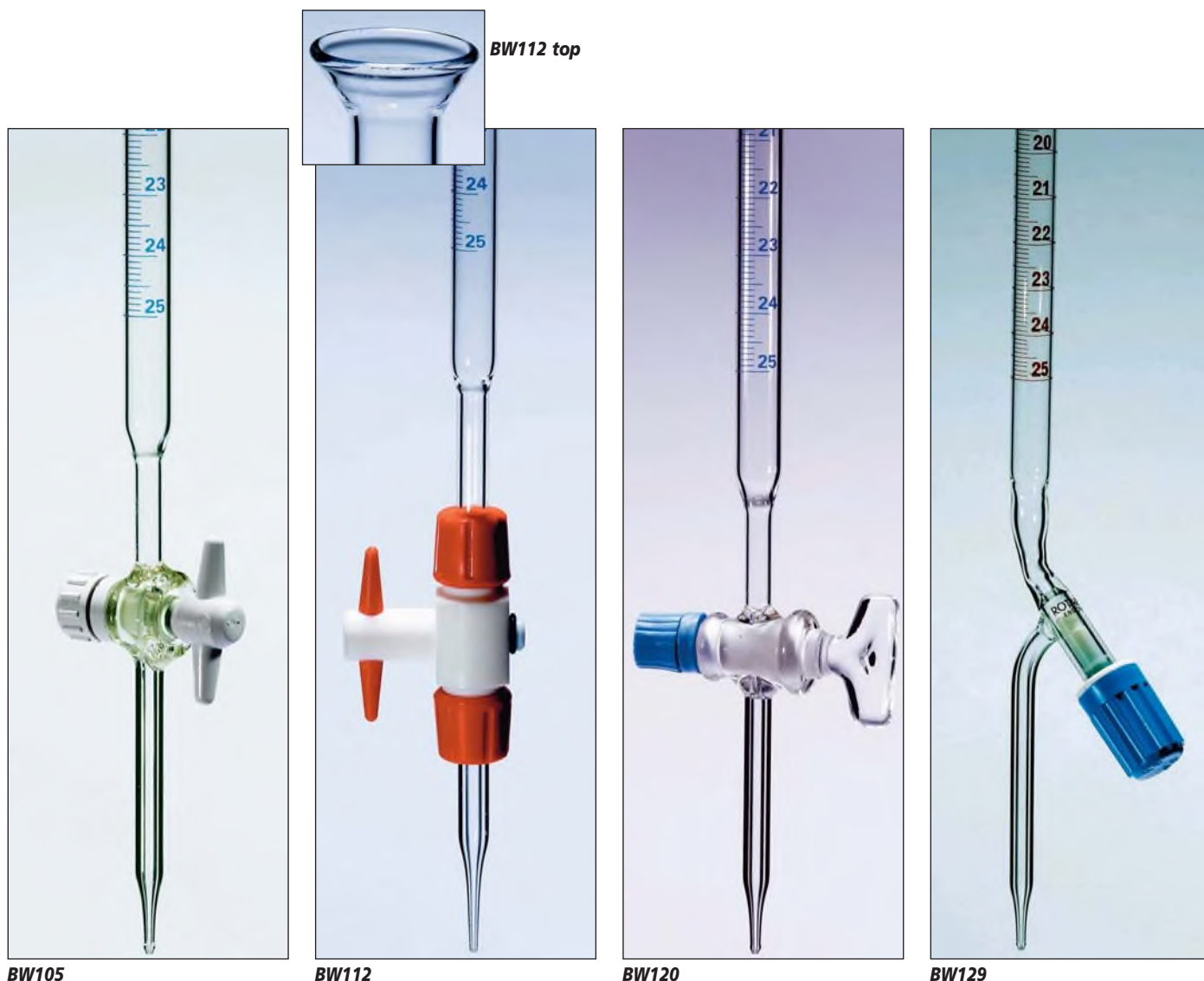
	Ref. BRB-	Capacity x grads., ml
BW120-10	050P	10 x 0.02
BW120-22	056P	25 x 0.10
BW120-26	058P	50 x 0.10
BW120-30	060P	100 x 0.20

Burettes, MBL, Class B

With GP Rotaflo PTFE key stopcock. Borosilicate glass. Amber stain graduations.

	Ref. BRB-	Capacity x grads., ml
BW129-14	402	10 x 0.10
BW129-22	404	25 x 0.10
BW129-26	406	50 x 0.10
BW129-30	408	100 x 0.20

Spare PTFE key - see QGP3K.



Burettes

Burettes, Glass, Single Bore, Pyrex

Burettes, Pyrex

With PTFE key stopcock. Borosilicate glass. Graduations in white enamel.

	Ref.	Capacity x grads, ml
Class B		
BW144-10	3295/02	10 x 0.02
BW144-12	3295/04	25 x 0.10
BW144-26	3295/06	50 x 0.10
BW144-30	3295/08	100 x 0.20
Class AS		
BW147-10	3295/12AS	10 x 0.02
BW147-12	3295/14AS	25 x 0.10
BW147-26	3295/16AS	50 x 0.10
BW147-30	3295/18AS	100 x 0.20
Works Certified		
BW151-10	3295/22ASWC	10 x 0.02
BW151-12	3295/24ASWC	25 x 0.10
BW151-26	3295/26ASWC	50 x 0.10
BW151-30	3295/28ASWC	100 x 0.20



BW144, BW147 and BW151 are similar

Burettes, Plastic, Single Bore

Azlon

Robust general purpose burettes suitable for use with most aqueous solutions. Advice must be requested if required to be used with organic materials.

Burettes, Azlon, Class B

Transparent acrylic with PTFE key single bore stopcock which requires no lubrication. Graduations are screen printed in black to ISO385 Class B accuracy. Not suitable for use with NH₃ and HF aqueous solutions or organic alcohols and solvents.

	Ref. BDH-	Capacity x grads. ml
BW510-22	112T	25 x 0.10
BW510-26	118T	50 x 0.10



BW510

Burettes

Automatic Zero Burettes

Automatic Zero Burettes, MBL

Sofnol pattern. For water testing. Class B. Borosilicate glass. Graduations in blue enamel. With pinchclip, rubber tube, jet and polyethylene reservoir bottle. The burette is filled by squeezing the bottle. Once the bottle is released, excess liquid can drain back into the bottle until the burette is set to zero. The 10ml has a 500ml bottle and the 20ml a 1000ml bottle.

	Ref. BRB-	Capacity x grads. ml
BW590-14	004	10 x 0.10
BW590-16	006	20 x 0.10

BW592-08 Spare pinchvalve and jet for BW590-series

Automatic Zero Burettes, Pyrex

Sofnol pattern. Class B. Borosilicate glass. With internal filling tube, automatic zero and single bore GP Rotaflo stopcock. Graduations in white enamel.

	Ref.	Capacity x grads. ml
BW595-14	3298/02	10 x 0.10
BW595-16	3298/03	20 x 0.10
BW595-24	3298/04	25 x 0.10

Reservoir bottles for BW595 series

Polyethylene with holed screw cap which accepts and seals to the burette extension tube. The burette is filled by squeezing the bottle.

	Ref.	Capacity ml
BW597-22	3299/04	500
BW597-34	3299/06	1000

Automatic Zero Burettes, Pyrex

For suction or low pressure filling. Class AS. Borosilicate glass. With PTFE stopcock and 29/32 cone joint to fit BW634 reservoir. Graduations in white enamel. Without reservoir.

	Ref.	Capacity x grads. ml	Joint size
BW630-12	3296/02AS	10 x 0.02	29/32
BW630-26	3296/04AS	25 x 0.05	29/32
BW630-30	3296/06AS	50 x 0.10	29/32

Reservoir bottle, for BW630 series. Soda-lime glass.

BW634-10 2000ml, 29/32 neck

Bellows - see BP200/BP205-series.

Automatic Zero Burettes

Dr Schilling pattern. Class B. Borosilicate glass (plastic-coated: BW660-36, -38 only) burette tube with Schellbach stripe, mounted on a low density polyethylene flexible bottle. With PVC discharge tube and HDPE support base. Screw adjustment and push button provide fine to coarse delivery of liquid. Rapid fill by squeezing the reservoir bottle.

	Burette Capacity x grads. ml	Reservoir Capacity ml
BW660-10	10 x 0.05	500
BW660-14	25 x 0.10	1000
BW660-18	50 x 0.10	1000

Glass

BW660-10	10 x 0.05	500
BW660-14	25 x 0.10	1000
BW660-18	50 x 0.10	1000

Plastic-coated glass

BW660-36	25 x 0.05	1000
BW660-38	50 x 0.10	1000

Dispensers, bottle mounted – see DK100 to DK282 in the Dispensers section.



BW590



BW595 with BW597



BW630 with BW634 and bellows



BW660

Burettes

Digital Burettes, Titrette®



- ◆ Capacities 25ml and 50ml
- ◆ High accuracy (within Class A limits)
- ◆ Precision gears allow drop-wise titration and 3 decimal place display available up to 20ml volume
- ◆ Pause button allows titration value to be retained during refilling
- ◆ Powered by standard alkaline 1.5V AAA batteries with Auto Power Off function, adjustable from 1 to 30 minutes use
- ◆ Telescopic FEP filling tubes and adjustable dispensing tube increase flexibility in use

Digital Burettes, Titrette®

As described. Resolution 0.001 up to 20ml, 0.01 rest of range (25ml model), 0.002 up to 20ml, 0.01ml rest of range (50ml model). Accuracy within Class A limits. Supplied with performance certificate. With GL45 standard neck thread, (170-330mm) filling recirculation tube, 2 x 1.5V AAA batteries, 3 x PP bottle adapters (GL45/32, GL45/S40, GL32/NS29/32), 2 each clear and amber inspection windows and instructions. RS232 models additionally incorporate an interface and are supplied with cable (9-pin sub-D plug) and Cd software disk for Windows™ OS computers. Without reservoir.

- BW900-46** Titrette, 25ml
- BW900-48** Titrette, 25ml, with RS232
- BW900-72** Titrette, 50ml
- BW900-74** Titrette, 50ml, with RS232

- ◆ Inspection windows allow easy monitoring of solution being dispensed (interchangeable amber windows supplied for light-sensitive solutions)
- ◆ User calibration and adjustment features allow incorporation into GLP protocols
- ◆ User-serviceable piston, cylinder and valve assemblies for easy cleaning or replacement
- ◆ Models available with RS232 interface and software to download data, ID, and calibration details to the users' PC (requires Windows™ OS)
- ◆ Built-in SafetyPrime™ recirculating valve on discharge tube channels back reagent into the reservoir during priming

Spares and Accessories for Titrette series

- BW902-21** Spare discharge tube, FEP, 165mm long. With fine drawn out tip
- BW902-24** Accessory telescopic filling tube, FEP, 170-330mm. With micro valve allowing dropless high precision titration
- BW902-25** Accessory telescopic filling tube, FEP, 250-480mm. With micro valve allowing dropless high precision titration
- BL610-08** 1.5V AAA battery (2 required)

Reservoir Bottles

Amber, soda-lime glass, square pattern (except DK114-32 which is cylindrical) with ethylene-acrylate plastic coating to reduce breakage hazards. With PP screw cap and pouring ring with GL screwthread as indicated. Maximum operating temperature +80°C.

	Capacity ml	Screw neck outside diameter, mm
DK114-22	500	GL32
DK114-27	1000	GL45
DK114-32	2500*	GL45

*2500ml size is cylindrical.



BW900 in use with reservoir



DK114 in use

Burners

Bunsen Burners

All burners have a heavy, pressure diecast base with integral inlet tube for 8mm bore flexible gas tubing. Bases are finished in chemically resistant, blue acrylic paint. For operation with gas types as indicated.

Bunsen Burners

Overall height approximately 124mm. Dimension given is the outside diameter of the burner tube.

	<i>o.d. mm</i>	<i>For gas type</i>
With air regulator		
BY100-10	11	Natural
BY100-12	13	Natural
BY100-20	11	LPG
BY100-22	13	LPG
With control stopcock and pilot flame		
BY100-30	13	Natural
BY100-32	13	LPG

Cartridge Burner, Bunsen pattern

Portable burner for use with accessory "Primus" 220g LPG gas cartridges. Constructed in brass with 13mm diameter, Bunsen pattern, nozzle, gas control valve and air regulator. Each 220g gas cartridge provides a continuous burning time of approximately 2.75 hours. Overall height when mounted on cartridge, 190mm. Without gas cartridge.

BY125-10 Cartridge burner, Bunsen pattern, 13mm, LPG

Note: Local purchase of gas cartridges is recommended. Gas cartridges can be exported only as seafreight – deck cargo.

Bunsen Burner, Universal

Can be used with coal and natural gases, LPG and mixtures of these. With air regulator, needle valve and an adjustable baffle in the 13mm o.d. burner tube. Overall height 160mm.

BY160-10 Universal

Tubing, for gas burners

Neoprene rubber with 8mm i.d. reinforced ends. Supplied singly.

	<i>Length, mm</i>
TY280-15	450
TY280-20	600
TY280-25	900

Gauges – see *Gauges section*.

Tripod Stands – see *Stands section*.

Tubing – see *Tubing section*.



BY100-10



BY100-30



BY125 on cartridge



BY160



TY280 in use

Burners

Micro Burners

Bunsen Burners, Micro

With air regulator. Overall height approximately 90mm. Burner tube 10mm o.d.

	For gas type
BY170-10	Natural
BY170-12	LPG

Bunsen Burner, Micro, Portable

Self-contained. With built-in LPG gas tank, which requires charging from readily available (cigarette lighter) containers, manual piezo ignition button, gas control valve and air regulator. Burner tube 9mm diameter. Overall height 92mm. Gas consumption 56g/hour. Without gas charge.

BY175-12 Self contained micro burner

Note: Gas cartridges can be exported only as seafreight – deck cargo. Local purchase is recommended.

Teclu Burners

Teclu Burners

With air regulator and gas control needle valve. Overall height approximately 127mm. Burner tube 13mm o.d.

	For gas type
BY250-10	Natural
BY250-12	LPG

Meker Burners

Meker pattern

With metal grid to ensure an evenly distributed flame. Overall height approximately 140mm. Dimension is the grid diameter.

	o.d. mm	For gas type
BY280-12	30	Natural
BY280-16	43	Natural*
BY280-22	20	LPG
BY280-38	43	LPG*

*BY280-16 and -38 are 180mm high.

Cartridge Burner, Meker pattern

Portable burner for use with conventional "Primus" 220g LPG gas cartridges. Constructed in brass with 17mm diameter plated steel grid at the nozzle, gas control valve and air regulator. A220g gas cartridge will provide a continuous burning time of approximately 2.75 hours. Overall height when mounted on cartridge, 190mm. Without gas cartridge.

BY284-10 Cartridge burner, 17mm LPG

Note: Local purchase of gas cartridges is recommended. Gas cartridges can be exported only as seafreight – deck cargo.

Meker Burners, AMAL Major

With ceramic grid 43mm diameter, alternative jets and insulated handle. Overall height 180mm. Natural gas jets Nos. 160/150/170/180. LPG jets Nos. 40/30/50/60.

	For gas type
BY300-10	Natural
BY300-12	LPG



BY170



BY250



BY280-16, BY280-38 is similar



BY300



BY175



BY280-12

BY280-22



BY284-10 on cartridge

Burners

Laboratory Burners, Fuego SCS

For occasional or intermittent use, or serial flame sterilisation.

- ◆ Automatic gas ignition
- ◆ Low-profile easily cleaned stainless steel casing
- ◆ Gas and air regulators for fine control
- ◆ Visual alarm of burner head clogging and "burner hot" residual heat indicator
- ◆ Smooth sculpted design channels spillages away
- ◆ Can be tilted to avoid nozzle contamination
- ◆ Overheat protection system cuts off gas supply if overheating occurs or the electrical supply interrupted

Burner, Fuego SCS basic

With push-button ignition. The flame is maintained as long as the button is pressed and extinguishes on release. Alternatively, a foot pedal provided allows hands-free operation if required. Supplied with foot pedal, tilt mechanism, nozzles for natural gas or LPG, rack for up to 3 wire loop holders, tubing connector, wrench for gas connection and screwdriver for burner head. Overall 103 x 130 x 49mm L x W x H. Weight 0.7kg. Requires a 230V 50/60Hz single phase supply for the ignition circuit. Without gas supply.

BY340-30 Fuego SCS basic

Burner, Fuego SCS

Generally as BY340-30 but without foot pedal and with Infra-red sensor, range 5 to 50mm, requiring two hand movements to activate the flame which is maintained for a timed period adjustable within two ranges: start-stop from 1 second to 2 hours or Auto-off from 1 second to 2 hours. An LCD readout with heat resistant glass face indicates time remaining and burner functions/adjustment. An accessory foot pedal is available, if preferred. Requires a 230V 50/60Hz single phase supply for the ignition circuit. Without gas supply.

BY340-40 Fuego SCS

Accessories

BY344-06 Foot pedal. Accessory for BY340-40

BY344-12 Glass safety shield. For added safety when handling pathogenic material

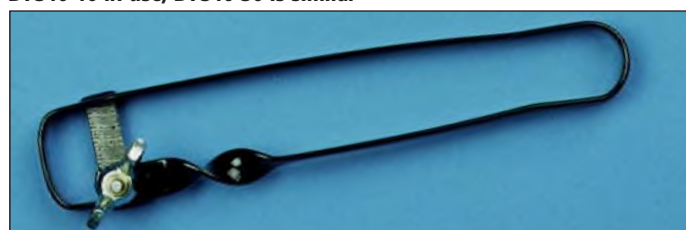
BY344-24 Gas cartridge, CV270, 250g

BY344-26 Adapter for connecting BY344-24 to BY340-burners

Note: Gas cartridges BY344-24 can be exported only as sea freight – deck cargo. Local purchase is recommended.



BY340-40 in use, BY340-30 is similar



BY344-06

Lighters

Gas Lighter, Flint

Comprising spring holder, adjustable shielded flint and striking plate.

BY380-40 Gas lighter, flint

BY382-10 Spare flints, pack of 10

Gas Lighter, Piezo

Suitable for igniting the common fuel gases. Sparks produced by squeezing the handle. No battery required.

BY385-10 Gas lighter, piezo

Liquid Fuel Burner, Safety Pattern

For use with methylated spirit. Glass reservoir. With virtually leakproof, screw-on metal wick support, wick and metal screw cap cover.

BY400-16 100ml

Electric Heaters for test tubes, crucibles, instruments, etc. – see *HE760 in the Heating section.*

Wood splints – see *GE350-10.*



BY385-10



BY400-16

Cells

Disposable



Disposable cells, UV-Cuvette micro

- ◆ Allow analysis from 220nm, suitable for DNA/RNA determination at 260 and 280nm
- ◆ 70µl minimum capacity, ideal for low volume sampling
- ◆ Optical path length 10mm
- ◆ Photometric accuracy: ±0.007A (220-260nm), ±0.002A (270-900nm)
- ◆ Choice of centre height, 8.5mm or 15mm
- ◆ Accessory, colour-coded, sealing caps available
- ◆ Suitable for sample freezing down to -20°C
- ◆ Individually wrapped versions are cleanroom packed, DNase-, DNA- and RNase-free
- ◆ Sorted into pack by mould cavity to maximise performance consistency

Chemical resistance comparison

Substance	Polystyrene	Cell material Acrylic	UV-Cuvette
Acetic acid 100%	—	—	✓
Acetone	—	—	✓
Ammonia	✓	✓	✓
Benzaldehyde	—	—	✓
Butanol	—	—	✓
Chloroform	—	—	—
Dioxane	—	—	✓
Dimethyl sulphoxide	—	—	✓
Ethyl acetate	—	—	✓
Hexane	—	✓	—
Hydrochloric acid 36%	✓	—	✓
Hydrofluoric acid 10%	✓	✓	✓
Isopropanol	✓	✓	✓
Nitric acid 65%	—	—	✓
Sodium hydroxide	✓	✓	✓

As described. UV-transparent, chemically resistant plastic. Supplied in packs as indicated.

	Inner pack	Outer pack
8.5mm centre height		
CA300-10	—	100
CA300-12	1	100
CA300-15	—	500
15mm centre height		
CA300-30	—	100
CA300-32	1	100
CA300-35	—	500

Accessory caps for CA300-series UV-Cuvette micro cells only

In colours as indicated. Supplied in packs of 100.

- CA302-04 Blue
- CA302-08 Yellow
- CA302-12 Green
- CA302-16 Orange

UV-Cuvette macro and semi-micro cells

Similar to the UV-Cuvette micro cells but in standard 4ml macro and 2ml semi-micro square formats with 10mm path length.

- CA305-20 Macro, 2 clear sides, pack of 100
- CA305-40 Semi-micro, pack of 100

Disposable cells

- ◆ Optical path length 10mm
- ◆ Polystyrene (PS) or acrylic (PMMA)

	Type	Pack qty.
CA400-05	Macro square, PS 4ml, 2-clear sides	100
CA406-10	Micro square, PS 2ml	500
CA407-25	Macro square, PMMA, 2-clear sides	100
CA407-30	Semi-micro square, PMMA	100
CA408-15	Lids, PP for 10mm square cells	1000

Colorimeters – see CS100/CT600 series.

Pipettors – see PR060/PR670 series.

Plastic test tubes – see TE600/TE738 series.

Spectrophotometers – see SJ220/SJ415 series.

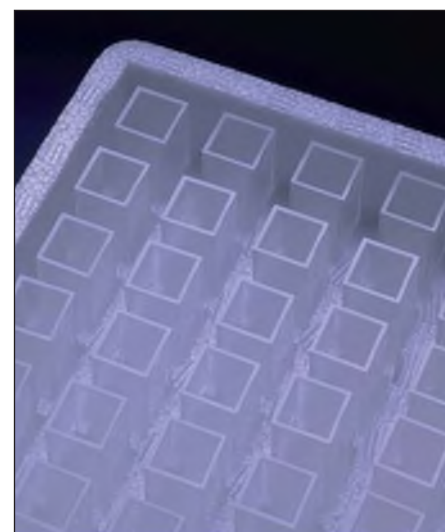
Spectrophotometer calibration cells – see SJ700.

continued on next page



CA300

CA305



CA400, CA406 and CA407 are similar

Cells

Hellma

	Path length, mm	Type	Working vol., l	Material	Transmission range, nm	Colour code	Ref.
Routine							
CA420-15	10	Semi micro	1400	silica	240 to 2500	blue	6040-uv
CA420-32	10	Macro	3500	silica	240 to 2500	blue	6030-uv
Precision							
CA429-14	10	Micro with stopper	400	silica	200 to 2500	blue	115-QG
CA430-14	10	Semi micro with lid	1400	optical glass	360 to 2500	yellow	104-TG
CA430-44	10	Semi micro with lid	1400	silica	200 to 2500	blue	104-QG
CA432-14	10	Micro with lid. Self masking with black frames	1400	silica	320 to 2500	blue	104B-OS
CA436-44	10	Micro with lid. Self masking with black frames	1400	silica	200 to 2500	blue	114B-QS
CA450-14	10	Macro with lid	3500	optical glass	360 to 2500	yellow	100-TG
CA450-44	10	Macro with lid	3500	silica	200 to 2500	blue	100-QG
CA450-48	40	Macro with lid	14000	silica	200 to 2500	blue	100-QG
CA450-54	10	Macro with lid	3500	Suprasil® silica	200 to 2500	blue	100-QS
CA452-44	10	Macro with stopper	3500	silica	200 to 2500	blue	110-QG
CA454-44	10	Macro fluorescence with lid	3500	silica	200 to 2500	blue	101-QG
CA458-44	10	Macro fluorescence with stopper	3500	silica	200 to 2500	blue	111-QG
Matched pairs							
CA470-44	10	Semi micro with lid	1400	silica	200 to 2500	blue	104-QG/M
CA490-44	10	Macro with lid	3500	silica	200 to 2500	blue	100-QG/M
CA492-44	10	Macro with stopper	3500	silica	200 to 2500	blue	110-QG/M
CA494-44	10	Macro fluorescence with lid	3500	silica	200 to 2500	blue	101-QG/M

Lovibond

Path length

Comparator cells W680 optical glass

CS215-14	5mm
CS215-18	10mm
CS215-22	13.5mm
CS215-28	25mm
CS215-36	40mm

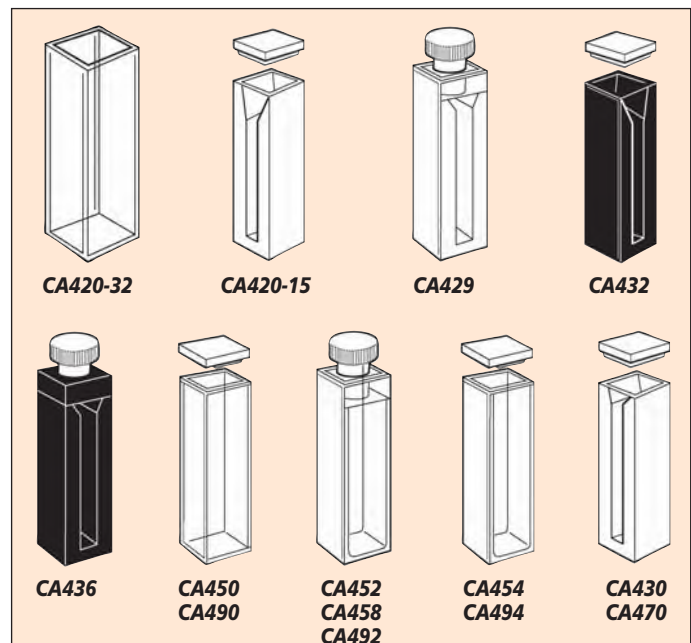
Tintometer cells W600 Optical glass

CS780-14	10mm
CS780-18	20mm
CS780-20	25mm
CS780-24	33mm
CS780-26	40mm
CS780-32	50mm
CS780-48	1in
CS780-58	5/4in

Tintometer cells W600/B Borosilicate glass

CS782-48	1in
CS782-58	5/4in

Routine cells for Lovibond comparator - see CS210.



Centrifuges

Personal Microcentrifuges

Ideal for rapid spin-downs from microtube walls and caps, HPLC preparations, cell separations and microfiltration tubes.

- ◆ Choice of model:
 - uniCFUGE 2: two fixed speeds; 4000rpm/max. 1200xg and 6000rpm/max. 2000xg; with universal rotor for 6 x 1.5/2ml, 6 x 0.5ml tubes or 2 x strips of 8 x 0.2ml PCR tubes
 - uniCFUGE 3: stepless speed adjustment up to 6000rpm/max. 2000xg with 0 to 25 minute timer, digital display and imbalance detection. Two rotors are included for 8 x 1.5/2ml and 16 x 0.2ml PCR tubes with adapters for 8 x 0.2/0.4/0.5ml tubes
- ◆ Minimal bench space required
- ◆ Transparent lid allows easy sample viewing
- ◆ Lid latch microswitch allows operation only when the lid is closed
- ◆ Portable, lightweight, but sturdy housing
- ◆ Soft polymer footpad gives stability and quiet operation

Model	uniCFUGE 2	uniCFUGE 3
Speed	rpm 4000/6000	up to 6000
Force max.	rcf 1200/2000xg	up to 2000
Overall H x W x D	120 x 140 x 140mm	116 x 160 x 160mm
Weight	kg 0.7	1.1
Supply requirement	100-240V 50/60Hz single phase supplies - both models	

As described. For 100-240V 50/60Hz single phase supplies.

- CD115-40** Fixed speed, uniCFUGE 2
- CD115-65** Variable speed, uniCFUGE 3

0.2ml tube strips - see MW730, MW760.

Microcentrifuge tubes - see CF300/CF308.

Centrifuge-Vortexers, PCV- Series

Grant bio

Benchtop, combined microcentrifuge/vortex mixers for spin-mix-spin applications involving 0.2, 0.5, 1.5/2ml microtubes (or 8-well microtube strips using an accessory rotor). Can be used as a separate centrifuge, mixer (or concurrently - PCV2400 only). Ambient operating temperature range: +4 to +45°C.

- ◆ Combi-spin PCV-2400
 - Fixed speed 2400rpm. Tubes are spun simultaneously, then removed for individual mixing in the vortex cup which protrudes from an opening in the closed lid (safety interlock will not allow operation when the lid is open). Further tubes can be spun whilst individual tubes are vortexed. Suitable for continuous use up to 60 minutes or short spin. For 220-240V 50/60Hz single phase supplies.
- ◆ Multi-spin PCV-6000
 - Tubes are held in the rotor for spinning or mixing. Spin and/or mix phases can be pre-programmed by the user via the twin-line LCD readout and setting keys. Speed is adjustable from 1000 to 6000rpm in 100rpm steps, maximum rcf 2350xg, overall time from 1 second to 30 minutes, mixing period from 1 to 20 seconds and mix-spin cycles can be preset to repeat up to 999 times. Mixing intensity is also adjustable over three levels: low, medium or high. Multi-spin operates via a 12V d.c. power adapter requiring a 100-240V 50/60Hz single phase supply.

As described. both models are supplied with interchangeable rotors for 12 x 1.5/2ml microtubes or 12 x 0.2ml and 12 x 0.5ml microtubes. Overall 225 x 180 x 115mm W x D x H.

- CD125-20** PCV-2400
- CD125-45** PCV-6000

Accessory rotors for both models

- CD129-10** PR2-05, 8 x 1.5/2ml and 8 x 0.5ml microtubes
- CD129-15** PR2-05-02, 6 x 1.5/2ml, 6 x 0.2ml and 6 x 0.5ml microtubes
- CD129-20** PSR-16-5, 2 x 8-well 0.2ml microtube strips



CD115-40



CD115-65



CD125-20 in use



CD125-45 in use

Centrifuges

Benchtop Centrifuge LMC-3000 Grant bio

A basic, low-speed, benchtop centrifuge for routine analytical applications using accessory interchangeable rotors.

- ◆ Maximum speed 3000rpm (2000rpm with microtitre plate rotor)
- ◆ 1 to 30 minute timer
- ◆ Twin-line LCD readout of speed and time with simple push-button setting
- ◆ Soft start and run-down functions
- ◆ Automatic rotor imbalance switch-off and lid interlock when running

General Purpose Centrifuge, LMC-3000

As described. Overall 235 x 470 x 400mm H x W x D. Weight 13.5kg. For 230V 50/60Hz single phase supplies. Without rotor.

CD140-10 LMC-3000

Accessory rotors for CD140-10

CD142-03 R-12-10, rotor for 12 x 10/15ml (110 x 16mm) round bottom tubes. Max. rpm 3000

CD142-06 R-12-15, rotor for 12 x 15ml (120 x 17mm) conical tubes. Max. rpm 3000

CD142-09 R-6, rotor for 6 x 50ml (116 x 30mm) conical tubes. Max. rpm 3000

CD142-12 R-2, rotor for 2 x 96-well microplates (standard or deep-well). Max. rpm 2000



CD140-10



CD142-03



CD142-09



CD142-06



CD142-12

Benchtop Microcentrifuge, uniCFUGE 5

Well-featured, benchtop microcentrifuge providing high performance at a low cost. With lidded rotor accommodating 12 x 1.5/2ml microtubes and adapters for 0.4/0.5ml tubes.

- ◆ Speed range 500 to 15000rpm (maximum rcf: 15595xg)
- ◆ 60 second to 999 minute timer
- ◆ Safety lid interlock
- ◆ Pulse (short spin) function
- ◆ Last run memory feature
- ◆ Large LCD readout of speed, time and process
- ◆ Automatic rotor imbalance switch-off and lid interlock when running
- ◆ USB port and software allows setting/control by the user's computer and storage of up to 99 user-defined programmes

Microcentrifuge, uniCFUGE 5

As described. Supplied with 12 x 1.5/2ml microtube rotor and lid, adapters for 0.4/0.5ml and 0.2ml tubes, rotor removal Allen key, software CD and manual. Overall 131 x 262 x 230mm H x W x D. Weight 4kg. For 100-240V 50/60Hz single phase supplies.

CD190-25 uniCFUGE 5

Accessory rotor for CD190-25

CD192-04 For 16 x 0.2ml tubes or 2 x strips of 8 x 0.2ml PCR tubes.



CD190-25 in use

Centrifuges

Benchtop Centrifuges, Frontier 55-series

OHAUS®

For high-speed centrifugation of microlitre volumes.

- ◆ Standard and refrigerated models
- ◆ Maximum capacity: 44 x 2ml
- ◆ Digital control and display, with single touch, toggle adjustment of speed, rcf, time (and temperature - FC5515R only), with 10 acceleration/deceleration settings and 99 programme memory
- ◆ Powerful, brushless, induction motor
- ◆ Safety features include lid lock during operation and rotor imbalance sensing that halts the centrifuge if imbalance detected or sudden shock occurs
- ◆ Wide choice of rotors to accommodate a variety of tubes

Catalogue No.	CD300-10	CD300-20
Model	FC5515	FC5515R
Maximum speed rpm	15200	15200
Force max. rcf	21950xg	21950xg
Maximum capacity (rotor)	44 x 1.5/2ml, 12 x 5ml - both models	
Temperature range °C	-	-20 to 40
Timer	10 sec. to 99 hrs, 99min. 59 sec. - both models	
Overall H x W x D	287 x 393 x 292mm	287 x 561 x 292mm
Weight kg	17	35
Supply requirement	230V 50/60Hz single phase - both models	

Benchtop Centrifuges, Frontier 55-series, Ohaus

As described. For 230V 50/60Hz single phase supplies. Without rotors, accessories or tubes.

CD300-10 FC5515

CD300-20 FC5515R, refrigerated

Accessory angle rotors

With snap-on, or aerosol-tight, biocontainment lid as indicated.

Rotor	No. of tubes x capacity, ml	Tube dia. x length	Max. rpm/rcf xg
CD302-04	24 x 1.5/2.0	-	15200/21950
CD302-08	24 x 1.5/2.0 Bio lid	-	15200/21950
CD302-12	30 x 1.5/2.0 Bio lid	-	13500/19150
CD302-16	44 x 1.5/2.0ml	-	13500/17110
CD302-21	12 x 5ml	17 x 100	14500/19970
CD302-24	4 x PCR tube strips of 8		15000/15340
CD302-28	24 x microhaematocrit capillaries*		12000/14970

* For use in FC5515 only.

Adapters

For use in rotors as indicated. Supplied singly.

CD304-05 0.5ml, for 1.5/2.0ml rotors, max. rpm/rcf: 15200/19110xg

CD304-09 0.2/0.4ml, for 1.5/2.0ml rotors, max. rpm/rcf: 13500/18530xg**

CD304-13 1.8ml cryotube, for 5ml rotor, max. rpm/rcf: 14500/17620xg**

CD304-17 1.0ml cryotube, for 5ml rotor, max. rpm/rcf: 14500/16210xg**

** Dependent on rotor selected and position within rotor.

Accessories for CD302-28

Micro-Haematocrit reader

Provides quick, accurate readings of packed cell volume on samples with total fluid column heights between 40 and 70mm high.

CE805-10 Haematocrit reader

CE806-08 Heparinised tubes, capacity 59 l, length 75mm, pack of 1000

CE806-14 Plain tubes, pack of 1000

CE806-18 Cristeal sealing material in tray marked to show the correct filling volume and labelled for sample identification, pack of 10 trays

CM115-10 Disposable blood lancets, pack of 200



CD300-10



CD300-20

centrifuges

Benchtop Centrifuge, Frontier 5706

OHAUS®

Compact, multifunctional, ambient centrifuge for routine separation and spin-down in Life Science applications.

- ◆ Maximum capacity: 6 x 50ml
- ◆ Digital control and display, with single touch, toggle adjustment of speed, rcf and time, with 10 acceleration/deceleration settings
- ◆ Safety features include lid lock during operation and rotor imbalance sensing that halts the centrifuge if imbalance detected or sudden shock occurs
- ◆ Wide choice of rotors to accommodate a variety of tubes

Catalogue No.	CD310-15	
Model	FC5706	
Maximum speed	rpm	6000
Force max.	rcf	4420xg
Maximum capacity (rotor)	6 x 50ml	
Timer	10 sec. to 99 hrs, 99min. 59 sec. – both models	
Overall H x W x D	291 x 392 x 266mm	
Weight	kg	15
Supply requirement	230V 50/60Hz single phase – both models	

Benchtop Centrifuge, Frontier 5706, Ohaus

As described. For 230V 50/60Hz single phase supplies. Without rotors, accessories or tubes.

CD310-15 FC5706

Accessory rotors

Rotor	No. of tubes x capacity, ml	Tube dia. x length, mm	Max. rpm/rcf xg
Angle			
CD311-06	12 x 15	17 x 121	6000/4420
CD311-12	6 x 50	29 x 120	16000/4420
Swing-out			
CD311-18	6 x 5	13 x 75	6000/1870

Adapters

For use in rotors as indicated. Supplied singly.

- CD312-08** 7ml (13 x 100mm) tube, max. rpm/rcf: 6000/4260xg, for CD311-06 only
- CD312-13** 5ml (13 x 75mm) tube, max. rpm/rcf: 6000/3620xg, for CD311-06 only
- CD312-16** 1.5/2ml microtube, max. rpm/rcf: 6000/3050xg, for CD311-06 only
- CD312-24** 30ml (25 x 100mm) tube, max. rpm/rcf: 6000/4300xg, for CD311-12 only
- CD312-29** 16ml (18 x 105mm) tube, max. rpm/rcf: 6000/4140xg, for CD311-12 only
- CD312-35** 15ml (17 x 120mm) tube, max. rpm/rcf: 6000/4220xg, for CD311-12 only
- CD312-42** 15ml (17 x 121mm) Falcon-type conical or round bottom tube, max. rpm/rcf: 6000/4180xg, for CD311-06 only
- CD312-60** Accessory buckets, 5ml (13 x 75mm) tubes, max. rpm/rcf: 6000/1870xg, for CD311-18 only, pack of 2.



CD310 in use with CD311-06

centrifuges

Benchtop Centrifuges, Frontier 5718-series

OHAUS®

Flexible, multi-tasking, benchtop centrifuges suitable for a wide variety of separation tasks in research, industrial and clinical laboratories.

- ◆ Standard and refrigerated models
- ◆ Maximum capacity: 4 x 100ml
- ◆ Comprehensive range of accessory rotors available with automatic rotor recognition
- ◆ Memory storage of up to 99 programmes including parameter settings and rotor information
- ◆ Rotary control setting with membrane keypad and backlit LCD readout provide easy operation
- ◆ Safety features include overspeed protection activated on rotor insertion, active imbalance detection, motorised lid-locking and self-diagnosis programme
- ◆ Powerful, brushless, maintenance-free, induction motor
- ◆ Thread-free, rotor locking mechanism
- ◆ Refrigerated model 5718R includes a rotor pre-cooling programme

Catalogue No.	CD325-15	CD325-30
Model	FC5718	FC5718R
Maximum speed rpm	18000	18000
Force max. rcf	23542xg	23542xg
Maximum capacity (rotor)	4 x 100ml - both models	
Temperature range °C	-	-20 to 40
Timer	10 sec. to 99 hrs, 99min. 59 sec. or continuous – both models	
Overall H x W x D	408 x 499x 351mm	408 x 731 x 351mm
Weight kg	43	60
Supply requirement	230V 50/60Hz single phase – both models	

Benchtop Centrifuges, Frontier 5718-series, Ohaus

As described. For 230V 50/60Hz single phase supplies. Without rotors, accessories or tubes.

CD325-15 FC5718

CD325-30 FC5718R, refrigerated

NOTE: The lowest temperature attainable by FC5718R in use depends on the rotor chosen, sample load, speed of operation and ambient room temperature.



CD325-15

Accessory swing-out rotors and fittings

CD327-05 Rotor, 4 x 100ml, for use with accessory carriers, maximum rpm/rcf 5000/3350xg

Carriers for CD327-05. Supplied in packs of 2.

CD327-09 1 x 100ml (46 x 110mm) round bottom tube

CD327-11 1 x 50ml (29 x 123mm) round bottom tube

CD327-13 1 x 50ml, Falcon-type (29 x 116mm) conical bottom tube

CD327-15 1 x 25ml (25 x 115mm) round bottom tube

CD327-17 2 x 15ml, Falcon-type (17 x 120mm) conical bottom tubes

CD327-19 7 x 5 to 7ml (13 x 100mm) round bottom tubes

CD329-04 Rotor, 4 x 100ml, for use with accessory sealable buckets with caps and insert adapters, maximum rpm/rcf 5000/3885xg

Buckets and insert adapters for CD329-04. Supplied in packs of 2.

CD329-07 Buckets and aerosol-tight caps

CD329-10 Adapters, 1 x 100ml (40 x 120mm) round bottom tube

CD329-12 Adapters, 1 x 50ml (29 x 115mm) round bottom tube

CD329-14 Adapters, 1 x 50ml, Falcon-type (29 x 116mm) conical bottom tube

CD329-18 Adapters, 1 x 25ml (25 x 115mm) round bottom tube

CD329-22 Adapters, 2 x 15ml, Falcon-type (17 x 120mm) conical bottom tubes

CD329-26 Adapters, 4 x 5 to 7ml (13 x 100mm) round bottom tubes

Accessory angle rotors and fittings

CD330-15 Rotor, 10 x 50ml, Falcon-type (29 x 116mm) conical bottom tubes, maximum rpm/rcf 7500/8174xg

CD330-17 Adapters for CD330-15, 1 x 15ml (17 x 116mm) round bottom tubes, pack of 2

CD330-19 Adapters for CD330-15, 1 x 7ml (13.5 x 100mm) round bottom tubes, pack of 2

CD333-11 Rotor, 30 x 15ml, Falcon-type or round bottom (17 x 120mm) tubes, maximum rpm/rcf 4500/2830xg

CD333-14 Adapters for CD333-11, 1 x 1.5/2ml, 11mm dia. round bottom tubes, pack of 6

CD334-10 Rotor, 30 x 1.5/2ml, 11mm dia. tubes, maximum rpm/rcf 13000/17758xg (14000/20595xg – R model)

CD334-14 Adapters for CD334-10, 1 x 0.2/0.4ml, 6mm dia. tubes, pack of 6

Other rotors and adapters, including for cytology applications, are available – details on request.



CD325-30

centrifuges

Benchtop Centrifuges, Frontier 5816-series

OHAUS®

High capacity, benchtop centrifuges suitable for a wide variety of separation tasks in research, industrial and clinical laboratories.

- ◆ Standard and refrigerated models
- ◆ Maximum capacity: 6 x 250ml
- ◆ Comprehensive range of accessory rotors available with automatic rotor recognition
- ◆ Memory storage of up to 99 programmes including parameter settings and rotor information
- ◆ Rotary control setting with membrane keypad and backlit LCD readout provide easy operation
- ◆ Safety features include overspeed protection activated on rotor insertion, active imbalance detection, motorised lid-locking and self-diagnosis programme
- ◆ Powerful, brushless, maintenance-free, induction motor
- ◆ Thread-free, rotor locking mechanism
- ◆ Refrigerated model 5816R includes a rotor pre-cooling programme

Catalogue No.	CD355-25	CD355-45
Model	FC5816	FC5816R
Maximum speed rpm	15000	16000
Force max. rcf	20379xg	24325xg
Maximum capacity (rotor)	6 x 250ml - both models	
Temperature range °C	-	-20 to 40
Timer	10 sec. to 99 hrs, 99min. 59 sec. or continuous - both models	
Overall H x W x D	440 x 538 x 354mm	723 x 538 x 354mm
Weight kg	52	77
Supply requirement	230V 50/60Hz single phase - both models	

Benchtop Centrifuges, Frontier 5816-series, Ohaus

As described. For 230V 50/60Hz single phase supplies. Without rotors, accessories or tubes.

CD355-25 FC5816

CD355-45 FC5816R, refrigerated

NOTE: The lowest temperature attainable by FC5816R in use depends on the rotor chosen, sample load, speed of operation and ambient room temperature.

Accessory swing-out rotors and fittings

CD357-04 Rotor, 4 x 250ml, for use with accessory carriers, maximum rpm/rcf 4500/3780xg

Carriers for CD357-04. Supplied in packs of 2.

CD357-08 1 x 250ml (62 x 135mm) flat bottom tube

CD357-10 1 x 100ml (41 x 123mm) round bottom tube

CD357-12 3 x 50ml, Falcon-type (29 x 116mm) conical bottom tubes

CD357-15 5 x 25ml (24.5 x 120mm) round bottom tubes

CD357-17 7 x 15ml, Falcon-type (17 x 120mm) conical bottom tubes

CD357-19 14 x 5 to 7ml (13 x 119mm) round bottom tubes

CD359-05 Rotor, 4 X 200ml, for use with accessory carriers, maximum rpm/rcf 4500/3735xg

Carriers for CD359-05. Supplied in packs of 2.

CD359-10 4 x 50ml, Falcon-type (29 x 116mm) conical bottom tubes

CD359-15 10 x 15ml, Falcon-type (17 x 121mm) conical bottom tubes

Accessory angle rotors and fittings

CD361-12 Rotor, 6 x 250ml (62 x 135mm) flat bottom tubes/bottles, maximum rpm/rcf 8000/10016xg

CD361-15 Adapters, 8 x 1.5ml, 11mm dia. round bottom tubes, pack of 2

CD361-18 Adapters, 5 x 10ml, 16mm dia. round bottom tubes, pack of 2

CD361-21 Adapters, 4 x 15ml, Falcon-type or round bottom, 17mm dia. tubes, pack of 2

CD361-24 Adapters, 1 x 50ml (29 x 123mm) round bottom tubes, pack of 2

CD361-27 Adapters, 1 x 50ml (29 x 116mm) Falcon-type tubes, pack of 2

CD363-08 Rotor, 6 x 50ml (29 x 123mm) round bottom tubes, maximum rpm/rcf 13000/15869xg

CD363-11 Adapters, 1 x 30ml (26 x 123mm) flat or round bottom tubes, pack of 2

CD363-13 Adapters, 1 x 16ml (17 x 121mm) flat or round bottom tubes, pack of 2

CD367-14 Rotor, 44 x 1.5/2ml, 11mm dia. tubes, maximum rpm/rcf 15000/21128xg (16000/24039xg - R model)

CD334-14 Adapters, 1 x 0.2/0.4ml, 6mm dia. tubes, pack of 6

CD367-18 Adapters, 1 x 0.5ml, 8mm dia. tubes, pack of 6

Other rotors and adapters, including for cytology applications, are available - details on request.



CD355-25



CD355-45

Centrifuges

Student Models

Hand Centrifuge

Reinforced tough polyamide housing with the gear support structure and bench clamp of steel. The gear is self lubricating and runs easily. Maximum speed 3000rpm. Without rotor. PLEASE SEE NOTE BELOW REGARDING THE SUPPLY OF THIS CENTRIFUGE.

CD505-10 Hand centrifuge, without rotor

Accessory Rotors (Load must be balanced), supplied with buckets

CD505-33 For 4 x 15ml (120 x 17mm max.) conical tubes. Max. rcf 1300xg

CD505-36 For 4 x 15ml (127 x 17mm max.) round bottom tubes. Max. rcf 1076xg

SUPPLY OF HAND CENTRIFUGES

We cannot supply these centrifuges for use in the UK. Please check before ordering that the use of this type of centrifuge is permitted in the country where it is to be operated.



CD505-10 with CD505-33

Centrifuge, Clifton Targa

Maximum speed 4000rpm. With enamelled steel outer case and 6 x 15ml (125 x 18mm tube), fixed angle rotor. Maximum rcf 2075xg. With digital controller, allowing display and setting by rpm or rcf and time in minutes and seconds up to 100 minutes. Up to 10 speed and time protocols can be stored in the built-in memory. Also includes safety lid interlock and lid anti-drop mechanism. Overall 296 x 412 x 206mm W x D x H (lid closed). Weight 19kg. For 230V 50/60Hz single phase supplies.

CD545-40 NE010G

Accessories

CD547-04 Adapter, 1 x 3ml (13.5 x 61mm) tube (6 required)

CD547-06 Adapter, 1 x 4ml (13.5 x 65mm) tube (6 required)

CD547-04 Adapter, 1 x 5ml (13.5 x 85mm) tube (6 required)

Gerber centrifuges – see DA450/DA460.

Mikro 200



A low-cost, compact, micro-centrifuge.

- ◆ Maximum speed 15000rpm
- ◆ 0 to 99 minute 59 seconds timer
- ◆ Pulse control
- ◆ 4 programme memory storage

Mikro 200

As described. Maximum speed 15000rpm, with digital control, 0 to 99 minute 59 seconds timer and pulse key. Overall 260 x 275 x 344mm H x W x D. Weight 12kg. For 230V 50/60Hz single phase supplies. Without rotor, adapters or tubes.

CD590-14 Mikro 200

Accessory Angle Rotors

Supplied singly.

CD593-16 24 x 1.5/2ml Max. rpm/rcf 15000/21382xg

CD593-18 30 x 1.5/2ml Max. rpm/rcf 15000/20627xg

Accessory Adapters

Supplied singly.

CD594-05 1 x 0.2/0.4ml (6 x 45mm o.d. x L, max.)

CD594-07 1 x 0.5/0.8ml (8 x 45mm o.d. x L, max.)

CD594-09 1 x 1.5ml* (11 x 38mm o.d. x L, max.)

*Recommended when centrifuging 1.5ml tubes at high speeds.



CD545-40



CD590-14

Centrifuges

Hettich Mikro 220/R

- ◆ Standard and refrigerated models
- ◆ Maximum capacity 24 x 1.5/2.2ml (6 x 50ml-Mikro 220R only)
- ◆ Digital setting rpm/rcf, time period (and temperature – Mikro 220R only)
- ◆ Quiet running, with rapid acceleration

Mikro 220

As described. Maximum speed 18000rpm, rcf 31514xg according to rotor selected. 1 second to 99 minute timer, continuous run facility and pulse key. Overall 313 x 330 x 420mm H x W x D. Weight 21kg. For 230V 50/60Hz single phase supplies. Without rotor, accessories or tubes.

CD600-74 Mikro 220

Mikro 220R, refrigerated

As CD600-74 but with integral cooling unit. Chamber temperature can be set between -20°C and +40°C. Overall 313 x 303 x 650mm H x W x D. Weight 42kg. For 230V 50/60Hz single phase supplies. Without rotor, accessories or tubes.

CD600-79 Mikro 220R

Accessory Swing-Out Rotor

Maximum rpm/rcf 13000/18516xg.

CD600-82 For 24 x 1.5/2.2ml tubes

Accessory Fixed Angle Rotors

Angle rotor with sealed lid. Maximum rpm/rcf 18000/31514xg.

CD600-87 For 24 x 1.5/2.2ml tubes

Angle rotor. Maximum rpm/rcf 6000/4146xg. For use with CD600-79 only.

CD600-92 For 12 x 15ml (17 x 120mm) tubes

Angle rotors for 6 x 50ml round bottom tubes, 34 x 100mm diameter x height. Maximum rpm/rcf 6000/4025xg. For use with CD600-79 only.

CD600-94 For 6 x 50ml (34 x 100mm) tubes

CD600-95 1 x 50ml conical (29 x 115mm) tube adapter. Max. rcf 3824xg. 6 required

Hettich Universal Models 320/320R

- ◆ Standard and refrigerated models
- ◆ Maximum capacity 6 x 85ml
- ◆ Safety features include rotor recognition, imbalance detector and overspeed protection
- ◆ Maintenance free induction drive
- ◆ Digital control and display of rpm/rcf, time period (and temperature – Universal 320R only)

Universal 320

As described. Maximum speed 5000rpm swing-out, 15000rpm angle, maximum rcf 21382xg, according to rotor/accessories selected. With 10 programme memory and 1 to 99 minute timer with continuous run setting. Overall 346 x 395 x 520mm H x W x D. Weight 31kg. For 230V 50/60Hz single phase supplies. Without rotor, accessories or tubes.

CD625-25 Universal 320

Universal 320R, refrigerated

As CD625-25 but with integral hermetically sealed cooling unit. Chamber temperature can be set between -20°C and +40°C. Overall 346 x 401 x 695mm H x W x D. Weight 53kg. For 230V 50/60Hz single phase supplies. Without rotor, accessories or tubes.

CD625-37 Universal 320R

No of tubes x capacity	Tube dia. x length, mm	Rotor	Carrier/ Bucket/Adapter	Maximum rpm/rcf xg
Swing-Out Rotors				
4 x 100ml	44 x 100	CD625-50	CD627-15	5000/2558
16 x 15ml	17 x 100	CD625-50	CD627-15/CD627-26	5000/2540
4 x 25ml*†	25 x 110	CD625-50	CD627-15/CD627-22	5000/2665
4 x 50ml*	29 x 115	CD625-50	CD627-15/CD627-19	5000/2665
4 x 15ml*	17 x 120	CD625-50	CD627-15/CD627-30	5000/2665
8 x 50ml*	29 x 115	CD625-54	—	5000/3857
2 x microplates	—	CD625-61	—	5000/2218
Fixed Angle Rotors				
6 x 85ml	38 x 106	CD625-68	—	9000/9509

*Primarily for use with Falcon-type, conical base tubes. † For use with disposable universal bottles.

Accessory Rotors

CD625-50 4-place swing-out x 100ml. Without buckets or carriers

CD625-54 8-place swing-out x 50ml. With buckets

CD625-61 2-place swing-out for microplate carriers CD627-62 Max. rpm/rcf 4000/2218xg

CD625-68 6-place fixed angle x 85ml

Accessory Buckets/Carriers/Adapters

The number of buckets, carriers, cushions and adapters must equal the number of rotor places. Supplied singly.

CD627-15 1 x 100ml bucket for rotor CD625-50

CD627-62 Microplate carrier only for 4 x microplates with lid. For CD625-61

CD627-17 1 x 100ml tube cushion for bucket CD627-15

CD627-19 1 x 50ml conical adapter for bucket CD627-15

CD627-22 1 x 25ml conical adapter for bucket CD627-15

CD627-26 4 x 15ml adapter for bucket CD627-15

CD627-30 1 x 15ml conical adapter for bucket CD627-15

Note: There are no accessories for fixed angle rotor CD625-68



CD600-79, CD600-74 is similar



CD625-37

CD625-25

Centrifuges

Hettich Benchtop Centrifuges Rotina 380/380R

- ◆ Standard and refrigerated models
- ◆ Maximum capacity 4 x 250ml using accessory rotors
- ◆ Digital control and display of rpm/rcf, time period (and temperature Rotina 380R only)
- ◆ Simple touch key operation ◆ Stainless steel lined chamber and lid
- ◆ Choice of swing-out and angle rotors
- ◆ Safety features include:
 - rotor recognition — imbalance detector — overspeed protection
- ◆ Maintenance free induction drive for smooth and quiet operation

Catalogue No.		CD650-57	CD650-62
Model		Rotina 380	Rotina 380R
Maximum speed			
Swing-out rotor	rpm	5000	5000
Fixed angle rotor	rpm	15000	15000
Maximum rcf			
Swing-out rotor	xg	4560	4560
Fixed angle rotor	xg	23650	23650
Maximum volume			
Swing-out rotor	ml	4 x 100	4 x 100
Fixed angle rotor	ml	6 x 85	6 x 85
Timer	minutes	1 to 99 and continuous, with pulse key	

Benchtop Centrifuge Rotina 380

As described. Overall 418 x 457 x 600mm H x W x D. Weight 51kg. For 230V 50/60Hz single phase supplies. 670W. Without rotors, accessories or tubes.

CD650-57 Rotina 380

Benchtop Centrifuge Rotina 380R, refrigerated

As CD650-57 but with integral hermetically sealed cooling unit. Chamber temperature can be set between -20°C and +40°C and a pre-cooling programme can be used to ensure that samples maintain their required temperature when placed into the centrifuge. Overall 418 x 457 x 750mm H x W x D. Weight 78kg. For 230V 50Hz single phase supplies. 1050W. Without rotor, accessories or tubes.

CD650-62 Rotina 380R

Accessory Swing-Out Rotors

- CD650-66** 4-place x 100ml. Without buckets. Maximum rpm/rcf 5000/4863xg
- CD650-68** 4-place x 250ml (65 x 115mm) tubes. Without buckets. Maximum rpm/rcf 4000/3095xg
- CD650-71** 2-place microtitre plate rotor. Without carriers. Maximum rpm/rcf 4000/2397xg

Accessory Fixed Angle rotors

- CD650-73** 6-place x 85ml (38 x 101mm) tubes. Maximum rpm/rcf 10000/13528xg (11000/16369xg refrigerated)
- CD650-77** 30-place x 1.5/2.2ml tubes. Maximum rpm/rcf 15000/24400xg

Accessory Buckets/Carriers/Adapters

The number of buckets, carriers and adapters must equal the number of rotor places. Supplied singly.

For 4-place Swing-Out Rotor, CD650-66

- CD652-13** 1 x 100ml bucket
- CD652-15** 1 x hermetic sealing lid for bucket CD652-13
- CD652-20** 1 x 100ml (40 x 115mm tubes) adapter for bucket CD652-13. Max rcf 4640xg
- CD652-21** 3 x 50/75ml (34 x 100/105mm tubes) adapter for bucket CD652-13. Max rcf 4668xg
- CD652-23** 6 x 25ml (24 x 100mm tubes) adapter for bucket CD652-13. Max rcf 4668xg
- CD652-27** 13 x 9-15ml (14/17 x 70/100mm tubes) adapter for bucket CD652-13. Max rcf 4668xg
- CD652-36** 24 x 4-7ml (12 x 60/100mm tubes) adapter for bucket CD652-13. Max rcf 4668xg
- CD652-39** 36 x 1.5/2.0ml reaction tube adapter for bucket CD652-13. Max rcf 3494/4779[†]xg

[†]Upper/lower tier.

For 4-place Swing-Out Rotor, CD650-68

- CD653-10** 1 x 250ml bucket
- CD653-13** 1 x hermetic sealing lid for bucket CD653-10
- CD653-16** 12 x 7ml (12 x 100mm tube) adapter for bucket CD653-10. Max rcf 3005xg
- CD653-25** 7 x 12ml (17 x 100mm tube) adapter for bucket CD653-10. Max rcf 3005xg
- CD653-27** 7 x 15ml* (17 x 120mm conical tube) adapter for bucket CD653-10. Max rcf 3095xg
- CD653-31** 4 x 30ml (25 x 110mm tube/universal) adapter for bucket CD653-10. Max rcf 2898xg
- CD653-33** 2 x 50ml* (29 x 115mm conical tube) adapter for bucket CD653-10. Max rcf 3095xg
- CD653-38** 1 x 250ml cushion/collar (65 x 115mm tube) adapter for CD653-10. Max rcf 3095xg

*These adapters are primarily for use with Falcon-type conical base tubes.

For 2-place Microtitre Plate Rotor, CD650-71

- CD654-19** 1 x carrier which accepts 4 x microtitre plates with lids



CD650

Centrifuges

Hettich Benchtop Centrifuges Rotanta 460/460R

High capacity, standard and refrigerated models for routine clinical chemistry, pharmaceutical development, research and pharmacology.

- ◆ Maximum capacity 4 x 750ml
- ◆ Microprocessor controlled with easy to use touch keypad
- ◆ Digital setting and display of speed or rcf and time (CD725-30 also has temperature setting and display)
- ◆ Adjustable acceleration and brake rates
- ◆ Maintenance free induction drive for smooth and quiet operation
- ◆ Safety features include:
 - rotor recognition
 - overspeed protection
 - imbalance detector
 - motor overheat protection
- ◆ Stainless steel lined chamber and lid
- ◆ Fully automatic lid locking mechanism

Catalogue No.		CD725-10	CD725-30
Model		Rotanta 460	Rotanta 460R
Maximum speed			
Swing-out rotor	rpm	4500	4500
Fixed angle rotor	rpm	15000	15000
Maximum rcf			
Swing-out rotor	xg	4460	4460
Fixed angle rotor	xg	24400	24400
Maximum volume			
Swing-out rotor	ml	4 x 750	4 x 750
Fixed angle rotor	ml	6 x 94	6 x 94
Timer	minutes	1 to 99 and continuous, with pulse key	

Benchtop Centrifuge Rotanta 460

As described. Overall 450 x 550 x 707mm H x W x D. Weight 111kg. For 230V 50/60Hz single phase supplies. 1400W. Without rotor, accessories or tubes.

CD725-10 Rotanta 460

Benchtop Centrifuge Rotanta 460R, refrigerated

As CD725-10 but with integral hermetically sealed cooling unit. Chamber temperature can be set between -20°C and +40°C and a pre-cooling programme can be used to ensure that samples maintain their required temperature when placed into the centrifuge. Overall 450 x 765 x 707mm H x W x D. Weight 142kg. For 230V 50Hz single phase supplies. 1800W. Without rotor, accessories or tubes.

CD725-30 Rotanta 460R

Accessory Swing-out rotors

CD728-60 4-place x 750ml. Without buckets or adapters. Maximum rpm/rcf 4600/5063xg

CD728-67 4-place x 100ml ASTM D96 tubes. Without buckets or adapters. Maximum rpm/rcf 2000/984xg



CD725-10

Accessory Fixed-angle rotors

CD728-72 30-place x 0.4/1.5ml tubes. With lid. Maximum rpm/rcf 15000/24400xg

CD728-79 6-place x 94ml (38 x 106mm) tubes. With lid. Maximum rpm/rcf 11500/18038xg

Accessory Buckets/Adapters/Carriers/Lids

The number of buckets, carriers and adapters must equal the number of rotor places. Supplied singly.

For 4-place Swing-out rotor, CD728-60

CD729-04 1 x 250ml (65 x 115mm tube) rectangular bucket. Maximum rcf 4637xg

CD729-06 1 x Aerosol-tight lid for bucket CD729-04

CD729-07 17 x 15ml (17 x 100mm tube) adapter for bucket CD729-04. Maximum rcf 4637xg

CD729-08 6 x 25ml* (24 x 100mm conical tube) adapter for bucket CD729-04. Maximum rcf 4637xg

CD729-10 3 x 50ml (35 x 105mm tube) adapter for bucket CD729-04. Maximum rcf 4495xg

CD729-13 3 x 85ml (38 x 106mm tube) adapter for bucket CD729-04. Maximum rcf 4495xg

CD729-15 2 x 100ml (44 x 100mm conical tube) adapter for bucket CD729-04. Maximum rcf 4637xg

CD729-17 1 x 250ml (65 x 115mm tube) adapter for bucket CD729-04. Maximum rcf 4495xg

CD729-19 1 x 750ml (97 x 136mm bottle) bucket with lid clamp, for rotor CD728-60. Without lid. Maximum rcf 4779xg

CD729-21 1 x Aerosol-tight lid for bucket CD729-19

CD729-24 1 x 750ml (97 x 136mm tube) adapter for bucket CD729-19. Maximum rcf 4779xg

CD729-40 4 x Microtitre plate carrier with lid, Max rcf 4258xg

CD729-42 4 x Microtitre plate insert for CD729-40. Maximum rcf 5838xg

For 4-place Swing-out rotor, CD728-67

CD729-45 1 x ASTM D96 bucket. Maximum rcf 4779xg

CD729-46 1 x adapter (holds CF380-10) for bucket CD729-45. Maximum rcf 984xg

CD729-47 1 x adapter (holds CF380-14) for bucket CD729-45. Maximum rcf 961xg

CD729-48 1 x adapter (holds PE814-24) for bucket CD729-45. Maximum rcf 961xg

For 30-place Fixed-angle rotor, CD728-72

CD729-50 1 x 0.4ml tube insert adapter. Maximum rcf 24400xg

CD594-07 1 x 0.5/0.8ml tube insert adapter

For 6-place Fixed-angle rotor, CD728-79

CD729-68 1 x 15ml* (17 x 120mm conical tube) adapter

CD729-70 1 x 30ml (26 x 95mm tube) adapter. Maximum rcf 16560xg

CD729-74 1 x 50ml (29 x 107mm tube) adapter. Maximum rcf 17743xg

*These adapters are primarily for use with Falcon-type conical base tubes.



CD725-30 in use

Centrifuges

Gerber Centrifuges

Gerber Centrifuge, Universal

Highly flexible, easy to use, dairy testing centrifuge with push-button operation and LCD display.

- ◆ Speed range 200 to 1300rpm
- ◆ Four, pre-selectable, precisely monitored speeds for specific tests:
 - Gerber fat test using butyrometers (350xg)
 - Solubility index test in milk powders (164xg)
 - Fat extraction according to Mojonnier (80xg)
 - Custom speed set by the user
- ◆ 0 to 255 minute timer with automatic brake at end of timed period
- ◆ Safety features include lid interlock and imbalance detector
- ◆ Alternative model available with precise chamber heating up to +65°C and preheating facility

As described. With robust steel outer casing, lid with interlock and LCD display of speed, time (and temperature when option fitted). Supplied with 12-place universal swing-out rotor. Overall 640 x 640 x 450mm W x D x H. Weight 47kg unheated model, 52kg heated model. For 230V 50/60Hz single phase supplies. Without buckets or heating module.

DA450-40 Universal centrifuge, unheated

DA450-50 Universal centrifuge, with heated chamber

Accessory Buckets for rotor

Stainless steel. Supplied singly.

DA454-25 Butyrometer bucket, 26mm i.d.

DA454-27 Solubility Index tube bucket, 31mm i.d.

DA454-29 Mojonnier bucket with holder

Gerber Centrifuge, Micro III

For small-scale determination of fat levels in milk and dairy products. Fixed speed, providing 350xg r.c.f. with automatic brake and rotor imbalance detection. Microprocessor controlled, with digital setting and readout of time (0 to 60 minutes) and chamber temperature (ambient +5 to +65°C) with selectable preheating. Supplied with rotor to hold 8 x butyrometer tubes, steel outer casing and lid interlock which prevents opening whilst the rotor is spinning. Overall 430 x 460 x 280mm W x D x H. Weight 20kg. For 230V 50/60Hz single phase supplies.

DA460-15 Micro III centrifuge

Solubility Index and Mojonnier tubes are available – *details on request.*



DA450-40



DA460-15

Centrifuge Tubes

Microcentrifuge Tubes up to 5ml Capacity

Reference Code:

B = Brand

C = Corning

E = Elkay

Materials Code:

Pp = Polypropylene

St = Sterilin

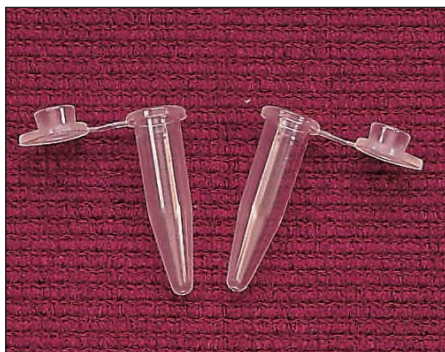
All tubes have rim and are natural colour unless otherwise stated.

Catalogue No.	Capacity	Material	RCF (xg)	Cap type	Self standing	Sterile	Ref.	Qty.
CF300-34	500µl	Pp	20000	Captive plug	—	—	E (M050)	1000
CF300-38	600µl	Pp*	20000	Captive plug	—	—	E (M069)	500
CF304-15	1.5ml	Pp	13000	Captive screw	—	✓	C (430909)	500
CF306-07	1.5ml	Pp	10000	Captive plug	—	—	—	1000
CF306-10	1.5ml	Pp	16000	Captive plug	—	—	E (M150)	1000
CF306-17	1.5ml	Pp*	20000	Captive plug	—	—	B (7805 40)	1000
CF306-26	1.5ml (Blue)	Pp	20000	Captive plug	—	—	E (M152)	1000
CF306-27	1.5ml (Green)	Pp	20000	Captive plug	—	—	E (M153)	1000
CF306-29	1.5ml (Red)	Pp	20000	Captive plug	—	—	E (M157)	1000
CF308-45	2.0ml	Pp	13000	Screw	✓	✓	C (430917)	500
CF308-49	2.0ml	Pp*	20000	Captive plug	—	—	E (M209)	250
CF308-53	2.0ml	Pp*	20000	Captive plug	—	—	E (M209D)	500
CF310-10	5.0ml	Pp	25000	Captive plug	—	—	B (7805 55)	250

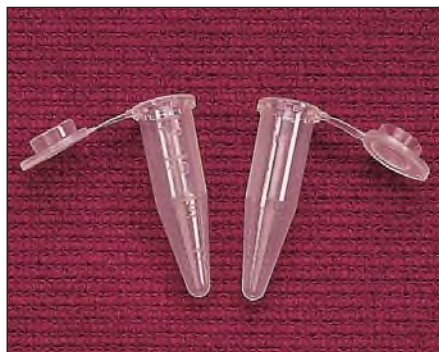
*Low-adhesion resin which is DNase- and RNase-free.

Microcentrifuge tube filters – see *FC860- to FC890-series*.

Thin-walled microtubes and PCR tubes – see *Molecular Biology section*.



CF300-34, CF300-38 are similar



CF306-07 to CF306-17, CF310-10 are similar



CF308-45



CF304-15



CF306-26 to CF306-29 in use with SM575



CF308-49I-53

Centrifuge Tubes

10 to 15ml Capacities

Reference Code:

C = Corning
D = DWKLS (formerly Scilabware)
E = Elkay
St = Sterilin

Materials Code:

Bs = Pyrex borosilicate glass
MPs = Modified polystyrene
PET = Polyethylene terephthalate
Pp = Polypropylene
Ps = Polystyrene
SI = Soda-lime glass

Caps Code:

F = Flat top rim seal type
P = Plug seal type
S = Screw type
W = Write-on panel

All tubes have rim unless otherwise specified. Graduations are moulded-in, unless otherwise specified.

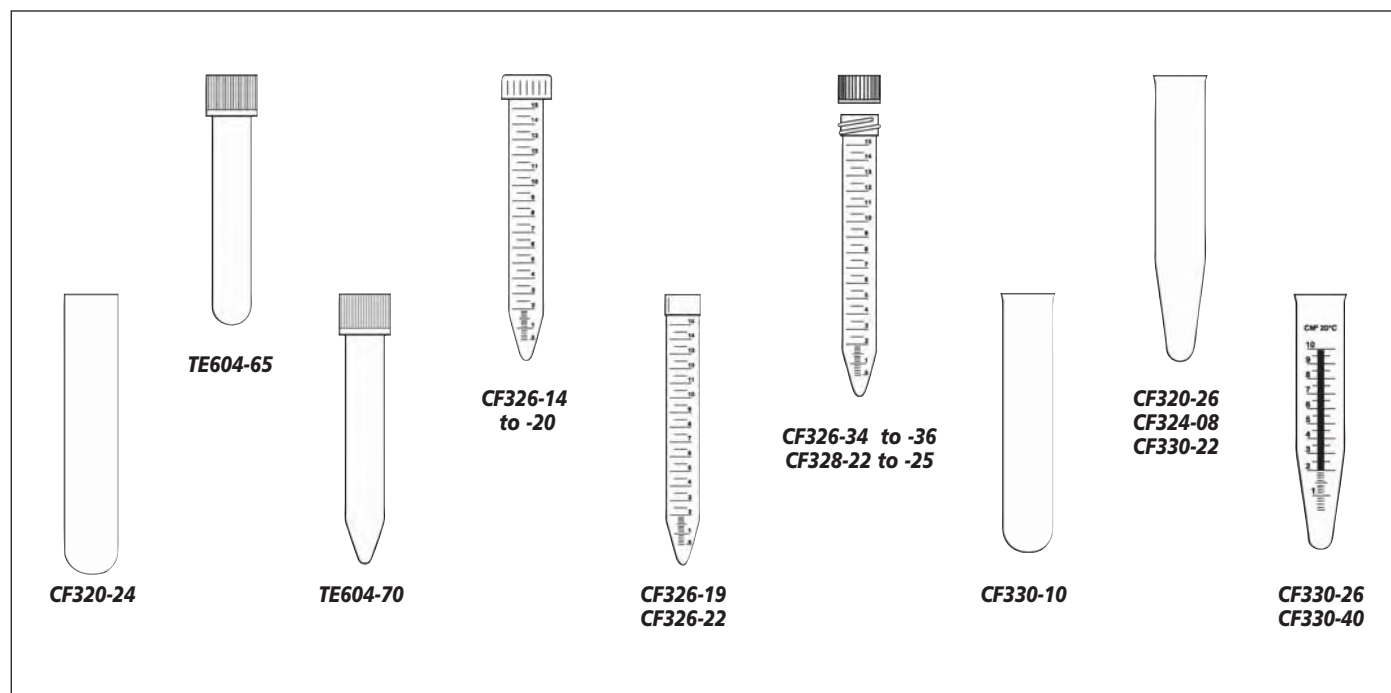
Cat. No.	Capacity	Material	Shape	RCF (xg)	Grad.	L x dia. (mm)	Cap	Sterile	Ref.	Qty.
CF320-24	10ml	Bs	Straight rimless	3000	—	90 x 16	—	—	S (1660/02)	Each
CF320-26	12ml	Bs	Conical	3000	—	110 x 17	—	—	S (1680/02)	Each
CF324-08	12ml	Ps	Conical	6000	—	105 x 16	—	—	—	2000
TE604-65	13.5ml	Ps	Straight	8000	—	100 x 16	S	✓	St (142AS)	450
TE604-70	13.5ml	Ps	Conical	8000	—	100 x 16	S	✓	St (144AS)	450
CF326-14	15ml	PET	Conical	3600	✓	122 x 23	P	✓	C (430055)	500*
CF326-15	15ml	PET	Conical	3600	✓	122 x 23	P	✓	C (430053)	500
CF326-19	15ml	Pp	Conical	12500	✓	122 x 23	FW	✓	C (430790)	500*
CF326-20	15ml	Pp	Conical	12000	✓	122 x 23	P	✓	C (430052)	500*
CF326-22	15ml	Pp	Conical	6250	✓	118 x 17	—	—	E (151)	1000
CF326-34	15ml	Pp	Conical	12000	✓	120 x 17	F, S	—	—	500
CF326-36	15ml	Pp	Conical	12000	✓ (printed)	120 x 17	F, S	✓	—	500**
CF328-22	15ml	Pp	Conical	8965	✓ (printed)	120 x 17	F, S	✓	—	500
CF328-25	15ml	Pp	Conical	6000	✓ (printed)	120 x 17	F, S	—	—	500
CF330-10	15ml	SI	Straight	1300	—	111 x 17	—	—	—	Each
CF330-22	15ml	SI	Conical	1300	—	111 x 17	—	—	—	Each
CF330-26	15ml	SI	Conical	1300	✓	111 x 17	—	—	—	Each
CF330-40	15ml	Bs	Conical	3000	✓	110 x 17	—	—	D (3460/02)	Each

*Supplied in racks of 50 within the outer pack quantity.

**Supplied in bags of 25 within the outer pack quantity.

SAFETY NOTE

Relative centrifugal force (RCF) figures stated are maxima in ideal environmental conditions. The mechanical strength of tube materials can vary with exposure to certain reagents or with temperature changes. Care should be taken when using tubes at or near their operating limit.



Centrifuge Tubes

25 to 500ml Capacities, for Nalgene Plastic Tubes - see next page

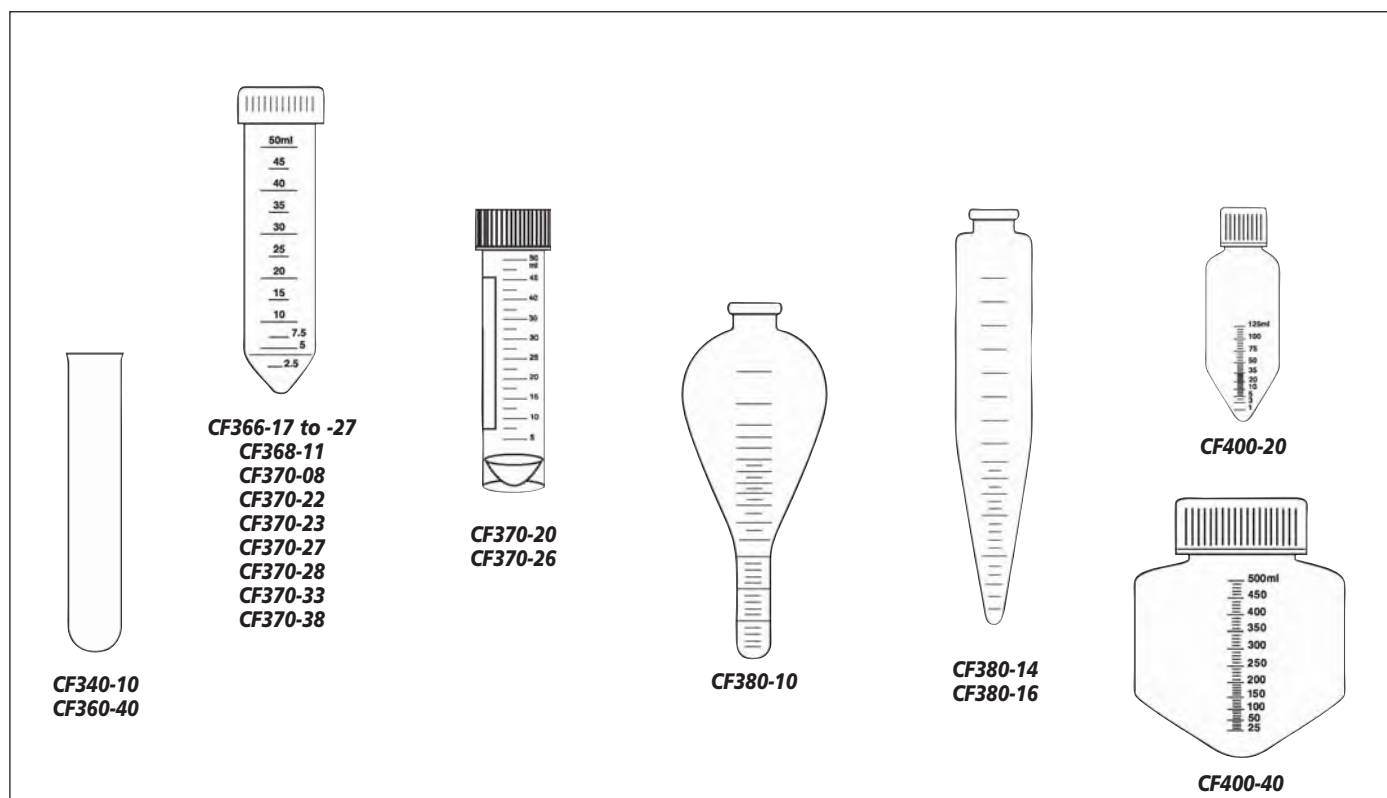
All tubes have rim unless otherwise specified. Graduations are moulded-in, unless otherwise stated.

Cat. No.	Capacity	Material	Shape	RCF (xg)	Grad.	L x dia. (mm)	Cap	Sterile	Ref.	Qty.
25 and 45ml capacity										
CF340-10	25ml	Bs	Straight	3000	—	90 x 24	—	—	S (1660/06)	Each
CF360-40	45ml	Bs	Straight	3000	—	90 x 30	—	—	S (1660/08)	Each
50 and 100ml capacity										
CF366-17	50ml	Pp	Conical	8965	✓ (printed)	115 x 30	F, S	✓	—	500
CF366-27	50ml	Pp	Conical	6000	✓ (printed)	115 x 29	F, S	—	—	500
CF368-11	50ml	Pp	Conical	9400	✓ (printed)	116 x 28	S	—	—	500
CF370-08	50ml	PET	Conical	3600	✓	116 x 29	P	✓	C (430304)	500 [†]
CF370-20	50ml	Pp	Conical self-standing	3000	✓ (printed)	116 x 29	P	✓	C (430897)	500
CF370-22	50ml	Pp	Conical	15500	✓ (printed)	116 x 29	P	✓	C (430290)	500 [†]
CF370-23	50ml	Pp	Conical	15500	✓	116 x 29	P	✓	C (430291)	500
CF370-26	50ml	Pp	Conical self-standing	3000	✓ (printed)	116 x 29	FW	✓	C (430921)	500
CF370-27	50ml	Pp	Conical	17000	✓ (printed)	116 x 29	FW	✓	C (430829)	500
CF370-28	50ml	Pp	Conical	17000	✓ (printed)	116 x 29	FW	✓	C (430828)	500 [†]
CF370-33	50ml	Pp	Conical	12000	✓ (printed)	114 x 30	F/S	—	—	500
CF380-10	100ml	Bs	Pear	1500	✓	ASTM D96	—	—	D (3440/02)	Each
CF380-14	100ml	Bs	Conical (200mm)	2500	✓	ASTM D96	—	—	D (3450/02)	Each
CF380-16	100ml	Bs	Conical (167mm)	1700	✓	ASTM D96	—	—	—	Each
250 and 500ml capacity										
CF400-20	250ml	Pp	Conical	6000	✓	172 x 60	P	✓	C (430776)	102
CF400-26	250ml	PEI (polyetherimide) cushion for CF400-20							C (430236)	6
CF400-40	500ml	Pp	Conical	6000	✓	147 x 96	P	✓	C (431123)	36
CF400-46	500ml	PEI (polyetherimide) cushion for CF400-40							C (431124)	6

[†]Supplied in racks of 25 within the outer pack quantity.

SAFETY NOTE

Relative centrifugal force (RCF) figures stated are maxima in ideal environmental conditions. The mechanical strength of tube materials can vary with exposure to certain reagents or with temperature changes. Care should be taken when using tubes at or near their operating limit.



Centrifuge Tubes

Nalgene Tubes and Bottles

All dimensions and capacities are nominal.

Conical, polypropylene, graduated, rimless

Autoclavable. For non-refrigerated low speeds up to 6000xg. Supplied in packs of 10.

	Ref. 3103-	Cap. ml	L x dia. mm
CF604-22	0015	15	119 x 17
CF604-32	0050	50	134 x 28.5

Conical, polycarbonate, graduated, rimless

Transparent, autoclavable. For low speeds up to 6000xg. Supplied in packs of 10.

	Ref. 3105-	Cap. ml	L x dia. mm
CF608-18	0015	15	120.2 x 17
CF608-28	0050	50	135 x 29

Straight, polypropylene, rimless

Autoclavable. For non-refrigerated speeds up to 50000xg. Supplied in packs of 10.

	Ref. 3110-	Cap. ml	L x dia. mm
CF640-16	0120	12	103 x 16
CF640-18	0150	15	114 x 16
CF640-20	0160	16	100 x 18
CF640-34	0500	50	103 x 28.7

Straight, polycarbonate, rimless

Transparent, autoclavable. For use at speeds up to 50000xg. Supplied in packs of 10.

	Ref. 3117-	Cap. ml	L x dia. mm
CF655-16	0120	12	104 x 16
CF655-18	0150	15	114.5 x 16
CF655-20	0160	16	101 x 18
CF655-34	0500	50	104 x 29.5

Bottles, polycarbonate

Transparent, autoclavable. With polypropylene narrow mouth screw cap. Supplied in packs of 4.

Maximum speed ratings:

250ml	-	27500xg
500ml	-	13700xg
1000ml	-	7100xg

	Ref. 3122-	Cap. ml	L x dia. mm
CF830-20	0250	250	128 x 62
CF830-30	0500	500	170 x 69.5
CF830-40	1000	1000	188.4 x 97.6

Important Warning Sterilising Centrifuge Ware

Some tubes and bottles where indicated can be sterilised by autoclaving. However BEFORE AUTOCLAVING (or sterilising by gas or dry heat) the cap or closure must either be removed or just set on top of the container WITHOUT ENGAGING THE THREAD.

Nalgene Oak Ridge Tubes

All dimensions and capacities are nominal.

All tubes are autoclavable and can be used in refrigerated and non-refrigerated centrifuges up to 50000xg.

Supplied with non-contaminating screw cap without liner which is leakproof during ordinary use outside the centrifuge.

Length x diameter:

10ml	81 x 16mm
30ml	95 x 26mm
50ml	107 x 29mm

Polycarbonate, transparent, with polypropylene screw cap

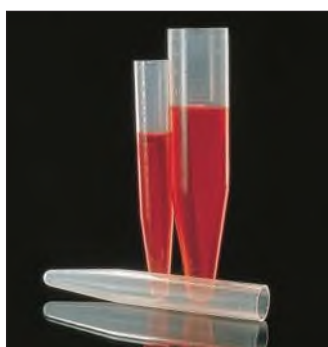
	Ref. 3118-	Cap. ml	Pack qty.
CF900-10	0010	10	10
CF900-30	0030	30	10
CF900-45	0050	50	10

Polyallomer, transparent, with polypropylene screw cap

	Ref. 3119-	Cap. ml	Pack qty.
CF915-10	0010	10	10
CF915-30	0030	30	10
CF915-45	0050	50	10

PTFE/FEP, with ETFE screw cap

	Ref. 3114-	Cap. ml	Pack qty.
CF935-10	0010	10	2
CF935-18	0030	30	2
CF935-25	0050	50	2



CF604



CF608



CF655



CF900



CF640



CF830



CF915, CF935 is similar

Chloride Meters

Models 926 and 926S



For the rapid determination of chlorides in solution.

Model 926 Industrial applications: Chloride in food manufacture, processing and quality control. Particularly suitable for the analysis of dairy, cheese, meat, fish, seasoning and snackfood products. Many other applications in the paper, fabric, cement and plating industries.

Model 926S Clinical applications: Chloride in biological samples such as serum, plasma, urine, sweat and CSF

- ◆ mg/litre and mg% salt ranges (Industrial model)
- ◆ mmol/litre range (Clinical model)
- ◆ Status and Error Code prompts
- ◆ Microprocessor controlled
- ◆ Built-in RS232 output
- ◆ Simple operation – 3 push button controls
- ◆ Captive magnetic stirrer – no stirrer bars to lose

Model	926 Industrial model	926S Clinical model
Range	10 to 999mg/litre Cl 2 to 165mg% salt	10 to 299mmol/litre Cl
Reproducibility	±3mg/litre or ±1% whichever is the greater	0.1ml sample <1% 0.02ml sample <1.5%
Accuracy	Within ±3mg/litre at the 200mg/litre level	Within 2.2mmol/litre at the 100mmol/litre level
Sample Volume	0.5ml	0.1ml or 0.02ml
Overall dimensions	200 x 250 x 315mm high — both models	
Weight	5.4kg — both models	

As described. With built-in RS232 output to allow results and sample number to be printed or downloaded to a computer. Supplied complete with electrodes, reagent pack, printer cable and 2 graduated beakers. For 110, 115, 200, 230, 240V 50/60Hz supplies.

- CH450-25 926 Mk 3 Industrial
- CH450-30 926S Clinical

Accessories

- CH452-06 Silver anodes, pack of 3
- CH452-08 Silver electrodes (one cathode plus two detectors)
- CH452-12 Electrode polish

Combined acid buffer reagent. Supplied in UN-approved bottles.

- CH452-15 Acid buffer reagent, pack 500ml
- CH452-18 Sample beaker, graduated
- CH452-30 Industrial standard 200mg/litre, pack of 6 x 100ml bottles
- CH452-32 Clinical standard 100mmol/litre, pack of 6 x 100ml bottles

Impact printer assembly for use with CH450-series, allowing print-out sample number and results. With connecting cable, adapter and print roll. Requires a 110, 240V single phase supply.

- CH452-47 Impact printer for use with CH450-series

Colorimetric Chloride determinations - see *Colorimeter* section.



CH450

Chromatography

Chromatography Papers

Whatman®

Sheets Plain

Grade	Box qty.	100 x 300mm	200 x 200mm	250 x 250mm	315 x 355mm	460 x 570mm	580 x 680mm
1Chr	100	CJ300-10	CJ300-20	CJ300-30	—	CJ300-40	—
3Chr	100	—	—	—	—	CJ308-40	—
3MMChr	100	—	CJ312-20	—	CJ312-34	CJ312-40	CJ312-50
4Chr	100	—	—	—	—	CJ316-40	—
17Chr	25	—	—	—	—	CJ320-40	—
SG81	25	—	—	—	—	CJ348-40	—

Reels

Grade	Length	Widths available 10mm	20mm	30mm	40mm	50mm
1Chr	100m	CJ500-12	CJ500-14	CJ500-16	CJ500-18	CJ500-22

Reels continued

Grade	Length	Widths available 100mm	150mm	190mm	230mm	270mm
1Chr	100m	CJ500-28	CJ500-34	—	—	—
3MMChr	100m	CJ504-28	CJ504-34	CJ504-36	CJ504-42	CJ504-44

Grade Comparison

Flow rates given are linear per 30 minutes.

Grade	Flow mm/30minutes	Thickness mm	Material
1Chr	130	0.18	Pure cellulose
3Chr	130	0.36	
3MMChr	130	0.34	
4Chr	180	0.21	Pure cellulose
17Chr	190	0.92	
SG81	110	0.27	Silica gel loaded cellulose



Chromatography

HPLC Columns



Nucleodur® C₁₈ Gravity Media

High purity silica phase for analytical HPLC. Suitable for LC/MS and HPLC at extreme pH (range pH 1 to 11) with superior base deactivation.

Packing: high-density octadecyl modification, pore size 110Å, particle size: 5µm. Carbon content: 18%.

Column i.d.: 4.6mm.

With compression screw HPLC fittings. Supplied singly.

	Particle size, µm	Column length, mm
CK318-02	5	100
CK318-05	5	250

Nucleodur® C₈ ec Media

EC standard columns with standard RP phase silica for routine analysis and upscaling for preparative HPLC. Offers pH stability (pH 1 to 9) and high lot-to-lot reproducibility.

Packing: medium-density octyl modification, pore size 110Å, particle size: 5µm. Carbon content: 10.5%.

Column i.d.: 4.6mm.

With compression screw HPLC fittings. Supplied singly.

	Particle size, µm	Column length, mm
CK318-31	5	125

Nucleodur® C₁₈ ec Media

Ideal, reliable, standard RP phase silica for routine analysis and upscaling for preparative HPLC. Offer pH stability (pH 1 to 9) and lot to lot reproducibility.

Packing: medium-density octadecyl modification, pore size 110Å, particle size: 5 or 10µm. Carbon content: 17.5%.

Column i.d.: 4.6mm.

With compression screw HPLC fittings. Supplied singly.

	Particle size, µm	Column length, mm
CK318-41	5	125
CK318-42	5	250
CK318-45	10	250

Nucleosil® SB Media

EC standard columns with quarternary ammonium modified silica HPLC phase with strongly basic anion exchanger (SAX). Offers pH stability of pH 2 to 8.

Packing: pore size 100Å, particle size: 5 or 10µm. Carbon content: 10%.

Column i.d.: 4.6mm

With compression screw HPLC fittings. Supplied singly.

	Particle size, µm	Column length, mm
CK318-52	5	125
CK318-55	10	250

Nucleosil® SA Media

EC standard columns with sulphonic acid modified silica phase for HPLC with strongly acidic cation exchanger (SCX). Offers pH stability of pH 2 to 8.

Packing: pore size 100Å, particle size: 10µm. Carbon content: 6.5%.

Column i.d.: 4.6mm

With compression screw HPLC fittings. Supplied singly.

	Particle size, µm	Column length, mm
CK318-65	10	250



CK318

Chromatography

Flexible TLC Plates

Whatman®

Silica Gel Plates

Layer 250µm. All plates are 20cm x 20cm and can be cut with scissors.

Ref.	Pack qty.
Polyester backed CJ600-25 PE Sil G/UV 254*	25

* With fluorescent indicator.

U.V. Viewing Cabinet for TLC plates – see LM400-10 in the Lamps section.

Glass TLC Plates

Whatman®

Reverse Phase Plates

Layer 200µm.

Ref.	Size cm	Pack qty.
CJ666-30 LKC ₁₈ F	5 x 20	75

Adsorption Plates K6 60Å

Layer 250µm except CJ700-60 which is 1000µm.

Ref.	Size cm	Pack qty.
CJ700-60 PK6F	20 x 20	20

Flexible TLC Plates



Silica Gel Plates, Polygram® and Alugram®

Layer 250µm. All plates are 20 x 20cm and can be cut with scissors. Silica 60, mean pore 60Å, specific surface (BET) approximately 500m²/g, specific pore volume of 75ml/g and a particle size of 5 to 17µm.

Ref.	Pack qty.
Polygram® polyester backed CK565-10 Sil G	25
CK565-25 Sil G/UV ₂₅₄ *	25

Alugram® aluminium backed

CK567-10 Sil G	25
CK567-25 Sil G/UV ₂₅₄ *	25

*With manganese activated, zinc silicate fluorescent indicator operating at 254nm.

Glass TLC Plates



Reverse Phase Plates

HPTLC plates with concentrating zone. Mean 60Å pore, silanized silica C₁₈ with mean particle size of 2 to 10µm.

Ref.	Size, cm	Layer thickness, µm	Pack qty.
CK572-60 Nano-Sil C ₁₈ -100	10 x 10	200	25
CK572-75 RP-18W/UV ₂₅₄ *	20 x 20	250	25

*With fluorescent indicator operating at 254nm.

Standard Plates

Layer thicknesses as indicated. Pre-coated with silica 60 with mean pore diameter of 60Å, specific surface (BET) approximately 500m²/g, specific pore volume of 0.75ml/g and a particle size of 5 to 17µm.

Ref.	Size, cm	Pack qty.
Layer 250µm CK580-30 Sil G-25	5 x 20	100
CK580-45 Sil G-25	10 x 20	50
CK580-60 Sil G-25	20 x 20	25
CK585-10 Sil G-25 UV ₂₅₄ *	2.5 x 7.5	100
CK585-20 Sil G-25 UV ₂₅₄ *	5 x 10	50
CK585-30 Sil G-25 UV ₂₅₄ *	5 x 20	100
CK585-50 Sil G-25 UV ₂₅₄ *	10 x 20	50
CK585-60 Sil G-25 UV ₂₅₄ *	20 x 20	25

Layer 1000µm

CK586-25 Sil G-100 UV ₂₅₄ *	20 x 20	15
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*With manganese activated, zinc silicate fluorescent indicator operating at 254nm.



Chromatography

TLC Separating Chambers

- ◆ Heavy, moulded glass construction
- ◆ Ground flange top and lid for tight seal

Standard Separating Chamber

For TLC plates 20 x 20cm. With broad grooved flange edge and lid.

CK610-12 Standard TLC Chamber

Batch Separating Chamber

With vertical moulded grooves to accommodate up to 5 TLC plates 20 x 20cm. With broad grooved flange edge and lid.

CK610-22 Batch TLC Chamber

HPTLC Separating Chamber

For HPTLC and TLC plates 10 x 10cm. With broad grooved flange edge and lid.

CK610-32 HPTLC Chamber



CK610-12, CK610-32 is similar



CK610-22

Chromatography Columns

Columns

With sintered disc porosity 0 and GP Rotaflo stopcock.

	Dia. mm	Effective length mm	Socket size	GP Rotaflo stopcock bore, mm
QCR10/10	10	100	14/23	3
QCR10/20	10	200	14/23	3
QCR10/30	10	300	14/23	3
QCR10/40	10	400	14/23	3
QCR20/20	20	200	19/26	3
QCR20/30	20	300	19/26	3
QCR20/40	20	400	19/26	3
QCR20/50	20	500	19/26	3
QCR30/40	25	400	24/29	3
QCR30/50	25	500	24/29	3
QCR40/40	30	400	29/32	6
QCR60/40	40	400	40/38	6
QCR60/50	40	500	40/38	6



QCR10:-60:

Chromatography

Autosampler Vials

High quality glass vials for use with autosamplers as indicated. All capacities quoted are based on water at ambient temperature.

Glass vials with standard screw thread neck

Large neck opening vials with 9mm screw neck finish. Borosilicate (type 1) glass, 1.8ml capacity, 12 x 32mm diameter x height. For use with screw closures. Supplied in packs of 1000.

- CK725-10** Clear glass
- CK725-15** Amber glass
- CK725-20** Clear glass with marking spot
- CK725-25** Amber glass with marking spot

9mm screw closures for CK725-series vials

Coloured polyethylene, with insert seal materials as indicated. Supplied in packs of 1000.

- CK727-03** Blue, with PTFE/synthetic rubber seal
- CK727-06** Black, with PTFE/synthetic rubber seal
- CK727-09** Blue, with PTFE/silicone rubber seal
- CK727-11** Black, with PTFE/silicone rubber seal
- CK727-13** Blue, with PTFE/silicone rubber seal and slit

Glass vials with standard crimp neck

Large neck opening vials with 11mm crimp neck finish. Borosilicate (type 1) glass, 1.8ml capacity, 12 x 32mm diameter x height. For use with aluminium crimp closures. Supplied in packs of 1000.

- CK730-10** Clear glass
- CK730-15** Amber glass
- CK730-20** Clear glass with marking spot
- CK730-25** Amber glass with marking spot

11mm crimp closures for CK730-series vials

Natural, or colour-anodised, aluminium, with insert seal materials as indicated. Supplied in packs of 1000.

- CK732-04** Natural, with PTFE/synthetic rubber seal
- CK732-07** Blue, with PTFE/synthetic rubber seal
- CK732-10** Natural, with PTFE/silicone rubber seal
- CK732-13** Blue, with PTFE/silicone rubber seal

- CK732-16** Hand crimper for 11mm closures
- CK732-19** Hand decapper for 11mm closures

Glass vials with standard snap/crimp neck

Large neck opening vials with 11mm snap/crimp neck finish. Borosilicate (type 1) glass, 1.8ml capacity, 12 x 32mm diameter x height. For use with aluminium crimp closures or polyethylene snap caps. Supplied in packs of 1000.

- CK734-11** Clear glass
- CK734-16** Amber glass
- CK734-21** Clear glass with marking spot
- CK734-26** Amber glass with marking spot

11mm snap-type closures for CK734-series vials

Coloured polyethylene, with insert seal materials as indicated. Supplied in packs of 1000.

- CK736-05** Natural, with PTFE/synthetic rubber seal
- CK736-08** Blue, with PTFE/silicone rubber seal and slit
- CK736-11** Natural, with PTFE/silicone rubber seal
- CK736-14** Blue, with PTFE/silicone rubber seal

Crimp closures - see *CK732-series*

Other closure/seal material combinations are available - *details on request*

Limited volume inserts for 1.8ml capacity vials

Supplied in packs as indicated.

- CK737-12** 250µl, 6 x 31mm dia. x ht. With bottom spring. Pack of 100.
- CK737-14** 250µl, 6 x 31mm dia. x ht. With flat bottom. Pack of 500.

Headspace vials

With 20mm crimp neck finish. Clear borosilicate (type 1) glass with capacities and sizes (diameter x height) as indicated. Supplied in packs as indicated.

	Cap. ml	Size., mm	Neck	Pack qty.
CK738-30	6	22 x 38	tapered	100
CK738-41	10	23 x 46	standard	180
CK738-50	20	23 x 75	standard	100

20mm crimp closures for CK738-series vials

Aluminium, with PTFE/silicone rubber insert seals. Supplied in a pack of 1000.

- CK738-65** 20mm, PTFE/silicone seals

Aluminium, scored to provide pressure release. Will open if pressure exceeds 3.0 ±0.5 bar. With insert seal. Supplied in packs of 1000.

- CK738-69** 20mm pressure release caps

- CK738-75** Hand crimper for 20mm closures
- CK738-77** Hand decapper for 20mm closures



CK725-20

CK730-20

CK734-21

CK734-26

CK730-10



CK727-09



CK732-07



CK732-16

Chromatography

Safety Caps



For safe closure and venting of supply reservoirs, particularly when handling solvents for HPLC.

- ◆ Replaceable air inlet filter stops solvent contamination from dust
- ◆ Halts solvent evaporation, reducing cost and contamination of the laboratory atmosphere by fumes
- ◆ Precision adapters allow insertion without crimping and fixed position of capillary tubing
- ◆ Easy reservoir exchange
- ◆ Manufactured in PTFE and HDPE for resistance to aggressive solvents
- ◆ Caps can be unscrewed without tubing removal
- ◆ Fire-resistant versions available

As described. Supplied singly, with one inlet filter (6-monthly replacement recommended) and capillary tubing connectors for tubing with outside diameters as indicated.

	Cap type	Connectors for tubing
Standard		
CK780-04	GL45	1 x 3.2mm o.d.
CK780-08	GL45	1 x 3.2mm o.d. with stopcock
CK780-12	GL45	2 x 3.2mm o.d.
CK780-16	GL45	3 x 3.2mm o.d.
CK780-20	GL45	4 x 3.2mm o.d.
CK780-28	GL45	6 x 3.2mm o.d.
Fire-resistant		
CK784-04	GL45	1 x 3.2mm o.d.
CK784-08	GL45	1 x 3.2mm o.d. with stopcock

Accessory inlet filters

- CK785-10** Standard, pack of 1
- CK785-20** Standard, pack of 10

Accessories continued on next page



CK780-04, CK784-04 is similar



CK780-16 in use on bottle



CK784-08, CK780-08 is similar



CK780-12



CK780-20, CK780-28 is similar



CK784-24

Chromatography

Safety Waste Caps



For safe closure and venting of liquid waste reservoirs.

- ◆ Manufactured in PTFE and HDPE for resistance to aggressive solvents, acids and bases
- ◆ Easy reservoir exchange
- ◆ Caps can be unscrewed without tubing removal
- ◆ Precision adapters allow insertion without crimping and fixed positioning of capillary tubing
- ◆ Accessory, activated charcoal, exhaust filters absorb up to 99% of volatiles and are available in 3 sizes to accommodate alternative sizes of reservoir

As described. Supplied singly with connectors for one exhaust filter, capillary tubing with outside diameters and tubing ferrule as indicated. Without exhaust filter.

	Cap type	Connectors for tubing
CK790-03	GL45	3 x 2.3/3.2mm o.d.
CK790-06	GL45	2 x 2.3/3.2mm o.d., 1 x L-ferrule 6.4mm i.d.
CK790-09	S51	2 x 2.3/3.2mm o.d., 1 x L-ferrule 6.4mm i.d.
CK790-15	S55	2 x 2.3/3.2mm o.d., 1 x L-ferrule 6.4mm i.d.
CK790-18	S60/61	3 x 2.3/3.2mm o.d.
CK790-19	S60/61	2 x 2.3/3.2mm o.d., 1 x L-ferrule 6.4mm i.d.
CK790-26	S90	4 x 2.3/3.2mm o.d., 1 x L-ferrule 6.4mm i.d.

*Fire-resistant

Accessory Exhaust Filters

With activated charcoal absorbent.

	Size	Filling, g	For vessels	Pack
CK794-05	S	24	<5L	1
CK794-07	S	24	<5L	4
CK794-12	M	48	<20L	1
CK794-16	M	48	>20L	3
CK794-24	L	100	>20L	1

*Fire-resistant

Multicollector Manifolds

Allow multiple waste streams to be routed through one inlet in the waste cap.

- CK796-10** 2 x 3.2mm o.d., 1 x 6.4mm i.d. side inlets
- CK796-20** 2 x 6.4mm i.d., side inlets
- CK796-25** 3 x 6.4mm i.d., side inlets
- CK796-55** 8 x 3.2mm o.d., top inlets

Fittings and Ferrules for Safety and Safety Waste Caps and Manifolds

- CK798-04** Fittings with ferrule, PTFE, for 1.6mm o.d. capillary tubing, pack of 10
- CK798-06** Fittings with ferrule, PTFE, for 2.3mm o.d. capillary tubing, pack of 10
- CK798-08** Fittings with ferrule, PTFE, for 3.2mm o.d. capillary tubing, pack of 10
- CK798-10** Fitting with ferrule, PTFE, for 4.76mm ($\frac{3}{16}$ " o.d. capillary tubing, pack of 1
- CK798-24** Plugs, PTFE, for 4.76mm ($\frac{3}{16}$ " fittings, pack of 10

Capillary Tubing

PTFE. In lengths of 3 x 3m.

- CK799-10** 1.6mm o.d., 1.0mm i.d.
- CK799-20** 2.3mm o.d., 1.7mm i.d.
- CK799-30** 3.2mm o.d., 1.6mm i.d.
- CK799-65** Inlet filters for HPLC solvents, PFA/PTFE to fit 3.2mm o.d. tubing, pack of 5



CK790-06, CK790-03 are similar



CK790-09, CK790-15 is similar



CK790-19 CK790-18 and CK790-26 are similar



CK794-24



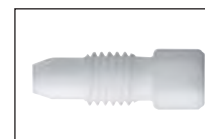
CK796-10



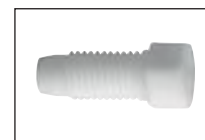
CK796-20



CK796-25



CK798-04 to -10



CK798-24

Circulators

Recirculating Chillers

Grant
IN THE LABORATORY

Stand-alone closed circulators providing powerful, accurately controlled cooling for analytical techniques and instruments where an optimum operating temperature is required. In addition, RC1400G can be used as heated circulators.

- ◆ Precise temperature control
- ◆ Low coolant consumption*
- ◆ Settable high and low alarm levels with lamp and buzzer
- ◆ Over/under temperature cut-outs
- ◆ Flow fail device cuts power if no liquid in system
- ◆ Digital temperature display

*Use: Water for range +5 to +60°C
Water/glycol mixture for -10 to +5°C

Recirculating Chillers

As specified. Mounted on lockable wheels. For 220-240V 50Hz single phase supplies

CL110-25 Model RC1400G
CL110-30 Model RC3000G

Catalogue No		CL110-25	CL110-30
Model		RC1400G	RC3000G [†]
Temperature range	°C	-10 to +60	-10 to +60
Typical cooling power at 20°C	W	1100	3000
Heater power	kW	1.50	— [†]
Stability at 20°C (DIN58966) (using water)	±°C	0.25	0.5**
Maximum liquid flowrate	litres/minute	15	15
Pump head pressure at 1 litre/minute	bar	0.62	1.60
Dimensions			
D	mm	630	840
W	mm	380	490
H	mm	590	640
Weight	kg	53	88
Inlet/outlet connections	mm	9.5 diameter — both models	
Reservoir capacity	litres	2.5	1.1
Operational ambient temperature range	°C	+5 to +35 — both models	
EMC emissions	class	A	B
Supply requirements		220-240V 50Hz single phase supplies — both models	

[†]Note: The RC3000G has no heater and therefore is designed for cooling applications only. It can control to +60°C where the temperature of the exothermic reaction or process is above +60°C; this is achieved by switching the cooling on and off.

*With 10 litres of water in the system. **With 25 litres of water in the system.

Accessories

Bypass RC BYP

Ensures that the flow through the chiller is always at least 1 litre/minute so that the chillers' flow-fail device does not engage. This maintains temperature control and system integrity if narrow tubing or small cooling cells are used in an external circuit.

CL110-85 RC BYP

Pressure gauge RC PR

Indicates output pressure from the chiller.

CL110-89 RC PR

CL110-93 PRES Priming reservoir



CL110

Circulators

Refrigeration Units, LT ecocool

Grant
IN THE LABORATORY

Benchtop refrigeration units with built-in thermostatic controllers, stainless steel tanks and pumps providing a source of temperature controlled, refrigerated liquid for cooling applications, or as low temperature baths.

- ◆ Choice of model ranges:-
 - -20 to +100°C or -25 to +150°C
 - Tank volumes: 5 or 6 litres
- ◆ Active cooling throughout the whole temperature range
- ◆ High power (up to 500W) cooling available if required
- ◆ Controller includes digital display of set/actual temperature, three temperature pre-sets, 1 minute to 99 hour 59 minute timer and high (and low – CL120-70 only) temperature alarm settings
- ◆ “Eco” mode operation provides up to 80% energy saving compared to standard chillers with compressor on/off modes
- ◆ High pressure pumping up to 2 bar
- ◆ Adjustable overtemperature cut-out
- ◆ Model LT ecocool 150 additionally has a USB interfaces for remote control via the user’s computer using accessory Labwise software and DIN sockets for connection to external temperature probes

Catalogue No		CL120-45	CL120-70
Model		LT ecocool 100	LT ecocool 150
Temperature range	°C	-20 to +100	-25 to +150
Typical cooling power at 20°C	W	250	350
Stability at 20°C (using water)	±°C	0.05	0.02
Liquid flowrate	litres/minute	17	14 to 22 (adjustable)
Pump head pressure at 1 litre/minute	mbar	250	530
Calibration points		2	5
Customisable programmes (segments)		–	1 (30)
Temperature pre-sets		3	3
Alarms		High	High and low
Interface port		–	USB
Ext. temperature probe socket		–	6-pin mini DIN
Display		LED	Colour QVGA TFT
Dimensions			
D	mm	430	430
W	mm	240	245
H	mm	640	640
Weight	kg	28	28
Inlet/outlet connections	mm	Super seal, 9.5 diameter tubing ferrule, M16 or BSP— both models	
Reservoir capacity	litres	5	6
Supply requirements		230V 50Hz single phase supplies — both models	



CL120-45

Refrigeration units, LT ecocool

As described. Supplied with built-in controller and pump, stainless steel tank, lid and connectors and adapters for super seal, tubing ferrule, M16 or BSP connections. For 230V 50Hz single phase supplies.

CL120-45 LT ecocool 100

CL120-70 LT ecocool 150

Accessories

Labwise software

Allows remote set-up and programming of the thermostat controllers from the users’ PC, real-time temperature/time profiles, graphical representation of process to be displayed, logging of profiles and programme storage to disk. Requires Windows™ software. Supplied with connection cable.

BJ189-75 Labwise software

Remote Temperature Probes

Pt1000 external temperature probes for use with thermostat controllers in remote heating/cooling applications. With 3 metres of cable.

BJ242-20 TXPEP, fast response, nylon, 100mm x 4.5mm length x diameter

BJ242-25 TXSEP, robust, stainless steel, 125mm x 5mm length x diameter

Racks

If used as conventional low temperature baths the refrigeration unit tanks will accept 1 x QR series rack - see BJ188-10 to BJ188-23.

Circulators

Refrigeration Units



Integrated refrigeration units with built-in thermostatic controllers and insulated, stainless steel bath tanks to ensure economical operation with high accuracy and stability.

- ◆ Choice of four thermostatic controller levels; MX, Standard Digital (SD), Advanced Digital (AD) and Advanced programmable (AP)
- ◆ Temperature ranges from -40°C up to +200°C, dependent on the controller chosen and bath fluid chosen
- ◆ All controllers feature pumped, closed-circuit circulation with AD and AP units additionally offering open-circuit circulation with return suction and remote monitoring/control using accessory Pt100 temperature probes
- ◆ Safety features include high/low temperature limits with alarms and indicators, low liquid level safety cut-out and power outage reset

Thermostatic Controllers

Ref.		MX	SD	AD	AP
Maximum temperature,	°C	+135 (MX controller), +200 (rest of range)			
Stability	±°C	0.07	0.04	0.01	0.005
Display (backlit), resolution	°C	LCD, 0.1	LCD, 0.1	LCD, 0.01	Colour LCD, 0.01
Pump max. pressure (water)	mbar	120	200	250	250
Max. pump flow rate	l/min.	11.9	10.2	16.7	16.7
Max. suction flow rate	l/min.	—	—	12.2	12.2
Pump speed		single	two	variable	variable
Temperature calibration points		1	1	1	10
Programming capability?		—	—	—	Yes
Timer?		—	—	Yes	Yes
Interfaces		—	RS232	RS232/RS485, USB, ethernet - both models	
Inlet/outlet tubing bores	mm	13 - all models			
Supply requirement		240V 50Hz single phase - all models			

Catalogue no.,	MX controller	CL123-05	—	CL123-10
	SD controller	CL123-20	—	CL123-25
	AD controller	CL123-30	CL123-35	CL123-40
	AP controller	CL123-45	CL123-50	CL123-55
Minimum temperature	°C	-20	-40	-30
Refrigerant		R134A	R404A	R404A
Tank capacity	litres	7	7	15
Working access L x W x D,	mm	157 x 142 x 127	157 x 142 x 127	212 x 276 x 140
Inlet/outlet tubing bores	mm	13 - all models		
Overall L x W x H,	mm	541 x 221 x 645	541 x 221 x 617	569 x 368 x 683
Weight,	kg	38.1	40.8	53.5

Other ranges are available - details on request

Refrigeration Units, PolyScience

As described. For 240V 50Hz single phase supplies.

- CL123-05** MX07R-20, 7 litres, -20 to +135°C
- CL123-10** MX15R-30, 15 litres, -30 to +135°C
- CL123-20** SD07R-20, 7 litres, -20 to +200°C
- CL123-25** SD15R-30, 15 litres, -30 to +200°C
- CL123-30** AD07R-20, 7 litres, -20 to +200°C
- CL123-35** AD07R-40, 7 litres, -40 to +200°C
- CL123-40** AD15R-30, 15 litres, -30 to +200°C
- CL123-45** AP07R-20, 7 litres, -20 to +200°C
- CL123-50** AP07R-40, 7 litres, -40 to +200°C
- CL123-55** AP15R-30, 15 litres, -30 to +200°C

Bath fluids, PolyScience

Supplied in packs of one gallon (3.8 litres).

- BJ464-03** -50 to 100°C, viscosity 3cSt at 25°C
- BJ464-06** -50 to 150°C, viscosity 50cSt at 25°C
- BJ464-09** 100 to 200°C, viscosity 125cSt at 25°C
- BJ464-12** 150 to 250°C, viscosity 500cSt at 25°C

Accessory Pt100 Temperature Probes

For use with AD/AP controllers only when monitoring/controlling the contents of remotely heated vessels in open-circuit operation.

- BJ443-92** Pt100 probe, 0.6m cable
- BJ443-96** Pt100 probe, 2m cable
- BJ443-98** Pt100 probe, 8m cable



CL123

Circulators

Refrigerated Circulator Baths



- ◆ Choice of model:
 - SRC4, benchtop with compact footprint
 - SRC14, larger capacity, floor-standing unit mounted on castors for mobility
- ◆ Integral digital controller, display and overtemperature cut-out
- ◆ Tank drain for easy emptying and cleaning

Catalogue No.	CL140-15	CL140-25
Model	SRC4	SRC14
Range	°C -20 to +30	-20 to +30
Stability	±°C 2	2
Tank capacity	litres 3	14
Pump capacity (zero head)	litres/minute 9	18
Extraction rate at 0°C	W 400	1000
Overall W x D x H	mm 232 x 497 x 490	354 x 384 x 851
Weight, net	kg 25	41

Refrigerated Circulator Baths, Stuart

As specified. With integral controller, overtemperature cut-out and tubing inlet/outlet ferrules for 9mm bore tubing. For 230V 50Hz single phase supplies.

- CL140-15 SRC4
- CL140-25 SRC14



Catalogue No.	CL160-07	
Model	RB5A/TE10D	
Range	°C	-20 to +100
Stability	±°C	0.01
Thermoregulator	TE10D digital	
Tank capacity	litres	7
Pump capacity (zero head)	litres/minute	10
		mBar
		145
Extraction rate at 0°C	W	145
Power rating	kW	1
Overall W x D x H	mm	235 x 430 x 566
Weight, net	kg	31

Refrigerated Circulator Bath, RB5A

As specified. With integral controller which includes an overtemperature cut-out. For 230V 50/60Hz single phase supplies.

- CL160-07 RB5A/TE10D digital



CL140-15



CL140-25



CL160-07

Cleaning

Decon Cleaning Materials

Cleaner, Decon 90

A phosphate-free, biodegradable, water rinsable surfactant formulated specifically for laboratory and medical cleaning applications. A 2% aqueous solution has a pH of 10.7.

Recommended for use in ultrasonic cleaners and for cleaning glass, ceramics, plastics, glass fibre, rubber, stainless steel and ferrous metals and is used widely as a radioactive decontaminant. Being alkaline an aqueous solution will etch certain metals such as aluminium and zinc. In plastic container.

CL550-10 1 litre
CL550-15 5 litres
CL550-20 20 litres

Cleaner, Decomatic

A phosphate free, liquid surfactant which is free rinsing and foam-free, specially formulated for use in laboratory glassware washing machines. It is alkaline and is therefore unsuitable for cleaning non-ferrous metals such as aluminium, zinc and silver. In plastic container.

CL575-15 5 litres
CL575-20 10 litres

HEALTH AND SAFETY

All cleaning materials are likely to irritate the eyes and skin. Avoid contact with the eyes and skin and wear rubber gloves and goggles when handling.

Cleaner, Neutracon

A phosphate free, biodegradable, totally rinsable surfactant producing a near neutral solution in water. Is non-corrosive and has no adverse effect on aluminium, copper, brass, silver and silica glass. In plastic container.

CL590-10 1 litre
CL590-15 5 litres

Cleaner, Decon 75

A low foaming, non-corrosive and biodegradable phosphate surfactant with a pH of 10 in 2% aqueous solution. It is alkaline and is therefore unsuitable for cleaning non-ferrous metals such as aluminium, zinc and silver. In plastic container.

CL610-15 5 litres
CL610-20 20 litres

Acid Rinse, Decon

A non-foaming, free rinsing, biodegradable formulation for use in automatic washing machines either as a pre-wash where soiling is acid soluble, or final rinse where it neutralises the alkaline carry-over traces of the main wash, and inhibits deposition of salts from hard water supplies. It is acidic and therefore unsuitable for use on non-ferrous metals, notably aluminium and zinc. In plastic container.

CL615-08 5 litres

Cleaning brushes – see *Brushes* section.

Glassware washing machine – see *Washing* section.

Glassware draining and drying – see *Drying and Ovens* sections.

Ultrasonic cleaning baths – see *Ultrasonics* section.

Mucasol®

Cleaner, Mucasol®

A mildly alkaline, biodegradable concentrate with low phosphate content and which is free of chlorine and caustic alkali. Will remove rapidly stubborn residues such as oils, fats, waxes, stopcock greases, silicones, blood and proteins. It has a bacteriostatic action and can be used to decontaminate bench surfaces, shelves, tiles and floors. Can be used to clean glass, porcelain, plastics, rubber and most metals and has no corrosive effect. For normal cleaning a concentration of 0.7% aqueous solution (pH 11.5) is usually sufficient. In plastic container.

Please note: Mucasol is classed as hazardous material for export, requires packing as such and can only be shipped by surface transport.

CL635-12 2 litres
CL635-16 5 litres

Teepol

Cleaner, Teepol

A concentrated neutral biodegradable liquid detergent for general cleaning applications. In 5 litre container.

CL640-15 5 litres

Lipsol

Cleaner, Lipsol

A totally rinsable, phosphate- and enzyme-free, biodegradable surfactant with excellent cleaning performance on laboratory glassware, plasticware, rubber, ceramics and stainless steel. Mildly alkaline and therefore unsuitable for cleaning non-ferrous metals such as aluminium, zinc, or with polycarbonate plastics. Supplied in a pack of 2 x 5 litre plastic containers.

CL645-19 2 x 5 litres



CL645-19

CL635

Cleaning

Tissues, Wipes, Towels and Cloths

All dimensions and quantities are nominal.

Tissues (Medical Wipes) Kimcare

Soft absorbent 2-ply white tissues 186 x 108mm for those delicate wiping needs. Specially packed for the health care environment in dispensing cartons containing 80 tissues.

CL700-14 Wipes, medical, 7432

Tissues, Kleenex

Soft, 2-ply strong white tissues 200 x 210mm. In dispenser carton containing 100 wipes.

CL700-19 Tissues, 8835

Tissues, Kimtech Science

Strong 2-ply white wipes for delicate cleaning tasks, 200 x 213mm with low lint level. Suitable for ISO Class 4 or higher laboratory environments. In dispensing cartons containing sheets as indicated.

CL710-08 Tissues, 7557, carton of 100 sheets

CL710-18 Tissues, 7558, carton of 200 sheets

Wipes, Kimtech Science, Precision

Single-ply, for wiping delicate surfaces, White, in sizes and packs as indicated.

	Ref.	Wipe, mm	Pack qty.
CL712-10	7551	300 x 300mm	196
CL712-25	7552	114 x 213mm	280

Wipes, Scott Wypall, blue

Tough, single-ply, blue wipes with high wet strength and absorbency. In roll containing wipes as indicated. Dimensions given are width x length of each wipe.

CL720-09 Wipes, 7225, 240 x 460mm, roll of 165

CL720-22 Wipes, 7396, 510 x 380mm, roll of 200

Wipes, Kimberly Clark Scott Wypall

Highly absorbent, single-ply, "Airflex" fabric material, white wipes. 240 x 460mm with excellent wet-strength. In roll containing 115 wipes.

CL720-32 Wipes, 7236

Wipes, Wypall

Single-ply, blue wipes, supplied in rolls of sheets as indicated.

	Ref.	Wipe, mm	Colour	Pack qty.
CL720-77	7338	240 x 460	Blue	116
CL720-87	7399	510 x 460	Blue	116

Dispensers

White plastic, wall mounting for CL720 series.

CL722-15 For 240/250mm roll

CL722-20 For 500/510mm roll

Wipes, Wypall

2-ply, white wipes, 206 x 380mm. In barrel roll containing 300 wipes.

CL725-11 Wipes, 7303

CL725-60 Dispenser, plastic, wall mounting, for CL725-11, 7017

Kleenex, Kimcare, Kimtech, Scott, Wypall and Kimwipes are Registered Trademarks of the Kimberly-Clark Worldwide, Inc.



CL700-14



CL710-18



CL700-19



CL712



CL710-08



CL720-32



CL725-11, CL725-60



**CL730 with CL722-15
CL720 are similar**



CL720-77, CL720-87 is similar

Cleaning

Tissues, Wipes, Towels and Cloths continued

All dimensions and quantities are nominal.

Towels, Kleenex Ultra, folded

Highly absorbent, 3-ply "airflex" fabric which has excellent wet strength and softness. Towel size 215 x 315mm. Supplied in self-presenting packs of 96 towels.

CL730-28 Folded towels, 6710

CL732-10 Dispenser, plastic, wall mounting

Wipes, cleanroom, Kimtech

Precision wipes. Suitable for use in ISO cleanroom Class 7 environments and above. Strong, low-linting, absorbent and chemically inert. Resistant to solvents and most chemicals. Supplied in wipe sizes and packs as indicated.

	Ref.	Wipe, mm	Pack
CL734-15	7623	340 x 380mm	roll 600
CL734-25	7624	350 x 385mm	35

Duster, yellow

Soft with close texture. Dimensions 500 x 350mm. Supplied in pack of 10.

CL742-10 Dusters

Polishing Cloths, Selvyt®

The original soft texture polishing cloth which can be washed repeatedly. Supplied in packs of 10.

CL744-11 250 x 250mm

CL744-14 350 x 350mm

Wiping Cloths, J-type

Bonded cellulose fibre. Can be used for wet or dry cleaning. Dimensions 330 x 500mm. Supplied in pack of 50.

CL745-40 Wiping cloths

Glass Cloth, Linen

For drying of glassware and general equipment. Dimensions 750 x 500mm. Supplied in pack of 10.

CL745-60 Glass cloths



CL730-26 with CL732-10



CL734-25



CL734-15



Cleaning

Tissues, Wipes, Towels and Cloths continued

All dimensions and quantities are nominal.

Wipes, bactericidal, MediPal®

For disinfection of surfaces in clinical environments. Perforated roll of non-woven material saturated with 70% v/v isopropyl alcohol B.P. Wipe dimensions 195 x 190mm. Supplied in a dispenser tub of 200. **Please note:** these items are classed as hazardous material for export and require packing as such.

CL745-67 Wipes, bactericidal, MediPal®

Wipes, bactericidal, MediPal®, sterile

Ideal for disinfection of surfaces that are not sensitive to alcohol. Individually wrapped, sterile, low-linting material sachets saturated with 70% v/v isopropyl alcohol B.P. Wipe dimensions 200 x 125mm. Supplied in a pack of 100.

CL745-75 Wipes, bactericidal, individually wrapped, sterile

Wipes, bactericidal, Veriguard 1

For disinfection of surfaces in clinical and low-grade cleanroom environments. Perforated roll of non-woven material saturated with 70% w/v isopropyl alcohol. Wipe dimensions 200 x 200mm. Supplied in a dispenser tub of 200. **Please note:** these items are classed as hazardous material for export and require packing as such.

CL745-90 Wipes, bactericidal, Veriguard 1

Lens Cleaning Tissues

Tissues, Whatman 105

For lens cleaning.

	<i>Dimensions, mm</i>	<i>Pack qty.</i>
CL760-10	100 x 150	625
CL760-15	200 x 300	100
CL760-20	460 x 570	500



CL745-67



CL745-90



CL760



CL745-75

Cleaning

Virucidal Disinfectant

Virkon

Rely+On™ Virkon® is a wide spectrum disinfectant effective against all 18 virus families affecting man and animals, including HIV and Hepatitis B. Supplied in powder form.

- ◆ Bactericide and fungicide
- ◆ Odourless, non-irritant to skin and eyes
- ◆ No maximum exposure limit required under COSHH
- ◆ Dissolves easily
- ◆ Non-corrosive, non-bleaching, bio-degradable
- ◆ Supplied in packs as indicated

Any viral disease which is transmitted via surfaces or instruments contaminated with infected blood, body fluids, faeces or saliva can be controlled by the correct application of Virkon®. Virkon® may be applied directly onto blood or body fluid spillages. Diluted to 1% in water, Virkon® can be used to clean and disinfect equipment and surfaces. Supplied in packs as indicated.

- CL900-01** 20 x tubs of 10 x 5g tablets
- CL900-02** 12 x tubs of 50 x 5g tablets
- CL900-05** 50 x 50g sachets
- CL900-10** 6 x 500g squeeze 'puff' packs
- CL900-15** 1 x 5kg drum

Rely+On™ and Virkon® are trademarks of DuPont™.

Anti-Microbial Hand Soap

Labz GUARD™

A concentrated, coconut-based hand soap, formulated for repeated use without drying the skin.

- ◆ Contains 2% Nonoxynol 9 which is effective in inactivating the AIDS virus (HIV1) and Hepatitis Types 1 and 2
- ◆ Contains 0.5% p-Chloro-m-xyleneol (PCMX) an anti-bacterial and anti-fungal agent that is effective in destroying a broad spectrum of organisms
- ◆ Contains a blend of natural moisturisers and conditioners which act gently but effectively on the skin, to combat the effects of water, harsh solutions and other irritants found in the laboratory. Can be used as a shower soap

Supplied in packs as indicated.

- CL910-13** 6 x 1 litre pump-top dispensers
- CL910-18** 2 x 5 litre easy-pour containers

Barrier Hand Cream

Pro CARE™

An extra strength non greasy hand cream specially formulated to provide maximum protection from hazardous work environments in the laboratory which cause dry cracked hands and skin irritation.

- ◆ Contains Nonoxynol-9 which is effective in inactivating the AIDS virus (HIV1) and Hepatitis Types 1 and 2
- ◆ Contains lanolin to moisturise the skin and a silicone to seal in the moisture and seal out the environment
- ◆ Particularly effective at relieving the irritation caused by frequent wearing of rubber gloves
- ◆ Economical in use, only a small amount of cream is required at each application

Supplied in packs as indicated.

- CL910-70** 12 x 85g tubes
- CL910-75** 4 x 450g pump-top dispensers

Hand Sanitiser

Hand sanitiser liquid spray, WHO formulation, 75% isopropyl alcohol. Supplied in a 200ml pump-top bottle.

- CL985-10** Hand sanitiser, pack of 200ml



Inset: CL985-10



Cleaning

Virkon™ S Animal Health Disinfectant

Virkon S disinfectant formulation defines farm biosecurity and critical disinfection around animal health. With powerful, proven performance against over 500 strains of viruses, bacteria and fungi Virkon S is selected by governments worldwide for Emergency Disease Control.

- ◆ DEFRA approved
- ◆ Outstanding virucidal properties
- ◆ Suitable for organic farming
- ◆ Ideal foot dip disinfectant
- ◆ Non-corrosive, non-bleaching, bio-degradable
- ◆ Supplied in packs as indicated

Used to disinfect surfaces, equipment and water systems Virkon S is a powerful broad spectrum virucidal disinfectant. It is DEFRA approved to kill viruses including Bird Flu, Foot & Mouth, Swine Flu, Salmonella and Campylobacter. It's versatility and safety profile mean it can be used safely for the routine disinfection of wooden & hard surfaces, animal feeding equipment, stables and cowsheds, chicken coops, farm machinery, for disinfecting feet & wheel-dips and cleaning water systems. Probably the most versatile disinfectant on the market, it can be applied directly to the animal, its housing, or surroundings and will rapidly kill viruses, fungi and bacteria and at very low dosages. It is powerful, yet safe to use with animals and around the home. Diluted to 1% in water, Virkon® can be used to clean and disinfect equipment and surfaces. Supplied in packs as indicated.

- CL925-02** 12 x tubs of 50 x 5g tablets
- CL925-05** 50 x 50g sachets
- CL925-12** 4 x 1kg packs
- CL925-17** 2 x 5kg drums
- CL925-20** 1 x 10kg drum

Virkon® is a trademark of LANXESS.

Hand Sanitiser

Hand sanitiser liquid spray, WHO formulation, 75% isopropyl alcohol. Supplied in a 200ml pump-top bottle.

CL985-10 Hand sanitiser, pack of 200ml



Inset:: CL925-12



CL925-20



CL985-10

Clinical

Clinical Sundries

Lancets, disposable

Stainless steel. Individually wrapped and autoclaved. Supplied in pack of 200. For export only.

CM115-15 Lancets

SUPPLY OF CM115-15

We cannot supply these lancets for use in the UK. Please check before ordering that the end-use is outside the UK.

Haemocytometer Sets, BS748

For blood cell counting. With counting chamber, cover glasses and one each red and white cell pipettes with mouthpieces in fitted case. The metallized versions reduce glare and provide greater contact for easier and more accurate counting.

Improved Neubauer ruling

Cell depth 0.1mm.

CM175-10 Single

CM175-12 Single metallized

CM175-20 Double

CM175-22 Double metallized

Modified Fuchs-Rosenthal ruling

Cell depth 0.2mm.

CM180-20 Double metallized

Thoma ruling

Cell depth 0.1mm.

CM183-19 Double metallized

Cover glass

Spare for single or double chamber haemocytometer sets. 22 x 25mm L x W. Supplied in pack of 10.

CM185-08 Cover glasses

Counting chambers

Spare for haemocytometer sets. Supplied with cover glasses.

Improved Neubauer, 0.1mm.

CM187-05 Single

CM187-07 Single metallized

CM187-12 Double

CM187-14 Double metallized

Modified Fuchs-Rosenthal, 0.2mm

CM187-22 Double metallized

Thoma, 0.1mm

CM187-30 Double metallized

Pipettes, Haemocytometer

For blood diluting. Red cell type enables 1 in 100 dilution, white cell type 1 in 10 dilution. White enamel back glass. Amber markings. Length 225mm complete with rubber tubing and glass mouthpiece.

CM190-10 Red cell

CM190-12 White cell

Bacteria counting chamber, Helber

0.02mm deep circular cell, Thoma ruling. Slide thickness 1mm. With 2 cover glasses.

CM195-10 Helber chamber

Egg counting slide, McMaster

With two chambers each with 10 x 10mm grid. Volume under each 1mm² square is 0.15ml. With plastic buffers for protection during field use.

CM197-15 McMaster egg counting slide

Dilu-Vial®, Elkey

Polystyrene. For cell and particle counting. Capacity 32ml. Designed to eliminate hemolysis in cell counting. Is deionized and de-staticized following manufacture so that it is particle free and chemically clean prior to use. With optically clear, parallel sides for optimum light transmission and graduations at 10ml and 20ml to ensure correct sample dilution. A frosted write-on area provides convenient sample identification. The cap is polyethylene. Supplied in pack of 1000.

CM200-15 Dilu-Vial

Clinical, pathological and serological pipettes – see *Pipettes Section*.



CM115



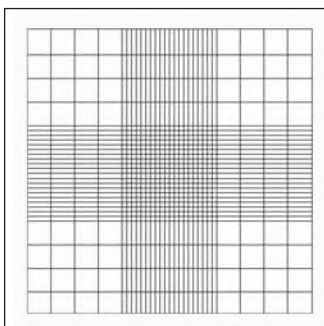
CM190



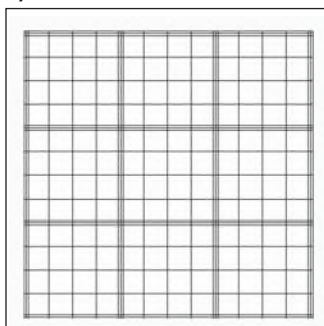
CM175, CM180



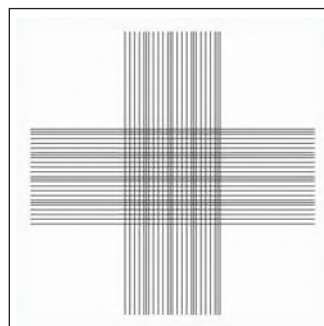
CM197-15



CM175 ruling



CM180 ruling



CM183

CM195 ruling



CM200

Clinical

Clinical Sundries continued

Stethoscopes, clinical

CM365-15 Dual head

Tongue Depressors, wood

145 x 20mm. With rounded ends. Pack of 100.

CM380-10 Depressors

Tube Rotators



Tube Rotator, fixed speed, SB2

Fixed speed 20rpm. With on/off switch and adjustable tilt angle with setting gauge. Overall 200 x 270 x 230mm W x D x H. Weight 3.2kg. For 230V 50Hz single phase supplies. Requires, but is not supplied with, tube carrier for operation.

CM470-20 SB2, fixed speed

Tube Rotator, variable speed, SB3

Variable speed 2 to 40rpm. Generally as CM470-20 but with digital speed control to 1rpm resolution and display, 1 to 999 minute timer with audible alarm at the end of the timed period. Overall 200 x 270 x 230mm W x D x H. Weight 3.2kg. For 230V 50Hz single phase supplies. Requires, but is not supplied with, tube carrier for operation.

CM470-35 SB3, variable speed

Accessory tube carriers for CM470 rotators

Tube holders

With radial sprung clips which secure tubes firmly but allow rapid loading and unloading. Hold maximum tubes as indicated.

CM473-03 40 x 1.5ml micro-centrifuge tubes

CM473-06 20 x 9 to 20mm diameter tubes

CM473-09 12 x 50ml centrifuge tubes

Tube racks

Axially perforated circular racks for gentler mixing of culture tubes. Hold maximum tube number x diameter as indicated.

CM473-12 63 x 12mm tubes

CM473-15 36 x 16mm tubes

CM473-19 30 x 26mm tubes

Adapter SB3/Dual

Allows a second tube holder or rack to be mounted, increasing capacity or allowing alternative tube sizes to be accommodated.

CM473-40 Adapter SB3/Dual



CM365



CM380



CM470-20 in use with CM473-06



CM470-35 with 2 x CM473-03 and CM473-40

Clinical

Applicators and Swabs

Applicators, wood

Approximately 150 x 2mm length x diameter. Supplied in pack of 1000.

CM600-10 Applicators

Applicator Swabs

Cotton wool tipped, packed as indicated.

	Tip	Shaft	Sterile	Inner pack	Pack qty.
CM610-12	Plain	Wood	Yes	100/bag	5000
CM610-16	Plain	Wood	Yes	1/pouch	1000

Culture Swabs

Cotton wool tipped. Individually packed with storage tube.

	Tip	Shaft	Sterile	Inner pack	Pack qty.
CM615-35	Plain	Wood	Yes	1/tube	250
CM615-48	Plain	Aluminium	Yes	1/tube	100

Probact™ Transport Swabs

Complete sampling kits for the collection, preservation and transport of microbiological specimens. Comply with European Medical Device Directive 93/42/EEC and CLSI M40-A compliant. Comprising cotton wool or viscose (rayon) tipped swab and separate tube of transport medium. Sterile.

	Medium	Tip	Shaft	Pack qty.
CM620-10	Amies clear	Cotton	Aluminium	100
CM620-15	Amies clear	Viscose	Plastic	100
CM620-30	Amies charcoal	Viscose	Aluminium	100
CM620-35	Amies charcoal	Viscose	Plastic	100

Note: Amies Swabs have a limited shelf life. Expiry date shown on product.



CM600



CM610



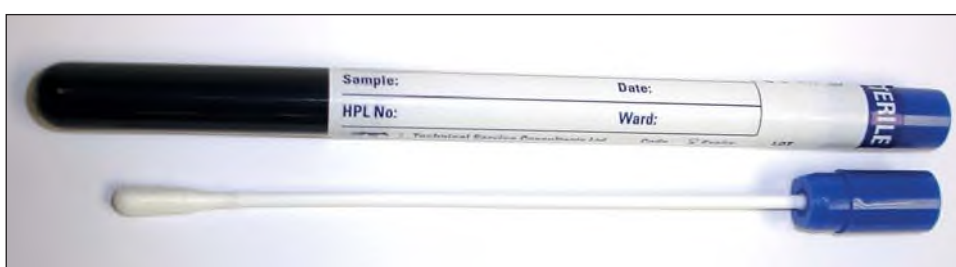
CM615-35



CM615-48



CM620-10



CM620-35

Applicators and Swabs continued



Culture Swabs, Copan

Cotton wool tipped. With shaft as indicated.

	Ref.	Type	Shaft	Cap colour	Pack qty.
Individual tube. Sterile. Colour coded cap.					
CM625-19	155C*	Plain	Plastic	White	100
CM625-24	160C*	Plain	Wire	Orange	100
CM625-33	451C	Vegetable protein	Plastic	Yellow	100
CM625-42	152C	Charcoal	Wooden	Black	100

* Rayon tip.

Transport Swabs, Copan

Individual tubes. Gamma irradiated. With rayon tip and shaft as indicated. CE-marked as class IIa medical devices.

	Ref.	Type	Shaft	Cap colour	Pack qty.
CM650-07	116C.USE*	Amies charcoal	Aluminium	Orange	500
CM650-11	108C.USE*	Amies clear	Plastic	Blue	500
CM650-14	114C.USE*	Amies charcoal	Plastic	Black	500
CM650-16	408C†	Amies clear	Plastic	Red	500
CM650-19	414C†	Amies charcoal	Plastic	Black	500

*Packed under a nitrogen atmosphere in sealed aluminium foil sleeves of 50 to enhance shelf life.

†Comply with NCCLS M40-A and DIN 58942-4 standards.

Swab Rinse Kits



For routine microbiological monitoring of bacteria and fungi contamination on equipment and surfaces. A valuable aid to hygiene control in critical areas within hospitals, pharmaceutical research and production, or food manufacturing.

- ◆ Choice of kits to suit different sampling protocols
- ◆ Suitable for sampling from smooth, rough, flexible, dry or wet surfaces. Dry surfaces are sampled using a swab pre-moistened in the rinse solution provided.

Kits comprise a 16 x 100mm tube with push-fit cap containing 10ml of rinse solution (a general purpose medium for the maintenance of bacteria or fungi and to neutralise disinfectants or sanitising agents) and standard or large size plastic applicator swab with either a rayon or alginate tip. The alginate tip can be dissolved in the rinse solution provided, releasing all of the bacteria taken up by the swab which allows accurate total viable counts to be performed. All kits are sterilised by gamma-irradiation.

	Ref.	Applicator/ Tip	Pack qty
HT840-10	902C	Standard/ Rayon	25
HT840-15	903C	Standard/ Alginate	25
HT840-20	904C	Large/Rayon	25
HT840-30	905C	Large + template/Rayon	10



HT840

Clinical

Sampling Swabs

Flocked Sampling Swabs, Sterilin

Innovative sample collection swabs incorporating unique nylon-flocked tip which enhances sample recovery and release. Particularly useful for small samples associated with forensic investigation. Certified DNase- and RNase-free (forensic swabs additionally certified free from Human DNA). Manufactured using inert components and available in individual paper peel pouch or empty dry tubes, gamma sterilised in outer cases as indicated.

	Ref.	Applicator type	Pack qty.
Paper peel pouch			
CM630-05	501CS01	Minitip plastic	100
CM630-10	502CS01	Standard plastic	100
CM630-15	503CS01	Pernasal plastic	100
CM630-20	511CS01	Endocervical plastic	50
CM630-25	516CS01	Neonatal minitip plastic	100
Plain tube			
CM630-40	551C	Minitip plastic	100
CM630-45	552C	Standard plastic	100
CM630-50	553C	Pernasal plastic	100
CM630-55	516C	Neonatal minitip plastic	100
Forensic*, paper peel pouch			
CM630-80	3520CS01	Standard with break point	100
CM630-85	3520CA	Standard with break point + 2ml tube	100

*Certified Human DNA-free.

Flocked Transport Swabs, E-Swab, Sterilin

With flocked tips and Amies liquid media, ensuring that the sample is rapidly eluted into a homogenous sample solution.

	Ref.	Colour code	Shaft/Applicator	Pack qty.
CM655-09	480CE	Pink	Plastic/regular	50
CM655-14	481CE	Orange	Plastic/mini	50
CM655-19	482CE	Blue	Plastic/pernasal	50
CM655-24	483CE	Orange	Plastic/urethral	50
CM655-29	484CE	Blue	Plastic/paediatric	50



CM630 in use



CM655

Clinical

Loops, Streakers and Scrapers

Inoculation loops, Sterilin disposable

Available in hard or soft versions manufactured in rigid or flexible polymers respectively. Gamma irradiated. Supplied in packs of 800.

- CM670-08 1µl, hard, SL1H
- CM670-16 1µl, soft, SL1S
- CM670-18 10µl, hard, SL10H
- CM670-26 10µl, soft, SL10S

Quadloops, Sterilin disposable

Polystyrene gamma irradiated. With sphere. Supplied in packs of 1000.

- CM670-25 1 l, QL1
- CM670-30 10 l, QL10

Culture Media Inoculators

Disposable, single-ended, sterile polystyrene loops, needles and L-shaped spreaders for culture media inoculation. Aseptically produced. Choice of inner sleeve quantity and supplied in outer packs as indicated.

	Description	Inner sleeve qty.	Outer pack qty.
CM676-10	10µl loop	20	1000
CM676-20	5µl loop	20	1000
CM676-30	1µl loop	20	1000
CM676-43	needle	20	1000
CM676-45	spreader	20	500
CM676-49	spreader	5	500

Microbiological Wire Loops, disposable

Accurately calibrated. 29swg 80/20 nickel chromium wire. Volume indicated can vary depending on vertical or horizontal immersion and the liquid or broth viscosity. Supplied in vials of 25, except the holder which is supplied singly.

	Volume µl	Loop i.d. approx. mm
CM683-05	1	1.6
CM683-10	2	2.3
CM683-15	3	2.6
CM683-20	4	3.0
CM683-25	5	3.6
CM683-30	10	5.1
CM683-60	Holder 200mm	

Cell rake/scrapers – see TP535.

Clinical thermometers - see TG730.

Liquid fuel burners – see BY400.

Wire loop steriliser, SteriMax

Wire loop steriliser, SteriMax

For the sterilisation of wire inoculation loops, needles or dissection instruments, where the use of gas or exposed flames are not allowed. The cylindrical silica tube is externally wound with heating elements allowing rapid heating up to 900°C. The heater tube assembly can be adjusted by up to 7 different angles and the all-stainless steel housing is easily cleaned. An integral spray protector for enhanced safety when handling pathogenic material. With visual "burner hot" indicator, inoculation loop holder and tray for 3 holders. Overall 175 x 129 x 139mm W x D x H. Weight 1100g. For 230V 50/60Hz single phase supplies. 120W.

CM705-10 SteriMax

AA Discs Whatman

AA Discs, Whatman

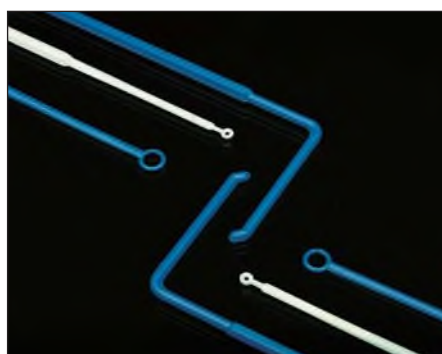
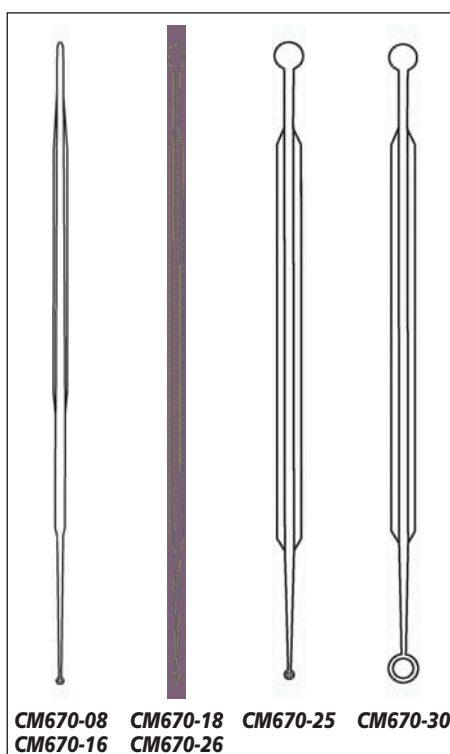
For antibiotic assay. Supplied in packs of 1000.

- CM760-10 6mm
- CM760-15 13mm

Protein Saver Cards Whatman

For collection and transport of blood and body fluid samples. Ideal for short-term specimen handling, protein or metabolite studies. Printed with five defined sample areas for application of up to 80µl of sample each, allowing separate processing if necessary. Supplied in a pack of 100.

CM780-20 1053108



CM676



CM683



CM705-10 in use



CM780

Clinical

Clinical Sundries

Urine Test Glasses, Conical

- CM825-10 100ml
- CM825-15 150ml
- CM825-17 175ml

Cylindrical

With conical inner base for sediment.

- CM825-40 100ml
- CM825-45 150ml

Urinometer set, glass

For measuring the specific gravity of urine. Range 1.000 to 1.060 calibrated at 60°F (15.5°C). Supplied complete in pack with glass test jar, capacity approximately 60ml.

Description
CM848-10 Urinometer/test jar

Spare parts

Urinometer only, glass. Range 1.000 to 1.060.

- CM850-10 Urinometer

Test jar glass, capacity approximately 60ml.

- CM852-06 Test jar

Other specimen and sample containers can be found in the Bottles section - see BS200/BS248.

Sterilisable disposal bags - see BA030/BA090.

Sterile spatulas - see TP493.

Clinical Thermometers

Gallium filled. Stubby bulb and lens front. Length 100mm. In plastic case. 35 to 42°C - see TG700.

Primary Urine Collection Tubes, Sterilin

Designed to fit into the racking of current automated urinalysis systems to improve and accelerate sample processing. Aseptically produced, clear plastic, 13ml capacity, round bottom tubes with label for patient details and to show fill level, leak-free screw cap (95kPa compliant and acc. to BS EN 14254) and individually lot numbered for traceability. Available with, or without Boric acid preservative and with, or without collection cup. Supplied in outer packs of 500 with inner sleeves as indicated.

	Ref., description	sleeve qty.
CM857-10	131B, plain	100
CM857-20	131BBAC, with boric acid	100
CM857-30	131B/C, plain, with collection cup	100
CM857-40	131BBAC/C, with boric acid and collection cup	100
CM857-50	131B/50, plain	50
CM857-60	131BBAC/50, with boric acid	50
CM857-70	131B/C50, plain, with collection cup	50
CM857-80	131BBAC/C50, with boric acid and collection cup	50

Secondary Urinalysis Tubes, Sterilin

16 x 100mm, 11ml capacity, polystyrene, non-sterile tubes. With round bottom for efficient mixing within automated urine analysers including Sysmex UF1200/UF1000i, Iris IQ200 and Menarini sediMax. Accessory polyethylene push-fit caps are available to re-cap the tube if required.

- CM860-25 Urinalysis tubes, 30932, pack of 750
- CM860-27 Push-fit caps, 13CAP, for CM860-25, pack of 5000

Double-bagged containers, Sterilin

Designed for use where complete sterility must be ensured, i.e. hospital theatres. Polystyrene, plain labelled, with cap as indicated. Each container is double-wrapped within two "easy-tear" bags. CE-marked in compliance with the in-vitro diagnostic (IVD) directive, and gamma-irradiated with irradiation dot to indicate sterility.

	Capacity ml	Cap material*	Pk qty.
CM870-10	30	PP	150
CM870-20	100	Me	80
CM870-30	250	Me	40

*PP = polypropylene. Me = metal.

Specimen Cups, Elkay

Polypropylene with quarter-turn polyethylene screw cap (except CM900-18 which has no cap). Capacity 120ml. Specimen volume can be checked visually using the moulded graduations. Frosted write-on areas on container and cap provide convenient sample identification. The sterile cups are individually wrapped. Supplied in packs as indicated.

Bulk packed

- CM900-13 Non-sterile, with white cap, pack of 450
- CM900-18 Non-sterile, without cap, pack of 500

Individually wrapped

- CM900-42 Sterile, with red cap, pack of 350

Digital Clinical Thermometer

Range 32 to 43.9°C with LCD temperature indication to 0.1°C. Symbols "L" (low) and "H" (high) indicate when the temperature is outside the normal limits and the °C symbol flashes until the temperature has stabilised. Accuracy ±0.1°C between 35 and 38°C and ±0.2°C outside this range. Powered by one 1.5V silver oxide battery type SR41 which has a life equivalent to about 4000 temperature measurements in normal use. Overall 110 x 14 x 8mm. Weight 7g. With battery.

- TG715-10 Digital clinical
- BL630-06 Spare battery, 1.5V



CM825-10 CM825-40 CM848-10



CM857



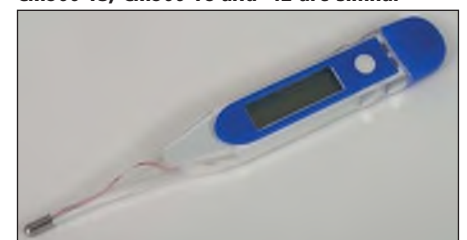
CM860



CM870 in use



CM900-13, CM900-18 and -42 are similar



TG715

Clinical

Clinical Sundries continued

Sharps Bins, to BS7320:1990

A comprehensive range of puncture resistant, rigid polypropylene bins with snap-tight lids for the safe containment and disposal of sharp objects. Manufactured to BS7320:1990, UN3291, AFNOR NFX 30-500 and follow the UK Department of Health 'Safe Management of Healthcare Waste' guidance colour coding system.

- ◆ Designed for incineration or other authorised process for European Waste Catalogue (EWC) codes 18-01-01, 18-01-03, 18-02-01 and 18-02-02[#] Sharps excluding those contaminated with medicinal products
- ◆ Simple, two-stage sliding shutter in lid allows temporary or permanent closure as required
- ◆ Brightly coloured case, clearly marked with relevant warnings, assembly and closure instructions and highly visible fill line

Supplied singly.

- CM915-16** Sharps Bin, 0.6 litres
- CM915-21** Sharps Bin, 1.0* litres
- CM915-26** Sharps Bin, 2.5 litres

- CM915-31** Sharps Bin, 5.0 litres
- CM915-36** Sharps Bin, 7.0 litres
- CM915-41** Sharps Bin ,22.0 litres

*Rectangular shape.

[#] Please note: Bins for processing other EWC code waste are also available - details on request.

Scalpel Blade Remover/Bin, Qlicksmart

A dedicated, disposable scalpel blade remover and storage/disposal bin allowing blade removal without endangering the free hand. Puncture-proof and can be disposed of safely once full. Suitable for all types of DS180-/DS185-series disposable scalpel blades. With built-in blade counter and shut-off mechanism which operates after 100 blades have been stored. An accessory wall/bench bracket holds the Qlicksmart firmly allowing one-handed operation. Overall W x D x H 130 x 90 x 148mm. Supplied singly.

CM924-10 Qlicksmart

CM924-12 Accessory wall/bench bracket for CM924-10

Glass Disposal Boxes

For safe disposal of glass and other non-combustible waste material. Made from liquid-proofed material and features large character warning. Packed flat in 25's for convenient storage. Easy assembly. Assembled size 510 x 295 x 295mm. Supplied in pack of 25.

CM926-10 Glass disposal boxes



CM915-16



CM915-31



CM924-10 in use with CM924-12



CM915-21



CM915-41



CM926

Clips

Apparatus/Tubing Clips and Clamps

Clips/Clamps

Providing shut-off or flow control for flexible tubing.

Type	Max. tubing dia. mm	Material
CP100-15 CP100-19	10 12	Nickel plated alloy
CP103-10	10	Polypropylene
CP106-08 CP106-10	8 10	Stainless steel and acetal
CP109-10 CP109-15 CP109-20	10 15 20	PVDF and zinc plated steel
CP114-25 CP114-30 CP114-40	25 30 40	Nickel plated brass
CP115-40	40	Nickel plated brass
CP120-14	14	Acetal
TY900-20 TY900-25 TY900-30 TY900-40	4.5 6 10 14	PBT*, Sterilisable up to 134°C

*Polybutylene terephthalate.

Clips

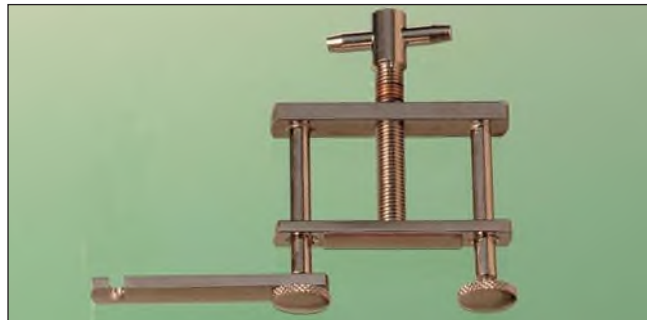
For securing flexible tubing on nozzles and pipes.

Type	Outside dia. of tubing accepted, mm	Material
CP130-16 CP130-20 CP130-25 CP130-30	11 to 16 13 to 20 18 to 25 22 to 30	Zinc coated mild steel
CP135-10 CP135-12 CP135-14 CP135-17 CP135-19	8 to 10 9 to 12 10 to 14 13 to 17 15 to 19	Stainless steel with brass screw
CP135-22 CP135-25 CP135-27 CP135-30	18 to 22 21 to 25 23 to 27 26 to 30	
CP135-33 CP135-35 CP135-38 CP135-41	29 to 33 31 to 35 34 to 38 37 to 41	

continued on next page



CP100



CP115



CP130



CP103



CP106



CP114



CP120



CP109



CP135



TY900 in use

Clips

Apparatus/Tubing Clips and Clamps continued

Clips

For holding glassware, rigid tubing, tools, etc. With screw fixing hole.

Type	Diameter to be held mm
CP145-09	9
CP145-12	12
CP145-19	19
CP145-25	25
CP145-32	32
CP145-38	38
CP147-09	9
CP147-12	12
CP147-25	25
CP147-32	32



Clips, Quickfit

For securing conical and spherical glass joints. QGC and QGS clips have PTFE-encapsulated steel springs, are highly resistant to chemical attack and can be used up to 250°C. QKC and QKS clips are Delrin® polyacetal, suitable for use up to 80°C and with most chemicals except halogen gases and acids.

Joint Size	Colour Code	PTFE	Delrin®
------------	-------------	------	---------

For conical glass joints

10/19	Mint	QGC10	QKC10
12/21	Violet	QGC12	QKC12
14/23	Yellow	QGC14	QKC14
19/26	Blue	QGC19	QKC19
24/29	Green	QGC24	QKC24
29/32	Red	QGC29	QKC29
34/35	Orange	QGC34	QKC34
40/38	Ochre	QGC40	QKC40
45/40	Brown	QGC45	QKC45

For spherical glass joints

S13	Violet	—	QKS13
S19	Blue	—	QKS19
S29	Red	—	QKS29
S35	Orange	—	QKS35

Delrin® is a registered trademark of DuPont Ltd.



CP145



QGC



QGS in use



CP147



QKC, QKS series

Colony counters

Portable

Hand-held, battery operated, pen-style counter with five digit LCD readout of accumulative count-up and reset. With positive "click" registration of tip pressure, confirmation beep (unless tip is pressed in rapid succession) and felt tip pen with water-based, black ink that can be removed from glass or plastic surfaces once the count is complete. Overall 155 x 19mm L x dia. Weight 30g.

- CR275-15** Colony counter, pen
- CR276-04** Spare black tip pen
- BL630-06** Spare battery, 1.5V

Tally and Totalising Counters

Tally counters – see *CW608-10*, *CW610* and *CW620* series.

Totalising counters – see *CW650* series.

Eyepiece Graticules

For use in light microscopes to assist counting – see *ML200* to *ML220* in the *Microscope* section.

Incubators

Including cooled and CO₂ models for growing cultures – see *Incubators* section.

Media inoculators

Including: Loops, Needles, Spreaders, Swabs – see *Clinical* section.

Culture Media

Dehydrated culture media - see *CX900/CX904*-series.

Digital Count

High specification model for reliable and efficient bacterial colony counting on nutrient agar in petri dishes.

- ◆ Glare-free, evenly distributed, peripheral LED illumination with adjustable dimming
- ◆ Adjustable count pressure sensitivity
- ◆ LED count display 0 to 9999 with reset button and adjustable volume, audible count signal
- ◆ Any probe or felt-tip marker is suitable for counting
- ◆ Includes contrast disc for counting colonies on clear or dark agars
- ◆ Wide choice of accessories available

Colony Counter, Count

As described. With pressure pad, adjustable illumination and count pressure sensitivity, audible count signal and USB output port. Fitted with LED count display, reset button, mains switch, dimming, sensitivity and count signal adjustment controls. Without magnifier. Overall 260 x 250 x 130mm W x D x H. Weight 3kg. For 100-240V 50/60Hz single phase supplies.

- CR303-40** Colony counter, Count

Accessories

- CR303-72** Magnifier, 3X, 100mm dia. goose neck stem
- CR303-74** Magnifier, 6X to 8X, 60mm dia. goose neck stem
- CR303-76** LED 'top' illuminator for lighting cultures from above
- CR303-80** Adapter for centring 50/60mm dia. petri dishes
- CR303-83** Adapter for centring 140/150mm dia. petri dishes
- CR303-85** Spiral plater disc, black/white
- CR303-87** Wolffhuegel grid counting plate
- CR303-89** USB cable for connection to user's PC

Digital SC6+

- ◆ LED digital readout to 999 counts
- ◆ Adjustable pressure sensitive count system
- ◆ Can be used with probe or felt-tipped pen
- ◆ Audible confirmation of each count
- ◆ Built-in average count facility allows multiple plates to be counted and average colony count calculated
- ◆ Glare-free, peripheral illumination
- ◆ Choice of light or dark background
- ◆ Accepts up to 90mm diameter petri dishes
- ◆ Can be connected to an accessory printer or the user's PC via a USB output and cable, enabling download of colony statistics and eliminating manual errors
- ◆ Accessory 1.7X and 3X magnifiers allow smaller colonies to be counted

Colony Counter, digital, Stuart SC6+

As described. With peripheral illumination and sloping front to reduce operator fatigue, zero/reset/average keys, mains switch and count pressure sensitivity control. Supplied with one Wolffhuegel graticule, dish centring adapters for 50 to 90mm diameter dishes, a USB interface and cable, and one segmentation disc. Without magnifier. Overall 310 x 300 x 140mm W x D x H (without magnifier). Weight 1.5kg. For 230V 50Hz single phase supplies.

- CR315-70** Colony counter SC6+

Accessories

- CR315-85** Magnifier, 1.7X
- CR315-87** Magnifier, 3X
- CR315-90** Wolffhuegel graticules, pack of 10
- CR315-95** Accessory printer with power adapter for 100-250V 50/60Hz supplies

Petri dishes and accessories – see *Petri Dish* and *Tissue Culture* sections.



CR275-15 in use



CR303-40 in use with accessories



CR315-70 with accessories



CW620-30



CW650-10

Colony counters

Densitometers, DEN-series

Grant bio

Extremely compact, benchtop nephelometers developed primarily for microbiological and Life Science applications involving the turbidity of bacterial and other cell suspensions.

- ◆ Measure turbidity in McFarland units (McF)*
- ◆ Choice of ranges:-
 - 0.3 to 5 McF (model DEN-1)
 - 0 to 6 McF (model DEN-1B)
 - but can measure from 0 to 15 McF, operating under a wider standard deviation
- ◆ Factory calibrated, with non-volatile memory. can be user calibrated using commercial standards or prepared cell suspensions
- ◆ Accept 18mm overall diameter sample tubes (or 16mm overall diameter tubes using the adapter supplied) for 2ml minimum or greater sample volumes

Model		DEN-1	DEN-1B
Range x resolution, McFarland units	McF*	0.3 to 15.0 x 0.1	0.00 to 15.00 x 0.01
Precision	%	±3 – both models	
Measurement time	secs.	1 – both models	
Wavelength	nm	565 – both models	
Display		LED	LCD
Power supply		a.c. adapter requiring a 100-240V 50/60Hz a.c. phase supply	3 x 1.5V AA batteries or a.c. adapter requiring a 100-240V 50/60Hz a.c. single phase supply
Overall W x D x H	mm	165 x 115 x 75 - both models	
Weight	kg	0.7 - both models	

*1 McFarland unit approximates to 3×10^8 CFU per ml

As described. Supplied with adapter for 16mm diameter sample tubes, a.c. adapter for 100-240V 50/60Hz a.c. supplies (and 3 x 1.5V AA batteries – model DEN-1B only).

CR500-10 DEN-1

CR500-20 DEN-1B

Accessories and Spares

CR502-04 Set of latex particle suspension standards, 0.5, 1, 2, 3 and 4 McFarland units

BL610-15 1.5V AA battery, spare for CR500-20 (3 required)

TE154-40 Test tubes, rimless, 125 x 18mm, pack of 150

TE154-38 Test tubes, rimless, 125 x 16mm, pack of 150

TE604-65 Test tubes, sterile, with screw cap, 100 x 16mm, pack of 450



CR500-10 in use



CR500-20 in use

Colorimeters

The Lovibond® 2000+ Comparator System

Lovibond®

A unique colorimetric chemical analysis system which is portable, accurate, and equally suited to laboratory or field use.

- The system comprises
- ◆ Lovibond® 2000+ Comparator
 - ◆ Glass colour standards discs
 - ◆ Tablet or liquid reagents

Comparator, Lovibond® 2000+

A prism unit and integrated large cell attachment (for cells up to 40mm path length) are incorporated in the instrument. Although robust, it is pocket sized and lightweight, made of solvent and acid resistant material. The discs are simply inserted from the side in cassette fashion, making it a simple operation to change discs when required.

CS100-20 2000+ Comparator

Glass Colour Standards, Lovibond®

Comprise flat, chemically produced, coloured glass standards mounted in plastic discs and guaranteed fade-free. The range available is very extensive and we show below a selection only of the most popular. Please contact us should you require other discs or ranges not listed here.

	Disc code	Range	Method	Accessories required	Applications and remarks
Ammonia					
CS125-12	3/113	0 to 1.0mg/l N	Ammonia No.1 tablets	13.5mm cells	
CS125-16	3/125	0 to 10mg/l N	Ammonia No.2 tablets	5mm cells	Effluent discharges
Chlorine (in water)					
CS127-10	3/40A	0.1 to 1.0mg/l	DPD	13.5mm cells	
CS127-12	3/40S	1.0 to 4.0mg/l			
CS127-14	3/40B	0.2 to 4.0mg/l			
CS127-20	3/40E	0.02 to 0.3mg/l	DPD	40mm cell	
CS127-32	3/40K	0.5 to 6.0mg/l	DPD	13.5mm cells	
CS127-33	3/40HN	2 to 10mg/l		5mm cell	
CS127-60	NDPB	0.01 to 0.1mg/l	DPD	Nessleriser 2150	
CS127-62	NDPC	0.02 to 0.2mg/l		Pair Nessler tubes AF306	
CS127-66	NDP	0.05 to 0.5mg/l			
CS127-68	NDPD	0.1 to 1.0mg/l			
CS128-17	3/2ARP	5 to 50mg/l	Potassium iodide	13.5mm cells	Water mains. Food processing
CS128-19	3/2Iod	5 to 250mg/l			
CS128-21	3/2Hypo	2 to 16% w/w			
Hazen Scale					
CS130-08	NSH	10 to 90mg Pt/l sample	Direct comparison against Pair Nessler tubes AF306	Nessleriser 2150	American Public Health Association, ASTM, and British Standards
CS130-12	NSB	70 to 250mg Pt/l		Daylight 2000	
pH					
CS132-12	2/1E	4.4 to 6.0	Methyl red	13.5mm cells	
CS132-14	2/1F	4.8 to 6.4	Chlorophenol red		
CS132-16	2/1G	5.2 to 6.8	Bromocresol purple		
CS132-18	2/1H	6.0 to 7.6	Bromothymol blue		
CS132-20	2/1J	6.8 to 8.4	Phenol red		
Sugar					
CS136-20	3/29A	0 to 100mg/l	alpha-Naphthol*	5mm cells	Sugar in boiler or drain waters within refineries

*Details on request.

Accessories for the 2000+ comparator are listed on the next two pages.



CS100-20

Colorimeters

The Lovibond® 2000+ Comparator System, continued

Reagents

Tablets and liquid reagents for use with the Lovibond® discs.

	Description	Test	For Disc	Pack qty.
Tablets				
CS180-11	Ammonia combi pack, No.1 & No.2 (250 each)		3/113, 3/125	250
CS181-10	DPD No. 1 (3/40)	Chlorine	3/40 series	100
CS181-11	DPD No. 1 (3/40)			250
CS181-12	DPD No. 2 (3/40)			100
CS181-14	DPD No. 3 (3/40)			100
CS181-15	DPD No. 3 (3/40)			250
CS181-16	DPD No. 4 (3/40)			100
CS181-30	DPD No. 1 (NDP)	Chlorine	NDP series	100
CS181-32	DPD No. 2 (NDP)			100
CS181-34	DPD No. 3 (NDP)			100
CS181-38	DPD No. 4 (NDP)			250
CS181-55	Chlorine combi pack, KI and acidifying G.P. tablets (250 each)		3/1 ARP, 3/2 Ind.	250
CS184-22	Phenol Red	pH	2/1J	100
CS184-26	Bromo Thymol Blue		2/1H	100

	Description	Test	For Disc	Cap. ml.
Solutions				
CS192-12	Methyl Red	pH	2/1E	100
CS192-14	Chlorophenol Red		2/1F	100
CS192-16	Bromocresol purple		2/1G	100

Cells

For use with the Lovibond® 2000+ comparator. Supplied singly unless otherwise stated.

	Description	Path length mm
Moulded, optically clear, plastic		
CS210-11	Square section, 10ml, supplied with plug stopper, pack of 10	13.5
Moulded, optically clear, glass		
CS210-15	Square section, 10ml, supplied with plug stopper, pack of 5	13.5
Fused optical glass, W680 series		
CS215-14	Rectangular, without lid	5
CS215-18	Rectangular, without lid	10
CS215-22	Rectangular, without lid	13.5
CS215-28	Rectangular, without lid	25
CS215-36	Rectangular, without lid	40

Tablets and cells for all Lovibond® comparator tests are available – please contact us with your requirements.

Hach portable water laboratories – see WR840.

Water testing strips – see WS550/WS560.



Typical discs



Tablets



CS210-11, CS210-15 is similar



CS215

Colorimeters

The Lovibond® 2000+ Comparator System, accessories

Daylight Unit

Fits into the back of the comparator and provides simulated illuminant C artificial daylight for precise colour comparisons. Powered by rechargeable batteries with a battery low indicator. The unit cuts out on release of the switch button to preserve battery and bulb life. Three batteries included. For use with CS100-20 only.

CS255-14 Daylight unit

Daylight 2000 lighting units

Separate, bench-mounted artificial light sources for the 2000+ comparator or 2150U/2250U Nessleriser modules. Provide a constant and stable light corrected to CIE standard illuminant C, essential for precise colour comparisons. Supplied with low voltage power supply adapter. A 220-240V a.c. single phase supply is required for the adapter.

CS265-20 Daylight 2000 for comparator only
CS272-40 Nessleriser Daylight 2000 for Nessleriser modules only

Nesslerisers 2150, 2250

Complete Nessleriser systems comprising Nessleriser Daylight 2000 artificial light source, Nessleriser modules for 113mm or 250mm path length cylinders, daylight stand with reflective plate for use with natural light, and two cylinders with anti-meniscus plungers. For 220-240V a.c. single phase supplies.

CS270-15 2150, Nessleriser complete, for 113mm cylinders
CS270-20 2250, Nessleriser complete, for 250mm cylinders

Nesslerisers, Natural Daylight, 2150D, 2250D

Comprise Nessler modules for 113mm path length cylinders or 250mm path length cylinders and daylight stand with reflective plate for natural daylight use. Supplied without cylinders or plungers.

CS270-40 2150D, Daylight Nessleriser for 113mm cylinders
CS270-45 2250D, Daylight Nessleriser for 250mm cylinders

Nessler Modules 2150U, 2250U

For use only with Nessleriser Daylight 2000 light source and 113mm path length cylinders or 250mm path length cylinders. Supplied with two cylinders and anti-meniscus plungers.

CS272-14 2150U, Nessler Module for 113mm cylinders
CS272-19 2250U, Nessler Module for 250mm cylinders

Discs for use with above – see CS125 et seq.
 Spare nessler cylinders – see next page.

Lovibond® 3-Field Comparators

For colour grading to: Gardner scale for drying oils, F.A.C. scale for fats, E.B.C. scale for beers – details on application.

Lovibond® Kits for water testing – see Water Testing section.

Lovibond® Minikits for water testing – see Water Testing section.

Turbidimeters for water testing – see Water Testing section.



CS265-20 with CS100, CS210, discs



CS270-20, CS270-15 is similar



CS270-40 with discs and tablets



CS272-19



Minikits

Colorimeters

Nessler Cylinders

Nessler Cylinders

Glass. With anti-meniscus plungers (except CS275-10). Supplied in matched pairs.

	Ref.	Path length mm
CS275-10	AF306	113
CS275-12	AF306/P	113
CS275-20	DB420	250

Nessler Cylinders, MBL

Borosilicate glass. With black enamel graduations and inscriptions.

	Ref. CRC	Cap. ml	Grad. at, ml
CS402-35	320	50	50
CS402-40	322	100	50 & 100

Flocculator – see WR230 series.

Turbidimeters – see WT095.

Manual Colorimeters, Tintometer® Model F

Lovibond®

For examining the colour of liquid and solid samples by either reflected or transmitted light. With comfortable viewing position and operation via the prismatic optical system with angled viewing tube, diffused tungsten-halogen light source for standardised illumination and external low voltage power supply giving cool running over prolonged periods of use. With full range of Lovibond glass filters:-

- 0.1 to 70 red
- 0.1 to 70 yellow
- 0.1 to 40 blue
- 0 to 3 neutral

Supplied in two formats:

- Model F for applications requiring examination of fats and fatty oils, bleached lac, liquid chemicals and pharmaceuticals
- Model F (BS684) is a dedicated version for grading animal or vegetable fats and oils according to BS684: Section 1.14, ISO15305 and AOCs Method Cc13e-92

Both models are supplied with a set of colour standard racks, sample chamber liner with a standard white reference, spare white reference, colour analysis book, 2 spare lamps and instructions.

Model F only is also supplied with 1 each 1" (25mm) and 5 1/4" (133mm) path length rectangular fused glass cells.

Model F (BS684) only is supplied with one each 1/16", 1/8", 1/4", 1/2", 1" and 5 1/4" cells.

Manual Colorimeters, Tintometer® Model F

As described. Overall 330 x 410 x 230mm W x D x H. Weight 8.3kg. A 110V or 220V single phase supply is required for the external power supply.

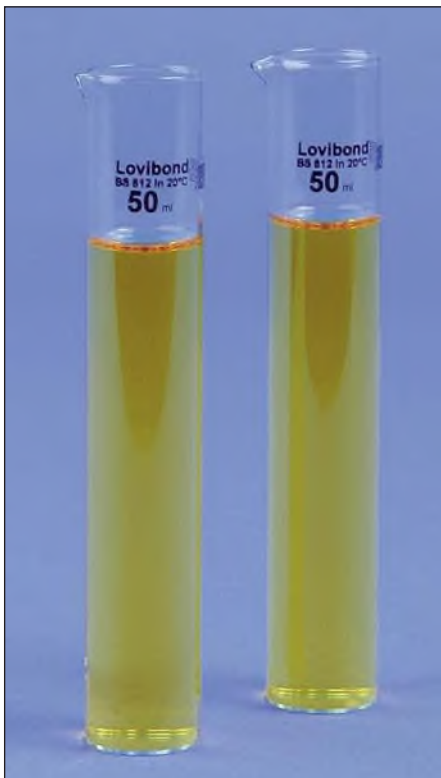
- CS700-20 Model F
- CS700-40 Model F (BS684)

Cells, W600 Series

For use with Model F series colorimeters.

	Path length
Optical glass, W600	
CS780-14	10mm
CS780-18	20mm
CS780-20	25mm
CS780-24	33mm
CS780-26	40mm
CS780-32	50mm
CS780-38	1 1/16"
CS780-42	1 1/8"
CS780-44	1 1/4"
CS780-46	1 1/2"
CS780-48	1"
CS780-58	5 1/4"
Borosilicate glass W600/B	
	For hot materials.
CS782-48	1"
CS782-58	5 1/4"

Lovibond® Tintometer® Colorimeters for petroleum products testing – see *Petroleum section*.



CS275-10



CS700 with cells

Colorimeters

Electronic Colorimeters, PFXi-195 Series

Lovibond®

Low cost spectrophotometric colorimeters for consistent, reliable, automatic, electronic measurement of colour for specific dedicated applications involving liquids or transparent solids. Ideal for routine analysis and quality control.

- ◆ Choice of instrument versions with international colour scales:
 - Pt-Co/Hazen/APHA, Gardner, Iodine
 - Saybolt, ASTM colour, Pt-Co/Hazen/APHA
 - FAC, Gardner
 - EBC (CIE and 430nm), ASBC (CIE and 430nm) Series 52 (Brown)
 - Ph. Eu., USP, Pt-Co/Hazen/APHA
 - ADMI (spectral and tristimulus filter methods), Pt-Co/Hazen/APHA
 - CIE values (stand selection), L*a*b* colour space, Hunter lab colour space, Judd rgb
- ◆ 9 built-in interference filters with automatic selection
- ◆ Operator prompting in choice of 9 languages - English, French, German, Spanish, Italian, Portuguese, Russian, Chinese and Japanese
- ◆ RS232, USB and LAN outputs
- ◆ Supplied with Windows™-based control/downloading/analysis software which also enables the generation of spectral and CIE programmes

Colorimeter PFXi-195/1

For liquid chemicals and industrial oils analysis.

Scales: Pt-Co/Hazen/APHA, Gardner, Iodine

Cells supplied: 1 x 10mm, 1 x 50mm path length.

CS725-15 PFXi-195/1

Colorimeter PFXi-195/2

For liquid chemicals and industrial oils analysis.

Scales: Saybolt, ASTM colour, Pt-Co/Hazen/APHA

Cells supplied: 1 x 33mm, 1 x 50mm path length.

CS725-25 PFXi-195/2

Colorimeter PFXi-195/3

For liquid chemicals and industrial oils analysis.

Scales: FAC, Gardner

Cells supplied: 1 x 10mm path length.

CS725-35 PFXi-195/3

Colorimeter PFXi-195/4

For liquid chemicals and industrial oils analysis.

Scales: EBC (CIE and 430nm), ASBC (CIE and 430nm), Series 52 (Brown)

Cells supplied: 1 x 10mm, 1 x 25mm path length.

CS725-45 PFXi-195/4

Colorimeter PFXi-195/5

For liquid chemicals and industrial oils analysis.

Scales: Ph. Eu, USP, Pt-Co/Hazen/APHA

Cells supplied: 1 x 40mm, 1 x 50mm path length.

CS725-55 PFXi-195/5

Colorimeter PFXi-195/7

For sugar solutions, syrups and honey.

Scales: ICUMSA (420, 560, 710nm), Honey colour (Pfund equivalents), Series 52 (Brown)

Cells supplied: 1 x 10mm path length.

CS725-75 PFXi-195/7

Colorimeter PFXi-195/8

For water and waste water analysis.

Scales: ADMI (spectral and tristimulus filter methods), Pt-Co/Hazen/APHA

Cells supplied: 1 x 10mm, 1 x 50mm path length.

CS725-85 PFXi-195/8

Colorimeter PFXi-195/9

For transparent liquids.

Scales: CIE values (standard selection), L*a*b* colour space, Hunter lab colour space, Judd rgb.

Cells supplied: 1 x 10mm path length.

CS725-95 PFXi-195/9

Spare cells. Optical glass, W600

	Path length mm
CS780-14	10
CS780-18	20
CS780-20	25
CS780-24	33
CS780-26	40
CS780-32	50

CIE Colour Scales

All instruments allow the operator to select measurement of samples to CIE specifications of xy chromaticity co-ordinates, luminance factor, L*a*b* colour space (CIE LAB), Delta E, optical density, % transmission and % absorption.

Technical Specification

Spectral response	nm	420 to 710
Band width	nm	20
Repeatability (using deionised water):		
Chromaticity (x,y):		±0.0004
E:		0.04
Calibration		Single key press
Light source		5V, 10W tungsten halogen lamp
Illuminant		CIE illuminant A, C, D65 (B for PFXi195/4)
Sample chamber	mm	0.1 to 50 path length cells
Outputs		RS232, USB, LAN
Data storage		100,000 measurements
Power requirement		90-240V 50/60Hz single phase supplies
Overall W x D x H	mm	435 x 195 x 170
Weight	kg	6.8

All colorimeters are supplied with Windows™ control/downloading/analysis software, optical glass cells for the colour scales as indicated, certified glass filter for regular conformance testing, spare lamp and instructions.



CS725

Colorimeters

CO7000 Medical Colorimeter

WPA

Designed for use by doctors and medical technologists in small to medium sized clinics and in the field.

- ◆ "Open" system accommodates both wet reagents and kits
- ◆ Easy operation via three buttons; reference, test and on/off
- ◆ Wavelength selection via 10 gelatine colour filters using a thumb wheel
- ◆ Accepts 10mm square or 16mm diameter round cells (also 10 and 12mm diameter tubes using accessory adapter set)
- ◆ Mains or rechargeable battery operation
- ◆ Tropicalised for field use in humid and hot environments

Catalogue No.	CT520-60	
Model	CO7000	
Wavelength	nm	400 to 700
Wavelength selection	nm	10 gelatine filters in a filter wheel 400, 440, 470, 490, 520, 550, 580, 590, 680 and 700
Precision	$\pm 0.05A$ at 1A	
Repeatability	$\pm 0.02A$ at 1A	
Range	Absorbance A Transmission T	-0.3 to 1.99 0 to 199%
Power	NiMH rechargeable battery or adapter requiring a 220-240V 50/60Hz supply	
Operating range	0 to +45°C up to 70% R.H.	
Overall L x W x H	mm	180 x 150 x 60
Weight	kg	0.6

Medical Colorimeter CO7000

As described. Supplied with rechargeable battery, mains adapter for 220-240V 50/60Hz supplies, spare lamp and instructions.

CT520-60 CO7000

Accessories and Spares

- CT504-06** 10mm plastic cuvettes, pack of 100
- TE154-32** 16mm o.d. glass test tubes, pack of 150
- CT522-40** Spare lamp for CO7000
- CT527-14** 10mm and 12mm dia. tube cell adapters set

Disposable micro and semi-micro cuvettes – see CA305.



CT520 in use

CO7500 Series Colorimeters

WPA

Compact, robust, low-cost colorimeter for educational or quality control use.

- ◆ Straightforward operation using five push-button controls, colour filter wheel with 8 wavelength filters, and large, clear digital display
- ◆ Accepts 10mm square or 16mm diameter round cells (also 10 and 12mm dia. tubes using accessory adapter set)

Catalogue No.	CT525-10	CT525-20
Model	CO7500	CO7500B
Wavelength	nm	440 to 680 - both models
Wavelength selection	nm	8 gelatine filters in a filter wheel 440, 470, 490, 520, 550, 580, 590 and 680 - both models
Bandwidth	nm	40 - both models
Repeatability	$\pm 0.2A$ at 1A - both models	
Ranges	Absorbance A Transmission T	-0.3 to 1.99 - both models 0 to 199% - both models
Kinetics	Yes - both models	
Outputs	Analogue Digital	0 to 2V for 0 to 2A and 0 to 1.99V for 0 to 199%T via 2 x 4mm sockets - both models RS232 - both models
Power	Adapter requiring a 220-240V 50/60Hz supply	NiMH rechargeable battery or adapter requiring a 220-240V 50/60Hz supply
Overall L x W x H	mm	180 x 150 x 60 - both models
Weight	kg	0.5 0.6

Laboratory Colorimeters CO7500 series

As described. Supplied with pack of 10 x 10mm plastic cuvettes, RS232 and 2 x 4mm analogue outputs, mains adapter and instructions. CO7500B additionally has a built in rechargeable battery, charged via the mains adapter. For 220-240V 50/60Hz single phase supplies.

CT525-10 CO7500 mains

CT525-20 CO7500B rechargeable battery

Accessories and Spares

- CT504-06** 10mm plastic cuvettes, pack of 100
- TE154-32** 16mm o.d. glass test tubes, pack of 150
- CT527-06** Spare lamp for CO7500 series
- CT527-14** 10mm and 12mm diameter tube cell adapters set



CT525

Conductivity

Conductivity/TDS meters DIST HANNA

Simple dip sensors for water testing applications.

- ◆ Waterproof casing, float in water
- ◆ Replaceable probe
- ◆ Simultaneous display of conductivity or TDS and temperature
- ◆ Battery life, reading stability and ATC indicators
- ◆ Battery life approximately 100 hours continuous use

Catalogue No.	CU570-20	CU570-25
Model	DIST 5	DIST 6
Ranges	Conductivity 0 to 3999 S/cm TDS 0 to 2000ppm Temperature 0 to 60°C (32 to 140°F) — both models	0.00 to 20.00mS/cm 0.00 to 10.00ppt
Resolution	Conductivity 1 S/cm TDS 1ppm Temperature 0.1°C or 0.1°F — both models	0.01mS/cm 0.01ppt
Accuracy, (at 20°C)	Cond./TDS ±2% full scale — both models Temperature ±5%°C or ±1°F — both models	
Calibration	1-point, automatic with adjustable conversion factor from cond. to TDS — both models	
Temp. compensation	°C Automatic with adjustable coefficient 0 to 2.4%/°C — both models	
Power	4 x 1.4V cells (Duracell MP675H or equivalent), auto shut-off after 8 minutes — both models	
Overall L x W x H	mm 163 x 40 x 26 — both models	
Weight	g 100 — both models	

DIST Conductivity Meters

As described. With probe and cap, 4 x 1.4V batteries, electrode removal tool and instructions.

- CU570-20 DIST5
CU570-25 DIST6

Spares and accessories

- CU572-02 Spare probe for CU570-20 and CU570-25
BL610-04 Battery, 1.4V (4 required)

Conductivity solution sachets

Individual 20ml sachets for immediate use. Supplied in packs of 25.

- CU572-15 12.88mS
CU572-20 1413 S



CU570

Conductivity/TDS Meter, Laqua-Twin Horiba

Convenient, pocket-sized, conductivity meter for small sample testing in the laboratory or in the field.

- ◆ Flat sensor requires minimal maintenance and is replaceable; only a drop (0.12ml minimum) of sample is required for measurement, or the probe can be dipped up to the fill-line
- ◆ Clear LCD readout with 3 ranges from 0 to 199.9mS/cm
- ◆ Alternative TDS display from 0 to 9990ppm
- ◆ Two point calibration
- ◆ IP67 class protection

Catalogue No.	CU599-14
Model	EC-33
Ranges	Conductivity 0 to 199.9mS/cm (0 to 1.99S/m) TDS 0 to 9990ppm
Ranges x resolution	Conductivity 0 to 1999 S/cm x 1 2 to 19.99mS/cm x 0.01 20 to 199.9mS/cm x 0.1 TDS 0.0 to 99.9ppm x 0.1 100 to 999ppm x 1 1000 to 9990ppm x 10
Calibration	1, 2 or 3 point (selectable)
Accuracy	±2% full scale (0 to 19.99mS/cm) ±5% full scale (20.0 to 199.9mS/cm)
Temp. compensation	°C +5 to +40 at 2%/°C fixed coefficient
Power	2 x 3V batteries (CR2032 or equivalent) with automatic shutoff after 30 minutes of non-use
Overall L x W x H	mm 164 x 29 x 20
Weight	g 55

Conductivity/TDS Meter, Laqua-Twin

As described. Supplied with 14ml standard solution and treatment reagent, sampling dropper, soft carry case, instructions and batteries.

- CU599-14 EC-33
CU599-18 Spare probe for CU599-12
BL590-25 Battery, 3V (2 required)



CU599-14

Conductivity

Hand-held, Waterproof Multi-range Meter

SI Analytics Handylab HL200

- ◆ Ruggedly constructed, water-tight housing to IP67 standard
- ◆ Simultaneous display of conductivity, TDS, resistivity or salinity and temperature with subsidiary date and time readout
- ◆ AutoRead system provides a stable, precise measurement
- ◆ Automatic or manual temperature compensation
- ◆ Calibration using up to 5 pre-programmed buffer sets
- ◆ Backlit, graphics LCD display
- ◆ Storage of up to 200 data sets which can be recalled and displayed

<i>Ranges x resolution, accuracy</i>	<i>conductivity</i>	0 to 1000 x 1mS/cm, $\pm 0.5\%$ of average value 0.00 to 19.99 x 0.01 μ S/cm (at K=0.01), $\pm 0.5\%$ of average value 0.000 to 1.999 x 0.001 μ S/cm (at K=0.01 and K=0.1), $\pm 0.5\%$ of average value
	<i>spec. resistance</i>	1 to 199.9ohm cm (autoranging), $\pm 0.5\%$ of average value
	<i>salinity</i>	0.0 to 70.0 x 0.1ppt (acc. IOT*)
	<i>TDS</i>	0 to 1999 x 1mg/l, 0 to 199.9 x 0.1g/l, $\pm 0.5\%$ of average value
	<i>Temperature compensation °C</i>	-5.0 to 105.0 x 0.1, ± 0.1 .
<i>Cell constant</i>	<i>fixed</i>	K=0.475, K=0.1 or K=0.01
	<i>adjustable</i>	K=0.250 to 25.000, K=0.090 to 0.110
	<i>1-point calibratable</i>	K=0.450 to 0.500, 0.585 to 0.715, 0.800 to 0.880. Standard: 0.01mol/l.
<i>Temperature compensation</i>		Automatic or manual
<i>Temperature coefficient</i>		nlf: non-linear function acc. to EN27 888 and ultrapure water function. Linear compensation 0.000 to 3.000%/K. No compensation.
<i>Memory</i>		200 data sets
<i>Power supply</i>		4 x 1.5V AA alkaline batteries
<i>Overall L x W x H</i>	<i>mm</i>	180 x 80 x 55
<i>Weight</i>	<i>g</i>	400

* International Oceanographic Tables.

Portable Waterproof Meter Handylab HL200

As described. Supplied with 4-pole, K=0.475 conductivity cell, 1.5m connection cable, calibration solutions, 4 x 1.5V batteries, instructions and carrying case.

CU612-12 Handylab HL200 Versatile

Accessories and Spares

- CU612-60** Spare probe, K=0.475
- CU612-65** Protective overboot, Z389
- BL610-15** Battery 1.5V (4 required)

Calibration Solutions

20ml capacity, double-ended glass ampoules, steam sterilised and without preservative to extend solution shelf-life. The ampoules are scored at the tip of either end for ease of opening without tools. Supplied in packs of 18 ampoules.

- CU612-90** 0.01mol/KCL (1.41mS/cm)
- CU612-94** 0.1mol/KCL (12.9mS/cm)



CU612-12

Conductivity

Hand-held Conductivity Meters, FiveGo™

METTLER TOLEDO

- ◆ Compact design with built-in, hingeing stand for bench use
- ◆ Conductivity or TDS ranges
- ◆ IP67 protection level housing
- ◆ Single point calibration with automatic recognition of 3 pre-defined standards
- ◆ 200 measurement memory
- ◆ Large, segmented LCD readout
- ◆ Automatic linear temperature compensation from 0.00% to 10.00%/°C
- ◆ Automatic or manual end-point recording with audiovisual signals

<i>Model</i>		F3
<i>Ranges</i>	<i>Conductivity</i>	0.0µS/cm to 200.0mS/cm
	<i>TDS</i>	0.01mg/l to 200.0mg/l
	<i>Temperature</i>	0.0 to 100.0°C (32 to 212°F)
<i>Calibration</i>		1-point, 3 pre-defined standards
<i>Temperature compensation</i>		Automatic, adjustable 0.00%/°C to 10.00%/°C
<i>Reference temperature</i>		20 and 25°C selectable
<i>Input</i>		LTW 7 pin
<i>Power</i>		4 x 1.5V AAA batteries
<i>Overall W x D x H</i>	<i>mm</i>	77 x 33 x 188
<i>Weight</i>	<i>kg</i>	0.26

As described. Supplied as a standard kit with electrode clip, wrist strap, instructions, batteries, conductivity probe LE703 with IP67 sealing caps, 2 x 1413µS/cm and 2 x 12.88mS/cm standard sachets. Alternatively available as a field kit which additionally includes a carrying case and 4 x 25ml sample bottles, or meter only with instructions and 4 x 1.5V batteries.

- CU616-08** F3-Standard kit
- CU616-14** F3-Field kit
- CU616-22** F3-Meter only

Accessories and Spares

- CU617-08** LE703 conductivity probe, IP67, 10µS/cm to 500mS/cm
- CU617-14** Temperature sensor NTC 30KOhm
- BL610-08** 1.5V AAA battery (4 required)



CU616

Conductivity

Bench Meters Series 4500



- ◆ Model 4510: General purpose conductivity/TDS/temperature meter for routine laboratory analysis.
 - Custom back-lit LCD with simultaneous conductivity or TDS and temperature readout
 - 32 reading memory
- ◆ Model 4520: Extensively specified conductivity/resistivity/TDS/salinity/temperature meter with GLP support, 1, 2 or 3 point calibration and datalogging
 - Back-lit graphics dual parameter display
 - 500 reading memory
- ◆ Automatic temperature compensation
- ◆ Bi-directional RS232 link to printer or PC (Model 4520 additionally incorporates an infra-red data link output)
- ◆ Simultaneous conductivity and temperature display

Conductivity Meter Model 4510

As described. Supplied with swing-arm electrode holder and glass conductivity cell (K=1) with automatic temperature compensation, instruction manual and mains adapter. A 230V 50Hz supply is required for the adapter.

CU645-30 Model 4510

Conductivity Meter Model 4520

As described. Supplied with swing-arm electrode holder and glass conductivity cell (K=1) with automatic temperature compensation, instruction manual and mains adapter. A 230V 50Hz supply is required for the adapter.

CU650-30 Model 4520

Spares and Accessories

- CU652-06** Spare cell (K=1), glass
- CU654-10** Accessory cell (K=0.1), glass
- CU654-13** Accessory cell (K=10), epoxy
- CU654-16** Accessory cell (K=1), epoxy
- CU654-19** Accessory cell (K=0.1), epoxy
- CU656-25** IrDA or serial connection printer. Supplied with one roll of thermal paper, serial connection lead, power supply and power connection lead
- CU656-27** Thermal paper roll, pack of 1
- CU656-54** DataWay data acquisition software for downloading data from instruments onto the users' PC.

Calibration Standards

Supplied in 500ml bottles

- CU658-05** 10 S standard
- CU658-08** 1413 S standard
- CU658-11** 12.88mS standard

Catalogue No.	CU645-30	CU650-30
Model	4510	4520
Ranges (resolution)		
Conductivity	0 to 199.9mS (0.01 S to 0.1mS) 0 to 1999mS (1mS*)	0 to 1999mS (0.001 S to 1mS*) 0 to 19.99S (0.01S)
TDS	0 to 199.9g/l (0.01mg/l to 0.1g/l) 0 to 1999g/l (1g/l*)	0 to 1999g/l (0.001mg/l to 1g/l*) —
Resistivity	—	0 to 20MOhm (0.01)
Salinity	—	0 to 99.9g/l (0.1)
Temperature	-10 to 105°C (+14 to 221°F)	-10 to 105°C (0.1°C) (+14 to 221°F)
ATC range (manual also)	0 to 100°C (+32 to +212°F)	0 to 100°C (+32 to +212°F)
Accuracy	Conductivity ±0.5% ±2 digits TDS ±0.5% ±2 digits Resistivity — Salinity — Temperature ±0.5°C (±1°F)	Conductivity ±0.5% ±2 digits TDS ±0.5% ±2 digits Resistivity ±2% ±2 digits Salinity ±1g/l (0 to 35) ±3g/l (rest of range) Temperature ±0.5°C (±1°F)
Calibration	On standard solutions 10 S, 1413 S, 12.88mS or via cell constant adjustment	1, 2 or 3 point on standard solutions or via cell constant adjustment Adjustable calibration reminder settable from 1 to 999 hour intervals
Memory	32 readings	500 readings
Outputs	Analogue recorder Bi-directional RS232	Analogue recorder Bi-directional RS232 Infra-red data link (IrDA)
Alarm points	—	0 to 19.99S
Display	LCD	LCD graphics
Dimensions L x W x D mm	210 x 250 x 55	210 x 250 x 55
Weight kg	0.85	0.85

*Only with cell constants >5.



CU645-30 in use



CU650-30 in use

Conductivity

Conductivity/pH meter Model 3540



- ◆ Backlit LCD graphics readout with five, separately tabbed menu screens accessible to display pH and conductivity parameters, instrument set-up and logged results (pH and conductivity simultaneously displayed). The conductivity display can alternatively output Resistivity, Salinity or TDS values
- ◆ Ultra-pure water function enables the ideal temperature compensation algorithm for low range measurement to be selected
- ◆ Datalogging storage of up to 250 pH and conductivity readings (manual or time-triggered), with display call-up or output via RS232
- ◆ Comprehensive GLP functionality

	Ranges	Resolution
Conductivity (autoranging)	0.01 S to 1.9995*	0.001 S to 1mS
pH	-2.000 to 20.000	0.001/0.01/0.1
mV	-1999.9 to +1999.9	0.1
Temperature	-10 to 105°C (14 to 221°F)	0.1°C (1°F)
Salinity (NaCl) ppm	0 to 99.9	0.1
Input impedance	ohms	>10 ¹²
Calibration	1, 2 or 3 point using NIST, DIN, JIS or custom values	
Temp. comp. (2 inputs)	0 to 100°C (32 to 212°F), manual or automatic	
Outputs	Bi-directional RS232, analogue recorder, Hi/Lo alarm outputs	
Datalogging readings	250 (pH and conductivity) via manual, timed, stability or alarm level trigger	
GLP functions	Time/date clock, calibration reminder (1 to 999 hours) operator/sample ID, security coded set-up of user options	
Dimensions H x W x D mm	55 x 210 x 250	
Weight	kg	0.85

*Up to 19.995 maximum range available using accessory K=10 probe CU654-13.

Conductivity/pH meter Jenway 3540

As described. Supplied with glass bodied combination pH electrode, separate ATC probe, glass conductivity cell (K=1) with built-in ATC, electrode stand and swing-arm holder, BNC shorting plug, pH4, pH7 and pH10 buffer sachets, instructions and 9V a.c. mains adapter requiring a 230V 50/60Hz supply.

CU660-20 Model 3540

Spares and Accessories

- CU652-06** Spare cell (K=1), glass
- CU654-13** Accessory cell (K=10), epoxy
- PJ554-08** Spare pH electrode, glass

- PJ554-19** Spare ATC probe, glass
- CU656-25** IrDA or serial connection printer
- CU656-27** Thermal paper roll, pk 1



CU660-20

Pocket Salt Meter, Cardy SALT

Horiba

Ultra-slim, pocket meter for convenient salt testing with applications in the food, industrial and healthcare sectors.

- ◆ Flat sensor requires minimal maintenance and is replaceable, only a drop of sample is required for measurement
- ◆ Clear LCD readout gives direct NaCl reading
- ◆ Does not require pH adjustment or manual conversion from sodium ion measurement
- ◆ Excellent correlation with flame photometric method

Catalogue No.	PJ285-40	
Model	Cardy SALT	
Range	%NaCl (w/w)	0.1 to 25
Resolution	%NaCl (w/w)	0.01 (0.1 to 0.99) 0.1 (1.0 to 9.9) 1.0 (10 to 25)
Calibration	2-point using standard calibration solutions (0.5% and 5% NaCl) and STD/SLOPE adjustment trimmers	
Sample temp. range	°C	+5 to +35
Power	2 x 3V CR2025 batteries	
Overall L x W x D	mm	95 x 55 x 9
Weight	g	40

Pocket Salt Meter, Cardy SALT, Horiba

As described. Supplied with calibration solutions (0.5% and 5% NaCl), sample dropper, deionised water and sampling "soak tape", instructions and batteries.

PJ285-40 Cardy SALT

Spares

- PJ284-03** Spare sensor for PJ285-40
- BL590-20** Spare battery, 3V (two required)



PJ285

Conductivity

Conductivity Meters, LAQUA DS-series

Horiba

- ◆ Model DS-71: Benchtop conductivity, resistivity, salinity/TDS meter for routine laboratory analysis.
 - Large, custom, backlit LCD and membrane keypad operation
 - 999 reading memory
- ◆ Model DS-72: High specification conductivity/resistivity/salinity/TDS meter with touchscreen operation, colour LCD readout, numeric, graphical or analogue display selectable, USP/EP/JP/CP standards support, analogue USB printer/PC and flash memory extension outputs.
 - 2000 reading memory
 - GLP function and validation facility with on-board operator navigation and guidance
 - Multiple operating languages: Japanese, English, Chinese, Korean
- ◆ Automatic temperature compensation
- ◆ Simultaneous reading and temperature display
- ◆ Supplied with probe stand and 360° rotating, swing-arm clamp

Conductivity Meters, LAQUA DS-series

As described. Supplied with K = 1 conductivity probe, swing-arm probe holder, stand and a.c. adapter for 100-240V 50/60Hz single phase supplies.

CU662-20 DS-71

CU662-40 DS-72

Accessories and spares

CU662-72 Accessory K = 0.1 conductivity probe

CU662-75 Spare K = 1 conductivity probe

CU662-79 Accessory K = 10 conductivity probe

CU662-81 USB cable to connect meter to the user's PC

CU662-83 Impact printer, 230V 50/60Hz. Requires CU662-89 for connection to meter

CU662-86 Printer paper rolls, pack of 20

CU662-88 Ink ribbons, pack of 5

CU662-89 Printer cable to connect CU662-83 to meters. 1.5m long

Catalogue No.	CU662-20	CU662-40
Model	DS-71	DS-72
Ranges (resolution)		
Conductivity, K = 0.1	0.0µS to 1.9995 — both models	
K = 1	0.00mS to 119.99S — both models	
K = 10	0.00mS to 199.9S — both models	
TDS	0.01mg/l to 100g/l (0.01mg/l) 0.01mg/l to 1000g/l (0.01mg/l)	
Resistivity, K = 0.1	0 to 1.999MΩ (0.0001 MΩ) — both models	
K = 1	0 to 19.99kΩ (0.01kΩ) — both models	
K = 10	0 to 199.9kΩ (0.1kΩ) — both models	
Salinity	0 to 80.00ppt (0.01ppt) — both models	
Temperature, ATC	0 to 100.0°C (0.1°C) — both models	
Display	-30 to 130.0°C (0.1°C) — both models	
Accuracy	Conductivity ±0.5% ±1 digit of F.S. — both models	
	Resistivity ±0.5% ±1 digit of F.S. — both models	
	Temperature ±0.1°C ±1 digit — both models	
Calibration	1 point on standard solutions — both models	
Memory	999 readings	2000 readings
Display	Monochrome, backlit LCD	Colour graphics LCD
Outputs	USB/RS232 printer ports	Analogue output, USB/RS232 printer PC ports, USB flash drive memory expansion port
Dimensions	W x D x H mm	170 x 174 x 73 — both models
Weight	kg	0.5 0.7



CU662-20



CU662-40

Conductivity

Bench Conductivity Meters, FiveEasy™ / FiveEasy Plus™

METTLER TOLEDO

Compact, reliable, simple bench conductivity meters for routine measurement in industrial and educational applications.

- ◆ Simultaneous display of measurement, temperature and end-point recording
- ◆ Single-point calibration with automatic recognition of 3 pre-defined standards
- ◆ Automatic linear temperature compensation from 0.00%/°C to 10.00%/°C and selectable reference temperature at 20°C or 25°C
- ◆ Easy set-up using navigation keys and intuitive display icons
- ◆ Large, segmented LCD readout
- ◆ FiveEasy Plus™ FP30 model also includes the following features:
 - RS232 and USB interfaces for data transfer to the user's personal computer
 - Data storage memory of 200 measurements

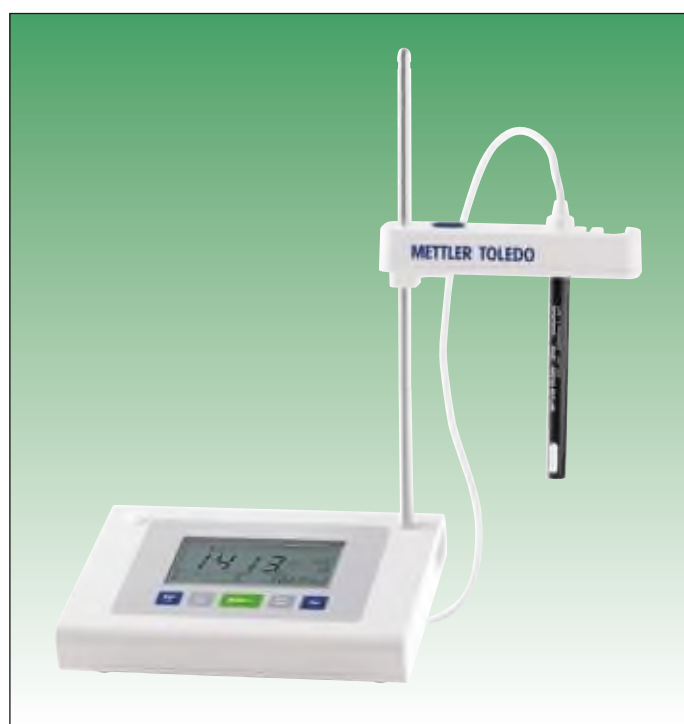
As described. Supplied as a standard kit with LE703 conductivity probe, probe arm, 2 x 1413µS/cm and 2 x 12.88mS/cm standard sachets, power adapter and instructions. Alternatively the meter can be supplied on its own with power adapter and instructions only.

- CU665-24** F30-Standard kit
- CU665-26** F30-Meter only
- CU665-58** FP30-Standard kit
- CU665-72** FP30-Meter only

Accessories and Spares

- CU617-08** LE703 conductivity probe
10µS/cm to 500mS/cm
- CU617-14** Temperature sensor NTC 30kOhm
- CU667-36** Spare electrode arm

Model	F30	FP30
Ranges	Conductivity	0.00µS/cm to 200.0mS/cm
	TDS	0.01mg/l to 200.0mg/l
	Salinity	—
	Temperature	0.0 to 100.0°C (32 to 212°F)
Calibration	1-point, 3 pre-defined standards — both models	
Temperature compensation	Automatic, adjustable 0.00%/°C to 10.00%/°C — both models	
Reference temperature	20 and 25°C selectable — both models	
Memory storage	Current calibration only	Current calibration and 200 measurements
Interfaces	—	RS232 and USB
Input	Mini-DIN — both models	
Power	a.c. adapter requiring a 100-240V 50/60Hz supply — both models	
Overall W x D x H	mm 227 x 147x 70 — both models	
Weight	kg 0.63 — both models	



CU665-24



CU665-58

Conductivity

Bench Conductivity Meters, inoLab Cond series



a xylem brand

High accuracy bench meters for routine and advanced research applications in education and industry.

- ◆ AutoRead function provides repeatable measuring results by recognising when a stable reading has been achieved
- ◆ Intuitive user interface and clear controls
- ◆ Easy calibration function with timer
- ◆ Flexible operation either by batteries or mains supply using a universal voltage adapter
- ◆ Linear, non-linear (nIF) or adjustable temperature compensation, which can be switched off if required
- ◆ Snap-on sensor stand fixes rigidly to the meter without using screws or clips
- ◆ Model Cond 7310 additionally includes a graphics display, GLP/AQA documentation function, USB output of results in .csv format and is available with an internal printer

Model, inoLab® Cond		7110	7310
Range x resolution, accuracy	conductivity	0.000µS/cm x 0.001 to 1000mS/cm x 1, ±0.5% value ±1 digit – both models	
	TDS	0 to 1999mg/l x 1, ±1 digit	
	salinity	0 to 70.0 (IOT) x 0.1 ±1 digit - both models	
	°C	0 to 20.00 Mohm cm x 0.01 ±1 digit - both models	
Cell constants,	fixed	0.01/cm	0.01/cm
	with calibration	0.450 to 0.500/cm	0.450 to 0.500/cm
		0.800 to 0.880/cm	0.800 to 0.880/cm
	Adjustable	0.090 to 0.110/cm	0.090 to 0.110/cm
Temperature compensation		0.250 to 2.500/cm	0.250 to 2.500/cm
Temperature compensation		none, nIF, 0.000 to 3.000%/K	none, nIF, 0.000 to 10.000%/K
Output		—	Mini USB-B
Memories		—	500 - manual records 5000 - automatic records
Display		LCD	Backlit graphics LCD —
Power		4 x 1.5V AA batteries or universal voltage a.c. adapter for 100-240V 50/60Hz single phase supplies	4 x 1.5V AA batteries, 5V USB charge point or universal voltage a.c. adapter for 100-240V 50/60Hz single phase supplies
Overall W x D x H	mm	240 x 190 x 80	240 (290 - printer model) x 190 x 80
Weight	kg	3.5 – both models	

Bench Conductivity Meters, inoLab® Cond series

As described. Supplied as a meter only with probe stand and a.c. adapter requiring a 100-230V 50/60Hz single phase supply. Models 7310 additionally are supplied with a USB cable and software for use with Windows™ computers. Require an accessory conductivity cell for operation.

CU680-35 inoLab® Cond 7110

CU680-45 inoLab® Cond 7310

CU680-60 inoLab® Cond 7310 with built-in printer

Spares and Accessories

CU683-05 Accessory TetraCon® 325 conductivity cell with 1.5 metre cable, 1µS/cm to 2S/cm, 0 to 100°C, K=0.475/cm

CU683-07 Accessory LR325/01 conductivity cell with 1.5 metre cable, glass flowthrough cell, 0.001µS/cm to 200µS/cm, 0 to 100°C, K=0.1/cm

CU683-10 Spare paper roll for CU680-60

BL610-15 Battery, 1.5V (4 required)



CU680-60, CU680-45 is similar



CU680-35

Cork Products, Cotton Wool

Cork

Corks, tapered

Dimension given is the small end diameter. Pack quantities are approximate.

	Dia. mm	Pack qty.
CW300-06	6	250
CW300-08	8	250
CW300-10	10	240
CW300-12	12	160
CW300-14	14	160
CW300-16	16	120
CW300-18	18	80
CW300-19	19	60
CW300-22	22	50
CW300-25	25	30
CW300-29	29	30
CW300-32	32	25
CW300-35	35	20
CW300-38	38	20
CW300-42	42	15
CW300-45	45	15
CW300-48	48	10
CW300-50	50	10
CW300-70	Assorted	150

Cork Rings, compressed

For supporting round bodied flasks. Depth as indicated. Supplied singly.

	o.d. x i.d. mm	For flasks ml
35mm deep		
CW308-08	80 x 30	25 to 150
CW308-12	110 x 60	250, 500
CW308-16	140 x 90	1000
CW308-20	170 x 120	2000, 3000
CW308-24	210 x 150	4000, 5000

45mm deep

CW309-30	240 x 200	4000 to 10000
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Cork Borer Sets

Nickel plated brass. Each set complete with push rod for cleaning.

	Sets of	i.d. mm
CW320-06	6	4.1 to 10.3
CW320-12	12	4.1 to 17.8
CW320-18	18	4.1 to 25.3

Cork Borer Sharpener

Suitable for all borers CW320 series.

CW325-10 Sharpener

Cotton Wool

For cleaning and plugging.

Non Absorbent

In rolls of 500g.

CW500-10 White

Absorbent

Hospital Quality in rolls of 500g.

CW505-10 White

Alternative Cleaning and Sealing Materials – see *Cleaning and Sealing sections.*

Rubber Stoppers

To BS2775. In Natural, Neoprene and Silicone Rubbers. Each stopper has a moulded-in number, corresponding to the measurement of the bottom diameter in millimetres. Sizes from 3 to 105mm. 1- and 2-hole versions available in natural rubber.

– see *SW600/SW684 series in the Stopper section.*

Stoppers, Steristoppers

Preformed cellulose plugs for sealing culture tubes and flasks. They are permeable to air and can be hot air sterilised up to 200°C. All stoppers are tapered and the cellulose material will depress slightly to ensure a tight fit into the tube or neck. Length varies from approximately 30 to 60mm according to size.

– see *SW536 series in the Stopper section.*



CW300



CW308/CW309



CW325



CW320



CW500, CW505 is similar

Counters

Tally/Totalising

Simple to use manually operated counters with a wide range of applications including:

- ◆ Bacteria colony counting
- ◆ Particle counting
- ◆ Biology population studies
- ◆ Gemstone counting
- ◆ Parts counting

Tally Counter, lever action

Hand held 4-digit counter up to 9999, push lever and manual reset in chrome case.

CW608-10 Tally counter, lever action

Tally Counters, push button action

4-digit counter up to 9999, thumb push button and manual reset. Available as either hand held with retaining cord or with bracket and clip for bench mounting.

CW610-10 Hand held

CW610-20 Bench mounting

Totalising Counters, multiple bank

Bench mounting. In anodised aluminium case with coloured keys. Each counter window shows three digits and above each window is provision for labelling. When any key is pressed its corresponding count increases by one and the overall total count increases by one. The counter locks at a total count of 100 so that each window displays percentage values. For counting beyond 100 a press button is provided to release the lock. Side knobs are provided to reset to zero.

6-unit counter (5 counting plus totaliser). Overall 225 x 70 x 30mm.

CW650-10 6-unit

9-unit counter (8 counting plus totaliser). Overall 300 x 70 x 30mm.

CW650-20 9-unit

Colony, Revolution

Colony Counters For counting bacterial colonies. Hand-held or bench mounting models – see *CR275/CR315 series in Colony Counter section*.

Blood cell counting chambers – see *CM175/CM180 in Clinical section*.

Counting slides for use with light microscopes – see *ML200/ML250 in Microscopy section*.

Parts counting balances and scales – see *Balance section*.

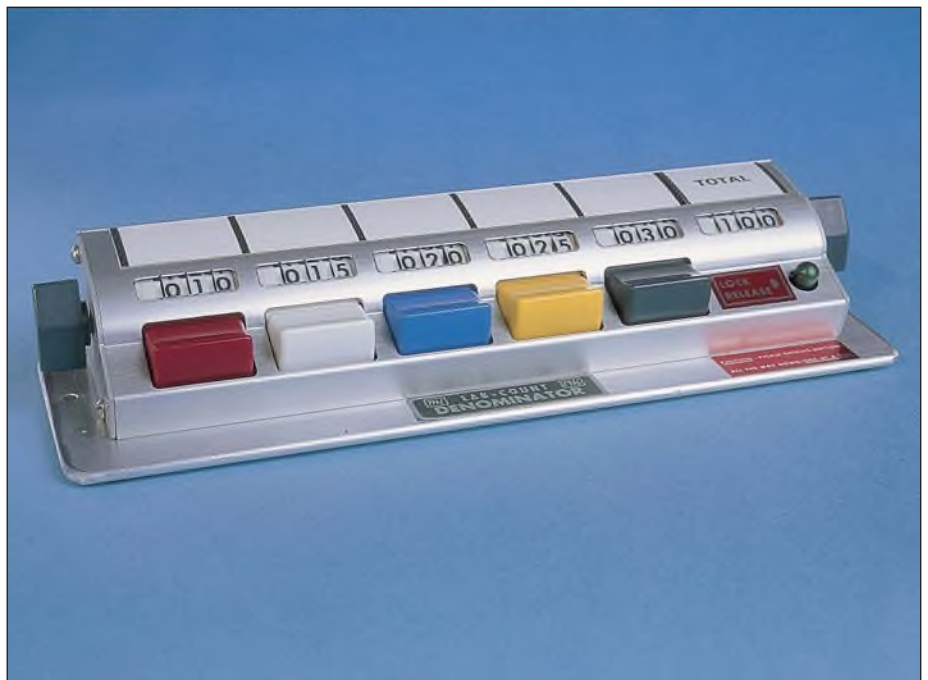
Revolution Counters for measuring speed of rotating equipment, digital reading, hand-held – see *TA870 in Tachometer section*.



CW608-10



CW610-10



CW650-10, CW650-20 is similar

Crucibles

Glass

All dimensions and capacities for crucibles are nominal.

Pyrex Glass

Gooch pattern with sintered disc for analytical work where precipitates have to be dried to constant mass at 110°C. The crucibles can be placed directly into an oven up to 150°C and then left to cool in a desiccator.

	Ref.	Porosity
30mm disc; height 53mm, capacity 30ml		
CX102-10	3660/02M	1
CX102-20	3660/04M	2
CX102-30	3660/06M	3
CX102-40	3660/08M	4
CX102-50	3660/10M	5

	Ref.	Porosity
40mm disc; height 65mm, capacity 60ml		
CX104-10	3680/02M	1
CX104-20	3680/04M	2
CX104-30	3680/06M	3
CX104-40	3680/08M	4
CX104-50	3680/10M	5

Adapter Funnels, Pyrex

For Gooch crucibles. Stem o.d. 9mm, length 75mm. Dimensions given are open end i.d. x height excluding stem. Require rubber adapter to mount the crucible.

	Ref.	For disc dia. mm	Dia. x ht. mm
CX120-20	3690/02M	20	30 x 60
CX120-30	3690/04M	30	40 x 68
CX120-40	3690/08M	40	47 x 78

Porosity Gradings for Sintered Glassware

Grade	ISO4793 Designation	Pore size index μm
0	P250	160 to 250
1	P160	100 to 160
2	P100	40 to 100
3	P40	16 to 40
4	P16	10 to 16
5	P10	4 to 10



CX104 with CX120 and CX125 in use

Rubber Cones

For filter crucibles. Dimensions given are large end x small end i.d.

	Dimensions mm
CX125-14	20 x 14
CX125-18	27 x 18
CX125-24	33 x 24
CX125-27	42 x 27

Rubber Cones, Guko

Natural rubber. For filter crucibles and funnels to seal into Buchner flasks. Supplied in a set of eight with dimensions in mm.

Top o.d.	Bottom o.d.	Height	Thickness
21	12	18	2.5
27	17	20	3
33	21	24	3
41	27.5	27	4
53	33	34	5
68	48	35	5.5
78	58	35	6
89	66	40	6.5

CX127-10 Guko set

Spare Guko Cones

Supplied singly.

	Top o.d. mm
CX127-14	21
CX127-16	27
CX127-18	33
CX127-20	41
CX127-22	53
CX127-24	68
CX127-26	78
CX127-28	89

Drying ovens - see Ovens section.

Quickfit filtration funnels - see Quickfit section.

Sintered discs - see Filtration section.



CX127-10

Crucibles

Metal

Nickel

Without lid.

	Dia. x ht. mm	Cap. ml
CX200-25	25 x 25	10
CX200-30	30 x 30	15
CX200-35	35 x 35	25
CX200-40	40 x 40	30
CX200-50	50 x 50	70
CX200-60	60 x 60	130

Accessory lids for CX200- crucibles

Nickel, peak form.

	For crucible
CX202-25	CX200-25
CX202-30	CX200-30
CX202-35	CX200-35
CX202-40	CX200-40
CX202-50	CX200-50
CX202-60	CX200-60

Platinum (97%) - Iridium (3%)

Without lid. Weight given is approximate.

	Dia. x ht. mm	Cap. ml	Weight g
CX240-27	35 x 37	25	21
CX240-32	35 x 40	30	25
CX240-43	40 x 45	40	30

Zirconium crucibles are also available – details on request.

Porcelain

All dimensions and capacities are nominal. Diameter given is at the rim.
Maximum operating temperature 1000°C.

	Dia. x ht. mm	Cap. ml
Low Form without lid		
CX348-12	30 x 19	6
CX348-16	35 x 22	11
CX348-22	40 x 25	15
CX348-27	45 x 28	25
CX348-33	60 x 38	50
CX348-36	70 x 44	85
Medium Form without lid		
CX357-12	25 x 20	5
CX357-16	30 x 25	10
CX357-22	35 x 28	15
CX357-26	40 x 32	20
CX357-36	50 x 40	49
CX357-48	63 x 55	100
Gooch Form without lid		
CX400-48	35 x 40	25
CX400-60	41 x 43	35

Crucible Lids

	For crucibles		
	CX348	CX357	CX400
CX415-22	—	-12	—
CX415-28	-12	-16	—
CX415-34	-16	-22	-48
CX415-37	-22	-26	—
CX415-40	-27	—	-60
CX415-43	—	-36	—
CX415-52	-33	—	—
CX415-58	—	-48	—
CX415-64	-36	—	—



CX200 with CX202



CX240 in use



CX348/CX357

Crucibles

Alumina Ceramic Crucibles

99.7% Al₂O₃, density 3.922g/cm³, hardness 9 (Mohs scale). Can be used up to 1700°C, with excellent chemical resistance and mechanical strength. All dimensions and capacities are nominal. Without lid.

	<i>Dia. x ht.</i> <i>mm</i>	<i>Cap.</i> <i>ml</i>
Conical Form		
CX300-12	27 x 35	7
CX300-15	32 x 32	10
CX300-19	33 x 44	20
CX300-23	46 x 53	50
CX300-27	55 x 64	90
CX300-28	64 x 86	100
CX300-31	60 x 70	120
Tall Form		
CX304-15	30 x 31	10
CX304-19	40 x 35	20
CX304-26	60 x 62	100
CX304-40	96 x 116	500
Cylindrical Form		
CX308-10	23 x 22	5
CX308-14	28.5 x 15	5
CX308-19	31 x 40	20
CX308-23	42 x 58	50
CX308-25	40 x 92	80
CX308-28	46 x 82	100
CX308-32	64 x 80	225
CX308-47	90 x 150	750
CX308-50	100 x 172	1000

Notes on the care and use of Alumina Products

Alumina products are fragile, please avoid impacts during handling to prevent micro-cracks at the surface. Products with any micro-cracks should not be used.

Alumina should also be kept completely free of moisture and, if drying, please ensure that the temperature in the drying oven is increased slowly. Alumina is sensitive to thermal shock. Do not use alumina crucibles over naked flames, such as that from a bunsen burner - crucibles must be heated evenly using a furnace, oven etc.

Avoid overloading of crucibles to prevent uneven heating and ensure that the furnace chamber temperature increases gradually to prevent thermal shock (a rate of 150°C per hour for the first 1 to 1.5 hours is recommended, with maximum temperature achieved after 3 hours). When cooling, lower the temperature as gradually as possible. The cooling down rate is often half of the heating rate. If removing the crucibles from the furnace into room temperature to pour melted material, try to keep the process as short as possible. Once removed, avoid placing crucibles on any cold surfaces.



CX300/CX304/CX308

Crucibles

Silica

Silica Crucibles and Capsules

99.8% SiO₂. Can be used up to 1050°C continuously and 1300°C for short periods. Inert to most substances except alkalis and some metallic oxides. All products are glazed and translucent. All dimensions and capacities are nominal.

Low Form Crucibles without lid

	<i>Dia. x ht.</i> <i>mm</i>	<i>Cap.</i> <i>ml</i>
CX505-10	29 X 19	5
CX505-14	38 x 19	10
CX505-18	41 x 25	15
CX505-22	47 x 28	25
CX505-26	57 x 37	50
CX505-30	67 x 45	80
CX505-34	82 x 51	150

Lids for Low Form Crucibles CX505 only.

	<i>For crucibles</i>
CX507-10	CX505-10
CX507-14	CX505-14
CX507-18	CX505-18
CX507-22	CX505-22
CX507-26	CX505-26
CX507-30	CX505-30
CX507-34	CX505-34

Tall Form Crucibles without lid

	<i>Dia. x ht.</i> <i>mm</i>	<i>Cap.</i> <i>ml</i>
CX515-14	35 x 38	20
CX515-18	43 x 39	30
CX515-22	51 x 51	50
CX515-26	76 x 81	200

Lids for Tall Form Crucibles CX515 only

	<i>For crucibles</i>
CX517-14	CX515-14
CX517-18	CX515-18
CX517-22	CX515-22
CX517-26	CX515-26

	<i>Dia. x ht.</i> <i>mm</i>	<i>Cap.</i> <i>ml</i>
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Broad Base Crucibles without lid

CX522-18	41 x 24	15
CX522-22	48 x 27	25
CX522-26	57 x 37	40

Circular Capsules without lid

CX532-10	40 x 15	10
CX532-14	48 x 15	20
CX532-26	56 x 28	45
CX532-34	75 x 28	80

Rectangular Capsules, without lid

	<i>L x W x H</i> <i>mm</i>	<i>Cap.</i> <i>ml</i>
CX552-10	60 x 28 x 12	10
CX552-18	52 x 42 x 18	25

Crucibles, coking

CX582-10	25 x 38mm, with projections
CX582-15	25 x 38mm, plain
CX582-50	Lid for CX582- coking crucibles
CX582-55	Plunger for CX582- coking crucibles

Note

Fused silica/quartz is a metastable phase of silica and no crystallisation occurs at normal temperature. Prolonged heating above 1000°C leads to crystallisation and in the crystalline phase the formation of high cristobalites occur. The thermal expansion and specific volume of these high cristobalites will be the same as fused silica and no damage to material is observed at high temperature. However, during cooling at 800°C fine cracks appear due to the mismatch of thermal expansion and at around 200-275°C structural changes occur and the high cristobalites are converted to low cristobalites, leading to complete failure of the material. Alkali ions increase devitrification and cleaning with distilled water is recommended between uses if articles are to be regularly heated above 1000°C.



Cryogenic Storage

Portable Liquid Nitrogen Refrigerators

MVE SC/XC series

Designed for the storage of biological specimens in straws or ampoules, when charged with liquid nitrogen.

- ◆ Lightweight, toughened aluminium construction
- ◆ High efficiency insulated vacuum system
- ◆ Inner canisters provided to hold 0.5ml straws, or 1.2ml/2ml vials in canes

Model		SC11/7	SC20/20	SC33/26	SC36/32	XC MILL.20	XC22/5	XC43/28	XC47/11-6
Capacity	litres	11.0	20.5	33.0	36.5	20.5	22.4	42.2	47.4
	0.5ml straws (canes)	540	540	540	540	720	2520	1260	4500
	0.5ml straws (bulk)	732	780	780	780	1122	3666	1764	6216
	1.2/2ml vials	150	150	150	150	210	810	360	1320
Inner canisters supplied		6	6	6	6	6	6	6	6
Static evaporation rate, per day	litres	0.15	0.09	0.13	0.1	0.095	0.35	0.14	0.39
Normal working duration*	days	46	142	182	224	140	40	193	76
Neck diameter	mm	51	51	51	51	55.4	97	70	127
Overall height x diameter	mm	549 x 260	652 x 368	657 x 464	690 x 464	652 x 368	559 x 368	670 x 508	673 x 508
Weight, empty	kg	7.7	11.8	15.4	15.4	10.5	11.8	16.4	19

*Arbitrary reference, to estimate performance under normal operating conditions.

Portable Liquid Nitrogen Refrigerators

As described. Supplied with inner canisters as indicated.

CX802-08 SC11/7
CX802-14 SC20/20
CX802-17 SC33/26
CX802-22 SC36/32

CX802-26 XC Millennium 20
CX802-31 XC22/5
CX802-33 XC43/28
CX802-39 XC47/11-6

Other refrigerator sizes, filling tubes and accessories are available - details on request.

Vials – see TP445, TP453.

Canes – see TP453-60.

Cryogloves – see SA720.



CX802 with accessories

Cryogenic Storage

Bulk Storage Liquid Nitrogen Refrigerators

CryoSystem Series, MVE

For high capacity storage of biological specimens in 1.2ml or 2ml vials within accessory boxes.

- ◆ Aluminium construction with high-efficiency construction
- ◆ Capacity from 61 litres to 175 litres
- ◆ Large diameter neck for easy access
- ◆ Supplied with racks:

Model	CS2000	CS4000	CS6000
Capacity litres	61	121	175
Static evaporation rate, per day litres	0.85	0.99	0.99
Normal working duration days	38	70	104
Racks supplied x rack capacity, boxes*	4 x 5	4 x 10	6 x 10
Overall height x diameter mm	680 x 559	950 x 559	950 x 665
Weight, empty kg	23	43	48

*Box size: 133 x 133 x 52mm high.

Bulk Storage Liquid Nitrogen Refrigerators

As described. Supplied with racks but without nitrogen charge, boxes or vials.

CX818-20 CS2000
CX818-40 CS4000
CX818-60 CS6000

Cryogenic boxes - see TP453-45, TP458-02 to TP458-10.

Vials - see TP445, TP453.

Canes - see TP453-60.



Cryoware

CryoVials/CryoCanes/CryoBoxes and Racks



Cryovials

Polypropylene with polyethylene closure. Skirted and self-standing. With marking area and fill line. Sterilised by irradiation. Supplied in sleeves as indicated.

	Ref. 5000-	Cap. ml	Sleeve qty.
TP453-09	0012	1.2	25
TP453-12	0020	2	25
TP453-14	0050	5	10

Cryovials, System 100

Space saving design for use in system 100 CryoBox. Polypropylene with polyethylene closure. Skirted and self standing. With marking area and fill line. Sterilised by irradiation.

	Ref. 5000-	Cap. ml	Pack qty.
TP453-24	1012	1	500
TP453-27	1020	1.5	500

CryoBoxes™

Polycarbonate. For ultra-low temperature storage of vials. Identification numbers on box and lid are keyed so that grid numbers match.

	Ref.	Array
TP453-40	5025-0505	5 x 5
TP453-45	5026-0909	9 x 9
TP453-47	5027-0909	9 x 9

CryoBox™, System 100

Polycarbonate. For ultra-low temperature storage of up to 100 x TP453-24/-27 vials. With matching identification numbers on box and lid in 10 x 10 grid array. Supplied singly.

	Ref.	Array
TP453-50	5026-1010	10 x 10

CryoCane™

Aluminium. Holds five cryovials for storage in Dewar-type liquid nitrogen freezers.

	Ref.
TP453-60	5015-0001

CryoSleeve™

Transparent PVC. For enclosing cane.

	Ref.
TP453-65	5016-0001

CryoBox Racks

Stainless steel.

For CryoBox TP453-40

Cat. No.	TP455-50	TP455-53
Shelves	4	9
TP455-50	Ref. 5035-0004	
TP455-53	Ref. 5035-0009	

For CryoBox TP453-45

Cat. No.	TP455-60	TP455-63
Shelves	4	9
TP455-60	Ref. 5036-0004	
TP455-63	Ref. 5036-0009	

For CryoBox TP453-47

Cat. No.	TP455-70	-73	-76
Shelves	2	4	7
TP455-70	Ref. 5037-0002		
TP455-73	Ref. 5037-0004		
TP455-76	Ref. 5037-0007		

Ice and dry ice carriers, Igloo – see *Ice section*.

Ultra-low freezers – see *RG410 series*.

Full details of these products and a wide range of associated accessories will be found in the Tissue Culture Section of this catalogue.



Cryoware

Storage Boxes

Storage Boxes

Rigid cardboard, with drop on lid. Suitable for use at freezer temperatures down to -85°C. Overall 133mm x 133mm W x D. Choice of height and colour, as indicated. Accessory grid dividers are available to accommodate a variety of tube sizes. Supplied singly.

	Box height, mm	Colour
TP458-02	50	White
TP458-04	50	Blue
TP458-06	50	Red
TP458-08	50	Green
TP458-10	50	Yellow
TP458-22	75	White
TP458-24	75	Blue
TP458-26	75	Red
TP458-28	75	Green
TP458-30	75	Yellow
TP458-42	100	White
TP458-44	100	Blue
TP458-46	100	Red
TP458-48	100	Green
TP458-50	100	Yellow

Accessory Grid Dividers for TP458-02 to TP458-50 boxes only

Plain white card. With compartments to hold tube sizes and to fit box heights as indicated. Supplied singly.

	Grid array mm	To hold tubes,	For box height, mm
TP458-61	7 x 7	16	50
TP458-63	8 x 8	14	50
TP458-65	9 x 9	13	50
TP458-67	10 x 10	12	50
TP458-71	7 x 7	16	75
TP458-73	8 x 8	14	75
TP458-75	9 x 9	13	75
TP458-77	10 x 10	12	75
TP458-81	7 x 7	16	100
TP458-83	8 x 8	14	100
TP458-85	9 x 9	13	100
TP458-87	10 x 10	12	100

Labtop cooler

Comprises tube rack for 25 x 0.5ml or 36 x 1.5ml microtubes, mounted in a thermal case containing a cooling gel, and lid. In use the labtop cooler is placed in a -20°C freezer for two hours. Once removed the gel will maintain samples below 4°C on the bench for more than one hour. Supplied singly.

TP459-20 Labtop cooler

Microcentrifuge tubes - see CF300 to CF306 series.



TP458-08 with TP458-65 in use



TP458 boxes



TP459-20 in use

Culture Media

Dehydrated Culture Media



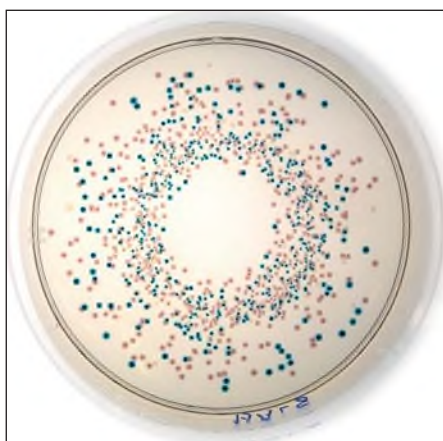
A comprehensive range of culture media for use in applications as indicated. Supplied in packs of 500g.

Type	Application(s)	Volume produced, litres
CX900-02 Agar Bacteriological No. 1	High clarity agar suitable for all bacteriological purposes	—*
CX900-06 Baird-Parker Agar Base	Isolation and enumeration of coagulase-positive <i>Staphylococci</i>	7.6
CX900-10 Blood Agar Base No. 2	Rich agar base, which when supplemented with blood will isolate delicate clinical pathogens	12.7
CX900-14 Brain Heart Infusion Agar	General purpose, nutritious agar base	10.2
CX900-18 Brain Heart Infusion Broth	A rich isotonic infusion providing a wide range of substrates	13.5
CX900-22 Brilliant Green Agar, Kauffmann	Selective medium for the isolation of <i>Salmonellae</i> (except <i>S. typhi</i>)	9.6
CX900-30 Buffered Listeria Broth	Selective enrichment of food and environmental samples for <i>Listeria</i> spp.	10.6
CX900-34 Buffered Peptone Water	Pre-enrichment broth for the recovery of <i>Salmonellae</i> in foods to BS EN ISO 6579:2002	25.0
CX900-38 Campylobacter Blood-Free Sel. Agar Base	Blood-free medium that will support the growth of most enteric <i>Campylobacter</i> spp.	11.1
CX900-42 Columbia Agar Base	General purpose nutritious agar base that can be enriched with blood	12.2
CX900-44 Columbia Blood Agar base	Modified Columbia agar base for use with defibrinated horse or sheep blood.	11.6
CX900-50 Dextrose Tryptone Agar	Enumeration of thermophilic spore bearers in foods	18.5
CX900-58 Endo Agar	Enumeration of coliforms in water and dairy products - APHA recommended	12.2
CX900-62 Eosin Methylene Blue Agar (Levine)	Differentiation of enteric organisms	14.5
CX900-64 Fluid Thioglycollate Medium	For cultivation of aerobic microaerophilic and anaerobic organisms.	16.8
CX900-66 Fraser Broth	Enrichment broth for the isolation of <i>Listeria</i> spp.	9.0
CX900-70 Hektoen Enteric Agar	Recovery of <i>Shigella</i> spp. from clinical specimens	6.6
CX900-78 Kliglers Iron Agar	Differential medium for enteric pathogens	10.2
CX900-82 Lactose Broth	For presumptive identification of coliforms in water and dairy products	38.5
CX900-86 Listeria Broth	For selective enrichment of food and environmental samples for <i>Listeria</i> spp.	13.9
CX902-03 M.R.S Agar	Cultivation and enumeration of <i>Lactobacillus</i> spp.	7.1
CX902-07 MacConkey Agar (Sorbitol)	Selective differential medium for the isolation of <i>Escherichia Coli</i> O157	10.3
CX902-11 MacConkey Agar (with salt)	Selective medium for the isolation of bile tolerant organisms	9.6
CX902-15 MacConkey Agar (without salt)	Differential medium for enteric bacteria	10.3
CX902-19 MacConkey Agar No. 3	For isolation of <i>Enterobacteriaceae</i> from water and sewage	9.7
CX902-23 MacConkey Broth Purple	For detection and enumeration of faecal coliforms	14.3
CX902-27 Malt Extract Agar	An acidic medium for the isolation of moulds and yeasts	10.0
CX902-35 Mannitol Salt Agar	Isolation of salt tolerant <i>Staphylococci</i>	4.6
CX902-39 Membrane Lauryl Sulphate Broth	Enumeration of coliform organisms in water	6.6
CX902-47 Modified T.S.B.. (for <i>E. coli</i> O157)	Selective enrichment medium for VTEC <i>Escherichia coli</i>	15.1
CX902-51 Mueller Hinton Agar II	Adopted by the NCCLS as the definitive method for susceptibility testing	13.2

*Depends on formulation required.

Additional media formulations are available - details on request.

continued on next page



Culture Media

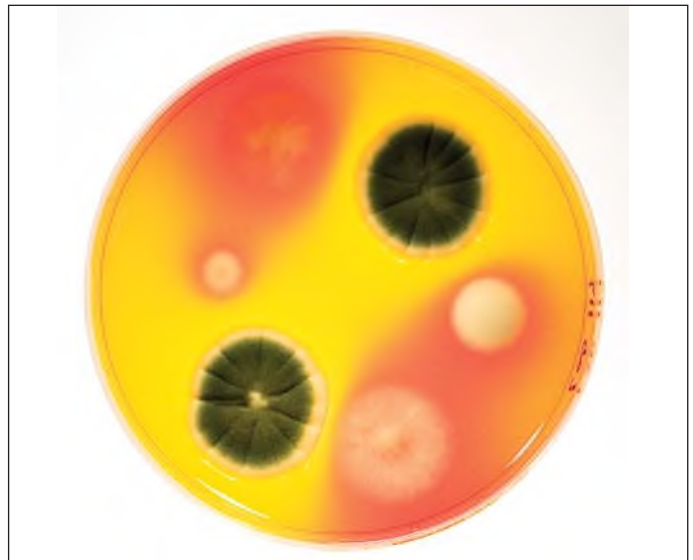
Dehydrated Culture Media continued



Supplied in packs of 500g.

Type	Application(s)	Volume produced, litres
CX902-59 Nutrient Agar	General purpose agar for the cultivation of micro-organisms	17.9
CX902-63 Nutrient Agar No. 2 BP	General purpose broth for the cultivation of micro-organisms	20.0
CX902-65 Peptone water	For cultivation of non-fastidious micro-organisms and base medium for carbohydrate fermentation studies	33.3
CX902-67 Peptone water, buffered	Pre-enrichment broth for the recovery of <i>Salmonellae</i> in foods	25.0
CX902-71 Plate Count Agar	For use with pour plate and surface inoculation techniques	24.4
CX902-75 Potato Dextrose Agar	Recommended by APHA for the enumeration of yeasts and moulds in foodstuffs	12.8
CX902-83 Pseudomonas CFC Agar	<i>Burkholderia cepacia</i> isolation medium	10.3
CX902-87 R2A Agar	Enumeration of heterotrophic bacteria in water	27.7
CX902-95 Reinforced Clostridial Agar	Enumeration of <i>Clostridium</i> spp. by the pour plate method	10.2
CX904-09 Rose Bengal Chloramphenicol Selective Media	Selective media for the enumeration of yeasts and moulds	17.5
CX904-13 Sabouraud Dextrose Agar	Selective medium for fungi and yeasts	8.1
CX904-23 Salmonella Shigella (SS) Agar	Modification of the Leifson Desoxycholate Citrate formula for isolation of <i>Salmonella</i> spp. and <i>Shigella</i> spp.	8.3
CX904-29 Simmons Citrate Agar	Differentiation of enteric bacteria	20.7
CX904-41 Standard Plate Count Agar APHA	For use with both pour plate and surface inoculation techniques - formulated to APHA specifications	21.2
CX904-45 TCBS Cholera Medium	Selective isolation of <i>Vibrio</i> spp.	5.7
CX904-49 Tetrathionate Broth Base	Selective enrichment broth for the growth of <i>Salmonellae</i>	10.9
CX904-57 Triple Sugar Iron Agar	Differentiation of <i>Enterobacteriaceae</i>	7.7
CX904-61 Tryptone Soy Agar EP/USP/JP/BP	General purpose media that will support the growth of a wide range of organisms	13.5
CX904-65 Tryptone Soy Broth EP/USP/JP/BP	General purpose media that will support the growth of a wide range of organisms	18.2
CX904-73 Urea Agar Base	Detection of urease-producing micro-organisms (Christensen's Urea Base)	23.8
CX904-77 Violet Red Bile (Glucose) Agar	Enumeration of <i>Enterobacteriaceae</i> in food and dairy products	13.0
CX904-81 Violet Red Bile (Lactose) Agar	Enumeration of <i>coliforms</i> in food and dairy products	13.0
CX904-85 W.L. Nutrient Agar	Enumeration of micro-organisms in the brewing process	6.7
CX904-89 Wort Agar	Enumeration of yeasts and moulds - can be modified for osmophilic conditions	10.0
CX904-93 XLD Agar	Selective isolation of <i>Shigella</i> spp. and <i>Salmonella</i> spp.	9.3
CX904-95 Yeast and Mould Agar	For the isolation and maintenance of yeasts and moulds, also the detection of wild yeasts in beer	12.2
CX904-97 Yeast Extract Agar	Enumeration of micro-organisms in water and dairy products	21.7
CX904-99 Yersinia Selective Agar	Isolation and enumeration of <i>Yersinia</i> spp.	8.6

Additional media formulations are available - *details on request.*



Culture Media

Microorganism Preservation System, Protect

Bead storage system for long-term maintenance of stock and quality control of microorganisms during cryopreservation.

- ◆ Frozen storage of fastidious and non-fastidious organisms
- ◆ Enables frequent uses to guarantee consistent and reliable performance control
- ◆ Each vial provides 20 subcultures, dramatically reducing cost per test against traditional methods
- ◆ CE marked and FDA approved for assured quality and traceability
- ◆ Gamma irradiated sterile to SAL10⁻⁶ for total product confidence

In use, a suspension of the organism is created using liquid included in the vial, which is then reintroduced into the vial and shaken with the beads to coat them. The liquid is then withdrawn with an accessory fine tip pasteur pipette and discarded. The coated beads can then be cryopreserved. Recovery is undertaken by aseptically removing a bead and rolling onto plated medium using an inoculating needle or placing in broth and incubating.

Microorganism Preservation System, Protect

As described, in packs of vials as indicated with mixed, matching, colour-coded beads and caps in blue, green, red, white and yellow.

CX925-10 Freezer box of 80 vials

CX925-15 Polypropylene box of 100 vials

Culture Media Sundries

Culture Media Inoculators

Disposable, single-ended, sterile polystyrene loops, needles and L-shaped spreaders for culture media inoculation. Gamma irradiated for sterility. Choice of inner sleeve quantity and supplied in outer packs as indicated.

	Description	Inner sleeve qty.	Outer pack qty.
CM676-10	10µl loop	20	1000
CM676-20	5µl loop	20	1000
CM676-30	1µl loop	20	1000
CM676-43	needle	20	1000
CM676-45	spreader	20	500
CM676-49	spreader	5	500

Polystyrene Disposable, Circular, Sterilin

Produced under sterile aseptic conditions. The 90mm dishes comply with BS611 Part 2 and are CE-marked in compliance with the In-vitro Directive 97/79/EC. Supplied in sleeves within partitioned cases as indicated for added protection during transit.

	Ref.	Dia. x depth mm		Pack qty.
PD100-10	121V	30 x 10	Triple vent	800
PD100-15	122	50 x 10	Single vent	700
PD100-20	124	50 x 18	Single vent	500
PD100-23	PF55	55 x 14	No vent	1620
PD100-27	PF55V	55 x 14	Four vents	1620
PD100-30	123	60 x 13	Single vent	540
PD100-40	101 R20	90 x 12	Single vent	500

Pasteur Pipettes, Sterile

PP474-41 Fine tip, 20 l drop size, 3ml capacity, pack of 1000

Bottles, Glass, Culture - see *BS150-BS152-series*

Culture swabs - see *CM610-ICM615-ICM620-series*.

Culture tubes - see *TP250-series*.

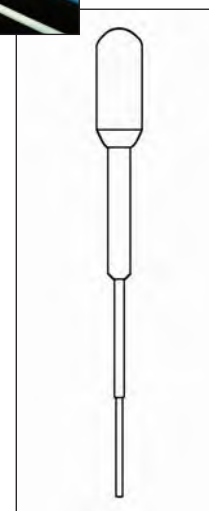


CX925-10, CX925-15 is similar

CM676



PD100



PP474

Cylinders

Glass with Spout, Class B

All cylinders comply with BS604, ISO4788 (and DIN 12680 where indicated).

Capacity ml	Sub- divisions, ml
5	0.1
10	0.2
25	0.5
50	1
100	1
250	2
500	5
1000	10
2000	20

Cylinders, MBL borosilicate

To DIN 12680, BS604, ISO4788. With spout and hexagonal glass foot. Blue enamel graduations and inscriptions. Class B.

Ref.	Cap. ml
CY105-10	CRC201 5
CY105-14	CRC202 10
CY105-18	CRC204 25
CY105-22	CRC206 50
CY105-26	CRC209 100
CY105-30	CRC211 250
CY105-34	CRC213 500
CY105-38	CRC214 1000
CY105-42	CRC216 2000

Cylinders, Pyrex borosilicate

With detachable plastic foot. White enamel graduations and inscriptions. Class B.

Ref.	Cap. ml
CY140-14	3205/04 10
CY140-18	3205/06 25
CY140-22	3205/08 50
CY140-26	3205/10 100
CY140-30	3205/12 250

Spare feet for CY140-series

Ref.	For cylinder ml
CY144-14	4500/00 10
CY144-18	4500/01 25
CY144-22	4500/02 50
CY144-26	4500/04 100
CY144-30	4500/06 250

Cylinders, Pyrex borosilicate

To DIN 12680. With spout and hexagonal glass foot. White enamel graduations and inscriptions. Class B.

Ref.	Cap. ml
CY160-14	3200/04 10
CY160-18	3200/06 25
CY160-22	3200/08 50
CY160-26	3200/10 100
CY160-30	3200/12 250
CY160-34	3200/14 500
CY160-38	3200/16 1000
CY160-42	3200/18 2000

Cylinders, Heavy Duty, Pyrex borosilicate

To DIN 12680. Heavy duty, with spout, reinforced rim, thick wall and robust hexagonal foot. Blue enamel graduations and inscriptions. Class B.

Ref.	Cap. ml
CY164-22	3280-50 50
CY164-26	3280-100 100
CY164-30	3280-250 250
CY164-34	3280-500 500
CY164-38	3280-1L 1000

Class A cylinders with spout – see next page.



CY105



CY140



CY160



CY164

Cylinders

Glass with Spout, Class A

All cylinders comply with BS604, ISO4788 (and DIN 12680 where indicated).

Cylinders, Pyrex borosilicate

To DIN 12680. With spout and hexagonal glass foot. White enamel graduations and inscriptions. Class A Conformity Certified.

	Ref.	Cap. ml
CY165-10	3201/02	5
CY165-14	3201/04	10
CY165-18	3201/06	25
CY165-22	3201/08	50
CY165-26	3201/10	100
CY165-30	3201/12	250
CY165-34	3201/14	500
CY165-38	3201/16	1000
CY165-42	3201/18	2000

Cylinders, Pyrex borosilicate

To DIN 12680, BS604, ISO4788. With spout and hexagonal glass foot. White enamel graduations and inscriptions. Class A Conformity Certified and individually engraved with a serial number and supplied with works certificate..

	Ref.	Cap. ml
CY167-10	3201/02WC	5
CY167-14	3201/04WC	10
CY167-18	3201/06WC	25
CY167-22	3201/08WC	50
CY167-26	3201/10WC	100
CY167-30	3201/12WC	250
CY167-34	3201/14WC	500
CY167-38	3201/16WC	1000
CY167-42	3201/18WC	2000

Cylinders, Blaubrand®

To DIN EN ISO 4788. With spout and hexagonal foot. Graduations and inscriptions in highly contrasting blue enamel. Ring marked at the main points. Class A Conformity Certified.

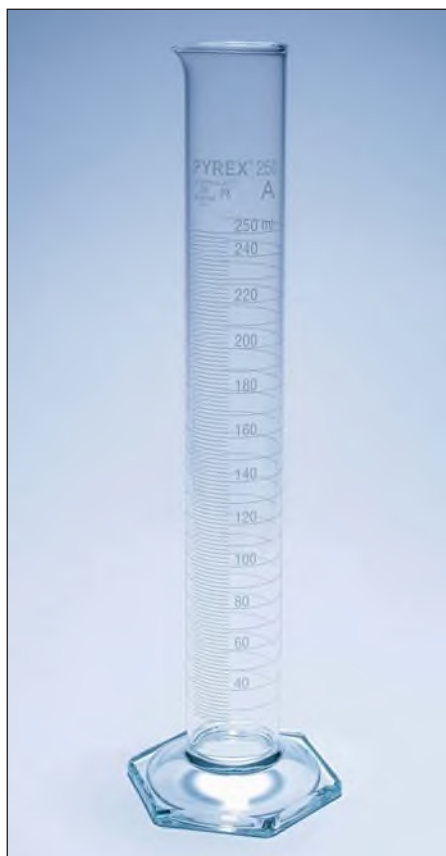
	Cap. ml
Duran® borosilicate glass	
CY235-10	5
CY235-14	10
CY235-18	25
CY235-22	50
CY235-26	100
CY235-30	250
CY235-34	500
CY235-38	1000
CY235-42	2000*

* With circular foot.

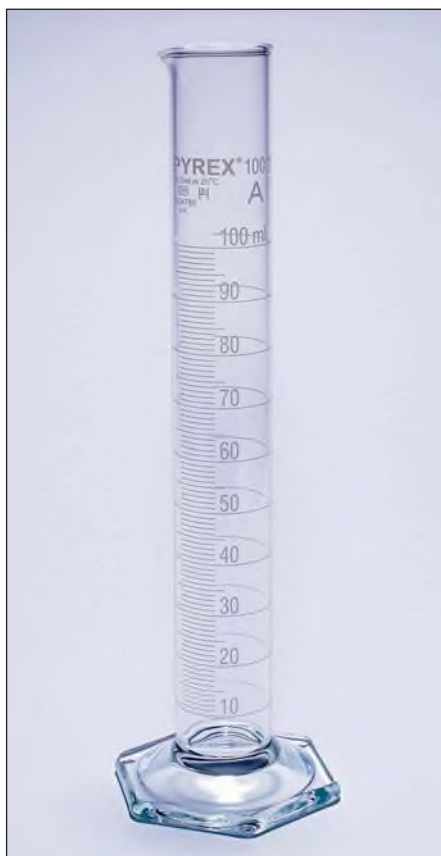
Conformity Certified

Indicated by the symbol H shows that the product has been manufactured under quality control procedures according to Eichordnung the German Federal Weights and Measures Regulations.

Provided the instrument is used with the recommended accessories and in accordance with the supplied instructions the manufacturer certifies conformity with annex 12 of the Eichordnung.



CY165



CY167



CY235

Cylinders

Glass with Stopper, Class B

All cylinders comply with BS604, ISO4788 (and DIN 12685 where indicated).

Cylinders, MBL borosilicate

To DIN 12685. With interchangeable polyethylene stopper and hexagonal glass foot. Blue enamel graduations and inscriptions. Class B.

	Ref.	Cap. ml	Stopper
CY257-18	CRC304	25	14/23
CY257-22	CRC306	50	19/26
CY257-26	CRC308	100	24/29

Cylinders, Pyrex borosilicate

With interchangeable polyethylene stopper and detachable plastic foot. White enamel graduations and inscriptions. Class B.

	Ref.	Cap. ml	Stopper
CY260-18	3215/06	25	14/23
CY260-22	3215/08	50	19/26
CY260-26	3215/10	100	24/29
CY260-30	3215/12	250	29/32

Cylinders, Pyrex borosilicate

To DIN 12685. With interchangeable polyethylene stopper and hexagonal glass foot. White enamel graduations and inscriptions. Class B.

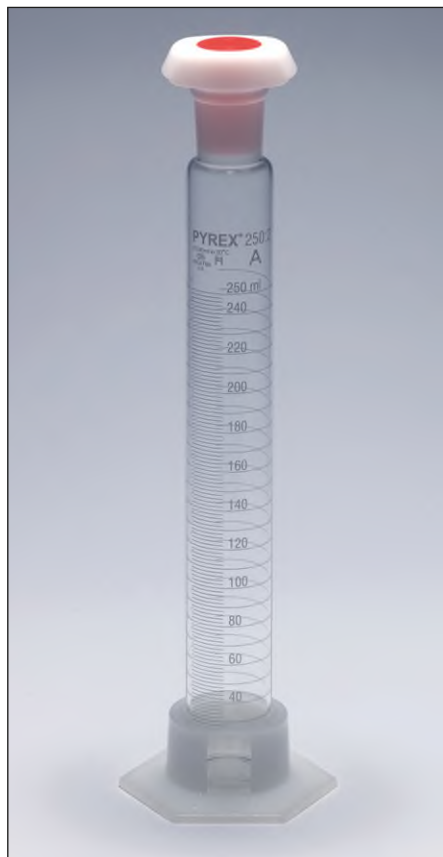
	Ref.	Cap. ml	Stopper
CY280-14	3211/04	10	10/19
CY280-22	3211/08	50	19/26
CY280-24	3211/10	100	24/29

Spare feet for CY260-series

	Ref.	For cylinder ml
CY144-18	4500/01	25
CY144-22	4500/02	50
CY144-26	4500/04	100
CY144-30	4500/06	250



CY257



CY260



CY280

Cylinders

Glass with Stopper, Class A

All cylinders comply with BS604, ISO4788 (and DIN 12680 or 12685 where indicated).

Cylinders, Pyrex borosilicate

To DIN 12685. With interchangeable polyethylene stopper and hexagonal glass foot. White enamel graduations and inscriptions. Class A conformity certified with batch code enabling on-line viewing and download of the manufacturing batch certificate.

	Ref.	Cap. ml	Stopper
CY292-14	3212/04	10	10/19
CY292-22	3212/08	50	19/26
CY292-26	3212/10	100	24/29
CY292-42	3212/18	2000	45/40

Cylinders, Pyrex borosilicate

To DIN 12685. With interchangeable polyethylene stopper and hexagonal glass foot. White enamel graduations and inscriptions. Class A Conformity Certified and individually engraved with a serial number and supplied with works certificate.

	Ref.	Cap. ml	Stopper
CY294-14	3212/04WC	10	10/19
CY294-18	3212/06WC	25	14/23
CY294-22	3212/08WC	50	19/26
CY294-26	3212/10WC	100	24/29
CY294-30	3212/12WC	250	29/32
CY294-34	3212/14WC	500	34/35
CY294-38	3212/16WC	1000	45/40
CY294-42	3212/18WC	2000	45/40

Cylinders, Blaubrand®

To DIN EN ISO 4788 and DIN 12685. With hexagonal base and square grip polypropylene stopper (except -34 and -38 which are polyethylene). Duran glass. Graduations and inscriptions in highly contrasting blue enamel. Ring marked at the main points. Class A Conformity Certified.

	Cap. ml	Stopper
Duran® borosilicate glass		
CY334-14	10	10/19
CY334-18	25	14/23
CY334-22	50	19/26
CY334-26	100	24/29
CY334-30	250	29/32
CY334-34	500*	34/35
CY334-38	1000*	45/40

* Have octagonal stopper.

Spare stoppers – see *Stoppers section*.

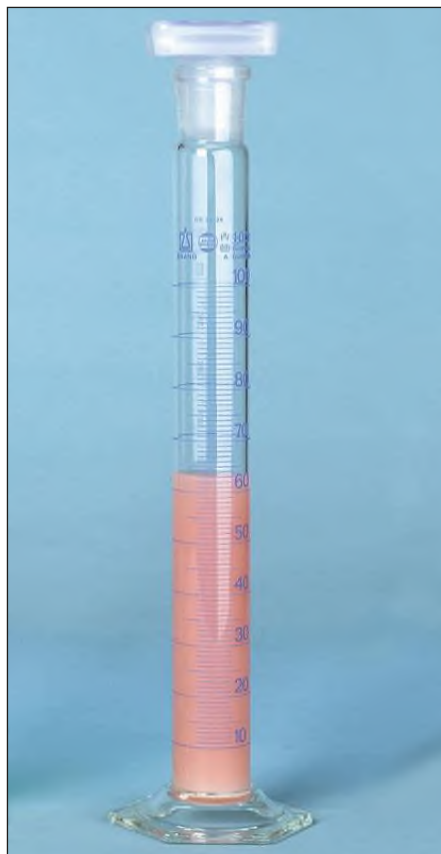
Conformity Certified

Indicated by the symbol **H** shows that the product has been manufactured under quality control procedures according to Eichordnung the German Federal Weights and Measures Regulations.

Provided the instrument is used with the recommended accessories and in accordance with the supplied instructions the manufacturer certifies conformity with annex 12 of the Eichordnung.



CY292, CY294 are similar



CY334

Cylinders

Plastic with Spout, Class B

Azlon

Cylinders, P.M.P. (TPX)

To ISO6706:1981. Class B. Transparent, strong and lightweight. Can be used up to 121°C. Date stamped for traceability. With spout, hexagonal fixed base and a choice of moulded or blue printed graduations.

	Ref.	Cap. ml	Subdiv. ml
Moulded graduations			
CY600-14	CT0010P	10	0.2
CY600-18	CT0025P	25	0.5
CY600-22	CT0050P	50	1
CY600-26	CT0100P	100	1
CY600-30	CT0250P	250	2
CY600-34	CT0500P	500	5
CY600-38	CT1000P	1000	10
CY600-42	CT2000P	2000	20
Printed graduations			
CY605-14	CTB0010P	10	0.2
CY605-18	CTB0025P	25	0.5
CY605-22	CTB0050P	50	1
CY605-26	CTB0100P	100	1
CY605-38	CTB1000P	1000	10

Cylinders, polypropylene

To ISO6706:1981. Class B. Clear polypropylene, autoclavable to 121°C repeatedly, without loss of tolerance. Date stamped for traceability. With spout, hexagonal fixed base and a choice of moulded or blue printed graduations.

	Ref.	Cap. ml	Subdiv. ml
Moulded graduations			
CY614-14	CP0010P	10	0.2
CY614-18	CP0025P	25	0.5
CY614-22	CP0050P	50	1
CY614-26	CP0100P	100	1
CY614-30	CP0250P	250	2
CY614-34	CP0500P	500	5
CY614-38	CP1000P	1000	10
CY614-42	CP2000P	2000	20
Printed graduations			
CY618-14	CPB0010P	10	0.2
CY618-18	CPB0025P	25	0.5
CY618-22	CPB0050P	50	1
CY618-26	CPB0100P	100	1
CY618-30	CPB0250P	250	2
CY618-34	CPB0500P	500	5
CY618-38	CPB1000P	1000	10
CY618-42	CPB2000P	2000	20

Plastic measuring cylinders with spout, Class A – see next page.



CY600, CY614 are similar



CY618, CY605 are similar

Cylinders

Plastic with Spout, Class A

Azlon

- ◆ To DIN 12681 Class A tolerances
- ◆ Transparent PMP (TPX) with printed blue graduations
- ◆ Supplied with batch conformity certificate and individually serial numbered
- ◆ Remain in tolerance after repeated wash and autoclave (121°C) cycles
- ◆ Stable, hexagonal, fixed base with anti-suction feature

As described. With spout, hexagonal base and blue printed graduations. Supplied with batch conformity certificate in packs as indicated.

	Ref.	Cap. ml	Sub-div. ml	Pack qty.
CY625-14	CTA0010P	10	0.2	2
CY625-18	CTA0025P	25	0.5	2
CY625-22	CTA0050P	50	1	2
CY625-26	CTA0100P	100	1	2
CY625-30	CTA0250P	250	2	2
CY625-34	CTA0500P	500	5	2
CY625-38	CTA1000P	1000	10	2

Squat Cylinders, Azlon

Unclassified tolerances. Transparent polypropylene. With blue overprint moulded graduations. Typically 35% shorter and 20% wider than standard cylinders, giving increased stability on the bench and ease of handling in restricted places. Anti-suction base with drain hole to eliminate waste residue after machine washing. Supplied in packs as indicated.

	Ref. CPS-	Ht. mm	Cap. ml	Sub-div. ml	Pack qty.
CY640-26	0100P	160	100	2	5
CY640-30	0250P	190	250	5	1
CY640-34	0500P	215	500	10	1
CY640-38	1000P	282	1000	20	1

Glass Distillation Receiver BS658

Glass Distillation Receiver

Type 1 Crow pattern. Pyrex glass. Class B. 100ml capacity. To BS658.

	Ref.
CY750-10	3400/04



CY625



CY640



CY750

Dairy Testing

Dairy Testing

Butyrometers, BS696

Glass with plain neck.

	Sample		Sample
DA150-10	10.94ml milk, 8%	DA150-25	3g cheese, 40%
DA150-15	10.94ml skim milk, 4%	DA150-39	Lock stopper
DA150-20	5g cream, 70%	DA150-43	Lock stopper key
DA152-08	Butyrometer cleaning brush for body section only		
DA152-10	Butyrometer cleaning brush for scale section only		

Mojonnier Flask

For determining the fat content of dairy products. To B.S. ISO3889:2006. Form A (flat base). Borosilicate glass

DA160-34 Mojonnier flask

Solubility Index Tube

For testing powdered milk. Borosilicate glass. 50ml capacity.

DA160-40 Solubility Index tube

Hydrometer, Lactometer

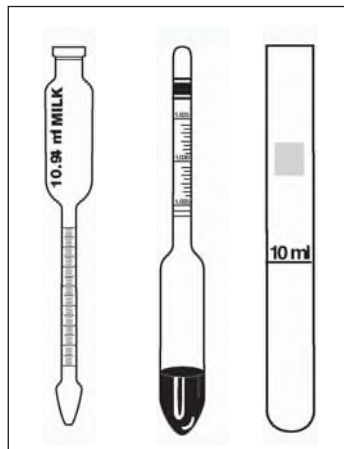
BS734. Range 1.025 to 1.035g/ml. Overall length approximately 230mm.

DA210-10 Lactometer

Reductase Tubes

Soda-lime. 150 x 16mm.

	Graduations at, ml		Graduations at, ml
DA220-10	10	DA220-18	5 and 10
DA220-14	2.5 and 10	DA220-22	7 and 10



DA150

DA210

DA220-10



DA160-34



DA160-40

Gerber Centrifuges

Gerber Centrifuge, Universal

Highly flexible, easy to use, dairy testing centrifuge with push-button operation and LCD display.

- ◆ Speed range 200 to 1300rpm
- ◆ Four, pre-selectable, precisely monitored speeds for specific tests:
 - Gerber fat test using butyrometers (350xg)
 - Solubility index test in milk powders (164xg)
 - Fat extraction according to Mojonnier (80xg)
 - Custom speed set by the user
- ◆ 0 to 255 minute timer with automatic brake at end of timed period
- ◆ Safety features include lid interlock and imbalance detector
- ◆ Alternative model available with precise chamber heating up to +65°C and preheating facility

As described. With robust steel outer casing, lid with interlock and LCD display of speed, time (and temperature when option fitted). Supplied with 12-place universal swing-out rotor. Overall 640 x 640 x 450mm W x D x H. Weight 47kg unheated model, 52kg heated model. For 230V 50/60Hz single phase supplies. Without buckets or heating module.

DA450-40 Universal centrifuge, unheated

DA450-50 Universal centrifuge, with heated chamber

Accessory Buckets for rotor

Stainless steel. Supplied singly.

DA454-25 Butyrometer bucket, 26mm i.d.

DA454-27 Solubility Index tube bucket, 31mm i.d.

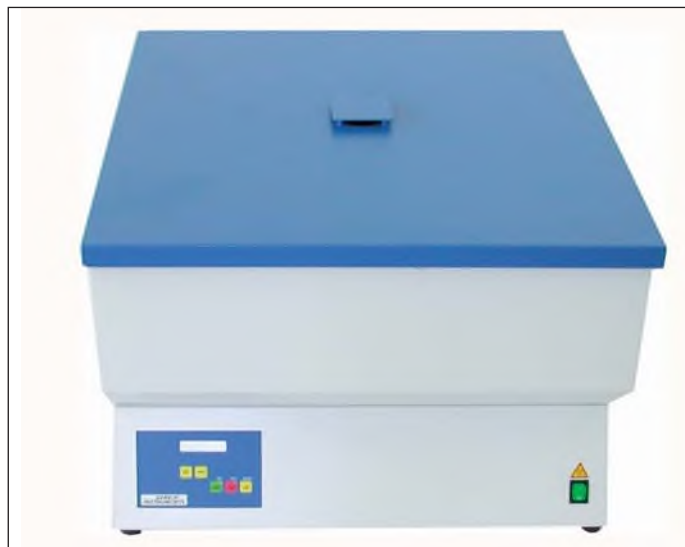
DA454-29 Mojonnier bucket with holder

Gerber Centrifuge, Micro III

For small-scale determination of fat levels in milk and dairy products. Fixed speed, providing 350xg r.c.f. with automatic brake and rotor imbalance detection. Microprocessor controlled, with digital setting and readout of time (0 to 60 minutes) and chamber temperature (ambient +5 to +65°C) with selectable preheating. Supplied with rotor to hold 8 x butyrometer tubes, steel outer casing and lid interlock which prevents opening whilst the rotor is spinning. Overall 430 x 460 x 280mm W x D x H. Weight 20kg. For 230V 50/60Hz single phase supplies.

DA460-15 Micro III centrifuge

Sampling Dippers – see BS216-35/BS216-40 in the Bottles section.



DA450-40, DA450-50 is similar



DA460-15

Deionisers

Laboratory Deionisers

COPE – ELGA



DB030-10

DB030-20 with DB030-80

Cope-Elga Vision Deionisers

- ◆ High quality water instantly available
- ◆ Simple to install – wall mounting
- ◆ Colour change resin
- ◆ Supplied with dispensing spout
- ◆ Hand held dispensing gun accessory on flexible lead

Cope-Elga Vision Deionisers provide quality water as and when it is required. The need for elaborate and costly storage is eliminated. Just turn on the mains water tap and take off the water instantly either through the top dispensing spout or the accessory hand held dispensing gun. The resin changes colour when the cartridge is exhausted.

Model		Vision 125	Vision 250
Max. Flow rate	l/h	60	60
Max. Input pressure	psi	90 (6 bar)	90 (6 bar)
Mains water connection		0.5" BSP hosietail both models	
Typical water quality	$\mu\text{S/cm}$	0.1 to 10 both models	
Typical output, water areas			
Hard (400-500ppm)	litres	80 to 100	170 to 200
Mid (100-300ppm)	litres	150 to 400	300 to 800
Soft (40-80ppm)	litres	500 to 900	1100 to 1900
Overall dimensions H x W x D	mm	385 x 92 x 100	660 x 92 x 100
Weight	kg	2.5	4.2

Vision Deionisers, Cope-Elga

With colour change cartridge and dispensing spout.

DB030-10 Vision 125

DB030-20 Vision 250

Spare Cartridges

DB030-60 For Vision 125

DB030-65 For Vision 250

Accessory for both models

DB030-80 Hand held dispensing gun on flexible lead

Water Purity

Ultra-pure water, as produced by the Cope-Elga Vision, is almost entirely free of dissolved mineral salts, including silica, and will have a neutral pH since the dissolved CO₂ will have been removed. From an inorganic standpoint, ultra-pure water will conform to International Pharmacopoeia and laboratory grade specifications for purified water.

For less critical applications the Cope-Elga Vision is capable of producing pure water at the end of each cartridge run, extending its life by approximately 25%. Pure water is similar to ultra-pure water although CO₂ and silica will be present.

Water analysis

	Ultra-Pure Water	Pure Water
Conductivity	1 to 0.1 $\mu\text{S/cm}$	10 to 1 $\mu\text{S/cm}$
Resistivity	1 to 10M -cm	0.1 to 1M -cm
Silica	<0.05 ppm (mg/l)	not removed
Carbon Dioxide	<0.5 ppm (mg/l)	not removed
Trace Dissolved Metals	<0.001 ppm (mg/l)	<0.005 ppm (mg/l)
Residual Solids	<0.5 ppm (mg/l)	<5 ppm (mg/l)
Average pH	Neutral	4 to 7

Deionisers

Laboratory Deionisers

ELGA

The ultra-pure water, as produced by these Elga deionisers is almost entirely free of dissolved mineral salts, including silica, and will have a neutral pH since the dissolved CO₂ will have been removed. From an inorganic standpoint, Ultra-pure water will conform to International Pharmacopoeia and laboratory grade specifications for purified water.

The B114 and Micromeg are compact wall-mounted units ideal for users who require low volumes of ultra-pure water. Both feature 9V battery operated colour coded conductivity meters operated by depressing the 'water test' switch allowing instant monitoring of the treated water quality. When exhaustion of the ion exchange resins is indicated, cartridge replacement is a simple, rapid operation.

The B118 is a high output, floor standing pressurised deioniser which can be incorporated into a piped distribution system or used for direct connection to equipment requiring a pressurised treated water supply. It features an analogue scale conductivity meter which can be powered by either 9V battery or from a 220-240V 50Hz mains supply if available. This monitors treated water quality and indicates when the resins are exhausted. A replacement cylinder can be fitted in minutes.

	DB105-10	DB120-10	DB200-10
<i>Model</i>	B114	micromeg	B118
<i>Output min./max. litres*</i>	20/250	100/15000	200/50000
<i>Water purity μS/cm</i>	1 to 0.1	1 to 0.1	1 to 0.1
<i>Flow rate litres/hour</i>	30	90	240
<i>Mounting</i>	Wall	Wall	Floor
<i>Cartridge</i>	Disposable	Disposable	Regenerated
<i>Meter</i>	✓	✓	✓
<i>Voltage V</i>	9	9	9 or 220-240
<i>Max. input pressure bar</i>	0.63	3.5	4.6
<i>Overall H x W x D mm</i>	380 x 180 x 152	550 x 200 x 230	880 x 220 x 210
<i>Weight kg</i>	2.2	6.5	18

*The output capacity will vary depending on the local water conditions.

Elga B114

With four C114 disposable cartridges. Without battery.

DB105-10 B114

DB109-06 Spare C114 disposable cartridges, pack of 4

Elga micromeg

With two MS:DS/4 disposable cartridges. Without battery.

DB120-10 micromeg

DB124-06 Spare MS:DS/4 disposable cartridges, pack of 4

Elga B118 pressurised

With spare C118 cylinder and conductivity meter requiring 9V battery (not supplied) or 220-240V 50Hz supplies.

DB200-10 B118

BL610-25 Accessory battery, 9V for deionisers DB105, DB120, and DB200



DB105



DB120



DB200

Deionisers

Ultrapure Water Systems, Purelab flex 3 and 4

ELGA

Compact, bench mounting water systems which can produce Type I ultrapure water for HPLC, GFAAS (graphite furnace atomic absorption spectrophotometry), ion chromatography, inductively coupled plasma atomic emission or plasma mass spectrometry and life science applications. Alternatively, Type III reverse osmosis water is available for less demanding applications such as autoclave feed, steam generators and hydroponics.

- ◆ Designed for use with pre-purified or mains feedwater
- ◆ Incorporates reverse osmosis prefilter cartridge, photo-oxidation module with UV lamp to destroy micro-organisms and break down trace organic compounds to assist in the reduction of Total Organic Carbon (TOC), microfiltration and purification modules including deionisation and organic compound absorption
- ◆ Continuous recirculation eliminates static water zones, maintaining water quality and inhibiting microbial growth
- ◆ Manual dispensing unit on supported flex with display of purity, TOC and dispensing rate
- ◆ USB interface with data output for system performance validation
- ◆ Accessories include wall mounting kit, foot pedal control switch, leak sensor, sanitisation cartridge, biofilter which reduces DNase, RNase and bacteria from the output water, and 'Point-of-use' filter which provides conformance to international standards CLSI, CLRW, ISO 3696 Grade 1, 2 and 3, ASTM, D1193-06, USP, EP and JP

Model, Purelab -	flex 3	flex 4
Feed Water		
Quality	Potable water of <2000µS/cm*	Pre-purified and filtered water of <30µS/cm
Hardness, ppm CaCO ₃	<350	Minimal
Free chlorine, ppm CL ₂	<0.5	<0.05
Chlorine, ppm CL ₂	<0.2	<0.05
Total chlorine, ppm CL ₂	<0.5	<0.05
Silica, ppm SiO ₂	<30	<2
Carbon dioxide, ppm	<30	<30
Fouling index	<10	<1
TOC	<2ppm	<50ppb
Iron/manganese	<0.05ppm	N/A
Particulates	0.2µm prefilter recommended for non-RO feeds	N/A
Drain (gravity fall with air gap L/hr)	>90	>70
Pressure min/max. psi	30/90**	1/90
*Purification pack life may vary with feed waters >1400µS/cm		
**Boost pump required if feed water pressure <60psi - details on request		
Treated Water		
Daily volume, litres	<10	<10
Flow rate litres/min	≤2	≤2
Quality		
Inorganics (resistivity at 25°C) MΩ-cm	18.2	18.2
Organics (TOC)	<5ppb	<5ppb [†]
Internal reservoir	Type III/RO water — both models ^{††}	
Bacteria, typical		
with point-of-use filter ^{†††}	<1 CFU/10ml — both models	
with biofilter ^{†††}	<1 CFU/10ml — both models	
Endotoxins with biofilter	<0.001 EU/ml — both models	
DNase with biofilter ^{†††}	<20pg/ml — both models	
RNase with biofilter ^{†††}	<0.02ng/ml — both models	
[†] Dependent on feed water		
^{††} Better than/equal to Type III reverse osmosis water		
^{†††} Accessory filters		

Specifications (both models)

Overall H x W x D	900 (1020 ^{***}) x 236 x 470
Weight, full, kg	23
Supply requirements	100-240V 50/60Hz single phase, 100W

^{***}With dispense flex extended

As described. For 100-240V 50/60Hz single phase supplies and feed water quality as indicated. Require, but are not supplied with DB304-59 for operation.

- DB300-40** Purelab flex 3 for potable feed water
- DB300-45** Purelab flex 4 for pre-purified/filtered feed water

Accessories

- DB304-44** Foot switch
- DB304-46** Wall mount kit
- DB304-50** Point-of-use filter
- DB304-53** Biofilter
- DB304-56** Sanitisation filter
- DB304-59** Purification filter

Spares

- DB304-65** UV lamp
- DB304-67** Reverse Osmosis (RO) module for flex 3 only
- DB304-69** Composite air vent filter



DB300

Deionisers

Permutit CD100 Deioniser

Disposable cartridge deioniser. Requires a water feed which is clean, colourless and free from organic matter. Water purity is dependent upon the quality of the inlet water.

Catalogue No.		DB685-12
Model		CD100
Output min./max.	litres	40/160
Water purity	S/cm	2 to 30
Flow rate, max	litres/hour	120
Mounting		Bench
Cartridge		Disposable
Meter		—
Voltage	V	—
Max. input pressure	bar	4
Overall H x W x D	mm	330 x 130 diameter
Weight	kg	2.5

Permutit CD100

Supplied with one colour change disposable cartridge.

DB685-12 CD100

Spare disposable colour change cartridges. Supplied in pack of 2.

DB685-50



Density

Density

Density Bottles

With capillary stopper. Adjusted bottles only are to ISO 3507, IP190 Type 1(b) and STPTC Schedule VII. With capacities as indicated.

Unadjusted, soda-lime glass

DC300-11	10ml
DC300-14	25ml
DC300-17	50ml
DC300-20	100ml

Adjusted, borosilicate glass

DC305-15	10ml
DC305-18	25ml
DC305-21	50ml
DC305-24	100ml

Density meter, hand-held, Densito, Mettler-Toledo

Direct reading, density meter applying the oscillating tube principle.

Range (resolution)	g/ml	0.000 to 3.000
Accuracy	g/ml	±0.001
Selectable units		Density, s.g. (with/without temperature compensation), Brix %, alcohol w/w %, US proof, IP proof, °Baumé, °Plato, API (A B and D tables), % sulphuric acid, user defined concentration
Temperature range (resolution)	°C	0 to +50 (0.1)
Temp. compensation		Automatic, or by up to 10 x user-defined coefficients held in memory
Calibration		Dry air or pure water
Memory		1100 data points (result, sample I.D., temperature compensation coefficient, date, time)
Display		Backlit colour LCD
Output		USB-A
Power		USB-C connection or 5V d.c. supply
Overall, W x D x H	mm	56x 288 x 80
Weight	g	355

DC380-25 Densito

DC382-07 Syringe adapter for DC380-25, to enable injection of viscous samples into the sample chamber (requires disposable syringe not supplied)

DC382-15 Accessory charger stand for DC380-25, for 100-240V a.c.

DC382-15 EasyDirect density and refractometry software for communicating with DC380-25 via the user's PC

Hydrometers – see *Hydrometry* section.



DC300



DC305



DC380-25

Desiccators

Duran® Glass

Borosilicate glass to DIN12491.

Knob lid

Ground flange. Without disc. Dimensions as indicated.

	Flange i.d. mm	Approx. volume litres
DE200-12	119	0.7
DE200-17	172	2.4
DE200-22	224	5.8
DE200-27	274	10.5

Vacuum

With 24/29 stopcock and ground flange. Without disc.

	Flange i.d. mm	Approx. volume litres
DE202-12	119	0.7
DE202-17	172	2.4
DE202-22	224	5.8
DE202-27	274	10.5

DE202-38 Spare stopcock 24/29

Desiccator Discs

	Diameter, mm	To fit desiccator flange i.d. mm
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Perforated metal.

DE220-10	90	119
DE220-15	140	172
DE220-20	190	224
DE220-24	235	274

Perforated porcelain

DE225-10	90	119
DE225-15	140	172
DE225-20	190	224
DE225-24	235	274

Silicone free lubricant, Glisseal

For desiccator flanges. In 60g tube.

LT160-12 Glisseal

Plastic

Desiccators, Bel-Art, Vacuum

Tough transparent polycarbonate top with O-ring seal, polypropylene base desiccant tray and perforated plate. With stopcock which accepts 6mm bore flexible vacuum tubing and PTFE plug in the top which turns to allow controlled admission of air. Dimension given is the top internal diameter.

DE400-15	149mm
DE400-20	197mm
DE400-25	240mm

Desiccant

Colour change silica gel beads in a cartridge designed to fit DE400 series desiccators but can be used also in other desiccators of suitable diameter. The silica gel can be regenerated repeatedly without degradation at 150°C. Supplied in moisture proof pouch.

DE404-10	114mm diameter
DE404-13	197mm diameter
DE404-16	238mm diameter

Desiccators, Kartell, Vacuum

Tough transparent polycarbonate top with O-ring seal, polycarbonate vacuum connection valve and polyethylene plug which allows controlled admission of air. The base is polypropylene and has a removable pan to hold desiccant. Dimension given is the top internal diameter.

DE408-15	150mm
DE408-20	200mm
DE408-25	250mm

Silica Gel

Self indicating. Supplied in packs as indicated.

GG150-95	Silica gel, 500g
GG150-97	Silica gel, 25kg



DE200



DE202



DE400 with DE404



DE408

Desiccators

Desiccator Cabinets

Desiccator Cabinet

Transparent polycarbonate construction with wide-angled, hinged door and stacking flanges. Supplied with a sachet of desiccant silica gel and convenient jar with perforated lid to hold desiccant in use. Internal dimensions 212 x 180 x 162mm W x D x H. Overall 221 x 214 x 183mm W x D x H.

DE425-12 Desiccator cabinet

Desiccator Cabinet

Rigid aluminium frame with acrylic panels, hinged door with magnetic latches and mounted hygrometer, desiccant and tray, with four removable shelves which are adjustable for height. Up to 22 additional accessory shelves can be added if required. Internal dimensions (useable) 260 x 320 x 480mm W x D x H. Overall 304 x 375 x 520mm W x D x H.

DE425-20 Desiccator cabinet

DE425-22 Spare/accessory shelf

GG150-95 Silica gel, self-indicating, pack of 500g

Desiccator Cabinets

- ◆ Rigid aluminium frame with non-slip rubber feet (DE425-30) or castors (DE425-35) and borosilicate glass panels offering chemical resistance to most acids and organic substances
- ◆ Stainless steel shelves allow storage of hot products up to +300°C (if placed at the centre of the shelf)
- ◆ Built-in thermohygrometer
- ◆ Rounded edges and gasket-lined door(s) with magnetic strip closure

Model	DE425-30	DE425-35
Capacity litres	42	140
No. of compartments (doors)	1	2
Number of shelves per compartment	4	2
Internal dimensions		
W mm	260	495
D mm	330	540
H mm	480	500
External dimensions		
W mm	310	560
D mm	375	580
H mm	525	1150
Weight, kg	14	42

As described. Rigid aluminium frame with rounded edges, borosilicate glass panels, gasket-lined door(s) with magnetic strip closure and mounted thermohygrometer, desiccant tray, and four removable stainless steel shelves which are adjustable for height.

DE425-30 Desiccator cabinet, 42 litre

DE425-35 Desiccator cabinet, 140 litre

Transport Boxes, DuraPorter™

Transparent, fully autoclavable, polycarbonate carrying boxes in a choice of colours with silicone lid gasket and clamps to provide a water-tight secure closure. Applications include moving biological and clinical samples, protection of instruments and tools in the field or within challenging environmental conditions and as portable desiccator cabinets.

- ◆ Choice of three colours allows coding or individual identification
- ◆ Contents readily visible without opening box
- ◆ Carry handle folds neatly into the body to enable boxes to be stacked
- ◆ lid opens fully, allowing easy access and cleaning

As described. Overall 380 x 196 x 160mm W x D x H.

SX235-20 DuraPorter™, clear with blue handles

SX235-40 DuraPorter™, red with red handles

SX235-60 DuraPorter™, yellow with yellow handles



DE425-12



DE425-20



DE425-30



DE425-35



SX235

Dewar Flasks

Dewar Flasks

All dimensions and capacities are nominal.

Dewar Flasks

Silvered glass cylindrical inner vessel with plastic outer container, screw stopper and cap.

DE700-10	500ml
DE700-15	1000ml

Dilvac Flasks, Tall Form

Borosilicate glass in stainless steel outer container. With swivel handle and insulated vented lid secured by toggle clamps.

	<i>Int. dia. x depth, mm</i>	<i>Cap. litres</i>
DE710-10	85 x 185	1
DE710-15	106 x 205	2
DE710-20	150 x 280	4.5
DE710-25	200 x 285	7

Refills for DE710-series

DE712-10	85 x 185	1
DE712-15	106 x 205	2
DE712-20	150 x 280	4.5
DE712-25	200 x 285	7

Dilvac Flasks, Shallow Form

Borosilicate glass in stainless steel outer container. Open top. Without handle or lid.

	<i>Int. dia. x depth mm</i>	<i>Cap. litres</i>
DE725-12	77 x 50	0.2
DE725-17	100 x 65	0.5
DE725-22	115 x 70	0.7
DE725-27	138 x 80	1
DE725-32	155 x 120	2

Refills for DE725-series

DE727-12	77 x 50	0.2
DE727-17	100 x 65	0.5
DE727-22	115 x 70	0.7
DE727-27	138 x 80	1
DE727-32	155 x 120	2

Dilvac Flasks

All stainless steel open top

Can be used for ultra-low or high temperatures from -196°C to +300°C. Suitable for the storage and transportation of liquid oxygen and liquid nitrogen. With steel detachable swivel handle but without lid.

	<i>Int. dia. x depth mm</i>	<i>Cap. litres</i>
DE735-12	85 x 206	1
DE735-15	100 x 157	1
DE735-18	100 x 285	2

Dewar Flasks, Nalgene

Double-walled HDPE flasks with urethane foam insulation, moulded-in ribs for added safety when held, and loose fitting insulated cover. The 1, 2 and 4 litre sizes additionally have a polyethylene coated swivel carrying handle. Suitable for use over the range -196°C to +100°C. Dimensions given are neck internal diameter x internal depth.

	<i>Int. dia. x depth mm</i>	<i>Cap. litres</i>
DE750-40	96 x 195	1
DE750-43	122 x 231	2
DE750-46	158 x 295	4
DE750-49	198 x 396	10



DE700



DE725 and DE727



DE750-40 to -46



DE710 & DE712



DE735

Dewar Flasks

Dewar Flasks continued



Dewar Flasks, Shallow form, KGW-Isotherm

To DIN12492. Silvered, borosilicate glass with textured aluminium housing and plastic rim and base protection. Antimagnetic materials allow use with magnetic stirrer. Will also accept round bottom flasks of diameters as indicated.

	Int. dia. x depth mm	Cap. litres	For flask dia. mm
DE740-20	100 x 65	0.26	85
DE740-30	110 x 70	0.40	85
DE740-40	138 x 80	0.80	105
DE740-50	170 x 110	1.60	131

Dewar Flasks, Tall form, KGW-Isotherm

To DIN12492. Silvered, borosilicate glass with blue powder-coated aluminium housing and plastic rim protection. Antimagnetic materials allow use with magnetic stirrer.

	Int. dia. x depth mm	Ext. dia. mm	Cap. litres
DE744-10	40 x 170	63	0.2
DE744-25	57 x 210	81	0.5
DE744-35	67 x 350	90	1.2
DE744-45	77 x 345	105	1.5
DE744-55	100 x 290	130	2.0

Dewar Flasks, Spherical, KGW-Isotherm

To DIN12492. Silvered, borosilicate glass, spherical vessel for the storage and transport of liquid nitrogen. With rugged, aluminium housing, carrying handle and narrow neck with drop on, insulating lid.

	Cap. litres	Neck dia. mm	Ext. dia. mm
DE746-16	1.0	30	175
DE746-22	3.0	60	225
DE746-27	5.0	60	260
DE746-34	10.0	65	330

Ice and dry ice carriers, Igloo – see Ice Production/Storage section.

Cold Traps (Cold Fingers)

Simple cold traps, comprising a one litre, insulated dewar reservoir and separate glass trap with cylindrical body, 205 x 50mm height x diameter, 150ml capacity and GL18 threaded inlet/outlet connections fitted with screw cap and 8.5mm diameter PTFE tubing ferrule. An alternative model with fitted screw cap top allows easier removal of trapped liquid. The accessory dry ice basket cage allows cold trap removal/re-insertion into the dewar by stopping the solid dry ice coolant from collapsing into the space occupied by the trap.

- DE748-10 Without screw cap
- DE748-20 With screw cap
- DE748-65 Accessory dry-ice basket cage



DE740



DE746



DE744



DE748-10



DE748-20

Dewar Flasks, Dialysis

Liquid Nitrogen Storage Vessels

MVE Lab Series

Lightweight aluminium construction with high efficiency insulation and vacuum retention. With carrying handle.

Model		LAB4	LAB5	LAB10	LAB20	LAB30	LAB50
Capacity	litres	4	5	10	21	32	50
Static evaporation rate, per day, litres		0.19	0.15	0.18	0.18	0.22	0.49
Neck diameter	mm	35.5	56	56	51	64	64
Overall height	mm	426	462	546	627	611	779
diameter	mm	185	222	260	368	432	432
Weight,	empty, kg	2.7	4	6	9	12	15
	full*, kg	6	8	14	26	38	56

* When filled with liquid nitrogen.

Liquid Nitrogen Dewar Vessels

As described. Supplied empty.

- DE757-04** Dewar, LAB4
- DE757-05** Dewar, LAB5
- DE757-10** Dewar, LAB10
- DE757-20** Dewar, LAB20
- DE757-30** Dewar, LAB30
- DE757-50** Dewar, LAB50

Alternative sizes of dewars, filling tubes and dispensing siphons are available – details on request.



DE757 with accessories

Dialysis Tubing, Visking

Dialysis Tubing, Visking

A transparent seamless viscose cellulose containing glycerine water and approximately 0.1% sulphur. Permeable to water and with an average pore radius of 24Å. Will permit diffusion of low molecular weight compounds in aqueous solution through the walls but retain high molecular weight compounds such as bacteria and proteins. Supplied as a flat roll in an airtight container. Dimensions given are inflated diameter x flat width and are approximate. Supplied in rolls of 30 metres (except DG100-05 which is supplied in a roll of 15 metres).

- DG100-05** 6 x 10mm
- DG100-12** 14 x 25mm
- DG100-18** 19 x 32mm
- DG100-26** 29 x 44mm

Clips, for dialysis tubing

Plastic. For closing the end of tubing up to 29mm inflated diameter. Supplied in pack of 10.

- DG110-10** Clips



DG100 with DG110



DG110

Diluters, Discs, Dishes

Compudil 3 Diluter

Easy to use, digitally controlled diluter for routine dilution and dispensing.

- ◆ Ranges 1 l to 5ml sample 50 l to 25ml diluent using accessory syringes and valve blocks
- ◆ Simple keypad programming for all mainstream liquid handling procedures.
Standard protocols include:
 - 4 types of conventional diluting
 - 6 types of conventional dispensing
 - liquid transfer and wash
 - serial dilution mode
- ◆ Precise, C.V. better than $\pm 0.1\%$ of full syringe volume
- ◆ 45 programme memory
- ◆ RS232 interface allows bi-directional programme and procedural information exchange with the users' PC for GLP accreditation requirements and remote programming
- ◆ Inert liquid pathway
- ◆ Easily manipulated handset to minimise fatigue
- ◆ Low dead volume (1ml: 95% recoverable)
- ◆ Operating speeds 2 to 15 seconds for full syringe stroke depending on syringe and tubing size used
- ◆ Optional footswitch allows hands-free operation

Syringes

A total of 10 different sizes of syringe fit the Compudil '3' allowing one diluter to be used for sample volumes between 1 l and 5ml, and diluent volumes up to 25ml (using relevant valve blocks). Threaded connectors allow quick and easy exchange of syringes and once the relevant syringe volumes are keyed in the details are retained on the diluters memory. Digital control allows a full syringe to be dispensed in up to 5000 steps with the volumes dispensed or retained available to be displayed if required.

Valve Blocks

Accessory valve blocks allow the use of alternative tubing bores and sample/diluent syringes as indicated.

Compudil 3 Diluter

As specified. With tubing kit, handset and valve block. The valve block supplied depends on the sample and diluent syringes ordered separately with the instrument. Materials in contact with liquids are glass and PTFE based. Overall 300 x 200 x 215mm. Weight 9.5kg. For 100-120V and 210-240V 50/60Hz single phase supplies. Requires, but is not supplied with, accessory syringes for operation.

DH210-25 Compudil 3

Accessory and spare syringes for DH210-25

Type	Cap.
DH214-24 Sample	50 l
DH214-27 Sample	100 l
DH214-30 Sample	250 l
DH214-32 Sample	500 l
DH214-33 Sample	1000 l
DH214-34 Sample/Diluent	1ml
DH214-37 Sample/Diluent	2.5ml
DH214-40 Sample/Diluent	5ml
DH214-43 Diluent	10ml
DH214-46 Diluent	25ml
DH214-55 Footswitch	
DH215-60 Handset for 2.5ml and 5ml sample syringes	

Accessory Valve Blocks

	For syringes sample	diluent
DH215-70	1ml	5ml
DH215-72	1ml	10 to 25ml
DH215-75	1ml	all



DH210-25

Discs, Dishes

Discs, aluminium foil

Disposable, interleaved with tissue paper. Thickness 0.03mm. Diameters as indicated. Supplied in packs of 1000.

	Diameter, mm
DH640-10	80
DH640-20	100
DH640-30	120
DH640-40	130
DH640-50	150

Dishes, aluminium foil

Disposable, circular and slightly tapered, with smooth, 0.2mm thick walls and flanged rims for easy handling. Supplied in packs as indicated.

	Top dia. x depth mm	Pack qty.
DH798-40	42 x 5	500
DH798-50	57 x 10	250

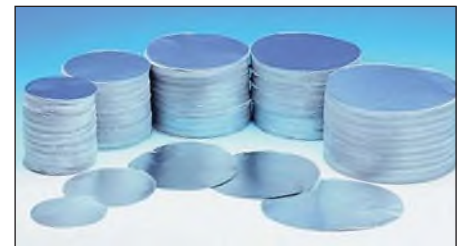
Dishes, white PVC, Azlon

For general purpose and photographic use. With pouring lip. Dimensions as indicated.

	L x W x D, mm
DH800-10	185 x 127 x 50
DH800-20	260 x 200 x 65

Trays, multipurpose

White polypropylene, deep, tough trays which resist flexing – see *TT210 series*.



DH640



DH798



DH800

Dispensers

Bottle Top Dispensers, Dispensette® S



Conformity certified to DE-M, with performance certificate

- ◆ Choice of
 - Fixed volume: 2 sizes* 5ml or 10ml
 - Variable volume: 7 sizes from 0.05ml to 100ml. Continuous volume adjustment by pointer which moves along a ridged track
 - Variable digital: 4 sizes* from 0.5 to 50ml. Easy to read digital volume display and calibration adjustment
 - Organic: 4 sizes of adjustable volume from 0.5 to 50ml. Ideal for organic solvents including chlorinated and fluorinated hydrocarbons, concentrated acids, TFA (trifluoroacetic acid), THF (tetrahydrofuran) and peroxides
 - TA (Trace Analysis): Adjustable volume 1ml to 10ml, for the dispensing of high-purity media for trace analysis. With sapphire ball valves and platinum-iridium** valve springs suitable for use with acids, including hydrofluoric acid (HF), bases and hydrogen peroxide. The dispensed liquid will have a trace metal content generally in the low ppb or ppt range

* Other sizes are available - details on request

** Versions with Tantalum valve spring also available - details on request

Built-in features

- ◆ Calibration adjustment on all models to comply with ISO9001 and GLP requirements
- ◆ DE-M marked (German Measurement and Calibration Regulation, replacing former H mark)
- ◆ Reagents in contact with chemically inert materials only
- ◆ TPX® protective sleeve around the glass cylinder (except model TA) to reduce breakage hazards
- ◆ Safety discharge valve restricts reagent flow when the discharge tube is not secured properly
- ◆ Optional recirculation valve on the discharge tube allows reagent to be channelled back into the reservoir during priming to avoid 'spitting'
- ◆ Multi-layered PFA plunger coating for smoother operation and better chemical resistance
- ◆ Locking sleeve supports full length of discharge tube for stability during dispensing and screwthread safety cap reduces risk of reagent splashing
- ◆ Telescopic, FEP filling tube self-adjusts to the depth of the reservoir bottle
- ◆ Valve block rotatable 360° to allow the reservoir label to be viewed comfortably by facing the user and dispenser fascia and discharge tube can be independently rotated on the reservoir neck for maximum convenience in use
- ◆ All models (except model TA) can be steam sterilised at 121°C (2 bar for 20 minutes)
- ◆ Maximum operating limits: 600mbar pressure, 500mm²/sec. viscosity, 40°C temperature and 2.2g/cm³ dispensed media density



DK101 on a bottle



DK104 on a bottle, DK103 and DK107 are similar



DK106 on a bottle



DK109 on a bottle

Dispensers



Bottle Top Dispensers Dispensette® S continued

The figures given for accuracy and reproducibility are final test values referred to maximum volume and distilled water at 20°C.

Dispensette S, Fixed Volume

Accuracy (A) < ±0.5%, reproducibility (V) < 0.1%. Adjustable calibration. A45 standard neck thread. Supplied with FEP discharge tube and valve as indicated, performance certificate, operating manual, mounting tool, FEP telescopic filling tube and PP bottle adapters as specified in the separate table. Without reservoir bottle.

Volume ml	With standard valve	With recirculation valve
5	DK101-30	DK101-60
10	DK101-40	DK101-65

Dispensette S, Variable Volume

Accuracy (A) < ±0.5% (for 0.1 to 1ml < 0.6%) reproducibility (V) < 0.1% (for 0.1 to 1ml < 0.2%). Continuous pointer adjustment of volume along a ridged track. Adjustable calibration. A45 standard neck thread. Supplied with FEP discharge tube and valve as indicated, performance certificate, operating manual, mounting tool, FEP telescopic filling tube and PP bottle adapters as specified in the separate table. Without reservoir bottle.

Volume ml	Subdiv. ml	With standard valve	With recirculation valve
0.1 to 1	0.02	DK103-10	DK104-10
0.2 to 2	0.05	DK103-15	DK104-15
0.5 to 5	0.1	DK103-20	DK104-20
1 to 10	0.2	DK103-25	DK104-25
2.5 to 25	0.5	DK103-30	DK104-30
5 to 50	1.0	DK103-35	DK104-35
10 to 100	1.0	DK103-40	DK104-40

Dispensette S, Digital Variable Volume, Easy Calibration

Accuracy (A) < ±0.5% reproducibility (V) < 0.1%. Digital display of volume setting. Easily adjustable calibration with display flag indicating user re-calibration from factory setting. A45 standard neck thread. Supplied with FEP discharge tube and valve as indicated, performance certificate, operating manual, mounting tool, FEP telescopic filling tube and PP bottle adapters as specified in the separate table. Without reservoir bottle.

Volume ml	Subdiv. ml	With standard valve	With recirculation valve
0.5 to 5	0.02	DK106-20	DK106-50
1 to 10	0.05	DK106-25	DK106-55
2.5 to 25	0.1	DK106-30	DK106-60
5 to 50	0.2	DK106-35	DK106-65

Dispensette S, Organic Dispenser, Variable Volume

Accuracy (A) < ±0.5% reproducibility (V) < 0.1%. Continuous pointer adjustment of volume. Adjustable calibration. A45 standard neck thread. Supplied with FEP discharge tube and valve as indicated, performance certificate, operating manual, mounting tool, FEP telescopic filling tube and PP bottle adapters as specified in the separate table. Without reservoir bottle.

Volume ml	Subdiv. ml	With standard valve	With recirculation valve
0.5 to 5	0.1	DK107-41	DK107-70
1 to 10	0.2	DK107-45	DK107-75
2.5 to 25	0.5	DK107-50	DK107-80
5 to 50	1.0	DK107-55	DK107-85

Dispensette S, TA Dispenser, Variable Volume

Accuracy (A) < ±0.5% reproducibility (V) < 0.1%. Continuous pointer adjustment of volume. Adjustable calibration. A45 standard neck thread. Supplied with FEP discharge tube and valve as indicated, performance certificate, operating manual, mounting tool, FEP telescopic filling tube and PP bottle adapters as specified in the separate table. Without reservoir bottle.

Volume ml	Subdiv. ml	With standard valve	With recirculation valve
1 to 10	0.2	DK109-25	DK109-55

Dispensette max. volume, ml	Bottle adapters supplied	Telescopic filling tube supplied, mm
1, 2, 5, 10	GL24-25, GL28/S28 GL32-33, GL38, S40	125 to 240
10 (TA only)	GL28/S28, GL32 (in ETFE), S40 (in PTFE)	67 to 140
25, 50, 100	GL32-33, GL38, S40	170 to 330

Accessory Reservoir Bottles

Amber, soda-lime glass, square pattern (except DK114-32 which is cylindrical) with plastic coating to reduce breakage hazards, PP screw cap and pouring ring. Maximum operating temperature +80°C. Not suitable for TA dispenser.

	Capacity ml	Screw neck mm	Bottle width x height, mm
DK114-17	250	GL32	65 x 160
DK114-22	500	GL32	80 x 195
DK114-27	1000	GL45	95 x 230
DK114-32	2500	GL45	140 x 300

Accessory reservoir bottle for TA dispenser – see BR770-52.

Note: Dispensette S spares and accessories are not compatible with previous models and vice versa, except reservoir bottles.



DK103-10 to -40 on bottle

Dispensers

Bottle Top Dispensers, Pressmatic PD series

Bibby Scientific

- ◆ Ceramic piston ensures
 - no surface abrasion
 - no thermal expansion
 - no sticking with alkalis
- ◆ Recirculation valve allows safe priming without wasting reagent

- ◆ Self-locking volume selection
- ◆ Accuracy within 0.7%
- ◆ Can be autoclaved at 121°C
- ◆ Works calibrated volume certificate
- ◆ Valves easily removed for cleaning

Variable setting with precision borosilicate glass cylinder and tough ceramic piston. The outer sleeve is a tough, chemically resistant plastic. The liquid pathway is PTFE, glass and ceramic. The unit can be rotated 360° on the bottle for easy positioning. Inlet and outlet valves are both easily removed for cleaning or replacement using the spanner provided. A fully supported delivery jet prevents 'side fling' of reagent and ensures accurate dispensing into small vials. Suitable for mounting on a bottle with a 45mm screw neck and supplied with one each A32, A38 and S40 adapters to fit most types of reagent bottle. Without reservoir bottle.

Pressmatic Dispensers

As described. With valve spanner and adapters but without reservoir bottle.

	Ref.	Range ml
DK152-10	PD1R	0.2 to 1
DK152-15	PD2R	0.4 to 2
DK152-20	PD5R	1 to 5
DK152-25	PD10R	2 to 10
DK152-45	PD30R	5 to 30
DK152-55	PD60R	10 to 60

Accessory Bottles

- DK154-10** Amber 500ml, A32
- DK154-15** Amber 1000ml, GL45
- DK154-20** Clear 500ml, A32
- DK154-25** Clear 1000ml, GL45



DK152

Bottle Top Dispensers, Pressmatic PP series

Bibby Scientific

Low cost dispensers for operation in less demanding applications.

- ◆ Borosilicate glass piston
- ◆ Polypropylene valve block
- ◆ Accuracy within 0.7%
- ◆ Can be autoclaved at 121°C
- ◆ Valves easily removed for cleaning
- ◆ Works calibrated volume certificate

Suitable for use with most aqueous solutions, dilute acids, alkalis and polar solvents. Not suitable for Halogenated solvents, oxidising or concentrated acids.

Pressmatic PP Dispensers

As described. Suitable for mounting directly on a bottle with a 32mm screw neck and supplied with one each A28, A45 and S40 adapters to fit most types of reagent bottle. Without reservoir bottle.

	Ref.	Range ml
DK157-25	PP10P	2 to 10
DK157-55	PP60P	10 to 60

Accessory Bottles

- DK154-10** Amber 500ml, A32
- DK154-15** Amber 1000ml, GL45
- DK154-20** Clear 500ml, A32
- DK154-25** Clear 1000ml, GL45



DK157

Dispensers

Bottle Top Dispensers, Calibrex 520 series



- ◆ Rapid, precise volume setting by twist-setting collar with large display window and easy-to-read scale
- ◆ Autoclavable at 121°C maximum, fully assembled
- ◆ Solid cam provides factory calibrated step for each volume increment
- ◆ Dispensing tube rotates 360° giving a comfortable working position
- ◆ Borosilicate plunger with PFA coating
- ◆ Accuracy $<\pm 0.7\%$.
- ◆ Precision $<0.1\%$ CV

Dispensers, Socorex Calibrex 520 series

With calibrated stop volume selector. Suitable for mounting on bottles with 32/33mm screw necks and supplied with one each polypropylene adapters for screw neck diameters as indicated. Without reservoir bottle.

	Range ml	Adapters supplied mm diameter
DK282-11	0.25 to 2.00	28, 40, 45
DK282-14	1.00 to 5.00	28, 40, 45
DK282-17	1.00 to 10.00	28, 40, 45

Reservoirs

	Capacity ml	Screw thread mm
Glass, amber		
DK154-10	500	32
DK154-15	1000	45
Glass, clear		
DK154-20	500	45
DK154-25	1000	45

Bottle Top Dispensers, Solutae 530 series



- ◆ Volume adjustment by smooth, sliding pointer with alternative screw clamp button supplied
- ◆ Autoclavable at 121°C maximum, fully assembled
- ◆ Choice of models with, or without, Flow Control which allows priming without loss, or contamination, of reagent dispensed
- ◆ Dispensing tube rotates 360°
- ◆ Borosilicate plunger with PFA coating
- ◆ Accuracy: $<\pm 1.5\%$ (minimum volume), $<\pm 0.6\%$ (maximum volume)
- ◆ Precision: $<\pm 0.5\%$ CV (minimum volume), $<\pm 0.1\%$ CV (maximum volume)

Dispensers, Socorex Solutae 530 series

Suitable for mounting on bottles with 45mm screw necks and supplied with one each polypropylene adapters for screw neck diameters of 32, 38 and 40mm. Without reservoir bottle.

	Range, ml	With Flow Control stopcock?
DK282-19	2.5 to 25	No
DK282-23	5 to 50	No
DK282-27	10 to 100	No
DK282-49	2.5 to 25	Yes
DK282-53	5 to 50	Yes
DK282-57	10 to 100	Yes

Reservoirs

	Capacity ml	Screw thread mm
Glass, amber		
DK154-10	500	32
DK154-15	1000	45
Glass, clear		
DK154-20	500	45
DK154-25	1000	45



DK282-11 to -17 on reservoirs



DK282-19 to -27 in use, -49 to -57 are similar

Dissecting

Dissecting Boards

Dissecting Boards

Dimensions are length x width.

	<i>Dimensions, mm</i>
Wood	
DS100-15	560 x 380
Polypropylene	
DS110-10	300 x 210

Dissecting Dishes

Stainless steel, shallow and deep form, sizes up to 650 x 275mm – see *Instrument Trays in the Medical section*.

Awl

Stainless steel spike in aluminium handle. Spike length 28mm.

DS115-10 Awl

Scalpels and Razors

Post-Mortem Blade, Swann-Morton

Heavy duty carbon steel. Fixes to accessory handle with screw fitting. Individually wrapped in pack of 10.

DS250-15 PM Blade

Handle, metal with screw fixing

DS252-08 PM Handle

Scalpel/Tool Set, Swann-Morton

Comprising slotted plastic handle with clamping screw and one each No. 1 straight edge and No. 2 convex curved edge blades.

DS260-10 Tool Set

Blades. Supplied in packs of 50.

DS262-12 No. 1 straight

DS262-14 No. 2 convex curved

DS262-16 No. 3 concave curved

Scalpels

Solid forged, stainless steel with handle and polished blade as indicated. Dimension given is the blade length.

	<i>Blade, mm</i>
DS330-30	30
DS330-35	35
DS330-45	45
DS330-50	50

Section Razor

Stainless steel blade housed in a black handle.

DS350-10 Razor

Razor Blades, single edge

Light duty. Single edge carbon steel, aluminium backed with no notches. For industrial and laboratory use only. Overall dimensions 39 x 19mm. Supplied in pack of 100.

DS360-10 Single edge

Razor Blades, double edge

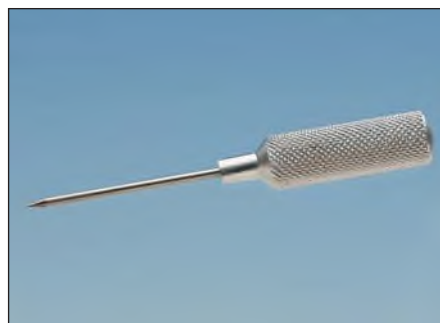
Light duty. Double edge stainless steel. For industrial and laboratory use only. Overall dimensions 39 x 19mm. Supplied in pack of 100.

DS360-20 Double edge

Swann-Morton scalpel blades and handles – see *following page*.



DS100



DS115



DS350

**DS360-10
DS360-20**






















DS110



Dissecting

Swann Morton Scalpels, Blades and Handles

Sterile and non-sterile carbon steel and stainless steel disposable blades with permanently fitted plastic handle or for use with a choice of reusable metal handles. Sterilisation is by gamma irradiation (except DS165-series which are ethylene oxide sterilised).

Blade illustration (not to scale)	Blade No.	Disposable Scalpels				Disposable Blades (Without handle)	
		Stainless steel blade, with plastic handle.		Retractable blade.		Carbon steel. To BS2982, EN27740.	
		Non-sterile		Sterile		Non-sterile	Sterile
		Fixed blade. Length 80mm. Supplied singly.	Retractable blade. Length 135mm. Packs of 500.	Fixed blade. Length 135mm. Individually wrapped. Packs of 10.	Retractable blade. Length 135mm. Individually wrapped. Packs of 25.	5 blades in a foil wrap. Packs of 100.	Individually foil wrapped. Packs of 100.
	6	—	—	—	—	DS180-06	DS185-06
	9	—	—	—	—	DS180-08	DS185-08
	10	DS150-10	DS155-10	DS160-10	DS165-10	DS180-10	DS185-10
	10a	—	DS155-15	DS160-15	—	DS180-15	DS185-15
	11	DS150-20	DS155-20	DS160-20	DS165-20	DS180-20	DS185-20
	12	—	—	DS160-25	—	DS180-25	DS185-25
	14	—	—	—	—	DS180-27	DS185-27
	15	DS150-30	DS155-30	DS160-30	DS165-30	DS180-30	DS185-30
	15a	—	—	—	—	DS180-32	DS185-32
	16	—	—	—	—	DS180-34	DS185-34
	20	—	—	DS160-40	—	DS180-40	DS185-40
	21	—	—	DS160-45	—	DS180-45	DS185-45
	22	—	—	DS160-50	—	DS180-50	DS185-50
	22a	—	—	DS160-55	—	DS180-55	DS185-55
	23	—	—	DS160-60	—	DS180-60	DS185-60
	24	—	—	DS160-65	—	DS180-65	DS185-65
	25	—	—	—	—	DS180-70	DS185-70
	26	—	—	—	—	DS180-75	DS185-75
	27	—	—	—	—	DS180-80	DS185-80

Note: Blade Nos 6 to 16 require handle 3, 3L, 7 or 9. Blade Nos 20 to 27 require handle 4 or 4L.



Handles

Stainless steel. For use with DS180 and DS185 blades as specified. Supplied in packs of 10.

Handles

DS197-11	No. 3
DS197-17	No. 3L
DS197-22	No. 4
DS197-27	No. 4L
DS197-32	No. 7
DS197-37	No. 9

Surgical Blade Removers

For the safe removal and disposal of blades from handles. Accommodates all Swann Morton blades and handle fitments. Available in sterile or non-sterile packs as indicated.

DS205-10	Non sterile, pack of 100
DS205-20	Sterile, pack of 50

Swann-Morton Post-Mortem blades and handle – see *previous page*.



DS155/DS165

DS205

Dissecting

Scissors

Scissors, Fine point

Stainless steel. Supplied singly.

Overall length,
mm

Straight open shanks

DS450-15 112

DS450-20 125

DS450-25 150

Straight closed shanks

DS455-10 105

Curved open shanks

DS460-15 112

DS460-20 125

DS460-25 150

Scissors, blunt

Stainless steel. Straight, closed shanks.

DS480-20 125

Scissors, general purpose

Stainless steel. Straight, closed shanks.

DS500-20 125

DS500-25 150

DS500-30 175

Bone Cutter

Carbon steel. Sprung. Blade length 20mm. Overall 120mm.

Description

DS520-10 Bone cutter

Oilstone

Fine grade. For honing scalpels and razors. Approximately 200 x 50 x 25mm thick.

DS525-10 Oilstone

Scissors, heavy duty - see TS285-12.

Chains and Needles

Chains and Hooks

Three on one ring. Nickel plated.

DS580-10 Chains & hooks

Section Lifter

Stainless steel. Blade length 55mm.

DS590-20 Lifter

Seekers

Stainless steel bent, blunt probe in handle. Supplied singly.

Handle type

DS605-15 Plastic

DS605-20 Stainless steel

Needles

Stainless steel, straight in handle. Supplied singly.

Handle type

DS620-10 Wood

DS620-20 Stainless steel

Needle, Borradaile

Stainless steel single edge blade in aluminium handle. Blade length 30mm.

DS625-15 Borradaile



DS450

DS455

DS460

DS480



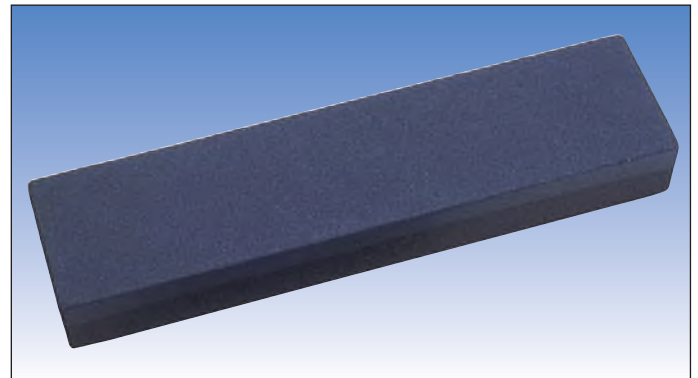
DS500



DS520

DS580

DS590



DS525-10



DS605

DS620-10

DS620-20

DS625

Dissecting

Forceps

Dimension given is overall length.

Forceps, PMP

With fine tooth grips

Sharp ends

DS700-10 115mm

DS700-20 145mm

DS702-25 180mm

Blunt ends

DS702-30 250mm

Forceps, fine point

Stainless steel sprung flutes with guide pin.

Straight

DS710-10 115mm

DS710-15 125mm

DS710-20 150mm

Curved

DS712-10 115mm

DS712-15 125mm

Forceps, blunt

Stainless steel sprung, straight flutes. No guide pin.

DS725-10 115mm

DS725-15 125mm

DS725-20 150mm

Forceps, polypropylene, Nalgene

Autoclavable to 121°C. With double hinge for extra leverage, blunt tips with interlocking teeth and ratchet handles to lock tips shut. Overall 120mm. Supplied in packs of 12.

Ref.
6320-

DS727-15 -0010

Forceps, disposable, sterile

Polypropylene, sterile. With fine tooth, sharp ends and interlocking spines that ensure the tips meet precisely. Overall 130mm. Supplied individually bagged in an outer pack of 400.

DS729-10 Disposable forceps

Forceps, entomological

Stainless steel sprung curved flutes with broad ends and guide pin.

DS730-15 120mm

Forceps, watchmakers

Very fine points. Stainless steel sprung flutes, length approximately 120mm.

DS740-10 No. 3

DS740-15 No. 4

DS740-20 No. 5

DS740-25 No. 7

Forceps with spatulate ends for handling microscope slides – see *Microscopy* section.

Folding Magnifiers for specimen examining – see *Magnifiers* section.

Dissecting Sets

Dissecting Set

Comprising items as below in a canvas roll wallet with tape ties. All instruments stainless steel unless otherwise stated.

2 only solid scalpels

1 only needle (wood handle)

1 only seeker (plastic handle)

1 pair forceps, blunt, 125mm

1 pair forceps, sharp, 115mm

1 pair scissors, fine, 115mm

1 pair scissors, blunt, 125mm

1 only section lifter (stainless steel)

1 only section razor (stainless steel)

1 only fine brush

DS840-15 Set

Dissecting Set

As DS840-15 but with one each scalpel handles Nos. 3 and 4 and 20 blades to fit in place of the solid scalpels.

DS840-30 Set

DS840-75 Spare canvas roll wallet

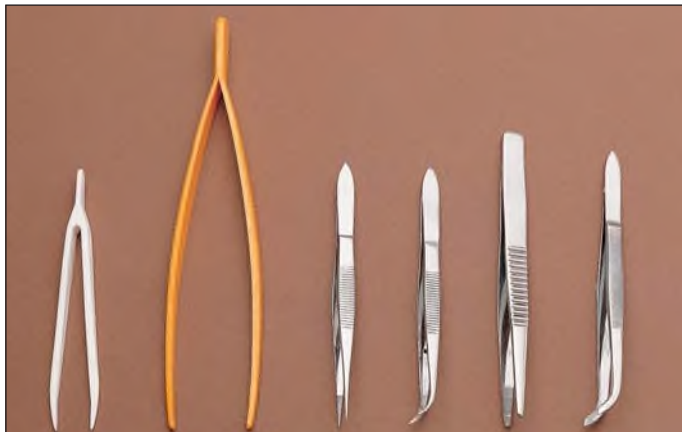
Specimen Examination

Other items of interest can be found in other sections of this catalogue – see:-

Mixers section for *Homogenisers*.

Microscope section for *high magnification examination*.

Histology, Microscopy sections for *staining, section mounting and wax embedding facilities*.



DS700

DS702

DS710

DS712

DS725

DS730

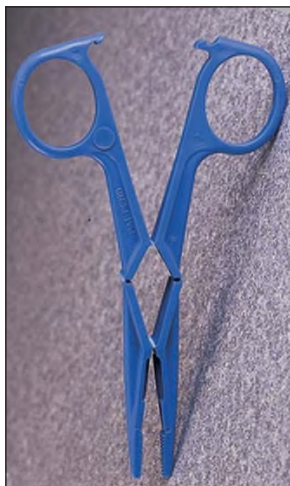


DS740-10

DS740-15

DS740-20

DS740-25



DS727-15



DS729-10



DS840-15, DS840-30 is similar

Dissolved Oxygen

Bench Model 9500



- ◆ Back-lit LCD graphics display
- ◆ Atmospheric pressure and salinity compensation values can be entered for correction of results
- ◆ BOD capability
- ◆ Multi-language operation
- ◆ Real-time clock with time stamping of results and calibration reminder ensure compliance with GLP (Good Laboratory Practice)
- ◆ 500 reading memory which can store manually, at timed intervals, or alarm events, plus twenty five BOD results (in batches of 10 samples)
- ◆ Infra-red data link and separate bi-directional RS232 port

Catalogue No.		DT290-20					
Model		9500					
Dissolved oxygen	%O ₂	Ranges	0 to 199	Resolution	1	Accuracy	±2% within 10°C of calibration
			0 to 25.0		0.1		temperature
Temperature	mg/l		0 to 19.99		0.01		±0.5
		°C	-10 to +60		0.1		±1
		°F	+14 to +140		1		
Temp. comp. ranges	°C (°F)	0 to +60 (+32 to +140), manual and automatic					
Alarm points		0 to 19.99mg/l					
Overall H x W x D	mm	55 x 210 x 250					
Weight	kg	0.85					

Dissolved Oxygen Meter, Model 9500, Jenway

As described. Supplied with probe with built-in ATC, spare membranes, KCL filling solution, zero powder, swing-arm electrode holder, instruction manual and mains adapter. A 230V 50Hz supply is required for the adapter.

DT290-20 Model 9500

Spares and Accessories

DT292-11 DO₂ electrode with ATC

DT202-09 Membrane set

DT202-10 Zero powder

CU656-25 IrDA or serial connection printer. Supplied with one roll of thermal paper, serial connection lead, power supply and power connection lead

CU656-27 Thermal paper roll, pack of 1



DT290-20 in use

Dissolved Oxygen

Models Oxi3205 and Oxi3310



Portable, precise, rugged, dissolved oxygen meters for field or laboratory use.

- ◆ High resolution, backlit graphics display
- ◆ Autoread function with end-point recognition
- ◆ Automatic atmospheric pressure compensation and salinity compensation
- ◆ Automatic temperature compensation from 0 to 50°C
- ◆ Data storage facility for batch measurement (Oxi3310 only)
- ◆ USB interface
- ◆ Robust, IP67 class housing

Catalogue No.	DT295-25	DT295-35
Model, Oxi-	3205	3310
Ranges	0.00 to 20.00 x 0.01, 0 to 90 x 1 — both models	
x resolution	0.0 to 200.0 x 0.1, 0 to 600 x 1 — both models	
	hPa 0.0 to 200.0 x 0.1, 0 to 1250 x 1 — both models	
temperature, °C	-5.0 to +50.0 x 0.1 — both models	
Accuracy	mg/l O ₂ ±0.5% of value — both models	
	%O ₂ ±0.5% of value — both models	
	hPa ±0.5% of value — both models	
temperature, °C	±0.5% of value — both models	
Calibration	OxiCal® rapid calibration — both models (probe dependent)	
Datalogging memories	—	500 — manual 5000 — automatic
Power	4 x 1.5V, AA batteries — both models	
Dimensions	mm 180 x 80 x 55 — both models	
Weight	g 400 — both models	

DO₂ meters, Oxi3205 and Oxi3310, WTW

As described. Supplied with CelloX® 325 dissolved oxygen probe, cleaning solution, electrolyte, stand, sample beaker, carrying case, instructions and batteries.

- DT295-25 Oxi3205
- DT295-35 Oxi3310

Accessories and Spares

- DT297-12 Spare DO₂ probe, CelloX® 325 with 1.5m cable*
- DT297-15 OxiCal® SL storage/calibration container for DT297-12
- DT297-17 SMPPro rubber protection boot for DT295-series
- DT297-19 BOD bottle adapter set for DT295-series
- BL610-15 1.5V AA battery (4 required)

* Other cable lengths up to 20m are available - details on request.



DT295-25



DT295-35

Dissolved Oxygen

Models HI-9142 and HI-9146

HANNA

Waterproof, microprocessor controlled dissolved oxygen meters designed for on-site applications, especially waste water treatment monitoring and fish farming.

- ◆ Auto-calibration by saturated air recognition
- ◆ Direct readout in ppmO₂ (HI-9146 additionally has a separately selectable % saturation readout and simultaneous temperature readout)
- ◆ Polarographic dissolved oxygen probe with built-in temperature sensor
- ◆ Automatic temperature compensation from 0 to 50°C
- ◆ Battery operated, with auto shut-off after 4 hours
- ◆ HI-9146 additionally includes backlit display feature, altitude and salinity compensation, on-screen user guidance and GLP features.

Catalogue No.	DT310-05	DT330-15
Model	HI-9142	HI-9146
Range x resolution	ppmO ₂ 0 to 19.9 x 0.1 %O ₂ — temperature °C -5 to +50 x 0.1	0 to 45 x 0.01 0 to 300 x 0.1 0 to +50 x 0.1
Accuracy	ppm%O ₂ 1.5% of full scale — both models temperature °C ±0.2	— — ±0.5
Calibration	Manual, 2 point	Automatic in saturated air
Power	3 x 1.5V, AAA batteries — both models	
Dimensions	mm 185 x 72 x 36	185 x 72 x 36
Weight	g 300	300

DO₂ meters, Hanna

As described. With rugged carrying case, dissolved oxygen probe with 4m cable, batteries, spare membrane kit and 30ml electrolyte solution.

DT310-05 HI-9142

DT330-15 HI-9146

Spares

DT335-15 DO₂ probe with 4m cable

DT335-20 Replacement membranes, pack of 5

DT335-24 Electrolyte solution, pack of 30ml

BL610-08 1.5V AAA battery (3 required)

Model HI-96732 Colorimeter

HANNA

Portable colorimetric dissolved oxygen meter which takes measurements using a modified Winkler method. In operation the sample is placed in a cuvette provided. The cuvette with sample is inserted into the meter and the zero key selected to calibrate the meter. Then accessory reagents are added drop-wise to the sample to generate the colour for reading. The intensity of the colour is dependent on the dissolved oxygen level. Readings are unaffected by the temperature change, salinity or probe health factors normally affecting polarographic measurement systems.

- ◆ Easy to operate
- ◆ Low cost per test
- ◆ Maintenance free system
- ◆ Long life LED light source operating at 430nm
- ◆ Battery operated, with auto shut-off after 10 minutes

Catalogue No.	DT365-10	
Model	HI-96732	
Range x resolution	mg/l	0 to 10.0 x 0.1
Accuracy (at 20°C)	mg/l	±0.2 ±3% of reading
Power	1 x 9V, PP3 battery	
Dimensions	mm	180 x 83 x 46
Weight	g	290

Portable DO₂ Colorimeter, HI-96732, Hanna

As described. With 60ml capacity BOD sample bottle, two cuvettes, 9V PP3 battery and instructions. Without reagents.

DT365-10 HI-96732

Accessories and Spares

DT369-06 Reagent kit for dissolved oxygen, 100 tests

DT369-12 Spare measurement cuvettes, pack of 4

BL610-25 Spare battery, 9V PP3



DT310-05



DT330-15



DT365-10, with accessories

Distillation

Anti-Bumping Granules

Glass beads

Soda lime glass. Approximate diameters as indicated. Supplied in packs of 1kg.

DT984-02	2mm
DT984-03	3mm
DT984-04	4mm
DT984-05	5mm
DT984-06	6mm
DT984-08	8mm
DT984-10	10mm

Boiling stones

PTFE. Prevent chemical splashes and "bumping" when boiling solutions. Supplied in resealable packs of 500g. Granule sizes stated are approximate.

DT985-10	4mm granules
DT985-20	6mm granules

Glass Distillation Receiver BS658

Glass Distillation Receiver

Pyrex Glass. Class B. To BS658.

Type 1 Crow pattern

	Ref.	Cap. ml
CY750-10	Pyrex 3400/04	100

Glass Distillation Flasks

Flasks, Pyrex 1280/1290 series

Distillation. Side arm set at 75° to vertical axis and positioned to suit a 76mm partial immersion thermometer.

	Ref.	Cap. ml
General purpose		
FK525-35	1280/14	500
To ASTM E133		
FK527-24	1290/02	100
FK527-26	1290/04	125
FK527-30	1290/06	250

Distillation Assemblies for petroleum products – see *Petroleum* section.

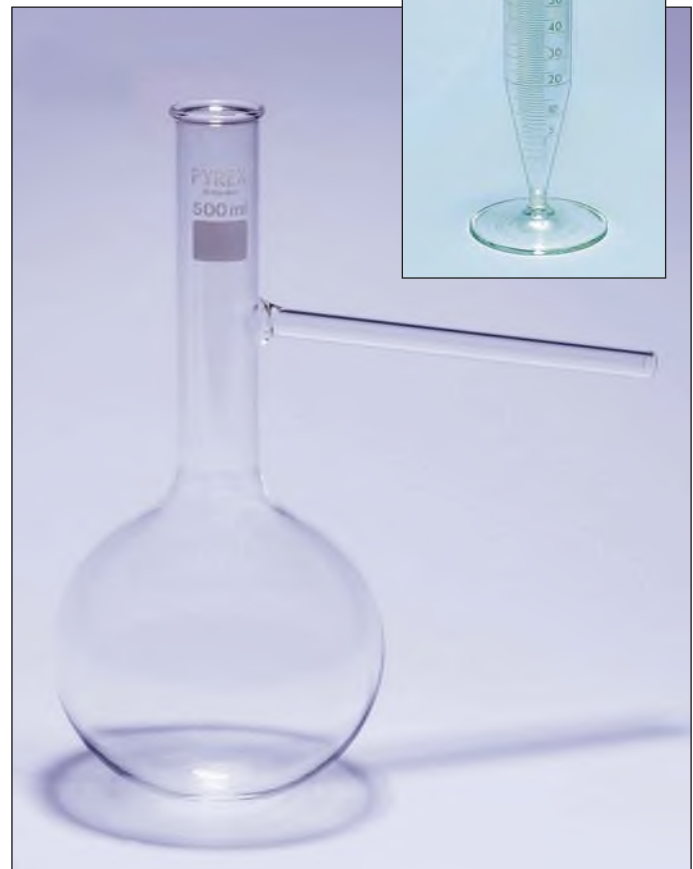
Distillation Thermometers to IP and ASTM – see *Thermometers* section.



DT984



DT985



FK525, FK527

CY750

Draining and Drying

Draining Racks

Draining Rack, Azlon

Wall mounting. Epoxy coated steel with 8 pegs 110mm long and 24 pegs 80mm long for holding flasks, cylinders, etc. Overall 410 x 300mm.

DY110-10 Rack only

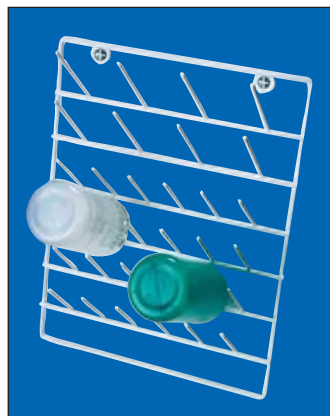
DY110-27 Rack with integral free standing support

Draining Racks, Bürkle

Wall mounting. Rigid PVC backboard drilled with holes to take interchangeable clip-in pegs in a variety of lengths as indicated. Available in a choice of sizes with, or without, draining trough with nozzle for attaching 4mm i.d.tubing. Supplied with pegs, screws and dowels for fitting.

	Rack W x H, mm	Pegs supplied		
		60mm	100mm	150mm
With draining trough				
DY116-40	400 x 400	5	26	2
DY116-50	500 x 500	10	39	4
DY116-60	600 x 600	15	56	6
Without draining trough				
DY119-40	400 x 400	5	26	2
DY119-50	500 x 500	10	39	4
DY119-60	600 x 600	15	56	6

Spare pegs are available separately – details on request.



DY110 in use



DY116 in use



DY150 in use

Dryer, Drying Cabinets

Dryer, Nelldorn

Bench, or wall mounting. For drying flasks, cylinders etc. Compact metal frame with base mounted heater and fan which blows hot, filtered air through 60 stepped plastic nozzles of varying length. With heat controls, 120 minute timer and overheat cut-out. Overall including tubes 490 x 190 x 430mm W x D x H. For 220-240V 50Hz single phase supplies; 2.1kW.

DY150-20 Nelldorn Dryer

Drying Cabinets

For general warming and drying purposes, including drying of drained glassware. OV100-11 and OV100-21 are additionally fitted with fibre insulation which reduces energy requirements giving a performance saving of more than 30% against the non insulated models.

◆ Maximum temperature is approximately ambient +50°C

OV100-11 100 litres, sliding door, insulated

OV100-14 125 litres, sliding door

Catalogue No.		OV100-11	OV100-14	OV100-21	OV100-25
Capacity	litres	100	125	200	250
Internal	H, mm	400	430	490	520
	W, mm	670	720	930	980
	D, mm	370	400	450	480
Overall	H, mm	600	600	660	660
	W, mm	750	740	1000	1000
	D, mm	420	420	500	500
Weight		45	40	60	55
Shelves		3	3	3	3
Power rating	W	500	1000	1000	1000
Voltage		For 220-240V 50Hz single phase supplies.			

OV100-21 200 litres, sliding door, insulated

OV100-25 250 litres, sliding door

Glassware Washing

Automatic washers – see *Washing* section.

Detergents etc – see *Cleaning and Brushes* sections.

Ultrasonic baths – see *Ultrasonics* section.



OV100

Electrical

Electrical Sundries

Crocodile Clips

For low voltage use. Spring loaded serrated jaws. With screw lead connection. Length approximately 40mm. Supplied in a pack of 10.

EE100-17 Clips

Wire, bare

For low voltage use. In reels. All data below is nominal.

	s.w.g.	Diameter mm	Reel weight, g
Copper			
EE140-20	20	0.90	250
EE140-22	22	0.71	250
Constantan (Eureka)			
EE147-20	20	0.90	125
EE147-22	22	0.71	125
Nickel Chromium (80%/20%)			
EE151-20	20	0.90	125
EE151-22	22	0.71	125
EE151-24	24	0.56	125
EE151-26	26	0.45	125
EE151-28	28	0.37	125

Plug, UK 13A

Moulded plastic body with 3-pins, cable restrainer and 13A fuse. To BS1363.

EE300-10 Plug

Adapter plugs

Enable instruments with UK 13A 3-pin plugs to be operated from international supply sockets as indicated*. Maximum current 7.5A. Supplied singly.

EE305-06 2 round pin Schuko, for use in most continental European countries

EE305-08 2 flat pin with angle adjustment, for use in USA*, Canada*, Japan*, Australia and New Zealand

* The instrument itself must have built-in voltage adjustment to enable operation on the local supply.

Multiple Socket Outlet

4-position, UK 13A sockets to BS1363. With indicator lamp and 13A fuse.

EE330-10 Multi-socket

Digital Multi Meter 33XR

Pocket sized multi meter with LCD readout including analogue bar graph of reading position within range, rotary click-stop range selection switch, fuse protection, input alarm when test leads are incorrectly fitted and a continuity test buzzer for short circuit testing.

Model	33XR		
Ranges	Voltage	d.c.	400mV, 4V, 40V, 400V, 1000V
	Voltage	a.c.	400mV, 4V, 440V, 400V, 750V
	Current	a.c.	400 A, 4mA, 40mA, 300mA, 10A
	Resistance		400 , 40k , 4M
	Capacitance		4 F, 40 F, 400 F, 4000 F
	Temperature		-20 to +1000°C (-40 to +1832°F)
	Frequency		4kHz, 40MHz, 400MHz
Continuity indication		<35	
Overall H x W x D	mm	196 x 92 x 60	
Weight	g	400	

As described. Supplied with test leads, threaded crocodile clips, Type K thermocouple probe and lead for temperature measurement and 9V PP3 battery.

EE390-50 33XR

BL610-25 Spare battery, 9V

Other Electrical Sundries

Batteries – see **BL610**.

Hot air blower – see **HE775**.

Soldering kit – see **TS480**.

Pliers – see **TS200**.

Screwdrivers – see **TS350**.

Warning labels – see **SC300/SC304**.



EE100



EE140/151



EE300



EE305-06

EE305-08



EE330



EE390

Electrical

Electrothermal Power Controllers

Controller, MC227

Bimetallic, non-linear controller for controlling up to 1200W load, maximum current 5A. With arbitrary scaled controls and an amber neon on the output circuit. Supplied with flying leads for input and output connection. The case has a wing screw fitting for mounting the controller on a 12.7mm diameter retort/scaffolding rod. Overall 240 x 140 x 90mm W x D x H. For 200-250V 50/60Hz a.c. single phase supplies.

EE500-20 MC227

Controller, MC242

A single circuit percentage on/off controller for circuit loads up to 2000W. With arbitrary scaled control, 'power on' and 'power output' indicator lamps. For 230V 50/60Hz a.c. single phase supplies.

EE500-60 MC242

Digital Temperature Controller

For accurate temperature control. Membrane switch setting with 3 digit LED display. Range -10 to +800°C x 1°C resolution. In addition an hysteresis range can be set to govern temperature variation. Memory retains control parameters even if power disconnected. Supplied with PTFE covered platinum resistance thermometer for measurement and control up to +270°C. Accessory probes extend range up to +800°C. Input connection by IEC socket and 2m cable. Output by fixed IEC socket. Overall dimensions L x W x H 120 x 100 x 80mm. The case has a wing screw fitting for mounting the controller on a 12.7mm diameter retort/scaffolding rod. For 200-240V 50/60 Hz single phase supplies.

EE500-75 MC810

Accessories and spares

EE502-10 270°C probe AZ6705, spare

EE502-15 400°C probe AZ6706

EE502-20 800°C probe AZ6741

Time Switches – see *TM850*



EE500-20



EE500-75



EE500-60

Electrophoresis

Horizontal Gel Units



Horizontal Gel Unit, miniRapide

Compact, self-contained system, ideal for rapid sample checks. Buffer and gel volumes have been minimised and parallel-format electrodes maximise current transfer efficiency, enabling resolution to be completed within 30 minutes. The complete unit can easily be placed on a transilluminator for visualisation reducing process time and potential damage to gels through removal from the tank and transfer.

- ◆ Gel size 10 x 8cm
- ◆ Robust UV transparent plastic construction
- ◆ Gel casting, running and analysis all performed in the unit
- ◆ Safety lid provides complete user protection
- ◆ Corrosion-free, gold-plated connectors and terminals
- ◆ User-replaceable platinum wire electrodes
- ◆ All power connectors recessed and shrouded

Horizontal Gel Unit, miniRapide

As described. Supplied with 2 eight-well, 1.5mm thick combs, and shrouded power supply leads. Requires power supply for operation.

EL225-10 miniRapide

Spare and accessories

EL227-03 Casting dams, pack of 2

EL227-06 Spare platinum wire for electrode replacement, 50cm long

Combs for EL225-10 only, 1.5mm thick, supplied singly.

EL227-12 1-well, with dye track

EL227-16 4-wells

EL227-20 8-wells

EL227-24 12-wells

EL227-28 16-wells*

EL227-32 20-wells*

*Suitable for use with multichannel pipettors.

Horizontal Gel Unit, multiSUB Midi

- ◆ Choice of models offering UV trays for gel sizes: 10 x 7cm, 10 x 10cm
- ◆ Robust, moulded, acrylic construction
- ◆ Large choice of combs
- ◆ Safety lid provides complete user protection

Models	multiSUB Midi-	7	10
Gel size	cm	10 x 7	10 x 10
Buffer volume	ml	300 — both models	
Overall, W x D x H	mm	220 x 125 x 90 — both models	

As described. Supplied with removable UV transparent, gel casting tray, loading guides and dams, two 16-well, 1mm thick combs and shrouded power supply leads. Requires power supply for operation.

EL232-15 multiSUB Midi 7

EL232-25 multiSUB Midi 10

EL232-86 Spare positive electrode

EL232-88 Spare negative electrode

EL232-91 10cm UV Gel scoop

Accessory combs for multiSUB Midi units only, supplied singly

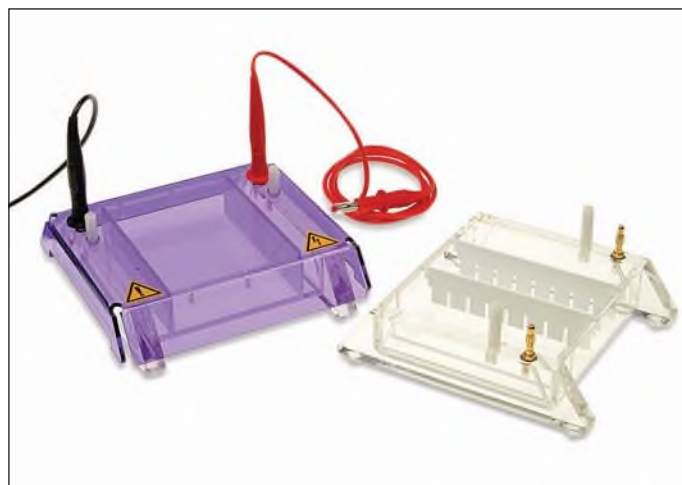
Thickness mm	Number of Wells			
	8	10*	12	16
1	EL234-11	EL234-16	EL234-21	EL234-26
1.5	EL236-11	EL236-16	EL236-21	EL236-26
2	EL238-11	EL238-16	EL238-21	EL238-26

*Suitable for use with multichannel pipettors.

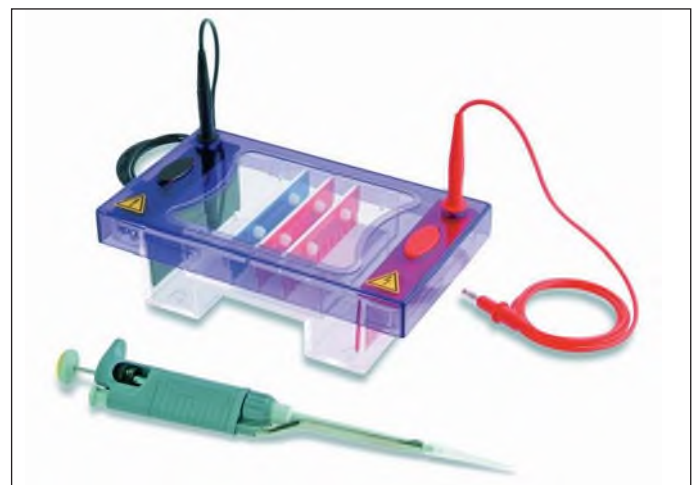
Gel dryers – see **EL335**.

Power supplies – see **EL345**.

Transilluminators – see **LM420**.



EL225-10



EL232

Electrophoresis

Horizontal Gel Units

Horizontal Gel Units, multiSUB Choice, 15cm wide

- ◆ Choice of models offering UV trays for gel sizes: 15 x 7cm, 15 x 10cm, 15 x 15cm
- ◆ Robust, moulded acrylic construction
- ◆ Accessory platinum wire electrodes
- ◆ Safety lid provides complete user protection

Models	multiSUB Choice-	7	10	15
Gel size	cm	15 x 7	15 x 10	15 x 15
Buffer volume	ml	500 — all models		
Overall W x D x H	mm	265 x 175 x 90 — all models		

As described. Supplied with removable UV transparent gel casting tray, loading guides and dams, two 20-well, 1mm thick combs and shrouded power supply leads. Requires power supply for operation.

- EL239-10** multiSUB Choice 7
- EL239-15** multiSUB Choice 10
- EL239-20** multiSUB Choice 15
- EL239-50** 15cm UV Gel scoop

Accessory combs for multiSUB Choice units only, supplied singly

Thickness mm	Number of Wells			
	12	16	18*	28*
1	EL242-12	EL242-17	EL242-18	EL242-28
1.5	EL243-12	EL243-17	EL243-18	EL243-28
2	EL244-12	EL244-17	EL244-18	EL244-28

*Suitable for use with multichannel pipettors.

Horizontal Gel Units, multiSUB Maxi, 20cm wide

Generally as EL239-series but larger, with UV trays for gel sizes 20 x 10cm or 20 x 20cm.

Models	multiSUB Maxi-	10	20
Gel size	cm	20 x 10	20 x 20
Buffer volume	ml	1200 — all models	
Overall W x D x H	mm	395 x 230 x 90 — all models	

As described. Supplied with removable gel casting tray, loading guides and dams, two 20-well, 1mm thick combs and shrouded power supply leads. Requires power supply for operation.

- EL245-30** multiSUB Maxi 10
- EL245-50** multiSUB Maxi 20
- EL245-86** Spare positive electrode
- EL245-88** Spare negative electrode
- EL245-91** 20cm UV Gel scoop

Accessory combs for multiSUB Maxi units only, supplied singly

Thickness mm	Number of Wells			
	10	16	25	40*
1	EL246-10	EL246-16	EL246-25	EL246-40
1.5	EL247-10	EL247-16	EL247-25	EL247-40
2	EL248-10	EL248-16	EL248-25	EL248-40

*Suitable for use with multichannel pipettors.

Alternative comb configurations are available – details on request.

Transilluminators

Transilluminators, UVP TFM-V

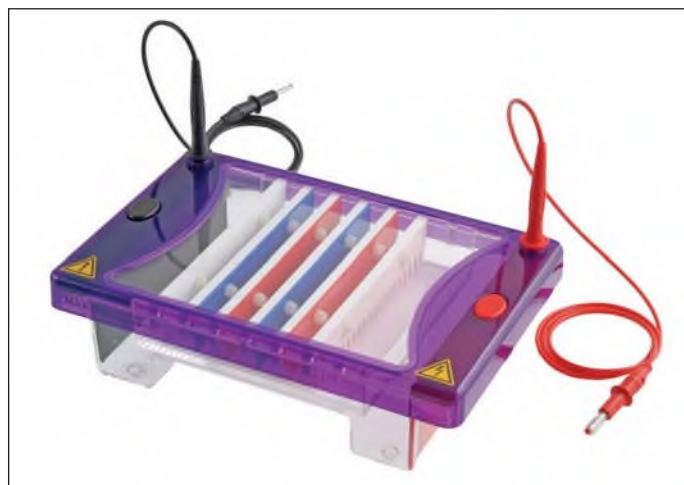
High performance, mid-range (302nm) transilluminators for viewing fluorescent materials or fluorescent-dyed samples within electrophoresis gels. With 25W tubes for high intensity performance and uniform background UV illumination. Variable intensity output allows either analytical documentation work or reduced photonicking or bleaching of gel samples during prep work, respectively. Robust sturdy construction with adjustable angle UV blocking cover to shield the operator from harmful UV radiation. Overall 486 x 337 x 143mm W x D x H. Weight 9kg. For 230V 50/60Hz a.c. single phase supplies.

	Model	Filter size, cm	Tubes, W
LM420-22	TFM-20-V	20 x 20	25
LM420-28	TFM-26-V	21 x 26	25
LM420-32	TFM-30-V	25 x 30	25
LM420-42	TFM-40-V	20 x 40	25

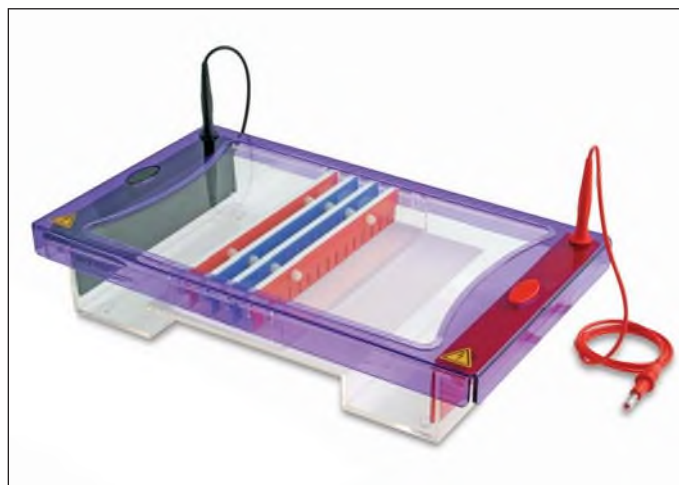
Note: Suitable eyewear must be worn when using these transilluminators – see LM370.



LM420



EL239



EL245

Electrophoresis

Vertical Gel Units



- ◆ Choice of models:
 - for 10 x 10cm plates, gel size 7.5 x 8cm
 - for 20 x 20cm plates, gel size 16 x 17.5cm
- ◆ Up to four gels accommodated
- ◆ Accessory platinum wire electrodes
- ◆ Injection moulded acrylic construction
- ◆ Platinum wire electrodes
- ◆ Safety lid with one-way fitting provides user protection
- ◆ Glass plates with bonded spacers are included removing the need for manual spacer alignment

Model		Mini	Maxi
Plate dim. W x D	cm	10 x 10	20 x 20
Gel dim. W X D	cm	7.5 x 8	16 x 17.5
Buffer volume	min. ml	250	1200
	max. ml	1200	5600
Overall	H mm	150	280
	W mm	190	260
	D mm	130	160

- ◆ Parallel clamping mechanism ensures even pressure into gel cassettes or glass plates, preventing lane distortion

Alternative comb configurations and spacer sets are available – details on request.

Power supplies – see EL340.

Recirculating chillers – see CL110.

Vertical Gel Unit, omniPAGE Mini

As described. For up to four 10 x 10cm gels. Supplied with four plain glass plates with bonded 1mm thick spacers, one dummy plate, two 12-well 1mm thick sample combs, casting base with soft silicone seals, cover, shrouded power supply leads and a cooling gel pack which can be used to reduce running times and enhance resolution.

EL272-05 omniPAGE Mini

EL272-08 Accessory electroblotting module for EL272-05

Accessory combs for omniPAGE Mini units only, supplied singly

Thickness mm	Number of Wells			
	1†	8*	12	20
0.75	EL272-12	EL272-14	EL272-16	EL272-18
1	EL272-20	EL272-22	EL272-24	EL272-26
1.5	EL272-28	EL272-30	EL272-32	EL272-34
2	EL272-46	EL272-48	EL272-50	EL272-52

† With additional dye track. *Suitable for use with multichannel pipettors.

Vertical Gel Unit, VS20WAVE Maxi

As described. For up to four 20 x 20cm gels. Supplied with four plain glass plates with bonded 1mm thick spacers, one dummy plate, two 24-well 1mm thick sample combs, casting base with soft silicone seals, cover and shrouded power supply leads.

EL274-20 VS20WAVE Maxi

EL274-27 Accessory electroblotting module for EL274-20

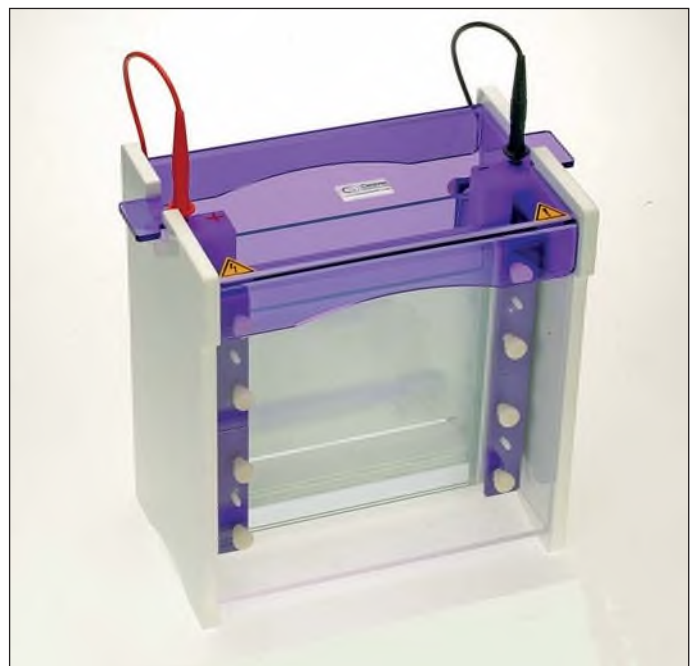
Accessory combs for VS20WAVE Maxi units only, supplied singly

Thickness mm	Number of Wells			
	1†	10	18*	30
0.75	EL274-33	EL274-37	EL274-40	EL274-43
1	EL274-45	EL274-49	EL274-52	EL274-55
1.5	EL274-57	EL274-61	EL274-64	EL274-67
2	EL274-69	EL274-73	EL274-76	EL274-79

† With additional dye track. *Suitable for use with multichannel pipettors.



EL272



EL274

Electrophoresis

Large Format Vertical Electrophoresis Units



Ideal for a variety of large format gel application, including DNA sequencing, 2-D analysis, micro-satellite analysis, DNA fingerprinting, gel shift assays, single-strand conformation polymorphism (SSCP), heteroduplex and oligonucleotide analysis.

- ◆ Choice of models offering gel sizes:
 - 20 x 50cm — 33 x 45cm
- ◆ Robust acrylic construction
- ◆ Ultra-soft seals ensure that an even, parallel pressure is applied to the gel plate
- ◆ Integral aluminium heat sink plate providing enhanced resolution and even sample migration
- ◆ Low or high buffer volumes possible for economy or extended run use, respectively
- ◆ Corrosion-free, gold-plated connectors and terminals
- ◆ Platinum wire electrodes with assymetric offset fitting to prevent accidental polarity reversal

Model		CSQ20	CSQ33
Gel size	cm	20 x 50	33 x 45
Buffer volume			
min.	ml	500	800
max.	ml	1000	2000
Overall			
Height	mm	550	500
Width	mm	300	450
Depth	mm	160	160

Large Vertical Gel Units

As described. Supplied with integral aluminium heat sink plate, gel casting module, two each notched and plain float glass plates, one set of 0.35mm thick spacers and one 48-well 0.35mm thick sharks tooth comb. Require power supply for operation.

EL305-10 CSQ20
EL305-20 CSQ33

Alternative comb configurations and spacer sets are available – *details on request.*

Power supplies – see *EL340.*

Accessory combs for CSQ20 only, supplied singly

	Wells	Thickness, mm	Well vol. l*
Sharks tooth			
EL306-03	24	0.25	7
EL306-06	48	0.25	3
EL306-09	24	0.35	40
EL306-12	48	0.35	20
Square tooth			
EL306-15	24	1.00	7
EL306-18	48	1.00	9
EL306-21	24	1.50	35
EL306-24	48	1.50	20

*Sample volume for a 5mm thick gel.

Spacer sets and spare glass plates for CSQ20 only

Spacer sets

EL306-60	0.25mm thick	EL306-68	1.00mm thick
EL306-64	0.35mm thick	EL306-70	1.50mm thick

Glass plates

EL306-75	Glass plates, notched, pack of 2	EL306-77	Glass plates, plain, pack of 2
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Accessory combs for CSQ33 only, supplied singly

	Wells	Thickness, mm	Well vol. l*
Sharks tooth			
EL309-04	48	0.25	9
EL309-07	96	0.25	5
EL309-10	48	0.35	60
EL309-13	96	0.35	30
Square tooth			
EL309-16	48	1.00	9
EL309-19	80	1.00	6
EL309-22	48	1.50	50
EL309-25	80	1.50	30

*Sample volume for a 5mm thick gel.

Spacer sets and spare glass plates for CSQ33 only

Spacer sets

EL309-60	0.25mm thick	EL309-68	1.00mm thick
EL309-64	0.35mm thick	EL309-70	1.50mm thick

Glass plates

EL309-75	Glass plates, notched, pack of 2	EL306-77	Glass plates, plain, pack of 2
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EL305

Electrophoresis

omniGELDRYERS



Versatile, efficient gel dryer systems with heating membrane and provision for accessory vacuum pump connection.

- ◆ Choice of models for gel sizes up to:
 - 21 x 31cm L x W - Model GDVH21
 - 35 x 45cm L x W - Model GDVH35
- ◆ Drying temperature range ambient to +90°C
- ◆ Digital set and read displays for temperature and time (heat and vacuum)
- ◆ Timer setting 1 to 999 minutes with alarm at end of timed period
- ◆ The pump timer can switch off the pump separately after the heating period has elapsed
- ◆ Cast aluminium base assists even heat distribution

Gel Dryers

As described. Supplied with stainless steel screen, rubber overlay sheet, mask and power supply lead. Overall W x D x H 300 x 360 x 80mm (GDVH21), 440 x 500 x 8mm (GDVH35), weight 2.5kg. For 230V 50Hz single phase supplies. Require, but do not include, vacuum pump for operation.

EL335-60 GDVH21

EL335-80 GDVH35

Suitable pumps for use with EL335-series - see PX443-22, PX474-75 or PX447-30.



EL335-60, EL335-80 is similar

Electrophoresis Power Supplies

Easy-to-use power supplies for routine electrophoresis applications.

- ◆ Fully programmable, up to 9 programmes each with 9 parameter sets can be stored in non-volatile memory
- ◆ Integral timer with alarm at end of run
- ◆ Automatic run continuation when power restored
- ◆ Twin line, alphanumeric LCD readout, 2 x 16 characters
- ◆ Datalogging facility holds up to 3600 values (voltage, current and power, time or volthours) including programme number and step
- ◆ RS232 control port allows remote control via users' PC

Safety features

- ◆ Automatic disconnection of a.c. power from the high voltage transformer if a ground leakage of greater than 500 A is detected
- ◆ Fully protected against any overload condition including accidental short circuit of the output
- ◆ High voltage increases smoothly when one of the pre-set limits is reached, no sudden voltage surge occurs at the outputs
- ◆ Galvanic RS232 input/output insulation prevents ground loop interferences when connected to a computer

<i>Model</i>	EV1450	EV3330/EV3620	EV2650/EV3150
<i>Timer</i>	0 to 99 hours 59 minutes, 0 to 99.9 KWh — all models		
<i>Programmes</i>	9 sets of 9 parameters — all models		
<i>Outputs</i>	4 in parallel 4mm sockets	4 in parallel 4/2mm sockets	4 in parallel 4mm sockets
<i>No load detection</i>	On/off, programmable — all models		
<i>Overall W x D x H mm</i>	240 x 200 x 130	310 x 260 x 150	310 x 260 x 150
<i>Weight kg</i>	3	10	10

Power Supplies, EV-Series

As described. Constant voltage, current and power. For 210-250V 50/60Hz single phase supplies. Supplied with manual and mains lead. Models EV3330 and EV3620 are additionally supplied with four pairs of 2mm/4mm adapters.

	<i>Model</i>	<i>V</i>	<i>mA</i>	<i>W</i>
EL345-12	EV1450	400	500	50
EL345-20	EV3330	3000	300	300
EL345-30	EV3620	6000	150	300
EL345-40	EV2650	600	500	150
EL345-50	EV3150	1200	500	300



EL345

Electrophoresis

Gel Documentation System, microDOC

- ◆ 10 megapixel digital camera
- ◆ Lightweight hood with switched access door which turns on the internal lighting and can switch off the transilluminator if required
- ◆ Separate power and light switches
- ◆ Fitted with ethidium bromide filter
- ◆ Includes flash card and reader for file transfer to the users' PC, if required

Gel Documentation system, microDOC

Simple, low-cost, gel documentation system with built in 8" TFT colour LCD screen which allows use without the need for a separate computer. A variety of images can be captured from agarose and other fluorescent gels, colorimetric gels, autoradiography film and blotting membranes.

Camera specifications

Effective pixels	10,000,000
Sensor CCD	1/1.7 high density: total pixels 10 million
Max. field of view	cm 29 x 22
Resolution	pixels 640 x 480 to 3264 x 2448
Lens	5 x optical zoom / 4 x digital zoom, 8.9 to 71.2mm
Focal ratio	F/2.8 to F/4.5
File formats saved	RAW, Tiff-rgb, jpeg
Auto focus	Contract-detect through the lens (TTL) AF with AF-assist illuminator
Focus-area selection	Five-area multi AF, manual selection available
Filter	55mm ethidium bromide

Hood specifications

Dimensions, W x D x H	mm	290 x 220 x 320
Internal illumination		2 x white fluorescent tube lamps
Display		960 x 234mm colour TFT LCD screen
Display modes		NTC /PAL/SECAM mode, auto switching
Weight	kg	6.1

As described. Supplied with flash memory card, memory card reader and ethidium bromide filter. Without transilluminator. For 110-220V 50Hz single phase supplies.

- EL380-10** microDOC system
- EL380-65** SyBr green filter
- EL380-67** Spare ethidium bromide filter

Transilluminators - see LM420-series.

Transilluminators

Transilluminators, UVP TFM-V

High performance, mid-range (302nm) transilluminators for viewing fluorescent materials or fluorescent-dyed samples within electrophoresis gels. With 25W tubes for high intensity performance and uniform background UV illumination. Variable intensity output allows either analytical documentation work or reduced photonicking or bleaching of gel samples during prep work, respectively. Robust sturdy construction with adjustable angle UV blocking cover to shield the operator from harmful UV radiation. Overall 486 x 337 x 143mm W x D x H. Weight 9kg. For 230V 50/60Hz a.c. single phase supplies.

	Model	Filter size, cm	Tubes, W
LM420-22	TFM-20-V	20 x 20	25
LM420-28	TFM-26-V	21 x 26	25
LM420-32	TFM-30-V	25 x 30	25
LM420-42	TFM-40-V	20 x 40	25

Note: Suitable eyewear must be worn when using these transilluminators – see LM370.



EL380-10 in use on transilluminator



LM420

Electrophoresis

Clinical Cellulose Acetate Electrophoresis System



Compact, high resolution system for clinical electrophoresis and research applications, using both standard and wet cellulose acetate strips.

- ◆ Can accommodate gels up to 24 x 20cm
- ◆ Accessory software and flatbed scanner available for densitometry measurements

Horizontal Gel Unit

Comprises horizontal tank and cover with adjustable strip support for accommodating various cellulose acetate strip lengths. Supplied with shrouded power supply leads. Overall 300 x 300 x 60mm W x D x H.

EL400-10 CSL CELLAS

Glob AL Scan Software

Densitometry software for use with accessory scanner via the user's computer. Requires Windows-compatible computer and scanner for operation.

EL402-05 CSL DENS

Flatbed Scanner

For use with Glob AL scan software via the user's computer. For 230V 50Hz single phase supplies.

EL402-15 CSL SCAN

Gel Strips, CellasGel

Wet, cellulose acetate gel strips which can be used for a wide variety of clinical electrophoresis applications including haemoglobin serum proteins, urine proteins, iso-enzymes, lipo- and glycoproteins. Supplied in packs as indicated.

	W x L, cm	Thickness, m	Pack qty.
EL402-22	2.5 x 14	250	100
EL402-24	2.5 x 14	200	100
EL402-26	2.5 x 17	200	25
EL402-33	5.7 x 14	250	25
EL402-35	5.7 x 14	200	25

Alternative gel strips and accessories are available - *details on request.*

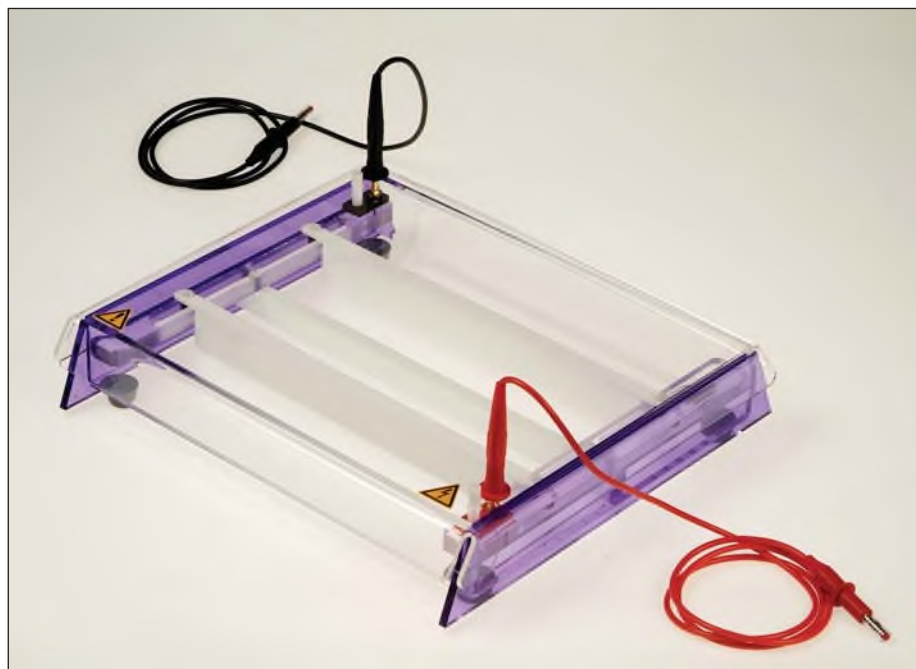
Gel Loading tips



For loading samples into acrylamide or agarose gels.

- ◆ Choice of tip profile:
 - round, for loading SDS PAGE gels
 - flat, for loading sequencing gels
- ◆ Long-nose for easier access to vessel bases and gel wells
- ◆ Natural polypropylene
- ◆ For use with the following makes of pipettor: Biohit, Eppendorf, Finnpiptette, Brand, Gilson P20/P100/P200, Nichipet, Rainin, Socorex, Volac
- ◆ Check graduation at 5µl
- ◆ Packed in racks as indicated

Cat. No.	Tip	Pack qty.
5-200µl capacity		
EL450-65	round	2 x 200
EL450-75	flat	2 x 200



EL400



EL450

Evaporators

Rotary Evaporators RE-400 series



- ◆ Choice of versions:
 - Standard diagonal condenser
 - Vertical condenser for use where space is at a premium
 - Cold finger condenser for use with dry ice or ice-salt mixtures
 - Uncoated or polymer safety-coated glassware for additional safety during vacuum use
- ◆ Suitable for:
 - Concentration of solutions at atmospheric or reduced pressure
 - Reclamation of solvents
 - Degassing of liquids
 - Vacuum drying wet solids
- ◆ Digital display
- ◆ Sparkless induction motor
- ◆ Selectable clock/anticlockwise rotation which can be alternated during operation
- ◆ Counterbalanced manual lift allows almost effortless operation

With solid-state control maintaining constant torque at all speed settings. In use, the material distilled only contacts glass or PTFE, avoiding contamination and corrosion problems. The vacuum seal is protected by a PTFE defence system. A feed tube adapter permits continuous addition of material to the rotating flask. All connections for water and vacuum are fitted with PTFE screwthread connectors for chemical and temperature resistance with quick, safe assembly. Speed range 20 to 190rpm. Achievable ultimate vacuum levels <1mm Hg. For 220-240V 50Hz single phase supplies.

Rotary Evaporator, Stuart, RE-400

With manual lift and diagonal condenser.

EV072-11 Evaporator RE-400

EV072-13 Evaporator RE-400P, plastic coated glassware

Rotary Evaporator, Stuart RE-401

With manual lift and vertical condenser.

EV072-26 Evaporator RE-401

EV072-28 Evaporator RE-401P, plastic coated glassware

Rotary Evaporator, Stuart RE-402

With manual lift and cold finger condenser incorporating drain tap.

EV072-37 Evaporator RE-402

EV072-40 Evaporator RE-402P, plastic coated glassware

Water Baths, Stuart RE-400DB and RE-400B

A choice of baths for use with water or oil. With digital, set and read, thermostatic control, from ambient up to maximum temperature indicated. A safety cut-out prevents overheating. For 230V 50/60Hz single phase supplies.

EV078-56 RE-400DB, water bath, 4.3 litres, maximum 90°C

EV078-66 RE-400OB, oil bath, 5.0 litres, maximum 180°C

Spares

EV074-11 Vapour tube, RE400/VT for angled condenser

EV074-13 Vapour tube, RE400/VT/CF for vertical and cold trap condensers

Standard glassware

EV074-15 Receiving flask, 1000ml, RE100/RF1L

QFD1L/4RE Rotating flask, Florentine shape, 1000ml

EV074-18 Angled condenser, RE400/CO

EV074-19 Vertical condenser, RE400/VC

EV074-20 Cold finger condenser, RE400/CF*

Plastic coated glassware

EV075-15 Receiving flask, 1000ml, RE100/RF1LP

EV075-18 Angled condenser, RE400/COP

EV075-19 Vertical condenser, RE400/VCP

EV075-20 Cold finger condenser, RE200/CFP*

EV074-22 Feed tube/aeration stopcock, RE400/VR

EV074-25 Vacuum seal, RE100/VS

EV074-27 Drain tap for cold finger condensers, RE200/CFD

*Supplied without drain tap — see EV074-27.

Accessories

	Description
Receiving flasks, standard glassware	
EV074-50	50ml, RE100/RF50
EV074-54	100ml, RE100/RF100
EV074-58	250ml, RE100/RF250
EV074-62	500ml, RE100/RF500
Receiving flask, plastic coated glassware	
EV075-62	500ml, RE100/RF500P
Rotating flasks, Florentine shape, standard glassware	
QFD50/4RE	50ml
QFD100/4RE	100ml
QFD250/4RE	250ml
QFD500/4RE	500ml
EV074-70	Extension adapter, RE100/EA. For use with 50ml, 100ml and 250ml rotating flasks



EV072-11 with EV078 bath

Evaporators

Rotary Evaporator, Hei-Vap series



- ◆ Choice of angled or vertical distillation condenser*
- ◆ Choice of digital dial (Hei-Vap Core) or touchscreen (with dial alternative - Hei-Vap Expert) setting and control of rotation speed and heating bath temperature with locking facility to prevent accidental resetting
- ◆ Supplied with high-efficiency heating bath with horizontal positioning adjustment giving immersion depth up to 155mm
- ◆ Choice of manual or electronic lift
- ◆ Standby button stops all functions and applies motor lift if applicable
- ◆ Hei-Vap Expert touchscreen models have USB and microSD interfaces. Warning displays will also operate if preset parameters are exceeded
- ◆ Motorised lift models automatically remove the evaporating flask from the bath in the event of power failure

Speed range	20 to 280rpm
Water bath	20 to 210°C, 4.5 litres capacity
Lifting mechanism	155mm maximum
Evaporator flasks	50 to 5000ml accepted

Each glassware set includes:

1 each 1000ml evaporating and receiving flasks, angled or vertical condenser* and feed tube. Overall W x D x H 490 x 395 x 430mm (manual lift models) 411 x 393 x 427mm (electrical lift models). Weight 22kg. For 230V 50/60Hz single phase supplies.

Analogue control models

With digital display.

- EV330-54** Model Hei-Vap Core, angled distillation, manual lift
- EV330-56** Model Hei-Vap Core, vertical distillation, manual lift



EV330-56

Digital control models

With touchscreen LCD readout.

- EV330-93** Model Hei-Vap Expert, angled distillation, manual lift
- EV330-94** Model Hei-Vap Expert, vertical distillation, manual lift
- EV330-95** Model Hei-Vap Expert, angled distillation, electrical lift
- EV330-96** Model Hei-Vap Expert, vertical distillation, electrical lift

*Cold-trap and plastic-coated glassware versions of these evaporators are available – details on request.

Accessories

- EV332-06** Spare evaporating flask, 1000ml
- EV332-26** Spare receiving flask, 1000ml

Vacuum valve

Required for use with Hei-Vap evaporators and valve-regulated vacuum pumps.

- EV332-39** Vacuum valve

Vacuum pump, Rotovac valve control

Two-stage diaphragm pump in chemically-resistant materials. Throughput 1.7m³/hr, ultimate vacuum 9mbar. Capacity for running up to 3 evaporators simultaneously. Overall 295 x 245 x 185mm W x D x H. Weight 10.5kg. For 230V 50Hz single phase supplies. Requires, but is not supplied with, EV332-39 for operation.

- EV332-44** Pump, Rotovac valve control

Vacuum pump, Rotovac valve tec

Two-stage diaphragm pump in chemically-resistant materials. Throughput 0.75m³/hr, ultimate vacuum 12mbar. Overall 145 x 315 x 169mm W x D x H. Weight 6kg. For 230V 50Hz single phase supplies. Requires, but is not supplied with, EV332-39 for operation.

- EV332-48** Pump, Rotovac valve tec



EV330-95

Extraction

Soxhlet Extractors

Compact extraction systems comprising stand, heating module with variable controller and aluminium block, glassware and cooling manifold (multi-operation units only) for use with mains water or open cooling circulator circuit.

- ◆ Convenient stopcock on the soxhlet body allows solvent to be drained into a storage reservoir after the extraction is complete
- ◆ Rigid metal stand holds glassware securely and is powder-coated to resist corrosion
- ◆ Cooling manifold ensures even distribution of cooling liquid to all condensers

Single extractors

Model	MXT30S	MXT100S	MXT250S
Extractors x capacity ml	1 x 30	1 x 100	1 x 250
Overall, W x D x H mm	230 x 330 x 715	230 x 330 x 805	230 x 330 x 805
Weight, net kg	9	10.5	10.5
Supply requirement	230V 50/60Hz a.c., 450W — all models		

4-place extractors

Model	SXT304ECS	SXT104ECS	SX254ECS
Extractors x capacity ml	4 x 30	4 x 100	4 x 250
Overall, W x D x H mm	530 x 320 x 740	530 x 320 x 740	530 x 320 x 740
Weight, net kg	17	18.5	19
Supply requirement	230V 50/60Hz a.c., 450W — all models		

6-place extractors

Model	SXT306ECS	SXT106ECS	SX256ECS
Extractors x capacity ml	6 x 30	6 x 100	6 x 250
Overall, W x D x H mm	760 x 320 x 720	760 x 320 x 720	760 x 320 x 720
Weight, net kg	20	21	23
Supply requirement	230V 50/60Hz a.c., 450W — all models		

As described. Supplied with stand, heater, and glassware with capacity as indicated. Without extraction thimbles.

EX200-10 MXT30S
EX200-15 MXT100S
EX200-20 MXT250S

EX200-30 SXT304ECS
EX200-35 SXT104ECS
EX200-40 SXT254ECS

EX200-45 SXT306ECS
EX200-50 SXT106ECS
EX200-55 SXT256ECS

Spare Extractors

With solvent drain stopcock.

EX200-85 30ml
EX200-87 100ml
EX200-89 250ml

Soxhlet thimbles

EX100-22 22 x 80mm, for 30ml extractor
EX100-52 33 x 94mm, for 100ml extractor

Soxhlet thimbles for 250ml and extractors - details on request.



EX200-15



EX200-35

Extraction

Thimbles

Extraction Thimbles, Whatman

Cellulose. Supplied in boxes of 25. Dimensions given are nominal internal diameter x external length.

	<i>l.d. x length mm</i>		<i>l.d. x length mm</i>
Single thickness			
EX100-10	10 x 50	EX100-43	30 x 80
EX100-13	18 x 55	EX100-46	30 x 100
EX100-16	19 x 90	EX100-49	33 x 80
EX100-22	22 x 80	EX100-52	33 x 94
EX100-25	25 x 80	EX100-55	33 x 100
EX100-28	25 x 100	EX100-58	33 x 118
EX100-31	26 x 60	EX100-60	37 x 130
EX100-36	28 x 80	EX100-61	41 x 123
EX100-37	28 x 100	EX100-64	43 x 123
EX100-40	28 x 120	EX100-67	60 x 180
Double thickness			
EX105-22	22 x 80	EX105-49	33 x 80

Extraction Thimbles, Whatman

Glass microfibre, high purity grade HP-GF. Can be used up to 550°C. Supplied in boxes of 25.

	<i>l.d. x length mm</i>		<i>l.d. x length mm</i>
EX110-16	19 x 90	EX110-25	43 x 123

Soxhlet Extraction Glassware. Capacities up to 2000ml – see *Quickfit* section.



EX100 with glassware

Soxhlet Mantles, Electrothermal

- ◆ Solid state electronic heat control on each recess – spark free in normal operation
- ◆ Heater cartridge includes a safety earth (ground) screen for additional operator safety
- ◆ PTFE coated external surfaces
- ◆ Choice of 3 or 6 recesses
- ◆ Choice of stirred or unstirred positions

Electrothermal Soxhlet Heating Mantles

With brackets and 12.7mm diameter support rods. For 230V 50/60Hz single phase supplies.

With the stirred models a single control changes the stirring speed of 3 recesses. The 6 bank units therefore have two controls. Speed is continuously variable from 50 to 1000rpm.

<i>Recesses x capacity ml</i>	<i>Rating W</i>	<i>Unstirred models EME series</i>	<i>Stirred models EMEA series</i>
3 x 100	180	EX300-10	EX300-50
3 x 250	450	EX300-15	EX300-55
3 x 500	600	EX300-20	EX300-60
3 x 1000	900	EX300-25	EX300-65
6 x 100	360	EX305-10	EX305-50
6 x 250	900	EX305-15	EX305-55
6 x 500	1200	EX305-20	EX305-60
6 x 1000	1800	EX305-25	EX305-65

Replacement elements

For EX300/EX305 mantles manufactured from July 1999*. One element is required for each recess. For 230V 50/60Hz single phase supplies.

- EX307-10** 60W, 100ml for EX300-10 or EX305-10 mantles
- EX307-15** 150W, 250ml for EX300-15 or EX305-15 mantles
- EX307-20** 200W, 500ml for EX300-20 or EX305-20 mantles
- EX307-25** 300W, 1000ml for EX300-25 or EX305-25 mantles

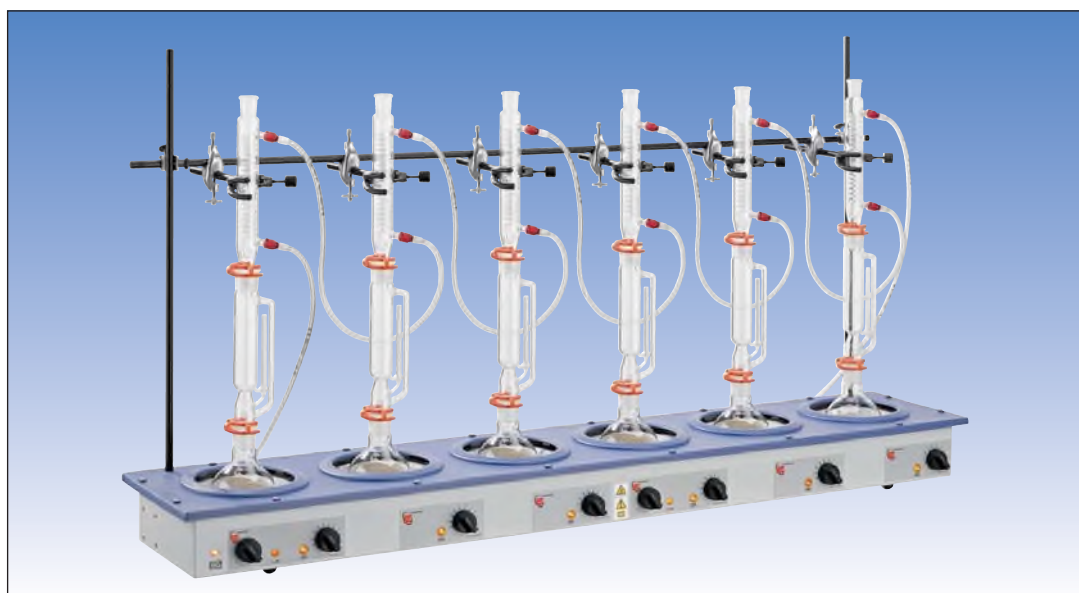
- EX309-10** 60W, 100ml for EX300-50 or EX305-50 mantles
- EX309-15** 150W, 250ml for EX300-55 or EX305-55 mantles
- EX309-20** 200W, 500ml for EX300-60 or EX305-60 mantles
- EX309-25** 300W, 1000ml for EX300-65 or EX305-65 mantles

*Elements for mantles manufactured before July 1999 - see HE220.

Accessory

Flow monitor for protecting Soxhlet system against loss of water flow through condensers. For full details see entry in the Flow Section.

- FR300-10** Flow monitor



EX305 in use, EX300 is similar

Fermenters

Fermac 200

Low-cost, modular, bacteriological fermenter equally suited to simple or more specialist applications in both educational or industrial environments.

- ◆ Choice of vessel size: 2, 5 or 10 litres
- ◆ Powerful, direct drive agitation system
- ◆ Pt100 temperature sensor for accurate temperature monitoring by separate controller
- ◆ Wrap-around, silicone heater blanket operates at low-voltage and is washable
- ◆ pH control module with acid/alkali peristaltic pump dosing and autoclavable, gel filled electrode
- ◆ Dissolved oxygen measurement module with stainless steel, autoclavable, polarographic probes

Vessels

Choice of 2, 5 or 10 litre borosilicate glass vessels with rigid frame. The 316L stainless steel top plate features 7 x 12mm and 5 x 6.3mm accessory ports for maximum versatility. O-ring seals are mounted on the sterile side of ports to assure sterility and avoid cross contamination. Removable twin baffle and cooling coil ensure cleaning of the vessel is quick and easy.

Agitation and temperature module

Agitation is provided by a vessel-mounted, powerful d.c. direct drive motor which is locked to the stirrer paddle so that it cannot be removed accidentally. Both agitation and temperature are controlled by the same module, which uses an industrial-grade Pt 100 sensor for stable measurement with temperature displayed on an LED readout. Cooling is on-demand, operated by a valve mounted on a separate service plate, thus separating water and electrics.

pH module

Provides continuous display of the vessel pH which can be switched to control set-point at any time. Dual peristaltic pumps separately dispense acid and alkali to allow acid/base compensation during the fermentation process. A threaded, autoclavable, gel filled electrode provides monitoring and locks firmly into the vessel top plate to prevent accidental movement or damage and provides monitoring.

Dissolved Oxygen module

Provides continuous readout of D.O. on the LED display via stainless steel, autoclavable, polarographic electrodes and includes calibration controls for both zero and gain of the D.O. electrode.

Specifications

Vessels	Borosilicate glass vessel with 316L stainless steel top plate, integral baffles and cooling coil.			
	2 litre	5 litre	10 litre	
Working volume	litres	2	5	10
Total volume	litres	2.7	6.4	12.5
Ports	6.3mm dia.	6	5	7
	12mm dia.	5	7	7
Agitation	Direct drive with powerful 60 watt d.c. motor			
Speed range	rpm	50 to 1100 — all models		
Temperature Control	Using Pt100 sensor to measure vessel temperature and low voltage (24V) wrap-around heating system with a cold finger heat exchange for cooling			
Display range	°C	0 to 100 — all models		
Operating range	°C	from 5 above cooling water to 50		
Heater	watts	60	160	250
pH control	Using autoclavable, gel filled pH electrode, controlled by addition of acid or base using separate peristaltic pumps			
Display range	pH	0 to 14 — all models		
Operating range	pH	4 to 10 — all models		
D.O. measurement	Using stainless steel, autoclavable, polarographic electrode (supplied as standard) or glass galvanic electrode			
D.O. range	%	0 to 120 — all models		
Module	mm	W x D x H — all models		
	Temperature/agitator	265 x 240 x 127		
	pH	265 x 240 x 167		
	D.O.	265 x 240 x 187		

continued on next page



FA405 in use with FA406-08

Fermenters

Fermac 200 continued

Fermac 200 Starter kits

Comprising vessels as indicated, Fermac 230 module with agitation and temperature only, supplied with support frame, top plate, heater blanket, Pt100 sensor, stainless steel condenser, cooling coil, air sparge tube, port blanking plugs, 3-way inlet, service plate, temp./agitator controller with drive motor and 2 x impellers, supply leads and instruction manual. For 230V 50Hz single phase supplies.

- FA400-10** Fermac 200 Starter kit with 2 litre vessel
- FA400-20** Fermac 200 Starter kit with 5 litre vessel
- FA400-30** Fermac 200 Starter kit with 10 litre vessel

Fermac 200 Fermenter Systems

Standard systems incorporating FA400-series kits, but additionally including D.O. monitor with polarographic probe, pH controller with autoclavable electrode and acid/base peristaltic pumps, supply/sensor leads and basic instructions. For 230V 50Hz single phase supplies (separate supply required for each module).

- FA405-10** Fermac 200 fermenter System with 2 litre vessel
- FA405-20** Fermac 200 fermenter System with 5 litre vessel
- FA405-30** Fermac 200 fermenter System with 10 litre vessel

Accessories

Fermac 280 Anti-foam module

Designed to operate with either a conductivity probe or on a timed basis and can also be used for either level control or as a feed pump. Overall W x D x H 265 x 240 x 87mm. For 230V 50Hz single phase supplies.

- FA406-08** Anti-foam module

FerMac 368 Gas Analyser

Measures the oxygen and carbon dioxide in exit gas. Incorporates a flow meter and pump which ensures a constant flow of gas through the analyser independent of varying air sparge rates through the fermentation vessel. CO₂ measurement (range 0 to 10%) is by I.R. absorption, O₂ measurement (range 0 to 50%) by utilising an electrochemical sensor. Separate LED displays are provided and analogue outputs can be connected to existing fermentation equipment. Overall W x D x H 190 x 330 x 190mm. For 230V 50/60Hz single phase supplies.

- FA406-11** FerMac 368 gas analyser

eLogger

Fully programmable data logging unit with graphing capability for up to 8 inputs of 0 to 5 or 0 to 10 volts or 0 to 20 or 4 to 20mA d.c. Logging rate adjustable from 5 to 60 seconds or 1 to 60 minutes. The unit is connected to the users' PC by USB serial connection and to the input device by a terminal trip. Supplied with operating software on a USB memory stick.

- FA406-14** eLogger



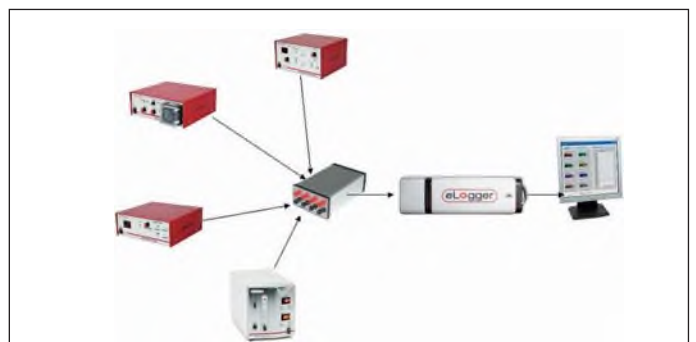
FA400



FA406-11



FA406-08



FA406-14 in use (schematic)

Filtration

Filter Papers, Qualitative Grades

Grade No.		Flowrate	Retention microns	Wet strength	Thickness mm	Ash %
Student*	General purpose schools grade, smooth	M/F	11 - 25	H	0.15	—
91*	General purpose schools grade, creped	M/F	10	H	0.23	—
1	The most widely used general purpose paper	M/F	11	L	0.18	0.06
2	Slightly thicker and more retentive than No. 1	M/F	8	L	0.19	0.06
2V	As No. 2 but supplied prepleated	M/F	8	L	0.19	0.06
3	Double the thickness of No. 1	M	6	M	0.39	0.06
3MM	Filtration grade of chromatography paper 3MM Chr	M	11	M	0.34	—
4	Excellent retention of coarse and gelatinous precipitates	F	20 - 25	L	0.21	0.06
5	Will retain fine precipitates, grained surface	S	2.5	L	0.20	0.06
6	Faster than No. 5 but almost as high retention	S	3	L	0.18	0.20
113	Excellent retention of coarse and gelatinous precipitates, creped	F	30	H	0.42	0.06
113V	As No. 113 but supplied prepleated	F	30	H	0.42	0.06
114	Similar to No. 113 but thinner and very strong. Smooth surface	F	25	H	0.19	0.06
114V	As No. 114 but supplied prepleated	F	25	H	0.19	0.06

*These schools grade papers are manufactured and packed to less critical standards than other Whatman filters. Approximate values only.

Whatman®

Filter Papers, Quantitative Grades

Very high quality papers for use in critical gravimetric analysis.

Grade No.		Flowrate	Retention microns	Wet strength	Thickness mm	Ash %
Ashless						
40	General purpose gravimetric paper	M	8	L	0.20	0.01
41	For filtration of coarse and gelatinous precipitates	F	20 - 25	L	0.21	0.01
42	Highly retentive for fine precipitates	S	2.5	L	0.20	0.01
43	Intermediate retention and flow rate between Nos. 40 and 41	M/F	16	L	0.21	0.01
44	Thin version of No. 42	S	3	L	0.17	0.01
Hardened						
50	For retention of finest crystalline precipitates. Highly glazed surface	S	2.7	H	0.12	0.025
52	General purpose hardened grade	M	7	H	0.17	0.025
54	For filtration of coarse and gelatinous precipitates	F	20 - 25	H	0.18	0.025
Hardened ashless						
540	General purpose hardened ashless paper	M	8	H	0.15	0.008
541	For filtration of coarse and gelatinous precipitates	F	20 - 25	H	0.16	0.008
542	Highly retentive for fine precipitates	S	2.7	H	0.15	0.008

Flowrate

M – Medium

F – Fast

S – Slow

Wet Strength

L – Suitable for gravity or low suction filtration. Care must be taken to prevent rupture of the paper.

M – Will withstand all normal use on Buchner funnels or other devices under suction or moderate pressure.

H – High wet strength and high chemical resistance.

Filtration

Filter Paper, Circles and Sheets, Qualitative Grades

Whatman®

Student Grade

General purpose, supplied in outer packs as indicated, containing inner bags of 100 circles.

	<i>Dia., cm</i>	<i>Pack qty.</i>
FB100-35	15	1000

Grade 91

General purpose, creped. Supplied in outer packs as indicated containing inner bags of 100 circles.

	<i>Dia., cm.</i>	<i>Pack qty.</i>
FB102-32	12.5	4000
FB102-34	15.0	1000
FB102-36	18.5	1000

Grade No. 1

Qualitative general purpose. Supplied in boxes of circles or sheets as indicated.

	<i>Dia., cm</i>	<i>Box qty.</i>
Circles		
FB105-12	2	400
FB105-16	2.5	400
FB105-18	3	400
FB105-22	4.25	100
FB105-24	5.5	100
FB105-26	7	100
FB105-27	8.5	100
FB105-28	9	100
FB105-30	11	100
FB105-32	12.5	100
FB105-34	15	100
FB105-36	18.5	100
FB105-38	24	100
FB105-40	27	100
FB105-42	32	100
FB105-44	40	100
FB105-46	50	100
	<i>W x L, cm</i>	<i>Box qty.</i>
Sheets		
FB105-65	2.6 x 3.1	1000
FB105-75	46 x 57	100
FB105-80	58 x 68	100

Grade No. 2

Qualitative. Supplied in boxes of circles or sheets as indicated.

	<i>Dia., cm</i>	<i>Box qty.</i>
Circles		
FB110-22	4.25	100
FB110-24	5.5	100
FB110-26	7	100
FB110-28	9	100
FB110-30	11	100
FB110-32	12.5	100
FB110-34	15	100
FB110-36	18.5	100
FB110-38	24	100
FB110-42	32	100
	<i>W x L, cm</i>	<i>Box qty.</i>
FB110-75	46 x 57	100

Grade No. 2V

Qualitative. Prepleated. Supplied in boxes of circles as indicated.

	<i>Dia., cm</i>	<i>Box qty.</i>
FB115-32	12.5	100
FB115-34	15	100
FB115-36	18.5	100
FB115-38	24	100
FB115-40	27	100
FB115-42	32	100

Grade No. 3

Qualitative. Thick. Supplied in boxes of circles or sheets as indicated.

	<i>Dia., cm</i>	<i>Box qty.</i>
Circles		
FB120-24	5.5	100
FB120-26	7	100
FB120-28	9	100
FB120-30	11	100
FB120-32	12.5	100
FB120-34	15	100
FB120-36	18.5	100
FB120-38	24	100
	<i>W x L, cm</i>	<i>Box qty.</i>
FB120-75	46 x 57	100



Filtration

Filter Paper, Circles, Qualitative Grades continued

Whatman®

All grades supplied in boxes of circles as indicated.

	<i>Dia., cm</i>	<i>Box qty.</i>
Grade 3MM Circles		
Qualitative.		
FB125-18	2.5	100
Grade No. 4 Circles		
Qualitative. Fast flow.		
FB130-22	4.25	100
FB130-24	5.5	100
FB130-26	7	100
FB130-28	9	100
FB130-30	11	100
FB130-32	12.5	100
FB130-34	15	100
FB130-36	18.5	100
FB130-38	24	100
FB130-42	32	100
Grade No. 5 Circles		
Qualitative. Slow flow.		
FB135-24	5.5	100
FB135-26	7	100
FB135-28	9	100
FB135-30	11	100
FB135-32	12.5	100
FB135-34	15	100
FB135-36	18.5	100
FB135-38	24	100
Grade No. 6 Circles		
Qualitative. Slow.		
FB140-26	7	100
FB140-28	9	100
FB140-30	11	100
FB140-32	12.5	100
FB140-34	15	100
FB140-36	18.5	100
FB140-38	24	100

	<i>Dia., cm</i>	<i>Box qty.</i>
Grade No. 113 Circles		
Qualitative. Fast flow.		
FB150-28	9	100
FB150-32	12.5	100
FB150-34	15	100
FB150-36	18.5	100
FB150-38	24	100
Grade No. 113V Circles		
Qualitative. Prepleated.		
FB155-32	12.5	100
FB155-34	15	100
FB155-36	18.5	100
FB155-38	24	100
FB155-40	27	100
FB155-42	32	100
FB155-46	50	100
Grade No. 114 Circles		
Qualitative.		
FB160-34	15	100
Grade No. 114V Circles		
Qualitative. Prepleated.		
FB165-32	12.5	100
FB165-34	15	100
FB165-38	24	100



Filtration

Filter Paper Circles, Quantitative Grades

Whatman®

All grades supplied in boxes of circles as indicated.

	<i>Dia., cm</i>	<i>Box qty.</i>
Grade No. 40 Circles		
Quantitative ashless.		
FB200-18	3.2	100
FB200-24	5.5	100
FB200-26	7	100
FB200-28	9	100
FB200-30	11	100
FB200-32	12.5	100
FB200-34	15	100
FB200-36	18.5	100
FB200-38	24	100
Grade No. 41 Circles		
Quantitative ashless.		
FB205-24	5.5	100
FB205-25	6	100
FB205-26	7	100
FB205-28	9	100
FB205-30	11	100
FB205-32	12.5	100
FB205-34	15	100
FB205-36	18.5	100
FB205-38	24	100
Grade No. 42 Circles		
Quantitative ashless.		
FB210-22	4.25	100
FB210-24	5.5	100
FB210-26	7	100
FB210-28	9	100
FB210-30	11	100
FB210-32	12.5	100
FB210-34	15	100
FB210-36	18.5	100
FB210-38	24	100
Grade No. 43 Circles		
Quantitative ashless.		
FB215-30	11	100
FB215-32	12.5	100
FB215-34	15	100
FB215-36	18.5	100
Grade No. 44 Circles		
Quantitative ashless.		
FB220-30	11	100
FB220-32	12.5	100
FB220-34	15	100
FB220-36	18.5	100

	<i>Dia., cm</i>	<i>Box qty.</i>
Grade No. 50 Circles		
Quantitative hardened.		
FB250-24	5.5	100
FB250-28	9	100
FB250-30	11	100
FB250-32	12.5	100
FB250-34	15	100
FB250-36	18.5	100
FB250-38	24	100
Grade No. 52 Circles		
Quantitative hardened.		
FB255-34	15	100
Grade No. 54 Circles		
Quantitative hardened.		
FB260-24	5.5	100
FB260-26	7	100
FB260-28	9	100
FB260-30	11	100
FB260-32	12.5	100
FB260-34	15	100
FB260-36	18.5	100
FB260-38	24	100
FB260-42	32	100

	<i>Dia., cm</i>	<i>Box qty.</i>
Grade No. 540 Circles		
Quantitative hardened ashless.		
FB300-28	9	100
FB300-30	11	100
FB300-32	12.5	100
FB300-34	15	100
FB300-36	18.5	100
Grade No. 541 Circles		
Quantitative hardened ashless.		
FB305-24	5.5	100
FB305-26	7	100
FB305-28	9	100
FB305-30	11	100
FB305-32	12.5	100
FB305-34	15	100
FB305-36	18.5	100
FB305-38	24	100
Grade No. 542 Circles		
Quantitative hardened ashless.		
FB310-24	5.5	100
FB310-26	7	100
FB310-28	9	100
FB310-30	11	100
FB310-32	12.5	100
FB310-34	15	100
FB310-36	18.5	100
FB310-38	24	100



Filtration

Special Papers

Whatman®

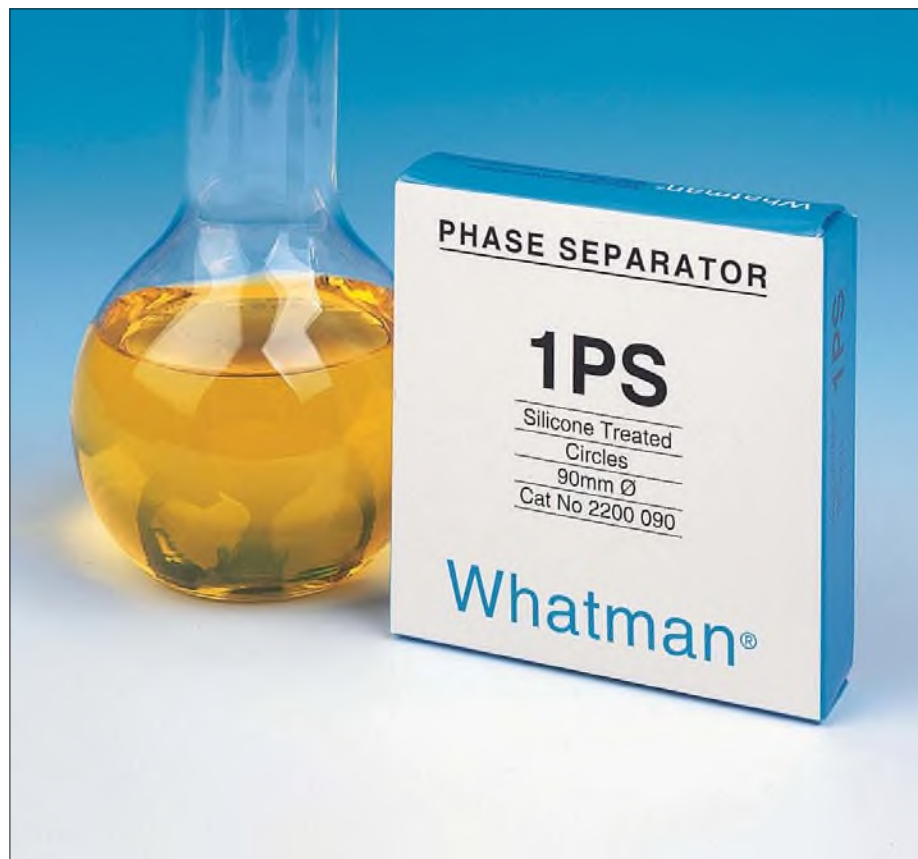
Phase Separators, 1PS

A silicone impregnated, water repellent paper which can be used to separate aqueous solutions from immiscible solvents. The aqueous phase is retained and the organic phase passes through. Will retain solid particles. Can be used either flat under suction not exceeding 70mm Hg or quadrant folded in a conical glass funnel. Supplied in boxes of 100 circles.

Note: This paper contains a small quantity of a tin complex catalyst. It is therefore not recommended for use when this complex may cause interference, e.g. with the use of dithizone (diphenylthiocarbazone) reagent.

	<i>Dia., cm</i>	<i>Box qty.</i>
FB380-26	7	100
FB380-28	9	100
FB380-30	11	100
FB380-32	12.5	100
FB380-34	15	100
FB380-36	18.5	100
FB380-40	27	100

FB380



Filter Aid

Cellulose materials used to coagulate precipitates and as a prefilter layer in funnels. Ashless. Supplied in a box of 500g.

FB405-40 Clippings

Seed Test Papers

For use in most commonly applied seed germination methods. Supplied in boxes of 100 circles.

FB420-10 No. 181, 9cm diameter

Grade EPM2000

For use in high volume air samplers. Sheet size 8 x 10in. Supplied in a box of 100 sheets.

FB800-10 EPM2000

	<i>Diameter, cm</i>	<i>Box qty.</i>
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Grade QM-A Circles

Quartz microfibre. Will operate to 500°C.

FB820-16	2.5	100
FB820-22	3.7	100
FB820-28	4.7	100

Lens Tissues, Whatman 105

For lens cleaning.

	<i>Dimensions, mm</i>	<i>Pack qty.</i>
CL760-10	100 x 150	625
CL760-15	200 x 300	100
CL760-20	460 x 570	500



FB405



CL760

Filtration

Glass Microfibre Filters

Whatman®

All Whatman Glass Microfibre filters have a fast filtration and a high loading capacity and particle retention rate.

- ◆ Manufactured without chemical binder from high grade borosilicate glass
- ◆ They are suitable for gravity or low suction filtration
- ◆ Filtration speeds generally very much higher than conventional cellulose papers
- ◆ Efficient retention of micron size particles
- ◆ Must be used flat. Ideal for use in flat perforated plate Buchner type funnels (not sintered glass models)
- ◆ Can be used up to 550°C
- ◆ Wide range of applications including:
 - retention of fine analytical precipitates
 - retention of biochemical gelatinous precipitates
 - water/air pollution analyses
 - as prefilters for membranes
 - scintillation counting
 - radioimmunoassay

Grades

GF/A The general purpose high efficiency glass micro-fibre filter. Particle retention to 1.6µm.

GF/B Three times thicker and with greater wet strength than GF/A. Particle retention to 1µm.

GF/C Extremely efficient filter made to retain fine particles and micro-organisms. Particle retention to 1.2µm.

GF/D Thick filter made from less fine fibres and retaining 2.7µm size particles with a very high loading capacity. Extremely high speed.

GF/F This ultra-fine filter has a 98% retention efficiency for particles down to 0.7µm in liquids.

934-AH High retention at high flow rates. Widely used in water pollution monitoring techniques for suspended solids, and is specified in US Method 934-AH. Particle retention to 1.5µm.

EPM2000 Specially manufactured for use in air samplers with a high throughput of air.

QM-A Quartz Manufactured from quartz microfibre to withstand high temperatures.

All grades supplied in boxes of circles or sheets as indicated.

	<i>Dia., cm</i>	<i>Box qty.</i>
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Grade GF/A Circles

FB600-10	2.1	100
FB600-13	2.4	100
FB600-16	2.5	100
FB600-22	3.7	100
FB600-25	4.25	100
FB600-28	4.7	100
FB600-33	5.0	100
FB600-36	5.5	100
FB600-39	6.0	100
FB600-42	7.0	100
FB600-45	9.0	100
FB600-48	11.0	100
FB600-52	12.5	100
FB600-55	15.0	100

	<i>W x L, cm</i>	<i>Box qty.</i>
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Grade GF/A Sheets

FB602-25	20.3 x 25.4	100
FB602-35	46 x 57	25

	<i>Dia., cm</i>	<i>Box qty.</i>
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Grade GF/B Circles

FB610-13	2.4	100
FB610-16	2.5	100
FB610-22	3.7	100
FB610-25	4.25	100
FB610-28	4.7	100
FB610-36	5.5	100
FB610-42	7.0	100
FB610-45	9.0	25
FB610-48	11.0	25
FB610-52	12.5	25
FB610-55	15.0	25
FB610-57	18.5	25

	<i>W x L, cm</i>	<i>Box qty.</i>
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Grade GF/B Sheets

FB612-35	46 x 57	25
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Filtration

Glass Microfibre Filters continued

Whatman®

All grades supplied in boxes of circles or sheets as indicated.

	Dia., cm	Box qty.
Grade GF/C Circles		
FB620-10	2.1	100
FB620-13	2.4	100
FB620-16	2.5	100
FB620-25	4.25	100
FB620-28	4.7	100
FB620-33	5.0	100
FB620-36	5.5	100
FB620-42	7.0	100
FB620-45	9.0	100
FB620-48	11.0	100
FB620-52	12.5	100
FB620-55	15.0	100

	W x L, cm	Box qty.
Grade GF/C Sheets		
FB622-20	10.2 x 25.4	50
FB622-30	46 x 57	25

	Dia, cm.	Box qty.
Grade GF/D Circles		
FB630-16	2.5	100
FB630-28	4.7	100
FB630-42	7.0	100
FB630-45	9.0	25
FB630-48	11.0	25
FB630-52	12.5	25
FB630-55	15.0	25
FB630-60	25.7	25

Grade GF/F Circles		
FB640-14	2.4	100
FB640-16	2.5	100
FB640-25	4.25	100
FB640-28	4.7	100
FB640-36	5.5	100
FB640-42	7.0	100
FB640-45	9.0	25
FB640-48	11.0	25
FB640-52	12.5	25
FB640-55	15.0	25
FB640-60	25.7	25

	W x L, cm	Box qty.
Grade GF/F Sheets		
FB642-35	46 x 57	25

Special Grades

Whatman®

	Dia., cm	Box qty.
Grade 934-AH Circles		
FB655-14	2.4	100
FB655-28	4.7	100
FB655-36	5.5	100
FB655-42	7.0	100
FB655-45	9.0	100
FB655-48	11.0	100
FB655-52	12.5	100

Grade EPM2000

For use in high volume air samplers. Sheet size 8 x 10in. Supplied in a box of 100 sheets.

FB800-10 EPM2000

	Dia., cm	Box qty.
Grade QM-A Circles		
Quartz microfibre. Will operate to 500°C.		
FB820-16	2.5	100
FB820-22	3.7	100
FB820-28	4.7	100
	W x L inches	Box qty.
Grade QM-A Sheets		
FB822-25	8 x 10	25



FB620, FB622 are similar



FB655



FB820, FB822 are similar

Filtration

Membrane Filters

Whatman®

Cellulose Nitrate Membrane Circles, WCN

Supplied in box quantities as indicated. Plain White.

	Pore size, μm	Dia. mm	Box qty.
FC150-12	0.1	25	100
FC150-19	0.1	47	100
FC152-08	0.2	13	100
FC152-12	0.2	25	100
FC152-19	0.2	47	100
FC152-32	0.2	90	25
FC152-40	0.2	142	25
FC156-08	0.45	13	100
FC156-12	0.45	25	100
FC156-19	0.45	47	100
FC156-21	0.45	50	100
FC156-32	0.45	90	25
FC156-40	0.45	142	25
FC158-19	0.65	47	100
FC160-12	0.8	25	100
FC160-16	0.8	37	100
FC160-19	0.8	47	100
FC162-12	1.0	25	100
FC162-19	1.0	47	100
FC163-21	1.2	50	100
FC163-40	1.2	142	25
FC165-12	3.0	25	100
FC165-19	3.0	47	100
FC168-12	5.0	25	100
FC168-19	5.0	47	100
FC168-32	5.0	90	25

Pre-filter for use with membrane filters – see FB610 series (Grade GFIB fine), FB630 series (Grade GFID coarse).

Cellulose Mixed Ester WME Membrane Circles

Supplied in box quantities as indicated. White gridded.

	Pore size, μm	Dia. mm	Box qty.
FC182-19	0.45	47	100
FC188-12	0.8	25	100

Cellulose Mixed Ester WME Membrane Circles

Sterilised by ethylene oxide

Individually packed with absorbent pad in sealed polyester envelope (except FC200-60). All pore size 0.45 μm (except FC198-60 which is 0.2 μm) and diameter 47mm. Supplied in boxes of 100.

FC198-60	White gridded
FC200-15	White plain
FC200-25	White gridded
FC200-30	Black gridded
FC200-60	White gridded (without pad)

Autoclave Pack

Ready for autoclaving. In pack of ten membranes and ten absorbent pads in a resealable envelope. With indicator which changes colour when autoclaved. Pore size 0.45 μm , diameter 47mm. Box quantity 100 membranes with pads.

FC204-25	White gridded
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PTFE Membrane Circles, WTP

With polypropylene backing. Supplied in box quantities as indicated. Plain White.

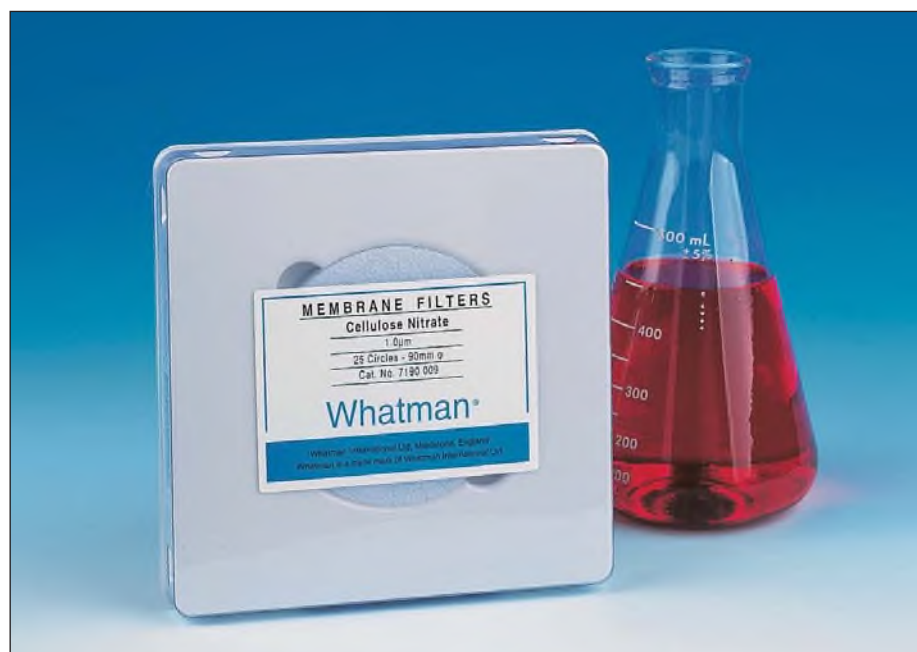
	Pore size, μm	Dia. mm	Box qty.
FC240-12	0.2	25	100
FC240-19	0.2	47	100
FC242-19	0.5	47	100
FC244-19	1.0	47	100

Inorganic Membrane Circles, Anodisc

Bonded to Polypropylene support ring (except 13mm). Supplied in box quantities as indicated. Plain White.

	Pore size, μm	Dia. mm	Box qty.
FC250-06	0.02	13	100
FC250-08	0.02	25	50
FC250-12	0.02	47	50
FC252-06	0.1	13	100
FC252-08	0.1	25	50
FC252-12	0.1	47	50
FC254-06	0.2	13	100
FC254-08	0.2	25	50
FC254-12	0.2	47	50

continued on next page



Filtration

Membrane Filters continued

Whatman®

Nylon Membrane Circles

Naturally hydrophilic, durable and compatible with a wide range of aqueous solutions, organic solvents and for filtration of biological preparations and media. Autoclavable at 121°C. Supplied in box quantities as indicated.

	Pore size, μm	Dia. mm	Box qty.
FC270-08	0.2	13	100
FC270-19	0.2	47	100
FC270-32	0.2	90	50
FC273-08	0.45	13	100
FC273-12	0.45	25	100
FC273-19	0.45	47	100
FC273-32	0.45	90	50
FC276-19	0.8	47	100

Polycarbonate Membrane Circles, Cyclopore

Naturally hydrophilic, with a smooth, flat surface and geometrically perfect cylindrical pores, made using a patented process. Supplied in box quantities as indicated.

	Pore size, μm	Dia. mm	Box qty.
FC280-10	0.2	47	100
FC280-16	1	47	100
FC280-22	5	47	100
FC280-30	12	47	100

Polycarbonate Membrane Circles, Nuclepore

Ultra-thin (6 to 11 μm thick), with a smooth flat surface and sharply defined pore sizes, made using a patented process. Low protein binding and low extractables. Supplied in box quantities as indicated.

	Pore size, μm	Dia. mm	Box qty.
FC281-10	0.8	13	100
FC282-02	0.015	25	100
FC282-03	0.03	25	100
FC282-04	0.1	25	100
FC282-05	0.2 [†]	25	100
FC282-06	0.2	25	100
FC282-07	0.4	25	100
FC282-08	0.4 [*]	25	100
FC282-18	3.0	25	100
FC284-06	0.2	47	100
FC284-07	0.4	47	100
FC284-20	5.0	47	100
FC284-22	8.0	47	100

[†]Black dyed membrane for epifluorescence microscopy applications.

^{*}Suitable for AOX (Adsorbable Organic) halogens analysis.

Membrane Forceps

Stainless steel. Smooth flat tips with bevelled edges. For handling membranes without damaging them.

FC289-10 Forceps



FC289-10



Filtration

Membrane Filter Holders and Filtration Systems

Choice of models:

- ◆ Vacuum
- ◆ Syringe

Filter Holders, Vacuum, Whatman

Borosilicate glass with metal clamp. Choice of sintered glass or stainless steel membrane support. Can be mounted on an accessory filter flask or manifold using the appropriate size rubber stopper. Without stopper or prefilter. Supplied singly.

Support	Reservoir ml	Pre-filter mm
25mm diameter		
FC300-10 Sintered glass	25	16
FC300-15 Sintered glass	50	13
FC300-25 Stainless steel screen	25	16
47mm diameter		
FC302-30 Sintered glass	300	35
FC302-40 Stainless steel screen	300	35

Filter Flasks, Buchner type – see *Flasks* section.

Filter Manifolds - see *FC338-series*

Stoppers – see *SW602-36*.

Filter Holders, Syringe, Whatman

Stainless steel with PTFE gasket and O-ring. With female luer lock inlet and male luer nozzle outlet. Supplied singly.

- FC330-13** 13mm diameter
- FC330-25** 25mm diameter

Filter Holders, Vacuum, Pyrex®

Comprising separate funnel, base and clip components. The funnel and base are Pyrex® borosilicate glass, the base having a sintered glass membrane support disc for use with membranes of diameter as indicated. Funnel and base are clamped together using the metal retaining clip.

	Ref.	Description	Funnel capacity ml
For membranes, 25mm diameter			
FC350-20	5808/2	Funnel	15
FC350-30	5808/3	Base	—
FC350-40	9830/29M	Clip	—
For membranes, 47mm diameter			
FC355-15	5809/2	Funnel	300
FC355-25	5809/3	Base	—
FC355-35	5810/5	Clip	—

Filtration System, Pyrex®

Pyrex® borosilicate glass filtration system for use with 47mm diameter membranes. Four separate components make up the complete system, a 300ml capacity funnel, support base with sintered disc membrane support and vacuum connection, metal retaining clip and heavy wall 1 litre conical flask with ground glass connection for vacuum seal.

	Ref.	Description
FC355-15	5809/2	Funnel
FC355-35	5810/5	Clip
FC357-06	5810/3	Base
FC357-09	5810/4	Flask

FC357-95 Complete filtration assembly, comprising 1 of each funnel, clip, base and flask



FC302, FC300 are similar



FC350-20 to FC350-40



FC355-15 with FC355-35



Filtration System

Filtration

Membrane Filter Holders and Filtration Systems

Whatman®

Vacuum Filtration Systems

Stainless steel with metal, standard or rapid-fix clamp as indicated. Maximum working temperature 200°C. Autoclavable and can be dry-heat sterilised at up to 180°C. With stainless steel screen membrane support for 47/50mm diameter membranes. Can be mounted on an accessory filter flask using an appropriate size stopper.

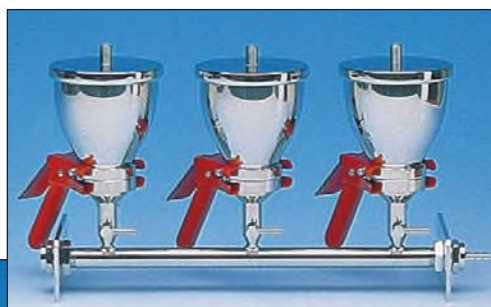
	Clamp	Reservoir, ml	Pre-filter size, mm
FC304-09	Standard	500	40
FC304-14	Rapid-fix	500	40

Manifold Filtration Systems

For use with vacuum filter holders, as indicated. Stainless steel. With 9mm i.d. tubing connection ferrule.

- FC316-10** 3-place manifold, empty
- FC316-14** 3-place manifold, with 3 x FC304-09
- FC316-16** 3-place manifold, with 3 x FC304-14

- FC316-30** 6-place manifold, empty
- FC316-34** 6-place manifold, with 6 x FC304-09
- FC316-36** 6-place manifold, with 6 x FC304-14



FC316-14



FC304-09



FC304-14

Filtration

Inorganic Membrane Syringe Filters - Anotop

Whatman®

Disposable syringe filters designed for use in a wide range of sample filtration applications. Incorporates Anopore inorganic membranes with a precise non-deformable, even honeycomb pore structure. The membrane is sealed within a hexagonal shaped polypropylene body with luer lock fittings. These filters are compatible with most organic solvents and aqueous solutions. All versions are available in a gamma-irradiated sterile form and with glass microfibre pre-filter enabling larger volumes of difficult solutions to be filtered.

	Anotop 10	Anotop 10 Plus	Anotop 25	Anotop 25 Plus
Membrane diameter mm	10	10	25	25
Membrane type	Anopore — all models			
Pre-filter type	—	Glass Microfibre	—	Glass Microfibre
Housing material	Polypropylene — all models			
Construction process:	Thermal weld — all models			
Extractable materials	Low	Low	Low	Low
Operating pressure maximum (psi)	100	100	100	100
Average membrane thickness μm	60	60	60	60
Device width mm	14	14	31	32
Device length mm	18	18	25	25
Inlet connection	Female luer lock — all models			
Outlet connection	Male luer		Male luer slip	
Hold-up volume μl	<20	<30	<150	<200

Supplied in packs as indicated.

Anotop 10

	Pore size μm	Ref.	Pack qty.
FC365-10	0.02	6809 1002	50
FC365-14	0.1	6809 1012	50
FC365-18	0.2	6809 1022	50
FC365-26	0.1	6809 1112	50 sterile
FC365-32	0.2	6809 1122	50 sterile

Anotop 10 Plus with prefilter

	Pore size μm	Ref.	Pack qty.
FC365-39	0.02	6809 3002	50
FC365-47	0.2	6809 3022	50

Anotop 25

	Pore size μm	Ref.	Pack qty.
FC367-15	0.02	6809 2002	50
FC367-20	0.1	6809 2012	50
FC367-25	0.2	6809 2022	50
FC367-30	0.2	6809 2024	200
FC367-40	0.1	6809 2112	50 sterile
FC367-45	0.2	6809 2122	50 sterile

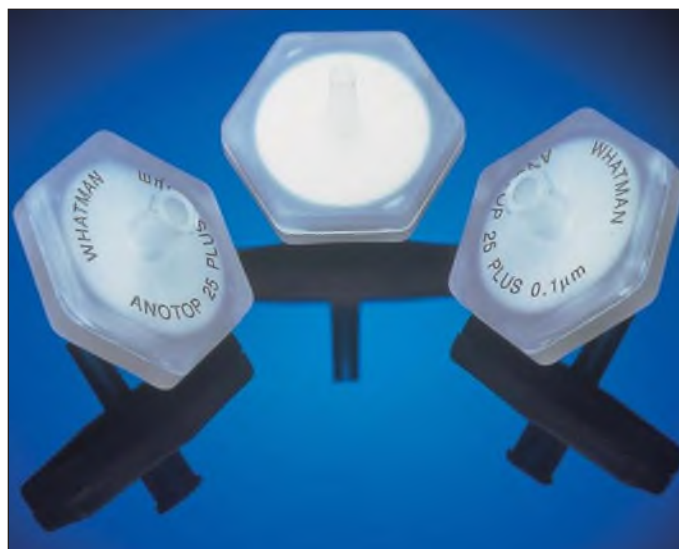
Anotop 25 Plus with prefilter

	Pore size μm	Ref.	Pack qty.
FC367-52	0.02	6809 4002	50
FC367-54	0.1	6809 4012	50
FC367-60	0.2	6809 4022	50
FC367-65	0.2	6809 4024	200

Anotop LC™ Syringe Filters

Designed for simple and effective sample preparation prior to HPLC, removing particulates which may damage and reduce the operating life of chromatography columns. An Anopore inorganic membrane is housed within a hexagonal shaped, pigment-free polypropylene body. Membrane pore sizes and filter pack sizes are as indicated. With luer slip female inlet and male outlet fittings.

μm	Pore size mm	Dia.	Ref.	Pack qty.
FC369-12	0.2	10	2001 0100	100
FC369-15	0.2	10	2001 0200	200



Filtration

Puradisc™ Syringe Disc Filters, 4mm, 13mm and 25mm

Whatman®

- ◆ For sample preparation and small volume filtration
- ◆ Full range of membrane and glass microfibre media
- ◆ Special outlet designed for use with microvials
- ◆ Ideal for HPLC sample preparation
- ◆ Very low hold-up volumes, <7.5µl
- ◆ Available individually sterile packed, where indicated

Media/Description	Pore size µm	4mm Disc			13mm Disc		
		Cat. No.	Ref.	Pack qty.	Cat. No.	Ref.	Pack qty.
PVDF w/t	0.2	—	—	—	FC376-11	6778 1302	50 sterile
	0.2	FC370-12	6777 0402	50	FC376-13	6777 1302	50
	0.45	FC370-18	6777 0404	50	FC376-19	6777 1304	50
PVDF	0.2	FC370-32	6779 0402	100	FC376-33	6779 1302	100
	0.45	—	—	—	FC376-39	6791 1304	50 sterile
	0.45	FC370-40	6779 0404	100	FC376-41	6779 1304	100
Polysulphone	0.2	—	—	—	FC376-55	6780 1302	50 sterile
	0.2	—	—	—	FC376-57	6782 1302	100
	0.45	—	—	—	FC376-65	6782 1304	100
Polypropylene	0.2	—	—	—	FC376-81	6788 1302	100
	0.45	FC370-86	6788 0404	100	FC376-86	6788 1304	100
PTFE w/t	0.2	—	—	—	FC378-06	6775 1302	50
	0.45	—	—	—	FC378-08	6775 1304	50
PTFE	0.1	—	—	—	FC378-14	6784 1301	100
	0.2	FC372-15	6784 0402	100	FC378-16	6784 1302	100
	0.45	FC372-19	6784 0404	100	FC378-20	6784 1304	100
	1.0	—	—	—	FC378-25	6784 1310	100
	5.0	—	—	—	FC378-30	6784-1350	100
Nylon 66	0.2	—	—	—	FC378-35	6789 1302	100
	0.45	—	—	—	FC378-39	6789 1304	100
Glass Microfibre Media							
GF/A	1.6	—	—	—	FC378-85	6820 1316	100
GF/C	1.2	—	—	—	FC378-89	6822 1312	100
GF/D	2.7	—	—	—	FC378-91	6823 1327	100
GF/F	0.7	—	—	—	FC378-93	6825 1307	100

w/t: with tube tip for direct filtration into microvials.



Media/Description	Pore size µm	25mm Disc		
		Cat. No.	Ref.	Pack qty.
Polysulphone	0.2	FC388-15	6780 2502	50 sterile
	0.2	FC388-18	6781 2502	200
	0.45	FC388-23	6780 2504	50 sterile
	0.45	FC388-26	6781 2504	200
Nylon	0.2	FC388-43	6750 2502	50
	0.2	FC388-46	6751 2502	200
	0.45	FC388-49	6750 2504	50
	0.45	FC388-52	6751 2504	200
PTFE	0.2	FC388-66	6784 2502	50
	0.2	FC388-68	6785 2502	200
	0.45	FC388-75	6784 2504	50
	0.45	FC388-77	6785 2504	200
	1.0	FC388-84	6784 2510	50
Polypropylene	0.2	FC390-14	6786 2502	50
	0.2	FC390-17	6788 2502	200
	0.45	FC390-22	6786 2504	50
	0.45	FC390-25	6788 2504	200

Filtration

Filter microplates, Unifilter®

Whatman®

Convenient, ready to use filtration devices in 96-well microplate format. Available in a choice of well capacities, 350µl, 800µl and 2000µl. Each well has a filter individually sealed into the base, below which runs a unique drip director to accurately deliver the filtrate into the receiving well of an accessory microplate positioned underneath, with no splashing or cross contamination. A wide range of filter media are offered to allow compatibility with a variety of sample types. Plates are manufactured in polystyrene (PS) for general use with biological samples or glass-filled polypropylene (GPP) for long term organic solvent exposure. The 350µl plates are mainly used for high throughput biological assay screening applications, protein kinase assays, receptor binding assays and cell immobilisation. 800µl and 2000µl filtration plates are used for high throughput screening sample preparation and clean up. Typical applications include cell-based immunoassay, nucleic acid isolation, sterile filtration of biological samples and compound library generation using parallel synthesis procedures. Supplied in pack quantities as indicated.

Cat. No.	Ref. 7700-	Plate material* -colour	Media*	Drip director type	Pack qty
Unifilter 350, well volume: 350µl					
FC410-44	3301	PS-white	GF/C (hydrophobic)	Short	50
Unifilter 800, well volume: 800µl					
FC411-03	2803	PS-clear	GF/B	Long	25
FC411-06	2801	PS-clear	GF/C	Long	25
FC411-15	2810	PS-clear	GF/F	Long	25
FC411-19	2808	PS-clear	CA 0.45µm	Long	25

*Material/media key:

CA: Cellulose acetate

GF/: Glass microfibre

Accessory Vacuum manifold, UniVac 3®

Specially designed for use with Whatman Unifilter microplates for transferring liquid from the filter microplate to the corresponding well of an accessory collection plate for further analysis. Constructed in PTFE-coated aluminium for resistance to most aggressive solutions allowing cleaning/sterilisation by common laboratory methods. With stopcock and gauge for precise and repeatable control of vacuum from an accessory vacuum pump (not supplied) and Vacuum Assist Frame ensuring complete and homogeneous evacuation of all wells.

FC414-60 UniVac 3 Aluminium



FC410



FC414-60 in use

Filtration

Syringeless Filters

Whatman®

Provide a single disposable, manual pressure filtration system which is fast and easy to use in sample preparation.

- ◆ Built-in pre-filter for 'difficult' samples
- ◆ Minimal waste
- ◆ Ideal for hazardous samples

Syringeless Filters, Autovial™

Comprise a graduated, medical grade polypropylene barrel, maximum capacity 12ml, with 3cm² filter at the base, luer slip outlet and plunger. Filter membrane material as specified. Non-sterile. Supplied in packs of 50.

Filter membrane material	Pore size, μm	Catalogue number	Ref.
PVDF	0.2	FC415-08	AV125EAQU
	0.45	FC415-12	AV125UAQU
Nylon	0.45	FC415-16	AV125UNAO
PTFE	0.2	FC415-24	AV125EORG
	0.45	FC415-27	AV125UORG
Glass microfibre	0.45	FC415-33	AV125UGMF

Syringeless Filters, UniPrep™

Comprise a 5ml capacity medical grade polypropylene test tube which initially holds the sample, and hollow plunger incorporating a filter at the tip. In use the sample is manually pressure filtered into the plunger which then acts as a storage vial for the filtered sample. The plunger has a removable cap. Non-sterile. Supplied in packs of 50.

Filter membrane material	Pore size, μm	Catalogue number	Ref.
Glass microfibre	0.45	FC417-09	UN113UGMF
Nylon	0.45	FC417-16	UN113UNYL
PTFE	0.2	FC417-24	UN113EORG
	0.45	FC417-27	UN113UORG

Syringeless Filters, Mini-UniPrep™

A small-scale version (up to 500 μl sample volume) of the UniPrep™ filter designed to fit into any HPLC autosampler which accommodates 12 x 32mm vials. Alternatively the lid septum can be pierced with a needle and the filtered sample drawn off for manual injection into an analyser. Overall height x diameter 33.2 x 11.7mm. Medical grade polypropylene chamber and plunger with aluminium cap and pierceable PTFE-faced silicone seal to the plunger. Filtration area: 0.3cm². Non-sterile, but autoclavable. Supplied in packs as indicated.

Filter membrane material	Pore size, μm	Catalogue number	Ref.	Pack qty.
Polypropylene	0.45	FC420-10	UN203NPUPP	100
	0.45	FC420-12	UN503NPUPP	1000
	0.45	FC420-14	UN203APUPP*	100
PTFE	0.45	FC420-18	UN203NPUORG	100
	0.45	FC420-20	UN503NPUORG	1000
	0.45	FC420-22	UN203APUORG*	100
PVDF	0.45	FC420-26	UN203NPUAQU	100
	0.45	FC420-28	UN503NPUAQU	1000
	0.45	FC420-30	UN203APUAQU*	100
Glass microfibre	0.45	FC420-34	UN203NPUGMF	100
	0.45	FC420-36	UN503NPUGMF	1000
	0.45	FC420-38	UN203APUGMF*	100
Nylon	0.45	FC420-42	UN203NPUNYL	100
	0.45	FC420-44	UN503NPUNYL	1000
	0.45	FC420-46	UN203APUNYL*	100
Polyether-sulphone	0.45	FC420-50	UN203NPUPES	100
	0.45	FC420-52	UN503NPUPES	1000
	0.45	FC420-54	UN203APUPES*	100

* With amber polypropylene body for use with light-sensitive samples.

Accessory compressor for FC420-series

Multi-sample (up to 6) compressor to reduce sample processing time and hand fatigue.

[FC422-06](#) 6-sample compressor



FC415



FC417



FC420 with FC422-06 in use

Filtration

Encapsulated Filters

Whatman®

A wide range of encapsulated disc and capsule filters, incorporating a variety of high performance glass microfibre and membrane media for the filtration and sterilisation of both liquids and gases.

Product Summary

Product	Porosity μm	Media Type	Filter area cm^2	Typical uses	
Disposable membrane filter discs					
POLYDISC TF	0.2	PTFE	16	Rapid filtration of aggressive solutions	
POLYDISC TF	0.45	PTFE	16		
POLYDISC TF	1.0	PP/PTFE	16		
POLYDISC HD	5.0	PP	16		
POLYDISC HD	10.0	PP	16		
POLYDISC AS	0.2	AMEC	16	Rapid filtration of aqueous solutions	
POLYVENT	0.2	PTFE	4	Environmental protection, venting	
POLYVENT	0.2	PTFE	16		
VACUGUARD	—	PTFE	16	Vacuum pump exhaust	
HEPA-VENT	—	GMF	16	Filtration air/gases	
Disposable Filtration capsules					
HEPA-CAP 36	—	GMF	560	Sterilising air	
HEPA-CAP 75	—	GMF	1300		
POLYCAP 36 HD	1.0	MAPP	260	Prefiltering up to 60°C. Can be used in either direction	
POLYCAP 36 HD	5.0	MAPP	260		
POLYCAP 36 HD	10.0	MAPP	260		
POLYCAP 36 HD	20.0	MAPP	260		
POLYCAP 75 HD	1.0	MAPP	650		
POLYCAP 75 HD	5.0	MAPP	650		
POLYCAP 75 HD	10.0	MAPP	650		
POLYCAP 75 HD	20.0	MAPP	650		
POLYCAP 36 TF	0.2	PTFE	260		Aggressive chemical filtration
POLYCAP 36 TF	1.0	PP/PTFE	260		
POLYCAP 75 TF	0.2	PTFE	650		
POLYCAP 75 TF	1.0	PP/PTFE	650		
POLYCAP 36 AS	0.2	Nylon	300	Filtering aqueous solutions	
POLYCAP 36 AS	1.0	Nylon	300		
POLYCAP 75 AS	0.2	Nylon	650		
POLYCAP 75 AS	0.45	Nylon	650		
CARBON CAP 75	—	Activated carbon	22,000m ²	Removing organics from gases/water	
VACUGUARD 150	—	PTFE and Chemical trap		Vacuum pump protection	

AMEC Asymmetric Mixed Ester of Cellulose

GMF Glass Microfibre Filter

MAPP Mono filament Anisotropic Polypropylene

PP Polypropylene

PTFE Polytetrafluoroethylene



Disposable Filter Discs

Whatman®

Mounted in a rugged polypropylene housing. All have a low hold-up volume. Dimensions: 53 x 46mm diameter x length. Connections: For 6 to 10mm bore tubing. Also accept male luer slip.

Polydisc TF

- ◆ Hydrophobic PTFE membrane
- ◆ Pore sizes 0.2, 0.45 and 1 μm
- ◆ 1 μm pore size device has polypropylene pre-filter
- ◆ Autoclavable at 131°C for 20 minutes
- ◆ Max. operating pressure 4.1 bar

Ideal for the rapid filtration of chemically aggressive solutions as the PTFE membrane and polypropylene housing are resistant to a wide variety of solvents.

Manufactured in clean room conditions, the filter is very low in extractables and is biosafe. Accordingly the discs may be used for the filtration of aqueous buffers of cell culture media, if pre-wetted with methanol. Non sterile.

	Porosity, μm	Pack qty.
FC430-15	0.2	10
FC430-20	0.45	10
FC430-30	1.0	10

Polydisc AS

- ◆ 0.2 μm asymmetric cellulose mixed ester membrane
- ◆ Maximum operating pressure 4.1 bar
- ◆ Glass microfibre prefilter with all pore sizes
- ◆ Supplied radiation sterilised with cap on outlet
- ◆ Can be autoclaved once at 131°C for 20 minutes

Designed principally for the filtration of aqueous solutions. Typical applications include the filtration of tissue culture media, reagent preparation, pharmaceutical preparations, enzymes, biologicals and particle counting solutions.

	Porosity, μm	Pack qty.
FC435-17	0.2	10



FC430, FC435

Filtration

Disposable Filter Discs continued

Whatman®

Mounted in a rugged polypropylene housing. All have a low hold-up volume. Dimensions 53 x 46mm diameter x length and with connections for 6 to 10mm bore tubing unless otherwise stated.

Polydisc HD

- ◆ Polypropylene housing and membrane
- ◆ Pore sizes 5µm or 10µm
- ◆ Filtration area 16cm², able to filter up to 5 litres fluid before replacement
- ◆ Autoclavable at 131°C for 20 minutes
- ◆ Hold-up volume less than 0.1ml
- ◆ Maximum operating pressure 4.1 bar

Extremely versatile filter for aqueous samples and solvents. A high loading capacity and flowrate enable effective filtration for large volume sample preparation up to the 10µm level. Supplied in packs of 10.

FC436-35 Polydisc HD, 5µm

FC436-38 Polydisc HD, 10µm

PolyVENT

Encapsulated filters for in-line gas/air filtration or venting/isolation applications where a vessel contents require protecting from airborne contaminants, the environment requires protecting from the vessel contents, or sterility of the contents must be maintained during venting. Supplied in packs as indicated.

		PolyVENT 4	PolyVENT 16
Membrane size	mm	25 dia.	50 dia.
Material		0.2µm PTFE	0.2µm PTFE
Air flow rates	litres/minute	10	50
Device W x L	mm	28 dia. x 23	58 x 49
Inlet connection		Female luer lok tubing barb	6-10mm i.d. tubing barb
Outlet connection		Male luer slip tubing barb	6-10mm i.d. tubing barb

As described. Supplied in packs as indicated.

FC437-15 PolyVENT 4, pack of 50

FC437-18 PolyVENT 16, pack of 10

VacuGuard

- ◆ Hydrophobic PTFE membrane
- ◆ Maximum operating pressure 0.9 bar
- ◆ 99.97% of particles of 0.3 microns or larger are retained
- ◆ Reduces risk of cross contamination and aqueous aerosol contamination of vacuum pumps and aspiration systems
- ◆ Eliminates harmful bacterial exhaust fumes

A protection device for vacuum pumps and personnel. Harmful bacterial exhaust fumes are removed because of the particle size retention, and aqueous aerosols removed because of the hydrophobic membrane. Supplied in pack of 10.

FC440-10 VacuGuard

Hepa-Vent

- ◆ Laminated hydrophobic glass microfibre filter
- ◆ Wide range of chemical compatibility
- ◆ High loading capacity and high throughput filtration media
- ◆ Particle retention ≥ 0.3 micron
- ◆ Autoclavable up to 132°C
- ◆ Maximum operating pressure 4.1 bar

Ideal for rapid filtration of air or gases for sterile applications. The device is small and compact and yet able to filter large volumes of air at low pressures up to 4.1 bar, and has a high loading capacity. Non sterile. Supplied in pack of 10.

FC445-10 Hepa-Vent



FC436



FC437



FC440



FC445

Filtration

Disposable Filtration Capsules

Whatman®

Mounted in a rugged polypropylene housing.

Technical Data

	Filtration area cm ²	Housing volume ml	Tubing connections mm	Dimensions dia. x length mm
Hepa-Cap 36	560	—	6-10	66 x 48
Hepa-Cap 75	1300	—	12	66 x 96
Polycap 36 HD	260	70	6-10	66 x 48
Polycap 75 HD	650	125	12	66 x 96
Polycap 36 TF	260	70	6-10	66 x 48
Polycap 75 TF	650	125	12	66 x 96
Polycap 36 AS	300	70	6-10	66 x 48
Polycap 75 AS	650	125	6-10*	66 x 96
PolyVent 500	500	70	9-13	66 x 48
PolyVent 1000	1000	125	9-13	66 x 96
Carbon Cap 75	22,000m ²	—	12	66 x 96
Carbon Cap 150	70,000m ²	—	12	66 x 183
VacuGuard 150	82,000m ² †	—	12	66 x 183

*The Polycap 75 AS 1µm porosity has connections for 12mm bore tubing.
†Activated carbon version only.



Hepa-Cap

- ◆ Laminated hydrophobic glass microfibre filter
- ◆ Choice of filtration areas
- ◆ Maximum operating pressure 4.1 bar
- ◆ Wide range of chemical compatibility
- ◆ High loading capacity and high throughput filtration media
- ◆ 99.97% of particles of 0.3 microns or larger are retained
- ◆ Autoclavable at up to 132°C

Ideal for the sterilisation of large volumes of air at low pressure, and is autoclavable. It is available in two sizes, depending upon the volume of air or gas to be filtered. Non sterile. Supplied singly.

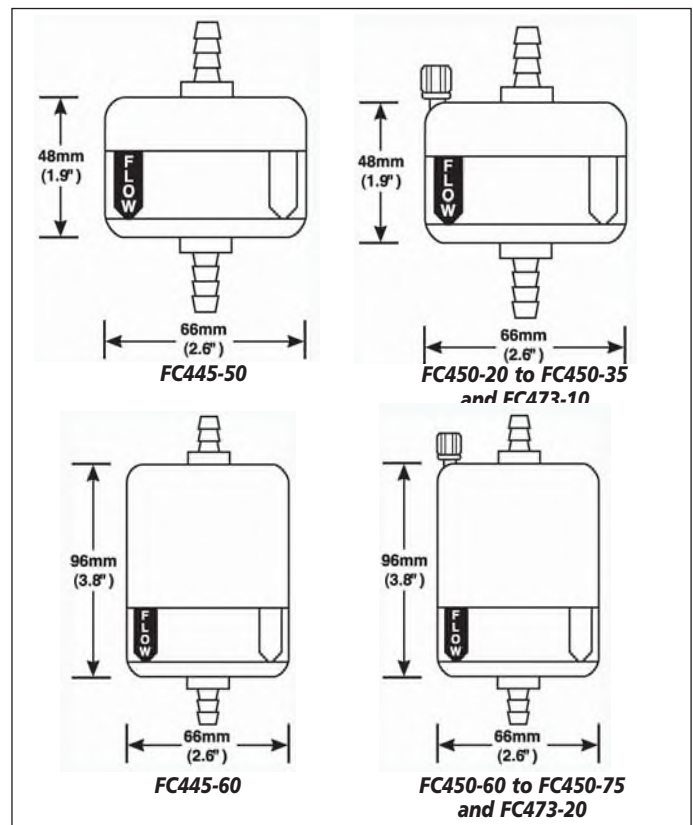
FC445-50 Hepa-Cap 36
FC445-60 Hepa-Cap 75

Polycap HD

- ◆ Polypropylene monofilament depth filter
- ◆ Choice of filtration areas and porosities
- ◆ Maximum operating pressures 4.1 bar forward, 3.0 bar reverse
- ◆ Capsules may be used in either direction
- ◆ Low hold-up volume with air purge
- ◆ Operating temperature 60°C maximum

Ideal for use as prefilters. The capsule and filtration media are both polypropylene and are thus resistant to chemical attack. Supplied singly.

	Porosity µm		Porosity µm
Polycap 36 HD Non Sterile		Polycap 75 HD Non Sterile	
FC450-20	1	FC450-60	1
FC450-25	5	FC450-65	5
FC450-30	10	FC450-70	10
FC450-35	20	FC450-75	20



Filtration

Disposable Filtration Capsules continued

Whatman®

Polycap TF

- ◆ Hydrophobic PTFE membrane
- ◆ Choice of filtration areas and porosities
- ◆ 1µm capsules incorporate a polypropylene prefilter
- ◆ Maximum operating pressure 4.1 bar
- ◆ Autoclavable up to 132°C

Provide the means of rapid filtration using a membrane of large filtration area. This capsule is ideal for filtering a wide range of chemicals through a well defined pore size membrane that is low in extractables and is totally non-fibre releasing. Supplied singly.

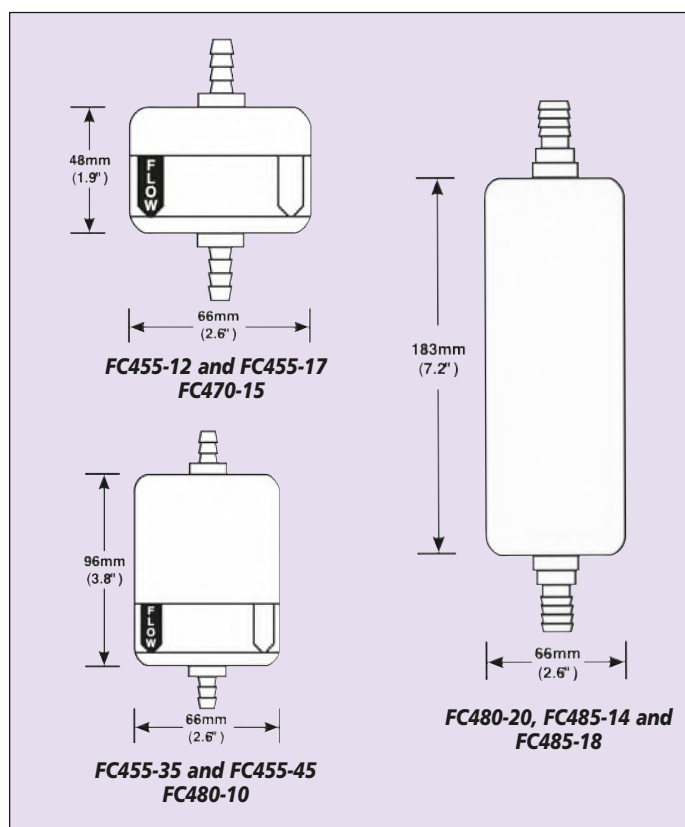
	Porosity µm	Porosity µm	
Polycap 36 TF Non sterile		Polycap 75 TF Non sterile	
FC455-12	0.2	FC455-35	0.2
FC455-17	1.0	FC455-45	1.0

Polycap AS

- ◆ Nylon membrane with glass microfibre prefilter
- ◆ Maximum operating pressure 4.1 bar
- ◆ Non pyrogenic and radiation sterilised

The nylon membrane is low in extractables and offers high flow rates. Typical applications include the filtration of water for laboratory use, salt solutions, cleaning/rinsing solutions, immunologicals, virus suspensions, buffers and nutrients. Supplied singly.

	Porosity µm
Polycap 36 AS	
FC470-15	0.2



PolyVENT

- ◆ Hydrophobic PTFE membrane
- ◆ Choice of filtration areas
- ◆ Rugged polypropylene capsule housing
- ◆ Low hold-up volume with air purge
- ◆ Autoclavable up to 132°C

Dedicated filter capsules for venting of vessels. Maximum pressure 1bar. With end connectors for 9 to 13mm bore tubing. Supplied singly.

	Type	Porosity, µm	Filtration area, cm ²
FC473-10	PolyVENT 500	0.2	500
FC473-20	PolyVENT 1000	0.2	1000

Carbon Cap

- ◆ Activated carbon filtration media
- ◆ Maximum operating pressure 4.1 bar
- ◆ Large surface area of carbon
- ◆ Autoclavable at 131°C for 20 minutes

The activated carbon filtration media is ideal for removing organic vapours from air or gases, or organics from water. With end connectors for 12mm bore tubing. Supplied singly.

- FC480-10** Carbon Cap 75. Overall 96 x 66mm
- FC480-20** Carbon Cap 150. Overall 183 x 66mm

VacuGuard 150

- ◆ Hydrophobic PTFE membrane and choice of chemical trap:
 - Activated carbon with 82000m² filter area removes organic vapours and radioactive particles
 - Desiccant removes water from acidic air streams
- ◆ 99.99% of particulates, 0.1µm or larger are retained
- ◆ Maximum operating pressures 1 bar (wet gas), 4.2 bar (dry gas)

For vacuum pump protection from corrosive vapours and contaminants. With end connectors for 12mm bore tubing. Supplied singly.

- FC485-14** VacuGuard 150, Activated carbon
- FC485-18** VacuGuard 150, Desiccant



FC470 in use



FC473



FC480-20



FC485-14



FC485-18

Filtration

Membrane Filters and Holders



Cellulose Acetate Membrane Circles

Low protein binding membranes for filtration of aqueous solutions.

	Pore size μm	Dia. mm	Box qty.
Plain white			
FC500-12	0.2	25	100
FC500-19	0.2	47	100
FC506-12	0.45	25	100
FC506-19	0.45	47	100
FC513-12	1.2	25	100
FC513-19	1.2	47	100

Cellulose Nitrate Membrane Circles

For sample analysis, particle testing and removal.

	Pore size μm	Dia. mm	Box qty.
Plain white			
FC532-12	0.45	25	100
FC532-19	0.45	47	100
FC532-25	0.45	85	100
FC540-12	1.2	25	100
FC540-19	1.2	47	100

White with black grid

FC542-19	0.45	47	100
FC542-21	0.45*	47	100
FC542-50	0.8	25	100

White with green grid

FC542-70	0.45	47	100
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*Sterile

PTFE Membrane Circles

For filtration of air, gases and aggressive chemicals.

	Pore size μm	Dia. mm	Box qty.
FC575-10	0.2	25	100
FC575-15	0.2	47	100
FC575-30	0.45	25	100
FC575-35	0.45	47	100



FC652

Forceps

Stainless steel with smooth flat tips. For handling membranes.

FC590-10 Forceps

Filter Holders, Vacuum

Borosilicate glass with metal clamp. Sintered glass membrane support and PTFE gasket. Can be autoclaved with membrane in position.

	Dia. mm	Reservoir, ml
FC650-10	25	30
FC650-30	47/50	250
FC652-25	47/50*	250

*Supplied complete with 1 litre capacity filter flask and polypropylene side-arm for safe connection to flexible vacuum tubing.

Filter Holders, Vacuum

Transparent polycarbonate. Can be autoclaved to 121°C. 250ml reservoir.

FC660-30 Filter dia. 47mm

Filter Holders, Syringe

Transparent polycarbonate. Can be autoclaved. Filters in either direction. Luer lock end fittings. Supplied in packs of 12.

FC690-10 Filter dia. 13mm

FC690-15 Filter dia. 25mm

Filter Holder, In-Line

Transparent polycarbonate. Can be autoclaved. With end fittings for 9 to 13mm flexible tubing. Supplied in pack of 5.

FC700-30 Filter dia. 47mm

Biosart 100 Filtration Units

For microbiological analysis. Disposable polystyrene, 100ml funnel with lid and membrane holder with fitted cellulose pad and 47mm diameter, black gridded, white cellulose nitrate membrane filter. In use, the unit is placed on an accessory vacuum manifold and once a filtration is completed the funnel is removed, allowing the membrane holder and funnel lid to be used as a petri dish. Supplied individually packed and sterile within an outer pack of 48.

FC740-10 0.2 μm

FC740-15 0.45 μm

FC740-85 Accessory filtration manifold, 3-position



FC700-30



FC740 in use with FC740-85



FC740-85 in use

Filtration

Disposable Filters



Syringe Filter, Minisart

With membrane sealed into a low adsorption plastic housing. With luer lock fittings on inlet and outlet. Will filter in either direction. Large filter area 5.3cm². High burst pressure (6 bar) for safe filtration. Supplied individually sterile. Supplied in packs of 50, except FC800-17 and -60 which are supplied in a pack of 500.

Cellulose acetate

Low protein binding

- FC800-15** 0.2µm pore size
- FC800-17** 0.2µm pore size
- FC800-40** 0.8µm pore size
- FC800-45** 1.2µm pore size

With additional glassfibre prefilter

- FC800-52** 0.2µm pore size

Surfactant-free cellulose acetate, with luer lock inlet and luer slip outlet.

- FC800-55** 0.2µm pore size

Polyethersulphone

High flow rate and capacity.

Non-sterile

- FC800-60** 0.2µm pore size

Sterile

- FC800-65** 0.45µm pore size

Syringe Filter, Minisart High-Flow

With asymmetric, single-layer, high flow polyethersulphone (PESU) membrane giving exceptional chemical stability. Large filter area, 5.3cm² and low hold-up volume, 0.1ml. Luer lock fittings on inlet and outlet. Supplied individually sterile. Supplied in pack of 50.

- FC800-74** 0.2µm pore size

Prefilter, Minisart

Glassfibre filter sealed into plastic housing with luer lock inlet and outlet. For prefiltration of highly loaded solutions. Supplied in pack of 50.

- FC802-95** Prefilter

Syringe filter, Minisart RC

For ultracleaning of aqueous or organic solvents. Hydrophilic cellulose membrane sealed into a polypropylene housing with female luer lock inlet and luer slip outlet. Autoclavable. Supplied in packs of 50.

4mm diameter filter

- FC840-10** 0.2µm pore size
- FC840-20** 0.45µm pore size

15mm diameter filter

- FC840-35** 0.2µm pore size
- FC840-45** 0.45µm pore size

25mm diameter filter

- FC840-65** 0.2µm pore size
- FC840-75** 0.45µm pore size

Syringe filter, Minisart SRP

Generally as FC840 but for use with aggressive liquids. Hydrophobic, polypropylene reinforced PTFE membrane sealed into a polypropylene housing with female luer lock inlet and luer slip outlet. Autoclavable. Supplied in packs of 50.

4mm diameter filter

- FC842-15** 0.45µm pore size

15mm diameter filter

- FC842-25** 0.2µm pore size
- FC842-30** 0.45µm pore size

25mm diameter filter

- FC842-42** 0.2µm pore size
- FC842-48** 0.45µm pore size

Syringe filter, Minisart NY25

With 25mm diameter, nylon membrane sealed into a polypropylene housing. With female luer lock fitting in the inlet and luer slip on the outlet. Filter area 4.8cm². High burst pressure (6 bar). Supplied in packs of 50.

- FC884-45** 0.45µm pore size, sterile
- FC884-47** 0.45µm pore size, with glass-fibre prefilter, non-sterile



FC800/FC802



FC840/FC842



FC884



FC800-55, FC800-60 is similar



FC800-65

Filtration

Centrifugal Concentrators, Vivaspin



Provide a single-step procedure for sample preparation, providing rapid sample filtration and concentration. Comprise centrifuge tube filtrate container with insert containing patented vertical membrane and thin channel filtration chamber. A wide choice of membrane materials is available for compatibility with most sample solutions, and low hold-up and dead-stop volumes ensure recoveries from small samples.

Specifications

Type	Vivaspin 500	Vivaspin 2
Capacity	ml 0.1 to 0.6	0.4 to 2*
Max. rcf	xg 15000	8000
Hold-up volume	µl <5	<10
Dead-stop volume	µl 5	8
Membrane area	cm ² 0.5	1.2
Material		
filtrate container	Polypropylene	Polycarbonate
insert	Polycarbonate	Polycarbonate
Overall L x dia.	mm 50 x 12.5	126 x 17

Type	Vivaspin 6	Vivaspin 15
Capacity	ml 2 to 6	2 to 15
Max. rcf	xg 10000	3000
Hold-up volume	µl <10	<20
Dead-stop volume	µl 30	50
Membrane area	cm ² 2.5	4.0
Material		
filtrate container	Polypropylene	Polypropylene
insert	Polycarbonate	Polycarbonate
Overall L x dia.	mm 122 x 16	76 x 25.5

*Using fixed angle rotor, maximum 3ml with swing-out rotor.

Additional features of Vivaspin 2

Unique to the Vivaspin 2, is the choice of directly pipetting the concentrate from the dead stop pocket built into the bottom of the concentrator, or alternatively reverse spinning into the concentrate recovery cap which can be sealed for storage. Both methods result in near total concentrate recoveries.



FC860 in use, FC869 to FC874 are similar

Vivaspin Concentrators

As described. Supplied in packs of 25 (except FC890-05 which is supplied in a pack of 40, and FC890-32 which is supplied in a pack of 12). Packs of 100 are also available – details on request.

	Membrane material#	Pore size MWCO x 1000
Vivaspin 500		
FC860-05	PES	5
FC860-10	PES	10
FC860-30	PES	30
FC860-50	PES	50
FC860-70	PES	100
Vivaspin 500 Starter Pack		
Comprising 5 each of each size, 5K, 10K, 30K, 50K, 100K MWCO.		
FC860-95	Vivaspin 500 starter pack	
Vivaspin 2		
FC869-05	PES	5
FC869-10	PES	10
FC869-30	PES	30
FC869-50	PES	50
FC869-70	PES	100
FC869-72	PES	300
FC874-05	CA	5
FC874-10	CA	10
FC874-20	CA	20
Vivaspin 6		
FC877-05	PES	5
FC877-10	PES	10
FC877-30	PES	30
FC877-50	PES	50
FC877-70	PES	100
FC877-90	PES	0.2µm
Vivaspin 15		
FC890-32	Hydrosart*	30

*Modified regenerated cellulose membrane offering high recovery and low absorption for desalting and concentration of Ig fractions.

#Material key:

CA — Cellulose triacetate PES — Polyethersulphone



FC869, FC876, FC890-series

Filtration

Disposable Filters

CORNING

Corning "Tube Top" filtration system

Low-volume media filtration unit, comprising sterile filter funnel with integral 42 x 42mm membrane filter coupled to 50ml graduated sterile centrifuge tube receiver, separate reusable stand (2 supplied per pack) and plug seal cap. Individually wrapped, sterile and non-pyrogenic. Supplied in packs as indicated.

	Receiver capacity ml	Pore size μm	Membrane Material*	Pack qty.
FD190-10	5-50	0.22	CA	12
FD190-15	5-50	0.45	CA	12

*CA=Cellulose Acetate.

Corning Bottle Top Filters

Disposable T.C. grade polystyrene filter funnel with heat-sealed membrane filter, mounted on screwthread bottle cap and vacuum connection. Supplied in packs as indicated.

	Receiver Capacity ml	Pore Size μm	Membrane Material*, size mm	Pack qty.
Screwthread Neck Diameter 33mm				
FD210-10	150	0.22	CA, 42 x 42	48
FD210-12	150	0.45	CA, 42 x 42	48
FD210-16	500	0.22	CA, 63 x 63	12
FD210-17	500	0.22	PES, 63 x 63	12
FD210-18	500	0.45	CA, 63 x 63	12
Screwthread Neck Diameter 45mm				
FD210-40	150	0.22	CA, 42 x 42	48
FD210-42	150	0.45	CA, 42 x 42	48
FD210-46	500	0.22	CA, 63 x 63	12
FD210-47	500	0.22	PES, 63 x 63	12
FD210-48	500	0.45	CA, 63 x 63	12

*CA=Cellulose Acetate. *PES=Polyethersulphone.

Suitable bottles – see *Bottles section BS435-series*.

Corning Disposable Membrane Vacuum Filter/Storage Systems

Manufactured in sterile T.C. grade polystyrene. Units comprise filter funnel with integral heat-sealed membrane filter and push-over cap, screw fitted to a receiver bottle. With side arm and tubing adapter for connecting flexible tubing and spare receiver bottle plug seal cap. Individually wrapped, sterile and non-pyrogenic. Supplied in packs as indicated.

	Receiver capacity ml	Pore size μm	Membrane Material*, size mm	Pack qty.
FD200-10	250	0.22	CA, 49 x 49	12
FD200-12	250	0.20	NYL, 49 x 49	12
FD200-14	250	0.20	CN, 49 x 49	12
FD200-16	250	0.22	PES, 49 x 49	12
FD200-20	250	0.45	CA, 49 x 49	12
FD200-40	500	0.22	CA, 63 x 63	12
FD200-42	500	0.20	NYL, 63 x 63	12
FD200-44	500	0.20	CN, 63 x 63	12
FD200-46	500	0.22	PES, 63 x 63	12
FD200-50	500	0.45	CA, 63 x 63	12
FD200-70	1000	0.22	CA, 79 x 79	12
FD200-72	1000	0.20	NYL, 79 x 79	12
FD200-74	1000	0.20	CN, 79 x 79	12
FD200-76	1000	0.22	PES, 79 x 79	12
FD200-80	1000	0.45	CA, 79 x 79	12

*CA=Cellulose Acetate.

*NYL=Nylon.

*CN=Cellulose Nitrate.

*PES=Polyethersulphone.

Spares

Disposable, T.C. grade polystyrene, sterile receiver bottles with 45mm neck, hand grips and plug seal cap. Supplied in packs of 24.

FD204-15	250ml
FD204-20	500ml
FD204-25	1000ml



FD190



FD200/FD210 series

Filtration

Sterilising Filter Units



Sterilising Filter Units

Pre-sterilised disposable single use units for laboratory use in cold sterilisation, clarification and ultra-cleaning of buffers, aqueous solutions and microbiological media.

- ◆ Transparent polystyrene upper and lower chambers with approximate graduations
- ◆ Colour coded green collar
- ◆ White cellulose nitrate 50mm diameter membrane
 - 0.2µm ungridded
 - 0.45µm gridded black
 - 0.8µm ungridded

	Pore size µm	Receiver ml	Pack qty.
FD240-24	0.2	150	12
FD240-27	0.45	150	12
FD240-30	0.8	150	12
FD240-37	0.2	250	12
FD240-40	0.45	250	12
FD240-43	0.8	250	12
FD240-50	0.2	500	12
FD240-53	0.45	500	12
FD240-56	0.8	500	12
FD240-64	0.2	1000*	12
FD240-67	0.45	1000*	12
FD240-70	0.8	1000*	12

* Upper chamber is 500ml.

Tissue Culture Units



Tissue Culture Units

Pre-sterilised disposable single use units designed to satisfy the exacting requirements of cell and tissue culture procedures using clean, non-toxic materials. Ideal for filtering proteinaceous solutions.

- ◆ Colour coded yellow collar
- ◆ Tissue culture grade white ungridded cellulose acetate membranes with low protein binding and minimal clogging
- ◆ Transparent polystyrene upper and lower chambers with approximate graduations
- ◆ Padless membrane support plate on the 50mm membranes minimises foaming of proteinaceous solutions

	Pore size µm	Membrane dia. mm	Receiver ml	Pack qty.
FD244-20	0.2	50	150	12
FD244-23	0.45	50	150	12
FD244-28	0.2	50	250	12
FD244-32	0.45	50	250	12
FD244-36	0.2	75	500	12
FD244-39	0.45	75	500	12
FD244-44	0.2	75	1000*	12
FD244-47	0.45	75	1000*	12

* Upper chamber is 500ml.

Cell Strainers

Cell Strainers

For quick, efficient, isolation of primary cells to provide a consistent "single cell" suspension from tissue samples. Remove debris and cell agglomerations prior to analysis, or in preparation of stocks for freezing.

- ◆ For use with 50ml centrifuge tubes
- ◆ Choice of mesh sizes: 40µm, 70µm or 100µm
- ◆ Improved cell suspension uniformity
- ◆ DNase- and RNase-free, non-pyrogenic, plastic construction with nylon mesh
- ◆ Gamma irradiated sterile and individually wrapped
- ◆ Extended peak on strainer rim allows easy, aseptic handling, using forceps

As described. Colour-coded and with mesh sizes, as indicated. Supplied individually wrapped in packs of 50.

- FD248-15** Blue, 40µm mesh
- FD248-25** Natural, 70µm mesh
- FD248-35** Yellow, 100µm mesh



FD248



FD240



FD244

Filtration

Analytical Filter Units



Pre-sterilised disposable single-use units with integral membrane. Ideal for microbial analysis, sterility testing, water quality or environmental analysis applications.

- ◆ Membrane easily removed for culturing or analysis
- ◆ 47mm diameter cellulose nitrate (CN) membrane which provides superior recovery and growth of micro-organisms
- ◆ Transparent polystyrene 150ml receiver with vacuum connection and approximate graduation at 100ml

	Pore μm	Pack qty.
FD250-10	0.2	12
FD250-13	0.45	12



FD250

Syringe Filters



Disposable Syringe Filters

For laboratory use. Accepts standard slip-fit and luer lock syringes. Autoclavable polypropylene housing and 25mm surfactant-free, cellulose acetate (SFCA) membrane. Certified pyrogen free.

	Pore size μm	Pack qty.
Non-Sterile		
FD260-31	0.2	100
FD260-34	0.45	100

Disposable Syringe Filters

Generally as FD260 but with nylon membrane. The membrane is inherently hydrophilic, contains no plasticisers or wetting agents and has a low level of extractables. Can be autoclaved.

	Pore size μm	Pack qty.
Sterile		
FD262-14	0.2	50
FD262-17	0.45	50
Non-Sterile		
FD262-32	0.2	100
FD262-35	0.45	100



FD260/FD262

Reusable Filter Holders



- ◆ For use with 47mm membrane (not supplied)
- ◆ Alternatives with either integral receiver or funnel
- ◆ Major components are transparent polysulphone
- ◆ Can be autoclaved
- ◆ Supplied with both sterilisation and analytical membrane support plates

	Capacities, ml	
	Upper	Receiver
FD270-10	250	250
FD270-13	500	500
FD272-10	250	Funnel
FD272-13	500	Funnel

Vacuum pumps – see PX240 to PX443.

Vacuum tubing – see TY230-22.



FD270/FD272

Flame Photometers

Jenway® Model PFP7 Flame Photometers

Single channel emission flame photometer for routine determination of Na, K, Ca, Li and Ba.

Wide range of clinical, industrial and teaching applications including examination of:-

- pharmaceutical and biochemical samples
 - plant and animal tissues
 - minerals, cements and ceramics
 - oils and greases
 - biological and clinical fluids
- ◆ Digital readout
 - ◆ Switchable decimal point
 - ◆ Narrow band filters on rotating discs
 - ◆ Electronic ignition of flame
 - ◆ Electronic flame failure protection
 - ◆ Automatic regulation of air supply
 - ◆ Simple maintenance and cleaning
 - ◆ Recorder output

Model		PFP7	PFP7/C
Ranges	ppm mmol/l	0 to 199.9 —	0 to 199.9 120 to 160Na (linearised), 0 to 10.0K
Detection limits	ppm	Na 0.2 K 0.2 Li 0.25 Ca 15 Ba 30	0.20 0.20 0.25 15 (using accessory filter) 30 (using accessory filter)
Reproducibility		1% CV for 20 consecutive samples using 10ppm Na, set to read 50.0	
Linearity		Better than 2% when concentration of 3ppm, Na and K and 5ppm Li are set to read 100	
Specificity		Interference from Na, K, Li equal in concentration to test element will be less than 0.5%.	
Recorder output		Nominal 1V for a reading of 100.0	
Dimensions	mm	420 x 360 x 300	
Weight	kg	8	
Services required			
Electrical		230V 50Hz single phase	
Air		Moisture and oil free 6 litres/minute at 1Kg/cm ²	
Gas		Propane, butane or natural gas (specify correct regulator when ordering)	

Flame Photometer, Jenway FP7

Supplied with filters as indicated, fuel and air connectors, instructions and service manual. Requires but does not include a gas regulator and an air compressor of the correct type. For 190-250V 50/60Hz single phase supplies.

FH200-15 Jenway PFP7 with Na, K, Li, Ba and Ca filters

FH200-35 Jenway PFP7/C with Na, K, and Li filters and fitted with lineariser for clinical applications

Accessories and spares

It is recommended that accessory filters, air compressor and gas regulator are ordered with the flame photometer.

- FH205-15** Calcium filter
- FH205-20** Lithium filter
- FH205-25** Barium filter

Air compressor, providing moisture and oil-free air. For 220-240V 50/60Hz supplies.

- FH207-10** Air compressor

- FH214-10** Natural gas regulator
- FH214-12** Propane regulator
- FH214-14** Butane regulator
- FH218-10** Minor spares kit
- FH218-12** Major spares kit

Water separator PFP253. For use in locations of high humidity to overcome problem of water condensation in the air line to the flame photometer.

- FH220-10** Water separator

Calibration Standards

	mmol per litre	Pack qty. ml
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Clinical Standards

FH216-10	100Na/K	500
FH216-15	1.00Li	500
FH216-20	140Na/5K	500
FH216-24	120Na/2K	500
FH216-28	160Na/8K	500
FH216-32	160Na/80K	500

	ppm	Pack qty. ml
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Industrial Standards

FH216-60	1000Na	500
FH216-64	1000K	500
FH216-68	1000Li	500
FH216-72	3000Ba	500
FH216-76	1000Ca	500



FH200



FH207

Flame Photometers

Sherwood Model 360 Flame Photometer

Low-cost, single channel, emission flame photometer with analogue output and digital display.

- ◆ Choice of 5 element filters selected by slide; - Na, K, Li, Ca, Ba
- ◆ Modular design reduces footprint and aids dismantling for cleaning
- ◆ Automatic flame optimisation and auto-ignition
- ◆ LCD readout with display hold, LED flame status and element filter selection lamps
- ◆ Safety features include fail-safe flame detection and shut-off, with low air pressure indicator
- ◆ Large working area with spill containment tray
- ◆ Supplied with universal switch-mode power supply and multi-plug
- ◆ Analogue output for recorder

General Specifications

Model	360
Sensitivity	Minimum concentrations producing a display reading of 100 scale units: Na: 1ppm, K: 0.5ppm, Li: 1ppm, Ca: 20ppm*, Ba: 300ppm*
Minimum detection level at 3x noise	Na, K, Li: 0.1ppm, Ca: 2*, Ba: 20*
Linearity, % value at 50% value	Na, K, Li: $\pm 2\%$ at 3ppm, Ca: $\pm 2\%$ at 100ppm, Ba: $\pm 2\%$ at 1000ppm
Specificity	Na, K, Li interference is $<0.5\%$ value of element under analysis
Reproducibility	$<1.5\%$ (single reading), $<1.0\%$ (20 consecutive readings) from 10ppm K solution set to 1000*
Result display	Manual estimation
Result storage	No
Output	Fixed analogue, 0.2V FSD
Dimensions	mm 300 x 230 x 500
Weight	kg 5.6

*May not be achievable if fuel gas used is natural gas.

Services required

Electrical	100-240V 50/60Hz single phase
Air	Moisture and oil free 6 litres/minute at 1kg/cm ²
Gas	High grade propane, butane or propane/butane mixture. Fuel should be free from heavy hydrocarbon deposits and regulated to 30 p.s.i. at the cylinder. Natural gas at 3" to 10" W.G. is also suitable (please note restrictions above).

Flame Photometer, Model 360

With Na, K, Li, Ca and Ba filters, fuel and air connections, 1000ppm standard solutions. Requires, but does not include, an air compressor of the correct type and gas regulator. For 100-240V 50/60Hz single phase supplies.

FH270-25 Model 360

Accessories

Air compressor for temperate conditions 220-240V 50/60Hz single phase.

FH319-12 Air compressor

Air compressor for conditions of high temperature and humidity. 184-264V 50/60Hz single phase.

FH319-18 Air compressor high-temp

FH324-10 Natural gas regulator

FH324-12 Propane regulator

FH324-14 Butane regulator

Additional element filters for Rb, Cs and Sr are available - *details on request*.



FH270-25

Flame Photometers

Sherwood Models 410, 420 and 425 Flame Photometers

For use in applications examining pharmaceutical and biochemical samples, clinical and biological fluids, industrial processes and environmental testing.

◆ Choice of models:

Model 410 — Single channel emission flame photometer for routine determination of Na, K and Ca (Li and Ba also, using accessory filters).

Model 420 — Dual channel emission flame photometer with features as above but with Li filter instead of the Ca filter and additionally offering simultaneous Na and K results, built-in lineariser for clinical samples, Li internal standard referencing for enhanced accuracy, microprocessor control and monitoring of measurements, continuous or peak mode operation, and built-in RS232 port for result output.

Model 425 — As Model 420 but offering simultaneous Ca with K, or Na, results and without lineariser.

Features common to all models

- ◆ Digital readout with moveable decimal point
- ◆ Auto-ignition of flame
- ◆ Integral 'fail-safe' flame monitoring
- ◆ Automatic air regulation
- ◆ Gas cut-off safety feature
- ◆ Recorder output

General Specifications

Model	410 Classic	420 Clinical	425
Sensitivity	Minimum concentrations producing a display reading of 100 scale units: Na: 0.5ppm, K: 0.5ppm, Li: 2ppm — all models Ba: 1000ppm (optional filter) — 410 only Ca: 5ppm — 410 and 425 only		
Detection limits	Na, K <0.02ppm at 2 x standard deviation		
Specificity	<0.5% to reading from interferent of Na, K, Li equal to the concentration of element under test		
Drift	% 2	<1	<1
Reproducibility	% 1	<0.5 (Peak ref. mode)	<0.5 (Peak ref. mode)
Display channels	1 (LED)	2 (LED)	2 (LED)
Result display	Manual estimation	Auto peak	Auto peak
Result storage	No	Yes	Yes
Outputs	Fixed analogue	Adjustable analogue and RS232 — both models	
Dimensions	mm 390 x 345 x 510 — all models		
Weight	kg 9.5	10	10

Services required

Electrical	198-264V 50/60Hz single phase
Air	Moisture and oil free 6 litres/minute at 1kg/cm ²
Gas	High grade propane, butane or propane/butane mixture. Fuel should be free from heavy hydrocarbon deposits and regulated to approx. 30 p.s.i. at the cylinder. Model 410 only is also suitable for use with natural gas at 3"– 10" W.G. (Specify correct regulator when ordering). Model 425 requires propane/air mixture only for Ca tests.

Flame Photometer, Model 410 Classic*

With Na, K and Ca filters, fuel and air connection, 1000ppm standard solutions for Na, K and Ca and instructions. Requires but does not include an air compressor of the correct type and gas regulator. For 198-264V 50/60Hz single phase supplies.

FH300-10 Model 410 Classic

*Clinical version available - *details on request.*

Flame Photometer, Model 420 Clinical**

With Na, K and Li filters, fuel and air connection, 1000ppm standard solutions for Na, K and Li, software and instructions. Requires but does not include an air compressor of the correct type and gas regulator. For 198-264V 50/60Hz single phase supplies.

FH305-20 Model 420 Clinical

**Industrial version available - *details on request.*

Flame Photometer, Model 425

With Na, K, Ca and Li filters, fuel and air connection, 1000ppm standard solutions for Na, K, Ca and Li, software and instructions. Requires, but does not include, an air compressor of the correct type and gas regulator. For 198-264V 50/60Hz single phase supplies.

Note: cannot be operated using natural gas.

FH305-30 Model 425

Accessories for Model 410 only

FH317-10 Calcium filter[†]

FH317-12 Barium filter

FH317-14 Lithium filter

FH324-10 Natural gas regulator kit

[†]Accessory for instruments built before December 2003.

Accessories for all models

Air compressor for temperate conditions 220-240V 50/60Hz single phase.

FH319-12 Air compressor[#]

[#]Free of charge when ordering FH305-series.

Air compressor for conditions of high temperature and humidity. 184-264V 50/60Hz single phase.

FH319-18 Air compressor, high-temp

FH324-12 Propane regulator

FH324-14 Butane regulator



FH300-10



FH305-20, FH305-30 is similar

Flame Test

Flame Test

Flame Test Glass

Cobalt blue, 75 x 50mm.

FH610-10 Cobalt glass

Wire Holder

Nickel plated brass with screw chuck which accepts wire or needles up to 0.56mm diameter (24 swg).

FH625-10 Wire holder

Magnesia Rods

Manufactured in HCT 500 QS magnesium oxide refractory material. Size 140 x 1.8mm length x diameter. Supplied in a pack of 100.

FH640-15 Magnesia rods

Laboratory Burners, Fuego SCS

For occasional or intermittent use, or serial flame sterilisation.

- ◆ Automatic gas ignition
- ◆ Low-profile easily cleaned stainless steel casing
- ◆ Gas and air regulators for fine control
- ◆ Visual alarm of burner head clogging and "burner hot" residual heat indicator
- ◆ Smooth sculpted design channels spillages away
- ◆ Can be tilted to avoid nozzle contamination
- ◆ Overheat protection system cuts off gas supply if overheating occurs or the electrical supply interrupted

Burner, Fuego SCS basic

With push-button ignition. The flame is maintained as long as the button is pressed and extinguishes on release. Alternatively, a foot pedal provided allows hands-free operation if required. Supplied with foot pedal, tilt mechanism, nozzles for natural gas or LPG, rack for up to 3 wire loop holders, tubing connector, wrench for gas connection and screwdriver for burner head. Overall 103 x 130 x 49mm L x W x H. Weight 0.7kg. Requires a 230V 50/60Hz single phase supply for the ignition circuit. Without gas supply.

BY340-30 Fuego SCS basic

Burner, Fuego SCS

Generally as BY340-30 but without foot pedal and with Infra-red sensor, range 5 to 50mm, requiring two hand movements to activate the flame which is maintained for a timed period adjustable within two ranges: start-stop from 1 second to 2 hours or Auto-off from 1 second to 2 hours. An LCD readout with heat resistant glass face indicates time remaining and burner functions/adjustment. An accessory foot pedal is available, if preferred. Requires a 230V 50/60Hz single phase supply for the ignition circuit. Without gas supply.

BY340-40 Fuego SCS

Accessories

BY344-06 Foot pedal. Accessory for BY340-40

BY344-12 Glass safety shield. For added safety when handling pathogenic material

BY344-24 Gas cartridge, CV270, 250g

BY344-26 Adapter for connecting BY344-24 to BY340-burners

Note: Gas cartridges BY344-24 can be exported only as sea freight – deck cargo. Local purchase is recommended.



FH610



FH625



FH640



BY340-40 in use, BY340-30 is similar

Flasks, Glass

Boiling/Extraction

Flasks, Pyrex 1070 series

Flat bottom. Narrow neck. Comply with ISO 1773 (BS 2734).

	Ref.	Cap. ml	Neck i.d. mm	B.S. stopper No. required
FK100-22	1070/02	50	18	17
FK100-24	1070/04	100	18	17
FK100-30	1070/12	250	30	29
FK100-35	1070/18	500	30	29
FK100-40	1070/24	1000	36	35
FK100-45	1070/28	2000	45	43
FK100-50	1070/32	4000	45	43
FK100-55	1070/36	6000	57	53
FK100-60	1070/38	10000	57	53
FK100-70	1070/42*	20000	60	57

*Supplementary to ISO range.

Flasks, Pyrex 1080 series

Flat bottom. Wide neck. For extraction applications.

	Ref.	Cap. ml	Neck i.d. mm	B.S. stopper No. required
FK105-22	1080/02	50	32	31
FK105-30	1080/08	250	47	45
FK105-35	1080/10	500	47	45
FK105-40	1080/12	1000	47	45
FK105-45	1080/14	2000	76	71

Flasks, Pyrex 1100 series

Round bottom. Narrow neck. Comply with ISO 1773 (BS 2734).

	Ref.	Cap. ml	Neck i.d. mm	B.S. stopper No. required
FK120-22	1100/02	50	18	17
FK120-24	1100/04	100	18	17
FK120-30	1100/12	250	30	29
FK120-35	1100/18	500	30	29
FK120-40	1100/24	1000	36	35
FK120-45	1100/28	2000	45	43
FK120-50	1100/32	4000	45	43
FK120-55	1100/35	6000	57	53
FK120-60	1100/36	10000	57	53
FK120-70	1100/38*	20000	67	62

*Supplementary to ISO range.

Flasks, Pyrex 1120 series

Round bottom. Wide neck. Capacities 1000 to 6000ml have a tooled rim neck.

	Ref.	Cap. ml	Neck i.d. mm	B.S. stopper No. required
FK125-30	1120/08	250	46	45
FK125-35	1120/14	500	46	45
FK125-45	1120/22	2000	70	67
FK125-55	1120/29	6000	80	79

Corks – see CW300.

Flask clamps – see SL710/SL726.

Stoppers – see SW600/SW684.



FK100

FK105



FK120

FK125

Flasks, Glass

Flask Supports

Cork Rings, compressed

For supporting round bodied flasks. Depth as indicated. Supplied singly.

	<i>o.d. x i.d. mm</i>	<i>For flasks ml</i>
35mm deep		
CW308-08	80 x 30	25 to 150
CW308-12	110 x 60	250, 500
CW308-16	140 x 90	1000
CW308-20	170 x 120	2000, 3000
CW308-24	210 x 150	4000, 5000
45mm deep		
CW309-30	240 x 200	4000 to 10000

Flask Support Stand

Polypropylene. For round bottom flasks. Top diameter 145mm.

FK180-15 Flask support stand

Flask Support Rings

Blue silicone rubber. Operating range -60 to +200°C. Double sided. Sit firmly on the bench and with bowl either side to hold different size flasks. Hold flask firmly but gently, irrespective of the angle.

Size	Bowl diameters	
	Wide	Narrow
1	76mm	44mm
2	121mm	80mm
3	165mm	118mm

Supplied as a set of 3 (one of each size)

FK180-60 Support rings set

Spare support rings for FK180-60

Supplied singly.

FK180-62 Support ring 76/44mm

FK180-64 Support ring 121/80mm

FK180-66 Support ring 165/118mm

Flask Stabilising Rings

Vinyl-coated lead. Wrap around flasks up to 4000ml to provide stability whilst on a bench or immersed in a water bath. Choice of closed, or open ring format which allows slight adjustment of the ring opening and position. An accessory holder is available to hold up to 8 lead rings. For flask sizes as indicated. Supplied singly.

	<i>Flask sizes, ml</i>	<i>i.d. mm</i>	<i>o.d. mm</i>	<i>Weight, g</i>
Closed Ring				
FK190-10	125 to 500	48	77	277
FK190-12	250 to 1000	51	90	508
FK190-14	500 to 2000	57	98	635
FK190-16	1000 to 4000	70	115	970
Open Ring				
FK192-10	125 to 500	42	75	227
FK192-12	250 to 1000	51	90	472
FK192-14	500 to 2000	54	98	599
FK192-16	1000 to 4000	60	113	907



CW308/CW309



FK180-15



FK190/FK192 in use



FK180-60 in use

Flasks, Glass

Conical, Narrow Neck

Flasks, Pyrex 1130 series

Erlenmeyer (conical). Narrow neck. With approximate graduations and trace code to access a downloadable batch certificate. Comply with ISO 1773 and DIN12380.

	Ref.	Capacity ml	Neck i.d. mm	B.S. stopper No. required
FK200-14	1130/03*	5	12	11
FK200-16	1130/05*	10	12	11
FK200-20	1130/11	25	18	17
FK200-22	1130/02	50	18	17
FK200-24	1130/06	100	18	17
FK200-26	1130/12*	200	34	33
FK200-30	1130/14	250	30	29
FK200-32	1130/16*	300	34	33
FK200-35	1130/20	500	30	29
FK200-40	1130/26	1000	36	35
FK200-45	1130/30	2000	45	43
FK200-47	1130/32	3000	45	43
FK200-52	1130/36†	5000	46	45

*Supplementary to ISO and DIN ranges. †Supplementary to DIN range.

Flasks, Pyrex 4980 series. Heavy duty

Erlenmeyer (conical). Narrow neck with reinforced rims to protect from accidental impact damage. With approximate graduations. Neck accepts a rubber stopper, size as specified.

	Ref.	Capacity ml	Neck i.d. mm	B.S. stopper No. required
FK203-16	4980-10	10	10	9
FK203-20	4980-25	25	13	11
FK203-22	4980-50	50	14	13
FK203-26	4980-125	125	23	21
FK203-30	4980-250	250	27	25
FK203-35	4980-500	500	31	29
FK203-40	4980-1L	1000	37	35
FK203-45	4980-2L	2000	43	41
FK203-50	4980-4L	4000	43	41
FK203-55	4980-6L	6000	43	41

Flasks, Pyrex 1137 series

Erlenmeyer (conical). SVL polybutylene terephthalate (PBT) screwcap PTFE faced with rubber disc. With approximate graduations. Can be dry heat or steam sterilised to 180°C. Suitable for storage of culture specimens and media.

	Ref.	Capacity ml	Cap size
FK205-14	1137/11	5	15
FK205-16	1137/12	10	15
FK205-20	1137/13	25	22
FK205-22	1137/02	50	22
FK205-24	1137/03	100	30
FK205-30	1137/06	250	42
FK205-35	1137/08	500	42
FK205-40	1137/10	1000	42
FK205-45	1137/14	2000	42
FK205-47	1137/18	3000	42

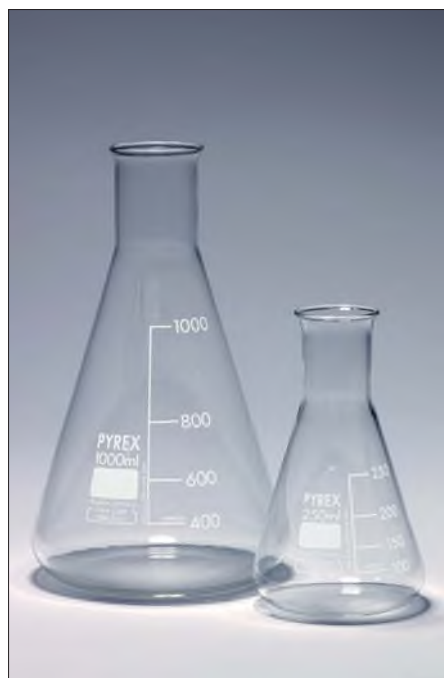
Spare SVL screwcaps – see *Stoppers* section.

Flasks, Duran

Erlenmeyer (conical). Narrow neck. With approximate graduations. Comply with ISO 1773.

	Ref.	Capacity ml	Neck i.d. mm	B.S. stopper No. required
FK215-14	21216-14	25	18	17
FK215-17	21216-17	50	18	17
FK215-24	21216-24	100	18	17
FK215-32	21216-32	200	34	33
FK215-36	21216-36	250	30	29
FK215-39	21216-39	300	34	33
FK215-44	21216-44	500	30	29
FK215-54	21216-54	1000	36	35
FK215-63	21216-63	2000	45	43
FK215-68	21216-68	3000	46	45
FK215-73	21216-73	5000	46	45

FK203, reinforced rim



FK200



FK203

FK205



FK215

Flasks, Glass

Conical, Narrow Neck

Flasks, Rasotherm®

Borosilicate glass. Erlenmeyer (conical). Narrow neck. With approximate graduations. Comply with ISO 1773.

	Ref.	Capacity ml	Neck i.d. mm	B.S. stopper No. required
FK216-20	94206001	25	18	17
FK216-22	94206002	50	18	17
FK216-24	94206003	100	18	17
FK216-26	94206004	200*	30	29
FK216-30	94206005	250	30	29
FK216-32	94206006	300*	30	29
FK216-35	94206007	500	30	29
FK216-40	94206008	1000	36	35
FK216-45	94206009	2000	45	43
FK216-47	94206010	3000	45	43
FK216-52	94206011	5000	45	43

*Supplementary to ISO range.

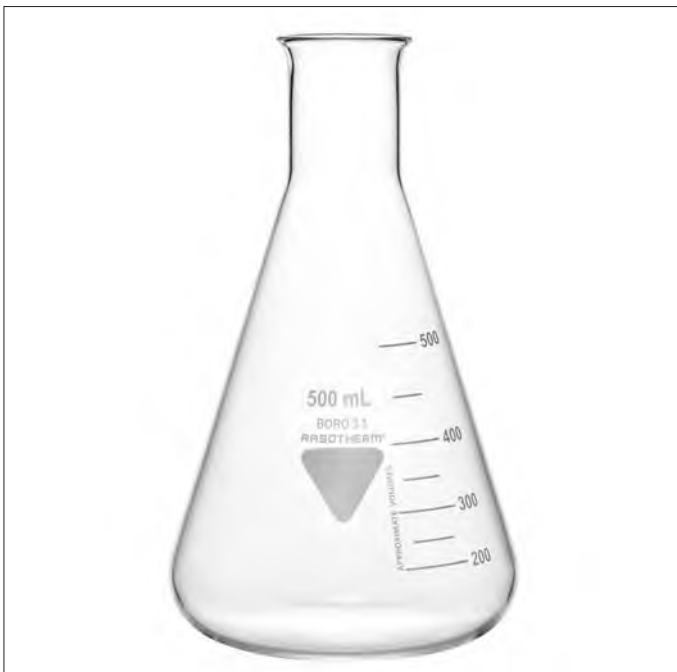
Conical, Wide Neck

Flasks, Rasotherm®

Borosilicate glass. Erlenmeyer (conical). Wide neck. With approximate graduations. Comply with ISO 24450.

	Ref.	Capacity ml	Neck i.d. mm	B.S. stopper No. required
FK218-20	94306001	25*	31	29
FK218-22	94306002	50	35	33
FK218-24	94306003	100	35	33
FK218-26	94306004	200*	50	49
FK218-30	94306005	250	50	49
FK218-32	94306006	300*	50	49
FK218-35	94306007	500	50	49
FK218-40	94306008	1000	50	49
FK218-45	94306009	2000	69	67
FK218-47	94306010	3000	69	67

*Supplementary to ISO range.



FK216



FK218

Flasks, Glass

Conical, Wide Neck

Flasks, Pyrex 1140 series

Erlenmeyer (conical). Wide neck. With approximate graduations. Comply with DIN12385.

	Ref.	Capacity ml	Neck i.d. mm	B.S. stopper No. required
FK220-22	1140/02	50	30	29
FK220-24	1140/04	100	30	29
FK220-30	1140/08	250	46	45
FK220-35	1140/10	500	46	45
FK220-40	1140/14	1000	46	45
FK220-45	1140/18*	2000	66	62

*Supplementary to DIN range.

Flasks, Pyrex 5100 series. Heavy duty

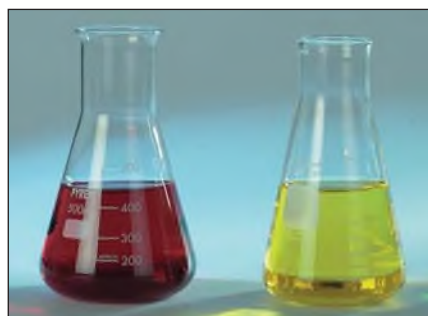
Erlenmeyer (conical). Wide neck with reinforced rims to protect from accidental impact damage. With approximate graduations. Neck accepts rubber stopper size as specified.

	Ref.	Capacity ml	Neck i.d. size	B.S. stopper No. required
FK223-26	5100-125	125	27	25
FK223-30	5100-250	250	33	31
FK223-35	5100-500	500	43	41
FK223-40	5100-1L	1000	48	45
FK223-45	5100-2L	2000	58	57

Flasks, Duran

Erlenmeyer (conical). Wide neck. With approximate graduations.

	Ref.	Capacity ml	Neck i.d. mm	B.S. stopper No. required
FK227-14	21226-14	25	27	25
FK227-17	21226-17	50	30	29
FK227-24	21226-24	100	30	29
FK227-32	21226-32	200	46	45
FK227-36	21226-36	250	46	45
FK227-39	21226-39	300	46	45
FK227-44	21226-44	500	46	45
FK227-54	21226-54	1000	46	45
FK227-63	21226-63	2000	66	62



FK220

FK223



FK227



FK350



FK352



FK360-24 to -45



FK360-65 to -90

Filter

Flasks, Pyrex 1170 series

Buchner. Heavy wall. With studded base to minimise surface abrasion. Comply with ISO 6556.

	Ref.	Capacity ml	Neck i.d. mm	B.S. stopper No. required
Integral side arm for 9mm bore flexible vacuum tubing				
FK350-24	1170/02	100	24	23
FK350-30	1170/04	250	35	33
FK350-35	1170/06	500	35	33
FK350-40	1170/08	1000	45	43
FK350-45	1170/10	2000	60	57
FK350-48	1170/12	3000	68	67
FK350-52	1170/14	5000	68	67

Screwthread side arm and removable polypropylene tubing adapter for 9mm bore flexible tubing

	Ref.	Capacity ml	Neck i.d. mm	B.S. stopper No. required
FK352-24	1170/02SC	100	24	23
FK352-30	1170/04SC	250	35	33
FK352-35	1170/06SC	500	35	33
FK352-40	1170/08SC	1000	45	43
FK352-45	1170/10SC	2000	60	57
FK352-52	1170/14SC	5000	68	67

Flasks, Filter, Duran

Heavy wall. Supplied with interchangeable, polypropylene push-in and ruffled hose connection assemblies.

	Ref.	Capacity ml	Neck i.d. mm	B.S. stopper No. required
Conical shape				
FK360-24	21204-245	100	24	23
FK360-30	21204-365	250	35	33
FK360-35	21204-445	500	35	33
FK360-40	21204-545	1000	45	43
FK360-45	21204-635	2000	60	57
Bottle shape				
FK360-65	21194-685	3000	70	67
FK360-70	21194-735	5000	80	79
FK360-75	21194-865	10000	82	79
FK360-90	21194-915	20000	85	79
FK363-08	Spare hose connection assembly set for FK360 flasks			

Tissue Culture Flasks - see TP585-series.

Flasks, Glass

Buchner Flask Seals

Vacuum Ring Seal

A neoprene rubber disc with a tapered raised boss and central hole which accepts the stem of a Buchner or similar filter funnel. The disc seals when placed over the neck of a filter flask and vacuum is applied. Ring disc diameter 75mm.

FK364-10 Vacuum ring seal

Buchner Rings

Long-lasting, heavy-duty, profiled natural compound (60 shore) rubber rings which provide a vacuum-tight seal and excellent support for Buchner funnels, incorporating a wide flange and large surface contact. Available individually or in a set of all sizes, as indicated.

	To fit flask neck i.d.
FK364-25	24mm
FK364-35	35mm
FK364-45	45mm
FK364-55	60mm
FK364-75	68mm

FK364-80 Set of 5 Buchner rings for flask with neck diameters: 24mm, 35mm, 45mm, 60mm and 68mm

Buchner funnels in porcelain, glass and plastic are available – see FT650/FT660, FT804 and FT815 series.

Roux, Distillation, Kjeldahl

Flasks, Pyrex 1350 series

Roux culture. With fire polished, offset neck.

	Ref.	Capacity ml	Neck	Neck i.d. mm	B.S. stopper No. required
FK502-37	1350/04	600	Offset	28	27
FK502-42	1350/06	1200	Offset	33	31

Tissue Culture Flasks and Roller Culture Flasks – see *Tissue Culture* section.

Culture Vessels, flat flange – see *Quickfit* section.

Flask, Pyrex 1290/04

Distillation. Side arm set at 75° to vertical axis and positioned to suit a 76mm partial immersion thermometer.

	Ref.	Capacity ml
To ASTM E133 and IP 123		
FK527-26	1290/04	125

Flasks, Pyrex 1200 series

Kjeldahl. Long neck.

	Ref.	Capacity ml	Neck i.d. mm	B.S. stopper No. required
FK540-24	1200/04	100	17	15
FK540-32	1200/10	300	24	23
FK540-35	1200/12	500	30	29
FK540-38	1200/16	800	30	29



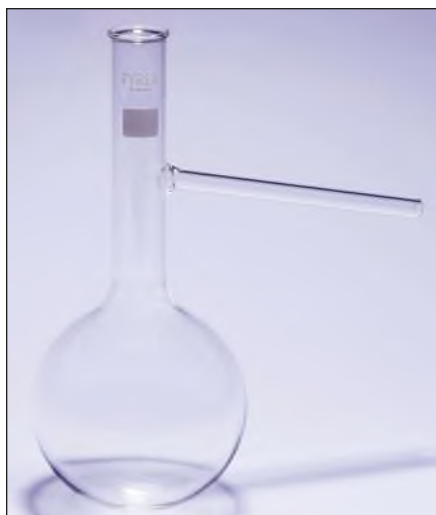
FK364-10 in use



FK502



FK364-25 to -75 in use



FK527-26



FK540

Flasks, Plastic

Conical

All capacities are nominal.

Flasks, Azlon, Screw Capped

Wide neck. With polypropylene screw cap and approximate graduations. Will also accept accessory conical stoppers as indicated. Autoclavable at 121°C. Supplied singly.

	Ref.	Capacity ml	Cap size mm	Stopper accepted
Polypropylene, translucent				
FK765-22	FDE542	50	40	34/35
FK765-25	FDE544	100	40	34/35
FK765-30	FDE546	250	52	45/40
FK765-35	FDE548	500	52	45/40
FK765-40	FDE550	1000	52	45/40
PMP (TPX), transparent				
FK767-25	FDE444	100	40	34/35
FK767-30	FDE446	250	52	45/40
FK767-35	FDE448	500	52	45/40
FK767-40	FDE450	1000	52	45/40

Accessory stoppers – see SW432/SW446 series

Tissue Culture

Erlenmeyer Flasks, Corning

Polycarbonate with polypropylene screw cap which can be adjusted to provide gassing or a leak-proof seal. Transparent and graduated. Sterilised by gamma irradiation. Sealed individually in a sterile sleeve within outer packs as indicated.

	Ref.	Capacity ml	Cap size	Pack qty.
TP550-15	430421	125	26	50
TP550-20	430183	250	31	50
TP550-25	430422	500	43	25

Culture Flasks, baffled, Nalgene

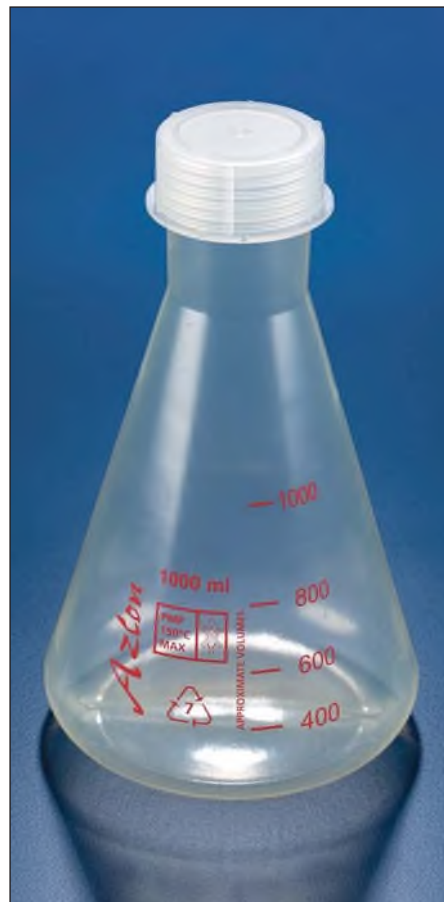
Tough polycarbonate flasks with indented baffles which increase mixing when trypsinizing and aerating in a variety of processes such as cell culture growth and fermentation. Supplied in packs as indicated.

	Ref.	Capacity ml	Pack qty.
TP575-13	4110-0250	250	4
TP575-16	4110-0500	500	4
TP575-19	4110-1000	1000	2

Further ranges of these flasks can be found in the Tissue Culture section.



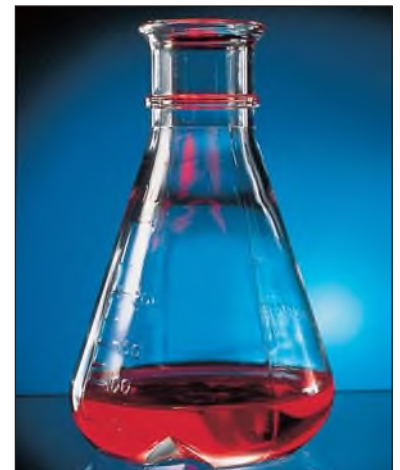
FK765



FK767



TP550



TP575

Flasks, Volumetric

Glass, MBL®

Volumetric Flasks, MBL

Class B. Borosilicate with polyethylene stopper. Blue enamel graduation and inscriptions.

	Ref.	Capacity ml	Stopper
Class B. Uncertified			
FL310-14	FRD022P	5	10/19 [†]
FL310-16	FRD024P	10	10/19 [†]
FL310-18	FRD025P	20*	10/19
FL310-20	FRD026P	25	10/19
FL310-22	FRD028P	50	12/21
FL310-24	FRD030P	100	14/23 [†]
FL310-28	FRD032P	200	14/23
FL310-30	FRD034P	250	14/23
FL310-35	FRD036P	500	19/26
FL310-40	FRD038P	1000	24/29
FL310-45	FRD040P	2000	29/32
FL310-52	FRD042P	5000*	34/35

* Supplementary to DIN 12664. † Stopper size not to DIN 12664.

Volumetric Flasks, MBL

Class A. Borosilicate with polyethylene stopper. Blue enamel graduation and inscriptions.

	Ref.	Capacity ml	Stopper
Class A. Conformity Certified			
FL345-14	FRD164	5	10/19 [†]
FL345-16	FRD166	10	10/19 [†]
FL345-18	FRD167	20*	10/19
FL345-20	FRD168	25	10/19
FL345-22	FRD170	50	12/21
FL345-24	FRD172	100	14/23 [†]
FL345-28	FRD174	200	14/23
FL345-30	FRD176	250	14/23
FL345-35	FRD178	500	19/26
FL345-40	FRD180	1000	24/29
FL345-45	FRD182	2000	29/32
FL345-52	FRD184	5000*	34/35

* Supplementary to DIN 12664. † Stopper size not to DIN 12664.

Volumetric Flasks

To ISO1042, DIN12664 and clear glass unless otherwise stated.

Tolerances

Cap. ml	USP ±ml	Class A ±ml	Class B ±ml	Cap. ml	USP ±ml	Class A ±ml	Class B ±ml
1	0.02	—	0.03	100	0.08	0.10	0.20
2	0.02	—	0.03	200	0.10	0.15	0.30
5	0.02	0.025	0.05	250	0.12	0.15	0.30
10	0.02	0.025	0.05	500	0.20	0.25	0.50
20	0.03	0.04	0.08	1000	0.30	0.40	0.80
25	0.03	0.04	0.08	2000	0.50	0.60	1.20
50	0.05	0.06	0.12	5000	1.00	1.20	2.00

Amber Staining of Borosilicate Glassware

We will be pleased to quote against your specific enquiry.

Spare Stoppers and Screwcaps – see *Stoppers* section.

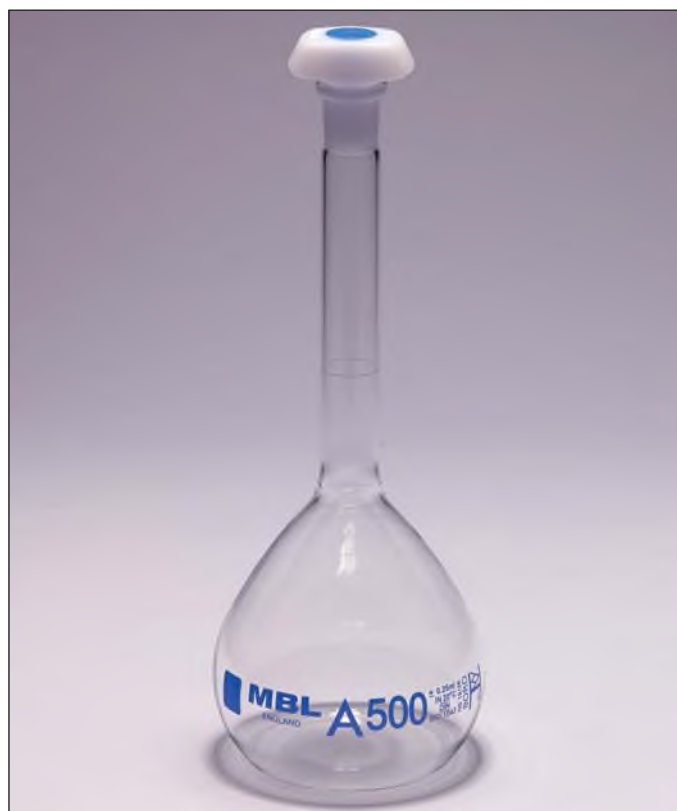
Conformity Certified

Indicated by the symbol **H** shows that the product has been manufactured under quality control procedures according to Eichordnung the German Federal Weights and Measures Regulations.

Provided the instrument is used with the recommended accessories and in accordance with the supplied instructions the manufacturer certifies conformity with annex 12 of the Eichordnung.



FL310



FL345

Flasks, Volumetric

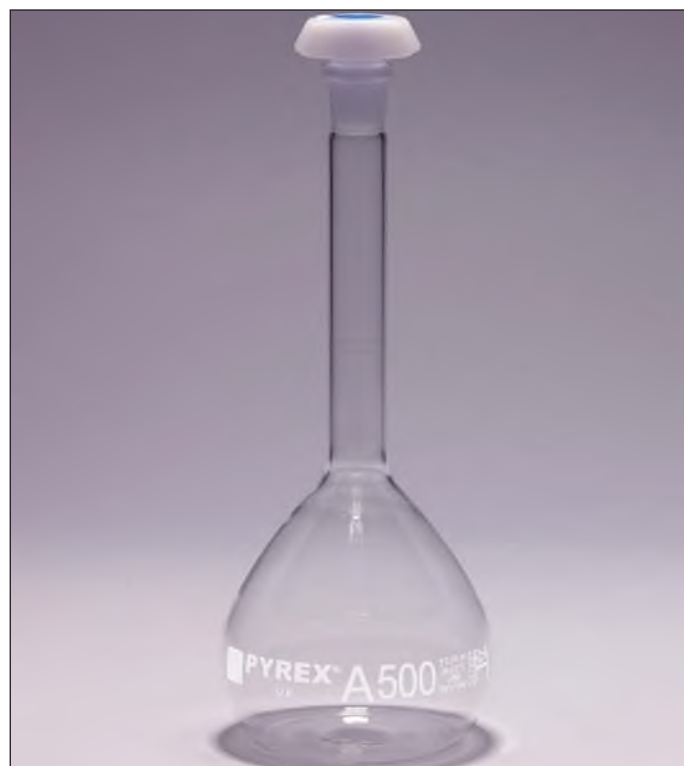
Glass, Pyrex®

Volumetric Flasks, Pyrex

Class A. USP tolerance. Borosilicate glass with polyethylene stopper. White enamel graduation and inscriptions.

	Ref.	Capacity ml	Stopper
Class A. USP tolerance. Conformity Certified			
FL505-06	3151/01	1	7/16 [†]
FL505-08	3151/02	2	7/16 [†]
FL505-14	3151/04	5	10/19 [†]
FL505-16	3151/06	10	10/19 [†]
FL505-18	3151/08	20*	10/19
FL505-20	3151/10	25	10/19
FL505-22	3151/12	50	12/21
FL505-24	3151/14	100	14/23
FL505-28	3151/16	200	14/23
FL505-30	3151/18	250	14/23
FL505-35	3151/20	500	19/26
FL505-40	3151/22	1000	24/29
FL505-45	3151/24	2000*	29/32
FL505-52	3151/26	5000*	34/35
Class A. USP tolerance. Conformity Certified and Works Certified			
FL509-06	3151/01WC	1	7/16 [†]
FL509-08	3151/02WC	2	7/16 [†]
FL509-14	3151/04WC	5	10/19 [†]
FL509-16	3151/06WC	10	10/19 [†]
FL509-18	3151/08WC	20*	10/19
FL509-20	3151/10WC	25	10/19
FL509-22	3151/12WC	50	12/21
FL509-24	3151/14WC	100	14/23
FL509-28	3151/16WC	200	14/23
FL509-30	3151/18WC	250	14/23
FL509-35	3151/20WC	500	19/26
FL509-40	3151/22WC	1000	24/29
FL509-45	3151/24WC	2000*	29/32
FL509-52	3151/26WC	5000*	34/35

* Supplementary to DIN 12664. † Stopper size not to DIN 12664.



FL505, FL509 are similar

Volumetric Flasks, Pyrex

Class A. USP tolerance. Borosilicate glass with polyethylene stopper. White enamel graduation and inscriptions.

	Ref.	Capacity ml	Stopper
Class A. USP tolerance. Amber glass. Conformity Certified			
FL513-14	3152/04A	5	10/19 [†]
FL513-16	3152/06A	10	10/19 [†]
FL513-18	3152/08A	25	10/19
FL513-20	3152/10A	50	12/21
FL513-22	3152/12A	100	14/23
FL513-24	3152/14A	200	14/23
FL513-28	3152/16A	250	14/23
FL513-30	3152/18A	500	19/26
FL513-35	3152/20A	1000	24/29
FL513-40	3152/22A	2000	29/32
Class A. USP tolerance. Amber glass. Conformity and Works Certified			
FL516-14	3152/04AWC	5	10/19 [†]
FL516-16	3152/06AWC	10	10/19 [†]
FL516-20	3152/08AWC	25	10/19
FL516-22	3152/10AWC	50	12/21
FL516-24	3152/12AWC	100	14/23
FL516-28	3152/14AWC	200	14/23
FL516-30	3152/16AWC	250	14/23
FL516-35	3152/18AWC	500	19/26
FL516-40	3152/20AWC	1000	24/29
FL516-45	3152/22AWC	2000	29/32

† Stopper size not to DIN 12664.

Conformity Certified

Indicated by the symbol **H** shows that the product has been manufactured under quality control procedures according to Eichordnung the German Federal Weights and Measures Regulations.

Provided the instrument is used with the recommended accessories and in accordance with the supplied instructions the manufacturer certifies conformity with annex 12 of the Eichordnung.



FL513, FL516 are similar

Flasks, Volumetric

Kohlrusch

Kohlrusch Flasks, Class B

Borosilicate glass. For sugar and viscosity tests. White enamel graduation and inscriptions.

	Capacity ml	Tolerance \pm ml
FL613-60	100	0.20
FL613-70	200	0.30

Florentine & Iodine Flasks – see *Quickfit* section.



FL613

Flasks, Volumetric

Glass Blaubrand®

Volumetric Flasks, Blaubrand® Conformity Certified

To DIN EN ISO 1042. Class A. Duran® borosilicate glass. With square grip, polyethylene stopper. Calibrated "to contain". Ring mark and inscriptions in highly contrasting blue enamel. PURprotect versions are safety-coated in blue polyurethane to retain glass fragments in the event of breakage.

	Capacity ml	Tolerance ±ml	Stopper
Class A. Conventional shape			
FL560-20	10	0.04	10/19
FL560-25	20	0.04	10/19
FL560-30	25	0.04	10/19
FL560-35	50	0.06	12/21
FL560-38	50 [†]	0.08	14/23
FL560-43	100	0.1	12/21
FL560-46	100	0.12	14/23
FL560-50	200	0.15	14/23
FL560-55	250	0.15	14/23
FL560-60	500	0.25	19/26
FL560-65	1000	0.4	24/29
FL560-70	2000	0.6	29/32
FL560-75	5000	1.2	34/35
Class A. Conventional shape, PURprotect safety-coated			
FL561-38	50 [†]	0.08	14/23
FL561-43	100	0.1	14/23
FL561-50	200	0.15	14/23
FL561-55	250	0.15	14/23
FL561-60	500	0.25	19/26
FL561-65	1000	0.4	24/29
Class A. Trapezoidal shape, with wide, flat bottom for extra stability.			
FL564-05	1	0.025	7/16
FL564-10	2	0.025	7/16
FL564-15	5	0.025	7/16
FL564-20	10 [†]	0.04	10/19
FL564-25	20	0.04	10/19
FL564-30	25	0.04	10/19
FL564-35	50	0.06	12/21

† Has wide neck.

Plastic

Azlon

Volumetric Flasks, Azlon

Class B. With stopper.

	Ref.	Capacity ml	Neck
Polypropylene (translucent)			
FL800-20	FDFO12N	25	10/19
FL800-22	FDFO18N	50	14/23
FL800-24	FDFO24N	100	14/23
FL800-30	FDFO30N	250	19/26
FL800-35	FDFO36N	500	19/26
PMP (TPX) (transparent)			
FL810-20	FDFO112N	25	10/19
FL810-22	FDFO118N	50	14/23
FL810-24	FDFO124N	100	14/23
FL810-30	FDFO130N	250	19/26
FL810-35	FDFO136N	500	19/26

Florentine & Iodine Flasks – see *Quickfit* section.

Conformity Certified

Indicated by the symbol P shows that the product has been manufactured by Brand under quality control procedures according to Eichordnung the German Federal Weights and Measures Regulations.

Provided the instrument is used with the recommended accessories and in accordance with the supplied instructions, Brand certify conformity with annex 12 of the Eichordnung.



FL560/FL564



FL561



FL800



FL810

Flow

Flow Indicators

Flow Indicators

Simple to install indicators which give you a visual guide of either gas or liquid in-line flow continuity.

◆ Choice of materials

- Styrene acrylonitrile (SAN)
Maximum operating temperature +30°C
- Polymethylpentene (PMP)
Maximum operating temperature +60°C

Comprising paddle wheel in a transparent plastic housing. Rotation of the vanes gives a visual indication of either gas or liquid flow. Can accommodate flow rates down to approximately 150ml/minute. With stepped side arms for 6 to 11mm bore flexible tubing. Overall 88 x 40 x 15mm.

FR200-12 Styrene acrylonitrile

FR200-15 Polymethylpentene

Falling ball Viscometer – see VC840.

Liquid Flow Consistometer – see VC845.



FR200

Flow Cups

Simple to use flow cups for the approximate measurement of apparent viscosity in a wide range of materials including paints, varnishes, lacquers, inks and other viscous products.

BS-ISO Flow Cups, Seta

To BS3900; ASTM D5125; EN535 - ISO2431; DIN 53224. Aluminium with stainless steel jet. The cup number is the orifice diameter in mm.

VC100-15 No. 3

VC100-20 No. 4

VC100-25 No. 5

VC100-30 No. 6

VC100-40 No. 8*

*Note: This cup is not in the current BS-ISO series but is offered for use with high viscosity samples.

B-Type Flow Cups, Seta

Brass. As specified in former BS3900 Section A6. Viscosity range stated is approximate.

	Jet	Orifice diameter inches	Viscosity range stokes
VC120-10	B2	0.093	0 to 0.5
VC120-15	B3	0.125	0.4 to 1.2
VC120-20	B4	0.156	0.8 to 2.5
VC120-25	B5	0.187	1.5 to 10
VC120-30	B6	0.281	10 to 50

For alternative flow cups and details, please refer to the main listing.



VC100 with stand, spirit level and beaker
Flow cups VC120 and VC140 are similar

Freeze Drying

LyoQuest Freeze Dryers

Compact, benchtop, laboratory scale freeze dryers for research applications.

- ◆ Choice of models:
 - LyoQuest Plus: with automatic vacuum control for faster freeze drying with reproducible results
 - LyoQuest Plus Eco: additionally supplied with two-stage, 6m³/h vacuum pump fitted with exhaust filter and oil recovery device
 - Total condenser ice capacities of 5kg or 8kg
- ◆ Condenser ice rates up to 5kg in 24 hours (6kg LyoQuest-85 Plus Eco only)
- ◆ Touchscreen programming with large backlit LCD readout
- ◆ Auto start-up and shutdown routines programmable
- ◆ Automatic defrosting function
- ◆ Stainless steel AISI 316L condenser
- ◆ Side mounted vacuum and drain connections with valves

Model LyoQuest		-55 Plus	-85 Plus	-55 Plus Eco	-85 Plus Eco
Ult. condenser temp.* approx. °C		-55	-85	-55	-85
Condenser capacity	kg/24 hr	5	5	5	6
	total kg	5	5	8	8
No. of compressors		1	2	1	2
Overall W x D x H	mm	425 x 575 x 480 (without manifold)			
Weight	kg	65	70	65	70
Supply requirements†		230V 50Hz single phase supplies			
Rating	kW	1.1	1.4	1.1	1.4

*At ambient temperatures up to +21°C.

†110V or 230V 60Hz models are available - details on request.

Benchtop Freeze Dryers, LyoQuest

As described. Supplied without manifold which is required for operation. For 230V 50Hz single phase supplies.

- FS505-10** LyoQuest-55 Plus
- FS505-20** LyoQuest-85 Plus
- FS505-30** LyoQuest-55 Plus Eco
- FS505-40** LyoQuest-85 Plus Eco

Accessories

Shelf Chamber

Glass, cylindrical chamber 215 x 300mm diameter x height, with heated (ambient to +70°C) shelves 160mm diameter and with 70mm working height between shelves, fitted with 8 x 18mm diameter neoprene rubber valves to hold 29/32 jointed, round bottom flasks, vials or to hold bulk loads. Available with, or without manual vial stoppering device.

FS507-04 Shelf chamber with stoppering device

FS507-08 Shelf chamber without stoppering device

Flask Manifold

Column with 8 x 18mm diameter neoprene rubber valves to fit 29/32 jointed flasks only. Two manifolds can be fitted together to double capacity of required. Requires adapter plate FS507-38.

FS507-22 Flask manifold

Tube Manifold

Column with 40 x flexible natural rubber, 13mm o.d. tube nozzles for ampoules. Blanking plugs are provided for unused nozzles. Requires adapter plate FS507-38.

FS507-27 Tube manifold

Large capacity chamber

For handling large samples or batches of vials. Overall 315 x 440mm diameter x height with heated (ambient to +70°C) shelves 240mm diameter and with 100mm working height between shelves. Without stoppering device. Requires adapter plate FS507-38.

FS507-32 Large capacity chamber

Adapter plate

Allows column manifolds and large capacity chamber to be fitted to FS505-freeze dryers.

FS507-38 Adapter plate



FS505 with FS507-04



FS507-08



FS507-27



FS507-22



FS507-32

Funnels

Conical, Glass

All dimensions are nominal.

Funnels

Conical. Dimension given is the top diameter. Supplied singly.

	Top dia. mm
Plain, soda-lime	
FT140-10	25
FT140-15	40
Plain, borosilicate	
FT140-20	50
FT140-30	75
FT140-35	100
FT140-45	150
FT140-50	200
FT140-60	250

Choice of Filter Paper

for use in conical funnels.

The following is an approximate guide to the filter paper diameter required for some of the common sizes of conical filter funnel.

Funnel mm	Filter paper cm	Funnel mm	Filter paper cm
35	5.5	100	18.5
45	7.0	150	24.0
55	9.0	180	32.0
65	11.0	200	40.0
75	12.5		

– see FB100 to FB380 in the Filtration section.

Funnels, Pyrex

Conical. Supplied singly.

	Ref.	Top dia. mm	Stem length mm
Plain, short stem			
FT160-10	2140/01	35	35
FT160-15	2140/02	45	45
FT160-20	2140/03	70	71
FT160-30	2140/06	80	82
Plain, long stem			
FT165-20	2145/03	70	150
FT165-30	2145/06	80	150
FT165-35	2145/10	105	150
Fluted, long stem			
FT170-25	2150/03	65	150
FT170-30	2150/06	80	150
FT170-40	2150/10	110	150

Filter Tubes, Pyrex

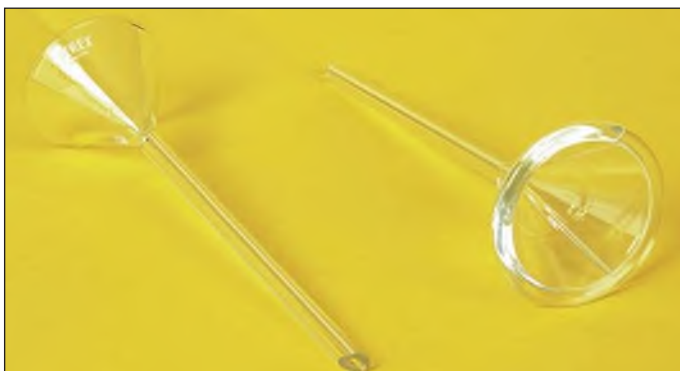
With 6mm diameter side arm. For small scale filtration applications. Can be used with short stem funnels as FT160 series. Dimensions stated are tube length x diameter. Supplied singly.

	Ref.	Size mm
FT200-20	2110/06	150 x 18
FT200-25	2110/08	150 x 24



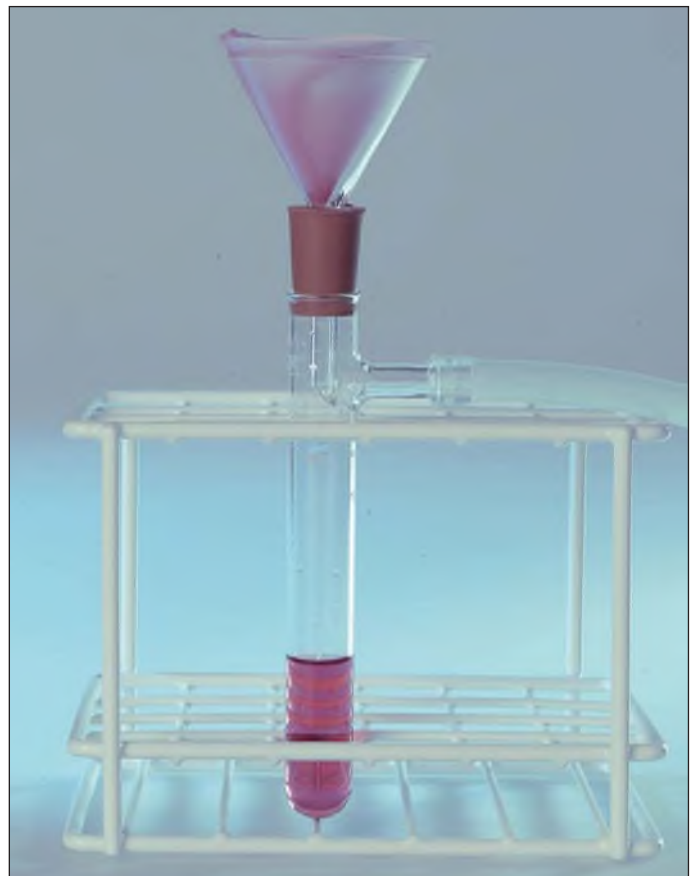
FT140

FT160



FT165

FT170



FT200 in use

Funnels

Conical, Plastic

All dimensions are nominal.

Funnels, polypropylene

General purpose, conical. Dimension given is the top diameter. Supplied singly.

	Dia. mm
FT254-12	38
FT252-12	40
FT252-25	58
FT252-30	70
FT252-35	82
FT252-40	110
FT252-45	150

Funnels, Azlon

Conical. Dimension given is the top diameter. Supplied singly.

	Ref.	Dia. mm
Polypropylene lightweight		
FT260-15	FWC056	40
FT260-20	FWC058	50
FT260-30	FWC060	75
FT260-35	FWC062	100
FT260-40	FWC064	120
FT260-45	FWC066	150
Polyethylene rigid		
FT280-30	FWC102	80
FT280-35	FWC104	100
FT280-40	FWC106	120
FT280-45	FWC108	140
FT280-50	FWC110	180
FT280-55	FWC112	230
FT280-60	FWC114	245
FT280-65	FWC116	290
FT280-70	FWC118	360

Funnels

Conical. Half round. Suitable for filling multi-neck flasks. Groove in stem to prevent airlock. Supplied singly.

	Height. mm	Taper
Polypropylene		
FT320-35	100	19/26
FT320-45	140	29/32

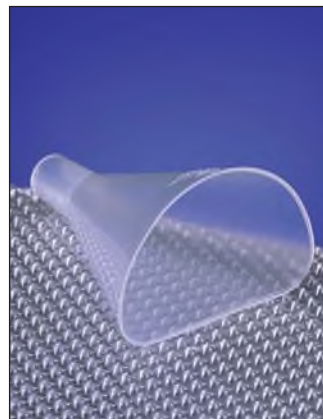
All dimensions are nominal.



FT252/FT254



FT254/FT260/FT280



FT320



FT380



FT450

FT460

Stainless and Powder

Funnels, stainless steel

Conical. Dimension given is the top diameter. Incorporating an internal, perforated strainer, permanently fixed at the neck of the funnel stem. Supplied singly.

FT380-45	120mm with strainer
FT380-60	245mm with strainer

Powder Funnels

Conical. Short wide parallel stem minimises bridging and aids transfer of powder. Supplied singly.

	Ref.	Top dia. mm	Stem dia. mm
Pyrex glass			
FT450-30	2130/02	80	18
Polypropylene			
FT460-25	—	65	16
FT460-30	—	80	22
FT460-35	—	100	26
FT460-40	—	120	30
FT460-45	—	150	36
FT460-65	FWC212	290	35

Funnel Stands and Rings – see SL202/SL760/SL800/SL804 in the Stands section.

Funnel to flask adapter – see FK364.

Powder Funnels with cone on stem – see Quickfit section.

Funnels

Sintered Glass

All capacities and dimensions are nominal. All funnels are supplied singly.

Buchner Funnels, Pyrex

With flat sintered glass filter disc unless otherwise stated.

	Ref.	Capacity ml	Porosity grade
30mm disc			
FT650-11	3620/02	35	1
FT650-12	3620/04	35	2
FT650-13	3620/06	35	3
FT650-14	3620/08	35	4
FT650-15	3620/10	35	5
40mm disc			
FT652-10	3630/01	80	0
FT652-11	3630/02	80	1
FT652-12	3630/04	80	2
FT652-13	3630/06	80	3
FT652-14	3630/08	80	4
FT652-15	3630/10	80	5
60mm disc			
FT654-10	3700/01	125	0
FT654-11	3700/02	125	1
FT654-12	3700/04	125	2
FT654-13	3700/06	125	3
FT654-14	3700/08	125 </td <td>4</td>	4
FT654-15	3700/10	125	5
95mm disc			
FT656-10	3710/01	500	0
FT656-12	3710/04	500	2
FT656-13	3710/06	500	3
FT656-14	3710/08	500	4
120mm disc domed			
FT658-11	3720/02	1000	1
FT658-12	3720/04	1000	2
FT658-13	3720/06	1000	3
FT658-14	3720/08	1000	4
175mm disc domed			
FT660-11	3722/02	3000	1
FT660-12	3722/04	3000	2
FT660-13	3722/06	3000	3
FT660-14	3722/08	3000	4

Conical Funnels, Pyrex

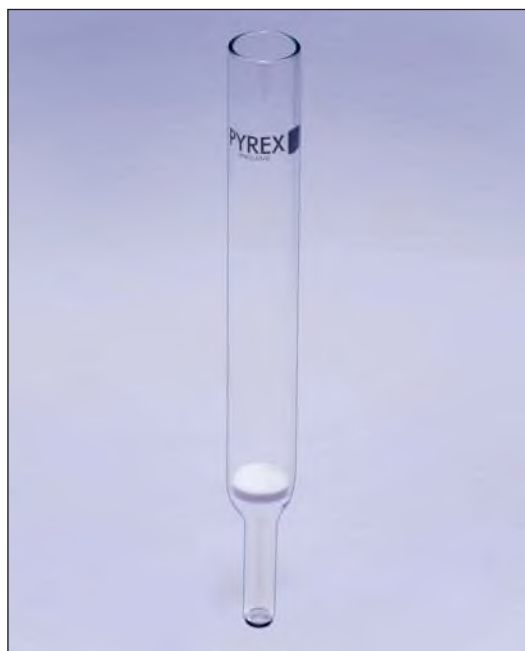
With flat 20mm diameter sintered glass disc.

	Ref.	Capacity ml	Porosity grade
FT670-13	3730/06	20	3
FT670-14	3730/08	20	4

Cylindrical Funnels, Pyrex

With flat sintered glass disc.

	Ref.	Capacity ml	Porosity grade
15mm disc			
FT690-11	3780/02	8	1
FT690-12	3780/04	8	2
FT690-13	3780/06	8	3
FT690-14	3780/08	8	4



FT690



FT656/FT660, FT650/FT654 are similar



FT670

Funnels

Buchner and Hirsch Type

All capacities and dimensions are nominal. All funnels are supplied singly.

Buchner Funnels

Porcelain, with perforated support plate. Dimension given is the nominal filter paper size.

	Cap. ml	Paper cm
FT804-12	25	4.0
FT804-18	85	5.5
FT804-26	150	7.0
FT804-34	265	9.0
FT804-40	510	11.0
FT804-45	700	12.5

Buchner Funnels

Polypropylene. Robust, two-piece construction for easy cleaning. Autoclavable. Dimension given is the nominal filter paper size.

	Cap. ml	Paper cm
FT815-12	40	4.25
FT815-18	70	5.5
FT815-26	180	7.0
FT815-34	390	9.0
FT815-40	810	11.0
FT815-48	2100	15.0
FT815-56	6000	24.0

Vacuum Ring Seal

A neoprene rubber disc with a tapered raised boss and central hole which accepts the stem of a Buchner or similar filter funnel. Ring disc diameter 75mm.

FK364-10 Vacuum ring seal

Buchner Rings – see FK364-25 to -75 series

Three-piece Funnel, Whatman

Borosilicate glass with acrylic support plate for filter paper. Can be dismantled quickly for cleaning. Dimension given is the filter paper size required.

	Cap. ml	Paper cm
FT850-10	16	2.5
FT850-15	36	4.7
FT850-20	115	7.0
FT850-22	210	7.0
FT850-24	400	7.0
FT850-30	200	9.0
FT850-35	530	12.5

Hirsch Funnels

Porcelain, with perforated support plate.

	Top dia. mm	Plate dia. mm	Perforated dia. mm
FT880-54	50	30	25
FT880-58	78	47	33



FK364-10 in use

Thistle

Thistle Funnels

Glass with plain stem. Stem 6mm diameter.

	Stem length mm
FT922-20	200
FT922-25	250
FT922-30	300

Thistle Funnel, Azlon

Polypropylene. With stub stem. Includes stem tubing 250mm long to fit inside stub. Top diameter 34mm.

FT930-10 FWC220

Tissue Culture bottle top filters – see FD210 series.



FT930



FT804



FT850



FT815



FT880



FT922

Funnels, Separating

Dropping and Separating, Cylindrical Shape

To ISO 4800 where appropriate. Pyrex borosilicate glass with interchangeable glass or PTFE stopcock and stopper. All capacities and graduations are nominal. All funnels are supplied singly.

Dropping Funnels, Cylindrical, Pyrex

Stoppered. Borosilicate glass.

Ref.	Capacity ml	Stopper	
Glass key, graduated			
FU204-15	3590/01	50	19/26
FU204-20	3590/02	100	19/26
FU204-25	3590/04	250	24/29
FU204-30	3590/06	500	24/29
FU204-35	3590/08	1000	29/32

Dropping Funnels with outlet inside cone, Cylindrical, Pyrex

For easy connection with jointed glassware. Borosilicate glass.

Ref.	Capacity ml	Stopper	
PTFE key, graduated			
FU238-15	443333	50	19/26
FU238-20	443340	100	19/26
FU238-25	443347	250	29/32
FU238-30	443354	500	29/32
FU238-35	443360	1000	29/32

Spare Stopcocks and Stoppers for Dropping and Separating Funnels – see *Stopcock and Stoppers sections*.

Separating, Conical and Pear Shape

Separating Funnels, Conical, Pyrex

Stoppered. Borosilicate glass.

Ref.	Capacity ml	Stopper	
Glass key, plain			
FU400-20	2190/02	100	19/26
FU400-25	2190/04	250	24/29
FU400-30	2190/06	500	24/29
FU400-35	2190/08	1000	29/32
FU400-40	2190/10	2000	34/35

Separating Funnels, Conical, Brand

Polypropylene. With PTFE stopcock and polypropylene screw cap. Autoclavable at 121°C for 15 minutes. Ungraduated.

Capacity, ml	
FU502-15	125
FU502-25	250
FU502-35	500
FU502-45	1000

Separating Funnels, Pear, Pyrex

Stoppered. Borosilicate glass.

Ref.	Capacity ml	Stopper	
Glass key, plain			
FU590-15	2180/02	50	19/26
FU590-20	2180/04	100	19/26
FU590-25	2180/06	250	24/29
FU590-30	2180/08	500	24/29
FU590-35	2180/10	1000	29/32
FU590-40	2180/12	2000	34/35
FU590-55	2180/14	5000	34/35

An additional range of separating funnels with capacities from 25 to 1000ml and choice of glass or Rotaflor stopcocks is also available – see *Quickfit Section*.



FU204



FU238



FU400



FU502



FU590

Furnaces

Compact Muffle Furnaces

Nabertherm

MORE THAN HEAT 30-3000 °C

- ◆ Maximum temperature 1100°C, (working temperature 1050°C)
- ◆ Quartz sheathed, tubular elements housed in ceramic fibre plates
- ◆ Multilayered insulation with dual-walled housing giving low external temperatures
- ◆ Stainless steel outer housing
- ◆ Compact, sturdy, stove-enamelled steel housing
- ◆ "Hinge-down" door which can also be used as a work platform
- ◆ Exhaust air outlet at rear of chamber
- ◆ With R7 digital controller: 1 programme, 1 segment, time and temperature setting

Catalogue No.	FX118-05	FX118-10	FX118-20	FX118-40
Model, LE-	1/11/R7	2/11/R7	6/11/R7	14/11/R7
Temp. Max./Continuous °C	1100/1050 — all models			
Heating time minutes	10	25	35	40
Volume litres	1	2	6	14
<i>Dimensions Internal (external)</i>				
height, mm	110 (340)	110 (350)	170 (510)	220 (370)
width, mm	90 (250)	110 (275)	170 (320)	220 (555)
depth, mm	115 (265)	180 (380)	200 (400)	300 (500)
Weight kg	10	10	18	25
Rating, max. kW	1.5	1.8	1.8	2.9

As described. Maximum temperature 1100°C. With Silica sheathed, tubular elements. For 230V 50Hz single phase supplies.

FX118-05 LE1/11/R7
FX118-10 LE2/11/R7
FX118-20 LE6/11/R7
FX118-40 LE14/11/R7

Safety Note

Please check before ordering that the supply current is suitable for the power rating of the furnace.



FX118-05

Furnaces

Chamber Furnaces

Nabertherm

MORE THAN HEAT 30-3000 °C

- ◆ Choice of maximum temperature 1100°C or 1200°C
- ◆ Ceramic heating plates with integral heating elements protected against fumes and splashes
- ◆ Durable, vacuum cured, ceramic fibre lining with dual-walled housing giving low external temperatures
- ◆ Stainless steel outer housing

Maximum temperature 1100°C

Catalogue No	FX120-15	FX120-25	FX120-35	FX120-45
Model	LT3/11	LT5/11	LT9/11	LT15/11
Temp. Max./Continuous °C	1100/1050 — all models			
Heating time minutes	60	60	75	90
Volume litres	3	5	9	15
Dimensions Internal (external)				
height, mm	100 (420)	130 (520)	170 (570)	170 (570)
width, mm	160 (380)	200 (445)	230 (480)	230 (480)
depth, mm	140 (370)	170 (470)	240 (550)	340 (650)
Weight kg	20	35	45	55
Rating, max. kW	1.2	2.4	3.0	3.6

As described. Maximum temperature as indicated. With ceramic heating plates with integral heating elements. For 230V 50Hz single phase supplies.

- FX120-15** LT3/11/B510
- FX120-25** LT5/11/B510
- FX120-35** LT9/11/B510
- FX120-45** LT15/11/510

- ◆ Parallel hinge, lift door keeps hot face away from operator
- ◆ Adjustable air inlet integrated into door with exhaust air outlet at rear of chamber
- ◆ Overtemperature safety cut-out
- ◆ B510 controller: 5 programme, 4 segments, time and temperature setting with status alarm, delayed start function, autotune and data output

Maximum temperature 1200°C

Catalogue No	FX124-15	FX124-25	FX124-35	FX124-45
Model	LT3/12	LT5/12	LT9/12	LT15/12
Temp. Max./Continuous °C	1200/1150 — all models			
Heating time minutes	75	75	90	105
Volume litres	3	5	9	15
Dimensions Internal (external)				
height, mm	100 (420)	130 (520)	170 (570)	170 (570)
width, mm	160 (380)	200 (445)	230 (480)	230 (480)
depth, mm	140 (370)	170 (470)	240 (550)	340 (650)
Weight kg	20	35	45	55
Rating, max. kW	1.2	2.4	3.0	3.6

As described. Maximum temperature as indicated. With ceramic heating plates with integral heating elements. For 230V 50Hz single phase supplies.

- FX124-15** LT3/12/B510
- FX124-25** LT5/12/B510
- FX124-35** LT9/12/B510
- FX124-45** LT15/12/510

Safety Note

Please check before ordering that the supply current is suitable for the power rating of the furnace.



FX120-15



FX124-45

Furnaces

Construction and Controllers

CARBOLITE™

Leading Heat Technology

- ◆ Double skin construction in chamber furnaces reduces outer case temperature
- ◆ Only high grade fibre, brick and slab insulation materials used
- ◆ No asbestos used in construction
- ◆ Automatic cut-out isolates the mains supply to the heating elements when chamber door is opened
- ◆ Safety mesh guards or double skin casing fitted to tube furnaces
- ◆ Fitted with ceramic chimney
- ◆ Counterweighted chamber doors open upwards with the hot face away from the operator (Models ELF have drop down door)
- ◆ Outer cases finished in a durable stoved epoxy/polyester powder coating

Eurotherm 301 PID Controller

Economical, general purpose temperature controller with a 4-digit display for setting and indicating actual measured temperatures. Ideal for applications where optimal control performance, product integrity and reliability are required.

Eurotherm 3216P1 Programmer

Compact, microprocessor based programmer incorporating 8 control segments and dual 4-digit display showing set point and actual measured temperature in the furnace.

Economy Furnaces 1100°C

CARBOLITE™

Leading Heat Technology

Catalogue No.	FX150-28	FX150-38
Model	ELF11/6	ELF11/14
Temperature		
Maximum	°C 1100	1100
Continuous	°C 1000	1000
Heating time	minutes 35 (1000°C)	40 (1000°C)
Volume	litres 6	14
Controller	301 PID digital — both models	
Chimney	Yes	Yes
Dimensions	mm	
Internal	H 165 (580)	210 (630)
(External)	W 180 (410)	220 (450)
	D 210 (420)	310 (520)
Weight	kg 24	31
Rating, maximum	kW 2	3

Chamber Furnaces, ELF

Maximum temperature 1100°C. With one-piece moulded ceramic fibre chamber with integral heating elements, built-in hearth, ceramic chimney, drop down door and vent. Fitted with Model 301 digital controller. For 230V 50Hz single phase supplies.

FX150-28 Model ELF 11/6 301 PID

FX150-38 Model ELF 11/14 301 PID



Safety Note

Please check before ordering that the supply current is suitable for the power rating of the furnace.

FX150

Furnaces

Chamber Furnaces 1100°C, 1200°C, 1300°C

CARBOLITE®

Leading Heat Technology

- ◆ Upward action parallel link door keeps hot face away from the operator
- ◆ Heating elements are spirally wound nickel chrome wire, held in grooves within the insulated wall. These free-radiating, exposed heating elements provide a faster heat up rate than other conventional muffle furnaces
- ◆ Door linked, power cut-off switch for total operator safety
- ◆ Double skin, asbestos-free design provides natural air cooling for a cool outer case and the latest insulation materials ensure maximum thermal efficiency
- ◆ Solid state power switching for smooth reliable control
- ◆ Fitted chimney to remove fumes
- ◆ Zinc coated sheet steel outer case with hard wearing finish

Chamber Furnaces CWF

As described. With controller and chimney. For 230V 50Hz single phase supplies.

With 301PID controller

FX165-09	CWF11/5, 301PID
FX165-13	CWF11/13, 301PID
FX165-19	CWF11/23, 301PID
FX165-23	CWF12/5, 301PID
FX165-28	CWF12/13, 301PID
FX165-34	CWF12/23, 301PID
FX165-49	CWF13/5, 301PID
FX165-52	CWF13/13, 301PID
FX165-55	CWF13/23, 301PID

With 3216P1 Programmer

FX167-06	CWF11/5, 3216P1
FX167-11	CWF11/13, 3216P1
FX167-16	CWF11/23, 3216P1
FX167-21	CWF12/5, 3216P1
FX167-26	CWF12/13, 3216P1
FX167-33	CWF12/23, 3216P1
FX167-41	CWF13/5, 3216P1
FX167-46	CWF13/13, 3216P1
FX167-51	CWF13/23, 3216P1



FX165, FX167 are similar

Maximum temperature 1100°C

Catalogue No.	FX165-09 FX167-06	FX165-13 FX167-11	FX165-19 FX167-16
Model	CWF11/5	CWF11/13	CWF11/23
Temperature Maximum/Continuous °C	1100/1000	1100/1000	1100/1000
Heating time minutes	30 (1000°C)	35 (1000°C)	40 (1000°C)
Volume litres	5	13	23
Dimensions mm	H 135 (585) W 140 (375) D 250 (485)	200 (655) 200 (435) 325 (610)	235 (705) 240 (505) 400 (675)
Weight kg	30	47	68
Rating, maximum kW	2.4	3.1	7

Maximum temperature 1200°C

Catalogue No.	FX165-23 FX167-21	FX165-28 FX167-26	FX165-34 FX167-33
Model	CWF12/5	CWF12/13	CWF12/23
Temperature Maximum/Continuous °C	1200/1100	1200/1100	1200/1100
Heating time minutes	55 (1100°C)	65 (1100°C)	80 (1100°C)
Volume litres	5	13	23
Dimensions mm	H 135 (585) W 140 (375) D 250 (485)	200 (655) 200 (435) 325 (610)	235 (705) 245 (505) 400 (675)
Weight kg	30	47	68
Rating, maximum kW	2.4	3.1	7

Maximum temperature 1300°C

Catalogue No.	FX165-49 FX167-41	FX165-52 FX167-46	FX165-55 FX167-51
Model	CWF13/5	CWF13/13	CWF13/23
Temperature Maximum/Continuous °C	1300/1200	1300/1200	1300/1200
Heating time minutes	40 (1200°C)	45 (1200°C)	55 (1200°C)
Volume litres	5	13	23
Dimensions mm	H 135 (585) W 140 (375) D 250 (485)	200 (655) 200 (435) 325 (610)	230 (705) 245 (505) 400 (675)
Weight kg	30	47	68
Rating, maximum kW	2.4	3.1	7

*External dimensions are with the door closed.

Safety Note

Please check before ordering that the supply current is suitable for the power rating of the furnace.

High Temperature Furnaces

An extensive range of high temperature furnaces are available with maximum temperature capabilities of 1800°C. Standard designs include chamber furnaces with a maximum capacity of 25 litres and tube furnaces with up to 150mm diameter work tubes – details on request.

Furnaces

Ashing Furnaces, 1100°C

CARBOLITE

Leading Heat Technology

- ◆ Upward action parallel link door keeps hot face away from the operator
- ◆ Preheated, high-rate airflow is held close over the samples by the low chamber roof to promote burning
- ◆ Fitted chimney to remove fumes
- ◆ FX358-14 complies with BS1016 part 4, ISO344, ISO1171, ASTM D2361, ASTM D2795 and ASTM D3174

Catalogue No.		FX358-09	FX358-14
Model		AAF11/3	AAF11/7
Temperature Max/Continuous	°C	1100/1000 — both models	
Heating time	minutes	140 (1000°C)	155 (1000°C)
Volume	litres	3	7
Controller		301PID — both models	
Dimensions, mm	H	90 (585)	90 (650)
	Internal (External)*	W 150 (375)	170 (430)
	D	250 (485)	455 (740)
Weight	kg	22	63
Rating maximum	kW	2.1	4

*External dimensions are with the door closed.

Ashing Furnaces, AAF

As described. Maximum temperature 1100°C. With 301PID controller, chimney and preheated airflow through the chamber. Supplied with inconel sample tray, perforated sample tray and removable handle. For 230V 50Hz single phase supplies.

FX358-09 AAF11/3, 301PID control

FX358-14 AAF11/7, 301PID control

Coal/Coke Test Products

We are able to supply a full range of test furnaces and ovens for coal and coke evaluation to meet international standards and specifically national standards including DIN, ASTM and BS. These include ashing, volatile matter, moisture and ash fusibility – *details on request.*



FX358-14

Tube Furnaces, TF1-series, 1200°C

CARBOLITE

Leading Heat Technology

Detachable tube furnace and separate control box module with 2m connecting cable to allow remote horizontal use. Alternatively the furnace can be mounted directly onto the control box.

- ◆ Fully protected thermocouple
- ◆ EPC3016P1 controller/programmer with up to 12 ramp and 12 dwell times, ethernet output
- ◆ Energy efficient, utilising low thermal mass insulation
- ◆ Choice of accessory worktubes

Catalogue No.		FX520-38	FX520-60
Model		TF1 12/60/300	TF1 12/125/600
Temperature		1200/1100 - both models	
Maximum/Continuous	°C		
Heat-up time, minutes		35	90
Maximum work tube dimensions			
Diameter (max.)	mm	60	125
Heated length	mm	300	600
Uniform zone*	mm	6177	456
Overall H x W x D, mm			
Furnace module		575 x 495 x 480	665 x 865 x 575
Controller		230 x 485 x 480	230 x 855 x 480
Weight	kg	37	89
Rating maximum	kW	1.5	2.51

* Uniform zone is ±5°C.

Tube Furnaces TF1

As described. Maximum temperature 1200°C. With EPC3016P1 24 element programmer, 2 metre connecting cable and ethernet output port. For 230V 50Hz single phase supplies. **Requires accessory furnace tubes for operation.**

FX520-38 TF1 12/60/300

FX520-60 TF1 12/125/600

Accessory work tubes

Mullite and impervious aluminous porcelain. Maximum temperature 1550°C (vertical use), 1450°C (horizontal use), 1350°C (vacuum use in any orientation). Heating and cooling rate should be 5°C per minute. Dimensions stated are i.d. x o.d. x length.

FX522-15 25 x 32 x 580mm

FX522-20 38 x 46 x 580mm

FX522-48 75 x 86 x 950mm

Other work tube sizes are available – *details on request.*



FX520 with tube module mounted on control box

Furniture

Fume Extraction Hood



Low cost, easily installed, bench mounting, fume extraction hood with open base for use over existing electricity, gas and/or water supply systems.

- ◆ Epoxy coated, galvanised steel construction
- ◆ Acrylic, one-piece sliding sash front for easy access
- ◆ Choice of model:
 - with built-in, all-PVC, extraction fan
 - without fan for use with existing extraction systems

As described. With or without fan as indicated and internal lighting. Requires, but does not include, accessory extraction fittings. Overall 1350 x 800 x 640mm H x W x D. For 230V 50Hz a.c. single phase supplies.

FZ450-20 Fume hood with built-in fan

FZ450-24 Fume hood without built-in fan

Accessories

All accessories are 110mm diameter and for FZ450-20/-24 fume hoods only.

FZ454-58 Flexible hose, 1 metre length

FZ454-61 Rigid hose, 1 metre length

FZ454-64 Discharge piece (blow-out)

FZ454-67 Bend, 90°, rigid

FZ454-70 Bend, 45°, rigid

FZ454-74 Pipe clamp (one required per joint)

FZ454-77 Rain cowl



FZ450 on base

Furniture

Filtration Fume Cupboards, FumeCare FC-series

A range of five sizes of fume cupboards accommodating accessory replaceable, activated carbon filters providing filtration, absorption or neutralisation of airborne contaminants. Accessory impregnated carbon filters are available for use in a wide range of extraction applications.

- ◆ Greater than 0.5m/s face velocity
- ◆ All filter exchange mechanisms are on the clean side of the filter and switches and electrical components are totally isolated from the dirty airflow and contamination
- ◆ Built-in , 2 x 15W fluorescent illumination
- ◆ Low airflow alarm if face velocity <0.3m/second
- ◆ Hinged front panel
- ◆ Electrostatic pre-filter
- ◆ Quiet (<58dBa)

Construction

White epoxy coated mild steel frame, rear panel and head unit with clear acrylic side panels. The clear acrylic front panel is hinged and self-locking. A removable front panel to the head unit allows easy access to the filters and clamping mechanisms. Controls are situated in the head unit front panel for easy operation.

Specification

Model FC-	10	15	20	25	30
Dimensions, mm W	750	1000	1250	1500	1750
D	600	700	700	700	700
H*	1210	1210	1210	1210	1210
Filters [†]	1	1	2	2	2
Weight kg	40	50	70	90	100
Service required	230V 50Hz a.c. single phase supply — all models				

*Internal height: 800mm.

†Indicates the number of main (and safety) exhaust filters required.

COMMISSIONING

A commissioning service for the filtration fume cupboards is available within the UK at additional cost — *details on request.*



FZ482-15

Filtration Fume Cupboards, FumeCare

As described. Supplied with low airflow alarm, electrostatic pre-filter(s) and main filter i.d. window. For 230V 50Hz single phase supplies. Require, but are not supplied with, main exhaust filters, as indicated in the table.

FZ482-10	Model FC-10
FZ482-15	Model FC-15
FZ482-20	Model FC-20
FZ482-25	Model FC-25
FZ482-30	Model FC-30

Main Filters

Impregnated carbon exhaust filters to absorb specific contaminants as indicated. PLEASE STATE THE CHEMICAL CONTAMINANTS TO BE EXTRACTED WHEN ORDERING SO THAT THE MOST APPROPRIATE FILTER CAN BE SPECIFIED FOR THE PURPOSE. Supplied singly. Please refer to the main table for individual cupboard requirements.

	Ref.	Contaminant
FZ487-06	GP	Solvents, alcohols etc.
FZ487-09	ACR	Iodines
FZ487-12	ACM	Mercury
FZ487-15	AMM	Ammonia/amines
FZ487-18	FOR	Aldehydes
FZ487-21	ACI	Acids
FZ487-24	SUL	Sulphur, mercaptans
FZ487-27	CYN	Cyanides
FZ487-30	ETH	Ether
FZ487-33	HEPA	Particulates (HEPA)

Other filters available on request.

Accessory Safety Exhaust Filters

Provide additional filtration and extraction to the main filters. Supplied singly. Please refer to the main table for individual cupboard requirements.

	Ref.	Contaminant
FZ489-07	GP	Solvents, alcohols etc.
FZ489-10	ACR	Iodines
FZ489-13	ACM	Mercury
FZ489-15	AMM	Ammonia/amines
FZ489-19	FOR	Aldehydes
FZ489-22	ACI	Acids
FZ489-25	SUL	Sulphur, mercaptans
FZ489-28	CYN	Cyanides
FZ489-31	ETH	Ether
FZ489-34	HEPA	Particulates (HEPA)

Spare Main Pre-Filters

Filtrete electrostatic pre-filters. Supplied in a pack of 6. Please refer to the main table for individual cupboard requirements.

FZ489-50 Main filter pre-filters

Accessories for Models as indicated

Support Stand

Enclosed support stand with storage facility.

FZ489-52	Model FC-10
FZ489-55	Model FC-15
FZ489-58	Model FC-20
FZ489-61	Model FC-25
FZ489-64	Model FC-30

Electronic filter saturation alarm

Monitors the main filter for contaminant breakthrough. FACTORY FITTED. MUST BE ORDERED AT THE SAME TIME AS THE CABINET.

FZ489-71 Filter saturation alarm

Electronic monitoring system

Full airflow and filter constant monitoring system with display, service date information and filter type indicator. FACTORY FITTED. MUST BE ORDERED AT THE SAME TIME AS THE CABINET.

FZ489-74 Monitoring system

Furniture

Filtration Fume Cupboards, FumeCare FCES-series

A range of three sizes of sliding sash door fume cupboards accommodating accessory replaceable, activated carbon filters providing filtration, absorption or neutralisation of airborne contaminants. Accessory impregnated carbon filters are available for use in a wide range of extraction applications. Comply with BS EN61326-1:2006 and tested to BS7989 (face velocity and containment).

- ◆ Full airflow and filter constant monitoring system with display, service date information and filter type indicator.
- ◆ Greater than 0.5m/s face velocity
- ◆ All filter exchange mechanisms are on the clean side of the filter and switches and electrical components are totally isolated from the dirty airflow and contamination
- ◆ Built-in, 2 x 15W fluorescent illumination
- ◆ Low airflow alarm if face velocity <0.3m/second
- ◆ Sliding sash door opening
- ◆ Electrostatic pre-filter
- ◆ Quiet (<58dBa)

Construction

White epoxy coated mild steel frame, rear panel and head unit with glass windows in the side panels and glass sash front door. A removable front panel to the head unit allows easy access to the filters and clamping mechanisms. Controls are situated in the head unit front panel for easy operation.

Specification

Model FC-ES-	10	20	30
Dimensions, mm W	800	1300	1650
D	720	720	720
H*	1200	1200	1200
Filters [†]	1	2	3
Weight kg	45	80	100
Service required	230V 50Hz a.c. single phase supply — all models		

*Internal height: 800mm.

†Indicates the number of main (and safety) exhaust filters required.

COMMISSIONING

A commissioning service for the filtration fume cupboards is available within the UK at additional cost — details on request.



FZ491

Filtration Fume Cupboards, FumeCare FCES-series

As described. Supplied with full airflow and filter constant monitoring system with display, service date information and filter type indicator, low airflow alarm and electrostatic pre-filter(s). For 230V 50Hz single phase supplies. Require, but are not supplied with, main exhaust filters, as indicated in the table.

- FZ491-10 Model FCES-10
- FZ491-20 Model FCES-20
- FZ491-30 Model FCES-30

Main Filters

Impregnated carbon exhaust filters to absorb specific contaminants as indicated. PLEASE STATE THE CHEMICAL CONTAMINANTS TO BE EXTRACTED WHEN ORDERING SO THAT THE MOST APPROPRIATE FILTER CAN BE SPECIFIED FOR THE PURPOSE. Supplied singly. Please refer to the main table for individual cupboard requirements.

	Ref.	Contaminant
FZ487-06	GP	Solvents, alcohols etc.
FZ487-09	ACR	Iodines
FZ487-12	ACM	Mercury
FZ487-15	AMM	Ammonia/amines
FZ487-18	FOR	Aldehydes
FZ487-21	ACI	Acids
FZ487-24	SUL	Sulphur, mercaptans
FZ487-27	CYN	Cyanides
FZ487-30	ETH	Ether
FZ487-33	HEPA	Particulates (HEPA)

Other filters available on request.

Accessory Safety Exhaust Filters

Provide additional filtration and extraction to the main filters. Supplied singly. Please refer to the main table for individual cupboard requirements.

	Ref.	Contaminant
FZ489-07	GP	Solvents, alcohols etc.
FZ489-10	ACR	Iodines
FZ489-13	ACM	Mercury
FZ489-15	AMM	Ammonia/amines
FZ489-19	FOR	Aldehydes
FZ489-22	ACI	Acids
FZ489-25	SUL	Sulphur, mercaptans
FZ489-28	CYN	Cyanides
FZ489-31	ETH	Ether
FZ489-34	HEPA	Particulates (HEPA)

Spare Main Pre-Filters

Filtrete electrostatic pre-filters. Supplied in a pack of 6. Please refer to the main table for individual cupboard requirements.

- FZ489-50 Main filter pre-filters

Furniture

Filtration Fume Hoods

For operator protection against fumes, vapours and smoke when handling modest volumes of chemicals. Ideal for intermittent procedures or educational demonstrations.

- ◆ Comply with French AFNOR NF X.15-211 class 2 standard
- ◆ All four side walls have transparent polycarbonate panels to maximise lighting of the work area and visibility externally, within a coated steel framework and overhead fan/filter housing
- ◆ Standard features includes filtered air sampling port, timer with periodic alarm reminder to test filter saturation, air flow meter, two cable ports to allow instruments to be used inside the cabinet and CD-ROM with list of approved chemicals for use with filters
- ◆ Hingeing front panel allows full access to the work area for set-up with choice of ergonomically designed, 2-hand or single trapezoidal apertures for unhindered working during operation
- ◆ Accessory plastic coated, laminated ply or tempered glass work surfaces with spill retention sump
- ◆ A choice of four standard activated carbon filters is offered, for organic or corrosive fumes and vapours, formaldehyde or ammonia
- ◆ Rapid, easy filter cartridge replacement
- ◆ Quiet fan extraction reduces noise disturbance to the operator
- ◆ Electronic filter alarm monitors airflow through the filter and activates when this falls below a safe level due to filter clogging or fan failure

Model	2-hand opening	H061D	H092D	H122D	H152D
	trapezoidal opening	H061Z	H092Z	H122Z	H152Z
Dimensions, external (internal) H, mm		950 (735)	1160 (935)	1160 (935)	1160 (935)
	W, mm	600 (545)	900 (845)	1200 (1145)	1500 (1445)
	D, mm	650 (505)	750 (700)	750 (700)	750 (700)
Internal volume	m ³	0.20	0.61	0.75	0.95
Average face velocity	m/sec.	0.5 — all models			
Filter/light modules required		1	2	2	2
Supply requirements		220-240V 50/60Hz — all models			
Rating	A	0.1 - all models			
Weight	kg	41	67	85	102



FZ540-44 with FZ552-40 in use

Filtration Fume Hoods

As described. For 220-240V 50Hz single phase supplies. Without filters which are required for operation.

FZ540-12	Model H061D
FZ540-14	Model H061Z
FZ540-17	Model H092D
FZ540-19	Model H092Z
FZ540-42	Model H122D
FZ540-44	Model H122Z
FZ540-47	Model H152D
FZ540-49	Model H152Z

Accessories

Filters*

Activated carbon. for use with fumes/vapours and as indicated. Supplied singly. Please refer to the table for the numbers of filters required per cabinet.

FZ541-10	Organic fumes
FZ544-10	Corrosive fumes
FZ546-10	Formaldehyde vapours
FZ549-10	Ammonia vapours

*HEPA filters are also available - details on request.

Work Surfaces

Choice of plastic-coated laminate plywood or toughened glass worktops with spill retention sump. For fume hoods as indicated.

FZ550-10	Laminate, H061
FZ550-12	Glass H061
FZ550-15	Laminate, H092
FZ550-17	Glass H092
FZ550-40	Laminate, H122
FZ550-42	Glass H122
FZ550-45	Laminate, H152
FZ550-47	Glass H152

Trolleys

Enable fume hoods to become mobile, increasing flexibility of use. Supplied with removable shelf. Steel construction. For cabinets as indicated.

FZ552-10	H061
FZ552-15	H092
FZ552-40	H122
FZ552-45	H152

Lighting panel

For direct illumination of the work area. Mounted externally and supplied singly. Please refer to the table for the numbers of filters required per cabinet.

FZ552-95	All models
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Furniture

Mini Filtration Fume Hood, H60

A compact, stand-alone unit, allowing small volumes of volatile or fuming reagents to be conveniently handled on the benchtop.

- ◆ Complies with French AFNOR NF X 15-211 class 2 standard
- ◆ Built-in, quiet running (43 db(A)), fan with IP54 protection-rated housing, providing 86m³ per hour airflow
- ◆ Timer with alarm to prompt inspection of the filter every 60 hours to see if it requires replacement
- ◆ Filter window in the front panel to allow visual check of the filter type in use (accessory filter required)
- ◆ Epoxy painted steel cabinet with tilting top panel for accessory filter replacement, side and front transparent PVC strip curtains for easy access, integral base trough to contain spillages and levelling feet
- ◆ Accessory activated charcoal filters for organic vapours, corrosive and organic vapours, or formaldehyde fumes, all with pre-filters to remove 92% of dust particles with less than 3µm diameter
- ◆ Rapid, easy filter cartridge replacement

As described. Overall 605 x 505 x 485mm (external H x W x D), 410 x 455 x 455mm (internal H x W x D), weight 25kg. For 220-240V 50Hz single phase supplies. Without filters which are required for operation.

FZ554-10 Model H60 labopur®

Accessory Filters

Activated carbon filters specifically formulated for fume or vapour types as specified.

FZ554-35 ORG50, for organic vapours

FZ554-37 CORG51, for corrosive and organic vapours

FZ554-39 FOR50, for formaldehyde fumes



FZ554-10 in use

Gloveboxes

Simple gloveboxes for use at atmospheric pressure. Comprises rigid, aluminium frame with acrylic panel sides, roof, angled, hinged lid and polyethylene floor panel. The front panel incorporates two glove ports with natural rubber, size 9 gloves. The working chamber includes two inlet/outlet ports with hose connectors for gassing and aeration and two further cable ports to allow use of instruments inside the glovebox.

- ◆ Lightweight, robust construction is easy to move around
- ◆ Excellent, all-round visibility
- ◆ Airtight construction
- ◆ Available with, or without, side transfer (intermediate) chamber

Capacity	litres	290
Usable interior dimensions, W x D x H	mm	850 x 540 x 650
Overall W x D x H*	mm	890 x 600 x 700
Operating temperature range	°C	-20 to +70
Maximum loading	kg	40
Glove opening diameter	mm	190
Distance between gloves	mm	390
Lid opening, W x D	mm	850 x 425
Weight	kg	14

*Tubing attachment coupling requires extra 150mm when in use. The transfer chamber adds 220mm to the width.

As described. Supplied with 2 x size 9 rubber gloves, 2 x 5m lengths of PVC (gassing) and PE (aeration) tubing and rubber feet.

FZ590-60 Glovebox, 290 litres

FZ590-65 Glovebox, 290 litres with side transfer chamber 220 x 320 x 275mm W x D x H

Accessory Floor Stands

FZ591-06 For seated use, overall 890 x 600 x 720mm W x D x H

FZ591-09 For standing use, overall 890 x 600 x 1020mm W x D x H

Alternative glovebox designs are available – details on request.



FZ590-60



FZ590-65

Furniture

Taps, XL Series

Brownall Labtap®

Robust brass construction finished in "Tektocote" electrostatic epoxy paint and with colour coded controls.

Gas cocks Spring loaded taper plug cocks with drop lever controls.

Water taps Designed and manufactured to Water Research Centre requirements. Suitable for use with hot or cold water.

Needle valve For metering applications and fitted with metering plug. For use with compressed air.

Colour code to DIN 12920:1995-10

Carbon dioxide – Blue with blue/black insert.

Cold water – Green with yellow/blue insert.

Compressed air – Blue with blue/yellow insert.

Hot water – Green with yellow/red insert.

Nitrogen – Blue with green insert.

Oxygen – Blue with blue insert.

Gas

Gas Cock, single

For natural (methane) gas. BSP male thread for horizontal mounting. Light grey.

Drop lever

FZ600-55 BSP 1/4in

Gas Cocks

For natural (methane) gas. BSP 1/4in male thread for vertical mounting flush to the bench top. Outlets on 2- and 4-way versions are 90° apart. With drop levers. Light grey.

FZ603-05 1-way

FZ603-10 2-way

FZ603-15 4-way

Gas burner tubing – see *TY280*.

Bunsen burners – see *BY100/BY250*.

Water

Water Taps, swan neck

BSP 1/2 in male thread inlet for vertical mounting flush to a benchtop. Grey with control wheel colour coded for non-potable*, cold water (The mixer taps have two inlets and one hot/one cold control wheel). Choice of fixed or moveable swan neck as indicated (except FZ615-75 which has a removable, aerator nozzle head).

Single swan neck

FZ615-10 Fixed

FZ615-12 Fixed, back-flow resistant**

FZ615-15 Moveable

3-Way (swan neck plus 2 bibs)

FZ615-45 Moveable

Mixer (swan neck plus two controls colour coded one hot/one cold)

FZ615-75 Moveable

* Potable water versions are available - details on request.

** Incorporates a pipe interruptor with air gap at the nozzle and 300mm clearance from nozzle to bench/sink top in compliance with UK water regulation AUK3.

Compressed Gas

Needle Valves, compressed gas

BSP 1/2 in male thread inlet for horizontal mounting. With single outlet. Light grey with hand wheel colour coded for gases as indicated.

Note: All gases must be dry.

FZ645-10 1-way, compressed air

FZ645-13 1-way, nitrogen

FZ645-16 1-way, oxygen

FZ645-19 1-way, carbon dioxide



FZ600-55



FZ603-05



FZ615-75



FZ615-10, FZ615-12 and FZ615-15 are similar



FZ615-45



FZ645-13

Furniture

Stools

Wood

Epoxy powder coated 20mm mild steel frame with choice of medium density fibreboard (MDF) or laminated beech seat. Stackable when not in use. Dimension given is overall height.

MDF

FZ498-06	470mm
FZ498-09	520mm
FZ498-17	620mm
FZ498-22	670mm

Laminated Beech

FZ500-06	470mm
FZ500-09	520mm
FZ500-17	620mm
FZ500-22	670mm

Polypropylene

Black epoxy powder coated tubular steel frame with footrest and contoured polypropylene seat with lumbar support, in colours as indicated. Dimension given is overall height.

FZ510-04	Green, 445mm
FZ510-08	Green, 560mm
FZ510-12	Green, 610mm
FZ510-16	Green, 685mm

FZ512-04	Charcoal, 445mm
FZ512-08	Charcoal, 560mm
FZ512-12	Charcoal, 610mm
FZ512-16	Charcoal, 685mm

Other seat colours are available - *details on request.*



FZ500, FZ498 is similar



FZ510



FZ512

Furniture

Laboratory Stools and Chairs, Throna

The Throna range of European developed and manufactured, purpose-built, laboratory chairs have been designed so that users maintain good posture and are constructed using high-quality components and materials, providing continued comfort throughout a long working life. Specific features, such as antibacterial finishes and smooth lines with minimal folds for easy cleaning, ensure excellent performance within the working laboratory environment.

Please note that all chairs are supplied as four parts; base, gas-strut, seat and backrest modules for easy assembly by the user. This is to reduce shipping costs incurred if the chair was supplied fully-assembled.

Stools

Sturdy, steel frame with light blue*, polypropylene seat with vents for easy cleaning, gas-strut stem and re-inforced, wide, stable base with five arms, fitted with rubber based glides or soft-wheeled castors, as indicated. Alternative models are available with height adjustment as indicated. FZ530-25 also has a height adjustable footrest.

FZ530-15 420 to 550mm, glides

FZ530-18 420 to 550mm, castors

FZ530-25 600 to 850mm, glides, footrest

* Other colours are available - details on request

Laboratory Chairs, PU seat and backrest

Incorporating a robust steel frame with contoured, hygienic, black polyurethane foam seat for easy cleaning, wide backrest, gas-strut stem and re-inforced, wide, stable base with five arms fitted with rubber based glides or soft-wheeled castors as indicated. Two ranges of height adjustment are available and taller models have a footrest

FZ532-40 420 to 550mm, glides

FZ532-50 420 to 550mm, castors

FZ532-60 600 to 850mm, glides, footrest

Laboratory Chairs, PVC padded seat and backrest

Robust steel frame with foam padded, PVC faux leather seat for easy cleaning, adjustable, foam padded backrest, gas-strut and reinforced, stable base with five feet fitted with glides. Two ranges of height adjustment and seat colour are available, as indicated. Lower height models are also available with castors, taller models have footrests.

FZ535-10 430 to 560mm, glides, red seat

FZ535-15 430 to 560mm, castors, red seat

FZ535-30 550 to 800mm, glides, footrest, red seat

FZ535-40 430 to 560mm, glides, black seat

FZ535-45 430 to 560mm, castors, black seat

FZ535-50 550 to 800mm, glides, footrest, black seat

Laboratory Chairs, wooden seat and backrest

Incorporating a robust steel frame with laminated beech, wooden seat and backrest, gas-strut stem and reinforced, wide, stable base with five arms fitted with rubber based glides or soft-wheeled castors as indicated. Two ranges of height adjustment are available and taller models have a footrest

FZ538-25 420 to 550mm, glides

FZ538-35 420 to 550mm, castors

FZ538-45 600 to 850mm, glides, footrest



FZ530-15



FZ532-40



FZ535-15



FZ538-35



FZ530-18



FZ532-60



FZ535-50



FZ538-45

Furniture

Antibacterial Computer Accessories

Computer Keyboards, SterileFLAT®

Conventional-style, computer keyboards enclosed in a nano-silver impregnated, latex-free, antibacterial, flexible silicone membrane barrier, allowing use in chemical/medical and microbiological or cleanroom laboratory environments.

- ◆ Totally flat surface; easy to clean and sanitise
- ◆ Can be cleaned using antibacterial- and alcohol-based reagents or Chlor-clean
- ◆ Keyboard underside incorporates an easy-clean cover
- ◆ Ultra slim profile with soft touch, tactile keys
- ◆ Comply with current electrical safety and recycling legislation, CE, FCC approvals and ROHS compliant
- ◆ Compatible with Microsoft™ Windows™ operating systems
- ◆ Magnetised versions available to allow attachment to compatible metal surfaces or an accessory mounting plate

As described. Available wired, with USB connection or wireless, with 2.4GHz frequency connection, USB port for dongle connection and 2 x 1.5V AAA batteries. Overall 400 x 130 x 22mm W x D x H, weight 0.8kg.

- FZ650-15** Antibacterial keyboard, wired
- FZ650-25** Antibacterial keyboard, wireless
- FZ650-35** Antibacterial keyboard, wired, magnetic
- FZ650-45** Antibacterial keyboard, wireless, magnetic

Accessories and Spares

- FZ652-06** Mounting plate, metal, with adhesive pad to allow attachment of FZ650-35 or FZ650-45 to any surface
- BL610-08** Spare 1.5V AAA battery for FZ650-25/-45 (2 required)

Computer Mice, SterileMOUSE®

Stylish, ergonomically designed, computer mice with nano-silver impregnated, antibacterial silicone body, sealed command buttons and page up/down slider control.

- ◆ Comfortable, rubberised surface
- ◆ Laser diode optics, 800dpi optical sensor with 3000 frames per second scan rate provide precise, smooth cursor tracking
- ◆ Allow cleaning using antibacterial- and alcohol-based reagents or Chlor-clean
- ◆ Compatible with IBM AT or Windows™ operating systems
- ◆ Comply with current electrical safety and recycling legislation, CE, FCC approvals and ROHS compliant

As described. Available wired, with USB connection or wireless, with 2.4GHz frequency connection, mini-USB receiver and 2 x 1.5V AAA batteries. Overall 114 x 65 x 41mm W x D x H, weight 0.12kg.

- FZ654-10** Antibacterial mouse, wired
- FZ654-20** Antibacterial mouse, wireless
- BL610-08** Spare 1.5V AAA battery for FZ654-20 (2 required)



FZ650-15/-35 and FZ654-10 in use, FZ650-25--45 and FZ654-20 are similar

Furniture

Mobile Steps/ Safety Shelving

Kick-Step

Mobile kick-step with rubber-coated footpads, sprung roller support and rubber clad base rim which holds the base firmly in position when stood upon. Height 400mm, base diameter 470mm, top diameter 300mm. Available in a choice of colours, as indicated.

- FZ680-45** Kick-Step, black
- FZ680-47** Kick-Step, blue
- FZ680-49** Kick-Step, red

Safety shelving

Ruggedly constructed all-plastic shelving unit designed for the storage of corrosive materials. With stable HDPE frame and five equally spaced shelf levels each with a removable PVC tray with 30mm high surround, giving approximately 12 litres retention capacity in case of spillage. Total shelving unit capacity is 120 litres and spillage capacity 60 litres. Overall 1880 x 910 x 450mm H x W x D. Weight 35kg.

- FZ685-10** Safety shelving

Safety Enclosure, Waysafe GP540

A benchtop safety enclosure to protect the operator when handling or weighing powders.

- ◆ Rigid anodised aluminium frame with clear acrylic glazing to the sides, top and cover
- ◆ Variable speed fan air recirculation; 0.3 metres/second to 0.9 metres/second
- ◆ HEPA EU13 main filter (retains 99.997% of particles down to 0.3 µm)
- ◆ Cable access port in back panel

As described. Overall dimensions 540 x 610 x 500mm W x D x H. With variable fan, pre- and main filters and cable access port. For 240V 50Hz single phase supplies.

- FZ850-20** Waysafe GP540
- FZ852-13** Spare pre-filters, pack of 10
- FZ852-16** Spare HEPA main filter, supplied singly

Anti-Vibration Platform, Vibrasorb®

For absorbing and damping vibrations down to 9Hz. Comprises a moulded terrazzo slab with polished surfaces supported on four absorbers with non-slip feet. Suitable for isolating sensitive analytical instruments such as balances and microscopes. Will support up to 16kg. Overall 450 x 560 x 76mm W x D x H. Weight 39kg.

- FZ990-10** Anti Vibration platform

Bench protection material – see SA200.

Fire extinguishers/blankets – see SB215/SB270.

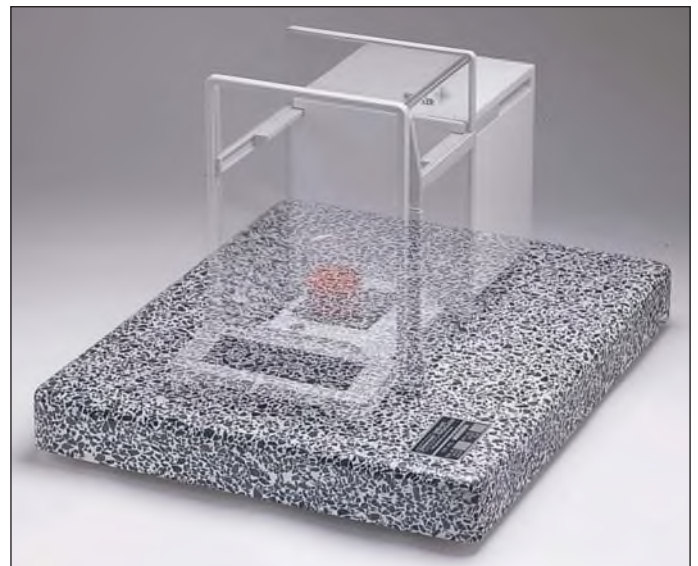
Flammable liquids stores – see SB875.

Trolleys – see TT710.

Wall clocks – see TM900.



FZ680-45, FZ680-47 and -49 are similar



FZ990-10



FZ685-10 in use



FZ850-20

Gas Analysis/Detection

Orsat Gas Analyser

Gas Analyser, Orsat

With burette and jacket, stopcock manifold and absorption vessels mounted in a carrying case. All absorption vessels are filled with glass tubes and the 3- and 4-vessel models additionally have one with copper wires included. Overall dimensions 520 x 350 x 150mm. Without chemicals.

With 2-absorption vessels

For the determination of CO₂ and O₂ in flue gases.

GA500-20 50ml burette

With 3-absorption vessels

For the determination of CO₂, O₂ and approximate CO in flue gases.

GA502-30 100ml burette

With 4-absorption vessels

For the determination of CO₂, O₂ and approximate CO in flue gases.

GA504-30 100ml burette

Spares

GA510-10 Absorption vessel, empty

GA510-12 Absorption vessel, with glass tubes

GA510-16 Absorption vessel, with glass tubes and copper wires

GA510-23 Manifold, 3-stopcock for 2-vessel model

GA510-28 Burette, 50ml

GA512-23 Manifold, 4-stopcock for 3 vessel 100ml burette model

GA512-25 Manifold, 5-stopcock for 4 vessel 100ml burette model

GA512-28 Burette, 100ml

GA510-30 Burette jacket only

GA510-32 Burette jacket with rubber bungs

GA510-36 U-tube

AS100-06 Levelling bottle

BP210-10 Bellows

Gas Absorption Towers and Tubes, straight and U-form, Arnold and Midvale patterns – see AB050 to AB190 in the Absorption section.



Gas and Vapour Detector System

KITAGAWA

For measuring pollutants in the atmosphere and flue gases etc. Incorporating a lightweight and portable aspirator pump sampler on which can be mounted a wide range of colour change detector tubes. This simple to use system requires no specialist knowledge and there are no chemical reagents to prepare. The detector chemicals are sealed in tubes and ready for immediate use. A reading can be obtained in a few minutes and therefore many locations can be sampled in a short time. The pump is available on its own or supplied with carrying case and 2 spare rubber inlets, but without detector tubes.

GD100-15 Aspirator sample syringe only

GD100-17 Aspirator sample syringe and case

Detector Tubes

Glass with break-off tip. Further, or less, pumping strokes are required to achieve extended ranges as indicated. Supplied in packs of 10.

Tubes Cat. No.	Ref. No.	Detector Tube	Measuring range		Colour Original	Colour Change
			Standard	Extended		
GD105-40	105SC	Ammonia	5 to 130ppm	10 to 260ppm	Pale purple	Pale yellow
GD107-15	126SA	Carbon dioxide	0.2 to 5.2%	0.1 to 2.6%	Purple blue	Pale pink
GD107-28	126SH	Carbon dioxide	1 to 28%	—	Pink	Yellow
GD109-27	1065C	Carbon monoxide	1 to 50ppm	—	Orange	Reddish purple
GD110-30	109SB	Chlorine	0.125 to 2.5ppm	0.5 to 10ppm	White	Pale orange
GD110-40	232SA	Ethylene glycol	20 to 250mg/m ³	—	Pink	Yellow
GD110-50	171SA	Formaldehyde	20 to 1500ppm	—	Yellow	Pink
GD113-20	187S	General hydrocarbons	50 to 1400ppm	—	Orange	Yellowish green
GD114-28	1205B	Hydrogen sulphide	0.75 to 37.5ppm	6 to 300ppm	White	Dark brown
GD114-31	1205C	Hydrogen sulphide	50 to 1600ppm	—	Pale yellow	Dark blue
GD114-35	1205H	Hydrogen sulphide	0.1 to 4%	—	Pale blue	Black
GD115-10	155U	Methyl isobutyl ketone	5 to 300ppm	—	Yellow	Pale blue
GD115-30	175SH	Nitrogen oxides (NO +NO ₂)	100 to 2500ppm	—	White	Yellow
GD118-20	158S	Styrene	2.5 to 150ppm	5 to 300ppm	White	Yellow
GD118-50	103SD	Sulphur dioxide	1 to 60ppm	—	Pink	Yellow
GD119-40	134SA	Trichloroethylene	5 to 150ppm	10 to 300ppm	White	Red

Alternative tube ranges and parameters are available - details on request.



Gas Analysis/Detection

CO Meter, Model 317-3



For carbon monoxide level testing in ambient air.

- ◆ Range 0 to 1999ppm x 1ppm resolution
- ◆ Accuracy ± 3 ppm (0 to 29ppm), $\pm 10\%$ of value (30 to 1999ppm), both ± 1 digit
- ◆ Adjustable alarm levels with audio-visual beep alarm, with frequency rising to continuous sound at 200ppm (danger level)
- ◆ No zeroing required
- ◆ Easy-to-read, backlit display
- ◆ Battery life up to 150 hours

As described. Supplied with belt clip, lanyard and 2 x 1.5V AAA batteries Overall 215 x 68 x 47mm, L x W x D. Weight 100g.

GD260-15 Testo 317-3

BL610-08 Spare battery (2 required)

CO₂ Meter, Model 535



Ideal instrument for measuring indoor air quality.

- ◆ Range 0 to 9999ppm x 1ppm resolution
- ◆ High accuracy
- ◆ Hold, max./min. and mean functions
- ◆ Infra-red output port using accessory printer
- ◆ Stable, two channel infra-red sensor
- ◆ Auto-off function after 10 minutes without use extends battery life

As described. Supplied with permanently attached probe on 1.2 metre cable, 9V PP3 battery and calibration protocol. Overall 190 x 57 x 42mm (meter only). Weight 300g.

GD264-20 Testo 535

BL610-25 Spare battery

Thermal paper printer

With infra-red cordless data communication. Supplied with 4 x AA batteries and 1 roll of paper.

AN472-40 Printer

Spare thermal paper for AN472-40, pack of 6 rolls.

AN472-45 Paper

Combustible Gas Leak Detector, CD100B



Developed for pinpointing combustible gas leaks within a system. Operates by setting a "background" level for the gas. As concentration increases, a red LED indicator flashes faster and an audible tick-rate increases accordingly.

Gases sensed	Hydrogen; methane; natural gas; ammonia; propane; acetone; petrol; refrigerants; ethylene; halon; lacquer thinners; solvents; alcohol; jet fuel
Sensor	Solid-state, low power, semi-conductor
Sensor mount	Flexible goose neck 400mm long with LED illuminator in sensor head
Overall mm	205 x 100 x 36 L x W x D (housing)
Weight g	460
Power	9V PP3 battery

As described. Supplied with 9V PP3 battery and instructions.

GD267-15 CD100B

BL610-25 Spare battery



GD260-15



GD264-20



GD267-15

Gas Collection/Distribution

Gas Collection

Gas Jars

Heavy glass. Ground flange. Nominal dimensions are height x internal diameter in mm. Without cover.

GE300-10	150 x 50
GE300-20	200 x 50
GE300-40	250 x 50
GE300-50	300 x 60
GE300-60	300 x 80

Gas Jar Covers

GE302-08	for 50mm diameter jars
GE302-12	for 60mm diameter jars
GE302-16	for 80mm diameter jars

Pneumatic Troughs

Cylindrical. Nominal dimensions stated are diameter x height in mm.

Heavy glass

GE310-15	200 x 100
GE310-25	250 x 125

Polyethylene

BT810-25	350 x 120
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Delivery tubes, Azlon

Ideal for "Rate of Reaction" experiments in educational science. Rigid polypropylene tubing 4 x 6mm i.d. x o.d. Choice of shape design to suit a variety of apparatus set-ups. Supplied in packs of 5.

GE320-12	DT001, 90° right-angle bend
GE320-14	DT002, double bend, bung top
GE320-18	DT004, straight, delivery tube

Beehive Shelves

Earthenware. Cylindrical. Nominal diameter stated.

GE335-10	75mm
GE335-20	100mm

Wood Splints

Bundles of approximately 1000.

GE350-10	Splints
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Deflagrating Spoon

Steel with flange cap. Overall length 400mm. Flange diameter 90mm.

GE360-15	Spoon
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Gas Washbottle, Woufff

Glass. With 2 x 19/26 socket necks.

GE515-36	500ml
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Gas Washbottle

Glass. With integral inlet and outlet tubes. Height x diameter. 125 x 25mm.

GE520-20	40ml
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Absorption Tower – see *Absorption section*.

Filter Sticks with sintered glass flat plate – see *Filtration section*.

Gas Lighters, Flint and Piezo models – see *Burners section*.

Whatman In-Line filters for pipelines – see *Filtration section*.



GE300 with GE302



GE350



GE310



BT810-25



GE335



GE515



GE360 in use



from left: **GE320-12, -18, -14**



GE520

Gas Collection/Distribution

Gas Distribution

Gas Distribution Tubes, Pyrex

For dispersing gases in liquids. With sintered glass thimble on a tube stem. Thimble diameter 15mm. Overall length x tube diameter 300 x 8mm.

	Ref.	Thimble porosity
GE700-10	3830/00D	0
GE700-11	3830/02D	1
GE700-12	3830/04D	2
GE700-13	3830/06D	3

Absorption Tower – see *AB050*.

Gas Lighters, Flint and Piezo models – see *Burners section*.

Whatman In-Line filters for pipelines – see *Filtration section*.

Pipeline Filter Tubes, Pyrex

With sintered glass flat disc set in-line with inlet and outlet tubes. Pressure differential across disc must not exceed 1 bar.

	Ref.	Disc porosity
30mm disc , 10mm o.d. stem, 190mm long		
GE710-11	3800/02M	1
65mm disc , 12mm o.d. stem, 235mm long		
GE713-12	3800/18D	2
95mm disc , 14mm o.d. stem, 260mm long		
GE716-12	3800/20M	2



GE700



GE710/713/716

Gas Cylinder

Cylinder Supports and Trolleys

Gas Cylinder Trolleys

Single cylinder capacity. Stoved enamel steel frame finished in blue, incorporating side shield bars for added protection of the cylinder, galvanised retaining chain, wide, perforated base platform to aid condensation drainage and provide support, and tyred wheels. Maximum capacity 150kg and cylinder height 1220mm. Maximum cylinder diameter as indicated. Available with, or without, dismantable rear arm with castors to aid manoeuvrability.

- GF402-10** For 280mm cylinder, without castor arm
- GF404-15** For 280mm cylinder, with castor arm
- GF406-20** For 380mm cylinder, without castor arm
- GF406-25** For 380mm cylinder, with castor arm

Gas Cylinder Stand

For a single cylinder. Epoxy coated steel frame finished in blue, with heavy duty base plate drilled with holes for attachment to the floor. For cylinders up to 280mm diameter which are secured by hinged retaining bars. Overall 600 x 340 x 310mm H x W x D. Supplied without fixings.

- GF415-22** Gas cylinder stand, for 280mm cylinders

Gas Cylinder Support

With bench clamp and webbing strap. For cylinders up to 230mm diameter.

- GF430-23** 230mm
- GF430-27** Spare strap

Gas Cylinder Wall Brackets

Wall mounting. Strong, stoved enamel steel frame finished in blue with galvanised steel retaining chain. To hold cylinders and with overall sizes as indicated. Maximum cylinder diameter accommodated 280mm. Supplied without wall fixings.

	Cylinders held	W x D x H, mm
GF440-20	2	650 x 155 x 40
GF440-35	3	965 x 155 x 40



GF406-20, GF406-25 is similar



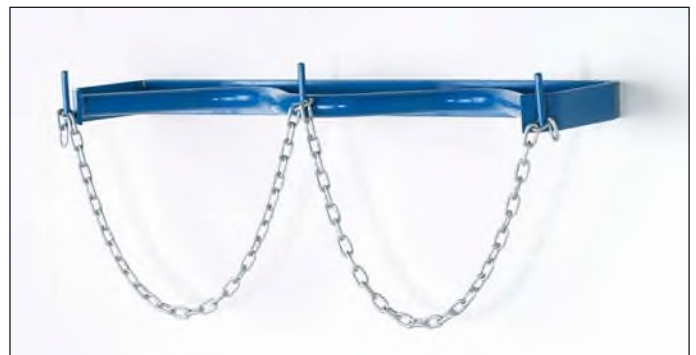
GF404, GF402 is similar



GF415



GF430 in use



GF440

Gas Cylinder/Generator

Gas Cylinder Regulators

To BS EN ISO 2503. Multistage regulators designed to minimise outlet pressure fluctuation. the first stage reduces cylinder pressure to 17 bar. the second stage is finely adjustable up to the pressure specified. Inlet $\frac{3}{8}$ " female BSP, outlet $\frac{3}{8}$ " male BSP.

GF490-05 Air, 3.5 bar
GF490-10 Air, 10 bar

GF490-15 Argon, 3.5 bar
GF490-20 Argon, 10 bar

GF490-25 Carbon dioxide, 3.5 bar
GF490-30 Carbon dioxide, 10 bar

GF490-35 Helium, 3.5 bar
GF490-40 Helium, 10 bar

GF490-55 Nitrogen, 3.5 bar
GF490-60 Nitrogen, 10 bar

GF490-65 Oxygen, 3.5 bar
GF490-70 Oxygen, 10 bar

Fittings and accessories for gas cylinders, including tubing adapters, multiple outlets, "Swagelok" adapters and flashback arrestors are available - *details on request.*

Gas Generator

Gas Generator, Kipps

Borosilicate glass with ground joint fittings. Central bulb 1000ml. With rubber separator, outlet tube with stopcock, upper safety bulb and stoppered outlet in lower reservoir. Without chemicals.

GG100-20 Kipps

Spare parts

GG103-12 Outlet stopcock, 29/32

GG103-18 Lower stopper, 29/32

Gas Preparation Kit 1GS

Designed for educational use but can be used for the preparation of gases for a wide variety of chemical experiments – see *Q1GS in the Quickfit Section.*

Flowmeters for gases and liquids – see *FR200/FR300.*

Hazard Warning Labels including:

Flammable Gas and Non-Flammable Compressed Gas – see *SC300 to SC304 in the Safety section.*



GF490



GG100

Gas Generators

Hydrogen Generators, Precision



Produce a continuous supply of ultra high purity gas to replace cylinder gas in gas chromatography and many other laboratory applications.

- ◆ Output suitable for both carrier and flame gas, when operating gas chromatographs at standard detection limits (>1000ppm or 1%), except GG150-18 which is suitable for Trace Analysis
- ◆ Safe, reliable Hydrogen generation using proven, membrane technology
- ◆ Automatic water feeding gives a virtually endless supply of gas
- ◆ Replaceable deioniser cartridge and silica gel charge maintains consistent purity and provides easy maintenance
- ◆ "On demand" generation ensures minimal Hydrogen stored in the system
- ◆ Built-in, gas leak detection system with automatic shutdown function

Technical data:

- ◆ H₂ purity >99.9995% at maximum flow and pressure (GG150-88: >99.9999%)
- ◆ Choice of maximum flow rate according to model
- ◆ Adjustable output pressure from 0 to 100psi g (0 to 6.9 bar g)
- ◆ Water purity requirements: <1 S/cm conductivity and >1M -cm resistance
- ◆ Output connection: 3mm outside diameter
- ◆ Overall 380 x 540 x 406mm W x D x H
- ◆ Weight, excluding water, 29kg

Hydrogen Generators

As specified. Supplied with inlet ferrule, power lead and instructions. For 110V, 230V 50Hz a.c. single phase supplies.

- GG150-14** Model Precision Hydrogen 100, 100ml per minute
- GG150-18** Model Precision Hydrogen 200, 200ml per minute
- GG150-48** Model Precision Hydrogen 300, 300ml per minute
- GG150-65** Model Precision Hydrogen 450, 450ml per minute
- GG150-88** Model Precision Hydrogen Trace 500, 500ml per minute*

* Trace Analysis (>99.9999% purity output) model

Silica gel

- GG150-95** Silica gel, self indicating, pack of 500g. One complete recharge.
- GG150-97** Silica gel, self indicating, pack of 25kg

Nitrogen Generators, Precision



Suitable deioniser for use with above generators – see DB120-10.

Produce >99.9995% purity N₂ to replace cylinder gas used for gas chromatography and many other laboratory applications.

The generators utilise a nitrogen enrichment technique with a highly efficient proprietary carbon molecular sieve that ensures the highest purity of the generated gas. The nitrogen separation process relies on differential diffusion and, with no physical absorption taking place, the carbon sieve easily self regenerates and does not require replacement. This means that the purity of the nitrogen remains consistent with no fall off in performance.

Note: These generators require a separate source of compressed air operating at minimum 35 litres/minute at 100-120psi g (or accessory Precision compressor) for operation.

- ◆ Replace the need to store and replenish gas held in pressurised cylinders
- ◆ Gas over-pressure safety system
- ◆ Only small volumes at low pressure are stored
- ◆ Continuous supply of gas

Technical data:

- ◆ Nitrogen purity >99.9995%
- ◆ Output pressure 5.5 bar g (80 psi g)
- ◆ Output connection 3mm o.d.
- ◆ Overall 380 x 540 x 256mm W x D x H
- ◆ Weight 48kg

Nitrogen Generators

As specified. Supplied with power lead and instructions. For 110V/230V 50/60Hz a.c. single phase supplies. Require, but do not include, separate air compressor for operation.

- GG170-08** Model Precision Nitrogen, 250ml per minute
- GG170-17** Model Precision Nitrogen, 600ml per minute
- GG170-19** Model Precision Nitrogen, 1000ml per minute

Accessory Air Compressor

Suitable for use with GG170-series Nitrogen generators. Overall: 380 x 540 x 406mm W x D x H. Weight: 35kg. For 230V 50Hz a.c. single phase supplies.

- GG170-95** Precision Air Compressor



GG150



GG170

Gas Meters

Gas Meters

Wet Type Gas Meters, for non-corrosive gases

Positive displacement meters for the measurement of total gas volume flowing in a given time. With large, graduated dial, stainless steel, 6 chamber drum, 6 digit electronic totalising counter (except GG500-20 which features 3 small index pointer subdials), "Hyde" type water level sight box, thermometer, fitted spirit level and levelling feet. GG500-10 and -15 must not exceed ± 60 mbar and GG500-20 ± 80 mbar pressure during operation. Not suitable for use with corrosive gases.

Drum dm ³	Dial cap. litres/rev, dm ³	Litres per hour	Filling cap., litres	Overall H x W x D, mm	Weight, kg*
0.5	0.25	60	1.2	240 x 230 x 190	3.5
1.0	1.0	120	1.8	240 x 230 x 220	4
2.0	1.0	240	4.2	320 x 330 x 280	6

* Approx. weight empty.

GG500-10	0.5dm ³ drum
GG500-15	1.0dm ³ drum
GG500-20	2.0dm ³ drum

Flow Indicators

Simple to install indicators which give you a visual guide of either gas or liquid in-line Flow continuity.

- ◆ Choice of materials
 - Styrene acrylonitrile (SAN)
Maximum operating temperature +30°C
 - Polymethylpentene (PMP)
Maximum operating temperature +60°C

Comprising paddle wheel in a transparent plastic housing. Rotation of the vanes gives a visual indication of either gas or liquid flow. Can accommodate flow rates down to approximately 150ml/minute. With stepped side arms for 6 to 11mm bore flexible tubing. Overall 88 x 40 x 15mm.

FR200-12 Styrene acrylonitrile

FR200-15 Polymethylpentene

Tubing, PVC

Flexible transparent non-toxic general purpose tubing in coils as indicated.

	Bore x o.d. mm	Coil length metres
TY403-15	3 x 4.5	30
TY403-20	5 x 8	30
TY403-30	8 x 12	30
TY403-35	10 x 14	30
TY403-40	12.5 x 17	30
TY403-50	16 x 22.5	10
TY403-55	20 x 26.5	10
TY403-60	25 x 31.5	10

Full details and further information - see *Tubing* section.



GG500-10, GG500-15 is similar



GG500-20

Gauges, Gauzes, Glasscutting, Glass Wool

Gauges

Caliper Gauge, vernier

With thumb lock, stainless steel. Range 140mm (5.5in), vernier scale 0.02mm (0.001in). For internal and external depth and step measurements.

GK150-08 Vernier calipers

Micrometer Screw Gauge

Graduated to read 0 to 25mm in 0.01mm, with ratchet and lock nut. Tungsten carbide tipped measuring faces.

GK160-10 Micrometer

Rainfall gauges – see MD730.

Vacuum Gauges – see Pumps section.

Gauzes

Gauzes, iron wire, square

W x D,
cm

Open mesh

GK600-12 12.5 x 12.5

GK600-15 15 x 15

With ceramic centre

GK605-10 10 x 10

GK605-12 12.5 x 12.5

GK605-15 15 x 15

Tripod Stands – see Stands section.

Glasscutting

Tungsten Carbide Knife

- ◆ Moulded plastic handle
- ◆ For cutting soda-lime, borosilicate and silica glass tubing and rods
- ◆ Long lasting tough reversible blade which can be sharpened on a silicon carbide stone

GM222-10 Blade length 40mm

GM222-14 Spare blade

Glass Cutting Diamond

Mounted in wood handle.

GM230-10 Diamond

Glass Marking

- Chinagraph pencils
 - Diamonds and scribes
 - Ink markers
- see LA520 to LA610 in the Labelling section.

Glass Wool

Glass Wool, Pyrex

Used for plugging tubes, and filtering. Made from Pyrex 9989 glass with fibres approximately 8 microns diameter. Supplied in the form of roving approximately 50mm diameter x 6.7 metres long. Packed weight approximately 460g.

GM390-10 Pyrex wool

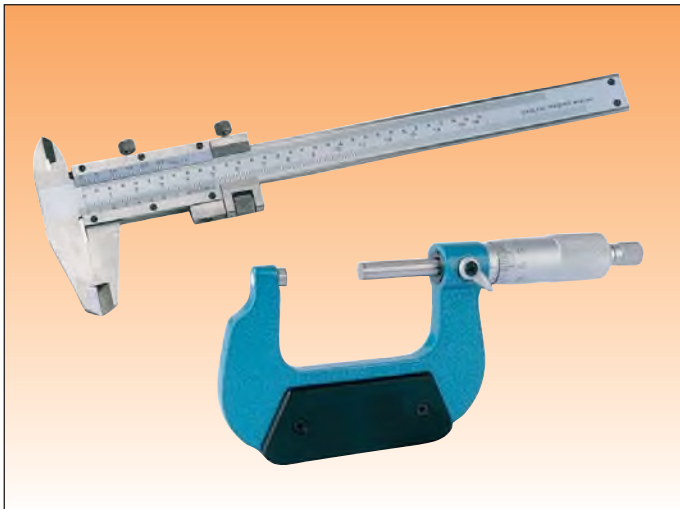
Glass Wool, silica

Used for plugging tubes, filtering acids and as a thermal insulation. Fibres approximately 5 to 30 microns diameter. Supplied in pack of 10g.

GM400-25 Silica wool

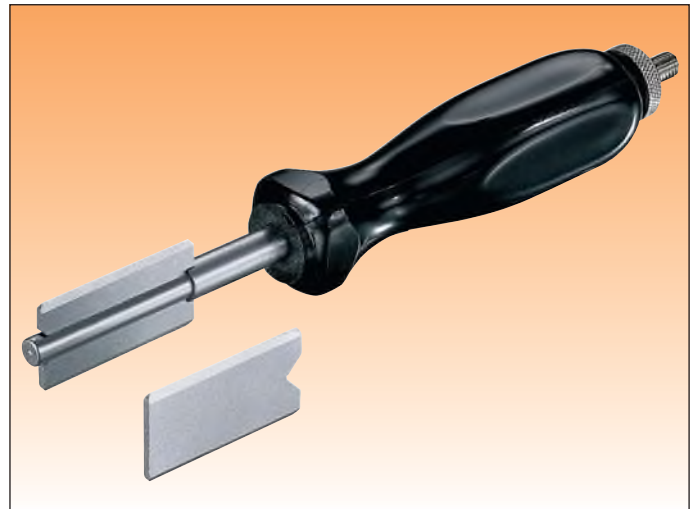
Cotton Wool – see CW500/505.

Filter media – see FB405.

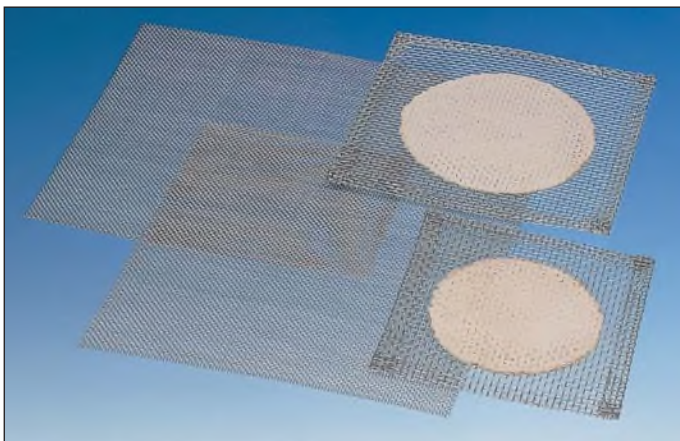


GK150

GK160



GM222-10 and GM222-14



GK600

GK605



GM230



GM390, GM400 is similar

Heating

EM Series Electromantles



- ◆ Capacities from 100ml up to 5 litres
- ◆ Polypropylene outer case
- ◆ Replaceable flexible heater cartridge
- ◆ One or more support rod clamps according to mantle capacity
- ◆ Maximum element temperature 450°C
- ◆ Safety earth (ground) screen for operator safety
- ◆ Integral energy regulator control
- ◆ **Flexible heater cartridge.** The heating elements are suspended in a thermal insulating former making for quick and simple replacement
- ◆ **Safety screen.** This earth (ground) screen is preformed in stainless steel and fitted above the heating element. It is earthed (grounded) directly to the supply cable
- ◆ **Standard fitments.** All models incorporate the flexible heater cartridge plus a 'power' on indicator lamp, earth screen and internal fuse. Capacities 50ml to 1 litre have one support clamp and capacities 2 to 5 litre have three clamps. All accept up to 12.7mm diameter rods

Controlled Models

Generally as the standard models but with integral, arbitrary scaled, solid state controller. For 230V 50/60Hz a.c. single phase supplies.

	Ref. EM-	Cap. ml	Rating W
Solid state controller model with earthed screen			
HE215-20	0100/CE	100	60
HE215-25	0250/CE	250	150
HE215-30	0500/CE	500	200
HE215-40	1000/CE	1000	300
HE215-45	2000/CE	2000	500
HE215-50	3000/CE	3000	500
HE215-60	5000/CE	5000	800

Cartridges

Replacements for all EM Series Mantles. For 230V 50/60Hz a.c. single phase supplies.

	Ref.	For mantle ml
HE220-10	RE0100	100
HE220-15	RE0250	250
HE220-20	RE0500	500
HE220-25	RE1000	1000
HE220-45	RE2000	2000
HE220-50	RE3000	3000
HE220-60	RE5000	5000

Support rods – see SL400-series.

Digital temperature controller

Retort rod mounting. With accessory probes to control to +800°C – for details see EE500-75 in the Electrical section.



HE215

Heating

Multimantles



Multipurpose mantles for heating a variety of flasks and funnels.

- ◆ General construction as EM-Mantles
- ◆ Fitted as standard with:
 - safety earth (ground) screen
 - solid state controller
- ◆ Capacities with two heating elements have a switch to enable upper circuit to be switched off when heating small vessels
- ◆ Fitted with clamp for 12.7mm diameter rods (Model EMV5000/CE has three clamps)

Catalogue No.		HE250-15	HE250-20	HE250-30	HE250-45
Model		EMV0050/CE	EMV0250/CE	EMV1000/CE	EMV5000/CE
Capacities Round flasks to BS2734	ml	Pear: 10,25,50 Round: 50	Round: 100 150 250	Round: 500 1000	Round: 2000 3000 5000
Diameters Common 60° filter funnels	mm	50 75 100	75 100	100 150 200	200 250 300
Bottom outlet diameters	mm	18	18	33	68
Wattage & Circuits	W	1 x 60	1 x 50 1 x 100	1 x 100 1 x 200	1 x 300 1 x 500
Switched element		No	Yes	Yes	Yes

Multimantles EMV Series

As described. For 230V 50/60Hz a.c. single phase supplies. Without support rod.

	Ref. EMV
HE250-15	0050/CE
HE250-20	0250/CE
HE250-30	1000/CE
HE250-45	5000/CE

Replacement Heaters

To fit mantles as indicated. For 230V 50/60Hz a.c. single phase supplies.

	Ref. REMV-	For mantle
HE254-15	0050	HE250-15
HE254-20	0250	HE250-20
HE254-30	1000	HE250-30
HE254-45	5000	HE250-45

Support rods – see SL400-series

Spillproof Mantles



- ◆ General construction as EM-Mantles
- ◆ Heating element protected by a stainless steel liner preformed to accommodate a wide range of flasks and funnels
- ◆ Liner is earthed (grounded) for added protection
- ◆ Both models have dual heating elements which can be switched
- ◆ Time proportional arbitrarily scaled controller

Catalogue No.	HE270-15	HE270-30
Model	EMX1000/ SCE	EMX5000/ SCE
Capacities Round bottom flasks 60° funnels	50-1000ml 50-150mm	500-5000ml 100-300mm
Wattage/Circuits	1 x 165W 1 x 80W	1 x 400W 1 x 200W
Support rod clamps	1	3

Spillproof Mantles EMX Series

As described. For 230V 50/60Hz a.c. single phase supplies. Without support rod.

	Ref. EMX-	Cap. ml
HE270-15	1000/SCE	50-1000
HE270-30	5000/SCE	500-5000

Replacement Heaters

For 230V 50/60Hz a.c. single phase supplies.

	Ref. REMX-	For mantle ml
HE274-15	1000	50-1000
HE274-30	5000	500-5000



HE250



HE270

Heating

Stirrer Mantles



- ◆ Stepless speed control up to approximately 520rpm with auto-reverse facility
- ◆ Time proportional, arbitrarily-scaled heater control
- ◆ Fitted with retort rod clamp for 12.7mm rod (Model EMA2000/CE has three clamps)

Stirrer Mantles EMA Series

As described. For 220-240V 50/60Hz a.c. single phase supplies. Without support rod or magnetic stirrer bar.

	Ref. EMA-	Capacity ml	Rating W
HE300-15	0050/CEB	50	80
HE300-20	0100/CEB	100	80
HE300-25	0250/CEB	250	170
HE300-30	0500/CEB	500	220
HE300-40	1000/CEB	1000	320
HE300-45	2000/CEB	2000	520

Replacement Heaters, REMA Series.

For 220-240V 50/60Hz a.c. single phase supplies.

	For mantle, ml		For mantle, ml
HE304-15	50	HE304-30	500
HE304-20	100	HE304-40	1000
HE304-25	250	HE304-45	2000

3-in-1 Mantle

- ◆ PTFE-coated, spun aluminium outer case
- ◆ Maximum temperature 400°C
- ◆ Accommodates 250ml, 500ml or 1000ml capacity round bottom flasks
- ◆ Solid-state external power control with arbitrary scale, 'Power-on' and 'Heater-on' indicator lamps
- ◆ Dual circuit heating element which can be switched
- ◆ Safety earth ground screen for greater safety

As described. Supplied with solid state external power control, safety earth ground screen over the element and retort rod holder. For 230V 50/60Hz a.c. single phase supplies.

HE310-40 Model CMUT1000/CE

Stirrer bars – see *Stirrers* section.



HE300



HE310-40 in use



HE330 in use

Modular Mantles



Comprises control module for stirring and heating with choice of interchangeable heater cartridges for 250ml, 500ml or 1000ml flasks.

- ◆ Maximum temperature 400°C
- ◆ Stirring range 100 to 800rpm
- ◆ Digital temperature and stirring speed displays
- ◆ Capacitance Touch Control panel
- ◆ Countdown timer, from 99 hours 59 minutes switches off heating after set period
- ◆ Supplied with temperature probe which allows direct sample temperature monitoring from ambient +5°C to 220°C only via probe socket in control module
- ◆ Retort rod mounting provided at rear of housing

Modular Mantles OMNIMANTLE Mk II Series

As described. The control module is supplied with one of a choice of 250ml, 500ml or 1000ml interchangeable flexible heater cartridges with earth screen, magnetic stirrer bar, mains lead and instructions. Overall 235 x 330 x 190mm W x D x H. Weight 3.1kg. For 230V 50/60Hz single phase supplies.

	Ref. OMCA-	Capacity ml
HE330-10	0250	250
HE330-15	0500	500
HE330-20	1000	1000

Spare Temperature Probe

For insertion directly into the fluid being heated, so that its temperature can be read and adjusted directly from the control unit. Pt100 sensor with lead and plug. Maximum operating temperature 250°C.

HE332-08 Probe AZ140940

Accessory/spare Heater Cartridges

For 230V 50/60Hz a.c. single phase supplies.

	For mantle, ml
HE334-25	250
HE334-30	500
HE334-40	1000

Support rods – see *SL400* series.

Bosheads and clamps - see *SL600/SL700* series

Heating

CM Series Heating Mantles



- ◆ Capacities from 50ml up to 5 litres
- ◆ PTFE coated, spun aluminium outer case
- ◆ Accessory exterior or built-in controller models
- ◆ Safety screen. This earth (ground) screen is pre-formed in stainless steel and fitted above the element. It is earthed (grounded) directly to the supply cable
- ◆ Maximum element temperature 450°C
- ◆ Flexible heater cartridge. The heating elements are suspended in a thermal insulating former making for quick and simple replacement
- ◆ Standard fitments. All models incorporate the flexible heater cartridge, earth screen, non-skid feet and are double fused

Standard Models, Uncontrolled

Maximum temperature 450°C. Incorporating heater cartridge, earthed screen and internal fuses. 50ml to 1 litre sizes have a single support rod clamp for rods up to 12.7mm dia., 2 litre to 5 litres sizes have paired clamps to hold a single rod. For 230V 50/60Hz a.c. single phase supplies. It is essential that these mantles are used with an external controller, EE500-20.

	Ref.	Capacity, ml	Rating, W
HE400-15	CMU0050/E	50	75
HE400-20	CMU0100/E	100	100
HE400-25	CMU200-250/E	200-250	200
HE400-30	CMU0500/E	500	280
HE400-40	CMU1000/E	1000	380
HE400-45	CMU2000/E	2000	500
HE400-50	CMU3000/E	3000	500
HE400-60	CMU5000/E	5000	300 + 500*

*Dual heating element model.

Replacement Heater Element Cartridges

Maximum 450°C. For 230V 50/60Hz single phase supplies.

	For Mantle, ml	Rating, W
For uncontrolled HE400-series		
HE475-15	50	75
HE475-20	100	100
HE475-25	200-250	200
HE475-30	500	280
HE475-40	1000	380

*Dual circuit element.

Spare heater element cartridges are available for HE402-series and HE400-45 to -60 - details on request (serial number required).

Controller, MC227

Bimetallic, non-linear controller for controlling up to 1200W load, maximum current 5A. With arbitrary scaled controls and an amber neon on the output circuit. Supplied with flying leads for input and output connection. The case has a wing screw fitting for mounting the controller on a 12.7mm diameter retort/scaffolding rod. Overall 240 x 140 x 90mm W x D x H. For 200-250V 50/60Hz a.c. single phase supplies.

EE500-20 MC227



HE400

Heating

CM Series Multi-task Heating Mantles



Multi-task Models, Large Capacity, Controlled

Large capacity mantles with V-shaped heater cartridge for use with round-bottom or pear shaped flasks or 60° filter funnels, integral arbitrary scaled, solid state controller, 'power on' and 'heater on' indicator lamps and switchable multi-circuit heaters. Fitted with 3 retort rod clamps for rods up to 12.7mm diameter, equally spaced around case. For 230V 50/60Hz single phase supplies.

HE465-70 CMUV12/CL

HE465-75 CMUV22/CL

Cat. No.		HE465-70	HE465-75
Model	CMUV-	12/CL	22/CL
Flask capacity	litres	2 to 12	5 to 22
Funnel type		60°	60°
Outlet diameter	mm	78	78
Rating	W	500 + 500*	350 + 800*

*Dual circuit element.

Spare heater element cartridges are available for HE465-series - details on request (serial number required).

Electric Bunsen



Electric Bunsen, Electrothermal

A versatile source of radiant heat for heating test tubes, crucibles and small flasks, irrespective of their shape. Comprising corrosion resistant metal housing and a spiralled nickel chromium wire element within a refractory casing. A top cowl deflects heat away from the hand. The cowl is removable for heating crucibles and the unit can be held at the base by hand. Maximum power rating 400W. Element temperature 800 to 1000°C. Height 180mm. For 230-250V a.c. single phase supplies. Requires, but does not include, a controller.

HE760-10 'Bunsen' BA6101

EE500-20 In-line power controller for HE760-10

Heating Tapes

- ◆ Maximum temperature 450°C
- ◆ Must be used with a suitable controller and in dry conditions
- ◆ Unsuitable for use out of doors

Heating Tapes, HT9, Electrothermal

Earthed for additional safety. Surface loading 0.62W/cm². Can be used on metal surfaces. With tie cord fixing. Tape width 25mm. For 230V a.c. single phase supplies.

	Ref.	Length cm	Rating W
HE810-12	HT95502	60	100
HE810-18	HT95508	244	400



HE465



HE760



HE810 in use

Heating

Kjeldahl Heater Units



Macro Digestion/Distillation Units

With choice of two or six recesses and flask capacities as table. Recesses are at 150mm centres. Aluminium case with energy regulators and brackets to accept 12.5mm diameter support rods or the flask rest supplied. The 6-recess models have also clamps at either end of the case to accept 15.8mm diameter support rods. Maximum heater element temperature 800°C. For 230V a.c. single phase supplies.

	Recesses	Flask capacity ml	Total rating W	Dimensions W x D mm
KJ300-12	2	100 to 300	600	305 x 203
KJ300-16	2	500 to 800	1100	305 x 203
KJ305-16	6	500 to 800	3300	914 x 203

Spare heaters for KJ300-series - details on request.

Hot Air Blower

Hot Air Blower (Heat Gun), heavy duty

Suitable for a wide range of uses where localised rapid heating is required.

- ◆ Drying chromatography papers
- ◆ Sterilising
- ◆ Drying glassware
- ◆ Concentrating solutions

Ruggedly constructed, with rugged, industrial plastic housing and satin chrome nozzle and end baffle. A ceramic heating element ensures a long operational life. Can be hand-held or self-standing in an upright position. Includes safety thermostat and thermal fuse. Three heat/airflow settings are available: 50°C/200 litres per minute, 400°C/300 litres per minute and 600°C/500 litres per minute. Heater rating 1800W. Overall 260 x 90 x 205mm H x W x D. Weight 780g. For 230V 50Hz single phase supplies.

HE775-60 HL1820S

Impulse heat sealer for plastic film and laminates – see TS400.



KJ300



KJ305



HE775-60

Histology

Bath



Paraffin Section Mounting Bath

Comprising aluminium housing with PTFE coated matt black interior, illuminated on/off rocker switch, rotary control dial, energy regulator and resettable thermal fuse providing overtemperature protection. Without lid.

Catalogue No.	HG300-45	
Model	MH8517	
Control	Thermostatic	
Range	°C	Ambient to 70, ±0.5*
Bath volume	litres	2.5
depth	mm	80
diameter	mm	220
Rating	W	240

*When filled with 2 litres of water, and after 120 minutes.

As described. Overall 330 x 140mm diameter x height. Weight 2.7kg. For 230V 50/60Hz single phase supplies.

HG300-45 Ref. MH8517

HG300-55 Lid, black PP, for MH8516



HG300



HG310 in use

Drying Bench



Slide Drying Bench

With DHSS ESCHLE approval. With built in energy regulator and indicator lamps. Maximum temperature 100°C. Accepts up to fifty 76 x 25mm slides on removable drying bars. Overall 435 x 178 x 75mm W x D x H. For 220-240V a.c. single phase supplies, 150W.

HG310-10 Ref. MH6616

Slide rack ends

For suspending microscope slides over laboratory sinks using glass rod rails. Each end has two 7.5mm diameter holes with screw clamps to accommodate the glass rods, and two levelling screw feet. Supplied in pairs.

ML754-10 Staining rack ends

Other Histology Items

Staining Troughs/Jars, Microscope Slides – see *Microscopy section*.

Forceps/Scalpels – see *Dissecting section*.

Wax Dispenser



Paraffin Wax Dispenser

With 7.5 litre capacity, stainless steel tank and rapid heating system for melting up to 6kg of pelletised wax. Operating range: ambient to +70°C. The non-dripping, lever operated tap has three modes, off, on-demand dispense and continuous flow and is separately heated to avoid blockage. The tank outlet also features a 0.5mm mesh filter to prevent coarse particles fouling the tap. Digital setting and control with ±1°C accuracy, safety circuit breaker and temperature cut-out at 120°C. Overall 455 x 181 x 500mm H x W x D, weight 7kg. For 220-240V 50/60Hz a.c. single phase supplies, 480W.

HG320-20 Ref. MH8524



HG320



ML754 in use

Histology

Tissue-Wax

Tissue Embedding Wax, Tissue-Wax

A highly purified, filtered, white paraffin wax blended with synthetic polymers and suitable for routine embedding and sectioning applications. Offers very little shrinkage on cooling and high performance when sectioning, ease of cutting and ribbon continuity. Melting point 56-58°C, congealing point 54-57°C. Supplied in pelletised form within packs of 1kg.

HG385-15 Tissue-Wax

Tissue Embedding Wax, Tissue-Wax*

Similar to HG385-15 but with a small amount of Dimethyl Sulphoxide added to enhance tissue penetration, giving a shorter infiltration time. Also recommended for larger or harder tissue samples as it reduces brittleness of sections, enabling more flexible ribbons. Supplied in pelletised form within packs of 1kg.

HG385-25 Tissue-Wax*

Larger pack sizes are available - *details on request.*

Embedding Cassettes

Embedding Cassettes, Standard

Solvent-resistant polyoxymethylene (POM). Made to fit most commonly-used microtome chucks. Circular base perforations enhance adhesion of paraffin wax blocks to the cassette. Without cover, but with moulded lugs to accept accessory stainless steel covers. A 45° angled labelling area provides a comfortable writing surface and is suitable for most models of cassette labeller. Supplied in packs of 1000 (2 x bags of 500), in colours as indicated.

HG420-02 Light blue

HG420-04 Yellow

HG420-06 Light green

HG420-08 Grey

HG420-10 White

HG420-12 Pink

HG420-14 Beige

HG420-16 Orange

Embedding Cassettes, Universal

Generally as HG420 but with slotted perforations on base and fitted, hinged lid. Supplied in packs of 500, in colours as indicated.

HG424-03 Light blue

HG424-05 Yellow

HG424-07 Light green

HG424-09 Grey

HG424-11 White

HG424-13 Pink

HG424-15 Beige

HG424-17 Orange

Biopsy Cassettes

Biopsy Cassettes

Polyoxymethylene (POM). With finely perforated (1mm x 1mm aperture) base and fitted hinged lid. Supplied in packs of 500, in colours as indicated.

HG429-04 Light blue

HG429-07 Yellow

HG429-10 Light green

HG429-13 Grey

HG429-16 White

HG429-19 Pink

HG429-22 Beige

HG429-25 Orange

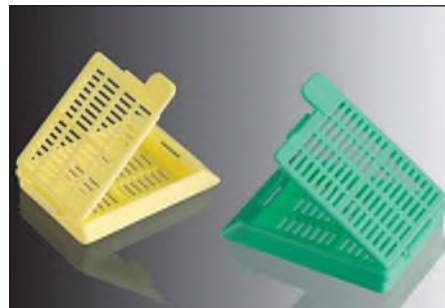
Marker pens for biopsy cassettes - see LA620-series.



HG385-15, HG385-25 is similar



HG420



HG424



HG429

Hotplates

Circular and Rectangular, Metal plate

Hotplates, 325°C

Energy regulator control. With aluminium top plate in diameter as indicated. A metal grille surround protects the user from inadvertently touching the hotplates and stops flasks/vessels from toppling off the plate.

Model		ECH90	ECH230
Top plate	mm	90	220
Overall	W, mm	125	250
	D, mm	125	250
	H, mm	125	100
Power	W	500	2000

As described. For 230V 50/60Hz single phase supplies.

HP185-10 ECH90

HP185-60 ECH230

Accessories for HP185-10 only

Aluminium bowl to fit 90mm diameter hotplates and round bottom flasks as indicated.

HP185-95 For 500ml flasks

Hotplate, 325°C, Undergrad US150, Stuart

Microprocessor control with direct temperature setting using dial switch with back illumination which progressively lights as the plate temperature increases to set-point. Maximum capacity 15 litres. Cast aluminium/silicon alloy top plate with thin ceramic coating for additional chemical resistance, 150 x 150mm W x D. Overall 172 x 248 x 120mm W x D x H. With illuminated power and "hot plate" indicators, retort rod mount behind the top plate. For 230V 50Hz single phase supplies, 700W.

HP200-17 150 x 150mm

Hotplate Temperatures

The maximum surface temperature achieved by a hotplate is influenced by the material being heated and the siting of the plate. Therefore the temperatures stated are nominal.



HP185-10 in use



HP185-60 in use



HP200-17

Hotplates

Rectangular, Metal plate continued

Hotplates, 350°C

Energy regulator control. Solid aluminium plate. A bracket is provided to take threaded M10 retort rods. Overall height 200mm. With illuminated on/off switch and indicator lamp. For 230V a.c. 50/60Hz single phase supplies. Dimensions given are for the top plate.

- HP305-10** 305 x 240mm, 1kW
HP330-10 457 x 305mm, 2kW

Hotplates, 300°C, SB300/SB500, Stuart

Maximum temperature 300°C. Energy regulator control with cast aluminium/silicon alloy top plate and 'hot' warning lamp which illuminates when the plate temperature exceeds 70°C. The 300 x 300 top plate model has a retort rod mounting at the rear of the housing.

As described. For 230V 50/60Hz single phase supplies.

- HP320-65** SB300
HP320-85 SB500

Model		SB300	SB500
Top plate	mm	300 x 300	500 x 300
Overall	W mm	300	520
	D mm	365	360
	H mm	105	130
Weight	kg	6	12
	Power	W	600

Hotplates, 320°C

Thermostat control. PTFE coated cast aluminium plate 455 x 255mm. Overall height 152mm. With illuminated on/off switch and indicator lamp. For 220-240V 50Hz single phase supplies, 2.3kW.

- HP325-10** 455 x 255mm

Hotplates, 350°C

Energy regulator control. Aluminium sprayed steel plate 686 x 305mm. Overall height 200mm. With illuminated on/off switch and indicator lamp. For 220-240V 50/60Hz single phase supplies, 3kW.

- HP330-25** 686 x 305mm

Microscope slide drying hotplates – see HG310.

Hotplates, 300°C, SD300/SD500, Stuart

Maximum temperature 300°C. Digital setting and control of plate temperature with 1°C resolution and cast aluminium/silicon alloy top plate. The 300 x 300 top plate model has a retort rod mounting at the rear of the housing.

Model		SD300	SD500
Top plate	mm	300 x 300	500 x 300
Overall	W mm	300	520
	D mm	365	360
	H mm	105	130
Weight	kg	6	12
	Power	W	600

As described. For 230V 50/60Hz single phase supplies.

- HP347-70** SD300
HP347-85 SD500

Hotplate Temperatures

The maximum surface temperature achieved by a hotplate is influenced by the material being heated and the siting of the plate. Therefore the temperatures stated are nominal.



HP305 in use, HP330 is similar



HP325



HP320-85



HP347-85 in use

Hotplates

Ceramic plate

Hotplate, 450°C, Undergrad, Stuart

Microprocessor control with direct temperature setting using a dial switch with back illumination which progressively lights as the plate temperature increases to set point and power and 'heater on' indicators (the heater lamp flashes when the plate temperature exceeds 50°C). Glass ceramic plate 150 x 150mm. Overall 172 x 248 x 122mm W x D x H. Weight 2.2kg. For 230V 50Hz single phase supplies, 500W.

HP405-23 UC150

Hotplates, CB300/CB500, Stuart

Maximum temperature as indicated. Energy regulator control with glass ceramic top plate and 'hot' warning lamp which illuminates when the plate temperature exceeds 70°C. The 300 x 300 top plate model has a retort rod mounting at the rear of the housing.

Model		CB300	CB500
Max. temp.	°C	450	375
Top plate	mm	300 x 300	500 x 300
Overall W x D x H	mm	300 x 365 x 105	520 x 360 x 130
Weight	kg	6	12
Power	W	1200	2250

As described. For 230V 50/60Hz single phase supplies.

HP405-40 CB300

HP405-45 CB500

Hotplate, 500°C, HSMNHP4CAL, Ohaus

Maximum temperature 500°C and capacity 1 litre (water). With powerful, microprocessor-controlled heating, dial setting with arbitrary scale, bright white, moulded ceramic, 102 x 102mm top plate which is acid and alkali resistant and with support rod clamp within the rear housing. Overall W x D x H 152 x 201 x 127mm, weight 1.8kg. For 230V 50/60Hz single phase supplies.

HP408-10 HSMNHP4CAL

SL400-15 Accessory retort rod, 600mm

Infra-red

Hotplate, Infra-red, CR300, Stuart

Nominal maximum temperature 400°C. With black glass ceramic top plate 300 x 300mm (heated area 140mm diameter) and very efficient 900W infra-red heater which will boil 1 litre of water over 30% faster than a conventional 1200W hotplate. A safety 'hot' warning illuminates when the plate temperature exceeds 70°C. Overall 300 x 365 x 105mm W x D x H. Weight 4kg. For 230V 50/60Hz single phase supplies.

HP420-35 CR300

Hotplate Temperatures

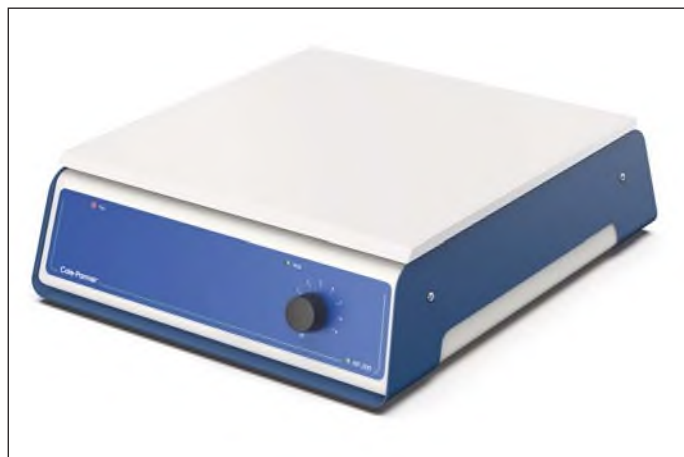
The maximum surface temperature achieved by a hotplate is influenced by the material being heated and the siting of the plate. Therefore the temperatures stated are nominal.



HP405-23 in use



HP408-10 in use



HP405-40, HP405-45 is similar



HP420-35

Hydrometers

General Purpose

Relative Density (Specific Gravity) Hydrometers Calibrated at 60/60°F

Wide range (200° range)

Length 300mm. Subdivision 0.002.

HT100-10	0.600 to 0.800
HT100-12	0.800 to 1.000
HT100-14	1.000 to 1.200
HT100-16	1.200 to 1.400

HT100-18	1.400 to 1.600
HT100-20	1.600 to 1.800
HT100-22	1.800 to 2.000

Extra wide range

Length 300mm. Subdivision 0.005.

HT110-13	0.700 to 1.000
HT110-15	1.000 to 1.300
HT110-17	1.000 to 1.500
HT110-19	1.300 to 1.600
HT110-21	1.500 to 2.000

Universal

Length 400mm. Subdivision 0.010.

HT120-25	0.700 to 2.000
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Battery Hydrometer – see *BL710-08*.

Density Meter – see *DC380*.

Milk Hydrometer – see *DA210* in the Dairy section.

Soil Hydrometer – see *SG640* in the Soil Testing section.

Special IP/ASTM/API Petroleum Hydrometers – Details on request.

Urine Hydrometer – see *CM850* in the Clinical section.

BS718 Series

Density g/ml at 20°C

Ranges 0.6 to 1.0 are adjusted for liquids of low surface tension. Ranges 1.0 to 2.0 are adjusted for liquids of medium surface tension.

Series S50 (50° range)

Length 190mm. Subdivision 0.002.

HT250-10	0.600 to 0.650
HT250-12	0.650 to 0.700
HT250-14	0.700 to 0.750
HT250-16	0.750 to 0.800

HT250-18	0.800 to 0.850
HT250-20	0.850 to 0.900
HT250-22	0.900 to 0.950
HT250-24	0.950 to 1.000

HT250-26	1.000 to 1.050
HT250-28	1.050 to 1.100
HT250-30	1.100 to 1.150
HT250-32	1.150 to 1.200

HT250-34	1.200 to 1.250
HT250-36	1.250 to 1.300
HT250-38	1.300 to 1.350
HT250-40	1.350 to 1.400

HT250-42	1.400 to 1.450
HT250-44	1.450 to 1.500
HT250-46	1.500 to 1.550
HT250-48	1.550 to 1.600

HT250-50	1.600 to 1.650
HT250-52	1.650 to 1.700
HT250-54	1.700 to 1.750
HT250-56	1.750 to 1.800

HT250-58	1.800 to 1.850
HT250-60	1.850 to 1.900
HT250-62	1.900 to 1.950
HT250-64	1.950 to 2.000

Series M50 (50° range)

Length 270mm. Subdivision 0.001.

HT254-10	0.600 to 0.650
HT254-12	0.650 to 0.700
HT254-14	0.700 to 0.750
HT254-16	0.750 to 0.800

HT254-18	0.800 to 0.850
HT254-20	0.850 to 0.900
HT254-22	0.900 to 0.950
HT254-24	0.950 to 1.000

HT254-26	1.000 to 1.050
HT254-28	1.050 to 1.100
HT254-30	1.100 to 1.150
HT254-32	1.150 to 1.200

HT254-34	1.200 to 1.250
HT254-36	1.250 to 1.300
HT254-38	1.300 to 1.350
HT254-40	1.350 to 1.400

HT254-42	1.400 to 1.450
HT254-44	1.450 to 1.500

Series M100 (100° range)

Length 250mm. Subdivision 0.002.

HT260-11	0.600 to 0.700
HT260-13	0.700 to 0.800
HT260-15	0.800 to 0.900
HT260-17	0.900 to 1.000

HT260-19	1.000 to 1.100
HT260-21	1.100 to 1.200
HT260-23	1.200 to 1.300
HT260-25	1.300 to 1.400

HT260-27	1.400 to 1.500
HT260-29	1.500 to 1.600
HT260-31	1.600 to 1.700
HT260-33	1.700 to 1.800

HT260-35	1.800 to 1.900
HT260-37	1.900 to 2.000



HT100

HT110

HT120

HT250, HT254 are similar

HT260



DC380

Hydrometers

Petroleum

Petroleum Hydrometers to BS718-ISO649

Density g/ml at 15°C for liquids of low surface tension.

Series L50SP. Subdivision 5. 335mm long

HT285-10	0.600 to 0.650
HT285-12	0.650 to 0.700
HT285-14	0.700 to 0.750
HT285-16	0.750 to 0.800
HT285-18	0.800 to 0.850

HT285-20	0.850 to 0.900
HT285-22	0.900 to 0.950
HT285-24	0.950 to 1.000
HT285-26	1.000 to 1.050
HT285-28	1.050 to 1.100

Series M50SP. Subdivision 1. 270mm long

HT290-10	0.600 to 0.650
HT290-12	0.650 to 0.700
HT290-14	0.700 to 0.750
HT290-16	0.750 to 0.800
HT290-18	0.800 to 0.850

HT290-20	0.850 to 0.900
HT290-22	0.900 to 0.950
HT290-24	0.950 to 1.000
HT290-26	1.000 to 1.050
HT290-28	1.050 to 1.100

Density

Density Hydrometers calibrated at 15.6°C (60°F)

Twaddels

For liquids heavier than water. Subdivision 1.0° Tw.

Length 170mm

HT300-10	No. 1, 0 to 24° Tw
HT300-14	No. 2, 24 to 48° Tw
HT300-18	No. 3, 48 to 74° Tw

HT300-22	No. 4, 74 to 102° Tw
HT300-26	No. 5, 102 to 138° Tw
HT300-30	No. 6, 138 to 170° Tw

Length 280mm

HT310-11	No. 1, 0 to 24° Tw
HT310-15	No. 2, 24 to 48° Tw
HT310-19	No. 3, 48 to 74° Tw

HT310-23	No. 4, 74 to 102° Tw
HT310-27	No. 5, 102 to 138° Tw
HT310-31	No. 6, 138 to 170° Tw

Baumé, heavy

For liquids heavier than water. With lengths as indicated.

HT330-10	0 to 10 x 0.1° Bé, 295mm
HT330-32	0 to 30 x 0.5° Bé, 280mm
HT330-50	0 to 50 x 1.0° Bé, 230mm
HT330-70	0 to 70 x 1.0° Bé, 230mm

Latexometer

For determination of the dry rubber content of latex. Calibration temperature 28.9°C. Range 50 to 250 grams per litre. Length 260mm.

HT370-08	Latexometer
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Plastic

NALGENE® 

Hydrometers, Nalgene 3630-series

Plain form, break-resistant polycarbonate. Excellent alternative to glass, particularly in safety-critical areas such as food or beverage testing.

Specific Gravity

Subdivision 2. For liquids heavier than water.

	Range, s.g.
HT374-16	1.200 to 1.420
HT374-18	1.400 to 1.620

Hydrometer Jars

Glass, with spout and base

	Ht. x dia. mm
HT400-20	150 x 38
HT404-20	200 x 38
HT404-25	200 x 50
HT404-30	200 x 63
HT406-20	250 x 38
HT406-25	250 x 50
HT408-25	300 x 50
HT408-30	300 x 63
HT408-35	300 x 75
HT410-30	350 x 63
HT412-25	400 x 50
HT412-30	400 x 63



HT300 **HT310, HT285/290 are similar** **HT330**



HT370



HT374



HT400/412 with Hydrometer in use

Hygiene Monitoring

Dipslides, Standard

COPE

An easy-to-use system for monitoring microbes in industrial fluids.

- ◆ For use in applications including:
 - compliance with L8 (Legionella bacteria control in water systems) directives set out by the UK Health and Safety Executive
 - microbial control to extend working life of fluids, filters and pumps
 - corrosion prevention in machines, tanks and pipes by minimising the amount of microbial metabolites
 - enhancing the microbial quality of final products
- ◆ Available in three versions:
 - Standard TTC: for determination of total bacterial counts in industrial fluids. With TTC medium
 - Standard Combi: a two-medium dipslide for checking total bacterial counts as well as yeast and fungi. With TTC medium and Rose-Bengal medium
 - Standard S: For monitoring anaerobic sulphate reducing bacteria. Diagnostic gel test

Principles

Comprise plastic outer sample tube and screw cap which is attached to an inner plastic sampling paddle. Agar medium slides are cast into the paddle (Standard Combi has TTC and Rose-Bengal agar cast respectively on alternate sides). In use the paddle is removed from the outer tube and immersed in the liquid under test or exposed to liquid spray or mist then returned to the outer tube and incubated. Type S has a capillary tube instead of a paddle into which the fluid is drawn and the capillary tube then immersed in sulphate-rich gel contained in the outer tube, before incubation. Any microbial growth appearing after incubation can be interpreted with the aid of a card giving approximate contamination levels in terms of colony numbers.

Dipslides, Standard

As described. Supplied in packs of tests as indicated, with results interpretation card and instructions.

- HT802-20** Standard TTC, pack of 10
- HT802-40** Standard Combi, pack of 10
- HT802-60** Standard S, pack of 10

Disinfectants – see CL900.

Swab Rinse Kits



For routine microbiological monitoring of bacteria and fungi contamination on equipment and surfaces. A valuable aid to hygiene control in critical areas within hospitals, pharmaceutical research and production, or food manufacturing.

- ◆ Choice of kits to suit different sampling protocols
- ◆ Suitable for sampling from smooth, rough, flexible, dry or wet surfaces. Dry surfaces are sampled using a swab pre-moistened in the rinse solution provided.

Kits comprise a 16 x 100mm tube with push-fit cap containing 10ml of rinse solution (a general purpose medium for the maintenance of bacteria or fungi and to neutralise disinfectants or sanitising agents) and standard or large size plastic applicator swab with either a rayon or alginate tip. The alginate tip can be dissolved in the rinse solution provided, releasing all of the bacteria taken up by the swab which allows accurate total viable counts to be performed. All kits are sterilised by gamma-irradiation.

	Ref.	Applicator/ Tip	Pack qty
HT840-10	902C	Standard/ Rayon	25
HT840-20	904C	Large/Rayon	25
HT840-30	905C	Large + template/Rayon	10



HT802



HT840

Hygiene Monitoring

Sampling Sundries

Nasco **WHIRL-PAK**

Whirl-Pak® Speci-Sponge® bags

Designed for environmental surface sampling of work areas, equipment, animal carcasses or any area where testing for Listeria, Salmonella, E. coli, coliforms, or other food-borne pathogens is required. Comprises 532ml Whirl-Pak® sample bag with writing area, containing a sterile sample sponge which is free from bactericides and non-inhibiting. The sponge is available dry, for use with the users' prescribed diluent or pre-moistened with 10ml of neutralising buffer that neutralises several surface sanitizers, including Quaternary ammonium compounds, phenolics, iodine or chlorine preparations, mercurials, formaldehyde and gluteraldehyde. Versions including a pair of sterile gloves are also available for added convenience. Supplied in packs of 100.

Dry Sponge

HT845-20 Bag only

HT845-25 Bag with gloves

Pre-moistened Sponge

HT845-50 Bag only

HT845-55 Bag with gloves

Whirl-Pak® Polysponge™ Hydrated Sponge bags

Designed for environmental surface sampling of work areas, equipment, animal carcasses or any area where testing for Listeria, Salmonella, E. coli, coliforms, or other food-borne pathogens is required. Comprises 532ml Whirl-Pak® sample bag with writing area, containing a sterile sample sponge which is free from bactericides and non-inhibiting. The sponge is pre-moistened with 16ml of HiCap™ neutralising broth which provides the highest neutralisation of quaternary ammonium compounds, free chlorine and peroxyacetic acid. It is an ideal alternative to traditional collection broths (neutralising buffer, Dey and Engley neutralising broth or Lethen broth). All components are non-allergenic and compatible with molecular detection assays and 3M Petrifilm™. Supplied in foil sachets of 20 within a pack of 100.

HT847-50 Polysponge™, bag only

HT847-55 Polysponge™, bag with gloves

Whirl-Pak® Sponge Probes, Nasco

Designed for surface sampling in difficult-to-reach areas. The sponge is adhered to a holder joint that is screwed onto a 160mm handle and ethylene oxide sterilised within a Whirl-Pak® 710ml bag with writing panel. In use, a buffer is added to the bag and the excess is squeezed from the sponge which is then wiped over the test surface. The sponge is then replaced in the bag, the head is held through the bag walls and the handle unscrewed and discarded. The bag is then closed and the sponge sent for analysis. Supplied in a pack of 50.

HT850-15 Whirl-Pak® Sponge probes, pk.50

Whirl-Pak® Polyprobe™ Hydrated Sponge Probes, Nasco

Generally as HT850-15 but pre-moistened with 10ml of HiCap™ neutralising broth as used in HT847-50/-55. Supplied in a pack of 100.

HT850-40 Whirl-Pak® Polyprobe™ Sponge probes, pk.100

Poultry Rinse bags, Nasco

For testing E.coli presence in poultry meat. The sealed, sterile bag, 375 x 500mm W x D, has a perforation for easy opening and will accommodate small turkeys, chickens and similar sized poultry. In use, the carcass is placed in the bag, buffer is added and the bag is then twisted shut and folded around the bird. The bird is then rotated several times to rinse the carcass thoroughly, and then the buffer liquid is removed for testing. Supplied in a pack of 250 bags.

HT880-10 Poultry rinse bags

For additional sample bags - see BA104, BA105 and BA107-series.



HT850



HT880 in use

HT845, HT847 are similar

Hygrometers

Hair and Fibre

Thermohygrometer, hair/bimetal

Scaled 10 to 100% x 1% RH and with bimetallic thermometer, temperature scale -15 to +55°C. Brass finish case 100mm diameter with hanging ring.

HY160-25 Hair/bimetal hygrometer

Thermohygrometer, synthetic hair/bimetal

Scaled 0 to 100% x 1% RH and with bimetallic thermometer, temperature scale -15 to +55°C x 1°C. With plastic housing, 100mm diameter, removable bench stand and keyhole at the rear for wall hanging.

HY170-30 Thermohygrometer



HY160-25



HY170-30 on bench mount

Wet/Dry Bulb

Hygrometer, Mason's

With red spirit filled, wet and dry bulb thermometers mounted in a yellow plastic case with hanging slot. Dual scale -50 to +50°C and -58 to 122°F. With reservoir and wick.

HY200-11 Mason's hygrometer

HY202-04 Spare wicks, pack of 10

Hygrometer, whirling

With -5 to +50°C thermometers to BS2842. Thermometers are 100mm scale length, with lens fronts and subdivided 0.5°C. Mounted in a plastic frame which can be whirled around the handle. With reservoir, fabric sleeve for wet bulb and simple slide rule to calculate RH from thermometer readings.

HY219-24 Whirling hygrometer, spirit filled thermometers

HY219-43 Spare wicks for wet bulb, pack of 25

HY219-46 Accessory carrying case for HY219-24

Additional meteorological equipment can be found in the following sections:

- Anemometers
- Barometers
- Measures
- Thermometers
- Water Testing



HY200



HY219

Hygrometers

Thermohygrometers

Digital Memory Thermohygrometer

Ranges -10 to +60°C (-14 to 140°F) and 10% to 99% RH resolution 0.1°C/°F, 1% RH. With built-in sensors and dual 12mm high LCD readout. The upper display shows temperature and the lower display relative humidity. A max./min. memory function is provided which allows the maximum and minimum recorded values for both parameters to be recalled and displayed, the user then has the option to reset. Overall 70 x 20 x 110mm W x D x H. Weight 113g. Wall or bench mounting. Supplied with 1 x 1.5V AAA battery.

HY390-20 Digital memory thermohygrometer

BL610-08 Battery, 1.5V AAA

Digital Thermohygrometer, certified

Ranges: temperature -10 to +50°C (internal), -50 to +70°C (external probe) x 0.1°C, humidity 20 to 99% R.H. (internal) x 1% R.H., . With twin line display of unit temperature, unit humidity or probe temperature and clock. The attached probe with 2m cable allows remote monitoring of a refrigerator, freezer or outdoor temperature with Max./Min. function. Supplied with wall hanger, folding table stand, 1.5V AA battery and manufacturer's certificate of calibration (two point - thermometer only) traceable to national and international standards, including NPL and NIST. Overall H x W x D (unit) 103 x 98 x 21mm, weight 121g.

HY407-15 Certified thermohygrometer

BL610-08 Battery, 1.5V AAA

Thermohygrometer, Testo 610

Rugged, pocket-sized meter with integral combined R.H./Temperature sensor. LCD readout displays % R.H. or wet bulb or dewpoint and temperature (°C/°F switchable). With "Hold" and "max./min." functions. Stainless metal display and keypad surround includes on/off, mode and 'hold' buttons.

As described. Supplied with calibration protocol, wrist strap, belt clip holder,

Model	Testo 610	
Range (resolution)	%RH	0 to +100 (0.1)
	°C	-10 to +50 (0.1)
Accuracy	%RH	±2.5 (5 to +95)
	°C	±0.5
Overall L x W x D	mm	119 x 46 x 25
Weight	g	90
Power	2 x 1.5V AAA batteries	

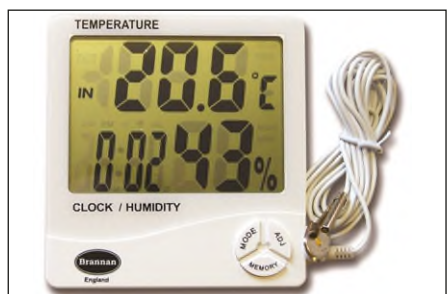
metal protection shroud for the display and keyboard and 2 x 1.5V AAA batteries.

HY440-10 Testo 610

BL610-08 Battery, 1.5V AAA (2 required)



HY390



HY407



HY440-10



HY470

Thermohygrometer, Testo 625

Compact instrument with built-in probe, providing precise measurement and simultaneous display of air, humidity and temperature.

- ◆ Displays temperature and R.H. or wet bulb temperature and dew point
- ◆ Max./Min. values registered
- ◆ Illuminated display

Model	Testo 625	
Ranges	%RH	0 to +100
	°C	-10 to +60
Accuracy (at 25°C, ± 1 sig. digit)	%RH	±2.5 (+5 to +95)
	°C	±0.5
Overall L x W x D	mm	182 x 64 x 40
Weight	g	195
Power	9V PP3 battery	

As described. Supplied with probe, 9V battery and operation manual.

HY470-30 Testo 625

Spares and accessories

HY472-08 TopSafe protection boot, protects against impacts and dirt

BL610-25 Spare battery, 9V

Hygrometers

Electronic Humidity Meters

HANNA

Thermohygrometer, Hanna HI-9564 and HI-9565

For routine measurement of humidity and temperature (HI-9565 additionally includes a dewpoint measurement). Water resistant membrane keypad. Ranges 20 to 95%RH and 0 to +60°C, using a detachable combined RH /temperature probe with thin-film polymer sensor. The display is switchable between %RH, °C and °F.

Model	HI-9564	HI-9565
Ranges	%RH	20 to 95 — both models
	°C	0 to +60 — both models
	°F	+32 to +140 — both models
Dewpoint	°C	—
	°C	-20 to +60
	°F	-4 to +140
Resolution (accuracy)	%RH	0.1 (±3) — both models
	°C	0.1 (±0.5) — both models
	°F	0.1 (±1) — both models
Dewpoint	°C	—
	°C	0.1 (±2)
	°F	0.1 (±4)
Overall L x W x D	mm	164 x 76 x 45 — both models
Weight	g	340 — both models
Power		1 x 9V PP3 battery (auto shut-off after 20 minutes of non-use) — both models

As described. With detachable, combined RH/ temperature probe with 1m cable, battery and instructions.

HY525-50 HI-9564

HY525-55 HI-9565

Spares

HY528-12 RH/temperature probe, with 1m cable

BL610-25 Spare battery, 9V



HY525-50, HY525-55 is similar

Anemometer 410-2



Anemometer/Thermohygrometer, Testo 410-2

Rugged, pocket-sized meter with integral vane anemometer, humidity and temperature sensors with LCD readout of wind, airflow, or humidity and temperature. With timed mean value calculations, hold function, max./min. values and windchill calculation. Stainless metal display and keyboard surround includes on/off, mode and 'hold' buttons.

Airflow	range	m/s	0.4 to 20
	resolution	m/s	0.1
	accuracy	m/s	±0.2
	units		m/s, km/h, mph, knots, Beaufort, perceived temperature (windchill)
Temperature	range	°C	-10 to +50
	resolution	%	0.1
	accuracy	%	±0.5
	units		°C/°F
Humidity	range	% R.H.	0 to 100
	resolution	% R.H.	0.1
	accuracy	% R.H.	±2.5 (5 to 95% R.H.)
	units		% R.H. wet bulb, dew point
Overall, L x W x D	mm		133 x 46 x 25
Weight	g		90
Power			2 x 1.5V AAA batteries

As described. Supplied with calibration protocol, wrist strap, belt clip holder, metal protection shroud for the display and keyboard and 2 x 1.5V AAA batteries.

AN458-30 Testo 410-2

BL610-08 Spare 1.5V AAA battery (2 required)



AN458-30

Hygrometers

Humidity/Temperature Datalogger 174H



Compact, economical, twin-channel datalogger for monitoring temperature and humidity in various applications.

- ◆ Non-volatile memory, even when battery exhausted
- ◆ Internal NTC temperature and capacitive humidity sensors
- ◆ Large LCD readout of either temperature or humidity, alarm and battery status indicators
- ◆ Data transfer via USB interface which also enables programming
- ◆ Push-button start
- ◆ IP20 protection class casing
- ◆ Battery powered with easy replacement

Model	174H	
Measuring Ranges (resolution)	%RH °C	0 to 100.0 (0.1) -20 to +70 (0.1)
Accuracy	±%RH ±°C	3, ±1 digit +0.03%RH/K 0.5
Maximum storage	16,000 readings	
Measuring time cycle	Adjustable 1 minute to 24 hours	
Overall W x D x H	mm	59 x 37 x 16
Weight	g	25
Power supply	2 x CR2032 lithium battery giving approximately 365 days operation	

As described. With wall holder, USB interface port, receiver and cable, and 2 x batteries. Requires Comsoft basic download/programming software (free, internet download).

- HY618-15** Testo 174H set
- HY618-19** Testo 174H logger only

Accessories

- HY618-24** Accessory interface port receiver and cable, without software
- BL590-15** Spare battery (2 required)



HY618

Humidity/Temperature Datalogger 175 H1



Long term, reliable, 2-channel (humidity and temperature) logger with robust ABS housing, push button start and flexible data handling options. Features external humidity and temperature sensor which provides rapid response, adjustable measuring period from 10 seconds to 24 hours, alarm settings and digital display.

- ◆ Large, easily visible display
- ◆ Reliable, long working life
- ◆ Internal interfaces for both USB and SD card data collection
- ◆ Compact, robust housing

Model	175 H1	
Ranges (resolution)	%RH °C	0 to 100 (1.0) -20 to +55 (0.1)
Accuracy	±%RH ±°C	2, ±1 digit +0.03%RH/K 0.4
Maximum storage	1 million readings	
Overall W x D x H	mm	53 x 27 x 149
Weight	g	150
Power supply	3 x 1.5V AAA batteries giving up to 3 years operation	

As described. Supplied with both USB and SD card data collection interfaces, wall holder, batteries and instructions. Requires, but is not supplied with, either an accessory USB cable or SD card for data transfer.

HY620-25 Testo 175 H1

Accessories

- TJ847-87** USB cable for connecting 175 datalogger to the user's PC
- BL610-08** 1.5V AAA battery (3 required)

SD cards - local purchase is recommended.

Comsoft 4 Professional software

With data handling, database, graphical and trend analysis functions for Windows™ OS.

TJ847-98 Comsoft 4



HY620-25

Ice Production and Storage

Ice Flake Makers

Produce high purity ice suitable for a wide range of uses in hospitals, laboratories, analysis research stations, blood transportation with specific usage for ice bags, oxygen tents, surgery, cold therapies, blood transfusion, chemical reactions and a host of other applications.

The ice produced is slow melting and sufficiently dry to prevent the flakes sticking together in lumps.

Catalogue No.		IC360-08	IC360-14
Model		AF80AS	AF103AS
Output	kg/day	73	105
Storage capacity	kg	25	30
Condensing unit		Air cooled – both models	
Compressor	W	800	900
Refrigerant		R134a	R404a
Overall H	mm	889	1078
W	mm	535	592
D	mm	626	622
Weight	kg	58	66
Water	litres/hour	2.2	3.3
Water inlet		¾ in gas – both models	
Water outlet		20mm o.d. – both models	

The outer case is stainless steel and there is an insulated plastic lined bin with sliding door on the upper front for the convenient storage and removal of flake ice. Electrical and water connections are at the rear and there are safety controls to protect against water supply failure.

Ice Flake Makers, Scotsman

As described. With stainless steel casing and insulated plastic lined bin. For 230V 50Hz a.c. only, 3A.

IC360-08 AF80AS

IC360-14 AF103AS



IC360-14, IC360-08 is similar

Ice Cube Maker

A compact, floor standing, self contained unit needing no plumbing in for applications requiring the use of cubed ice, or in areas where water connections are not readily available. Integral 4 litre capacity water reservoir tank can be filled through the ice bin door. Produces up to 10kg of ice in 24 hours. The insulated storage bin has a capacity of 3.5kg or approximately 500 cubes and features a sliding door for convenient storage and removal of ice. Finished in enamel paint with reservoir level sight glass inset into front panel. Overall dimensions 640 x 380 x 380mm H x W x D. Weight 29kg. For 220-240V 50Hz single phase a.c., or 24V d.c. supplies.

IC360-75 Ice cube maker

Ice Crusher

Ice Crusher, Waring

Portable, compact unit, ideal for producing small to medium volumes of chipped ice (to 6mm) from ice cubes. The low speed, high torque motor driving the crusher assembly enables it to produce up to 600g of ice granules per minute. The feed chute opening is 38 x 57mm. The tall stand and adjustable height under the unit allows vessels up to 230mm high to be accommodated for direct filling from the dispensing chute. Rugged stainless steel construction ensures easy cleaning and durability. Dimensions 185 x 250 x 460mm W x D x H. Weight 9.6kg. For 220V 50Hz single phase supplies.

IC425-10 Ice Crusher

Freezers – see *Refrigeration* section.

Dip coolers, refrigerated circulators – see *Baths* section.

Freeze Dryers – see *Freeze Drying* section.

IC425



IC360-75

Ice Production and Storage

Dry Ice Makers

Produce CO₂ Dry Ice direct from a CO₂ syphon cylinder in one to two minutes. Dry Ice can maintain temperatures down to -70°C and can be used whenever localised cooling or freezing is needed:-

In hospitals – for blood, tissue and serum preservation.

In research establishments – to provide reference temperatures.

In schools and laboratories – as a cooling agent, and cold trap for gases.

In factories – for shrink fitting of small metal components and other localised cooling applications.

Snowpack Pellet Makers

Catalogue No.		IC410-15	IC410-25
Pellet weight	g	30	500
Pellet size	mm	22 x 50 diameter	75 x 100 diameter
No. of pellets*		30	2

* From a 6.35kg CO₂ syphon cylinder.

Pellet Makers, Snowpack

As described. Supplied with gloves but without CO₂ syphon cylinder.

IC410-15 30g pellet

IC410-25 500g pellet

Cryo-Gloves

Provide protection at low temperatures. Suitable for handling dry ice and materials in freezers. Overall length approximately 350mm. Supplied per pair.

SA720-10 Small

SA720-13 Medium

SA720-16 Large

Liquid nitrogen storage – see *Dewars section*.

Freezers – see *Refrigeration section*.

Economy Frigmat[®], Dry Ice Maker

For dry ice production directly from a CO₂ syphon cylinder. Up to 9 x 454g blocks of dry ice 85 x 85 x 110mm W x D x H produced from a 22.7kg liquid CO₂ cylinder. With pressure gauge and relief valve to monitor pressure build-up and ensure safe operation. The block is formed within an HDPE chamber that can be safely handled using a gloved hand. The all-metal frame, with non-slip rubber feet, is rugged and withstands heavy or field use. Supplied with 1.8m long, nickel-plated copper supply tube and fitting for European threaded cylinders. Overall 140 x 370 x 150mm W x D x H. Weight 3.9kg.

IC430-10 Economy Frigmat[®]

Dry Ice Storage Container

Dry Ice Storage Container, Coolit

Designed to provide a rugged, stable container for large term storage of ice and dry ice on the bench. Leakproof, white polystyrene body with 25mm thick, double insulated wall filled with expanded polystyrene foam. Capacity 4 litres. Overall 215 x 285 x 285mm H x W x D. Supplied singly.

IC465-10 Coolit

IC465-14 Insulated lid for IC465-10



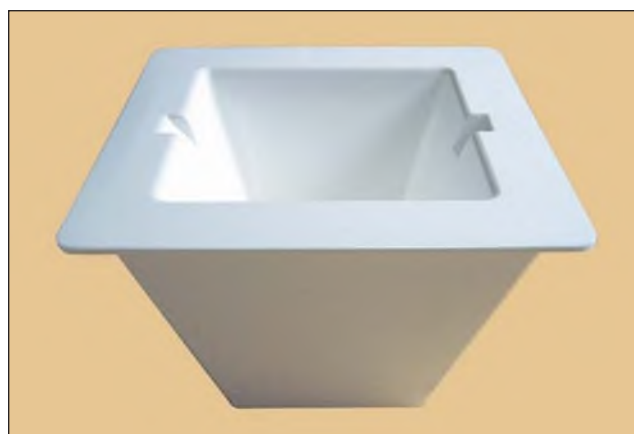
Safety Gloves



IC430-10



IC410-15 in use, IC410-25 is similar



IC465-10

Ice Production and Storage

JENCONS Igloo Containers

A pair of simple, lightweight insulated containers for temporary transport and storage of specimens, ice, or solid carbon dioxide.

Capacity	litres	3.5
Dimensions (overall top L x W x overall height)	mm	200 x 200 x 190
Weight	g	114

Igloo Standard container

One piece vessel manufactured in flame retardant expanded polystyrene with separate plug type lid in the same material. Conveniently stackable due to tapering profile. Supplied singly.

IC475-10 Igloo Standard

Igloo Extra Tuff, leakproof container

Generally as the Igloo Standard but with a rigid polystyrene coating which increases the durability of the container thereby extending its usable life. The coating also renders the container leakproof to internal spillages during normal use. A polystyrene liner is provided to aid cleaning and improve hygiene.

IC475-45 Igloo, Extra Tuff

Ice Storage Vessels

Ice Tray

Benchtop insulated tray designed to hold flaked ice, maintaining samples and reagents in optimal conditions. Manufactured in chemically resistant, easy-to-clean white polystyrene. Internal dimensions 60 x 200 x 125mm H x W x D, overall dimensions 80 x 244 x 165mm H x W x D. Supplied singly.

IC477-35 Mini ice tray

RA626-25 Accessory insert rack to hold 32 x 1.5ml microtubes

Ice Buckets with lid, Azlon

Durable, rigid, polyurethane-skimmed foam with excellent insulation properties suitable for use with liquid nitrogen, dry-ice, water-ice and salt solutions (maintains ice for up to 36 hours at room temperature). With integral handles at the rim and flush fitting lid with recessed handle. Overall 185 x 330mm height x maximum width. Capacity 4.5 litres. Supplied singly in colours as indicated.

IC485-08 IBB001P, black

IC485-11 IBB002P, blue

IC485-14 IBB003P, green



IC477 in use



IC475-10,

IC475-45



IC485

Incubators

Portable Incubators

Cultura Incubator

Simple, portable incubator for small-scale or infrequent laboratory use. Double skinned, ABS casing with transparent styrolux door. Can be used horizontally or vertically for incubating dipslides, petri dishes, sample tubes, flasks or bottles.

Capacity	litres	3.96
Range	°C	25 to 45
Accuracy	±°C	1
Overall internal (external) W x D x H	mm	220 x 150 x 120 (310 x 168 x 155)
Weight	kg	1.1
Power rating	W	26
Shelves supplied		1 (for horizontal use)

As described. With adjustable thermostatic control, spirit-filled thermometer range +10 to +60°C and shelf. For 230V 50Hz single phase supplies.

IN060-10 Cultura

Portable Incubator, Challenger MX25

Versatile, robust, rectangular portable incubator for small scale incubation of samples in the field or where use of a standard incubator is impractical. Temperature range ambient +5°C to +45°C, variation ±5°C (at 20°C ambient). Capacity 5.2 litres. An overtemperature cut-out engages at +70°C. Solid-state heating and control electronics are sealed in the case and a heat reservoir chassis ensures even heat distribution and rapid heat recovery to set temperature. With moulded co-polymer case, transparent polycarbonate lid and spirit thermometer. With a separate, external, universal power supply for increased safety and operation on 100-240V a.c. supplies. An accessory cigar lighter plug and cable allows alternative 12V d.c. operation in the field. Usable internal dimensions 180 x 150 x 180mm W x D x H, overall 320 x 260 x 270mm W x D x H. Weight 1.9kg.

IN085-75 Challenger MX25

IN085-77 Cigar lighter plug cable for IN085-75

Dipslides – see HT802/IHT808.

Portable Incubator, Ranger MX45

Versatile, robust, portable incubator for small-scale incubation of samples in the field, or where use of a standard incubator is impractical. Temperature range ambient +5°C to +45°C with quickset reference points at +30°C and +37°C, variation ±0.5°C (at 20°C ambient). Capacity 5.5 litres. An overall temperature cut-out engages at +70°C. Solid state heating and control electronics are sealed in the case and a heat reservoir chassis ensures even heat distribution and rapid heat recovery to set temperature. Rugged aluminium housing with moulded copolymer liner, transparent inner lid and spirit thermometer. With external, universal power supply for increased safety and operation on 100-240V supplies and cigar lighter plug and cable which allows alternative 12V d.c. operation in the field. Usable internal dimensions 300 x 140 x 125mm W x D x H, overall 350 x 280 x 200mm W x D x H. Weight 3.6kg.

IN085-94 Ranger MX45

Personal Shaking Incubators, PHMT-series, Grant-bio

Compact, versatile, shaking incubators for microcentrifuge tubes using fitted blocks. With twin-line, dot matrix LCD display and keypad setting of shaking speed, temperature and time with constant display of both set and actual values. A low voltage power supply enables safe cold room operation.

Ranges x resolution	temperature °C	ambient +5 to +100 x 0.1
	shaking speed rpm	250 to 1400 x 10
	time	1 minute to 96 hours x 1 minute with alarm and switch off at end of timed period
Shaking orbit	mm	2
Stability and uniformity	±°C	0.1
Overall W x D x H	mm	205 x 230 x 130
Operating temperature range	°C	+4 to +45
Power supply		12V d.c. adapter requiring a 220-240V 50/60Hz supply

As described. Supplied with power adapter and fitted single blocks to hold microcentrifuge tubes as indicated.

IN104-20 20 x 0.5ml/12 x 1.5ml

IN104-30 24 x 1.5/2.0ml

Accessory/spare blocks are available - details on request.



IN060-10 in use



IN085-94



IN085-75 in use



IN104 in use with blocks

Incubators

INC Range



- ◆ Wide bodied profile with controls to the side
- ◆ Fluctuation $\pm 0.25^{\circ}\text{C}$ at 37°C
- ◆ Natural convection (except 200 litre size)
- ◆ Choice of:
 - Aluminium coated mild steel or stainless steel interiors
 - Solid or dual (steel outer, transparent inner) doors

Catalogue No.		IN420	-03	-09	-19	—	—
			-07	-14	-24	-44	-64*
		IN422	-03	-09	-19	—	—
			-07	-14	-24	-44	-64*
Usable volume	litres	50	75	100	150	200	
External	H	mm	580	580	580	690	890
	W	mm	730	850	850	850	850
	D	mm	480	480	590	670	670
Internal	H	mm	420	420	420	550	750
	W	mm	360	530	530	490	490
	D	mm	350	350	460	540	540
Power rating	W	750	750	750	750	1000	
Shelves supplied		2	2	3	3	4	
Shelf positions		3	3	4	5	7	
Weight	kg	31	39	48	66	85	

*Fan assisted models.

- ◆ Touchscreen digital control incorporating an integral overheat system with two Pt100 sensors
- ◆ Top vent with clip for thermometer
- ◆ Fitted with fixed shelf runners and removable chrome-plated wire grid shelves
- ◆ Steel outer case with stoved powder paint finish

Incubators, wide bodied profile, INC

70°C Maximum, solid door

As described. With aluminium coated steel (CLAD) or stainless steel interior as indicated, shelves, control and safety thermostats, mains on/off switch and indicator lamps. For 220-240V 50Hz single phase supplies.

- IN420-03** 50 litres, CLAD
- IN420-07** 50 litres, stainless steel
- IN420-09** 75 litres, CLAD
- IN420-14** 75 litres, stainless steel
- IN420-19** 100 litres, CLAD
- IN420-24** 100 litres, stainless steel
- IN420-44** 150 litres, stainless steel
- IN420-64** 200 litres, stainless steel, fan

70°C Maximum, dual door

As IN420 series but with additional transparent inner door. For 220-240V 50Hz single phase supplies.

- IN422-03** 50 litres, CLAD
- IN422-07** 50 litres, stainless steel
- IN422-09** 75 litres, CLAD
- IN422-14** 75 litres, stainless steel
- IN422-19** 100 litres, CLAD
- IN422-24** 100 litres, stainless steel
- IN422-44** 150 litres, stainless steel
- IN422-64** 200 litres, stainless steel, fan



IN420, IN422 is similar

Incubators

Mini Range



- ◆ Standard profile with controls at base
- ◆ Choice of:
 - Aluminium coated mild steel or stainless steel interiors
 - Solid metal, with or without a large, inset viewing window, or dual (steel outer, transparent inner) doors
- ◆ Hydraulic thermostat control and separate adjustable safety thermostat, both with locking devices and indicator lamps
- ◆ Natural convection (up to 75 litre size)
- ◆ Fluctuation $\pm 0.25^{\circ}\text{C}$ at 37°C
- ◆ Top vent with clip for thermometer
- ◆ Fitted with fixed shelf runners and removable chrome-plated wire grid shelves
- ◆ Steel outer case with stoved powder paint finish

Catalogue No.	IN425	-10	-20	-30/-35	-45	-55
	IN427	-10	-20	-30	-40	-50
		—	—	-30/-35	-40/-45	-55
Usable volume	litres	6	18	30	50	75
External H	mm	390	520	500	590	590
W	mm	320	380	480	610	610
D	mm	330	410	490	470	600
Internal H	mm	150	260	240	330	330
W	mm	230	260	360	490	490
D	mm	190	270	350	330	450
Power rating	W	150	250	500	500	750
Shelves supplied		1	2	2	2	2
Shelf positions		1	2	2	3	3
Weight	kg	7	14	20	26	34

Incubators, standard profile, MINI

70°C Maximum, solid door

As described. With aluminium coated steel (CLAD) or stainless steel interior as indicated, shelves, control and safety thermostats, mains on/off switch and indicator lamps. For 220-240V 50Hz single phase supplies.

- IN425-10** 6 litres, CLAD
- IN425-20** 18 litres, CLAD
- IN425-30** 30 litres, CLAD

- IN425-35** 30 litres, stainless steel
- IN425-45** 50 litres, stainless steel
- IN425-55** 75 litres, stainless steel

70°C Maximum, transparent window door

As IN425-series but with metal door with a large, inset viewing window. For 220-240V 50Hz single phase supplies.

- IN427-10** 6 litres, CLAD
- IN427-20** 18 litres, CLAD
- IN427-30** 30 litres, CLAD
- IN427-40** 50 litres, CLAD
- IN427-50** 75 litres, CLAD

70°C Maximum, dual door

As IN425-series but with additional transparent inner door. For 220-240V 50Hz single phase supplies.

- IN429-30** 30 litres, CLAD
- IN429-35** 30 litres, stainless steel
- IN429-40** 50 litres, CLAD
- IN429-45** 50 litres, stainless steel
- IN429-55** 75 litres, stainless steel



IN425, IN429 are similar



IN427

Incubators

Incubators IN/IF Series

memmert

- ◆ Stainless steel interior and exterior sides (external rear panel-zinc coated steel)
- ◆ Temperature range ambient +5°C (IN-series) or +10°C (IF-series) to +80°C
- ◆ Choice of natural (IN-series) or forced air, fan (IF-series) convection models
- ◆ With choice of SingleDISPLAY or TwinDISPLAY (plus-series) colour TFT, multi-touchscreen controlCOCKPIT controller

— SingleDISPLAY controlCOCKPIT

Display of temperature (°C or °F), fan speed (IF-models only) and programme time. Includes one Pt100 DIN Class A temperature sensor in a 4 wire circuit and ethernet interface. Dual overtemperature protection with freely adjustable monitoring of temperature and mechanical temperature limiter (TB Class 1) to DIN 12 880. With AtmoCONTROL logging software for online monitoring of up to 32 connected appliances, optical alarms when set alarm limits are exceeded and automatic alarm email notifications.

- ◆ Heaters located in ribs on all four sides provide uniform heating
- ◆ Digital process timer, adjustable between 1 minute and 99 days, 23 hours
- ◆ 10 year datalogger
- ◆ Setting accuracy: ±0.1°C
- ◆ Supplied with 1 or 2 stainless steel wire grid shelves
- ◆ Inner glass door

— TwinDISPLAY controlCOCKPIT

Display of temperature (°C or °F), fan speed (IF-models only) and programme time. Includes two Pt100 DIN Class A temperature sensors in a 4 wire circuit, ethernet and USB interfaces and heatBALANCE function for adjustment of heating power distribution of the upper and lower heating groups in an adjustment range between -50% and +50%. Multiple overtemperature protection monitoring TWW/TWB (protection Class 3.1/3.2, respectively) and mechanical temperature limiter (TB Class 1) to DIN 12 880, with settings for individual maximum/minimum values for over/undertemperature alarms. Also includes AUTOSAFETY function which allows automatic adjustment to the set value within a freely adjustable tolerance range. With AtmoCONTROL logging software as SingleDISPLAY controller, but additionally includes display of the programme sequence created by the user, repeat functions which can be inserted anywhere within the control sequence and creation of repeating weekly programmes which can be transferred via ethernet or USB interfaces provided.



IN/IF Series Incubators, Memmert

Model	Natural convection	IN30	IN55	IN75	IN110	IN160	IN260	IN450*	IN750*
	Forced convection	IF30	IF55	IF75	IF110	IF160	IF260	IF450*	IF750*
	Natural convection	IN30plus	IN55plus	IN75plus	IN110plus	IN160plus	IN260plus	IN450plus*	IN750plus*
	Forced convection	IF30plus	IF55plus	IF75plus	IF110plus	IF160plus	IF260plus	IF450plus*	IF750plus*
Volume	litres	32	53	74	108	161	256	449	749
Internal (external)	H	mm 320 (707)	400 (787)	560 (947)	480 (867)	720 (1107)	800 (1186)	720 (1247)	1200 (1726)
	W	mm 400 (585)	400 (585)	400 (585)	560 (745)	560 (745)	640 (824)	1040 (1224)	1040 (1224)
	D	mm 250 (434)	330 (514)	330 (514)	400 (584)	400 (584)	500 (684)	600 (784)	600 (784)
Shelves supplied		1	1	2	2	2	2	2	2
Max. no. of shelves held		3	4	6	5	8	9	8	14
Max. loading per shelf grid	kg	30	30	30	30	30	30	30	30
Max. loading of chamber	kg	60	80	120	175	210	300	300	300
Power loading	kW	0.8	1.0	1.25	1.4	1.6	1.7	1.8	2.0
Power supply		230V 50/60Hz single phase — all models							
Net weight	kg	44	55	64	72	80	96	160	192

*Double door models, mounted on lockable castors.

continued on next page

Incubators

Incubators IN/IF Series continued

memmert

As described. With choice of SingleDISPLAY or TwinDISPLAY controller, integral process timer adjustable from 1 minute to 99 days, 23 hours, dual or multiple overload protection (-plus models only), temperature and time TFT display, chamber ventilation slide adjustment and stainless steel grid shelves. For 230V 50/60Hz single phase supplies.

IN Natural convection, SingleDISPLAY Controller Models

IN472-10 IN30, 32 litres
IN472-12 IN55, 53 litres
IN472-14 IN75, 74 litres
IN472-16 IN110, 108 litres

IN472-18 IN160, 161 litres
IN472-20 IN260, 256 litres
IN472-22 IN450, 449 litres
IN472-24 IN750, 749 litres

IF Forced Air convection, SingleDISPLAY Controller Models

IN472-26 IF30, 32 litres
IN472-28 IF55, 53 litres
IN472-30 IF75, 74 litres
IN472-32 IF110, 108 litres

IN472-34 IF160, 161 litres
IN472-36 IF260, 256 litres
IN472-38 IF450, 449 litres
IN472-40 IF750, 749 litres

INplus Natural convection, TwinDISPLAY Controller Models

IN472-50 IN30plus, 32 litres
IN472-52 IN55plus, 53 litres
IN472-54 IN75plus, 74 litres
IN472-56 IN110plus, 108 litres

IN472-58 IN160plus, 161 litres
IN472-60 IN260plus, 256 litres
IN472-62 IN450plus, 449 litres
IN472-64 IN750plus, 749 litres

IFplus Forced Air convection, TwinDISPLAY Controller Models

IN472-66 IF30plus, 32 litres
IN472-68 IF55plus, 53 litres
IN472-70 IF75plus, 74 litres
IN472-72 IF110plus, 108 litres

IN472-74 IF160plus, 161 litres
IN472-76 IF260plus, 256 litres
IN472-78 IF450plus, 449 litres
IN472-80 IF750plus, 749 litres

Accessory Shelves

Stainless steel wire grid.

IN473-04 For 32 litre incubator
IN473-06 For 53 and 74 litre incubators
IN473-08 For 108 and 161 litre incubators
IN473-10 For 256 litre incubator
IN473-12 For 449 and 749 litre incubators



IN472-36

Incubators

memmert Cooled Incubators

Cooled Incubators, ICP-series

- ◆ Temperature range ambient -12°C to +60°C (except IN510-12 which is ambient -5°C to +60°C), temperature accuracy: ±0.1°C
- ◆ Stainless steel interior and exterior (external rear-panel zinc-plated steel)
- ◆ Fan circulation and compressor-driven cooling
- ◆ With TwinDISPLAY controlCOCKPIT: displaying temperature (°C or °F), fan speed and programme time. Includes two Pt100 DIN Class A temperature sensors and heatBALANCE function to adjust heating power distribution. Multiple overtemperature protection monitoring and mechanical temperature limiter (TB Class 1) to DIN 12 880, with alarm settings. Also includes AUTOSAFETY function allowing automatic adjustment to the set value within a freely adjustable tolerance range. AtmoCONTROL logging software offers online monitoring of up to 32 connected appliances, optical alarms and automatic alarm email notifications. Also includes programme sequence display and repeat functions which can be transferred via ethernet or USB interfaces provided
- ◆ 10 year datalogger
- ◆ R134a refrigerant
- ◆ Inner glass door

Model		ICP55	ICP110	ICP260	ICP450*
Capacity	litres	53	108	256	449
Internal (External)	H mm	400 (1153)	480 (1233)	800 (1552)	720 (1613)
	W mm	400 (585)	560 (745)	640 (824)	1040 (1224)
	D mm	330 (514)	400 (584)	500 (684)	600 (784)
Shelves supplied		1	1	2	2
Max. shelf positions		4	5	9	8
Power rating	kW	0.5	0.5	0.7	0.75
Net weight	kg	89	113	157	217

*Double door model, mounted on lockable castors.

As described. With compressor-driven cooling, TwinDISPLAY controller, integral process timer adjustable from 1 minute to 99 days, 23 hours, multiple overload protection, twin TFT display of temperature, time, fan speed and exhaust air flap position, chamber ventilation slide adjustment and stainless steel grid shelves. For 230V 50/60Hz single phase supplies.

- IN510-12** ICP55, 53 litres **IN510-22** ICP260, 256 litres
IN510-17 ICP110, 108 litres **IN510-27** ICP450, 449 litres

Accessory shelves for all Cooled incubators

Stainless steel wire grid.

- IN473-06** For 53 litre incubator **IN473-10** For 256 litre incubator
IN473-08 For 108 litre incubator **IN473-12** For 449 litre incubator



IN510-27

Cooled Incubators, IPP-series

- ◆ Temperature range 0°C to +70°C (within ambient +16°C to +40°C), temperature accuracy: ±0.1°C
- ◆ Stainless steel interior and exterior (external rear-panel zinc-plated steel)
- ◆ Fan circulation and Peltier technology cooling
- ◆ Choice of controller:
 - SingleDISPLAY controlCOCKPIT: displaying temperature (°C or °F), fan speed and programme time. Includes one Pt100 DIN Class A temperature sensor in a 4 wire circuit and ethernet interface. Dual overtemperature protection with freely adjustable monitoring of temperature and mechanical temperature limiter (TB Class 1) to DIN 12 880. With AtmoCONTROL logging software for online monitoring of up to 32 connected appliances, optical alarms when set alarm limits are exceeded and automatic alarm email notifications.
 - TwinDISPLAY controlCOCKPIT: as SingleDISPLAY controlCOCKPIT but with two independent displays, two Pt100 DIN Class A temperature sensors, heatBALANCE function to adjust heating power distribution and multiple overtemperature protection monitoring. Also includes AUTOSAFETY function allowing automatic adjustment to the set value within a freely adjustable tolerance range and programme sequence display and repeat functions which can be transferred via ethernet or USB interfaces.
- ◆ 10 year datalogger
- ◆ Almost silent
- ◆ Inner glass door

Model, SingleDISPLAY TwinDISPLAY		IPP30	IPP55	IPP110	IPP260
		IPP30Plus	IPP55Plus	IPP110Plus	IPP260Plus
Capacity	litres	32	53	108	256
Internal (External)	H mm	320 (707)	400 (787)	480 (867)	800 (1186)
	W mm	400 (585)	400 (585)	560 (745)	640 (824)
	D mm	250 (524)	330 (604)	400 (674)	500 (774)
Shelves supplied		1	1	2	2
Max. shelf positions		3	4	5	9
Power rating	kW	0.16	0.28	0.65	0.82
Net weight	kg	40	52	78	114

As described. With Peltier module cooling, controller, integral process timer adjustable from 1 minute to 99 days, 23 hours, multiple overload protection, twin TFT display(s) of temperature, time, fan speed and exhaust air flap position, chamber ventilation slide adjustment and stainless steel grid shelves. For 230V 50/60Hz single phase supplies.

SingleDISPLAY controller

- IN525-08** IPP30, 32 litres
IN525-12 IPP55, 53 litres
IN525-17 IPP110, 108 litres
IN525-22 IPP260, 256 litres

TwinDISPLAY controller

- IN527-08** IPP30plus, 32 litres
IN527-12 IPP55plus, 53 litres
IN527-17 IPP110plus, 108 litres
IN527-22 IPP260plus, 256 litres



IN527-22

Incubators

Cooled Incubators

Lovibond®

- ◆ Temperature range: +2 to +40°C x 0.1°C
- ◆ Temperature fluctuation $\pm 1^\circ\text{C}$ (stirred 500ml water at centre of cabinet).
For BOD (T = 20°C) $\pm 0.5^\circ\text{C}$
- ◆ R134a refrigerant
- ◆ Backlit LED temperature display
- ◆ Fan-assisted cooling
- ◆ Choice of glass-panelled or solid door models
- ◆ Built-in internal sockets (Europlug, Schuko-type) for operating instruments inside the cabinet

Model	Solid door, TC- Glass door, TC-	135S	— 140G	175S	255S	— 256G	445S	
Capacity	litres	135	140	175	255	255	445	
Internal (external)	H	mm	700 (850)	700 (885)	1045 (1216)	1450 (1590)	1450 (1590)	1300 (1516)
	W	mm	430 (600)	443 (600)	415 (600)	415 (600)	415 (600)	515 (710)
	D	mm	515 (600)	515 (600)	515 (600)	515 (600)	515 (600)	652 (752)
Shelves supplied		3	3	3	4	4	5	
Internal sockets supplied		4	4	5	7	7	9	
Net weight	kg	39	50	49	64.5	82	79.5	

As described. With digital controller and backlit LED display, solid or glass-paned door and shelves and sockets as indicated. For 230V 50Hz single phase supplies.

Solid door models

IN686-12 TC135S
IN686-22 TC175S
IN686-32 TC255S
IN686-42 TC445S

Glass door models

IN686-62 TC140G
IN686-82 TC256G



IN686-62 to -82 in use with WR245-10

IN686-12 to -42

Incubators

Automatic CO₂/Humidity Incubators

memmert

- ◆ Adjustable humidity control from 80 to 93% R.H., accuracy $\pm 0.5\%$ R.H.
- ◆ Adjustable temperature control: ambient + 5°C to +50°C
- ◆ Digital CO₂ control from 0 to 20% CO₂
- ◆ Stainless steel interior and exterior
- ◆ TwinDISPLAY controlCOCKPIT multifunctional digital PID controller with two high-definition TFT colour displays, timer and fault indicators, ethernet LAN and USB output interfaces
- ◆ Sterilisation programme: 60 minutes at 180°C
- ◆ Classified as a Class IIa medical device for IVF work

Model		ICO105med	ICO240med
Capacity	litres	107	241
Temperature range	°C	Ambient +5 to +50 — both models	
CO ₂ range/accuracy	%	0 to 20/ ± 0.1 — both models	
Internal (external)	H	mm	480 (719)
	W	mm	560 (719)
	D	mm	400 (591)
Shelves supplied		2	2
Max. no. of shelves held		6	12
Power loading	kw	1.0	2.0
Net weight	kg	70	110

As described. Supplied with stainless steel water dish and shelves as indicated. For 230V 50/60Hz a.c. single phase supplies. Requires a pressure reducing valve IN675-75 for operation and locally-sourced CO₂ cylinders.

IN675-28 Model ICO105med

IN675-48 Model ICO240med

Accessories

IN675-63 Stainless steel shelf for IN670-28 only

IN675-67 Stainless steel shelf for IN670-48 only

IN675-75 Pressure reducing valve for CO₂ gas cylinder, with monitor

CO₂ Cylinder Exchanger, Pneuchange Mark 2

Bench, or wall-mounting. Ensures continuity of gas supply to CO₂ incubators by automatically switching supply between two cylinders as one becomes exhausted. Totally pneumatic operation, no electrical supply is required, however a battery-powered alarm indicates when cylinder change-over occurs. Otherwise coloured indicators show which cylinder is active. Pressure gauges indicate both separate inlet pressures and outlet pressure. Inlet pressure range 30 to 100 psi, outlet pressure 0 to 30psi. The exhausted cylinder can be disconnected and exchanged without disruption to the gas supply. Suitable for use with all non-corrosive, non-flammable gases. Standard outlet fittings are $\frac{3}{8}$ " male BSP. Supplied as unit only, or in a kit with 2 x CO₂ cylinder regulators, cylinder wall support rack, $\frac{1}{4}$ " i.d. reinforced PVC tubing (10 metres), tubing adapters, clips and spanner to provide a complete kit for connecting CO₂ incubators to two cylinders.

IN715-20 Pneuchange unit only, 0 to 30psi

IN715-40 Pneuchange kit, 0 to 30psi

CO₂ cylinders - local supply recommended.



IN675-28, IN675-48 is similar



IN715-20

Incubators

Shaking Incubators, ES-20 and ES-80

Grant bio

- ◆ Temperature range:
 - ES-20 incubator: +25°C to 42°C x 0.1°C
 - ES-80 incubator: +25°C to 80°C x 0.1°C
- ◆ Temperature stability ±0.5°C
- ◆ Orbital shaking speed of 50 to 250rpm with 10mm (IN730-10) or 20mm orbit (IN730-20)
- ◆ Interchangeable platforms
- ◆ Digital setting of temperature and shaking speed with LCD readouts and built-in timer for shaking from 1 minute to 96 hour
- ◆ Microprocessor controlled heating with forced air circulation
- ◆ Robust construction with high visibility, Plexiglass side panels (IN730-10 only)

Model		ES-20	ES-80
Capacity	litres	19.5	53
Internal W x D x H	mm	300 x 260 x 250	390 x 450 x 300
External W x D x H	mm	340 x 340 x 435	590 x 525 x 510
Maximum vessel height	mm	156	220
Number of conical flasks held x capacity, ml		12 x 250 to 150, 6 x 250 to 300	30 x 100 to 150, 16 x 250 to 300, 9 x 500, 6 x 1000
Maximum loading capacity	kg	2.5	8
Weight, net	kg	15	43
Power rating	W	150	450

Incubators, Grant-bio ES-20 and ES-80

As described. Comprising direct drive orbital shaker, 7mm thick plexiglass side and door windows (IN730-10), or stainless steel chamber (IN730-20), and digital display of temperature, time and shaking speed. For 230V 50/60Hz single phase supplies. Require accessory platforms for operation.

IN730-10 Shaking Incubator, Grant-bio ES-20

IN730-20 Shaking Incubator, Grant-bio ES-80

Accessory platforms

IN732-12 P12-100 platform with clamps for 12 x 100 to 150ml flasks/beakers. For use with IN730-10 only

IN732-14 PP-4 platform with non-slip rubber mat. For use with IN730-10 only

IN732-16 P6-250 platform with clamps for 6 x 250 to 300ml flasks/beakers. For use with IN730-10 only

IN732-18 PUP-12 universal platform with adjustable bars. For use with IN730-10 only

IN732-20 P16-88 platform for up to 88 x 30mm diameter tubes. For use with IN730-10 only

IN732-22 PP-400 platform with non-slip rubber mat. For use with IN730-20 only

IN732-24 P30-100 platform with clamps for 30 x 100 to 150ml flasks/beakers. For use with IN730-20 only

IN732-26 P16-250 platform with clamps for 16 x 250 to 300ml flasks/beakers. For use with IN730-20 only

IN732-28 P9-500 platform with clamps for 9 x 500ml flasks/beakers. For use with IN730-20 only

IN732-30 P6-1000 platform with clamps for 6 x 1000ml flasks/beakers. For use with IN730-20 only

Total Visibility Incubators, 60°C



- ◆ Temperature range ambient +5°C to 60°C
- ◆ Push button pre-set for 37°C operation
- ◆ Constructed in clear acrylic material
- ◆ Hinged front and top panels for easy access
- ◆ Side panels have two plugged service ports
- ◆ Side mounted controls, heater and fan
- ◆ Temperature fluctuation better than ±0.1°C
- ◆ Safety cut-out, pre-set at 72°C
- ◆ Can be positioned over existing apparatus

Capacity	litres	60
Internal H x W x D	mm	380 x 450 x 380
External H x W x D	mm	390 x 600 x 390
Temperature fluctuation	°C	±0.1 at 37
No. of shelves*		3
Interval between shelves*	mm	90
Power rating	W	250

* With accessory shelf rack system fitted.

Incubators, Stuart SI60

As described. Capacity 60 litres. Maximum temperature 60°C. With hinged front and top panels, temperature control system with preset at 37°C, safety temperature cut-out, air circulating fan and holes for gas or cable introduction. Supplied flat packed assembly by the user. For 220-240V 50Hz single phase supplies. Without base plate or shelf rack system.

IN800-10 SI60, 60 litres, dial control

IN800-20 SI60D, 60 litres, digital set and read control

Accessories

IN802-08 Base plate

IN802-13 Shelf rack system, plastic coated wire



IN730-10 in use with IN732-18



IN730-20 in use with IN732-28



IN800 in use with accessories

Incubators

Shaking Incubators SI500 and SI600-series



- ◆ Temperature range ambient +5°C to 60°C ±0.5°C (except IN807-61 which has a range of +5°C to 60°C using accessory refrigerated circulator)
- ◆ Orbital shaking speed 30 to 300rpm, with 16mm orbit
- ◆ Digital setting of temperature and shaking speed with separate LED readouts and built in timer for shaking from 1 second to 9 days
- ◆ Outer surfaces treated with Biocote antimicrobial protection
- ◆ USB communication port with software for monitoring of temperature by the user's PC
- ◆ Retractable platform can be locked in position during use or slid out of the chamber for easy loading or unloading
- ◆ Accessory tube racks available with angle adjustment up to 30° and 'Magnalock' clamping system for attachment to the platform
- ◆ Cooled version available

Model		SI500	SI600	SI600C
Capacity	litres	51	115	115
Internal W x D x H	mm	422 x 408 x 297	625 x 455 x 395	625 x 465 x 380
External W x D x H	mm	450 x 474 x 522	675 x 542 x 640	675 x 542 x 640
Maximum vessel height	mm	250	320	320
Number of conical flasks held x capacity	ml	9 x 500, 4 x 1000	15 x 500, 9 x 1000, 6 x 2000, 2 x 2800	15 x 500, 9 x 1000, 6 x 2000, 2 x 2800
Weight, net	kg	30	53	60
Power rating	W	300	500	500

Incubators, Stuart SI500 and SI600

As described. Comprising orbital shaker with soft start, electronic feedback speed control, smoked acrylic side and door windows with metal frame, separate top-mounted incubator unit with digital display, safety thermostat, forced air circulation and fitted with safety door switch which halts the shaker when the door is opened. For 230V 50Hz single phase supplies.

- IN805-60** SI500, Orbital shaker incubator
- IN805-61** SI600, Orbital shaker incubator

Cooled Incubator, Stuart SI600C

As IN805-series but with built-in cooling coil enabling a temperature range of +5°C to +60°C using an accessory refrigerated circulator bath. For 230V 50Hz single phase supplies.

- IN807-61** SI600C, Orbital shaker incubator

Accessory tube racks

Up to six racks can be accommodated on the shaking platform (except IN805-60 which accepts up to four), and are locked in using the 'Magnalock' system which does not require tools. For tubes as indicated.

- IN805-62** 64 x 1.5ml microtubes
- IN805-64** 25 x 15ml centrifuge tubes
- IN805-66** 12 x 50ml centrifuge tubes
- IN805-68** 16 x 30ml universal containers

Refrigerated Circulator bath, Stuart

For use with IN807-61 only. For 230V 50Hz single phase supplies.

- CL140-15** SRC4

Microplate incubators – see *Microtitration Section*.



IN807-61 in use, IN805 are similar

Jars

Specimen/Sample Jars

Jars, cylindrical, glass

Without lid. Dimensions are diameter x height in mm.

	Dimensions, mm
JA300-20	100 x 100
JA300-23	100 x 150
JA300-40	150 x 150
JA300-43	150 x 200
JA300-50	200 x 200
JA300-56	200 x 300

Accessory Lids

Loose outside fitting. For JA300 series.

	For jars dia. mm
Glass	
JA304-20	100
JA304-40	150
Stainless steel	
JA306-20	100
JA306-40	150
JA306-50	200

Jars, Azlon, cylindrical

Autoclavable polypropylene, Straight-sided wide neck jars with wadless screw cap. Supplied in packs as indicated.

	Ref. JWP-	O.d. x ht. mm	Pack qty.
JA322-25	0030P	43 x 43	72
JA322-32	0060P	53 x 47	48
JA322-42	0125P	70 x 60	36
JA322-49	0250P	89 x 66	36
JA322-54	0500P	89 x 97	24
JA322-56	0950P	120 x 100	24
JA322-59	1200P	120 x 132	24

"Sweetie" Jars

For storage of powders and semi-solids, or non-liquid waste disposal. With screw cap. Approximate volume as indicated. Supplied singly.

JA345-10	2.5 litres
JA345-20	4.5 litres



JA300 with JA306



JA322



JA345

Jars, Jugs

Specimen/Sample Jars continued

Jars, Specimen, wide neck

Transparent polystyrene, wide neck jars with white screw caps with internal wad seal, leak tested to BS EN 14254. Available sterile or non-sterile and with, or without, patient specimen labelling. CE marked in accordance with EU Directive 98/79/EC. Supplied in packs as indicated.

	Cap. ml	Label?	Sterile?	Pack qty.
JA330-02	30	—	—	200
JA330-03	30	✓	—	200
JA330-04	30	—	✓	200
JA330-05	30	✓	✓	200
JA330-12	60	—	—	200
JA330-13	60	✓	—	200
JA330-14	60	—	✓	200
JA330-15	60	✓	✓	200
JA330-22	120	—	—	100
JA330-23	120	✓	—	100
JA330-24	120	—	✓	100
JA330-25	120	✓	✓	100
JA330-32	230	—	—	100
JA330-33	230	✓	—	100
JA330-34	230	—	✓	100
JA330-35	230	✓	✓	100
JA330-42	350	—	—	100
JA330-43	350	✓	—	100
JA330-44	350	—	✓	100
JA330-45	350	✓	✓	100



JA330

Jugs

Jugs, Azlon

Clear polypropylene. Tall form, beaker shape with handle. High clarity rigid polypropylene with choice of moulded or blue printed graduations, non-slide anti-suction bases and precision pouring spouts. Autoclavable to 121°C. Supplied singly.

	Ref.	Capacity ml
Moulded Graduations		
MD749-08	JPM0050P	50
MD749-10	JPM0100P	100
MD749-15	JPM0250P	250
MD749-20	JPM0500P	500
MD749-25	JPM1000P	1000
MD749-30	JPM2000P	2000
MD749-40	JPM3000P	3000
MD749-45	JPM5000P	5000
Printed Graduations		
MD758-08	JBP0050P	50
MD758-10	JBP0100P	100
MD758-15	JBP0250P	250
MD758-20	JBP0500P	500
MD758-25	JBP1000P	1000
MD758-30	JBP2000P	2000
MD758-40	JBP3000P	3000
MD758-45	JBP5000P	5000

Jugs- see Measures and Medical sections.

Hydrometer Jars – see Hydrometer section.

Ointment Jars, Wide Mouth Jars, Specimen Jars – see Bottles section.

Specimen tubes – see Tubes section.



MD749



MD758

Karl Fischer Coulometric Titrator, Aquamax KF Plus

Portable moisture titrator for the rapid and accurate determination of the low concentrations of water in a wide range of materials. Features include easy operation, "ACE" automatic error compensation, up to 10 user-programmable methods stored in the memory, rechargeable battery for field operation, built-in thermal printer and multi-lingual display/print out. Results are available in ppm, mg/kg, % and g water. Suitable for moisture analysis within standards ASTM D1533, D4928, D6304, IP386, APIMPMS chapter 10.9 and BS60814.

Measuring ranges possible typical moisture	1 g to 200mg water 1 g to 10mg water 1ppm to 100%
Maximum sensitivity	0.1 g
Sample analysis rate	2.24mg/minute
Maximum current	400mA
Start or end delay	0 to 30 minutes (selectable)
Drift correction	Automatic
Precision	±3 g (10 to 100 g), ±3 g (100 g to 1mg) ±0.3% (>1mg)
Calculation modes	w/w, weight/dilution (all user-programmable) ratio, volume/density, v/v, with sample i.d. and time/date stamp
Statistics (up to 99 runs)	Maximum, mean, minimum values
Outputs	USB and RS232 serial ports
Power supply	90 - 264V 47/63Hz a.c. or 12V d.c.
Dimensions, H x W x D	290 x 255 x 130mm
Weight	3kg

As described. Complete with titration vessel, generator electrode with frit, drying tube, molecular sieve, stirrer bar, injection septa, 1ml syringe with needle, built-in printer, rechargeable battery, 12V d.c. vehicle adapter, Results Manager software for download, analysis and printing of results and instructions.

KF200-10 Aquamax KF Plus

Spares and accessories

KF203-04 Generator electrode (with frit)	KF203-16 Injection septa, pack of 10
KF203-08 Detector electrode	KF203-25 Thermal printer paper rolls, pack of 10
KF203-12 Titration vessel	KF203-40 Carrying case

Reagent packs

With 8 x 100ml anode, 1 x 50ml cathode reagents and filling funnel.

KF203-54 Aquamax KF Frit* for use with frit or diaphragm-type generator electrodes

KF203-56 Aquamax KF Oil* to ASTM, API, EI and ISO. With anode reagent pre-cut with Xylene.

***Please note:** these items are classed as hazardous material for export and require packing/shipping as such.



KF200-10

Karl Fischer Volumetric Titrator, Aquamax KF Volumetric

Easy to use analyser to determine water concentrations in a variety of materials.

- ◆ Intuitive keypad and guide display
- ◆ Backlit, graphics, LCD readout
- ◆ Automatic drift monitoring and compensation
- ◆ Incorporates 2 x 5ml syringes - one for KF reagent and the other for dosing the titre standard or alternative reagents
- ◆ Twin peristaltic pumps for dispensing solvent or emptying the test vessel, respectively
- ◆ Pre-programmed titration and standardisation modes, including custom
- ◆ Choice of units: ppm, mg/l, %
- ◆ Datalogger storage of last 55 results
- ◆ Data output via RS232 interface of date/time, reagent factor, drift value, sample ID, result, final volume, titration duration, user ID
- ◆ Titration vessel with electrode support, stand and built-in stirrer

Measuring ranges water moisture	1 g to 100mg 1ppm to 100%
Resolution	1/40000 of syringe volume (standard syringe 5ml)
Dispensing accuracy (as relative error)	≤0.2% for volumes >10% of the syringe
Dispensing reproducibility	±0.1% for volumes >10% of the syringe
Contact materials	Borosilicate glass, PTFE and KEL-F
Controls	7-key membrane keypad with backlit graphics LCD, on/off and stirrer speed keys
Inputs/outputs	BNC electrode, mini DIN for external accessory keyboard, bidirectional RS232C computer/printer port, RS232C balance connection port
Power supply	90 - 264V 47/63Hz a.c. or 24V d.c.
Dimensions, H x W x D	300 x 130 x 160mm
Weight	4kg

As described. With 2 x 5ml syringes, burette inlet/outlet tubing, dryer cartridge with molecular sieve titration vessel, 1 x double platinum electrode with BNC connection cable, 2 x pumps and GL45 reservoir bottle caps.

KF240-15 Aquamax KF volumetric

Spares and accessories

KF244-03 5ml syringe
KF244-06 Burette inlet tube with GL45 cap
KF244-09 Burette outlet tube with anti-diffuser
KF244-12 Dryer cartridges with molecular sieve, pack of 5
KF244-15 Inlet pump tube (solvent dispensing) with GL45 bottle cap
KF244-20 Double wire platinum electrode
KF244-25 "O" rings, white, for valves and pumps, pack of 10
KF244-40 Cable for connection to users' PC



KF240-15 in use

Kjeldahl

Kjeldahl Assembly

For macro-scale nitrogen determinations using the Kjeldahl method.

- ◆ Combined Kjeldahl digestion/distillation unit
- ◆ 6-place, 500ml flask capacity
- ◆ Supplied ready for self-assembly without extra tools
- ◆ Self-standing frame

Manual, combined digestion/distillation assembly comprising self-standing, open ended mounting frame with three mesh shelves, two 6-place heater banks for digestion and distillation respectively, 6-hole plastic vapour exhaust tube for removing digestion fumes with end caps (one with ferrule for connection to a water jet pump supplied) and glassware/connection set.

Glassware/connection set

Includes the following items. All glassware supplied is borosilicate.

- 12 x Kjeldahl flasks, 500ml
- 6 x Conical receiver flasks, 500ml
- 6 x Condensers
- 6 x Splash heads
- 6 x Drip tubes

plus connecting tubing, stoppers, rods, bossheads and clamps necessary to provide a working system.

Kjeldahl assembly

As described. Overall assembled H x W x D 1560 x 1220 x 460mm. Weight 42kg. Each heater bank requires a 230V 50Hz single phase supply and is rated at 3300W. Supplied without reagents.

KJ120-15 Kjeldahl assembly

Kjeldahl flasks, Pyrex – see *Flask section*.

Fume hoods – see *Furniture section*.

Jointed Kjeldahl glassware – see *Quickfit section*.

Soxhlet extraction assemblies – see *Quickfit section*.



KJ120

Kjeldahl Heater Units



With built-in energy regulator control for each recess.

Macro Digestion/Distillation Units

With choice of two or six recesses and flask capacities as table. Recesses are at 150mm centres. Aluminium case with energy regulators and brackets to accept 12.5mm diameter support rods or the flask rest supplied. The 6-recess models have also clamps at either end of the case to accept 15.8mm diameter support rods. Maximum heater element temperature 800°C. For 230V a.c. single phase supplies.

	Recesses	Flask capacity, ml	Total rating, W	Dimensions W x D, mm
KJ300-12	2	100 to 300	600	305 x 203
KJ300-16	2	500 to 800	1100	305 x 203
KJ305-16	6	500 to 800	3300	914 x 203

Spare heaters are available - *details on request*.



KJ300



KJ305

Labelling and Documentation

Blank labels

Blank Labels

Self adhesive, white. Supplied in dispenser packs. All sizes and pack quantities are approximate.

	Label size, mm	Labels/pack
Rectangles		
LA200-44	19 x 25	1200
LA200-57	24 x 37	640
LA200-61	25 x 50	400
Circles		
LA204-34	19 dia.	1400

Tubees

Tubees Hi-Low Strips

Self-adhesive, smear-resistant labels for use on natural polypropylene products, particularly microtubes and cryogenic tubes. Withstand temperatures from -85°C to +100°C. Supplied in dispenser packs of 1000 labels.

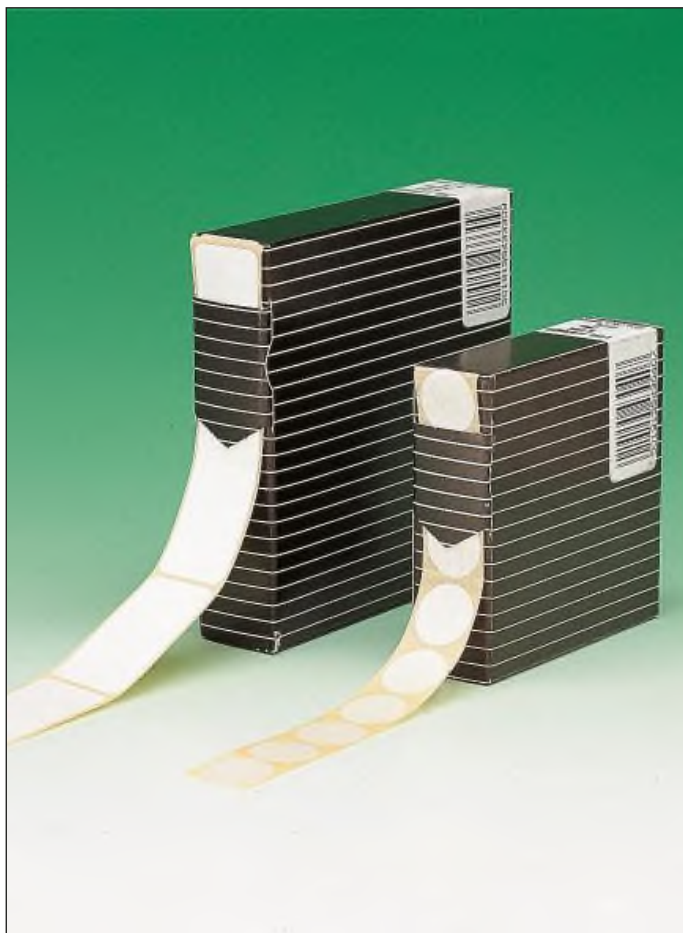
	Label size, mm	Colour
LA220-15	32.5 x 13	Yellow
LA220-35	20 x 6	Pink

Tubees Micryo Dots and Strips

Self-adhesive, smear-resistant labels for use on natural polypropylene products, with a strong, permanent adhesive backing which enables use down to -196°C, if applied at +5°C or above. Supplied in dispenser packs as indicated, or in a pack of 20 x A4 sheets for use with thermal transfer or laser printers. White.

	Label size, mm	Labels/pack
LA225-10	33 x 13	1000
LA225-20	20 x 6	1000
LA225-30	9.5 dia.	1000
LA225-40	9.5 dia.	5000
LA225-50	19 dia.	1000
LA225-60	19 dia.	5000
LA227-45	19 dia.	2160*

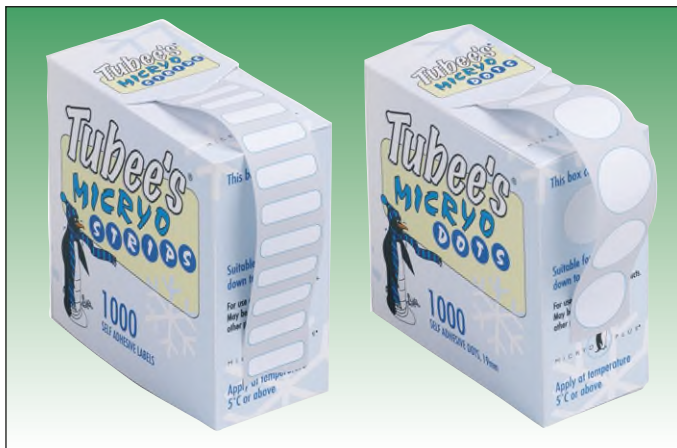
*20 x A4 sheets, each holding 108 labels.



LA200/LA204



LA220



LA225

Labelling and Documentation

Close-it®, Seal-it

Control Seal Labels, Close-it®, Bürkle

Quality control seal labels with aluminium backing allowing hermetic sealing of sacks pierced for sampling. Strong adhesive will adhere even to surfaces coated with powder (plaster, flour etc.). Supplied in colours, sizes and packs as indicated. Printed with ruled writing area for labelling by pen.

	Colour
95 x 95mm, roll of 500	
LA290-04	Red
LA290-08	Green
LA290-12	Yellow
LA290-16	Blue
LA290-20	Black
150 x 150mm, roll of 250	
LA290-50	Red
LA290-54	Green
LA290-58	Yellow
LA290-62	Blue
LA290-66	Black

Security Seals, Seal-it, Bürkle

Sealing labels for tamper-evident closure of conventional containers. Highly visible, red background with large white marking area and sequential, 7-digit, numerical identification. A secondary, identically numbered, label strip can be used for archive documentation of the sample. Labels are aluminium foil-backed for enhanced conformity to most container/sack profiles and a very strong adhesive surface ensures that once applied, the label is permanently affixed. Cross-perforations through the label immediately tear should an attempt be made to remove the cap or seal. Overall label size 178 x 30mm L x W. Supplied in a roll of 500.

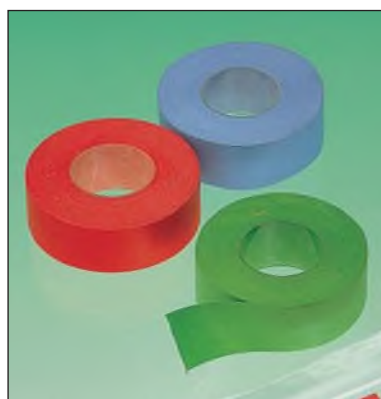
LA295-10 Seal-it labels

Safety Tapes

Manufactured in hard wearing, self-adhesive vinyl. Most common titles are available, including OXIDISING AGENT, CORROSIVE, IRRITANT, TOXIC, HARMFUL, HIGHLY FLAMMABLE and POISON. Supplied in a continuous roll, 66 metres long. For full details – see SC250 series in the Safety section.



LA290 in use



LA302



LA310



LA295-10



Safety tapes

Identi-Tape™

Self adhesive. Colour coded labelling tape, width 19mm. Supplied in a roll as indicated. All dimensions are approximate.

12 metre roll

LA302-10 Blue
LA302-15 Green
LA302-20 Orange

LA302-25 Red
LA302-30 White
LA302-35 Yellow

55 metre roll

LA302-12 Blue
LA302-17 Green
LA302-22 Orange

LA302-27 Red
LA302-32 White
LA302-37 Yellow

Write-On™ Tape

Self adhesive. Colour coded labelling tape which can be marked with most types of pen. Temperature resistant from -73°C to +121°C, with excellent adhesion to glass, metal and most plastics, including PTFE. Steam and solvent resistant. Width 13mm. Supplied in roll of 36.5 metres on a 75mm core. All dimensions are approximate. In colours as indicated.

LA310-05 White
LA310-10 Red
LA310-15 Yellow

LA310-20 Green
LA310-25 Blue
LA310-30 Orange

Labelling and Documentation

Label Printers

Portable Label Printer, BMP™21-PLUS

Hand-held, tape label printer specifically designed for universal applications. Printing facilities include, date/time stamp, serialisation with advanced (shift serialisation) mode, pre-programmed labelling sizes and Greek symbol characters included. Battery operated (mains operation available using accessory a.c. adapter). Accessory labels are printed in a non-smear, non-fading ink which is chemical and solvent resistant and cover a variety of applications from -196°C LN₂ storage to autoclaving at 121°C. An exposed tape backing edge ensures easy peeling when wearing gloves. Printing is available in 5 font sizes with multi-line and banner printing functions. A built-in tape cutter is also provided. Overall 229 x 115 x 64mm. Weight 750g. Supplied with one 9.6mm wide label tape cartridge but without batteries (6 x 1.5V AA required).

- LA475-35** BMP™21-PLUS
- LA475-47** a.c. adapter for LA475-35
- BL610-15** Accessory battery, 1.5V (6 required)

Accessory tapes

Supplied in drop-in cartridges containing a continuous 6.4metre length (except nylon cloth - 4.8 metres long), in widths as indicated.

White gloss polyester

Suitable for vial, microplate and general identification. For use in freezers (to -70°C), liquid nitrogen (must be wrapped onto itself around vials), autoclavable (121°C maximum) and can be used in water baths up to 100°C.

- LA476-04** 9.53mm wide
- LA476-11** 12.7mm wide
- LA476-16** 19.05mm wide

White matt polyester

Suitable for microscope slides, microplate and general identification. Xylene resistant. For use in freezers (to -70°C), and autoclavable (121°C maximum).

- LA476-29** 9.53mm wide
- LA476-36** 12.7mm wide
- LA476-42** 19.05mm wide

White nylon cloth

Heavy duty material for vial, microplate and general identification within freezers (to -70°C), liquid nitrogen and autoclavable (121°C maximum).

- LA476-53** 9.53mm wide
- LA476-57** 12.7mm wide
- LA476-62** 19.05mm wide

Label Printer, BMP™51

Portable, thermal transfer label printer for labelling samples in accordance with GLP (Good Laboratory Practice) protocols. Maximum label width printable 38.1mm. Print functions include text, bar-coding, serialisation, banner printing and multiple material configuration. Uses accessory drop-in cartridges containing a continuous reel of labels or tape up to 7.6m long. With dot matrix LCD, alphanumeric keyboard, label cartridge recognition system, USB connection/output port and type cutter. Overall 365 x 460 x 150mm. Weight 5.2kg. Supplied with hard carrying case, rechargeable Li-ion battery, USB cable, control software, instructions, tape cartridge with black on white tape reel of 38.1mm width and a.c. adapter/charger requiring a 230V 50Hz single phase supply.

LA477-45 BMP™51

NOTE:

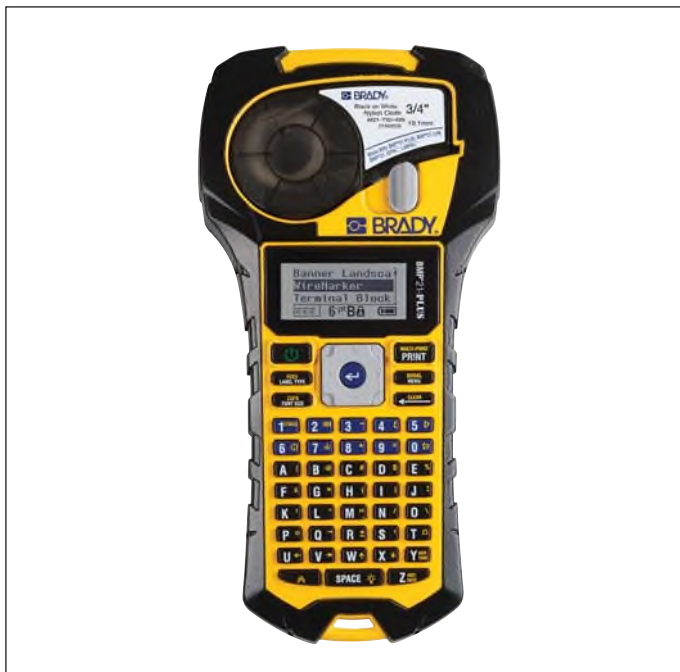
This printer is supplied with a battery that is considered hazardous for export shipment and requires export packing and shipment as such.

Accessory tapes

Supplied in drop-in cartridges containing reels of labels as indicated. All print black text on white background.

	Label size, mm	Material	Temp. range °C	For Labelling	Labels per cartridge
LA478-04	9.53 dia.	Polyester	-196 to +121*	0.5 to 1.5ml microtubes	240
LA478-08	25.4 x 9.53 / 9.53 dia	Nylon	-196 to +121	1.0 to 2.0ml microtubes	240
LA478-12	12.7 dia.	Nylon	-196 to +121	1.5 to 2.0ml microtubes	240
LA478-16	38.1 x 98.42	Polyester	-196 to +121	50ml tubes	80
LA478-20	25.4 x 48.26	Polyester	-196 to +121	12 to 24ml tubes	100
LA478-24	25.4 x 48.26	Polyester	-196 to +121*	50ml tubes	100
LA478-28	38.1 x 31.75	Polyester	-196 to +121*	12 to 24ml tubes	160
LA478-32	6.35 x 48.26	Polyester	-80 to +121	Microplates	160
LA478-36	19.08 x 12.70	Vinyl	-80 to ambient	Tissue cassettes	220
LA478-40	22.86 x 22.86	Polyester	-80 to +121	Microscope slides	280

*Not recommended for use in boiling water baths over medium to long periods.



LA475-35



LA477-45

Labelling and Documentation

Tape Label Printer

brother.

Portable, thermal transfer tape label printer for simple, clear and efficient operation in marking, identification and inventory applications using accessory tape cartridges.

Desktop Tape Label Printer PT3600

Stand-alone, desktop labeller with easy-to-use functions and enhanced features. With WYSIWYG semi-graphical display allowing the user to view label components before printing, 360dpi resolution, QWERTY keyboard, USB PC interface, rotate and print function, multi-function cutter, choice of 10 fonts up to 27mm high (depending on tape width selected), built-in symbols and graphics, 18 styles, 24 print sizes, vertical, mirror and rotate printing, 9 barcode types, 20mm/second print speed and tape end sensor. Accommodates 6, 9, 12, 18, 24 and 36mm width tapes. Overall 237 x 302 x 104mm W x D x H. Weight 200g. Supplied with user guide, one each 24mm wide black on white and 36mm black on yellow tapes, USB cable, CD-Rom software for label editing via the users' PC and a.c. adapter for 230V 50Hz single phase supplies.

LA488-25 PT3600

Accessory tapes for LA488-25

Gloss-laminated tapes with self-adhesive backing. Withstand scratching, sunlight, moisture, oil and weathering. Colour and widths as indicated. Supplied in a cassette containing an 8 metre length. All tapes print text in black.

Tape width mm	Tape colour white	Tape colour clear	Tape colour Red	Tape colour Yellow
6	LA495-02	—	—	LA495-38
9	LA495-04	LA495-16	LA495-25	LA495-40
12	LA495-06	LA495-18	LA495-30	LA495-42
18	LA495-08	LA495-20	—	LA495-44
24	LA495-10	LA495-22	—	LA495-46
36	LA495-12	—	—	LA495-48

Laboratory Notebooks

For use as a primary record of research and experimentation, procedural steps and design concepts. Choice of gridded or lined, numbered A4 pages in acid-free paper. Gridded pages feature areas for title, project and book numbers, date and witness signature. Lined notebooks have college ruled pages for easy report writing. All covers are waterproof and chemical-resistant and the notebooks include periodic and conversion tables.

- LA500-10** Lab notebook, 100 pages, gridded, black cover
- LA500-20** Lab notebook, 200 pages, gridded, blue cover
- LA500-40** Lab notebook, 200 pages, lined, red cover

Ink markers - see LA540- to LA625-series.

LA500



LA488-25

Labelling and Documentation

Pencils/Markers

Chinagraph Pencils

For writing on polished surfaces including glass. Supplied in packs of 12.

- LA520-10 Black
- LA520-30 Red
- LA520-35 White
- LA520-40 Yellow

Glass Writing Diamonds

- LA530-10 Retractable point and pocket clip
- LA534-12 Mounted on wooden handle

Ink Markers

With ultrafine point fibre tip, with non-blurring ink. Will not bleed through paper. Line width approximately 0.4mm. Supplied in packs of 12.

- LA540-14 Black
- LA540-24 Blue

Ink Markers

Fine point fibre tip. Waterproof ink for permanent marking on most surfaces. Line width approximately 0.8mm. Supplied in a pack of 12.

- LA542-15 Black

Ink Markers, Pentel

With tough bullet tip. Waterproof ink for permanent marking on most surfaces. Supplied in packs of 12.

- LA545-10 Black
- LA545-13 Blue
- LA545-16 Green
- LA545-19 Red

Ink Markers, CD/DVD, Staedtler Lumocolor

Permanent, quick drying, smudge-proof, water-based ink.

- LA585-12 Black, pack of 10
- LA585-62 Assorted colours, pack of 4 (1 each black, blue, red, green)

Ink Markers, Laboratory

Ideal for marking polystyrene petri dishes, metal, glass and most plastics, cold (above 0°C) or moist surfaces. Water and alcohol resistant, autoclavable ink. Can be removed from non-porous surfaces by scrubbing with detergent. Colours as indicated. Supplied singly.

- LA620-04 Black
- LA620-08 Red
- LA620-12 Blue
- LA620-16 Green



LA520



LA530

LA534



LA540



LA542



LA545



LA585



LA620

Lamps, Lighting

Desk Lamp

Desk Lamp, fluorescent bulb-type

With adjustable, spring balanced arm, clamp for horizontal surfaces up to 55mm thick, alternative heavy table base and shade that can be moved in three planes to provide height, swivel and tilt adjustment. Finished in white. Maximum reach of arm 850mm. Supplied with 11W daylight fluorescent tube with a shade length of 300mm. For 220-240V 50Hz single phase supplies.

LM115-60 Fluorescent lamp

Digital Luxmeter 545



- ◆ Portable
- ◆ Two resolution levels
- ◆ Accuracy to DIN5032 part 6
- ◆ Infra-red print communication for use with accessory printer

Catalogue No.	LM170-50		
Model	545		
Range	lux	0 to 100000	
Resolution	range 0 to 32000	lux	1
	range 0 to 100000	lux	10
Datalogging	3000 measurements		
Display	4-line LCD		
Overall	mm	220 x 68 x 50 (meter)	
Power	9V battery MN1604 or equivalent		

Digital Luxmeter, Testo 545

As described. Supplied with probe, operation and calibration manuals, and 9V battery.

LM170-50 Testo 545 Luxmeter

BL610-25 Spare 9V battery

Thermal paper printer

With infra-red cordless data communication. Supplied with 4 x AA batteries and 1 roll of paper.

AN472-40 Printer

Spare thermal paper for AN472-40, pack of 6 rolls.

AN472-45 Paper

BL610-15 Spare 1.5V battery for AN465-75 (4 required)



LM115-60



LM170 in use

Lamps, Lighting

Ultraviolet Lamps

Ultraviolet Lamps

Wavelength figures given are for approximate peak output. Hand held except LM232-14 which can also be benchstanding. For 230V 50/60Hz single phase supplies except LM197-10, LM198-13 and LM199-16 which require 4 x AA batteries not supplied and LM232-15 which incorporates a rechargeable, gel-based, lead acid battery and is supplied with a charger for 230V 50/60Hz a.c.

	Model	Wave-length nm	Relative Intensity $\mu\text{W}/\text{cm}^2$ at 75mm	Dimensions L x W x H mm
LM197-10	UVG4	254	170 Battery operated	159 x 25 x 51
LM198-13	UVL4	365	230 Battery operated	159 x 25 x 51
LM199-16	UVSL-14P	254/365	113/68 Battery operated	159 x 25 x 51
LM200-10	UVL21	365	1000	198 x 71 x 53
LM202-12	UVG11	254	1120	198 x 71 x 53
LM204-14	UVGL25	254/365	760/720	198 x 71 x 53
LM215-10	UVL56	365	1350	378 x 81 x 64
LM217-12	UVG54	254	2250	378 x 81 x 64
LM219-14	UVGL58	254/365	1350/1200	378 x 81 x 64
LM232-15	UVSL-26P	254/365	90/710 Battery operated	241 x 71 x 238

Ultraviolet Protection

Suitable eye protection must be worn when using shortwave emitting lamps. Shortwave can produce skin burns. Protective clothing or barrier creams should be worn on exposed skin areas. Avoid shining UV light on reflective surfaces. Longwave ultra-violet is considered generally harmless. However some people may be particularly sensitive and care must be exercised whenever UV light is used.

Accessory batteries

For LM197-10, LM198-13 and LM199-16

BL610-15 AA type battery (4 required for each lamp)

Ultraviolet Eye Protection

Eye Protection

Essential for anyone working with shortwave radiation which can cause a delayed reaction of 'sunburn' to unprotected eyes and skin. Also eliminates the 'blue haze' associated with long wave radiation.

Spectacles UV

Lightweight impact resistant clear polycarbonate, for occasional use. With side panels protecting against peripheral exposure.

LM370-15 UV spectacles

Goggles UV

Specially formulated, lightweight plastic construction gives optimum viewing contrast and reduced eye fatigue. Flexible rubber frame with air vents enable comfortable use over long periods, even over prescription spectacles. Provide full periphery protection.

LM370-25 UV goggles



Front: LM200/202/204 LM215/217/219 Rear: LM232-15



LM197

LM199

LM198



LM370-15

LM370-25

Lamps, Lighting

Ultraviolet Viewing Cabinets

Viewing Cabinet, UVP C-10

For examining samples under UV light. The viewing port incorporates a filter which eliminates 'blue haze'. A recessed opening in the top accepts any one of the UV lamps detailed below. Large samples such as TLC plates can be accommodated by removing the base panel. Overall dimensions 229 x 267 x 305mm. Weight 1.6kg. Without UV lamp.

LM400-10 C-10

Suitable lamps for use with above are:-

Longwave

LM200-10 UVL21

LM215-10 UVL56

Shortwave

LM202-12 UVG11

LM217-12 UVG54

Multiband

LM204-14 UVGL25

LM219-14 UVGL58

Viewing Cabinets, UVP, Large Format

Model C-70G has two each 15W shortwave and longwave UV tubes mounted on one side of the cabinet. Control switches allow convenient selection of short or long wavelengths or an interior white light.

Model C-71 has four 15W longwave UV tubes providing brilliant fluorescence for applications such as non-destructive testing.

Model C-75 offers high intensity 15W shortwave and longwave tubes on two sides of the cabinet providing uniform illumination for fluorescence studies.

With removable base panel so that the cabinet can be placed over large samples or a transilluminator. Each model includes built-in UV tubes as indicated, on/off and control switches and interior white light, for 230V 50Hz a.c. single phase supplies.

	Model	Wavelength, nm	Tubes, W	Interior L x W x H, mm
LM410-15	C-70G	254/365	15	432 x 356 x 127
LM410-25	C-71	365	15	432 x 356 x 127
LM410-35	C-75	254/365	15	533 x 330 x 400



LM400 with lamp



LM410-15

Transilluminators

Transilluminators, UVP TFM-V

High performance, mid-range (302nm) transilluminators for viewing fluorescent materials or fluorescent-dyed samples within electrophoresis gels. With 25W tubes for high intensity performance and uniform background UV illumination. Variable intensity output allows either analytical documentation work or reduced photoniccking or bleaching of gel samples during prep work, respectively. Robust sturdy construction with adjustable angle UV blocking cover to shield the operator from harmful UV radiation. Overall 486 x 337 x 143mm W x D x H. Weight 9kg. For 230V 50/60Hz a.c. single phase supplies.

	Model	Filter size, cm	Tubes, W
LM420-22	TFM-20-V	20 x 20	25
LM420-28	TFM-26-V	21 x 26	25
LM420-32	TFM-30-V	25 x 30	25
LM420-42	TFM-40-V	20 x 40	25

Note: Suitable eyewear must be worn when using these transilluminators – see LM370.

Electrophoresis tanks and equipment – see EL230/EL345.



LM410-35



LM420

Lamps, Lighting

Hollow Cathode Lamps

For use with atomic absorption spectrophotometers.

- ◆ Sharp, narrow band width spectral lines
- ◆ Quartz or Pyrex window depending on wavelength
- ◆ Filled with neon

General purpose lamps

<i>Element</i>	<i>Element</i>
LM600-10 Aluminium	LM602-27 Manganese
LM600-12 Antimony	LM602-32 Mercury
LM600-15 Arsenic	LM602-34 Molybdenum
LM600-20 Barium	
LM600-22 Beryllium	LM602-37 Nickel
LM600-24 Bismuth	LM602-39 Phosphorus
LM600-25 Cadmium	LM602-40 Platinum
LM600-30 Calcium	LM602-42 Potassium
LM600-35 Chromium	LM604-14 Selenium
LM600-40 Cobalt	LM604-17 Silicon
LM600-45 Copper	LM604-19 Silver
LM602-08 Gold	LM604-24 Sodium
LM602-12 Iron	LM604-29 Tin
LM602-17 Lead	LM604-32 Titanium
LM602-19 Lithium	LM604-33 Tungsten
LM602-22 Magnesium	LM604-34 Zinc

With this range accessory connecting leads and adapters are required for use with Perkin-Elmer Spectrophotometers.

Adapter for Perkin Elmer models

LM615-12

Lead for Perkin Elmer models

LM615-14



LM600 to LM6404

Portable Lightboxes

- ◆ Robust aluminium frame with opal acrylic diffuser and toughened glass working surface
- ◆ Consistent, reproducible illumination level across the whole screen
- ◆ Available in A4, A3 and A2 screen sizes
- ◆ Cool white fluorescent illumination
- ◆ A3 and A2 size models have switchable lamps for "half screen" operation and tilt mechanism to adjust the viewing angle

Catalogue No.	LM630-45	LM630-50	LM630-55
Screen size	A4	A3	A2
Viewing area mm	380 x 230	488 x 300	600 x 433
Fluorescent tubes	2 x 8W	2 x 15W	2 x 20W
Overall W x D x H mm	400 x 360 x 310	610 x 440 x 240	765 x 570 x 220
Weight kg	6	10	15

Portable lightboxes

As described. For 230V 50Hz single phase supplies.

LM630-45 Light box, A4

LM630-50 Light box, A3

LM630-55 Light box, A2



LM630

Lubricants

Greases/Waxes/Oil

Silicone Grease

Resistant to a wide range of chemicals and stable from approximately -40 to +200°C.

Normal — for general lubricating of stopcocks. Should not be used with volumetric glassware.

High vacuum — for use at system pressures better than 10^{-6} mbar

LT150-10 Normal/stopcock, 50g tube

LT150-15 High vacuum, 50g tube

glisseal® Greases

Silicone-free for lubricating ground glass joints, stopcocks etc.

- ◆ Excellent thermal stability
- ◆ No dripping point
- ◆ Chemically stable against most acids, alkalis and gases
- ◆ Insoluble in water and low molecular mono- and polyhydric alcohols such as ethanol, ethylene glycol, glycerine, etc.
- ◆ Can be dispersed in low molecular ketones, esters, amines, hydrocarbons, benzene derivatives, higher fatty acids, fatty acid esters and ethers
- ◆ Can be removed with Borer, or any laboratory detergents
- ◆ Only a very thin layer of glisseal® is required for excellent lubrication

Catalogue No		LT160-12	LT160-17
Grade		Normal	High vacuum
Working temperature range	normal °C	-40 to 200	-40 to 220
	air excluded °C	-40 to 300	-40 to 320
	short term °C	350	400
Dripping point	°C	none	none
Vapour pressure	at 21°C Torr	2×10^{-5}	2×10^{-6}

glisseal® Grease N, normal. As specified. For general purpose and low vacuum applications. In 60g tube.

LT160-12 Normal grade

glisseal® Grease HV, high vacuum. As specified. For high vacuum applications. In 60g tube.

LT160-17 High vacuum grade

Important Note

glisseal® MUST NOT be used to lubricate oxygen cylinder valves.



LT150, LT200/205 series



LT160-12 and LT160-17

Apiezon Greases

A wide range of silicone-free, organic based non-toxic materials widely used for sealing and lubricating moving parts in vacuum systems but suitable also for general lubricating applications.

	Grade	Vapour Pressure at 20°C	Melt. point	Tube qty.
LT200-15	L	<10 ⁻¹⁰ mbar	47°C	50g
LT200-20	M	<10 ⁻⁸ mbar	44°C	100g
LT200-25	N	<10 ⁻⁹ mbar	43°C	25g
LT200-30	T	<10 ⁻⁸ mbar	125°C	25g
LT200-40	AP100	<10 ⁻¹⁰ mbar	47°C	50g
LT200-50	AP101	<10 ⁻⁵ mbar	*	50g

*AP101 has a softening point of 180°C and is widely used as a general purpose stopcock lubricant.

Apiezon Wax

Mineral based. For sealing joints in high vacuum systems.

	Grade	Vapour Pressure at 20°C	Soft Point	Pack qty.
LT205-12	W	<10 ⁻⁶ mbar	80°C	500g

Machine Oil

A light grade mineral oil containing a corrosion inhibitor. Useful for general lubricating and in helping free seized parts. In sputted can containing approximately 100ml.

LT240-10 Machine oil

Note: This item can be exported only as sea freight - deck cargo.

Vacuum Pump Oils – see *Pumps* section.

PTFE Sleeves and rings for fitting over ground glass cones to provide greaseless lubrication – see *QZZ20/QZZ27 series in the Quickfit* section.



LT240-10

Magnifiers

Magnifiers, Watchmakers, Folding and Reading

Watchmaker's Eyeglasses

Single bi-convex lens approximately 20mm diameter, in plastic mount. Magnification and focal length as indicated.

	Magnification	Focal length, mm
MB100-17	x4	83
MB100-21	x5	62
MB100-26	x7	42
MB100-29	x9	31

Folding Magnifiers

Hand held. Lightweight aspherical lens, 35mm diameter, which hinges into the outer housing for protection and convenience when storing. Magnification and optical power as indicated.

	Magnification	Optical power, dioptres
MB115-22	x4	16.0
MB115-24	x7	28.0
MB115-26	x10	38.0

Magnification

Unless otherwise stated all magnifications quoted are linear and may be approximately converted to area by squaring, i.e. x2 linear equates approximately to x4 area taken at the point where optimum definition is obtained.

Watchmaker's Forceps – see *Dissecting* section.

Watchmaker's Screwdrivers – see *Tools* section.



MB100



MB115



MB135

Folding Magnifiers

Bench mounting. Bi-convex glass lens in a chrome-plated brass frame. With lens diameter, magnification, optical power and aperture dimensions as indicated.

	Lens dia. mm	Magnification	Optical power, dioptres	Aperture, mm
MB135-14	15	x8	32.0	20 x 20
MB135-16	11	x12	48.0	10 x 10

Reading Magnifiers

Magnification approximately x2. Dimension given is lens diameter.

Acrylic lens. Acrylic frame and handle.

MB150-10 40mm

MB150-15 80mm

Glass lens. Metal mount, plastic handle.

MB155-10 50mm

MB155-12 63mm

MB155-15 75mm

MB155-20 100mm

Hand Magnifier

For general examination work. Acrylic lens, frame and handle. Magnification approximately x3.4. Dimension given is lens diameter.

MB160-20 48mm



MB150

MB155



MB160-20

Magnifiers

Examination

Nature Viewer (Bug Jar)

Ideal for examination of specimens in the field or classroom. Comprises clear acrylic sample pot 41mm diameter x 60mm high with push-in lid containing x4.8 magnification clear acrylic lens.

MB164-10 Viewer

Stand Magnifier

Designed for comfortable, hands-free, benchtop viewing particularly in close-work applications or for colony counting/examination. Rectangular acrylic 140 x 100mm lens, x1.7 magnification, with angle adjustment, mounted on coated metal wire stand. Overall 170 x 110 x 130mm W x D x H.

MB165-30 Stand magnifier

Pocket Illuminated Magnifiers

Compact lightweight magnifiers which can be comfortably carried in a pocket or briefcase. With low-distortion, 48mm diameter bi-aspheric lenses in acrylic with abrasion-resistant coating, and pre-focussed tungsten bulb providing an even pool of light. Powered by 2 x 1.5V AA batteries. Overall 130 x 55 x 30mm L x W x D. Magnifications as indicated. Supplied without batteries.

MB210-08 x5 Magnification, 16.0 Dioptres

MB210-12 x7 Magnification, 24.0 Dioptres

MB210-16 x9 Magnification, 32.0 Dioptres

BL610-15 1.5V AA battery (2 required)

Hand-held Illuminated Magnifiers

Professional level, hand-held illuminated magnifiers with low-distortion aspheric lenses in abrasion-resistant coated acrylic, and pre-focussed, LED illumination. Power by 2 x 1.5V C batteries. Overall 200 x 75 x 45mm L x W x D. Supplied without batteries.

	Magnification	Dioptres	Lens dia., mm
MB215-12	x8.7	31.0	41.4
MB215-22	x10.1	36.4	36.0
MB215-32	x12	44.0	30.8
MB215-42	x14.7	54.9	30.8

BL610-20 1.5V C battery (2 required)

Magnification

Unless otherwise stated all magnifications quoted are linear and may be approximately converted to area by squaring, i.e. x2 linear equates approximately to x4 area taken at the point where optimum definition is obtained.



MB164-10



MB210



MB165-30



MB215

Magnifiers

Compact Illuminated Magnifier, Halo

Light, portable, illuminated magnifier with dimmable LED illumination (maximum 4000 lux at 15cm distance), 90mm diameter 2.25X magnification lens with secondary inset 4.0X magnification lens for closer work which can be rotated away when not required, folding arm allowing 360mm maximum reach, lens cover which protects the lens and allows the magnifier to be used as a desk lamp and desk standing base. With power adapter for 230V 50/60Hz a.c. power consumption 6W. Overall W x D x H: 150 x 330 x 150mm, weight: 0.7kg.

MB228-25 Halo magnifier

Illuminated Magnifier, Ultra Slim

With 175mm diameter 1.75X (3 dioptre) lens set in a slimline shade frame housing a circular, high output 28W daylight fluorescent tube and diffuser mounted on a concealed spring-balanced arm with maximum reach 950mm. Supplied with table clamp bracket for fixing to horizontal surfaces up to 55mm thick. For 220-240V 50Hz single phase supplies.

MB235-15 Magnifier, ultra slim

MB237-04 Table base for MB235-15, 14kg

MB237-08 Swing-arm lens, 4X, fits above standard lens for close work magnification

Illuminated Magnifier, Omega 7, Ultra Slim

imilar to MB235-15 but with illumination by 60 x daylight LED's with two brightness levels, enabling a slimmer head and excellent illumination. Supplied with table clamp and power adapter for 230V 50/60Hz a.c. Power consumption: 12W.

MB235-80 Omega 7 magnifier

MB244-09 Wall bracket

MB244-12 Bench bracket

Illuminated Magnifier, Routine, Omega 5

Ideal for a wide range of inspection and assembly applications which require high quality illumination with magnification. With 130mm diameter, 1.75X high powered lens and LED illumination offering lower heat production and energy consumption (7.2W total wattage) housed in a lightweight ABS polymer head with diffuser and mounted on a concealed spring-balanced arm with maximum reach 1060mm. A separate 2.25X lens is also supplied for interchanging with the fitted lens for close work. Supplied with table clamp bracket for fixing to horizontal surfaces up to 55mm thick. For 220-240V 50Hz single phase supplies.

MB242-70 Magnifier

Accessory base for MB242-70

MB237-04 Table base, 12kg

Magnification

Unless otherwise stated all magnifications quoted are linear and may be approximately converted to area by squaring, i.e. x2 linear equates approximately to x4 area taken at the point where optimum definition is obtained.



MB228-25



MB235-80



MB235-15



MB242-70

Mats

Mats

Mats, ceramic fibre

Provide heat protection to benches. An alternative to asbestos bench mats. Approximately 5mm thick. Maximum operating temperature 80°C. Supplied singly.

	Size, mm
MB800-15	150 x 150
MB800-22	225 x 225
MB800-30	300 x 300

Mats, PTFE

5mm thick, white PTFE. Operating temperature range -200°C to +250°C. Note: DO NOT EXPOSE TO DIRECT HEAT. Supplied singly.

	Size, mm
MB810-25	150 x 150

Mats, Ceran®

Ceran® is a highly resistant, glass ceramic material. Operating temperature range -200 to +700°C, allowing the mat to be used as a heating surface in place of a wire gauze or fireclay triangle. Care should be taken to ensure that the maximum operating temperature is not exceeded when using with a Bunsen burner. Supplied in packs of 10.

	Size, mm
MB820-10	135 x 135
MB820-20	155 x 155
MB820-30	175 x 175

Benchkote, Whatman

Used for protecting laboratory benches and drawers. The smooth, highly absorbent paper top surface is laminated to a strong layer of impermeable polyethylene. A contaminated sheet can be discarded easily and incinerated if necessary.

SA200-20	Pack of 50 sheets, 46 x 57cm
SA200-30	Pad of 50 sheets, 46 x 57cm
SA204-15	Reel 50 metres x 46cm wide
SA204-25	Reel 50 metres x 92cm wide

Benchkote Plus, Whatman

Similar to the standard Benchkote SA200/204 series but with a greater thickness and more open structure to provide greater absorbency. With impermeable polyethylene backing.

SA205-12	Pack of 50 sheets. 50 x 60cm
SA205-18	Reel 50 metres x 60cm wide

Ceran® is a registered trade mark of Schott Glaswerk.

Bench Protection Sheets – see *Safety* section.



MB800



MB820 in use



SA200 in use



MB810



SA204 in use

Measures

Dispensing Measures, Graduated, Glass

COPE

- ◆ Government Stamped to BS1922
- ◆ Permanent markings and graduations
- ◆ Conical and Cup Shapes
- ◆ Metric and Imperial graduations
- ◆ Special graduations available

BS1922 Government Stamped

Additionally, all measures are individually engraved with a traceable batch test number.

	Cap. ml	No. of grads.
Conical Shape		
MD100-10	5	5
MD100-15	10	6
MD100-17	10	10
MD100-22	20*	8
MD100-25	25	5
MD100-27	25	9
MD100-32	50	6
MD100-34	50	10
MD100-36	50	18
MD100-42	100	6
MD100-44	100	10
MD100-50	200*	10
MD100-55	250	6
MD100-57	250	10
MD100-62	500	6
MD100-66	500	10
Cup Shape		
MD300-62	500	6
MD300-67	500	10
MD300-75	1000	10
MD300-80	2000*	8

* Supplementary to BS1922 Government Stamped.

Unstamped

	Cap. ml	No. of grads.
Conical Shape		
MD140-10	5	5
MD140-15	10	10
MD140-22	20	8
MD140-25	25	5
MD140-27	25	9
MD140-32	50	10
MD140-34	50	18
MD140-42	100	10
MD140-50	200	10
MD140-55	250	10
MD140-62	500	10
Cup Shape		
MD340-62	500	10
MD340-75	1000	10
MD340-80	2000	8

Double Scale, Imperial/Metric Unstamped

	Capacity
Conical Shape	
MD160-25	1oz/25ml
MD160-32	2oz/50ml
MD160-42	4oz/100ml
MD160-55	10oz/250ml
MD160-62	20oz/500ml
Cup Shape	
MD360-67	40oz/1000ml

Specials

Measures with capacities and graduations other than those above, including Unstamped Imperial Measures are available to order.

Standard Measures can be produced for left-handed use - *details on request.*

Please request a quotation giving full details of your requirements including the quantity.



MD100/140

MD300/340

Measures/Jugs

Measures

Conical Measures

Polypropylene. Graduated.

	Capacity x grads, ml
MD700-10	100 x 2
MD700-15	250 x 2
MD700-20	500 x 10
MD700-25	1000 x 20

Medicine Measures – see ME810.

Rain Measures

For 5 inch funnels. Glass with flat base. Graduated directly in inches or millimetres of rainfall as specified. Subdivisions are 0.01 inches for inch sizes and 0.2mm for millimetre sizes.

	Reading scale
MD730-20	0.5 inch/12mm dual
MD730-30	10mm

Jugs

Jugs, Azlon

Clear polypropylene. Tall form, beaker shape with handle. High clarity rigid polypropylene with choice of moulded or blue printed graduations, non-slip anti-suction bases and precision pouring spouts. Autoclavable to 121°C.

	Ref.	Cap. ml
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Moulded graduations

MD749-10	JPM0100P	100
MD749-15	JPM0250P	250
MD749-20	JPM0500P	500

MD749-25	JPM1000P	1000
MD749-30	JPM2000P	2000
MD749-40	JPM3000P	3000
MD749-45	JPM5000P	5000

Printed graduations

MD758-08	JPB0050P	50
MD758-10	JPB0100P	100
MD758-15	JPB0250P	250
MD758-20	JPB0500P	500

MD758-25	JPB1000P	1000
MD758-30	JPB2000P	2000
MD758-40	JPB3000P	3000
MD758-45	JPB5000P	5000

Jugs, stainless steel

Graduated.

	Capacity litres
--	--------------------

Tapered shape

MD900-20	0.5
MD900-25	1
MD900-30	2

Straight sided

MD902-18	0.5
MD902-23	1
MD902-32	2



MD700



MD730-30



MD749



MD758



MD900

MD902

Medical Sundries

Ampoule Breakers to Ointment Slab

Ampoule Breakers, Azlon

Disposable polyethylene. Supplied in pack of 1000.

	For ampoules, ml
ME300-10	1 to 4
ME300-15	5 to 10

Capsule and Tablet Counters

Manual capsule and tablet counters. The capsule counter is manufactured in stainless steel with grooves that allow 10 rows of capsules to be counted together. Size 175 x 88mm. The triangular tablet counters (for round tablets) are supplied in two sizes in materials as indicated and have a scale printed or etched onto the surface.

ME380-10	Capsule counter
ME380-35	Tablet counter, 7" (180mm) aluminium
ME380-40	Tablet counter, 7" (180mm) stainless steel
ME380-45	Tablet counter, 10" (250mm) stainless steel

Eye Droppers, glass

With bent end and fitted teat. Supplied in a resealable bag of 10.

	Description
ME520-25	Eye droppers

Eye Ointment Rod, glass

Single ball end. Length 80mm. Supplied singly.

ME530-10 Eye rod

Dropping Pipettes, Plain

Glass. Length approximately 75mm. Supplied in packs of 10.

	Ref.
PP765-15	Droppers
PP765-20	Droppers with teats
PP767-08	Spare teats

Dropping Pipettes, bent, ball ended

Graduated 1ml x 0.2ml. Supplied in pack of 10.

	Description
ME770-40	Droppers, bent

Kidney Dish

Blue polypropylene, autoclavable to 135°C. Capacity 750ml with internal, moulded-in graduations to 600ml. Capacity and dimensions as indicated. Supplied singly.

ME785-10 250 x 55mm length x diameter

Medicine Measures, Polypropylene

Graduated. Supplied in packs as indicated.

	Cap. x grads. ml	Pack qty.
ME810-25	30 x 1	80
ME810-40	60 x 5	50

Dispensing Measure rack

Polished stainless steel. Accommodates up to five conical measures and five spatulas. Overall 145 x 138 x 27mm W x D x H. Supplied with wall fixings.

ME820-15 Dispensing measure rack

Nelson Inhalers

Earthenware with glass mouthpiece and fitted silicone stopper. The 500ml capacity is the NHS pattern.

ME860-10	250ml (1/2 pint)
ME860-13	500ml (1 pint)
ME860-16	1000ml (2 pint)
ME862-05	Spare mouthpiece with silicone stopper for ME860 inhalers, pack of 1.

Ointment Slab

For mixing ointments, creams and pastes. Plate glass 350 x 350mm W x D and 6mm thick. With bevelled edges and rounded, bevelled corners.

ME865-20 Ointment slab



ME300 in use



ME380-10



ME380-45

ME380-35/40



ME520

ME530



ME785

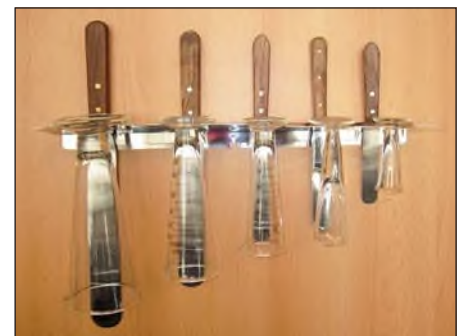


PP765-20, top

ME770-40, bottom



ME810



ME820 in use



ME860

ME865

Medical Sundries

Stainless Steel Holloware

All dimensions and capacities are nominal.

Dressing Containers, with lids

	Cap. ml	Dia. x depth, mm
MF325-26	700	100 x 100
MF325-42	2500	150 x 150

Instrument Boxes, with lid

	L x W x D, mm	Cap. ml
MF430-17	200 x 100 x 50	1000
MF430-27	220 x 120 x 50	1300
MF430-37	300 x 220 x 50	3300

Instrument Trays

With lip and radiused corners. Dimensions stated are nominal and do not include the lip.

	L x W x D, mm
Shallow	
MF445-15	220 x 150 x 12
MF445-26	300 x 200 x 15
MF445-33	360 x 240 x 15
MF445-40	400 x 270 x 15
MF445-47	460 x 300 x 30

Deep

MF450-18	220 x 120 x 50
MF450-36	400 x 300 x 50
MF450-52	450 x 350 x 50

Jugs, stainless steel

Graduated.

	Capacity litres
Tapered shape	
MD900-20	0.5
MD900-25	1
MD900-30	2
Straight sided	
MD902-18	0.5
MD902-23	1
MD902-32	2

Kidney Dish, without lid

	L x W x D, mm
MF500-27	250 x 112 x 40

Lotion Bowl

	Dia. x depth, mm	Cap. ml
MF540-18	160 x 70	750

Additional Medical Sundries

Will be found in other sections.

	Section
Small autoclaves	AUTOCLAVES
Sterilising pouches	
Dispensing bottles	BOTTLES
Powder Bottles	
Tablet Bottles	
Spirit Burners	BURNERS
Medical Wipes	CLEANING
Lancets	CLINICAL
Stethoscope	
Swabs	
Scalpels	DISSECTING
Conical/Cup Measures	MEASURES
Disposable Gloves	SAFETY
Spatulas	SPATULAS



MF325

MF430



MF445

MF445



MD900

MD902



MF500

Melting Point

Digital Melting Point Apparatus IA9000 Series



The IA9000 series operate from a low voltage source for safety and convenience. The viewing arm is adjustable in length and angle to ensure that the samples are easily seen and also to prevent operator fatigue. When not in use the viewing head folds flat for easy storage. A x8 magnifier with wide viewing angle and high intensity illumination allows good visibility of the three sample capillaries. The oven used to heat the samples is microprocessor controlled to provide the fastest warm up and the most accurate temperature control. Capillary tubes up to 2mm diameter can be used and the tube guide is removable for cleaning and insertion of the cold finger.

- ◆ Maximum temperature 400°C
- ◆ Adjustable viewing head
- ◆ Low voltage operation
- ◆ 40mm x8 magnification viewing lens with adjustable focus
- ◆ Membrane keypad
- ◆ Melt temperature storage
- ◆ Fast warm-up
- ◆ White LED-illuminated sample chamber
- ◆ Date/time facility (IA9200/9300 only)
- ◆ Optional printer
- ◆ RS232-C and USB ports (IA9200/9300 only)

Model IA9100

Meets the requirement for basic sample testing. Up/down keys are used to set ramp start temperature, then a standard ramp of 1°C per minute is used to heat the sample. If the melt temperature is not known, a 10°C per minute search ramp can be used to give coarse measurement of melt temperature. When watching the samples for the melt to occur a temperature storage button is pressed to record up to four discrete temperatures in the memory. These temperatures can be recalled later on the LCD display.

Model IA9200

The IA9200 additionally has five different standard temperature ramps or it can be programmed by the operator to use any temperature increase rate from 0.2°C to 10°C per minute in 0.1°C steps. An output connector allows interface with the PR2000S printer accessory or other peripheral devices. A USB output is also provided for use with accessory flash drives. A real-time clock enables the printing of date and time. A batch memory allows the storage of up to 1000 sets of results and conditions.

Model IA9300

Provides similar features to the IA9200 but allows in addition, two discrete melt temperatures to be recorded for each capillary tube. This feature enables, for example, the clear recording of a "start of melt" and "full meniscus" temperature for each of the three samples under test. A tube select key toggles between the sample tubes and LED indicators on a head up display behind the viewing lens show which tube is selected. The batch memory allows storage of up to 500 sets of results and conditions.

continued on next page



MG050/MG055

Melting Point



Digital Melting Point Apparatus IA9000 Series continued

Model	IA9100/9200/9300		
Range	Ambient to 400°C		
Resolution	0.1°C		
Accuracy at	20°C	±0.5°C/±1 digit	
	350°C	±1°C/±1 digit	
Display	12mm high 4 digit liquid crystal — all models		
Capillary tubes	Capacity 3 up to 2mm diameter		
Memory	<i>Model IA9100:</i>	4 temperatures	
	<i>Model IA9200:</i>	4 temperatures. Up to 1000 batch	
	<i>Model IA9300:</i>	6 temperatures. Up to 500 batch	
Outputs	RS232-C and Printer sockets, USB to accessory flash drive on models IA9200/9300		
Power, input	230V 50/60Hz single phase — all models		
output	15V - all models		
Overall	<i>width x depth</i>	<i>mm</i>	200 x 355 — all models
	<i>height extended</i>	<i>mm</i>	450 — all models
	<i>closed</i>	<i>mm</i>	80 — all models
Weight	<i>kg</i>	2.5 — all models	

Melting Point Apparatus IA9100

As described. Maximum temperature 400°C. With 4 position membrane keypad, memory and 1°C/10°C fixed, selectable ramp rates. Supplied with power supply for 230V 50/60Hz single phase input and storage capacity for 100 capillary tubes.

MG050-10 IA9100

Melting Point Apparatus IA9200

As described. Maximum temperature 400°C. With 16 position membrane keypad, temperature and batch memory, programmed, adjustable 0.2 to 10°C/min ramp rate facility, USB flash drive output, printer socket and RS232 interface. Supplied with power supply for 230V 50/60Hz single phase input and storage capacity for 100 capillary tubes.

MG055-10 IA9200

Melting Point Apparatus IA9300

As described. Maximum temperature 400°C. With 13 position membrane keypad, adjustable 0.2 to 10°C/min ramp rate facility, temperature and batch memory, USB flash drive output, printer socket and RS232 interface. Includes facility to record 2 melt temperatures for each capillary tube. Supplied with power supply for 230V 50/60Hz single phase input and storage capacity for 100 capillary tubes.

MG055-35 IA9300

Spares and Accessories

Bulb 12V, AZ9005. Spare for all models.

MG059-05 Bulb, AZ9005

Cold finger for rapid cooling of heating block. Requires a source of cold water.

MG059-08 Cold finger AZ9001

MG059-15 Dust cover AZ9002

Printer for MG055-10, MG055-35 only. Provides print-out of test results date, time, sample batch number, start temperature, ramp rate and temperature of melts.

MG060-10 Printer PR20005

Pack of 2 paper rolls and 1 ribbon. For printer MG060-10.

MG060-17 Rolls/ribbon, AT4044

MG060-25 Calibration kit AZ9253

Melting point capillary tubes, neutral glass, 100mm long with nominal bore as indicated. (1mm bore tubes are 1.2 to 1.4mm o.d., 0.9 to 1.1mm i.d., 2mm bore tubes are 1.8 to 2.0mm o.d., 1.4 to 1.6mm i.d.) Supplied in packs of 1000.

	<i>Bore, mm</i>
Sealed both ends	
MG140-10	1
MG145-10	2
Sealed one end	
MG140-20	1
MG145-20	2
Open both ends	
MG140-30	1
MG145-30	2



MG050/MG055

Melting Point

Melting Point Apparatus Stuart Model SMP10

A general purpose model designed for safe, easy operation. Does not require a mercury-in-glass thermometer making it ideal for educational use.

- ◆ Maximum temperature 300°C
- ◆ Digital temperature setting and control with LED readout
- ◆ Pt100 temperature sensor
- ◆ Two heating ramp rates selectable:
 - 20°C/minute to plateau temperature
 - 2°C/minute to melt
- ◆ Accepts up to 2 sample tubes
- ◆ Built-in sample illumination
- ◆ Extendible rear feet for optimal viewing angle

Melting Point Apparatus, SMP10

As described. Maximum temperature 300°C. Accuracy $\pm 1^\circ\text{C}$ at 20°C, $\pm 2.5^\circ\text{C}$ at 300°C. With Pt100 sensor, digital setting and control to 1°C, and LED readout. Overall 160 x 220 x 170mm W x D x H. Weight 1.8kg. For 230V 50Hz single phase supplies, 75W. Supplied with calibration certificate and 100 melting point tubes, closed one end.

MG158-10 SMP10

Melting point capillary tubes, neutral glass, 100mm long with nominal bore as indicated. (1mm bore tubes are 1.2 to 1.4mm o.d., 0.9 to 1.1mm i.d., 2mm bore tubes are 1.8 to 2.0mm o.d., 1.4 to 1.6mm i.d.) Supplied in packs of 1000.

Bore,
mm

Sealed both ends

MG140-10	1
MG145-10	2

Sealed one end

MG140-20	1
MG145-20	2

Open both ends

MG140-30	1
MG145-30	2

Melting Point Apparatus Stuart Model SMP20

An enhanced model of MG158-10, with additional features to improve functionality and ease of use.

- ◆ Maximum temperature 300°C
- ◆ Digital temperature setting and control
- ◆ 4 digit LED display and adjustable resolution 0.1/1°C
- ◆ Pt100 temperature sensor
- ◆ 'Hold' button freezes the display when pressed at viewed melting point
- ◆ Two heating ramp rates selectable:
 - 20°C/minute to plateau temperature
 - adjustable ramp rate 1 to 10°C/minute to melt
- ◆ Accepts up to 2 sample tubes
- ◆ Built-in sample illumination
- ◆ Extendible rear feet for optimal viewing angle

Melting Point Apparatus, SMP20

As described. Maximum temperature 300°C. Accuracy $\pm 1^\circ\text{C}$ at 20°C, $\pm 2.5^\circ\text{C}$ at 300°C. With Pt100 sensor, digital setting, control adjustable to 0.1/1°C, and 4 digit LED readout. Overall 160 x 220 x 170mm W x D x H. Weight 1.8kg. For 230V 50Hz single phase supplies, 75W. Supplied with calibration certificate and 100 melting point tubes, closed one end.

MG165-10 SMP20

Melting Point Thermometers

Mercury filled. Length 250mm. Immersion 30mm.

	Range °C	Grads. °C
TG790-35	0 to 150	0.5
TG790-37	0 to 360	1.0

Melting Point Apparatus Stuart Model SMP30

- ◆ Maximum temperature 400°C x 0.1°C resolution
- ◆ Accepts up to 3 sample tubes
- ◆ 'Plateau facility' gives adjustable ramp rate between 0.5°C and 10°C per minute in 0.1°C increments
- ◆ Memory storage available to record up to 8 temperature event values from each sample
- ◆ Integrated cooling: 350°C to 50°C in 20 minutes
- ◆ 2-stage adjustable folding viewing head (height and angle) with head-up display indicating block temperature, visible through the eyepiece in front of the sample tubes
- ◆ Pt1000 temperature sensor
- ◆ Sample tubes illuminated by white LED's to maximise visibility of the melt

<i>Model</i>	SMP30
<i>Range</i>	Ambient to 400°C
<i>Accuracy</i>	$\pm 0.5^\circ\text{C}$ at 50°C $\pm 2.5^\circ\text{C}$ at 360°C
<i>Ramp rate</i>	0.5 to 10°C per minute
<i>Memory</i>	Up to 8 readings per sample
<i>Capillary tubes</i>	Up to 3, 2mm i.d. maximum
<i>Overall W x D x H</i>	170 x 200 x 325mm
<i>Weight</i>	3.6kg

As described. Supplied with calibration certificate and 100 melting point tubes, closed one end. For 230V 50Hz single phase supplies.

MG170-35 SMP30

Mercury Thermometers

Under the requirements of Annex XVII of EC552/2009 REACH Regulations, mercury thermometers cannot be sold to the General Public within the EU.



MG158-10



MG165-10



MG170-35

Melting Point

Melting Point Apparatus Stuart Model SMP50

Innovative, automatic melting point apparatus incorporating a video camera and digital image processor for automatic melt determination (with manual result override) of up to 3 samples simultaneously. The display has a 7", high definition colour readout which allows real-time viewing of the melt. The video created is automatically saved as an AVI file that can be reviewed later (by accessing the on-board, 300-result memory), or output via USB to the users' PC or flash drive. The display also incorporates touch screen operation with user prompts in English or French languages. With 'Plateau facility' that allows an adjustable ramp rate near the melt temperature. The housing also incorporates a tube cutter to score/cut capillary tubes as required and storage tray. The SMP50 also conforms to Pharmacopeia and GLP requirements.

Model	SMP50
Range	Ambient to 400°C (°F, °k selectable)
Resolution	0.1°C
Ramp rate	0.1 to 20°C in 0.1°C increments
Memory	300 results with video (built-in)
Cooldown period	350°C to 50°C in 12 minutes
Heat-up period	50°C to 350°C in 6 minutes
Display	7" colour HD touchscreen
Oven control	Closed loop PID
Temperature sensor	Pt1000
Output port	USB
Capillary tubes	Up to 3, 2 to 3mm i.d. x 50/100mm long
Overall W x D x H	300 x 360 x 164mm
Weight	4.6 kg

As described. Supplied with calibration certificate and 100 melting point tubes. For 230V 50/60Hz single phase supplies.

MG180-15 SMP50

MG180-85 Accessory printer with rechargeable battery and USB cable for MG180-15, requires a 100-240V 50/60Hz a.c. supply.

Melting point tubes - see MG140-series



MG180-85



MG180-15 in use

Melting Point Apparatus Stuart Model SMP11

A simple, manual model primarily for education.

- ◆ Maximum temperature 250°C
- ◆ Horizontal thermometer, filled with low-toxic spirit
- ◆ LED-illuminated magnifier
- ◆ Accepts up to 3 sample tubes

Melting Point Apparatus, SMP11

Horizontally mounted, low-toxic spirit filled thermometer. Maximum temperature 250°C. With LED-illuminated magnifier which is removable for cleaning. Up to 3 sample tubes can be accommodated. Overall 370 x 140 x 110mm W x D x H. Weight 1.7kg. For 230V 50Hz single phase supplies, 50W. Supplied with thermometer and 100 melting point tubes, open both ends.

MG175-20 SMP11

Kofler Hot bench

Enables simple, rapid, melting point determinations from +50°C to +260°C. The substance is scattered across a heated surface, so additionally eutectic temperatures, behaviour of water of crystallisation, dissociation and volatility can be observed, leading to faster identification of organic compounds. With stainless steel plate 360 x 40mm L x W in which a linear temperature gradient is produced. A temperature scale with sliding pointer enables the temperature to be read at any point. The pointer can be adjusted to increase accuracy near the region of interest using calibration substances of known melting point. For 230V 50Hz single phase supplies, 100W.

MG200-15 Kofler hot bench

Test and Calibration Set for Kofler Hot Bench

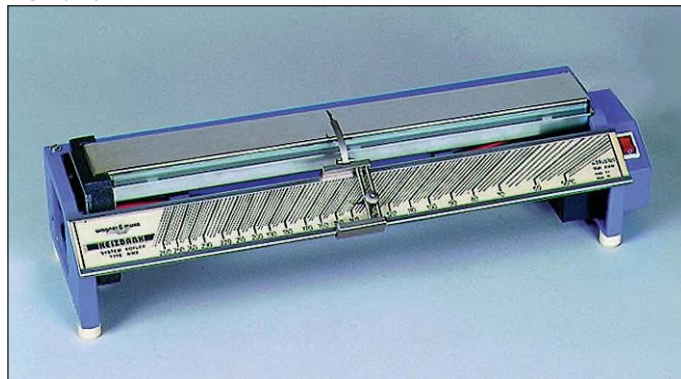
Comprising a set of eight substances (approximately 2g each) with melting points as follows:

Stearic acid: 69.7°C	Adipic acid: 150.6°C
Benzil: 94.8°C	Benzanilide: 161.6°C
Acetanilide: 113.9°C	2-Cyanoguanidine (Dicyandiamide): 209.4°C
Benzoin: 134.8°C	Saccharin: 226.5°C

MG202-05 Test and calibration set for MG200-15



MG175-20



MG200-15

Microscopes

USB Microscope

Small, low-cost, digital microscope allowing the user to view or capture specimen images onto their own personal computer.

- ◆ High speed USB interface
- ◆ Up to 200X magnification
- ◆ 2 megapixel image sensor
- ◆ Still image resolution: 1920 x 1080 down to 640 x 480 pixels in jpeg or bitmap formats
- ◆ Video capture resolution: 1920 x 1080 down to 640 x 480 pixels in AVI format
- ◆ Built-in, adjustable illumination using 8 x white LED light source
- ◆ Software supplied allows control of image features and measurement of the item observed
- ◆ High-quality lens provides undistorted, true images
- ◆ BUS-powered, with low energy consumption, ideal for field use

USB Microscope

As described. Supplied with software Cd, stand and 1.5m cable. Requires a personal computer running Windows™ 7 or Mac 10.12 OS or later for operation.

MJ125-15 10X to 200X magnification

Catalogue No.	MJ125-15	
Magnification	10X to 200X	
Image sensor	Mpixels	2.0
Signal output	Serial data for USB standard compliant 2.0	
Power	5V d.c. through USB port	
Energy consumption	110mA (average)	
Overall L x dia.	mm	110 x 33
Weight	g	45



MJ125-15

Microscopes

Oxion Series Life Science Microscopes

Modern, robust, high-specification microscopes suitable for use in numerous routine and research applications, particularly life sciences. Particular care has been taken in the design to ensure minimal operator fatigue in use.

- ◆ Binocular, trinocular, phase and epifluorescence versions available
- ◆ Choice of DIN standard objective sets: plan achromatic or plan semi-apochromatic
- ◆ Unique swivelling head that allows the viewing height to be adjusted

Magnification up to 1000X, with 30° inclined Seidentopf head and swivel height adjustment, rotatable 360° with adjustable interpupillary distance (50 to 75mm) and dioptric adjustment, coaxial coarse and fine focussing and 0.2 mm minimum movement. Reversed, quintuple (5-place) nosepiece turret. Stable mechanical stage 150 x 140mm with vernier, removable slide clip, x-y movement (max. 76mm x, 50mm y) and coaxial drop controls. Also features a height adjustable, Abbe condenser (N.A. 1.25) with iris diaphragm and filter ring. Built in 3W LED illumination with a.c. adapter for 85-240V supplies.

Eyepieces — WPL 10X, 22mm field

Objectives — DIN standard, as indicated

Overall 200 x 294 x 397mm W x D x H. Weight 10kg. For 85-240V 50/60Hz single phase supplies.

Binocular models

MJ325-10 Plan achromatic 4XD, 10XD, 40XRD, 100XRD (oil)

Trinocular models

Generally as MJ325-series but with trinocular head, the vertical third tube accommodating accessory photographic mounts.

MJ327-10 Plan achromatic 4XD, 10XD, 40XRD, 100XRD (oil)

MJ327-20 Plan semi-apochromatic 4XD, 10XD, 40XRD, 100XRD (oil)

MJ327-30 Plan phase apochromatic 10XD, 20XD, 40XRD, 100XRD (oil)

Accessories and Spares

MJ329-02 High eyepoint, widefield eyepiece with micrometer reticule

MJ329-04 Polariser/analyser kit

MJ329-08 Neutral density filter

MJ329-12 Blue filter

MJ329-16 Yellow filter

MJ329-19 Green filter

MJ329-28 Photo adapter for SLR camera. Requires T2 adapter.

MJ329-36 T2 adapter for Canon EOS SLR camera

MJ329-42 T2 adapter for Nikon SLR camera

MJ329-50 Spare 3W LED lamp for MJ325/MJ327-series microscopes

MJ329-84 Universal SLR camera adapter, requires MJ329-86 and MJ329-36 or MJ329-42 for operation

MJ329-86 Photo adapter for use with MJ810-40 and SLR cameras

Eyepiece/Objectives Codes

H	=	High eyepoint
W	=	Widefield
R	=	Retractable
D	=	DIN Standard
H	=	High Eyepoint



MJ325-10, MJ327-10 is similar

Microscopes

Oxion Inverso Life Science Inverted Microscopes

- ◆ Magnification up to 400X (600X using accessory objective)
- ◆ Trinocular 45° inclined tubes with extended low and high positions for eyepieces
- ◆ Choice of plan or plan phase contrast objectives
- ◆ Inverted quintuple nosepiece
- ◆ Co-axial coarse/fine focussing control with indexed scale
- ◆ Built-in 5W LED adjustable illumination
- ◆ Smooth action x-y mechanical stage

Inverted Laboratory Microscopes, Oxion Inverso

Magnification up to 400X, with 45° inclined trinocular head and swivel height adjustment, phototube, adjustable interpupillary distance (54 to 75mm) and dioptic adjustment, coaxial coarse and fine focussing and 2µm minimum movement. Inverted, quintuple (5-place) nosepiece turret with objectives as indicated. Stable mechanical stage 250 x 230mm with inserts for 35mm diameter cell culture dishes, 76 x 26mm microscope slides, x-y movement (max. 120mm x, 78mm y) and coaxial drop controls. Also features a height adjustable, Abbe condenser (N.A. 0.30) with 2mm working distance and built in 5W LED adjustable illumination with a.c. adapter for 85-240V supplies.

Eyepieces — HW 10X, 22mm field

Objectives — DIN standard, as indicated

Overall 231 x 555 x 488mm W x D x H. Weight 9kg. For 85-240V 50/60Hz single phase supplies.

MJ328-10 Plan objectives 10XD, 20XD, 40XD

MJ328-30 Plan phase objectives 10XD, 20XD, 40XD

Accessories and Spares

MJ329-36 T2 adapter for Canon EOS SLR camera

MJ329-42 T2 adapter for Nikon SLR camera

MJ329-55 High eyepoint, widefield 10X eyepiece with micrometer scale 10mm/100

MJ329-58 Plan achromatic 4XD objective

MJ329-61 Plan achromatic 60XD objective

MJ329-64 Plan phase achromatic 4XD objective (requires MJ329-67 for operation)

MJ329-67 Phase contrast slider with 4X/10X and 20X/40X phase contrast annuli

MJ329-70 Universal cell culture dish holder

MJ329-72 Blue filter

MJ329-73 Green filter

MJ329-77 C/CS mount with 1.0X objective

MJ329-81 Photo adapter for 0.5X magnification for ½ inch C/CS mount cameras

MJ329-84 Universal SLR camera adapter, requires MJ329-86 and MJ329-36 or MJ329-42 for operation

MJ329-86 Photo adapter for use with MJ810-40 and SLR cameras

MJ329-98 Spare 5W LED lamp for MJ328-series microscopes

Eyepiece/Objectives Codes

H	=	High eyepoint
W	=	Widefield
R	=	Retractable
D	=	DIN Standard



MJ380

Stereomicroscopes

StereoBlue series

Euromex

High performance, advanced zoom stereomicroscopes.

- ◆ Magnification 7X to 45X (up to 90X using accessory eyepieces)
- ◆ Working distance 100mm
- ◆ Field of view 4.4 to 28.6mm (with standard optics supplied)
- ◆ Inclined 45° binocular head, rotatable 360° and height adjustable
- ◆ Full interpupillary and dioptic adjustment, with rack and pinion focussing
- ◆ Pillar stand

Binocular Zoom Stereomicroscope SB1902-P

As described. Magnification range 7X to 45X. With 45° inclined binocular head rotatable 360°, paired widefield 10X eyepieces with interpupillary and dioptic adjustment and eyecups. Heavy stable base with pillar stand and 3W LED transmitted and incident illumination, stage clips, dust cover, 60mm diameter transparent and black/white stage plates and instructions. Overall 219 x 266 x 340mm W x D x H. Weight 4.4kg. For 85-240V 50/60Hz single phase supplies.

MJ620-45 SB1902-P

Trinocular Zoom Stereomicroscope SB1903-P

Generally as MJ620-45 but with trinocular head. The third eyetube allows any CCD camera with C lens mount or digital SLR camera to be fitted using an accessory adapter. Overall 219 x 266 x 340mm W x D x H. Weight 4.5kg. For 85-240V 50/60Hz single phase supplies.

MJ620-55 SB1903-P

Spares and Accessories for MJ620-45/-55

MJ623-56 Eyepieces WF15X (2 supplied)

MJ623-58 Eyepiece WF20X (2 supplied)

MJ623-60 C-mount adapter with 0.5X lens for 1/2" diameter lens cameras

MJ329-36 T2 adapter for Canon EOS digital SLR cameras

MJ329-42 T2 adapter for Nikon D digital SLR cameras

MJ329-84 Universal SLR camera adapter with 2X lens for 23.2mm tubes. Requires T2 adapter.

Digital Microscope Camera, CMEX-5f

Euromex

High resolution, digital camera for use with most types of compound and stereomicroscopes.

- ◆ 5.0 Mpixel resolution
- ◆ CMOS 1/2.8" sensor, with 2560 x 1920 pixels
- ◆ 24-bit colour depth (True colour)
- ◆ Low signal:noise ratio (42dB maximum)
- ◆ USB 2.0 interface
- ◆ Compatible with Windows® computers running Windows® 7 and later operating software

Scan mode	Progressive, rolling shutter
Pixel size, μm	2.0 x 2.0
Filter	RGB
Scanning system, max. frames/sec.	Up to 30 at 2560 x 1920 pixels Up to 50 at 1600 x 1200 pixels
Sensitivity	2.0V/lux-second at 550nm. Suitable for Brightfield, Darkfield, Phase contrast or Epifluorescence techniques
Lens mount	C-mount
Exposure	Automatic or manual from 1 msec. to 2 sec.
White balance	Automatic or manual
Output	USB 2.0 at 480Mb/sec.
Power supply	5V self-powered via P.C. USB connector
Overall, W x D x H	mm 130 x 60 x 100
Weight	g 500

Digital Microscope Camera, CMEX-5f

As described. Fits a standard 23.2mm diameter trinocular or eyepiece tube. Supplied with 0.45X objective with C-mount, USB2.0 cable, 30mm and 30.5mm diameter adapters for stereomicroscopes, stage calibration slide graduated 1mm x 0.01mm and software CD.

MJ810-40 CMEX-5f



MJ620-45, MJ620-55 is similar



MJ810-40

Microscopy

Cold light sources

For high-intensity incident illumination of microscopy specimens, photography and general examination.

Fixed light intensity

Compact, economical, fixed, 20W halogen light source. Colour temperature 3100K. Supplied with 400 x 6mm length x diameter single gooseneck light guide. Overall 110 x 165 x 80mm W x D x H, weight 2kg. For 230V 50/60Hz a.c. single phase supplies.

MK740-10 Fixed 20W halogen cold light source

Variable light intensity

- ◆ Infinitely variable light intensity
- ◆ Safety power transformer
- ◆ Built-in heat absorber
- ◆ Low noise fan

<i>Model</i>		LE.5210	LE.5211
<i>Lamp rating</i>	<i>W</i>	100	150
<i>Max. Colour temperature</i>	<i>K</i>	3100	3250
<i>Supply requirements</i>		230V 50/60Hz a.c. — both models	
<i>Overall, W x D x H</i>	<i>mm</i>	110 x 215 x 150	230 x 200 x 120
<i>Weight</i>	<i>kg</i>	2.75	4

As described. With carrying handle and mains lead. For 230V 50/60Hz single phase supplies. Require, but are not supplied with, light guide.

MK745-15 LE.5210

MK745-25 LE.5211

Goose neck light guides

Length 500mm, diameter 4mm. For use with MK745-series only.

MK747-04 Single branch

MK747-08 Double branch

Accessories

MK747-52 Focusing head for light guides which includes filter holder for use with accessory filters

MK747-55 Focusing head with iris diaphragm for light intensity adjustment without colour alteration

MK747-58 Colour filter set, red, blue, green (requires MK747-52 or MK747-55)

MK747-59 Polarisation filter for reducing reflections (requires MK747-52 or MK747-55)

MK747-70 Halogen lamp for MK745-15

MK747-80 Halogen lamp for MK745-25



MK740-10



MK745-25 in use with MK747-08



MK745-15 in use

Microscopy

Measuring Microscopes

Measuring Microscopes

With eyepiece graticule scale. Can be used hand-held or on the bench. A knurled sleeve provides focusing adjustment of 20mm. Readings can be made in daylight but for difficult subjects a battery powered adjustable light source is fitted. The image provided is inverted and reversed. Scale details given are range/subdivisions. Overall height 200mm. Weight 0.35kg.

	Mag.	Field mm	Scale mm/ μ m
MK600-15	40X	2.5	2 / 10
MK600-25	100X	1.3	1 / 10



MK600

Eyepiece Graticules

For use with light microscopes. Surface type where the pattern is formed in a layer bonded to the surface of the glass disc 1mm thick. In this type the pattern reads correctly when viewed through the glass. When the microscope is focussed the image of the specimen and graticule will be seen together.

Horizontal

Calibration 10mm x 0.1mm.

ML200-15 19mm diameter

ML200-20 21mm diameter

Crossed

Calibration 10mm x 0.1mm.

ML205-15 19mm diameter

ML205-20 21mm diameter

Indexed Squares

1mm grid squares with each square numbered.

ML215-15 19mm diameter

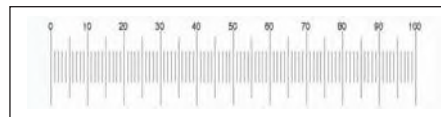
ML215-20 21mm diameter

Particle Size Counting

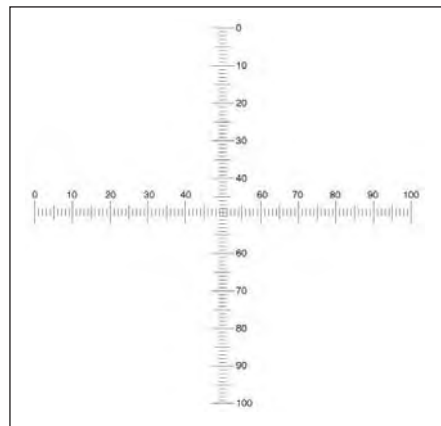
To BS3625. Range 150 μ m to 0.38 μ m.

ML220-15 19mm diameter

ML220-20 21mm diameter



ML200



ML205

0	1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18	19
20	21	22	23	24	25	26	27	28	29
30	31	32	33	34	35	36	37	38	39
40	41	42	43	44	45	46	47	48	49
50	51	52	53	54	55	56	57	58	59
60	61	62	63	64	65	66	67	68	69
70	71	72	73	74	75	76	77	78	79
80	81	82	83	84	85	86	87	88	89
90	91	92	93	94	95	96	97	98	99

ML215

Stage Micrometers

Used to calibrate eyepiece graticules.

Horizontal Scale

Mounted on 76 x 26mm glass slide. For use with transmitted light.

ML250-15 0.1 x 0.002mm

ML250-20 1.0 x 0.01mm

ML250-25 10 x 0.1mm

Vacuum deposited, chrome image on a square of glass with a cover glass cemented on top and mounted on a stainless steel slide mount. Also available with UKAS certificate of calibration. For use with transmitted light.

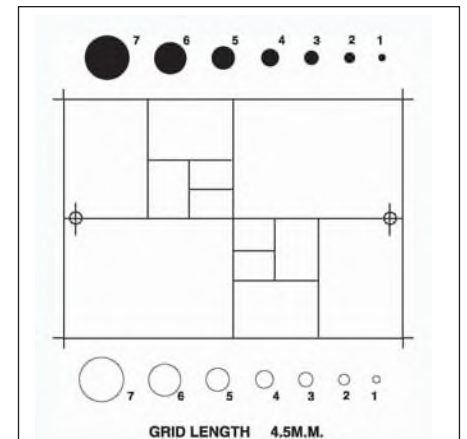
ML250-37 20 x 0.01mm

ML250-42 20 x 0.01mm, UKAS certified

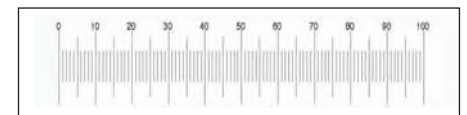
Lightboxes – see LM630.

Illuminated magnifiers – see MB235/MB245.

Magnifiers with aperture scales – see MB135 in the Magnifiers section.



ML220



ML250

Microscopy

Microscope Slides

Schools Grade

Nominal size 76 x 26mm. Nominal thickness 1mm. Supplied in a box of 50.

	Grade type
ML300-08	Schools

Superior

Manufactured to ISO 8037/1. Nominal size 76 x 26mm, thickness 1 mm. Pre-cleaned, cut or ground edges, half-white, soda-lime glass. Supplied in boxes of 50.

	Grade type
ML375-10	Plain
ML375-18	Twin-frosted

Ground edges

ML375-42	Plain
ML375-48	Twin-frosted

Adhesive, Histobond®

Half-white glass slides with silane-treated, positively-charged surfaces for effective adhesion of specimens. Particularly suitable for immunohistological staining procedures where multiple wash phases occur, or in-situ hybridization. Nominal size 76 x 26mm, 1mm thick, with ground edges and twin-frosted. Supplied in a box of 50.

ML375-94 Adhesive slides

Superior, cavity

Size 75 x 25mm. Thickness 1.2/1.5mm. Each cavity 15/16mm diameter. Supplied in boxes of 50.

	No. of cavities
ML390-12	1
ML390-14	2
ML390-16	3

Frosting Facility

Single-frosted slides have a frosted writing surface on one face of the slide at one end. Twin frosted slides have a frosted writing surface on both faces of the slide at one end.

Coloured Slides

Microscope Slides

Superfrost. With coloured end which can be marked with most types of pen or pencil. Size 76 x 26 x 1mm thick. 45° ground edges. Supplied in packs of 50.

	Colour
ML400-09	White
ML400-12	Blue
ML400-15	Green
ML400-18	Pink
ML400-21	Yellow

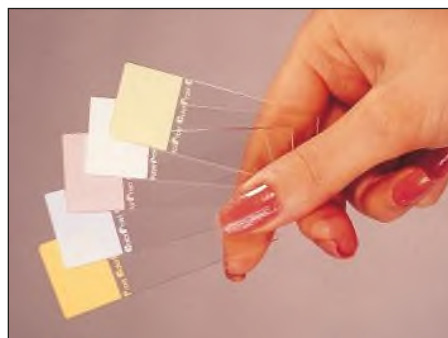
Slide Forceps

With spatulate ends for manipulating slides and cover slips. Stainless steel.

ML460-10 Forceps

Slide drying bench – see HG310.

Slide staining and storage – ML700 to ML890.



ML400



ML460 in use

Microscopy

Cover Slips

- ◆ Meet the requirements of DIN ISO8255
- ◆ Pure white, borosilicate glass
- ◆ CE marked, for in-vitro diagnostic applications under European Directive 98/79/EC
- ◆ Suitable for use with automatic coverslippers

Thicknesses

No. 1 0.130 – 0.160mm **No. 1½** 0.155 – 0.185mm

Most microscope objectives are corrected for a cover glass thickness of 0.170mm and No. 1½ slips are designed to be most effective in this respect.

Square Cover Slips, Superior

Supplied in packs and thickness numbers as indicated.

	No.	L x W mm	Pack qty.
ML517-12	1	18 x 18	100
ML517-20	1	22 x 22	200
ML517-25	1	24 x 24	200
ML519-10	1½	18 x 18	200
ML519-15	1½	20 x 20	200
ML519-20	1½	22 x 22	200
ML519-25	1½	24 x 24	200

Rectangular Cover Slips, Superior

Supplied in packs and thickness numbers as indicated.

	No.	L x W mm	Pack qty.
ML527-12	1	21 x 26	200
ML527-17	1	22 x 32	100
ML527-22	1	22 x 40	100
ML527-27	1	22 x 50	100
ML527-32	1	22 x 60	100
ML527-37	1	24 x 32	100
ML527-42	1	24 x 40	100
ML527-47	1	24 x 50	100
ML529-22	1½	22 x 40	100
ML529-27	1½	22 x 50	100
ML529-32	1½	22 x 60	100
ML529-47	1½	24 x 50	100

Circular Cover Slips, Superior

Supplied in packs and thickness numbers as indicated.

	No.	Dia. mm	Pack qty.
ML535-13	1	13	100
ML535-18	1	16	100
ML535-23	1	19	100
ML535-28	1	22	100



Microscopy

Slide Staining

Staining Block

Clear polished glass with flat glass cover. Cavity 6mm deep.

ML700-10 40 x 40mm

Staining Jar, Coplin pattern, glass

For holding 10 slides 76 x 26mm back to back. Complete with lid.

ML720-10 Glass

Staining Jar, Coplin pattern, plastic

Rugged polypropylene, with screw lid. For holding 10 slides 76 x 26mm back to back. Autoclavable but lid must be unscrewed and set gently on top.

ML720-55 Polypropylene

Staining Trough

Glass with loose flat lid. Grooved internally to hold 20 slides 76 x 26mm back to back.

ML730-10 Trough

Staining Trough

Glass with loose flat lid. Accepts one accessory tray. Overall 103 x 83 x 70mm W x D x H.

ML735-10 Trough

Accessory tray, glass. With inner grooves to accept 20 slides 76 x 26mm back to back.

ML737-08 Tray

Slide rack ends

For suspending microscope slides over laboratory sinks using glass rod rails. Each end has two 7.5mm diameter holes with screw clamps to accommodate the glass rods, and two levelling screw feet. Supplied in pairs.

ML754-10 Staining rack ends

Slide Dispenser, Kartell

ABS plastic. Holds approximately 50 slides 76 x 26mm. Slides are ejected one at a time by turning either side knob.

ML798-15 Slide dispenser

Electrothermal Slide Drying Bench, MH6616

With built in energy regulator and indicator lamps. Maximum temperature 100°C. Accepts up to fifty 76 x 26mm slides on removable drying bars. Overall 435 x 178 x 75mm W x D x H. For 220-240V a.c. single phase supplies, 150W.

HG310-10 MH6616

Histology equipment

Paraffin Section Mounting Bath – see HG300.

Paraffin Wax Dispenser – see HG320.

ML720-55



ML720-10, ML700, ML735, ML737, ML730



ML754 in use



ML798 in use



HG310 in use

Microscopy

Slide Storage

Slide tray boxes

Cloth covered card boxes, with fall front, containing wood pulp trays each capable of holding up to nine 76 x 26mm slides. Number of trays supplied, as indicated.

	No. of trays
ML805-40	6
ML805-45	8
ML805-50	9
ML805-55	12
ML805-65	16

Slide trays, spare

For use with ML805. Woodpulp tray with gate folding side flaps. Capacity nine 76 x 26mm slides. Supplied in pack of 10.

ML807-10 Slide trays

Slide boxes

Wood, black paper covered with imitation leather finish and hinged lid.

ML840-25 50 slides

ML840-30 100 slides

Slide mailers

Strong, durable, cardboard to hold two microscope slides. With thumb groove for easy slide removal and folding flap cover. In holder types and packs as indicated.

ML890-10 Double holder, pack of 10

ML890-11 Double holder, pack of 100

Slide mailers

Rigid polypropylene, with slotted channel(s) to hold slides safely, secure snap-locking cover, marking area and "Top" indicator printed on the top surface. To hold 76 x 26mm slides as indicated and supplied in packs of 10.

ML890-75 For one slide

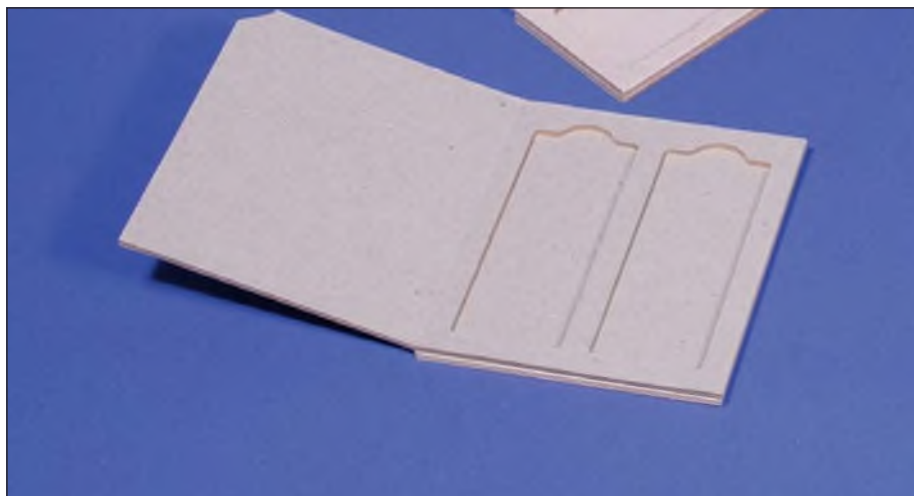
ML890-80 For two slides

ML890-85 For three slides

ML890-90 For five slides



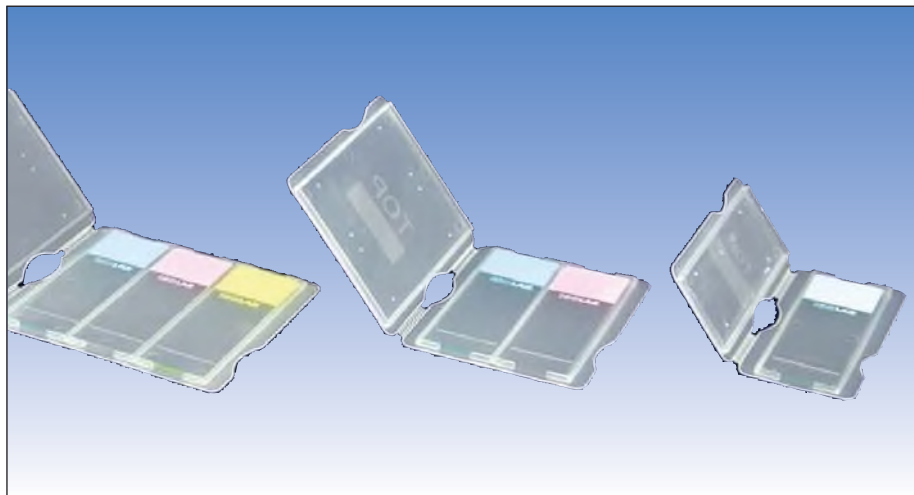
ML805 with ML807



ML890-10/-11



ML840



ML890-75 to -90

Microtitration

Microplates



Deep Well

Designed for a wide variety of applications, including High-Throughput Screening (HTS) tests requiring a mother plate, cell and tissue cultures, serial dilutions, reagent transfer and sample storage.

- ◆ Choice of:
 - 96- or 384-well versions with U-bottom profile (except MN340-47 which has a V-bottom profile)
 - well capacities (maximum): 0.3ml, 0.5ml, 1.1ml or 2.2ml
- ◆ Moulded in polystyrene (working temperature range -20 to +70°C) or autoclavable polypropylene (working temperature range -80 to +130°C) which is solvent-resistant
- ◆ Stackable design
- ◆ Rigid construction
- ◆ Non-sterile
- ◆ Alphanumeric well labelling

	Well vol., ml	Material	Pack qty.
96-well plates			
MN340-15	0.5	PP	48
MN340-25	1.1	PS	32
MN340-35	1.1	PP	24
MN340-45	2.2	PP	24
MN340-47	2.2*	PP	32
384-well plates			
MN340-70	0.3	PP	48

* V-bottom wells.

Sealing covers for MN340- deep-well microplates

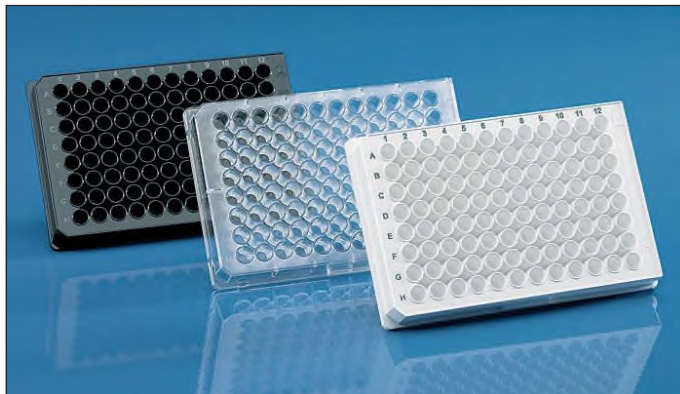
To fit plates with well capacities as indicated.

- MN340-94** For 0.3ml well plates, pack of 50
- MN340-95** For 0.5ml well plates, pack of 50
- MN340-96** For 1.1ml well plates, pack of 24
- MN340-98** For 2.2ml well plates, pack of 24

MN340-96 in use



MN340



MN342 and MN343

Microplates, pureGrade™ Standard

Disposable, optically clear or opaque coloured polystyrene as indicated. 96-well, with lid. With choice of well profile: U-, V-, F- (flat), or C- (flat with radiused corners). Additionally, MN342-80 and -85 have individually removable strips of 8 wells, allowing small-scale or part use and re-use of remaining well strips. MN342-85 also includes frame grid that allows individual wells to be broken from strips and re-inserted into the plate frame. Supplied in packs as indicated.

	Colour*	Well profile	Well volume, µl	Pack qty.
Non-sterile				
MN342-05	T	U	330	100
MN342-10	T	V	360	100
MN342-20	T	C	350	100
MN342-25	W	U	330	100
MN342-30	W	F	350	100
MN342-40	B	U	330	100
MN342-45	B	F	350	100
MN342-80	T	F**	360	100
MN342-85	T	F**	350	100
Sterile				
MN343-05	T	U	330	50
MN343-10	T	V	360	50
MN343-15	T	F	350	50
MN343-20	T	C	350	50
MN343-30	W	F	350	50
MN343-45	B	F	350	50

*Key: T = transparent, W = white, B = black.

**Includes removable well strips.



MN342-80



MN342-85

Microtitration

Microplates continued



Microplates, pureGrade™ Clear-Base

96-well or 384-well microplates in a choice of white, or black, untreated polystyrene. With transparent, flat-well bases which allow microscopic viewing of cells or analysis and detection by bottom-reading instruments. Alphanumeric well coding is moulded into the plates and wells have raised rims to reduce the risk of cross-contamination. 96-well plates have circular wells, 384-well plates have square wells with rounded corners for optimum meniscus formation. Supplied in sleeves of 25 within outer cases as indicated.

	Well vol. μ l	Plate colour	Pack qty.
96-well plates			
MN344-10	330	White	100 (4)
MN344-20	330	Black	100 (4)
384-well plates			
MN344-45	120	White	50 (2)
MN344-55	120	Black	50 (2)

Immuno-surface-treated Microplates

Disposable, 96-well, optically clear or opaque coloured, polystyrene as indicated. Additionally, MN347-85 and -90 have individually removable strips of 8 wells, allowing small-scale or part use and re-use of remaining well strips. MN347-90 also includes frame grid that allows individual wells to be broken from strips and re-inserted into the plate frame. With plasma surface treatment for immunological applications:

ImmunoGrade™

The plate surface is optimised for the immobilization of IgG, showing a high binding capacity for molecules with hydrophilic and hydrophobic regions. Ideal choice for ELISA applications.

hydroGrade™

With a strongly hydrophilic surface. Specially suited for binding molecules with predominantly hydrophilic regions. For use in liquid phase assays with hydrophobic components.

lipoGrade™

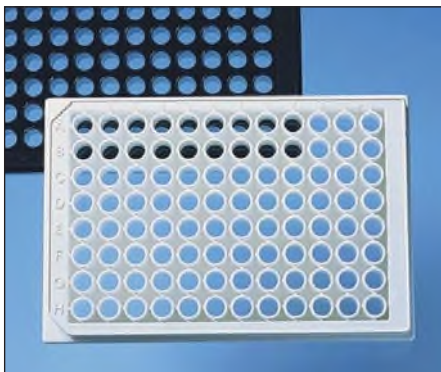
With a strongly hydrophobic (lipophilic) surface. Especially suitable for binding molecules hydrophobic regions. For use in liquid phase assays with hydrophilic components.

As described. Supplied in packs of 100.

	Colour*	Well profile	Well volume, μ l
ImmunoGrade™			
MN347-05	T	U	330
MN347-10	T	V	360
MN347-15	T	F	350
MN347-25	W	U	330
MN347-60	B/T	F	330
MN347-85	T	F**	360
MN347-90	T	F**	350
hydroGrade™			
MN348-05	T	U	330
MN348-15	T	F	350
lipoGrade™			
MN349-05	T	U	330
MN349-15	T	F	350

*Key: T = transparent, W = white, B = black, /T = transparent base.

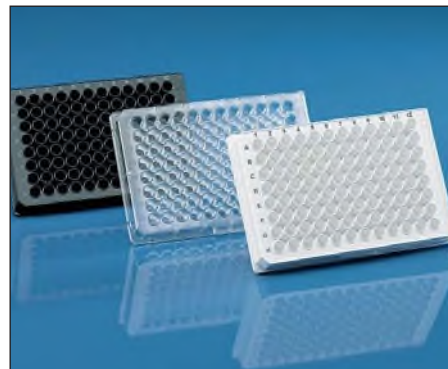
**Includes removable well strips.



MN344-10 and MN344-20



MN344-45 and MN344-55



MN347 to MN349



MN347-85, MN347-90 is similar

Microtitration

Sero-Wel Plates



- ◆ Frosted finish to plates
- ◆ Hanging well design
- ◆ Each well has a rim
- ◆ Uniform wall thickness
- ◆ U-, V- and flat well profiles
- ◆ Alpha-numeric well identification
- ◆ Rim around periphery of plate
- ◆ Deep lids with condensation rings
- ◆ Rigid polystyrene construction
- ◆ Black and white versions available

Plates, Sterilin

Disposable rigid polystyrene with 96 wells. Plate dimensions at base 127 x 86mm (W x D). Without lids. Supplied in packs of 50.

U-well

MN350-10 Non sterile, 611U96

MN350-15 Sterile, 612U96

V-well

MN352-12 Non sterile, 611V96

MN352-17 Sterile, 612V96

Flat well

MN354-13 Non sterile, 611F96

MN354-18 Sterile, 612F96

Flat well, coloured

MN356-14 Black, non-sterile, 611F96BK

MN356-19 White, non-sterile, 611F96WT

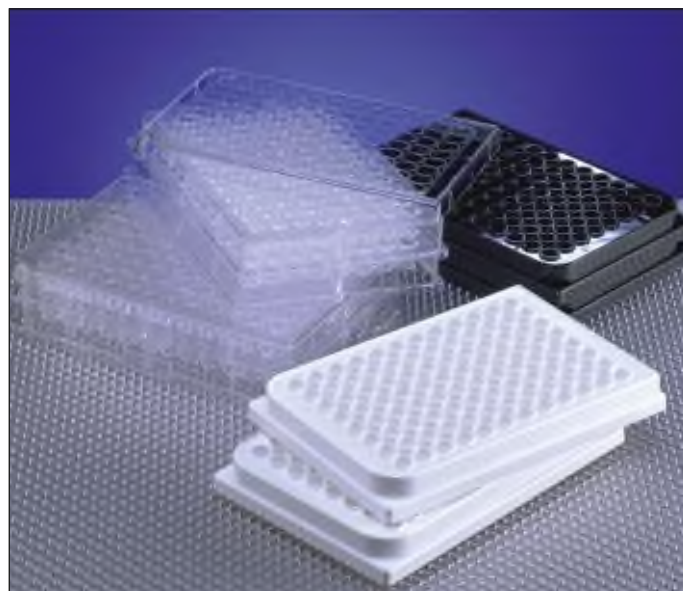
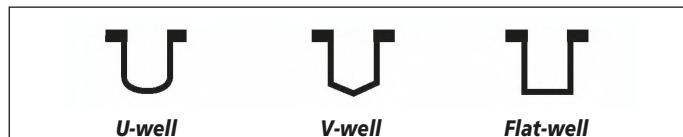
Accessory Lids

MN359-08 Lids, 642000. Polystyrene, sterile, for MN350/MN356 plates, individually wrapped in an outer pack of 50.

- ◆ Flasks
- ◆ Petri Dishes
- ◆ Plates
- ◆ Roller bottles
- ◆ Tubes
- ◆ Vials

For Tissue culture applications – see *TP180/TP825* in the *Tissue Culture* section.

Multichannel pipettors – see *PR174*.



MN350/MN352/MN354/MN356/MN359

Deep Well Microplates



Developed for a wide range of applications including ELISA and PCR, DNA sequencing, robotic sample processing, centrifugation and long-term storage in blood transfusion.

- ◆ Choice of material
 - Polystyrene, for optical clarity
 - Polypropylene, for high solvent and temperature resistance
- ◆ 96-well format, each with 1ml capacity (1.2ml capacity when used without accessory cover)
- ◆ U-well profile
- ◆ Stackable design
- ◆ Rigid construction
- ◆ Accessory sealing cover available

Deep Well Microplates, Elkay

As described. Supplied non-sterile in packs of 20.

MN377-10 Deep well microplates, polystyrene

MN377-20 Deep well microplates, polypropylene

MN377-47 Covers for deep well plates, non-sterile, pack of 20



MN377

Microtitration

Sealplate Adhesive Film and Foil



Designed for the sealing of 6-well to 96-well microplates.

- ◆ Bioinert, compatible with virtually all microplate assays
- ◆ Self-adhesive
- ◆ Withstands temperatures from -40 to +125°C
- ◆ Very thin, easily penetrated by probe or pipette tip

Sealplate Adhesive Film, Elkay

Bioinert, polyester or polypropylene film with acro-olefin adhesive compatible with virtually all microplate assays. Sealing area 121 x 80mm with additional 10mm wide end-tabs along the shorter side which allow precise positioning and are perforated for easy removal. Supplied in packs of 100 seals, non-sterile or sterile, in thicknesses as indicated.

	<i>Material</i>	<i>Thickness mil*</i>
Non-sterile		
MN380-25	Polyester	2
MN380-40	Polypropylene	2
Sterile		
MN385-25	Polyester	2

* 1mil = 25.4µm.

Adhesive Sealing Foil

Pre-cut, DMSO resistant, aluminium foil with adhesive surface for sealing 96-well or 384-well microplates. Pierceable by robot or pipette tip. Supplied in packs of 100.

	<i>Application</i>	<i>Temp range, °C</i>
MN387-20	PCR	-40 to 150
MN387-30	Low-temperature storage	-80 to 130

Roller

Rubber roller for manual sealing of film or foil onto microplates.

MN390-05 Roller



MN380, MN385 in use

Microtitration

Microplate Reader, EZ Read 400 ELISA

High-performance, 96-well microplate reader with powerful software for routine absorbance assays in research, quality control and diagnostics.

- ◆ Measures flat-, round- and v-bottomed, 96-well microplates and strip wells with standard ANSI SBS footprints
- ◆ Accuracy maintained by automatic lamp calibration prior to each reading
- ◆ Flexible wavelength selection using a filter wheel
- ◆ Supplied with "Galapagos" software, providing plate configuration and set-up functions, ELISA assay analysis including curve-fitting options for 4 and 5 parameter fits, database development of methods and results and complete data recording

Microplate Reader, EZ Read 400 ELISA, Biochrom®

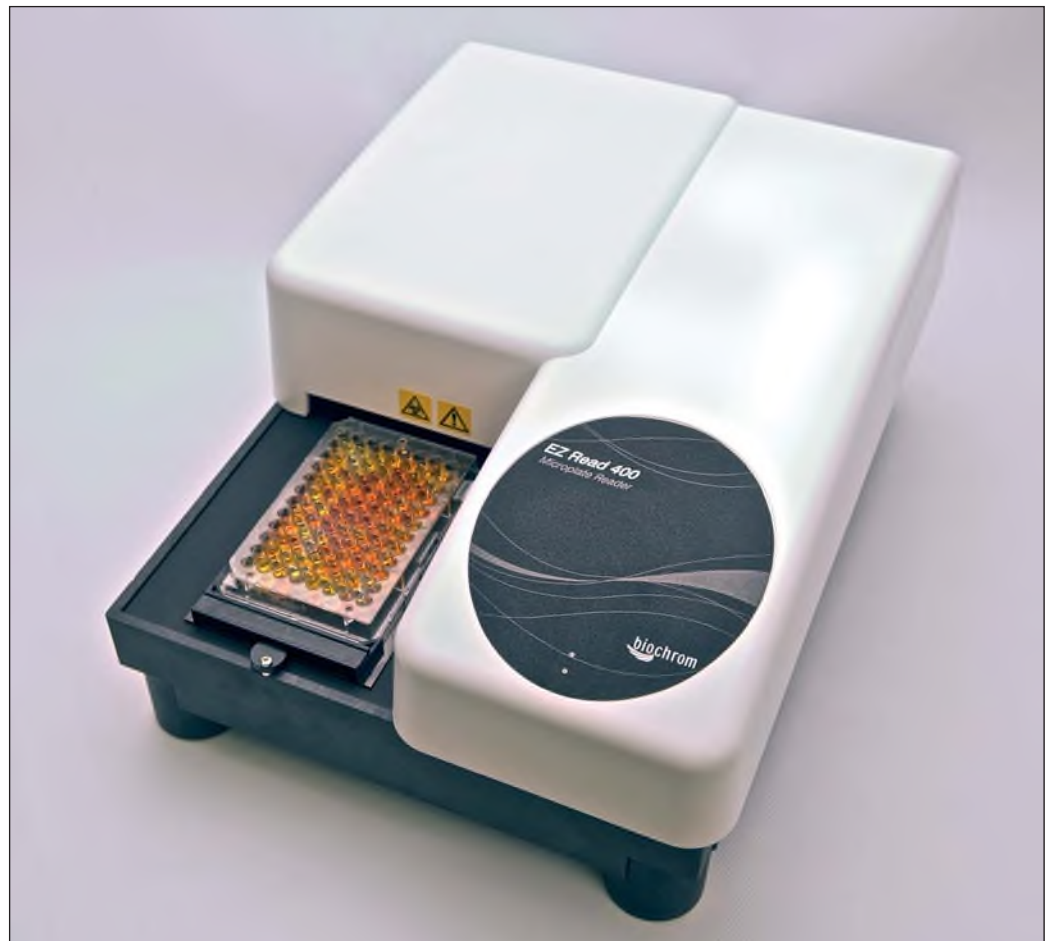
As described. Supplied with four standard filters, dust cover, power cable and "Galapagos" software with user manual. For 100-240V 50/60Hz single phase supplies. Requires, but is not supplied with, a personal computer running Windows™ software, for operation

MN640-50 EZ Read 400 ELISA

MN643-18 Accessory Q.C. plate for instrument validation

<i>Model</i>		EZ Read 400 ELISA
<i>Wavelength range</i>	<i>nm</i>	400 to 750
<i>Measurement range</i>	<i>OD</i>	0 to 3.3
<i>Reproducibility</i> (at 1.0 OD and at 450nm)	<i>%</i>	±0.25
<i>Accuracy</i> (at 1.0 OD and at 450nm)	<i>%</i>	±0.5
<i>Reading speed (96-well plate)</i>	<i>secs.</i>	25
<i>Detector</i>		Silicon photodiode
<i>Light source</i>		Tungsten-halogen lamp
<i>Standard filters*</i>	<i>nm</i>	405, 450, 492, 620
<i>Display?</i>		No
<i>Shaking facility?</i>		No
<i>Temperature control?</i>		No
<i>Interface</i>		USB 2.0
<i>Overall W x D x H</i>	<i>mm</i>	315 x 182 x 435
<i>Supply requirements</i>		100 -240V 50/60Hz single phase supply

*Additional wavelength filters can be accommodated on the filter wheel - details on request.



MN640-50 in use

Microtitration

Microplate Washers, Anthos Fluido 2

Combine ease-of-use and excellent performance for both absorbance and luminescence based assay procedures.

- ◆ A choice of models:
 - For 96- or 384 -well plates
 - -2: 2 liquid supply lines for either 1 wash and 1 rinse or 2 wash solutions
 - -4: 4 liquid supply lines for either 3 wash and 1 rinse or 4 different wash solutions
- ◆ Vacuum and pressure-free system for quiet operation
- ◆ Colour-coded tube fittings
 - ◆ Bottom and overflow well washing
- ◆ Cross-wise aspiration for low residual volumes
 - ◆ Three different rinse modes
- ◆ Automatic well depth detection
 - ◆ Aerosol protection cover
- ◆ Twenty different cycles, fifty different procedures and twenty plate profiles programmable

Microplate Washers, Fluido 2, Anthos

As described. Supplied with manifolds, one 2 litre rinse and one 2.5 litre waste bottles, one 2 litre wash bottle (-2 models) or 3 x 2 litre wash bottles (-4 models), cleaning tool for aspiration needles, dust cover, spare fuses, power cable, 9-pin serial RS232 cable and user manual. for 100-240V 50/60Hz single phase supplies.

MN645-30 Fluido 2 96-2

MN645-40 Fluido 2 96-4

MN645-60 Fluido 2 384-2

MN645-70 Fluido 2 384-4

<i>Model Fluido 2</i>		96-	384-
<i>Manifolds</i>		8- and 12-way	8- and 16-way
<i>Dispensed volumes x increments</i>	μl	50 to 2000 x 50	50 to 500 x 25
<i>Dispensing precision (across the plate)</i>		< \pm 5% at 300 μl	< \pm 5% at 100 μl
<i>Residual volume</i>	μl	<1 per well — both models	
<i>Display and keyboard</i>		2 x 16 character dot matrix backlit LCD with membrane keypad — both models	
<i>Interface</i>		9-pin RS232 serial — both models	
<i>Supply requirements</i>		100-240V, 50/60Hz single phase supply — both models	
<i>Overall W x D x H</i>	mm	280 x 420 x 220 — both models	
<i>Weight</i>	kg	6.2 — both models	



Microtitration

Block Thermostat

Grant
IN THE LABORATORY

For controlled, dry heating of test tubes, microplates and Eppendorf tubes in aluminium blocks.

- ◆ Range ambient +5°C to +130°C, with a novel interactive control interface using a dial rotor and two keys with a bright LED display, reaction timer from 1 to 4320 minutes, delayed start-up or switch-off function, offset adjustment to optimise accuracy, adjustable high temperature alarm, fault indication and alarm, socket for an accessory external Pt1000 temperature probe and thermal fuse overtemperature protection

Model		QBD2
Control		Digital
Range (resolution)	°C	Ambient +5 to 130 (0.1)
Stability (at 37°C)	±°C	0.1
Uniformity (at 37°C)	±°C	
within block		0.1
across similar blocks		0.2
Blocks accepted		2
Overall L x W x H	mm	28 x 200x 100
Power	W	300
Supply requirements		230V 50/60Hz single phase supply

As described. Supplied with block extraction tool. Requires, but does not include, interchangeable QB- or QDP-series blocks.

BK205-30 QBD2

Accessory cover

Clear polycarbonate. Protect the operator against accidentally touching blocks whilst hot.

BK206-74 QBL2 cover for QBD2

External Probe QBEP

Allows in-block temperature to be monitored and controlled directly.

BK206-97 QBEP remote probe

Tube Blocks

BK217-18 QB-E0, block for 24 x 0.5ml Eppendorf tubes

BK217-21 QB-E1, block for 24 x 1.5ml Eppendorf tubes

MN663-14 QDP-FL, undrilled block for 96-well microtitration plates, with double layer, insulating, hinged lid

MN663-18 QDP-H, 96 x 0.2ml tubes in 8-well or 12-tube strips, or 1 x 96-(0.2ml) well plate



BK205-30 with MN663-14 in use

Microplate Thermoshakers, PHMP series

Grant bio

◆ Choice of models:

- PHMP: for 2 microplates
- PHMP-4: for 4 microplates

◆ Applications:

- Bacterial cultivation and DNA analysis
- In-situ cytochemical reactions
- Enzyme and protein analysis
- Matrix analyses in molecular chemistry
- Immunochemistry
- Molecular diagnostics
- Elisas

◆ Temperature range: ambient +5°C to +60°C, stability ±0.1°C

◆ Heated cover prevents condensation

◆ Shaking speed range 250 to 1200rpm x 10rpm resolution

◆ 2mm orbit

◆ Timer adjustable from 1 minute to 96 hours x 1 minute, with alarm and automatic switch off at end of timed period

◆ Low voltage power supply

◆ Operates in ambient temperatures of +4°C to +45°C

As described. With twin-line dot matrix LCD readout, membrane key switching, heated cover and 12V d.c. power adapter. A 220-240V 50/60Hz supply is required for the adapter.

MN670-10 PHMP, 265 x 250 x 125mm W x D x H

MN670-20 PHMP-4, 380 x 390 x 140mm W x D x H



MN670-10 in use, MN670-20 is similar

Microtitration

Microplate Incubator



- ◆ Temperature range ambient +8 to +80°C
- ◆ Capacity up to 48 x 96-well microplates
- ◆ Forced air circulation
- ◆ Dry or humid incubation
- ◆ Upward opening door

Model	SI19	
Temperature range	°C	Amb. +8 to +80
Working capacity	litres	20
Temperature variation*	°C	±0.5
Temperature fluctuation*	°C	±0.5
Shelves supplied	4	
Dimensions, W x D x H		
	internal, mm	250 x 230 x 200
	external, mm	380 x 380 x 435
Weight	kg	24
Power rating	W	280
Voltage requirements	230V 50Hz single phase supplies	

*At +37°C.

A dedicated microtitration plate incubator. Up to 48 x 96-well plates can be accommodated in total, evenly distributed onto four pull-out stainless steel shelves, one or two layers deep. Close, even temperature control is maintained throughout the chamber by forced circulation of preheated air from one side to the other across the plates. It is then ducted back between the chamber and outer case and returned to the fan. When filled with 24 x 96-well plates evenly distributed and at a temperature setting of +37°C, variation of temperature between shelves is maintained to within ±0.5°C and fluctuation to within ±0.5°C. A removable stainless steel tray in the chamber base may be filled with water to increase humidity. The 10mm thick, clear acrylic door opens upwards. For 230V 50Hz single phase supplies.

MN720-40 SI19



MN720-40 in use

Microplate Shaking Incubator



- ◆ Temperature range ambient +7 to +60°C
- ◆ Shaking speed 250 to 1250rpm with a 1.5mm orbit and 10rpm setting increments
- ◆ Timer from 1 second to 9 days with alarm and switch-off of shaking at end of timed period
- ◆ Dry or humid incubation
- ◆ Separate heat and shaking controls
- ◆ Retractable shaking platform for easy access
- ◆ Holds 4 x microplates or 2 x accessory tube racks
- ◆ USB communications port for long-term monitoring of processes

Model	SI505	
Temperature range	°C	Amb. +7 to +60
Temperature variation*	°C	0.6
Temperature fluctuation*	°C	±0.5
Orbital speed range	rpm	250 to 1250 x 10
Temperature range	°C	Amb. +7 to +60
Timer range	1 second to 9 days	
Platform	mm	220 x 220
Capacity	4 x microplates or 2 x accessory tube racks	
Dimensions, W x D x H		
	internal, mm	307 x 300 x 190
	external, mm	361 x 405 x 430
Weight	kg	22.5
Power rating	W	250
Voltage requirements	230V 50Hz single phase supplies	

*At +37°C.

As described. With retractable platform, separate heater and shaker controls, water trays for humid operation and USB monitoring port. For 230V 50Hz single phase supplies.

MN720-60 SI505

Accessory Holders

- SE788-04** SSM5/1 for 50 x 1.5ml microtubes
- SE788-07** SSM5/2 for 50 x 0.5ml microtubes
- SE788-09** SSM5/3 for 50 x 0.2ml microtubes



MN720-60 in use with accessories

Mills

Grinding Mill, A11 basic



Grinding Mill A11 basic

For small scale, high speed grinding of hard, brittle, or soft, fibrous materials. Comprises drive module with stainless steel beater and shroud which mounts onto a screw-fitting, plastic grinding chamber, volume 80ml. Grinding speed 28000rpm. Maximum running time 5 minutes. With electronic overload protection and overheat safety switch. Overall 85 x 85 x 240mm high. Weight 1.5kg. For 230V 50/60Hz single phase supplies. 160W.

MP300-20 A11 basic

Accessories and spares for MP300-20 only

MP305-09 Coated, hard steel beater for grinding hard, brittle materials with grain size 6 to 7mm

MP305-11 Cutter knife for grinding soft, fibrous materials

MP305-16 250ml grinding container, requires double beater MP305-48 for operation

MP305-47 Spare beater, stainless steel

MP305-48 Double beater, titanium for use with MP305-16 only

Mortar and Pestle Mill

Mortar and Pestle Mill RM200

For dry or wet grinding of a wide range of materials including ceramics, chemicals, cosmetics, pharmaceuticals, mineral paints, plastics etc. Depending on suitability, samples from 10ml to 190ml can be milled, pulverised and homogenised to an ultimate fineness of approximately 10µm. A choice of accessory porcelain or agate mortars and pestles are available. Sample can be fed into the mortar during operation, maximum feed size 8mm. Pestle pressure is adjustable and reproducible. With digital control. Includes automatic overload cut-out and "quick-stop" motor. Overall 400 x 370 x 450mm W x D x H. Weight 24kg. For 230V 50Hz single phase supplies. Supplied without mortar and pestle which are required for operation.

MX300-30 RM200

MX303-05 Mortar for RM200, porcelain

MX303-07 Mortar for RM200, agate

MX303-15 Pestle for RM200, porcelain

MX303-17 Pestle for RM200, agate



MP300-20 with MP305-16



MX300 in use

Mills

McCrone Mill

An effective means of reducing samples to sub-micron sizes suitable for x-ray diffraction/fluorescence, infra-red spectroscopy and atomic absorption analysis.

- ◆ Minimal sample damage and contamination
- ◆ Exceptionally homogeneous and reproducible sample distribution
- ◆ Choice of grinding element materials
- ◆ Wet and dry grinding capability

Operation

The unique grinding action (contact blows and planar shearing) ensures a short grinding time with virtually no sample loss and exceptionally even particle distribution. A choice of grinding elements (agate or corundum) allow wet and dry grinding of many materials, including carbides, nitrides, borides, cement, clay, shale and mica. In use, a 125ml polypropylene grinding jar is filled with an array of 48 cylindrical grinding elements and accepts up to 4ml of sample (2ml is optimal). A timed grinding period can be set between 3 and 30 minutes, depending on the sample, achieving an ultimate fineness of 4 to 5µm, based on the required initial particle size of 0.5mm. There is minimal damage to surfaces and internal structure of the grinding chamber. An accessory sample preparation kit reduces sample material to the required 0.5mm size.

McCrone Mill

As described. Overall 480 x 175 x 160mm L x W x H. Weight 9kg. For 220-240V 50Hz single phase supplies. Supplied as indicated.

MR075-05 Mill only (requires grinding set for operation)

MR075-30 Mill with 2 x sets agate elements, 2 x grinding jars, loading device and pouring cap

Accessories and spares

Sample preparation kit

For preparation of samples to the required 0.5mm particle size. With stainless steel percussion mortar, ten corundum cylinders, 0.5mm mesh sieve and sieve brush.

MR077-05 Sample preparation kit

Agate grinding set

With 50 x agate grinding elements, grinding jar and lid.

MR077-25 Agate grinding set

Corundum grinding set

With 48 x corundum grinding elements, grinding jar and lid.

MR077-35 Corundum grinding set

MR077-60 Spare grinding jar and lid



MR075

Ball Mill



For dry or wet grinding of a wide range of material including: ceramics, chemicals, cosmetics, powders, minerals, paints, printing inks, pharmaceuticals, plastics, etc.

Model No. 9

For grinding small quantities of material. Variable speed 0 to 350rpm. Accepts either 1 x 0.5 litre or 1 x 1 litre pots. The rubber covered rollers are 48mm diameter and have a usable length of 190mm. The rolling mechanism and ball pots are totally enclosed behind a transparent safety shield. Overall 210 x 250 x 400mm H x W x D. Weight 14kg. For 230V 50Hz single phase supplies. Without pot or ball charge.

MR102-10 No. 9 variable speed

Ball Pots

Acid resistant porcelain with flat covers and sealing gaskets. Capacity given is nominal. Without ball charge.

MR150-10 0.5 litre

MR150-15 1 litre

Ball Charges

Manufactured in acid resistant porcelain. Selection of different diameters most appropriate for efficient grinding.

MR153-12 For 0.5 litre pot

MR153-17 For 1 litre pot



MR102-10

Mixers

Waring Blenders – 1 litre

Rugged high speed mixer blenders designed for frequent use in the laboratory to liquify, homogenise, emulsify, chop, cut and grate a wide range of materials.

- ◆ High speed blending up to 22000rpm (without load)
- ◆ Exclusive clover-leaf design dimpled containers promote high turbulence mixing
- ◆ High speed, profiled cutter blade provides substantial shear and produces effective homogenisation
- ◆ Container capacities up to 4 litres ◆ Fixed and variable speed models

'Junior' Models

Container capacities up to a nominal 1 litre. Single speed (approx. 20000rpm). Overall 180 x 210 x 350mm W x D x H. For 230V 50Hz single phase supplies.

- MS132-10** With 1 litre heat resistant glass container
- MS132-20** With 1 litre stainless steel container

General Purpose Models

Container capacity nominal 1 litre, complete with cover. Solid state, two speed controller, set by positive push button action. Low speed approx. 18000rpm, high speed approx. 22000rpm (without load). Overall dimensions 180 x 210 x 350mm W x D x H. For 230V 50Hz single phase supplies.

	Ref.	Control	Container	Timer sec.
MS153-10	8011EG	2 speed	Glass	—
MS153-15	8011ES	2 speed	Stainless steel	—
MS153-22	8010EG	2 speed	Glass	1 to 60
MS153-27	8010ES	2 speed	Stainless steel	1 to 60

Variable Speed Models

Container capacity nominal 1 litre, complete with cover. With variable speed control allowing adjustment from 0 to 20000rpm (without load) and on/off switch. Overall dimensions 180 x 210 x 350mm W x D x H. For 230V 50Hz single phase supplies.

	Ref.	Control	Container	Timer
MS154-10	LB20EG	Variable	Glass	—
MS154-15	LB20ES	Variable	Stainless steel	—

Spare Containers

- MS160-07** 1 litre heat resistant glass with blending assembly, without lid
- MS160-08** Spare stainless steel blade unit only, for MS160-07
- MS160-09** Lid, plastic for MS160-07
- MS160-15** 1 litre stainless steel with blending assembly and stainless steel lid
- MS160-16** Spare stainless steel blade unit only, for MS160-15
- MS160-40** Spare blending assembly only with stainless steel blade for MS160-07 and MS160-15

Accessories for all 1 litre models

Mini containers. Stainless steel with blending assembly and opaque plastic snap-fit lid. Replace the standard container on 1 litre Waring blenders.

- MS162-30** Capacity 12 to 37ml
- MS162-31** Spare lid for MS162-30
- MS162-33** Capacity 37 to 110ml
- MS162-34** Spare lid for MS162-33
- MS162-36** Capacity 50 to 250ml
- MS162-37** Spare lid for MS162-36

Mini Pulveriser

For rapid dry grinding of tablets and other friable materials to a fine powder. Stainless steel container and pulveriser blade. Transparent snap-fit lid allows grinding to be viewed. Replaces the standard container on 1 litre Waring blenders. Capacity 75g.

- MS162-80** Mini pulveriser

Dry Blending Container

Stainless steel container and lid. Chromium plated base with specific blending assembly for dry homogenising and pulverising. Working capacity approximately 500ml. Replaces the standard container on 1 litre Waring blenders.

- MS162-86** Dry blending container

continued on next page

Please Note

- 1) Capacities given for containers are nominal
- 2) The working capacities of the containers are approximately:
Maximum 70% of nominal
Minimum 10% of nominal



MS132-20



MS153-22



MS154-10



MS160-15, MS162-86 is similar



MS162-36, MS162-30, MS162-33 and MS162-80 are similar

Mixers

Waring Blenders – 1.5 litre

- ◆ Powerful 2 horsepower motor with choice of control options:
 - Manual, 2-speed, toggle switching
 - Timed, 2-speed, keypad switching, with 0 to 60 second countdown timer
 - Manual, keypad switching with adjustable speed, analogue dial
- ◆ 1.5 litre, Bisphenol A-free, copolyester container which is stackable and with stainless steel blending assembly, graduations and vinyl lid
- ◆ Pulse function available on all models

1.5 litre Models

Container capacity 1.5 litres. Heavy-duty, coated steel base with controls as indicated. Maximum speed 24000rpm (without load). Overall 192 x 200 x 452mm W x D x H. Weight: 5.5kg. For 230V 50Hz single phase supplies.

	Ref.	Control	Container	Timer sec.
MS228-10	TBB145E	2 speed	Copolyester	—
MS228-20	TBB160E	2 speed	Copolyester	1 to 60
MS228-30	TBB175E	Variable	Copolyester	—

Spares and accessories

- MS228-75** Spare 1.5 litre copolyester container and blending assembly with plastic lid.
- MS228-80** Spare blending assembly, stainless steel.

Waring Blender – 4 litre

- ◆ Heavy duty 3-speed blender with pulse facility
- ◆ Twin-handled, stainless steel container with blending assembly in exclusive clover-leaf design
- ◆ See-through polycarbonate lid secured with toggle clamps

Three speed, 4 litre Model

Container capacity 4 litres. Stainless steel container with polycarbonate lid which is secured by toggle clamps against a gasket. A centre rubber plug in the lid provides access without removing the lid. Two handles are provided on the container for ease of carrying. The blending assembly features a sealed, precision ball-bearing system for extended life. With powerful 2.24kW motor and 3-speed control with additional pulse facility and membrane keypad. Low speed approx. 15800rpm, medium speed approx. 18000rpm, high speed approx. 20000rpm (without load). Overall 300 x 260 x 660mm W x D x H. Weight 18kg. For 230V 50Hz single phase supplies.

MS280-35 Ref. CB15E

Spare Blending Assembly

MS284-40 Blending assembly, stainless steel

Accessory

Adapter. Enables 1 litre glass and stainless steel containers and mini containers listed under MS160 and MS162 series to be used on the 4-litre motor base.

MS285-20 Adapter

Dry Blending Container

Stainless steel container and lid. Chromium plated base with specific blending assembly for dry homogenising and pulverising. Working capacity approximately 500ml. Fits in place of the standard container. Requires, but does not include, adapter MS285-20.

MS162-86 Dry blending container

Other Mixers/Blenders – see *Clinical and Shakers* sections.



MS228-20, MS228-10 and -30 are similar



MS280-35

Mixers

Roller Mixers, SRT Series



For mixing blood bottles, Bijous, Universals and small bottles using a rocking and rolling action.

- ◆ Choice of models:
 - 6 or 9 rollers
 - Analogue fixed speed or digital variable speed with timer
- ◆ Easily cleaned plastic rollers and drip tray beneath to contain small spillages
- ◆ Removable side panels ensure vessels do not fall off the unit during use
- ◆ Removable rollers allow a variety of bottle diameters to be accommodated
- ◆ Timer models offer choice of 1 second to 90 minutes or 1 minute to 9 hour setting
- ◆ Accessory stacking kit, using magnetic pillars, allows up to three units to be stacked safely (Note: one kit per tier required)
- ◆ Maximum load 10kg

Model	SRT6	SRT6D	SRT9	SRT9D
No. of rollers	6	6	9	9
Speed range	rpm 33	5 to 60	33	5 to 60
Roller L x dia.	mm 340 x 30 — all models			
Overall, W x D x H	mm 240 x 565 x 110 — both models		360 x 565 x 100 — both models	
Weight	kg 5.1 — both models		6.9 — both models	

As described. for 230V 50Hz single phase supplies.

- MS400-30** SRT6, fixed speed
- MS400-40** SRT6D, variable speed
- MS400-60** SRT9, fixed speed
- MS400-70** SRT9D, variable speed
- MS400-95** Stacking kit for MS400-series (1 required for each tier)

Tube Rotators



Tube Rotator, fixed speed, SB2

Fixed speed 20rpm. With on/off switch and adjustable tilt angle with setting gauge. Overall 200 x 270 x 240mm W x D x H. Weight 3.2kg. For 230V 50Hz single phase supplies. Requires, but is not supplied with, tube carrier for operation.

CM470-20 SB2, fixed speed

Tube Rotator, variable speed, SB3

Variable speed 2 to 40rpm. Generally as CM470-20 but with digital speed control to 1rpm resolution and display, 0 to 999 minute timer with audible alarm at the end of the timed period. Overall 200 x 270 x 240mm W x D x H. Weight 3.2kg. For 230V 50Hz single phase supplies. Requires, but is not supplied with, tube carrier for operation.

CM470-35 SB3, variable speed

Accessory tube carriers for CM470 rotators

Tube holders

With radial sprung clips which secure tubes firmly but allow rapid loading and unloading. Hold maximum tubes as indicated.

- CM473-03** 40 x 1.5ml micro-centrifuge tubes
- CM473-06** 20 x 9 to 20mm diameter tubes
- CM473-09** 12 x 50ml centrifuge tubes

Tube racks

Axially perforated circular racks for gentler mixing of culture tubes. Hold maximum tube number x diameter as indicated.

- CM473-12** 63 x 12mm tubes
- CM473-15** 63 x 16mm tubes
- CM473-19** 30 x 26mm tubes

Adapter SB3/Dual

Allows a second tube holder or rack to be mounted, increasing capacity or allowing alternative tube sizes to be accommodated.

CM473-40 Adapter SB3/Dual



inset: MS400-40 in use with accessories



MS400-40 mounted on MS400-70 with MS400-95



CM470-20 with tube holder CM473-06

Mixers

High Speed Vortex Mixers

For the rapid mixing of liquids in test tubes, small flasks, etc.

Mini-Vortex, SA6

For tubes up to 30mm diameter. Adjustable speed range from 2500 to 4500rpm with 4.5mm orbit. Mixing starts when the flexible cup is depressed. Overall 100 x 100 x 67mm W x D x H. Weight 0.55kg. For 100-240V 50/60Hz single phase supplies. 15W.

MS495-20 Variable speed SA6

Vortex Mixer, uniTEXER 1

For tubes up to 30mm diameter. Variable speed up to 4500rpm, with 4.5mm orbit. "Touch start" commences mixing when pressure is applied to the top cup. Overall 100 x 100 x 70mm W x D x H. For 100-240V 50/60Hz single phase supplies.

MS497-15 Variable speed uniTEXER 1

Vortex Mixer, Vortex Genie 2

For tubes up to 25ml (and flasks using the 75mm diameter attachment supplied). Die-cast metal, stable housing with noise reducing feet. Adjustable speed range 600 to 2700rpm and switchable continuous or touch operation modes where mixing commences when pressure is applied to the top cap. Overall 122 x 165 x 165mm W x D x H. Weight 4kg. For 220V 50Hz single phase supplies.

MS500-20 Vortex Genie 2

Vortex Mixer, PV-1

For gentle to vigorous mixing of 0.5ml, 1.5ml or 15ml tubes. Variable speed from 250 to 3000rpm, with 2mm orbit and switchable continuous or touch operation modes where mixing starts when pressure is applied to the top cup. A 12V d.c. power supply allows use in a cold room or incubator. Overall 82 x 145 x 75 mm W x D x H. For 220-240V 50/60Hz single phase supplies.

MS510-10 Variable speed PV-1

Vortex Mixer, V-32

Generally as MS510-10 but fitted with a foam carrier disc drilled with apertures for 16 x 1.5ml, 8 x 0.5ml and 9 x 0.2ml tubes in addition to a cup for single tubes up to 15ml. Variable speed from 500 to 3000rpm, with 2mm orbit and switchable continuous or touch operation modes. With 12V d.c. power supply. Overall 120 x 180 x 100mm W x D x H. For 220-240V 50/60Hz single phase supplies.

MS510-40 Variable speed V-32

Vortex Mixer, MPS-1

For high-speed shaking and vortex mixing of 0.2ml to 50ml tubes and microplates. Adjustable speed range 300 to 3000 in 100rpm increments with 3mm orbit and selectable presets including Pulse. With digital setting and display, 0 to 60 minute timer or continuous operation, vortexing platform for single vessels (up to 50ml), skirted PCR, microtitre plates or accessory tube inserts. Overall 234 x 220 x 150mm W x D x H. Weight 4.7kg. For 220-240V 50Hz single phase supplies.

MS514-15 MPS-1

MS514-60 P-2-24, insert for 24 x 1.5/2ml tubes

MS514-65 P-05-32, insert for 32 x 0.5ml tubes

MS514-70 P-02-05, insert for 24 x 0.5ml, 48 x 0.2ml or 8 x 8 x 0.2ml tube strips

MS514-75 P-02-96, insert for 96 x 0.2ml tubes, 12 x 8 x 8 x 0.2ml tube strips or 1 x semi- or unskirted PCR plate

Vortex Mixer, REAX Top

A heavy duty, quiet running mixer with die-cast housing giving a stable base. Adjustable speed range 0 to 2500rpm with 5mm orbit. Continuous or intermittent operation. The top cup can accommodate test tubes up to 20mm diameter. Overall 105 x 134 x 172mm W x D x H. Weight 3.3kg. For 230V 50Hz single phase supplies.

MS525-20 Variable speed REAX Top

Vortex Mixer, MultiREAX

Large capacity mixer with electronic feedback control and digital setting with LED display. Adjustable speed range 150 to 2000rpm with 3mm orbit, 0 to 999 minute timer with audible alarm at end of timed period or continuous operation. Supplied with two tube carousels to hold 26 tubes x 10 to 16mm diameter up to 160mm long and 12 tubes x 16 to 32mm diameter up to 120mm long, respectively (only one carousel can be mounted at a time). Overall 270 x 410 x 172mm W x D x H, weight 3.3kg. For 230V 50Hz single phase supplies.

MS525-45 MultiREAX

Vortex Mixer, SA7

For rapid mixing of liquids in small vessels. With fixed speed rotation of 2500rpm, low-profile, robust, die-cast body and integral retort rod fixing. Mixing starts when the flexible cup is depressed. Overall 135 x 215 x 78mm W x D x H. Weight 3.2kg. For 90-240V 50/60Hz single phase supplies.

MS530-60 Fixed speed SA7

Vortex Mixer, SA8

Generally as MS530-60 but with variable speed from 250 to 2500rpm, touch start or continuous operation modes and flexible cup head which also accommodates interchangeable accessory attachments comprising 1 x microplate holder, a foam insert for use with beakers or flasks up to 500ml, drilled foam block for 8 x 0.2ml, 8 x 0.5ml and 16 x 1.5ml microcentrifuge tubes and a plain foam block for the user to drill. Overall 135 x 215 x 78mm W x D x H. Weight 3.2kg. For 90-240V 50/60Hz single phase supplies.

MS530-65 Variable speed SA8

Accessory attachments for MS530-65 only

Comprises microplate cradle, foam insert for vessels up to 500ml, microtube insert for 8 x 0.2ml, 8 x 0.5ml, 16 x 1.5ml tubes and solid foam insert for the user to drill.

MS532-20 Attachments, SA8/1

Centrifuge-vortexers – see CD125.



MS495-20



MS500-20



MS514-15 in use with MS514-65



MS525-45



MS497-15



MS510-10, MS510-40 is similar



MS525-20



MS530-65, MS530-60 is similar

Mixers

High Speed Vortex Mixers continued

Heavy-duty Vortex Mixers, Ohaus

Designed for repeated mixing of several samples at once. With choice of analogue or digital setting of speed and time. Orbit: 4.9mm. Operates under "touch" mode when cup head or holder is depressed with range 300 to 3500rpm, or "On" mode for continuous operation from 300 to 2500rpm. The digital model also features a timer which operates from 1 second to 160 hours. Maximum load 1.1kg. Supplied with cup head for single vessel mixing and universal holder with cover and foam insert for 38 x 1.5/2ml microtubes which is interchangeable with accessory inserts for other tube sizes. Overall W x D x H 168 x 241 x 160mm. Weight 6.8kg. For 230V 50/60Hz single phase supplies.

MS605-10 VXHDAL, analogue control

MS605-20 VXHDDG, digital control

Accessory Foam Inserts and Holders

For tubes as indicated.

MS607-05 52 x 0.5ml microtubes insert

MS607-07 34 x 12-13mm diameter test tubes insert

MS607-09 20 x 15-18mm diameter test tubes insert

MS607-11 18 x 19-21mm diameter test tubes insert

MS607-13 13 x 22-25mm diameter test tubes insert

MS607-15 4 x 26-29mm diameter test tubes insert

MS607-17 125ml/250ml erlenmeyer flask holder

MS607-19 500ml/1000ml erlenmeyer flask holder

MultiTube Vortex Mixers, Ohaus

For vortex mixing of up to 50 samples simultaneously (using accessory foam racks). With variable speed control from 1200 to 2400rpm (analogue) or 500 to 2500rpm (digital), 0 to 60 second (analogue) or 1 second to 60hours (digital) timer and 3.6mm orbit. In addition the digital model features a "pulse" mode adjustable from 1 to 59 second duration. Maximum load: 4.5kg. Supplied with foam tube carrier for 50 x 12mm diameter tubes. Accessory carriers are available for other tube sizes. Overall W x D x H 384 x 241 x 406mm, weight 19.1kg. For 230V 50/60 Hz single phase supplies.

MS615-15 VXMTAL, analogue control, 1200 to 2400rpm

MS615-25 VXMTDG, digital control, 500 to 2500rpm

Accessory Foam Tube Carriers

For tube diameters as indicated.

MS617-05 50 x 10mm tubes

MS617-10 50 x 16mm tubes

MS617-15 15 x 29mm tubes



MS605-20



MS615-15

Mixers

Stomacher® Lab-Blenders

- ◆ Unique reciprocating paddles blending action
- ◆ No contact between sample and blending paddles
- ◆ Rapid gentle blending
- ◆ Microprocessor control
- ◆ Time settings plus continuous running
- ◆ Safety door lock

Stomacher® Lab-Blenders

A unique blender using a sealed plastic bag to contain the sample and two reciprocating paddles which apply controlled pressure on the bag. There is no contact between the sample and the machinery. Blending is rapid and takes approximately 30 seconds per sample. The blending action minimises any damage to microbial cells and is very quiet in operation. The 400 Circulator model additionally has an enhanced paddle design and utilises round bottom bags giving improved processing efficiency and is also supplied with spare paddle connectors and 1000 bags. With microprocessor control, timer and safety door lock.

Catalogue No.	MS800-05	MS800-10	MS800-25	MS800-30
Model	80 Micro	80	400 Circulator	3500
Capacity	0.25 to 80ml	5 to 80ml	80 to 400ml	1 to 3.5 litres
Overall H x W x D mm	180 x 150 x 290	180 x 150 x 290	330 x 240 x 460	410 x 460 x 480
Weight kg	10	10	20	32

For 220-240V 50Hz single phase supplies.

MS800-05 Model 80 Micro

MS800-10 Model 80

MS800-25 Model 400 Circulator

MS800-30 Model 3500

Bags, polyethylene, Stomacher®

Sterilised by irradiation. Supplied in sealed sachets within bulk carton packs (except MS805-19 and MS805-25 which are in plastic carry packs).

	For model	Size, mm	Sachet qty.	Pack qty.
MS805-10	80 Micro and 80	150 x 100	50	2000
MS805-20	400†	180 x 300	50	500
MS805-22	400 Circulator	180 x 300	50	500
MS805-25	400 Circulator	180 x 300	50	1000#
MS805-30	3500	380 x 510	50	250
MS807-22	400†	180 x 300	5	500
MS807-25 (Closure**)	400†	180 x 300	10	250
MS807-28 (Closure**)	400 Circulator	180 x 300	10	250

*With V-shaped pocket for samples smaller than 1ml. **With flexible closure band. †Bags remain available for the superseded Model 400. #Plastic carry pack.

MS807-40 Bag rack for model 80 size bags. Holds 10 bags

MS807-60 Bag rack for all model 400 size bags. Holds 10 bags

MS807-80 Bag rack for model 3500 size bags. Holds 3 bags

Strainer Bags, Stomacher®

Polyethylene with removable inner nylon mesh filter. Sizes as indicated in the table above, thickness 65µm (250 gauge). Irradiated sachets of 10 within a bulk carton packs of 200.

MS808-09 Strainer bags, for models 80 Micro and 80 only

MS808-15 Strainer bags, for superseded model 400 only

MS805-24 Strainer bags, for model 400 Circulator only



MS800-30

MS800-10 (inset) MS800-05 is similar



MS800-25

Mixers

Blender Bags



Whirl-Pak® Blender Bags

Extra heavy-duty, precision-made, polyethylene bags for use with laboratory bag blenders. With tab and wire frame which allows the bag to be held open and writing panel (except MS865-02 and -05, which are plain). The bag can be sealed by pulling the tabs and whirling the bag around the wire. Ethylene oxide gas sterilised. Available plain or with internal filter mesh (330µm perforation) panel which allows separation of layer solids and liquid from the sample. MS865-70 is for use with circulating blenders.

	Size, mm	Capacity, ml	Pack qty.
Standard type			
MS865-02	130 x 190	384	500
MS865-05	150 x 230	710	500
MS865-10	150 x 230	710	500
MS865-20	190 x 300	1627	500
Filter type			
MS865-30	150 x 230	710	250
MS865-40	190 x 300	1627	250
Round bottom seal			
MS865-70	185 x 330	1538	500



MS865-40

Dilution Pipettor, Acura 810



A purpose designed, two-volume pipettor for performing serial 1:10 dilutions in bacteriology.

- ◆ Two pre-calibrated, fixed volumes of 1ml and 0.1ml in a two-step stroke allows subsequent pipetting of these volumes using the same liquid sample
- ◆ Rigid metal nozzle with replaceable filter accepts accessory, long "straw" tips to aspirate narrow or deep vessels or blender bags (such as Stomacher® bags)
- ◆ Both volumes are calibrated independently
- ◆ Fully autoclavable at 121°C maximum for 20 minutes and easily disassembled for maintenance and cleaning
- ◆ Justip™ tip ejector adjustment and smooth operation enhance operator comfort

Dilution Pipettor, Acura 810

	Volume, ml	Accuracy %
PR540-10	1 (+0.1)	<±0.4 (<±2.5)

Accessories

- PR543-09 "Straw" tips, polypropylene, sterile, 190 x 4mm length x diameter, supplied in inner sleeves of 25 within a pack of 1000
- PR543-15 Nozzle filters, pack of 100
- PR672-12 Workstation to hold up to 3 pipettors



PR540-10 in use with PR543-09

Mixers

SHM-series Homogenisers



Comprise drive module and choice of accessory dispersing heads.

- ◆ Can be used as a hand-held unit or on an accessory stand
- ◆ Sound level <72db
- ◆ Robust housing with IP30 protection level
- ◆ SHM3 additionally has a built-in timer which can be set between 1 second and 10 minutes with a 30 second start delay
- ◆ Accessory, disposable, dispersing heads available for samples with cross-contamination issues. Can be autoclaved/reused up to 7 times

Cat. No.		MT350-10/-12	MT350-30
Model		SHM1	SHM3
Ranges	rpm	5000 to 35000	5000 to 25000
	sample ml	0.03 to 100	0.20 to 5000
Display		–	Digital dot matrix (speed and time)
Overall, L x dia.	mm	160 x 55	216 x 70
Weight	kg	0.5	1.6
Supply requirements		220-240V 50Hz single phase — all models	
Rating	W	125	850

Drive Modules, SHM series

As described. Supplied with variable speed control and tool kit for dismantling dispersing heads for cleaning. SHM1 is additionally supplied with a clamp holder for mounting onto an accessory stand. SHM3 is supplied with IEC socket, UK and EU plug supply leads. For 220-240V 50Hz single phase supplies.

MT350-10 SHM1 with UK plug

MT350-12 SHM1 with European plug

MT350-30 SHM3 with UK and EU plug leads



MT350-10/-12 in use with MT353-75



Inset: MT350-30



MT353

Accessories

Dispersing heads for MT350-series.

Cat. No.	MT353-05	MT353-07	MT353-10	MT353-20	MT353-55
Ref.	SHM/5	SHM/7	SHM/10	SHM/20	SHM/DISP
Type*	s/s flat Head	s/s sawtooth	s/s sawtooth	s/s sawtooth	PC sawtooth
Length x dia. mm	75 x 5	115 x 7	115 x 10	195 x 20	110 x 7
Sample volume ml	0.03 to 5	0.25 to 30	1.5 to 200	50 to 2000	0.25 to 30

*s/s = stainless steel. PC = polycarbonate.

MT353-05 SHM/5 Dispersing head

MT353-07 SHM/7 Dispersing head

MT353-10 SHM/10 Dispersing head

MT353-20 SHM/20 Dispersing head

MT353-55 SHM/DISP Dispersing heads, disposable, pack of 25 require MT353-57 for operation

MT353-57 Adapter for MT353-55 heads to fit MT350- drive modules

Stand for MT350-series

Purpose built for holding MT350- drives. Base: 220 x 304 x 11mm W x D x H with non-slip surface to stabilise sample vessels in use. Rod: 610 x 16mm L x dia. Weight 3.6kg. Supplied with bosshead and rod to connect directly to MT350-30. The bosshead will also mount the clamp holder supplied with MT350-10/-12.

MT353-75 SHM/STAND

Mixers

Ultra Turrax T10 basic Homogeniser



- ◆ Comprises drive module and choice of accessory dispersing heads
- ◆ Speed adjustable between 8000 and 30000rpm
- ◆ Capacity 0.5 to 100ml depending on dispersing head chosen
- ◆ Can be used as a hand-held unit or on an accessory stand
- ◆ Particle reduction down to 1µm (emulsions), 10µm (suspensions)

Drive Module, Ultra Turrax T10 basic

As described. Supplied with stepless speed control, range 8000 to 30000rpm, R200 clamp for attaching T10 basic to accessory bosshead and stand, and storage case. For 230V 50/60Hz single phase supplies. 125W. Overall 56 x 66 x 178mm W x D x H. Weight 0.5kg. Requires, but does not include, one or more accessory dispersing heads for operation.

MT435-67 Drive module T10 basic

Accessories

Interchangeable dispersing heads. Materials in contact with sample are stainless steel and PTFE. Autoclavable.

MT435-73 0.5 to 10ml range, o.d. 5mm, immersion
20 to 75mm, S10N-5G

MT435-79 1 to 50ml range, o.d. 8mm, immersion
20 to 95mm, S10N-8G

MT435-85 1 to 100ml range, o.d. 10mm, immersion
20 to 100mm, S10N-10G

Stand, with twin rod base and support rod, 242 x 355 x 370mm W x D x H, with 10mm diameter rod. Maximum loading 0.7kg.

MT435-89 Stand R104

MT435-94 Bosshead H44 for mounting R200 clamp to stand

Ultra Turrax T18 digital Homogeniser



- ◆ Comprises drive module and choice of accessory dispersing heads
- ◆ Speed adjustable between 500 and 25000rpm
- ◆ Capacity 1 to 1500ml depending on dispersing head chosen
- ◆ Digital speed display
- ◆ Can be used as a hand-held unit or on an accessory stand
- ◆ Particle reduction down to 1µm (emulsions), 10µm (suspensions)

Drive Module, Ultra Turrax T18 digital

As described. Supplied with stepless speed control, range 500 to 25000rpm. For 230V 50/60Hz single phase supplies. 300W. Overall 87 x 106 x 271mm W x D x H. Weight 2.5kg. Requires, but does not include, one or more accessory dispersing heads for operation.

MT440-32 Drive module T18 digital

Accessories

Interchangeable dispersing heads. Materials in contact with sample are stainless steel and PTFE. Autoclavable.

MT440-65 1 to 100ml range, o.d. 10mm, immersion
25 to 70mm, S18N-10G

MT440-80 10 to 1500ml range, o.d. 19mm, immersion
35 to 170mm, S18N-19G

Stand base plate 200 x 316mm and 16mm diameter stainless steel rod, 800mm high. Maximum loading capacity 5kg.

MT468-22 Stand R1826

SR753-09 Bosshead R182 for mounting MT440-30 to stand



MT435-67 with dispersing head



MT440-32 with dispersing head

Mixers

Ultra Turrax T25 digital Homogeniser



For high speed shredding, homogenising and dispersing a wide range of free-flowing materials.

- ◆ Speed adjustable between 500 to 25000rpm
- ◆ Digital speed display
- ◆ Article reduction down to 1µm
- ◆ Can be hand-held or mounted on an accessory stand
- ◆ Operating range up to 2 litres depending on dispersing head chosen
- ◆ Set rotor speed maintained irrespective of viscosity changes during dispersion

Drive Module, T25 digital

As described. With stepless, adjustable speed control and digital display, range 500 to 25000rpm. Overall 87 x 106 x 271mm W x D x H. Weight 2.5kg. For 230V 50/60Hz single phase supplies. Requires one or more accessory dispersing shafts (MT465-) as selected, for operation.

MT450-18 Drive module T25 digital

Accessories for Drive Module T25 digital

Dispersing Shafts, Interchangeable

Materials in contact with product are stainless steel and PTFE. Autoclavable.

	Ref.	Range*, ml	Shaft/Stator dia. mm	Rotor dia. mm	Max. depth mm	Ultimate fineness µm (approx.) dispersions emulsions	
MT465-10	S25N-8G	1 to 50	8	6.1	85	10 to 50	1 to 10
MT465-20	S25N-10G	1 to 100	10	7.5	85	10 to 50	1 to 10
MT465-30	S25N-18G	10 to 1500	18	12.7	165	10 to 50	1 to 10
MT465-40	S25N-25G	50 to 2000	25	17	165	15 to 50	1 to 10

*Range given is for material viscosities up to 200mPas.

Stand

Base Plate 200 x 316mm and 16mm diameter stainless steel rod, 800mm high. Maximum loading capacity 5kg.

MT468-22 Stand R1826

SR753-09 Bosshead R182 for mounting MT450-18 on stand

MT468-33 Strap clamp RH3 for securing/stabilising sample vessels to stand



MT450-18 with dispersing head

Overhead Stirrer



Stirrer, RW20 digital

A robust stirrer for processing up to 20 litres of medium viscosity liquids up to 10000 mPas. With digital speed display, adjustable two-speed ranges: 60 to 500 and 240 to 2000rpm, and 1 to 10mm i.d., hollow shafted chuck. Also incorporates an electronic temperature safety cut-out on the motor and 13mm diameter clamping rod for mounting on a stand. Overall dimensions 88 x 212 x 294mm W x D x H. Weight 3.1kg. For 230V 50/60Hz single phase supplies. Without rotor.

SR750-25 RW20 digital

Rotors, stainless steel

Suitable for all models. On 8mm diameter shaft.

	Ref.	Impellor length	Shaft
SR753-14	R1375	Blade 70 x 70mm	550mm
SR753-17	R1345	Propellor 4-blade 100mm dia.	550mm
SR753-19	R1300	Dissolving 80mm dia.	350mm
SR753-23	R1312	Turbine 50mm dia.	350mm

Full details and alternative overhead stirrers - see SR550/SR765-series.



SR750-25 with accessories

Moisture

Grain Moisture Analyser MC2000

OHAUS®

Hand held, grain moisture analyser designed to accurately determine whole grain moisture content in agricultural Q.C. and storage applications.

- ◆ Simple operation with easy-to-use controls and touch keypad operation
- ◆ Fast, reliable results within 5 seconds and automatically temperature compensated to ensure accuracy
- ◆ Multiple measurement modes with 10 pre-programmed and 40 user customisable procedures available allowing use with a wide variety of grains
- ◆ Backlit LCD readout enable use in low-light areas such as barns or silos

Model	MC2000
Moisture range, %	3 to 45
Readability, %	0.1
Repeatability, %	±0.2
Sample volume, ml	220
Operating temperature, °C	0 to 50
Display modes	% moisture, weight, density, statistics, temperature
Procedure memories	50 (10 pre-programmed)
Power	4 x 1.5V AA batteries
Overall, W x D x H mm	190 x 120 x 200
Weight, empty kg	0.8

As described. Supplied with sample measure, leveller/lid, carrying case, 4 x 1.5V AA batteries and instructions.

MW030-10 MC2000

BL610-15 Spare battery, 1.5V AA (4 required)



MW030-10

Moisture

Halogen Moisture Analysers, MB Series

OHAUS®

Choice of four models with low-cost, routine (MB-23 and MB-25), or sophisticated (MB-90 or MB-120) features for laboratory or industrial applications in the chemical, pharmaceutical, food and beverage, and environmental fields.

◆ MB-120 has a built-in, statistical function mode for process analysis and output

Model	MB-23	MB-25	MB-90	MB-120
Ranges x readability				
weighing, g	0 to 110 x 0.01	0 to 110 x 0.005	0 to 90 x 0.001	0 to 120 x 0.001
moisture, %	0 to 100 x 0.1	0 to 100 x 0.05	0 to 100* x 0.01	0 to 100* x 0.01
temperature, °C	50 to 160 x 5	50 to 160 x 5	50 to 160 x 1	40 to 230 x 1
time, minutes	1 to 99 x 0.5 (up to 60min.) x 1 (rest of range)	1 to 99 x 0.5 (up to 60min.) x 1 (rest of range)	1 to 480 x 0.5 (up to 60 min.) x 1 (rest of range)	1 to 480 x 0.5 (up to 60 min.) x 1 (rest of range)
Repeatability	0.1%/0.01g	0.05%/0.005g	0.02%/0.002g	0.01%/0.001g
Results display	Moisture content, time, temperature, weight	Moisture content, time, temperature, weight	Moisture content, time, temperature, weight, method name, drying curve and statistics	Moisture content, Dry weight, Regain, grams or custom, method name, drying curve and statistics
Shut off modes	Manual, timed 1 to 99 min. x 30 secs. (up to 60 min., 1 min. rest of range), Auto	Manual, timed 1 to 99 min. x 30 secs. (up to 60 min., 1 min. rest of range), Auto	Manual, timed or Auto	Manual, timed, Autofree %/s, Autofree mg/s, Auto 30, Auto 60 and Auto 90
Temperature profiles	Standard only	Standard only	Standard and fast	Standard, fast, ramp, step (user defined)
Memory	—	—	2 methods, 100 test results per method	100 methods, 1000 test results per method
Calibration				
weight, g	50	50	50	50
temperatures, °C	100 and 160	100 and 160	100 and 160	100 and 160
Data interface	RS232 printer/PC port	RS232 printer/PC port	USB and RS232 printer/PC port with GMP/GLP functions	USB and RS232 printer/PC port with GMP/GLP functions
Weighing pan	mm 90 diameter	90 diameter	90 diameter	90 diameter
Overall, W x D x H	mm 170 x 280 x 130	170 x 280 x 130	210 x 350 x 180	210 x 350 x 180
Weight	kg 5.8	5.8	5.3	5.3

*0 to 999% in regain mode.

Moisture Analysers MB-series

As described. With heating as indicated, sample pan handler, USB and bi-directional RS232 interfaces, aluminium foil sample dishes, levelling feet and bubble, and instructions. For 100-120V, 220-240V 50/60Hz single phase supplies.

- MW178-15** MB-23, infra-red heating
- MW178-25** MB-25, halogen heating
- MW180-15** MB-90 halogen heating
- MW180-20** MB-120, halogen heating

BB528-14



Accessories and spares for all models

Dot matrix printer, SF40A

Multifunction, dot matrix printer. Supplied with RS232C interface cable, software and adapter to fit Ohaus laboratory balances, paper roll, ribbon cartridge and a.c. adapter for 100-240V 50/60Hz a.c.

- BB528-14** Printer SF40A
- BB528-28** Paper rolls for BB528-14, pack of 5
- BB528-29** Ink ribbon for BB528-14, pack of 1

- MW183-06** TempCal temperature calibration kit
- BD790-04** Aluminium foil sample dishes, 90 x 8mm, pack of 50
- BD790-06** Aluminium foil sample dishes, 90 x 8mm, pack of 80
- BD790-12** Aluminium foil sample dishes, 100 x 7mm, pack of 80



MW178-25 in use, **MW178-15** is similar



MW180-15



MW180-20

Molecular Biology

Nucleic acid processing media, FTA®

Qiagen

FTA® products from Qiagen provide users with an established range of effective tools and innovative solutions for the collection, purification and transportation of nucleic acids.

FTA® is a chemical treatment that allows for the rapid isolation of pure DNA. When samples are applied to FTA®-treated paper or card, cell lysis occurs and high molecular weight DNA is immobilised within the matrix. Amplification or restriction enzyme digestion can be performed directly on the treated paper without the need for extensive extraction procedures.

Features

- ◆ Rapid isolation of pure DNA
- ◆ Designed to kill pathogens and prevent future colonisation by bacteria of fungi
- ◆ Protects DNA from microbial and environmental degradation
- ◆ Archive samples at room temperature
- ◆ Reduces potential for cross-contamination between samples
- ◆ Eliminates shearing forces associated with conventional extraction methods

QIAcard FTA® Classic and Micro cards

FTA® treated, 75 x 75mm cards designed for collection and transport of biological materials.

- ◆ All cells are lysed, even from solid tissue
- ◆ Bacteria and viruses are inactivated, providing non-hazardous samples
- ◆ Biological samples can be collected, transported and stored at room temperature
- ◆ Cards can be punched to provide clean DNA samples for easy transfer to PCR reaction vessels
- ◆ Amplifications possible on biological samples stored on cards at room temperature for ten years
- ◆ QIAcard FTA® Micro card is one quarter of the size of the QIAcard FTA® Classic card

As described. Supplied in packs of 100.

MW200-10 WB120205 QIAcard FTA® Classic cards

MW200-25 WB120210 QIAcard FTA® Micro cards

QIAcard FTA® Gene cards

Similar to the QIAcard FTA® Classic cards but prepared for automation. Contains three circles without paper cover, each to hold approximately 50µl of whole blood (more if spotting is outside the circle). Supplied in a pack of 100.

MW200-60 WB120208 QIAcard FTA® Gene cards

Benefits

- ◆ Capture and store nucleic acids in one step
- ◆ Reduces handling, saving time and money
- ◆ Stabilises genomic DNA at room temperature for over eleven years

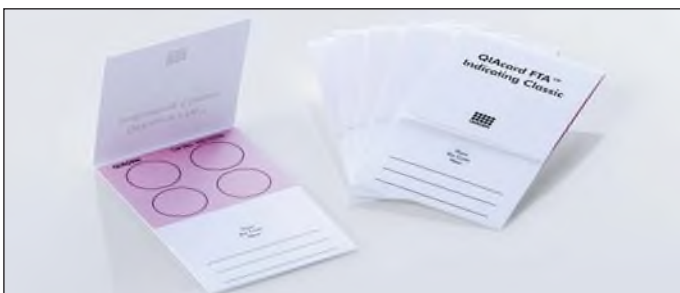
QIAcard CloneSaver™ cards

Capture BAC and Plasmid DNA for long term storage and downstream applications in one easy step.

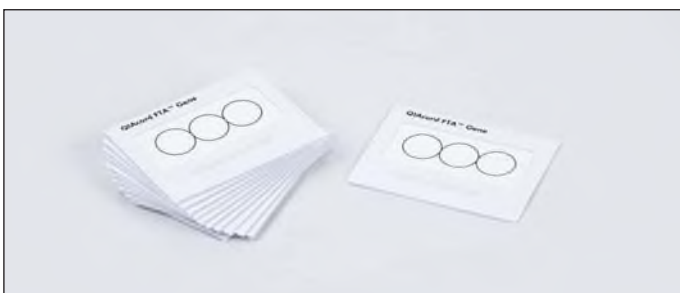
- ◆ Simply apply 5µl bacterial culture, resuspended colony or glycerol stock to a QIAcard CloneSaver™ card. The plasmid or BAC DNA is captured and stabilised for long-term storage or immediate processing
- ◆ Captured DNA is easily accessible for downstream applications
- ◆ Store up to 96 samples on each QIAcard CloneSaver™ card
- ◆ QIAcard CloneSaver™ cards include a pink indicator that turns white upon sample application to aid identification and location
- ◆ Plasmid DNA held on QIAcard CloneSaver™ cards are stable at room temperature for at least two and a half years

QIAcard CloneSaver™ cards provide a convenient and accessible format for downstream applications involving frequently used, plasmid and BAC clones. Washed, punched discs from the card are ready for transformation of bacteria by stored, immobilised, plasmid DNA using electroporation or heat-shock methods. An immobilised plasmid DNA punch can also be used directly as a template for PCR. The plasmid DNA template remains bound to the punch and can be re-used in another reaction. The PCR products remain in solution, do not bind to the punch, and are easily recoverable. Supplied in a pack of 5.

MW200-85 WB120028 QIAcard CloneSaver™ cards



MW200-10



MW200-60



MW200-85

Molecular Biology

Nucleic acid processing media, FTA®

Whatman®

FTA® purification reagent

A non-toxic, hypoallergenic solution used for the rapid purification of DNA from a wide range of biological specimens stored on FTA®-treated matrix.

- ◆ Provides superior quality DNA for PCR or RFLP analysis
- ◆ Simple washing procedure ensures complete removal of all heme, PCR inhibitors and other contaminants
- ◆ Prepares DNA from a wide variety of specimens: whole blood, epithelial cells, cell cultures, solid tissues - even yeast and bacteria

As described. Supplied in a bottle of 500ml.

MW205-10 WB120204 FTA® Purification reagent

Sample collection products

Applicator swabs

Foam tipped, sterile swabs for the non-abrasive collection of buccal cells and simple transfer to FTA® media for DNA typing applications. Supplied sterile in a pack of 100.

MW205-37 WB100032 Applicator swabs

Omni swabs

With ejectable head for easy transfer of samples into tubes and multiwell plates for DNA analysis. Individually sterile wrapped within a pack of 100.

MW205-44 WB100035 Omni swabs

Desiccant

For controlling moisture in specimen packages. Supplied in a pack of 1000 x 1g sachets.

MW205-60 WB100003 Desiccant sachets

Multi-barrier pouches

Multi-layer pouches for use with FTA® or CloneSaver™ cards as indicated.

	Ref.	For cards	Pack qty.
MW205-72	WB100036	FTA® Gene/Micro	100
MW205-77	WB100037	FTA® Classic	100
MW205-79	WB100024	FTA® CloneSaver™	50

Harris Uni-Core disposable micro punches

Designed for rapid, easy sampling from FTA® and CloneSaver™ cards.

- ◆ Reusable up to 500 punches before disposal
- ◆ Sharp, stainless steel, precision cutting edge guarantees fast, precise punching and ejection, uniform sampling and no carry-over between punches
- ◆ Accessory "self-healing", inert cutting mats ensure clean sample cuts, protect and extend the life of the micro punch

As described. Supplied in packs or singly, as indicated. Without cutting mat.

MW224-05 Uni-Core punches, WB100028, with 1.2mm tip, pack of 4

MW224-16 Uni-Core punches, WB100029, with 2.0mm tip, pack of 4

MW224-25 Uni-Core punches, WB100039, with 3.0mm tip, pack of 4

MW224-35 Uni-Core punches, WB100040, with 6.0mm tip, pack of 4

MW224-40 Uni-Core punches, WB100073, with 1.0mm tip, pack of 25

MW224-50 Uni-Core punches, WB100074, with 1.2mm tip, pack of 25

MW224-60 Uni-Core punches, WB100076, with 2.0mm tip, pack of 25

MW224-70 Uni-Core punches, WB100078, with 3.0mm tip, pack of 25

MW224-80 Uni-Core punches, WB100082, with 6.0mm tip, pack of 25

MW224-90 Cutting mat, 150 x 200mm, WB100020

MW224-95 Cutting mat, 2½" x 3" (63 x 75mm), WB100088



MW205-10



MW205-44



MW205-60



MW224



MW205-37



MW205-72 to MW205-79

Cooling/Heating Blocks, PCH Series

Grant bio

Suitable for cooling and heating applications including nick translation, ligation reactions, restriction digests, tube hybridisation, enzyme reactions and deactivations.

- ◆ Range -10 to +100°C
- ◆ Choice of microtube blocks:
 - PCH-1: 12 x 1.5ml/20 x 0.5ml
 - PCH-2: 20 x 1.5ml
- ◆ 0 to 96 hours x 1 minute timer with audible alarm at end of timed period

Specifications - both models

Range x resolution	°C	-10 to +100 x 0.1
Stability	±°C	0.2
Uniformity @ 10°C	±°C	0.5
Heat up time (ambient to +100°C)	minutes	<10
Cool down times, minutes	+100°C to ambient	<12
	ambient to -10°C	<11
W x D x H	mm	225 x 195 x 161
Weight	kg	3.5

As described. With insulating cover and fitted with block as indicated. For 220-240V 50/60Hz single phase supplies.

MW340-10 PCH-1, 12 x 1.5ml/20 x 0.5ml

MW340-20 PCH-2, 20 x 1.5ml



MW340 in use

Molecular Biology

Hybridisation Oven/Shaker



- ◆ Digital set and read temperature control
- ◆ Stainless steel interior
- ◆ Fan circulation
- ◆ Safety thermostat
- ◆ Up-and-over door with double glazed front panel
- ◆ Temperature ambient +8°C to 80°C
- ◆ Variable speed rotisserie and shaker
- ◆ Designed for 20cm wide membrane
- ◆ Rotisserie acts as a bottle stand on the bench

A combined oven/shaker. The 7-bottle rotisserie rotates on rollers. Speed is variable between 2 and 10rpm. A platform fitted in the back drops forward to form a rocking shaker with variable speed of 5 to 70 oscillations per minute. The counterbalanced door opens to allow for full access into the incubator. The front is double glazed of acrylic and polycarbonate to withstand temperatures up to 80°C and to act as a radio-isotope shield.

Catalogue No.	MW400-15	
Model	SI30H	
Type	Oven/shaker	
Capacity	litres	20
Max. temperature	°C	80
Fluctuation at 37°C	±°C	0.5
Dimensions, H x W x D	internal mm	200 x 286 x 230
	external mm	435 x 380 x 380

Hybridisation Oven-Shaker, Stuart

As described. With variable speed, 7-bottle rotisserie, and linear shaker. For 230V 50Hz single phase supplies. Without hybridisation bottles.

MW400-15 Oven Shaker, SI30H

Spares and Accessories

MW400-30 Rotisserie, spare for 7 x 40mm i.d. bottles

MW400-33 Rotisserie, for 2 x 75mm bottles

Hybridisation bottles

Heavy wall borosilicate glass. Suitable for autoclaving up to 140°C.

	H x dia., mm
MW413-18	170 x 40
MW413-22	260 x 40*
MW413-34	260 x 75

*The 260 x 40mm bottles accept the 20cm wide membranes.



MW400-15 in use

PCR Cabinets

Bigneat

- ◆ Choice of models:
 - UV sterilisation cabinet; with powerful UV tube lights and reflectors controlled by a 5 to 30 minute timer. Aluminium frame with 10mm thick acrylic side panels and hinged door flap at the front face including a safety sensor which switches off the UV lamps when the door is opened, PVC base tray, externally controlled white light illumination and corner shelves. Cable ports are provided in the side panels
 - PCR workstation; as above but additionally with fan and class 100 filtration system which maintains positive air pressure out of the cabinet reducing contamination risk. Pre-filter is 90% efficient to EFV grade EU7, the main HEPA filter is 99.997% efficient for particulates as small as 0.3 µm. An electronic filter saturation indicator illuminates when the filters require replacing

Catalogue No.		MW520-10	MW520-20
Cabinet		UV sterilisation	PCR workstation
Dimensions, internal (external)	H mm	730 (802)	730 (802)
	W mm	489 (549)	489 (549)
	D mm	699 (863)	699 (998)
Weight	kg	58	58

PCR cabinets, Bigneat

As described. For 230V 50Hz single phase supplies.

MW520-10 UV sterilising cabinet

MW520-20 PCR workstation

COMMISSIONING

A commissioning service for the PCR cabinets is available within the UK at additional cost – details on request



MW520-20, MW520-10 is similar

Molecular Biology

PCR Cabinet

FumeCare

Compact, benchtop mounting, ductless workstation for the preparation of PCR and sterile samples to avoid contamination with undesired DNA.

- ◆ Epoxy-coated, steel frame with polycarbonate side panels and hinged front panel
- ◆ Laminar flow system provides clean air conditions that are comparably better than Class 100 at the work surface
- ◆ UV steriliser lamp, operating at 15W and 254nm wavelength, with timer and inter-locked "night door" preventing accidental operator exposure
- ◆ Internal work surface lighting and clear side panels allow comfortable operation and excellent viewing at all times
- ◆ Safety alarm operates if the face velocity falls below 0.3m/second
- ◆ Removable top panel allows easy access for filter exchange

PCR cabinet, FumeCare

As described. Supplied with 15W fluorescent white and UV lamps, HEPA filter and instructions. Overall 600 x 670 x 900mm W x D x H. Weight 55kg. For 230V 50Hz single phase supplies.

MW530-15 PCR workstation

MW530-80 Spare HEPA filter

Catalogue No.		MW530-15
Dimensions, internal (external)	H mm	630 (900)
	W mm	550 (600)
	D mm	550 (670)
Weight	kg	55
Airflow	m ³ /hr	250
Prefilter efficiency	%	>99.6
Face velocity	m ³ /sec.	>0.4

COMMISSIONING

A commissioning service for the PCR cabinets is available within the UK at additional cost – details on request



MW530-15

Molecular Biology

Thermal Cyclers, Spex® PCRMax®

Self-contained, gradient thermal cyclers with numerous applications in molecular biology and diagnostics laboratories.

- ◆ High definition touchscreen operation with Android-driven interface
- ◆ Automated protocol optimisation with programme wizard
- ◆ Remote operation/monitoring available allowing alarm, time and system health checks via the user's phone
- ◆ USB user login sets all defaults to the individual user's settings
- ◆ Regularly-used default programmes can be created, locked and protected
- ◆ Units for 1, 2 and 4 block stations with 96-well or 384-well combinations
- ◆ Gradients run across 12 or 16 columns on 96-well or 384-well plates respectively, using 8 individual Peltier heat sources

Block format		Single block	Two-block	Four-block
Temperature range, block	°C	10 to 100 — all models		
Block uniformity (at +55°C)	°C	<±0.3 — all models		
Gradient Minimum/maximum	°C	1/29 — all models		
Gradient accuracy	±°C	0.25 — all models		
Maximum number of programmes [†]		1000 built-in — all models		
Selectable heated lid temperature [#]	°C	35 to 115 or off — all models		
Auto restart on power failure?		Yes — all models		
Manual pause and stop facility		Yes — all models		
Peltier elements per block		8 — all models		
Data/network interface		USB — all models		
Dimensions D x W x H	mm	430 x 260 x 200	470 x 535 x 335	700 x 535 x 335
Weight, net	kg	6	30	47

[†] The maximum number of programmes available depends on the number of segments required per programme.

[#] Heated lid will only come on if block temperature is set above 35°C.

Personal Thermal Cyclers, Spex® PCRMax®

As described. All PCRMax® models include a USB output to transfer data and act as a user login key port using any accessory USB drive. For 100-230V 50/60Hz a.c. single phase supplies.

	Model	Block no. x format
MW612-06	AC196	1 x 96-well
MW612-12	AC1384	1 x 384-well
MW612-18	AC296	2 x 96-well
MW612-24	AC2384	2 x 384-well
MW612-30	AC2196	1 x 96-well, 1 x 384-well
MW612-36	AC496	4 x 96-well
MW612-42	AC4384	4 x 384-well
MW612-48	AC4196	1 x 96-well, 3 x 384-well
MW612-54	AC4296	2 x 96-well, 2 x 384-well
MW612-60	AC4396	3 x 96-well, 1 x 384-well



MW612 single block



MW612 dual block



MW612 four block

Molecular Biology

Programmable Thermal Cyclers Prime Series



High performance thermal cyclers designed for laboratories requiring a large sample throughput. A fully interchangeable block system allows exchange without needing tools and offers enhanced versatility. A large, 5.7" VGA colour touchscreen with intuitive software programming and graphical display ensures user-friendly control and operation. Up to 1000 x 3-segment programmes can be stored with incremental/decremental timing and temperature elements. 8 Peltier modules per block provide rapid heating and cooling over the range +4°C to +100°C, with block uniformity $\leq \pm 0.3^\circ\text{C}$ at 55°C. A heated lid is provided with adjustable sealing pressure to accommodate a variety of consumables and a USB port allows networking with other cyclers or data transfer to the user's computer. Additionally, the PrimeG model allows gradient cycling with annealing temperatures optimisable over a 1 to 29°C range (1 to 19°C when using the 384-well block) and between 30°C and 80°C. For 100 to 230V 50/60Hz single phase supplies.

Model	Prime	PrimeG
Temperature range, block	°C +4 to +100 — all models	
gradient	—	+30 to +80
Block uniformity (at +55°C)	°C $\leq \pm 0.3$ — all models	
Temperature accuracy (at 55°C)	°C $\leq \pm 0.25$ — all models	
Min./Max gradient	°C —	1/29 (19 - 384-well plate block)
Maximum number of programmes [†] (3 segment)	1000 built-in — all models	
Selectable heated lid temperature [#]	°C 100 to 115 — all models	
Programme ramp rate, °C per second	up to 3.4 — all models	
Peltier elements per block	8 — all models	
Data/network interface	USB — all models	
Dimensions D x W x H	mm 420 x 240 x 240 — all models	
Weight, net	kg 9.4 — all models	

[†] The maximum number of programmes available depends on the number of segments required per programme.

[#] Heated lid will only come on if block temperature is set above 35°C.

Programmable Thermal Cyclers, Prime, Techne

Prime, non-gradient

MW630-40 Prime with 96 x 0.2ml microtubes

MW630-45 Prime with 60 x 0.5ml microtubes

MW630-50 Prime with 384-well microplates

PrimeG, gradient

MW635-35 PrimeG with 96 x 0.2ml microtubes

MW635-45 PrimeG with 60 x 0.5ml microtubes

MW635-50 PrimeG with 384-well microplates

Spares and accessories

MW637-40 Accessory block for 96 x 0.2ml microtubes

MW637-45 Accessory block for 60 x 0.5ml microtubes

MW637-50 Accessory block for 384-well microplates

MW637-60 Prime gradient upgrade. Converts Prime cyclers to Prime gradient models

Important Notice

Purchase of Techne thermal cyclers conveys a limited, non-transferable immunity from suit for the purchaser's own internal research and development and applied fields, other than in-vitro diagnostics, under non-real-time thermal cycler patents of Applied Biosystems LLC.



MW630/MW635



MW630/MW635

Mini Cooler

Mini cooler for 0.2ml tubes, strips and plates

Benchtop cooler with lid which can maintain tubes below +4°C up to 3 hours once fully frozen beforehand. Changes colour from violet to pink as the temperature exceeds 7°C. Supplied in a pack of 2.

MW708-85 Mini cooler for PCR tubes, pack of 2



MW708-85

Microtubes and Plates



Microtube strips, Elkay

Strips of 8 x 0.2ml thin-walled, polypropylene conical tubes ideal for use with 96 well, V-bottom, thermal cycler blocks. Strips can be easily cut to separate individual tubes. Supplied in shelf packs of 2 x 125 strips (250 strips total) within outer packs as indicated. Non-sterile.

	Capacity, ml	Cap	Pack qty.
MW730-20	0.2	No	2000

Microtube plates, Elkay Thermo-Fast

Precision moulded, polypropylene, 96 x 0.2ml thin-walled microtube matrix in microplate format, unskirted or skirted, to fit similar format, V-bottom, thermal cycler blocks. Supplied in packs of 50 (except MW745-30 which is supplied in a pack of 25).

MW745-30 Thermo-Fast 0.2ml unskirted plates, non-sterile

MW745-34 Thermo-Fast 0.2ml skirted plates, non-sterile

MW745-36 Thermo-Fast 0.2ml half-skirted plates, non-sterile

Accessories for MW745 series

MN380-25 Sealplate adhesive plate sealing films, pack of 100

96-Well PCR Tube Rack

Autoclavable, rigid, polypropylene rack holds 0.2ml tubes individually, or in strips of 8 or 12. Tube apertures are easily identified using embossed numbers and letters. With removable, hinged lid. Overall W x D x H 98 x 130 x 33mm. Supplied in a pack of 5 mixed colours (1 each blue, green, pink, yellow and orange).

MW747-15 PCR tube racks, pack of 5



MW730



MW745-30



MW745-34



MW745-36



MW747-15 in use

Reaction Vessels, Thermowell GOLD

CORNING

A wide range of precision moulded, thin walled, polypropylene, reaction vessels specifically designed for use in PCR applications. A variety of formats ensure compatibility with thermocycling and sequencing instrumentation application requirements and user preferences. Certified RNase- and DNase-free.

	Ref.	Colour	Sleeve qty.	Pack qty.
PCR microplates, 384-well				
MW760-05	3757	Clear	10	50
PCR microplates, 96-well, full skirt				
MW760-15	3752	Clear	10	50
PCR microplates, 96-well, half skirt				
MW760-25	3753	Clear	10	50
PCR microplates, 96-well, elevated skirt				
MW760-35	3754	Clear	10	50
8 x 0.2ml PCR tube strips				
MW760-44	3741	Clear	125	1250
MW760-48	3740	Assorted	125	1250
8 x 0.2ml PCR tube cap strips for above				
MW760-54	3743	Clear	125	1250
MW760-58	3748	Assorted	125	1250
MW760-60	3742	Optically clear*	125	1250
0.2ml PCR tubes, individual, flat cap				
MW764-06	3745	Clear	500	1000
MW764-12	3744	Assorted	500	1000
0.2ml PCR tubes, individual, domed cap				
MW764-16	3747	Clear	500	1000
MW764-22	3746	Assorted	500	1000
0.5ml PCR tubes, individual, flat cap				
MW764-26	3750	Clear	500	1000
MW764-32	3749	Assorted	500	1000

*For Real-time PCR (RT-PCR).

Sealing tapes and mats for PCR microplates.

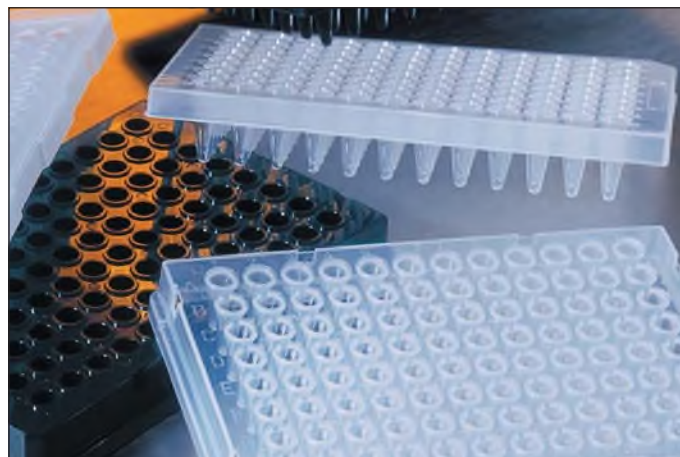
	Ref.	Description	Sleeve qty.	Pack qty.
MW767-12	6569	Aluminium sealing tape for 384-well microplates	100	100
MW767-16	6570	Aluminium sealing tape for 96-well microplates	100	100
MW767-28	6524	PE sealing tape strips for 96-well microplates	1	100

Sealing caps and tape strips for Real-time PCR

Designed for use with 8 x 0.2ml PCR tube strips and 96-well microplates, respectively.

MW760-60 Ref. 4742 3742. Optically clear flat caps, 8-strip, in sleeve of 125 strips within a pack of 1250

MW767-85 Ref. 6575 3742. Universal optical sealing tape strips, pack of 100



MW760-15/MW760-35



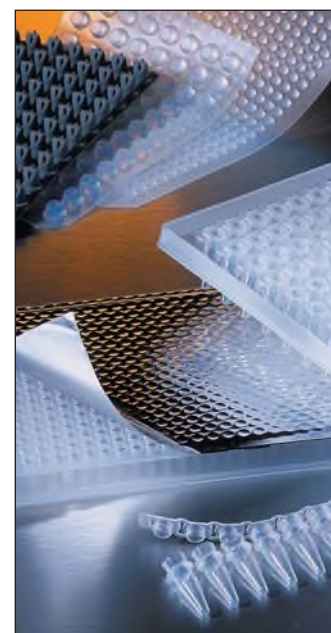
MW760-05



MW760-44/MW760-60



MW764-06/MW764-32



MW767

Molecular Biology

Microplate Sealing Film/Foil



A comprehensive range of both self-adhesive and heat-sealed microplate sealing films and foils suitable for PCR experiments.

Type	Description	Material	Peelable	Pierceable	Temperature range °C
Self-adhesive film/foil					
QuickSeal PCR™	Transparent film	PET	✓	x	-20 to +110
QuickSeal Micro™	Transparent film	PP	✓	x	-20 to +80
QuickSeal Foil PCR™	Foil barrier film	Al	✓	✓	-40 to +120
QuickSeal qPCR Crystal™	Transparent film with good optical clarity and DMSO resistance for qPCR fluorescence and crystallisation	BOPP	✓	x	-40 to +110
Heating sealing film/foil					
ClearASeal Peel™	Transparent film with good optical clarity and moderate solvent resistance suitable for qPCR	PET	✓	x	-80 to +80
ClearASeal Pierce™	Transparent film with good optical clarity and moderate solvent resistance	PET	x	✓	-80 to +80
PeelASeal Foil™	Foil laminate with moderate solvent resistance	PET/Al	✓	x	-80 to +110
PeelASeal DMSO Foil™	Foil laminate with high solvent resistance	PET/Al	✓	x	-80 to +80
PierceASeal Foil™	Foil laminate with high solvent resistance	Al	x	✓	-20 to +120
PierceASeal Foil PS™	Foil laminate with high solvent resistance	PET/Al	✓*	✓	20 to +120

*On to polystyrene plates only.

Material key: PET: polyethylene terephthalate
Al: aluminium

PP: polypropylene
BOPP: biaxially oriented polypropylene

As described. Supplied in rolls or packs of sheets as indicated.

Self-adhesive film/foil

QuickSeal PCR™

MW780-10 100m x 80mm width roll
MW780-12 135 x 80mm sheets, pack of 100

QuickSeal Micro™

MW780-14 100m x 80mm width roll
MW780-16 110m x 80mm width roll, sterile
MW780-18 135 x 80mm sheets, pack of 100

QuickSeal Foil PCR™

MW780-20 200m x 80mm width roll
MW780-22 135 x 80mm sheets, pack of 100

QuickSeal qPCR Crystal™

MW780-24 100m x 80mm width roll
MW780-26 140 x 80mm sheets, pack of 100

Heat sealing film/foil

ClearASeal Peel™

MW784-10 500m x 78mm width roll
MW784-12 125 x 78mm sheets, pack of 100

ClearASeal Pierce™

MW784-14 610m x 78mm width roll
MW784-16 125 x 78mm sheets, pack of 100

PeelASeal Foil™

MW784-18 610m x 78mm width roll
MW784-20 125 x 78mm sheets, pack of 100

PeelASeal DMSO Foil™

MW784-22 500m x 78mm width roll
MW784-24 125 x 78mm sheets, pack of 100

PierceASeal Foil™

MW784-26 610m x 78mm width roll
MW784-28 125 x 78mm sheets, pack of 100

PierceASeal Foil PS™

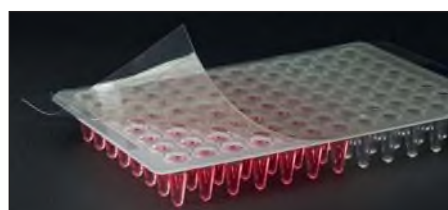
MW784-30 125 x 78mm sheets, pack of 100

Accessories

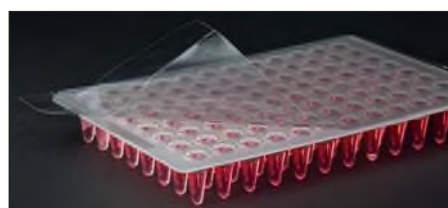
Roller

Rubber roller for manual sealing of film or foil on to microplates.

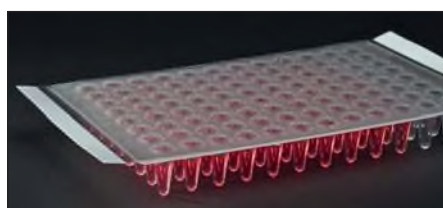
MW792-05 Roller



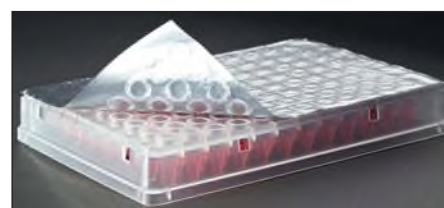
MW780-10/12 in use



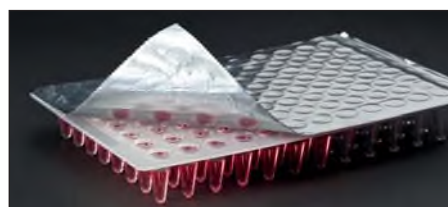
MW780-14 to -18 in use



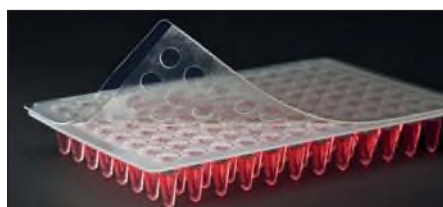
MW780-24/26 in use



MW784-18 to -24 in use



MW780-20/22 in use



MW784-10 to -16 in use



MW784-26 to -30 in use

Molecular Biology

Electroporator, TSS20 OVODYNE

A square wave pulse generator for bench top use, capable of single or multi-pulse operation at voltages suitable for *in ovo* electroporation. The use of the chick embryo as a model for gene transfer experiments has grown rapidly in recent years. The TSS20 OVODYNE is a highly-refined, microprocessor-based instrument providing flexibility and convenience in operation.

- ◆ Accurate voltage setting
- ◆ Resistance measuring facility ensures that an appropriate voltage is selected for electroporation in the presence of conductive buffers, or that electrode spacing is adjusted to avoid current limiting conditions
- ◆ Clean, square wave pulses produced
- ◆ Safe and easy-to-use
- ◆ Remote hand- or footswitch operation
- ◆ Accessory EP21 current amplifier extends the current range of the TSS20 up to 1000mA, allowing electroporation of other embryo cell types and multiple embryos *in vitro*
- ◆ Silver, tungsten, or platinum-tipped electrodes available

TSS20 Specification

Pulse voltage	V	0 to 99.9 x 0.1
Pulse type		Square wave
Programmable pulses		1 to 999 x 1
Pulse width	ms	1 to 999 x 1
Resistance		0 to 9998 x 1
Sequences		0 to 999
Overall, W x D x H	mm	230 x 200 x 85
Weight	kg	2.5
Supply requirements		230V 50/60Hz

EP21 Specification

Input (from TSS20)	V	15 to 100 at 2mA
Peak output	V	15 to 100 at 1000mA max.
Output fuse		1amp fast blow, type F
Insulation		Floating output stage, isolated to >3kV from mains and control circuit
Overall, W x D x H	mm	230 x 225 x 55
Weight	kg	2.35
Supply requirements		230V 50/60Hz

TSS20 OVODYNE

As described. Supplied without probes or probe holders which are required for operation. For 230V 50/60Hz single phase supplies.

MW900-10 TSS20

MW902-14 Accessory footswitch for TSS20

MW902-18 Accessory handswitch for TSS20

EP21 Current Amplifier

As described. Supplied without probes or probe For use only with MW900-10, allowing higher currents up to 1000mA to be passed at up to 100V whilst maintaining the square wave pulse-form. For 230V 50/60Hz single phase supplies.

MW902-40 EP21

Electrode Holders

Available singly for manual positioning, or as the Adjustatrod twin holder with screw clamp adjustment to allow precise positioning of silver "paddle" electrodes either side of the embryo region. All holders are 10cm x 6mm o.d. and supplied with 1 metre cable and plug, in colour as indicated.

MW902-54 Single holder, red

MW902-57 Single holder, black

MW902-62 Adjustatrod, twin holder with 1 each red and black

Silver Electrodes

Insulated 0.8mm diameter shaft with choice of flattened or offset exposed pole. Supplied in packs of 2.

MW902-65 Flattened pole

MW902-69 Offset pole

Tungsten Electrodes

Polyamide insulated, 0.5mm diameter shaft with 10:1 tapered tip with exposed area as indicated. Supplied in packs of 2.

MW902-72 1mm

MW902-73 2mm

MW902-74 3mm

MW902-75 4mm

MW902-76 5mm

Platinum-tipped Electrodes

Insulated shaft in choice of rigid stainless steel or semi-rigid silver, 0.8mm diameter with exposed platinum wire length of 7.5mm x 0.5mm diameter. Supplied in packs of 2.

MW902-88 Stainless steel shaft

MW902-90 Silver wire shaft



MW900-10 with MW902-40, MW902-62 and electrodes



MW902 electrodes

Mortars and Pestles

Mortars and Pestles

Glass Mortars and Pestles

Mortars are glazed internally, pestles have frosted grinding surface at the tip. Dimension given is mortar outside diameter and is nominal.

	Dia. mm
MX100-15	85
MX100-25	100
MX100-40	150

Spare Mortars for MX100-series

	Dia. mm
MX103-07	85
MX103-17	100
MX103-32	150

Spare Pestles for MX100-series

	For mortar dia. mm
MX104-06	85
MX104-16	100
MX104-30	150

Porcelain Mortars and Pestles

Unglazed. Dimension given is mortar outside diameter and is nominal.

	Dia. mm	Size No.	Cap. ml
MX150-30	115	1	199
MX150-35	135	2	284
MX150-40	150	3	426

Porcelain Mortars and Pestles

Glazed but unglazed grinding surfaces. Dimension given is mortar outside diameter and is nominal.

	Dia. mm
MX160-15	80
MX160-20	90
MX160-30	100
MX160-35	125
MX160-40	160
MX160-50	180
MX160-55	200

Mortar and Pestle, Smash

Novel design offering rapid, efficient grinding with easy operation and reduced effort. In use, the heavy porcelain, grooved pestle sits snugly into the porcelain mortar and is rolled over the sample by rotating the hand whilst applying pressure to the handle head with the palm. The pestle grooves keep the sample under the pestle and the grinding action ensures a finely divided product. Mortar capacity 33ml, 90mm diameter. Glazed with unglazed grinding surfaces and PE palm rest. Machine washable. Overall 98 x 98 x 195mm W x D x H. Weight 695g.

MX165-20 Smash Mortar & Pestle

Agate Mortars and Pestles

Polished natural stone with working surfaces as free as possible from blemishes. Dimension given is mortar outside diameter and is nominal.

MX200-12 50mm

MX200-19 75mm

MX200-26 90mm

Mortar and Pestle Mill RM200

For dry or wet grinding of a wide range of materials including ceramics, chemicals, cosmetics, pharmaceuticals, mineral paints, plastics etc. Depending on suitability, samples from 10ml to 190ml can be milled, pulverised and homogenised to an ultimate fineness of approximately 10µm. A choice of accessory porcelain or agate mortars and pestles are available. Sample can be fed into the mortar during operation, maximum feed size 8mm. Pestle pressure is adjustable and reproducible. With digital control. Includes automatic overload cut-out and "quick-stop" motor. Overall 400 x 370 x 450mm W x D x H. Weight 24kg. For 230V 50Hz single phase supplies. Supplied without mortar and pestle which are required for operation.

MX300-30 RM200

MX303-05 Mortar for RM200, porcelain

MX303-07 Mortar for RM200, agate

MX303-15 Pestle for RM200, porcelain

MX303-17 Pestle for RM200, agate

MX165 pestle



MX165-20



MX300 in use

Ovens

Drying Cabinets



Drying Cabinets

For general warming and drying purposes, including drying of drained glassware. OV100-11, OV100-21, OV105-12 and OV105-17 are additionally fitted with fibre insulation which reduces energy requirements giving a performance saving of more than 30% against the non insulated models.

- ◆ Maximum temperature is approximately ambient +50°C
- ◆ Choice of:
 - Sliding toughened glass door with or without insulation
 - Hinged toughened glass door (2 on 885 litre and 1000 litre models) with or without insulation
- ◆ Stoved enamel paint interior and exterior
- ◆ Chromium plated wire mesh shelves
- ◆ Simmerstat heat control
- ◆ Hinged door models have fan circulation

Sliding door models

Catalogue No.		OV100-11	OV100-14	OV100-21	OV100-25
Capacity	litres	100	125	200	250
Internal	H, mm	400	430	490	520
	W, mm	670	720	930	980
	D, mm	370	400	450	480
Overall	H, mm	600	600	660	660
	W, mm	750	740	1000	1000
	D, mm	420	420	500	500
Weight		45	40	60	55
Shelves		3	3	3	3
Power rating	W	500	1000	1000	1000
Voltage		For 220-240V 50Hz single phase supplies.			

- OV100-11** 100 litres, sliding door, insulated
- OV100-14** 125 litres, sliding door
- OV100-21** 200 litres, sliding door, insulated
- OV100-25** 250 litres, sliding door

Hinged door models

Catalogue No.		OV105-09	OV105-12	OV105-16	OV105-17
Capacity	litres	425	500	885	1000
Internal	H, mm	1350	1380	1350	1380
	W, mm	530	580	1110	1160
	D, mm	590	620	590	620
Overall	H, mm	1680	1680	1680	1680
	W, mm	600	600	1180	1180
	D, mm	600	650	650	650
Weight	kg	80	75	140	130
Shelves		3, adjustable for height — all models			
Power rating	W	1000	1000	1750	1750
Voltage		For 220-240V 50Hz single phase supplies			

- OV105-09** 425 litres, hinged door, insulated
- OV105-12** 500 litres, hinged door
- OV105-16** 885 litres, hinged door, insulated
- OV105-17** 1000 litres, hinged door

Glassware Dryer

For drying flasks, cylinders by hot air blowing – see *DY150* in the *Drying* section.



OV100



OV105

Ovens

OV Range 250°C



- ◆ Wide bodied profile with controls to the side
- ◆ Temperature range 40 to 250°C
- ◆ Fluctuation $\pm 0.75^\circ\text{C}$
- ◆ Choice of:
 - Aluminium coated mild steel or stainless steel interiors
 - Natural or fan convection
- ◆ Top vent with clip for thermometer
- ◆ Fan mounted at side
- ◆ Touchscreen digital control incorporating an integral overheat system with two Pt100 sensors
- ◆ Fitted with fixed shelf runners and removable chrome-plated wire grid shelves
- ◆ Steel outer case with stoved powder paint finish

OV Models, wide-bodied profile

Catalogue No.		OV155	-03	-09	-14	—	—	—
		OV158*	-03	-09	-14	—	—	—
			-07	-11	-16	-21	-26	—
			-07	-11	-16	-21	-26	-31
Usable volume	litres		50	75	100	125	150	200
External	H	mm	580	580	580	690	690	890
	W	mm	730	850	850	850	850	850
	D	mm	480	480	590	590	670	670
Internal	H*	mm	420	420	420	520	520	750
	W*	mm	360	530	530	530	530	490
	D	mm	350	350	460	460	540	540
Power rating	W		750	1250	1250	1500	1750	2000
Shelves supplied			2	2	3	3	3	4
Shelf positions			3	3	4	5	5	7
Weight	kg		31	39	48	57	66	85

*Fan convection models have internal chamber height increased by 30mm and width reduced by 40mm.

Ovens, wide-bodied profile, OV, 250°C

As described. With aluminium coated steel (CLAD) or stainless steel interior as indicated, shelves, control and safety thermostats, mains on/off switch and indicator lamps. For 220-240V 50Hz single phase supplies.

Natural convection

- OV155-03 50 litres, CLAD
- OV155-07 50 litres, stainless steel
- OV155-09 75 litres, CLAD
- OV155-11 75 litres, stainless steel

- OV155-14 100 litres, CLAD
- OV155-16 100 litres, stainless steel
- OV155-21 125 litres, stainless steel
- OV155-26 150 litres, stainless steel

Fan convection

- OV158-03 50 litres, CLAD
- OV158-07 50 litres, stainless steel
- OV158-09 75 litres, CLAD

- OV158-11 75 litres, stainless steel
- OV158-14 100 litres, CLAD
- OV158-16 100 litres, stainless steel

- OV158-21 125 litres, stainless steel
- OV158-26 150 litres, stainless steel
- OV158-31 200 litres, stainless steel



OV155/OV158

Ovens

Mino Range 250°C



- ◆ Standard profile with controls at base
- ◆ Temperature range 40 to 250°C
- ◆ Fluctuation $\pm 0.75^\circ\text{C}$
- ◆ Choice of:
 - Aluminium coated mild steel or stainless steel interiors
 - Natural or fan convection (30 litre models and above)
- ◆ Hydraulic thermostat with locking device
- ◆ Adjustable safety thermostat with indicator lamp and locking device
- ◆ Top vent with clip for thermometer
- ◆ Fan mounted at rear
- ◆ Fitted with fixed shelf runners and removable chrome-plated wire grid shelves
- ◆ Steel outer case with stoved powder paint finish

MINO range, standard profile

Catalogue No.	OV160 OV164	-05 —	-07 —	-20 -20	-22 -22	-30 -30	-32 -32	-40 -40	-42 -42
Usable volume	litres	6	18	30	30	50	50	75	75
External	H	mm	390	520	500	500	580	580	590
	W	mm	320	380	480	480	610	610	610
	D*	mm	330	410	490	490	470	470	600
Internal	H	mm	150	260	240	240	330	330	330
	W	mm	230	260	360	360	490	490	490
	D	mm	190	270	350	350	330	330	450
Power rating	W	300	500	750	750	1000	1000	1250	1250
Shelves supplied		1	2	2	2	2	2	2	2
Shelf positions		1	2	2	2	3	3	3	3
Weight	kg	7	14	20	20	26	26	34	34

*Fan convection models have external depth increased by 120mm.

Ovens, standard profile, MINO 250°C

As described. With aluminium coated steel (CLAD) or stainless steel interior as indicated, shelves, control and safety thermostats, mains on/off switch and indicator lamps. For 220-240V 50Hz single phase supplies.

Natural convection

- OV160-05 6 litres, CLAD
- OV160-07 18 litres, CLAD
- OV160-20 30 litres, CLAD
- OV160-22 30 litres, stainless steel
- OV160-30 50 litres, CLAD
- OV160-32 50 litres, stainless steel
- OV160-40 75 litres, CLAD
- OV160-42 75 litres, stainless steel

Fan convection

- OV164-20 30 litres, CLAD
- OV164-22 30 litres, stainless steel
- OV164-30 50 litres, CLAD
- OV164-32 50 litres, stainless steel
- OV164-40 75 litres, CLAD
- OV164-42 75 litres, stainless steel



OV160/OV164

Ovens

Apex Series, 250°C

CARBOLITE

Leading Heat Technology

- ◆ Choice of capacities, 30 litres or 60 litres
- ◆ Digital PID temperature controller using Pt100 sensor
- ◆ Maximum temperature 250°C
- ◆ Fan assisted air circulation
- ◆ Stainless steel interior
- ◆ Thermally efficient insulation
- ◆ Adjustable chamber ventilation and exhaust vent

Model		AX30	AX60	
Capacity	litres	30	60	
Temp. uniformity @ 200°C	±°C	1.9	2.1	
Temp. stability* at all temperatures	±°C	0.2	0.2	
Shelves supplied (positions)		2 (4)	2 (6)	
Internal	H	mm	295	396
	W	mm	300	400
	D	mm	320	420
External	H	mm	440	540
	W	mm	590	690
	D	mm	465	565

*With vent fully closed.

Apex Series Ovens 250°C

With stainless steel interior and nickel wire-plated shelves as indicated. For 220-240V 50Hz single phase supplies.

- OV185-10 30 litres
- OV185-20 60 litres

Peak Series, 300°C

CARBOLITE

Leading Heat Technology

- ◆ Capacities up to 230 litres
- ◆ Natural or forced air circulation models
- ◆ Choice of controllers
 - PID controller without timer, ramp or programming functions
 - PID controller incorporating a single ramp to set point facility and process timer
- ◆ Maximum temperature 300°C
- ◆ Stainless steel interior
- ◆ Efficient insulation using totally encased, low thermal mass fibre material
- ◆ Chamber ventilation and exhaust vent adjustable from the front control panel

Model		PN/PF30	PN/PF60	PN/PF120	PN/PF200
Capacity	litres	27/28	58/66	115/128	215/230
Internal	H	mm	255/300	350/400	450/500
	W	mm	330/292	490	390
	D	mm	320	420	520
External	H	mm	470	570	670
	W	mm	665	765	865
	D	mm	470	670	570
Shelves supplied (positions)		2 (3)	2 (5)	2 (9)	2 (15)
Power	kW	0.75/1.0	1.0/1.5	1.5/2.0	2.5/2.7

Peak Series Ovens 300°C

With stainless steel interior and adjustable ventilation. For 230V 50Hz single phase supplies. Controller and air circulation as indicated.

With single PID controller, without timer, ramp or programming functions

- OV190-10 PN30, 27 litres, natural
- OV190-14 PF30, 28 litres, forced air
- OV190-20 PN60, 58 litres, natural
- OV190-24 PF60, 66 litres, forced air

- OV190-30 PN120, 115 litres, natural
- OV190-34 PF120, 128 litres, forced air
- OV190-40 PN200, 215 litres, natural
- OV190-44 PF200, 230 litres, forced air

With PID controller incorporating a single ramp to set point facility and process timer

- OV195-10 PN30, 27 litres, natural
- OV195-14 PF30, 28 litres, forced air
- OV195-20 PN60, 58 litres, natural
- OV195-24 PF60, 66 litres, forced air

- OV195-30 PN120, 115 litres, natural
- OV195-34 PF120, 128 litres, forced air
- OV195-40 PN200, 215 litres, natural
- OV195-44 PF200, 230 litres, forced air



OV185



OV190/OV195 in use

Ovens

UN/UF Series 300°C

memmert

- ◆ Wide range of capacities up to 256 litres*
- ◆ Temperature range +20°C to +300°C
- ◆ Choice of natural (UN-series) or forced air, fan (UF-series) convection models
- ◆ With choice of SingleDISPLAY or TwinDISPLAY (plus-series) colour TFT, multi-touchscreen controlCOCKPIT controller
- ◆ Stainless steel interior and exterior sides (external rear panel-zinc coated steel)
- ◆ Heaters located in ribs on all four sides provide uniform heating
- ◆ Digital process timer, adjustable between 1 minute and 99 days, 23 hours
- ◆ 10 year datalogger
- ◆ SetpointWAIT function ensures that the process time is not initiated until the set temperature is reached at all measuring points
- ◆ Temperature accuracy: up to 99°C: ±0.1°C
from 100°C: ±0.5°C
- ◆ Supplied with 1 or 2 stainless steel wire grid shelves

*Larger capacity models are available - details on request.

— SingleDISPLAY controlCOCKPIT

Display of temperature (°C or °F), fan speed (UF-models only) and programme time. Includes one Pt100 DIN Class A temperature sensor in a 4 wire circuit and ethernet interface. Dual overtemperature protection with freely adjustable monitoring of temperature and mechanical temperature limiter (TB Class 1) to DIN 12 880. With AtmoCONTROL logging software for online monitoring of up to 32 connected appliances, optical alarms when set alarm limits are exceeded and automatic alarm email notifications.

— TwinDISPLAY controlCOCKPIT

Display of temperature (°C or °F), fan speed (UF-models only) and programme time. Includes two Pt100 DIN Class A temperature sensors in a 4 wire circuit, ethernet and USB interfaces and heatBALANCE function for adjustment of heating power distribution of the upper and lower heating groups in an adjustment range between -50% and +50%. Multiple overtemperature protection monitoring TWW/TWB (protection Class 3.1/3.2, respectively) and mechanical temperature limiter (TB Class 1) to DIN 12 880, with settings for individual maximum/minimum values for over/undertemperature alarms. Also includes AUTOSAFETY function which allows automatic adjustment to the set value within a freely adjustable tolerance range. With AtmoCONTROL logging software as SingleDISPLAY controller, but additionally includes display of the programme sequence created by the user, repeat functions which can be inserted anywhere within the control sequence and creation of repeating weekly programmes which can be transferred via ethernet or USB interfaces provided.



UN/UF Series Ovens, 300°C, Memmert

Model	Natural convection	UN30	UN55	UN75	UN110	UN160	UN260
	Forced convection	UF30	UF55	UF75	UF110	UF160	UF260
	Natural convection	UN30plus	UN55plus	UN75plus	UN110plus	UN160plus	UN260plus
	Forced convection	UF30plus	UF55plus	UF75plus	UF110plus	UF160plus	UF260plus
Volume	litres	32	53	74	108	161	256
Internal (external)	H	mm	320 (707)	400 (787)	560 (947)	480 (867)	720 (1107)
	W	mm	400 (585)	400 (585)	400 (585)	560 (745)	560 (745)
	D	mm	250 (434)	330 (514)	330 (514)	400 (584)	400 (584)
Shelves supplied		1	1	2	2	2	2
Max. no. of shelves held		3	4	6	5	8	9
Max. loading per shelf grid	kg	30 — all models					
Max. loading of chamber	kg	60	80	120	175	210	300
Power loading	kW	1.6	2.0	2.5	2.8	3.2	3.4
Power supply		230V 50/60Hz single phase — all models					
Net Weight	kg	44	55	64	72	80	96

continued on next page

Ovens

UN/UF Series 300°C continued

memmert

As described. With choice of SingleDISPLAY or TwinDISPLAY controller, integral process timer adjustable from 1 minute to 99 days, 23 hours, dual or multiple overload protection (plus-models only), temperature and time TFT display, chamber ventilation slide adjustment and stainless steel grid shelves. For 230V 50/60Hz single phase supplies.

UN Natural convection, SingleDISPLAY Controller Models

OV204-60 UN30, 32 litres
OV204-65 UN55, 53 litres
OV204-70 UN75, 74 litres

OV204-75 UN110, 108 litres
OV204-80 UN160, 161 litres
OV204-85 UN260, 256 litres

UF Forced Air convection, SingleDISPLAY Controller Models

OV234-60 UF30, 32 litres
OV234-65 UF55, 53 litres
OV234-70 UF75, 74 litres

OV234-75 UF110, 108 litres
OV234-80 UF160, 161 litres
OV234-85 UF260, 256 litres

UNplus Natural convection, TwinDISPLAY Controller Models

OV265-60 UN30plus, 32 litres
OV265-65 UN55plus, 53 litres
OV265-70 UN75plus, 74 litres

OV265-75 UN110plus, 108 litres
OV265-80 UN160plus, 161 litres
OV265-85 UN260plus, 256 litres

UFplus Forced Air convection, TwinDISPLAY Controller Models

OV270-60 UF30plus, 32 litres
OV270-65 UF55plus, 53 litres
OV270-70 UF75plus, 74 litres

OV270-75 UF110plus, 108 litres
OV270-80 UF160plus, 161 litres
OV270-85 UF260plus, 256 litres

Accessory Shelves

Stainless steel wire grid.

IN473-04 For 32 litre oven
IN473-06 For 53 and 74 litre ovens
IN473-08 For 108 and 161 litre ovens
IN473-10 For 256 litre oven

Note:

Factory-fitted options such as glass-panelled doors and interior lighting are available to special order - *please contact us for details.*



OV270-75

Ovens

Sterilising Ovens SN/SF Series

memmert

For rapid hot air sterilising of glassware, instruments and media.

- ◆ Temperature range ambient +5°C (SN-series) or +10°C (SF-series) to +250°C
- ◆ Choice of natural (SN-series) or forced air, fan (SF-series) convection models
- ◆ With SingleDISPLAY controlCOCKPIT: display of temperature (°C or °F), fan speed (SF-models only) and programme time. Includes one Pt100 DIN Class A temperature sensor in a 4 wire circuit and ethernet interface. Dual overtemperature protection with freely adjustable monitoring of temperature and mechanical temperature limiter (TB Class 1) to DIN 12 880. With AtmoCONTROL logging software for online monitoring of up to 32 connected appliances, optical alarms when set alarm limits are exceeded and automatic alarm email notifications

- ◆ Stainless steel interior and exterior sides (External rear panel-zinc coated steel)
- ◆ Heaters located in ribs on all four sides provide uniform heating
- ◆ SetpointWait function ensures that timed sterilisation does not start until the sterilisation temperature has been attained/maintained stably
- ◆ Digital process timer, adjustable between 1 minute and 99 days, 23 hours
- ◆ 10 year datalogger
- ◆ Temperature accuracy: up to 99°C: ±0.1°C
from 100°C: ±0.5°C
- ◆ Supplied with 1 or 2 stainless steel wire grid shelves

Model	Natural Forced	SN30 SF30	SN55 SF55	SN75 SF75	SN110 SF110	SN160 SF160	SN260 SF260	
Volume	litres	32	53	74	108	161	256	
Internal (external)	H	mm	320 (707)	400 (787)	560 (947)	480 (867)	720 (1107)	800 (1186)
	W	mm	400 (585)	400 (585)	400 (585)	560 (745)	560 (745)	640 (824)
	D	mm	250 (434)	330 (514)	330 (514)	400 (584)	400 (584)	500 (684)
Shelves supplied		1	1	2	2	2	2	
Shelf positions		3	4	6	5	8	9	
Power loading	kW	1.6	2.0	2.5	2.8	3.2	3.4	
Net weight	kg	44	55	64	72	80	96	

Sterilising Ovens, SN/SF Series, Memmert

As described. With SingleDISPLAY controller, integral process timer adjustable from 1 minute to 99 days, 23 hours, dual overload protection, TFT display of temperature and time, chamber ventilation slide adjustment and stainless steel grid shelves. For 230V 50/60Hz single phase supplies.

SN Natural convection, SingleDISPLAY Controller Models

- OV330-20** SN30, 32 litres
- OV330-22** SN55, 53 litres
- OV330-24** SN75, 74 litres
- OV330-26** SN110, 108 litres
- OV330-28** SN160, 161 litres
- OV330-30** SN260, 256 litres

SF Forced air convection, SingleDISPLAY Controller Models

- OV330-40** SF30, 32 litres
- OV330-42** SF55, 53 litres
- OV330-44** SF75, 74 litres
- OV330-46** SF110, 108 litres
- OV330-48** SF160, 161 litres
- OV330-50** SF260, 256 litres

Accessory Shelves

Stainless steel wire grid.

- IN473-04** For 32 litre oven
- IN473-06** For 53 and 74 litre ovens
- IN473-08** For 108 and 161 litre ovens
- IN473-10** For 256 litre oven

Alternative sizes and controller configurations are available – details on request.



OV330

Ovens

Vacuum Oven

FISTREAM™

- ◆ Rectangular light alloy chamber, capacity 31 litres
- ◆ Temperature range +30 to +200°C
- ◆ PID controller with overtemperature alarm indicator
- ◆ Large door window with polycarbonate safety shield allows unobstructed viewing of the chamber
- ◆ Two valves provided, for vacuum connection and inert/dry air gassing, respectively
- ◆ Analogue vacuum gauge included, range 0 to 1000mbar
- ◆ Independent over-temperature safety protection in the event of controller failure

Catalogue No.	OV930-40	
Usable volume	litres	31
Temperature range	°C	+30 to +200
Internal, W x D x H	mm	375 x 310 x 260
External W x D x H	mm	650 x 425 x 420
Shelves supplied		2
Shelf positions		3
Inlet/Outlet connections		for 10 to 12mm i.d tubing
Power rating	W	1000
Weight, net	kg	43

Vacuum Oven, +30 to +200°C

As described. With rectangular light alloy chamber, PID controller, vacuum and exhaust valves and gauge. For 220-240V 50Hz supplies.

OV930-40 Capacity 31 litres



OV930

Diaphragm Vacuum Pump

vacuubrand

A two stage, oil-free diaphragm pump with excellent performance and low leak rate, ideal for use with vacuum ovens.

- ◆ For general applications with pumped material in contact with aluminum and Viton® (FPM)
- ◆ Compact drive gives very quiet operation with ultra-low vibration levels
- ◆ IP42 protection rating

Catalogue No.	PX440-32	
Model	MZ2NT	
Stages	2	
Max. pumping speed	@ 50Hz m ³ /h	2.2
	@ 60Hz m ³ /h	2.4
Ultimate vacuum	mbar	7
Inlet/outlet nozzles	mm	10 (fitted with silencer)
Overall H	mm	198
W	mm	242
D	mm	255
Weight	kg	11.1

Diaphragm Pump, Vacuubrand

As described. With fabric-reinforced Viton diaphragm. For 230V 50/60Hz single phase supplies.

PX440-32 Model MZ2NT

Tubing, Heavy Wall, to BS2775

Natural red rubber. Dimensions given are bore x wall. Supplied in a coil of 10 metres.

TY230-32 Size H10, 10 x 7mm



PX440-32

Petri Dishes

Plastic

Polystyrene Disposable, Eco

Manufactured in sterile aseptic conditions. 90 x 12mm diameter x depth. Supplied in packs of 700.

- PD050-40** Single vent
PD050-45 Triple vent

Polystyrene Disposable, Sterilin

Produced under sterile aseptic conditions. The 90mm dishes comply with BS611 Part 2 and are CE-marked in compliance with the In-vitro Directive 97/79/EC. Supplied in sleeves within partitioned cases as indicated for added protection during transit.

	Ref.	Dia. x depth mm		Pack qty.
Circular				
PD100-10	121V	30 x 10	Triple vent	800
PD100-15	122	50 x 10	Single vent	700
PD100-20	124	50 x 18	Single vent	500
PD100-23	PF55	55 x 14	No vent	1620
PD100-27	PF55V	55 x 14	Triple vent	1620
PD100-30	123	60 x 13	Single vent	540
PD100-40	101 R20	90 x 12	Single vent	500
PD100-45	101V R20	90 x 12	Triple vent	500
PD100-48	101V AMB	90 x 12	Triple vent, amber	500
PD100-80	501V	140 x 17	Triple vent	80
PD100-90	504	55 dia.	Contact plate with alphanumeric grid	300
Square				
PD105-20	109	100 x 18	No vent	120
PD105-40	103	100 x 18	Repli-dish with 25 compartments 18 x 18mm	120

Glass

Resistance glass

Base and cover dimensions stated are diameter x depth.

	Base, mm	Cover, mm
PD250-05	44 x 12	50 x 8
PD250-10	54 x 12	60 x 12
PD250-20	74 x 15	80 x 12
PD250-40	94 x 15	100 x 12
PD250-45	94 x 20	100 x 15

Pyrex glass. 1480 series

Base and cover dimensions stated are diameter x depth.

	Ref. 1480-	Size, mm	Base, mm	Cover, mm
PD270-20	/02	60 x 20	54.5 x 20	55 x 15
PD270-30	/06	80 x 20	74 x 20	75 x 15
PD270-40	/08	100 x 20	94 x 20	95 x 15
PD270-50	/10	120 x 20	114 x 20	115 x 15
PD270-60	/12	150 x 30	143 x 30	145 x 18

Petri dish shakers – see SE420/SE630.

Tissue culture dishes – see TP475/TP477.



PD100, PD050 are similar



PD105



PD250



PD270

Petri Dish Accessories

Petri Dish Accessories

Petri Dish Stands, Azlon

Epoxy coated steel. Capacity 6 dishes, 90mm diameter.

	Ref.	Colour
PD428-15	SWP062	White

Petri Dish Holder, Kingston Pattern

With three compartments each holding 10 disposable Petri dishes 90 to 100mm diameter. Folding handle allows units to be stacked. Overall 325 x 110 x 170mm W x D x H.

PD430-10 Holder

Sterilising Boxes

For Petri dishes up to 100mm diameter. With close fitting removable lid. Overall 255 x 115mm height x diameter.

PD440-10 Aluminium box
PD440-15 Stainless steel box

Manual Petri dish Turntable

Manually operated petri dish turntable aids uniform inoculation of media. With high mass for long running. Ingenious design allows use with either 100mm or 150mm diameter petri dishes simply by inverting. Overall 160 mm diameter x 45mm high. Weight 2.3kg.

PD475-10 Manual turntable

Electrically Driven Petri Dish Turntable

For continuous use or intermittent operation using the built-in, infra-red, hand sensor or an accessory footswitch. With adjustable speed range 10 to 100rpm and timer from 3 seconds to 2 minutes, or continuous setting. Accommodates 90/100mm diameter petri dishes (150mm dishes using an accessory adapter). Overall 170mm diameter x 75mm high. Weight 1kg. For 230V 50/60Hz single phase supplies.

PD475-42 Electrical turntable
PD475-48 Footswitch accessory for PD475-42
PD475-49 Adapter for 150mm dia. petri dishes



PD428 in use



PD430-10



PD475-10 in use



PD440



PD475-42

Petroleum

Karl Fischer Coulometric Titrator, Aquamax KF Plus

Portable moisture titrator for the rapid and accurate determination of the low concentrations of water in a wide range of materials. Features include easy operation, "ACE" automatic error compensation, up to 10 user-programmable methods stored in the memory, rechargeable battery for field operation, built-in thermal printer and multi-lingual display/print out. Results are available in ppm, mg/kg, % and g water. Suitable for moisture analysis within standards ASTM D1533, D4928, D6304, IP386, APIMPMS chapter 10.9 and BS60814.

Karl Fischer Coulometric Titrator, Portable, Aquamax KF Plus

As described. Complete with titration vessel, generator electrode with frit, drying tube, molecular sieve, stirrer bar, injection septa, 1ml syringe with needle, built-in printer, rechargeable battery, 12V d.c. vehicle adapter, and instructions.

KF200-10 Aquamax KF Plus

Spares and accessories

KF203-04 Generator electrode (with frit)

KF203-08 Detector electrode

KF203-12 Titration vessel

KF203-16 Injection septa, pack 10

KF203-20 Thermal printer paper, roll

KF203-40 Carrying case

Reagent packs

With 8 x 100ml anode, 1 x 50ml cathode reagents and filling funnel.

KF203-54 Aquamax KF Frit* for use with frit or diaphragm-type generator electrodes

KF203-56 Aquamax KF Oil* to ASTM, API, EI and ISO. With anode reagent pre-cut with Xylene.

***Please note:** these items are classed as hazardous material for export and require packing/shipping as such.

<i>Measuring ranges possible typical moisture</i>	1 g to 200mg water 1 g to 10mg water 1ppm to 100%
<i>Maximum sensitivity</i>	0.1 g
<i>Sample analysis rate</i>	2.024g/minute
<i>Maximum current</i>	400mA
<i>Start or end delay</i>	0 to 30 minutes (selectable)
<i>Drift correction</i>	Automatic
<i>Precision</i>	±3 g (10 to 100 g) ±3 g (100 g to 1mg) ±0.3% (>1mg)
<i>Calculation modes</i>	w/w, weight/dilution (all user-programmable) ratio, volume/density, v/v, with sample i.d. and time/date stamp
<i>Statistics (up to 99 runs)</i>	Maximum, mean, minimum values
<i>Output</i>	Serial port
<i>Power supply</i>	90 - 264V 47/63Hz a.c. or 12V d.c.
<i>Dimensions, H x W x D</i>	290 x 255 x 130mm
<i>Weight</i>	3kg



KF200-10

Petroleum

Comparators, Gardner 3000/AF650

ASTM D1500-IP196: BS2049: BS5859; ISO2049; FIMS791C 102; NF T60-104; JIS K2580, ASTM D1544-68 (74); A.O.C.S. Td1A-64 and Ka3-63; DIN/ISO 4630.

Lovibond® Gardner 3000/AF360 Comparators

For the visual determination of the colour of a wide variety of petroleum products, natural and synthetic drying oils, varnishes, lacquers and resins, using colour glass standards which can be set at the two limiting values of a specification, making it easy to see if a sample falls between them.

Operate on the 3-field principle whereby the sample can be viewed between 2 adjacent steps on the colour scale. ABS, fire-retardant plastic housing, with standard halogen light source, timed lighting adjustable in one-minute periods by repeatedly pressing the switch for the required number of minutes operation and low-voltage power supply. Front mounted control knobs operate the two discs, each with 8 colour glass standards. A replaceable white chamber insert ensures consistent background colour throughout operational life. Supplied with glass sample/reference containers, colour standard discs and mains adapter for the illuminator requiring a 120V, 240V 50/60Hz single phase supply. Overall 231 x 233 x 142mm W x D x H. Weight 1.5kg.

PE240-50 Comparator, AF228, Gardner 3000 resin scale version

PE240-55 Comparator, AF650, Petroleum version (ASTM D1500, ASTM D6045, ISO2049, IP196)

Colour Comparator

For routine colour grading of a wide range of liquids – see CS100 *et. seq.* in the *Colorimeter section*.

Electronic Colorimeters, PFXi-195

Low cost spectrophotometric colorimeters for consistent, reliable, automatic, electronic measurement of colour for specific dedicated applications involving liquids or transparent solids. Ideal for routine analysis and quality control.

- ◆ Choice of instrument versions with international colour scales:
 - Pt-Co/Hazen/APHA, Gardner, Iodine
 - Saybolt, ASTM colour, Pt-Co/Hazen/APHA
 - FAC, Gardner
 - EBC (CIE and 430nm), ASBC (CIE and 430nm) Series 52 (Brown)
 - Ph. Eu., USP, Pt-Co/Hazen/APHA
 - Klett colour (KS-42 blue filter), Honey colour (Pfund equivalents), Series 52 (Brown)
 - ADMI (spectral and tristimulus filter methods), Pt-Co/Hazen/APHA
 - CIE values (stand selection), L*C*h colour space, Hunter lab colour space, Judd rgb
- ◆ 9 built-in interference filters with automatic selection
- ◆ Operator prompting in choice of 9 languages - English, French, German, Spanish, Italian, Portuguese, Russian, Chinese and Japanese
- ◆ RS232, USB and LAN outputs
- ◆ Supplied with Windows™-based control/downloading/analysis software which also enables the generation of spectral and CIE programmes

Technical Specification

<i>Spectral response</i>	<i>nm</i>	420 to 710
<i>Band width</i>	<i>nm</i>	20
<i>Repeatability (using deionised water):</i>		
<i>Chromaticity (x,y):</i>		±0.0004
<i>E:</i>		0.04
<i>Calibration</i>		Single key press
<i>Light source</i>		5V, 10W tungsten halogen lamp
<i>Illuminant</i>		CIE illuminant A, C, D65 (B for PFXi195/4)
<i>Sample chamber</i>	<i>mm</i>	0.1 to 50 path length cells
<i>Outputs</i>		RS232, USB, LAN
<i>Data storage</i>		100,000 measurements
<i>Power requirement</i>		90-240V 50/60Hz single phase supplies
<i>Overall W x D x H</i>	<i>mm</i>	435 x 195 x 170
<i>Weight</i>	<i>kg</i>	6.8

Colorimeter PFXi-195/1

For liquid chemicals and industrial oils analysis.

Scales: Pt-Co/Hazen/APHA, Gardner, Iodine.

Cells supplied: 1 x 10mm, 1 x 50mm path length.

CS725-15 PFXi-195/1

Colorimeter PFXi-195/2

For liquid chemicals and industrial oils analysis.

Scales: Saybolt, ASTM colour, Pt-Co/Hazen/APHA.

Cells supplied: 1 x 33mm, 1 x 50mm path length.

CS725-25 PFXi-195/2



PE240



CS725

Petroleum

Distillation of Petroleum Products

ASTM D86; D216 (Obsolete); D447 (Obsolete); D850; D1078; E133; IP123; IP191 BS2000; IP195; EN3405; BS2000 Pts. 123, 191 195; BS658; BS7392; ISO198; FTMS791 1001; NFM07-002 (Obsolete); JIS K2254.

For determining the distillation characteristics of petroleum products (Distillation Groups 0 to 4).

Distillation Apparatus, Setastill

For left-handed operation. Electrically heated. Range: ambient to +400°C. With shield, condenser unit, double glazed safety viewing window, heater with controller and indicator. The thermally lagged condenser bath is fitted with connections for an external heater/chiller fluid circulator. Condenser unit: 370 x 250 x 470mm W x D x H, distillation unit: 210 x 210 x 470mm W x D x H. Weight 12kg. Requires, but does not include, accessory flask boards for operation. For 100-240V 50/60Hz single phase supplies. Without glassware, support boards or thermometers.

- PE295-16** Setastill, left-hand operation
- PE295-40** Condenser lid, with thermometer support and receiver stand
- PE295-44** Seta-Orbis Digistill digital thermometer and datalogger for 200-240V 50/60Hz a.c. supplies
- PE295-48** Flexible stopper caps for flask side-arm, pack 10
- PE295-52** Thermometer centring device for rimmed flask neck
- TH414-72** Thermometer IP75C. Required for Setastill condenser

Flask support boards, glass ceramic, for PE295 series

152 x 152mm. Dimension stated is hole diameter.

- PE297-10** 25mm
- PE297-16** 32mm
- PE297-22** 38mm
- PE297-26** 50mm
- PE297-32** 70mm

Mercury Thermometers

Under the requirements of Annex XVII of EC552/2009 REACH Regulation, mercury thermometers cannot be sold to the General Public within the UK or EU.

Typical equipment required for various test methods

All methods require a distillation unit either PE290-10 or PE295-16 plus the following items:

ASTM D86 - IP123 - BS 2000 Part 123; DIN 51 751; ISO 3405:

- FK527-26** Distillation flask 125ml
- CY750-10** Receiver 100ml, 3400/04
- PE297-22** Heat resistant board, 38mm hole
- Thermometers ASTM7C/IP5C, ASTM7F, ASTM8C/IP6C or ASTM8F.

ASTM D216 - IP 191 - BS 2000 Part 191:

- FK527-26** Distillation flask 125ml
- CY750-10** Receiver 100ml, 3400/04
- PE297-16** Heat resistant board, 32mm hole
- Thermometers ASTM7C/IP5C or ASTM7F.

ASTM D447:

- FK527-26** Distillation flask 125ml
- CY750-10** Receiver 100ml, 3400/04
- Thermometer ASTM8F.

ASTM E133:

- FK527-26** Distillation flask 125ml
- FK527-30** Distillation flask 250ml
- CY750-10** Receiver 100ml, 3400/04
- PE297-22** Heat resistant board, 38mm hole
- PE297-32** Heat resistant board, 70mm hole

Thermometers ASTM2C, 7C, 8C, 8F, 37C, 38C, 39C, 40C, 41C, 42C, 102C, 104C, 106C or 107C.

Distillation Flasks – see *Flasks* section.

Distillation Receivers – see *Cylinders* section.

Thermometers ASTM/IP – see *Thermometers* section.

Multi-Test verification and calibration materials for ASTM D86 and IP123 are available – *details on request*.



PE295-16 with PE295-40, PE295-44 and glassware

Petroleum

Flash Point – Pensky-Martens

Closed cup method to:

ASTM D93 – IP 34; E502; IP35; IP404; EN22719; BS2000 Pts. 35 and 404; ISO2719; AASHTO T73-811; NF M07-019; JIS K2265; FTMS 791b 1102.

Manual Tester

Pensky-Martens Flash Tester, Closed Cup

Comprising a stainless steel case with heater, bath with cup, lid and shutter assembly. The main power switch and heater controller are mounted on the front panel. The test flame is fuelled from an LPG cylinder via the accessory gas valve, or it can be connected to a mains gas supply. The stirrer motor incorporates a choice of two drive outputs for the flexible drive connection providing the option of stirrer speed for either Method A or Method B of the Test Procedure. Overall 310 x 290 x 320mm W x D x H. Weight 7.1kg. For 220-240V 50/60Hz single phase supplies. Without LPG cylinder.

PE350-10 Pensky-Martens closed

PE353-08 Ferrule/adaptor to mount cup thermometer, pack of 2

Portable gas tank

With on/off regulator, ignitor, stand and tubing. Requires charging with LPG from accessory (cigarette lighter) containers.

PE394-33 Portable gas tank

PE394-14 LPG containers, pack of 10

Note: Gas containers PE394-14 can be exported only as seafreight deck cargo. Local purchase is recommended.

Setaramp controller

For automated temperature control. Allows the user to define the heating ramp rate within the limits of the main unit. Overall 335 x 315 x 60mm W x D x H. Weight 3kg. For 220-240V 50/60Hz single phase supplies. Requires probe assembly PE353-17 for operation.

PE353-14 Setaramp controller

PE353-17 Probe assembly, for use with PE353-14



PE350-10 with PE353-14 and PE353-17

Flash/Fire Points – Cleveland

ASTM D92-IP 36; EN2592; BS2000 Pts. 36 and 403; ISO2592; NF T60-118; FTMS 791b 1103.7; JIS K2265; AASHTO T48.

Semi-Automatic Tester

Cleveland Flash Tester, Open Cup

A semi-automatic electrically heated tester. With button operated, electrically driven sweep arm for test flame application. Stainless steel case. The test flame is fuelled from an LPG cylinder via the accessory gas valve, or it can be connected to a mains gas supply. Overall 310 x 290 x 330mm W x D x H. Weight 6.3kg. For 220-240V 50/60Hz single phase supplies.

PE360-10 Cleveland open, semi automatic

Portable gas tank

With on/off regulator, ignitor, stand and tubing. Requires charging with LPG from accessory (cigarette lighter) containers.

PE394-33 Portable gas tank

PE394-14 LPG containers, pack of 10

Note: Gas containers PE394-14 can be exported only as seafreight deck cargo. Local purchase is recommended.

Setaramp controller

For automated temperature control. Allows the user to define the heating ramp rate within the limits of the main unit. Overall 335 x 315 x 60mm W x D x H. Weight 3kg. For 220-240V 50/60Hz single phase supplies. Requires probe assembly PE353-17 for operation.

PE353-14 Setaramp controller

PE353-17 Probe assembly, for use with PE353-14

Thermometers ASTM11C/IP28C; ASTM11F/IP28F

Fume cupboards – see FZ478/FZ489-series.

Thermometers ASTM/IP – see *Thermometers section*.



PE360-10 with PE353-14 and PE353-17

Petroleum

Setaflash Series 3 'Active Cool', Closed Cup, Flash Point Testers

ASTM D3278; ASTM D3828- IP303 Pts. 1 & 2; IP523; IP524; ISO3679; ISO3680; BS6664 PTS. 3 & 4; BS3900 PT. A13; BS-EN456; ASTM E502.

For closed cup testing. Portable, low cost instruments providing rapid test results on the flashpoint of liquids and semi-solids using the Rapid Equilibrium Method, over the range 10°C to 130°C (50 to 260°F). Built-in, electronic, peltier coolers quickly reduce the temperature after a test is completed, allowing sample removal and preparation for further tests and thereby dramatically reducing overall test times and improving throughput. They also allow testing to be conducted at, or below, ambient temperature. User selectable temperature units (°C and °F), a simple-to-use control panel, precise temperature and automatic flash detection enable easy and safe flash point testing even by those with no previous laboratory experience. 'Active Cool' has an integral temperature ramp mode that automatically increases sample temperature at 2°C per minute until a flash is detected. With choice of sample sizes (2ml or 4ml) and adjustable test time from 1 to 99minutes. The test flame is fuelled via a rechargeable gas tank with on/off switch and fine adjustment. Fuelling is by accessory LPG (cigarette lighter) cartridges. With standard aluminium cup or with corrosion resistant stainless steel cup insert, 2ml sample syringe and ignitor. Without gas charge. Overall 280 x 260 x 260mm W x D x H. Weight 5kg. For 100-240V 50/60Hz single phase supplies or 12V d.c. using optional power adapter.

PE375-10 Setaflash 'Active Cool', closed aluminium cup

PE375-25 Setaflash 'Active Cool', with corrosion-resistant, stainless steel cup insert

Accessories

PE394-10 Power adapter for operation from 12V d.c. vehicle systems, with vehicle cigar lighter plug

PE394-14 LPG containers, pack of 10

PE394-19 Carrying case for PE375 testers



PE375

Petroleum

Setaflash Series 3 Flash Point Testers

ASTM D3278; ASTM D3828-IP303; ISO3679; EN456; ISO3680; BS3900 Part A13; UN Class 3 non-viscous flammable liquids.

Setaflash Series 3 Closed Cup Flash Point Tester

For closed cup testing. Portable, low cost instrument providing rapid test results over the range ambient to 300°C (sub-ambient using accessory coolant module). Features digital setting of test parameters, automatic flash detection and digital readout of temperature and time. A 2ml sample is required for flash points up to 100°C and 4ml sample for flash points between 100°C and 300°C. Test time is adjustable from 1 to 99 minutes. The test flame is fuelled via a rechargeable gas tank with on/off switch and fine adjustment. Fuelling is by accessory LPG (cigarette lighter) cartridges. Available fitted with standard aluminium or corrosion resistant stainless steel cup and supplied with 2ml sample syringe and ignitor. Without gas charge. For 115-220V 50/60Hz single phase supplies or 12V d.c. using optional power adapter. Overall 280 x 256 x 256mm W x D x H. Weight 4kg.

PE380-20 Setaflash 3, closed aluminium cup

PE380-27 Setaflash 3, closed stainless steel cup

ASTM D4206; BS3900 Part A11; ISO DIS (TR) 9038; UN Class 3 Test L.3; CFR 49-173-120; IATA DANGEROUS GOODS REGS. SECTION 3.3.5; H.S.C. Carriage of Dangerous Goods by Road & Rail App B.

Setaflash Series 3 Open Cup Flash Point Tester

For open cup testing. Similar construction and specification to PE380-20 but with an aluminium, open cup for flash/no flash, finite determinations or sustained combustion tests. A manually operated sweeping arm is fitted to the cup. The flash or sustained combustion characteristics of the sample are observed visually by passing the test flame over the sample. Supplied with 2ml sample syringe. For 115-220V 50/60Hz single phase supplies or 12V d.c. using optional power adapter. Overall 280 x 256 x 256mm W x D x H. Weight 4kg.

PE390-20 Setaflash 3, open aluminium cup

Accessories for PE380-20, PE380-27 and PE390-20

PE394-10 Power adapter for operation from 12V d.c. vehicle systems, with vehicle cigar lighter plug

PE394-14 LPG containers, pack of 10

PE394-19 Carrying case for PE380-20, PE380-27 and PE390-20

PE394-24 Metal cooling block to reduce block temperature after test

PE394-28 Coolant module for performing sub ambient tests. Requires, but does not include a supply of dry-ice

Note: Gas containers PE394-14 can be exported only as seafreight deck cargo. Local purchase is recommended.

Verification and Certified Reference Materials for flash point testers are available – *details on request.*



PE390, PE380 is similar

Petroleum

Setaflash Series 8 Flash Point Testers

ASTM D7236; ASTM D3728; ASTM E502; IP523; IP524; IP534; ISO3679; ISO3680; BS6664 Pts. 3 and 4, BS3900 Pt. 13, UN Class 3 non-viscous flammable liquids; CHIPS regs; EPA 1020 A & B.

Setaflash Series 8, Closed Cup

Ranges: standard model: ambient to +5°C to 300°C
'Active Cool' mode: +10°C to 130°C (air-cooled), -20 to 110°C (using auxiliary water cooling)

Sample size 2 or 4ml according to method and 1 to 2 minutes test times (European FAME specification test programme can be user defined from 1 to 99 minutes) in Rapid Equilibrium mode, or 7 minutes typically in Ramp mode. Ignition by electronic lighter or gas flame according to user preference. Time, temperature and ramp values are digitally set, controlled and displayed using a colour LCD screen and membrane keys. Shutter operation, flame dipping and flash detection are all automatic. An integral memory function stores up to 64 results with operator and sample preferences and RS232C, USB and ethernet interfaces for connection to the user's PC, LAN or printer are provided. Barometric pressure monitoring is included and results are automatically compensated. Overall 300 x 340 x 380mm H x W x D. Weight 8kg. For 200-240V 50/60Hz single phase supplies (2 x 1.5V AA batteries are required for the internal clock).

PE400-40 Setaflash Series 8, closed cup, ambient +5°C to 300°C

Setaflash Series 8, 'Active Cool', Closed Cup

Generally as PE400-40 but range -20°C to 130°C. Peltier cooling built-in for sub-ambient testing and connections for auxiliary water cooling. Minimum temperature achievable are +10°C with air cooling, or -20°C with auxiliary water cooling. For 200-240V 50/60Hz single phase supplies (2 x 1.5V AA batteries are required for the internal clock).

PE400-60 Setaflash Series 8 'Active Cool', closed cup, -20°C to 130°C

Portable gas tank

With on/off regulator, ignitor, stand and tubing. Requires charging with LPG from accessory (cigarette lighter) containers.

PE394-33 Portable gas tank

PE394-14 LPG containers, pack of 10

BL610-15 Battery for internal clock, 1.5V AA (2 required)

Note: Gas containers PE394-14 can be exported only as seafreight deck cargo. Local purchase is recommended.



PE400-60, PE400-40 is similar

Petroleum

Multiflash Testers, Seta

A fully automated modular system designed for testing the flash point of fuels, lubricating oils, solvents, chemicals, waste materials and many other substances. Comprises a universal base unit that incorporates a backlit, dot matrix LCD readout, control and data acquisition functions with a series of interchangeable test modules which faithfully conform to the requirements of the appropriate test method.

- ◆ Gas or electric ignition
- ◆ Test modules include rechargeable LPG tank
- ◆ Automatic flash detection
- ◆ Auto recognition of test modules by the base unit control which automatically sets up relevant test parameters and calibration data
- ◆ Precise test results
- ◆ Easy operation with menu/graphics interface, two buttons and rotational control switch
- ◆ Integral draught screen maximises result consistency and accuracy
- ◆ RS232 interface allows downloading of key test parameters to an external printer or user's PC
- ◆ Reliable operation with low maintenance

Multiflash testers

As described. Supplied complete with base unit, mains lead, instructions and test module as indicated. Accessory test modules are also available.

Multiflash Pensky-Martens (A and B closed cup)

ASTM D93; IP34; IP404; ASTM E502; BS2000 Parts 34 and 404; ISO2719; EN22719; JIS K2265; NF M07-19; DIN 51758; FTMS 791b 1102; EPA1010.

Range: Ambient to +400°C. Overall (complete) 380 x 470 x 340mm H x W x D. Weight 12kg. For 115V, 230V 50/60Hz single phase supplies, 1000W.

PE420-10 Pensky-Martens, complete tester

PE420-15 Pensky-Martens, module only

Multiflash Abel (Closed cup and Equilibrium)

IP170; ISO13736; EN13736; BS 2000 Part 170; IP304 Parts 1 and 2; IP491; IP492; ISO1516; ISO1523; BS3900 Parts A8 and A9; BS6664 Parts 1 and 2.

Range: Ambient to +93°C (-30°C minimum with accessory cooling). Overall (complete) 470 x 470 x 340mm H x W x D. Weight 13kg. For 115V, 230V 50/60Hz single phase supplies, 600W.

PE420-20 Abel, complete tester

PE420-25 Abel, module only

Multiflash Cleveland (Open cup)

ASTM D92; IP36; ISO2592; EN22592; BS2000 Parts 36 and 403; DIN 51376; T60-118; JIS K2265; AASHTO T48.

Range: Ambient to +400°C. Overall (complete) 350 x 470 x 340mm H x W x D. Weight 11kg. For 115V, 230V 50/60Hz single phase supplies, 600W.

PE420-30 Cleveland, complete tester

PE420-35 Cleveland, module only

Multiflash Tag (Closed cup)

ASTM D56; D3941; D3934; E502; IP304 Parts 1 and 2; IP491; IP492; ISO1516; ISO1523; FTNMS 791b 1101; JIS K2265.

Range: Ambient to +93°C (-18°C minimum with accessory cooling). Overall (complete) 410 x 470 x 340mm H x W x D. Weight 12kg. For 115V, 230V 50/60Hz single phase supplies, 600W.

PE420-40 Tag, complete tester

PE420-45 Tag, module only

Multiflash Small Scale (Setaflash)

ASTM D3278; ASTM3828; IP303 Parts 1 and 2; ISO3679; ISO3680; BS6664 Parts 3 and 4; BS3900 Part A13; BS EN456; ASTM E502; UN Class 3 Non-viscous Flammable Liquids; CHIPS Regulations; Classification of Dangerous Goods for Carriage; Viscous and non-viscous liquids; EPA1020 A and B; IP/ASTM Automatic Small Scale draft method.

Range: Ambient to +300°C (-30°C minimum with accessory cooling). Overall (complete) 370 x 470 x 340mm H x W x D. Weight 11kg. For 115V, 230V 50/60Hz single phase supplies, 600W.

PE420-50 Small scale, complete tester

PE420-55 Small scale, module only

Accessories

PE394-14 LPG containers, pack of 10

Note: Gas containers PE394-14 can be exported only as seafreight deck cargo. Local purchase is recommended.

An accessory mains gas adapter assembly is available, please indicate the gas type to be used and we will provide further information.

Cryostats – see CL120.



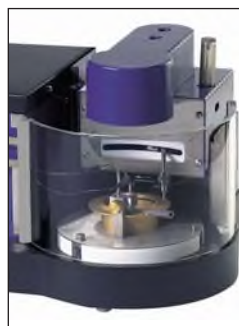
PE420-10 with PE420-82 in use



PE420-25 in use



PE420-45 in use



PE420-35 in use



PE420-55 in use

Petroleum

Penetrometers

ASTM D937 - IP 179; ASTM D1403-IP310; ASTM D5; D217;D1321; D1831; D2884; IP49; IP50; IP376; BS1377; BS2499 Pt. 3; BS2000 Pts. 49, 50 and 179; EN1426; ISO2137; DIN 51579; DIN 51 580; NFT60-119; NFT60-132; NF T60-140; NFT T66-004; JIS K2220.

Universal Automatic Penetrometer

A semi-automatic penetrometer with an electro-magnetic head which provides automatic plunger release and retention. The head is controlled by a solid state module built into the base, providing 5, 8, 10, 12, 30 or 60 second penetrations. Also fitted with a two speed head elevating mechanism engaging in gear cut track for quick and precise tip positioning, aided by a built-in adjustable illuminator. With machined cast aluminium base, inset spirit level, vertical pillar and depth indicator. A slipping clutch on the pointer makes resetting easy. The 150mm diameter dial is graduated in 0 to 400Pen (0 to 40mm x 0.1mm). Supplied with 47.5g plunger and one each 50g and 100g weights. Overall 300 x 330 x 670mm W x D x H. Weight 9kg. For 100-120V and 220-240V 50/60Hz single phase supplies. Without needles or cones.

PE460-25 Universal, automatic

Accessory

Mirror and clamp. To assist positioning of penetration device over the sample surface. To fit penetrometer PE460-25.

PE468-08 Mirror

Universal Manual Penetrometer

Generally as PE460-25 but without the electro-magnetic head and controller module, a manual plunger release is provided instead. Supplied with 47.5g plunger and one each 50g and 100g weights. Overall 300 x 330 x 670mm W x D x H. Weight 7kg. For 100-120V and 220-240V 50/60Hz single phase supplies. Without needles or cones.

PE460-40 Universal, manual

Digital Penetrometer, Setamatic

Measures penetration of substances from light creams to heavy waxes and bitumen. Time setting, control and display are digital from 1 to 9999 seconds and results may be given in millimetres of penetration or in Pen units. Range 0 to 700 Pen (0 to 70mm). An RS232C interface is provided for connecting to the users own computer. Machined cast aluminium base with inset spirit level, illuminator on flexible stem to aid sample viewing, two-speed raising and lowering mechanism for the counterbalanced head and automatic plunger release and retention. Supplied complete with 47.5g standard plunger, 50g and 100g plunger weights. Overall 300 x 330 x 590mm H x W x D. Weight 12.5kg. For 110-120V and 220-240V 50/60Hz single phase supplies. Without needles or cones.

PE485-10 Digital Setamatic

Accessory

Contact sensing plunger. Allows accurate positioning of the penetration tip when testing a wax or bitumen sample immersed in water.

PE485-60 Contact sensing plunger

Accessories

Needles To ASTM D5 - IP 49.

Needles, mass 2.5g. Supplied in a pack of 3.

PE486-08 Needles

Wax penetration needle To ASTM D1321; IP376; DIN 51 579.

Needle, mass 2.5g, supplied singly.

PE486-11 Wax needle

Cones To ASTM D217 - IP 50.

Acetal with hardened steel tip. Mass 102.5g.

PE486-18 Standard cone

Optional cone. Brass with hardened steel tip. Mass 102.5g.

PE486-20 Brass cone

Special full scale cone. Aluminium with hardened steel tip. Mass 29.8g.

PE486-25 Aluminium cone

Sample Containers

To ASTM D5 - IP 49; BS 2000 Part 49.

PE490-15 55 x 35mm, pack of 50

PE490-20 55 x 57mm, pack of 50

PE490-25 70 x 45mm, pack of 50

Calibration Kit

For all penetrometers. With UKAS calibration certificate.

PE492-10 Calibration kit

Seta Grease Worker

ASTM D217 - IP 50, BS 2000 Part 50.

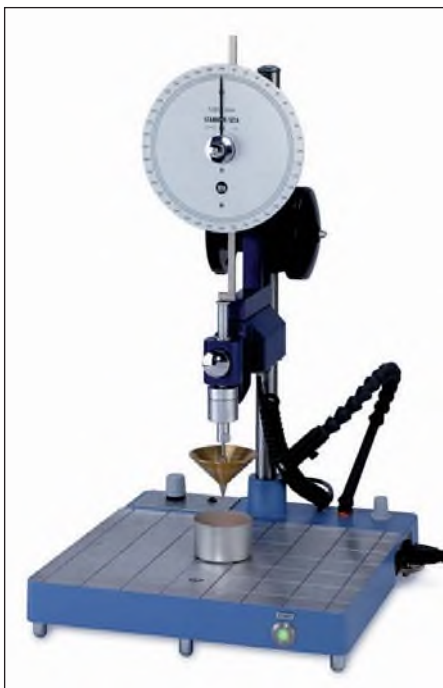
Greaseworkers, manual

For use with stiff greases. With central operating rod, handle, lip-seal, worker pot and large bore stopcock with thermometer hole.

PE495-10 Basic model

Basic model plus slave unit for working heavy greases.

PE495-15 Slave model



PE460-25 with accessories, PE460-40 is similar



PE485-10 with accessories



Petroleum

Vapour Pressure

Vapour Pressure

ASTM D5188; D5191; IP394; EN13016-1; EN13016-2.

Vapour Pressure is important in both automobile and aviation gasolines; affecting start up, warm up, and tendency to vapour lock. It also gives an indirect measure of the potential for hydrocarbon emissions under controlled conditions.

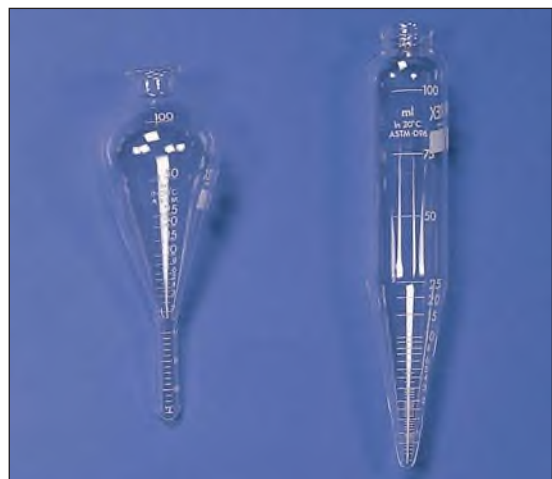
Vapour Pressure Analyser, SetaVap

Test pressure range 0 to 600kPa. Temperature range from 25°C below ambient to +100°C. The operator can select single or multiple tests on a sample at static, ramping or stepped temperatures. Vapour-Liquid Mode enables determination of the temperature which produces a pre-set pressure. Digital setting and display, with electronically controlled cooling and heating. Septum change, sample drain and print-out of temperature/pressure calibration is automatic. Calibration and test prints include time, date and sample identity. Reid correction, RS232C interface and pre-programmed sequences are provided. Overall 450 x 370 x 350mm W x D x H. Weight 23kg. For 110-120V and 220-240V 50/60 Hz single phase supplies.

PE645-10 SetaVap

Spares and Accessories

- PE645-25** Paper/ink pack spare. With 2 x paper rolls and 1 x inkler
- PE645-40** Gas tight syringe 1ml
- PE645-43** Gas tight syringe 5ml
- PE645-45** Pressure calibrator



CF380-10

PE814-24



PE645-10

Oil Test Centrifuge

Oil Test Centrifuge, Seta-Hermle

ASTM, D91; D96; D893, D1290; D1796; D1966; D2273; D2709; D2711; D4007; IP75 (Obsolete); IP359; BS2882 (Obsolete); ISO374; ISO9030; DIN 51 793; NF M07-020; FTMS 791b Methods 3000, 3003, 3004, 3101, 3121, 5661; API2542; API2548; API MPMS Chapter 10.3.

With four place swing out rotor/bucket assembly and microprocessor controller with keypad operation and display of speed or rcf, temperature and time. Up to 9 run profiles can be stored within the on-board memory. Ranges settable include speed 0 to 3000 x 10rpm, rcf 0 to 2254 x 10xg, Temperature +30 to +70°C x 1°C and timer 1 to 60 x 1 minute intervals or continuous. There is also a 1 to 99 second "Quick-run" mode. Braking is adjustable from 110 seconds to 30 seconds down to a full stop. Chamber pre-heating and vertical bucket position at rest after the run respectively improve the speed and accuracy of results. Meets BS4402, DIN58970 parts 1, 2 and 4 and UVV VBG7z requirements. Overall dimensions 610 x 730 x 445mm W x D x H. Weight 86kg. For 230V 50/60Hz single phase supplies.

PE810-30 Oil centrifuge

Accessories

Adapters. Supplied in a packs of 4.

- PE814-14** For 100ml 8" conical shaped tubes
- PE814-16** For 100ml 8" pear shaped tubes
- PE814-18** For 100ml 6" conical shaped tubes
- CF380-10** 100ml 6" pear shaped tube
- CF380-14** 100ml 8" conical shaped tube
- PE814-24** 100ml 6" conical shaped tubes, pack of 6
- PE814-40** Transformer for operating PE810-30 on 120V 60Hz supplies
- PE814-64** Trolley for PE810-30, 235mm high with lockable castors
- PE814-68** Trolley for PE810-30, 545mm high with lockable castors

Water Estimation

Dean and Stark Method

- ◆ Receivers to BS756, Boiling flasks and Condensers – see *Quickfit* section.
- ◆ Heating mantles – see *Heating* section.

Viscometry

- ◆ Glass Kinematic Viscometers ASTM D445-IP71 – see *Viscometer* section.
- ◆ Flow Cups – see *Viscometer* section.



PE810-30

Petroleum

Oil Test Centrifuges



ASTM D91; D96 (obs.); D8932; D1290; D1796; D2273; D2709; D4007; IP75, IP539 (both obs.)

Robust, versatile centrifuges developed for use in industrial and petrochemical research laboratories.

- ◆ Choice of ambient or heated models
- ◆ Speed or rcf display available
- ◆ Rotary lid latch is easy to open
- ◆ 10 programme memory
- ◆ Easy-to-use control panel with membrane keypad and rotary dial setting
- ◆ Non-volatile memory of last run protocol

Model		Rotofix 46	Rotofix 46H
Maximum speed,	rpm	4000	4000
Maximum rcf,	xg	3095	984
Temperature range	°C	-	ambient + 20 to 90
Timer		1 second to 99 minutes 59 seconds, with continuous run and "Pulse" key - both models	
Data storage		10 programmes - both models	
Supply requirements		200-240V 50/60Hz single phase - both models	
Overall W x D x H	mm	538 x 647x 345 - both models	
Weight	kg	60 - both models	

As described. For 200-240V 50/60Hz single phase supplies. Without rotor, buckets, adapters or tubes, which are required for operation.

PE805-20 Rotofix 46, unheated, without rotor

PE805-40 Rotofix 46H, heated, without rotor

Accessories

CD728-67 Swing-out rotor, 4-place, for ASTM tubes, maximum rpm/rcf 2000/984xg

CD729-45 ASTM D96 bucket, for CD728-67

CD729-46 1 x adapter (holds CF380-10) for bucket CD729-45. Maximum rcf 984xg)

CD729-47 1 x adapter (holds CF380-14) for bucket CD729-45. Maximum rcf 961xg)

CD729-48 1 x adapter (holds CF380-16) for bucket CD729-45. Maximum rcf 961xg)

CF380-10 100ml 6" pear shaped tube

CF380-14 100ml 8" conical shaped tube

CF380-16 100ml 6" conical shaped tube



PE805 in use with accessories

pH Meters

Hand-held, Waterproof pH Meters, Handylab HL100 and HL600

SI Analytics

- ◆ Ruggedly constructed, water-tight housing to IP67 standard
- ◆ Simultaneous display of pH or mV and temperature with subsidiary date and time
- ◆ AutoRead system provides a stable, precise measurement and CMC (Continuous Measurement Control) monitors whether the measurement is within calibration limits
- ◆ Automatic temperature compensation
- ◆ Calibration using up to 5 pre-programmed buffer sets
- ◆ Backlit, graphics LCD display
- ◆ Storage of up to 200 data sets which can be recalled and displayed
- ◆ Additional features of HL600:
 - ◆ IDS Technology - digitisation of the measuring signal to reduce interference
 - ◆ QSC (Quality Sensor Control) provides information on electrode condition and efficiency
 - ◆ USB interface for outputting data as a .csv file or to MS-Excel files using software provided for the user's PC
 - ◆ Enhanced data storage to 500 sets

Hand-held, Waterproof pH Meters, Handylab

As described. Supplied with combination pH/C electrode, fixed 1.5 metre connection cable, buffer solutions 4 x 1.5V, batteries, instructions and carrying case.

- PH400-25** Handylab HL100
- PH400-35** Handylab HL600

Accessories and Spares

- PH403-07** Spare pH/C electrode for PH400-25 only
- PH403-09** Spare pH/C electrode for PH400-35 only
- CU612-65** Protective overboot, Z389
- BL610-15** Battery, 1.5V (4 required)

Buffer solutions

20ml capacity, double-ended glass ampoules, steam sterilised and without preservative to extend solution shelf-life. The ampoules are scored at the tip of either end for ease of opening without tools. Solution accuracy ± 0.01 pH units at +25°C. Supplied in packs of 60 ampoules.

Standard buffers to DIN19266

- PH404-02** pH 1.68
- PH404-04** pH 4.01
- PH404-06** pH 6.87
- PH404-08** pH 9.18

Technical buffers to DIN19267

- PH404-17** pH 4.00
- PH404-21** pH 7.00
- PH404-25** pH 10.00

Model		Handylab HL100	Handylab HL600
Ranges x resolution, accuracy	pH	-2.0 to 20.0 x 0.1, ± 0.1 -2.00 to 20.00 x 0.01, ± 0.01	0.000 to 14.000 x 0.001, ± 0.004 —
	mV (ORP)	-2.000 to 19.999 x 0.001, ± 0.005 -1200.0 to +1200.00 x 0.01, ± 0.3 -2500 to +2500 x 1, ± 1	-1200.0 to +1200.00 x 0.01, ± 0.2 —
	Temp. comp. °C (°F selectable)	-5.0 to +105.0 x 0.1, ± 0.1	-5.0 to +105.0 x 0.1, ± 0.2
Calibration points		Up to 5 — both models	
Stored buffers		22 pre-programmed — both models	
Calibration memory		1 x last undertaken	10 x last undertaken
Timer		—	1 to 999 days
Continuous Measurement Control (CMC)		Yes — both models	
Quality Sensor Control		No	Yes
Datalogging memories		200 data sets	500 manual or 5000 automatic data sets
Logger		—	Yes (manual or timed)
Outputs		—	Mini-USB-B
Power		4 x 1.5V AA batteries — both models	
Overall L x W x H	mm	180 x 80 x 55 — both models	
Weight	g	400 — both models	



PH400-25 in use



PH400-35

pH meters

Bench pH Meters inoLab® pH Series



a xylem brand

High specification bench meters for routine and advanced research applications in education and industry.

- ◆ AutoRead function provides repeatable measuring results by recognising when a stable reading has been achieved
- ◆ Intuitive user interface and clear controls
- ◆ Easy calibration function with timer
- ◆ Automatic or manual temperature compensation
- ◆ Flexible operation either by batteries or mains supply using universal voltage adapter
- ◆ Model pH 7310 additionally includes a graphics display, GLP/AQA documentation function, USB output of results in .csv format, CMC function that monitors the calibration range and indicates if the measurement is between calibration points, and is available with an internal printer

Model, inoLab® pH		7110	7310
Range x resolution, accuracy	pH	-2.0 to 20.0 x 0.1, ±0.1pH ±1 digit	-2.00 to 20.00 x 0.01, ±0.01pH ±1 digit
	mV	-2.000 to 20.000 x 0.001, ±0.005pH ±1 digit – both models	±2000 x 1, ±1 ±1 digit
	°C	±1200.0 x 0.1, ±0.3 ±1 digit – both models	±2500 x 1, ±1 ±1 digit
Calibration	points	up to 3	up to 5
	records	1	10
Temperature compensation		Automatic and manual – both models	
Input		BNC	BNC
Output		—	Mini USB-B
Memories		—	500 – manual records 5000 – automatic records
Display		LCD	Backlit graphics LCD
Power		4 x 1.5V AA batteries or universal voltage a.c. adapter for 100-240V 50/60Hz single phase supplies	4 x 1.5V AA batteries, 5V USB charge point or universal voltage a.c. adapter for 100-240V 50/60Hz single phase supplies
Overall W x D x H	mm	240 x 190 x 80	240 (290 - printer model) x 190 x 80
Weight	kg	3.5 – both models	

Bench pH Meters, inoLab® pH series

As described. Supplied as a meter only with electrode stand, instructions and a.c. adapter requiring a 100-230V 50/60Hz single phase supply. Models 7310 are additionally supplied with a USB cable and software for use on Windows™ computers.

PH480-40 inoLab® pH 7110 meter only, BNC input

PH480-50 inoLab® pH 7310 meter only, BNC input

PH480-60 inoLab® pH 7310 meter only with built-in printer, BNC input

Spares and Accessories

PH486-09 Accessory Sentix 42 gel pH/°C electrode, 1.5 metre cable and BNC connector

PH486-12 Accessory Sentix 82 precision pH/°C electrode, 1.5 metre cable and BNC connector

CU683-10 Spare paper roll for PH480-60

BL610-15 Battery, 1.5V (4 required)



PH480-40



PH480-60, PH480-50 is similar

pH Meters

Bench pH/ion Meter inoLab® pH/ION 7320



a xylem brand

High specification bench meters for routine and advanced research applications in education and industry.

- ◆ AutoRead function provides repeatable measuring results by recognising when a stable reading has been achieved
- ◆ Choice of ion measurement functions including 2 to 7 point direct potentiometry and incremental methods; operates with combination or half-cell and reference electrode systems
- ◆ Intuitive user interface and clear controls
- ◆ Flexible operation either by batteries or mains supply using a universal voltage adapter
- ◆ Easy calibration function with timer
- ◆ Automatic or manual temperature compensation
- ◆ Graphics display, GLP/AQA documentation function, USB output of results in .csv format, CMC function that monitors the calibration range and indicates if the measurement is between calibration points, and is available with an internal printer

Model, inoLab® pH/ION	7320
Range x resolution, accuracy	<p>pH -2.0 to 20.0 x 0.1, ±0.1pH ±1 digit -2.00 to 20.00 x 0.01, ±0.01pH ±1 digit -2.000 to 20.000 x 0.001, ±0.005pH ±1 digit</p> <p>mV ±1200.0 x 0.1, ±0.3 ±1 digit, ±2000 x 1, ±1 ±1 digit</p> <p>°C -5.0 to 105.0 x 0.1°C ±0.1 ±1 digit</p> <p>ISE ranges: mg/l, µmol/l, mg/kg, ppm, % 0.000 to 9.999 x 0.001, 10.00 to 99.99 x 0.01, 100.0 to 999.9 x 0.1, 1000 to 999999 x 1</p>
Calibration	points pH: up to 5, ISE up to 7 records 10
Temperature compensation	Automatic and manual – both models
Inputs	2 x BNC
Output	Mini USB-B
Memories	500 – manual records, 5000 – automatic records
Display	Backlit graphics LCD
Power	4 x 1.5V AA batteries, 5V USB charge point or universal voltage a.c. adapter for 100-240V 50/60Hz single phase supplies
Overall W x D x H	mm 240 (290 - printer model) x 190 x 80
Weight	kg 3.5 – both models

Bench pH/ion Meter, inoLab® pH/ION 7320

As described. Meter only with 2 x BNC inputs, USB cable and software for use on Windows™ computers, batteries and a.c. adapter requiring a 100-230V 50/60Hz single phase supply. Without electrodes.

PH480-90 inoLab® pH/ION 7320 BNC

PH480-95 inoLab® pH/ION 7320 BNC with built-in printer

Spares and Accessories

PH486-12 Accessory Sentix 82 precision pH/°C electrode, 1.5 m cable and BNC connection

CU683-10 Spare paper roll for PH480-60

BL610-15 Battery, 1.5V (4 required)

Ion Selective Electrode Kits

Comprise maintenance free ISE electrode, one 500ml bottle of 1000ppm calibration standard, one 500ml bottle of ionic strength adjustment buffer and S7 screw fitting to BNC terminated lead. For ion determination as indicated.

PJ379-05 Ammonium

PJ379-09 Calcium

PJ379-13 Chloride

PJ379-17 Fluoride

PJ379-21 Nitrate



PH480-90



PH480-95

pH Meters

Portable pH Meters, FiveGo™

METTLER TOLEDO

- ◆ Compact design with built-in, hingeing stand for bench use
- ◆ IP67 protection level housing
- ◆ Simultaneous display of pH or mV and temperature with end-point, electrode condition and battery indicators
- ◆ Calibration with 3-point automatic buffer recognition of 4 pre-defined buffer groups
- ◆ Automatic or manual temperature compensation
- ◆ Automatic or manual end-point recognition
- ◆ Separate pH and temperature inputs
- ◆ Large, segmented LCD readout

Model		F2
Ranges	pH	0.00 to 14.00
	mV	-1999 to +1999
	°C	0.0 to 100.0 (32 to 212°F)
Calibration		3-point, with 4 pre-defined buffer groups
Temperature compensation		Automatic or manual
Input		BNC (pH), Cinch/RCA NTC 20k (temperature)
Impedance		10 ¹² Ω
Power		4 x 1.5V AAA batteries
Overall W x D x H	mm	77 x 33 x 188
Weight	kg	0.26

As described. Supplied as a standard kit with electrode clip, wrist strap, instructions, batteries, 3-in-1 pH/°C electrode LE438, IP67 sealing caps, 2 x pH4.01 and 2 x pH7.00 standard sachets. Alternatively available as a field kit which additionally includes a carrying case and 4 x 25ml sample bottles, or meter only with instructions and 4 x 1.5V batteries.

PH608-11 F2-Standard kit

PH608-21 F2-Field kit

PH608-31 F2-Meter only

Accessories and Spares

PH611-08 LE409 refillable glass pH electrode

PH611-10 LE420 refillable glass pH electrode with adjustable PTFE junction. Suitable for waste water, TRIS buffer solutions and oil samples

PH611-16 LE407 robust, gel-filled pH electrode

PH611-19 LE438 3-in-1 robust, pH/°C electrode for field use

PH611-24 LE501 glass redox electrode

CU617-14 Temperature sensor NTC 30kOhm

BL610-08 1.5V AAA battery (4 required)



PH608

pH Meters

Bench pH Meters, FiveEasy™ / FiveEasy Plus™

METTLER TOLEDO

Compact, reliable, simple bench pH meters for routine measurement in industrial and educational applications.

- ◆ Simultaneous display of measurement, temperature and end-point recording with electrode condition and memory usage indicators
- ◆ Calibration with 3-point automatic buffer recognition with 4 pre-defined buffer groups, or 5-point automatic buffer recognition with 4 pre-defined buffer groups (FP20-model only)
- ◆ Automatic or manual temperature compensation
- ◆ Automatic or manual end-point recognition
- ◆ Separate pH, temperature and reference inputs
- ◆ Easy set-up using navigation keys and intuitive display icons
- ◆ Large, segmented LCD readout
- ◆ FiveEasy Plus™ FP20 model also includes the following features:
 - RS232 and USB interfaces for data transfer to the user's personal computer
 - data storage memory of 200 measurements

Model	F20	FP20
Ranges	pH 0.00 to 14.00 mV -2000 to +2000 temperature 0.0 to 100.0°C (32 to 212°F)	-2.00 to 16.00 -2000 to +2000 -5.0 to 105.0°C (23 to 221°F)
Resolution	pH 0.01 mV 1 temperature °C 0.1	0.01/0.1 1 0.1
Calibration	3-point, 4 pre-defined buffer groups	5-point, 4 pre-defined buffer groups
Temperature compensation	Automatic or manual	Automatic or manual
Inputs	BNC (pH), Cinch/RCA NTC 20k (temperature), 2mm banana socket (reference)	BNC (pH), Cinch/RCA NTC 20k (temperature), 2mm banana socket (reference)
Impedance	10 ¹² Ω	10 ¹² Ω
Memory storage	Current calibration only	Current calibration and 200 measurements
Interfaces	Analogue	RS232 and USB
Power	a.c. adapter requiring a 100-240V 50/60Hz supply — both models	
Overall W x D x H	mm 207x 147 x 70 — all models	
Weight	kg 0.63 — all models	

As described. Supplied as a standard kit with LE438 3-in-1 combination pH/°C electrode, electrode arm, 2 x pH4.01 and 2 x pH7.00 buffer sachets, power adapter and instructions. Alternatively the meter can be supplied on its own with power adapter and instructions only.

PH615-11 F20-Standard kit

PH615-14 F20-Meter only

PH615-21 FP20-Standard kit

PH615-24 FP20-Meter only

Accessories and Spares

PH611-08 LE409 refillable glass pH electrode

PH611-10 LE420 refillable glass pH electrode with adjustable PTFE junction, suitable for waste water, TRIS buffer solutions and oil samples

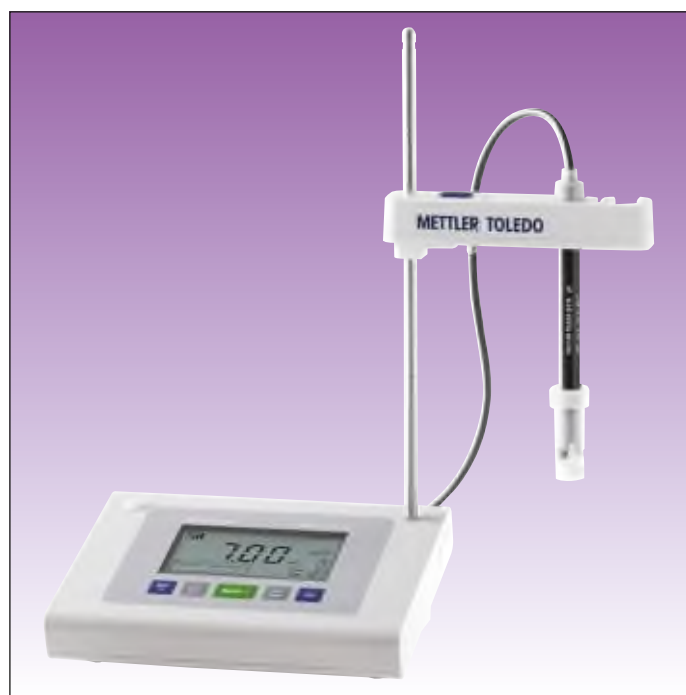
PH611-16 LE407 robust, gel-filled pH electrode

PH611-24 LE501 glass redox electrode

PH611-26 LE422 micro pH electrode with gel electrolyte

CU617-14 Temperature sensor NTC 30kOhm

CU667-36 Spare electrode arm



PH615-11



PH615-21 in use

pH Meters

Consumables

Buffer solutions, colour coded

Values stated at 20°C. Temperature data printed on container label. Values are traceable to NIST (NBS) standard reference material. Supplied in standard, plastic, easy-pour containers or in convenient twin-neck bottles which dispense the correct volume of solution for calibration into the secondary neck chamber minimising all waste and the possibility of contamination. Shelf life approximately 2 years. Accuracy ± 0.01 pH units.

Easy-pour container

- PH750-14** pH4, 1 litre
- PH750-19** pH7, 1 litre
- PH750-24** pH10, 1 litre

Twin-neck container

- PH752-14** pH4, 1 litre
- PH752-19** pH7, 1 litre
- PH752-24** pH10, 1 litre

Buffer capsules

Each capsule contains enough to make up 100ml of buffer value as indicated. Capsule contents dissolve rapidly. Colour coded. Shelf life indefinite if stored under normal conditions. Accuracy ± 0.02 pH units.

- PH758-40** pH4, pack of 50
- PH758-44** pH7, pack of 50
- PH758-48** pH9, pack of 50
- PH758-52** pH10, pack of 50

Filling solutions

- PH760-10** 4M KCL, 100ml
- PH760-13** Saturated KCL, 100ml
- PH760-15** 4M KCL/AgCL, 100ml

- PH765-20** Electrode cleaning solution, 500ml
- PH765-30** pH electrode storage solution, 500ml



pH Meters

pH Electrodes

COPE

High quality, competitively priced electrodes manufactured under quality controlled conditions as specified under ISO 9002, providing:

- ◆ Enhanced sensitivity
- ◆ Low noise and drift
- ◆ Fast response
- ◆ Reliable performance

All electrodes supplied fitted with one metre cable and BNC plug (except reference electrodes which have a 2mm pin and PJ100-14 which has all BNC and phono ATC connectors). A Quality Control Certificate is also supplied.

Cat. No.	Temp. range °C	Ref. type	Junction type	Body	Length x o.d., mm	Stem L x o.d., mm	Type	Equivalents
Combination Electrodes, pH 0 to 14								
PJ100-12	0-60	AgCl	Porous PTFE	Epoxy	120 x 12	—	General purpose, gel filled	Corning 476086 Orion 9206BN
PJ100-14	0-100	AgCl	Porous PTFE	Epoxy	120 x 12	—	General purpose, built-in ATC, gel filled	Corning 476436 Orion 9207BN
PJ100-17	0-80	AgCl	Annular ceramic	Glass	120 x 12	—	General purpose, refillable	Corning 476296 Orion 9102BN
PJ100-22	0-80	AgCl	Frit ceramic	Glass	—	150 x 6	Thin stem, refillable	Corning 476156 Orion 9103BN
PJ100-27	0-80	AgCl	Frit ceramic	Glass	—	90 x 4.5	Micro stem, refillable	—
PJ100-32	0-80	AgCl	Annular ceramic	Glass	120 x 12	—	General purpose, robust tip, refillable	Orion 9104BN
PJ100-42	0-50	HgCl	Annular ceramic	Glass	120 x 12	—	Low ionic strength samples (water), refillable	—
PJ100-47	0-50	HgCl	Frit ceramic	Glass	—	90 x 6	Tris buffer based biological solutions, refillable	Orion 71-10
PJ100-49	0-80	AgCl	Porous PTFE	Epoxy	120 x 12	—	Flat surface, refillable	—
PJ100-55	0-80	AgCl	Annular ceramic	Glass	120 x 12	—	Slurry testing, refillable	Orion 9162BN
Glass Electrode, pH 0 to 14								
PJ105-16	0-80	—	—	Glass	120 x 12	—	General purpose half cell	Corning 476026 Orion 9101BN
Reference Electrodes								
PJ108-19	0-50	HgCl	Frit ceramic	Glass (Calomel)	120 x 12	—	General purpose, refillable	Corning 476406
PJ108-29	0-50	AgCl	Frit ceramic	Glass	120 x 12	—	General purpose, double junction, refillable	Corning 476416



Left to right: PJ100, PJ105, PJ108 series

pH Meters

pH Electrodes, pH Plus

High performance electrodes with non-metallic reference system offering many advantages over conventional electrodes:

- Greater accuracy
- Very fast response
- Greater stability
- Less long-term drift
- More reproducible results
- Excellent temperature performance over the range 0 to 100°C
- Compatibility with Tris buffers

All electrodes supplied fitted with one metre cable and BNC plug (except PJ156-19 which has a 2mm pin).

Cat. No.	Junction type	Body	Length x o.d., mm	Stem L x o.d., mm	Type
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Combination Electrodes, pH 0 to 14

PJ145-17	Frit ceramic	Glass	120 x 12	—	General purpose, refillable
PJ145-22	Frit ceramic	Glass	—	150 x 6	Thin stem, refillable
PJ145-27	Frit ceramic	Glass	—	90 x 4.5	Micro stem, refillable
PJ145-32	Annular ceramic	Glass	120 x 12	—	General purpose, robust tip, refillable
PJ145-42	Annular ceramic*	Glass	120 x 12	—	Low ionic strength samples (water), refillable
PJ145-49	Porous PTFE [†]	Epoxy	120 x 12	—	Flat surface, refillable
PJ145-55	Annular ceramic	Glass	120 x 12	—	Slurry testing, refillable

Glass Electrode, pH 0 to 14

PJ152-16	—	Glass	120 x 12	—	General purpose, half cell
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Reference Electrode

PJ156-19	Annular ceramic*	Glass	120 x 12	—	General purpose, refillable
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*Temperature range 0 to 50°C. [†]Temperature range 0 to 90°C.

Ion Selective Electrodes

- ◆ Combination, no reference electrode needed
- ◆ Solid state sensors
- ◆ Extended working life

Combination ion selective electrodes with solid state sensors and rugged epoxy bodies. Can be used with any conventional pH meter with a millivolt mode. Overall 120 x 12mm L x o.d. Supplied with 1 metre cable and BNC connector. For ions as indicated.

PJ200-10 Ammonium
PJ200-25 Cadmium
PJ200-30 Calcium

PJ200-35 Chloride
PJ200-50 Fluoride
PJ200-55 Lead

PJ200-65 Nitrate
PJ200-70 Potassium
PJ200-75 Sodium



PJ145/PJ156



PJ200

pH Meters

Pocket Ion Meter, Cardy Na⁺

Horiba

Ultra-slim, pocket ion meter providing convenient, rapid measurement of Sodium ion levels and requiring only a droplet of sample.

- ◆ Replaceable flat sensor technology requires minimal maintenance and is easily replaced if required
- ◆ Automatic range switching
- ◆ LCD readout gives direct concentration reading - no conversion calculation required

Catalogue No.	PJ280-10	
Model	Cardy Na ⁺	
Measurement	ppm	2.3 to 2300 (10 ⁻³ to 10 ⁻¹ mol/l)
Display range	ppm	0 to 9900 x 100
Resolution (all models)	ppm	1 (0 to 99) 10 (100 to 990) 100 (1000 to 9900)
Calibration	2-point using standard calibration solutions (2000ppm and 150ppm) and STD/SLOPE adjustment trimmers	
Repeatability	±20% of display value	
Sample temp. range	°C	+5 to +35
Power	2 x 3V CR2025 batteries	
Overall L x W x D	mm	95 x 55 x 9
Weight	g	40

Pocket Ion Meter, Cardy Na⁺, Horiba

As described. Supplied with calibration solutions (2000ppm and 150ppm), sample dropper, deionised water and sampling "soak tape", instructions and batteries.

PJ280-10 Cardy Na⁺

Spares

- PJ284-03** Spare sensor for PJ280-10
- PJ284-06** Spare sensor for discontinued PJ280-20
- PJ284-09** Spare sensor for discontinued PJ280-30
- BL590-20** Spare battery, 3V (two required)



PJ280

Pocket Salt Meter, Cardy SALT

Horiba

Ultra-slim, pocket meter for convenient salt testing with applications in the food, industrial and healthcare sectors.

- ◆ Flat sensor requires minimal maintenance and is replaceable, only a drop of sample is required for measurement
- ◆ Clear LCD readout gives direct NaCl reading
- ◆ Does not require pH adjustment or manual conversion from sodium ion measurement
- ◆ Excellent correlation with flame photometric method

Catalogue No.	PJ285-40	
Model	Cardy SALT	
Range	%NaCl (w/w)	0.1 to 25
Resolution	%NaCl (w/w)	0.01 (0.1 to 0.99) 0.1 (1.0 to 9.9) 1.0 (10 to 25)
Calibration	2-point using standard calibration solutions (0.5% and 5% NaCl) and STD/SLOPE adjustment trimmers	
Sample temperature range	°C	+5 to +35
Power	2 x 3V CR2025 batteries	
Overall L x W x D	mm	95 x 55 x 9
Weight	g	40

Pocket Salt Meter, Cardy SALT, Horiba

As described. Supplied with calibration solutions (0.5% and 5% NaCl), sample dropper, deionised water and sampling "soak tape", instructions and batteries.

PJ285-40 Cardy SALT

Spares

- PJ284-03** Spare sensor for PJ285-40
- BL590-20** Spare battery, 3V (two required)



PJ285

pH Meters

pH Meter, Laqua-Twin

Horiba

A convenient, pocket-sized, pH meter for small sample testing in the laboratory or in the field.

- ◆ Flat sensor requires minimal maintenance and is replaceable; only a drop of sample (0.1ml minimum) is required for measurement, or the probe can be dipped up to the fill line
- ◆ Clear LCD readout indicates measurement, battery level, stability, temperature range warning and calibration reference
- ◆ One or two point calibration
- ◆ IP67 class protection

Catalogue No.	PJ270-27
Model	pH-22
Range	pH 0.00 to 14.00 mV ±650
Resolution	pH 0.01 mV 1
Calibration	1, 2 or 3-point
Accuracy	pH ±0.01
Temperature comp. range	°C 0 to +40
Power	2 x 3V batteries (CR2032 or equivalent) with automatic shut-off after 30 minutes of non-use
Overall L x W x H mm	164 x 29 x 20
Weight	g 55

pH Meter, Laqua-Twin

As described. Supplied with 14ml standard solution and treatment reagent, sampling dropper, soft storage case, instructions and batteries.

PJ270-27 pH-22

PJ272-06 Spare Sensor for PJ270-27

BL590-25 Spare battery, 3V (2 required)



PJ270

Pocket Ion Meters, Laqua-Twin

Horiba

A convenient, pocket-sized, range of ion meters for small sample testing of sodium, potassium, nitrate, calcium and salt in the laboratory or in the field.

- ◆ Flat sensor requires minimal maintenance and is replaceable; only a drop of sample (0.3ml minimum) is required for measurement, or the probe can be dipped up to the fill line
- ◆ Clear LCD readout indicates measurement, battery level, stability, temperature range warning and calibration reference
- ◆ One or two point calibration
- ◆ IP67 class protection

Catalogue No.	PJ280-14	PJ280-24	PJ280-34	PJ280-44	PJ280-54
Model	Na-11	K-11	NO3-11	Ca-11	Salt-11
Parameter	Sodium	Potassium	Nitrate	Calcium	Salt
Range	ppm 2 to 9900 — %	4 to 9900 — —	6 to 9900 (NO ₃) 1.4 to 2200 (NO ₃ ^{-N}) —	4 to 9900 — —	0 to 100,000 — 0.00 to 10.00
Resolution (all models)	ppm 1 (range 0 to 99) 10 (range 100 to 990) 100 (range 1000 to 9900) - all models %	— — —	— — —	— — —	1 — 0.01
Accuracy	±10% of reading value — all models				±20% of reading value
Calibration	1 or 2 point (selectable) — all models				
Temperature comp. range	°C 0 to +40 — all models				
Power	2 x 3V batteries (CR2032 or equivalent) with automatic shut-off after 30 minutes of non-use — all models				
Overall L x W x H mm	164 x 29 x 20 — all models				
Weight	g 55 — all models				

Pocket Ion Meters, Laqua-Twin

As described. Supplied with 14ml standard solution and treatment reagent, sampling dropper, soft carry case, instructions and batteries.

PJ280-14 Na-11

PJ280-24 K-11

PJ280-34 NO₃-11

PJ280-44 Ca-11

PJ280-54 Salt-11

Spares

PJ284-12

PJ284-22

PJ284-32

PJ284-42

PJ284-52

BL590-25

Spare sensor for PJ280-14

Spare sensor for PJ280-24

Spare sensor for PJ280-34

Spare sensor for PJ280-44

Spare sensor for PJ280-54

Spare battery, 3V (2 required)



PJ280-series

pH Meters

Bench pH Meters, LAQUA F-series

Horiba

High specification range of benchtop pH/mV or ion meters for routine laboratory measurements.

◆ Choice of models:

- F-71: single channel pH/ORP meter with large, backlit monochrome, custom LCD, 999 reading memory and membrane keypad operation
- F-72: single channel pH/ORP/Ion meter with touchscreen operation, digital graphical or analogue display output selectable, colour LCD readout, analogue USB printer/PC and flash memory external outputs, 2000 reading memory and easy menu navigation. Multi-language display in Japanese, English, Chinese and Korean
- F-73: generally as F-72 but with two channel inputs allowing two readings or separate tests to be run and displayed simultaneously

◆ Simultaneous reading and temperature display

Catalogue No.	PJ290-10	PJ290-15	PJ290-25	
Model	F-71	F-72	F-73	
Parameters	Channel 1 Channel 2	pH, ORP —	pH, ORP, Ion —	pH, ORP, Ion pH, ORP, Ion
Ranges (resolution)	pH mV (ORP) Ion conc. °C	0 to 14.000 (0.001) -1999.9 to +1999.9 (0.1) — all models — 0 to 100 (0.1) — all models	0 to 14.000 (0.01/0.001) — both models 0.00mg/l to 999g/l (3 digits) — both models	— both models
Accuracy	pH mV (ORP) Ion conc. °C	±0.005 ±1 digit ±0.1 ±1 digit — all models — ±0.1 ±1 digit — all models	±0.001 ±1 digit ±0.5% ±1 digit of full scale — both models	±0.005 ±1 digit
Temp. compensation	°C	0 to 100.0 — all models		
Autocalibration	pH Ion conc.	1 point —	up to 5 point — both models up to 5 point — both models	
Outputs		USB, RS232 printer	Analogue output, USB and RS232 printer/PC, USB flash drive memory expansion ports — both models	
Memory		999 readings	2000 readings — both models	
Overall	W x D x H mm	170 x 174 x 73 — all models		
Weight	kg	0.5	0.7 — both models	

pH Meters, LAQUA F-series, Horiba

As described. Supplied with swing-arm probe holder, stand and a.c. adapter for 100-240V 50/60Hz single phase supplies. Without probes.

PJ290-10 F-71

PJ290-15 F-72

PJ290-25 F-73

Accessories

PJ294-08 3-in-1 pH electrode, plastic bodied, waterproof

Tough electrodes

Robustly constructed, toughened glass, 3-in-1 electrodes with rapid response membrane and increased stability reference system. Waterproof.

	Sample type	Operating range, °C	L x dia. mm
PJ294-12	General purpose	0 to 100	115 x 23
PJ294-16	High viscosity	0 to 60	120 x 8
PJ294-22	Micro, >50 l	0 to 60	102 x 3
PJ294-24	Deep	0 to 100	200 x 7

CU662-81 USB cable to connect meter to the user's PC

CU662-83 Impact printer, 230V 50/60Hz. Requires CU662-89 for connection to meter

CU662-86 Printer paper rolls, pack of 20

CU662-88 Ink ribbons, pack of 5

CU662-89 Printer cable to connect CU662-83 to meters. 1.5m long



PJ290 with PJ294-08

pH Meters

Hand-held pH Testers 206-Series



Convenient, hand-held meters with innovative, replaceable probe system which resists clogging by replacement of the conventional microporous membrane with a hole diaphragm and solid gel electrolyte. Low membrane resistance also results in fast, accurate readings.

- ◆ Choice of models:
 - 206-pH1 for liquids
 - 206-pH2 for semi-solids
- ◆ Generous electrolyte volume provides extended life
- ◆ Maintenance-free
- ◆ Almost unbreakable probe design
- ◆ 1, 2 or 3-point calibration
- ◆ Leakproof, KCL gel-filled, probe storage cap
- ◆ Dual display (pH and °C)
- ◆ Built-in temperature probe
- ◆ Includes IP68 "TopSafe" protection case

Specification for both models

Range	pH	0 to 14.00
	°C	0 to 60
Resolution	pH	0.01
	°C	0.1
Accuracy	pH	±0.02
	°C	±0.4
Temp. comp.	°C	Automatic over full range
Auto calibration		1 to 3 point (pH4.0, pH7.00 and pH10.1 recognised)
Display		Twin-line LCD, simultaneous pH and °C readout
Power		1 x 3V CR2032 battery
Overall L x W x D	mm	197 x 33 x 20
Weight	g	69

As described. Supplied with probe module, "TopSafe" protection case, storage cap with KCL gel storage medium, belt clip/wall-mounting holster and battery.

- PJ335-10** Testo 206-pH1
- PJ335-20** Testo 206-pH2

Accessories and Spares

- PJ337-04** Spare probe for PJ335-10 only with gel storage cap
- PJ337-08** Spare probe for PJ335-20 only with gel storage cap
- BL590-25** Spare battery, 3V



PJ335

Food Testing pH Meter



- ◆ Ergonomic design for ease of use
- ◆ Penetration probe with built-in combination electrode and temperature probe, in an almost unbreakable housing
- ◆ Maintenance-free, gel electrolyte
- ◆ Back-lit, dual LCD readout of all pH and temperature
- ◆ Automatic reading stability detection
- ◆ 1, 2 or 3-point calibration
- ◆ Leakproof, KCL gel-filled, probe storage cap
- ◆ IP65 housing

Specification

Range	pH	0 to 14.00
	°C	0 to 60
Resolution	pH	0.01
	°C	0.1
Accuracy	pH	±0.02
	°C	±0.4
Temp. comp.	°C	Automatic over full range
Auto calibration		1 to 3 point (pH4.0, pH7.00 and pH10.1 recognised)
Display		Twin-line LCD, simultaneous pH and °C readout
Power		4 x 1.4V LR44 batteries
Overall L x W x D mm		197 x 33 x 168
Weight	g	69

As described. Supplied with probe module, storage cap with KCL gel storage medium, wall-mounting holder and batteries.

- PJ342-15** Testo 205

Accessories and Spares

- PJ342-40** Spare probe for PJ342-15 with gel storage cap
- PJ342-45** Spare gel storage cap
- BL610-04** 1.4V battery (4 required)



PJ342-15

pH Meters

Portable pH meters 550 and 570



- ◆ Choice of models:
 - Model 550: simultaneous pH/temperature LCD readout with splashproof (IP65-rated) housing
 - Model 570: simultaneous pH or mV and temperature LCD readout with battery indicator and waterproof (IP66-minimum rated) housing
- ◆ Manual or automatic temperature compensation
- ◆ Automatic, two-point pH calibration with automatic buffer recognition
- ◆ Auto shut-off after 10 minutes of inactivity to conserve battery life

Catalogue No.		PJ360-40	PJ360-70
Model		550	570
Ranges (resolution)	pH	0 to 14.00 x 0.01	-2.00 to 16.00 x 0.01
	mV	–	-1000 to +1000 x 1
	°C	0 to 100.0 x 0.1	-39.9 to 149.9 x 0.1
Accuracy	pH	±0.05	±0.02
	mV	–	±1
	°C	±0.5	±0.4 (between -10 and +70°C)
ATC range		0 to 60°C	0 to 100°C
Calibration		2 point on standard solutions with automatic buffer recognition	
Inputs		BNC and 3.5mm jack	BNC/Lumberg screwlock
Power		3 x 1.5V AAA batteries – both models	
Dimensions L x W x D	mm	141 x 56 x 25	141 x 71 x 32
Weight	kg	0.13	0.23

Portable pH meters 550, 570, Jenway

As described. Supplied with epoxy-bodied, gel-filled pH electrode, ATC probe, 3 x 1.5V batteries, 1 each pH4, pH7 and pH10 buffer sachets, carrying case and instructions.

PJ360-40 Model 550 with case

PJ360-70 Model 570 with case

Spares and Accessories

PJ364-08 Spare combination pH electrode, epoxy bodied, gel filled

PJ364-15 Spare temperature/ATC probe for PJ360-40 only

PJ364-17 Spare temperature/ATC probe for PJ360-70 only

BL610-08 Spare battery, 1.5V (3 required)



PJ360-40



PJ360-70

pH Meters

Ion Selective Electrode Kits

Ion Selective Electrode Kits

Comprise maintenance free ISE electrode, one 500ml bottle of 1000ppm calibration standard, one 500ml bottle of ionic strength adjustment buffer and S7 screw fitting to BNC lead. For ion determination as indicated.

- PJ379-05** Ammonium
- PJ379-09** Calcium
- PJ379-13** Chloride
- PJ379-17** Fluoride
- PJ379-21** Nitrate



PJ379

pH Meters

Bench Meters 3500 series



Two, easy to use, bench meters covering basic, routine or research laboratory requirements.

Model		3510	3520
Range	pH	-2 to +19.999	-2 to +20.000
	mV	-1999 to +1999	-1999 to +1999
	°C (°F)	-10 to +105 (+14 to +221)	-10 to +105 (+14 to +221)
Resolution	pH	0.001/0.01/0.1	0.001/0.01/0.1
	mV	0.1	0.1/1
	°C (°F)	0.1 (1)	0.1 (1)
Accuracy	pH	±0.003	±0.003
	mV	±0.2	±0.2
	°C (°F)	±0.5 (±1)	±0.5 (±1)
Temperature comp.		0 to 100°C, manual or automatic — all models	
Input impedance	ohms	>10 ¹²	
Calibration		1 or 2 point Manual or ATC buffers to DIN19266, JIS Z8802 and NIST	1, 2 or 3 point Manual or ATC buffers to DIN19266, JIS Z8802 and NIST
Outputs		Analogue recorder – buffered electrode output Bi-directional RS232	Analogue recorder – buffered electrode output Bi-directional RS232 Infra-red data link (IrDA)
Alarm Points		—	-2.000 to +20.000
Memories		32 readings	500 readings
Display		Custom back-lit LCD	Back-lit graphics LCD
Power		9V a.c. adapter — all models	
Overall H x W x D	mm	55 x 210 x 250	55 x 210 x 250
Weight	kg	0.85	0.85

pH Meter, bench, Model 3510

As described. Routine model with push-button controls, simultaneous pH or mV and temperature readout and 1, 2 or 3 point calibration. Supplied with glass bodied pH combination electrode, separate ATC probe, swing arm electrode holder, RS232 interface, instruction manual, pH4, pH7 and pH10 buffers and an a.c. adapter requiring a 230V 50/60Hz supply.

PJ500-22 Model 3510

pH Meter, bench, Model 3520

As described. Research model with push-button controls, simultaneous pH or mV and temperature readout, real time clock, GLP support functions, alarm outputs, multi-language operation and 1, 2 or 3 point calibration. Supplied with glass bodied combination pH electrode, separate ATC probe, swing-arm electrode holder, RS232 interface, infra-red data link (IrDA), instruction manual, pH4, pH7 and pH10 buffers and an a.c. adapter requiring a 230V 50/60Hz supply.

PJ550-40 Model 3520

Spares and Accessories

Combination electrodes

- PJ364-08** Epoxy bodied
- PJ554-08** Glass bodied
- PJ554-19** ATC probe, for all models
- PJ554-70** 9V a.c. adapter with UK connector. Requires a 230V mains supply

IrDA or serial connection printer. Supplied with one roll of thermal paper, serial connection lead, power supply and power connection lead*.

- CU656-25** Printer
 - CU656-27** Thermal paper roll, supplied singly
- *Not suitable for use with Model 3505.

DataWay data acquisition software for downloading data from instruments onto the users' PC.

CU656-54 Software



PJ550-40 in use, **PJ500-22** is similar

pH Meters

Halo™ Bluetooth® Electrode

HANNA

A cordless, precision, double junction, refillable glass pH electrode with built-in temperature sensor suitable for use with Apple® iPad® or iPhone® products running iOS7.1 or later, Android™ tablets or phones and Bluetooth 4.0 technology, using a Hanna Lab App available free via the iTunes® or Google Play App stores.

- ◆ Ranges: pH0.00 to 13.00 and -5 to +80°C
- ◆ Maximum usable distance from meter: 10 metres
- ◆ Approximately 500 hours battery life
- ◆ Integral temperature sensor ensures automatic temperature compensation
- ◆ Calibration information is stored within the electrode, no recalibration is necessary when switching to another device
- ◆ The Hanna Lab App displays the name, battery life and condition of the Halo™ probe and complies with GLP requirements
- ◆ Measurement and logging at 1 second intervals commences, and a blue LED illuminates on the electrode, as soon as the probe is connected

Halo™ Bluetooth® pH Electrode

As described. Probe dimensions 195 x 12mm overall length x stem diameter. Supplied with storage solution, cleaning solution, buffers, filling solution and 3V CR2032 button cell battery.

PJ805-10 Halo™ Bluetooth® pH Electrode

BL590-25 Spare 3V battery

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Bluetooth® is a registered trademark of Bluetooth SIG, Inc.

Android™ is a trademark of Google Inc.

Google is a registered trademark of Google Inc.



PJ805-10

pH Meters

Dip pH Sensors

HANNA

Simple to use dip sensors for routine pH measurements.

- ◆ Digital display
- ◆ Waterproof and float readily in water
- ◆ Automatic 1 or 2 point push button calibration
- ◆ Replaceable electrode with non-clogging fibre reference junction
- ◆ Automatic temperature compensation

Model	HI-98127	HI-98128	
Ranges x resolution	pH	-2 to 16.0 x 0.1	-2 to 16.00 x 0.01
	°C	-5 to 60.0 x 0.1	-5 to 60.0 x 0.1
Accuracy	pH	±0.1	±0.05
Calibration	Automatic 1 or 2 point, (pH4.01, 6.86, 7.01, 9.18, 10.01 buffers recognised) — all models		
Temp. comp.	°C	Automatic, 0 to 60 — all models	
Power	4 x 1.4V cells (Duracell MP675H or equivalent)		
Overall L x W x H	mm	163 x 40 x 26 — both models	

Dip pH Sensors

As described. With electrode and batteries.

- PJ820-14** HI-98127
PJ820-18 HI-98128
BL610-04 Spare battery 1.4V (4 required)

Dip pH Tester, Checker 1

A low cost, advanced pH tester with replaceable electrode. Range pH0.00 to 14.00 with 0.01pH resolution and ±0.2pH accuracy. Two point calibration at pH4/10 and pH7 using offset and slope screw trimmers. Powered by 2 x 1.4V (Duracell MP675H or equivalent) batteries giving up to 3000 hours operation. Supplied with screw-in general purpose combination electrode and batteries.

- PJ820-75** Checker 1

Spares

- PJ822-25** Electrode, for use with PJ820-75, screw in type
BL610-04 Spare battery 1.4V (4 required)



PJ820-14 to PJ820-18



PJ820-75 in use

Hand-Held pH/Ion Meter

HANNA

High performance, hand-held meter for pH, mV or °C measurement.

- ◆ Microprocessor controlled
- ◆ Automatic or manual temperature compensation
- ◆ Automatic calibration with buffer recognition
- ◆ Membrane keypad
- ◆ 0.1mV resolution in ISE mode

Model	HI-8424	
Range, (resolution)	pH	-2.00 to 16.00 (0.01)
	mV (ISE)	-699.9 to 699.9 (0.1)
	mV (ORP)	-1999 to 1999 (1)
	°C	-20.0 to 120.0 (0.1)
Accuracy	pH	±0.01
	mV	±0.2 (ISE), ±1 (ORP)
	°C	±0.4
Calibration	Automatic 2 point, pH4.01, 7.01, 10.01 buffers recognised	
Temp. compensation	°C	Automatic or manual -20 to 120
Input impedance	10 ¹²	
Power	1 x 9V PP3 alkaline battery	
Overall L x W x D	mm	164 x 76 x 45 (meter only)

Hand-Held pH/Ion Meter HI-8424

As described, with plastic bodied, gel filled, double junction pH electrode and temperature probe, all with 1 metre cables and 9V battery.

- PJ840-10** HI-8424

Spares and accessories

- PJ843-12** Temperature probe
PJ857-05 pH electrode
PJ857-25 ORP electrode
PJ857-27 Storage solution for ORP electrode, pack of 500ml
BL610-25 9V battery



PJ840-10

pH Meters

Tablet pH Meter, edge® pH

HANNA

Thin, lightweight, "tablet" format, pH meter for portable or benchtop applications.

- ◆ Large, high-resolution, LCD readout with wide, 150° viewing angle
- ◆ Includes bench charging dock with electrode holder and wall mount
- ◆ USB output port for exporting data to a flash drive and separate micro USB port for downloading data to the user's computer and charging the meter
- ◆ Capacitive touch keypad
- ◆ Uses digital pH electrodes which the meter automatically recognises with 1 metre cable and simple, 3.5mm plug connection
- ◆ Built-in CAL Check™ software monitors the calibration process, including buffer and electrode condition to warn the user of potential issues that could affect performance

Model	edge® pH (HI2002-02)	
Range (resolution)	pH*	-2.00 to 16.00 or -2.000 to 16.000 (0.01 or 0.001)
	mV (pH)	-1000 to +1000 (0.1)
	mV (ORP)	-2000 to +2000 (0.1)
	°C (°F selectable)	-20.0 to +120.0 (0.1)
Accuracy (at 25°C)	pH*	±0.01 or ±0.002
	mV (pH)	±0.20
	mV (ORP)	±0.20 up to ±999.9mV, ±1.00 (rest of range)
	°C (°F selectable)	±0.5
Calibration	Automatic 1, 2 or 3 point, pH4.01, 6.86, 7.01, 9.18, 10.01 buffers recognised	
Temp. compensation	°C	Automatic or manual, -5.0 to 100.0
Datalogging	Up to 1000 records; max. 200 x log-on-demand, 200 x log-on-stability and 600 x samples; 100 lots	
Power	USB 5V d.c. mains adapter	
Overall H x W x D	mm	202 x 140 x 12
Weight	kg	0.25

* Subject to probe limits

Tablet pH meter, edge® pH

As described. Supplied with glass-bodied, combination pH/°C, digital electrode with 1 metre cable, pH4.01, pH7.01 and pH10.01 buffer solutions, electrode cleaning solution, benchtop charging dock stand with electrode holder, wall-mount cradle, USB cable, instruction manual and a.c. adapter requiring a 230V 50/60Hz supply.

PJ858-10 edge® pH meter

Spares and accessories

PJ858-80 Spare, glass-bodied, pH/°C digital electrode for PJ858-10

PJ858-85 Glass-bodied ORP/°C electrode



PJ858-10 in use

Bench Meters HI-2210, HI-2211

HANNA

- ◆ Microprocessor controlled
- ◆ Automatic or manual temperature compensation
- ◆ Automatic 2 point calibration with buffer recognition
- ◆ Simultaneous display of pH (or mV – HI2211) and temperature
- ◆ Large LCD readout
- ◆ Result memory with recall

Model		HI-2210	HI-2211
Range (resolution)	pH	-2.00 to 16.00 (0.01)	-2.00 to 16.00 (0.01)
	mV (ISE)	—	±399.9 (0.1)
	mV (ORP)	—	±2000 (1)
	°C	-9.9 to 120.0 (0.1)	-9.9 to 120.0 (0.1)
Accuracy	pH	±0.01	±0.01
	mV (ISE)	—	±0.2
	mV (ORP)	—	±1
	°C	±0.5	±0.5
Calibration		Automatic 1 or 2 point, pH4.01, 6.86, 7.01, 9.18, 10.01 buffers recognised – both models	
Temp. compensation	°C	Automatic or manual, -9.9 to 120 – both models	
Input impedance		10 ¹² – both models	
Power		12V d.c. mains adapter – both models	
Overall L x W x D	mm	235 x 222 x 109 – both models	

Bench meters, HI-2210, HI-2211

As described. Supplied with glass bodied, combination pH electrode and temperature probe, all with 1 metre cables, electrode holder, pH4.01 and 7.01 buffer solutions in 20ml bottles, electrode filling solution, instructions and 12V d.c. mains adapter. A 230V 50/60Hz supply is required for the adapter.

PJ860-47 HI-2210

PJ860-51 HI-2211

Spares and accessories

PJ862-08 Glass bodied electrode

PJ862-22 Temperature probe

PJ857-25 ORP electrode



PJ860-47 in use, PJ860-51 is similar

pH Meters

Bench Multiparameter Meters, HI-5521, HI-5522

HANNA

- ◆ Dual channel models measuring pH, mV, conductivity, TDS, resistivity and salinity (HI5522 also measures ISE), with separate temperature input
- ◆ Up to 5 calibration points with standard or custom buffers selectable
- ◆ Capacitive touch keypad and large dot matrix colour LCD readout
- ◆ USB output
- ◆ GLP data features include logged graphical data output, calibration data, ID, date and time
- ◆ Cal Check™ feature monitors readings, electrode and buffer performance and warns if out of range

Bench multiparameter meters, HI-5521, HI-5522

As described. Supplied complete with pH electrode, EC/TDS probe (0.0500 to 200.0 cell constant), temperature probe, pH4 and pH7 buffer solutions, electrode holder, instructions and 12V d.c. mains adapter. A 230V 50/60Hz supply is required for the adapter.

- PJ868-17** HI-5521, complete
- PJ868-57** HI-5522, complete

Spares and accessories

- PJ862-08** Spare glass bodied electrode
- PJ862-22** Spare temperature probe
- PJ862-24** Spare EC/TDS probe
- PJ857-34** Data transfer software

Model	HI-5521	HI-5522
Range (resolution)	pH	-2.00 to 20.00 or -2.00 to 20.00 (0.1; 0.01; 0.001) — both models
	mV	±2000.0 (0.1) — both models
	EC	0.000 to 9.999µS (0.001), 10 to 99.99µS (0.01), 100 to 999.9µS (0.1), 1.000 to 9.999mS (0.001), 10.00 to 99.99mS (0.01), 100.0 to 1000.0mS (0.1) — both models
	TDS	0.000 to 9.999ppm (0.001), 10 to 99.99ppm (0.01), 100 to 999.9ppm (0.1), 1.000 to 9.999ppt (0.001), 10.00 to 99.99ppt (0.01), 100.0 to 400.0ppt (0.1) actual TDS (with 1.00 factor) — both models
	resistivity	1.0 to 99.9ohm/cm, 100 to 999ohm/cm, 1.00 to 9.99kohm/cm, 10.0 to 99.9kohm/cm, 100 to 999kohm/cm, 1.00 to 9.99Mohm/cm, 10.0 to 100.0Mohm/cm — both models
	salinity	Practical scale: 0.00 to 42.00psu; natural sea water scale: 0.00 to 80.00ppt; % scale: 0.0 to 400.0% NaCl — both models
conc.	—	1 x 10 ⁻⁷ to 9.99 x 10 ¹⁰ (1; 0.1; 0.01; 0.001)
	°C	-20.0 to +120.0 (0.1) — both models (°F, °K selectable)
Accuracy	pH	±0.1; 0.01; 0.002; ±1 sig. digit — both models
	mV	±0.02 ±1 significant digit — both models
	EC	±1% of reading (±0.01µS) — both models
	TDS	±1% of reading (±0.01ppm) — both models
	resistivity	±2% of reading (±1ohm/cm) — both models
	salinity	±1% of reading
conc.	—	±0.5% (mono-) ±1% (di-) ±1.0% (trivalent ions)
°C	±0.2	±0.2
Calibration (automatic)	pH	Up to 5 points with 8 memorised buffers (pH 1.68, 3.00, 4.01, 6.86, 7.01, 9.18, 10.01, 12.45) + 5 custom values — both models
	EC	Automatic standard recognition — both models
	salinity	% scale-one point — both models
	ISE	—
Temp. compensation °C	Automatic or manual, from -20.0 to +120.0°C — both models	Up to 5 points, 0.1, 1, 10, 100, 1000 conc. + 5 custom values
Data logger	Up to 100,000 data point storage per channel — both models	
Output	Opto-isolated USB — both models	
Power	12V d.c. mains adapter — both models	
Overall L x W x H	mm	231 x 160 x 94 — both models
Weight	kg	1.2 — both models



PJ868-17 in use



PJ868-57 in use

Pipettes, One-Mark

Glass, One- and Two-Mark to ISO648 & DIN12690

- ◆ Colour coded to BS3996
- ◆ Calibrated for delivery
- ◆ Class AS pipettes only require a 5 second waiting time
- ◆ 1ml and 2ml sizes are straight pattern without bulb
- ◆ 15ml sizes are supplementary to the DIN12690 and ISO648 ranges

Colour code					
1ml	Blue	10ml	Red	25ml	Blue
2ml	Orange	15ml	Green	50ml	Red
5ml	White	20ml	Yellow	100ml	Yellow

Tolerances		
Cap. ml	Class B $\pm ml$	Class AS $\pm ml$
1	0.015	0.008
2	0.020	0.010
5	0.030	0.015
10	0.040	0.020
15	0.050	0.025
20	0.060	0.030
25	0.060	0.030
50	0.100	0.050
100	0.150	0.080

MBL®

One-Mark Pipettes, MBL

Soda-lime glass. Amber stain graduations and inscriptions.

	Ref.	Cap. ml
Class B		
PM102-10	PRA700B	1
PM102-13	PRA702B	2
PM102-22	PRA704B	5
PM102-25	PRA706B	10
PM102-30	PRA708B	15
PM102-35	PRA710B	20
PM102-40	PRA712B	25
PM102-45	PRA714B	50
PM102-50	PRA716B	100
Class AS		
PM107-10	PRA720AS	1
PM107-13	PRA722AS	2
PM107-22	PRA724AS	5
PM107-25	PRA726AS	10
PM107-30	PRA728AS	15
PM107-35	PRA730AS	20
PM107-40	PRA732AS	25
PM107-45	PRA734AS	50
PM107-50	PRA736AS	100
Class AS Works Certified		
PM108-10	PRA740ASWC	1
PM108-13	PRA742ASWC	2
PM108-22	PRA744ASWC	5
PM108-25	PRA746ASWC	10
PM108-30	PRA748ASWC	15
PM108-35	PRA750ASWC	20
PM108-40	PRA752ASWC	25
PM108-45	PRA754ASWC	50
PM108-50	PRA756ASWC	100

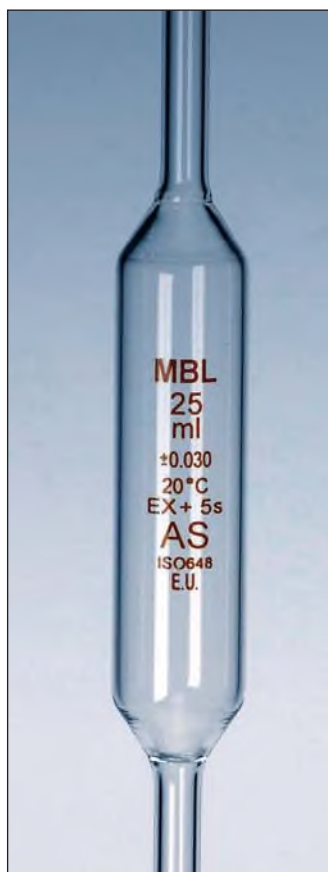
Two-Mark Pipettes, MBL

Soda-lime glass. Amber stain graduations and inscriptions.

	Ref.	Cap. ml
Class AS		
PM115-10	PRA620AS	1
PM115-13	PRA622AS	2
PM115-22	PRA624AS	5
PM115-25	PRA626AS	10
PM115-35	PRA630AS	20
PM115-40	PRA632AS	25
PM115-45	PRA634AS	50
PM115-50	PRA636AS	100



PM102



PM107, PM108/PM115 are similar

Pipettes, One-Mark

Blaubrand® Class AS


- ◆ Colour coded to DIN 12691
- ◆ Conformity Certified
- ◆ Calibrated for delivery with a waiting time of 15 seconds
- ◆ Manufactured from AR-Glas® soda-lime glass
- ◆ Pipettes up to 2ml capacity are straight pattern without bulb

Available as:

- ◆ **Blaubrand®** where the graduation and inscriptions are in a highly contrasting blue enamel
- ◆ **Blaubrand® ETERNA** where the graduation and inscriptions are in an amber diffusion stain which forms an integral part of the glass surface. This form of marking is particularly suited to pipettes which have to be subjected to aggressive cleaning solutions

Capacity ml	Colour coded	Tolerances ±ml
0.5	2 x Black	0.005
1	Blue	0.007
2	Orange	0.010
2.5	—	0.015
3	Black	0.015
4	2 x Red	0.015
5	White	0.015
6	2 x Orange	0.020
7	2 x Green	0.020
8	Blue	0.020
9	Black	0.020
10	Red	0.020
15	Green	0.030
20	Yellow	0.030
25	Blue	0.030
30	Black	0.050
40	White	0.050
50	Red	0.050
100	Yellow	0.080

Conformity Certified

Indicated by the symbol  shows that the product has been manufactured by Brand under quality control procedures according to Eichordnung the German Federal Weights and Measures Regulations. Provided the instrument is used with the recommended accessories and in accordance with the supplied instructions, Brand certify conformity with annex 12 of the Eichordnung.

One-Mark Pipettes

Soda-lime glass. Ring mark and inscriptions in highly contrasting blue enamel. Class AS where the S signifies "fast delivery".

Ref.	Cap. ml
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Blaubrand® Class AS

Blue enamel graduation.

PM170-07	297 01	0.5
PM170-10	297 02	1
PM170-13	297 03	2
PM170-15	297 04	2.5*

PM170-18	297 05	3*
PM170-20	297 06	4*
PM170-23	297 07	5
PM170-26	297 08	6*

PM170-29	297 09	7*
PM170-32	297 10	8*
PM170-35	297 11	9*
PM170-40	297 12	10

PM170-43	297 13	15*
PM170-46	297 14	20
PM170-50	297 15	25
PM170-53	297 16	30*

PM170-56	297 17	40*
PM170-60	297 18	50
PM170-65	297 19	100

Blaubrand® Eterna Class AS

Amber stain graduation.

PM174-10	305 02	1
PM174-13	305 03	2
PM174-23	305 07	5
PM174-40	305 12	10

PM174-46	305 14	20
PM174-50	305 15	25
PM174-60	305 18	50

* Supplementary to DIN 12691 range.



PM170-60

Plastic

One-Mark Pipettes

Polypropylene. Bulb. With blue-printed graduation and inscriptions.

	Cap. ml
PM230-10	1
PM230-13	2
PM230-22	5
PM230-25	10
PM230-40	25
PM230-45	50



PM230

Pipettes, Graduated

Glass, Graduated to BS700, ISO835

- ◆ **Type 1** is calibrated for delivery (EX) from zero at top to any graduation line down to the shoulder
- ◆ **Type 2** is calibrated for delivery (EX) from any graduation line down to zero at the jet
- ◆ **Type 3** is calibrated for delivery (EX) from zero at the top to any graduation line down to the jet
- ◆ **Type 4** is calibrated to deliver from any graduation line down to zero at the jet with the last drop expelled by blowing

Tolerances and Colour code

Cap. ml	Grad. ml	Tol. ±ml	Colour Code
Class B			
1	0.01	0.01	Yellow
2	0.02	0.02	Black
5	0.05	0.05	Red
10	0.10	0.10	Orange
25	0.10	0.20	Green
Class AS			
1	0.01	0.007	Yellow
2	0.02	0.010	Black
5	0.05	0.030	Red
10	0.10	0.050	Orange
25	0.10	0.100	Green

MBL® Type 1

Graduated Pipettes, MBL

Soda-lime glass. Type 1. Amber stain graduations and inscriptions.

	Ref.	Cap. ml	Grad. ml
Class B			
PM402-10	PRA760B	1	0.01
PM402-15	PRA762B	2	0.02
PM402-22	PRA764B	5	0.05
PM402-30	PRA766B	10	0.10
PM402-35	PRA768B	25	0.10
Class AS			
PM407-10	PRA770AS	1	0.01
PM407-15	PRA772AS	2	0.02
PM407-22	PRA774AS	5	0.05
PM407-30	PRA776AS	10	0.10
PM407-35	PRA778AS	25	0.10
Class AS Works Certified			
PM412-10	PRA780ASWC	1	0.01
PM412-15	PRA782ASWC	2	0.02
PM412-22	PRA784ASWC	5	0.05
PM412-30	PRA786ASWC	10	0.10
PM412-35	PRA788ASWC	25	0.10

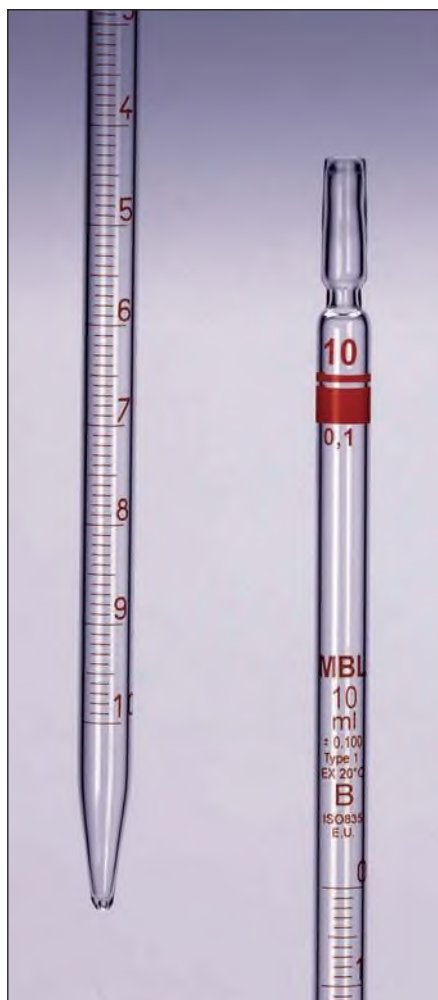
MBL® Type 2

Graduated Pipettes, MBL

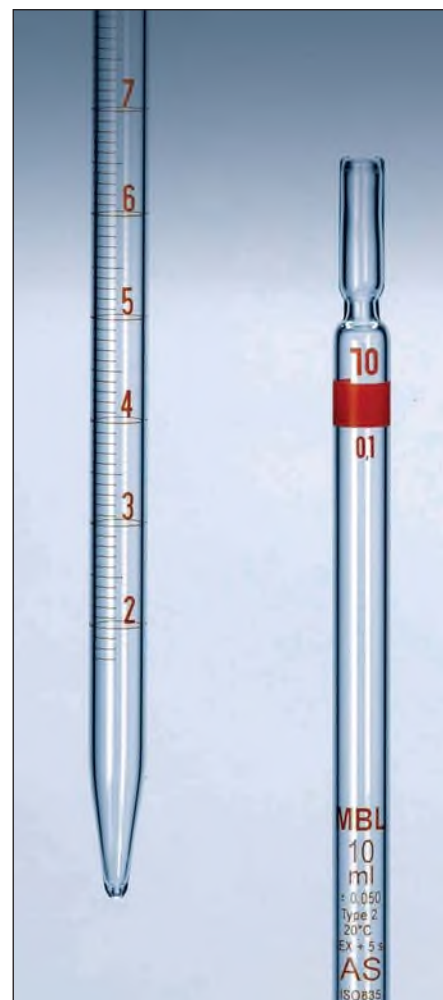
Soda-lime glass. Type 2. Amber stain graduations and inscriptions.

	Ref.	Cap. ml	Grad. ml
Class B			
PM415-10	PRA800B	1	0.01
PM415-15	PRA802B	2	0.02
PM415-22	PRA804B	5	0.05
PM415-30	PRA806B	10	0.10
PM415-35	PRA808B	25	0.10
Class AS			
PM418-10	PRA810AS	1	0.01
PM418-15	PRA812AS	2	0.02
PM418-22	PRA814AS	5	0.05
PM418-30	PRA816AS	10	0.10
PM418-35	PRA818AS	25	0.10
Class AS Works Certified			
PM423-10	PRA820ASWC	1	0.01
PM423-15	PRA822ASWC	2	0.02
PM423-22	PRA824ASWC	5	0.05
PM423-30	PRA826ASWC	10	0.10
PM423-35	PRA828ASWC	25	0.10

continued on next page



PM402, PM407 and PM412 are similar



PM423, PM415 and PM418 are similar

Pipettes, Graduated

MBL® Types 3 and 4

Graduated Pipettes, MBL

Soda-lime glass. Type 3. Amber stain graduations and inscriptions.

	Ref.	Cap. ml	Grad. ml
Class B			
PM433-10	PRA830B	1	0.01
PM433-15	PRA832B	2	0.02
PM433-22	PRA834B	5	0.05
PM433-30	PRA836B	10	0.10
PM433-35	PRA838B	25	0.10

Graduated Pipettes, MBL

Soda-lime glass. Type 4 serological. Amber stain graduations and inscriptions.

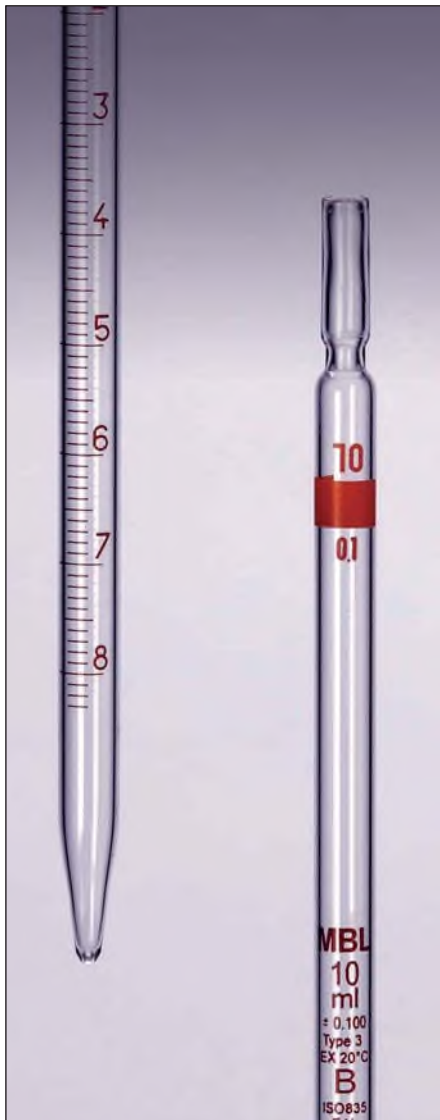
	Ref.	Cap. ml	Grad. ml
Class B			
PM437-10	PRA840S	1	0.01
PM437-15	PRA842S	2	0.02
PM437-22	PRA844S	5	0.05
PM437-30	PRA846S	10	0.10
PM437-35	PRA848S	25	0.10

Plastic

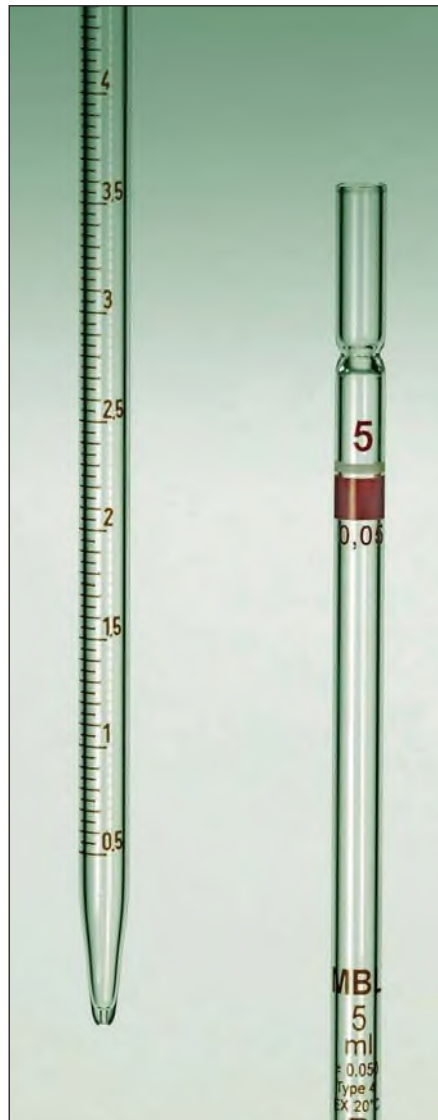
Graduated Pipettes

Polypropylene. With blue-printed graduations and inscriptions.

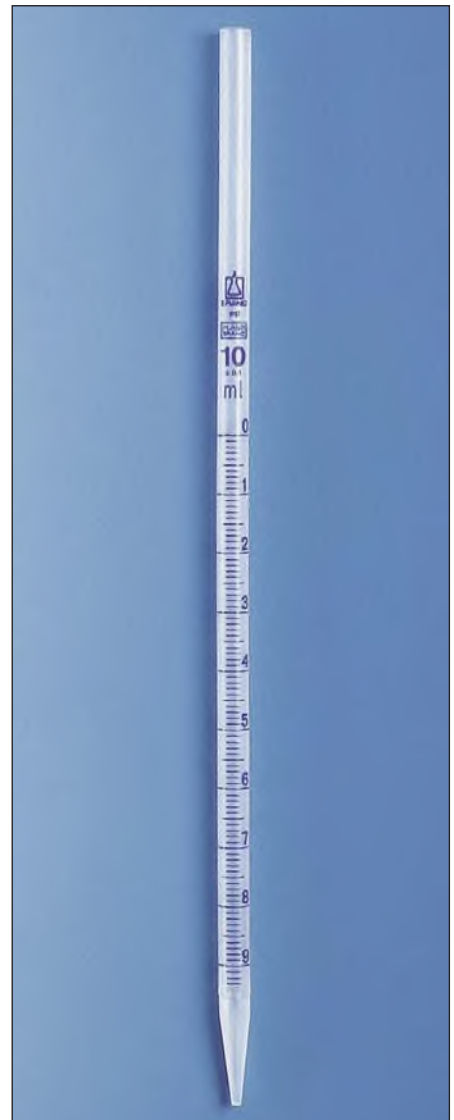
	Cap. ml	Grad. ml
Class B		
PM750-10	1	0.1
PM750-15	2	0.1
PM750-20	5	0.1
PM750-25	10	0.1



PM433



PM437



PM750

Pipettes, Graduated

Blaubrand® Class AS

- ◆ To DIN 12697
- ◆ Conformity Certified
- ◆ Calibrated to jet
- ◆ Colour coded
- ◆ Manufactured from AR-Glas® soda-lime glass

Available as:

- ◆ **Blaubrand®** where the graduations and inscriptions are in a highly contrasting blue enamel
- ◆ **Blaubrand® ETERNA** where the graduations and inscriptions are in an amber diffusion stain which forms an integral part of the glass surface. This form of marking is particularly suited to pipettes which have to be subjected to aggressive cleaning solutions

Cap. ml	Grad. ml	Colour coded	Calibration to	Tol. ±ml
0.1	0.001	2 x Green	Contain	0.001
0.5	0.01	2 x Yellow	Deliver	0.005
1	0.01	Yellow	Deliver	0.007
1	0.1	Red	Deliver	0.007
2	0.01	2 x White	Deliver	0.01
2	0.02	Black	Deliver	0.01
2	0.1	Green	Deliver	0.01
5	0.05	Red	Deliver	0.03
5	0.1	Blue	Deliver	0.03
10	0.1	Orange	Deliver	0.05
20	0.1	2 x Yellow	Deliver	0.1
25	0.1	White	Deliver	0.1
50	0.5	—	Deliver	0.2

Graduated Pipettes, Blaubrand®

Soda-lime glass. Calibrated to jet. Graduations and inscriptions in highly contrasting blue enamel. Calibrated to deliver (EX) except 0.1 and 0.2ml capacities which are calibrated to contain (In).

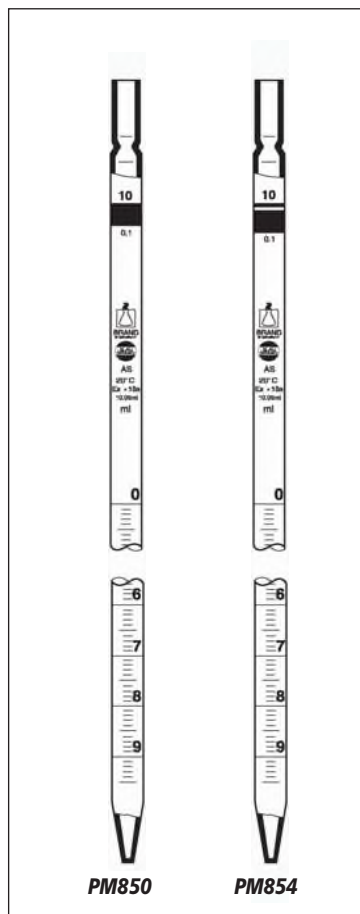
	Ref. 277-	Cap. ml	Grad. ml
Class AS			
PM850-05	02	0.1	0.001
PM850-09	04	0.2	0.002
PM850-14	05	0.5	0.01
PM850-17	06	1	0.01
PM850-20	07	1	0.1
PM850-24	08	2†	0.01
PM850-27	09	2	0.02
PM850-30	10	2	0.1
PM850-35	11	5	0.05
PM850-38	12	5	0.1
PM850-45	13	10	0.1
PM850-50	14	20	0.1
PM850-55	15	25	0.1
PM850-60	16	50	0.5

†Not conformity certified.


Graduated Pipettes, Blaubrand® Eterna

As PM850 but graduations and inscriptions in resistant amber stain. Calibrated to deliver (EX).

	Ref. 284-	Cap. ml	Grad. ml
Class AS			
PM854-14	05	0.5	0.01
PM854-17	06	1	0.01
PM854-27	09	2	0.02
PM854-35	11	5	0.05
PM854-45	13	10	0.1
PM854-55	15	25	0.1



Conformity Certified

Indicated by the symbol  shows that the product has been manufactured by Brand under quality control procedures according to Eichordnung the German Federal Weights and Measures Regulations. Provided the instrument is used with the recommended accessories and in accordance with the supplied instructions, Brand certify conformity with annex 12 of the Eichordnung.

Pipettes, Serological

Disposable Glass, Serological

CORNING

Disposable Serological Pipettes, Corning

Borosilicate glass. Calibrated to 'deliver'.

	Cap. x grad. ml	Length mm	Pack qty.
Sterile, plugged and individually wrapped			
7077 Series			
PP200-25	1 x 0.01	290	800
PP200-30	2 x 0.01	290	720
PP200-35	5 x 0.1	290	720
PP200-40	10 x 0.1	290	600
Sterile, plugged and bulk wrapped			
7078 Series			
PP204-25	1 x 0.01	290	1000
PP204-30	2 x 0.01	290	700
PP204-35	5 x 0.1	290	960
PP204-40	10 x 0.1	290	720
Non-Sterile, non-plugged, bulk wrapped			
7079 Series			
PP208-25	1 x 0.01	290	1000
PP208-30	2 x 0.01	290	700
PP208-35	5 x 0.1	290	960
PP208-40	10 x 0.1	290	720

Reusable Glass, Serological

Graduated Pipettes, MBL

Soda-lime glass. Type 3. Amber stain graduations and inscriptions.

	Ref.	Cap. ml	Grad. ml
Class B			
PM433-10	PRA830B	1	0.01
PM433-15	PRA832B	2	0.02
PM433-22	PRA834B	5	0.05
PM433-30	PRA836B	10	0.10
PM433-35	PRA838B	25	0.10

Cotton wool – see *CW500 Series in the Cotton Wool section.*

Pasteur pipettes – see *PP450/PP520.*

Pi-pumps – see *PP880.*

Pipette fillers – see *PP850/PP895.*



PP200/PP208



PM433

Pipettes

Pipettes, Disposable, Plastic

Polystyrene, non-sterile pipettes. With printed graduations and cotton plug. Supplied within packs as indicated.

	Description	Pack qty.
PP245-11	1ml x 0.01ml	800
PP245-31	2ml x 0.02ml	600
PP245-41	5ml x 0.1ml	200
PP245-61	25ml x 0.2ml	200
PP245-71	50ml x 0.5ml	90

Pipette Controller, Bibbyjet pro

- ◆ Ergonomic, lightweight design for fatigue-free use
- ◆ Suitable for pipettes from 0.1 to 100ml
- ◆ Continuously adjustable power with simple, two-button, fingertip control
- ◆ Cordless operation with rechargeable NiCd battery
- ◆ Rapid battery recharging within 4 hours
- ◆ Alternative battery compartment cover enables the controller to be stood upside-down on the bench, avoiding contamination of the pipette connector
- ◆ Pipetted media fumes vented at front of pipettor reducing the possibility of internal corrosion
- ◆ Choice of pipettor/charger sets available to suit most international power supply configurations

As described. With fully autoclavable pipette connector, disposable 0.2µm membrane filter and one way safety valve. The standard 0.2µm or accessory 3µm membrane filters allow class B or class A volume tolerances respectively to be achieved when used with suitable pipettes. Supplied with wall support, two spare 0.2µm membrane filters and charger for the rechargeable battery. Weight 205g. Charger power supply requirements as specified.

PP895-55 Ref. PC2000. Bibbyjet with charger for U.K./Ireland, 230V 50Hz single phase supplies

PP895-65 Ref. PC2001. Bibbyjet with charger for continental Europe 230V 50Hz single phase supplies

Accessories and Spares for PP895 series

PP897-05 Ref. PC1011. Silicone pipette adapter with non return valve, supplied singly

PP897-09 Ref. PC1012. 0.2µm membrane filter. sterile, supplied singly

PP897-10 Ref. PC1013. 0.2µm membrane filter. non-sterile, pack of 10

PP897-14 Ref. PC1014. 3µm membrane filter. sterile, supplied singly

PP897-16 Ref. PC1015. 3µm membrane filter. non-sterile, pack of 10

PP897-24 Ref. PC2000/1. Charger for U.K./Ireland. 230V 50Hz single phase supplies

PP897-32 Ref. PC2001/1. Charger for continental Europe. 230V 50Hz single phase supplies

PP897-52 Ref. PC1016. Wall support



PP245



PP895

Pipettes, Disposable

Disposable Plastic, Serological



- ◆ Manufactured in an ISO class 8 clean room using USP class VI-compliant polystyrene
- ◆ Non-cytotoxic and non-pyrogenic to <0.1 EU/ml
- ◆ Sterility assurance level of SAL 10⁶
- ◆ RNase and DNase-free
- ◆ Calibrated to deliver (TD) to ±2%
- ◆ Bidirectional and negative graduations provided to increase versatility
- ◆ Colour coded
- ◆ Packaging options:
 - Individually wrapped, in a paper/plastic peel-apart envelope
 - Multipack, with inner packs enclosed in a plastic sleeve
 - Canister pack, with inner packs enclosed in a cardboard dispenser canister with tear perforations for ease of opening/closing

Ref.	Description	Colour code	Inner sleeve	Pack qty.
Individually wrapped				
PP247-04	56900-1110 1ml x 0.1ml	Red	200	1000
PP247-08	56900-11100 1 x 0.01ml	Yellow	200	1000
PP247-12	56900-21100 2 x 0.01ml	White	125	500
PP247-17	56900-5110 5 x 0.1ml	Blue	50	200
PP247-20	56900-10110 10 x 0.1ml	Orange	50	200
PP247-25	56900-25210 25 x 0.2ml	Green	50	200
PP247-28	56900-50510 50 x 0.5ml	Purple	25	100
Multipack				
PP247-32	56800-1110 1 x 0.1ml	Red	25	1000
PP247-36	56800-11100 1 x 0.01ml	Yellow	25	1000
PP247-40	56800-21100 2 x 0.01ml	White	25	500
PP247-44	56800-5110 5 x 0.1ml	Blue	25	200
PP247-48	56800-10110 10 x 0.1ml	Orange	25	200
PP247-52	56825-10110 10 x 0.1ml wide tip*	Orange	25	200
PP247-56	56800-25210 25 x 0.2ml	Green	10	200
PP247-60	56800-50510 50 x 0.5ml	Purple	10	100
Canister pack				
PP247-64	56700-11100 1 x 0.01ml	Yellow	50	500
PP247-68	56700-21100 2 x 0.01ml	White	50	500
PP247-72	56700-5110 5 x 0.1ml	Blue	50	500
PP247-76	56700-10110 10 x 0.1ml	Orange	50	500

*Wide tip, open-ended pipette for use with viscous solutions.



PP247

Disposable Plastic

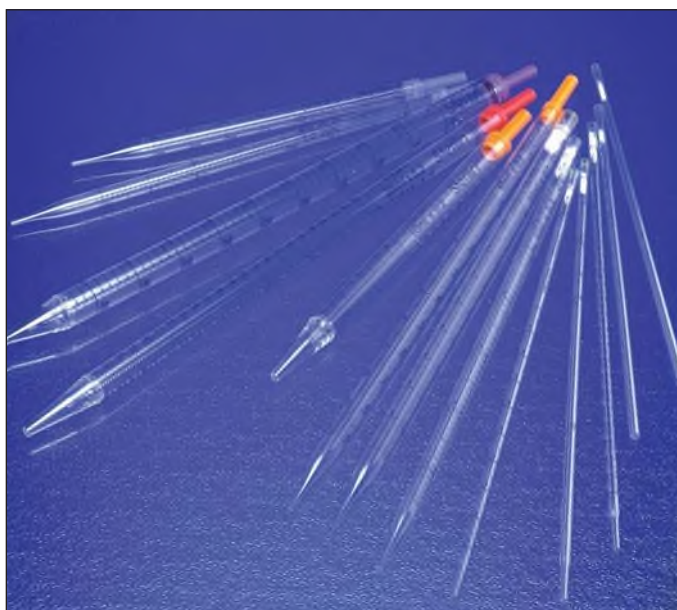


Disposable Plastic Pipettes, Sterilin

Polystyrene. Non-pyrogenic. Accuracy ±1%. Gamma irradiated sterile. Issued with batch certificate indicating lot number, expiry date, sterility method and radiation indicator spot.

Ref.	Description	Inner sleeve	Pack qty.
PP280-11	40301K 1ml	50	1000
PP280-14	40101K 1ml single wrap	1/100	1000
PP280-17	41301K 1ml with open end	50	1000
PP280-21	40302K 2ml	50	1000
PP280-24	40102K 2ml single wrap	1/100	1000
PP280-27	41302K 2ml with open end	50	1000
PP280-30	40305 5ml	25	200
PP280-33	40105 5ml single wrap	1	200
PP280-40	47105 5ml with suction adapter single wrap	1	200
PP280-46	42505 5ml short-form with suction adapter, single wrap	1	200
PP280-56	47310 10ml with suction adapter	25	500
PP280-60	47110 10ml with suction adapter single wrap	1/50	500
PP280-66	42510 10ml short-form, with suction adapter, single wrap	1	200
PP280-70	40125 25ml with suction adapter single wrap	1	200
PP280-76	47150 50ml with suction adapter single wrap	1	50

Pipette controller, Bibbyjet – see PP895.



PP280

Pipettes, Capillary

Disposable Plastic, Straws

Disposable Plastic Simplettes, Seward

Polypropylene, ungraduated. Length 177mm, bore 3mm. Approximate capacity 1ml. Supplied in gamma irradiated sleeve of 50 within an outer pack of 2000.

PP313-10 Simplettes

Dairy testing – see *Dairy Testing* section.

Pipette controllers – see *PP820/PP895*.

Sample containers – see *BS224/BS235*.

Sampling equipment – see *Sampling* section.

Stomacher blenders – see *MS800*.

Disposable Micropipettes, Blaubrand® intraMARK®

- ◆ Calibrated to contain (in)
- ◆ Accuracy $\pm 0.25\%$ (size: $5\mu\text{l}$ $\pm 0.3\%$)
- ◆ Precision 0.5% (size: $5\mu\text{l}$ 0.6%)
- ◆ Conformity-certified from $5\mu\text{l}$ upwards
- ◆ Length: 125mm
- ◆ Colour code according to DIN/ISO
- ◆ Supplied in packs of 250 pipettes (except PP420-61 is in a pack of 200)

	Ref. 7087-	Marks at μl	Colour code
PP420-10	07	1, 2, 3, 4 and 5	White
PP420-16	09	10	Orange
PP420-20	18	20	Black
PP420-23	22	25	2 x White
PP420-27	28	20, 40	2 x Red
PP420-50	33	50	Green
PP420-53	45	50, 100	Blue
PP420-56	44	100	Blue
PP420-61	57	200	Red

PP425-40 Accessory pipetting aids, pack of 10

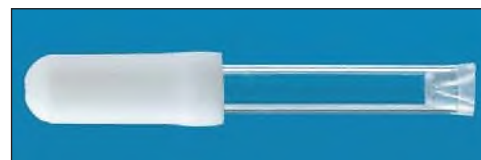
Suitable micropipette controller for use with above – see *PP815-10*.



PP313



PP420 series



PP425-40

Pipettes, Pasteur

Plastic Pasteur Pipettes

Pasteur Pipettes

Polyethylene. Disposable. With integral bulb. Graduated sizes are subdivided every 0.5ml. Capacity as indicated.

	Capacity ml	Length mm	Feature	Pack qty.
Non-sterile				
PP440-22	1	155	graduated	500
PP440-27	3	155	graduated	500
Sterile, bulk wrapped, in sleeves of 10				
PP444-20	1	155	graduated	500
PP444-25	3	155	graduated	500
Sterile, individually wrapped				
PP448-22	1	155	graduated	500
PP448-27	3	155	graduated	500

Pasteur Pipettes, Sterilin

Polyethylene. Disposable. With integral bulb. Graduated sizes are subdivided every 0.5ml.

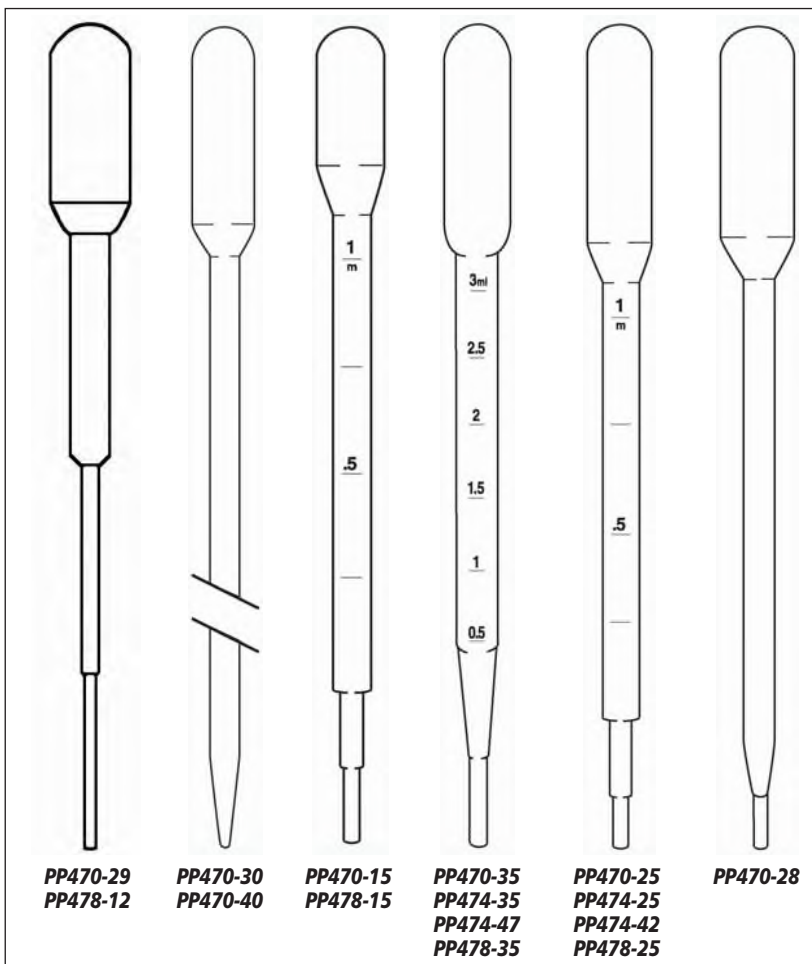
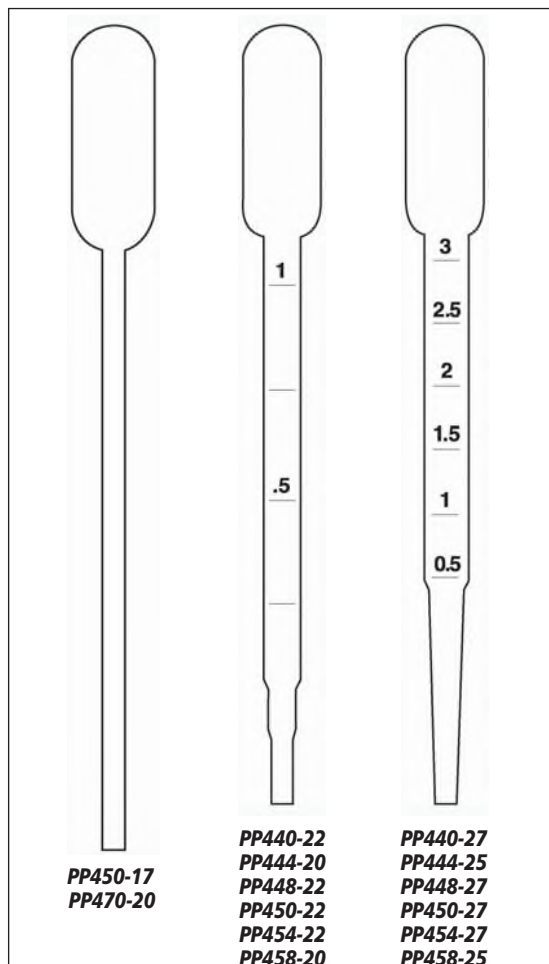
	Ref.	Length mm	Feature	Pack qty.
Non-sterile				
PP450-17	202C	155	Ungraduated	3000
PP450-22	201C	155	1ml graduated	3000
PP450-27	200C	155	3ml graduated	3000
Sterile, bulk wrapped, in sleeves of 10				
PP454-22	PP88SA	155	1ml graduated	500
PP454-27	PP89SA	155	3ml graduated	500
Sterile, individually wrapped				
PP458-20	PP88SB	155	1ml graduated	500
PP458-25	PP89SB	155	3ml graduated	500

Liquipettes™

Pasteur Liquipettes, Elkay

Polyethylene. Disposable. With integral bulb which can be used to withdraw up to 3.5ml in one squeeze (except PP470-15 and PP478-15 which have a withdraw volume of 1.5ml and PP470-40 which has a withdraw volume of 10ml). Graduated sizes are subdivided every 0.5ml.

	Length mm	Drop size, μ l	Drops per ml	Feature	Pack qty.
Non-Sterile, bulk wrapped					
PP470-15	140	40	25	1ml graduated	500
PP470-20	152	40	25	Thin stem	500
PP470-25	152	40	25	1ml graduated	500
PP470-28	152	20	50	Microtip	500
PP470-29	152	20	50	Extended fine tip	400
PP470-30	229	40	25	Plain	500
PP470-35	152	45	22	3ml graduated	500
PP470-40	300	40	25	Plain	100
Sterile, sachets of 10					
PP474-25	152	40	25	1ml graduated	1000
PP474-35	152	45	22	3ml graduated	1000
Sterile, sachets of 20					
PP474-42	152	40	25	1ml graduated	1000
PP474-47	152	45	22	3ml graduated	1000
Sterile, individually wrapped					
PP478-12	150	20	50	Extended fine tip	250
PP478-15	140	40	25	1ml graduated	250
PP478-25	152	40	25	1ml graduated	250
PP478-35	152	45	22	3ml graduated	250



Pipettes, Pasteur

Glass Pasteur Pipettes

Comet

Pasteur Pipettes, Comet

Glass. Non-sterile. Unplugged but with constriction to accept a cotton plug. Without teat. Supplied in shelf packs of 250 within the outer pack as indicated.

	Length mm	Pack qty.
Soda-lime unplugged		
PP490-13	146	1000
PP490-33	230	1000
Borosilicate unplugged		
PP490-53	146	1000
PP490-73	230	1000

Pasteur Pipettes, Comet

Glass. Non-sterile. Cotton plugged. Without teat.

	Length mm	Pack qty.
Soda-lime plugged		
PP493-14	146	1000
PP493-17	230	1000

NSL

Pasteur Pipettes, NSL

Glass. Supplied in shelf packs of 250 within the outer pack as indicated (except PP520 series which are in sleeves of 25 within the outer pack as indicated).

	Ref. NS-	Length mm	Pack qty.
Non-sterile			
PP502-20	150S	150	1000
PP502-30	230S	230	1000
Non-sterile, cotton plugged			
PP506-20	150SPP	150	1000
PP506-30	230SPP	230	1000
Sterile, cotton plugged			
Inner sleeve of 25. Without teats.			
PP522-23	150ST	150	250
PP522-33	230ST	230	250

Accessory Teats

Teats, ribbed PVC. For use with Pasteur pipettes. Supplied in pack of 100.

PP530-10 Teats

Micro-Haematocrit Tubes

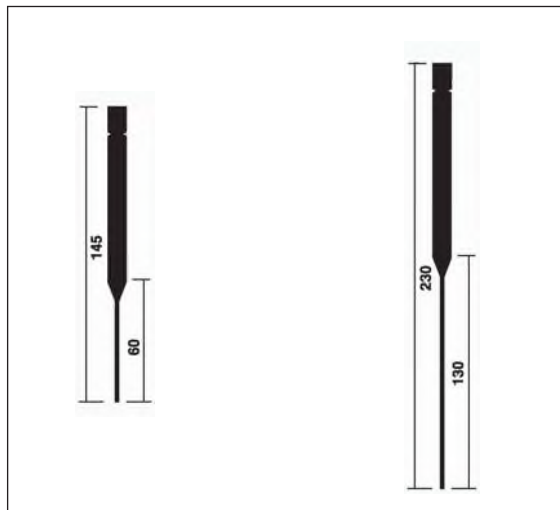
Micro-Haematocrit Tubes

Length 75mm, o.d. 1.5 to 1.6mm, 75 l capacity. Supplied in dispenser tube packs of 100.

PP670-20 Plain
PP670-25 Heparinised



PP490/PP493



PP502/PP506/PP522 series



PP670

Pipettes

Dispensing

Tilt Pipettes

Borosilicate glass. Kipps pattern, with 29/32 cone joint for attachment to 1 litre soda glass reservoir supplied.

	Capacity, ml
PP739-20	5
PP739-25	10
PP739-30	20
PP739-35	25
PP739-40	50
PP739-45	100

QKC29 Joint clip to secure head on bottle

Dropping

Dropping Pipettes, Plain

Glass. Length approximately 75mm. Supplied in packs of 10.

	Ref.
PP765-15	Droppers
PP765-20	Droppers with teats
PP767-08	Spare teats



PP739



PP765

Pipette Fillers

Micropipette Controller



For disposable micropipettes with ring mark and other small glass pipettes including:

blood, Folin, Crecelius-Seifert, Sahli, blood-sugar and constriction pipettes within the volume range of 1 l to 1ml

When used correctly the liquid comes into contact only with the glass pipette. Vapours may penetrate into the suction bellows where they could contact silicone rubber and Noryl.

- ◆ Lightweight plastic case designed for comfortable one-handed operation
- ◆ Thumbwheel controlled silicone rubber bellows to fill and discharge
- ◆ Bellows visible through observation window
- ◆ Push button to eject micropipettes up to 100 l without handling
- ◆ Air admittance button for discharging "To deliver (EX)" pipettes
- ◆ Complete controller can be steam sterilised at 121°C for 20 minutes without dismantling

Micropipette Controller, Brand

As described. For use with disposable micropipettes with ring mark and most other small pipettes within the volume range 1 l to 1ml.

PP815-10 Micropipette controller

Blaubrand® intraMARK® disposable micropipettes – see PP420 series.



PP815 in use

Macropipette Controllers

Azlon

A simple to use, hand held controller for one-mark and graduated pipettes from 0.1 to 200ml.

- ◆ The single operating lever controls:
 - filling
 - adjustment of volume
 - precise setting of the meniscus
 - discharging
- ◆ Suction bellows sufficient to draw in 50ml with one squeeze
- ◆ An integral pipette adapter has a built-in hydrophobic membrane filter to stop penetration of liquid into the controller body
- ◆ The adapter filter unit can be unscrewed for cleaning and steam sterilising at 121°C for 20 minutes
- ◆ The centrally positioned rubber blowball is used to discharge the last drop from blow-out pipettes
- ◆ Vapours from the liquids being pipetted may come into contact with polyethylene, PTFE, silicone rubber and polystyrene
- ◆ Available in a choice of colours

Macropipette Controllers, Scilabware

As described. For use with one-mark and graduated pipettes from 0.1 to 200ml. Includes filter adapter and membrane filter unit. Available in a choice of colours as indicated.

PP820-17 Plain

PP820-19 Blue

Spares

PP820-30 Membrane filters, pack of 10



PP820

Pipette Fillers

Safety Pipette Fillers and Controllers

Pipette Bulbs

Small capacity, chemically resistant rubber bulbs for rapid and easy pipetting.

	Capacity ml	Colour
PP845-09	2	Grey
PP845-14	5	Grey

Pipette Fillers

Chemically resistant rubber with valves for suction, emptying and air release controlled by thumb and finger pressure.

Standard model

For bulb and graduated pipettes up to 10ml.

PP850-10 Standard

Universal model

With extended cone which accommodates all sizes of bulb and graduated pipettes.

PP852-10 Universal

Automatic venting model

For bulb and graduated pipettes up to 100ml capacity. Reservoir bulb incorporates one-way valve which allows it to vent when squeezed and reseal when released. The valve is removable, allowing easy internal cleaning should accidental contamination occur.

PP854-12 Automatic venting

Safety Bulb Pipette Filler

For bulb and graduated pipettes up to 25ml capacity, and is particularly suitable as an aspirator for Westergren and Wintrobe sedimentation pipettes. The tapered silicone rubber seal prevents loss of suction. Easily cleaned and can be autoclaved.

PP860-25 Pipette filler

Pipette Fillers, Pi-Pump

With thumb-wheel filling and emptying control, release valve lever for rapid emptying (except model PP880-10) and cone shape elastic pipette holder. Colour coded for identification.

	For pipettes up to	Colour code
PP880-10	0.2ml	Yellow
PP880-20	2.0ml	Blue
PP880-30	10.0ml	Green
PP880-40	25.0ml	Red

PP882-05 Spare elastic pipette holders for PP880-series, pack of 10

Rubber Teats

For dropper pipettes.

	Size	Cap. ml	Neck bore, mm
BU810-10	0	1.5	4
BU810-15	1	2	5
BU810-20	3	2.75	6
BU810-25	5	5	6

Bulbs, pear shape – see BU800 series.

PP845



PP850/PP852

PP854

PP860

PP880



Rubber Teats

Pipette Fillers/Pipette Accessories

Pipette Controller, Bibbyjet pro

Bibby Scientific

- ◆ Ergonomic, lightweight design for fatigue-free use
- ◆ Suitable for pipettes from 0.1 to 100ml
- ◆ Continuously adjustable power with simple, two-button, fingertip control
- ◆ Cordless operation with rechargeable NiCd battery
- ◆ Rapid battery recharging within 4 hours
- ◆ Alternative battery compartment cover enables the controller to be stood upside-down on the bench, avoiding contamination of the pipette connector
- ◆ Pipetted media fumes vented at front of pipettor reducing the possibility of internal corrosion
- ◆ Choice of pipettor/charger sets available to suit most international power supply configurations

As described. With fully autoclavable pipette connector, disposable 0.2 µm membrane filter and one way safety valve. The standard 0.2µm or accessory 3µm membrane filters allow class B or class A volume tolerances respectively to be achieved when used with suitable pipettes. Supplied with wall support, two spare 0.2µm membrane filters and charger for the rechargeable battery. Weight 205g. Charger power supply requirements as specified.

PP895-55 Ref. PC2000. Bibbyjet with charger for U.K./Ireland, 230V 50Hz single phase supplies

PP895-65 Ref. PC2001. Bibbyjet with charger for continental Europe 230V 50Hz single phase supplies

Accessories and Spares for PP895 series

PP897-05 Ref. PC1011. Silicone pipette adapter with non return valve, supplied singly

PP897-09 Ref. PC1012. 0.2µm membrane filter. sterile, supplied singly

PP897-10 Ref. PC1013. 0.2µm membrane filter. non-sterile, pack of 10

PP897-14 Ref. PC1014. 3µm membrane filter. sterile, supplied singly

PP897-16 Ref. PC1015. 3µm membrane filter. non-sterile, pack of 10

PP897-24 Ref. PC2000/1. Charger for U.K./Ireland. 230V 50Hz single phase supplies

PP897-32 Charger for continental Europe. 230V 50Hz single phase supplies

PP897-52 Ref. PC1016. Wall support



PP895

Pipette Boxes

For holding pipettes for autoclaving or dry heat sterilising up to 180°C. With lid.

Cylindrical pattern

	Length x dia. mm	Material
PP970-30	407 x 64	Aluminium
PP970-35	407 x 64	Stainless steel
PP970-50	457 x 64	Aluminium
PP970-55	457 x 64	Stainless steel

*The polypropylene box has a thread closure which enables length to vary from 280 to 500mm and is autoclavable at maximum 121°C.

Square section pattern

The lid and base have a built-in silicone pad. The square section is 70 x 70mm.

	Length, mm Int. x Ext.	Material
PP975-14	175 x 210	Stainless steel
PP975-15	180 x 215	Aluminium
PP975-18	250 x 290	Stainless steel
PP975-20	255 x 295	Aluminium
PP975-22	300 x 340	Stainless steel
PP975-25	305 x 345	Aluminium
PP975-27	390 x 430	Stainless steel
PP975-30	410 x 450	Aluminium
PP975-32	450 x 490	Stainless steel
PP975-35	458 x 495	Aluminium

Pipette rinser – see WB610.

Pipette stands – see SM200/SM254.



PP970-30 to -55, PP975 plus Petri dish holder

Pipettors

Repeating Pipettor, HandyStep® S



Positive displacement, stepping pipettor system comprising separate hand-held control unit and series of accessory reservoir tips allowing single volumes from 2µl to 50000µl to be repeatedly and accurately dispensed up to 49 times.

- ◆ Ergonomic design gives comfortable handling
- ◆ Nine separate volume settings
- ◆ Smooth action dispensing lever
- ◆ Single lever for locking the piston and filling the PD-Tip II
- ◆ Piston lock ensures only complete step volumes are dispensed
- ◆ Tip ejection button allows contaminated tips to be disposed of without handling
- ◆ Greatly reduced risk of pipettor contamination, or sample carry-over
- ◆ Factory calibrated
- ◆ Maintenance free

HandyStep® S Control Unit

As described. Supplied with wall support and instructions. Requires, but is not supplied with, PD-tips II for operation.

PR060-85 HandyStep® S

PD-Tips II

According to ISO 8655. Precision moulded, PP barrels with HDPE piston plungers. Additive and lubricant free.

Control Unit setting	Max. no. of steps	Dispensing volume per step, µl									
		0.1ml PD-Tip	0.5ml PD-Tip	1ml PD-Tip	1.25ml PD-Tip	2.5ml PD-Tip	5ml PD-Tip	10ml PD-Tip	12.5ml PD-Tip	25ml PD-Tip	50ml PD-Tip
1	49	2	10	20	25	50	100	200	200	500	1000
1.5	32	3	15	30	37.5	75	150	300	375	750	1500
2	23	4	20	40	50	100	200	400	500	1000	2000
2.5	19	5	25	50	62.5	125	250	500	625	1250	2500
3	15	6	30	60	75	150	300	600	750	1500	3000
3.5	13	7	35	70	87.5	175	350	700	875	1750	3500
4	11	8	40	80	100	200	400	800	1000	2000	4000
4.5	10	9	45	90	112.5	225	450	900	1125	2250	4500
5	9	10	50	100	125	250	500	1000	1250	2500	5000
Accuracy (A) %		±1.6	±0.8	±0.8	±0.8	±0.7	±0.5	±0.4	±0.3	±0.3	±0.3
Variance (V) %		5.0 to 2.0	1.4 to 0.6	1.0 to 0.4	0.8 to 0.3	0.8 to 0.2	0.6 to 0.2	0.3 to 0.2	0.4 to 0.2	0.4 to 0.2	0.4 to 0.15

PD-Tips II, non sterile

As described. Supplied loose in packs as indicated. The 25ml and 50ml sizes require, and are supplied with, an autoclavable adapter.

	Size ml	Pack qty.
PR064-08	0.1	100
PR064-10	0.5	100
PR064-12	1	100
PR064-14	1.25	100
PR064-18	2.5	100
PR064-22	5	100
PR064-24	10	100
PR064-26	12.5	100
PR064-30	25	50
PR064-34	50	25

PD-Tips II, Bio-Cert® sterile

As described. Bio-Cert® sterile, endotoxin, DNA/RNase and ATP-free, polypropylene bodied tips with HDPE piston and individually wrapped within outer packs as indicated. The 25ml and 50ml sizes require, and are supplied with, an autoclavable adapter.

	Size ml	Pack qty.
PR067-38	0.1	100
PR067-42	0.5	100
PR067-50	1.25	100
PR067-54	2.5	100
PR067-58	5	100
PR067-66	12.5	100
PR067-70	25	25
PR067-74	50	25

Spare adapters

For use with 25ml and 50ml tips only.

- PR068-50** Non-sterile, pack of 10
- PR068-90** Sterile, pack of 5



PR060-85



PR064|PR067

Pipettors

Repeating Pipettors, HandyStep® touch/touch S



Repeating Pipettors, HandyStep® touch

Microprocessor controlled, motor driven, positive displacement, stepping pipettor system. Comprising hand-held pump unit with built-in rechargeable battery, touchscreen operation with menu navigation in English, German, Spanish, French or Chinese and a series of accessory reservoir tips allowing single volumes from 1µl to 50ml (depending on the tip selected) to be repeatedly and accurately dispensed.

- ◆ Choice of models:
 - HandyStep® touch: multidispensing, autodispensing or pipetting modes
 - HandyStep® touch S: additionally features sequential dispensing, multi-aspiration and titration modes
- ◆ Automatic tip recognition of PD-Tips II stepper tips
- ◆ Compatibility with other common stepper pipette tips (but without tip recognition, tip volume must be manually entered)
- ◆ Factory calibrated
- ◆ Clear LCD menu readout shows function, step volume and number, speed and battery status, or tip details
- ◆ The rechargeable NiMH battery is quickly charged using the charger supplied, alternatively an accessory inductive charging stand is available

Performance data: HandyStep® touch with PD-Tips II

PD-Tip Size	Volume range	A* (±%) at indicated % of nominal capacity				CV* (±%) at indicated % of nominal capacity			
		100%	50%	10%	1%	100%	50%	10%	1%
0.10ml	1.0µl to 100µl	1.0	1.2	1.6	16	0.50	1.00	2.00	12.00
0.50ml	5.0µl to 500µl	0.9	0.9	0.9	9	0.25	0.50	1.00	6.00
1.25ml	12.5 µl to 1250µl	0.6	0.9	0.9	8	0.15	0.30	0.60	3.50
2.50ml	25.0µl to 2500µl	0.5	0.8	0.8	8	0.10	0.20	0.40	2.50
5.00ml	50.0µl to 5000µl	0.5	0.8	0.8	8	0.08	0.15	0.30	1.50
12.5ml	125µl to 12.5ml	0.4	0.5	0.5	5	0.08	0.15	0.25	1.25
25.0ml	250µl to 25ml	0.3	0.3	0.3	3	0.08	0.15	0.25	1.25
50.0ml	500µl to 50ml	0.3	0.3	0.3	3	0.08	0.15	0.25	1.25

*A = Accuracy, CV = Coefficient of variation. Tolerances are within ISO 8655 requirements.

HandyStep® touch Control units

As described. Supplied with universal a.c. adapter requiring a 100-240V a.c. supply and shelf/rack mount.

- PR072-15** HandyStep® touch
- PR072-25** HandyStep® touch S

PD-Tips II

According to ISO 8655. Precision moulded, polypropylene barrels with HDPE piston plungers. Additive and lubricant free. Provide automatic size recognition when used with HandyStep touch and other manufacturers' step pipettors which have this facility.

PD-Tips II, non sterile

As described. Supplied loose in packs as indicated. The 25ml and 50ml sizes require, and are supplied with, an autoclavable adapter.

	Size ml	Pack qty.
PR064-08	0.1	100
PR064-10	0.5	100
PR064-12	1	100
PR064-14	1.25	100
PR064-18	2.5	100
PR064-22	5	100
PR064-24	10	100
PR064-26	12.5	100
PR064-30	25	50
PR064-34	50	25

PD-Tips II, Bio-Cert® sterile

As described. Bio-Cert® sterile, endotoxin, DNA/RNase and ATP-free, polypropylene bodied tips with HDPE piston and individually wrapped within outer packs as indicated. The 25ml and 50ml sizes require, and are supplied with, an autoclavable adapter.

	Size ml	Pack qty.
PR067-38	0.1	100
PR067-42	0.5	100
PR067-50	1.25	100
PR067-54	2.5	100
PR067-58	5	100
PR067-66	12.5	100
PR067-70	25	25
PR067-74	50	25

Spare adapters

For use with 25ml and 50ml tips only.

- PR068-50** Non-sterile, pack of 10
- PR068-90** Sterile, pack of 5
- PR072-45** Spare NiMH rechargeable battery
- PR072-55** Inductive charging stand for single PR072-models



PR072



PR064/PR067

Pipettors

Positive Displacement Transferpettor



- ◆ Choice of models
 - digital adjustable volumes 2.5µl to 10ml
 - fixed volumes 1µl to 200µl

- ◆ Colour coded pipette and caps/tips for easy identification
- ◆ Caps and tips can be re-used repeatedly

Transferpettor, variable volume models. Digital reading

	Range µl	Steps µl	A%±	V%	Colour code
PR100-15	2.5 to 10	0.01	1.0	0.8	Orange
PR100-20	5 to 25	0.1	0.5	0.5	2 x white
PR100-25	10 to 50	0.1	0.5	0.4	Green
PR100-30	20 to 100	0.1	0.5	0.4	Blue
PR100-35	100 to 500	1.0	0.5	0.2	Green
PR100-40	200 to 1000	1.0	0.5	0.2	Yellow
PR100-45	1 to 5ml	0.01ml	0.5	0.2	Red
PR100-50	2 to 10ml	0.01ml	0.5	0.2	Orange

Accessories/Spares*

Caps/ Tips	Seal	Piston rod	Maintenance kit
PR109-15	—	PR110-16	PR112-07
PR109-22	PR109-60	PR110-19	PR112-10
PR109-25	PR109-63	PR110-22	PR112-13
PR109-28	PR109-66	PR110-25	PR112-16
PR109-40	PR109-69	—	—
PR109-43	PR109-72	—	—
PR109-46	PR109-75	—	—
PR109-50	PR109-78	—	—

Transferpettor, fixed volume models

	Volume µl	A%±	V%	Colour code
PR104-10	1	4.0	3.0	White
PR104-13	2	2.5	2.0	White
PR104-22	5	1.0	0.8	White
PR104-25	10	1.0	0.8	Orange
PR104-32	25	0.5	0.4	2 x white
PR104-35	50	0.6	0.4	Green
PR104-38	100	0.6	0.4	Blue
PR104-42	200	0.5	0.2	Red

Accessories/Spares*

Caps/ Tips	Seal	Piston rod	Maintenance kit
PR109-12	—	PR110-13	PR112-04
PR109-12	—	PR110-13	PR112-04
PR109-12	—	PR110-13	PR112-04
PR109-15	—	PR110-16	PR112-07
PR109-22	PR109-60	PR110-19	PR112-10
PR109-25	PR109-63	PR110-22	PR112-13
PR109-28	PR109-66	PR110-25	PR112-16
PR109-28	PR109-66	PR110-28	PR112-16

A% = Accuracy
V% = Reproducibility

} Figures quoted are based on the maximum volume and distilled water at 20°C.

*Full listings of accessories and spares can be found on the next page.

continued on next page



PR100, PR104 is similar

Pipettors

Positive Displacement Transferpettor continued

With a positive displacement pipette the piston draws in the liquid directly, and displaces it directly. Consequently the piston and the sample are in direct contact – there is no air interface. The piston wipes the walls of the capillaries and tips thoroughly clean.

The minimal liquid remaining is normally negligible as regards the result. If, however, no carry-over is permitted, we recommend to use the air displacement pipette with disposable tips as shown on the next page. Equally suited for liquids of any density, vapour pressure, or viscosity. There is no need to replace the piston when capillaries or tips are replaced.

Transferpettor caps

Glass capillaries which can be re-used. Suitable for use with Transferpettor capacities as indicated in the table on the previous page. Conformity Certified.


	For Transferpettors	Colour code	Pack qty.
PR109-12	PR104-10, -13, -16, -22	White	100
PR109-15	PR100-15, PR104-25	Orange	100
PR109-22	PR100-20, PR104-32	2 x white	100
PR109-25	PR100-25, PR104-35	Green	100
PR109-28	PR100-30, PR104-38, -42	Blue/red	50

Transferpettor tips

Polypropylene. Can be re-used. Suitable for use with Transferpettor capacities as indicated in the table on the previous page. Conformity Certified.

	For Transferpettors	Colour	Pack qty.
PR109-40	PR100-35	Green	10
PR109-43	PR100-40	Yellow	10
PR109-46	PR100-45	Red	10
PR109-50	PR100-50	Orange	10

Conformity Certified

Indicated by the symbol  shows that the product has been manufactured by Brand under quality control procedures according to Eichordnung the German Federal Weights and Measures Regulations.

Provided the instrument is used with the recommended accessories and in accordance with the supplied instructions, Brand certify conformity with annex 12 of the Eichordnung.



PR112-50, PR112-55 with instruments

Transferpettor seals

Suitable for use with Transferpettor capacities as indicated in the table on the previous page. Conformity Certified.

	For Transferpettors	Material	Pack qty.
PR109-60	PR100-20, PR104-32	PTFE	3
PR109-63	PR100-25, PR104-35	PTFE	3
PR109-66	PR100-30, PR104-38, -42	PTFE	3
PR109-69	PR100-35	PE	10
PR109-72	PR100-40	PE	10
PR109-75	PR100-45	PE	10
PR109-78	PR100-50	PE	10

Piston rods

Stainless steel. Suitable for use with Transferpettor capacities as indicated in the table on the previous page. Conformity Certified. PR110-19 to PR110-28 are supplied complete with PTFE seal.

	For Transferpettors	Pack qty.
PR110-13	PR104-10, -13, -16, -22	3
PR110-16	PR100-15, PR104-25	3
PR110-19	PR100-20, PR104-32	3
PR110-22	PR100-25, PR104-35	3
PR110-25	PR100-30, PR104-38	3
PR110-28	PR104-42	3

Maintenance Kits

Suitable for use with Transferpettor capacities as indicated in the table on the previous page. Conformity Certified. Each kit comprises:

1 allen key, 1 piston rod with fitted PTFE Transferpettor-seal (from instrument sizes 20 µl upward), 1 calibrating gauge, 1 screw driver, 3 clamping discs, 1 screw, 3 PTFE Transferpettor seals, and 1 mounting block (from sizes of 20 µl upward).

	For Transferpettors
PR112-04	PR104-10, -13, -16, -22
PR112-07	PR100-15, PR104-25
PR112-10	PR100-20, PR104-32
PR112-13	PR100-25, PR104-35
PR112-16	PR100-30, PR104-38, -42

Transferpettor stations

For storing instruments and accessories.

	Instruments, capacity
PR112-50	4, up to 200 µl
PR112-55	2, of 0.5 to 10ml

Pipettors

Microlitre Transferpette® S



- ◆ Conformity certified
- ◆ Fully autoclavable (at 121°C for 20 minutes)
- ◆ Choice of models:
 - digital variable volumes 0.1 to 10,000µl
 - fixed volume 10 to 1000µl
- ◆ Variable volume models have one-handed adjustment and 4-digit display with prismatic lens window for easy viewing
- ◆ Central pipetting and independent tip ejector buttons are ergonomically positioned for operation in either hand and when wearing gloves

Microlitre Transferpette® S, variable volume models

Digital reading. Supplied complete with a performance certificate and shelf/rack hanger.

	Ref.	Range µl	Subdiv. µl	A%±	V%
PR170-04	D-1	0.1 to 1	0.001	2	1.2
PR170-07	D-10	0.5 to 10	0.01	1	0.5
PR170-10	D-20	2 to 20	0.02	0.8	0.4
PR170-13	D-100	10 to 100	0.1	0.6	0.2
PR170-16	D-200	20 to 200	0.2	0.6	0.2
PR170-19	D-1000	100 to 1000	1.0	0.6	0.2
PR170-22	D-5000	500 to 5000	10.0	0.6	0.2
PR170-25	D-10000	1000 to 10000	10.0	0.6	0.2

Conformity Certified

Indicated by the symbol shows that the product has been manufactured by Brand under quality control procedures according to Eichordnung the German Federal Weights and Measures Regulations.

Provided the instrument is used with the recommended accessories and in accordance with the supplied instructions, Brand certify conformity with annex 12 of the Eichordnung.



PR170, PR173 are similar

Microlitre Transferpette® S, fixed volume models

Digital reading. Supplied complete with a performance certificate and shelf/rack hanger.

	Ref.	Volume µl	A%±	V%
PR173-09	F-10	10	1	0.5
PR173-11	F-20	20	0.8	0.4
PR173-14	F-25	25	0.8	0.4
PR173-17	F-50	50	0.8	0.4
PR173-20	F-100	100	0.6	0.2
PR173-23	F-200	200	0.6	0.2
PR173-26	F-500	500	0.6	0.2
PR173-29	F-1000	1000	0.6	0.2

A% = Accuracy, V% = Reproducibility.

Figures quoted are based on the maximum volume and distilled water at 20%.

Accessory Racks

PR173-95 Bench mounting for up to 6 x PR170/173 models only

PR173-98 Shelf/rack hanger for 1 x PR170/173 models only

Disposable Pipette Tips, Brand

High quality polypropylene tips which are Conformity Certified when used with Transferpette® pipettors. Cadmium free. Also suitable for use with Eppendorf and Gilson pipettors.

TipBox Set

Supplied as a steam sterilisable plastic box with hinged transparent cover containing a filled tip rack, plus additional tip racks as indicated.

TipRacks

Refill packs for TipBox Sets, comprising racks for tips to be dropped into empty TipBoxes as required.

Loose Packs

Supplied loose in a bag or carton in the quantities indicated.

Nano-Cap™, for volumes 0.1 to 20µl

PR140-05 TipBox set, 5 racks x 96 tips

PR140-08 TipRacks for PR140-05, 10 racks x 96 tips

PR140-10 Loose pack of 2000 tips

Crystal, for volumes 0.5 to 20µl

PR140-12 TipBox set, 5 racks x 96 tips

PR140-14 TipRacks for PR140-12, 10 racks x 96 tips

PR140-16 Loose pack of 2000 tips

Yellow, for volumes 2 to 200µl

PR140-24 TipBox set, 5 racks x 96 tips

PR140-26 TipRacks for PR140-24, 10 racks x 96 tips

PR140-28 Loose pack of 1000 tips

Natural*, for volumes 50 to 1000µl

PR140-45 TipBox set, 5 racks x 96 tips

PR140-48 TipRacks for PR140-45, 10 racks x 96 tips

PR140-52 Loose pack of 1000 tips

*Except for PR140-52 which are blue coloured tips.

Natural, for volumes 500 to 5000µl

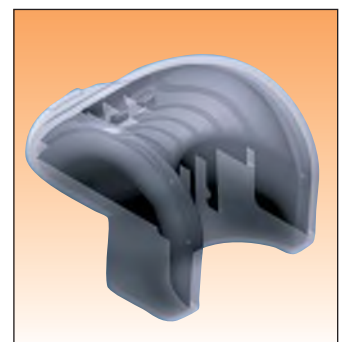
PR140-80 Loose pack of 200 tips

Natural, for volumes 1000 to 10000µl

PR140-95 Loose pack of 200 tips



PR173-95 in use



PR173-98

Pipettors

Multichannel Transferpette® S - 8/ -12



- ◆ Conformity certified
- ◆ For pipetting either 8 or 12 identical volumes into titration plates
- ◆ Designed for operator comfort over long term repetitive pipetting
- ◆ Viton ring sealing provides tight fitting of tips
- ◆ One-handed adjustment and 4-digit display with prismatic lens window for easy viewing

Transferpette® S - 8

8-channel pipettor. Supplied complete with performance certificate, a pack of pipette tips in a rack, a shelf/wall rack hanger, a set of Viton shaft seals and a reagent reservoir.

	Range μl	Subdiv. μl	A% \pm	V%	Tips reqd.
PR174-35	0.5 to 10	0.05	1.6	1.0	Crystal
PR174-45	5 to 50	0.1	0.8	0.4	Yellow
PR174-55	10 to 100	0.1	0.8	0.3	Yellow/Natural
PR174-60	20 to 200	1.0	0.8	0.3	Yellow/Natural
PR174-65	30 to 300	1.0	0.6	0.3	Yellow

Transferpette® S - 12

12-channel pipettor. Supplied complete with performance certificate, a pack of pipette tips in a rack, a shelf/wall rack hanger, a set of Viton shaft seals and reagent reservoir.

	Range μl	Subdiv. μl	A% \pm	V%	Tips reqd.
PR174-75	0.5 to 10	0.05	1.6	1.0	Crystal
PR174-80	5 to 50	0.1	0.8	0.4	Yellow
PR174-85	10 to 100	0.1	0.8	0.3	Yellow/Natural
PR174-90	20 to 200	1.0	0.8	0.3	Yellow/Natural
PR174-95	30 to 300	1.0	0.6	0.3	Yellow

A% = Accuracy, V% = Reproducibility.

Figures quoted are based on the maximum volume and distilled water at 20%.

- ◆ Central pipetting and independent tip ejector buttons are ergonomically positioned for operation in either hand and when wearing gloves
- ◆ All controls clearly separated to avoid errors
- ◆ Fully autoclavable (at 121° for 20 minutes)
- ◆ Manifold can be rotated for ease of use when pipetting a titration plate
- ◆ Easy calibration without tools

Disposable Pipette Tips, Brand

High quality polypropylene tips which are Conformity Certified when used with Transferpette® pipettors. Cadmium free. Also suitable for use with Eppendorf and Gilson pipettors.

TipBox Set

Supplied as a steam sterilisable plastic box with hinged transparent cover containing a filled tip rack, plus additional tip racks as indicated.

TipRacks

Refill packs for TipBox Sets, comprising racks for tips to be dropped into empty TipBoxes as required.

Loose Packs

Supplied loose in a bag or carton in the quantities indicated.

Crystal, for volumes 0.5 to 20 μl

PR140-12 TipBox set, 5 racks x 96 tips

PR140-14 TipRacks for PR140-12, 10 racks x 96 tips

PR140-16 Loose pack of 2000 tips

Yellow, for volumes 2 to 200 μl

PR140-24 TipBox set, 5 racks x 96 tips

PR140-26 TipRacks for PR140-24, 10 racks x 96 tips

PR140-28 Loose pack of 1000 tips

Natural*, for volumes 50 to 1000 μl

PR140-45 TipBox set, 5 racks x 96 tips

PR140-48 TipRacks for PR140-45, 10 racks x 96 tips

PR140-52 Loose pack of 1000 tips

*Except for PR140-52 which are blue coloured tips.

Natural, for volumes 500 to 5000 μl

PR140-80 Loose pack of 200 tips

Natural, for volumes 1000 to 10000 μl

PR140-95 Loose pack of 200 tips



PR174-35 to PR174-65



PR174-75 to PR174-95

Conformity Certified

Indicated by the symbol H shows that the product has been manufactured by Brand under quality control procedures according to Eichordnung the German Federal Weights and Measures Regulations.

Provided the instrument is used with the recommended accessories and in accordance with the supplied instructions, Brand certify conformity with annex 12 of the Eichordnung.

Pipettors

Transferpette® Electronic



Ergonomically designed, high performance, electronic pipettors especially suited for undertaking repetitive liquid handling operations over long periods.

- ◆ Conformity certified
- ◆ Choice of models with capacities up to 5000µl
- ◆ Four operating modes for maximum convenience:
 - standard pipetting
 - reverse pipetting
 - mixing
 - gel loading, for electrophoresis
- ◆ Adjustable pipetting speed

Range µl	Subdiv. µl	A%±		V% ±	
		Max. vol.	Min. vol.	Max. vol.	Min. vol.
0.5 to 10	0.01	1.0	5.0	0.4	2.0
2 to 20	0.02	1.0	5.0	0.4	2.5
20 to 200	0.2	0.8	4.0	0.2	0.6
100 to 1000	1.0	0.6	3.0	0.2	0.6
500 to 5000	5.0	0.6	3.0	0.2	0.6

A% = Accuracy } Figures quoted are based on pipetting distilled
 V% = Reproducibility } water at 20°C.

As described. Available supplied with or without a.c. adapter/charger, as indicated. The adapter requires a 230V 50Hz (240V 50Hz - Australia) supply.

With a.c. adapter and UK plug

- PR175-05** 0.5 to 10µl
- PR175-10** 2 to 20µl
- PR175-20** 20 to 200µl
- PR175-30** 100 to 1000µl
- PR175-34** 500 to 5000µl

With a.c. adapter and European plug

- PR175-38** 0.5 to 10µl
- PR175-40** 2 to 20µl
- PR175-50** 20 to 200µl
- PR175-60** 100 to 1000µl
- PR175-62** 500 to 5000µl

With a.c. adapter and Australian plug

- PR175-63** 0.5 to 10µl
- PR175-66** 20 to 200µl
- PR175-68** 100 to 1000µl
- PR175-69** 500 to 5000µl

Without a.c. adapter*

- PR175-72** 0.5 to 10µl
- PR175-75** 2 to 20µl
- PR175-80** 20 to 200µl
- PR175-90** 100 to 1000µl
- PR175-96** 500 to 5000µl

*An a.c. adapter/charger is required.

- ◆ Fully autoclavable pipette tip manifold
- ◆ Innovative, 2-component tip cone and 3 alternative ejector clips allow use with most commonly available tips
- ◆ Adjustable finger rest allows optional hand positioning for comfortable operation
- ◆ Fully charged, the rechargeable battery provides approximately 8 hours use

Accessory tips

- PR140-12** Crystal, for volumes 0.5 to 20µl, TipBox set 5 racks x 96 tips
- PR140-16** Crystal, for volumes 0.5 to 20µl, loose pack of 2000 tips
- PR140-24** Yellow, for volumes 2 to 200µl, TipBox set of 5 racks x 96 tips
- PR140-28** Yellow, for volumes 2 to 200µl, loose pack of 1000 tips
- PR140-45** Natural for volumes 50 to 1000µl, TipBox set 5 racks x 96 tips
- PR140-52** Blue, for volumes 50 to 1000µl, loose pack of 1000 tips
- PR140-80** Natural, for volumes 500 to 5000µl, loose pack of 200 tips

Accessory rack

Holds three PR175-series pipettors. Supplied with a.c. adapter/charger for 230V 50Hz (240V 50Hz - Australia) single phase supplies with plug as indicated.

- PR176-02** Charger/rack, with UK plug
- PR176-04** Charger/rack, with continental European plug



PR175

Pipettors

Transferpette® Electronic Multichannel Pipettors



Generally as PR175-series but with choice of 8- or 12-channel pipetting heads.

- ◆ Conformity certified
- ◆ Three ranges available:
 - 1 to 20µl
 - 5 to 100µl
 - 15 to 300µl
- ◆ Four operating modes for maximum convenience:
 - standard pipetting
 - reverse pipetting
 - mixing
 - gel loading, for electrophoresis
- ◆ Adjustable pipetting speed
- ◆ Fully autoclavable pipette tip manifold
- ◆ Innovative, 2-component tip cone, stepped tip ejector and manifold stabiliser reduce ejection forces
- ◆ Adjustable finger rest allows optional hand positioning for comfortable operation
- ◆ Fully charged, the rechargeable battery provides approximately 8 hours use

Range µl	Subdiv. µl	A% ≤ ± Max. vol.	V% ≤ ± Max. vol.
1 to 20	0.02	1.0	0.5
5 to 100	0.1	0.8	0.25
15 to 300	0.5	0.6	0.25

A% = Accuracy
V% = Reproducibility

} Figures quoted are based on pipetting distilled water at 20°C.



PR177, PR178 are similar

As described. With stand, a pack of pipette tips in racks and an a.c. adapter/charger with plug as indicated. The adapter requires a 230V 50Hz supply (or 240V 50Hz - Australia only).

8-channel with UK plug

- PR177-05 1 to 20µl x 0.02µl subdivision
- PR177-15 5 to 100µl x 0.1µl subdivision
- PR177-25 15 to 300µl x 0.5µl subdivision

8-channel with European plug

- PR177-30 1 to 20µl x 0.02µl subdivision
- PR177-35 5 to 100µl x 0.1µl subdivision
- PR177-40 15 to 300µl x 0.5µl subdivision

8-channel with Australian plug

- PR177-55 5 to 100µl x 0.1µl subdivision
- PR177-60 15 to 300µl x 0.5µl subdivision

12-channel with UK plug

- PR178-65 1 to 20µl x 0.02µl subdivision
- PR178-69 5 to 100µl x 0.1µl subdivision
- PR178-72 15 to 300µl x 0.5µl subdivision

12-channel with European plug

- PR178-76 1 to 20µl x 0.02µl subdivision
- PR178-81 5 to 100µl x 0.1µl subdivision

12-channel with Australian plug

- PR178-88 1 to 20µl x 0.02µl subdivision
- PR178-93 5 to 100µl x 0.1µl subdivision

Disposable pipette tips, supplied as indicated

Nano-Cap™, 0.1 to 20µl, for 1 to 20µl pipettors only

- PR140-05 TipBox set, 5 racks x 96 tips
- PR140-08 TipRacks for PR140-05, 10 racks x 96 tips
- PR140-10 Loose pack of 2000 tips

Crystal, 0.5 to 20µl, for 1 to 20µl pipettors only

- PR140-12 TipBox set, 5 racks x 96 tips
- PR140-14 TipRacks for PR140-12, 10 racks x 96 tips
- PR140-16 Loose pack of 2000 tips

Yellow, 2 to 200µl, for 5 to 100µl and 15 to 300µl pipettors only

- PR140-24 TipBox set, 5 racks x 96 tips
- PR140-26 TipRacks for PR140-24, 10 racks x 96 tips
- PR140-28 Loose pack of 1000 tips

Natural, 5 to 300µl, for 5 to 100µl and 15 to 300µl pipettors only








- PR140-30 TipBox set, 5 racks x 96 tips
- PR140-32 TipRacks for PR140-30, 10 racks x 96 tips
- PR140-34 Loose pack of 1000 tips

Pipettors

Disposable Pipette Tips



Selection chart

Capacity, μ l	Type	
0.1 to 20	Nano-cap™	
0.5 to 20	Crystal	
2 to 200	Yellow	
5 to 300	Natural	
50 to 1000	Natural/Blue	
500 to 5000	Natural	
1000 to 10000	Natural	

High quality polypropylene tips which are Conformity Certified when used with Transferpette® pipettors. Cadmium free. Also suitable for use with Eppendorf and Gilson pipettors.

TipBox Set

Supplied as a steam sterilisable polypropylene box with hinged transparent cover containing a filled tip rack, plus additional TipRacks as indicated.

TipRacks

Refill packs for TipBox Sets, comprising racks for tips to be dropped into empty TipBoxes as required.

Loose Packs

Supplied loose in a bag or carton in the quantities indicated.

Nano-Cap™, for volumes 0.1 to 20 μ l

- PR140-05 TipBox set, 5 racks x 96 tips
- PR140-08 TipRacks for PR140-05, 10 racks x 96 tips
- PR140-10 Loose pack of 2000 tips

Crystal, for volumes 0.5 to 20 μ l

- PR140-12 TipBox set, 5 racks x 96 tips
- PR140-14 TipRacks for PR140-12, 10 racks x 96 tips
- PR140-16 Loose pack of 2000 tips

Yellow, for volumes 2 to 200 μ l

- PR140-24 TipBox set, 5 racks x 96 tips
- PR140-26 TipRacks for PR140-24, 10 racks x 96 tips
- PR140-28 Loose pack of 1000 tips

Natural, for volumes 5 to 300 μ l

- PR140-30 TipBox set, 5 racks x 96 tips
- PR140-32 TipRacks for PR140-30, 10 racks x 96 tips
- PR140-34 Loose pack of 1000 tips

Natural*, for volumes 50 to 1000 μ l

- PR140-45 TipBox set, 5 racks x 96 tips
- PR140-48 TipRacks for PR140-45, 10 racks x 96 tips
- PR140-52 Loose pack of 1000 tips

*Except for PR140-52 which are blue coloured tips.

Natural, for volumes 500 to 5000 μ l

- PR140-80 Loose pack of 200 tips

Natural, for volumes 1000 to 10000 μ l

- PR140-95 Loose pack of 200 tips

Filter tips - see PR844.

Sterile, Bio-Cert®, endotoxin-, DNA/RNAse- and ATP-free tips are available - details on request.



TipBox Set



TipRacks



Loose Packs

Pipettors

LLG-proMLP Series Micropipettors

High performance, single channel, variable volume micropipettors for budget-conscious laboratories.

- ◆ Give reliable, accurate operations over many years of use
- ◆ Individual calibration certificate supplied
- ◆ Locking volume control ensures reproducible performance
- ◆ Steam sterilisable at 121°C
- ◆ Optional left- or right-handed tip ejector operation
- ◆ Novel, ergonomic design maximises comfort during use

	Range x resolution μl	Colour code	Accuracy $\leq\pm\%$	Precision $\leq\pm\%$
PR188-10	0.2 to 2 x 0.002	Dark orange	1.65	0.75
PR188-20	0.5 to 10 x 0.02	Red	1.10	0.44
PR188-25	2 to 20 x 0.02	Pale yellow	1.00	0.33
PR188-40	10 to 100 x 0.2	Pale orange	0.80	0.17
PR188-50	20 to 200 x 0.2	Dark yellow	0.80	0.17
PR188-70	100 to 1000 x 2.0	Dark blue	0.80	0.17
PR188-80	500 to 5000 x 2.0	Purple	0.66	0.18
PR188-90	100 to 10000 x 20.0	Pale blue	0.60	0.18

Pipette tips

Polypropylene, non-sterile, DNase- and RNase-free. Autoclavable. In bulk packs as indicated.

	Range μl	Colour	Pack qty.
PR189-05	0.1 to 10	Clear	1000
PR189-10	1 to 200	Yellow	1000
PR189-30	100 to 1000	Blue	1000 (2 x 500)
PR189-50	100 to 5000	Natural	250
PR189-58	100 to 10000	Natural	100



PR188

Pipettors

Micropipettors, Newton Science

A budget range of variable and fixed volume, air-displacement micropipettors for use in a wide variety of applications.

- ◆ Fully autoclavable (at 121°C and 15psi for 10-15 minutes)
- ◆ Choice of models:
 - digital variable volumes 0.2 to 10000µl
 - fixed volume models 10 to 1000µl

- ◆ Streamlined tip ejector for smooth tip ejection
- ◆ Large handgrip for comfortable operation
- ◆ Variable volume models have a 4-digit display with high contrast figures for easy viewing

Supplied with calibration certificate, shelf/rack hanger and calibration tool.

Variable volume models

	Range x resolution µl	Accuracy ≤±%	Precision ≤±%
PR243-10	0.2 to 2 x 0.002	2.00	1.20
PR243-20	0.5 to 10 x 0.02	1.00	0.50
PR243-25	2 to 20 x 0.02	0.80	0.40
PR243-30	5 to 50 x 0.1	0.80	0.40
PR243-40	10 to 100 x 0.1	0.60	0.20
PR243-50	20 to 200 x 0.2	0.60	0.20
PR243-70	100 to 1000 x 10	0.60	0.20
PR243-80	500 to 5000 x 10.0	0.60	0.20
PR243-90	1000 to 10000 x 20.0	0.60	0.20

Fixed volume models

	Volume µl	Accuracy ≤±%	Precision ≤±%
PR247-01	1	2.00	1.00
PR247-02	2	2.00	1.00
PR247-05	5	2.00	1.00
PR247-08	10	1.00	0.50
PR247-12	20	0.80	0.40
PR247-16	25	0.80	0.40
PR247-20	50	0.80	0.40
PR247-28	100	0.60	0.20
PR247-32	200	0.60	0.20
PR247-36	250	0.60	0.20
PR247-40	500	0.60	0.20
PR247-48	1000	0.60	0.20
PR247-50	2000	0.60	0.20
PR247-55	5000	0.60	0.20
PR247-60	10000	0.40	0.20

Accessory rack

PR247-95 Carousel for up to 6 x PR243- or PR247-series pipettors

Pipette tips

Polypropylene, non-sterile. Autoclavable. With volumes and in bulk packs as indicated.

	Range µl	Colour	Pack qty.
PR255-11	1 to 200	Yellow	1000
PR255-31	100 to 1000	Blue	1000
PR255-53	500 to 5000	Natural	250
PR255-59	1000 to 10000	Blue	200



PR243



PR247

Pipettors

Stepper Pipette Model 416



Easy to use, adjustable repeater pipette comprising hand-held control unit and accessory Ecostep™ dispensing syringe tips.

- ◆ Volume range 10µl to 5000µl
- ◆ 53 different sample volume settings
- ◆ Unique finger tip trigger action gives fast pipetting with minimal effort and without using the thumb
- ◆ Comfortable, ergonomic design
- ◆ Three syringe tip step ranges 10 to 100µl, 50 to 500µl and 500 to 5000µl
- ◆ Interchangeable steps x volume selector dials, colour-coded to relevant syringe tip
- ◆ Self-locking mechanism halts dispensing at last full step volume

Performance

Range µl	Syringe ml	Colour code	Accuracy ±%	Precision ±%
10 to 100	0.75	Yellow	2.0 to 1.0	<2.0 to <1.0
50 to 500	3.75	Blue	1.0 to 0.7	<1.0 to <0.8
500 to 5000	37.5	Red	0.7 to 0.5	<0.8 to <0.5

Stepper Pipette Model 416

As described. Supplied with one each yellow, blue and red code steps x volume selector dials, two each Ecostep™ syringe tips 0.75ml, 3.75ml, 37.5ml, and syringe adapter to hold 37.5ml tip.

PR490-10 Model 416

PR490-80 Workstation, PVC, for holding one PR490-10 pipettor

Step volumes (aliquots)

	Tip code (capacity)	Yellow (0.75ml)	Blue (3.75ml)	Red (37.5ml)
No. of steps				
73		10µl	50 µ	500µl
49		15µl	75µl	750µl
36		20µl	100µl	1000µl
29		25µl	125µl	1250µl
24		30µl	150µl	1500µl
20		35µl	175µl	1750µl
18		40µl	200µl	2000µl
15		45µl	225µl	2250µl
14		50µl	250µl	2500µl
12		55µl	275µl	2750µl
11		60µl	300µl	3000µl
10		65µl	325µl	3250µl
9		70µl	350µl	3500µl
8		75µl	375µl	3750µl
8		80µl	400µl	4000µl
7		85µl	425µl	4250µl
7		90µl	450µl	4500µl
7		95µl	475µl	4750µl
6		100µl	500µl	5000µl

Ecostep™ Syringe Tips

Polypropylene with HDPE plunger. Available non-sterile loose-packed, or sterile individually-wrapped. Supplied in boxes as indicated.

	Step range µl	Capacity ml	Colour code	Box qty.
Non-sterile				
PR493-06	10 to 100	0.75	Yellow	100
PR493-09	50 to 500	3.75	Blue	100
PR493-12	500 to 5000	37.5	Red	100
Sterile, "Bioproof"				
PR496-05	10 to 100	0.75	Yellow	50
PR496-08	50 to 500	3.75	Blue	50
PR496-11	500 to 5000	37.5	Red	50



PR490-10 with PR490-80

Pipettors

Dilution Pipettor, Acura 810



A purpose designed, two-volume pipettor for performing serial 1:10 dilutions in bacteriology.

- ◆ Two pre-calibrated, fixed volumes of 1ml and 0.1ml in a two-step stroke allows subsequent pipetting of these volumes using the same liquid sample
- ◆ Rigid metal nozzle with replaceable filter accepts accessory, long "straw" tips to aspirate narrow or deep vessels or blender bags (such as Stomacher® bags)
- ◆ Both volumes are calibrated independently
- ◆ Fully autoclavable at 121°C maximum for 20 minutes and easily disassembled for maintenance and cleaning
- ◆ Justip™ tip ejector adjustment and smooth operation enhance operator comfort

Dilution Pipettor, Acura 810

	Volume, ml	Accuracy %
PR540-10	1 (+0.1)	<±0.4 (<±2.5)

Accessories

- PR543-09** "Straw" tips, polypropylene, sterile, 190 x 4mm length x diameter, supplied in inner sleeves of 25 within a pack of 1000
- PR543-15** Nozzle filters, pack of 100
- PR672-12** Workstation to hold up to 3 pipettors

Micropipettors, Acura 826XS Series



- ◆ Lightweight, ergonomic design
- ◆ Digital reading with easy adjustment
- ◆ Minimal plunger and ejector forces required for enhanced comfort in use
- ◆ Short, narrow design allows use in gloveboxes and easy access to microtubes
- ◆ Fully autoclavable at 121°C
- ◆ Adjustable tip ejector length accommodates various tip positions

Acura 826XS Series

As described. Each pipettor is numbered, supplied with calibration certificate and CE marked in accordance with IVD 98/79 EEC directives. Supplied singly.

	Range µl	Divisions µl	Accuracy %
PR578-02	0.1 to 2	0.002	<±6.0
PR578-03	0.5 to 10	0.01	<±2.5
PR578-05	1 to 10	0.01	<±2.5
PR578-08	2 to 20	0.02	<±2.5
PR578-10	5 to 50	0.1	<±1.5
PR578-15	10 to 100	0.1	<±1.5
PR578-20	20 to 200	0.2	<±1.5
PR578-25	100 to 1000	1	<±1.5

TwixS Packs

Comprise two 826XS micropipettors with capacities as indicated. One shelf pipettor holder, certificates and instructions.

- PR578-92** 0.1 to 2µl, 2 to 20µl
- PR578-94** 0.5 to 10µl, 10 to 100µl
- PR578-96** 5 to 50µl, 20 to 200µl
- PR578-98** 10 to 100µl, 100 to 1000µl

Tips, Polypropylene

	Max. cap.	For Socorex Models	Colour	Pack qty.
PR580-09	10µl	825, 826	Natural	1000
PR580-17	200µl	815, 822, 825, 826	Yellow	500
PR580-22	1000µl	815, 822, 825, 826	Blue	250

Pipettor Racks

Easily assembled, polyacrylamide, bench-mounting racks for holding up to 7 single-channel micropipettors, Socorex series 815, 825, 826, 832, and 835. Available in a choice of pastel colours as indicated.

- PR640-40** Pipettor rack, light grey
- PR640-42** Pipettor rack, vanilla yellow
- PR640-44** Pipettor rack, ice blue
- PR640-46** Pipettor rack, mint green

Twister Universal Pipettor Stands, Socorex

Easily assembled, bench-mounting, 360° rotating, carousel racks for holding up to 6 Acura- and Calibra-series manual single channel micropipettors, along with most other leading brands. Available in a choice of translucent colours as indicated. Not recommended for use with electronic pipettors.

- PR642-10** Pipettor stand, sapphire blue
- PR642-12** Pipettor stand, emerald green
- PR642-14** Pipettor stand, topaz orange
- PR642-16** Pipettor stand, quartz grey
- PR642-18** Pipettor stand, rubine red
- PR642-20** Pipettor stand, diamond white
- PR642-22** Pipettor stand, citrine yellow



PR540-10 in use with PR543-09



PR578



PR640-40 in use with PR578-series



PR642-series

Pipettors

Calibra Model 822

- ◆ Digital reading
- ◆ No re-calibration necessary
- ◆ Fully autoclavable at 121°C maximum for 20 minutes
- ◆ Solid cam provides factory calibrated step for each volume increment
- ◆ Each pipette is numbered and supplied with calibration certificate

Accuracy at:

2µl ±2% 10, 20µl ±1% 100µl ±0.8% 1000µl ±0.6%

Digital adjustable volume 822 series

	Range µl	Divisions, µl
PR530-18	2 to 20.0	0.1
PR530-25	20 to 200	1
PR530-30	100 to 1000	5

*Fits 200µl tip PR580-17.

Tips, polypropylene

	Max. cap.	For Socorex Models	Colour	Pack qty.
PR580-09	10µl	825, 826	Natural	1000
PR580-18	200µl	815, 825, 826	Yellow	1000
PR580-23	1000µl	815, 825, 826	Blue	1000
PR672-34	1000µl	815, 825, 826	Blue	6 x 96*
PR587-40	5ml	815, 835	Natural	250
PR587-55	10ml	815, 835	Natural	100

*Supplied in autoclavable rack.

Acura Models 815/825/835

- ◆ Comfortable ergonomic design
- ◆ Digital reading (adjustable volume models)
- ◆ Fully autoclavable at 121°C maximum for 20 minutes
- ◆ Adjustable tip ejector length accommodates various tip positions
- ◆ Each pipette is numbered and supplied with a calibration certificate
- ◆ Smooth plunger action

	Volume µl	Accuracy %
Fixed volume 815 series		
PR556-10	100	<±0.6
PR556-50	500	<±0.7
PR559-10	1000	<±0.6
Fixed volume 835 series		
PR559-50	5000	<±0.7
PR559-90	10000	<±0.5

Other volumes are available – details on request.

	Range, µl	Divisions, µl	Accuracy, %
Digital adjustable volume 825 series			
PR577-02	0.1 to 2	0.002	<±6.0
PR577-03	0.5 to 10	0.01	<±2.5
PR577-05	1 to 10	0.01	<±2.5
PR577-08	2 to 20	0.02	<±2.5
PR577-10	5 to 50	0.1	<±1.5
PR577-15	10 to 100	0.1	<±1.5
PR577-20	20 to 200	0.2	<±1.5
PR577-25	100 to 1000	1.0	<±1.5
Digital adjustable volume 835 series*			
PR585-40	500 to 5000	10.0	<±1.5
PR585-50	1000 to 10000	10.0	<±1.5

* With integral nozzle protection filters. Accepts polypropylene macrotips or glass pasteur pipettes (5ml model using adapter).

PR587-09 Adapter, pasteur pipette, for PR585-40 only



PR530



PR552 to PR559



PR577



PR585

Pipettors

SOCOREX SWISS Micropipettors continued

Calibra Model 832

- ◆ Digital reading
- ◆ Fully autoclavable at 121°C maximum for 20 minutes
- ◆ Solid cam provides factory calibrated step for each volume increment
- ◆ No re-calibration necessary
- ◆ Integral tip ejector
- ◆ Each pipette is numbered and supplied with calibration certificate
- ◆ PR600-25 will accept Pasteur pipettes

Adjustable volume 832 series

Two models are available. The first covers range 0.2 to 2ml accepting polypropylene tips or pasteur pipettes (using adapter included). The second covers range 1 to 10ml using polypropylene tips only.

	Range ml	Steps ml
PR600-25	0.2 to 2	0.01
PR600-30	1 to 10	0.1

Pipette Tips

Polypropylene, autoclavable.

- PR605-22** Tips, 2ml, pack of 500
- PR587-55** Tips, 10ml, pack of 100

Pipettor Racks

Easily assembled, polyacrylamide, bench-mounting racks for holding up to 7 single-channel micropipettors, Socorex series 815, 825, 832, 835 and 826. Available in a choice of pastel colours as indicated.

- PR640-40** Pipettor rack, light grey
- PR640-42** Pipettor rack, vanilla yellow
- PR640-44** Pipettor rack, ice blue
- PR640-46** Pipettor rack, mint green



PR600-30

PR600-25



PR640-44 in use

Acura 8-Channel Model 855

- ◆ For use with 96-well plates
- ◆ Fully autoclavable
- ◆ 360° pipette manifold rotation
- ◆ Digital readout
- ◆ Easy sequential tip ejection

	Range μ l	Divisions μ l	Accuracy	
			Min. vol.	Max. vol.
PR670-17	5 to 50	0.1	< \pm 1.0	< \pm 0.8
PR670-19	10 to 100	0.1	< \pm 1.0	< \pm 0.8
PR670-21	20 to 200	0.2	< \pm 1.0	< \pm 0.7
PR670-22	40 to 350	0.4	< \pm 1.0	< \pm 0.8

Accessories

- PR672-12** Work station for up to 3 pipettors PR670-series

Tips, polypropylene. Supplied in packs or racks as indicated.

	Max. cap. μ l	Colour	Pack/rack qty.
PR580-18	200	Yellow	1000
PR672-21	200	Yellow	10 x rack 96*
PR672-26	200	Natural	10 x rack 96*
PR672-28	300	Natural	rack 96*
PR580-22	1000	Blue	250

*Supplied in autoclavable racks.

Twister Universal Pipettor Stands, Socorex

Easily assembled, bench-mounting, 360° rotating, carousel racks for holding up to 6 Acura- and Calibra-series manual single channel micropipettors, along with most other leading brands. Available in a choice of translucent colours as indicated. Not recommended for use with electronic pipettors.

- PR642-10** Pipettor stand, sapphire blue
- PR642-12** Pipettor stand, emerald green
- PR642-14** Pipettor stand, topaz orange
- PR642-16** Pipettor stand, quartz grey
- PR642-18** Pipettor stand, rubine red
- PR642-20** Pipettor stand, diamond white
- PR642-22** Pipettor stand, citrine yellow



PR670-22



PR642-10 in use

Pipettors

▲ SOCOREX SWISS Electronic Micropipettors

Acura Electro 926XS, 936, and 956 series

Lightweight, ergonomic, electronic pipettors with microprocessor control and motor driven to provide fatigue free, high performance pipetting.

- ◆ A choice of variable volume models up to 10,000µl and multichannel models up to 350µl
- ◆ Five programmable functions:
 - Pipetting
 - Step-by-step pipetting
 - Mixing
 - Reverse pipetting
 - Dilution
 - Tactile titration and gel loading
- ◆ Reversible display for left or right-handed use
- ◆ Three position pipetting speed selection
- ◆ Autoclavable and interchangeable pipette tip manifolds
- ◆ Adjustable tip ejector length accommodates various tip positions
- ◆ Easy user calibration mode

Acura 926XS and 936-series Single Channel Pipettors

As described. Supplied as a basic starter pack including pipettor, Q.C./calibration certificate, charging stand, a.c. adapter/charger and additional rechargeable battery, pipette tips and instructions.

	Range µl	Divisions µl	Accuracy % (at µl)	
Acura 926XS-series				
PR690-05	0.1 to 2.0	0.01	<±2.5 (0.1)	<±0.9 (2.0)
PR690-12	0.5 to 10	0.05	<±1.2 (0.5)	<±0.6 (10)
PR690-16	1.0 to 20	0.1	<±1.2 (1.0)	<±0.5 (20)
PR690-27	2.5 to 50	0.25	<±1.0 (2.5)	<±0.5 (50)
PR690-29	5 to 100	0.50	<±1.0 (5.0)	<±0.5 (100)
PR690-32	10 to 200	1.00	<±1.0 (5.0)	<±0.4 (200)
PR690-62	50 to 1000	5.00	<±0.8 (50)	<±0.4 (1000)
Acura 936-series				
PR690-83	100 to 2000	0.01	<±1.5 (100)	<±0.5 (2000)
PR690-87	250 to 5000	0.05	<±1.2 (250)	<±0.5 (5000)
PR690-92	500 to 10,000	0.05	<±1.0 (500)	<±0.5 (10,000)

Accessories

Pipettors only. With Q.C./calibration certificate, spare battery and instructions.

PR693-05	0.1 to 2.0µl
PR693-12	0.5 to 10µl
PR693-16	1.0 to 20µl
PR693-27	2.5 to 50µl
PR693-29	5 to 100µl
PR693-32	10 to 200µl
PR693-62	50 to 1000µl
PR693-83	100 to 2000µl
PR693-87	250 to 5000µl
PR693-92	500 to 10,000µl

Acura 956-series Multichannel Pipettors

As described. Supplied as a basic starter pack including pipettor, Q.C./calibration certificate, charging stand, a.c. adapter/charger and additional rechargeable battery, pipette tips and instructions.

	Range µl	Divisions µl	Accuracy % (at µl)	
Acura 956-series, 8-channel				
PR696-17	0.5 to 10	0.05	<±3.5 (0.5)	<±1.0 (10)
PR696-32	2.5 to 50	0.25	<±1.0 (2.5)	<±0.8 (50)
PR696-47	10 to 200	1.00	<±0.9 (10)	<±0.6 (200)
PR696-49	20 to 350	5.00	<±1.0 (20)	<±0.6 (350)
Acura 956-series, 12-channel				
PR696-52	0.5 to 10	0.05	<±3.5 (0.5)	<±1.0 (10)
PR696-67	2.5 to 50	0.25	<±1.0 (2.5)	<±0.8 (50)
PR696-82	10 to 200	1.00	<±0.9 (10)	<±0.6 (200)
PR696-90	20 to 350	5.00	<±1.0 (20)	<±0.6 (350)

Spares and accessories

PR694-15	Charging stand, 3-position (requires charger/a.c. adapter)
PR694-40	Charger/a.c. adapter 100-240V, with UK plug
PR694-45	Charger/a.c. adapter 100-240V, with European plug

Tips, polypropylene. Supplied in packs as indicated.

	Max. cap.	Colour	Pack qty.
PR580-09	10µl	Natural	1000
PR580-18	200µl	Yellow	1000
PR580-23	1000µl	Blue	1000
PR587-40	5000µl	Natural	250
PR587-55	10,000µl	Natural	100



PR690



PR690/696 with stand and battery



PR696-17 to PR696-49



PR696-52 to PR696-90

Pipette Tips

Disposable Pipette Tips



Compatibility key:-

G: to fit Gilson, Brand pipettors

U: Universal, to fit Bibby, Biohit, Brand, Finnpiquette, Eppendorf, Gilson, Socorex or Volac pipettors subject to capacity limitations

Non-sterile

Polypropylene. Supplied loose in bench pack dispensers.

	Ref.	Type	Capacity μ l	Colour	Pack qty.
PR820-10	BCT25	G	5 to 200	Yellow	2000
PR820-15	BCT30	U	5 to 200	Yellow	2000
PR820-47	BCB70	U	100 to 1000	Blue	10000

Filter Pipette Tips



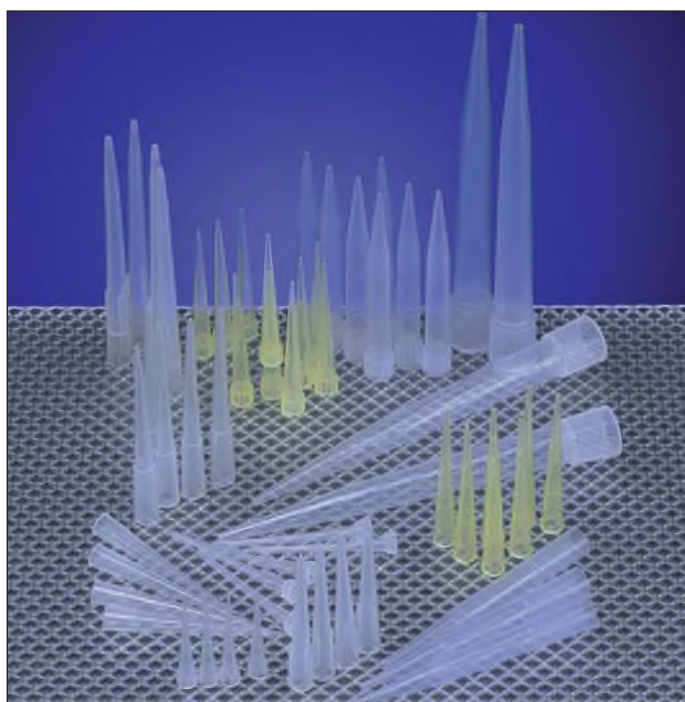
Provide aerosol protection to the pipettor, reducing the risk of cross-contamination and sample carry-over in radioassay, PCR and other applications.

- ◆ High-purity, clear polypropylene with hydrophobic, inert filter
- ◆ Sterilised tips are to ISO11137 by β -irradiation
- ◆ Autoclavable
- ◆ DNA-, RNase-, ATP-, endotoxin-, DiHEMDA- and oleamide-free
- ◆ Supplied in sterilised racks of 96 with one sterile polypropylene TipBox holder, plus additional TipRacks as indicated, or alternatively non-sterile in bulk packs of 960

Capacity μ l	For pipettors
0.1 to 1	Gilson, Finnpiquette, Biohit, Brand
0.5 to 10	Gilson P2, P10, Finnpiquette, Biohit, Brand
2 to 20	Gilson P20, Eppendorf, Finnpiquette, Biohit, Brand, Socorex
5 to 100	Gilson P100, Eppendorf, Finnpiquette, Biohit, Brand, Socorex
5 to 200	Gilson P200, Finnpiquette, Biohit, Brand, Socorex
50 to 1000	Gilson P1000, Eppendorf, Finnpiquette, Biohit, Brand, Socorex

	Capacity μ l	Sterile	Rack/pack qty.
PR844-15	0.1 to 1	✓	10 racks x 96 tips* (960)
PR844-17	0.1 to 1	—	pack 960
PR844-21	0.5 to 10	✓	10 racks x 96 tips* (960)
PR844-23	0.5 to 10	—	pack 960
PR844-26	2 to 20	✓	10 racks x 96 tips* (960)
PR844-29	2 to 20	—	pack 960
PR844-33	5 to 100	✓	10 racks x 96 tips* (960)
PR844-35	5 to 100	—	pack 960
PR844-37	5 to 200	✓	10 racks x 96 tips* (960)
PR844-40	5 to 200	—	pack 960
PR844-48	50 to 1000	✓	10 racks x 96 tips* (960)
PR844-53	50 to 1000	—	pack 960

*Includes sterile tip box filled with one rack.



PR820



PR844

Pipette Tips

Disposable Pipette Tips



RefillPro Tip Reload System

Provide a robust, economical solution for tip reloading requirements. Reusable, autoclavable racks manufactured from recycled plastic. Can be fitted with refill "wafers" of 96 non-sterile tips. No special tools or alignment devices are required. A hinged lid protects the tips between uses.

- ◆ Tip capacities: 10µl extended, 200µl , 300µl and 1250µl extended
- ◆ Tips manufactured in 100% virgin polypropylene, certified RNase, pyrogen and DNase free
- ◆ Single and multichannel pipettor capability
- ◆ Extended pattern tips allow insertion into narrow neck tubes and plates
- ◆ Plastic rack waste reduced by over 60%

Selection chart

Capacity µl	Colour	For use with
1 to 10 (extended)	Natural	Biohit, Finnpiquette, Gilson P2/P10, Nichiryo, Oxford, Rainin, Socorex, Volac
1 to 200	Yellow	Biohit, Brand, Eppendorf, Finnpiquette, Gilson P200, Socorex, Volac
1 to 300 (multichannel)	Natural	Biohit, Brand, Eppendorf, Finnpiquette, Rainin, Socorex, Volac
200 to 1250 (extended)	Natural	Biohit, Brand, Eppendorf, Finnpiquette, Gilson P1000, Nichiryo, Oxford, Rainin, Socorex, Volac

RefillPro Tip Reload System

Comprising 10 empty racks (8 - 1250µl tips only) and one refill pack of 10 nested wafers x 96 tips (8 wafers - 1250µl tips only) with capacities as indicated.

PR870-58	1 to 10µl
PR870-64	1 to 200µl
PR870-67	1 to 300µl
PR870-76	200 to 1250µl

RefillPro Refill Packs

40 x 96 tips (32 x 96 - 1250µl tips) in nested tip wafers with bottom tray and dust cover. Tip capacities as indicated.

PR874-58	1 to 10µl
PR874-64	1 to 200µl
PR874-67	1 to 300µl
PR874-76	200 to 1250µl

RefillPro Racks

Supplied empty, in packs of 20 racks. For tip capacities as indicated.

PR874-90	1 to 10µl, 200µl or 300µl
PR874-95	200 to 1250µl



PR870 and PR874



PR874 in use

Pipette Tips

Disposable Pipette Tips



Selection chart

Capacity μ l	Colour	For use with	Image No.
1-10	Natural	Biohit, Finnpiquette, Gilson, Nichiryo, Oxford, Rainin, Socorex, Volac	1
1-200	Natural	Nichiryo, Oxford	5
2-200	Yellow	Brand, Eppendorf, Finnpiquette, Gilson, Oxford, Rainin	3
2-200	Lemon	Biohit, Eppendorf, Finnpiquette, Nichiryo, Oxford, Rainin, Socorex, Volac	4
2-200	Natural	Biohit, Eppendorf, Finnpiquette, Gilson, Nichiryo, Oxford, Socorex, Volac	5
101-1000	Blue	Biohit, Brand, Eppendorf, Finnpiquette, Gilson, Oxford, Rainin, Socorex, Volac	2
1001-5000	Natural	Oxford, Volac, Eppendorf, Socorex, Gilson, Nichiryo, Oxford	6
1001-5000	Natural	Finnpiquette	6

Non-sterile

Supplied loose in bags. Polypropylene.

	Capacity μ l	Colour	Pack qty.	Image No.
PR850-05	1 to 10	Natural	1000	1
PR850-10	101 to 1000	Blue	1000	2
PR850-30	2 to 200	Yellow	1000	3
PR850-60	1001 to 5000	Natural	250	4
PR854-35	2 to 200	Lemon	1000	5
PR854-55	2 to 200	Natural	1000	6
PR854-65	1001 to 5000	Natural	250	7

Sterile, Wrapped

Each tip individually wrapped in a peel apart envelope. Polypropylene. Sterilised by gamma radiation.

	Capacity μ l	Colour	Pack qty.	Image No.
PR860-19	2 to 200	Lemon	700	4
PR860-28	101 to 1000	Blue	350	2

Reservoirs

Multichannel pipette reservoirs, Trifill

Innovative, multi-purpose reagent reservoir for use with multi-channel pipettors. Autoclavable polypropylene. Combines a graduated, single reagent reservoir, capacity 50ml with marks at 10, 25, 40 and 50ml, and when reversed 8 and 12 compartment reservoirs each compartment holding 5ml and individually numbered for reagent identity. Supplied in pack of 10.

PR940-30 Trifill reservoir

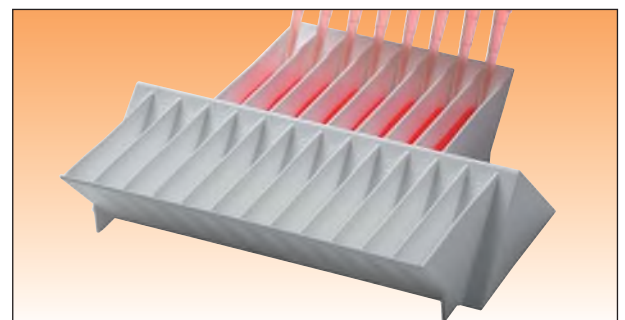
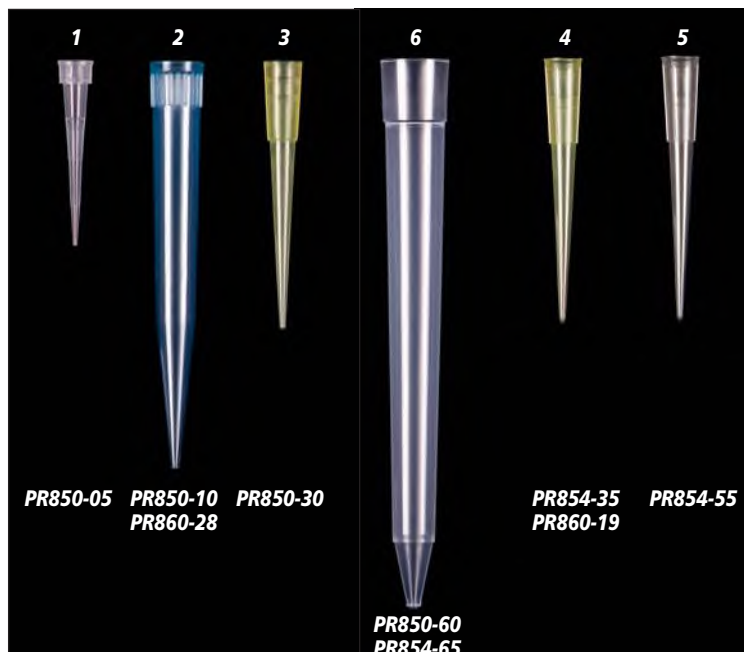
Multichannel pipette reservoirs, disposable

Non-sterile, transparent PVC. Will accept up to 12-channel pipettors. Capacity 55ml. Supplied in pack of 100.

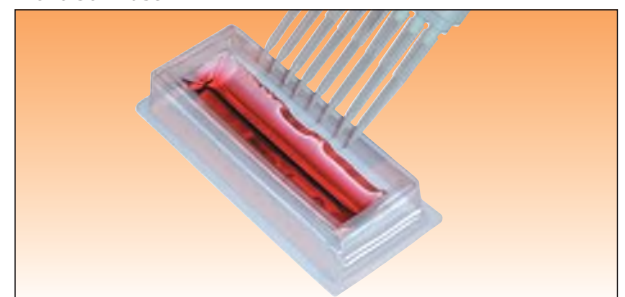
PR940-45 Pipette reservoirs, non-sterile

Sterile, white polystyrene. Will accept up to 12-channel pipettors. Capacity 55ml. Supplied individually wrapped in a pack of 100.

PR940-47 Pipette reservoirs, sterile



PR940-30 in use



PR940-45 in use, PR940-47 are similar

Polarimeters

Polarimeter Model ADP430



BELLINGHAM
& STANLEY

Polarimeter Model ADP 430

Fully automatic, dual scale polarimeter suitable for measuring the rotation of optically active samples across a wide range of applications. With easy-to-use, four key operation, keypad control of automatic read scale, compensation selection, zero calibration print and temperature. A full colour LCD readout gives good visibility in all ambient light conditions. Scales -355 to $+355^\circ$ angular (A) and -225 to $+225^\circ Z$ (International Sugar Scale) with selectable 0.01/0.001 resolution for both ranges. Accuracy $\pm 0.01^\circ$ angular, $\pm 0.03^\circ Z$ ISS. With built-in LED light source and interference filter, external power supply to minimise heat generation allowing rapid stabilisation, rugged, chemically resistant housing enabling use in both factory and laboratory environments, two USB (one each USB-A and USB-B) and ethernet interfaces. Accepts polarimeter tubes up to 200mm long. A temperature probe with flexible cable is fitted for use either to monitor sample chamber temperature or to be placed in the filling arm of the measurement tube for direct sample temperature monitoring. Overall 150 x 620 x 340mm H x W x D. Weight 9kg. Supplied with one 200mm long sample tube, instruction manual, certificate of conformity and external power supply for 90-250V 50/60Hz single phase supplies.

PT550-65 Model ADP430

Polarimeter tubes

Nominal 8mm i.d. glass tubes in lengths of 100 or 200mm. With screw-on nylon end-caps and 15.5mm diameter cover glasses.

Standard tube with bulb to clear bubble from field of view.

PT600-10 100mm long

PT600-20 200mm long

Centre filling tube with straight arm.

PT605-10 100mm long

PT605-20 200mm long

Centre filling tube with cup-shape arm.

PT610-10 100mm long

PT610-20 200mm long

Spares

PT618-06 Cover glasses 15.5mm diameter, pack of 12

PT618-10 Rubber washers, pack of 12

PT618-17 End caps, nylon, pack of 2



PT550-65

Polarimeters

Polarimeter Model Polax-2L



Fully functional, digital polarimeter for measuring the rotation of optically active samples across a wide range of applications in education, industry and research. The optical system light source comprises an LED with 589nm interference filter giving rapid response and a long working life in comparison to traditional sodium lamps. The analyser is rotated automatically using push-button controls and a digital LED display can be toggled between angle of rotation, International Sugar Scale (ISS) and temperature.

<i>Ranges x resolution</i>	<i>Angle°</i>	-179.5 to +180 x 0.05
	<i>ISS °Z</i>	-130 to +130 x 0.1
	<i>Temp. °C</i>	+5 to +40 x 0.1
<i>Measurement wavelength</i>	<i>nm</i>	589 interference filter, LED light source
<i>Overall W x D x H</i>	<i>mm</i>	430 x 220 x 300
<i>Weight</i>	<i>kg</i>	11.5
<i>Power</i>		100-240V 50/60Hz a.c.

As described. Supplied with one each 100mm and 200mm sample tubes. For 100-240V 50/60Hz single phase supplies.

PT665-20 Model Polax-2L

Spares and accessories

PT669-08 Sample tube 100mm

PT669-12 Sample tube 200mm

PT669-40 Quartz calibration plate, 34°

PT669-45 Quartz calibration plate, 17°

PT669-50 Quartz calibration plate, 8.5°



PT665-20

Polarimeter Model AP-300



Compact, automatic polarimeter which enables measurement of the optical rotation or the concentration of optically active substances.

- ◆ Measurement ranges: rotation angle, International Sugar Scale (ISS - with and without temperature compensation), specific optical rotation, concentration and purity
- ◆ Easy operation with keypad and backlit dot matrix display
- ◆ Manual calibration facility allows compensation for variation to standard solutions or other instruments
- ◆ Built-in, 30 measurement memory
- ◆ Backlit colour LCD readout

<i>Ranges x resolution</i>	<i>Angle°</i>	-89.99 to +89.99 x 0.01
	<i>ISS °Z</i>	-130 to +130 x 0.01
	<i>Temp. °C</i>	+18.0 to +30 x 0.1
<i>Accuracy</i>	<i>Angle°</i>	±0.01
	<i>ISS °Z</i>	±0.03
	<i>Temp. °C</i>	±0.5
<i>Measurement wavelength</i>	<i>nm</i>	589 (D-line), halogen lamp light source
<i>Memory</i>		Last 30 readings
<i>Output</i>		Bidirectional RS232C
<i>Overall W x D x H</i>	<i>mm</i>	485 x 285 x 175
<i>Weight</i>	<i>kg</i>	11.5
<i>Power</i>		100-240V 50/60Hz a.c.

As described. Supplied with one each 100mm and 200mm sample tubes. For 100-240V 50/60Hz single phase supplies.

PT680-12 Model AP-300

Spares and accessories

PT669-08 Sample tube 100mm

PT669-12 Sample tube 200mm

PT669-40 Quartz calibration plate, 34°

PT669-45 Quartz calibration plate, 17°

PT669-50 Quartz calibration plate, 8.5°



PT680-12

Presses

Manual and Automatic Hydraulic Presses

CARVER

Versatile 2 and 4-column presses suitable for a wide range of applications including:-

- oil extraction from mineral and vegetable products
- briquetting and pelleting
- laminating
- moulding of rubber and plastic composites
- compression and flow testing within the laboratory, small scale production plant and quality control departments

◆ All models supplied with safety shield

Safety Shields

The shields fitted to Carver presses have heavy gauge, sheet steel sides and rear with a hinged, transparent, tough plastic front to allow access to the press area.

Hotplates/Cooling Plates

These are used for laminating, moulding and other applications requiring heat and pressure applied simultaneously.

Unheated and Heated Test Cylinders

These are used for a variety of applications including:

- moulding test specimens or production items
- pressing out extracts, fats or fluids
- tableting and pelleting
- compression strength test for ceramics, plastics, etc.
- powder metallurgy
- flow tests
- extrusion tests

Plate/Cloth and Cage Equipment

Used for the pressing of oils and liquids from fibrous and other materials and separating crystals from liquors.

Filter Pads and Stainless Steel Pan

Used with the unheated test cylinder outfits for oil extraction applications. The filter pads keep the material being compressed from escaping during compression and the pan captures the extracted oil or fluid.

Swivel Bearing Plate

The major use for this accessory is in crushing and breaking tests particularly with 50 x 50mm cement/concrete cubes and 50 x 100mm test cylinders.

Pellet Die and Buffer Plate

The 13mm evacuable die is used primarily in the preparation of KBr discs for IR spectrography. The die assembly is hardened stainless steel and the construction ensures high performance, economy and ease of maintenance.

The buffer plate is used with the 13mm die. It is 88mm diameter and mounts to the top head of the press where it prevents the plunger of the KBr die from damaging the press head.

AutoPak™ Power Units

Self-contained, electrically operated automatic power units are available for retrofit to existing manual presses.

Pellet Presses

Purpose built manual and automatic models for producing KBr pellets – see page 446 for details.



PW100-30



PW110-12

Presses

Manual Hydraulic Presses

Catalogue No.		PW100-10 basic	PW100-30 basic PW100-37 heated	PW100-60 basic PW100-67 heated	PW110-12 basic	PW110-32 heated
Model		Mini C	Model C	Model M	Model 25-12	Model 25-12H
Clamping force (max. applied load)	tons* lbs kN	12 24000 106.8	12 24000 106.8	25 50000 222.4	25 50000 222.4	25 50000 222.4
Columns		2	2	2	4	4
Plates	mm	150 x 150	150 x 150	228 x 228	300 x 300	300 x 300
Ram stroke	mm	130	130	165	165	165
Daylight opening	mm	0 to 177	19 to 457	19 to 406	25 to 355	0 to 240
Hydraulic fluid capacity	ml	560	560	1120	1120	1120
Dimensions, W x D x H	mm†	260 x 205 x 560	410 x 380 x 915	485 x 485 x 1070	460 x 460 x 940	460 x 635 x 940
Weight, net	kg†	45	64	121	223	291

*US ton equivalent to 0.893 Imperial ton. † For the basic machines only – see Accessories entries also.

Two-Column, Manually Operated

All models supplied with pressure gauge, hydraulic fluid, instruction manual and safety shield.

Manual Hydraulic Press, Mini C basic

Maximum applied load 12 ton. Square unheated plates, 150 x 150mm.

PW100-10 Mini C basic, ref. 3850

Manual Hydraulic Press, Model C basic

Maximum applied load 12 ton. Square unheated plates, 150 x 150mm.

PW100-30 Model C basic, ref. 3851

Manual Hydraulic Press, Model CH heated

Maximum applied load 12 ton. Square heated plates, 150 x 150mm. With digital temperature indicating controls, range ambient to 340°C. For 220V 50/60Hz single phase supplies.

PW100-37 Model CH heated, ref. 4386CE

Safety Eyeshields – see SA930-10.

Manual Hydraulic Press, Model M basic

Maximum applied load 25 ton. Square unheated plates, 228 x 228mm.

PW100-60 Model M basic, ref. 3853

Manual Hydraulic Press, Model MH heated

Maximum applied load 25 ton. Square heated plates, 228 x 228mm. With digital temperature indicating controls, range ambient to 340°C. For 220V 50/60Hz single phase supplies.

PW100-67 Model MH heated, ref. 4389CE

Spares

PW125-05 Hydraulic fluid for all presses, 560ml

PW125-10 Repair Kit for Mini C and Models C hydraulic units

PW125-13 Repair Kit for Models M, Model 25-12 and Model 25-12H hydraulic units

PW125-35 Hydraulic unit for Mini C and Model C presses, weight 12.5kg

PW125-40 Hydraulic unit for Models M, Model 25-12 and Model 25-12H presses, weight 23kg

Four-Column, Manually Operated

All models supplied with pressure gauge, hydraulic fluid, instruction manual and safety shield.

Manual Hydraulic Press, Model 25-12 basic

Maximum applied load 25 ton. Square unheated plates, 300 x 300mm.

PW110-12 Model 25-12 basic, ref. 3855

Manual Hydraulic Press, Model 25-12H heated

Maximum applied load 25 ton. Square heated plates, 300 x 300mm. With digital temperature indicating controls, range ambient to 340°C. For 220V 50/60Hz single phase supplies.

PW110-32 Model 25-12H heated, ref. 3856



PW100-10



PW100-37



PW110-32

Presses

Major Accessories for Hydraulic Presses

Digital AutoPaks

Self-contained power units for converting manually operated presses to automatic operation. Comprising d.c. motor, two-stage pump, touchscreen interface for controlling pressure, cycle, time and temperature (where applicable) parameters automatically. Two-hand, anti-tie down controls protect the operator. Overall 590 x 330 x 610mm W x D x H. Weight 50kg. For 220V 50/60Hz single phase supplies.

- PW130-13** AutoPak 12. For Mini C, Models C
PW130-15 AutoPak 25. For Models M, Model 25-12

Hot Plates/Cooling Plates

Steel, with digital thermostatic control over the range ambient to 340°C. For 220V 50/60Hz single phase supplies. Supplied per pair.

	Type	For Models	Size, mm	Weight, kg
PW130-28	Heating	Mini C, C	150 x 150	12
PW130-29	Heating/cooling	Mini C, C	150 x 150	15
PW130-34	Heating	M	228 x 228	26
PW130-35	Heating/cooling	M	228 x 228	30

Cage Equipment

For extracting oils and liquids from fibrous materials. Minimum daylight opening of 410mm required. Includes felt discs, steel discs, tray, bulb type syringe and mounting hardware. For use with Model C unheated presses only.

- PW130-44** Cage equipment

This accessory cannot be used with the Model C press fitted with heated plates.

Test Cylinders and Pellet Die

For moulding, briquetting and pressing fluids from plants and animal tissues.

For Mini C, Models C, M and 25-12 only

- PW130-50** Test cylinder outfit, stainless steel, 1.125" i.d. (28.6mm). Weight 1.5kg
PW130-52 Set of 12 filter pads for above
PW130-54 Test cylinder outfit, stainless steel, 2.25" i.d. (57.2mm). Weight 4kg
PW130-57 Set of 12 filter pads for above
PW130-60 Stainless steel pan for use with PW130-50 or -54
PW130-68 Heated test cylinder outfit, 1.125" i.d. (28.6mm). Weight 3kg. 220V 50/60Hz
PW130-70 Heated test cylinder outfit, 2.25" i.d. (57.2mm). Weight 6kg. 220V 50/60Hz

For Mini C, Models C & M only

- PW130-80** Swivel bearing plate.
PW130-85 13mm pellet die for KBr pellets. Requires PW130-87
PW130-87 KBr buffer plate. Please state for which press when ordered

Pellet Presses

CARVER

Manual Pellet Press, Model 4350CE

Compact, two-column, fully enclosed, manual hydraulic press designed primarily for KBr pellet pressing. Maximum applied load 12 US tons. Circular unheated plates, 100mm diameter. Supplied complete with 13mm evacuable die, safety shield and high-visibility pressure gauge. Ram stroke 130mm; daylight opening 0 to 146mm. Overall 267 x 605 x 572mm W x D x H. Weight net 55kg.

- PW190-20** Manual pellet press, ref. 4350CE

Automatic Pellet Press, Model 3887CE-4NE

Maximum applied load 25 US tons. Two-column, automatic press primarily for KBr pellet pressing.

- ◆ Touchscreen interface controller with display for pressure, speed, dwell time setting and press status
- ◆ Ten recipe storage of pressure and time settings
- ◆ 0.01sec to 99.9 hours timer
- ◆ Automatic platen opening on cycle completion
- ◆ Adjustable end of cycle alarm
- ◆ Units of measurement setting for kg, lbs or tons
- ◆ Integral safety enclosure with transparent door

With circular unheated plates, 125mm diameter. Ram stroke 25mm; daylight opening 38 to 184mm. Overall 605 x 250 x 600mm W x D x H. Weight net 120kg. For 230V 60Hz single phase supplies. Requires KBr pellet die for operation.

- PW190-60** Pellet press, ref. 3887CE-4NE
PW130-85 Accessory 13mm pellet die for KBr pellets



Digital AutoPaks



PW190-20



PW190-60

Pressure Gauges, Projector, Pulleys

Pressure Gauge/Meter



Electronic Pressure Meters, Testo 510-series

Compact, electronic differential gas/air pressure gauges, with temperature compensation and adjustable barometric altitude compensation.

— Testo 510 differential, range 0 to 100hPa x 0.01hPa

— Testo 511 absolute, range 300 to 1200hPa x 0.1hPa

- ◆ Choice of units selectable: hPa, Pa, mmHg, in. H₂O, in, Hg, psi, m/s, fpm
- ◆ Backlit LCD readout

Testo 510 differential

As described. Range: 0 to 100hPa x 0.01hPa. Accuracy ± 0.03 hPa (0 to 0.30hPa), ± 0.05 hPa (-.31 to 1.00hPa), ± 0.1 hPa + 1.5% of scale (rest of range). Supplied with 4 to 6mm i.d. tubing connection ferrules, wrist strap, belt holder, magnetic clip for attachment to a metal surface and 2 x 1.5V AAA batteries. Overall 119 x 46 x 25mm L x W x D. Weight 90g.

PW210-35 Testo 510-Differential

Testo 511 Absolute

As described. Range: 300 to 1200hPa x 0.01hPa. Accuracy ± 3.0 hPa. Supplied with 4 to 6mm i.d. tubing connection ferrules, wrist strap, belt holder, magnetic clip for attachment to a metal surface and 2 x 1.5V AAA batteries. Overall 119 x 46 x 25mm L x W x D. Weight 90g.

PW210-45 Testo 511-Absolute

BL610-15 Spare battery, 1.5V AAA (2 required)



PW210-35 in use



PW210-45 in use

Overhead Projector

- ◆ A4 (210 x 297mm) format
- ◆ Smooth friction drive focussing
- ◆ Fringe eliminator prevents colour distortion at picture edge
- ◆ Quiet running, high efficiency cooling fan
- ◆ Wide angle lens

Overhead Projector

With base which houses two 24V 250W tungsten halogen lamps, lamp changer and cooling fan. With 294mm, single element lens and friction drive focussing. Provides a picture approximately 0.9 metres wide at 1.1 metre distance and 4.5 metres wide at 4.3 metre distance. Platform image size 297mm x 210mm. Overall 365 x 370 x 690mm W x D x H. Weight 14kg. For 230-250V 50Hz single phase supplies.

PW240-30 Overhead projector

PW245-12 Spare 24V 250W lamp

Accessories for PW240-30

All dimensions given are nominal.

Acetate sheets

Interleaved with tissue paper. Supplied in pack of 100.

PW246-26 297 x 210mm

Pulleys

Pulleys

With plastic wheels, 50mm diameter in metal frame which has a suspension hook either end. Overall length 70mm.

PW600-10 Single

PW600-15 Double



PW240



PW600

Pumps, Carboy/Drum

Carboy Pumps and Siphons



Hand Pumps, Bürkle

Polypropylene. Robust pumps which are suitable for emptying a wide range of liquid containers. All parts in contact with the liquid are either polypropylene, Viton or PTFE so providing excellent chemical resistance against a wide range of liquids in common use. Supplied with a discharge pipe which can be screwed in firmly and turned upwards to prevent dripping. An accessory flexible discharge hose is available.

These pumps are not suitable for handling highly flammable liquids.

	Immersion tube length x diameter mm	Pump volume ml/stroke
PX115-10	500 x 32	200
PX115-14	650 x 32	230
PX115-18	800 x 32	260
PX115-22	1000 x 32	300

Accessory

PX115-60 Flexible discharge hose, PVC. For filling containers some distance away or at a higher level than the discharge vessel. With screw connection and shut-off valve



PX115-10 and PX115-60 in use

Stainless Steel Barrel Pumps, Bürkle

Robust, manual pumps which are suitable for emptying a wide range of liquid containers. All parts in contact with the liquid are electroconductive, stainless steel and suitable for handling flammable liquids. Supplied with removable discharge nozzle. Immersion tube diameter 32mm.

	Submersible length, mm	Total Length, mm	Pump volume ml/stroke
PX118-05	360	480	220
PX118-15	570	690	350
PX118-20	910	1030	560

Accessory adaptors, for connections as indicated

- PX118-60** Barrel screw joint, PP, R2" R2" internal steel barrel thread
- PX118-65** Barrel screw joint, PP Mauser R2" internal coarse thread
- PX118-70** Thread adaptors, PP, 2" BSP
- PX118-75** PVC barrel plug for 40-70mm diameter openings
- PX120-10** Anti-static set, containing 3 connecting copper cables with clamps in plastic carry case



PX118-05 in use, PX118-15/-20 are similar



PX118-60, -65 is similar



PX118-70



PX118-75



PX120-10

Pumps, Carboy/Drum

Carboy Pumps and Siphons continued Manual Drum Pumps

Otal Pumps/Siphons, Bürkle

Polypropylene with PVC stopper. Available with either hand- or foot-operated squeeze bulb and release button to interrupt the flow. The down tube is extendible and this enables the pump to be used with various sizes of bottles. Liquid is forced into the collecting vessel by squeezing the bulb and the flow can be instantly interrupted by pressing the release button. Excess liquid can be sucked back by pumping and operating the release button. For use as a siphon additional tubing must be attached to the outlet tube and after pumping the liquid will flow continuously. Mounted on a 3-part stopper to fit openings as indicated. Not suitable for pumping highly flammable liquids.

	Flow rate litres/minute	Stopper size min./max. o.d. mm	Outlet diameter mm
Hand Pumps			
PX125-13	14	30/70	12
PX125-20	20	30/70	15
PX125-23	26	30/70	18
Foot Pumps			
PX127-13	20	30/70	15
PX127-20	26	30/70	18
PX127-23	30	30/70	22

Robust, polypropylene-bodied, manually operated piston drum pumps offering a choice of three seal options enabling use with a wide variety of fluids. In use the pump is positioned in the neck of the container using a tapered bung, a screwthreaded handwheel is tightened to form an airtight, evaporation-proof seal. Hand pumping pressurises the container forcing liquid up through the polypropylene sectional feeder pipe. The pump body has a built-in safety pressure relief valve. A dual action stainless steel sprung tap lever can be operated to dispense a measured volume or deliver continuous flow up to 20 litres/minute, and a snap-on flow restrictor enables small volumes to be dispensed.

◆ Colour codes*

- Blue — With Nitrile valve and piston seals.
Suitable for food, and oil-based fluids
- Red — With EPDM valve and piston seals.
Suitable for non-food, aqueous solutions
- Green — With Viton valve and piston seals.
Suitable for non-food, specialist applications

*Specific chemical compatibility data – details on request.

Manual Drum Pumps

As described. Supplied with four section feeder pipe, 1 metre long, three tapered bungs to fit sealed containers with internally or externally threaded neck openings of 49.5mm to 60.0mm diameter and outlet flow restrictor.

- PX130-20 Manual drum pump, code blue
- PX130-30 Manual drum pump, code red
- PX130-40 Manual drum pump, code green

Accessory Extension Delivery Hose Kits

For liquid transfer, remote dispensing and siphoning. Flexible hose, 2 metres long, dual action tap lever, grip handle and nozzle guard all in materials suitable for handling fluids compatible with the corresponding pump.

- PX132-20 Extension hose, code blue, for PX130-20 only
- PX132-30 Extension hose, code red, for PX130-30 only
- PX132-40 Extension hose, code green, for PX130-40 only



PX127

PX125

Static Electricity Hazards

Attention is drawn to the need to use correct procedures to prevent any potential ignition hazards due to the accumulation of static electricity charges during pumping. Correct procedures are described in BS5958 'Control of Undesirable Static Electricity': Part 1 'General Considerations' and Part 2 'Recommendations for Particular Industrial Situations'. In general there is a need to earth-clamp all metal parts of the pumping system, e.g. drum, pump tube and receiving vessel, using an earth conductor having a resistance to earth of not more than 10 Ohm. The use of plastic drums or vessels may increase the potential risks and their use in hazardous areas or with hazardous liquids should be carefully considered in the light of the recommendations of BS5958.



PX130 in use

Pumps, Carboy/Drum

Mechanical Drum Pumps, AccuOne



Flexible, convenient liquid transfer pumps comprising separate rechargeable battery, control/pump housing and tube set modules. For general laboratory and light industrial use.

- ◆ Continuously adjustable pumping speed from 0.4 to 12 litres/minute
- ◆ Suitable for most liquids up to 500mPas viscosity
- ◆ All modules easily disconnected for cleaning or exchange
- ◆ Up to 600 litres can be pumped from one battery charge
- ◆ Latest generation, lithium ion technology with no memory effect and auto shut-off operating before full discharge
- ◆ Excellent chemical resistance, materials in contact with media: Hastelloy C, polypropylene and PTFE
- ◆ Choice of pump tube sets up to 1000mm long

Mechanical Drum Pumps, AccuOne, Bürkle

As described. Supplied with rechargeable battery, rigid 3/4" diameter discharge tube set as indicated, and charger requiring a 230V 50/60Hz single phase supply.

- PX138-10** 500mm tube set
- PX138-25** 700mm tube set
- PX138-40** 1000mm tube set

Accessories and Spares for PX138-series

- PX138-64** Spare rechargeable battery
- PX138-68** Spare discharge tube
- PX138-72** 500mm tube set only
- PX138-76** 700mm tube set only
- PX138-80** 1000mm tube set only
- PX138-84** Accessory discharge hose, flexible PVC with PP nozzle
- PX118-60** Barrel screw joint, PP, R2" internal steel barrel thread
- PX118-65** Barrel screw joint, PP Mauser R2" internal coarse thread
- PX118-70** Thread adaptors, PP, 2" BSP
- PX118-75** PVC barrel plug for 40-70mm diameter openings



PX138 in use

Mechanical Drum Pumps, GLP25

Easy to use, precise, mains-driven, liquid transfer pumps for laboratory and general industrial use in handling a wide range of non-flammable liquids, including concentrated acids and bases inks, and emulsions.

- ◆ Steplessly adjustable pumping speed from 1 to 20 litres/minute
- ◆ Suitable for most liquids up to 500mPas viscosity
- ◆ Constructed in polypropylene, stainless steel and Viton®
- ◆ Motor and pump tube mechanism can be separated for cleaning
- ◆ Mains-driven motor ensures continuous performance with high torque
- ◆ Choice of pump feed tubes up to 1000mm long for dispensing from 220 litre drums, with rigid 250mm output tube and nozzle

Mechanical Drum Pumps, GLP25

As described. Supplied with pump tube set as indicated, drum adapter for 40 to 58mm diameter necks and motor requiring a 230V 50Hz single phase supply. Rating 160W.

- PX144-10** 500mm tube set
- PX144-20** 700mm tube set
- PX144-30** 1000mm tube set

Accessories and Spares for PX144-series

- PX144-72** Spare motor, 230V 50Hz
- PX144-74** Feed tube set, 500mm, with rigid output tube
- PX144-76** Feed tube set, 700mm, with rigid output tube
- PX144-78** Feed tube set, 1000mm, with rigid output tube
- PX144-82** Spare rigid output tube, 250mm
- PX144-84** Drum adapter for 65 to 70mm dia. necks
- PX144-86** Output tube, flexible PVC hose, 1500mm long with polypropylene nozzle

Static Electricity Hazards

Attention is drawn to the need to use correct procedures to prevent any potential ignition hazards due to the accumulation of static electricity charges during pumping. Correct procedures are described in BS5958 'Control of Undesirable Static Electricity': Part 1 'General Considerations' and Part 2 'Recommendations for Particular Industrial Situations'. In general there is a need to earth-clamp all metal parts of the pumping system, e.g. drum, pump tube and receiving vessel, using an earth conductor having a resistance to earth of not more than 10 Ohm. The use of plastic drums or vessels may increase the potential risks and their use in hazardous areas or with hazardous liquids should be carefully considered in the light of the recommendations of BS5958.



PX144 in use

Pumps, Filter

Water Jet Filter Pump

Single pump providing a rough vacuum suitable for many filtration, distillation and aeration applications. With integral non-return valve to prevent suck-back and flooding.

Catalogue No.	PX180-10
Material	Polypropylene
Approx. vacuum	mbar 16
Water inlet connection:	
1) Flexible tubing	10 to 12mm bore
2) Other supplied	Sleeve nut R 3/4" Reduction adapter R 1/2"
Vacuum connection:	
flexible tubing	6 to 9mm bore can be unscrewed
Recommended water pressure	bar 3 to 6
Approx. water consumption	l/h 200

Water Jet Filter Pump

As described. Without connecting tubing.

PX180-10 Brand water jet pump

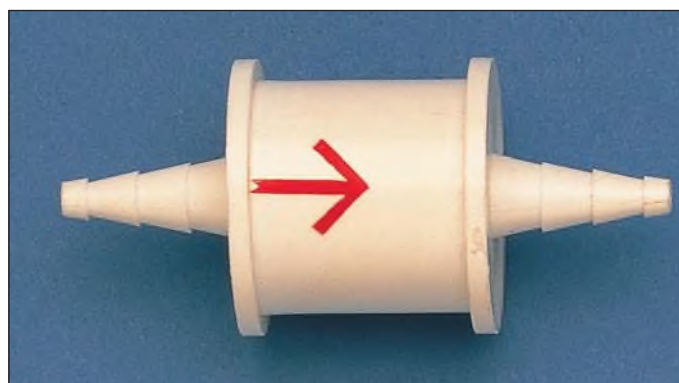


PX180

Non Return Valves, Azlon

Polypropylene with neoprene disc. For insertion in vacuum lines and fluid handling systems. Useful for preventing back pressure in filter flasks. With tapered ridged side-arm to take a range of flexible tubing sizes. Can be dismantled for cleaning. An arrow printed on the body indicates direction of flow.

	Ref.	Arms o.d. mm
PX185-10	NWH902P	4 to 7
PX185-17	NWH905P	8 to 10
PX185-20	NWH906P	11 to 15



PX185

Pumps, air/gas/vacuum

Portable Vacuum Pump/Compressor, LLG uniVACUUPUMP 1

Simple, compact, portable, oil-free, piston pump housed in a lightweight plastic casing with handle for general duty applications requiring only a rough vacuum and moderate pressure. Ideal water jet or aspirator replacement. Not suitable for use with organic, basic or acidic vapours and gases. Free air displacement 9.2 litres/minute, ultimate vacuum 292mbar. Overall 191 x 194 x 114mm H x W x D. Weight 2.3kg. Supplied with 1.8 metre power supply cable. For 230V 50Hz single phase supplies.

PX240-20 Model uniVACUUPUMP 1

Dry Piston Pumps, WOB-L®



Oil-free, vacuum/pressure piston pumps ideal for air sampling, pressure or vacuum filtration, water aeration or for use with vacuum ovens or flame photometers. Not suitable for use with organic, basic or acidic vapours and gases.

- ◆ Built for continuous-duty operation
- ◆ All parts in contact with air are aluminium or stainless steel and corrosion-protected from moisture
- ◆ All pumps supplied with thermally protected motor, carrying handle and suction cup feet for stability

Catalogue No.	PX245-15	PX245-20	PX245-59
Model No.	2522C-02	2534C-02	2546C-02
Stages	1	1	1
Free air displacement litres/minute	18	28	38
Ultimate vacuum mbar	133	93	80
Pressure bar	1	0.5	1
Hose connections, i.d. mm	5	5	5
Overall H mm	254	254	254
W mm	224	224	191
D mm	206	206	229
Weight kg	5.3	5.3	6.3

As described. Supplied with mains lead. For 230V 50Hz single phase supplies.

PX245-15 Model 2522C-02, complete with vacuum and pressure gauges, regulators, silencer and water trap

PX245-20 Model 2534C-02, complete with vacuum and pressure gauges, regulators, silencer and water trap

PX245-59 Model 2546C-02, complete with vacuum and pressure gauges, regulators, silencer and water trap



PX240



PX245-15/-20, PX245-59 is similar

Pumps, Air/Gas/Vacuum

Diaphragm Vacuum Pump/Compressors

Oil-free diaphragm pump/compressors that provide a quiet and compact vacuum or pressure source for air, gas and vapour applications. They are ideal for the majority of laboratory duties requiring low vacuum, especially assisted filtration. They are an ideal replacement for water jet pumps.

All pumps conform to IEC 1010 safety requirements for electrical equipment for laboratory use.

General purpose pumps

Housed in robust, splashproof polycarbonate cases. Each unit has a built-in inlet filter and silencer for quiet operation and is supplied with a long IEC mains lead. They are simple to use and are ideal for light general purpose duties, aeration and assisted filtration requirements. Model PX305-10 is particularly suitable for school and college laboratories.

Cat. No.	Vac mbar	Pressure Bar	Flow l/min	Inlet/Outlet
PX305	500	0.8	5	4mm
PX345	280	1.8	14	8mm

General Purpose Pumps

As specified. In polycarbonate splashproof case. For 230V 50Hz single phase supplies. Dimensions given are overall H x W x L.

- PX305-10** Cased, 120 x 205 x 140mm
- PX345-10** Cased, 120 x 205 x 140mm

Continuous use pumps

Housed in robust splashproof metal cases (except PX330 and PX365) complete with carrying handle. Each unit has a built-in inlet filter, silencer and is supplied with a long IEC mains lead. They can be run continuously making them ideal for circulating systems and long term experiments.

Cat. No.	Vac mbar	Pressure Bar	Flow l/min	Inlet/Outlet
PX330*	550	2.0	7.5	8mm
PX332	280	2.0	8.0	8mm
PX365*	80	2.5	18	8mm
PX367	80	2.5	18	8mm
PX368	80	2.5	35	8mm

*These pumps are uncased for building into equipment.

Continuous Use Pumps

As specified. In metal splashproof case where indicated. For 230V 50Hz single phase supplies. Dimensions given are overall H x W x L.

- PX330-10** Uncased, 140 x 88 x 158mm
- PX332-20** Cased, 212 x 136 x 265mm
- PX365-10** Uncased, 178 x 132 x 202mm
- PX367-10** Cased, 216 x 210 x 283mm
- PX368-10** Cased, 235 x 230 x 230mm

Hand Vacuum Pumps

Hand Operated Vacuum Pumps

Plastic bodied, portable, hand operated pumps suitable for many simple vacuum applications including aiding filtration and evacuating desiccators. Can attain a vacuum of approximately 170mbar. Nozzle accepts 6.4mm i.d. tubing. The gauge of PX220-15 is scaled 0 to 30 inches and 0 to 100kPa.

	Pumping rate	Gauge
PX220-11	16ml/stroke	No
PX220-15	16ml/stroke	Yes
PX220-20	36ml/stroke	No



PX305, PX345 is similar



PX332, PX367, PX368 are similar



PX220-15



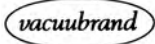
PX330



PX220-20, PX220-11 is similar

Pumps, Air/Gas/Vacuum

Diaphragm Pumps



A range of one, two and three stage, oil-free diaphragm pumps with excellent performance and low leak rate.

- ◆ Available in two versions:-
 - for general applications with pumped material in contact with aluminum and Viton® (FPM)
 - for chemical applications with pumped material in contact with PTFE, ETFE and similar fluoroplastics
- ◆ Compact drive gives very quiet operation with ultra-low vibration levels
- ◆ IP42 protection rating

General Application Models

Diaphragm Pumps, Vacuubrand

As described. With fabric-reinforced Viton diaphragm. For 230V 50/60Hz single phase supplies.

- PX440-12** Model ME4NT
- PX440-23** Model ME4RNT complete with vacuum and pressure gauges
- PX440-32** Model MZ2NT

Chemical Application Models

Diaphragm Pumps, Vacuubrand

As described. With gas/vapour path of fluoroplastics and PTFE sandwich design diaphragm. For 230V 50/60Hz single phase supplies.

- PX443-12** Model ME4CNT
- PX443-22** Model MZ2CNT
- PX443-32** Model MD4CNT

Catalogue No.	PX440-12	PX440-23	PX440-32
Model	ME4NT	ME4RNT	MZ2NT
Stages	1	1	2
Max. pumping speed	@ 50Hz m ³ /h 4.0 @ 60Hz m ³ /h 4.4	3.8 4.2	2.2 2.4
Ultimate vacuum	mbar 70	100	7
Inlet/outlet nozzles	mm 10*	10	10*
Overall H	mm 198	198	198
W	mm 242	242	242
D	mm 255	255	255
Weight	kg 11.1	11.1	11.1

* The outlet nozzle is fitted with a silencer.

Catalogue No.	PX443-12	PX443-22	PX443-32
Model	ME4CNT	MZ2CNT	MD4CNT
Stages	1	2	3
Max. pumping speed	@ 50Hz m ³ /h 3.9 @ 60Hz m ³ /h 4.3	2.0 2.3	3.4 3.8
Ultimate vacuum (with gas ballast)	mbar 70	7 (12)	1.5 (3)
Inlet/outlet nozzles	mm 10	10	10
Overall H	mm 198	198	198
W	mm 242	243	243
D	mm 255	243	325
Weight	kg 11.1	11.1	14.3



PX440-12



PX440-32



PX443-22



PX440-23



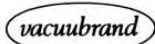
PX443-12



PX443-32

Pumps, Air/Gas/Vacuum

Vacuum Pumping Units, Vario



Compact, high performance pumping units comprising chemistry diaphragm vacuum pump, adaptive sensor and digital controller to maximise solvent recovery, rescue process times and offer fine control of complex evaporative applications.

- ◆ Automatically seeks optimum vacuum for process parameters (Distillation, drying etc.)
- ◆ Virtually 100% solvent recovery
- ◆ Bidirectional RS232 interface allows automatic process setting/control via the users' PC, if required
- ◆ Fuzzy logic and PID control offers easy, efficient and safe processing
- ◆ Built-in aeration valve provides fine, precise vacuum control
- ◆ Incorporate high performance diaphragm pump offering higher pumping speed, lower ultimate vacuum, low vibration and longer diaphragm life
- ◆ All parts in contact with gases and vapours are made of highly resistant plastics

Vacuum Pumping units, Vario

As described. With gas/vapour path of PTFE and similar materials, vacuum sensor and controller with gauge head, inlet and outlet catchpots and exhaust separator. For 230V 50/60Hz single phase supplies.

- PX447-20** Model PC3001
- PX447-30** Model PC3002
- PX447-40** Model PC3003
- PX447-50** Model PC3004

Catalogue No.	PX447-20	PX447-30
Model	PC3001 Vario	PC3002 Vario
Pump	MD1C	MZ2CNT
Flow rate	m ³ /h 2.0	2.8
Ultimate vacuum	mbar 2	7
Inlet nozzle	mm 10 — both models	
Overall H	mm 400	516
W	mm 300	422
D	mm 306	258
Weight	kg 7.7	18.4

Catalogue No.	PX447-40	PX447-50
Model	PC3003 Vario	PC3004 Vario
Pump	MV2C	MD4C
Flow rate	m ³ /h 2.8	4.6
Ultimate vacuum	mbar 0.6	1.5
Inlet nozzle	mm 10 — both models	
Overall H	mm 516	516
W	mm 422	422
D	mm 258	258
Weight	kg 21.0	21.0



PX447-20



PX447-50

Pumps, Air/Gas/Vacuum

Diaphragm Vacuum Pumps/Compressors



A range of portable oil-free pumps which are quiet running and require the minimum of maintenance. Maximum permissible gas and air temperature is 40°C.

Catalogue No.		PX470-15	PX470-35	PX474-35	PX474-80
Max. flow*	litres/min	16	30	20	34
Ult. vacuum	mbar	20	160	6	6
Max. pressure	bar	0.5	0.5	-	-
Hose connection o.d.	mm	9	9	9.5	9.5
Motor protection		IP20	IP20	IP30	IP30
Overall	H	mm	194	222	240
	W	mm	203	294	177
	D	mm	103	250	289
Weight, approx.	kg	3.95	3.95	8.8	11.3

* At atmospheric pressure.

For general tasks, such as filtration, SPE, degassing and fluid aspiration

- ◆ Polyphenylene sulphide (PPS) pump head with perfluoro-elastomer (FFPM) valves
- ◆ PTFE coated diaphragm
- ◆ All other parts in contact with gas are corrosion resistant PTFE/PVDF or similar materials
- ◆ All models supplied with on/off switch and hose connections

Diaphragm Pump, 16 litres/minute

As specified. For 240V 50Hz single phase supplies, 80W.

PX470-15 Pump, N816.3KT.18

Diaphragm Pump, 30 litres/minute

As specified. For 240V 50Hz single phase supplies, 150W.

PX470-35 Pump, N816.1.2KT.18

Accessory

PX470-65 Filter/silencer for PX470-15. Vacuum or pressure outlet

For heavier-duty tasks, such as rotary evaporation, distillation, vacuum ovens and for pumping moist gases

- ◆ PTFE pump head and FFPM valve bodies
- ◆ PTFE coated diaphragm
- ◆ All other parts in contact with gas are corrosion resistant PTFE/PVDF and similar materials
- ◆ All models supplied with on/off switch and hose connections

Diaphragm Pump, 20 litres/minute

As specified. Vacuum only. For 230V 50Hz single phase supplies, 120W.

PX474-35 Pump, N820G

Diaphragm Pump, 34 litres/minute

As specified. Vacuum only. For 230V 50Hz single phase supplies, 200W.

PX474-80 Pump, N840G

Flow indicators – see *FR200*.

Pump tubing – see *Tubing section*.

Personal protection – see *Safety section*.



PX470-15



PX470-35



PX474

Pumps, Air/Gas/Vacuum

Air Generators/Compressors



Oil-lubricated Pump

Offering ultra high performance with ultra low noise. Deliver instrument quality air and will replace the use of pressurised gas cylinder air.

- ◆ Piston rings all but eliminate oil carryover into the air supply
- ◆ Fitted with integral outlet pressure regulator and gauge
- ◆ Very low particle, liquid or hydrogen contamination of the air produced

Catalogue No.	PX485-20	
Model	35/20	
Power	kW	0.34
Flow, approx. litres/minute		
	at 8 bar	31
	at atmospheric pressure	50
Noise output	db(A)	40
Air tank	litres	4
Outlet	1/4 inch BSP female thread	
Overall	H, mm	330
	W, mm	280
	D, mm	320
Weight	kg	18

As described. Supplied with 10m air line filter, outlet pressure regulator and gauge. For 220-240V 50Hz supplies.

PX485-20 Model 35/20

Oil-free Pumps

Innovative, ultra-quiet running pumps providing oil-free air for scientific instruments and numerous other applications requiring critical air quality, including gas generation, autosampling and laser cooling.

- ◆ 100% oil-free output
- ◆ Compact design allowing use where space is limited
- ◆ Fitted with outlet pressure regulator, 10m air line filter and condensate drain plug

Catalogue No.	PX489-15	PX489-35	PX489-65
Model	PT5	PT15	PT24
Power	kW	0.55 — all models	
Flow, approx. litres/minute			
	at 8 bar	37	37
	at atmospheric pressure	110	110
Noise output	db(A)	54 — all models	
Air tank	litres	4	15
Outlet	1/4 inch BSP female thread — both models		
Overall	H, mm	340	530
	W, mm	400	370
	D, mm	530	370
Weight	kg	17	23

As described. Supplied with outlet pressure regulator, 10m air line filter and gauge. For 220-240V 50Hz supplies.

PX489-15 Model PT5

PX489-35 Model PT15

PX489-65 Model PT24



PX485-20



PX489-15



PX489-65



PX489-35

Pumps, Liquid

Diaphragm Liquid Pumps, LIQUIPORT®



Convenient, simple transfer or dosing pumps for corrosive or non-corrosive liquids.

- ◆ Self-priming and able to run dry
- ◆ PTFE-coated diaphragm and FFPM valves, with choice of pumphead material in contact with med - polypropylene, PVDF or PTFE
- ◆ Low maintenance design
- ◆ Continuously adjustable flow rate with dial control with LED indicators which illuminate sequentially as the rate is increased

Model		NF100**18S	NF1.100**18S	NF300**18S	NF1.300**18S
Flow rate	ml/min*	0.2 to 1.3	0.2 to 1.3	0.5 to 3.0	0.5 to 3.0
Pressure head	mWg	10	60	10	60
Suction head	mWg	3	3	3	3
Housing protection level		IP65	IP65	IP65	IP65
Hose connection	o.d. mm	8	8	12	12
Overall	H x W x D mm	180 x 100 x 130	180 x 100 x 130	190 x 110 x 160	190 x 110 x 160
Weight	kg	1	1	1.5	1.5

*Using water at 20°C and zero pressure head

**Pump head material code key: KT. = polypropylene TT. = PVDF FT. = PTFE

Diaphragm Liquid Pumps, LIQUIPORT®

As described. For 100-230V, 50/60Hz single phase supplies. In pumphead material as indicated.

PX587-06	NF100KT.18S	PX589-07	NF300KT.18S
PX587-12	NF100TT.18S	PX589-13	NF300TT.18S
PX587-18	NF100FT.18S	PX589-19	NF300FT.18S
PX587-24	NF1.100KT.18S	PX589-25	NF1.300KT.18S
PX587-30	NF1.100TT.18S	PX589-31	NF1.300TT.18S
PX587-36	NF1.100FT.18S	PX589-36	NF1.300FT.18S



PX587- and PX589-series

Pumps, Peristaltic

Peristaltic Pumps

Verderflex®

Model EV500

Compact, manual control pump with forward/reverse switch, fast prime button, rotary potentiometer speed control and two-roller, polycarbonate pump head.

- ◆ Range 2 to 185ml/minute
- ◆ Accepts 1.6mm wall tubing up to 4.8mm bore
- ◆ Permanent magnet drive motor
- ◆ IP30 protection rating, chemical resistant, epoxy coated housing

Performance

Tube bore, mm	Flow rate, ml/minute
1.6	2 to 23
3.2	50 to 82
4.0	7 to 115
4.8	11 to 185

Peristaltic Pump EV500

As described. Overall 205 x 110 x 195mm W x D x H. Weight 1.7kg. For 110, 230V 50/60Hz single phase supplies.

PX710-10 EV500

Peristaltic Pump Tubing, Santoprene®

Highly resistant, medical grade, peristaltic pump tubing offering extended working life and wide chemical compatibility, with USP Class VI and EU 2003/11/EC approval. It is also autoclavable. For highest dispensing precision silicone tubing is recommended. All tubing has 1.6mm wall thickness and is supplied in packs of 15 metres.

	Bore x o.d., mm
TY567-12	0.5 x 3.7
TY567-16	0.8 x 4.0
TY567-22	1.6 x 4.8
TY567-26	3.2 x 6.4
TY567-32	4.8 x 8.0
TY567-36	6.4 x 9.6
TY567-42	8.0 x 11.2

Santoprene® is a registered trademark of ExxonMobil Chemical Company, USA.

Model Vantage 3000 P EZ

Fully programmable, flexible-use pumps providing highly accurate and repeatable flow rates with quick, easy set-up from on-board display and membrane keypad, or remotely via an analogue input (0 to 10V d.c., 4 to 20mA), potentiometer input (10kohm), or RS232 interface for connection to the user's PC.

- ◆ Ranges: 0.9 to 1310ml/minute, 10 to 250rpm
- ◆ Accepts 1.6mm wall tubing up to 8.0mm bore
- ◆ Brushless d.c. motor for continuous operation
- ◆ Self-priming
- ◆ Reversible pumping
- ◆ Single or repeat dose compatibility with user defined interval
- ◆ Accuracy when pumping viscous products can be achieved using the calibration mode
- ◆ Run-back option prevents spillages
- ◆ IP66 protection class housing
- ◆ Acetal and nylon pumphead with Nylatron rollers

Performance

Tube bore, mm	Flow rate, ml/minute
0.8	0.9 to 18.8
1.6	2.8 to 70.0
3.2	10.7 to 268.0
4.8	243.3 to 588.0
6.4	37.3 to 938.0
8.0	52.7 to 1310.0

Peristaltic Pump Vantage 3000 P EZ

As described. Overall 291 x 252 x 168mm W x D x H. Weight 4.5kg. For 110, 230V 50/60Hz single phase supplies.

PX712-15 Vantage 3000 P EZ Programmable



PX710



PX712

Pumps, Aspirator, Peristaltic, Syringe

Aspirator Pump, FTA-1

Grant bio

A compact, flexible-use, personal aspirator pump with integrated trap flask for the routine aspiration of supernatant alcohol and buffer in DNA/RNA purification, cell washing, tissue culture applications, ELISA, cell staining and excess removal of liquid from slides, petri dishes etc.

- ◆ Microprocessor controlled pumping unit, operating at 513mbar abs.
- ◆ Supplied with 1 litre trap flask for the collection of residues during aspiration
- ◆ Hydrophobic filter with 99.9% efficiency to trap bacteria, viruses and infected particulates, reducing the risk of contamination possible when compared with conventional vacuum pumping systems
- ◆ With choice of single- or multi-tip operation when using accessory 8-channel adapter

As described. Supplied with 1 litre trap flask, hydrophobic filter, aspiration tube and tip, and instructions. 340 x 160 x 210mm H x W x D. Weight 1.5kg. For use with 100-240V 50/60Hz single phase supplies.

PX800-15 Aspirator pump, Grant-bio, FTA-1

Accessories

PX815-05 FA-1 replacement hydrophobic filter

PX815-10 FTA-B replacement cap with inlet/outlet fittings for 1 litre trap flask

PX815-15 MA-8 8-channel adapter kit for use with microplates

PR850-30 Spare tips, 200µl, yellow, pack of 1000

BS445-30 Spare trap flask, 1 litre, with polypropylene cap

Syringe Pumps

Razel

For precise infusing of liquids, utilising standard glass or plastic syringes from 5ml to 50ml, and microlitre to 5ml syringes using the accessory adapter. 99 delivery speeds are selectable and can be adjusted during operation if required. A built in manual flow-rate calculator indicates the speed setting necessary to achieve specific flow rates when using 5, 10, 20, 30 or 50ml syringes. A separate flow rate chart is also provided for other sizes and indicates variation factors for different makes of syringe. An acoustic alarm activates when the syringe is empty, and halts infusion. Lifetime lubricated bronze bearings and critical parts constructed in stainless steel ensure dependable long-term service.

Model		R99-EF	R99-FJM
Flow rates, (using 50ml syringe)	max. ml/h	143	427
	min. ml/h	1.45	0.145
Accuracy	%	±2	±2
Repeatability	%	±0.5	±0.5
Power		230V 50Hz single phase supply — both models	
Dimensions W x D x H	mm	250 x 150 x 150 — both models	
Weight	kg	3.4 — both models	

Syringe Pumps, Razel

As described. Supplied with acoustic alarm. For 230V 50Hz single phase supplies. Without syringes.

PX890-10 Model R99-EF

PX890-60 Model R99-FJM

Micro syringe adapters

Enables PX890-series syringe pumps to be used with single place adapter to hold one micro syringe only

PX890-85 Micro syringe adapter, single place

Enables PX890-series syringe pumps to be used with up to six microlitre volume to 3ml capacity syringes (maximum diameter 10mm).

PX890-90 Micro syringe adapter, 6-place

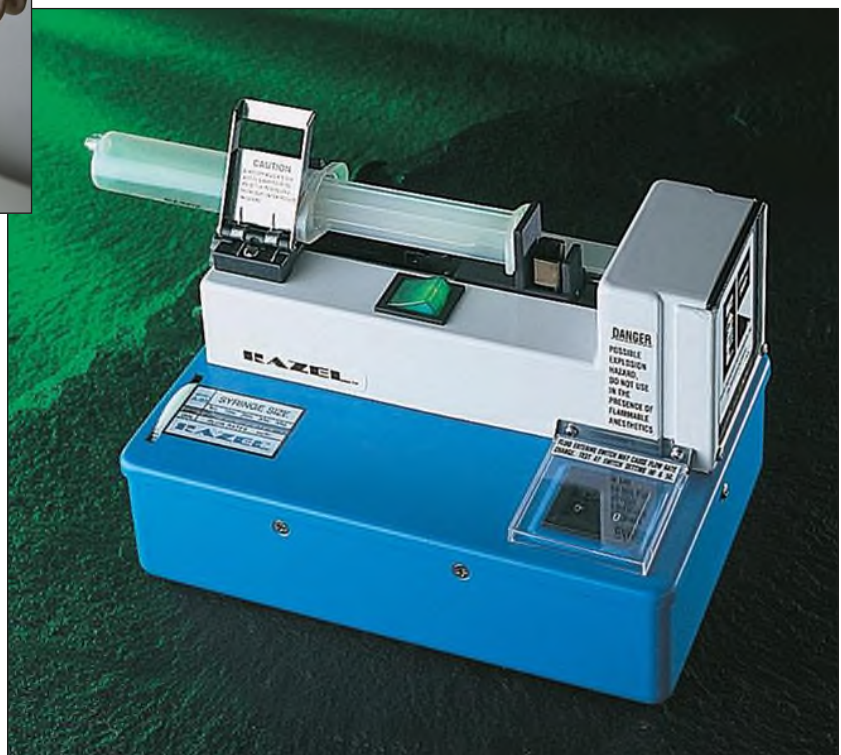
Syringe pipettors – see SY700 to SY720.

Syringes – see SY210 to SY638.



Inset: PR850-30 in use with PX800-15

PX800-15 in use



PX890-series

Pumps, Vacuum

Scroll Pumps



Innovative, portable, dry pumps designed to provide vacuum totally free of lubricants.

- ◆ Ultimate vacuum 0.007, 0.02 or 0.03mbar, depending on model selected
- ◆ No oils or greases of any kind required, ideal for "clean" processes
- ◆ Meshing scroll mechanism
- ◆ Patented bearing shield isolates bearings from exposure to the vacuum environment
- ◆ Low noise and vibration levels
- ◆ Very low maintenance

Catalogue No.		PY260-10	PY260-30	PY260-45	PY260-60
Model No.		nXDS6i	nXDS10i	nXDS15i	nXDS20i
Ultimate vacuum (total pressure)	mbar torr	0.02 0.015	0.007 0.005	0.007 0.005	0.03 0.022
Displacement	m ³ /h	6.8	12.7	17.1	28.0
Maximum water vapour pumping rate	kg/h	0.11	0.14	0.28	0.22
Inlet/outlet connection		NW25/NW25	NW25/NW25	NW25/NW25	NW25/NW25
Noise level (at 1 metre)	db(A)	52	52	52	52
Vibration	mm/sec.(rms)	<4.5	<4.5	<4.5	<4.5
Overall, H x W x D	mm	302 x 265 x 432 — all models			
Weight	kg	26.2	25.8	25.2	26.6

Scroll Pumps, nXDS series

As described. With direct drive motor. For 100-127V and 200-240V 50/60Hz single phase supplies. Supplied without mains lead.

- PY260-10 nXDS6i
- PY260-30 nXDS10i
- PY260-45 nXDS15i
- PY260-60 nXDS20i

Accessories and Spares

- PY262-06 Tip seal service kit for PY260-series
- PY262-15 Silencer for PY260-series

Accessory mains leads

With IEC60320 connector and plug as indicated for use with Edwards pumps, PY260/PY330 series.

- PY334-12 Without plug
- PY334-14 With UK plug
- PY334-18 With European Schuko plug

Clamping Ring

Stainless steel. For connecting gauges, adapters and pipe flanges. Requires PY787-06 centring ring seal.

- PY785-06 NW25

Centring Ring Seal

Polymer, with nitrile O-ring. For use with PY785-06 clamping ring.

- PY787-06 NW25

Adapters

Aluminium. NW25 connection.

- PY789-10 Radiused elbow, 90°
- PY789-15 T-Piece, 3-way
- PY789-20 Cross, 4-way, 90° between limbs
- PY789-40 Nozzle, for 12mm i.d. tubing



PY260



Pumps, Vacuum

Vacuum Pumps



Vacuum Pump, E2M0.7

Two stage, direct drive, rotary vacuum pump. Ultimate vacuums attainable: 3×10^{-3} mbar without gas ballast, 2×10^{-1} mbar with gas ballast. Displacement 0.9m³/hour (50Hz) 1.1m³/hour (60Hz). Vacuum outlet connection 11mm diameter. Supplied with nozzles and Ultragrade 15 oil charge, but without mains lead (requires PY334-for operation). Overall H x W x L 227 x 323 x 125mm. Weight 10kg. For 220-240V 50/60Hz single phase supplies.

PY310-05 E2M0.7

PY334-12 Mains lead without plug

Vacuum Pump, E2M1.5

Two stage, direct drive, rotary vacuum pump. Ultimate vacuums attainable: 3×10^{-3} mbar without gas ballast, 2.5×10^{-2} mbar with gas ballast. Displacement 1.8m³/hour. Vacuum outlet connection 11mm diameter. Supplied with nozzles, spare seals and Ultragrade 15 oil charge. Without mains lead (requires PY334-for operation). requires PY334-for operation. Overall H x W x L 227 x 323 x 125mm. Weight 10kg. For 220-240V 50/60Hz single phase supplies.

PY310-10 E2M1.5

PY334-12 Mains lead without plug

Spares and accessories for E2M0.7 and E2M1.5 – see opposite page.



PY310-05



PY310-10



PY330 series

Vacuum Pumps, RV Series

A series of two-stage, direct drive rotary vane pumps which are dual mode. Adjustment of a single control allows the pumps to be set for:

- High vacuum mode with ultimate vacuum up to 2×10^{-3} mbar
- High throughput mode to handle inlet pressures up to 80mbar

Other features include:

- ◆ Two levels of gas ballast
- ◆ Improved water vapour handling capability
- ◆ Suck back protection
- ◆ Quiet running
- ◆ Sight-glass to check oil level
- ◆ Dual voltage and frequency

Catalogue No.		PY330-10	PY330-20	PY330-30	PY330-40
Model		RV3	RV5	RV8	RV12
High vacuum mode mbar		2×10^{-3}	2×10^{-3}	2×10^{-3}	2×10^{-3}
Ultimate vacuum					
High throughput mode mbar		3×10^{-2}	3×10^{-2}	3×10^{-2}	3×10^{-2}
Ultimate vacuum					
Displacement, 50Hz	m ³ /h	3.7	5.1	8.5	12.0
60Hz	m ³ /h	4.5	6.2	10.0	14.2
Max. water vapour inlet pressure	mbar	80	50	50	32
Max. water vapour pumping rate	kg/h	0.22	0.22	0.22	0.29
Inlet/Outlet connection		NW25	NW25	NW25	NW25
Oil capacity	litres	0.7	0.7	0.75	1.0
Recommended oil		Edwards Ultragrade 19 — all models			
Overall H x W x D	mm	225 x 158 x 429	225 x 158 x 429	261 x 158 x 471	261 x 158 x 489
Weight	kg	22	22	27	29

Note: 1mbar = 0.75 torr = 0.75 Hg.

Vacuum Pumps, RV series

As described. With direct drive motor. For 110-120V and 220-240V 50/60Hz single phase supplies. Supplied with Ultragrade 19 oil charge but without mains lead.

- PY330-10** RV3
- PY330-20** RV5
- PY330-30** RV8
- PY330-40** RV12

Accessory mains leads

With IEC60320 connector and plug as indicated for use with Edwards pumps, PY250/PY350 series.

- PY334-12** Mains lead without plug
- PY334-14** With UK plug
- PY334-18** With European Schuko plug

Ultragrade 19 oil – see next page.

Pumps, Vacuum

Vacuum Pump Accessories and Spares



Oil Mist Filters

For fitting directly to the pump outlet. Flange connection sizes as indicated.

- PY400-20** EMF3 for E2M0.7 and E2M1.5 pumps. NW10 flange
- PY400-30** EMF10 for RV3, RV5 and RV8 pumps. NW25 flange
- PY400-40** EMF20 for RV12 pumps only. NW25 flange

Pump Oils

Supplied in packs of 4 litres.

	Grade/Type
PY417-60	TW. A distilled hydrocarbon without additives
PY417-63	Ultragrade 15. A straight mineral oil for cold start applications
PY417-67	Ultragrade 19. A low viscosity mineral oil
PY417-72	Ultragrade 20. A medium viscosity mineral oil

Graduated jugs for charging pumps with oil – see MD749.

APG 100 Active Pirani Gauge

Measures down to 10^{-3} mbar, with accuracy $\pm 15\%$ (at <100mbar). NW25 connection. Requires separate display/controller unit for operation.

- PY752-10** APG100-XM/NW25
- PY752-13** Cable for connecting PY752-10 to PY752-25, 1 metre

TIC Display/Controller

Range 2000 to 6.6×10^{-10} mbar. Automatically recognises PY752-10. With 128 x 64mm backlit graphics display with switchable units (Torr, Pa, Volts). Up to 3 gauges can be monitored at the same time, with alarm setting and RS232/RS485 output for full monitoring and control via the users' PC using software provided. For 90-264V 47/63Hz single phase supplies. Requires a gauge and connection/supply cables for operation.

- PY752-25** TIC display unit
- PY752-27** Mains supply cable for PY752-25
- PY752-29** RS232 interface cable for connection to the users' PC

Dial Gauges

Capsule type, barometrically compensated. Accuracy $\pm 5\%$ fsd. In a metal case with 90mm dia dial. With NW16 flange vacuum connection. For panel or pipeline mounting.

- PY760-20** 0 to 50mbar
- PY760-25** 0 to 125mbar

Clamping Rings

Stainless steel. For connecting gauges, adapters and pipe flanges. Require centring ring seals (PY787) of the same size.

- PY785-04** NW10/16
- PY785-06** NW25

Centring Ring Seals

Polymer, with nitrile O-ring. For use with PY785-clamping rings of the same size.

- PY787-04** NW10/16
- PY787-06** NW25

Adapters

Aluminium. NW25 connection.

- PY789-10** Radiused elbow, 90°
- PY789-15** T-Piece, 3-way
- PY789-20** Cross, 4-way, 90° between limbs
- PY789-40** Nozzle, for 12mm i.d. tubing

Valves

NW25 connection. Type and materials as indicated.

- PY792-05** Diaphragm valve, aluminium body, PTFE cup seal
- PY792-09** Ball valve, stainless steel body, PTFE cup seal



PY400-30, -20 and -40 are similar



PY752-10



PY760



PY792-09



PY417



PY752-25



PY792-05



Adapters, seals, rings

Pumps, Vacuum

Vacuum Pumps

vacuubrand

A range of high performance quiet running rotary vane pumps.

- ◆ Simple maintenance and servicing including oil draining
- ◆ Integral gas ballast valve
- ◆ Gas tight with O-ring sealing and double shaft seal

Catalogue No.	PY850-15	PY850-40	PY850-55	PY850-80	
Model	RE2.5	RE6	RZ2.5	RZ6	
Stages	1	1	2	2	
Ultimate vacuum, without gas ballast					
mbar	3×10^{-1}	1×10^{-1}	2×10^{-3}	2×10^{-3}	
Ultimate vacuum, with gas ballast					
mbar	8×10^{-1}	6×10^{-1}	1×10^{-2}	1×10^{-2}	
Max. tolerable water vapour intake pressure					
mbar	40	40	40	40	
Displacement	m^3/h^*	2.3	5.7	2.3	5.7
Inlet flange	NW16	NW16	NW16	NW16	
Outlet nozzle	mm	10	10	10	10
Oil capacity	litres	0.51	0.93	0.28	0.73
Overall height	mm	190	207	190	207
width	mm	125	142	125	142
depth	mm	316	370	316	370
Weight	kg	10.2	15.4	11.4	16.4

*Running on 50Hz supplies, add 0.5m³/h for 60Hz supplies.

Vacuum Pumps, Vacuubrand

As described. With direct drive motor, overload cut-out inlet, centring and clamping rings. For 230V 50/60Hz single phase supplies.

- PY850-15** Model RE2.5
- PY850-40** Model RE6
- PY850-55** Model RZ2.5
- PY850-80** Model RZ6



PY850

Oil Mist Filter

With pressure relief valve and disposable filter element.

- PY856-40** Oil mist filter for all models
- PY856-42** Disposable filter element for PY856-40

Condensate Catch-Pots

For removing condensate in the suction line. With drain.

- PY856-60** For RE2.5 and RZ2.5 pumps
- PY856-64** For RE6 and RZ6 pumps

Inlet/Outlet Components

- PY858-12** Clamping ring DN10/16
- PY858-14** Centring ring DN10/16
- PY858-26** Nozzle adapter for DN16 flange. Accepts 10mm bore vacuum hose

Pump oil – see PY417 series.

Digital Vacuum Gauges

Vacuum Gauge, Piezo Resistive

Ranges 1 to 1080mbar (hPa), 1 to 810 torr. Accuracy ± 1 mbar (± 0.75 torr) ± 1 digit. Analogue and digital display, with trend indication and selectable readout in either mbar, hPa or torr. With integrated pressure transducer for long term stability and corrosion resistance, NW16 vacuum connection and screw in, stepped nozzle for 6 to 10mm i.d. vacuum tubing. Overall 115 x 115 x 66mm L x W x H. Weight 0.4kg. Powered by 1 x 9V alkaline battery.

- PY940-20** Digital Vacuum Gauge, DVR2pro
- BL610-25** 9V PP3 battery, spare

Vacuum Gauge, Pirani

Range 1000 to 10^{-3} mbar, 750 to 10^{-3} torr; accuracy $\pm 15\%$ of displayed value within 100 to 10^{-2} mbar range. Analogue and digital display with trend indication, 32000 reading datalogger and RS232 interface. Overall 115 x 124 x 138mm H x W x D. Weight 0.44kg. Supplied with DN10/16 connection, separate Pirani gauge head on a 2 metre lead and 24V d.c. communication system. For 100-230V 50/60Hz single phase supplies.

- PY940-55** Vacuum gauge, DCP3000 + VSP3000



PY940-20



PY940-55

Adapters

	Socket size	Cone size
Reduction		
QDA01	10/19	14/23
QDA12	14/23	19/26
QDA13	14/23	24/29
QDA14	14/23	29/32
QDA23	19/26	24/29
QDA24	19/26	29/32
QDA25	19/26	34/35
QDA34	24/29	29/32
QDA35	24/29	34/35
QDA36	24/29	40/38
QDA38	24/29	50/42
QDA45	29/32	34/35
QDA58	34/35	50/42
Expansion		
QXA10	14/23	10/19
QXA21	19/26	14/23
QXA31	24/29	14/23
QXA32	24/29	19/26
QXA41	29/32	14/23
QXA42	29/32	19/26
QXA43	29/32	24/29
QXA52	34/35	19/26
QXA53	34/35	24/29
QXA54	34/35	29/32

PTFE reduction adapters - see QZZ35-series

	Socket size	Cone size
Multiple, two necks		
Parallel.		
QMA1/11	14/23	14/23
QMA1/2	19/26	19/26
QMA1/3	19/26	24/29
QMA1/33	24/29	24/29
Multiple, two necks		
One vertical and one at 45°.		
QMA2/2	19/26	19/26
QMA2/3	19/26	24/29
Multiple, three necks		
Two parallel and one at 45°.		
QMA4/23	19/26	24/29
Swan neck		
For use with thermometer or air leak tube. Thread size 13mm.		
QMA6/22	19/26	19/26
QMA6/33	24/29	24/29

Spare screwcaps – see QQC series.

Clips for joints – see QKC series.

Cone/flexible tubing

Right angle connection. With screwthread tubing connector which has a 9mm o.d. nozzle.

	Cone size
Screwthread connector	
QMF10/1B/SC	14/23
QMF10/2B/SC	19/26
QMF10/3B/SC	24/29
QMF10/4B/SC	29/32
QMF10/5B/SC	34/35

Socket/flexible tubing

Straight connection. With screwthread tubing connector which has a 9mm o.d. nozzle.

	Socket size
Screwthread connector	
QMF13/2/SC	19/26
QMF13/3/SC	24/29

Socket/cone

'T' connection. With screwthread tubing connector which has a 9mm o.d. nozzle.

	Socket size	Cone size
Screwthread connector		
QMF17/1/SC	14/23	14/23
QMF17/3/SC	14/23	24/29
QMF18/2/SC	19/26	19/26
QMF18/3/SC	19/26	24/29
QMF18/33/SC	24/29	24/29
QMF18/44/SC	29/32	29/32

Spare screwthread tubing connector 4510/02 for above.

AD255-10 Spare

Spare Viton sleeve 4511/02

AD256-06 Spare



QMF10B/SC



QDA



QMA1



QMA4/23



QMF13/SC



QXA



QMA2



QMA6



QMF17/SC

Cone/Screwthread Adapters

Straight. Suitable for locating plain stem thermometers.

	Thread size	Cone size	Acceptable dia. through screwcap, mm
QST51/13	13	14/23	6.0 to 7.0
QST52/13	13	19/26	6.0 to 7.0
QST53/13	13	24/29	6.0 to 7.0
QST51/18	18	14/23	7.0 to 8.5
QST52/18	18	19/26	7.0 to 8.5
QST53/18	18	24/29	7.0 to 8.5
QST54/18	18	29/32	7.0 to 8.5
QST52/24	24	19/26	10.5 to 11.5
QST53/24	24	24/29	10.5 to 11.5
QST54/24	24	29/32	10.5 to 11.5

This range may also be used as simple stirrer guides provided the silicone ring seal within the screwcap is lubricated.

Stopcock Adapters

Cone/flexible tubing

GP Rotaflo key, bore 3mm. Supplied complete with screwthread connector which has a 9mm o.d. nozzle for tubing attachment.

	Cone size
Screwthread connector	
QMF11/1/ISC	14/23
QMF11/2/ISC	19/26
QMF11/3/ISC	24/29
QMF11/4/ISC	29/32
Right angle screwthread connector	
QMF11/1B/ISC	14/23
QMF11/2B/ISC	19/26
QMF11/3B/ISC	24/29

AD255-10 Spare screwthread tubing connector, polypropylene, 4510/02

AD256-06 Spare silicone sleeve, 4511/02

Socket/flexible tubing

GP Rotaflo key, bore 3mm. Supplied complete with screwthread connector which has a 9mm o.d. nozzle for tubing attachment.

	Socket size
Straight screwthread connector	
QMF14/1/ISC	14/23
QMF14/2/ISC	19/26

Spare keys and safety locks – see QGP series.



QMF11: BISC



QST51, QST52, QST53



QMF11: ISC



QMF14: ISC

Receiver Adapters

Plain bends, short

	Socket size	Approx. length, 'a' mm
QRA1/01	14/23	65
QRA1/02	19/26	65
QRA1/03	24/29	65
QRA1/04	29/32	65

Plain bends, long

	Socket size	Approx. length, 'b' mm
QRA1/11	14/23	190
QRA1/12	19/26	200
QRA1/13	24/29	200
QRA1/14	29/32	200

Straight delivery

	Socket size	Approx. length, mm
QRA1/22	19/26	180
QRA1/23	24/29	180

Bends

	Socket size	Cone size	Approx. overall height, mm
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With vent

QRA2/11	14/23	14/23	80
QRA2/22	19/26	19/26	100
QRA2/23	19/26	24/29	120

With screwthread vent vacuum connection

Supplied complete with screwthread connector which has a nozzle for tubing attachment.

QRA3/11/SC	14/23	14/23	110
QRA3/22/SC	19/26	19/26	140
QRA3/23/SC	19/26	24/29	140
QRA3/33/SC	24/29	24/29	150
QRA3/44/SC	29/32	29/32	165

With screwthread vent vacuum connection and delivery stem in cone

Supplied complete with screwthread connector which has a nozzle for tubing attachment.

QRA13/33/SC	24/29	24/29	140
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Bends, socket to cone

With vertical socket.

	Socket size	Cone size	Approx. overall height, mm
QRA4/11	14/23	14/23	120

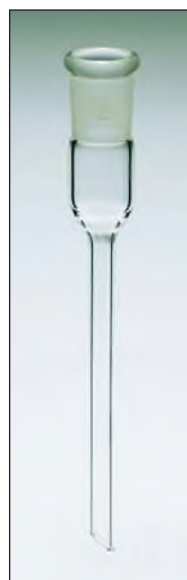
Bends, socket to cone

With multiple connection (pig) and screwthread vent connection. Supplied complete with screwthread connector which has a nozzle for tubing attachment.

	Socket size	Cone size	Approx. overall height, mm
QRA5/11/SC	14/23	14/23	110

Plain bends, socket to cone

	Socket size	Cone size	Approx. overall height, mm
QRA9/11	14/23	14/23	90
QRA9/22	19/26	19/26	100
QRA9/33	24/29	24/29	125
QRA9/44	29/32	29/32	140



QRA1/2



QRA1/0



QRA1/1



QRA2



QRA4



QRA3



QRA9



QRA13



QRA5

Analytical Apparatus

Arsenic determination

For the estimation of arsenic by the method which uses the formation of a complex between arsine and silver diethyldithiocarbamate with subsequent measurement at 538 nanometers. Also suitable for the estimation of antimony.

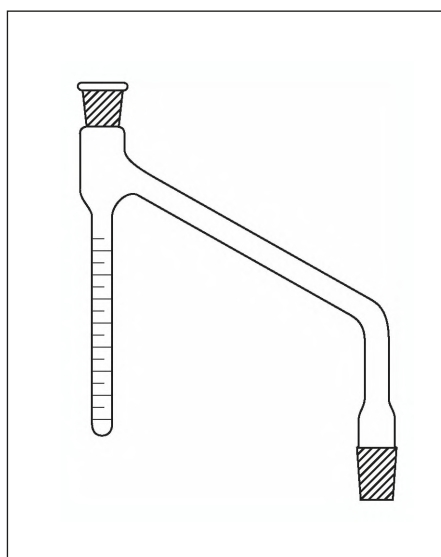
Reference: Elliot, S. C. and Loper, B. R. Analytical Chemistry, 1974, 46, 2256.

	Socket size	Cone size
Complete assembly. Q1AD/1	—	—
Absorption tube. QAD3	—	24/29
Erlenmeyer flask*. QFE100/3	24/29	—

* Nominal capacity 100ml.



Q1AD/1



QWE6



QWE7



QWE6/23/10T

Water Estimation

Dean and Stark apparatus.

Receivers for light entrainers

Complies with BS 756. Receivers have 19/26 socket and 24/29 cone.

	Cap. ml	Grad. ml
QWE6/23/2	2.0	0.05
QWE6/23/7	7.5	0.10
QWE6/23/10T	10.0*	0.10
QWE6/23/25	25.0	0.20

* With GP Rotaflo stopcock.

Receivers for heavy entrainers

Complies with BS 756. Receivers have a 19/26 socket and 24/29 cone.

	Cap. ml	Grad. ml
QWE7/23/3	3.0	0.05
QWE7/23/12	12.5	0.1

Boiling flasks – see *QFR series*.

Liebig condensers – see *QC1 series*.

Heating mantles for heating the boiling flasks – see *Heating section*.

Bottles

Dreschel bottle head, adjustable

With 7mm diameter side arms.

	Cone size	Thread size	To fit bottle
QMF27/3/13	24/29	13	MF 29/3/125 MF 29/3/250

Dreschel bottle heads, plain

Comply with BS 2461. With screwthread tubing ferrules.

	Cone size	Approx. stem length* mm	To fit bottle
QMF28/3/125/SC	24/29	130	MF 29/3/125
QMF28/3/250/SC	24/29	175	MF 29/3/250
QMF28/3/500/SC	24/29	215	MF 29/3/500

* Stem length is measured from the wide end of the cone.

Dreschel bottle heads, sintered

Comply with BS 2461. Cone 24/29. With 8mm diameter side arms.

	Porosity	Stem length* mm	To fit bottle
QMF48/03/125	0	132	MF 29/3/125
QMF48/03/250	0	165	MF 29/3/250
QMF48/03/500	0	217	MF 29/3/500
QMF48/13/125	1	132	MF 29/3/125
QMF48/13/250	1	165	MF 29/3/250
QMF48/13/500	1	215	MF 29/3/500
QMF48/23/250	2	165	MF 29/3/250

* Stem length is measured from the wide end of the cone.

Dreschel gas washing bottles

	Capacity ml	Socket size	Overall height mm
QMF29/3/125	125	24/29	155
QMF29/3/250	250	24/29	190
QMF29/3/500	500	24/29	245



QMF29/3



QMF29/3



QMF29/3

Chromatography

Columns

With sintered disc porosity 0 and GP Rotaflo stopcock.

	<i>Dia. mm</i>	<i>Effective length mm</i>	<i>Socket size</i>	<i>GP Rotaflo stopcock bore, mm</i>
QCR10/20	10	200	14/23	3
QCR10/40	10	400	14/23	3
QCR20/30	20	300	19/26	3
QCR20/50	20	500	19/26	3
QCR30/50	25	500	24/29	3
QCR40/40	30	400	29/32	6
QCR60/50	40	500	40/38	6

Spare Rotaflo keys – see QGP series.



QCR10:-60:

Condensers

With screwthread connections (except air condensers).

All condensers with the screwthread connections are supplied complete with screwthread connectors (4510/02).

Liebig

A condenser designed to give turbulent flow in the water jacket with a comparatively slow rate of flow of coolant water by use of a small annular space.

	Approx. surface area $\times 10^{-2}m^2$	Socket size	Cone size	Approx. effective \times overall lengths, mm
QC1/00	0.15	10/19	10/19	60 x 135
QC1/11/SC	0.60	14/23	14/23	155 x 260
QC1/12/SC	1.00	19/26	19/26	208 x 340
QC1/12/25/SC	1.30	19/26	19/26	250 x 380
QC1/13/SC	1.00	24/29	24/29	250 x 390
QC1/14/25/SC	1.30	29/32	29/32	250 x 400
QC1/22/SC	2.00	19/26	19/26	398 x 530
QC1/23/SC	2.00	24/29	24/29	395 x 535
QC1/44/SC	2.90	29/32	29/32	400 x 550

AD255-10 Spare screwthread tubing connector 4510/02 for above

AD256-06 Spare Viton sleeve 4511/02

Air

Condensation of materials with boiling points above 150°C can be carried out with this type of simple condenser.

	Approx. surface area $\times 10^{-2}m^2$	Socket size	Cone size	Approx. effective \times overall lengths, mm
QC2/11	1.0	14/23	14/23	200 x 260
QC2/12	1.0	19/26	19/26	150 x 210
QFC7/23	2.0	24/29	24/29	250 x 365
QC2/22	2.5	19/26	19/26	400 x 470
QFC7/43	4.0	24/29	24/29	500 x 615

Coil, Graham

The surface area is considerably greater than the corresponding Liebig condenser of similar dimensions. The coil condenser is extremely efficient in the reflux mode where counter-current cooling is possible.

	Approx. surface area $\times 10^{-2}m^2$	Socket size	Cone size	Approx. effective \times overall lengths, mm
QC3/12/SC	2.0	19/26	19/26	165 x 305
QC3/13/SC	2.0	24/29	24/29	165 x 310
QC3/14/SC	2.0	29/32	29/32	165 x 315
QC3/22/SC	4.0	19/26	19/26	320 x 460
QC3/23/SC	4.0	24/29	24/29	320 x 465
QC3/24/SC	4.0	29/32	29/32	320 x 470
QCX3/05/SC	2.0	—	34/35	160 x 320
QCX3/06/SC	3.5	—	40/38	207 x 380

continued on next page



QC1:



QC2



QFC



QC3:



QCX3/0:

Condensers continued

Multi-coil

A condenser having very large surface area over a relatively short effective length by employing two coils which are independent of each other. If desired they can be fed from separate water supplies.

	Approx. surface area $\times 10^{-2}m^2$	Socket size	Cone size	Approx. effective \times overall lengths, mm
QC4/13/SC	5.5	24/29	24/29	207 x 390

Double surface, Davies

With increased surface area and effectiveness compared with a corresponding Liebig condenser.

	Approx. surface area $\times 10^{-2}m^2$	Socket size	Cone size	Approx. effective \times overall lengths, mm
QC5/11/SC	1.7	14/23	14/23	160 x 275
QC5/12/SC	1.7	19/26	19/26	160 x 295
QC5/13/SC	2.3	24/29	24/29	160 x 300
QC5/22/SC	2.3	19/26	19/26	205 x 340
QC5/23/SC	3.0	24/29	24/29	205 x 345
QC5/24/SC	3.0	29/32	29/32	205 x 365



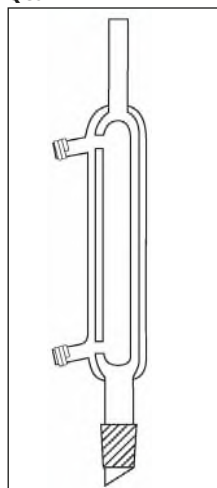
QC4:



QC5:



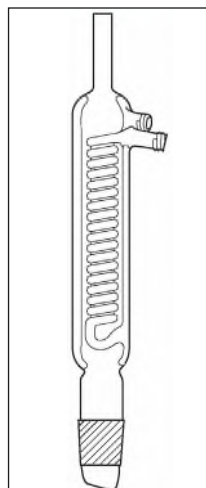
QC6:



QC5:



QCX6:



QCX6/05



QCX7/02



QCX7/33

Inland Revenue

Used for standard Inland Revenue test and control methods by brewers etc, the Inland Revenue condenser employs the use of coolant flow outside the coil. This condenser is very efficient but must not be used for fast rates of distillation. It is particularly useful for removing condensable vapours from non-condensable gases.

	Approx. surface area $\times 10^{-2}m^2$	Socket size	Cone size	Approx. effective \times overall lengths, mm
QC6/13/SC	2.5	24/29	24/29	205 x 340

Jacketed coil

A double surface condenser having a coil as an inner cooling surface. This type has approximately twice the surface of a plain double surface condenser of the same effective length.

	Approx. surface area $\times 10^{-2}m^2$	Socket size	Cone size	Approx. effective \times overall lengths, mm
QCX6/22/SC	4.0	19/26	19/26	160 x 360
QCX6/33/SC	4.0	24/29	24/29	160 x 365

Allihn

An inexpensive condenser, giving greater surface area than the corresponding Liebig type due to the bulb sections. This type is normally used under reflux.

	Approx. surface area $\times 10^{-2}m^2$	Socket size	Cone size	Approx. effective \times overall lengths, mm
QCX7/02/SC	1.3	—	19/26	250 x 400
QCX7/03/SC	1.3	—	24/29	250 x 405
QCX7/04/SC	1.3	—	29/32	250 x 415
QCX7/05/SC	1.3	—	34/35	250 x 335
QCX7/06/SC	1.3	—	40/38	250 x 365
QCX7/08/SC	1.5	—	50/42	250 x 365
QCX7/33/SC	1.8	24/29	24/29	400 x 545

Condensers

Ether

Suitable for condensing very volatile liquids such as ether.

	Approx. surface area x 10 ⁻² m ²	Socket size	Cone size	Approx. effective x overall lengths mm	Approx. length of side tube mm
QC11/23/SC	6.5	19/26	24/29	165 x 315	205

Immersion

A general purpose cold finger condenser which can also be used as a dephlegmator to control reflux ratios in a rough fractional distillation.

	Approx. surface area x 10 ⁻² m ²	Cone size	Approx. effective x overall lengths, mm
QFC14/00/SC	0.35	19/26	100 x 185

Distillation Apparatus

1-piece apparatus incorporating plain stillhead, liebig condenser and receiver adapter with vent. Reduces set-up time, air leakage, joint seizure, use of clips or clamps and grease contamination.

	Cone sizes	Socket size	Approx. eff. condenser length, mm	Dimensions L x W x D, mm
QDA1/22	19/26	14/23	155	330 x 210 x 30



QDA1/22



QFC14/00/SC



QC11/23/SC

Extraction Liquid-Solid

Soxhlet extractors

To BS2071 where applicable. Designed primarily for use with proprietary makes of paper thimble and suitable sizes are listed on the next page. Large samples may be placed directly in the extractor body.

	Nominal capacity (siphoning volume) ml	Socket or flange size	Cone size	Approx overall height* mm
QEX5/32	20	24/29	19/26	175
QEX5/43	40	29/32	24/29	200
QEX5/53	60	34/35	24/29	205
QEX5/55/100	100	34/35	34/35	240
QEX5/63	100	40/38	24/29	220
QEX5/83	200	50/42	24/29	250
QEX5/105	2000	100mm [†]	34/35	535

*Approximate height is measured from the wide end of the cone.

[†]Adapters and clips below.

Adapter and clip

QEX5/105 is designed to accommodate large samples and utilises a 100mm flat flange joint requiring the flat flange/ socket adapter and clip listed below.

	Description	To fit	Socket size	Flange size mm
QDA5/100	Adapter	QEX 5/105	34/35	100
QJC100F	Clip	QEX 5/105	—	100

Extraction Thimbles and Mantles – see *Extraction* section.

continued on next page



QEX5/

Extraction Liquid-Solid continued

Complete standard assemblies

	Nom. cap. ml	Extractor etc.	Components Flask	Condenser
Q100RASX	100	EX5/63	FR250/3S	CX7/06/SC
Q200RASX	200	EX5/83	FR500/3S	CX7/08/SC
Q600RDSX	600	EX5/75 DA5/75 JC75F	FR2L/5S	CX5/25/SC
Q2LRCSX	2000	EX5/105 DA5/100 JC100F	FR5L/5US	C13/55

Pressure equalising funnels

These funnels may be used with Soxhlets to facilitate recovery at the end of an extraction. Fitted between the extractor and the condenser the funnel stopcock is left open until extraction is completed. The stopcock is then closed so as to collect the solvent for future use. Full details see QDE series.

Paper thimbles

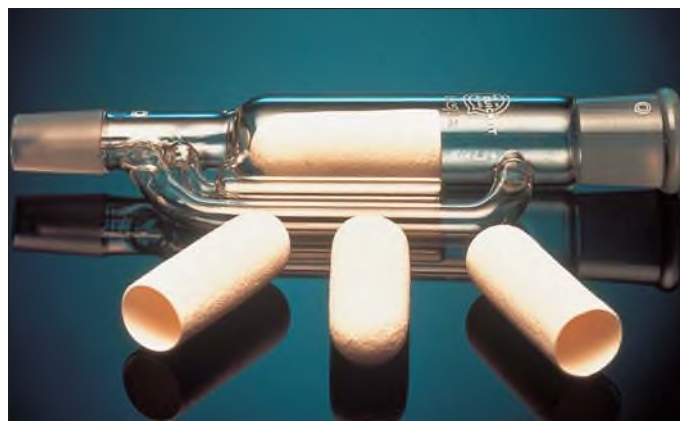
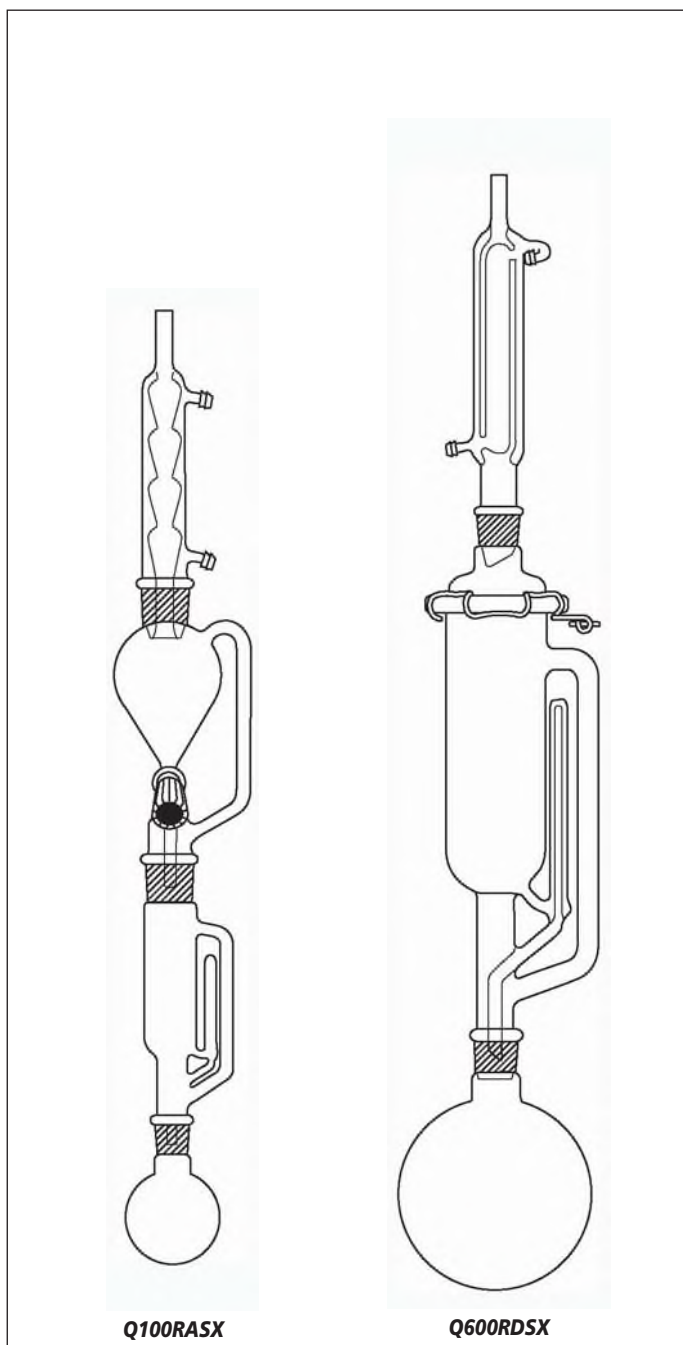
Recommended sizes for use with Quickfit extractors.

Extractor number	Recommended thimble size mm	Extractor number	Recommended thimble size mm
EX5/21	10 x 50	EX5/55/100	28 x 120
EX5/32	18 x 65	EX5/63	33 x 100
EX5/43	22 x 80	EX5/83	41 x 123
EX5/53	28 x 80	—	—
EX5/55	28 x 80	—	—

Note: The dimensions are internal and are given for single thickness thimbles only. If double thickness thimbles are used, the internal diameter should be 2mm less to allow for greater wall thickness.

Paper thimbles – see EX100/EX110.

Heating mantles – see EX200/EX300.



Extraction Liquid-Liquid

Downward Displacement. The heavy phase solvent is discharged from a condenser into the top of the solution to be extracted. The solvent in this instance sinks through the solution and both solvent and extract then returned to the flask via a tube from the bottom of the extractor body.

		Nom. cap. ml	Socket size	Cone size	Approx. overall height mm
QEX10/23	Extractor	60	34/35	24/29	250



QEX10/23 in use

Funnels

Conical filter funnels

With sintered disc porosity 3. Semi-micro. Small scale for use with receivers with vents MD60 or MD61.

	Cone size	Disc dia. mm	Funnel dia. mm
QSF4T31	14/23	10	30

Jointed receivers. With vent

	Capacity ml	Socket size	Height mm
QMD60	5	10/19	95

Büchner filter funnels

With sintered disc porosity 3.

	Cone size	Disc dia. mm	Funnel dia. mm
QSF3A32	19/26	55	71
QSF3A33	24/29	55	71
QSF3A34	29/32	55	71
QSF3B33	24/29	95	106

Powder funnels

Approximate funnel diameter: 105mm.

	Cone size
QCF5/1	14/23
QCF5/2	19/26
QCF5/3	24/29
QCF5/4	29/32
QCF5/5	34/35



QSF4T



QMD60



QMD61



QSF3



QCF5

Flasks

Round bottom, short neck

	Nom. cap. ml	Socket size	Approx. overall height mm	Approx. neck length mm
QFR5/0S	5	10/19	50	5
QFR5/1S	5	14/23	65	15
QFR10/0S	10	10/19	65	15
QFR10/1S	10	14/23	68	15
QFR25/1S	25	14/23	74	10
QFR25/2S	25	19/26	80	15
QFR25/3S	25	24/29	80	15
QFR50/1S	50	14/23	89	15
QFR50/2S	50	19/26	90	15
QFR50/3S	50	24/29	95	15
QFR50/5S	50	34/35	95	15
QFR100/1S	100	14/23	105	15
QFR100/2S	100	19/26	108	15
QFR100/3S	100	24/29	110	15
QFR100/4S	100	29/32	114	15
QFR100/5S	100	34/35	112	10
QFR150/2S	150	19/26	114	10
QFR150/3S	150	24/29	115	15
QFR150/4S	150	29/32	120	10
QFR150/5S	150	34/35	118	10
QFR250/1S	250	14/23	126	15
QFR250/2S	250	19/26	129	15
QFR250/3S	250	24/29	130	15
QFR250/4S	250	29/32	135	15
QFR250/5S	250	34/35	138	15
QFR500/2S	500	19/26	147	15
QFR500/3S	500	24/29	150	15
QFR500/4S	500	29/32	153	15
QFR500/5S	500	34/35	166	25
QFR1L/3S	1000	24/29	180	15
QFR1L/4S	1000	29/32	183	10
QFR1L/5S	1000	34/35	196	20

Round bottom, short neck, continued

	Nom. cap. ml	Socket size	Approx. overall height mm	Approx. neck length mm
QFR2L/3S	2000	24/29	215	20
QFR2L/4S	2000	29/32	220	15
QFR5L/4S	5000	29/32	270	15
QFR5L/5S	5000	34/35	280	20

Round bottom, medium neck

QFR50/3M	50	24/29	130	45
QFR100/3M	100	24/29	145	45
QFR250/3M	250	24/29	165	45
QFR500/3M	500	24/29	180	45
QFR500/3U	500	24/29	205	70
QFR1L/3UM	1000	24/29	205	40

Round bottom, uniform overall height

These flasks are suitable where interchangeability of stirring equipment, gas inlet tubes etc. is required in flasks of differing capacities.

QFR500/3U	500	24/29	205	70
QFR1L/3UM	1000	24/29	205	40
QFR2L/3US	2000	24/29	205	10
QFR5L/5US	5000	34/35	275	20



QFR:S



QFR:M



QFR:U

Flasks

Flat bottom, short neck

These flasks are not suitable for use under vacuum or pressure.

	Nom. cap. ml	Socket size	Approx. overall height mm	Approx. neck length mm
QFF50/2S	50	19/26	80	10
QFF50/3S	50	24/29	85	10
QFF100/2S	100	19/26	95	10
QFF100/3S	100	24/29	100	15
QFF100/4S	100	29/32	100	15
QFF100/5S	100	34/35	105	15
QFF150/2S	150	19/26	105	10
QFF150/3S	150	24/29	110	15
QFF150/5S	150	34/35	115	10
QFF250/2S	250	19/26	115	10
QFF250/3S	250	24/29	120	10
QFF250/4S	250	29/32	125	10
QFF250/5S	250	34/35	125	10
QFF500/2S	500	19/26	135	15
QFF500/3S	500	24/29	140	15
QFF500/4S	500	29/32	145	15
QFF1L/3US	1000	24/29	170	25
QFF1L/4S	1000	29/32	165	20
QFF1L/5S	1000	34/35	175	20
QFF2L/4S	2000	29/32	210	25
QFF2L/5S	2000	34/35	215	20

Flat bottom, medium neck

These flasks are not suitable for use under vacuum or pressure.

	Nom. cap. ml	Socket size	Approx. overall height mm	Approx. neck length mm
QFF250/3M	250	24/29	150	35

Round bottom, two necks

Centre neck and one angled side neck. The axis of the side neck meets the axis of the centre neck at the bottom of the flask. The 'septum' side necks have a parallel o.d. of 19mm and i.d. of 15.4mm and are designed for use with SW505-40 allowing safe liquid introduction by syringe.

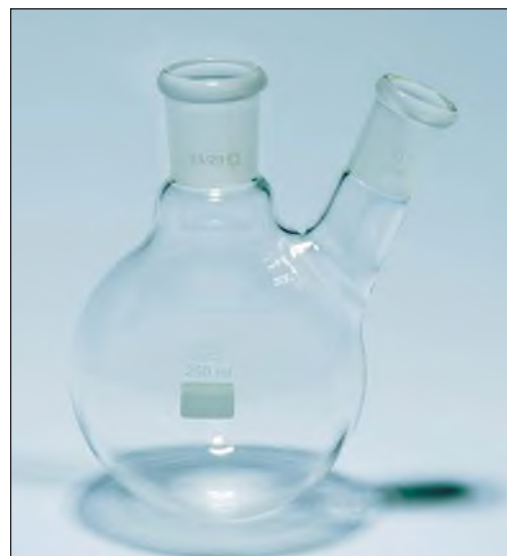
	Nom. cap. ml	Centre socket	Side socket	Approx. overall height mm
QFR25/1S/1A	25	14/23	14/23	77
QFR50/1S/1A	50	14/23	14/23	89
QFR100/3S/1A	100	24/29	14/23	110
QFR100/3S/2A	100	24/29	19/26	110
QFR250/3S/1A	250	24/29	14/23	130
QFR250/3S/2A	250	24/29	19/26	130
QFR500/3S/1A	500	24/29	14/23	150
QFR500/3S/2A	500	24/29	19/26	150
QFR2L/5S/2A	2000	34/35	19/26	225



QFF:S



QFF:M



QFR:1A

Flasks

Round bottom, three necks

Centre neck and two angled side necks. The axes of the side necks meet the axis of the centre neck at the bottom of the flask.

	Nom. cap. ml	Centre x side sockets	Approx. overall height mm
QFR25/1S/11A	25	14/23 x 14/23	77
QFR50/1S/11A	50	14/23 x 14/23	89
QFR50/2S/11A	50	19/26 x 14/23	92
QFR100/2S/11A	100	19/26 x 14/23	108
QFR100/3S/11A	100	24/29 x 14/23	110
QFR100/3S/22A	100	24/29 x 19/26	110
QFR250/2S/22A	250	19/26 x 19/26	128
QFR250/3S/11A	250	24/29 x 14/23	130
QFR250/3S/22A	250	24/29 x 19/26	130
QFR250/4S/22A	250	29/32 x 19/26	135
QFR500/3S/11A	500	24/29 x 14/23	150
QFR500/3S/22A	500	24/29 x 19/26	150
QFR500/4S/22A	500	29/32 x 19/26	153
QFR1L/3S/22A	1000	24/29 x 19/26	180
QFR1L/4S/22A	1000	29/32 x 19/26	183
QFR2L/5S/22A	2000	34/35 x 19/26	228

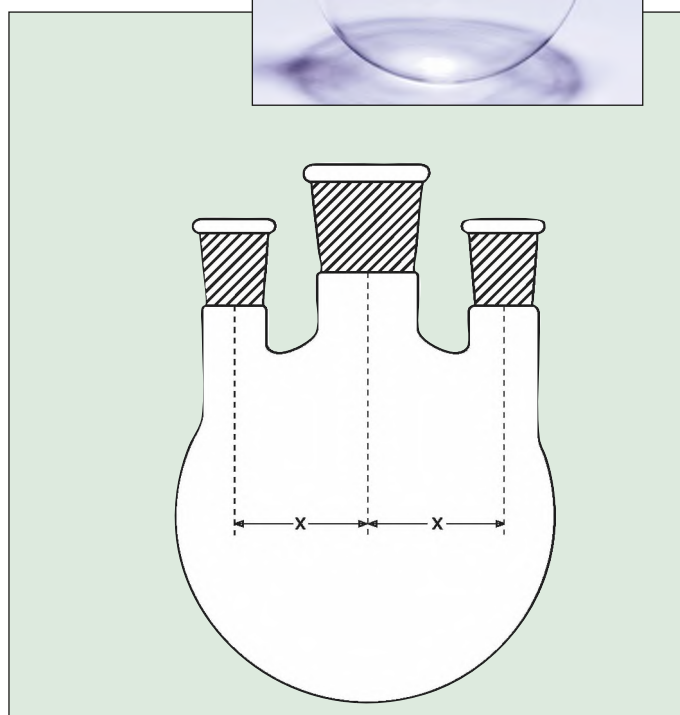
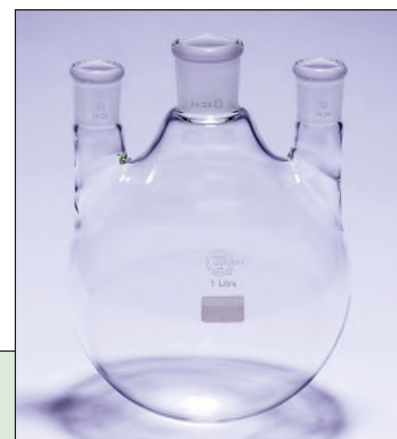
Round bottom, three necks

All parallel.

	Nom. cap. ml	Centre x side sockets	Approx. overall height mm	Nom. dist. 'x' mm
QFR250/3S/22P	250	24/29 x 19/26	130	35
QFR2L/5S/22P	2000	34/35 x 19/26	228	56
QFR5L/5S/33P	5000	34/35 x 24/29	275	75



QFR:A



QFR:22P

Flasks

Pear shape, single neck

	Nom. cap. ml	Socket size	Approx. overall height mm	Approx. neck length mm
QFP5/1	5	14/23	67	23
QFP10/1	10	14/23	85	28
QFP25/1	25	14/23	100	38
QFP50/1	50	14/23	115	48
QFP50/2	50	19/26	125	48
QFP100/1	100	14/23	135	58
QFP100/2	100	19/26	140	58
QFP100/3	100	24/29	150	58

Pear shape, two necks

Centre neck and one angled side neck.

	Nom. cap. ml	Socket size	Approx. overall height mm	Approx. neck length mm
QFP50/1/1A	50	14/23	14/23	115

Pear shape, distillation

	Nom. cap. ml	Socket size	Approx. overall height mm	Approx. neck length mm
QMD2/50	50	14/23	14/23	147

Pear shape, Claisen-Vigreux

	Nom. cap. ml	Socket size	Cone size
QMD4/50	50	14/23	14/23



QFP50/1/1A



QMD2:



QMD4:



QFP:

Flasks

Florentine

For use with rotary evaporators.

	Nominal capacity ml	Socket size	Overall height mm
QFD50/4RE	50	29/32	94
QFD100/3	100	24/29	108
QFD100/4RE	100	29/32	107
QFD250/4RE	250	29/32	151
QFD500/4RE	500	29/32	160
QFD1L/4RE	1000	29/32	198
QFD1L/4REP	1000*	29/32	198
QFD2L/4RE	2000	29/32	245

*Plastic coated.

Kjeldahl

	Nominal capacity ml	Socket size	Overall height mm
QFK300/3L	300	24/29	295
QFK500/3L	500	24/29	305

Iodine

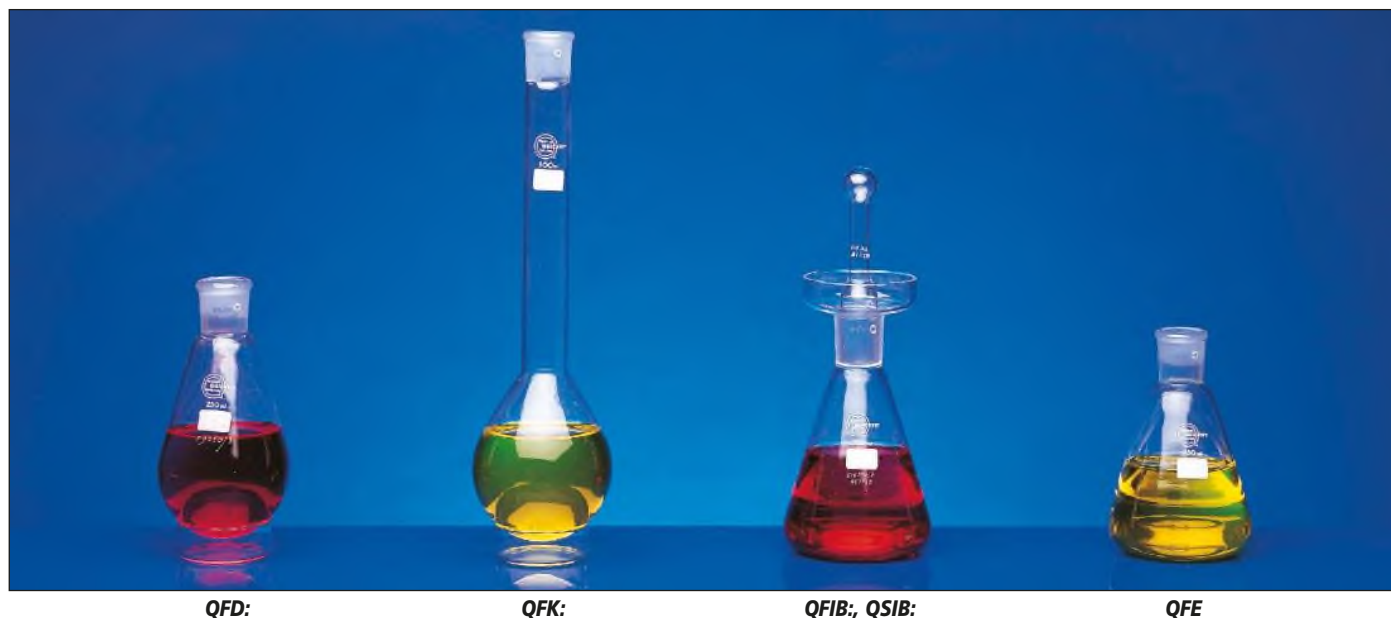
Items FIB 250/3 and FIB 500/3 comply with BS 2735. Stoppers supplied separately.

	Nominal capacity ml	Joint size	Min. cup capacity ml
QFIB250/3 Flask	250	24/29	20
QSIB24 Stopper	—	24/29	—
QFIB500/3 Flask	500	24/29	20
QSIB24 Stopper	—	24/29	—
QFIB500/4 Flask	500	29/32	20
QSIB29 Stopper	—	29/32	—

Conical, Erlenmeyer

Standard wall. These flasks are intended for general purpose use. A heavier wall flask (FEH) suitable for vacuum work is detailed below.

	Nominal capacity ml	Socket size	Overall height mm	Approx. dia. mm
QFE10/1	10	14/23	60	34
QFE25/1	25	14/23	72	42
QFE25/2	25	19/26	77	42
QFE50/1	50	14/23	85	51
QFE50/2	50	19/26	85	51
QFE50/3	50	24/29	90	51
QFE100/1	100	14/23	107	64
QFE100/2	100	19/26	103	64
QFE100/3	100	24/29	107	64
QFE100/4	100	29/32	110	64
QFE150/2	150	19/26	118	74
QFE150/3	150	24/29	118	74
QFE150/4	150	29/32	116	74
QFE250/2	250	19/26	134	85
QFE250/3	250	24/29	130	85
QFE250/4	250	29/32	128	85
QFE250/5	250	34/35	130	85
QFE500/3	500	24/29	167	101
QFE500/4	500	29/32	167	101
QFE1L/3	1000	24/29	213	130



QFD:

QFK:

QFIB:, QSIB:

QFE

Reaction Flasks and Lids

Wide neck reaction flasks

A range of spherical* flasks from semi-micro to pilot plant scale fitted with large diameter flat flange joints. This design has several advantages over conventional conical jointed flasks.

- ◆ Lids can be easily detached
- ◆ Large stirrers can be accommodated
- ◆ Vessels can be easily cleaned
- ◆ Quick and easy addition and removal of solids or resinous material
- ◆ Flasks and lids using the same size joints are fully interchangeable

	Nom. cap. ml	Flange bore mm	Overall height mm
QFR250F	250	75	90
QFR500F	500	75	115
QFR1LF	1000	100	155
QFR2LF	2000	100	185
QFR3LF	3000	100	210
QFR5LF	5000	100	245
QFR10LF	10000	100	320
QFR20LF	20000	100	400

Multi-socket/flat flange lids

A series of multi-socket lids for use with the Quickfit range of wide neck reaction flasks and culture vessels. They allow introduction of a great variety of standard Quickfit equipment for stirring, temperature measurement, aeration and general distillation procedures. The parallel side neck can be fitted with a multiple adapter so that larger dropping funnels can be used. Lids with a single socket neck are of use where simple extraction, refluxing or mixing only are required.

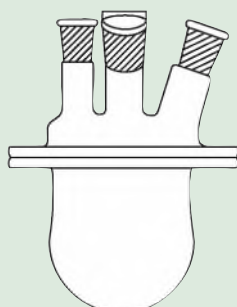
	Flange bore mm	Centre socket	Parallel socket	5°	Side sockets 10°	15°
QMAF1/75	75	19/26	14/23	19/26	19/26	19/26
QDA5/75	75	34/35	—	—	—	—
QMAF2/2	100	19/26	19/26	2 x 19/26	19/26	—
QMAF2/32	100	19/26	19/26	24/29	19/26	—
QMAF2/52	100	19/26	19/26	19/26	19/26	34/35
QMAF3/52	100	24/29	19/26	19/26	19/26	34/35
QDA4/100	100	29/32	—	—	—	—
QMAF4/41	100	29/32	14/23	14/23	14/23	29/32
QDA5/100	100	34/35	—	—	—	—
QMAF5/2	100	34/35	19/26	—	2 x 19/26	—

Clips for flanged flasks and lids

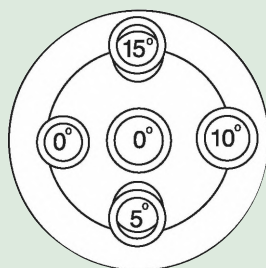
To fit vessels with flange bores as indicated.

- QJC75F** For 75mm bore flanges
- QJC100F** For 100mm bore flanges

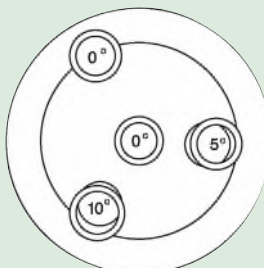
QFR:LF with QMAF: and QJC100F



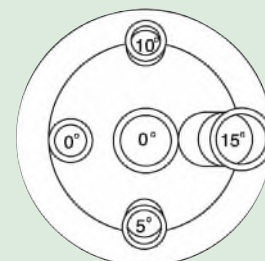
QFR250F



QMAF1/75



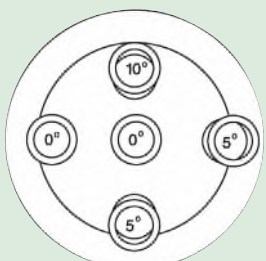
QMAF2/32



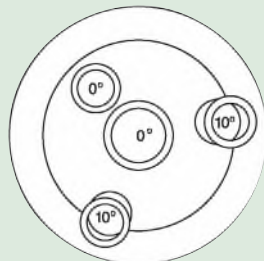
**QMAF2/52, QMAF3/52
QMAF4/41**



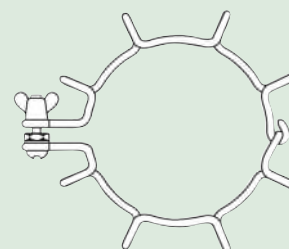
QFR:LF



QMAF2/2



QMAF5/2



QJC:F

Cylindrical Culture Flasks

Culture vessels

A range of cylindrical, flat bottom vessels suitable for fermentation and certain culture work. When fitted with flat flange/multi-socket lids they will accommodate large stirrers and thermometers. The lids also permit the addition of solutions and gases and facilitate sampling. Culture vessels are not suitable for use under vacuum or pressure.

	Nom. cap. ml	Flange bore mm	Approx. overall height mm	Approx. dia. of body mm
QFV1L	1000	100	160	105
QFV2L	2000	100	225	133
QFV5L	5000	100	290	181

Flat flange lids and flange clips – see QMAF- and QJC- series.

Pyrex Büchner Flasks – see FK350/FK352.

Filter Flasks

Büchner Filter Flasks

With choice of side arm connection, either a traditional all-glass ferrule or screwthread tubing connection with chemically resistant PTFE ferrule which can be used up to 100°C for added safety when attaching flexible tubing.

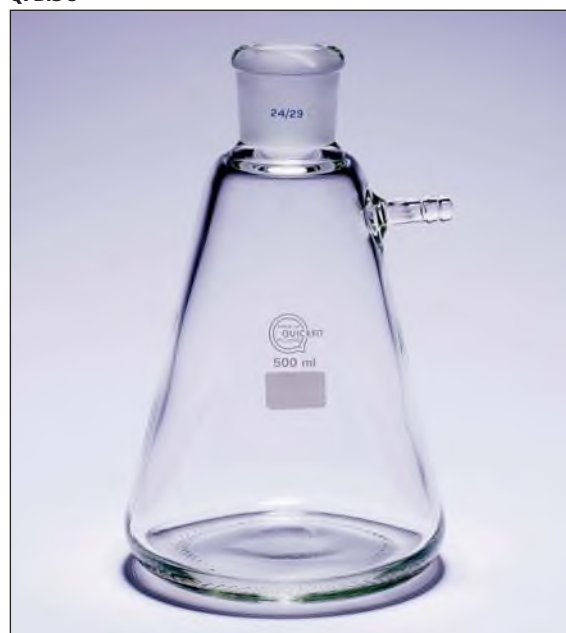
	Nom. cap. ml	Socket size	Approx. height mm	Approx. dia. mm
Screwthread side-arm connector				
QFB250/3/SC	250	24/29	140	85
QFB250/4/SC	250	29/32	145	85
QFB500/3/SC	500	24/29	172	105
QFB500/4/SC	500	29/32	172	105
QFB1L/3/SC	1000	24/29	220	135
Glass side-arm				
QFB250/3	250	24/29	145	85
QFB250/4	250	29/32	145	85
QFB500/3	500	24/29	172	105
QFB500/4	500	29/32	172	105
QFB1L/3	1000	24/29	227	136



QFV:



QFB:SC



QFB

Fractionation

Dufton columns

These columns have an accurately fitted Dufton glass spiral which can be removed for cleaning purposes etc. This type of column has proved exceedingly successful in gas analysis.

	Socket size	Cone size	Approx. effective length mm	Approx. overall height mm
QFC1/12	19/26	19/26	150	270
QFC1/22	19/26	19/26	300	425

Plain columns

Designed for use with the various types of column packing which are available.

	Socket size	Cone size	Approx. effective length mm	Approx. overall height mm
QFC7/23	24/29	24/29	250	365
QFC7/43	24/29	24/29	500	615

Raschig ring packing for plain columns

Raschig rings are short lengths of glass tubing, usually having the same length as the diameter. Supplied in minimum quantities of 1 litre.

	Approx. diameter mm	Approx. length mm
Raschig rings		
QFC8/09	9	9

Packing support

These packing supports will hold the smallest column packing normally used.

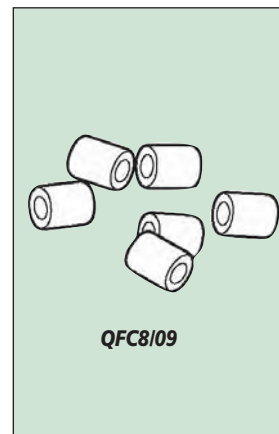
	To fit socket size	Diameter mm
QEX13/23	24/29	21
QEX13/25	34/35	29
QEX13/26	40/38	35



QFC1; QFC2:



QFC7; QFC8:



QFC8/09



QEX13:

Cold Finger

Cold finger

Used in conjunction with a QMA1: or QMA2: multiple adapter, this cold finger forms a simple type of stillhead to regulate reflux by water or air flow. Suitable for fractionations not requiring strict control of the reflux ratio. With screwthread outlets and supplied with polypropylene safety tubing connectors.

	<i>Cone size</i>	<i>Approx. effective length mm</i>	<i>Approx. overall length mm</i>	<i>Approx. finger dia. mm</i>
QFC14/00/ISC	19/26	100	185	12

AD255-10 Spare screwthread tubing connector, polypropylene, 4510/02

AD256-06 Spare Viton 'O'-ring 4511/02

Cold Trap

Cold trap/absorption trap

A general purpose trap which can function as a cold trap by immersing it in a Dewar flask or similar vessel containing refrigerant. The unit may also be used as an absorption trap during Kjeldahl digestions.

	<i>Description</i>	<i>Socket size</i>	<i>Cone size</i>
QMF24/5	Trap body, 250mm overall length	34/35	—
QMF28/52	Trap head	19/26	34/35 & 19/26



QFC14/00/ISC



QMF24/5 fitted with QMF28/52

Cone Joints

	Cone size	Min. shank length mm	Max. shank o.d. mm	Min. bore mm	Min. wall thickness mm
Plain end, single, Quickfit badged					
QCNB50	50/42	100	49.0	39.0	2.0
Plain end, single, unbadged					
QCNB7UB	7/16	100	7.0	2.5	1.0
QCNB10UB	10/19	100	9.0	5.0	1.0
QCNB12UB	12/21	100	12.0	6.5	1.25
QCNB14UB	14/23	100	14.0	8.5	1.25
QCNB19UB	19/26	100	18.0	12.0	1.5
QCNB24UB	24/29	100	23.0	16.5	1.75
QCNB29UB	29/32	100	28.0	21.0	1.75
QCNB34UB	34/35	100	33.5	26.0	1.75
QCNB40UB	40/38	100	39.0	29.5	2.5
QCNB45UB	45/40	100	43.0	35.0	2.0

	Cone size	Min. shank length mm	Max. shank o.d. mm	Min. bore mm	Min. wall thickness mm
With long tip, double					
QCBD12/60	19/26	60	18.0	8.0	1.5
QCBD3/95	24/29	95	23.0	14.0	1.75
QCBD4/125	29/32	125	28.0	19.0	1.75
With stem, reduced shank, single					
Stem length 150mm.					
QMF15/1	14/23	45	7.4	4.4	0.9
QMF15/2	19/26	60	10.4	6.2	1.3
QMF15/3	24/29	70	9.6	6.2	1.3

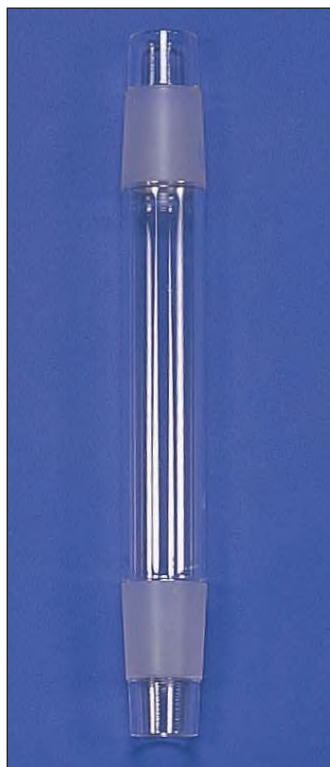
PTFE Sleeves, Azlon

For fitting over ground glass cones to provide greaseless lubrication. Wall thickness 0.07mm, taper 1:10. Supplied in packs of 10.

	Ref.	For cone
QZZ20/14	SWN961	14/23
QZZ20/19	SWN962	19/26
QZZ20/24	SWN963	24/29
QZZ20/29	SWN964	29/32
QZZ20/34	SWN965	34/35
QZZ20/40	SWN966	40/38
QZZ20/55	SWN969	55/44



QCNB



QCBD



QMF15



QZZ20

Socket Joints

Rolled shoulder, single

	Socket size	Min. shank length mm	Max. shank o.d. mm	Min. bore mm	Min. wall thickness mm
Unbadged					
QSRB10UB	10/19	100	14.0	8.0	1.25
QSRB14UB	14/23	100	18.4	12.0	1.6
QSRB19UB	19/26	100	23.0	16.0	1.75
QSRB24UB	24/29	100	28.5	21.0	1.8
QSRB29UB	29/32	100	33.5	26.0	1.75
QSRB34UB	34/35	100	40.0	31.0	1.75
QSRB40UB	40/38	100	46.0	36.0	2.0
QSRB45UB	45/40	100	53.0	41.0	2.2

Rotulex Joints

Rotulex glass/PTFE spherical

A grease-free alternative to conventional ground glass spherical joints. Maximum working temperature 200°C and may be used under vacuum. The pathway is glass and PTFE. The complete connection is made up of one each male and female joints, PTFE 'O'-ring on the male joint and clip all of equivalent sizes.

	Joint size	Min. shank length mm	Max. shank o.d. mm	Approx. bore mm	Spherical dia. mm
Male joint					
QRM13	13/5	150	8.3	5	13
QRM19	19/9	150	12.4	9	19
QRM29	29/15	150	18.4	15	29
QRM35	35/20	150	24.5	20	35
QRM64	64/40	150	45	40	64
Female joint					
QRF13	13/5	150	8.3	5	13
QRF19	19/9	150	12.4	9	19
QRF29	29/15	150	18.4	15	29
QRF35	35/20	150	24.5	20	35
QRF64	64/40	150	45	40	64

Accessories

For joint size

Clips for Rotulex joints

QRC13	13/5
QRC19	19/9
QRC29	29/15
QRC35	35/20
QRC41	41/25
QRC64	64/40*

'O'-rings for Rotulex joints

QRO13	13/5
QRO19	19/9
QRO29	29/15
QRO35	35/20
QRO41	41/25
QRO64	64/40

* QRC64 clip has 3 equidistant fasteners to provide uniform clamping.



QSRB



QRM, QRF, QRO, QRC

Flat Flange Joints

Flat flange Joints

Can be used at high temperatures without risk of seizure. The mating surfaces of the flanges are fine ground.

	Nom. bore mm	Min. shank length mm	Max. shank o.d. mm	Flange o.d. mm	Min. wall thickness mm
QFG50	50	110	57.0	85	2.2
QFG75	75	110	86.8	120	4.4
QFG100	100	110	116.0	150	4.0

Clips for flat flange joints

To fit joints with bore diameters as indicated. Supplied singly.

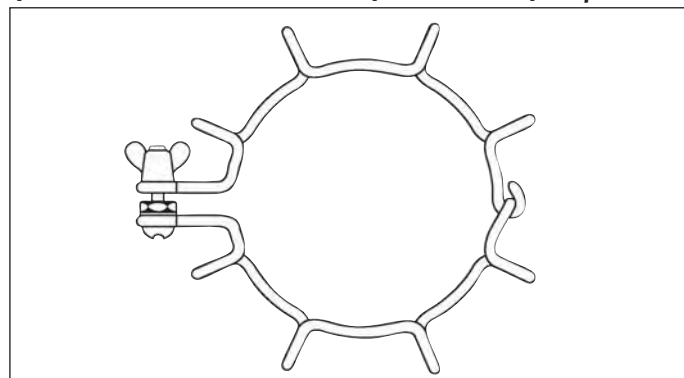
	For joint bore, mm
QJC29	10
QJC41	25
QJC51	35
QJC75F	75
QJC100F	100



QFG



QFG fitted with QJC clip



QJC:F

Spherical Joints

Spherical, ball and cup

Spherical joints are intended to give flexibility to complicated assemblies of glassware and facilitate erection of such glassware. In vacuum systems, they relieve stress which may otherwise cause leakage at joints.

	Joint size	Min. shank length mm	Max. shank o.d. mm	Approx. bore mm	Spherical dia. mm
--	---------------	----------------------------	--------------------------	--------------------	-------------------------

Ball joint (male), unbadged

QMS13UB	S13	100	8.3	5	12.700
QMS19UB	S19	100	13.0	9	19.050
QMS29UB	S29	100	20.5	15	28.575
QMS35UB	S35	100	24.5	19	34.925

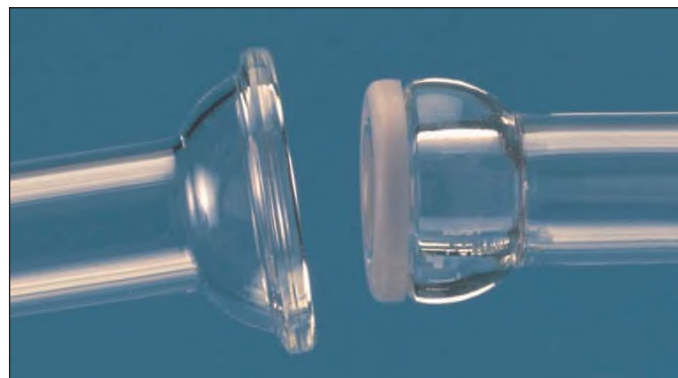
Cup joint (female), unbadged

QFS13UB	S13	100	8.3	5	12.700
QFS19UB	S19	100	13.0	9	19.050
QFS29UB	S29	100	20.5	15	28.575
QFS35UB	S35	100	24.5	19	34.925
QFS41UB	S41	100	32.8	27	41.275

Clips for spherical joints

To fit joint sizes as indicated. Supplied singly.

	For joint size
QJC13	S13
QJC19	S19
QJC29	S29
QJC35	S35
QJC41	S41
QJC51	S51



QFS

QMS

Screwthread Joints

A versatile system of couplings with standard glass screwthreads to which heat and chemically resistant melamine caps are fitted. An aperture in the top of each cap allows the fitting to pass through and be held in position by compression of a silicone rubber ring inside the cap. A PTFE washer protects the rubber ring and plastic cap from contact with the contents of the glass apparatus. All fittings are readily adjustable and depth of immersion can be altered quickly by slackening the screwcap.

Use under vacuum

Quickfit screwthread joints give excellent results under vacuum with no appreciable variation in performance between the available cap sizes. However, vacuum holding does tend to vary slightly, relative to the diameter of the insert, but the range 10^{-3} to 10^{-4} torr is typical of performance.

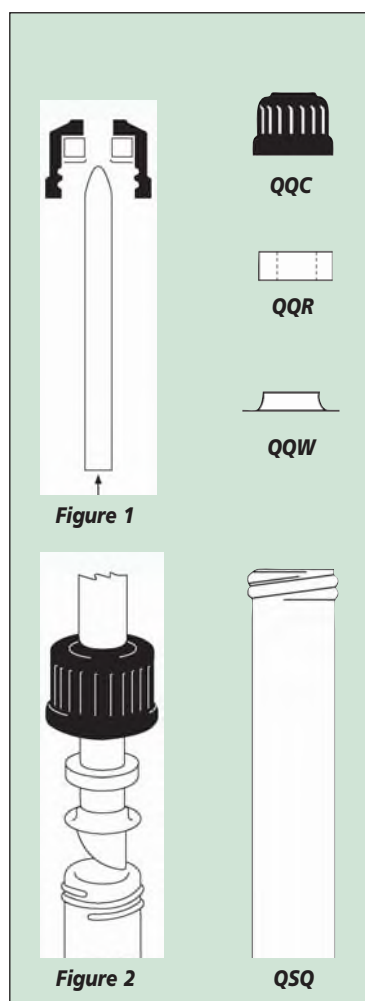
Use at temperature

Quickfit screwcaps, rings and washers can be safely used with apparatus operating up to 300°C providing excessive heat is not applied directly to the screwthread union. Direct heat application above 140°C will result in some discolouration and shrinkage of the screwcap although the rings and washers will be unaffected at this temperature.

Screwcap assembly

When using apparatus which incorporates screwthreads it is important that the PTFE washer is fitted carefully and correctly. This is best achieved by opening out the washer to the correct diameter using a tapered former. This should be carried out with the silicone rubber ring and PTFE washer in position in the plastic cap as shown in figure 1.

Withdraw the tapered former and remove the rubber ring and washer from the cap. Fit each component separately to the fitting which is to be held, as shown in figure 2, and screw the cap on to the thread. It is advisable that the ends of all fittings should be slightly tapered or fired in a Bunsen flame to remove sharp edges and produce a slight taper.



Glass screwthreads

	Thread size	Min. shank length mm	Shank o.d. mm	Min. bore mm
Unbadged				
QSQ13UB	13	160	11.1	7.5
QSQ18UB	18	160	15.4	10.5
QSQ24UB	24	140	22.5	15.5
QSQ28UB	28	110	24.5	19.7

Plastic screwcaps, silicone rubber rings and PTFE washers

To fit the QSQ range of screwthread joints.

	Thread size	Acceptable diameter through screwcap, mm
Plastic screwcap		
QQC13/7	13	6.0 to 7.0
QQC18/11	18	7.0 to 8.5
QQC24/12	24*	6.0 to 7.0
	24*	8.5 to 9.5
	24*	10.5 to 11.5
QQC28/13	28*	10.5 to 11.5

Rings and washers for screwcaps

	For cap thread size	To accept tube diameters, mm
Rubber ring		
QQR13/6	13	6.0 to 7.0
QQR18/7	18	7.0 to 8.5
QQR24/6	24*	6.0 to 7.0
QQR24/9	24*	8.5 to 9.5
QQR24/11	24*	10.5 to 11.5
QQR28/6	28*	6.0 to 7.0
QQR28/11	28*	10.5 to 11.5
QQR28/18	28*	18.0 to 19.0
PTFE washer		
QQW13/6	13	6.0 to 7.0
QQW18/7	18	7.0 to 8.5
QQW24/6	24*	6.0 to 7.0
QQW24/9	24*	8.5 to 9.5
QQW24/11	24*	10.5 to 11.5
QQW28/6	28*	6.0 to 7.0
QQW28/11	28*	10.5 to 11.5
QQW28/18	28*	18.0 to 19.0

*Size 24 screwcaps allow different tube sizes to be inserted by using the appropriate rubber rings and PTFE washers. Size 28 screwcaps also accept different tube diameters but screwcaps must be changed to fit each size together with rings and washers.

Nitrogen (Kjeldahl)

Macro Kjeldahl distillation assembly

This assembly uses the same flask for distillation as for the digestion stage and conversion from one stage to the other can be done very quickly.

		Socket size	Cone size
Q280MC	Complete assembly	—	—
Components:			
QC1/12/SC	Condenser	19/26	19/26
QD3/12	Dropping funnel, 50ml	10/19	19/26
QFK500/3L	Kjeldahl flask, 500ml	24/29	—
QMA1/3	Multiple adapter	19/26	24/29
QRA1/22	Delivery adapter	19/26	—
QSH7/12	Splash head	19/26	19/26

Kjeldahl heaters – see *KJ300/KJ305*.

Dropping Funnels

Cylindrical

Stem in line with cone, glass stopcock.

	Nominal capacity ml	Socket size	Cone size
QD1/11	50	14/23	14/23
QD1/21	100	14/23	14/23
QD1/22	100	19/26	19/26
QD1/42	500	24/29	19/26
QD1/62	1000	29/32	19/26

Cylindrical

Stem in line with cone, GP Rotaflo stopcock.

	Nominal capacity ml	Socket size	Cone size
QD1/11GP	50	14/23	14/23
QD1/21GP	100	14/23	14/23
QD1/22GP	100	19/26	19/26
QD1/32GP	250	24/29	19/26
QD1/42GP	500	24/29	19/26
QD1/62GP	1000	29/32	19/26

Dropping and separating funnels, MBL and Pyrex – see *FU204/FU590*.



Q280MC



QD1



QD1-GP

Separating and Dropping Funnels

Separating

Pear shape, with glass stopcock.

	Nominal capacity ml	Socket size	Cone size
QD2/11	50	14/23	14/23
QD2/21	100	14/23	14/23
QD2/22	100	19/26	19/26
QD2/32	250	24/29	19/26
QD2/42	500	24/29	19/26
QD2/43	500	24/29	19/26

Pressure Equalising Funnels

Pressure equalising

Pear shape, with GP Rotaflo stopcock, for use when liquids have to be introduced into vessels under vacuum or slight positive pressure. This range is recommended for use with obnoxious or corrosive liquids. The funnels can also be used with Soxhlets as solvent traps to facilitate recovery at the end of an extraction.

	Nominal capacity ml	Socket size	Cone size
QDE100/22	100	19/26	19/26
QDE250/32	250	24/29	19/26
QDE250/33	250	24/29	24/29

Spare keys and safety locks – see *QGP* and *QSL* series.



QD2



QDE

One-Joint Sets

One-Joint Sets 29BU/M and 27BU

A comprehensive range of Quickfit jointed glassware sets and extension kits covering the practical chemistry requirements of teachers and students. Joint size 14/23. For quantities up to 30g.

- ◆ Suitable for both inorganic and organic chemistry
- ◆ Semi-micro scale with flask capacities from 5ml to 250ml
- ◆ Most sets are supplied in boxes which fit into a normal laboratory bench drawer and have compartments to both safely protect the contents and to utilise the least amount of storage space

Components:

Ref. No.	Item No.	Components	29BU/M	Sets 27BU
FP50/1	1	Pear shaped flask, 50ml	1	1
SH4/1	2	Stillhead	1	1
C1/11/SC	3	Liebig condenser	1	1
ST51/13	4	Screwcap adapter	1	1
RA1/11	5	Receiver adapter	1	1
MF5	6	Air leak/steam inlet tube	—	1
D31/1/50	7	Dropping funnel, 50ml with GP Rotaflo tap	—	1
SB14	8	Glass stopper	—	—
TRF593	8	Plastic stopper	—	1
—	9	Thermometer	—	1
FR25/15	10	Round bottom flask, 25ml	—	—
C2/11	11	Air condenser/drying tube	—	—
3730/04	12	Sintered glass funnel	—	—
MF23/1	13	Drying tube	—	—
FP50/1/1A	14	Pear shaped flask, 50ml, with angled side neck	—	—
MF5	15	Air leak/steam inlet tube	—	—
MF17/1/SC	16	Adapter with 'T' connection	—	—
ST51/18	17	Screwcap adapter	—	—

Set 29BU/M

A 5-part introductory set to the principle techniques of preparative organic chemistry. An ideal set for students. Supplied in a box with instruction booklet which contains notes on practical techniques and details of various experiments and preparations.

Q29BU/M Set 29BU/M

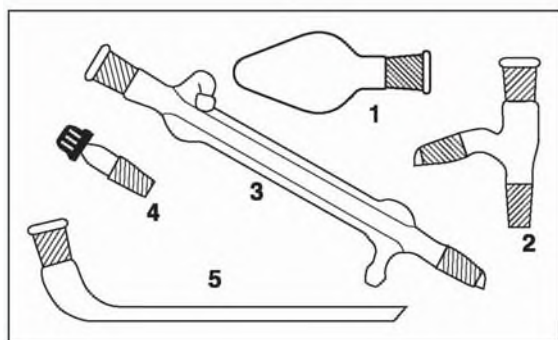
Set 27BU

A 9-part set of great versatility and purposely designed to cover the essential requirements for the teaching of organic chemistry. A highly popular set for use in schools, colleges and universities. Supplied in box with storage tray and instructions which include practical details of a student's course of experiments and preparations.

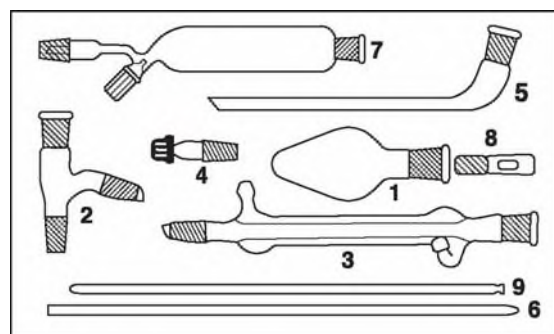
Q27BU Set 27BU



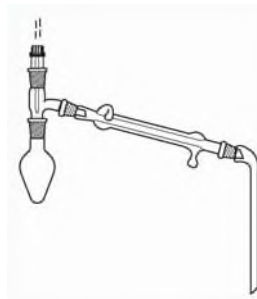
Q27BU



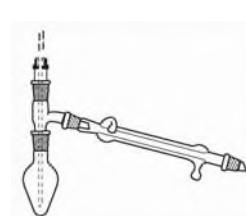
Q29BU/M



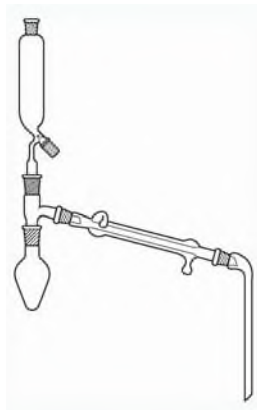
Q27BU



Preparation



Steam distillation



Recovery



Reflux



Reflux with addition

Stillheads

	Flask	Cone size	Condenser
Recovery bends, sloping			
QSH1/11	14/23		14/23
QSH1/22	19/26		19/26
QSH1/23	24/29		19/26
QSH1/33	24/29		24/29
QSH1/44	29/32		29/32
Recovery bends, vertical			
QSH2/22	19/26		19/26
QSH2/33	24/29		24/29

Plain

With thermometer sockets.

	Flask	Cone size	Condenser	Socket size
QSH4/1	14/23		14/23	14/23
QSH4/22	19/26		19/26	14/23
QSH4/2	19/26		19/26	19/26
QSH4/23	24/29		19/26	14/23
QSH4/33	24/29		24/29	14/23
QSH4/44	29/32		29/32	14/23

Claisen head, sloping

QSH6/44	29/32		29/32	14/23
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Splash head adapter

	Socket size	Cone size
QSH17/23	19/26	24/29

Splash heads, vertical

	Flask	Cone size	Condenser
QSH7/12	19/26		19/26
QSH7/13	24/29		19/26
QSH7/53	24/29		24/29

Splash head adapters, rotary evaporator

For use with rotary evaporators to prevent "bumping" or foaming solvents from climbing to the condenser. Available with, or without, sintered glass (porosity 1) filter.

	Flask	Cone size	Condenser
Without filter			
QSH15/19	19/26		29/32
QSH15/24	24/29		29/32
QSH15/29	29/32		29/32
With filter			
QSH16/19	19/26		29/32
QSH16/29	29/32		29/32



QSH1



QSH4



QSH17/23



QSH15



QSH2



QSH6/44



QSH7/12, QSH7/13



QSH16

Stirring Accessories

PTFE blade

		Approx. shaft dia. x length, mm	Smallest neck through which stirrer will pass	Blade width mm
QST7/2	Blade	—	19/26 Socket	52

Air-powered stirrers – see SR940.

Alternative stirrer bearings – see SR946.

Simple screwcap glands

Screwcap adapters may be used as simple glands for basic stirring operations providing they are not used at high speeds or under vacuum. The silicone rubber ring inside the cap should be suitably lubricated. Size 13 thread adapters are suitable for 6mm stirrer shafts and size 24 for 11mm shafts.

See QST51 to QST55

Ground sleeve glands

With lubricant reservoir. For use up to 700rpm and at pressures down to 0.1 torr (13.3 Pa). Rotation of the stirrer is achieved by coupling to a geared motor.

		To fit stirrer shaft mm	Cone size	Thread size
QST20/2	Screwcap sleeve	6	19/26	13
QST20/3	Screwcap sleeve	11	24/29	24



QST7 on shaft



QST51/52/53/54/55



QST2/2/SC



QST20/2

Rotaflor® Stopcocks

With safety locking device which prevents complete unscrewing of the key.

- ◆ All glass/PTFE pathway
- ◆ No lubrication required
- ◆ Excellent flow control
- ◆ Interchangeable keys

Choice of two ranges:

General purpose (GP) fitted with blue control cap for easy identification.

- ◆ Vacuum operation to 10^{-4} torr
- ◆ Temperature range -20 to 200°C
- ◆ Bore sizes 3, 6 and 10mm
- ◆ Straight, right angle, burette configurations

High performance (HP) fitted with red control cap for easy identification.

- ◆ Vacuum operation to 10^{-6} torr
- ◆ Temperature range -20 to 200°C
- ◆ Keys can be degassed at 130°C for high vacuum work
- ◆ Each stopcock mass spectrometer tested with individual performance certificate supplied
- ◆ Self lubricating silicone vacuum seal

Rotaflor is a registered trade mark. Barloworld Scientific - registered user.

General Purpose Rotaflor Stopcocks

Borosilicate glass with PTFE screw-in key and safety locking ring.

	Bore mm	Type	Approx. overall length mm	Side arms bore mm
QGP3STI/5	3	Straight	210	5
QGP3RAI/5	3	Right angle	150	5
QGP6STI/7	6	Straight	210	7
QGP6RAI/7	6	Right angle	165	7
QGP10STI/10	10	Straight	225	10
QGP10RAI/10	10	Right angle	175	10

High Performance Rotaflor Stopcocks

Borosilicate glass with PTFE screw-in key, safety locking ring, and individual performance test certificate.

	Bore mm	Type	Approx. overall length mm	Side arms bore mm
QHP3STI/5	3	Straight	210	5
QHP3RAI/5	3	Right angle	165	5
QHP3TWI/5	3	3-way	215	5
QHP3STI/7	3	Straight	210	7
QHP3RAI/7	3	Right angle	165	7
QHP6RAI/7	6	Right angle	165	7
QHP6STI/10	6	Straight	210	10
QHP6RAI/10	6	Right angle	165	10
QHP10STI/10	10	Straight	210	10
QHP10RAI/10	10	Right angle	175	10

Spare keys

	Bore, mm
For GP Rotaflor stopcocks	
QGP3K	3
QGP6K	6
QGP10K	10
For HP Rotaflor stopcocks	
QHP3K	3
QHP6K	6
QHP10K	10

Spare safety locks

For GP and HP Rotaflor stopcocks.

	Bore, mm
QLR3	3
QLR6	6
QLR10	10

Spare glass bodies

For GP and HP Rotaflor stopcocks are available and can be ordered by adding prefix RB to the appropriate Quickfit number eg, RB3STI/5, RB3RAI/5, RB10RAI/15.



QGP:STI-



QGP:RAI-



QGP:K



QHP3STIC



QLR-



QHP:TWI-



QHP:STI-



QHP:RAI-



QHP:K

Stoppers and Thermometers

Stoppers

Hollow blown to reduce weight and closed at the lower end.

	Cone size
QSB10	10/19
QSB12	12/21
QSB14	14/23
QSB19	19/26
QSB24	24/29
QSB29	29/32
QSB34	34/35

Long Handle Stoppers

For iodine flasks

	Cone size
QSB24	24/29
QSB29	29/32

Enclosed scale thermometers

With integral cone. Spirit filled in colour as indicated.

	Cone size	Range, °C	Spirit colour
QMF31/2S	14/23	-10 to 250	Blue
QMF31/3S	14/23	-10 to 360	Green

Fixed immersion thermometer pocket

Closed end, made to fit Quickfit stillheads. It will take a normal unjointed laboratory thermometer.

	Cone size	Approx. stem length, mm
QSH4A	14/23	45

Thermometer adapters – see QST51 to QST53 series.

Tubes

Air/steam inlet, plain

Plain air/steam inlet tube for use with size 13 screwcap adapter. Because the adapter allows variation in depth of immersion, the tube can be used with flasks of various capacities. This item has a jet drawn on one end and is included in the range for the benefit of customers who do not have the correct size of tubing available.

	Approx. dia. mm	Approx. length mm
QMF5	6.5	325

Air/steam inlet

Straight with cone.

	Cone size	Approx. stem length mm
QMF15/1	14/23	150
QMF15/2	19/26	150
QMF15/3	24/29	150

Air/steam inlet

Bent with cone and screwthread safety connector.

	Cone size	Approx. stem length mm
QMF15/2B/SC	19/26	150
QMF15/3B/SC	24/29	150



QSB series



QMF31



QSH4A



QMF5



QMF15



QMF15-B

Tubes

All dimensions and capacities are approximate.

Test Tubes

	Socket size	Overall mm	Dia. mm	Cap. ml
QMF24/0/4	10/19	100	14	5
QMF24/12/4	12/21	100	17	10
QMF24/1	14/23	100	19	11
QMF24/1/15	14/23	125	19	15
QMF24/1/16	14/23	150	19	19
QMF24/2	19/26	100	23	19
QMF24/2/6	19/26	150	23	31
QMF24/3	24/29	150	29	54
QMF24/3/8	24/29	200	29	75
QMF24/5	34/35	250	41	195

Stoppers – see QSB- on previous page.

Centrifuge Tubes

Each tube is marked with its weight to the nearest 0.1g to enable tubes of similar weight to be selected from any batch.

	Socket size	Overall mm	Dia. mm	Cap. ml
QBC24/C14T	14/15	17 to 17.3	115	10

Stoppers – see QSC.

Tubes

Cone size

Drying, angled

QMF23/1	14/23
QMF23/2	19/26
QMF23/3	24/29

Digestion Tubes

	Cap. ml	Dia. mm	Overall mm	Joint size
With joint				
QTJ15/16/1	15	16	145	14/23
QTJ75/26/3	75	26	255	24/29
QTJ100/26/3	100	26	300	24/29
QTJ250/42/6	250	42	300	40/38



QMF24/3



QBC24/C24R



QMF23



QTJ

Ancillary Items for use with Quickfit Glassware

PTFE Sleeves, Azlon disposable

For fitting over ground glass cones to provide greaseless lubrication. Wall thickness 0.07mm, taper 1:10. Supplied in packs of 10.

	Ref.	For cone
QZZ20/14	SWN961	14/23
QZZ20/19	SWN962	19/26
QZZ20/24	SWN963	24/29
QZZ20/29	SWN964	29/32
QZZ20/34	SWN965	34/35
QZZ20/40	SWN966	40/38
QZZ20/55	SWN969	55/44

PTFE Sleeves, reusable

With knurled shoulder for ease of handling. Supplied singly.

	For cone
QZZ25/14	14/23
QZZ25/19	19/26
QZZ25/24	24/29
QZZ25/29	29/32

PTFE Sealing rings, reusable

Fine (0.7mm wide, 0.07mm thick) PTFE sealing rings for ground glass cones. In use the ring is carefully stretched onto the cone, becoming elastic and producing a tighter seal than conventional full sized sleeves (solvent leak rate <0.2mg/day). Operating temperature range -20 to +300°C. Supplied in packs of 50, mounted on an applicator tube.

	Ref.	For cone
QZZ27/14	N14	14/23
QZZ27/19	N19	19/26
QZZ27/24	N24	24/29
QZZ27/29	N29	29/32
QZZ27/34	N34	34/35
QZZ27/45	N45	45/25

Reduction adapters, PTFE, Azlon

Supplied singly.

	Ref.	Socket	Cone
QZZ35-02	SWN902	10/19	14/23
QZZ35-04	SWN904	14/23	19/26
QZZ35-07	SWN907	19/26	29/32
QZZ35-08	SWN908	19/26	34/35
QZZ35-09	SWN909	24/29	29/32
QZZ35-10	SWN910	24/29	34/35
QZZ35-11	SWN911	29/32	34/35



[QZZ20 in use](#)



[QZZ25](#)



[QZZ27 in use](#)



[QZZ35](#)

Ancillary items for use with Quickfit Glassware continued

Powder Funnels

Approximate funnel top diameter 105mm.

	Cone size
QCF511	14/23
QCF512	19/26
QCF513	24/29
QCF514	29/32
QCF515	34/35

Joint Clips

For securing conical and spherical glass joints. QGC clips have PTFE-encapsulated steel springs, are highly resistant to chemical attack and can be used up to 250°C. QKC and QKS clips are Delrin® polyacetal, colour-coded, suitable for use up to 80°C and with most chemicals except halogen gases and acids.

Joint size	PTFE	Delrin®	Colour code
For conical glass joints			
10/19	QGC10	QKC10	Mint
12/21	QGC12	QKC12	Violet
14/23	QGC14	QKC14	Yellow
19/26	QGC19	QKC19	Blue
24/29	QGC24	QKC24	Green
29/32	QGC29	QKC29	Red
34/35	QGC34	QKC34	Orange
40/38	QGC40	QKC40	Ochre
45/40	QGC45	QKC45	Brown
For spherical glass joints			
S13	—	QKS13	Violet
S19	—	QKS19	Blue
S29	—	QKS29	Red
S35	—	QKS35	Orange

Delrin® is a registered trademark of DuPont Ltd.



QCF5



QGC



QKC



QKS in use

Greaseless, Screw Threaded, Interchangeable Jointed System

- ◆ Made with Pyrex® borosilicate glassware
- ◆ SVL can be used at temperatures up to 200°C and under vacuum to a maximum of 10⁻⁴ torr

- QZ295-00** PTFE stem
- QZ296-90** Sealing ring
- QZ588-00** Glass body for stirrer
- QZ588-32** Stirrer shaft
- QZ588-34** Stirrer shaft
- QZ588-92** Gland set (complete)
- QZ588-95** Anchor paddle, small
- QZ701-01** Sealing ring for butt joint, SVL15
- QZ701-02** Sealing ring for butt joint, SVL22
- QZ701-04** Sealing ring for butt joint, SVL42
- QZ701-11** Coupling for butt joint, SVL15
- QZ701-12** Coupling for butt joint, SVL22
- QZ701-14** Coupling for butt joint, SVL42
- QZ701-19** Sealing ring for sliding joint
- QZ701-20** Sealing ring for sliding joint
- QZ701-21** Sealing ring for sliding joint
- QZ701-22** Sealing ring for sliding joint
- QZ701-23** Sealing ring for sliding joint
- QZ701-24** Sealing ring for sliding joint
- QZ701-25** Sealing ring for sliding joint
- QZ701-26** Sealing ring for sliding joint
- QZ701-27** Sealing ring for sliding joint
- QZ701-28** Sealing ring for sliding joint
- QZ701-29** Sealing ring for sliding joint
- QZ701-31** Sealing ring, flexible, for sliding joint
- QZ701-32** Sealing ring, flexible, for sliding joint
- QZ701-33** Sealing ring, flexible, for sliding joint

- ◆ Allows the forming of rigid, flexible and rotating joints
- ◆ Allows glass of dissimilar or equal diameters to be joined together to form leak-free, pressure-tight and vacuum-tight assemblies

- QZ701-41** Screw cap with hole SVL15
- QZ701-42** Screw cap with hole SVL22
- QZ701-43** Screw cap with hole SVL30
- QZ701-44** Screw cap with hole SVL42
- QZ701-51** Sealing ring for screwcap SVL22
- QZ701-52** Sealing ring for screwcap SVL22
- QZ701-56** Sealing ring for screwcap SVL30
- QZ703-01** Junction tube SVL15
- QZ703-04** Junction tube SVL42

SVL screwcap stoppers

A black phenolic cap with an ethylene propylene sealing disc faced with PTFE. Can be dry heat and steam sterilised to 121°C.

	Ref.	SVL cap size mm	External dia. x height mm
SW460-13	4503/13	13	17 x 16
SW460-15	4503/15	15	20 x 21
SW460-18	4503/18	18	23 x 21
SW460-20	4503/20	20	25 x 21
SW460-22	4503/22	22	27 x 21
SW460-25	4503/25	25	31 x 26
SW460-30	4503/30	30	36 x 26
SW460-42	4503/42	42	52 x 30
SW460-60	4503/60	60	70 x 42



QZ588-32 to -34



QZ703



QZ588-95



QZ701-41-44 with QZ701-19-56

Radiation Monitoring

Radiation Survey Meter, Monitor 4

General purpose, low cost, analogue meter for detecting Alpha, Beta, Gamma and X-rays in medical, educational and industrial applications.

- ◆ Compact design
- ◆ Dual milliRad (mR) per hour or counts per minute (CPM) analogue scale display with three selectable ranges and separate, user selectable count bleeper
- ◆ Battery powered

Ranges	mR/hour	0 to 0.5, 0 to 5, 0 to 50
	CPM	0 to 500, 0 to 5000, 0 to 50,000
Sensitivity	Alpha	Down to 2.5MeV; detection efficiency typically >80% at 3.6MeV
	Beta	Typically 35% at 50KeV or 75% at 150KeV
	Gamma and X-rays	Down to 10KeV typically through the end window, 40KeV minimum through the case
Detector		Halogen-quenched, uncompensated G-M tube with mica end window 1.5 to 2mg/cm ² thick
Display		Analogue with dual scale and red LED count light
Audio indicator		User selectable count bleeper
Power		9V battery (IEC 6F22)
Overall L x W x D mm		210 x 70 x 48
Weight	g	246

Monitor 4 Radiation Survey Meter

As described. With battery.

- RA250-10** Monitor 4
- BL610-25** 9V battery



RA250-10

Digital Radiation Monitor, Monitor 200

- ◆ Monitors Alpha, Beta, Gamma and X-rays
- ◆ Accumulated counts or counts per minute (CPM) or mR/hr
- ◆ Halogen-quenched, uncompensated Geiger-Müller tube detector
- ◆ Digital display and audio-visual count bleeper with mute
- ◆ Adjustable audio alert level on mR/hr and counts per minute readings
- ◆ USB output for datalogging or warning devices

Ranges	mR/hour	0.001 to 200 (Cs-137)
	Sv/hr	0.01 to 1000
	CPM	0 to 214,000
	CPS	0 to 3575
	total counts	1 to 9,999,000
Sensitivity	Alpha	Down to 2.5MeV; detection efficiency typically >80% at 3.6MeV
	Beta	Typically 35% at 50KeV or 75% at 150KeV
	Gamma and X-rays	Down to 10KeV typically through the end window, 40KeV minimum through the case
Gamma sensitivity		1000CPM or mR/hour
Display		Digital with red LED count light
Output		Mini USB
Power		2 x 1.5V AA batteries
Overall L x W x D mm		140 x 68 x 33
Weight	g	220

Monitor 200 Monitor

As described. Supplied with soft carrying case, protective boot, USB output and Observer USB software and batteries.

- RA275-45** Monitor 200
- RA275-94** Rugged ABS/PC field case, water-resistant to IP65, for RA275-45
- BL610-15** 1.5V battery (2 required)



RA275

Digital Radiation Monitor, Ranger

Handheld digital meter with excellent sensitivity to low levels of Alpha, Beta, Gamma and X-rays.

- ◆ Accumulated counts, counts per minute, counts per second, timed period counts, mR/hr or Sv/hr selectable, with adjustable alarm
- ◆ Halogen-quenched, uncompensated Geiger-Müller tube detector
- ◆ USB outputs for datalogging or TTL devices

Ranges	mR/hour	0.001 to 100
	Sv/hr	0.01 to 1000
	CPM	0 to 350,000
	CPS	0 to 5000
	total counts	1 to 9,999,000
Timer		1 to 10 x 1 minute
		10 to 60 x 10 minutes
		1 to 24 x 1 hour
Display		Digital with red LED count light
Output		Dual mini Jack drives and USB
Power		2 x 1.5V AA batteries
Overall L x W x D mm		150 x 80 x 30
Weight	g	250

Sensitivity to common isotopes

Isotope	Energy	Efficiency
Alpha		
241AM	5.5MeV	18%
Beta		
14C	49keV average 156keV max.	5.3%
210Bi	39keV average 1.2MeV max.	32%
90 Sr(Y)	546keV and 2.3MeV	38%
32P	693keV average 1.7MeV max.	33%
Gamma		
	3340CPM or mR/hr referenced to Cs-137	
	Smallest detectable level for I-125 is 0.02 Ci at contact	

Ranger Monitor

As described. Supplied with soft carrying case, protective boot, USB output and Observer USB software. With battery.

- RA280-50** Ranger
- BL610-15** 1.5V battery (2 required)
- BL610-25** 9V battery



RA280

Radiation Shielding

Radiation Shielding



Designed to provide maximum shielding during procedures which require the handling of β -emitting isotopes, such as ^{32}P , ^{90}Y and ^{35}S .

- ◆ Manufactured in transparent acrylic
- ◆ Label showing radiation symbol and legend Caution – "Radioactive Material" supplied with each shield

Benchtop Beta Shields

Free standing stable shields in transparent acrylic 9.5mm thick. With angled top and 300mm deep base which provides a flat working surface and minimises the risk of "hot spots" on the laboratory bench.

	Ref. 6700	H x W x D mm
RA400-10	-1812	457 x 305 x 305
RA400-15	-2418	610 x 457 x 305

SAFETY NOTES

- 1) These shields are unsuitable for use against secondary x-rays (Bremsstrahlung) or gamma radiation.
- 2) Radioactive waste must never be stored on the benchtop for long periods and must be disposed of properly. Proper handling and storage of isotopes minimises unnecessary exposure to radiation.

Beta Waste Containers

Transparent acrylic 9.5mm thick. Supplied with polyethylene screw cap bottle to contain aqueous waste solutions such as buffers. The shield encases the waste bottle without obstructing access to the bottle cap.

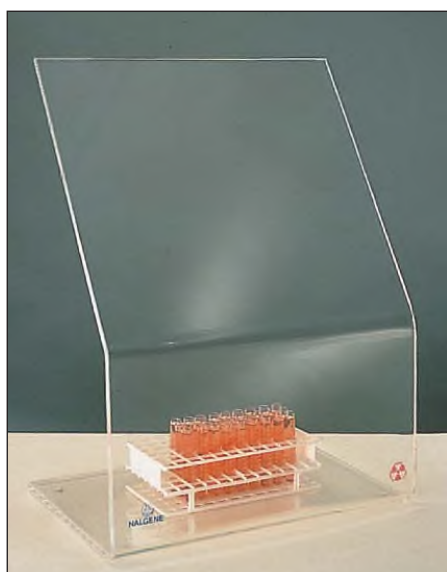
	Ref. 6710	Dia. mm	Cap. litre
RA405-17	-2000	140	2

Beta Waste Shield

Transparent acrylic 9.5mm thick. Accommodates large containers. A large hinged door in the cover allows easy access to the waste receptacle and a tray sits within the shield to contain spillage. Hinged corners allow removal of the container and the shield can be collapsed for storage.

	Ref. 6745	H x W x D mm
RA416-16	-9024	737 x 457 x 457

Benchtop bench protection to contain radioactive spillage – see SA200 in the Safety section.



RA400 in use



RA405 in use



RA416 in use

Radiation Shielding

Beta and Gamma Radiation Shielding

- ◆ Choice of construction/shielding types
 - clear optical acrylic, minimum 10mm thick, for shielding against beta particles
 - clear lead acrylic*, minimum 12mm thick, for shielding against gamma particles

*Note: Lead acrylic has a slight yellowish tint.

Safety shields

Fixed angle pattern with stable, curved base and single face angled at 15°. Dimensions stated are H x W x D.

For beta radiation

RA600-20 450 x 300 x 150mm
RA600-30 530 x 350 x 150mm

For gamma radiation

RA604-20 450 x 300 x 150mm
RA604-30 530 x 350 x 150mm

Hourglass and dual angled patterns are also available on request.

Storage boxes

A range of benchtop storage boxes with hinged lids to accept accessory inserts as indicated. Dimensions stated are H x W x D.

For beta radiation

RA612-15 Mini-box, 75 x 105 x 105mm
RA612-25 Midi-box, 80 x 185 x 105mm
RA612-35 Maxi-box, 160 x 300 x 185mm

For gamma radiation

RA615-25 Midi-box, 84 x 189 x 109mm
RA615-35 Maxi-box, 164 x 304 x 189mm

Accessory racks

To fit storage boxes and hold tubes as indicated.

For Mini-boxes

RA623-15 16 x 1.5ml Eppendorf tubes
RA624-15 20 x 0.5ml Eppendorf tubes

For Midi-boxes

RA626-25 32 x 1.5ml Eppendorf tubes
RA627-25 40 x 0.5ml Eppendorf tubes
RA628-25 16 x 0.5ml and 1.5ml Eppendorf tubes
RA629-25 32 x 2ml cryotubes

For Maxi-boxes

RA632-35 15 x 15ml centrifuge tubes
RA633-35 8 x 50ml centrifuge tubes
RA634-35 3 x Falcon tubes, 8 x 1.5ml tubes
RA635-35 8 x 20ml scintillation vials
RA636-35 15 x 5ml scintillation vials
RA637-35 8 x 30ml universals

Tip boxes

With hinged lid and pipette tip port which is itself covered by a small hinged lid. For single channel pipettors. Overall 150 x 150 x 150mm H x W x D, capacity 2 litres. Accessory heavy duty plastic liner bags are also available.

RA640-10 For beta radiation shielding
RA645-20 For gamma radiation shielding
RA662-05 Accessory liner bags for RA640-10 and RA645-20, pack of 25

Disposal bins

With hinged lid and anti-slip feet. Capacities and dimensions (H x W x D) in mm as indicated.

For beta radiation

RA650-20 3.3L, 170 x 180 x 170
RA650-40 10L, 270 x 220 x 220
RA650-60 47L*, 600 x 305 x 290
RA650-80 50L, 420 x 510 x 290

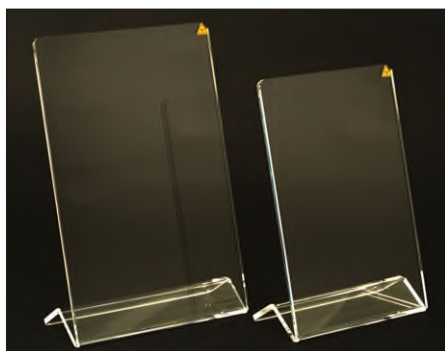
*Mounted on castors for easy manoeuvrability.

For gamma radiation

RA657-20 3.3L, 174 x 174 x 174
RA657-40 10L, 274 x 224 x 224
RA657-60 50L, 424 x 514 x 294

SAFETY NOTES

- 1) Beta radiation shields are unsuitable for use against secondary x-rays (Bremsstrahlung) or gamma radiation.
- 2) Gamma radiation shields will block emissions effectively from ¹²⁵I and any low energy gamma emitters. They are not suitable for more energetic isotopes of iodine. Heavier-walled shields are available for use with these isotopes - details on request. Gamma shields must not be used with beta isotopes since Bremsstrahlung will be produced.
- 3) Radioactive waste must never be stored on the benchtop for long periods and must be disposed of properly. Proper handling and storage of isotopes minimises unnecessary exposure to radiation.



RA600, RA604 are similar



RA612-25 with accessories, RA615-25 is similar



RA612-15 in use with accessories



RA640 in use, RA645 is similar



RA650-60

Refractometers

Portable Analogue



B&S Portable Refractometers, Eclipse

For the rapid quality control checking of solutions and semi-solids with applications in a wide range of industries. All models include a certificate of calibration with traceability to UKAS standards.

Eclipse range

Robust metal casing with focusing eyepiece, zero adjustment for sample temperature and sealed prism with transparent flap allowing easy cleaning.

Range

Sugar scale*

RE106-17 0 to 15% x 0.1%

RE106-32 0 to 30% x 0.2%

RE106-52 0 to 50% x 0.5%

RE106-62 28 to 65% x 0.2%

RE106-68 45 to 80% x 0.2%

RE106-72 72 to 95% x 0.2%

Starch scale

RE106-85 0 to 30% x 0.2%

Salinity scale

RE106-93 0 to 28% x 0.1%

* All sugar scales are based on % w/w sucrose in water.

Portable Digital, uniREFRACTO 5 pro

Compact, hand-held, digital refractometer with three scales available to view with two pre-set to 0-95% x 0.1% Brix and 1.33-1.54 R.I. x 0.0001 R.I., the third is freely selected from 45 scales available from an on-board library including Brix, R.I., AdBlue®, degrees Baume, degrees Butyro, Ethylene glycol %, Calcium chloride % and specific gravity.

- ◆ Ergonomic design
- ◆ 4-digit LCD readout
- ◆ Shallow, stainless steel prism dish for 0.3ml samples
- ◆ IP65-rated, ultrasonically welded, housing
- ◆ Automatic temperature compensation
- ◆ Measurement time: 2 seconds

Cat No.	RE115-95
Ranges	0 to 95% Brix, 1.33 to 1.54 R.I., plus user selected
Resolution	0.1% Brix, 0.0001 R.I.
ATC range	°C +5 to +80
Power	2 x 1.5V AAA batteries
Overall W x D x H mm	55 x 120 x 35
Weight	g 180

As described. Overall 120 x 55 x 35mm L x W x D, weight 180g. Supplied with 2 x 1.5V AAA batteries, soft cover and instructions.

RE115-95 UniREFRACTO 5 pro



RE106



RE115-95

Refractometers

Model Abbe 5



BELLINGHAM
& STANLEY

Budget-level refractometer, ideal for wide ranging refractive index (R.I.) measurement, or where sample throughput is relatively low. particularly suited to educational demonstrations.

- ◆ R.I. and Brix scales indicated
- ◆ Uses ambient white light as a light source
- ◆ Digital sample temperature readout
- ◆ Water-jacketed prism block with inlet and outlet ports

Abbe 5 Refractometer

As described. Supplied with glass calibration plate, contact liquid, instruction manual, battery and rigid carrying case. Requires a source of white light (natural or lamp) for operation.

RE160-10 Abbe 5

BL610-15 Spare battery, 1.5V AA (1 required)

Model		Abbe 5
Scales	R.I.	1.30 to 1.70
	Brix	0 to 95°
Resolution	R.I.	0.00005
	Brix	0.25°
Temp. display x resolution	°C	+5 to +70 x 0.1
Power supply		1 x 1.5V AA battery (temp. display only)
Overall W x D x H	mm	120 x 220 x 310
Weight	kg	2.6



RE160-10

Refractometers

Models RFM330-M and RFM340-M



BELLINGHAM
& STANLEY

- ◆ Solid state measuring system
- ◆ Choice of Refractive Index, % Sugar solids or up to 100 ranges from pre-programmed standard scales: Zeiss, Oechsle, Butyro, Fructose or custom
- ◆ Built-in peltier temperature control
- ◆ Extended sugar compensation, acid correction, offset, scaling and drift run facilities
- ◆ High resolution, full colour readout
- ◆ Shallow, easy-clean prism dish
- ◆ 700 reading memory
- ◆ RS232, LAN and USB interfaces

Model		RFM330-M	RFM340-M
Scales	R.I. % Sugar (~Brix)	1.32 to 1.58 — both models 0 to 100 — both models	
Resolution (accuracy)	R.I. % Sugar (~Brix)	0.0001 (±0.0001)	0.00001 (±0.00004)* 0.01 (±0.03)*
Other scales		100 available from pre-programmed standard scales: Zeiss, Oechsle, Butyro, Fructose, or user-defined — both models	
Auto. temp.comp., Sugar (~Brix) AG fluids, User-defined units		ICUMSA 5 to 70°C — both models Simple coefficient (units/°C) or polynomial function — both models	
Temp. stability checks		Selectable by method — both models	
Working temperature range		Ambient -10°C to +70°C, peltier-controlled, accuracy ±0.05°C — both models	
Reading update		4 seconds (minimum) — both models	
Prism		Artificial sapphire — both models	
Sample illumination		LED and filter at 589nm — both models	
Power supply		100-240V 50/60Hz single phase adapter	
Overall W x D x H	mm	187 x 337 x 211 — both models	
Weight	kg	5.4 — both models	

*±0.00002 (1.32 to 1.36 R.I.) and ±0.01 (0 to 30% Sugar)

As described. Supplied with instructions and power adapter for 100-240V 50/60Hz single phase supplies.

- RE280-55** Model RFM330-M
- RE280-65** Model RFM340-M

Accessories

For use in highly humid or wet, factory environments.

- RE284-20** Printer cable for all RFM-series refractometers
- RE284-30** Printer, CBM910
- RE284-32** Paper rolls for RE284-30
- RE284-34** Ribbon cartridge, black, for RE284-30
- RE284-39** Spare power supply, 110-230V 50/60Hz a.c.



RE280-65, RE280-55 is similar

Automatic RFM700-M Series



BELLINGHAM
& STANLEY

Low cost, fully automatic, digital refractometers designed for quality control in the food and beverage industries, but also useful in a variety of research and monitoring applications.

- ◆ Choice of Brix ranges:
 - 0 to 50% x 0.1% sugar
 - 0 to 100% x 0.1% sugar
 - 0 to 100% x 0.01% sugar
- ◆ Easy to use, four button keypad operation
- ◆ Bright LED display is clearly visible in all ambient light conditions
- ◆ Moisture-resistant, sealed casing and membrane keypad
- ◆ RS232 interface
- ◆ External, low voltage power supply

Model		RFM712-M	RFM732-M	RFM742-M
Range	% sugar (Brix)	0 to 50	0 to 100	0 to 100
Resolution	% sugar (Brix)	0.1 — both models		0.01
Accuracy	% sugar (Brix)	±0.1 — both models		±0.04
ATC		all readings compensated to +20°C		
Reading time	sec	3.2	4.5	4.5
Power supply		100-240V 50/60Hz a.c. single phase		
Overall L x W x H	mm	187 x 337 x 211 — all models		
Weight	kg	3 — all models		

As described. Supplied with instruction manual and external power adapter for 100 to 240V 50/60Hz a.c. single phase supply.

- RE285-20** Model RFM712-M
- RE285-40** Model RFM732-M
- RE285-60** Model RFM742-M

Accessories

- RE284-30** Printer, CBM910
- RE287-10** Printer cable for RE285-, RE290-series and RE284-30

Thermostatic baths and cooling systems – see BJ185/BJ240.



RE285

Refractometers

Automatic Digital RFM900-T Series



BELLINGHAM
& STANLEY

High performance instruments providing fast, accurate and reliable measurements. Choice of Refractive index (R.I.), % sugar (Brix) or user-defined ranges and resolution.

- ◆ Built in temperature regulation via peltier heating/cooling modules and precise, electronic control by "Intelligent Thermal Management"
- ◆ Separate, multiple probe, temperature monitoring and compensation of the optical and detector systems
- ◆ Conform to GLP, OIML, ASTM 05006, 1747, 2140, 1218, USP/EP/BP and meet security and technical requirements of U.S. FDA Regulation 21 CFR Part 11
- ◆ Highly stable optical system
- ◆ RFID (radio frequency i.d.) tag swipe system to identify specific users, enable measurement or reconfigure settings
- ◆ 700 result memory with tabular readout
- ◆ Powerful microprocessor controller with touchscreen colour graphics display
- ◆ Low-profile sample dish and non-contact presser enable easy cleaning
- ◆ Artificial sapphire prism with Kalrez seal set in 316 stainless steel and PEEK dish
- ◆ Parallel printer and dual RS232 interface for connection to the users' PC or another instrument
- ◆ Modern design
- ◆ Software features include:
 - Multiple product configuration presets
 - Single/continuous read modes
 - Reading log
 - Reading tolerance limits
 - Result verification
 - Calibration log
 - Calibration check/report
 - PIN password control
 - Batch/operator i.d.
 - Data export to PC
 - On-line help

Automatic Digital Refractometers RFM900-T series

As described. Supplied with instruction manual and external power adapter for 100 to 240V 50/60Hz single phase supplies.

- RE290-40** Model RFM960-T
- RE290-50** Model RFM970-T

Catalogue No.		RE290-40	RE290-50
Model		RFM960-T	RFM970-T
Ranges	R.I.	1.30 to 1.70	1.30 to 1.70
	% sugar (Brix)	0 to 100	0 to 100
	User-defined*	Yes (up to 100)	Yes (up to 100)
Resolution	R.I.	0.0001	0.00001
	% sugar (Brix)	0.1	0.01
Accuracy	R.I.	±0.0001	±0.00002
	% sugar (Brix)	±0.1	±0.02
Auto. temp compensation — both models	% sugar (Brix) User-defined* ATC ref. temp.	5 to 80°C Simple coefficient (units/°C) or polynomial function Selectable	
Reading time	seconds	Adjustable for accuracy (typically 4 to 10 seconds) — both models	
Temperature measuring range	°C	Ambient less 10 to 80 — both models	
Temperature accuracy	°C	±0.03 — both models	
Sample temperature stability	°C	±0.02 — both models	
Interfaces		1 x Parallel, 2 x RS232 (serial) — both models	
Sample illumination		Light emitting diode (589nm) — both models	
Overall W x D x H	mm	187 x 337 x 211 — both models	
Weight	kg	4.6 — both models	

*User-defined scales: available from the Bellingham and Stanley library of existing scales (at extra charge) or created by the user from experimental data.

Accessories

- RE284-32** Paper rolls for RE284-30
- RE284-30** Printer, CBM910
- RE284-34** Ribbon cartridge, black for RE284-30
- RE284-20** Printer cable for all RFM-series refractometers



RE290

Refractometers

Sucrose Calibration Solutions



BELLINGHAM
& STANLEY

For calibration and check of refractometers. Supplied in tamper-evident, 15ml dropper bottles with certificate indicating traceability references. Please note that these products have a limited shelf-life (6 weeks) and are therefore supplied to order only.

	Concentration, % w/w	R.I. (N_d @ 20°C)
RE295-05	5.00	1.34026
RE295-07	7.50	1.34401
RE295-10	10.00	1.34782
RE295-11	11.20	1.34968
RE295-12	12.50	1.35172
RE295-15	15.00	1.35568
RE295-20	20.00	1.36384
RE295-25	25.00	1.37233
RE295-30	30.00	1.38115
RE295-35	35.00	1.39032
RE295-40	40.00	1.39986
RE295-45	45.00	1.44078
RE295-50	50.00	1.42009
RE295-55	55.00	1.43080
RE295-60	60.00	1.44193

Portable Digital

HANNA

- ◆ IP67 class housing can be cleaned with running water
- ◆ Automatic temperature compensation
- ◆ Separate temperature display
- ◆ Rapid reading
- ◆ Brix or % w/w sugar models available
- ◆ Calibrate using distilled water

Catalogue No.	RE355-05	RE355-10	RE355-15	RE355-20
Model	HI-96801	HI-96802	HI-96803	HI-96804
Range	0 to 85% Brix	w/w Fructose	w/w Glucose	w/w Invert sugar
Resolution	% 0.1	— all models		
Accuracy	±% 0.2	— all models		
Temperature range	°C 0 to 80 x 0.1	— all models		
ATC range	°C 10 to 40 x 0.1	— all models		
Reading time	secs. 1.5	— all models		
Power	1 x 9V alkaline battery MN1604 or equivalent — all models			
Overall W x D x H	mm 192 x 102 x 67 — all models			
Weight	g 420 — all models			

As described. Supplied with 9V battery and operating instructions.

- RE355-05** HI-96801
- RE355-10** HI-96802
- RE355-15** HI-96803
- RE355-20** HI-96804
- BL610-25** Spare battery, 9V



RE295



RE355

Refractometers

Portable Analogue



Lightweight, hand-held, analogue refractometers for routine testing and quality control of solutions or semi-solid samples including food, drinks, cleaning solutions and oils. All feature metal casing, focussing eyepiece and sealed prism.

- ◆ Choice of model.
 - Master M-series: standard models covering a wide range of Brix scales, for samples up to +40°C. Overall 33 x 33 x 204mm H x W x D. Weight 160g
 - Master T-series: generally as Master M-series models but with built-in automatic temperature compensation from +10 to +30°C
 - Master α-series: generally as Master T-series models but additionally with water resistant housing to IP65 rating
 - H-series: generally as α-series models but additionally with heat resistant material construction for samples up to +100°C such as soup, jams or marmalade

	Model Master-	% sugar (Brix) Range	% sugar (Brix) Resolution
RE395-05	20M	0.0 to 20.0	0.1
RE395-25	53M	00 to 53.0	0.5
RE397-05	20T	0.0 to 20.0	0.1
RE397-25	53T	00 to 53.0	0.5
RE399-05	20α	0.0 to 20.0	0.1
RE399-25	53α	0.0 to 53.0	0.5
RE412-15	50H	0.0 to 50.0	0.5
RE412-25	80H	30.0 to 80.0	0.5
RE412-35	93H	45.0 to 93.0	0.5

Custom scales are available - please contact us with your requirements.

Portable Digital, PEN-PRO



Small, convenient, pen-type, digital refractometer allowing one-handed operation.

- ◆ Measure by touch, immersion or stirring using the IP67-rated prism head (instrument is IP65-rated)
- ◆ Light and compact
- ◆ Rapid measurements: results typically available within two seconds and refreshed every second thereafter
- ◆ Automatic temperature compensation between +10 and +60°C
- ◆ Warning signal if too much straylight is affecting the reading (ELI - external light interference)

Model		PEN-PRO
Range	% sugar (Brix)	0.0 to 85.0
Resolution	% sugar (Brix)	0.1
Accuracy	% sugar (Brix)	±0.2
ATC range	°C	10 to 60
Power		1 x AAA battery
Overall, W x D x H	mm	38 x 18 x 160
Weight	g	70

As described. Supplied with lanyard and battery.

- RE430-15** PEN-PRO
- BL610-08** 1.5V battery, spare



RE395



RE430-15



RE399

Refractometers

Portable Digital, PAL-series



Lightweight, compact, robust, digital refractometers providing accurate measurements and convenient use.

- ◆ Only 0.3ml of sample required
- ◆ Rapid reading, within 3 seconds from activating the start key
- ◆ IP65 class casing and sealed prism allow easy cleaning under running water
- ◆ LCD readout with battery level indicator
- ◆ Automatic temperature compensation
- ◆ Measure high temperature samples (reading stabilises after multiple repeated measurements)
- ◆ Zero key allows easy zero reset using water, no standard solutions required

Model	PAL-1	PAL-2	PAL-3
Range	0.0 to 53.0	45.0 to 93.0	0.0 to 93.0
Resolution	0.1	0.1	0.1
Accuracy	±0.2	±0.2	±0.2
ATC range	°C 10 to 60 — all models		
Power	2 x 1.5V AAA batteries — all models		
Overall, W x D x H	mm 55 x 31 x 109 — all models		
Weight	g 100 — all models		

As described. Supplied with storage case and batteries.

- RE440-30** PAL-1
- RE440-60** PAL-2
- RE440-80** PAL-3
- BL610-08** 1.5V battery, spare (2 required)



RE440-60, RE440-30 and RE440-80 are similar

Portable Digital, PR-α Series



Functionally-designed, reliable digital refractometers covering a total range of 0.0 to 90.0% sugar (Brix) using a minimum sample volume of 0.1ml.

- ◆ Built-in, automatic temperature compensation
- ◆ Separate temperature display function
- ◆ User scale function - sample concentrations with up to 3 separate scales
- ◆ IP64 class splashproof casing

Catalogue No.		RE450-05	RE450-10	RE450-15	RE450-20
Model		PR-32α	PR-101α	PR-201α	PR-301α
Range	% sugar (Brix)	0.0 to 32.0	0.0 to 45.0	0.0 to 60.0	45.0 to 90.0
Resolution	% sugar (Brix)	0.1 — all models			
Accuracy	% sugar (Brix)	±0.1 (+5 to +40°C)	±0.1 (+5 to +40°C)	±0.1 (+10 to +40°C)	±0.1 (+10 to +30°C)
Temperature (ATC) range	°C	+5 to +40	+5 to +40	+10 to +40	+10 to +40
Reading time	seconds	3 — all models			
Power		9V alkaline battery MN1604 or equivalent — all models			
Overall, W x D x H	mm	170 x 90 x 40 — all models			
Weight	g	300 — all models			

As described. Supplied with 9V battery and operating instructions.

- RE450-05** PR-32α
- RE450-10** PR-101α
- RE450-15** PR-201α
- RE450-20** PR-301α
- BL610-25** 9V battery, spare



RE450

Refractometers

Automatic, Smart-1



Fully automatic, digital refractometer designed for a variety of applications.

- ◆ Simple, three key operation
- ◆ Choice of four scales selectable: Brix, Inverted Sugar Concentration, HFCS-55 (High Fructose Corn Syrup) and HFCS-42
- ◆ Bright, highly visible LED display
- ◆ Automatic temperature compensation
- ◆ Zero key allows easy zero reset using water
- ◆ Stable reading display mode provides measurement value without requirement to note temperature

Model	Smart-1
Range x resolution	% 0.00 to 95.00 x 0.01
Accuracy (all scales)	% ±0.05
Temperature (ATC) range x resolution	°C +5 to +40 x 0.1
Temperature accuracy	°C ±0.10
Output	RS232C
Power supply	a.c. adapter requiring a 100, 240V 50/60Hz single phase supply
Overall, W x D x H	mm 120 x 270 x 90
Weight	kg 3

As described. Supplied with a.c. adapter for 100, 240V 50/60Hz single phase supplies and instructions.

RE475-30 Smart-1

Automatic RX-α Series



High accuracy, automatic, digital refractometers with thermostatically controlled sample chamber.

- ◆ Choice of % sugar (Brix) or Refractive index (R.I.) ranges
- ◆ Adjustable thermostatic control of sample chamber temperature with built-in, heating/cooling Peltier thermo-module
- ◆ Manual calibration facility allows compensation to known standards or other control instruments
- ◆ 30-reading memory and 30 custom user scales memorised (with optional unit display: %, g/100g, g/100ml, mol/l, %mas, % vol, none)

Model		RX-5000α	RX-7000α
Ranges	% sugar (Brix)	0.00 to 95.00	0.0 to 95.0
	R.I. (nD)	1.32700 to 1.58000	1.3250 to 1.7000
	°C	Ambient -10.00 to + 60.00	Ambient -10.00 to +70.00
Resolution	% sugar (Brix)	0.01	0.1/0.01 (selectable)
	R.I. (nD)	0.00001	0.0001/0.00001 (selectable)
	°C	0.01	0.01
Accuracy	% sugar (Brix)	±0.03	±0.1
	R.I. (nD)	±0.00004	±0.0001
	°C	±0.05	±0.05
Output		RS232C — both models	
Display		Backlit dot matrix LCD with readout of result, temperature, date, time, mode, and sample range bar (if set) — both models	
Sample chamber/illumination		Artificial sapphire prism with 316 stainless steel surround and LED illumination (D line) — both models	
Power supply		100, 240V 50/60Hz single phase supply — both models	
Overall, W x D x H	mm	370 x 260 x 140 — both models	
Weight	kg	9 — both models	

As described. For 100, 240V 50/60Hz single phase supplies. Supplied with instructions.

RE500-15 RX-5000α

RE500-35 RX-7000α



RE475



RE500-35, RE500-15 is similar

Refrigeration

Portable Refrigerators

For sample transport or vaccine and pharmaceutical storage in the field.

- ◆ 12V d.c. or 100-240V a.c. operation
- ◆ Temperature range +2°C to +8°C within ambient temperatures up to +32°C
- ◆ Digital temperature display with max./min. function and temperature fluctuation audio visual alarm
- ◆ Forced air circulation ensures minimal temperature fluctuation within the cabinet and rapid recovery if the lid is opened
- ◆ Compliant with RPSGB, NHS, WHO and RCVS requirements
- ◆ Durable, moulded, industrial plastic housing allows easy cleaning and a long working life

Model		SMP41	SMP65
Capacity	litres	41	65
Dimensions, exterior (interior, max*)	H, mm	400 (260)	450 (325)
	W, mm	610 (525)	725 (610)
	D, mm	385 (290)	510 (360)
Weight	kg	18	24

*Chamber dimensions are maximum. Compartment has ledges and indents.

As described. Supplied with vehicle cigarette lighter connection for mobile use and mains cable lead. For 12V d.c. or 100-240V 50/60Hz a.c. supplies.

RG140-41 SMP41

RG140-65 SMP65



RG140 in use

Portable Incubators

Portable Incubator, Challenger MX25

Versatile, robust, rectangular portable incubator for small scale incubation of samples in the field or where use of a standard incubator is impractical. Temperature range ambient +5°C to +45°C, variation $\pm 5^\circ\text{C}$ (at 20°C ambient). Capacity 5.2 litres. An overtemperature cut-out engages at +70°C. Solid-state heating and control electronics are sealed in the case and a heat reservoir chassis ensures even heat distribution and rapid heat recovery to set temperature. With moulded co-polymer case, transparent polycarbonate lid and spirit thermometer. With a separate, external, universal power supply for increased safety and operation on 100-240V a.c. supplies. An accessory cigar lighter plug and cable allows alternative 12V d.c. operation in the field. Usable internal dimensions 180 x 150 x 180mm W x D x H, overall 320 x 260 x 270mm W x D x H. Weight 1.9kg.

IN085-75 Challenger MX25

IN085-77 Cigar lighter plug cable for IN085-75

Diplides – see HT802 to HT808.

Portable Incubator, Ranger MX45

Versatile, robust, portable incubator for small-scale incubation of samples in the field, or where use of a standard incubator is impractical. Temperature range ambient +5°C to +45°C with quickset reference points at +30°C and +37°C, variation $\pm 0.5^\circ\text{C}$ (at 20°C ambient). Capacity 5.5 litres. An overall temperature cut-out engages at +70°C. Solid state heating and control electronics are sealed in the case and a heat reservoir chassis ensures even heat distribution and rapid heat recovery to set temperature. Rugged aluminium housing with moulded copolymer liner, transparent inner lid and spirit thermometer. With external, universal power supply for increased safety and operation on 100-240V supplies and cigar lighter plug and cable which allows alternative 12V d.c. operation in the field. Usable internal dimensions 300 x 140 x 125mm W x D x H, overall 350 x 280 x 200mm W x D x H. Weight 3.6kg.

IN085-94 Ranger MX45



IN085-75 in use



IN085-94

Refrigeration

Laboratory Refrigerators

Designed for the safe storage of chemicals, volatile liquids and specimens. Maintain internal air temperature between +2°C and +10°C.

- ◆ Automatic defrost
- ◆ Integral door lock and 2 keys
- ◆ Digital controller with LED temperature readout to 0.1°C (-BT- models also incorporate Bluetooth connectivity and smart phone app for data monitoring and temperature control)
- ◆ Refrigerants:
 - R134a (RG200-16, -36 and -85 only)
 - R600a (RG200-47 and -68 only)
- ◆ "Spark-free" interior
- ◆ Adjustable shelf levels
- ◆ Audible and visual high and low temperature alarms
- ◆ Anti-microbial door handle

Laboratory Refrigerators

As described. With "spark-free" interior, automatic defrost and door lock. The thermostat is adjustable to maintain internal air temperature between +2°C and +10°C. All models are supplied with wire shelves and drawers as indicated. For 230V 50Hz single phase supplies.

	Model	Gross cap. litres	H x W x D mm	Shelves/drawers supplied
RG200-16	LSFSR82	82	660 x 502 x 540	2/1
RG200-36	LSFSR107	107	830 x 495 x 620	2/1
RG200-47	LSFSR158BTUK	158	845 x 558 x 600	3/1
RG200-68	LSFSR288BTUK	288	1570 x 595 x 634	5/1
RG200-85	LR1607C	475	1688 x 695 x 910	5/0

Laboratory Refrigerators/Freezer

Combined refrigerators/freezers for storage of temperature sensitive samples, volatile liquids, chemicals and poisons.

- ◆ Refrigerator range: +2°C to +10°C
- ◆ Freezer range: -12°C to -20°C
- ◆ "Spark-free" interior
- ◆ Integral door lock and 2 keys
- ◆ Digital controller with LED temperature readout
- ◆ Audible and visual high and low temperature alarms
- ◆ Adjustable shelf levels (refrigerator only)
- ◆ Antimicrobial door handle
- ◆ R600a refrigerant

Laboratory Refrigerators/Freezer

As described. With "spark-free" interior, door lock and wire shelves and drawers as indicated. For 230V 50Hz single phase supplies.

	Model	Gross cap. Refrigerator litres	Gross cap. Freezer litres	H x W x D mm	Shelves/baskets supplied
RG205-33	LSC138UK	106	13	865 x 595 x 660	3/1

Notes:

Due to the large size and weight of these units, the user must ensure that suitable space area, floor loading and access for installation is available prior to ordering. The RG200- and RG205-series are installable by the user and delivery therefore will only be made to the customers unloading area.

R600a refrigerant models cannot be transported by airfreight due to the hazardous nature of this refrigerant. They can therefore only be exported by overland or seafreight.



RG200-36 in use



RG205-33 in use

Refrigeration

Laboratory Refrigerators/Freezers



- ◆ "Spark-free" interior, all electrical components located externally (not suitable for open vessels of inflammable liquids)
- ◆ Ranges: +0°C to +10°C - refrigerators, -12°C to -24°C - freezers (-18°C to -25°C - RG214-80) up to +32°C ambient
- ◆ Digital controller with display of actual temperature with high or low temperature, audio and visual alarms, Min./Max. temperature recall since last reset and door open alarm
- ◆ Integral door lock
- ◆ Automatic defrosting (refrigerators only)
- ◆ R134a refrigerant (except RG210-80 and RG214-80 which has R600a)
- ◆ Removable, wire shelves with adjustable height

	Gross cap. litres	H x W x D mm	Weight kg	Shelves supplied
Laboratory Refrigerators				
RG210-28	66	740 x 450 x 510	34	3
RG210-37	150	835 x 600 x 600	45	3
RG210-80	439	1875 x 600 x 700	93	6
Laboratory Freezers				
RG214-13	66	740 x 450 x 510	34	3
RG214-37	124	830 x 600 x 600	45	3
RG214-80	406	1875 x 600 x 700	97	6

As described. With "spark-free" interior and door lock. Supplied with shelves as indicated. RG210-80 and RG214-80 are mounted on castors for additional manoeuvrability. For 230V 50Hz single phase supplies.

Laboratory Refrigerator/Freezers



Combined refrigerator/freezers. Compact, storage solution for samples requiring refrigeration or freezing.

- ◆ "Spark-free" interior, all electrical components located externally
- ◆ Nominal operating temperatures:
 - refrigerator compartment: +4°C
 - freezer compartment: -20°C
- ◆ "Door open" alarm on refrigerator compartment
- ◆ Available with, or without, lockable door latches
- ◆ R600a refrigerant
- ◆ Refrigerator compartment automatic defrosting

Combination Refrigerator/Freezers

As described. With "spark-free" interior, shelves in the refrigerator and baskets in the freezer compartments as indicated. Weight 68kg. For 230V 50Hz single phase supplies.

	Gross cap, litres		H x W x D mm	Lock	Shelves/baskets supplied
	Refrigerator	Freezer			
RG220-12	271	113	2000 x 595 x 650	x	5/3
RG220-17	271	113	2000 x 595 x 650	✓	5/3

Note:

Due to the large size and weight of these units the user must ensure that suitable space area, floor loading and access for installation is available prior to ordering. They are installable by the user and delivery therefore will only be made to the customers unloading area.



RG210-37 in use, RG214 are similar



RG220-17

Refrigeration

Laboratory Refrigerators and Freezers

LIEBHERR

- ◆ Temperature ranges:
 - Refrigerators: +3 to +8°C
 - Freezer: -9 to -26°C
- ◆ Digital temperature control with temperature (over/under) and door-open alarms
- ◆ Alarm log of duration and date of last 3 events
- ◆ Forced air circulation provides excellent temperature stability (except freezer GG5210.740)
- ◆ Volt-free and RS485 interfaces for remote alarms/monitoring (except freezer GG5210.740)
- ◆ R600a refrigerant
- ◆ Self-closing, solid or glass door models available. Glass door models also have LED internal lighting

Model	Solid door Glass door	LKUv 1610 LKUv 1613	LKv 3910 LKv 3913	GG5210.740 —
Range	°C	+3 to +16	+3 to +16	-14 to -28
Capacity	litres	141	360	520
External	H, mm	820	1840	1864
	W, mm	600	600	750
	D, mm	615	615	750
Weight, net	kg	43	84	118
Shelves supplied		3	5	—*
Energy consumption in 24 hours	kWh	0.7 (1610)	0.9 (3910)	1.3
	kWh	1.0 (1612)	1.3 (3912)	

*Fitted with 14 plastic bin drawers

As described. For 220-240V 50Hz single phase supplies. Note: these models are not spark-free.

- RG222-05** LKUv 1610, +3 to +16°C, solid door
- RG222-08** LKUv 1613, +3 to +16°C, glass door
- RG222-14** LKv 3910, +3 to +16°C, solid door
- RG222-17** LKv 3913, +3 to +16°C, glass door
- RG222-33** GG5210.740, -14 to -28°C, solid door

Note:

Due to the large size and weight of these units the user must ensure that suitable space area, floor loading and access for installation is available prior to ordering. They are installable by the user and delivery therefore will only be made to the customers unloading area.

R600a and R290 refrigerant models cannot be transported by airfreight due to the hazardous nature of these refrigerants. They can therefore only be exported by overland or seafreight.



RG222-05, RG222-08 is similar



RG222-14, RG222-17 is similar

Refrigeration

Laboratory Refrigerators/Freezers

LIEBHERR

- ◆ Temperature ranges:
 - Refrigerators: +1 to +15°C (LKexv-series models only)
+3 to +16°C (LK-/LC-series models only)
 - Freezer: -9 to -30°C (LCexv 4010 model only)
- ◆ Digital temperature display with high/low temperature and door-open alarms (except LKexv models which have temperature display only)
- ◆ Self-closing, solid door with integral door lock
- ◆ Atex certified "spark-free" interior
- ◆ Adjustable shelf levels with glass shelves
- ◆ R600a refrigerant
- ◆ Forced air circulation (LC- refrigerator compartment only)
- ◆ RG224-50 and RG224-70 additionally have a volt-free alarm and RS485 interfaces for monitoring temperature

Model		LKexv2600	LKexv 3600	LKexv 5400
Range	°C	+1 to +15 — all models		
Capacity	litres	240	333	554
External	H, mm	1250	1640	1640
	W, mm	600	600	750
	D, mm	610	610	730
Shelves supplied		4	5	5
Energy consumption in 24 hours	kWh	0.786	0.947	0.947

Model		LKUexv 1610*	LKEXv 3910*	LCexv 4010
Range	Refrigerator	°C	+3 to +16	+3 to +16
	Freezer	°C	—	-9 to -30
Capacity,	Refrigerator	litres	141	254
	Freezer	litres	—	107
External	H, mm	820	1840	2000
	W, mm	600	600	600
	D, mm	615	615	615
Shelves/baskets supplied		3/0	5/0	4/3
Energy consumption in 24 hours	kWh	0.9	0.9	1.8

As described. For 220-240V 50Hz single phase supplies.

RG224-22 LKexv 2600, +1 to+15°C

RG224-32 LKexv 3600, +1 to+15°C

RG224-42 LKexv 5400, +1 to+15°C

RG224-50 LKUexv 1610, +3 to+16°C

RG224-70 LKEXv 3910, +3 to+16°C

RG225-15 LCexv 4010, +3 to+16°C / -9 to -30°C

Note:

Due to the large size and weight of these units the user must ensure that suitable space area, floor loading and access for installation is available prior to ordering. They are installable by the user and delivery therefore will only be made to the customers unloading area.

R600a and R290 refrigerant models cannot be transported by airfreight due to the hazardous nature of these refrigerants. They can therefore only be exported by overland or seafreight.

*With additional secondary safety thermostat to stop unit cooling below +2°C and access port.

Inset: RG224-50



RG224-42



RG225-15

Refrigeration

Laboratory Refrigerators and Freezers, Heavy-duty

LIEBHERR

- ◆ Large capacity: 600 to 1427 litres
- ◆ Stainless steel interior (except LGPv6520 - chromium nickel steel) with plastic coated, adjustable height grid shelves
- ◆ Volt-free and RS485 interfaces for remote alarms/monitoring
- ◆ Self-closing, solid or glass door models available with integral door lock
- ◆ Programmable controller with datalogging function and digital temperature display with over/under temperature and door-open audible and visual alarms
- ◆ Forced air circulation (except LGPv6520)
- ◆ Mounted on castors (two with lock)

Model	LKPv- LGPv-	6520 6520	6523 —	8420 —	1420 1420	1423 —
Range	LKPv LGPv	°C -2 to +16 °C -35 to -10	0 to +16 —	-2 to +16 —	-2 to +16 -26 to -10	0 to +16 —
Capacity		litres 600	600	856	1427	1427
Refrigerant	LKPv LGPv	R290 R290	R290 —	R290 —	R290 R290	R290 —
External		H, mm 2150 W, mm 700 D, mm 830	2150 700 830	2150 790 980	2150 1430 830	2150 1430 830
Shelves supplied		4	5	4	8	8
Doors		1 x solid	1 x glass	1 x solid	2 x solid	2 x glass
Interior LED lighting		no	yes	no	no	yes
Energy consumption in 24 hours						
	LKPv	kWh 1.8	2.7	2.4	2.3	3.9
	LGPv	kWh 4.7	—	—	8.9	—

As described. For 220-240V 50Hz single phase supplies.

- RG228-15** LKPv6520, -2 to +16°C
- RG228-30** LKPv6523, 0 to +16°C
- RG228-40** LKPv8420, -2 to +16°C
- RG228-45** LKPv1420, -2 to +16°C
- RG228-60** LKPv1423, 0 to +16°C

- RG228-77** LGPv6520, -35 to -10°C
- RG228-85** LGPv1420, -26 to -10°C

Note:

Due to the large size and weight of these units the user must ensure that suitable space area, floor loading and access for installation is available prior to ordering. They are installable by the user and delivery therefore will only be made to the customers unloading area.

R600a and R290 refrigerant models cannot be transported by airfreight due to the hazardous nature of these refrigerants. They can therefore only be exported by overland or seafreight.



RG228-15



RG228-45

Refrigeration

Pharmacy Refrigerators



Specifically designed for the storage of vaccines, insulin, temperature-sensitive samples and pharmaceuticals. Maintain internal air temperature between +2°C and +8°C.

- ◆ Choice of controller:
 - Control (RG230-series) — digital controller monitoring internal air temperature only. Max./min. memory and audio-visual alarm
 - Control Plus (RG232-series) — digital controller monitoring internal air and load (product) temperatures using additional glycol-immersed probe (-BT-models also incorporate Bluetooth connectivity and smart phone app for data monitoring and temperature control). Additionally have a 16mm porthole allowing further auxiliary probes to access the internal chamber
- ◆ Forced air cooling for temperature stability and rapid temperature recovery after door opening
- ◆ Audio-visual alarm signal if internal temperature exceeds operating range.
- ◆ Integral door lock with 2 keys and open door alarm (except 41 and 47 litre models)
- ◆ Automatic defrost
- ◆ Refrigerants:
 - R134a (RG230-models only) — R600a (RG232-models only)
- ◆ Adjustable shelf levels
- ◆ Glass door and built-in illumination models available
- ◆ Anti-microbial door handle

As described. With solid or glass door, door lock, adjustable wire shelves, and wire base basket as indicated. For 230V 50Hz single phase supplies.

	<i>Model</i>	<i>Gross cap. litres</i>	<i>H x W x D, mm</i>	<i>Shelves/ baskets supplied</i>	<i>Internal light</i>
Solid door models					
RG230-13	PESR41UK	41	705 x 380 x 500	2/0	No
RG230-24	PESR82UK	82	660 x 502 x 540	2/1	No
RG230-27	PESR107UK	107	835 x 505 x 620	2/1	No
RG230-58	PE1607C	444	1688 x 685 x 910	5/0	No
RG232-14	PPSR47BTUK	47	565 x 475x 445	2/0	Yes
RG232-31	PPSR158BTUK	158	850 x 595 x 660	3/1	Yes
RG232-47	PPSR310BTUK	310	1500 x 595 x 660	5/1	Yes
RG232-51	PPSR400BTUK	400	1935 x 595 x 660	6/1	Yes
Glass door models					
RG230-62	PEGR41UK	41	705 x 380 x 500	2/0	No
RG230-66	PEGR82UK	82	660 x 502 x 540	2/1	No
RG230-68	PEGR107UK	107	835 x 505 x 620	2/1	No
RG230-94	PG1607C	444	1688 x 685 x 910	5/0	No
RG232-61	PPGR47BTUK	47	565 x 480 x 505	2/0	Yes
RG232-71	PPGR158BTUK	158	850 x 595 x 660	3/1	Yes
RG232-81	PPGR310BTUK	310	1500 x 595 x 660	5/1	Yes
RG232-87	PPGR400BTUK	400	1935 x 595 x 660	6/1	Yes

Note:
Due to the large size and weight of these units the user must ensure that suitable space area, floor loading and access for installation is available prior to ordering. They are installable by the user and delivery therefore will only be made to the customers unloading area.

R600a refrigerant models cannot be transported by airfreight due to the hazardous nature of this refrigerant. They can therefore only be exported by overland or seafreight.



RG230-24



RG232-70

Refrigeration

Pharmacy Refrigerators



For the storage of medicines and vaccines under controlled conditions in dispensaries, surgeries and in general use. Maintain internal air temperature between +2°C and +8°C.

- ◆ Intellicold™ touchscreen controller ensures accuracy and consistency within the specified temperature range whilst only using the power necessary to do so, giving substantially lower running costs
- ◆ Built-in temperature display with max./min. recordings and continuous readout, high/low temperature alarm with reset, power failure and "door open" alarms
- ◆ Fan assisted air circulation provides enhanced uniformity
- ◆ Conform with UK Dept. of Health "Green Book", Royal Pharmaceutical Society (RPS), General Pharmaceutical Council (GPHC) and National Travel Health Network and Centre (NaTHNaC) guidelines
- ◆ Integral door lock and internal lighting (glass door models have independent external light switch)
- ◆ Remote alarm contacts
- ◆ 13 month temperature data storage with expansion via SD card slot (accessory coded SD card available)
- ◆ R134a, CFC-, HCFC- and ammonia-free refrigerant and environmentally friendly insulation used
- ◆ Moulded plastic interior with enamelled steel exterior

Pharmacy Refrigerators

As described. With automatic defrost, lockable door, Intellicold™ touchscreen controller, fan air circulation, wire shelves and solid or glass-paned doors as indicated. For 230V 50Hz single phase supplies.

	Gross cap. litres	H x W x D mm	Weight kg	Shelves supplied
Solid door models				
RG270-17	36	540x 450 x 510	30	2
RG270-29	66	735 x 450 x 510	34	3
RG270-37	150	835 x 600 x 600	51	3
RG270-47	340	1500 x 600 x 700	79	6
RG270-52	440	1865 x 600 x 700	93	6
RG270-71	543	1960 x 750 x 755	100	5
Glass door models				
RG270-72	150	835 x 600 x 600	54	3
RG270-89	340	1500 x 600 x 700	91	6
RG270-92	440	1865 x 600 x 700	105	6
RG270-96	543	1960 x 750 x 755	100	5

RG270-99 Accessory coded SD card for RG270-series only, allows up to 13 months data storage

Note:

Due to the large size and weight of these units the user must ensure that suitable space area, floor loading and access for installation is available prior to ordering. They are installable by the user and delivery therefore will only be made to the customers unloading area.



RG270-37 in use



RG270-72 in use

Refrigeration

Pharmacy Refrigerators

LIEBHERR

For vaccine and medicine storage in pharmaceutical dispensaries, surgeries, and other clinical areas. Internal temperature $+5^{\circ}\text{C} \pm 3\text{K}$.

- ◆ Audible and visual low/high temperature and door opening alarms
- ◆ Digital display with min./max. memory
- ◆ Safety thermostat to ensure temperature does not fall below 2°C
- ◆ Volt-free and RS485 serial interface
- ◆ Power alarm failure indicator
- ◆ Access port for independent temperature probe
- ◆ Seamless plastic inner liner for easy cleaning
- ◆ Lockable solid or glass door models available. Glass door models also have LED internal lighting
- ◆ R600a refrigerant and environmentally friendly insulation used

As described. With solid or glass door, door lock and adjustable close-mesh wire shelves as indicated. For 220-240V 50Hz single phase supplies.

	Model	Gross cap. litres	H x W x D, mm	Shelves supplied	Internal light
Solid door models					
	RG285-10 MkUv1610	141	820 x 600 x 615	3	No
	RG285-30 Mkv3910	360	1840 x 600 x 615	5	No
Glass door models					
	RG285-60 MkUv1613	141	820 x 600 x 615	3	Yes
	RG285-80 Mkv3913	360	1840 x 600 x 615	5	Yes

Note:

Due to the large size and weight of these units the user must ensure that suitable space area, floor loading and access for installation is available prior to ordering. They are installable by the user and delivery therefore will only be made to the customers unloading area.

R600a refrigerant models cannot be transported by airfreight due to the hazardous nature of this refrigerant. They can therefore only be exported by overland or seafreight.



RG285-10



RG285-80

Refrigeration

CryoPorter DP-80, Arctiko

A portable, low-temperature, personal freezer allowing access to samples at the bench.

- ◆ Range -80°C to 0°C with temperature stability: $\pm 0.2^\circ\text{C}$
- ◆ Digital controller with display, adjustable high/low temperature alarms and easy operation
- ◆ Safety cut-outs for over/undertemperature and excessive supply current
- ◆ Stirling technology cooling system without compressor, for quiet operation with low power usage
- ◆ Operates on 12V d.c. and 100-240V a.c. supplies
- ◆ Utilises accessory aluminium blocks to hold a variety of sample tubes (freezer holds one block)

As described. Overall 230 x 262 x 390mm W x D x H, internal chamber: 135 x 135 x 80mm W x D x H. Weight: 10kg. For 12V d.c. or 100-240V 50/60Hz a.c. supplies. Without insert block.

RG320-10 DP-80

Accessory blocks for RG320-10

Aluminium, with drilled apertures to hold tubes as indicated.

RG322-04 DPB-0296, for 96 x 0.2ml (0.6mm diameter) PCR tubes

RG322-08 DPB-0548, for 48 x 0.5ml (0.8mm diameter) PCR tubes

RG322-12 DPB-1548, for 48 x 1.5ml (11mm diameter) microtubes

RG322-16 DPB-1840, for 40 x 1.8ml (12.8mm diameter) cryostorage vials

RG322-20 DPB-2040, for 40 x 2.0ml (10.8mm diameter) cryostorage vials

RG322-24 DPB-0001, empty tray, internal W x D x H: 115.5 x 83 x 30mm

Benchtop Freezer MUF40, Arctiko

- ◆ Range -80°C to -60°C with temperature stability: $\pm 1.0^\circ\text{C}$
- ◆ Single compressor cooling system offers low energy consumption and low noise during operation
- ◆ Digital setting, with display, visual and audible high/low temperature alarms, power failure alarm and 48 hour battery back-up of temperature display and alarms in the event of power failure
- ◆ Stainless steel interior
- ◆ Locking door
- ◆ Remote alarm contacts
- ◆ EP88, CFC-free refrigerant

<i>Model</i>		MUF40
<i>Temperature range</i>	$^\circ\text{C}$	-60 to -80
<i>Capacity, litres</i>		35
<i>Shelves supplied</i>		1
<i>Dimensions, W x D x H</i>	<i>Internal:</i>	336 x 356 x 295mm
	<i>External:</i>	495 x 660 x 680mm
<i>Weight</i>	<i>kg</i>	56

As described. Supplied with one removable shelf. For 230V 50/60Hz a.c. supplies.

RG325-15 MUF40



RG320 with RG322



RG325

Refrigeration

Ultra-low Temperature Chest Freezers

- ◆ Choice of temperature ranges:
 - -10°C to -45°C
 - -60°C to -85°C
- ◆ Unique refrigeration system with single-stage, Danfoss® compressor and patented refrigerant used
- ◆ Recessed control panel with keypad setting and bright, LED temperature display
- ◆ Low loading height
- ◆ R404a refrigerant
- ◆ Built-in overtemperature safety system with audible alarm
- ◆ Quiet operation, <51dB
- ◆ PVC laminated, galvanised steel interior with steel lid and 100mm polyurethane insulation
- ◆ Double seal lid gaskets and sublids
- ◆ Counterbalanced lid with locking handle
- ◆ Defrost water drain hole provided
- ◆ Battery back-up maintains settings and alarms
- ◆ Mounted on heavy-duty, 50mm diameter castors for manoeuvrability
- ◆ Low energy consumption

Cat. No.	Temp. range -10 to -45°C* Temp. range -60 to -85°C*	RG416-07 RG416-42	RG416-12 RG416-44	RG416-17 —
Capacity, maximum	litres	130	299	416
	2ml cryotubes [#]	8400	21600	31500
Dimensions, H x W x D	External, mm	920 x 725 x 730	920 x 1305 x 730	920 x 1705 x 730
	Internal, mm	650 x 320/520 [†] x 450	650 x 900/1100 [†] x 450	650 x 1300/1500 [†] x 450
Weight	kg	56	78	94

*At ambient temperatures up to +25°C (+30°C - 130 litre models only) and voltage fluctuation <±10%. Only suitable for 50Hz supplies.

[#]Using RG416 racks, 50mm high cryoboxes with 10 x 10 dividers.

[†]There is a raised ledge, 250 x 200mm H x D at the right side of the chamber base to accommodate the compressor housing beneath.

As described. For 220-230V 50Hz single phase supplies. For use in ambients up to +25°C (+30°C - 130 litre models only).

- RG416-07** -10°C to -45°C, 130 litres
- RG416-12** -10°C to -45°C, 299 litres
- RG416-17** -10°C to -45°C, 416 litres
- RG416-42** -60°C to -85°C, 130 litres
- RG416-44** -60°C to -85°C, 299 litres

Accessory Racks

Stainless steel. For use particularly with cryogenic boxes up to maximum dimensions 135 x 135 x 51mm L x W x H. With handle and retaining bar (to secure boxes during transportation). Dimensions stated are overall W x D x H. Supplied singly and empty.

	Dimensions, mm	Shelves
RG416-90	140 x 140 x 335	6
RG416-95	140 x 140 x 610	11

Note:

Maximum rack capacities for RG416 chest freezers are as follows*

130 litres freezer will hold 3 x RG416-90 and 6 x RG416-95

299 litres freezer will hold 3 x RG416-90 and 18 x RG416-95

416 litres freezer will hold 3 x RG416-90 and 27 x RG416-95

*Other configurations are possible, please advise your requirements.



RG416-07



RG416-17

Rod

Stirring Rods

Glass

One end flat paddle, other plain.

	<i>Length, mm</i>
RS200-15	150
RS200-20	200
RS200-25	250
RS200-30	300

PTFE coated metal

Both ends plain.

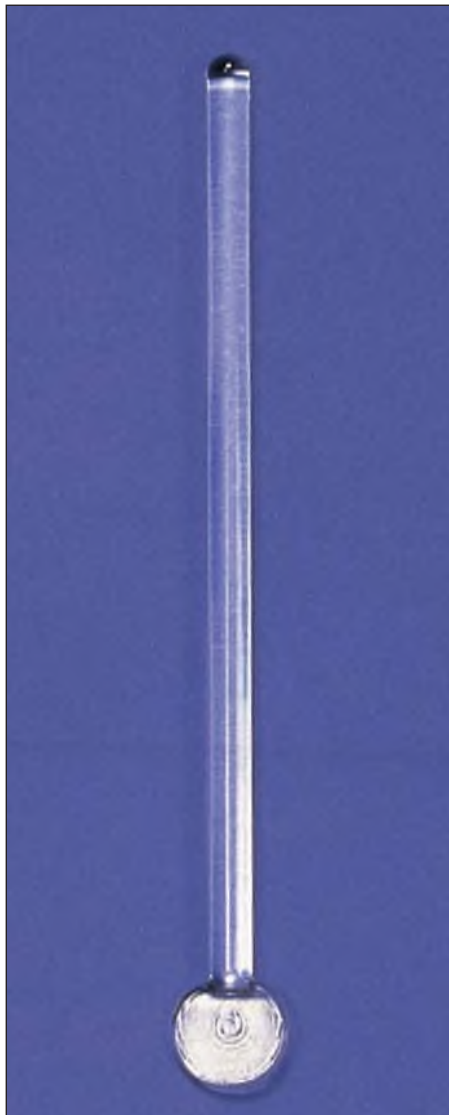
	<i>Length, mm</i>
RS218-25	250

Policemen

Latex tube, one end closed. For fixing over plain end stirring rods. Length 40mm. Dimension given is approximate internal diameter.

	<i>Diameter, mm</i>
RS260-15	3
RS260-18	4.5
RS260-22	6
RS260-25	8

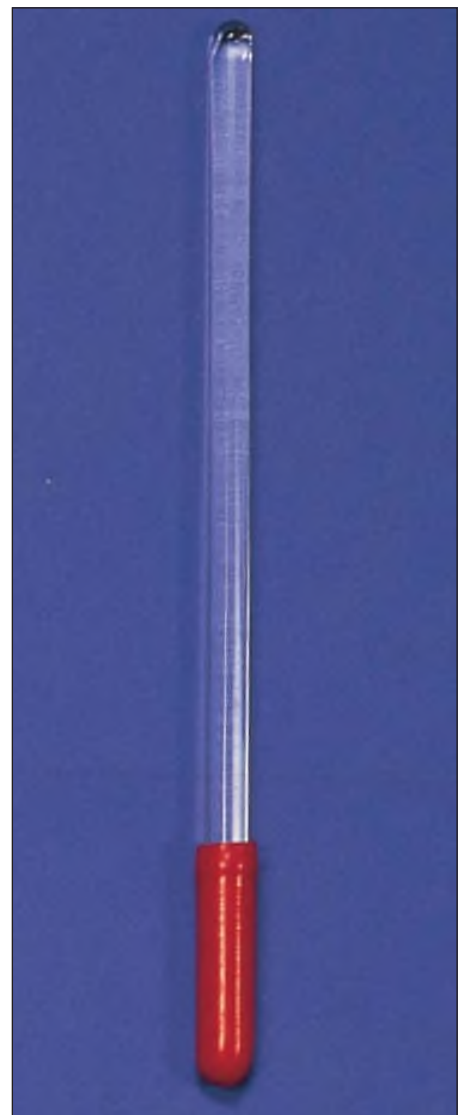
Retort Stands and Rods – see *Stands* section.



RS200



RS218



RS260 on rod

Rules

Rules

White polystyrene printed in black with alternative scales on each side, as indicated. 1 metre long. Width 25mm, thickness 6mm.

	Side A subdivisions		Side B subdivisions	
	Edge 1	Edge 2	Edge 1	Edge 2
Horizontal reading				
RX100-10	cm	cm/mm	cm/mm	cm/mm
RX105-10	cm/mm	inch/tenths	cm/mm*	cm/mm*

*Vertical reading

Caliper and micrometer gauges – see GK150/GK160.

Measuring microscopes – see MK600.

Eyepiece Graticules

For use with light microscopes. Surface type where the pattern is formed in a layer bonded to the surface of the glass disc 1mm thick. In this type the pattern reads correctly when viewed through the glass. When the microscope is focussed the image of the specimen and graticule will be seen together.

Horizontal

Calibration 10mm x 0.1mm.

ML200-15 19mm diameter

ML200-20 21mm diameter

Crossed

Calibration 10mm x 0.1mm.

ML205-15 19mm diameter

ML205-20 21mm diameter

Indexed Squares

1mm grid squares with each square numbered.

ML215-15 19mm diameter

ML215-20 21mm diameter

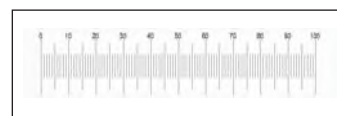
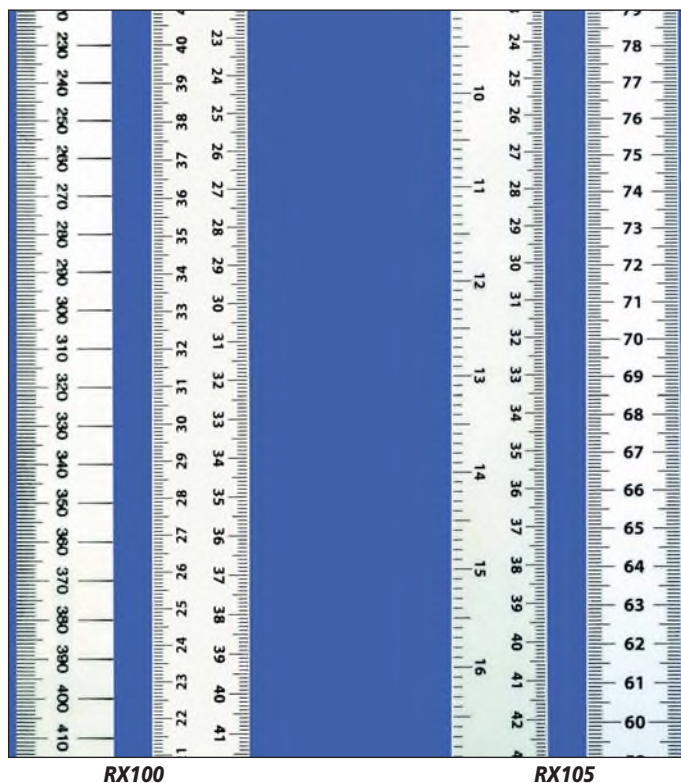
Particle Size Counting

To BS3625. Range 150µm to 0.38µm.

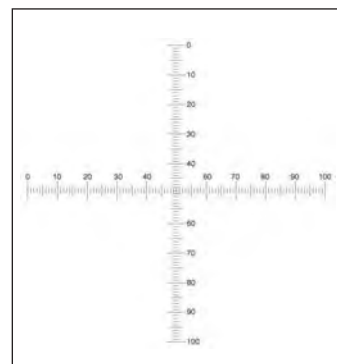
ML220-15 19mm diameter

ML220-20 21mm diameter

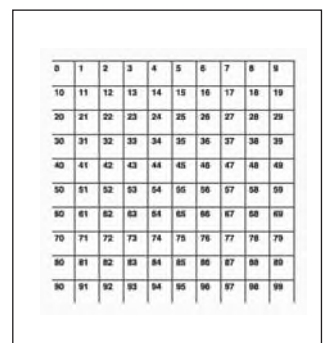
Stage micrometers – see ML250.



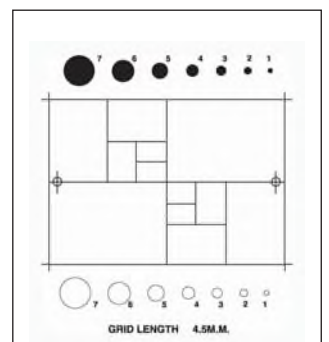
ML200



ML205



ML215



ML220

Safety

Bench Protection

Benchkote, Whatman

Used for protecting laboratory benches and drawers. The smooth, highly absorbent paper top surface is laminated to a strong layer of impermeable polyethylene. A contaminated sheet can be discarded easily and incinerated if necessary.

SA200-20 Pack of 50 sheets, 46 x 57cm

SA200-30 Pad of 50 sheets, 46 x 57cm

SA204-15 Reel 50 metres x 46cm wide

SA204-25 Reel 50 metres x 92cm wide

Benchkote Plus, Whatman

Similar to the standard Benchkote SA200/204 series but with a greater thickness and more open structure to provide greater absorbency. With impermeable polyethylene backing.

SA205-12 Pack of 50 sheets, 50 x 60cm

SA205-18 Reel 50 metres x 60cm wide

BenchGuard

For protecting work surfaces. A highly absorbent white paper with a polycoated underside to prevent seepage through to the bench. Suitable for the majority of applications.

SA215-12 Wallet of 100 sheets, 60 x 49cm

SA215-15 Dispenser pack of 50 metres x 49cm wide

BenchGuard Extra

Has extra absorbency to soak up heavy spillages.

SA215-50 Wallet of 50 sheets, 60 x 49cm

SA215-55 Dispenser pack of 50 metres x 49cm wide

Mats, Ceran®

Ceran® is a highly resistant glass ceramic material with a smooth, pore-free surface making it ideal for bench protection purposes where chemically aggressive materials may be spilled or hot vessels may be placed. Operating temperature range -200 to +700°C allows the mat to be used as a heating surface in place of a wire gauze or fireclay triangle. Care should be taken to ensure that the maximum operating temperature is not exceeded when using with a Bunsen burner. Supplied in packs of 10.

MB820-10 135 x 135mm

MB820-20 155 x 155mm

MB820-30 175 x 175mm

Ceran® is a registered trade mark of Schott Glaswerk.

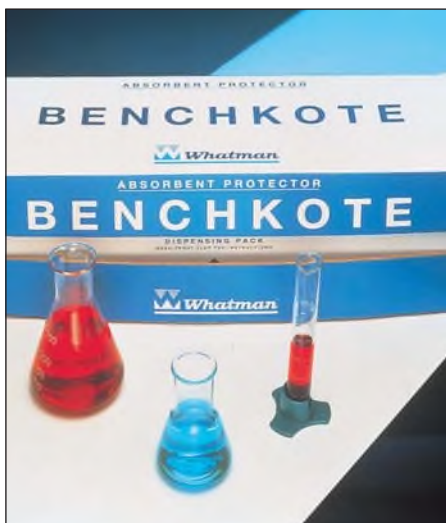
Ceramic Fibre and PTFE Mats for bench protection – see *Mats section*.



SA200 in use



SA205 in use



SA204 in use



SA215



MB820 in use

Safety

Spill Containment

Spillage Binder/Absorbent

A polymer/kieselguhr based pale green, odourless powder which is capable of binding and absorbing liquid spillage from a wide range of common chemicals including oils. It will bind/absorb up to 75 times its own weight of water. No dangerous reactions occur during the process. The subsequent gels produced can be disposed of safely. Non aqueous liquids are absorbed by capillary action but with aqueous solutions a binding reaction takes place. Polyethylene glycol is included in the powder to assist the absorption of higher viscosity liquids. The powder does not neutralise the liquids but indicators in the powder colour yellow with acid solutions and red with alkalis. It is recommended that a dust mask be worn when applying the powder. If the powder comes into contact with the eyes flush thoroughly with clean water.

- SA225-07** 0.45kg pack
- SA225-13** 1.5kg pack
- SA225-25** 5kg pack

Spill Response Pads

Highly absorbent pads to contain spillages of most types of chemical fluids.

- ◆ Easy to deploy and collect
- ◆ Pack quantity will absorb up to 100 litres of fluid
- ◆ Non-linting, bonded absorbent material
- ◆ Non-toxic, non-reactive and inert
- ◆ Available in single or double weight versions
- ◆ Constructed to prevent shredding and tearing during clean-up
- ◆ Supplied in dispenser packs
- ◆ Unlimited shelf life

As described. Supplied in dispenser packs as indicated.

- SA227-16** Single weight, 39 x 48cm, pack of 100

Spill Response Roll

Manufactured using the same absorbent material as SA227 but in rolls offering a wider coverage by cutting to length if required. Supplied in pack of 1 roll.

- SA228-46** Single weight, 48cm wide x 39 metres long, pack of 1 roll

Spill Roll Dispenser

Manufactured in UV-stabilised polyethylene, to hold rolls up to 550 x 520mm diameter x width. With hinged lid cover to protect the roll from dust.

- SA228-48** Spill roll dispenser

Tissues, wipes and cloths – see *CL700/CL760*.



SA225



SA228



SA227



SA228-48 in use

Safety

Spill Containment continued

Spill Response Packs

Comprising highly absorbent sock booms and cushions to contain spillages of many chemical solutions and solvents.

- ◆ Choice of absorbent grades:
 - Lab-Pack, for non-aggressive liquids, chemical solutions, solvents and oils
 - Chem-Pack, additionally for use with aggressive liquids, acids, caustics and lyes
- ◆ Will absorb substantial volumes of liquid without dripping
- ◆ Absorb spillage very rapidly
- ◆ Unlimited shelf life
- ◆ Non-toxic and can be disposed of by incineration (see note below)
- ◆ Supplied in a convenient, easily carried, flexible zipped case
- ◆ Contains no products that are COSHH regulated

The absorbent material is based upon cellulose fibre and expanded soft wood pulp and is contained in socks or pads of spun polyester resin. Even at high loading the polyester resin remains damp only which allows for safe disposal without dripping. Chem-Pak material is treated to resist chemical attack more effectively and aid absorbence.

Spill Response Packs, regular

Will absorb approximately 20 litres of liquid. Comprising:

- 2 sock booms 120cm long x 8cm diameter to contain the spillage
- 12 pads 40 x 50 x 0.5cm thick for fast pick up of spilt liquid
- 1 disposal bag and tie

Supplied in flexible vinyl holdall, overall 280 x 450 x 330mm H x W x D.

- SA235-42** Lab-Pack, regular
- SA235-47** Chem-Pack, regular

Spill Response Packs, large

Will absorb approximately 50 litres of liquid. Comprising:

- 2 sock booms 300cm long x 8cm diameter to contain the spillage
- 30 pads 40 x 50 x 0.5cm thick for fast pick up of spilt liquid
- 1 disposal bag and tie

Supplied in flexible vinyl holdall, overall 490 x 620 x 170mm H x W x D, suitable for shoulder carrying.

- SA235-56** Lab-Pack, large
- SA235-62** Chem-Pack, large

Spares for Lab-Pack

- SA237-14** Absorbent sock booms 120 x 8cm, pack of 20
- SA237-16** Absorbent cushions 23 x 23 x 2.5cm, pack of 20

Spares and accessories for Chem-Pack

- SA237-21** Absorbent sock booms 300 x 8cm, pack of 4
- SA237-24** Absorbent cushions 23 x 23 x 2.5cm, pack of 20
- SA237-27** Disposal bags and ties, pack of 10
- SA450-33** Accessory gloves, red PVC, extra large per pair

Body fluid disposal kit – see SB390-06.

Important Note

Although there are no toxicity problems caused by incinerating the absorbent material on its own, this may not apply when it has absorbed the spillage. The spillage is not made safe by being absorbed and the appropriate regulations must be observed when disposing of the contaminated absorbent.

Trays

Mercury spill tray

White PVC. With plugged outlet and end handles.

Ref.	L x W x D
TWR-	mm
TT204-22	056 400 x 310 x 20

Trays

White melamine resin. Autoclavable at 121°C for 15 minutes.

L x W x D, mm
TT220-25 240 x 180 x 20
TT220-35 300 x 150 x 20
TT220-45 360 x 240 x 20
TT220-55 430 x 290 x 20



SA235-42 SA235-56 is similar



SA237-14, SA237-21 are similar



SA235-62, SA235-47 is similar



SA237-24, SA237-16 are similar



TT204



TT220

Spill Containment continued

Drip Trays

Rotary-moulded, polyethylene drip trays with removable grid to secure minor spillages from stored bottles and carboys.

	Model	Sump capacity litres	Dimensions L x W x H, mm	Weight kg
SA242-10	ST20	22	595 x 395 x 175	4
SA242-20	ST30	31	805 x 405 x 170	5
SA242-30	ST40	43	800 x 605 x 170	7.5
SA242-40	ST60	63	1000 x 605 x 200	10
SA242-65	ST66WH*	66	933 x 608 x 938	13.5

* Fitted with swivel castors and full width handle for ease of movement.



SA242-10 in use



SA242-40 in use



SA242-20 in use



SA242-30 in use



SA242-65 in use

Safety

Aprons and Coats

Aprons

Disposable, white polyethylene. Bib fronted.

Length, mm

Loose packs of 100

SA250-11 1065
SA250-18 1165

Roll packs of 200

SA252-09 1065
SA252-15 1165

SA253-06 Wall dispenser for aprons on roll, SA252. Supplied complete with fixings

Aprons

Reusable, PVC, white. Supplied singly.

Length, mm

SA254-12 1000
SA254-17 1200

Cryo-Aprons

Provide protection when working in cold environments and with liquid nitrogen atmospheres. Waterproof and washable. Are lint free and contain no asbestos. Reversible with adjustable straps. Must not be immersed in liquid nitrogen or used near an open flame or in areas where ignition could occur. Lengths given are approximate.

Size Length, mm

SA260-12 Small 910
SA260-14 Medium 1060
SA260-16 Large 1220

It is recommended that these aprons be used with Cryo-Gloves SA720 series.

Laboratory Coats

White, washable, polyester/cotton. Front fastening with two side pockets and one breast pocket. Unisex design. Length approximately 100cm.

Size Chest/Bust, cm

Standard
SA280-15 Small 86-92
SA280-20 Medium 92-98
SA280-35 Large 102-108
SA280-45 X-large 110-116

Laboratory Coats, Howie-style

Generally as SA280-series coats but with wrap-over front with side fastening, single breast pocket and internal side pocket. With elasticated, knitted cuffs. Unisex design. Length approximately 105cm.

Size Chest/Bust, cm

SA282-20 Medium 92-98
SA282-30 Large 102-108

Laboratory Coats, disposable, 3M™ 4440

Disposable laboratory coats designed to protect the wearer from non-hazardous dusts and liquid splashing. Manufactured from microporous polypropylene/polyethylene laminate ensuring breathability and low-linting. The fabric is anti-static treated and natural latex-free. With collar, zip front fastening and knitted polyester cuffs. Without pockets. Coat length is approximately to the knee. Supplied in a pack of 10.

Size Approx. chest, cm

SA292-20 Medium 81-91
SA292-35 Large 91-97
SA292-45 X-Large 96-101

Laboratory Coats, disposable, Kleenguard® EP (T7)

Non-woven, anti-static, silicone-free (EN1149-1) soft polypropylene fabric. With collar, press-stud fastening, two thigh and a left breast pockets. Water washable but this will adversely affect the anti-static properties.

Size Approx. chest, cm

SA293-20 Medium 104-112
SA293-25 Large 112-120

Kleenguard® is a Registered Trademark of the Kimberly-Clark Corporation.



SA250/SA252



SA254



SA280



SA292



SA260 with gloves SA720 in use



SA282



SA293

Safety

Semi-durable Protective Clothing

Limited life garments manufactured in DuPont TYVEK®, a 100% polyethylene, spun-bonded, filament sheet material having characteristics making it ideal for clean room and controlled area applications or where hazard containment renders the use of semi-disposable clothing preferable.

- ◆ Chemically and biologically inert
- ◆ Strong and durable, withstands laundering/ re-use several times
- ◆ Low porosity
- ◆ Excellent barrier characteristics
- ◆ Antistatic
- ◆ Low linting

Laboratory Coats, TYVEK®

White, unisex, with zip front and two side pockets. Supplied in packs of 10.

- SA300-13** Small
- SA300-17** Medium
- SA300-19** Large
- SA300-21** X-Large
- SA300-23** XX-Large

Laboratory Coats, 'Howie' style, TYVEK®

White, unisex, side fastening coats offering greater protection than the traditional style. Press stud closure. Without pockets. Supplied in packs of 10.

- SA300-24** Small
- SA300-28** Medium

Coveralls, TYVEK®

White, unisex, with elasticated cuffs and ankles, zip-fronted. Without pockets. Where included, the hood is integral. Supplied in packs of 5.

Coveralls with hood

- SA300-36** Small
- SA300-40** Medium
- SA300-44** Large

Coveralls without hood

- SA300-48** Small
- SA300-52** Medium
- SA300-56** Large

Foot Protection TYVEK®

White with elasticated ankle grip and PVC sole. Supplied in a pack of 20 (10 pairs).

- SA300-67** Shoe covers
- SA300-71** Boot covers

Sleeves, TYVEK®

White, one-size, elasticated at both ends providing additional forearm protection. Supplied in a pack of 20 (10 pairs).

- SA300-76** Sleeves

Garment Sizing

Chest sizes for TYVEK® coats and coveralls are:

Small	—	84-92cm
Medium	—	92-100cm
Large	—	100-108cm
X-Large	—	108-116cm
XX-Large	—	116-124cm

Face Masks

Face masks, cleanroom

Low lint, cellulose face masks produced in non-woven material, with ties. Supplied in a pack of 50.

- SA300-88** Face masks, non-sterile

Face masks

To EN14683 Type IIR. Latex- and fibreglass-free blue/white polypropylene, with integral nose wire and earloops. Supplied in a pack of 50.

- SA300-89** Face masks, EN14683 Type IIR, non-sterile

Overshoes/Overboots

Overshoes

Disposable PVC. With elasticated top. Size 360mm. Supplied in a pack of 100.

- SA330-15** Overshoes

Tyvek® overshoes and overboots – see SA300-67 and SA300-71.

Note:

TYVEK® may not be suitable for use in some environments and with certain reagents. Suitability should be verified for the intended use. Avoid naked flame or intense heat when wearing these products. TYVEK® garments are also available with an outer coating of polyethylene for liquid splash protection – details on request.



SA300-13 to -23



SA300-24 to -28 with
SA300-67



SA300-36 to -44 with SA300-71
SA300-48 to -56 are similar



SA300-88 in use, SA300-89 are similar



SA300-76 in use



SA330-15

Safety

Coveralls

KleenGuard
BRAND

- ◆ Wide range of materials for protection against dusts through to chemical spray or jetted liquids.
- ◆ CE0120 assured to category 3. Complex design

Performance Data

Product		A25	A40	A50	A80
	<i>Test method</i>				
	<i>Class/Result</i>				
Fabric Tests					
Abrasion resistance	EN530 method 2	1	6	2	6
Flex cracking resistance	ISO7854 method B	1	4	4	5
Trapezoidal tear resistance	ISO9073-4	1	2	2	3
Puncture resistance	EN863	1	2	1	2
Tensile strength	ENISO13934-1	1	1	1	2
Liquid repellency/penetration resistance	EN368 (10% NaOH)	3/3	3/3	3/3	6/6*
	EN368 (30% H ₂ SO ₄)	2/3	3/3	3/3	6/6*
Ignition resistance	EN13274-4 method 3	pass	pass	pass	pass
Seam strength	EN ISO 13935-2	2	3	3	4
Surface resistivity (inside surface),	EN1149-1:1995	—	—	<5 x 10 ¹⁰	<5 x 10 ¹⁰
Infective agents	EN14126:2003	—	—	—	pass
Garment Tests					
Liquid spray penetration (mist test)	EN468	pass	pass	pass	pass
Aerosol/fine particle penetration	pr ISO13982-2 (average total inward leakage)	4.27%	5.09%	6.4%	3.6%
Radioactive dust†	EN1073-2:2002	—	1	1	1

Tests performed with taping at wrists, ankles and hood.

*Tested under EN374:3 with Class 6 result at all levels.

†Provide no protection against radioactive radiation.

Continued on next page



SA335 in use



SA337 in use

Safety

Coveralls continued

KleenGuard
BRAND

Coveralls, A25

General purpose, liquid and particle protection coverall in breathable white, silicone-free, SMS fabric with grey stretchable film laminate band for additional user comfort. Triple stitched internal seams resist tearing. Supplied in packs of 25.

- SA335-10 Small
- SA335-20 Medium
- SA335-30 Large
- SA335-40 X-Large
- SA335-50 XX-Large

Coveralls, A40

White, ultra-low linting, film laminate material coverall for protection against chemical splashes and particles. Fabric is also antistatic to EN1149-1 and silicone-free. Supplied in packs of 25.

- SA337-10 Small
- SA337-20 Medium
- SA337-30 Large
- SA337-40 X-Large
- SA337-50 XX-Large

Coveralls, A50

White, durable, breathable SMS fabric treated for increased protection against chemical splashes. Low-linting, antistatic and silicone-free. With 2-way zip for quick easy access to work clothes. Supplied in packs of 25.

- SA339-10 Small
- SA339-20 Medium
- SA339-30 Large
- SA339-40 X-Large
- SA339-50 XX-Large

Garment sizing

All garments comply with EN340 recommendations:

Designation	Chest, cm	Height, cm
Small	96-104	164-170
Medium	104-112	170-176
Large	112-120	176-182
X-Large	120-128	182-188
XX-Large	128-136	188-194



SA339 in use

Safety

General Purpose Gloves

Gloves, polyethylene

Disposable. Loose fitting shape allows glove to be worn on either hand. Suitable for use as a temporary hand covering. Supplied in packs of 100 gloves, except SA350-25 which is supplied in individually sterile sleeved pairs within an outer pack of 100 pairs.

	Size
SA350-15	Medium, non-sterile
SA350-20	Large, non-sterile

Sleeves

Disposable polyethylene, shoulder length gloves, size large. Supplied in a pack of 100.

SA360-10 Shoulder length gloves

Gloves, Keepsafe

Medium weight, blue acrylonitrile rubber. To EN388:4101 and EN374 cat. III. Strong, flexible, floc lined gloves with finger and palm gripping surface. Nominal length 330mm. Please note size comment below. Supplied in single pairs.

	Size
SA436-14	6½ (small)
SA436-19	7½ (medium)
SA436-24	8½ (large)
SA436-29	9½ (extra large)

Note: Due to additional shrinkage which takes place in synthetic rubbers it is advisable to choose a nitrile glove one size larger than normal.

Gloves

Medium weight red PVC. Nominal length 270mm. Supplied in single pairs.

SA450-33 Extra large

Gloves, Marigold™

Black heavyweight rubber. Floc lined and with finger and palm gripping surface. Nominal length 300mm. Supplied in single pairs.

	Size
SA465-14	Small
SA465-19	Medium
SA465-24	Large
SA465-29	Extra large

Gloves, Marigold™

Suregrip heavyweight rubber. Floc lined. With raised surface pattern on palms and fingers to provide excellent grip even on wet surfaces. Nominal length 300mm. Supplied in single pairs.

	Size
SA480-14	Small
SA480-19	Medium
SA480-24	Large
SA480-29	Extra large

Marigold is a trademark of the Comasec International Group

Hand Protectors, Azlon

Silicone rubber, with multi-studded grip for safe handling of hot beakers, flasks etc. Will withstand -57 to +250°C temperatures. Supplied singly.

Ref.	Size
SA500-09	PGR406 Finger
SA500-19	PGR402 Medium hand

Barrier hand cream - see CL910.



SA350



SA360



SA436



SA450



SA465



SA480



SA500

Safety

Examination Gloves

Latex Gloves

Lightweight, disposable, hypoallergenic latex rubber gloves. Close fitting and with high finger sensitivity. Nominal length 270mm. Powder free. Supplied in dispenser cartons of 100 gloves.

Size	
Non-sterile	
SA537-14	Small
SA537-19	Medium
SA537-24	Large

Latex Gloves, Premier

Powder-free. Disposable. Nominal length 270mm. Supplied in packs of 50 pairs, individually packed in pouches.

Size	
Sterile	
SA555-15	Small
SA555-20	Medium
SA555-25	Large

Vinyl Gloves

Lightweight, disposable, stretch vinyl with enhanced finger sensitivity. Powder free. Length 240mm. Supplied in packs of 100 gloves.

Size	
Non-sterile	
SA592-15	Small
SA592-20	Medium
SA592-30	Large
SA592-40	X-Large

Nitrile Gloves, "ergo", "standard" and "strong"

Conform with EN420, EN455, EN374 CE category III for complex risks. Disposable, lightweight, blue nitrile gloves offering good chemical and puncture resistance, comfort and 100% latex, protein and powder-free. With beaded cuff. Overall length 240mm except "standard long" gloves which are 300mm providing increased forearm protection. Available with glove wall thicknesses and in packs as indicated.

	Size	Pack qty.
"ergo", thickness 0.14mm		
SA615-05	X-small, 5 to 6	200
SA615-10	Small, 6 to 7	200
SA615-20	Medium, 7 to 8	200
SA615-30	Large, 8 to 9	200
SA615-40	X-Large, 9 to 10	180
"standard", thickness 0.16mm		
SA617-10	Small, 6 to 7	100
SA617-20	Medium, 7 to 8	100
SA617-30	Large, 8 to 9	100
SA617-40	X-Large, 9 to 10	90
"strong", thickness 0.26mm		
SA619-10	Small, 6 to 7	100
SA619-20	Medium, 7 to 8	100
SA619-30	Large, 8 to 9	100
SA619-40	X-Large, 9 to 10	90

Nitrile Gloves, Kimtech Science®

Purple. Lightweight, disposable. Excellent chemical and puncture resistance, low odour, latex and powder free. Supplied in packs of 100 gloves.

Size	
Non-sterile	
SA646-15	Small
SA646-20	Medium
SA646-30	Large

Kleenguard and Kimtech are registered trademarks of Kimberly-Clark Worldwide, Inc.

Barrier hand cream - see CL910.



SA537



SA592



SA646



SA555



SA615 to SA619

Safety

Special Gloves

Gloves, Leather

With heat resisting leather palm and fingers. Fleece lined. Overall length 290mm. Nominally sized 8/9. Supplied in single pairs.

SA700-25 Leather

Gloves, Autoclave

Heat resistant to 121°C. Soft, supple gloves made from washable terry cloth knit. With gauntlet cuffs for wrist protection. CE-marked and approved to EN 388-2342 and EN 407-X2XXXX. White. Supplied in single pairs.

	Length, mm
SA704-10	320

Gloves, High Temperature

Heat resistant to 232°C. Heavyweight, soft, washable terry cloth knit construction with cotton lining. CE-marked and approved to EN 388-2241 and EN 407-X242XX. Brown. Supplied in single pairs.

	Length, mm	Cuff
SA706-14	270	Short
SA706-18	320	Gauntlet

Gloves, Clavies®

Heat resistant to 230°C. Soft, pliable, easy-to-wear gloves fabricated from washable terry cloth knit. CE-marked and approved to EN 388-2241 and EN 407-X242XX. Supplied in single pairs.

	Length, mm
SA710-12	330
SA710-15	470

Gloves, High Temperature, Nomex

Heat resistant to 250°C. Very supple, seamless, knitted material providing extreme comfort and freedom of movement. Available as gloves, or gauntlets with additional cotton wrist/forearm protection. Supplied in single pairs.

	Cuff
SA715-10	Glove
SA715-15	Gauntlet

Cryo-Gloves, Waterproof

Provide protection at low temperatures down to -160°C and high temperatures up to +150°C. Suitable for retrieving articles from liquid nitrogen vapours and handling materials in freezers and ovens. Must not be immersed in liquid nitrogen, used near an open flame or in areas where ignition could occur. CE-marked and approved to EN 388-1323 and EN 511-321. Supplied in single pairs.

	Size
--	------

Mid-arm length. Approximately 350mm long.

SA720-10	Small
SA720-13	Medium
SA720-16	Large

Wrist length. Approximately 300mm long.

SA720-22	Small
SA720-25	Medium
SA720-28	Large

Gloves, Kevlar®

String-type, ambidextrous gloves manufactured from DuPont Kevlar® giving durability and extended working life in comparison to leather or cotton gloves. Ideal for retrieving broken glass or handling objects with sharp edges but are not puncture-resistant. CE-marked. Yellow, with soft PVC dots on the palm and finger surfaces for enhanced grip. Supplied in single pairs.

	Size
SA730-40	9

Barrier hand cream - see CL910



SA700



SA710



SA704



SA715-10



SA720



SA706



SA715-15



SA730

Safety

3M Masks and Respirators

Nuisance Dust & Mists Mask, 3M 8710E

Complies with EN149:2001 FFP1. Moulded shape. Provides lightweight, effective, comfortable and hygienic protection against fine dusts and oil- and water based mists. Twin strap design, with foam nose seal and aluminium nose clip to ensure a good seal to most face shapes.

SA800-16 8710E, pack of 20

Dust Respirator, 3M 8812

Complies with EN149:2001 FFP1. 78% efficient against fine particulates down to 0.5 micron. Maximum usage level 4 x OEL*. Fitted with an exhale valve.

SA805-14 8812, pack of 10

Dust/Mist Respirators, 3M 8810 and 8822

Comply with EN149:2001 FFP2. Maintenance free. 92% efficient against fine particulates and water-based aerosols down to 0.5 micron. Maximum usage level 12 x OEL*. In addition, 8822 is fitted with an exhale valve.

SA810-17 8810, pack of 20

SA810-19 8822, pack of 10

Dust/Mist Respirator, 3M 8825+

Complies with EN149:2001 FFP2RD. Similar to SA810-19 but shaped to further lower breathing resistance and increase comfort. Maximum usage level 12 x OEL* (particulates), 6 x OEL* (metal fume).

SA815-14 8825+, pack of 5

Respirators, 3M 9900 series

Lightweight, comfortable, colour coded respirators giving particulate protection up to 4 x OEL* (meet EN149:2001 FFP1). Also offer relief against low levels (below OEL*) of gases and vapours as indicated. The respirator should be disposed of immediately the substance can be detected by the user through smell or taste.

Acid Gas Respirator, 9915

For relief against low levels (below OEL*) of acid gases and some organic vapours including Hydrogen Fluoride, Sulphur Dioxide and Chlorine. Dark blue.

SA835-10 9915, pack of 20

Nuisance Odour Respirator, 9913

For relief against low levels (below OEL*) of organic vapours. Not suitable for use with Formaldehyde. Dark grey.

SA835-25 9913, pack of 20

***OEL:** Occupational Exposure Limit of contaminant as specified in relevant Guidance Notes from the Health and Safety Executive (HSE).

Warning on the use of Masks and Respirators.

Masks and respirators should be used in well ventilated areas, minimum 19.5% oxygen (manufacturer's definition of minimum oxygen requirements). They should not be used for escape purposes and are not suitable for use by operatives with facial hair that restricts direct contact between the face and the mask/respirator edge.

The wearer should immediately leave the work area and remove the respirator if:

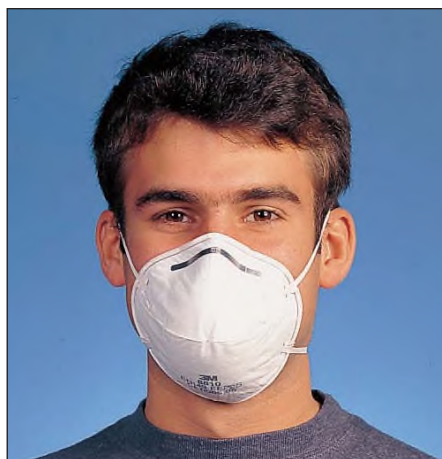
- (a) difficulty with breathing occurs
- (b) they become dizzy or distressed
- (c) the respirator is damaged in any way

Safety note

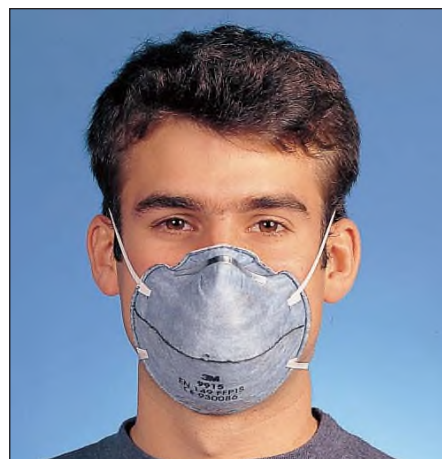
These respirators should only be used where the gas/vapour has good warning properties i.e. strong smell or taste. They are not suitable for use in atmospheres immediately dangerous to health or life.



SA800-16



SA810-17



SA835-10



SA810-19, SA805-14 is similar



SA815-14



SA835-25

Safety

3M Masks and Respirators continued

Respirators, 3M 9300+ series

Advanced, 3-panel design offers greater comfort, easy communication and improved wearer acceptance. Lightweight and foldable for easy storage. A soft cover web is provided on the inner panel ensuring enhanced comfort against the skin. All masks are individually bagged within the outer pack.

Premium Dust Respirator, 3M 9310+

Complies with EN149:2001 + A1:2009 FFP1, giving particulate protection up to 4 x OEL*.

SA842-20 9310+, pack of 20

Premium Dust/Mist Respirator, 3M 9320+

Complies with EN149:2001 + A1:2009 FFP2, giving protection against fine particulates up to 10 x OEL* and water based aerosols.

SA842-25 9320+, pack of 20

Premium Dust Respirator, 3M 9312+

Complies with EN149:2001 + A1:2009 FFP1, giving particulate protection up to 4 x OEL*. With fitted exhale valve to reduce heat build-up behind the mask and to make breathing easier.

SA842-30 9312+, pack of 10

Premium Dust/Mist Respirator, 3M 9322+

Complies with EN149:2001 + A1:2009 FFP2, giving protection against fine particulates up to 10 x OEL* and water-based aerosols. With fitted exhale valve to reduce heat build-up behind the mask and to make breathing easier.

SA842-35 9322+, pack of 10

Premium Dust/Mist/Metal Fume Respirator, 3M 9332+

Complies with EN149:2001 + A1:2009 FFP3, giving protection against fine particulates up to 20 x OEL*, metal fumes and water-based aerosols. With fitted exhale valve to reduce heat build-up behind the mask and to make breathing easier.

SA842-40 9332+, pack of 10

Respirators, 3M 4000 series

Single piece construction which provides protection against particulates and specific gases/vapours. With twin inhalation valves, a parabolic exhalation valve which reduces breathing resistance, four point strap adjustment, adjustable head cradle and non-allergenic facepiece. Minimum 78% efficiency against particulates to 0.5 micron up to 4 x OEL* (4277 Plus offers up to 20 x OEL*). Additional protection against gases/vapours as indicated up to 10 x OEL* or 1000 ppm, whichever is lower. The respirator should be discarded immediately the gas/vapour is detected by smell or taste. Supplied singly in a resealable foil bag.

Organic Vapour/Particulate Respirator, 4251 Plus

To EN405:2002 (FFA1P2D) Approved Standard. Protects against organic vapours (boiling above +65°C) Colour code brown/white.

SA850-10 4251 Plus

Organic Vapours and Inorganic/Acid Gases Respirator, 4277 Plus

To EN405:2002 (FFABE1P31D) Approved Standard. Protects against organic vapours (boiling above +65°C), inorganic and acid gases. Colour code brown/grey/yellow/white.

SA850-30 4277 Plus

*OEL: Occupational Exposure Limit of contaminant as specified in relevant Guidance Notes from the Health and Safety Executive (HSE).

Safety note

These respirators should only be used where the gas/vapour has good warning properties i.e. strong smell or taste. They are not suitable for use in atmospheres immediately dangerous to health or life.



SA842-20



SA842-30



SA842-40



SA842-25



SA842-35



SA850-10, SA850-30 is similar

Safety

Ear Protection

Ear Plugs, disposable

Soft, slow expanding, polyurethane foam plugs which are pliable and tapered for easy insertion. Meet the requirements of EN352-2. The foam gives an evenly distributed pressure, optimising comfort and sealing. Plugs are brightly coloured (neon yellow) and long (25mm) aiding removal. The Simplified Noise-level Reduction (SNR) achieved is in the order of 36db. Supplied in pack of 250 pairs.

SA858-20 Ear plugs

Ear plugs, disposable, Kleenguard™ H10

To EN352-2 (2002). Provide simplified noise-reduction (SNR) of 31db. Soft, roll down foam plugs for easy insertion and giving an evenly distributed pressure. Supplied in packs of 200 pairs.

SA858-25 H10, uncorded

Ear plugs, re-useable, Kleenguard™ H20

Styled for easy holding and insertion. To EN352-2 (2002). Provide simplified noise-reduction (SNR) of 25db. Available corded together or uncorded. Supplied in packs of 100 pairs.

SA858-31 H20, uncorded

SA858-33 H20, corded

Ear clips, re-useable, Kleenguard™ H50

To EN352-2 (2002). Provide simplified noise-reduction (SNR) of 23db. Innovative design, secure, unobtrusive ear clip frame with soft foam plugs which conform to the ear canal without rolling. Available corded together or uncorded. Supplied in packs of 10 pairs.

SA858-42 H50, uncorded

SA858-45 H50, corded

Hearing Protector

A lightweight protector suitable for short term use. Tested to BS5108 and conforming to the quality requirements of BS6344. With adjustable headband and soft ear cushions. Can be folded for easy storage when not in use. Weight 180g.

SA860-10 Folding protector

Sound Level Meter

Portable instrument suitable for measuring industrial and civil noise levels. According to IEC61672-1 with class 2 accuracy.

- ◆ Range: +30 to +130dB x 0.1dB resolution
- ◆ Precision: ± 1.4 dB (± 1 digit)
- ◆ Max/Min. memory function
- ◆ Frequency weighing according to A characteristics curves

As described. With backlit LCD display, robust ABS housing with screw mounting for fitting to an accessory camera tripod, microphone with wind shield, 9V PP3 battery and instruction manual.

SA885-10 Sound level meter, compact

BL610-25 Spare battery, 9V



SA858-20



SA858-42



SA858-25



SA860



SA858-33



SA885-10

Safety

Safety Eyewear

bolle
SAFETY

Carbo-glass mentioned in the specifications is a high impact but scratch resistant material based on polycarbonate but sprayed with a quartz crystal coating. Standard spectacles and goggles shown here are Kitemarked and CE approved. Laser goggles are DIN and ANSI approved.

Spectacles, Bollé Bandido

Robust, all-polycarbonate, 1-piece frame/nosebridge and clear, panoramic vision, carbo-glass coated lenses to EN166 2C-1.2 1FT and side shields integrated into the side arms. Weight 31g.

SA904-25 Bandido spectacles

Spectacles, Bollé IRI-S

Lightweight, polycarbonate frame with soft, pivoting, bi-material temples and fully adjustable nose bridge. Scratch resistant, clear polycarbonate lenses with anti-fog coating, complying with EN166 2C-1.2 1FT. Available with plain, or bi-focal lenses with a reading area at the base of dioptres as indicated. Weight 27g.

SA906-20 IRI-S, plain lens

SA906-22 IRI-S, bi-focal lens, +1.5 dioptres

SA906-24 IRI-S, bi-focal lens, +2 dioptres

SA906-26 IRI-S, bi-focal lens, +2.5 dioptres

SA906-28 IRI-S, bi-focal lens, +3 dioptres

Laser goggles - If you have a requirement for laser goggles let us have full details of the laser type and output and we will quote.

UV protective eyewear – see LM370.

Spectacles, Bollé Silium

Strong, brass metal frame with PVC nosepads and "wrap-around" extended lenses in clear carbo-glass coated polycarbonate, offering side protection. Lenses comply to EN166 2-1.2 1F. With flexible side-arm hinges and soft ear hooks for a comfortable, close fit. Weight 34g.

SA908-17 Silium spectacles, metal frame

Eyeshield, Bollé Axis

Polycarbonate, 1-piece frame/nosebridge/brow-guard with PVC nosepads and "wrap-around" extended lenses in carbo-glass coated polycarbonate offering side protection. Lenses comply to EN166 2-1.2 1FT. With adjustable side arm angles and soft ear hooks for a comfortable, close fit. Weight 28g.

SA912-30 Axis eyeshield

Eyeshield, Bollé B272

Single, wide vision lens incorporating side shields and built-in brow-guard, in scratch resistant, carboglass coated polycarbonate to EN166 2C-1.2 1F. With adjustable side arms in blue. Weight 31g.

SA922-05 B272 eyeshield

Eyeshield, Bollé Viper

Single wide vision lens in scratch-resistant, carbo-glass coated polycarbonate to EN166 3-1.2 1F with adjustable side arms. Weight 28g.

SA922-20 Viper eyeshield

Eyeshield, Bollé Visiteur

Clear polycarbonate side shields, brow guard and lenses to EN166 1F. Can be worn over prescription spectacles. Weight 36g.

SA930-10 Visiteur eyeshield

Eyeshields, Bollé Contour

Ultra lightweight, nylon frame with flexible side arms and 'wrap-around' extended lenses in a choice of clear or tinted, carbo-glass coated polycarbonate. Lenses comply to EN166 1F, the tinted version additionally to EN166 5-1.4 1FT (solar protection) for outdoor use. Weight 21g.

SA934-12 Contour eyeshield, clear lens

SA934-18 Contour eyeshield, tinted lens

Spectacles, Bollé Spider

Full frame spectacles in nylon with flexible side arms and padded ear hooks. Carbo-glass coated polycarbonate lenses with choice of clear (indoor use), tinted, and red mirror (outdoor use) lenses to EN166 2C-1.2 1FT, the tinted versions to EN166 5-1.4 1FT K (solar protection). Weight 26g.

SA938-10 Spider spectacles, clear lens

SA938-13 Spider spectacles, tinted lens

SA938-16 Spider spectacles, red mirror lens



SA904



SA912



SA930



SA906



SA922-05



SA934-12



SA908



SA922-20



SA938-16

Safety

Safety Eyewear cont./Goggles/Face Shield

Spectacles, X-Ray Protective

Comply with Annex II of EU Directive 89/686/EEC, meeting requirements of EN61331-1:2002 and ANSI Z87.1+. Intended to be used for reduction of scatter radiation from X-rays used in medical environments. Lightweight, polycarbonate or rubberised nylon (SA945-85 and -95) frame in a choice of colours with lead oxide SF56HT glass lenses giving a lead equivalency of 0.75mm (± 0.08 mm). Weight 72g.

Note: Cannot be used as protection from impacts, against laser, ionising radiation and infectious materials.

- SA945-10 Silver
- SA945-15 Black
- SA945-20 Blue/yellow

- SA945-25 Taupe
- SA945-30 Purple/grey
- SA945-35 Red

Over Spectacles, X-Ray Protective

Comply with Annex II of EU Directive 89/686/EEC, meeting requirements of EN61331-1:2002 and ANSI Z87.1+. Intended to be used for reduction of scatter radiation from X-rays used in medical environments. Lightweight, rubberised nylon frame in a choice of colours with lead oxide SF6HT glass lenses giving a lead equivalency of 0.75mm (± 0.08 mm). Weight 89g.

Note: Cannot be used as protection from impacts, against laser, ionising radiation and infectious materials.

- SA945-85 Black
- SA945-95 Tortoiseshell



SA945-20



SA945-95

Goggles, Bollé Attack, single lens

Highly comfortable, compliant, soft PVC frame giving all the benefits of a foam surround whilst retaining the cleanliness and longevity of PVC. With adjustable elastic headband and clear, wide angle polycarbonate lens to EN166 2-1.2 2FT. Weight 95g.

- SA953-10 Attack goggles

Goggles, Bollé Blast, single lens

Comfortable, soft PVC, extended frame designed to be worn over prescription spectacles. With adjustable elastic headband with pivoting attachments and clear, wide angle polycarbonate lens to EN166 2-1.2 9BT 9.

- SA979-04 Blast goggles

Accessory visor for SA979-04

Clip on polycarbonate visor to EN166 3BT providing additional protection to nose and face. Can also be worn in conjunction with small respirator masks such as SA800/SA842 series.

- SA979-09 Visor for SA979-04

Cleaning concentrates – see CL640.

Lens cleaning tissues – see CL760.

UV protective eyewear – see LM370.



SA953-10



SA979-04 fitted with SA979-09

Face Shield

A modular system comprising lightweight brow-guard with adjustable head harness, elasticated nape strap and a choice of accessory snap-fit visors in clear acetate or polycarbonate, with or without chinguard.

- SA980-25 Brow-guard only, without visor

Visor, clear acetate, 200 mm deep

- SA982-16 Visor only
- SA982-18 Visor, with fittings for chingard

Visor, clear polycarbonate, 200mm deep

- SA982-22 Visor only
- SA982-24 Visor, with fittings for chingard

- SA982-30 Chinguard only for use with SA982-18 and SA982-24

Semi-disposable Face Shield

Semi-disposable face shield for protection from liquid splash or aerosol spray with polyurethane foam browband, polyester visor 230 x 330mm width x depth and elastic strap.

- SA988-10 Semi-disposable face shield



SA980/SA982



SA988-10



LM370-15, -25, -30 series

Safety

Eyewear Sundries

Goggle Box™ Dispensers

Wall mounting boxes in heavy duty smoked finish acrylic for storing and dispensing eyeshields of the SA930 type.

Size 1 accepts up to 5 eyeshields and is overall 170 x 90 x 190mm W x D x H.

Size 2 accepts up to 10 eyeshields and is overall 170 x 90 x 320mm W x D x H.

Both boxes are supplied with a safety sticker plus screws and plugs for wall mounting.

- SA990-05** Gogglebox III
- SA990-07** Gogglebox III with 5 eyeshields
- SA990-10** Gogglebox I
- SA990-15** Gogglebox I with 10 eyeshields

Lens Cleaning Station, disposable

Comprising a hand operated pump dispenser containing approximately 500ml of anti-static cleaning fluid, and 1200 tissues mounted in a unit for wall or bench mounting. Suitable for cleaning glass or plastic lenses. Intended to be discarded when cleaning materials exhausted.

- SA995-10** Lens station

Fire Extinguishers

Portable Fire Extinguishers

Suitable for small fires involving flammable liquids and electrical appliances (class ABC). Stored pressure controlled discharge powder extinguishers to BS-EN3. Fire rating 5A 34B. Comply with the European Aerosol Directive. Supplied with mounting bracket.

- SB215-12** EPS1Z, 1kg capacity
- SB215-14** EPS2Z, 2kg capacity

Dry Powder Fire Extinguisher

Suitable for use on wood, paper, flammable liquids and electrical fires (class ABC). Stored pressure powder extinguisher to BS-EN3. Fire rating 21A 113B. Supplied with fitted pressure gauge and mounting bracket.

- SB220-30** EPS4, 4kg capacity

Carbon Dioxide Fire Extinguisher

For fires involving flammable liquids (class B) and electrical appliances. Conforming to BS-EN3. Fire rating 34B. Supplied with wall mounting bracket.

- SB225-08** EC2F, 2kg capacity

Foam Fire Extinguisher

For use with flammable polar liquids, such as alcohol and methanol. Conforms to BS-EN3:2006 amendment. Fire rating 13A/113B and 55B. Discharge time 22 seconds.

- SB233-10** TY-S6AKA, 6 litre capacity

Fire Blankets

Light duty, two-ply glass fibre with fire retardant material interleaving. Manufactured to BS-EN1869:1997 and kite-marked. Supplied in a plastic holder for wall mounting.

- SB270-30** Fire blanket 1100 x 1100mm
- SB270-35** Fire blanket 1200 x 1200mm
- SB270-40** Fire blanket 1800 x 1200mm

Supply of Fire Extinguishers

Please note that the fire extinguishers on this page can only be exported as SEA FREIGHT-DECK CARGO.



SA990-07 in use



SB215-12/14



SB225-08



SB233-10



SA995 in use



SB220-30



SB270

Safety

First Aid

First Aid Boxes, workplace

All components shown in the Contents list comply with the Revised Approved Code of Practice (ACOP97) with Health & Safety First Aid Regulations 1981.

Contents	For employees	
	1-10 Standard ACOP 1	11-50 Medium ACOP 2
Advice leaflet on first aid	1	1
Assorted plasters	20	60
Triangular bandage	4	6
Eye dressing	2	4
Medium dressing 12 x 12cm	6	8
Large dressing 18 x 18cm	2	4
Gloves, pair	1	2
Safety pins	6	12
Security seal	1	1
Wipes, alcohol-free	10	10

First Aid Boxes, workplace, standard

Green ABS box with hinged lid printed with white cross on the outside and wall mounting bracket. Contents as Standard list. Overall 260 x 170 x 90mm W x D x H. Weight 0.7kg. Also available with wall mounting.

SB350-05 Standard, with wall mounting

SB354-12 Refill. Complete Standard contents

First Aid Boxes, workplace, medium

Green ABS box with hinged lid printed with white cross on the outside and wall mounting bracket. Contents as Medium list. Overall 370 x 250 x 110mm W x D x H. Weight 1.5kg. Also available with wall mounting.

SB370-05 Medium, with wall mounting

SB374-12 Refill. Complete Medium contents

Body fluid disposal kit

For the safe cleaning up and removal of potentially hazardous spillages of all body fluids. Single application kit comprises disinfectant spray effective against bacteria, viruses (including HIV, Herpes, Hepatitis) and fungi, together with absorbent granules that congeal and deodorise aqueous fluids. The spillage may then be removed using a disposal pack provided, which contains gloves, apron, scoop, spatula, paper towels, disinfectant wipes and biohazard bag. Supplied in a grip-seal pouch containing 1 each disinfectant spray and disposal pack, with 10g of absorbent granules. Overall 260 x 170 x 50mm W x D x H. Weight 0.6kg.

SB390-06 Body fluid disposal kit

Eye Washing

Eye Wash Board

Wall mounting. Complete with mirror, two 500ml bottles of sterile eyewash solution and two eyepads. Overall 370 x 270mm.

SB690-14 Eye wash board

Spare sterile eyewash solution, 500ml

SB694-07 Pack of 1



SB350



SB390-06



SB690-14



SB370



SB694

Safety

Laboratory Drench Hoses, Eyewashes and Showers

Laboratory Drench Hoses and Eyewashes. Comply with EN15154-1 and -2 requirements.

Drench Hose DS04/LV04

For the rapid flushing of spillages and splashes from the body. Comprises self-closing valve opened by a squeeze handle. The valve head incorporates single or dual nozzles with dustcap. The valve/nozzle assembly is connected to a 1.5 metre flexible PVC supply hose with 1/2" male thread inlet connector. Supplied with wall mounting hook. Requires connection to a suitable water supply.

SB720-40 Drench hose, single nozzle, DS04

SB720-45 Drench hose, dual nozzle, LV04

Drench Hose DS54/LV54

Similar to SB720-40, but with an integral mounting flange which allows fixing to benchtops up to 40mm thick. The valve/nozzle is connected to a 1.5 metre flexible reinforced PVC supply hose with 1/2" female threaded inlet connector. In use the valve/nozzle is removed and the hose is drawn through the benchtop and flange. Requires connection to a suitable water supply.

SB720-50 Drench hose, single nozzle, DS54

SB720-55 Drench hose, dual nozzle, LV54

Eyewash LV14

Wall mounting with aerated single nozzle sprayheads at either side of a 250mm diameter green epoxy-coated, stainless steel bowl with 1 1/4" threaded female drain outlet, epoxy-coated, galvanised steel fittings and pipework, and wall bracket. The side mounted supply stem has a stay-open ball valve activated by a push plate. Inlet connector 1/2" male thread. Requires connection to a suitable water supply.

SB730-25 Eyewash LV14

Eyewash LV12

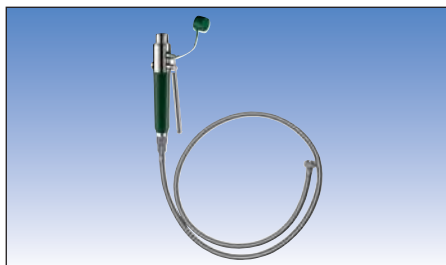
Similar to SB730-25 but with polished stainless steel bowl, pipework and fittings. Inlet connected 1/2" female thread. Requires connection to a suitable water supply.

SB730-60 Eyewash LV12

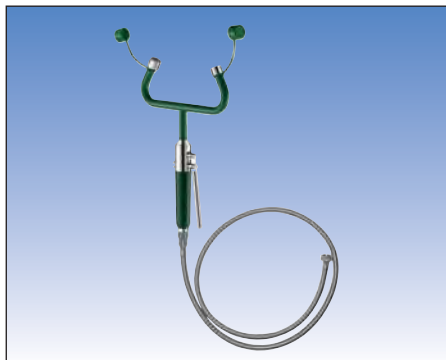
Eyewash LP22

Generally as SB730-60 but with bowl and nozzles mounted on a 900mm high stainless steel pedestal with footswitch in the base to operate the valve and supply inlet at 855mm height. Requires connection to a suitable water supply.

SB730-80 Eyewash LP22



SB720-40



SB720-45



SB720-50



SB720-55



SB730-25



SB730-60



SB730-80

Safety

Safe Storage

Hazardous Substances Cabinets

Designed to provide safe storage of small quantities of flammable liquids, chemicals, pesticides, paints and other hazardous substances. Manufactured in sheet steel with riveted seams. Shelves provided are height adjustable, perforated and galvanized.

- ◆ Choice of
 - chest bin with sloping lid, hasp and staple for padlocking
 - upright cabinets with two-point locking handle, adjustable height, tray-type shelves and integral sump to retain spillages
- ◆ Finished in powder coated safety yellow (except shelves) and labelled

Chest bin

As described. Supplied with hasp and staple for use with a padlock (not supplied). Dimensions stated are overall width x depth x height.

SB840-15 Chest bin, 1170 x 460 x 610mm

Upright cabinets

As described. With two-point locking handle, shelves as indicated and integral spillage sump.

Catalogue No.	SB845-20	SB845-30	SB845-40	SB845-45	SB845-50
Overall	H mm 700	900	700	900	1800
	W mm 350	460	900	900	900
	D mm 300	460	460	460	460
Doors	Single	Single	Double	Double	Double
Shelves	1	1	1	1	3

SB845-20 700 x 350 x 300mm

SB845-30 900 x 460 x 460mm

SB845-40 700 x 900 x 460mm

SB845-45 900 x 900 x 460mm

SB845-50 1800 x 900 x 460mm

Accessory additional shelves for SB845-series

Galvanized steel, tray-type. For cabinet sizes as indicated.

	W x D, mm
SB845-82	350 x 300
SB845-84	460 x 460
SB845-86	900 x 460

Accessory Floor Stand

For SB845-30 only. Increases the height of the cabinet by 535mm. With one adjustable foot for levelling.

SB845-95 Floor stand for SB845-30



SB845

SB840

Acid and Alkali Storage Cabinets

White powder coated steel carcass with labelling, riveted seams, integral spillage sump and reinforced door with recessed 2-point locking handle. Tray-type shelves provided are height adjustable and finished in a polyester powder coating.

Catalogue No.	SB847-10	SB847-20	SB847-30	SB847-40
Overall	H mm 700	700	900	1800
	W mm 350	900	900	900
	D mm 300	460	460	460
Doors	Single	Double	Double	Double
Shelves	1	1	1	3

SB847-10 700 x 350 x 300mm

SB847-20 700 x 900 x 460mm

SB847-30 900 x 900 x 460mm

SB847-40 1800 x 900 x 460mm

Accessory additional shelves for SB847-series

Polyester powder coated, tray-type. For cabinet sizes as indicated.

	W x D, mm
SB847-73	350 x 300
SB847-77	900 x 460

Accessory Floor Stands

Increase the height of the cabinets by 535mm. With one adjustable foot for levelling.

SB847-84 Floor stand for SB847-10 only

SB847-88 Floor stand for SB847-20 and SB847-30 only

Safety Note:

SB847 Acid and Alkali Storage cabinets are used primarily for secure storage of reagents. They may be susceptible to attack by corrosive vapours.

If greater corrosion resistance is required please refer to SB860/SB864 HDPE storage cabinets.

Plastic Acid and Alkali storage cabinets – see SB860/SB864.

Stainless steel hazardous substances cabinets are also available – details on request.



SB847

Safety

Flammable Storage Cabinets to EN14470-1

Exacta & Optech

High quality safety cabinets for the storage of inflammables, certified fire-resistant for 90 minutes, certified by BVQI (Bureau Veritas Quality International) to EN14470-1.

Construction

Electrostatically galvanised, external sheet steel panels finished in grey, thermo-set (minimum 90µm thick) epoxy resin, with "rockwool" solid slab thermal insulation, 90-minute fire resistant according to EN14470-1 regulations and melamine-faced chipboard, internal panels. Free-standing (not underbench) cabinets have height adjustable, AISI 304 stainless steel, tray-type shelves (see table) which can contain small leaks and spillages. Maximum loading per shelf 100kg. A gridded base trough is also provided in all cabinets for easy collection/disposal of larger spillages. Cabinets are designed without a central rib allowing easy shelf removal/replacement. Self-closing, single vent outlets are provided in the roof and at the base for venting heavier-than-air fumes. An additional 100mm diameter vent connector with blanking plug is provided in the roof for connection to an existing extraction system. All cabinets have lockable doors (see table) with automatic, oil damped, hydraulic piston closure, are labelled in accordance with DIN V4844-1 and supplied with instructions to DIN V8418.

Safety features

All cabinets feature self-sealing ventilation ports. Doors exert a pressure of no more than 100N when closing to prevent injury and full height, non-sparking hinges. Both door edges and frames have 30mm wide, mineral fibre reinforced, graphite-based, intumescent strip seals to DIN 4102 which automatically expand when the ambient temperature exceeds a safe level. A cabinet earthing plate is also provided for grounding to dissipate static charge.

Note:

Due to the large size and weight of these units the user must ensure that suitable space area, floor loading and access for installation is available prior to ordering. They are installable by the user and delivery therefore will only be made to the customers unloading area.



SB855-12



SB855-17

Catalogue No.	SB855-12	SB855-17	SB855-27	SB855-37
Capacity* litres	80	160	360	800
Doors	1	2	1	2
Shelves x spill capacity*	—	—	3 x 4 litres	3 x 9 litres
Base trough litres	7.5	16	20	45
Overall	H mm	620	2055	2055
	W mm	595	1090	1200
	D mm	520	520	600
Weight kg	82	134	235	390

*Approximate capacities.

As described. With adjustable tray shelves as indicated and instructions.

- SB855-12** Flammable storage cabinet, 80 litres
- SB855-17** Flammable storage cabinet, 160 litres
- SB855-27** Flammable storage cabinet, 360 litres
- SB855-37** Flammable storage cabinet, 800 litres

Accessories and Spares

Door latches for SB855-27 and SB855-37 only

Hold the doors open, allowing both hands to be used during loading/unloading. The door is then closed by pressure on the door to release the latch. An override automatically closes the door should the ambient temperature exceed 50°C. Please note: one latch per door is required.

- SB857-06** Right-hand door latch for SB855-37 only
- SB857-08** Left-hand door latch for SB855-27 and -37

Extraction fan

With IP44-rated motor to DIN40050, flow rate 260m³/h. Housed in a glass-fibre reinforced polyamide resin case which is antistatic and corrosion resistant. Includes sliding drawer for accessory activated carbon filters. For 220-230V 50Hz single phase supplies. Without filter.

- SB857-12** Extraction fan for SB855 series
- SB857-19** Carbon filter for acids and organic solvents

Additional tray shelves

	For cabinet	H x W x D, mm
SB857-44	SB855-12	30 x 480 x 330
SB857-48	SB855-17	30 x 975 x 330
SB857-51	SB855-27	39 x 493 x 420
SB857-54	SB855-37	39 x 1094 x 420



SB855-27 in use



SB855-37

Safety

Flammable Storage Cabinets, Dual Compliance

- ◆ Comply fully with EN14470-1 (30 minute fire resistance - ISO834 test) and FM6050
- ◆ Melamine-faced, wooden construction offers excellent chemical resistance and structural rigidity
- ◆ Self-closing doors and inlet/outlet vents with fused links which shut the doors automatically and seal the ventilation system if the ambient temperature exceeds 43°C
- ◆ 3-point locking of doors ensure high security
- ◆ Base trough provided for easy collection and disposal of spillages
- ◆ Larger cabinets have tray-type, steel shelves for minor spillages, which are height-adjustable
- ◆ Labelled in accordance with ISO3684, EN14470-1 (04/2004), FM6050 and European Directive 92/58/CEE

Catalogue No.	SB858-15*	SB858-25*	SB858-35	SB858-45	SB858-55
Capacity, litres	30	60	130	170	250
U.S. Gallons	8	16	34	45	68
Doors	Single	Double	Single	Double	Double
Shelves	—	—	3	2	3
Base trough, litres	20	41	20	31	41
Overall					
H mm	700	900	700	900	1800
W mm	350	460	900	900	900
D mm	300	460	460	460	460
Weight, kg	64	108	117	210	225

* Underbench models

As described. Supplied with adjustable tray shelves as indicated and instructions.

SB858-15 Dual range flammable storage cabinet, 30 litres

SB858-25 Dual range flammable storage cabinet, 60 litres

SB858-35 Dual range flammable storage cabinet, 130 litres

SB858-45 Dual range flammable storage cabinet, 170 litres

SB858-55 Dual range flammable storage cabinet, 250 litres

Accessory additional shelves for SB858-series

Steel, tray-type. For cabinets as indicated.

SB858-80 For cabinet SB858-35

SB858-82 For cabinets SB858-45/55



SB858

Safety

Fire-Resistant Acid and Alkali Storage Cabinet

- ◆ Fire-resistant up to 30 minutes according to ISO834 test conditions
- ◆ Compliant with EN14470-1 (if used with accessory fume extraction system) and EN1363-1
- ◆ Independent compartments for acids and alkali storage
- ◆ Earthing point to dissipate static electricity
- ◆ Intumescent seals for doors and vent
- ◆ Self-closing doors with key lock

Accessories

- SB859-22** Spare/accessory shelf
- SB859-25** Extraction system. Steel construction with fan, activated charcoal filter, connection kit to mount onto cabinet, 1 metre flexible exhaust hose, and 100mm diameter clips/clamps. For 220-240V 50Hz single phase supplies

Catalogue No.	SB859-10	
Capacity	litres	300
Adjustable shelves	6 (3 per compartment), 30kg capacity each	
Base trough	2 (1 per compartment)	
Doors	2	
Mounting	Pedestal with removable front panel for manoeuvre by forklift	
Overall (internal)	H mm	1900 (1545)
	W mm	1120 (1015)
	D mm	550 (440)
Weight	kg	230

Note:

Due to the large size and weight of this unit the user must ensure that suitable space area, floor loading and access for installation is available prior to ordering. It is installable by the user and delivery therefore will only be made to the customers unloading area.

It is the responsibility of the user to ensure adequate extraction or venting is available for connection of the extraction exhaust hose.

As described. Supplied with shelves and base trough as indicated.

SB859-10 Fire resistant acid and alkali storage cabinet



SB859-10 in use

Safety

Acid and Alkali Storage Cabinets, Plastic, continued

One-piece rotomoulded, rigid polyethylene cabinet with separate, hinged, door panel. Provides immediate, secure storage for acids and bases

- ◆ Corrosion resistant
- ◆ Lockable door
- ◆ Integral, fixed sump

Model		PSC1	PSC2	PSC3	PSC4	PSC5
Overall	H, mm	990	1650	1835	1835	1520
	W, mm	440	570	920	920	920
	D, mm	545	650	720	720	720
Shelves provided,		2	3	0	1	1
Sump capacity, litres		30	70	225	225	100
Weight, kg		15	40	56	60	52

- SB869-05** PSC1
- SB869-25** PSC2
- SB869-45** PSC3
- SB869-65** PSC4
- SB869-85** PSC5



SB869-05 in use



SB869-45 in use



SB869-25 in use



SB869-65 in use



SB869-85 in use

Safety

Safety Cans

For carrying, dispensing and disposing of flammable liquids.

- ◆ U.S. Underwriters Laboratories (UL) listed and/or Factory Mutual (FM) approved
- ◆ Leakproof closures with spring mounted positive pressure relief valve which vents at 5 psig to prevent explosion in the event of fire
- ◆ Double mesh flame arrester in spout to guard against flashback ignition
- ◆ All capacities and dimensions are approximate

Safety Cans Type 1, metal

Heavy duty terne plate construction which protects against corrosion. With leakproof closure, relief valve and flame arrester. UL listed and FM approved. The 1 and 3.8 litre models have a fixed handle with trigger release for the cap. The 19 litre model has a swing handle designed for the heavier load.

	Cap. litres	Overall o.d. x H, mm
SB880-10	1	120 x 210
SB880-20	3.8	185 x 295
SB880-35	19	295 x 435

Sharps Containers, to BS7320 – see *CM915*.

Specimen Carrier, Carrisafe – see *Clinical section*.

Waste bins – see *WD215/WD370*.

Safety Cans Type 1, polyethylene

Generally as SB880 series but high density polyethylene with stainless steel fittings. FM approved. The 1.9 and 3.8 litre models have a fixed handle with trigger release for the cap. The 9.5 litre model has a swing handle.

	Cap. litres	Overall W x L x H, mm
SB882-10	1.9*	120 x 195 x 245
SB882-15	3.8*	120 x 195 x 325
SB882-20	9.5	275 x 365 (o.d. x H)

* These sizes are oval shape.

Safety Can with Tap

Terne plate construction as SB880 series. With self closing tap mounted approximately 50mm from the base. With leakproof closure, relief valve and flame arrester. FM approved.

	Cap. litres	Overall o.d. x H, mm
SB885-25	19	295 x 435

Waste Disposal Cans, polyethylene

For containment and disposal of corrosive liquids. High density polyethylene with metal fittings. With leakproof closure, pressure relief valve, flame arrester and handle latch which holds the cap open for easier pouring during disposal. FM approved.

	Cap. litres	Overall o.d. x H, mm
SB890-30	7.6	305 x 375
SB890-40	19	305 x 510

Self Closing Containers, polyethylene

Translucent high density polyethylene containers with moulded in graduations designed to resist acids and caustic solutions. With stainless steel fittings and sprung, self closing, leakproof closure and handle.

	Cap. litres	Overall o.d. x H, mm
SB895-45	3.8*	120 x 195 x 325 (W x L x H)
SB895-55	7.6	305 x 375
SB895-65	8.5	305 x 395
SB895-75	19	305 x 510

* This size is oval shape.



SB880-35



SB882-20



SB890



SB882-15, SB882-10 is similar



SB885-25



SB895

Safety

Stainless Steel Safety Cans

For carrying, dispensing and storage of corrosive, flammable or contamination-sensitive liquids.

- ◆ TÜV/GS* approved
- ◆ Grade 1.4571 stainless steel construction with powder-coated, ergonomic, aluminium handle
- ◆ Leakproof closure with PTFE gasket
- ◆ Spring-operated pressure/vacuum relief valve
- ◆ Perforated stainless steel flame arrester in spout resists flashback ignition
- ◆ Base formed in one-piece
- ◆ UN-approved versions available
- ◆ Neoprene bumper guard
- ◆ Fitted with carry handle

Safety Cans

Stainless steel construction with choice of self-closing, leakproof dispenser cap and nozzle which can be removed to allow filling or 32mm (1 1/4") screw cap. SB896-45,-55 and-65 are with a design approved to ADR, RID, IMDG, ICAO-TI, GGVSEB, and licensed for all types of hazardous goods (packaging group X).

Capacity litres	Overall dia. x H, mm	Self-closing, dispenser cap	Screw cap	Screw cap, UN-approved
1	111 x 235	SB896-15	SB896-40	SB896-45
2	131 x 295	SB896-25	SB896-50	SB896-55
5	165 x 400	SB896-35	SB896-60	SB896-65



SB896



SB898

Safety Canisters

Stainless steel construction with leakproof 37mm (1 1/2") screw closure, stainless steel flame arrester, carrying handle and neoprene bumper guard. SB897-37, -47 and -57 are with a design approved to ADR, RID, IMDG, ICAO-TI, GGVSEB, and licensed for all types of hazardous goods (packaging group X).

Capacity litres	Overall W x D x H, mm	Standard	UN-approved
5	130 x 280 x 310	SB897-35	SB897-37
10	130 x 280 x 380	SB897-45	SB897-47
20	175 x 345 x 470	SB897-55	SB897-57

Dispensing Canisters

Generally as SB897 series but with self closing, leakproof tap and separate vent to allow dispensing from a shelf or an accessory dispensing station.

	Capacity litres	Overall W x D x H, mm
SB898-37	5	130 x 200 x 310
SB898-45	10	130 x 280 x 380
SB898-55	20	175 x 345 x 470

Stainless Steel Filling Funnels

For use with safety canisters and cans as indicated.

- SB898-60 Straight, plug-fit, for SB896-series only
- SB898-62 Angled, plug-fit, for SB897/SB898-series only
- SB898-64 Angled, with screw connection and overflow protection for SB897/SB898-series only

Accessory Dispensing Station

For use with up to two SB898 series dispensing cans. Free standing or wall mounting steel frame with removable stainless steel drip tray. Overall dimensions 555 x 405 x 600mm (W x D x H). Without cans.

- SB898-95 Dispensing station

*TÜV/GS approval

Indicates that products have been independently tested under the German Product Safety Act by the Technischer Überwachungs - Verein e.V. (TÜV). The GS (Geprüfte Sicherheit) trademark indicates that a seal of approval has been awarded.



SB898-60

SB898-62

SB898-64

Safety

Safety Shield

Safety Shield

Transparent, rigid Makrolon® panels 6mm thick, mounted within a metal frame with stable feet. The sliding centre panel 660 x 700mm W x H is adjustable to four heights and the 220mm wide, angled side panels are hinged so that they can be folded away for storage. Overall (fully opened) 950 x 700mm W x H. Weight 9.9kg.

SB973-10 Safety shield



SB973

Radiation Shields

◆ Choice of construction/shielding types

- clear optical acrylic, minimum 10mm thick, for shielding against beta particles
- clear lead acrylic*, minimum 12mm thick, for shielding against gamma particles

*Note: Lead acrylic has a slight yellowish tint.

Safety shields

Fixed angle pattern with stable, curved base and single face angled at 15°. Dimensions are stated H x W x D.

For beta radiation

RA600-20 450 x 300 x 150mm

RA600-30 530 x 350 x 150mm

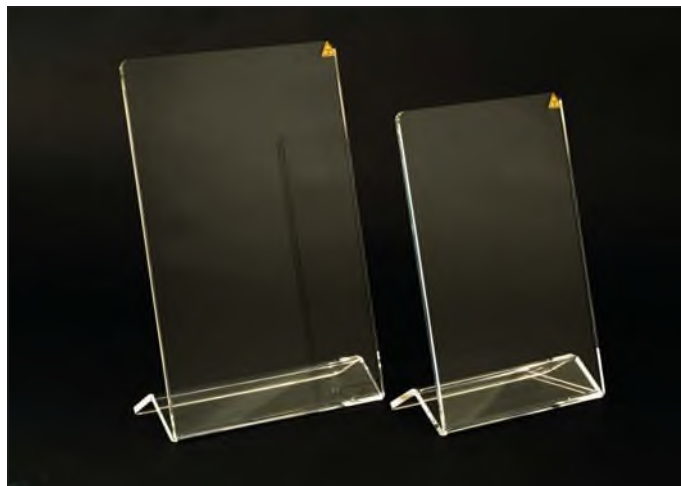
For gamma radiation

RA604-20 450 x 300 x 150mm

RA604-30 530 x 350 x 150mm

Hourglass and dual angled patterns are also available on request.

Further products offering protection against radiation – see *Radiation Shielding* section.



RA600/RA604

Signs & Labels

In accordance with Safety Sign Regulations 1980, BS5378 and EEC Regulations.

Hazard Warning Tapes

In hard wearing, self-adhesive vinyl. Supplied singly in a continuous roll of 66 metres long x 25mm wide on a 75mm core (except STERILE which is 12mm wide). Dimensions and pattern repeats are nominal. Text and symbols in black unless otherwise stated.

	Title	Pattern Repeat	Colour
SC250-30	Explosive	70mm	Orange Yellow
SC250-38	CAUTION RADIOACTIVE MATERIAL	70mm	Orange Yellow
SC250-42	BIOHAZARD	30mm	Orange Yellow
SC250-46	HEPATITIS RISK (With Biohazard symbol)	100mm	Orange Yellow
SC250-50	DANGER OF INFECTION (With Biohazard symbol)	165mm	Orange Yellow

	Title	Pattern Repeat	Colour
SC250-54	BURN WITHOUT OPENING (With Biohazard symbol)	185mm	Orange Yellow
SC250-58	CARCINOGEN	35mm	Pink
SC250-62	POISON	35mm	White
SC250-66	PATHOLOGICAL SPECIMEN FRAGILE WITH CARE	130mm	Blue and Red text on white
SC250-70	RETURN TO PHARMACY IF SEAL IS BROKEN	80mm	White
SC250-74	STERILE	70mm	Red text on white

SC250-95 Tape dispenser for tapes up to 50mm wide



SC250 Series

Inset: Tape shown actual size




























Safety

Hazard Warning Tapes, GHS-CLP

In accordance with EU regulation EC1272/2008, Classification, Labelling, and Packaging of hazardous substances and mixtures (CLP).

Hazard Warning Tapes, GHS-CLP

In compliance with the U.N. Globally Harmonised System (GHS) for classifying and labelling chemicals under EU regulation EC1272/2008, Classification, Labelling, and Packaging of hazardous substances and mixtures (CLP). Hard-wearing, self-adhesive vinyl in white printed with the pictogram as indicated and blank area to the side to allow the risk phase and hazard/contents information to be written or applied by the user. Pattern repeat 75mm with 50mm long blank area between symbols. Supplied singly in a continuous roll of 66 metres long x 25mm wide on a 75mm core.

	Pictogram Ref.	Hazard Class			
SC250-12	GHS-01	Explosives, self-reactive substances, types A, B mixtures and organic peroxides			
SC250-16	GHS-02	Flammable materials and flammable gas emitters, self-reactive or self-heating substances and mixtures, pyrophoric materials, organic peroxides			
SC250-20	GHS-03	Oxidising Substances			
SC250-24	GHS-04	Compressed, liquefied, refrigerated or dissolved gases			
SC250-28	GHS-05	Corrosive agents			
SC250-32	GHS-06	Acute toxicity (categories 1-3)			
SC250-36	GHS-07	Acute toxicity (category 4), skin, eye or respiratory tract irritation, sensitisation, organ toxicity, narcotic effects			
SC250-40	GHS-08	Respiratory sensitizer, mutagenic/ carcinogenic agent, reproductive/ specific organ toxicity, aspiration hazard			
SC250-44	GHS-09	Environmental toxicity			

Safety

Signs and Labels continued

Hazard Warning Labels

In hard wearing, self-adhesive vinyl rolls. Each roll is on a 75mm core and comprises 330 labels per roll. The 50 x 50mm sizes are individually cut labels on a backing paper. The 100 x 100mm labels are laminated for extra protection and perforated for easy tear off. Text and symbols in black unless otherwise stated.

	Size, mm	Title	Colour
SC300-10	50 x 50	CORROSIVE	Black/White with white text
SC300-15	100 x 100		
SC300-20	50 x 50	EXPLOSIVE	Orange
SC300-25	100 x 100		
SC300-30	50 x 50	FLAMMABLE GAS	Red
SC300-35	100 x 100		
SC300-40	50 x 50	NON-FLAMMABLE COMPRESSED GAS	Green
SC300-45	100 x 100		
SC300-52	50 x 50	FLAMMABLE LIQUID	Red
SC300-58	100 x 100		
SC300-60	50 x 50	OXIDISING AGENT	Yellow
SC300-65	100 x 100		
SC300-80	50 x 50	TOXIC	White
SC300-85	100 x 100		
SC304-12	50 x 50	RADIOACTIVE	Yellow
SC304-17	100 x 100		
SC304-22	50 x 50	BIOHAZARD	Yellow
SC304-27	100 x 100		
SC304-32	50 x 50	LASER BEAM	Yellow
SC304-37	100 x 100		
SC304-42	50 x 50	DO NOT SWITCH OFF	Red circle with bar
SC304-47	100 x 100		
SC304-52	50 x 50	RISK OF ELECTRIC SHOCK	Yellow
SC304-57	100 x 100		
SC304-62	50 x 50	NOT DRINKING WATER	Red circle with bar
SC304-67	100 x 100		



SC300



SC304

Warning Signs

Warning Safety Signs

Individual self adhesive vinyl signs with yellow background, black text and symbol. Supplied singly.

All signs incorporate the word DANGER in the title.

	Size, mm	Title
SC360-13	200 x 150	Biological hazard
SC360-18	400 x 300	
SC360-23	200 x 150	Corrosion risk
SC360-28	400 x 300	
SC360-33	200 x 150	Electric shock risk
SC360-38	400 x 300	
SC360-43	200 x 150	Explosive material
SC360-48	400 x 300	
SC360-53	200 x 150	Fire risk
SC360-73	200 x 150	Laser beam
SC360-83	200 x 150	Radiation risk
SC360-93	200 x 150	Toxic hazard



SC360

Sampling/Preparation

Samplers



Liquid Samplers

Stainless steel. For single, one-handed operation with thumb-operated valve. Available in two sizes as indicated.

	Length, mm	Diameter, mm	Capacity, ml
SD050-10	460	32	50
SD050-20	540	32	100

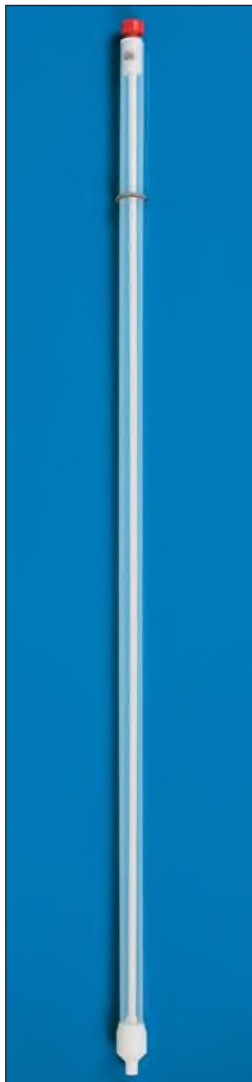
LiquiSamplers

Available in either PTFE or polypropylene. For single, one-handed use with thumb operated valve. Features adjustable depth mark for bottom sampling. Available in 3 sizes and in materials as indicated.

	Material	Overall length, mm	Capacity, ml
SD056-25	PTFE	600	150
SD056-30	PTFE	1000	250
SD056-34	PTFE	2000	500
SD056-40	PP	600	150
SD056-45	PP	1000	250
SD056-50	PP	2000	500



SD050



SD056



SD056 in use

Sampling/Preparation

Samplers



MiniSampler General

Portable kit for routine sampling of liquids. Comprises manual vacuum pump, 10 x 100ml PE sample bottles, 10 metres of PE sampling tubing, cutter, stainless steel sinker weight for tubing and 24 x labels. Supplied in a rigid transport case.

- SD057-15** MiniSampler General
- SD057-22** Spare sample bottle, PE, 100ml
- SD057-24** Spare sample tubing, PE, coil of 100 metres

MiniSampler Ultrapur

Portable kit for ultrapure sampling of liquids. Comprises manual vacuum pump, 1 x 180ml PFA sample bottle, 5 metres of PFA sampling tubing, cutter, stainless steel sinker weight for tubing and 24 x labels. Supplied in a rigid transport case.

- SD058-20** MiniSampler Ultrapur
- SD058-32** Spare sample bottle, PFA, 180ml
- SD058-35** Spare sample tubing, PTFE, coil of 5 metres



SD057-15, SD058-20 is similar



SD065-10 to SD065-50

TeleScoop Sample Dippers

Modular system featuring telescopic sampling rods in corrugated aluminium for lightness with rigidity, with snap-on fitment at the end for attaching accessory PP angular or pendulum beakers in a choice of volumes. Angular beakers can be adjusted to a wide variety of positions and pendulum beakers swing to an upright position.

- SD065-10** Sampling rod, 0.65 to 1.2 metres
- SD065-20** Sampling rod, 0.95 to 2.8 metres
- SD065-25** Sampling rod, 1.15 to 3.0 metres
- SD065-30** Sampling rod, 1.25 to 2.5 metres
- SD065-40** Sampling rod, 1.65 to 4.5 metres
- SD065-50** Sampling rod, 1.74 to 6 metres
- SD065-53** Angular beaker, PP, 600ml
- SD065-56** Angular beaker, PP, 1000ml
- SD065-59** Angular beaker, PP, 2000ml
- SD065-72** Pendulum beaker, PP, 600ml
- SD065-75** Pendulum beaker, PP, 1000ml
- SD065-78** Pendulum beaker, PP, 2000ml
- SD065-79** Pendulum beaker, stainless steel, 1000ml
- SD065-84** Bottle holder for bottles up to 750ml*
- SD065-87** Metal cup, 1000ml
- SD065-90** Surface net, PVC/PA, 310 x 280mm L x W
2.5 to 5mm mesh
- SD065-95** Depth net, PP/PA, 190 x 430 x 250mm L x W x D
2.5 to 5mm mesh

*Bottles - see BR767 series.



SD065-53 to SD065-59



SD065-84



SD065-72 to SD065-78



SD065-87



SD065-79



SD065-90, SD065-95 is similar

Sampling/Preparation

Samplers continued



Silo Drill

Manufactured in aluminium. Designed to sample powders, granules and semi-solid, caked materials from tanker vehicles and silos. In use the drill is screwed into the media with the scraping sample chamber shutter closed. The shutter is opened at the required depth and the sample taken by twisting the drill. The scraper edge to the shutter will ensure more dense materials are sampled. The shutter is then closed and the drill withdrawn for sample analysis. Total length x diameter 1500 x 40mm, screw spirals 80mm diameter. Depths up to 3 metres can be reached by using accessory extension rods.

- SD068-15** Silo drill
- SD068-20** Extension rod, 1000mm

StickProof

Manufactured in electropolished 316 stainless steel. Developed for use in the Pharmaceutical industry when sampling powders and granules from sacks. Smooth, crevice-free construction for easy cleaning. The sample is directed straight into the sample bag which is clamped to the handle. Overall 410 x 25mm L x dia. Supplied with clamp and 100 sampling bags.

- SD072-15** StickProof

Spare bags – see BA055-20.

Penetration samplers

Disposable, polystyrene samplers with slim, bladed scoop and rigid handle that can be used to sample powders, granulates and pastes from paper or plastic sacks. Comply with EU foodstuffs contact and FDA regulations. Available with, or without, closure cover to exclude contaminants from samples and either non-sterile or sterile (gamma-irradiated). Overall length x insertion depth 263 x 150mm. Prepared and individually packed in a class 7 (10,000) cleanroom and supplied in an outer pack of 10.

	Non-sterile	Sterile
Without closure cover	SD074-10	SD074-20
With closure cover	SD074-14	SD074-24

“Green polyethylene” versions of these spoons are available - details on request.

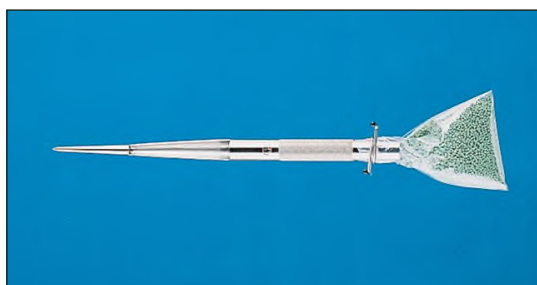
Control Seal Labels, Close-it®, Bürkle

Quality control seal labels with aluminium backing allowing hermetic sealing of sacks pierced for sampling. Strong adhesive will adhere even to surfaces coated with powder (plaster, flour etc.). Supplied in colours, sizes and packs as indicated. Printed with ruled writing area for labelling by pen.

Colour	95 x 95mm, roll of 500	150 x 150mm, roll of 250
Red	LA290-04	LA290-50
Green	LA290-08	LA290-54
Yellow	LA290-12	LA290-58
Blue	LA290-16	LA290-62
Black	LA290-20	LA290-66



SD068



SD072



LA290



SD074

Sampling/Preparation

Samplers continued



Zone Samplers

For cross-section sampling of bulk powders and granules. Available in 4 lengths, 55cm for sacks, 85cm for drums and barrels, 150cm and 250cm for sacks, silos and tanks, and incorporating one to seven sample chambers. In use the sampler is inserted to the required depth with the chamber shutters closed. The shutters are then opened, allowing sampling, then reclosed before withdrawal. The sampling chambers can then be emptied onto accessory sample paper (Quali-Paper) for analysis. Available in aluminium, all stainless steel or stainless steel with PTFE chamber cores which are lighter in weight and more economical.

	Diameter mm	Sampling depth, mm	Chambers x volume
Aluminium			
SD075-15	25	430	3 x 14ml
SD075-20	25	710	3 x 17ml
SD075-25	25	1355	5 x 17ml
SD075-30	25	430	3 x 70ml
SD075-35	25	710	3 x 130ml
SD075-40	25	1355	5 x 260ml
SD075-45	50	710	3 x 880ml
SD075-50	50	1355	5 x 1700ml
SD075-55	50	2355	7 x 2900ml
Stainless steel			
SD077-15	25	430	3 x 14ml
SD077-20	25	710	3 x 17ml
SD077-25	25	1355	5 x 17ml
Stainless steel with PTFE chamber cores			
SD078-15	25	430	3 x 14ml
SD078-20	25	710	3 x 17ml
SD078-25	25	1355	5 x 17ml
SD079-10	25	430	1 x 17ml
SD079-12	25	710	1 x 17ml
SD079-14	25	1355	1 x 17ml

Accessories

Cleaning brushes for SD075/SD079 samplers.

SD079-65 600 x 25mm length x diameter

SD079-67 1000 x 50mm length x diameter

SD079-75 Quali-Paper, lint-free, 1000 x 250mm length x width, pack of 50 sheets



SD075/SD079

Sampling/Preparation

Samplers

Nasco

Swing Sampler, Nasco

Designed for sampling from a horizontal flowing stream. With 1.83m (6ft) to 3.66m (12ft) extending fibreglass pole with swing-hinged head and 960ml polyethylene bottle which is held firmly to the head with a snapper ring. The bottle is also supplied with a polyurethane lined cap for leakproof sample storage.

SD084-05 Swing sampler

Grease Trap Sampler, Nasco

For measuring the grease level in a holding tank. Comprises two 1.22m (4ft) transparent plastic tube sections that screw together and are 3.5cm in diameter to allow small food particles to pass easily through the valve opening at one end. The sections are marked at 0.3m (1ft) intervals. The valve automatically opens when immersed and closes when the sample is removed. It can be re-opened by touching the top valve on a hard surface. Note: not suitable for solid or semi-solid materials.

SD084-33 Grease trap sampler

Coliwasa Multi-phase Liquid Sampler, Nasco

Enables representative sampling of multi-phase liquid wastes, operating within a wide range of viscous, corrosive, high volatiles or solids content liquids, except those containing ketones, nitrobenzene, dimethylformamide, mesityl oxide or tetrahydrofuran. Comprises a 1.53m (5ft) x 1.9cm (3/4 inch) i.d. tube, with valve at the base which is controlled by an internal rod. In use, the rod is pressed to close the valve, the tube is then immersed to the desired depth, then the valve opened by pulling the rod back 5 to 8cm. The rod is then pushed to close the valve and sample is removed.

SD084-44 Coliwasa multi-phase sampler

Sampling line, Nasco

For use with Whirl-Pak® bags up to 2041ml capacity. Weighted urethane bag holder with strong clamp to secure the bag and 7.62m (25ft) nylon rope to enable sampling from liquid sources at deep levels. Supplied with carrying case and retaining clamps for different size bags. Weight 1.58kg.

SD084-55 Sampling line

Fuel Sampler, Nasco

For sampling ethanol and ethanol-blended fuels within petroleum tankers or fuel station forecourt tanks. Made up of three 1.53m (5ft) clear PVC sections that screw together with a float valve at the base which opens on immersion and closes on withdrawal. Once the base of the tank has been reached, the sample can be withdrawn giving a core section of the fuel and any water layers present. The sampler is emptied by touching the valve tip against the tank side.

SD084-65 Fuel sampler



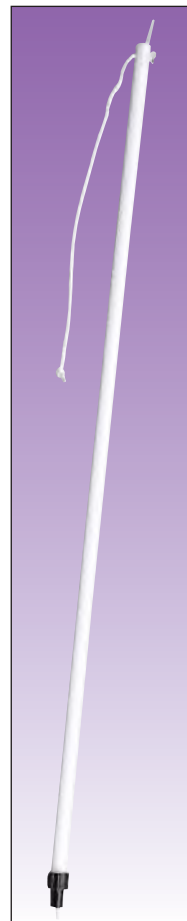
SD084-05



SD084-05 in use



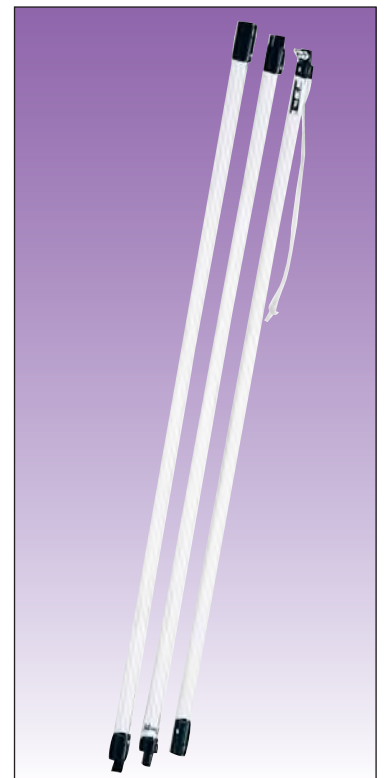
SD084-33



SD084-44



SD084-55



SD084-65

Sampling/Preparation

Samplers continued

Nasco

Sludge Judge®

Designed to take readings of settleable solids of 5% or less in a variety of non-caustic liquids to any depth. Ideal for use in sewage, chemical or food processing plants. The Sludge Judge® is supplied in 3 x 1.53m (3ft) sections of 19mm (3/4") diameter plastic pipe with screw connectors. The pipe is marked every 0.3m (1ft) and holds approximately 89ml (3oz.) of liquid between marks. The top section includes a nylon raising/lowering rope and the bottom section a float valve which opens when submerged and is closed by tugging the rope sharply upwards whilst raising. When the vent has been raised clear of the liquid, the amount of solids in the sample can be read. To release the material in the unit, a check pin at the base of the bottom section is tapped against a hard surface, which opens the check valve, draining the sample. Additional accessory centre sections can be purchased to extend the overall length of the Sludge Judge®.

SD090-25 Sludge Judge®, 4.6m (15ft)

Accessories and Spares

- SD094-05** Cloth carry bag to hold up to 4 sections
- SD094-10** Accessory centre section, 1.53m (5ft)
- SD094-15** Spare top section with rope, 1.53m (5ft)
- SD094-20** Spare bottom section with valve
- SD094-25** Cleaning brush, 1.83m, with bristle head for cleaning SD090/SD094-series

Sludge Judge II®

Similar to features on SD090-25 but with a larger capacity. With 3.18cm (1¼ inch) diameter tubing, holding approximately 178ml (6oz) of liquid between the 0.30m (1ft) marks.

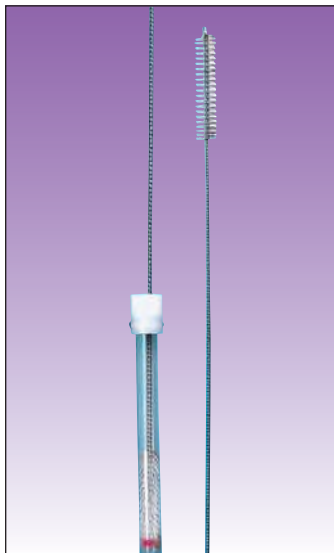
- SD095-15** Sludge Judge II®
- SD096-12** Accessory spare section, 1.53m (5ft)
- SD096-17** Spare top section with rope, 1.53m (5ft)
- SD096-22** Spare bottom section with valve



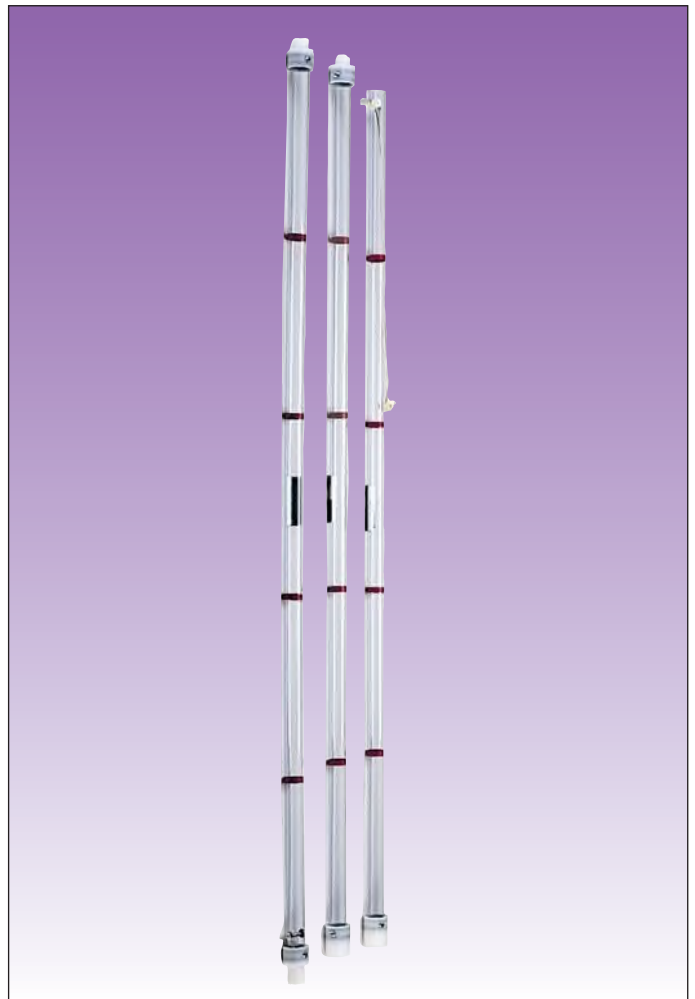
SD090-25



SD094-05 in use



SD094-25 in use



SD095-15

Sampling/Preparation

Sample Preparation

Riffle Boxes

Gravity operated. To BS812 and BS1377. Designed to provide rapid separation of bulk powdered and granular materials into two equal representative samples. The open top has twelve slots and three sample receiver boxes are supplied.

	Aperture size, mm	Material
SD160-10	7	Mild steel
SD160-14	15	Mild steel
SD162-12	6.35	Stainless steel
SD162-16	12.7	Stainless steel

Repro sample divider – see *SF200-10*.

Sieves and Sieve Shakers – see *Sieves section*.

Grinding Mill A11 basic, IKA

For small scale, high speed grinding of hard, brittle, or soft, fibrous materials. Comprises drive module with stainless steel beater and shroud which mounts onto a screw-fitting, plastic grinding chamber, volume 80ml. Grinding speed 28000rpm. Maximum running time 5 minutes. With electronic overload protection and overheat safety switch. Overall 85 x 85 x 240mm high. Weight 1.5kg. For 230V 50/60Hz single phase supplies. 300W.

MP300-20 A11 basic

Accessories and spares for MP300-20 only

MP305-09 Coated, hard steel beater for grinding hard, brittle materials with grain size 6 to 7mm

MP305-11 Cutter knife for grinding soft, fibrous materials

MP305-16 250ml grinding container, requires double beater MP305-48 for operation

MP305-47 Spare beater, stainless steel

MP305-48 Double beater, titanium for use with MP305-16 only

Mortar and Pestle Mill RM200

For dry or wet grinding of a wide range of materials including ceramics, chemicals, cosmetics, pharmaceuticals, mineral paints, plastics etc. Depending on suitability, samples from 10ml to 190ml can be milled, pulverised and homogenised to an ultimate fineness of approximately 10µm. A choice of accessory porcelain or agate mortars and pestles are available. Sample can be fed into the mortar during operation, maximum feed size 8mm. Pestle pressure is adjustable and reproducible. With digital control. Includes automatic overload cut-out and "quick-stop" motor. Overall 400 x 370 x 450mm W x D x H. Weight 24kg. For 230V 50Hz single phase supplies. Supplied without mortar and pestle which are required for operation.

MX300-30 RM200

MX303-05 Mortar for RM200, porcelain

MX303-07 Mortar for RM200, agate

MX303-15 Pestle for RM200, porcelain

MX303-17 Pestle for RM200, agate



SD162, SD160 are similar



MP300-20 with MP305-16



MX300 in use

Sampling/Preparation

Sample Concentrators



Patent No. 1484356

- ◆ Choice of models: ambient + 5 to 100°C, ambient +5 to 200°C
- ◆ Rapid concentration of up to 90 samples simultaneously

Widely used in the preparation of samples for analytical techniques including drug screening, hormone assay, chromatographic analysis and scintillation counting.

Each concentrator comprises an adjustable gas reservoir mounted on a block heater which will accept three insert blocks. As the samples are being heated gas is passed via the unique patented gas reservoir through hypodermic needles on the surface of the test solution, so providing the environment for rapid evaporation and sample concentration. The hypodermic needles are set in a silicone rubber matrix enabling their positions to be changed to accommodate different tube configurations. The concentrators can be placed in a fume cupboard when toxic vapours are being evaporated.

Sample Concentrators, Techne

As described. With gas reservoirs, block heater and instructions. Requires a gas supply and for use on 230V 50/60Hz single phase supplies. Without insert blocks (three required) or needles.

- SD300-12** Concentrator with DB3 Dri-Block®
- SD300-17** Concentrator with DB3A Dri-Block®
- SD300-21** Concentrator with DB200/3 Dri-Block®
- SD300-31** Gas reservoir and stand, spare. Requires block heater, needles and blocks

Needles, plain

- SD304-08** 76mm long, pack of 100
- SD304-12** 127mm long, pack of 100

Needles PTFE coated

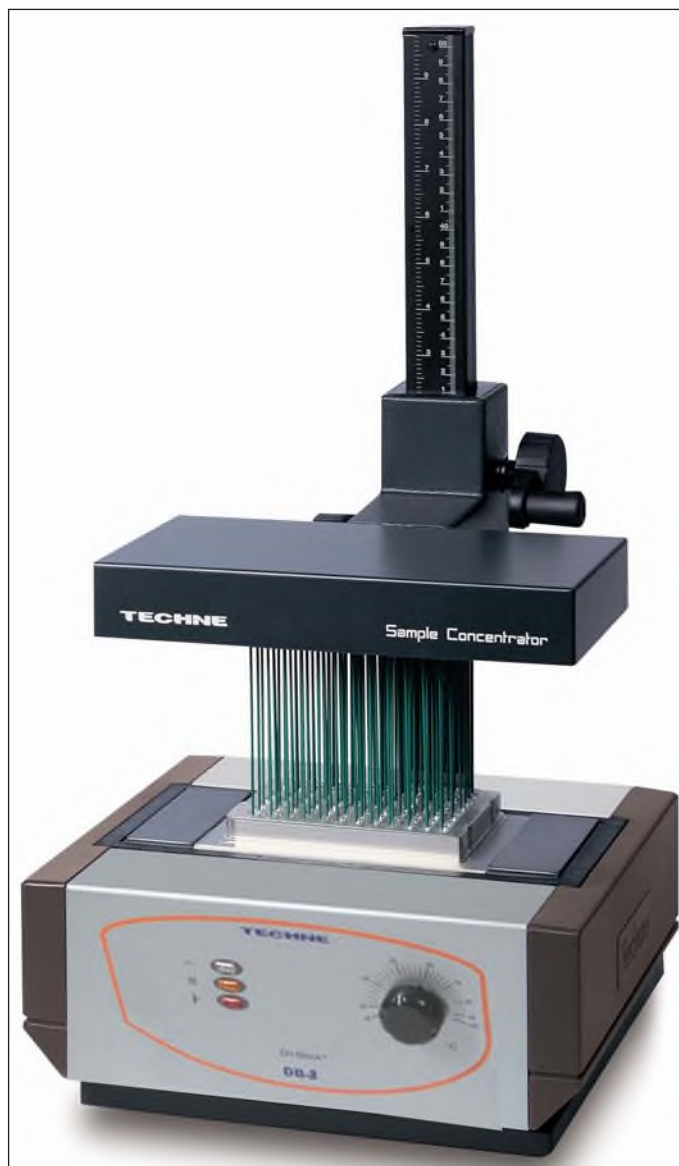
- SD304-16** 76mm long, pack of 100
- SD304-20** 127mm long, pack of 100

Aluminium Insert blocks

Overall 95 x 76 x 51mm, hole depth 48mm, mass 0.7kg.

- BK360-04** For 30 x 6mm tubes
- BK360-08** For 20 x 10mm tubes
- BK360-12** For 20 x 12mm tubes
- BK360-16** For 20 x 13mm tubes
- BK360-20** For 12 x 15mm tubes
- BK360-24** For 12 x 16mm tubes
- BK360-28** For 8 x 19mm tubes
- BK360-32** For 6 x 24mm tubes
- BK360-36** For 6 x 25mm tubes
- BK360-40** For 6 x 26mm tubes
- BK362-04** For 2 x 10mm cuvettes
- BK364-04** For 20 x 1.5ml Eppendorf tubes
- BK364-06** For 30 x 0.5ml Eppendorf tubes
- BK366-04** Solid for user to drill
- BK368-04** Solid but with thermometer hole

Catalogue No.	SD300-12	SD300-17	SD300-21
Dri-Block® supplied	DB-3	DB-3A	DB200/3
Temperature range	°C ambient + 5 to 100 – both models		ambient + 5 to 200
Control	Analogue – both models		Digital
Temperature stability at 100°C	°C ± 0.15 — all models		
Nominal heater power at 240V	W 650 — all models		
Timer, 1minute to 99hours, 59minutes	no	no	yes
Electrical supply	230V 50/60Hz – all models		
Gas supply	Suitable for most common gases. Pressure not to exceed 14kN/m ² (2psi) — all models		
Overall L x W x H			
Concentrator stand	mm	295 x 240 x 530	
Dri-Block®	mm	279 x 260 x 105	



SD300-12 in use

Scintillation and Sealants

Scintillation

Scintillation Vials

With urea formaldehyde screw cap. Non-sterile.

Glass

SD700-10 Pack of 500

Insert Vial

For glass or plastic scintillation vials. Polypropylene body with polyethylene push-fit cap. Non-sterile. Supplied in pack of 1000.

SD720-10 Sterilin 505

Scintillation Bottle

Polypropylene body with polyethylene screw cap. Non-sterile. Supplied in pack of 1000.

SD735-10 Sterilin S31

Nylon Sealing Film

- ◆ Autoclavable at 136°C
- ◆ High strength and elasticity characteristics
- ◆ Resistant to bacterial contamination, heat, oils and greases
- ◆ Maintains sterility of wrapped item for long periods after autoclaving
- ◆ Non-toxic, odourless and tasteless

A non-toxic, elastic nylon film which is ideal for most packaging applications. Working temperature range -70 to +180°C. Permeable to steam allowing use as a wrapping for autoclaving. Available in a variety of layflat widths to accommodate various item shapes and sizes. Thickness 0.05mm (Gauge C). Supplied in a roll of 30 metres.

Approx. layflat width, mm

SE162-13	25
SE162-24	125
SE162-27	150
SE162-30	200



SD700-10

SD720-10

SD735-10



SE162

Sealants

Parafilm® M Sealing Film Miscellaneous Sealants

The two-way stretch sealing film which is free from plasticisers and resistant to polar substances such as saline solutions, inorganic acid and alkaline solutions for up to 48 hours. Resistant to most of the lower alcohols but is unstable in many common solvents such as diethyl ether and carbon tetrachloride.

- ◆ Non-toxic
- ◆ Melting temperature 60°C
- ◆ Stretches up to 200%
- ◆ Clings around irregular shapes and surfaces
- ◆ Conforms to the general requirements of the FDA (Federal Food, Drug and Cosmetic Act, USA) if used below 55°C

Parafilm® M is a Registered Trade Mark of Bemis Company Incorporated, USA.

Parafilm® M Sealing Film

Two-way stretch. Supplied in rolls interleaved with paper in dispenser box.

	Roll	
	Width mm	Length metres
SE165-15	50	76
SE165-20	100	38
SE165-25	100	76
SE165-32	500	15

Cutter/Dispenser for Parafilm M

Accepts one roll of either 50mm wide (SE165-15) or 100mm wide (SE165-20, SE165-25) Parafilm-M. With hinged top, side handwheels and protected blade. Overall 190 x 203 x 159mm W x D x H.

- SE168-10 Cutter/Dispenser
- SE168-25 Spare blade

Cutter/Dispenser for Parafilm M

A transparent acrylic box which accepts one roll of Parafilm M SE165-20 or SE165-25. With stainless steel serrated cutting edge and lid. Allows the user to see how much Parafilm M remains on the roll. Overall 119 x 175 x 168mm W x D x H.

- SE170-20 Cutter/Dispenser, transparent

Cling Film

Food-grade, commercial, transparent PVC for wrapping and sealing containers. Supplied in rolls within a cutter box dispenser. Dimensions indicated are roll length x film width.

- SE175-22 300 metres x 300mm
- SE175-25 300 metres x 450mm

Aluminium Foil

Suitable for a wide variety of laboratory applications including sealing of tubes, wrapping of columns, shaping into weighing boats, etc. In roll, dimensions are roll length x foil width.

- AL200-11 75 metres x 100mm
- AL200-13 60 metres x 450mm

Sealing Film, Saran wrap

A flexible, transparent, microwaveable PVDC sealing film offering excellent barrier characteristics against oxygen, moisture and chemical attack. Particularly suited to gel drying applications where it can be used to prevent contamination of the silicone sealing mat of the gel dryer, and to enhance even drying across the gel. It has less tendency to cling than traditional sealing films and therefore does not lift the gel on removal. Can be used to cover and store pre-cast gels for long periods at +40°C and is UV transparent, allowing use as a cover for agarose gels during observation and photography on a transilluminator. Supplied in a roll of 300 metres within a cutter box dispenser carton.

- SE177-20 300mm wide

Plasticine

Soft moulding compound. Supplied in packs of 500g.

	Colour
SE180-15	Blue
SE180-25	Grey
SE180-30	Orange
SE180-35	Red
SE180-40	Terracotta
SE180-45	White

Microplate sealing film – see MN380/MN385.

Scissors – see DS500.

Steristoppers – see SW536.



SE165 in use showing SE168



SE180



SE170



SE175



SE177



AL200

Shakers

Reciprocating Shakers

Reciprocating Shaker, IKA HS260 basic

Quiet running and very stable in operation. Provides a reciprocal motion of 20mm amplitude. The shaking speed can be adjusted between 20 and 300 cycles/minute and a timer from 5 to 50 minutes using LED analogue display. A continuous run facility is also provided. Overall 420 x 360 x 100mm high. Overall height may vary depending upon the accessories fitted. Weight 8.5kg. Maximum loading 7.5kg. For 230V 50/60Hz single phase supplies. Requires, but does not include, accessories for operation.

SE420-15 Reciprocating Shaker HS260 basic

Reciprocating Shaker, IKA HS260 control

Generally as SE420-15 but with digital displays of speed from 0 to 300rpm and timer from 1 minute to 9 hours 59 minutes. Analogue and RS232 interfaces. are also provided. For 230V 50/60Hz single phase supplies. Requires, but does not include, accessories for operation.

SE420-20 Reciprocating Shaker HS260 control

Accessories for SE420 models only

Universal attachment comprising basic holding device, 4 tension rollers and 8 clamping pieces to hold flasks, beakers etc. Overall 425 x 335 x 135mm high.

SE420-27 Universal attachment

Base attachment which accepts accessory clips to hold conical and volumetric flasks. Overall 330 x 330 x 24mm high.

SE420-29 Base attachment

Accessory Spring Clips for base SE420-29. The clips are supplied singly.

	For flasks, ml	Max. no. of units
SE420-40	25	28
SE420-42	50	22
SE420-44	100	16
SE420-46	200/250	8
SE420-48	500	8

Attachment for 6 x 50ml, 5 x 100ml, 3 x 250ml or 3 x 500ml separating funnels. Overall 334 x 425 x 145mm high.

SE420-67 Separating funnel attachment

Attachment for petri dishes and culture flasks, surface 320 x 320mm.

SE420-72 Petri dish/flask attachment

Reciprocating Shaker IKA HS501 digital

Generally as SE420-15 but with digital display of speed 0 to 300 cycles/minute, 1 to 56 minute timer and shaking amplitude 30mm. Overall dimensions 505 x 585 x 120mm high. Overall height will vary according to the accessories fitted. Weight 26kg. Maximum loading 15kg. For 230V 50/60Hz single phase supplies. Requires, but does not include, accessories for operation.

SE440-10 Reciprocating Shaker HS501 digital

Accessories for SE440 only

Universal attachment comprising basic holding device, 6 tension rollers and 12 clamping pieces to hold flasks, beakers etc. Overall 480 x 500 x 120mm high.

SE440-30 Universal attachment

Base attachment which accepts accessory clips to hold conical and volumetric flasks. Overall 475 x 460 x 95mm high.

SE440-32 Base attachment

Accessory Spring Clips for base SE440-32. The clips are supplied singly.

	For flasks, ml	Maximum no. of units
SE420-40	25	50
SE420-42	50	48
SE420-44	100	25
SE420-46	200/250	16
SE420-48	500	12

Attachment to hold 12 x 50ml, 10 x 100ml or 6 x 250ml separating funnels.

SE440-35 Attachment

Attachment to hold 4 x 500ml, 3 x 1000ml or 2 x 2000ml separating funnels.

SE440-37 Attachment

Attachment for petri dishes and culture flasks, 450 x 450mm (L x W).

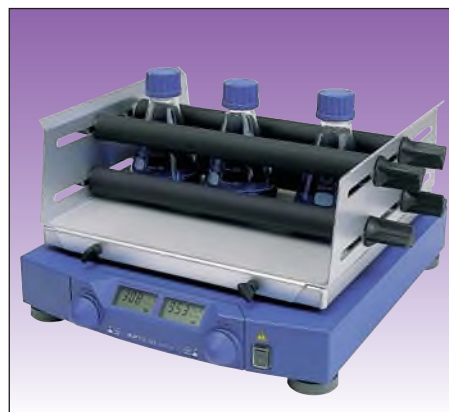
SE440-50 Attachment

Reciprocating Shaker, Stuart SSL2

- ◆ Speed range 25 to 250 oscillations/minute
- ◆ Stroke length 20mm
- ◆ 1 to 999 minute timer or continuous operation
- ◆ Maximum loading 10kg

With "soft start" electronic feedback control giving smooth acceleration/deceleration, digital speed and time setting from 25 to 250 oscillations/minute and 1 to 999 minutes or continuous operation respectively. Complete with cradle-type platform 375 x 335mm (L x W) with non-slip rubber mat and four horizontal securing bars covered in soft rubber, accommodating a wide variety of vessels, dishes, slides or plates, including 8 x 500ml or 6 x 1L or 2 x 2L bottles or flasks. Overall 360 x 420 x 270mm high. Weight 11kg. For 230V 50Hz single phase supplies, 50W.

SE450-20 Reciprocating Shaker SSL2



SE420-20 in use, SE420-15 is similar



SE440-10 with SE440-37 in use



SE450-20 in use

Shakers

Flask Shaker

Flask Shaker, Stuart SF1

Simulates a vigorous wrist-shaking action. With clamps to accept 8 flasks up to 500ml capacity. With stepless variable speed control and 10 to 60 minute timer with off and continuous run settings. Electronic feedback control ensures a constant speed irrespective of the load. Overall 780 x 270 x 240mm W x D x H. Weight 8.3kg. For 230V 50Hz single phase supplies.

- SE530-10** Shaker SF1
- SE534-08** Spare clamp

Accessory side arms. For converting SE530 to shake up to 12 flasks. Maximum loading 3 litres. Each side arm accepts six clamps. Supplied with 4 clamps.

- SE534-18** Side arms

Flask/Bottle/Tube Rotator

Rotator Drive Unit, Stuart STR4

For use with STR4/1 Drum. STR4/2 Flask/Bottle Rotator Drum, STR4/3 Figure 8 Drum, STR4/4 Bottle Holder or STR4/5 Eppendorf rack holder. Fitted with mains on/off illuminated switch. Has variable speed with electronic speed control, range 6 to 60rpm, fitted with 10 to 60 minute timer with off and manual override position. Fitted with panel mounted fuse. For use on 230V 50Hz single phase supplies. Overall dimensions 650 x 250 x 250mm W x D x H. Net weight 6.4kg.

- SE580-10** Drive STR4

Drum STR4/1

Square drum which accepts one plate of clips on each side. The plates plug into the drum which is fitted with a push button release/lock mechanism. Without accessory plates.

- SE590-10** Drum STR4/1

Accessory plates for SE590

Fitted with clips to accept tubes vertically. Supplied in pairs.

	<i>Tubes, no. x dia.</i>
SE604-10	12 x 12mm
SE604-15	10 x 16mm
SE604-20	8 x 19mm
SE604-25	7 x 24mm

Drum with two platforms, STR4/2

Accepts two 250ml conical flasks or reagent bottles. The support columns can be detached to give two platforms 10.5 x 17.5cm each for separating funnels, jars or test tube racks.

- SE605-10** Drum STR4/2

Drum, Figure 8, STR4/3

The drum has a platform which can be adjusted within the drum from horizontal to 45°. In this way the sample container can be rolled and turned end over end at the same time.

- ◆ Suitable for extractions
- ◆ Paint mixing
- ◆ Powder, and granular samples

The sample container is held by an adjustable velcro strap.

- SE610-10** Drum STR4/3

Bottle Holder, STR4/4

Perspex four segment cradle with velcro straps. Holds 2 to 4 bottles each up to 1000ml capacity.

- SE610-40** Holder STR4/4

Rack cradle, STR4/5

Holds four acrylic racks for end over end mixing of stoppered Eppendorf tubes. The racks fit under the cradle plates and are held by clips ensuring that tube lids are firmly pressed against the plate and thus remain sealed. Supplied with four racks each with a capacity of 60 Eppendorf tubes.

- SE610-55** Rack cradle STR4/5
- SE610-57** Spare rack for SE610-55. Accepts up to 60 Eppendorf tubes



SE530 in use



SE580/SE590/SE604



SE605-10 in use



SE610-10 in use



SE610-40 in use



SE610-55 in use with SE610-57

Shakers

Orbital Shakers

Orbital Shaker, IKA Lab Dancer

Fixed speed (2800rpm) personal orbital shaker with vortexing action for use with 0.5ml to 50ml test tubes and small bottles and flasks. 4.5mm orbit. Shaking commences when the flexible top cup is depressed. and continues until the vessel is removed. Inert plastic upper casing and cup with stable, die-cast zinc base. 12V d.c. low voltage operation using the mains adapter supplied. Overall 100 x 70mm D x H. Weight 0.6kg. A 100-240V 50/60Hz single phase supply is required for the adapter.

SE620-50 Lab Dancer

Orbital Shaker, IKA Vibrax VXR basic

Opto-electrically controlled, orbital shaker with 4mm orbit. With stepless speed setting from 0 to 2200rpm. Screw clamps secure accessory attachments to the shaker platform frame. Maximum loading 2kg subject to attachment used. Overall 157 x 247 x 130mm W x D x H. Weight 6.1kg. For 230V 50/60Hz single phase supplies. Requires, but does not include, accessory attachments.

SE630-14 Vibrax VXR basic

Accessory attachments

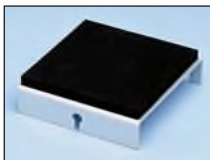
	Ref.	Type
SE632-15	VX1	Single vessel up to 250ml held by hand
SE632-20	VX2	Test tubes 36 x 16mm vertical. Max. loading 2kg
SE632-25	VX2E.n	Eppendorf tubes. 64 capped
SE632-30	VX7	Petri dishes. Platform 200 x 400mm
SE632-32	VX8	Conical flasks, 2 x up to 500ml



SE620-50



SE630-14 in use with SE632-32



SE632-15



SE632-20

Microplate Shaker, IKA MTS2/4

Specially designed for shaking two or four microtitre plates. Electronic feedback control maintains the set speed accurately, from 0 to 1100rpm. Orbiting movement 3mm. With digital 1 to 99 minute timer and analogue dial speed setting. Overall 185 x 320 x 105mm high. Weight 2.7kg. For 230V 50/60Hz single phase supplies.

SE635-40 MTS2/4

Microplate Shaker, Grant-bio PMS-1000i

Speed range 150 to 1000rpm with 2mm orbit. With 1 minute to 24 hour x 10 second timer and LED display of remaining time, screw clamp platform to hold two 96- or 384-well microplates and 12V d.c. power adapter. Overall 220 x 205 x 90 mm high. A 220-240V 50/60Hz single phase supply is required for the adapter.

SE640-10 PMS-1000i

Accessory rack

To hold 4 x microplates.

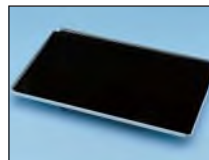
SE643-07 Rack MPP-4



SE635-40



SE632-25



SE632-30

Orbital Shaker, IKA KS260 basic

Quiet running and very stable in operation. Provides a circular motion of 10mm diameter. The shaking speed can be adjusted between 20 and 500rpm and a timer from 5 to 50 minutes using LED display. A continuous run facility is also provided. Overall 420 x 360 x 98mm high (unloaded). Weight 8.5kg. Maximum loading 7.5kg. For 230V 50/60Hz single phase supplies. Requires accessories for operation.

SE745-15 Orbital Shaker, KS260 basic

Accessories for SE745-15 only

Universal attachment comprising basic holding device, 4 tension rollers and 8 clamping pieces to hold flasks, beakers etc. Overall 355 x 355 x 115mm high.

SE420-27 Universal attachment

Base attachment which accepts accessory clips to hold conical and volumetric flasks. Overall 330 x 335 x 25mm high.

SE420-29 Base attachment

Accessory Spring Clips for base SE420-29. The clips are supplied singly.

	For flasks, ml	Max. no. of units
SE420-40	25	28
SE420-42	50	22
SE420-44	100	16
SE420-46	200/250	8
SE420-48	500	8

Attachment for 6 x 500ml, 5 x 100ml, 3 x 250ml or 3 x 500ml separating funnels. Overall 334 x 425 x 145mm high.

SE420-67 Separating funnel attachment

Attachment for petri dishes and culture flasks, surface 320 x 320mm. Overall 410 x 370 x 33mm high.

SE420-72 Petri dish/flask attachment



SE640-10 in use with SE643-07



SE745 in use

Shakers

Orbital Shakers continued

Orbital Shaker IKA KS501

Similar to SE745-15 but with digital display of speed 0 to 300rpm, 1 to 56 minute timer and circular motion of 30mm. Overall dimensions 505 x 585 x 120mm W x D x H. Overall height will vary according to the accessories fitted. Weight 26kg. Maximum loading 15kg. For 230V 50/60Hz single phase supplies. Requires, but does not include, accessories for operation.

SE770-10 Orbital Shaker KS501

Accessories

Universal attachment comprising basic holding device, 6 tension rollers and 12 clamps to hold flasks, beakers etc. Overall 480 x 500 x 120mm high.

SE440-30 Universal attachment

Base attachment, 475 x 460mm W x D, which accepts accessory clips to hold conical and volumetric flasks.

SE440-32 Base attachment

Accessory Spring Clips for Base SE440-32. The clips are supplied singly.

	For flasks, ml	Max. no. of units
SE420-40	25	50
SE420-42	50	48
SE420-44	100	25
SE420-46	200/250	16
SE420-48	500	12

Attachment to hold 12 x 50ml, 10 x 100ml or 6 x 250ml separating funnels.

SE440-35 Attachment

Attachment to hold 4 x 500ml, 3 x 1000ml or 2 x 2000ml separating funnels.

SE440-37 Attachment

Attachment to hold petri dishes. Platform 450 x 450mm (L x W).

SE440-50 Attachment



SE770 in use with SE440-30

Mini Orbital Shaker, Stuart SSM1

- ◆ Speed range 30 to 300rpm
- ◆ 16mm orbit
- ◆ 1 to 999 minute timer or continuous operation
- ◆ Maximum loading 3kg

Compact, mini orbital shaker with smooth, uniform circular motion, 16mm orbit, digital speed and time setting from 30 to 300rpm and 1 to 999 minutes or continuous operation, respectively. Supplied with tray-type platform 220 x 220mm W x D and non-slip mat to hold up to four microtitration plates or diagnostic cards, or nine 50/60mm diameter petri dishes. An accessory platform is available to accommodate 4 x 250ml, 2 x 500ml or 1 x 1000ml conical flasks or reagent bottles. Overall 240 x 300 x 140mm high. Weight 5kg. For 230V 50Hz single phase supplies, 50W.

SE775-20 Mini orbital shaker SSM1

Accessories

Cradle Platform

320 x 320mm. With non-slip mat. Supplied with four soft rubber covered retaining bars.

SE776-06 Cradle platform SSM1/1

Large Platform

320 x 320mm. With non-slip mat.

SE776-09 Large platform SSM1/2

Plastic Cover

SE776-11 Plastic cover SSM1/3

Blood tube rotators – see *CM470*.

Roller mixers – see *MS400*.

Shaking water baths – see *BJ404/BJ875*.

Vortex mixers – see *MS495/MS530*.



SE775-20 in use

Orbital Shaker, Stuart SSL1

- ◆ Speed range 30 to 300rpm
- ◆ 1 to 999 minute timer or continuous operation
- ◆ Maximum loading 10kg
- ◆ 16mm orbit

Electronic feedback control provides "soft start" with smooth acceleration/deceleration, digital speed and time setting from 30 to 300rpm and 1 to 999 minutes or continuous operation, respectively. Complete with cradle-type platform 335 x 335mm W x D with non-slip rubber mat and four horizontal securing bars covered in soft rubber, accommodating a wide variety of vessels, dishes, slides or plates, including 8 x 500ml or 6 x 1L or 2 x 2L bottles or flasks. Overall 360 x 420 x 270mm high. Weight 11kg. For 230V 50Hz single phase supplies, 50W.

SE780-15 Orbital Shaker SSL1

Accessory Large Cradle Platform

510 x 510mm. Supplied with twelve soft rubber covered retaining bars.

SE782-14 Cradle platform

Orbital Shaker, Stuart SSM5

Vibrational mixing action, ideal for microplates. With digital setting and display of speed and time, from either 1 second to 90 minutes or 1 minute to 9 hours or continuous operation, respectively. Orbit: 4mm. Maximum loading 3kg. Fitted with aluminium tray 220 x 220mm (W x D) and non-slip rubber mat which holds up to four microplates. Accessory tube holders are also available. Overall 240 x 300 x 160mm high. Weight 5kg. For 230V 50Hz single phase supplies, 50W.

SE785-15 Orbital Shaker SSM5

Accessory Holders

SE788-04 SSM5/1 for 1.5ml microtubes

SE788-07 SSM5/2 for 0.5ml microtubes

SE788-09 SSM5/3 for 0.2ml microtubes



SE780-15 in use



SE785-15 in use

Shakers

Orbital Shakers continued

Heavy-duty Orbital Shakers, Ohaus

Large capacity shakers with precise digital control of speed and time.

- ◆ Choice of speed range, capacity, orbit and platform size
- ◆ Triple eccentric drive for smooth, reliable and continuous operation
- ◆ Digital control system offers multiple safety features: load imbalance sensor which reduces speed accordingly, overload protection with alarms, speed ramping feature which slowly increases speed to avoid splashing and time-out alarm

As described. Supplied with non-slip rubber mat. For 230V 50/60Hz single phase supplies.

SE795-10	SHHD4525DG
SE795-20	SHHD4550DG
SE795-30	SHHD6825DG
SE795-40	SHHD6850DG

Model SHHD-		4525DG	4550DG	6825DG	6850DG
Speed range	<i>rpm</i>	15 to 500	15 to 300	15 to 500	15 to 300
Orbit	<i>mm</i>	25	51	25	51
Max. capacity	<i>kg</i>	45.4	45.4	68	68
Platform size	<i>mm</i>	610 x 610	610 x 610	610 x 910	610 x 910
Timer		1 second to 160 hours - all models			
Dimensions	<i>W, mm</i>	729	729	914	914
	<i>D, mm</i>	678	678	744	744
	<i>H, mm</i>	170	170	170	170
Weight	<i>kg</i>	91	91	105	105
Supply requirements		230V 50/60Hz a.c. - all models			



SE795

Shakers

Rocking/Gyratory Shakers

Rocking Shaker, Stuart SSM4

The platform rocks on a central pivot with a fixed 7° throw. With digital setting and readout of speed and time, from 5 to 70rpm and 1 to 999 minutes. Platform size 235 x 235mm. Supplied with a non-slip mat. An accessory tier system is available giving two further platforms with 110mm between tiers. Maximum loading 3kg. Overall 240 x 300 x 165mm. Weight 5kg. For 230V 50Hz single phase supplies, 50W.

SE800-15 Shaker SSM4

SE802-07 Accessory tier system SSM3/1, for SE800-15 only

Rocking Shaker, Stuart SSL4

Generally as SE800-15 but with 335 x 335mm platform. Maximum loading 10kg. Overall 360 x 420 x 160mm W x D x H. Weight 10kg. For 230V 50Hz single phase supplies, 50W.

SE800-25 Shaker SSL4

SE802-09 Accessory tier system SSL3/1, for SE800-25 only

Rocking Shaker, Grant-bio PMR-30

Compact shaker with platform rocking around a central pivot with fixed 7° throw. Speed is variable from 7.5 to 30rpm, with LED digital display of speed and timer from 1 minute to 24 hours. Platform size 215 x 215mm, maximum loading 0.5kg. Supplied with non-slip mat and a.c. adapter for low voltage operation. Overall 238 x 238 x 110mm W x D x H. Weight 3.2kg. A 220-240V 50/60Hz single phase supply is required for the adapter.

SE808-10 PMR-30

SE808-55 PDM Dimpled mat for supporting sealed tubes

Gyratory Shaker, Stuart SSM3

With three-dimensional gyratory shaking motion on a central pivot. Platform angle can be adjusted between 3 and 12°. Digital setting and readout of speed and time, from 5 to 70rpm and 1 to 999 minutes respectively. Platform size 235 x 235mm. Supplied with a non-slip mat. An accessory tier system is available giving two further platforms with 110mm between tiers. Maximum loading 3kg. Overall 240 x 300 x 165mm W x D x H. Weight 10kg. For 230V 50Hz single phase supplies, 50W.

SE850-16 Shaker SSM3

SE802-07 Accessory tier system SSM3/1, for SE850-16 only

Gyratory Shaker, Stuart SSL3

Generally as SE850-16 but with 335 x 335mm platform. Maximum loading 10kg. Overall 360 x 420 x 170mm W x D x H. Weight 10kg. For 230V 50Hz single phase supplies, 50W.

SE850-21 Shaker SSL3

SE802-09 Accessory tier system SSL3/1, for SE850-21 only

Gyratory Shakers, Ohaus

With 3-dimensional, "wave" action. Choice of analogue or digital setting and control of speed 1 to 75rpm* (analogue), 1 to 30rpm* (digital), platform angle 0 to 16° (analogue), 0 to 20° (digital) and time 1 to 120 minutes (analogue), 1 second to 160 hours (digital). Platform dimensions 356 x 279mm W x D. Maximum capacity 2.3kg (centred load). Safety features include overload and obstruction alarms and speed ramping to gradually increase speed to avoid splashing. Supplied with non-slip rubber mat. Overall 279 x 425 x 165mm, weight 7.5kg. For 230V 50/60Hz single phase supplies.

*Dependent on load and balance.

SE860-15 Shaker SHWV02AL, Analogue, 1 to 75rpm

SE860-25 Shaker SHWV02DG, Digital, 1 to 30rpm



SE800-15 in use, SE800-25 is similar



SE850-21 in use, SE850-16 is similar



SE808-10 in use



SE860-25, SE860-15 is similar

Sieves

Sieve Set

Sieve Set

Stainless steel mesh mounted in an aluminium frame. Diameter 100mm, depth 45mm. Set of nine, mesh numbers 10, 20, 30, 40, 60, 80, 100, 120 and 250. Supplied with one aluminium cover and one receiver pan.

SF300-45 Sieve set

Riffle Boxes

Riffle Boxes

Gravity operated. To BS812 and BS1377. Designed to provide rapid separation of bulk powdered and granular materials into two equal representative samples. The open top has twelve slots and three sample receiver boxes are supplied.

	Aperture size mm	Material
SD162-12	6.35	Stainless steel
SD162-16	12.7	Stainless steel



SF300-45



SD162

Sieving

Test Sieves, Metal

Endecotts

Test Sieves, Endecotts

Diameter 200mm. Full height. In nesting frame. To ISO3310:2016. All brass and stainless steel frame sieves are supplied with stainless steel mesh.

- ◆ Precisely manufactured, seamless frames with structured rims
- ◆ Crevice-free construction designed to give optimum performance
- ◆ Evenly tensioned mesh with precisely measured apertures
- ◆ Supplied with certificate of conformity and individually serial numbered

Nominal aperture mm	Brass frame	Stainless steel frame
16.0	SF500-20	SF520-20
13.2	SF500-23	SF520-23
11.2	SF500-26	SF520-26
9.50	SF500-29	SF520-29
8.00	SF500-32	SF520-32
6.70	SF500-35	SF520-35
5.60	SF500-38	SF520-38
4.75	SF500-41	SF520-41
4.00	SF500-44	SF520-44
3.35	SF500-47	SF520-47
2.80	SF500-50	SF520-50
2.36	SF500-53	SF520-53
2.00	SF500-56	SF520-56
1.70	SF500-59	SF520-59
1.40	SF500-62	SF520-62
1.18	SF500-65	SF520-65
1.00	SF500-68	SF520-68

Test Sieves, Endecotts, continued

Nominal aperture microns	Brass frame	Stainless steel frame
850	SF504-12	SF524-12
710	SF504-15	SF524-15
600	SF504-18	SF524-18
500	SF504-21	SF524-21
425	SF504-24	SF524-24
355	SF504-27	SF524-27
300	SF504-30	SF524-30
250	SF504-33	SF524-33
212	SF504-36	SF524-36
180	SF504-39	SF524-39
150	SF504-42	SF524-42
125	SF504-45	SF524-45
106	SF504-48	SF524-48
90	SF504-51	SF524-51
75	SF504-54	SF524-54
63	SF504-57	SF524-57
53	SF504-60	SF524-60
45	SF504-63	SF524-63
38	SF504-66	SF524-66

Cover/receiver sets

Diameter 200mm.

- SF508-08 Brass
- SF528-08 Stainless steel

Sieve brush

Double ended for use with both fine and coarse sieves.

- SF512-10 Sieve brush

Alternative sieve diameters and standards specifications, such as ASTM E11, are available — details on request.



SF520/SF524 Series, SF500/SF504 are similar

Sieving

Test Sieves, Metal, continued



A competitively priced range of high quality test sieves suitable for all relevant applications requiring precise particle analysis.

- ◆ Stainless steel seamless frames
- ◆ Certificate of conformity issued with each sieve and individually serial numbered
- ◆ Traceable mesh specifications

Test Sieves

Diameter 200mm. Full height. Stainless steel woven wire mesh in nesting stainless steel frame. BS410/ISO3310:2000 pt.1.

Nominal aperture mm		Nominal aperture microns	
16.0	SF545-20	850	SF548-12
13.2	SF545-23	710	SF548-15
11.2	SF545-26	600	SF548-18
9.50	SF545-29	500	SF548-21
8.00	SF545-32	425	SF548-24
6.70	SF545-35	355	SF548-27
5.60	SF545-38	300	SF548-30
4.75	SF545-41	250	SF548-33
4.00	SF545-44	212	SF548-36
3.35	SF545-47	180	SF548-39
2.80	SF545-50	150	SF548-42
2.36	SF545-53	125	SF548-45
2.00	SF545-56	106	SF548-48
1.70	SF545-59	90	SF548-51
1.40	SF545-62	75	SF548-54
1.18	SF545-65	63	SF548-57
1.00	SF545-68	53	SF548-60
		45	SF548-63
		38	SF548-66

Covers and receivers

Diameter 200mm.

- SF560-14 Cover stainless steel
- SF560-18 Receiver stainless steel

Sieve brush

Double ended for use with both fine and coarse sieves.

- SF512-10 Sieve brush

Test Sieves, Plastic

Test Sieves, Plastic

For non-abrasive, low-density or metal-sensitive samples. Applications can be found in the food, cosmetic, pharmaceutical and mineral industries, agriculture, drinking and waste water treatment and filtration. 190mm diameter x 44.5mm high. Nylon mesh in nesting PVC frame.

Nominal aperture microns	
50	SF575-06
125	SF575-26
500	SF575-58
850	SF575-68



SF545/SF548



SF575

Sieving

Endecotts Sieve Shakers

- ◆ Ruggedly constructed for reliable long-term operation
- ◆ Electromagnetic drive which has no rotating parts to wear
- ◆ Non-metallic, laminated leaf springs
- ◆ Built-in timer with "continuous run" mode
- ◆ Quick release clamping system for easy sieve mounting and removal (EFL- and Octagon models only)

Catalogue No.	SF725-15	SF790-15I-17	SF795-10
Model	Minor 200	Octagon 200/Octagon 200CL	EFL300
Maximum sieve capacity, full height (half height)			
100mm diameter sieves	8 (16)	12 (24)	6 (12)
200mm diameter sieves	8 (16)	8 (16)	6 (12)
300mm diameter sieves	—	—	6 (12)
Drive	Electro-magnetic- all models		
Intermittent vibration	No	Yes - both models	No
Timer	0 to 60 minutes	0 to 99 hr 59min. - both models	0 to 99 hr 59min.
Overall (without sieves)	mm 250 dia. x 180 H	480 x 480 x 730 W x D x H - both models	427 x 427 x 700 W x D x H
Weight, net	kg 17	65 - both models	48
Power	230V 50Hz	230V 50Hz/100-240V 50/60Hz	230V 50Hz

Sieve Shaker, Minor 200

For dry sieving. Compact low cost sieve shaker, ideal for intermittent use or where portability is a major requirement. With electromagnetic drive. Vibratory action. With 0 to 60 minute timer, on/off switch and strap clamping system. For 230V 50Hz single phase supplies. Without sieves.

SF725-15 Minor 200

Sieve Shakers, Octagon 200 series

For dry sieving. With electromagnetic drive. Vertical and horizontal, quiet vibrating action. With digital control of 0 to 99 hour 59 minute timer and vibration amplitude, separate intermittent or continuous vibration selection, on/off switch and quick release clamping device for sieves. The Octagon 200CL model additionally has closed-loop amplitude control for accuracy and an RS232 interface for control and evaluation of sieving on the user's PC using accessory "Sieeware" software. For operation on power supplies as indicated. Without sieves.

SF790-15 Octagon 200, 230V 50Hz a.c.

SF790-17 Octagon 200CL, 100-240V 50/60Hz a.c.

SF790-50 "Sieeware" evaluation and control software for use with SF790-17 only. Requires a personal computer running Windows™ 2000 to Windows™ 7 OS.

Sieve Shaker, EFL300

Suitable for wet or dry sieving with appropriate fittings. With electromagnetic drive. Vertical and horizontal, vibrating action. With 0 to 99 hour 59 minute timer, amplitude adjustment, separate digital controller, on/off switch and quick release clamping device for sieves. Overall 427 x 427 x 700mm. Weight 48kg. For 230V 50Hz single phase supplies. Without sieves.

SF795-10 EFL300



SF725 in use



SF790 in use



SF795 in use

Soil Testing

Soil Testing Apparatus

Field Soil Test Kit, pH/N/P/K, Hanna

Comprising test solutions and equipment to perform simple tests to determine nitrogen, phosphorus, potash and pH of soils. Sufficient for approximately 25 tests. Supplied with instructions and recommendations for optimum soil conditions to maximise plant growth.

SG500-30 HI-3896 Soil test kit

SG500-34 Spare reagent pack for N/P/K analysis only

Soil Hydrometer

For quantitative determination of particle size distribution in soils according to ASTM D422. Range -5 to +60g/litre, subdivision 1g/litre. Adjusted for use at 20°C. Length 280mm.

SG640-15 Soil hydrometer, ASTM D422

Soil Hydrometer

For determination of size distribution in soils according to BS1377. Range 0.995 to 1.030g/ml, subdivision 1g/ml. Adjusted for use at 20°C. Length 345mm.

SG640-25 Soil hydrometer, BS1377

Thermometer

A spirit in glass thermometer, range 0 to 110°C mounted in an aluminium tube 225mm long with probe end for inserting into soil or compost and a cut-out front for reading the temperature. The top of the tube is marked with a large red sphere for ease of identification in the field.

SG680-10 Insert thermometer

Sample Bags

Sample, reseal

Polyethylene. With rim-channel closure, which can be opened and resealed repeatedly. Supplied in bags of 100.

	Size mm
Plain	
BA100-19	80 x 120
BA100-33	100 x 150
BA100-39	120 x 170
BA100-51	200 x 300
BA100-56	300 x 400
With writing panel	
BA102-16	70 x 100
BA102-33	100 x 150
BA102-39	120 x 170
BA102-51	200 x 300

Other equipment suitable for use in soil testing will be found under the following section headings: *Mills – Mixers – Moisture – Sampling – Sieves.*

Hydrometer jars – see *HT400/HT412.*

Sample containers – see *SX310, TW225/TW244.*



SG500-30



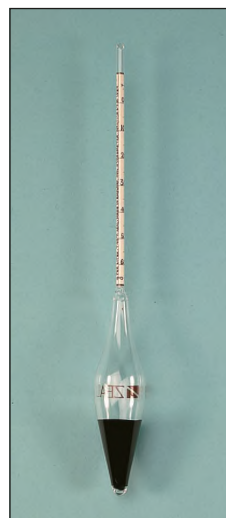
BA100



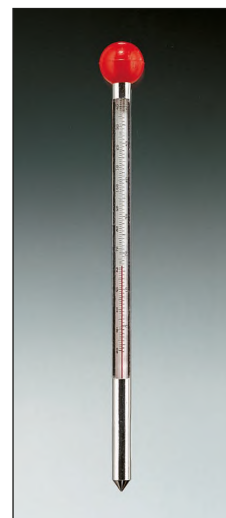
BA102



SG500-34



SG640



SG680

Scoops

Scoops

All dimensions are nominal. Supplied singly unless otherwise stated.

Scoops

	Cap. approx. ml	Overall length, mm
Polypropylene		
SH200-10	2	60
SH200-15	5	82
SH200-20	10	102
SH200-25	25	137
SH200-30	50	160
SH200-35	100	198
SH200-40	250	259
SH200-45	500	315
SH200-50	1000	385
Polyethylene		
SH204-35	150	250
SH204-45	1000*	350
SH204-50	1500*	405
Polystyrene		
Sterile. Supplied individually wrapped within an outer pack of 100.		
SH207-30	60	200

*Brimful capacities.

Scoops, disposable, LaboPlast®/SteriPlast®, Bürkle

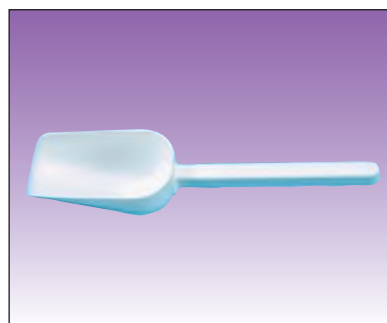
Disposable, polystyrene scoops for sampling and dispensing powders, granules and pastes. Comply with EU foodstuffs contact and FDA regulations. Available with, or without, closure cover to exclude contaminants from samples and either non-sterile or sterile (gamma-irradiated). Prepared and individually packed in a class (10,000) cleanroom and supplied in an outer pack of 10.

Capacity, ml	With cover?	Non-sterile LaboPlast®	Sterile SteriPlast®
25ml	No	SH209-05	SH210-05
25ml	Yes	SH209-09	SH210-09
50ml	No	SH209-13	SH210-13
50ml	Yes	SH209-17	SH210-17
100ml	No	SH209-21	SH210-21
100ml	Yes	SH209-25	SH210-25
150ml	No	SH209-29	SH210-29
150ml	Yes	SH209-33	SH210-33

"Green polyethylene" versions of these spoons are available - details on request.



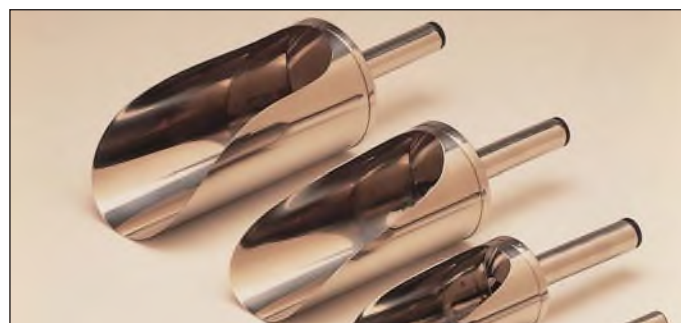
SH200/SH204



SH207



SH209/SH210



SH215



SH220

Scoops

Stainless steel.

	Dia. x scoop length, mm	Capacity approx. ml
SH215-20	50 x 100	100
SH215-30	75 x 150	250
SH215-40	100 x 200	500
SH215-50	115 x 230	1000

FoodScoops, Bürkle

Stainless steel. Crevice-free, with smooth, mirror polished surface, preventing materials from being trapped. Particularly suitable for handling foodstuffs and pharmaceutical intermediates.

	Dia. x scoop length, mm	Capacity approx. ml
SH220-10	60 x 120	100
SH220-20	75 x 140	200
SH220-25	85 x 155	250
SH220-35	100 x 180	350
SH220-50	130 x 220	500

Spatulas

Spatulas

All dimensions are nominal. Supplied singly unless otherwise stated.

Spatulas, Azlon

Polypropylene. Flat and tapered with chamfered ends. Can be autoclaved. Dimension given is the overall length.

Length, mm	
SH240-20	150

Spatulas, Polypropylene

Autoclavable, blue polypropylene, with one spoon and one flat end. Overall length as indicated. Supplied in packs of 25.

SH247-10	150mm
SH247-15	180mm
SH247-20	200mm

Spatulas

Stainless steel. Flat and tapered with rounded ends. Dimension given is overall length.

Length, mm	
SH265-10	90
SH265-15	120
SH265-20	150

Spatulas, Chattaway pattern

Dimension given is overall length.

Length, mm		Length, mm	
Nickel		Stainless Steel	
SH280-10	100	SH285-10	100
SH280-15	150	SH285-15	150
SH280-20	200	SH285-20	200
—	—	SH285-25	230

Spatulas

As Chattaway shape but thin blade for microchemical applications. Dimension given is overall length.

Length, mm		Length, mm	
Nickel		Stainless Steel	
SH300-10	100	SH305-10	100
SH300-15	150	SH305-15	150

Spatula

Stainless steel. With double flat square end. Length 150mm.

SH335-15 Spatula, 150mm

Spatula, Nuffield pattern

Stainless steel. Length 140mm.

SH350-10 Nuffield

Spatula, Trulla

Stainless steel. Length 175mm.

SH360-10 Trulla

Spatulas

Stainless steel. Spoon one end.

Length, mm		Length, mm	
Straight spoon		Offset spoon	
SH400-15	150	SH405-20	190
SH400-20	210	—	—

Spatulas

Stainless steel. As SH400 but with thin stem and small spoon for microchemical applications. Dimension given is overall length.

Length, mm	
SH410-10	100
SH410-15	150

continued on next page.



SH247



SH265



SH280/SH285

SH300/SH305



SH335



SH350

SH360

SH405



SH400 (top)

SH410 (bottom)

Spatulas and Palette Knives

Spatulas continued

Spoons and Sporks, Nasco

Disposable, sterile, white polystyrene. Supplied in sleeves of 20 within a pack of 100.

- SH425-25** Spoons
- SH425-40** Sporks

Spoons, disposable, LaboPlast, Bürkle

Disposable, polystyrene spoons, available in two sizes and either non-sterile or sterile (gamma-irradiated). Comply with EU foodstuffs contact and FDA regulations. Prepared and individually packed in a class 7 (10,000) cleanroom and supplied in an outer pack of 100.

Capacity, ml	Length, mm	Non-sterile	Sterile
2.5ml	127	SH450-05	SH454-05
10ml	170	SH450-15	SH454-15

"Green polyethylene" versions of these spoons are available - details on request.

Spatula, Single ended

Stainless steel.

- DS590-20** Blade 55mm

Palette Knives

Palette Knives

Dimension given is length of blade.

	Length, mm
--	------------

Stainless steel with wooden handle. Parallel sided blade

- SH600-10** 100
- SH600-15** 150
- SH600-20** 200
- SH600-25** 250
- SH600-30** 300

Stainless steel with wooden handle. Tapered blade

- SH610-08** 75
- SH610-10** 100
- SH610-13** 150

All stainless steel. Crevice and pit-free and polished throughout. Parallel sided blade

- SH630-10** 100
- SH630-15** 150
- SH630-20** 200
- SH630-25** 250
- SH630-30** 300

Scraper

All stainless steel. Crevice and pit-free and polished throughout. Blade length x maximum width 125 x 110mm.

- SH634-23** Scraper

Spatulas, Disposable, Corning - see TP493 series.

Scalpels - see DS325/DS330.

Tiles - see TJ998.



SH425-25 and SH425-40

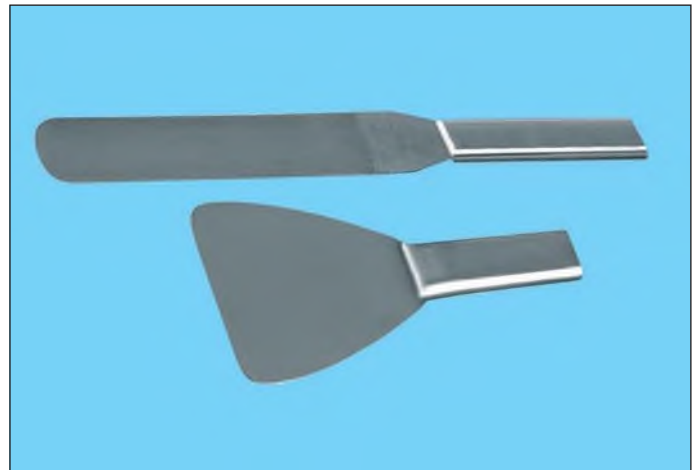


SH450/SH454



SH600 (top)

SH610 (bottom)



SH630 (top)

SH634 (bottom)

Spectrophotometers

M100 Series Camspec

Simple, robust, single beam spectrophotometers offering high performance at a competitive price level.

- ◆ Digital setting within the visible light range
- ◆ Easy operation with dial filter adjustment (except M108 which has motorised adjustment) and membrane keypad setting, ideal for teaching applications
- ◆ Excellent instrument stability and accuracy
- ◆ Push-button, auto-zero setting
- ◆ M108 additionally has memory storage of up to 200 results

Catalogue No.		SJ220-10	SJ220-25	SJ230-80
Model		M105	M106	M108
Wavelength range	nm	330 to 1000 – both models		325 to 1000
Bandpass	nm	12	8	4
Wavelength accuracy (repeatability)	nm	±2 (±1 digit) – all models		
Straylight (at 340nm)	%T	<0.3 – both models		0.1
Operating modes	Absorbance, A	0 to 2	0 to 2	-1 to 2.5
	Transmission, %T	0 to 125	0 to 125	0 to 125
	Concentration, C	—	0 to 1999	-9999 to +9999
	Factor, F	—	0 to 1999	0 to +9999
Photometric accuracy	%A	±1 (0 to 1A)	±1 (0 to 2A)	±1 (0 to 2A)
Sample capability		10mm square cuvettes or 10, 20, 25mm dia. test tubes – both models		4 to 10mm square cuvettes, up to 50mm using accessories
Light source		Tungsten-halogen lamp – all models		
Outputs		Analogue	RS232	USB
Dimensions H x W x D	mm	185 x 408 x 308 – both models		210 x 420 x 510
Weight	kg	6 – both models		12

Spectrophotometers, M105, M106

As described. Supplied with single 10mm diameter test tube holder, 10mm square cuvette adapter, dust cover, user manual, mains lead and box of 12 x 10mm diameter test tubes. For 115V, 230V 50/60Hz single phase supplies.

SJ220-10 Model M105

SJ220-25 Model M106

Spectrophotometer, M108

As described. Supplied with manually operated cell changer to hold 4 x 10mm square cuvettes, USB port, dust cover, user manual, mains lead, 2 x 10mm silica and 4 x 10mm glass square cuvettes. For 115V, 230V 50/60Hz single phase supplies.

SJ230-80 Model M108

Accessories for M105 and M106 models

SJ223-20 Holder for 20mm dia. test tubes

SJ223-30 Holder for 25mm dia. test tubes

Accessories for M108

SJ232-10 4-position cell changer for longpath cells up to 50mm pathlength

SJ232-40 Thermostatted cell holder (requires connection to circulator/bath)

Spare lamps for all models

SJ232-80 Tungsten-halogen lamps, pack of 2



SJ220-10, SJ220-25 is similar



SJ230-80

Spectrophotometers

Model M501

Camspec

Microprocessor controlled, single beam, scanning UV/Vis spectrophotometer.

- ◆ Range 190 to 1100nm
- ◆ Operating modes: Basic (A, %T and C), Quantitative, wavelength scan, Kinetics, DNA/Protein, multi-wavelength, custom
- ◆ Bandpass 4nm
- ◆ Adjustable scan speeds and intervals
- ◆ 1/4 VGA backlit graphics LCD
- ◆ Centronics printer output and bi-directional RS232 port
- ◆ GLP self-calibration routines
- ◆ Automatic blanking at the measurement wavelength
- ◆ Non-volatile memory stores up to 50 methods/results

Catalogue No.	SJ245-20	
Model	M501	
Wavelength	range nm	190 to 1100
	accuracy nm	±1
	resolution nm	0.1
	repeatability nm	±0.05
Zero drift	A	<3 per hour after warm up
Baseline flatness	A	±2
Bandpass	nm	4
Photometric accuracy	Better than 1% at 0.5A, 1A, 2A	
Photometric range	-0.7 to 3A, 0 to 200%T, 0 to 9999 Conc.	
Unit selection	mg/l, mg/ml, mg/l, g/l, ppb, ppm, %, I.U., mM/l, M/l, custom via keypad	
Scanning speed	75 to 2000nm/min. in 3 levels (high, medium and low)	
Scanning interval increments nm	0.1, 0.2, 0.5, 1, 2, 5	
Outputs	Centronics printer, bi-directional RS232	
Cell centre height	mm	15
Light source	Tungsten halogen and deuterium	
Dimensions H x W x D	mm	270 x 550 x 420
Weight	kg	18

Quantitative Mode

Up to 10 standard solutions may be used for a calibration, 3 types of correction methods available: single wavelength, iso-absorbance or 3-point. Choice of 4 methods for curve fitting: Linear fit, linear fit through zero, square fit, cubic fit.

Kinetics Mode

For course scanning or reaction rate calculations. Absorption v time graphs displayed in real-time. Wait and measurement times up to 8.3 hours can be entered with intervals of 0.5, 1, 2, 5, 10, 30 secs and 1 minute.

DNA/Protein Mode

Concentration and DNA purity are calculated: Abs ratios 260/280nm or 260/230nm with optional subtracted absorbance at 320nm. Alternative wavelengths/factors may be entered.

Multi-wavelength Mode

Up to 10 wavelengths may be entered, allowing measurement of multiple wavelengths on a series of samples.

Spectrophotometer, M501

As described. Supplied with manual cell changer for 4 x 10mm square cuvettes, 4 x glass 10mm cuvettes, 2 x 10mm silica cuvettes, mains lead, dust cover and user manual. For 115V, 230V 50/60Hz single phase supplies.

SJ245-20 Model M501

Spares and accessories

SJ246-03 Tungsten-halogen lamps, pack of 2

SJ246-07 Deuterium lamp, pre-aligned

SJ246-11 Test tube holder for single tubes, 8 to 25mm dia.

SJ246-18 Thermostatted cell holder for 10mm square cuvettes (requires connection to external circulator/bath)

SJ246-22 Peltier temperature controller and cell holder for 10mm cuvettes, 15 to 40°C



SJ245-20

uniSPEC series

A range of inexpensive, single-beam, UV-visible spectrophotometers suitable for pharmaceutical, biochemical and clinical laboratory applications, Quality Control routines and higher education.

Model	uniSPEC 2	uniSPEC 4
Wavelength range	nm 190 to 1100	190 to 1100
Bandwidth	nm 2	1.8
Wavelength accuracy	nm ± 0.5	± 0.3
Wavelength repeatability	nm ± 0.3	± 0.2
Wavelength setting	Automatic - both models	
Photometric accuracy	%T ± 0.5	± 0.3
Photometric repeatability	%T ± 0.3	± 0.2
Photometric ranges		
Absorbance,	A -0.3 to 3 - both models	
Transmission,	%T 0 to 200 - both models	
Concentration,	C 0 to 9999 - both models	
Stability	A/hour at 500nm ± 0.002 - both models	
Straylight	%T ≤ 0.1	≤ 0.05 (at 220nm, 360nm)
Measurement modes	Kinetics, scanning, quantitative analysis, multi-wavelength, DNA/protein analysis	Kinetics, scanning, quantitative analysis, multi-wavelength, DNA/protein analysis, date/time stamp
Optical system	Single-beam; grating 1200 lines per mm; silicone photodiode detector - both models	
Scanning speed	nm/minute 1 to 1000 - both models	
Scanning interval increments,	nm 0.1, 0.2, 0.5, 1, 2, 5 - both models	
Data storage memory	200 calibration curves - both models	
Outputs	USB, parallel printer - both models	
Dimensions, H x W x D	mm 225 x 460 x 360 - both models	
Weight	kg 18 - both models	

uniSPEC spectrophotometers

As described. With software CD allowing complete control of the instrument from the user's P.C., manual 4-position cell changer to hold 10mm pathlength cells and instruction manual. For 110V 60Hz or 220V 50Hz single phase supplies.

SJ258-30 Model uniSPEC 2

SJ258-45 Model uniSPEC 4



SJ258-30



SJ258-45

Spectrophotometers

Models 6300/6320D/6305



- ◆ Choice of ranges:
Models 6300/6320D Visible, range 320 to 1000nm
Model 6305 UV/Visible, range 198 to 1000nm
- ◆ Microprocessor controlled, menu driven operation
- ◆ High resolution graphics, liquid crystal display
- ◆ Dual display mode gives continuous readout of selected wavelength and results
- ◆ Sealed optical system is protected from degradation by harsh environments

Catalogue No.	SJ360-10	SJ360-20	SJ360-40
Model	6300	6320D	6305
Wavelength range	nm 320 to 1000	320 to 1000	198 to 1000
Bandwidth	nm 8	8	6 (range 198 to 319nm) 8 (range 320 to 1000nm)
Wavelength accuracy	nm ± 2	± 2	± 2
Photometric accuracy	% ± 1	± 1	± 1
Straylight	%T <0.5	<0.5	<0.5
Operating modes	0 to 199.9% T (transmission) — all models -0.300 to 1.999 Abs (absorption units) — all models -300 to 1999 C (concentration) — all models 0 to 999.9, 1000 to 9999 Factor — all models		
Photometric noise levels	% <1	<1	<1A at 0A and 400nm
Photometric stability	1% per hour after 20 min. warm up	1% per hour after 20 min. warm up	<2A/hour after 30 min. warm up
Outputs	Analogue 0 to 1999mV, RS232 serial port — all models		
Light source	Tungsten-halogen	Tungsten-halogen	Xenon
Display	Custom liquid crystal — all models		
Dimensions H x W x D	mm 160 x 365 x 272 — all models		
Weight	kg 6 — all models		

Spectrophotometers 6300/6320D/6305, Jenway

As described. Supplied with single 10mm cell holder, 100 x 10mm disposable cuvettes and instructions. Model 6320D additionally has a dome shaped lid to accommodate test tubes with a height of up to 105mm. For 230V 50Hz single phase supplies.

- SJ360-10** 6300 Visible
- SJ360-20** 6320D Visible
- SJ360-40** 6305 UV/Visible

Spares

- SJ364-05** Tungsten-halogen lamp for SJ360-10 and SJ360-20
- SJ364-06** Xenon lamp module for SJ360-40
- SJ364-09** Cell holder for 10mm cells
- CS780-14** Square cuvettes, optical glass, 10mm path length
- CS780-32** Rectangular cuvettes, optical glass, 50mm path length
- CT102-05** Cuvettes, 10mm, pack of 100

Accessories

- SJ364-18** Cell holder, adjustable, for 20 to 100mm cells
- Cell holder for 10mm square cuvettes, and 16mm and 24mm diameter vials.
- SJ364-36** Cell holder, 10mm cuvette

Impact printer, 40 column, with connecting cable, rechargeable batteries and charger. A 220-240V 50Hz supply is required for the charger.

- CU656-20** Impact printer
- CU656-22** Paper roll for CU656-20



SJ360-20



SJ360-40 in use, SJ360-10 is similar

Spectrophotometers

Models 7200/7205



- ◆ Scanning diode array technology provides rapid, reliable scanning in less than 10 seconds with excellent wavelength reproducibility
- ◆ Colour touchscreen operation with 100mm wide display, ensuring full spectrum scans, quantitation curves and Kinetics runs can be viewed easily
- ◆ Reversed optical architecture is not affected by ambient straylight, allowing measurement with the lid open and tall sample vessels to be accommodated

- ◆ Diode array detection with 1024 elements and tungsten-halogen lamp gives good intensity over the visible range of the spectrum with low noise and drift
- ◆ Two, separate USB ports are provided for data storage (front) and printer connectivity (rear)
- ◆ Built-in, convenient cell rack moulded into the instrument body

Catalogue No.	SJ365-15	SJ365-30
Model	7200	7205
Wavelength range, nm	335 to 800	198 to 800
Bandwidth, nm	7	5
Wavelength accuracy, nm	±2	±2
Light source	Tungsten-Halogen	Xenon
Repeatability, nm	±2	±2
Absorbance range, A	-0.300 to 2.500 – both models	
Photometric accuracy, A	±0.01 at 1.0A and 546nm – both models	
Photometric noise, A	±0.002 at 0.04A and ±0.02 at 2.0A and 546nm – both models	
Straylight at 340nm, %	<1 according to ANSI/ASTM E387-72 – both models	
Concentration mode	range -2500 to +2500– both models resolution 0.001– both models calibration blank and a single standard or factor – both models factor -1000 to +1000 – both models standard -1000 to +1000 – both models	
Optical density factor	-1000 to +1000 – both models	
Quantitation mode, range	-2500 to +2500 – both models	
resolution	0.001 – both models	
calibration	blank and up to 6 standards – both models	
Curve fit algorithms	linear and linear through zero – both models	
Kinetics mode, time, secs	15 to 9999 – both models	
no. of wavelengths	3 – both models	
calibration	blank and 1 factor – both models	
resolution	0.001 – both models	
analysis	concentration – both models	
Spectrum range, nm	335 to 800	198 to 800
Spectrum analysis	Absorbance or % transmittance and up to 50 spectral analysis points – both models	
Beam height, mm	15	15
Outputs	2 x USB – both models	
Dimensions H x W x D, mm	120 x 212 x 422 – both models	
Weight, empty kg	2.8 – both models	

Spectrophotometers 72-series, Jenway

As described. Supplied with single 10mm cell/cuvette holder, instructions and universal power supply for 100-240V 50/60Hz single phase supplies.

SJ365-15 7200 Visible, diode array sensor

SJ365-30 7205 UV/Visible, diode array sensor

Accessories

SJ366-04 Heated sample chamber for 10mm cells

SJ364-18 Cell holder, adjustable, for 20 to 100mm cells

Cell holder for 10mm square cuvettes, and 16mm and 24mm diameter vials.

SJ364-36 Cell holder, 10mm cuvette

CT102-05 Cuvettes, 10mm, pack of 100

External printer, with rechargeable battery and charger. A 100-230V 50/60Hz supply is required for the charger.

MG180-85 Impact printer

Spare lamp

SJ366-45 Tungsten-halogen lamp for SJ365-15

Note: SJ365-30 does not have a user-serviceable lamp assembly.

Glass and silica cells - see CA420 to CS782



SJ365-15, SJ365-30 is similar



SJ365-15 with SJ366-04 in use

Spectrophotometers

Models 7300/7305/7310/7315



- ◆ Choice of ranges:
 - Model 7300 Visible, range 320 to 1000nm
 - Model 7305 UV, range 198 to 1000nm
 - Model 7310 Scanning Visible, range 320 to 1000nm, Quantitation and Kinetics modes
 - Model 7315 Scanning UV, range 198 to 1000nm, Quantitation and Kinetics modes
- ◆ Models 7310 and 7315 are GLP compliant, with logging of time, date and user i.d., instrument and method locks, 240 method memory storage
- ◆ 5nm spectral bandwidth
- ◆ Sealed control panel and display built into hinged lid to avoid splashes and spillages when sample loading
- ◆ Analogue and RS232 outputs provided (models 7310 and 7315 additionally have front positioned, USB ports, for use with USB memory sticks)
- ◆ Large, graphics display with icon-driven, (non-textual) operation using soft-key navigation
- ◆ Compact design minimises bench space required
- ◆ Accessory printer-module available

Catalogue No.		SJ372-25	SJ372-35	SJ372-45	SJ372-55
Model		7300	7305	7310	7315
Wavelength range	nm	320 to 1000	198 to 1000	320 to 1000	198 to 1000
Bandwidth	nm	5 — all models			
Wavelength accuracy	nm	±2 — all models			
Light source		Tungsten-halogen	Pulsed Xenon	Tungsten-halogen	Pulsed Xenon
Repeatability	nm	±0.5 — all models			
Photometric ranges	Transmittance	0 to 199.9% x 0.1% resolution ±1% accuracy — all models			
	Absorbance	-0.300 to 2.500A x 1A resolution ±0.1 accuracy (at 1.00) — all models			
Concentration modes	range	—	—	-300 to 9999 — both models	
	resolution	—	—	selectable 1/0.1/0.01/0.001 — both models	
	calibration	—	—	blank and 1 factor/standard — both models	
	factor	—	—	1 to 10000 — both models	
	standard	—	—	1 to 1000 — both models	
Quantitation modes	range	—	—	-300 to 9999 — both models	
	resolution	—	—	selectable 1/0.1/0.01/0.001 — both models	
	calibration	—	—	blank and up to 6 standards — both models	
	curve fit	—	—	Quadratic, linear (and through zero), interpolate — both models	
Kinetics modes	time, secs	—	—	2 to 9999 — both models	
	calibration	—	—	blank and 1 factor/standard — both models	
	resolution	—	—	selectable 1/0.1/0.01/1 — both models	
	analysis	—	—	conc. rate of change, initial and final abs. or % trans. — both models	
Scanning modes	interval, nm	—	—	selectable 1/2/5 — both models	
	analysis	—	—	ABS, %T, peak, and valleys — both models	
Outputs		Analogue, RS232 — all models			
Dimensions H x W x D	mm	220 x 275 x 400 — all models			
Weight	kg	6 — all models			

Spectrophotometers 73 series, Jenway

As described. Supplied with 10mm cell holder, 100 x 10mm disposable cuvettes, downloading/analysis software CD-ROM, interface cable and instructions (Models 7310 and 7315 are also supplied with a 2GB USB memory stick). With universal power supply for 100-240V 50/60Hz single phase supplies.

SJ372-25 Model 7300

SJ372-35 Model 7305

SJ372-45 Model 7310

SJ372-55 Model 7315

Spares

SJ364-05 Tungsten-halogen lamp for SJ372-25/-45

SJ373-14 Xenon lamp module for SJ372-35/-55

CT102-05 Cuvettes, 10mm, pack of 100

Accessories

SJ364-18 Cell holder, adjustable, for 20 to 100mm cells

Cell holder for 10mm square cuvettes, and 10mm, 16mm and 24mm diameter vials.

SJ364-36 Cell holder, 10mm cuvette

SJ377-94 Internal printer module



SJ372-55 in use with accessories

Spectrophotometers

Genova Plus



Dedicated life science spectrophotometer based on the Jenway 7315.

- ◆ 5nm spectral bandwidth
- ◆ Pre-programmed for DNA/RNA analysis, protein assay determination, cell density measurement, purity scan, multi-wavelength and concentration measurement modes
- ◆ GLP compliant, with logging of time, date and user i.d., instrument and method locks
- ◆ USB output port and USB flash drive supplied for results storage, analogue and RS232 outputs for connection to external recorder or user's PC
- ◆ Accessory internal printer module available

Nucleic acid determination

Pre-programmed with methods for the measurement of ssDNA, dsDNA, RNA and oligonucleotide concentration at wavelengths 260, 280 and 230nm, with optional concentration at 320nm. This mode has the 260/280nm and 260/230nm ratios pre-programmed, as well as a variable ratio option enabling up to 3 wavelengths to be entered in addition to the correction wavelength. A dilution option is also available to calculate the original concentration of diluted samples.

Protein assay determination

Pre-programmed for Bradford, Lowry, Biuret, Bicinchoninic acid (BCA) and Direct UV assays. Allows up to 12 standards, with 3 replicates of each standard, to be measured to create the standard curve. Replicate measurements can be set to automatically perform 3 readings sequentially from the same sample, or to enable a single measurement to be undertaken on three separate samples of the same concentration.

Cell density measurement mode

Bacterial cell cultures are routinely grown until optical clarity reaches 0.4 at 600nm, indicating the optimum cell number for harvesting. Measurements to monitor cell growth can be performed at any user-selected wavelength.

Purity scan measurement mode

For checking nucleic acid purity, particularly where impurities may be present at 230nm but undetectable using the 260/280nm ratio measurement method. Full wavelength range scanning available to identify any distorted peaks.

Multi-wavelength measurement mode

4 alternative wavelengths can be used for sample measurements with ratio calculations and formulae with various factors to calculate concentration.

Concentration measurement mode

Performs simple absorbance, % transmittance and concentration calculations with choice of up to 27 concentration units.



SJ372-80

Catalogue No.		SJ372-80
Model		Genova Plus
Wavelength range		nm 198 to 1000
Bandwidth		nm 5
Wavelength accuracy		nm ±2
Light source		Pulsed xenon
Repeatability		nm ±0.5
Photometric ranges	Transmittance	0 to 199.9% x 0.1% resolution, ±1% accuracy
	Absorbance	-0.300 to 2.500A x 0.100A resolution, ±0.01A accuracy (at 1.000)
Concentration modes	range	-300 to 9999
	resolution	selectable 1/0.1/0.01/0.001
	calibration factor	blank and 1 factor/standard 1 to 10000
	standard	1 to 1000
Quantitation modes	range	-300 to 9999
	resolution	selectable 1/0.1/0.01/0.001
	calibration curve fit	blank and up to 12 standards quadratic, linear interpolate and through zero
	analysis	
Kinetics modes	time, secs	2 to 9999
	calibration	blank and 1 factor/standard
	resolution	selectable 1/0.1/0.01/0.001
	analysis	conc. rate of change, initial and final absorption or % transmission
Scanning modes	interval, nm	selectable 1/2/5
	analysis	absorption, % T, peaks and valleys
Outputs		USB, analogue, RS232
Dimensions H x W x D		mm 220 x 275 x 400
Weight		kg 6

Genova Plus Spectrophotometer, Jenway

As described. Supplied with micro-cuvette holder, USB memory stick and universal power supply for 100-240V 50/60Hz single phase supplies.

SJ372-80 Genova Plus

Accessories

SJ364-18 Cell holder, adjustable, for 20 to 100mm cells

SJ373-14 Xenon lamp module for SJ372-80

SJ373-20 Cuvettes, micro, pack of 100

SJ373-25 Tray cell for ultra-micro (5 l down to 0.7 l) volume samples. Fibre optic cuvette with two caps giving 1mm or 0.2mm path lengths, creating a "virtual dilution" of 1:10 or 1:50 compared to standard 10mm cuvette

SJ377-94 Internal printer module (user fittable)

Spectrophotometers

Models 7300/7305/7310/7315

JENWAY

- ◆ Choice of ranges:
 - Model 7300 Visible, range 320 to 1000nm
 - Model 7305 UV, range 198 to 1000nm
 - Model 7310 Scanning Visible, range 320 to 1000nm, Quantitation and Kinetics modes
 - Model 7315 Scanning UV, range 198 to 1000nm, Quantitation and Kinetics modes
- ◆ Models 7310 and 7315 are GLP compliant, with logging of time, date and user i.d., instrument and method locks, 240 method memory storage
- ◆ 5nm spectral bandwidth
- ◆ Sealed control panel and display built into hinged lid to avoid splashes and spillages when sample loading
- ◆ Analogue and RS232 outputs provided (models 7310 and 7315 additionally have front positioned, USB ports, for use with USB memory sticks)
- ◆ Large, graphics display with icon-driven, (non-textual) operation using soft-key navigation
- ◆ Compact design minimises bench space required
- ◆ Accessory printer-module available

Catalogue No.		SJ372-25	SJ372-35	SJ372-45	SJ372-55
Model		7300	7305	7310	7315
Wavelength range	nm	320 to 1000	198 to 1000	320 to 1000	198 to 1000
Bandwidth	nm	5 — all models			
Wavelength accuracy	nm	±2 — all models			
Light source		Tungsten-halogen	Pulsed Xenon	Tungsten-halogen	Pulsed Xenon
Repeatability	nm	±0.5 — all models			
Photometric ranges	Transmittance	0 to 199.9% x 0.1% resolution ±1% accuracy — all models			
	Absorbance	-0.300 to 2.500A x 1A resolution ±0.1 accuracy (at 1.00) — all models			
Concentration modes	range	—	—	-300 to 9999 — both models	
	resolution	—	—	selectable 1/0.1/0.01/0.001 — both models	
	calibration	—	—	blank and 1 factor/standard — both models	
	factor	—	—	1 to 10000 — both models	
	standard	—	—	1 to 1000 — both models	
Quantitation modes	range	—	—	-300 to 9999 — both models	
	resolution	—	—	selectable 1/0.1/0.01/0.001 — both models	
	calibration	—	—	blank and up to 6 standards — both models	
	curve fit	—	—	Quadratic, linear (and through zero), interpolate — both models	
Kinetics modes	time, secs	—	—	2 to 9999 — both models	
	calibration	—	—	blank and 1 factor/standard — both models	
	resolution	—	—	selectable 1/0.1/0.01/1 — both models	
	analysis	—	—	conc. rate of change, initial and final abs. or % trans. — both models	
Scanning modes	interval, nm	—	—	selectable 1/2/5 — both models	
	analysis	—	—	ABS, %T, peak, and valleys — both models	
Outputs		Analogue, RS232 — all models			
Dimensions H x W x D	mm	220 x 275 x 400 — all models			
Weight	kg	6 — all models			

Spectrophotometers 73 series, Jenway

As described. Supplied with 10mm cell holder, 100 x 10mm disposable cuvettes, downloading/analysis software CD-ROM, interface cable and instructions (Models 7310 and 7315 are also supplied with a 2GB USB memory stick). With universal power supply for 100-240V 50/60Hz single phase supplies.

SJ372-25 Model 7300

SJ372-35 Model 7305

SJ372-45 Model 7310

SJ372-55 Model 7315

Spares

SJ364-05 Tungsten-halogen lamp for SJ372-25/-45

SJ373-14 Xenon lamp module for SJ372-35/-55

CT102-05 Cuvettes, 10mm, pack of 100

Accessories

SJ364-18 Cell holder, adjustable, for 20 to 100mm cells

Cell holder for 10mm square cuvettes, and 10mm, 16mm and 24mm diameter vials.

SJ364-36 Cell holder, 10mm cuvette

SJ377-94 Internal printer module



SJ372-55 in use with accessories

Spectrophotometers

Genova Plus

JENWAY

Dedicated life science spectrophotometer based on the Jenway 7315.

- ◆ 5nm spectral bandwidth
- ◆ Pre-programmed for DNA/RNA analysis, protein assay determination, cell density measurement, purity scan, multi-wavelength and concentration measurement modes
- ◆ GLP compliant, with logging of time, date and user i.d., instrument and method locks
- ◆ USB output port and USB flash drive supplied for results storage, analogue and RS232 outputs for connection to external recorder or user's PC
- ◆ Accessory internal printer module available

Nucleic acid determination

Pre-programmed with methods for the measurement of ssDNA, dsDNA, RNA and oligonucleotide concentration at wavelengths 260, 280 and 230nm, with optional concentration at 320nm. This mode has the 260/280nm and 260/230nm ratios pre-programmed, as well as a variable ratio option enabling up to 3 wavelengths to be entered in addition to the correction wavelength. A dilution option is also available to calculate the original concentration of diluted samples.

Protein assay determination

Pre-programmed for Bradford, Lowry, Biuret, Bicinchoninic acid (BCA) and Direct UV assays. Allows up to 12 standards, with 3 replicates of each standard, to be measured to create the standard curve. Replicate measurements can be set to automatically perform 3 readings sequentially from the same sample, or to enable a single measurement to be undertaken on three separate samples of the same concentration.

Cell density measurement mode

Bacterial cell cultures are routinely grown until optical clarity reaches 0.4 at 600nm, indicating the optimum cell number for harvesting. Measurements to monitor cell growth can be performed at any user-selected wavelength.

Purity scan measurement mode

For checking nucleic acid purity, particularly where impurities may be present at 230nm but undetectable using the 260/280nm ratio measurement method. Full wavelength range scanning available to identify any distorted peaks.

Multi-wavelength measurement mode

4 alternative wavelengths can be used for sample measurements with ratio calculations and formulae with various factors to calculate concentration.

Concentration measurement mode

Performs simple absorbance, % transmittance and concentration calculations with choice of up to 27 concentration units.



SJ372-80

<i>Catalogue No.</i>	SJ372-80	
<i>Model</i>	Genova Plus	
<i>Wavelength range</i>	<i>nm</i>	198 to 1000
<i>Bandwidth</i>	<i>nm</i>	5
<i>Wavelength accuracy</i>	<i>nm</i>	±2
<i>Light source</i>	Pulsed xenon	
<i>Repeatability</i>	<i>nm</i>	±0.5
<i>Photometric ranges</i>	<i>Transmittance</i>	0 to 199.9% x 0.1% resolution, ±1% accuracy
	<i>Absorbance</i>	-0.300 to 2.500A x 0.100A resolution, ±0.01A accuracy (at 1.000)
<i>Concentration modes</i>	<i>range</i>	-300 to 9999
	<i>resolution</i>	selectable 1/0.1/0.01/0.001
	<i>calibration factor</i>	blank and 1 factor/standard
	<i>standard</i>	1 to 10000
<i>Quantitation modes</i>	<i>range</i>	-300 to 9999
	<i>resolution</i>	selectable 1/0.1/0.01/0.001
	<i>calibration curve fit</i>	blank and up to 12 standards quadratic, linear interpolate and through zero
	<i>analysis</i>	
<i>Kinetics modes</i>	<i>time, secs</i>	2 to 9999
	<i>calibration factor</i>	blank and 1 factor/standard
	<i>resolution</i>	selectable 1/0.1/0.01/0.001
	<i>analysis</i>	conc. rate of change, initial and final absorption or % transmission
<i>Scanning modes</i>	<i>interval, nm</i>	selectable 1/2/5
	<i>analysis</i>	absorption, % T, peaks and valleys
<i>Outputs</i>	USB, analogue, RS232	
<i>Dimensions H x W x D</i>	<i>mm</i>	220 x 275 x 400
<i>Weight</i>	<i>kg</i>	6

Genova Plus Spectrophotometer, Jenway

As described. Supplied with micro-cuvette holder, USB memory stick and universal power supply for 100-240V 50/60Hz single phase supplies.

SJ372-80 Genova Plus

Accessories

SJ364-18 Cell holder, adjustable, for 20 to 100mm cells

SJ373-14 Xenon lamp module for SJ372-80

SJ373-20 Cuvettes, micro, pack of 100

SJ373-25 Tray cell for ultra-micro (5µl down to 0.7µl) volume samples. Fibre optic cuvette with two caps giving 1mm or 0.2mm path lengths, creating a "virtual dilution" of 1:10 or 1:50 compared to standard 10mm cuvette

SJ377-94 Internal printer module (user fittable)

Spectrophotometers

Models 74/76-series



- ◆ Choice of ranges:
 - Model 7410 Scanning Visible, range 320 to 1000nm, Quantitation and Kinetics modes, 5nm spectral bandwidth
 - Model 7415 Scanning UV, range 198 to 1000nm, Quantitation and Kinetics modes, 5nm spectral bandwidth
 - Model 7615 Split-beam, scanning UV, range 198 to 1000nm, with 1.5nm bandwidth
 - Model 7415 Nano Micro-volume sample, "drop-type" instrument, UV, range 198 to 1000nm, 5nm spectral bandwidth
- ◆ Large, high-definition, colour touchscreen display which allows full scans, quantitation curves and kinetics runs to be viewed easily
- ◆ 10GB onboard memory storage for results and methods
- ◆ Outputs include 2 x USB-A, 1 x USB-B and RJ45 ethernet
- ◆ Compact design minimises bench space required
- ◆ Accessory printer available

Catalogue No.		SJ378-10	SJ378-15	SJ378-30	SJ379-05
Model		7410	7415	7615	7415 Nano
Wavelength range	nm	320 to 1000		198 to 1000	
Bandwidth	nm	5	5	1.5	5
Wavelength accuracy	nm	±2 — all models			
Light source		Tungsten-halogen		Pulsed Xenon	
Repeatability	nm	±0.5 — all models			
Photometric ranges	Transmittance	0 to 199.9% x 0.1% resolution ±1% accuracy — all models			—
	Absorbance	-0.300 to 2.500A x 1A resolution ±0.1 accuracy (at 1.00) — all models			—
Concentration modes	range	-300 to 9999 — both models			—
	calibration	blank and 1 factor/standard — all models			—
Quantitation modes	range	-300 to 9999 — both models			—
	calibration	blank and up to 20 standards — all models			—
Kinetics modes	time, secs	2 to 9999 — both models			—
	analysis	conc., rate of change, initial and final abs. or % trans. — all models			—
Scanning modes	interval, nm	selectable 1/2/5/10 — all models			—
	analysis	abs., %T, peak, and valleys — all models			—
Nucleic acid modes		—	—	—	dsDNA, ssDNA, RNA, oligonucleotides, 260/280, 260/230, variable ratio
Protein modes		—	—	—	BCA, Bradford, Lowry, Biuret, direct UV
Sample range		—	—	—	0.5ul to 1ul
Path length capacity	mm	10 to 100 — all models			0.2 or 0.5 (auto-ranging)
Sample pedestal material		—	—	—	Quartz/stainless steel
Outputs		2 x USB-A, 1 x USB-B, 1 x RJ45 ethernet — all models			
Dimensions H x W x D	mm	156 x 280 x 500 — all models			
Weight	kg	9 — all models			

Spectrophotometers 74/76 series, Jenway

As described. Supplied with 10mm cell holder (except SJ379-05 which has a micro-sample measurement pedestal and calibration standards), instructions and universal power supply for 100-240V 50/60Hz single phase supplies.

- SJ378-10** Model 7410
- SJ378-15** Model 7415
- SJ378-30** Model 7615
- SJ379-05** Model 7415 Nano

Spares

- SJ378-33** Tungsten-halogen lamp for SJ378-10
- SJ364-09** Cell holder for 10mm cells

Accessories

- CT102-05** Cuvettes, 10mm, pack of 100
- CS780-14** Square cuvettes, optical glass, 10mm path length
- SJ378-37** Automatic 8-cell changer
- SJ364-18** Cell holder, adjustable, for 20 to 100mm cells

Cell holder for 10mm square cuvettes, and 10mm, 16mm and 24mm diameter vials.

- SJ364-36** Cell holder, 10mm cuvette

External printer, with rechargeable battery and charger. A 100-230V 50/60Hz supply is required for the charger.

- MG180-85** Impact printer



SJ378, SJ379 is similar

Spectrophotometers

Double Beam Model 6850

JENWAY

A true, high accuracy, double beam UV/Visible range instrument with variable 0.5, 1, 2, 4 and 5nm spectral bandwidths, using either the integrated controller or remotely by the user's PC via Windows® compatible Prism PC software supplied.

◆ Six measurement modes:

- Photometrics and multi-wavelength spectrum scanning (up to 10 wavelengths can be measured, or 20 using Prism PC software, with up to 0.1nm resolution and 2000nm/min. scan speed)
- Spectrum scanning (up to 0.1nm resolution and 2000nm/min. speed)
- Kinetics (up to 12 hours with time intervals of 0.1, 0.2, 0.5, 1, 2, 5, 10 or 30 seconds)
- Quantitation (up to 3 wavelength points using up to 10 standards)
- DNA/RNA (ratio, concentration, A320 correction)
- Protein analysis (autopeaks and valleys, zoom, addition, subtraction, peak ratios, smoothing, area under curve, wavelength table, derivatives and overlay with PC software)

◆ Range: 190 to 1100nm

- ◆ Prism PC software is designed to give a comprehensive range of measurement modes whilst remaining intuitive, user-friendly and providing extensive post-measurement tools and functions
- ◆ Large graphical display
- ◆ Conforms to European Pharmacopoeia standards
- ◆ Range of interchangeable sample chambers allows rapid reconfiguration or upgrade
- ◆ Units with IQ/OQ documentation are available - *details on request*

Catalogue No.	SJ379-15
Model	6850
Wavelength range x resolution nm	190 to 1100 x 0.1
Bandwidths nm	0.5, 1, 2, 4, 5
Wavelength accuracy nm	±0.3 (at 0.5 and 1nm), ±0.5 (at 2, 4, and 5nm)
Straylight %	<0.05 (at 220nm and 340nm)
Source switching range nm	325 to 370
Photometric range A	-0.3 to +3.0
Photometric accuracy A	±0.002
Photometric reproducibility A	±0.001
Baseline stability A/h	±0.001
Noise level A	0.0005
Scan speed nm/minute	3 selectable, from 100 to 2000
Interface	USB and parallel port
Light source	Tungsten-halogen/Deuterium
Supply requirements	220V 50/60Hz single phase supply
Overall mm	600 x 450 x 200
Weight kg	22

As described. Supplied with single 10 x 10mm cuvette holder (sample and reference positions), instruction manual, Prism PC software with USB cable, 2 quartz and 4 glass cuvettes and dust cover. For 230V 50/60Hz single phase supplies.

SJ379-15 Model 6850, double-beam UV/Visible

Accessory and spare sample chambers

- SJ379-40** 10 x 10mm path length cuvette holder
- SJ379-50** Water heated 10 x 10mm single cell holder
- SJ379-55** 10 to 100mm adjustable path length cuvette holder
- SJ379-60** Micro-cuvette holder
- SJ379-65** 8-position automatic cell changer
- MG180-85** Accessory printer with rechargeable battery and USB cable, requires a 100-240V 50/60Hz a.c. supply.

- SJ379-85** Spare Tungsten-halogen lamp
- SJ379-87** Spare Deuterium lamp

Disposable cells - see CT102-10.

Cuvettes - see CA420 to CA494, CT602-series.



SJ379-15

Spectrophotometers

Spectrophotometer Calibration Standards

Allow the performance and accuracy of spectrophotometers to be confirmed at regular intervals in compliance with Good Laboratory Practice (GLP) or ISO9000 to ISO9004 specifications.

- ◆ Accuracy can be checked with respect to:
 - Absorbance in the Visible range at 440nm, 465nm, 546nm, 590nm and 635nm wavelengths
 - Wavelength in the UV and visible range at 279.3nm, 360.9nm, 453.5nm, 536.3nm and 637.6nm

The set comprises four secondary calibration standard filters, housed in precision aluminium mounts designed for use with standard 10mm path length cell holders supplied with most spectrophotometers. An empty mount is also supplied. Three filters are grey glass, specially selected for homogeneity, stability and their generally uniform transmission values within the visible spectrum range. The fourth filter is made of silica doped with holmium oxide which exhibits a number of sharp absorption peaks throughout the UV, visible and NIR spectral ranges. The exact positions of these peaks vary slightly from production batch to batch therefore each filter is individually calibrated.

Spectrophotometer Calibration Standards

As described. Supplied in a plastic box with certificate traceable to a primary standards set ratified by NIST, USA (National Institute of Standards and Technology). Each filter has dimensions 45 x 12.5 x 12.5mm H x W x D.

SJ700-90 Spectrophotometer standards set

Individual filters and filter re-calibration are available – *details on request.*

Precision Cells

Hellma

Transmissions: Optical glass 360 to 2500nm code yellow (y)
 Special optical glass 320 to 2500nm code green (g)
 Silica UV 200 to 2500nm code blue (b)

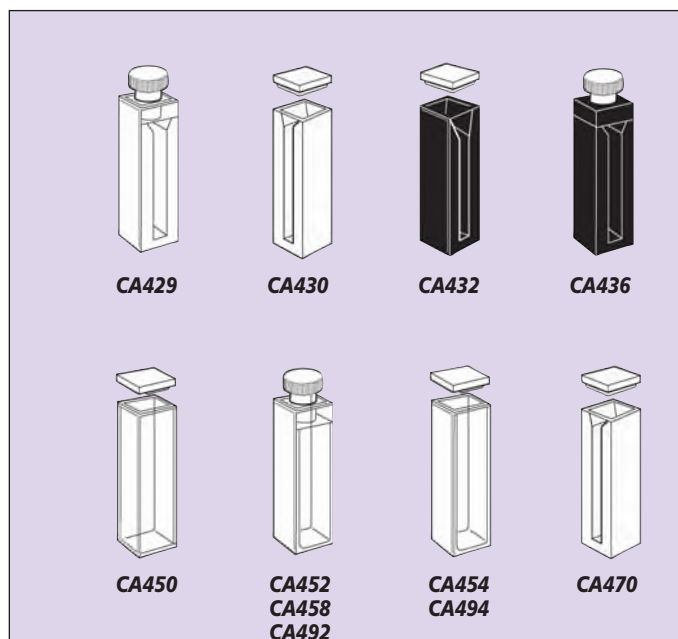
	Path length mm	Type	Material	Ref.
CA429-14	10	Micro with stopper	silica (b)	115-QG
CA430-14	10	Semi micro	glass (y)	104-TG
CA430-44	10	with lid	silica (b)	104-QG
CA432-14	10	Semi micro with lid. Self masking with black frames	silica (b)	104B-OS
CA436-44	10	Semi micro with stopper. Self masking with black frames	silica (b)	114B-QS
CA450-14	10	Macro with lid	glass (y)	100-TG
CA450-44	10	Macro with lid	silica (b)	100-QG
CA450-48	40			
CA450-54	10	Macro with lid	Suprasil® silica (b)	100-QS
CA452-44	10	stopper	silica (b)	110-QG
CA454-44	10	with lid	silica (b)	101-QG
CA458-44	10	Macro fluorescence with stopper	silica (b)	111-QG

Matched pairs. Supplied as a matched pair of precision cells.

	Path length mm	Type	Material	Ref.
CA470-44	10	Semi micro with lid	silica (b)	104-QG/M
CA490-44	10	Macro with lid	silica (b)	100-QG/M
CA492-44	10	Macro with stopper	silica (b)	110-QG/M
CA494-44	10	Macro fluorescence with lid	silica (b)	101-QG/M



SJ700-90



Stands and Racks

Wooden and Plastic Stands

Hardwood Stands

With plastic clamping screws. Rods approximately 460mm high x 16mm diameter. Single base 200 x 110mm, double base 290 x 110mm.

Description

For burettes

- SL200-10** Single end
SL200-20 Double end

For conical funnels

Holders with front cut-out.

- SL202-10** Single end
SL202-20 Double end

Retort Stand, Azlon

Comprising weighted white polyethylene base and polyethylene coated metal rod. Base 248 x 171 x 52mm. Weight 2.5kg. Rod 760 x 12.5mm, mounted as indicated.

- SL480-16** SWP014, short edge
SL480-24 SWP012, centre

Metal Retort Bases and Rods

Rectangular Retort Stand Bases

Steel with rod hole tapped 10mm x 1.5mm in the short side and rubber feet. Details given are dimensions of base and the alternative base finishes. Supplied singly. Without rod.

Size mm	Weight kg	Blue acrylic paint	White epoxide resin
160 x 100	0.75	SL250-16	SL260-16
200 x 125	1.25	SL250-20	SL260-20
250 x 160	2.00	SL250-25	SL260-25
315 x 200	3.00	SL250-30	SL260-30

Retort Rods

With screw end 10mm x 1.5mm. Supplied singly.

Length x dia. mm	Mild steel	Zinc steel
500 x 10	SL350-10	SL360-10
600 x 12.5	SL350-15	SL360-15
760 x 12.5	SL350-20	SL360-20
1000 x 12.5	SL350-25	SL360-25

Length x dia. mm	Aluminium*	Stainless steel
500 x 10*	SL370-12	SL380-10
600 x 12.5	SL370-15	SL380-15
760 x 12.5	SL370-20	SL380-20
1000 x 12.5	SL370-25	SL380-25

* All aluminium rods are 12.5mm diameter.

Tripod Retort Stand Bases

Cast iron finished in blue acrylic paint. With rod hole tapped 10mm x 1.5mm and rubber feet. Dimension given is approximate spread from rod to foot. Without rod. Supplied singly.

	Size mm	Weight kg
SL290-15	110	1.5
SL290-20	135	1.75
SL290-25	175	3.25

Nesting Retort Stand Base

Cast iron finished in blue acrylic paint. A-shape. Length of side 200mm. Weight 2.5kg. Rod fitting hole has both locking screw to hold SL400 rods, and tapped hole to accept screw end rods SL350 to SL380. Without rod. Supplied singly.

- SL310-30** Nesting base

Retort Rods

Zinc plated steel. Domed both ends. 12.5mm diameter. Supplied singly.

	Length mm
SL400-10	500
SL400-15	600
SL400-20	750
SL400-25	1000



SL200-10

SL200-20



SL202-10

SL202-20



SL250

SL260



SL290

SL310

SL480-24

Stands and Racks

Bossheads and Clamps

Bosshead, straight

Natural finish, with blue plastic headed, nickel plated screws. For rods up to 16mm diameter.

SL600-10 Bosshead, straight, natural

Clamp

Natural finish. With cork/rubber lined interlocking jaws. Accepts articles up to 80mm diameter. Rod 8mm diameter.

SL660-10 Clamp, cork/rubber jaw

Clamps

Natural finish alloy or stainless steel. With three prong rubber covered jaws. Accepts articles up to 70mm. Rod 8mm diameter.

SL685-10 Clamp, alloy

SL700-10 Clamp, stainless

Clamp

Alloy and stainless steel. With three prongs fitted with heat resistant sleeves. One prong is pivoted for accurate alignment. Accepts articles up to 125mm diameter. Rod 8mm diameter.

SL710-10 Clamp, pivoted

Clamp

For beakers. Alloy and stainless steel. With heat resistant covered jaws. Accepts beakers up to 175mm diameter. Rod 9mm diameter.

SL720-10 Clamp, beaker

Clamp

For reaction vessels. Alloy and cadmium plated steel with heat resistant covered jaws and supplied with two extension rods 9mm diameter to allow reaction vessels up to 20 litre capacity to be held.

SL725-10 Clamp, vessels

Chain Clamp

For supporting articles up to 150mm diameter. The object is aligned into cork lined inner jaws and a rubber sleeved chain is passed around it, then back to a fixing stub on the nickel plated tensioner mounted on the clamp rod. The chain is tightened by a plastic headed, nickel plated screw. Rod 10mm diameter.

SL726-14 Chain clamp

Clamps, burette

Polypropylene, spring-loaded, with rubber grips on the arms and a central boss to allow mounting on rods from 11 to 14mm diameter.

Type	
SL745-10	Single
SL745-15	Double

Clamp, burette

A double burette clamp with pressed steel body, in powder-coated, blue finish and central bosshead for mounting on vertical rods up to 16mm diameter, spring clamps with plastic coated grips providing a secure hold without damaging glassware. Suitable for burettes up to 100ml capacity.

SL746-15 Clamp, burette, double

Clamp

For 50ml burettes. A one piece sprung plastic clamp which holds one 50ml burette securely. With mounting hole to accept a 13mm support rod.

For burette	
SL755-12	50ml

Clamp, funnel

Double funnel clamp, polypropylene with grip screw clamp for mounting on 12.5mm retort rods.

SL760-10 Clamp, funnel, double



SL726-14



SL746-15



SL745-10 in use



SL745-10

SL745-15



SL755 in use



SL760-10

Stands and Racks

Rings and Jacks

Retort Rings

Mild steel. Plain form has a stem 8mm diameter x 135mm long. Bosshead form has stem length producing various centre to centre dimensions when on the same vertical. Supplied singly.

Size	Diameter i.d. x o.d. mm	Plain stem	With bosshead
2	50 x 62	SL800-15	SL804-15
4	62 x 74	SL800-25	SL804-25
5	69 x 81	SL800-30	SL804-30
6	75 x 87	SL800-35	SL804-35
8	82 x 98	SL800-40	SL804-40
11	100 x 116	SL800-45	SL804-45
12	106 x 122	SL800-50	—
14	125 x 141	SL800-55	SL804-55
15	131 x 147	SL800-60	SL804-60
17	150 x 166	SL800-65	SL804-65

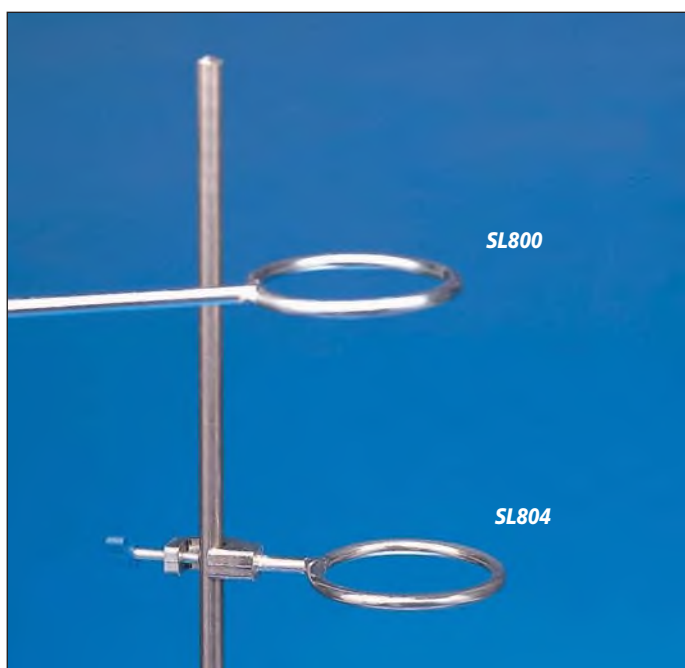
Laboratory Jacks

Stainless steel with aluminium plates providing a rigid support platform. The scissor action movement is activated by a large control knob. SL950-15, SL950-20 and SL950-25 have a tapped hole with locking nut in the top plate which accepts an M10 threaded retort rod.

	Plate mm	Max. height mm	Max. load kg
SL950-10	100 x 100	140	30
SL950-15	150 x 150	275	60
SL950-20	200 x 200	275	80
SL950-25	200 x 230	275	80

Extension plates set, 300 x 300mm. Aluminium.
With fixing screws.

SL954-30 Extension plates



SL950

Stands and Racks

Plastic Pipette Stands

Pipette Stand, Azlon

White polyethylene. Supplied as a kit for easy assembly by the user.

SM200-30 SWP038

Pipette Stand

Blue Polypropylene. For holding up to 94 pipettes vertically. Comprises removable pipette support mounted on base and rod.

SM250-50 Pipette stand

Wooden Test Tube Racks

Test Tube Racks

Hardwood with polypropylene end supports. Supplied as kit for easy assembly by the user.

	Holes	Pegs
For test tubes*		
SM300-10	6	—
SM300-13	6	6
SM300-30	12	—
SM300-33	12	12
For boiling tubes**		
SM304-10	6	—

*Holes 20mm diameter except two end holes which are 32mm.

**Holes 32mm diameter.

Plastic Test Tube Rack

Micro-Tube Rack

Polypropylene. Autoclavable. Will hold maximum of 20 tubes. Overall 210 x 70 x 35mm L x W x H. With 20 x 10mm diameter, numbered holes.

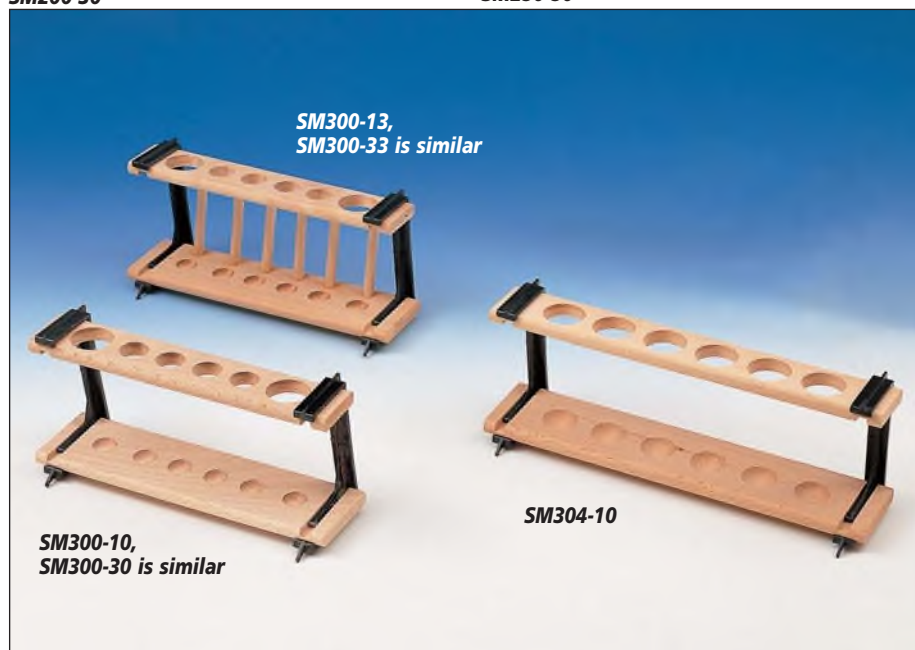
SM575-15 Micro-tube rack



SM200-30



SM250-50



SM575

Stands and Racks

Plastic Test Tube Racks



Microcentrifuge Tube Racks, Brand

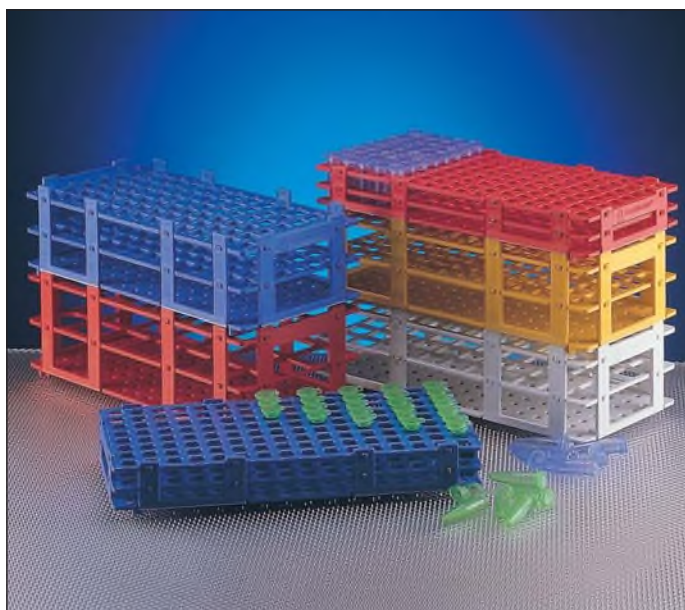
Polypropylene. To hold up to 128 x 1.5ml microcentrifuge tubes, (maximum 11mm o.d.). Autoclavable to 121°C. With alphanumeric references and colour coding as indicated. The racks sink readily in a water bath and can be stacked when not in use. Operating range -20 to +90°C. Overall 265 x 126 x 38mm W x D x H. Supplied in flat pack of 5 racks for easy assembly by the user.

	Colour
SM349-25	White
SM349-35	Blue
SM349-45	Red

Tube Racks, Brand

Versatile, polypropylene racks, autoclavable to 121°C. With square holes to accept tubes with diameters as indicated, alphanumeric marking and choice of colour coding. Sink readily in a water bath and are stackable when not in use. Operating range -20 to +90°C. Overall 265 x 126 x 75mm W x D x H. Supplied in flat pack of 5 racks for easy assembly by the user.

	Holes x tube diameter, mm	Colour
SM350-10	84 x 13	White
SM350-24	84 x 13	Blue
SM350-38	84 x 13	Red
SM350-12	55 x 18	White
SM350-26	55 x 18	Blue
SM350-40	55 x 18	Red
SM350-14	40 x 21	White
SM350-28	40 x 21	Blue
SM350-42	40 x 21	Red
SM350-16	32 x 26	White
SM350-30	32 x 26	Blue
SM350-44	32 x 26	Red
SM350-18	21 x 31	White
SM350-32	21 x 31	Blue
SM350-46	21 x 31	Red



SM350 background, SM349 foreground



SM350-40 in use

Stands and Racks

Metal Racks and Trays

Test Tube Racks

Stainless steel. 3-tier. Supplied flat for assembly by the user. Dimensions stated are nominal.

	<i>For tubes</i>
SM390-12	36 x 13mm
SM390-16	26 x 17mm
SM390-19	18 x 19mm
SM390-25	16 x 26mm

Test Tube Racks

Stainless steel. 3-tier. Dimensions stated are nominal.

	<i>For tubes</i>
SM394-10	12 x 17mm
SM394-14	24 x 17mm
SM394-18	48 x 17mm
SM394-38	12 x 20mm
SM394-42	24 x 20mm
SM394-46	36 x 20mm

Test Tube Rack

Aluminium. With holes arranged in 3 rows; 5 x 28mm, 6 x 19mm and 8 x 13mm.

SM395-14 Z-rack

Folding Rack

Aluminium, with 18 x 18mm, 6 x 29mm and 4 x 42mm holes to accept commonly used blood tubes, bijou bottles, universal containers, sputum cups, cryogenic vials etc. Supplied flat for folding easily into shape by the user when required. In use the rack is simply positioned to the hole arrangement required.

SM450-15 Folding Rack

Trays, Square Section

Aluminium. Overall 156 x 156 x 34mm W x D x H. Dimensions stated are nominal.

	<i>Sections No.</i>	<i>Dimensions</i>
SM470-15	196	10mm square
SM470-25	100	14mm square
SM470-35	81	16mm square
SM470-45	64	18mm square
SM470-55	36	24mm square
SM470-65	25	30mm square



SM390 in use



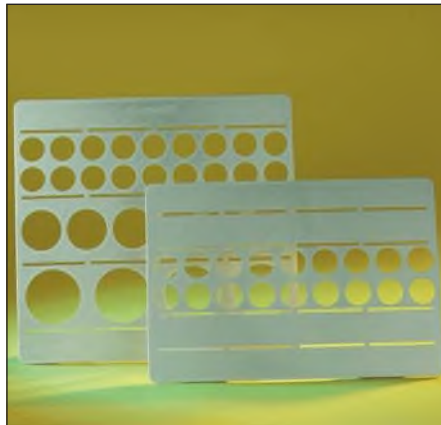
SM394 in use



SM395 in use



SM394



SM450



SM470 in use

Stands and Racks

Test Tube Racks

NALGENE®  **Unwire™**

Test Tube Racks, 5970 series

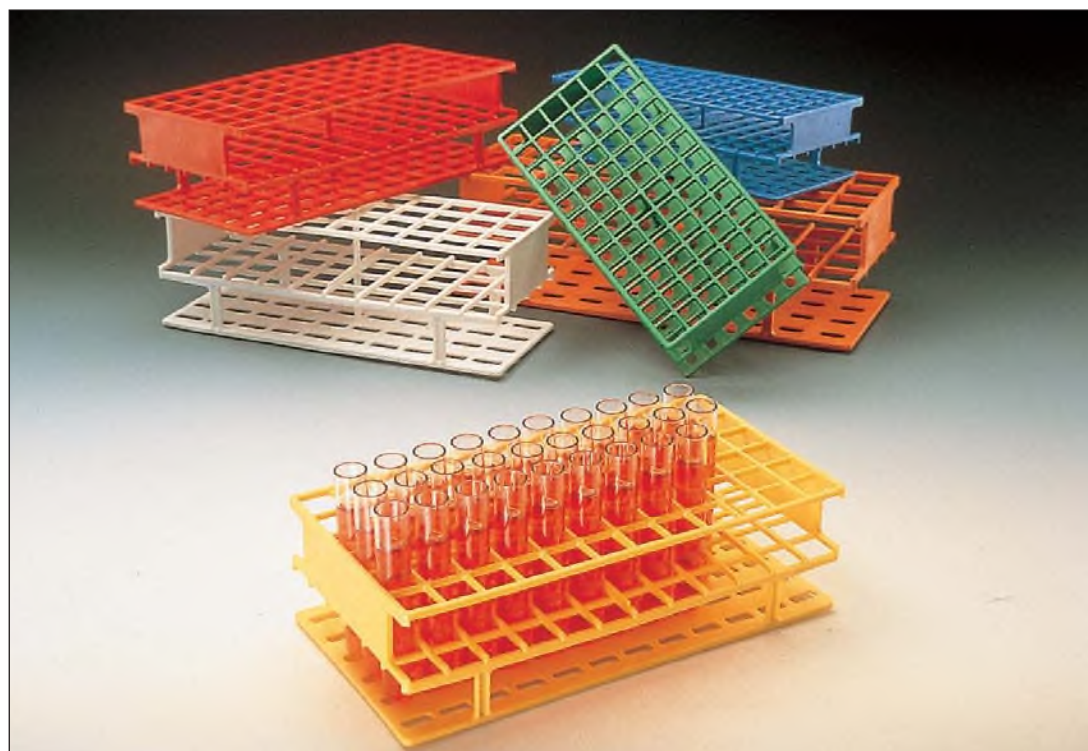
Polyketone. Three-tier grid design moulded in one piece, with alphanumeric references moulded into the top tier. Can be autoclaved and suitable for use in water baths up to 121°C.

Tube size	mm	13	16	20	25	30
Array		6 x 12	6 x 12	4 x 10	4 x 10	3 x 8
Overall						
L	mm	200	248	250	300	283
W	mm	102	127	102	121	108
H	mm	57	70	83	92	83

For tubes,	13mm	16mm	20mm	25mm	30mm
------------	------	------	------	------	------

Colour code

White	SM580-10	SM580-12	SM580-14	SM580-16	SM580-18
Orange	SM580-24	SM580-26	SM580-28	SM580-30	SM580-32
Yellow	SM580-38	SM580-40	SM580-42	SM580-44	SM580-46
Blue	SM580-52	SM580-54	SM580-56	SM580-58	SM580-60
Green	SM580-66	SM580-68	SM580-70	SM580-72	SM580-74
Red	SM580-80	SM580-82	SM580-84	SM580-86	SM580-88



SM580 in use

Stands and Racks

Test Tube Racks



Floating Microtube Racks, 5974 series

Polypropylene. Racks will float in water with a full load of filled tubes. Legs prevent the bottom of the tubes touching the bench surface. With moulded handle for easy removal of the rack from the water bath. Can be autoclaved. Supplied in packs of 4.

	Colour	Tube size	Array
Square shape			
Overall 103 x 103 x 65mm.			
SM588-17	White	1/1.2/1.5/2ml	4 x 4
Round shape			
Diameters 66 and 96mm respectively.			
SM588-22	White	1/1.2/1.5/2ml	8
SM588-25	White	1/1.2/1.5/2ml	20

Floating Foam Tube Racks

Flexible, high density polyethylene in a choice of colours. Racks will float on water with a full load of filled tubes. Closed-cell foam resists water absorption and can be washed and reused multiple times. With detachable carry handle for easy removal of the rack from water baths, etc. Supplied in packs of 5.

	Colour	Shape	Holes	Tube size
SM593-05	Blue	Round	18	0.2/0.5/1.5/2ml
SM593-10	Yellow	Rectangle	24	1.5/2ml
SM593-15	Blue	Parallelogram	8	15ml
SM593-20	Green	Diamond	4	50ml

Multipurpose Racks

Versatile polypropylene racks, suitable for freezer storage. Reversible format accommodating 0.5ml microcentrifuge tubes on one side and 1.5 to 2ml microcentrifuge tubes, cryovials or sample tubes up to 12mm o.d. on the reverse side. The larger apertures are 12mm o.d. to a depth of 10mm where they narrow to 10.8mm for a further depth of 15mm. All apertures are widely spaced apart to accommodate screw cap vials and for ease of use when inserting or removing tubes. Both sides of the rack have moulded-in alphanumeric references and the racks are available in a choice of colours. Autoclavable at 121°C for 15 minutes. Supplied singly.

48-position Racks

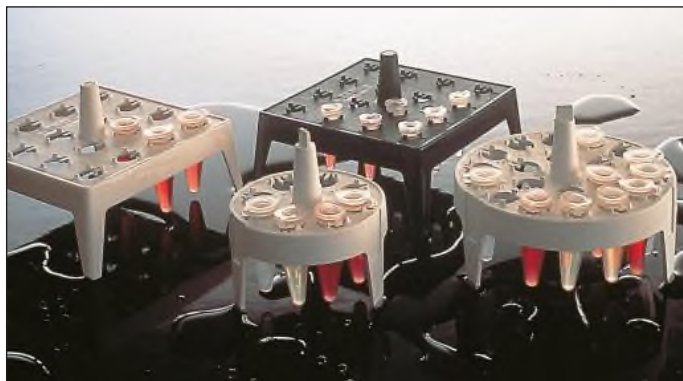
As described. Overall dimensions 215 x 69 x 27mm L x W x H. Weight 180g. Colour as indicated.

- SM595-05** 48-position reversible rack, natural
- SM595-15** 48-position reversible rack, yellow
- SM595-20** 48-position reversible rack, blue
- SM595-25** 48-position reversible rack, green

96-position Racks

As described. Overall dimensions 215 x 131 x 27mm L x W x H. Weight 330g. Colour as indicated.

- SM597-08** 96-position reversible rack, natural
- SM597-13** 96-position reversible rack, red
- SM597-18** 96-position reversible rack, yellow
- SM597-23** 96-position reversible rack, blue
- SM597-28** 96-position reversible rack, green



SM588 in use



SM593 in use



SM595, SM597 in use

Stands and Racks

Test Tube Racks

Kartell

Polypropylene. Three-tier grid design. Alphanumeric references moulded into top tier. Can be autoclaved and used in water baths up to 110°C. Supplied packed flat as one piece which can be folded to shape by the user without the use of tools.

Tube size	mm	13	16	20	25	30
Array		6 x 15	5 x 12	4 x 10	4 x 10	3 x 8
Overall	L	mm	247	247	247	300
	W	mm	104	104	104	110
	H	mm	60	70	70	85

	For tubes, mm	Colour Code		For tubes, mm	Colour Code
SM805-10	13	Grey	SM805-38	13	Red
SM805-12	16	Grey	SM805-40	16	Red
SM805-14	20	Grey	SM805-42	20	Red
SM805-16	25	Grey	SM805-44	25	Red
SM805-18	30	Grey	SM805-46	30	Red
SM805-24	13	Blue	SM805-60	13	Yellow
SM805-26	16	Blue	SM805-62	16	Yellow
SM805-28	20	Blue	SM805-64	20	Yellow
SM805-30	25	Blue	SM805-66	25	Yellow
SM805-32	30	Blue	SM805-68	30	Yellow



SM805 in use

Stands and Racks, Steamer, Steriliser

Tripods

Tripod Stands

Height 200mm.

	Length of side, mm
--	--------------------

Iron rod, triangular top

SM900-12 125

Cast iron, triangular top

SM904-12 125

SM904-15 150

SM904-20 200

Cast iron, circular top

SM914-15 150

Gauzes, iron wire

	Size cm
--	---------

Open mesh

GK600-12 12.5 x 12.5

GK600-15 15 x 15

Ceramic centre

GK605-10 10 x 10

GK605-12 12.5 x 12.5

GK605-15 15 x 15

Mats

Mats, ceramic fibre

Provide heat protection to benches. An alternative to asbestos bench mats. Approximately 5mm thick. Maximum operating temperature 80°C. Supplied singly.

	Size, mm
--	----------

MB800-15 150 x 150

MB800-22 225 x 225

MB800-30 300 x 300

Mats, Ceran®

Ceran® is a highly resistant, glass ceramic material. Operating temperature range -200 to +700°C, allowing the mat to be used as a heating surface in place of a wire gauze or fireclay triangle. Care should be taken to ensure that the maximum operating temperature is not exceeded when using with a Bunsen burner. Supplied in packs of 10.

	Size, mm
--	----------

MB820-10 135 x 135

MB820-20 155 x 155

MB820-30 175 x 175

Ceran® is a registered trade mark of Schott Glaswerk.

Bench Protection Sheets – see *Safety section*.

Steamer

A stainless steel insulated boiler with removable lid and 1.5kW immersion heater with cut-out facility which operates if the tank boils dry. With two removable shelves, lifting handles, water filling trough and 25mm tube in the lid for mounting a thermometer. Internal 300 x 302 x 500mm deep and overall 329 x 329 x 690mm W x D x H. For 230V 50/60Hz a.c. single phase supplies.

SP715-10 Koch Steamer

Steriliser

Quartz Bead Steriliser

Small, economic steriliser for small instruments and probes. Sterilising temperature 240°C. Epoxy painted steel housing with insulated sterilising chamber 65 x 75mm diameter x height. Overall 160 x 129 x 150mm W x D x H. Weight 1.7kg. Supplied with one charge of quartz beads. For 230V 50Hz single phase supplies. 160W.

SP850-10 Steriliser, quartz bead

SP852-05 Spare quartz bead charge for SP850-10

Autoclaves – see *AU112/AU180*.

Boiling water baths – see *BH105/BH120*.

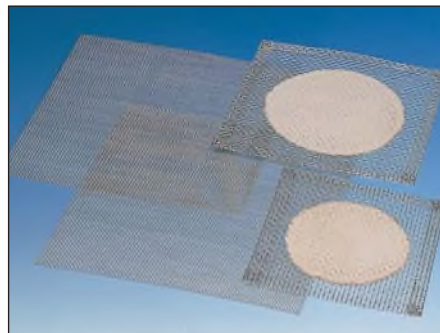


SM900



SM904

SM914



GK600

GK605



MB800



MB820 in use



SP715



SP850 in use

Stirrers, Overhead

Overhead Stirrers



Stirrers, Heidolph Hei-TORQUE series

- ◆ Choice of torque: 100Ncm, 200Ncm, 400Ncm
- ◆ Choice of performance features:
 - Hei-TORQUE Value: Speed display with torque level graphic indicator
 - Hei-TORQUE Precision: Multi-level, simultaneous display of speed, torque (both numerical and graphical), time, programming input with profile memory, timer/real-time clock indication and USB interface
- ◆ Cool running
- ◆ “Quick-Chuck”, rapid release chuck for convenient rotor changes without tools
- ◆ Safe start/stop by swiping a touch panel rather than pressing a key
- ◆ Suitable for continuous operation
- ◆ Rotary dial adjustment of parameters
- ◆ 400Ncm models have a two-stage gear design to maximise power throughout the speed range
- ◆ Sealed housing to IP54 with glass touch-panel/display screen for long-life operation within aggressive environments
- ◆ Quiet operation, <50dba in use

Hei-TORQUE model	100	200	400
Output	W 50	80	90
Gears	1	2	2
Speed range	rpm 10 to 2000	100 to 2000	10 to 400 or 200 to 2000
Max. viscosity range	mPas 60,000	100,000	250,000
Max. stirring capacity (water)	litres 50	50	100
Overall W x H x D, Value	mm 86 x 257 x 241	86 x 257 x 241	93 x 257 x 241
Overall W x H x D, Precision	mm 86 x 273 x 241	86 x 273 x 241	93 x 273 x 241
Weight	kg 4.1	5.0	5.2

As described. With 2.5mm to 12.5mm “Quick-Chuck”, control panel and retort stand mounting rod. For 230V 50Hz single phase supplies.

- SR570-15** Model Hei-TORQUE Value 100
- SR570-25** Model Hei-TORQUE Value 200
- SR570-35** Model Hei-TORQUE Value 400
- SR570-60** Model Hei-TORQUE Precision 100
- SR570-70** Model Hei-TORQUE Precision 200
- SR570-80** Model Hei-TORQUE Precision 400

Accessory Stand, S2

Stable, H-shape, plastic laminated base 430 x 420mm and stainless steel rod 25 x 700mm diameter x length. Weight 5.8kg.

- SR640-10** Stand S2
- SR642-15** Clamp 57022 for mounting stirrers on stand SR640-10

Accessory Rotors, Stainless Steel

On a shaft of 7mm diameter.

Length, mm	Ref.	Impeller	Shaft
SR644-10	BR13	Blade 70 x 70mm	450
SR644-20	TR21	Radial turbine 50mm diameter	400
SR644-30	PR30	Propellor 3-blade 58mm diameter	400
SR644-40	PR31	Propellor 3-blade 33mm diameter	400



SR570-15 to -35



SR570-60 to -80

Stirrers, Overhead

Overhead Stirrers

Stirrer, IKA Eurostar 40 digital

An economically priced stirrer suitable for up to 25 litres of low to medium viscosity liquids up to 30000 mPas. Continuously variable, microprocessor controlled speed range 30 to 2000rpm with LED digital speed display. With 0.5 to 10mm i.d. hollow shafted chuck and 16mm diameter clamping rod for mounting on a stand. Overall W x D x H 86 x 208 x 248mm. Weight 4.4kg. For 230V 50/60Hz single phase supplies. Without rotor.

SR730-35 Eurostar 40 digital

Stirrer, IKA Eurostar 60 Control

Powerful digital stirrer suitable for up to 40 litres of medium to high viscosity liquids up to 50000 mPas. Removable, multifunctional controller, with wireless connection, TFT display and continuously variable, microprocessor controlled speed range 30 to 2000rpm. Includes display of set/actual speed and temperature (-10 to +350°C, using accessory probe) with safety cut-out, torque and timer function, and USB and RS232 interfaces. With 0.5 to 10mm i.d. hollow shafted chuck and 16mm diameter clamping rod for mounting on a stand. Overall W x D x H 86 x 230 x 267mm. Weight 4.7kg. For 230V 50/60Hz single phase supplies. Without rotor.

SR730-50 Eurostar 60 control

Stirrer, IKA RW20 digital

A robust stirrer for processing up to 20 litres of medium viscosity liquids up to 10000 mPas. With digital speed display, adjustable two-speed ranges: 60 to 500 and 240 to 2000rpm, and 1 to 10mm i.d., hollow shafted chuck. Also incorporates an electronic temperature safety cut-out on the motor and 13mm diameter clamping rod for mounting on a stand. Overall dimensions 88 x 212 x 294mm W x D x H. Weight 3.1kg. For 230V 50/60Hz single phase supplies. Without rotor.

SR750-25 RW20 digital

Accessories for Eurostar and RW20 stirrers

Stand

Base Plate 200 x 316mm and 16mm diameter stainless steel rod, 800mm high. Maximum loading capacity 5kg.

MT468-22 Stand R1826

Bosshead R182

For clamping Eurostar and RW20 stirrer rods to stands. With quick release screws. Accepts rod diameters from 6 to 16mm.

SR753-09 Bosshead R182

Accessory temperature probes for Eurostar 60 Control model only

SR753-80 H 62.51 stainless steel temperature probe

SR753-85 H 66.51 stainless steel, glass coated, temperature probe

Stirrer, IKA RW28 digital

A heavy duty stirrer for processing up to 80 litres of medium viscosity liquids. With two reversible speed ranges 60 to 400 and 240 to 1400rpm. Provides high torque at the lower speeds. With high resolution, 4-digit, LED display, 1 to 10mm chuck and an infinitely variable mechanical speed control. Overall W x D x H 123 x 252 x 364mm. Weight 7.4kg. For 230V 50/60Hz single phase supplies. Without rotor.

SR765-25 RW28 digital

Accessories for RW28 digital stirrer

Heavy duty H-stand 2722

With stainless steel rod, 1010mm high.

MT492-08 Stand 2722

Bosshead R271

For clamping stirrer rod to stand.

SR768-14 Bosshead R271

Rotors, stainless steel

Suitable for all models. On 8mm diameter shaft.

	Ref.	Impellor length	Shaft
SR753-14	R1375	Blade 70 x 70mm	550mm
SR753-17	R1345	Propellor 4-blade 100mm dia.	550mm
SR753-19	R1300	Dissolving 80mm dia.	350mm
SR753-23	R1312	Turbine 50mm dia.	350mm



SR730-50, SR730-35 is similar



SR753-09



SR750-25 with accessories



SR765-25

Stirrers, Overhead

Overhead Stirrer, uniSTIRRER OH2

Budget overhead stirrer for basic tasks and volumes up to 20 litres (water) and viscosity 10,000mPas. Maximum torque 40Ncm.

- ◆ Brushless, maintenance-free motor ◆ Digital speed or torque display
- ◆ Actual and set speed monitored to ensure steady speed even if viscosity changes
- ◆ Safety cut-out protection facility in the event of a stall or overload
- ◆ RS232 data output port
- ◆ Supplied with stand, clamp, bosshead, non-slip mat and 400 x 50mm diameter propeller stirrer

<i>Model</i>		UniSTIRRER OH2
<i>Speed range</i>	<i>rpm</i>	50 to 2200
<i>Max. viscosity range</i>	<i>mPas</i>	10000
<i>Max. torque at chuck</i>	<i>Ncm</i>	40
<i>Overall W x D x H (including stand)</i>	<i>mm</i>	200 x 310 x 710

General Purpose Stirrer, UniSTIRRER OH2

As described. With electronic speed control. Supplied with stainless steel stand, bosshead, clamp, non-slip mat for the sample vessel, 4-blade propeller stirrer 50mm diameter with 400mm rod. For 110-240V 50/60Hz single phase supplies.

SR810-10 OH2



SR810-10 in use

Stirrer Rotors

Stainless steel

Supplied as separate 8mm diameter shaft with tapped screwthread end onto which can be attached a choice of paddle types.

Shafts

	Overall, mm
SR852-20	350
SR852-30	550

Paddles

	Type	Width, mm
SR852-60	Small	60
SR852-65	Large	94
SR852-70	4-blade propeller	50
SR852-75	2-blade propeller	80
SR852-90	Anchor	60

PTFE

With PTFE-encased stainless steel shaft and all-PTFE paddle blades. Operating temperature range -200 to +250°C. All rotors have a 10mm diameter shaft with an 8mm diameter exposed steel length to fit appropriate chucks.

A choice of 3 paddle styles are offered:

- Anchor blade that pivots in line with the shaft into a slotted mount so that the stirrer can be inserted through narrow apertures.
- Mini-propeller with 3-blades
- Maxi-propeller with 3-blades

	Paddle type	Overall length x paddle width
SR900-10	Anchor	350 x 90mm
SR900-22	Anchor	450 x 90mm
SR900-30	Anchor	510 x 90mm
SR900-40	Anchor	600 x 90mm
SR904-22	Mini-prop	450 x 75mm
SR904-40	Mini-prop	600 x 75mm
SR904-60	Mini-prop	800 x 75mm
SR906-22	Maxi-prop	450 x 140mm
SR906-30	Maxi-prop	600 x 140mm
SR906-40	Maxi-prop	800 x 140mm

Bossheads, rods and stands – see *Stands and Racks* section.



SR852-60



SR852-90



SR852-65



SR900



SR852-75, SR852-70 is similar



SR904, SR906 is similar

Stirrers, Overhead

Compressed Air Stirrers, PLR Series, Buddeberg

High torque, air-powered, continuous running overhead stirrers which are ideal for a variety of laboratory stirring tasks. Certified in accordance with the European ATEX Directive 94/9/EG (see notes below).

- ◆ Spark-free operation
- ◆ Excellent power:weight ratio
- ◆ Can be run whilst overloaded to a standstill without damage
- ◆ Can operate from 0 to 6 bar pressure compressed air supplies
- ◆ Air consumption 260 litres/minute at 6 bar pressure
- ◆ Stainless steel housing resists corrosion
- ◆ Maximum stirrer volume 25 litres
- ◆ Continuously adjustable speed control using valve supplied
- ◆ Models available with, or without, analogue tachometer
- ◆ Clockwise rotation

Catalogue No.		SR940-20/-60	SR940-25/-65	SR940-30/-70	SR940-40/-80
Model		PLR10/10T	PLR11/11T	PLR12/12T	PLR13/13T
Tachometer		— / ✓	— / ✓	— / ✓	— / ✓
Speed (no load)	rpm	15000	1750	1000	80
Torque	Nm	0.3	2.3	3.5	2.5
Gears		0	1	2	3
Sample viscosity capability		Low	Medium	High	Very high
Drive shaft, L x diameter	mm	24 x 10 — all models			
Overall height	mm	124/220	160/258	195/290	228/325
Overall diameter	mm	38 — all models			
Weight	kg	0.9/1.2	1.1/1.7	1.4/1.7	1.6/1.9

As described. Stainless steel housing. With valve for continuously adjustable speed control, integral exhaust air venting and 13mm diameter clamping tube for mounting on a stand incorporating a 9mm o.d. riffled nozzle for connection to compressed air supply tubing. Require a (preferably dry) compressed air source for operation.

Stirrer only

SR940-20 PLR10
 SR940-25 PLR11
 SR940-30 PLR12
 SR940-40 PLR13

Stirrer with analogue gauge tachometer

SR940-60 PLR10T
 SR940-65 PLR11T
 SR940-70 PLR12T
 SR940-80 PLR13T

Accessories

Stirrer chuck

Enables connection of SR940 series stirrers to rotors with shaft diameters between 0.5 and 8mm. With key.

SR943-04 Stirrer chuck

Connection couplings

Available in rigid or flexible formats. Rigid couplings minimise rotor 'whip'. Flexible couplings allow slight shaft-to-rotor misalignment without impairing operation. Dimensions given are the rotor shaft diameters accepted.

Rigid couplings

SR943-06 6mm
 SR943-08 8mm
 SR943-10 10mm

Flexible couplings

SR943-12 Rubber bellows, 10mm
 SR943-14 Rubber bellows, 13mm

SR943-37 Machine oil, acid and wax-free, pack of 500ml

Air compressors – see PX485.

Bases and rods – see SL250-30 and SL350-25.

Bosshead – see SL600.

Clips – see CP130/CP135.

Reinforced tubing – see TY410-22.

INFORMATION FOR OPERATING STIRRERS IN POTENTIALLY EXPLOSIVE ATMOSPHERES

- Only couplings (SR943-06 to SR943-14), rather than chucks, must be used to attach paddle shafts.
- All stirrers are provided with earthing points for equipotential bonding and must be suitably connected.
- Before using the pump, the operator must be satisfied that it is suitable for working within the prevailing environmental conditions.



SR940-20 to SR940-40 with accessories



SR940-60 to SR940-80 with accessories

Stirrers, Magnetic

Magnetic Stirrers - Unheated

Mini-Magnetic Stirrer, uniSTIRRER 1

Maximum speed 1500rpm. Ultra-flat, magnetic stirrer with IP65-rated housing, 94mm diameter stainless steel top plate with inset membrane control keypad and toroidal coil technology stirring with no moving parts. Maximum volume stirred 800ml (water). The control panel includes an on/off key, "reverse direction" button, speed control +/- keys and five LED indicators to display speed levels on an analogue scale. Overall 121 x 165 x 12mm W x D x H. Weight: 0.5kg. For 100-230V 50/60Hz single phase supplies.

SS220-10 uniSTIRRER 1

Mini-Magnetic Stirrer, IKA Lab Disc

Ultra-flat, IP65 encased, magnetic stirrer incorporating toroidal coil technology with no moving parts. Speed range 15 to 1500rpm. Maximum volume stirred 800ml (water). Polyester top plate with 90mm diameter white circle denoting stirring area. With membrane keypad control without display and "reversing function" button which reverses the stirring direction every 30 seconds. Overall 116 x 175 x 12mm W x D x H. Weight 0.3kg. For 100-240V 50/60Hz single phase supplies.

SS240-15 Lab Disc

Mini-Magnetic Stirrers, Hanna HI190M/HI200M

Maximum speed 1000rpm. Maximum volume stirred 1 litre (water). Variable speed control with 'off' position. Choice of models with ABS plastic or stainless steel top plate 120 x 120mm and moulded ABS outer case. Overall 120 x 120 x 45mm L x W x H. Supplied with 25mm PTFE coated follower. For 220-240V 50/60Hz single phase supplies.

SS307-10 HI190M, ABS top plate

SS307-20 HI200M, stainless steel top plate

Mini-Magnetic Stirrers, Stuart, SM5/-series

Maximum speed 2000rpm. Maximum volume stirred 1 litre (water). Variable speed control. With robust polypropylene housing and chemically resistant, polycarbonate top with a choice of pattern. Overall 143 x 143 x 66mm W x D x H. Weight 0.5kg. For 120-230V 50/60Hz single phase supplies.

SS310-15 SM5/Stuart, with 'Stuart' pattern top plate

SS310-25 SM5/Bibby, with 'Bibby' pattern top plate

SS310-35 SM5/Swirl, with 'Swirl' pattern top plate

Portable Magnetic Stirrer, Stuart SM27

For use in the field or inside incubators or gloveboxes where external power supply is impractical. Maximum speed 1300rpm. Maximum volume stirred 1.5 litres (water). Variable speed control with battery status indicator. ABS top plate and casing 70mm high. Maximum operating conditions +60°C and 80%RH. Overall 150 x 160 x 70mm high. Weight 1.3kg. Supplied with 4 x 1.5V size 'D' alkaline batteries giving up to 600 hours operation, and a 25mm PTFE coated follower. Accessory adapters are available for use on 230V 50Hz mains or 12V vehicle supply using the cigar lighter socket.

SS320-40 SM27

Accessories

SS322-10 Mains adapter, SM27/1, for UK/Ireland. 230V 50Hz single phase supplies

SS322-20 Mains adapter, SM27/2, for continental Europe. 230V 50Hz single phase supplies

SS322-45 Vehicle battery adapter, SM27/3, with cigar lighter plug

BL610-22 Spare 1.5V battery (4 required)

Magnetic Stirrer, uniSTIRRER 2

Maximum speed 2000rpm. With 120mm diameter aluminium top plate set into a rugged, ABS housing and analogue, variable speed control. The housing incorporates a mount for use with an accessory retort rod. Maximum volume stirred 1000ml (water). Overall 150 x 135 x 53mm W x D x H. For 100-230V 50/60Hz single phase supplies. Weight 0.5kg.

SS335-40 uniSTIRRER 2

SL370-15 Support rod



SS220-10



SS240-15



SS307-10 in use

SS307-20 in use



SS320-40 in use with accessories



SS310-35, SS310-15 and -25 are similar



SS335-40

Stirrers, Magnetic

Magnetic Stirrers – Unheated continued

Magnetic Stirrers, Stuart Undergrad-series

Speed range 100 to 2000rpm. Maximum volume stirred 15 litres. Stainless steel or ceramic top plate 150 x 150mm. Overall 172 x 248 x 109mm W x D x H. Electronic, variable speed control with dial setting and 'off' position. With facility for mounting a retort stand behind the top plate and base cut-outs to allow a retort stand base to slide under the housing. For 230V 50Hz single phase supplies.

SS345-45 US151, stainless steel top plate

SS345-49 UC151, ceramic top plate

Magnetic Stirrer, 3-position, Stuart SB161-3

Maximum speed 1500rpm. Maximum volume stirred 15 litres per position (in a 20 litre flask). With stainless steel top plate 550 x 210mm, separate speed controls, fittings for retort rods at the rear of the case and 3 x 25mm PTFE coated followers. Overall 600 x 270 x 110mm W x D x H. Weight 7kg. For 230V 50Hz single phase supplies.

SS400-20 3-position, SB161-3

Magnetic Stirrer, large, Stuart SB301

Speed range 100 to 600rpm. Top plate 300 x 300mm. For stirring aqueous solutions up to 30 litres. Variable speed with electronic feedback control for accurate speed maintenance. In metal case with stainless steel top. Overall 300 x 365 x 105mm W x D x H. Weight 5kg. Supplied with one PTFE-coated follower bar 100 x 12mm. For 230V 50Hz single phase supplies, 50W.

SS425-20 Large plate, SB301



SS345-45, SS345-49 is similar



SS400 in use



SS425 in use

Stirrers, Magnetic

Magnetic Stirrers – Unheated continued



Magnetic Stirrers, Single- and Multi-position, 2mag MIX

Single- and multi-position magnetic stirrers with induction drive which has no moving parts, digital control with LED display, and low-profile, stainless steel housing with IP64 protection level.

Model	MIX 1	MIX 6	MIX 15
Positions	1	6	15
Stirring volume range, ml per position	1 to 10000	1 to 3000	1 to 3000
Speed range rpm	100 to 2000 — all models		
Distance between positions mm	—	130	65
Overall W x D x H mm	180 x 230 x 38	245 x 425 x 38 — both models	
Weight kg	4.0	8.8 — both models	
Supply requirements	100-240V 50/60Hz supply — all models		

As described. For 100-240V 50/60Hz single phase supplies.

- SS552-04** MIX 1
- SS552-06** MIX 6
- SS552-15** MIX 15

Magnetic Stirrers, External Control, 2mag MIXdrive

Comprise IP68 protection level and hermetically sealed induction drive unit with stainless steel housing, which is connected to a control unit via cable. With maximum power 20W. Compact, submersible stirrers ideal for use within incubators, glove boxes or water baths at temperatures from 0 to +95°C. Require SS570-95 control unit for operation.

Model	MIXdrive 1 XS	MIXdrive 1 eco
Stirring volume range ml	1 to 1000	1 to 3000
Speed range rpm	100 to 1600 (with controller) — both models	
Overall W x D x H mm	48 x 48 x 18	120 x 120 x 35
Weight kg	0.25	1.5
Supply requirements	100-240V 50/60Hz (with controller) — both models	

As described. Without controller. Require SS570-95 for operation.

- SS570-05** MIXdrive 1 XS
- SS570-20** MIXdrive 1 eco

Control Unit, MIXcontrol 20

For use with SS570-series magnetic stirrers. With stainless steel housing, speed range of 100 to 1600rpm and digital display of speed and power setting, which can be controlled in 4 increments (25, 50, 75 and 100%). With maximum power 20W. For 100-240V 50/60Hz single phase supplies.

- SS570-95** MIXcontrol 20



SS552-04 in use



SS552-15 in use



SS570-05



SS552-06 in use



SS570-20 in use with SS570-95

Stirrers, Magnetic

Magnetic Stirrer/Hotplates

Magnetic Stirrer/Hotplate, uniSTIRRER 3

Maximum speed 1500rpm, volume stirred 3 litres (water) and temperature 280°C. Stainless steel heating plate, diameter 135mm. With analogue setting and bright, LED readout of speed to 10rpm, temperature to 1°C, overtemperature cut-out and "plate hot" warning indicator which operates even if the device is switched off (however it must still be under power from the mains supply). Supplied with a stainless steel Pt1000 probe, support rod and holder for sample temperature monitoring and control. Overall 155 x 215 x 100mm W x D x H (stirrer only). Weight 1.5kg. For 230V 50/60Hz single phase supplies. Hotplate rating 500W.

SS590-20 uniSTIRRER 3

Magnetic Stirrer/Hotplate, Stuart SD162

Maximum speed 1300rpm, volume stirred 15 litres (based on water contained in a 20 litre flat bottom flask) and temperature 300°C. Cast aluminium/silicon alloy hotplate 160 x 160mm, accommodating beakers up to 5 litres capacity. With digital setting and control, via a bright, fluorescent display which also simultaneously displays set and actual temperature to 1°C and speed to 10rpm, separate safety circuit, dial setting, stirrer 'on' and heater 'on' warning indicators (the heater lamp flashes whilst plate temperature remains above 70°C). A PTFE-coated, remote temperature probe which allows control of liquid temperature to $\pm 1^\circ\text{C}$ and up to 200°C is also provided and a facility for mounting a 12.5mm retort rod at the rear of the case. Overall 190 x 300 x 110mm W x D x H. Weight 3.4kg. For 230V 50/60Hz single phase supplies. Hotplate rating 750W.

SS600-40 SD162



SS600-40 in use

Magnetic Stirrer/Hotplates, Heidolph MR Hei-Standard and Hei-Tec

Maximum speed 1400rpm. Maximum temperature 300°C. Hotplate diameter 145mm. With variable speed control, electronic temperature control, independent safety overheat circuit which operates at 50°C above set temperature, and a ceramic-coated, aluminium alloy hotplate. Also feature a DIN 12878 connection for an accessory Pt1000 temperature probe, which allows direct monitoring and control of sample temperature up to 300°C*, and provision for mounting a 12.5mm diameter retort rod at the rear of the case. SS620-14 additionally features a digital display of speed and time and a secondary safety overheat circuit. Overall 173 x 277 x 94mm L x W x H. For 230V 50Hz single phase supplies. Hotplate rating 800W.

SS620-09 MR Hei-Standard, weight 2.9kg.

SS620-14 MR Hei-Tec with display, weight 2.6kg

* Note: SS620-09 does not have a display, therefore an additional thermometer is required to monitor temperature within the sample

Accessory Pt1000 probes for SS620-series

SS620-80 Stainless steel

SS620-85 Glass-coated, chemically resistant, stainless steel

Magnetic Stirrer/Hotplate, IKA RCT standard 2.0

Maximum speed 1500rpm. Temperature 50 to 310°C. Suitable for stirring up to 20 litres of water. Aluminium alloy heating plate, diameter 135mm. Digital speed and temperature setting with separate LED displays, adjustable safety overtemperature circuit, error code display, "hot top" indicator and DIN 12878 connection for a Pt1000 contact thermometer to monitor and control sample temperature directly. Supplied with Pt1000 probe and cable, splash protection cover for the housing and facility for mounting a 12.5mm diameter retort rod at the rear of the case. Overall 160 x 270 x 85mm W x D x H. Weight 2.5kg. For 230V 50/60Hz single phase supplies. Hotplate rating 600W.

SS625-35 RCT standard 2.0

Magnetic Stirrer/Hotplates, IKA RET basic safety control

Maximum speed 1700rpm. Maximum temperature 340°C. For stirring up to 20 litres of water. Stainless steel heating plate, diameter 135mm. digital speed and temperature setting with separate LED displays, adjustable safety overtemperature circuit from +50 to +300°C, error code display, "hot-top" indicator and DIN12878 connection for a Pt1000 contact thermometer to monitor and control sample temperature directly. Supplied with Pt1000 probe and cable, splash protection cover for the IP42 level housing and facility for mounting a 12.5mm diameter retort rod at the rear of the case. Overall 160 x 270 x 95mm W x D x H. Weight 2.5kg. For 230V 50/60Hz single phase supplies. Hotplate rating 600W.

SS635-52 RET basic, safety control, stainless steel plate



SS590-20



SS620-09



SS625-35



SS620-14



SS635-52

Stirrers, Magnetic

Magnetic Stirrer/Hotplates continued

Magnetic Stirrer/Hotplates, Stuart Undergrad US152/US152D

Maximum speed 2000rpm and volume stirred 15 litres. Maximum temperature 325°C. With cast aluminium/silicon alloy top plate 150 x 150mm, with thin ceramic coating for additional chemical resistance. Microprocessor controlled heating with safety circuit, direct temperature dial setting with back illumination which progressively lights up as the plate temperature increases to set point (US152D alternatively has a 3-digit, high contrast, red LED digital display to 1°C resolution which replaces the back illumination to the dial), and variable speed control with 'off' position, 'stirrer on' and 'heater on' warning lamps (the heater lamp flashes when the plate temperature exceeds 50°C). With retort rod mount behind the top plate and input for accessory power controller SCT1. Overall 172 x 248 x 122mm W x D x H. Weight 2.9kg. For 230V 50Hz single phase supplies, 750W.

SS705-10 US152
SS705-12 US152D

Magnetic Stirrer/Hotplates, Stuart Undergrad UC152/UC152D

Generally as SS705-10 or SS705-12 but maximum temperature 450°C and with glass ceramic top plate For 230V 50Hz single phase supplies, 550W .

SS705-15 UC152
SS705-17 UC152D

External Temperature Controller, SCT1, Stuart

Maximum temperature 200°C. For control and monitoring of stirred media temperature when used with Stuart Undergrad hotplates and hotplate/stirrers. With large, clear, LED display and membrane keypad setting, separate Pt100 sensor within a stainless steel probe (an accessory PTFE coated probe is also available) and flexible cable. Supplied with retort mounting rod and cable/plug for connection to the hotplate output socket. Power supply is provided from the hotplate. Overall W x D x H 90 x 5 x 123mm, weight 0.3kg.

HP202-05 SCT1
HP202-07 SCT1/2, accessory PTFE temperature probe
HP202-11 SCT1/1, accessory probe holder
SL360-15 Retort rod

Magnetic Stirrer/Hotplate, Large, Stuart CB302

Maximum speed 1500rpm. Maximum temperature 450°C. With glass ceramic top plate 300 x 300mm, precise electronic speed and temperature controls, 'hot' warning lamp which illuminates when the plate temperature exceeds 70°C, and independent overheat cut-out. A retort rod can be mounted at the rear of the housing. Supplied with 2 x 25mm stirrer followers. Overall 300 x 365 x 105mm W x D x H. Weight 7kg. For 230V 50Hz single phase supplies, 1200W.

SS708-20 CB302

Magnetic Stirrer/Hotplate, Large, Stuart SB302

Generally as SS708-20 but with maximum temperature 300°C and cast aluminium/silicon alloy top plate 300 x 300mm. For 230V 50Hz single phase supplies, 600W.

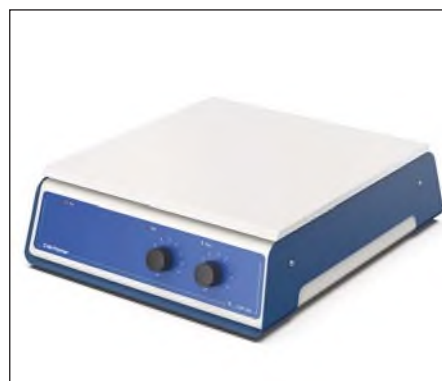
SS708-65 SB302



SS705-15



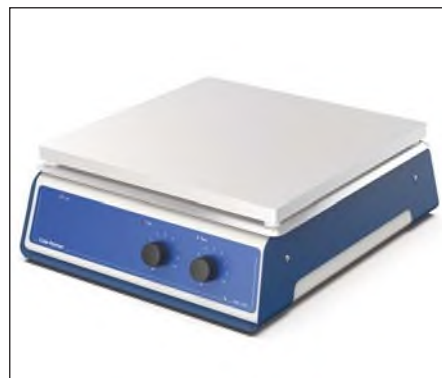
SS705-12, SS705-10 is similar



SS708-20



HP202-05



SS708-65

Stirrers, Magnetic

Magnetic Stirrer/Hotplates continued

Magnetic Stirrer/Hotplates, Stuart SP/CP Premium series

Maximum speed 1400rpm (SP-models), 1250rpm (CP-models) and volume stirred 15 litres. Maximum temperature 325°C (SP-models), 450°C (CP-models) with dial switch setting of heat, stirring speed and programming function, memory of temperature and speed profiles, colour TFT display with separate temperature and speed displays indicating target and actual readings, additional external, PTFE-coated, temperature probe for monitoring sample temperature with display indicator. With ceramic-coated, aluminium/silicon alloy, or solid glass ceramic top plate, 150 x 150mm W x D. Overall 182 x 300 x 85mm W x D x H. Weight 2.73kg. In a choice of three housing colours with illuminated power and "hot plate" indicators and retort rod mount behind the top plate. For 230V 50Hz single phase supplies, 750W (SP-models) 550W (CP-models).

- SS705-45** SP152B, aluminium top plate, blue housing
- SS705-47** SP152W, aluminium top plate, white housing
- SS705-49** SP152K, aluminium top plate, black housing
- SS705-64** CP152B, glass ceramic top plate, blue housing
- SS705-66** CP152W, glass ceramic top plate, white housing
- SS705-68** CP152K, glass ceramic top plate, black housing



Other colours are available - details on request



SS705-49



SS705-68

Stirrers, Magnetic

Magnetic Stirrer/Hotplates continued

Magnetic Stirrer/Hotplates, Square Plate, Ohaus Guardian series

Maximum speed 1600rpm and volume stirred 15 litres. Maximum temperature 500°C. Electronic setting using separate dial switch controls for heat and stirring speed, with separate high-resolution, backlit LCD readouts. With moulded glass-ceramic top-plate, single-point calibration and dual independent safety controls to continuously monitor the electronics and shut down heating before overtemperature occurs. Guardian 7000 models additionally feature SmartPresence and SmartLink technologies which allow a user to "pair" a mobile device to the unit to supervise operation and enable a heater shutdown if no operator is detected after a user-set period of time has elapsed. They also have SmartHeat and SmartPlate functions which allow maximum temperature and heat ramp rate adjustment. All units feature a "heat on" icon, retort rod holder at the rear of the housing and have a remote probe socket for use with an accessory probe to monitor media temperature directly. For 230V 50/60Hz single phase supplies.

	Model	Top plate, mm	Overall W x D x H, mm
Guardian 5000			
SS720-05	e-G51HS07C	178 x 178	223 x 309 x 122
SS720-15	e-G51HS10C	254 x 254	286 x 415 x 122
Guardian 7000			
SS720-35	e-G71HS07C	178 x 178	223 x 309 x 122
SS720-45	e-G71HS10C	254 x 254	286 x 415 x 122

Accessory temperature probes for Guardian series

- SS722-08** Stainless steel, 250mm long
- SS722-11** PTFE-coated, chemically resistant, stainless steel, 250mm long
- SS722-14** Support rod and clamp kit for probes

Magnetic Stirrer/Hotplates, Round Plate, Ohaus Guardian series

Maximum speed 1600rpm and volume stirred 20 litres. Maximum temperature 380°C. Electronic setting using separate dial switch controls for heat and stirring speed, with separate high-resolution, backlit LCD readouts. With circular, 135mm diameter top-plate, single-point calibration and dual independent safety controls to continuously monitor the electronics and shut down heating before overtemperature occurs. Guardian 7000 models additionally feature SmartPresence and SmartLink technologies which allow a user to "pair" a mobile device to the unit to supervise operation and enable a heater shutdown if no operator is detected after a user-set period of time has elapsed. They also have SmartHeat and SmartPlate functions which allow maximum temperature and heat ramp rate adjustment. All units feature a "heat on" icon, retort rod holder at the rear of the housing and have a remote probe socket for use with an accessory probe to monitor media temperature directly. Accessory blocks allow use with a variety of tubes. For 230V 50/60Hz single phase supplies.

	Model	Overall W x D x H, mm
Guardian 5000		
SS725-25	e-G51HSRDM	173 x 267 x 126
Guardian 7000		
SS725-30	e-G71HSRDM	173 x 267 x 126

Accessory blocks

Single, anodised aluminium block which covers the whole hotplate surface. Vial blocks have approximately 17mm depth wells, tube blocks have approximately 45mm depth wells. For vessels as indicated.

- SS727-02** For 40 x 12mm diameter vials
- SS727-03** For 40 x 15mm diameter vials
- SS727-06** For 32x 17mm diameter vials
- SS727-09** For 24 x 21mm diameter vials
- SS727-12** For 16 x 28mm diameter vials
- SS727-15** For 40 x 12mm diameter test tubes
- SS727-18** For 32 x 16mm diameter test tubes
- SS727-21** For 32 x 20mm diameter test tubes
- SS727-24** For 24x 25mm diameter test tubes
- SS727-27** Baseplate which sits on the hotplate under the accessory block allowing removal of blocks when hot. Requires handles SS727-28 for operation.
- SS727-28** Handles for SS727-27 baseplate, pack of 2

Sectional blocks covering part of the hotplate surface, allowing mixed vessel types to be handled, are also available - *details on request.*



SS720-05



SS725-25



SS720-15



SS725-30

Stirrers, Magnetic

Magnetic Stirrer/Hotplates continued

Magnetic Stirrer/Hotplate, Infra-red, Stuart CR302

Maximum speed 1500rpm. Nominal maximum temperature 400°C. With black glass ceramic top 300 x 300mm (heated area 140mm diameter), 900W infra-red heater which will boil 1 litre of water over 30% faster than a conventional 1200W hotplate and powerful, rare-earth, magnetic stirring of up to 15 litres of water. A safety 'hot' warning illuminates when the plate temperature exceeds 70°C. Overall 300 x 365 x 105mm W x D x H. Weight 4kg. For 230V 50Hz single phase supplies. 950W.

SS730-40 Infra-red, CR302

Magnetic Stirrer/Hotplate, Ohaus

Speed range 100 to 1200rpm. Maximum temperature 500°C and capacity 1 litre (water). With microprocessor-controlled heating and stirring, dial setting with arbitrary scale, bright white, moulded ceramic, 102 x 102mm top plate which is acid and alkali resistant and with support rod clamp within the rear housing. Supplied with 38mm long stirrer bar. Overall W x D x H 152 x 201 x 127mm, weight 1.8kg. For 230V 50/60Hz single phase supplies.

SS740-10 HSMNH54CAL

SL400-15 Accessory retort rod, 600mm

Magnetic Stirrer/Hotplate, 3-position, Stuart

Maximum speed 1500rpm. Maximum temperature 325°C. Maximum volume stirred 15 litres per plate (in a 20 litre flask). With three aluminium/silicon alloy hotplates, 160 x 160mm, individually controlled for temperature and speed, separate safety circuit to prevent overheating and 'hot' warning lamps which flash when the plate temperature exceeds 70°C. Supplied with fittings for mounting 12.5mm diameter retort rods and 3 x 25mm PTFE coated followers. Overall 600 x 270 x 110mm W x D x H. Weight 11kg. For 230V 50Hz single phase supplies, 2250W.

SS780-20 3-position, SB162-3

Bossheads and clamps – see *SL600/SL660*.

Magnetic stirrer followers – see *ST500/ST634*.

Stirrer follower retrievers – see *ST800/ST804*.



SS730-40



SS740-10 in use



SS780-20 in use

Stirrer Followers, Magnetic

Magnetic Stirrer Follower Bars

Follower Bars

Cylindrical shape, encased in the materials specified. Supplied singly or in packs as indicated.

Length, mm	Glass plain	Qty.
6	ST500-06	1
12	ST500-12	1
45	ST500-45	1
60	ST500-60	1

Length, mm	PTFE plain	Pack qty.
6	ST512-06	2
8	ST512-08	2
12	ST512-12	2
15	ST512-15	2
20	ST512-20	2
25	ST512-25	2
30	ST512-30	2
35	ST512-35	2
40	ST512-40	2
50	ST512-50	1
60	ST512-60	1
80	ST512-80	1

Length, mm	PTFE centre rim	Pack qty.
8	ST515-08	2
12	ST515-12	2
20	ST515-20	2
25	ST515-25	1
30	ST515-30	1
35	ST515-35	1
45	ST515-45	1
50	ST515-50	1
60	ST515-60	1
70	ST515-70	1

Follower Bars

PTFE coated. Supplied singly or in packs as indicated.

	Length x dia. mm	Pack qty.
Large size		
ST530-11	106 x 27	1
ST530-16	159 x 27	1
Micro-flea size		
ST540-14	2 x 2	1
ST540-19	3 x 3	1
ST540-25	5 x 2	1
ST540-30	7 x 2	2
ST540-35	8 x 1.5	2
ST540-40	10 x 3	2
ST540-45	13 x 3	2

Follower Bar Set

Set of 10 stirrer bars, comprising one each glass cylindrical sizes 6, 12, 20, 25, 45 and 60mm and PTFE with centre rim sizes 12, 25, 45 and 60mm from the ST500/ST515 series.

ST590-12 Follower set

Follower Bar Set, Azlon

Set of 22 stirrer bars all PTFE, supplied in a polypropylene, compartmented case with opaque lid and integral clip. Comprising two each 12mm, 25mm, 45mm and 60mm long octagonal, two each 20mm, 25mm, 35mm and 50mm long oval and three each 7mm and 10mm long micro follower bars.

ST592-12 Follower set, SWN515



ST500



ST515



ST590



ST512, ST530 are similar



ST540



ST592

Stirrer Followers, Magnetic

Magnetic Stirrer Follower Bars continued

Follower Bars

PTFE encased. Supplied in packs of 2.

	<i>Dia. mm</i>
Crosshead	
ST620-10	10
Disc	
ST622-10	10
ST622-20	20
ST622-30	30

Follower Bars

PTFE encased. Supplied in packs of 2.

	<i>Length x dia. mm</i>
Octagonal	
ST630-12	13 x 8
ST630-25	28 x 8
ST630-35	38 x 8
ST630-50	50 x 10
ST630-75	75 x 12
Oval	
ST634-20	20 x 10
ST634-25	25 x 12
ST634-30	30 x 16
ST634-35	35 x 16
ST634-40	40 x 20
ST634-50	50 x 20

Follower Retrievers

Follower Retrievers

PTFE or polypropylene encased magnet on semi-rigid handle in the same material. Supplied singly.

	<i>Material</i>	<i>Length, mm</i>
ST800-30	Polypropylene	300
ST804-25	PTFE	250
ST804-35	PTFE	350

Magnets – see MA208/MA220.

Tongs – see TR500/TR550.



ST800, ST804 in use

Stopcocks

Pyrex® Glass Key

A range of Pyrex® borosilicate glass stopcocks which meet DIN 12541 specification. With interchangeable keys. Keys and barrels have 1:10 taper. Supplied with plastic screwthread key retainer (bore sizes 1.5mm to 4mm).

All side arms are 100mm long except where indicated.

Straight Stopcocks

Plain arms. All with 1.5mm wall thickness.

	Ref.	Key x stem bore o.d., mm	Spare key
Single bore			
SV260-10	SSD102	1.5 x 8	SV305-10
SV260-15	SSD103	2.5 x 9	SV305-15
SV260-20	SSD104	4 x 10	SV305-20

Spare Keys

For Pyrex® glass key stopcocks to DIN 12541 specification only. Supplied with plastic screwthread key retainer.

	Ref.	Bore, mm	Type
SV305-10	SSD102K	1.5	Straight bore
SV305-20	SSD104K	4	

Note:

Components from Pyrex® DIN 12541 glass key stopcocks are incompatible with the previous Interkey range. Please contact us for advice.



SV260



SV305

Stopcocks

Pyrex® PTFE Key

With PTFE keys in polished glass barrels having a taper of 1:10 (DIN 12541 standard). Side arms are 100mm long unless otherwise stated.

With two types of retaining device.

Bore sizes 1 to 4mm – Nylon nut, PTFE washer and nitrile rubber O-ring.

Bore size 6mm – Nylon nut, nylon washer and tension spring.

Straight bore stopcocks up to 12mm o.d. side arms have 1.0mm wall thickness all others have 1.5mm wall thickness.

Ref.	Key bore mm	Side arm o.d. mm	Spare key	
Straight stopcocks, plain arms, single bore				
SV330-10	SST102	1.5	8	SV350-10
SV330-15	SST103	2.5	10	SV350-15
SV330-20	SST104	4	10	SV350-20
SV330-30	SST106	6	12	SV350-30
Straight stopcocks, plain arms, double oblique bore				
SV335-15	SST203	2.5	9	—
T-bore stopcocks, plain arms, 3-way				
SV340-20	SST304	4	10	SV358-20

Spare PTFE Keys

For Pyrex DIN stopcocks.

	Ref.	Bore, mm	Type
SV350-10	SST102K	1.5	Straight bore
SV350-15	SST103K	2.5	
SV350-20	SST104K	4	
SV358-20	SST304K	4	

Note:

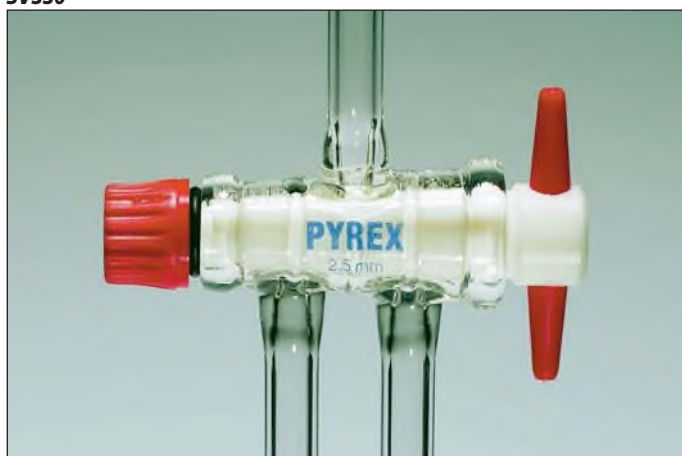
Components from Pyrex® DIN 12541 PTFE key stopcocks are incompatible with the previous Interflon range. Please contact us for advice.



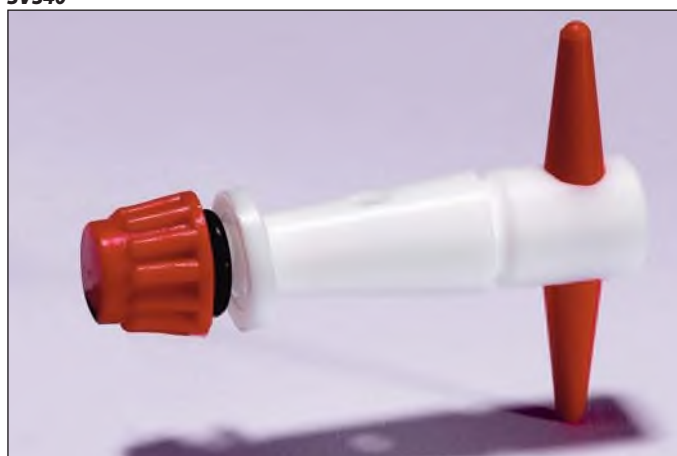
SV330



SV340



SV335



SV350 to SV358

Stopcocks

High Vacuum

Borosilicate glass. Both key and barrel are individually coded with the same number to ensure that they are always matched. Side arms 100mm long unless otherwise stated.

Straight Stopcocks

Plain arms, plain key.

	Ref.	Key bore, mm	Side arms o.d. x wall, mm
Single bore			
SV600-20	SSV103	3	9 x 1.5
SV600-25	SSV104	4	10 x 1.5
SV600-30	SSV106	6	11 x 1.5
Double oblique bore			
SV604-25	SSV204	4	10 x 1.5

Rotaflo®

With safety locking device which prevents complete unscrewing of the key.

- ◆ All glass/PTFE pathway
- ◆ Excellent flow control
- ◆ No lubrication required
- ◆ Interchangeable keys

General purpose (GP) fitted with blue control cap for easy identification.

- ◆ Vacuum operation to 10⁻⁴ torr
- ◆ Temperature range -20 to 200°C
- ◆ Bore sizes 3, 6 and 10mm
- ◆ Straight, right angle, burette configurations

Rotaflo is a registered trade mark. Barloworld Scientific - registered user.

General Purpose Rotaflo Stopcocks

Borosilicate glass with PTFE screw-in key and safety locking ring.

mm	Bore, overall	Type arms	Approx. length, mm	Side o.d. mm
QGP3ST/5	3	Straight	210	5
QGP3RA/5	3	Right angle	150	5
QGP3BU/5B	3	Burette – borosilicate	175	5
QGP6ST/7	6	Straight	210	7
QGP6RA/7	6	Right angle	165	7
QGP10ST/10	10	Straight	165	10
QGP10RA/10	10	Right angle	175	10

Spare keys. For GP Rotaflo stopcocks.

Bore, mm
QGP3K
QGP6K
QGP10K

Spare safety locks. For GP Rotaflo stopcocks.

Bore, mm
QLR3
QLR6
QLR10

Full details of both GP and HP Rotaflo stopcocks can be found in the Quickfit section.



SV600



QGP -RA/-



QGP -ST/-



QLR-



SV604



QGP3BU/5B



QGP -K

Stopcocks

Plastic Stopcocks

Straight Stopcocks

For tubing connection. 2-way.

	For tubing i.d. mm
Polyethylene	
SV880-15	5 to 7
SV880-20	7 to 9
SV880-25	9 to 11

T-bore Stopcock

For tubing connections. 3-way.

	For tubing i.d. mm
Polyethylene	
SV920-15	5 to 7
SV920-20	7 to 9
SV920-25	9 to 11

Polyvinylidene Fluoride*

SV924-15	5 to 7
SV924-20	7 to 9
SV924-25	9 to 11

* Polyvinylidene fluoride can be used up to 150°C and has a chemical resistance level approaching PTFE.

Aspirator Stopcocks

Polyethylene, with airflow valve to allow easy venting of jerrycans when dispensing. To fit DIN necks or outlets as indicated.

	Inlet thread
SV942-10	DIN51
SV942-40	DIN61

Right Angled Stopcocks, Laboplast, Bürkle

Available in either polypropylene/polyethylene or electroconductive polyamide, with PTFE seals. Smooth-action dispensing stopcock with scaled lever to allow reproducible flow regulation, tapered, rotatable outlet spout to prevent dripping and allow use within narrow neck vessels (6mm minimum diameter) or tubing and R³/₄inch, inner threaded cap nut and inlet connection (SV944-30 suitable for use with solvents). Withstands pressures up to 2bar at 20°C ambient.

SV944-20	Laboplast stopcock
SV944-30	Laboplast electroconductive stopcock

Compact Stopcock, Laboplast, Bürkle

Polypropylene/polyethylene with PTFE seal. Compact design especially suitable for containers stored in restricted spaces. Smooth dispensing. With R³/₄inch inner threaded cap nut and inlet connection.

SV950-10	Compact stopcock
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SV880



SV924



SV944-20 in use



SV944-30 in use



SV920



SV942



SV950 in use

Stoppers

Glass/Plastic

Stoppers, Pyrex

Interchangeable. Hollow blown.

	Ref.	Cone size
SW400-10	2595/01	10/13
SW400-12	2595/02	12/14
SW400-14	2595/03	14/15
SW400-19	2595/05	19/17
SW400-24	2595/06	24/20
SW400-29	2595/07	29/32
SW400-45	2595/12	45/25

Stoppers, MBL glass

Interchangeable, hollow-blown borosilicate glass with 'drip-tip' on lower surface of cone to ensure any fluid adhering is directed into the flask.

	Ref.	Cone size
SW402-19	TRF691	10/19
SW402-21	TRF692	12/21
SW402-23	TRF693	14/23
SW402-26	TRF695	19/26
SW402-29	TRF696	24/29
SW402-32	TRF697	29/32
SW402-35	TRF698	34/35

Stoppers, plastic

	Ref.	Cone size
Polyethylene, white		
SW432-10	TRF591	10/19
SW432-12	TRF592	12/21
SW432-14	TRF593	14/23
SW432-19	TRF595	19/26
SW432-24	TRF596	24/29
SW432-29	TRF597	29/32
SW432-35	TRF598	34/35

PTFE, natural

SW442-10	—	10/19
SW442-14	—	14/23
SW442-19	—	19/26
SW442-24	—	24/29
SW442-29	—	29/32

Plastic Screw Cap

Stoppers, SVL screwcap

A black, polybutylene terephthalate (PBT) cap with an ethylene propylene sealing disc faced with PTFE. Can be dry heat and steam sterilised to 180°C.

	Ref.	SVL cap size, mm	External dia. x height, mm
SW460-13	4503/13	13	17 x 16
SW460-15	4503/15	15	20 x 21
SW460-18	4503/18	18	23 x 21
SW460-20	4503/20	20	25 x 21
SW460-22	4503/22	22	27 x 21
SW460-25	4503/25	25	31 x 26
SW460-30	4503/30	30	36 x 26
SW460-42	4503/42	42	52 x 30
SW460-60	4503/60	60	70 x 42

Spare inserts

PTFE coated ethylene propylene.

	Ref.	Cap size, mm
SW464-13	4513/13	13
SW464-15	4513/15	15
SW464-18	4513/18	18
SW464-20	4513/20	20
SW464-22	4513/22	22
SW464-25	4513/25	25
SW464-30	4513/30	30
SW464-42	4513/42	42
SW464-60	4513/60	60

continued on next page



SW400



SW402



SW432



SW442



SW460

Stoppers

Special Purpose

Stoppers, Turnover

With turnover flange and serrations to grip the inside of narrow neck containers. Supplied in packs of 10.

	Size ref.	Plug dia. mm
Cream, food-grade rubber		
SW504-20	(25)	12.5
SW504-45	(37)	17.5
SW504-65	(49)	22
Red, food-grade rubber		
SW505-30	(25)	12.5
SW505-35	(29)	14
SW505-45	(37)	17.5
SW505-50	(41)	19
SW505-55	(45)	20.5
SW505-60	(49)	22
SW505-65	(53)	24

Aluminium foil – see AL200.

Stoppers, Steristoppers

Preformed cellulose plugs for sealing culture tubes and flasks. They are permeable to air and can be hot air sterilised up to 200°C. All stoppers are tapered and the cellulose material will depress slightly to ensure a tight fit into the tube or neck. Length varies from approximately 30 to 60mm according to size. Supplied in packs as indicated.

	To fit tube i.d., mm	Pack qty.
SW536-21	10	1000
SW536-27	12	1000
SW536-39	15	500
SW536-58	20	400
SW536-80	32	800

Closures, Lab-O-Cap

Anodised aluminium, in single colours as indicated, with internal, stainless steel, radial spring providing a gentle grip on glass tubes. Supplied in packs of 100 of one colour as specified.

	For tube o.d., mm
--	-------------------

Silver

TE870-13	12 to 13
TE870-16	15 to 16
TE870-18	17 to 18
TE870-20	19 to 20
TE870-26	24 to 26

Blue

TE873-13	12 to 13
TE873-16	15 to 16
TE873-18	17 to 18
TE873-20	19 to 20
TE873-26	24 to 26

Red

TE877-13	12 to 13
TE877-16	15 to 16
TE877-18	17 to 18
TE877-20	19 to 20
TE877-26	24 to 26

Corks, tapered

Dimension given is the small end diameter. Pack quantities are approximate.

	Dia. mm	Pack qty.
CW300-06	6	250
CW300-08	8	250
CW300-10	10	240
CW300-12	12	160
CW300-14	14	160
CW300-16	16	120
CW300-18	18	80
CW300-19	19	60
CW300-22	22	50
CW300-25	25	30
CW300-29	29	30
CW300-32	32	25
CW300-35	35	20
CW300-38	38	20
CW300-42	42	15
CW300-45	45	15
CW300-48	48	10
CW300-50	50	10
CW300-70	Assorted	150

Parafilm sealing film – see SE165.

Plasticine – see SE180.



SW505, SW504 are similar



SW536 in use



TE870/TE873/TE877



CW300

Stoppers

Rubber – General Purpose

Rubber Stoppers to BS2775

Each stopper has a moulded-in number, corresponding to the bottom diameter in millimetres. All forms supplied in pack quantities specified.

Stopper No.	Bottom x top diameters x length, mm	Natural Solid	Pack qty.	Natural 1-hole	Pack qty.	Natural 2-holes	Pack qty.	Neoprene Solid	Pack qty.	Silicone Solid	Pack qty.
3	3 x 4.5 x 12	SW600-10	50	—	—	—	—	SW655-10	50	SW680-10	50
4	4 x 5.8 x 14	SW600-14	50	—	—	—	—	SW655-14	50	SW680-14	50
5	5 x 7 x 16	SW600-18	50	SW615-18	50	—	—	SW655-18	20	SW680-18	50
6	6 x 8 x 16	SW600-22	50	SW615-22	50	—	—	SW655-22	20	SW680-22	50
7	7 x 9 x 16	SW600-26	20	SW615-26	20	—	—	SW655-26	20	SW680-26	50
8	8 x 10.5 x 20	SW600-30	20	SW615-30	20	—	—	SW655-30	20	SW680-30	20
9	9 x 11.5 x 20	SW600-34	20	SW615-34	20	—	—	SW655-34	20	SW680-34	20
10	10 x 12.5 x 20	SW600-38	20	SW615-38	20	—	—	SW655-38	20	SW680-38	20
11	11 x 14 x 24	SW600-42	20	SW615-42	20	—	—	SW655-42	20	SW680-42	10
13	13 x 16 x 24	SW600-46	20	SW615-46	20	—	—	SW655-46	20	SW680-46	10
15	15 x 18 x 24	SW600-50	20	SW615-50	20	SW626-50	20	SW655-50	20	SW680-50	10
17	17 x 20.5 x 26	SW600-54	20	SW615-54	20	SW626-54	20	SW655-54	20	SW680-54	10
19	19 x 22.5 x 28	SW600-58	20	SW615-58	20	SW626-58	20	SW655-58	10	SW680-58	5
21	21 x 24.5 x 28	SW602-12	20	SW617-12	20	SW628-12	20	SW657-12	10	SW682-12	5
23	23 x 26.5 x 28	SW602-16	20	SW617-16	20	SW628-16	20	SW657-16	10	SW682-16	5
25	25 x 28.5 x 28	SW602-20	20	SW617-20	20	SW628-20	20	SW657-20	10	SW682-20	2
27	27 x 31 x 32	SW602-24	10	SW617-24	10	SW628-24	10	SW657-24	10	SW682-24	2
29	29 x 33 x 32	SW602-28	10	SW617-28	10	SW628-28	10	SW657-28	10	SW682-28	2
31	31 x 36 x 35	SW602-32	10	SW617-32	10	SW628-32	10	SW657-32	5	SW682-32	2
33	33 x 38.5 x 38.5	SW602-36	10	SW617-36	10	SW628-36	10	SW657-36	5	SW682-36	2
35	35 x 40.5 x 38.5	SW602-40	10	SW617-40	10	SW628-40	10	SW657-40	5	SW682-40	1
37	37 x 42.5 x 38.5	SW602-44	10	SW617-44	10	SW628-44	10	SW657-44	5	SW682-44	1
39	39 x 44.5 x 38.5	SW602-48	10	SW617-48	10	SW628-48	10	SW657-48	5	SW682-48	1
41	41 x 47 x 42	SW602-52	5	SW617-52	5	SW628-52	5	SW657-52	2	SW682-52	1
43	43 x 49 x 42	SW602-56	5	SW617-56	5	SW628-56	5	SW657-56	2	SW682-56	1
45	45 x 51 x 42	SW602-60	5	SW617-60	5	SW628-60	5	SW657-60	2	SW682-60	1
49	49 x 55 x 42	SW604-13	5	SW619-13	5	SW630-13	5	SW659-13	2	SW684-12	1
53	53 x 59.5 x 45.5	SW604-17	2	SW619-17	2	SW630-17	2	SW659-17	1	SW684-17	1
57	57 x 64 x 49	SW604-21	2	SW619-21	2	SW630-21	2	SW659-21	1	SW684-21	1
62	62 x 69 x 49	SW604-25	2	SW619-25	2	SW630-25	2	SW659-25	1	SW684-25	1
67	67 x 74 x 49	SW604-29	2	SW619-29	2	SW630-29	2	SW659-29	1	SW684-29	1
71	71 x 78 x 49	SW604-33	1	SW619-33	1	SW630-33	1	SW659-33	1	SW684-33	1
75	75 x 85 x 54	SW604-37	1	SW619-37	1	SW630-37	1	—	—	—	—
79	79 x 89 x 54	SW604-41	1	SW619-41	1	SW630-41	1	—	—	—	—
86	86 x 96 x 54	SW604-45	1	SW619-45	1	SW630-45	1	—	—	—	—
92	92 x 102 x 54	SW604-49	1	SW619-49	1	SW630-49	1	—	—	—	—
99	99 x 108 x 54	SW604-53	1	SW619-53	1	SW630-53	1	—	—	—	—
105	105 x 117 x 63.5	SW604-57	1	SW619-57	1	SW630-57	1	—	—	—	—

Stoppers, assorted packs

Natural rubber. Comprising five each Nos. 7, 8, 9 10, 11, 13, 15, 17, 19, 21, 23. Two each Nos. 25, 27, 29, 31, 33, and 35.

SW640-20 Solid stopper pack

SW640-30 1-hole stopper pack

Hole drilling

Natural rubber stoppers are available pre-drilled. Where specified the hole diameter will be sizes:

3 and 4	supplied solid only
5 to 8	1 hole of 3mm
9 to 105	1 hole of 5mm
15 to 105	2 holes of 5mm

Neoprene rubber stoppers are available pre-drilled to special order. Hole diameters are as given for natural rubber stoppers.



Storage

Containers/Racks

Storage Containers

Transparent acrylic. Designed to provide visible storage of small laboratory items. Hinged lids provide rapid filling and dispensing. These bench-mounting units provide simple, convenient and visible storage for small items such as pipette tips, septa etc. Dimensions stated are H x W x D.

- SX200-15** 2-compartment unit
365 x 140 x 160mm
- SX200-18** 3-compartment unit
210 x 210 x 160mm
- SX200-20** 4-compartment unit
210 x 290 x 160mm

Storage Rack

Polypropylene open tiered rack, bench mounting, for storing small laboratory items such as corks, bungs, pipettor tips, small bottles etc. Stops prevent the bins falling off the ends and to improve visibility the bins can be angled down by approximately 7". Overall dimensions of each assembly 388 x 500 x 360mm H x W x D.

	Tiers	Bins of H x W x D, mm
SX210-14	4	8 of 50 x 125 x 130 4 of 75 x 125 x 170 4 of 100 x 125 x 225



SX200-18, SX200-15 and SX200-20 are similar



SX210-14

Storage Bin Panels

Storage Bin Panels

Flat, wall-mounting steel panels finished in colours as indicated, with louvred cut-outs to hold hanging storage bins in the following sizes:

Bin size	L x W x H, mm
1	90 x 100 x 50
2	165 x 100 x 75
3	240 x 150 x 125

Supplied without wall fixings.

Red panel 320 x 300 x 1.2mm W x H x D, with 6 each size 1 and size 2 bins in blue.

SX215-20

Blue panel 320 x 300 x 1.2mm W x H x D, with 6 each size 1 and size 2 bins in red.

SX215-25

Red panel 457 x 300 x 1.2mm W x H x D, with 6 size 3 bins in blue.

SX215-32

Blue panel 457 x 300 x 1.2mm W x H x D, with 6 size 3 bins in red.

SX215-36

Grey panel 457 x 438 x 1.2mm W x H x D, with 8 each size 2 bins in red and blue.

SX215-43

Grey panel 457 x 946 x 1.2mm W x H x D, with 9 each size 3 bins in red and blue.

SX215-47

Grey panel 457 x 641 x 1.2mm W x H x D, with 24 size 2 bins in red.

SX215-51



SX215-20



SX215-36

Cabinets

Storage Cabinets

With transparent tough plastic drawers mounted in a strong steel frame. Allow clean storage of small laboratory items, components, spares etc. Units can be wall or bench mounted. A retaining lip at the rear prevents the drawers from falling out of the cabinet. Overall dimensions of each cabinet 407 x 306 x 150mm H x W x D.

	Drawers of H x W x D, mm
SX225-10	36 of 35 x 64 x 135
SX225-14	18 of 57 x 87 x 135
SX225-18	6 of 57 x 275 x 135
SX225-22	24 of 35 x 64 x 135 3 of 57 x 87 x 135 1 of 57 x 275 x 135

Storage Cabinet, large depth

General construction and uses as SX225 series but with transparent tough plastic drawers 240mm deep. Overall 435 x 357 x 255mm. Can be wall or bench mounted. With 8 drawers each 85 x 160 x 240mm H x W x D.

SX230-10 Cabinet, large depth

Security cabinets – see FZ540/FZ542.



SX225-22



SX230

Storage

Storage Containers

Bench or wall mounting, dispensing/storage containers, with rigid polystyrene outer bodies and transparent ABS inner compartments that tilt forward for filling or dispensing. All units have a common width of 600mm. Provide convenient, clean and visible storage of small parts and accessories. Supplied in packs as indicated.

	No of Bins	Bin height x depth, mm	Pack qty.
SX204-04	9	77 x 64	10
SX204-08	6	113 x 93	10
SX204-12	5	164 x 135	5
SX204-16	4	207 x 171	4
SX204-20	3	240 x 197	3
SX204-24	2	353 x 310	1

Accessory

Retaining bars. Secure compartments in place if unit is moved and prevents accidental opening (not necessary for SX204-04).

SX204-30 Accessory retaining bars, pack of 25



SX204

Storage Cabinets

All polypropylene construction with strong, moulded frame holding transparent, pull-out drawers for holding small components and spare parts etc. Units can be wall or bench mounted. Overall dimensions of the cabinet 420 x 270 x 130mm H x W x D. Supplied in packs of 3.

	No of Drawers	Drawer H x W x D, mm
SX234-15	24	36 x 62 x 125
	4	36 x 127 x 125
	2	36 x 255 x 125
SX234-35	40	36 x 62 x 125



SX234-15 in use

Storage

Storage Panels and Bins

Flat, wall-mounting steel panels finished in grey with louvred cut-outs to hold storage bins in the following sizes:

Bin size	D x W x H, mm
2	165 x 100 x 75
3	240 x 150 x 132
4	350 x 205 x 132

Wall Panel

Grey powder-coated, sheet steel with louvres as indicated. Supplied in a pack of 2.

	Overall W x H, mm	Maximum Bin capacity
SX217-10	457 x 438	16 x size 2 8 x size 3 5 x size 4

Storage Bins

Strong, durable, moulded industrial plastic with smooth internal surfaces for easy cleaning and solvent-resistant to most reagents. Operating temperature range -15°C to +50°C. An index card slot is provided at the front of the bin to hold accessory labelling cards. Available in a choice of colours and in pack sizes as indicated.

	Bin size	Colour	Pack qty.
SX218-12	2	Blue	20
SX218-14	2	Red	20
SX218-22	3	Blue	20
SX218-24	3	Red	20
SX218-32	4	Blue	10
SX218-34	4	Red	10

Accessory Labelling Cards

SX218-75 Plain white card labels to fit the front slot of SX218-bins, pack of 100.

Transport Boxes, DuraPorter™

Transport Boxes, DuraPorter™

Transparent, fully autoclavable, polycarbonate carrying boxes in a choice of colours with silicone lid gasket and clamps to provide a water-tight secure closure. Applications include moving biological and clinical samples, protection of instruments and tools in the field or within challenging environmental conditions and as portable desiccator cabinets.

- ◆ Choice of three colours allows coding or individual identification
- ◆ Contents readily visible without opening box
- ◆ Carry handle folds neatly into the body to enable boxes to be stacked
- ◆ lid opens fully, allowing easy access and cleaning

As described. Overall 380 x 196 x 160mm W x D x H.

SX235-20 DuraPorter™, clear with blue handles

SX235-40 DuraPorter™, red with red handles

SX235-60 DuraPorter™, yellow with yellow handles

Accessory racks for SX235-series

Colour-coded, as indicated.

To hold 72 x 13mm diameter tubes.

SM580-10 White **SM580-52** Blue

SM580-24 Orange **SM580-66** Green

SM580-38 Yellow **SM580-80** Red

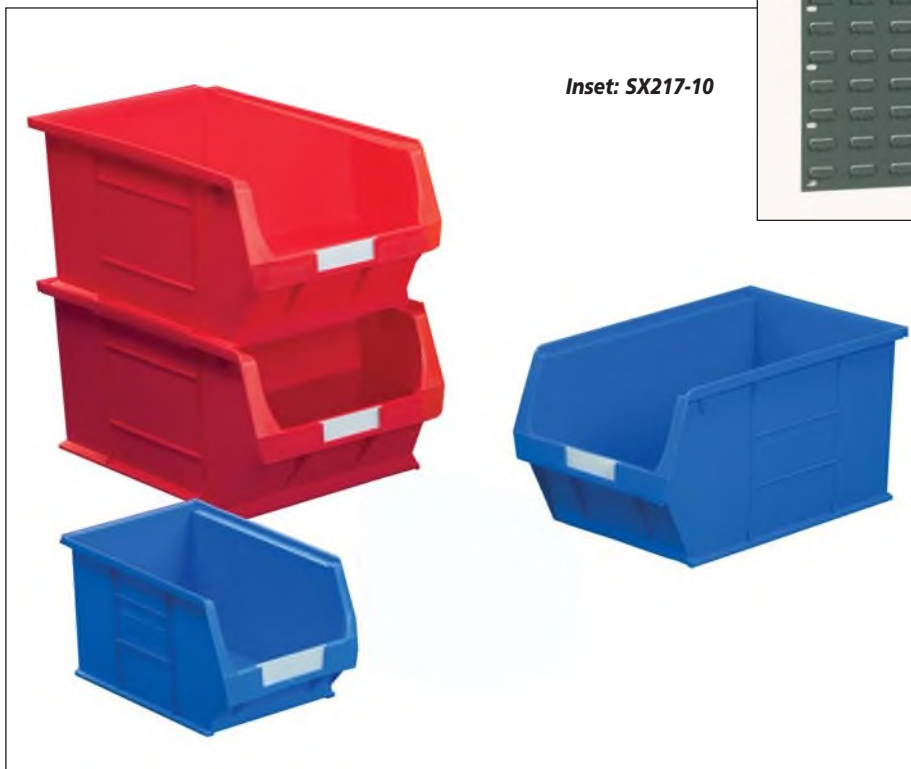
To hold 72 x 16mm diameter tubes.

SM580-12 White **SM580-54** Blue

SM580-25 Orange **SM580-68** Green

SM580-40 Yellow **SM580-82** Red

GG150-95 Silica gel, self-indicating, pack of 500g



SX218 bins in use with SX218-75



SX235

Storage

Service Cases

Service Case

Copolymer case with hinged snap shut polypropylene lid and carrying handle. With 17 removable full depth inserts. Overall 338 x 261 x 57mm high.

SX240-10 Service case

Carry-Lite Case

Robust, polypropylene case with clear polycarbonate, hinged cover. The floor of the case and lid are gridded to hold 15, removable, full depth inserts in place. The case is equipped with strong, sliding catches and hinged, carrying handle. Overall 413 x 330 x 79mm high.

SX240-45 Carry-Lite case

Other Storage Containers for Chemicals – see *Bottles section*.

Flammable liquids – see *Bottle Accessories and Safety sections*.

Microscope slides – see *Microscopy section*.

Specimen – see *Bottles, Boxes, Jars and Tubes sections*.



SX240-10 in use



SX240-45

Storage/Mixing Containers

Containers, Azlon

Translucent HDPE. Lightweight, tapered containers with snap-on lid, ideal for storing powders and granules. Supplied in pack quantities as indicated.

	Ref. JWH-	Capacity, ml	Pack qty.
SX290-15	0125P	125	250
SX290-20	0250P	250	250
SX290-25	0500P	400	100
SX290-30	01000P	1000	100
SX290-35	2000P	2000	50
SX290-40	2500P	2500	25
SX290-45	5000P	5000	25

Containers, polyethylene

For storage and transportation of samples. With press-on lid and plastic handles. Capacities are approximate. Supplied in pack quantities as indicated.

	Capacity, litres	Pack qty.
SX310-20	1.0	1
SX310-25	2.5	1
SX310-30	5	1
SX310-35	10	1
SX310-40	15	1
SX310-55	25	1



SX290



SX310 in use

Storage Bins

White, food-grade HDPE. With ribbed walls for rigidity and to aid stacking. Wide, turn-over lip edges ensure comfortable gripping. Side handles in the lip enable easy carrying. All bins are 660 x 450mm L x W overall, 600 x 400mm L x W internally. External/internal heights as indicated. Supplied singly.

	Capacity, litres	Height ext./int., mm
SX330-25	29	130/120
SX330-50	48	220/210
SX330-70	94	410/400

SX332-09 Lid for SX330 bins, polystyrene



SX330-25 in use



SX330-50 in use



SX330-70 in use

Storage, Surface Tension

Storage/Mixing Containers continued

Cylindrical Containers

Stainless steel with loose lid. Vessels up to 10 litres have a swing handle, those over 10 litres have two side handles. Not suitable for use as pressure vessels. Alternatively, available fitted with three toggle clamps which hold the lid firmly in place.

	Capacity, litres	Dia. x height mm
Without lid clamps		
SX400-13	1	100 x 155
SX400-16	2	130 x 175
SX400-25	5	175 x 240
SX400-31	8	200 x 285
SX400-34	10	220 x 280
SX400-37	20	350 x 390
SX400-40	25	380 x 390
SX400-43	30	380 x 460
With three lid clamps		
SX402-13	1	100 x 155
SX402-16	2	130 x 175
SX402-25	5	175 x 240
SX402-31	8	200 x 285
SX402-34	10	220 x 280
SX402-37	20	350 x 390
SX402-40	25	380 x 390
SX402-43	30	380 x 460

Kegs, HDPE

White. With extra-wide mouth for easy filling. Ideal for waste disposal or storage of liquids, powders or granules. With red, leakproof PE cap, suitable for tag sealing. UN-approved to schedule X cat. I, II and III. Supplied singly.

	Cap. litres	Dia. x ht. mm	Neck i.d. mm
BR928-30	10	270 x 240	200
BR928-35	26	316 x 424	204
BR928-43	33	338 x 450	295



SX400, SX402 are similar



BR928 in use

Syringes

Disposable and Glass Syringes

Syringes, disposable

Polypropylene with eccentric Luer slip nozzle (except SY210-23 to -43 which have concentric Luer slip nozzles and SY210-90 which has a catheter tip and luer adapter). Without needle. Supplied sterile in individually sealed envelopes, within boxes as indicated.

	Capacity, ml	Box qty.
With two-piece plunger		
SY210-11	1TB	120
SY210-23	2	100
SY210-33	5	100
SY210-43	10	100
SY210-55	20	120
SY210-60	30	60
SY210-70	50	60
SY210-90	100	50

Needles, disposable

Stainless steel, with bevelled injection tip*. With Luer push fitting for use with disposable syringes. Supplied sterile in individually sealed envelopes, within boxes of 100. Colour coded.

	Gauge	Nominal dia. x length, mm
SY217-15	18G x 1½in	1.2 x 40
SY217-17*	18G x 1½in	1.2 x 40
SY217-25	19G x 1½in	1.1 x 40
SY217-35	20G x 1in	0.9 x 25
SY217-55	21G x 1½in	0.8 x 40
SY217-75	23G x 1in	0.6 x 25
SY217-85	25G x ¾in	0.5 x 16

Note: SY217-15 is a thin-wall needle with short bevel. SY217-35 and SY217-55 are intravenous thin-wall needles.

* SY217-17 has a blunt tip for filling purposes.



SY210/SY217



SY354, SY352/356/358 are similar



SY365

Syringes, borosilicate glass

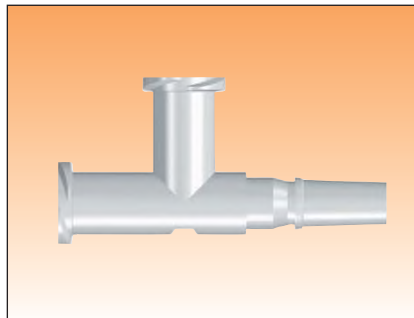
Without needle. Supplied singly.

	Capacity, ml
Central Luer tip	
SY352-16	Tuberculin 0.5*
SY354-10	1
SY354-20	2
SY354-30	5
SY354-40	10
SY354-50	20
SY354-60	30
SY354-70	50
SY354-80	100

Central Luer lock

SY356-17	Tuberculin 1*
SY358-12	1
SY358-22	2
SY358-32	5
SY358-42	10
SY358-52	20
SY358-62	30
SY358-72	50
SY358-82	100

*These syringes have nickel-plated brass tips.



SY390-15

Needles, Luer fitting

Corrosion resistant steel. Supplied in boxes of 12.

	Gauge
SY365-30	17G x 2¾in (Serum 0)
SY365-35	19G x 2in (Serum II)
SY365-95	30G x ½in (TB)

Connectors, Y-pattern

2 x female luer lock upper terminations to single luer male lower termination. Supplied in packs of 100.

SY390-15 Y-connectors

Sharps Bins

Sharps Bins, to BS7320:1990

A comprehensive range of puncture resistant, rigid polypropylene bins with snap-tight lids for the safe containment and disposal of sharp objects and infectious waste. Manufactured to BS7320:1990 and designed to be incinerated with minimum environmental impact. Supplied singly.

	Capacity litres
CM915-16	0.6
CM915-21	1.0*
CM915-26	2.5
CM915-31	5.0
CM915-36	7.0
CM915-41	22.0

*Rectangular shape.

Sharps collectors – see CM905, CM910.



CM915-21



CM915-41

Syringes

Microlitre Syringes Hamilton 700/1000/1700 Series

Precision glass barrel syringes and stainless steel needles.

Microlitre Syringes, Hamilton

General purpose 700 series. Liquid tight for precision dispensing. Suitable for sample injection in gas, liquid and thin layer chromatography.

	Ref.	Capacity µl
With fixed needle (N) 12° bevel, 51mm long.		
SY600-15	75N	5
SY600-20	701N	10
SY600-24	702N	25
SY600-30	705N	50
SY600-40	710N	100
SY600-45	725N	250
SY600-50	750N	500
With removable needle (RN) 12° bevel, 51mm long.		
SY604-15	75RN	5
SY604-20	701RN	10
SY604-24	702RN	25
SY604-30	705RN	50
SY604-40	710RN	100

Microlitre pipettors – see PR100/IPR164.

Syringe filters – see FC800/FC812.

Microlitre Syringes, Hamilton

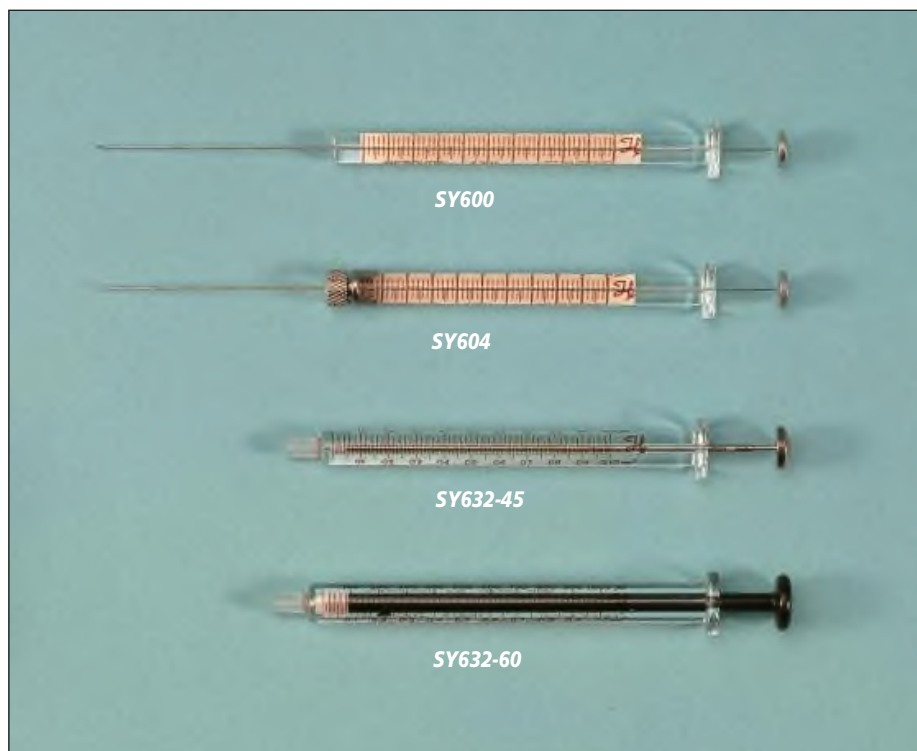
Gas tight and liquid tight. 1000/1700 series. With PTFE plunger. Wide range of applications including sample injection in chromatography.

	Ref.	Capacity µl
With fixed needle (N) 12° bevel, 51mm long.		
SY625-30	1705N	50
SY625-35	1710N	100
SY625-60	1001LTN	1000
With removable needle (RN) 12° bevel, 51mm long.		
SY629-30	1705RN	50
SY629-35	1710RN	100
SY629-60	1001RN	1000
With Luer tip (LT) Without needle.		
SY632-30	1705LT	50
SY632-35	1710LT	100
SY632-45	1750LT	500
SY632-60	1001LT	1000

Needles, stainless steel

Length 51mm, 12° bevel. Supplied in packs as indicated.

	Gauge	Diameter o.d. x i.d. mm	Pack qty.
For SY604 and SY629 Series			
SY636-20	22S	0.72 x 0.15	6
SY636-30	26S	0.47 x 0.12	6
For SY632 Series			
SY638-30	22S	0.72 x 0.15	6
SY638-40	26S	0.47 x 0.12	6



Syringe Pumps

Razel

For precise infusing of liquids, utilising standard glass or plastic syringes from 5ml to 50ml, and microlitre to 5ml syringes using the accessory adapter. 99 delivery speeds are selectable and can be adjusted during operation if required. A built-in, manual, flow-rate calculator indicates the speed setting necessary to achieve specific flow rates when using 5, 10, 20, 30 or 50ml syringes. A separate flow rate chart is also provided for other sizes and indicates variation factors for different makes of syringe. An acoustic alarm activates when the syringe is empty, and halts infusion. Lifetime lubricated, bronze bearings and critical parts constructed in stainless steel, ensure dependable long-term service.

Syringe Pumps, Razel

As described. Supplied with acoustic alarm. For 230V 50Hz single phase supplies. Without syringes.

PX890-10 Model R99-EF, 1.45 to 143ml/hr*

PX890-60 Model R99-FJM 0.145 to 427ml/hr*

*Using 50ml syringe.

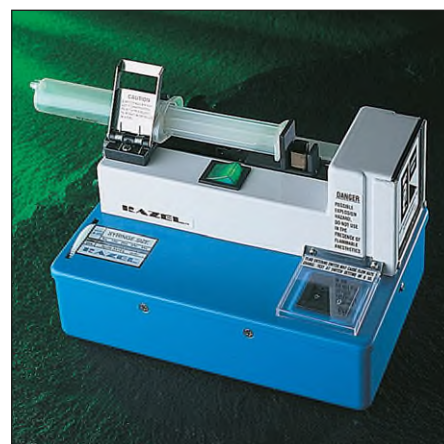
Micro syringe adapters

Enables PX890-series syringe pumps to be used with single place adapter to hold one micro syringe only

PX890-85 Micro syringe adapter, single place

Enables PX890-series syringe pumps to be used with up to six microlitre volume to 3ml capacity syringes (maximum syringe diameter 10mm).

PX890-90 Micro syringe adapter, 6-place



PX890-series

Syringes

Self-Refilling Syringes, Dosys Series 174/173



Designed for rapid, repetitive dispensing of a wide range of liquids.

- ◆ Range of models from 0.025 to 20ml capacities and suitable for corrosive or non-corrosive liquids
- ◆ Volume setting by micrometer screw with locking nut
- ◆ Precision glass barrel gives reliable repeatability
- ◆ Ergonomically designed, pistol-grip handle and thumb plunger bar allow comfortable operation when used repeatedly
- ◆ Fully autoclavable up to 121°C
- ◆ Luer-lock outlet fitting enables use with a wide range of needles and cannulae
- ◆ All syringes supplied with 3-way charging/dispensing valve, silicone filling tube, 1 metre long with sinker for use with most reservoirs (except SY720-85), aspirating and vent cannulae and valve spares kit
- ◆ Easy to disassemble and clean
- ◆ High strength, lightweight construction materials ensure long-term reliability and minimise fatigue during extended periods of use

Dosys 174 Self-refilling Syringes

As specified. Suitable for use with corrosive liquids and recommended for research or medical applications. All metal parts in contact with liquid are stainless steel (the plunger is nickel-plated). The valve can easily be dismantled for cleaning. Precision and reproducibility is better than $\pm 1\%$.

	Range ml	Increments ml
SY700-10	0.1 to 1	0.05
SY700-20	0.3 to 2	0.1
SY700-30	0.5 to 5	0.5
SY700-40	1 to 10	1

Dosys 173 Self-refilling Syringes

As specified. Suitable for general dispensing of non-corrosive liquids. With chrome-plated, fixed valve, 1 metre of silicone feed tubing and stainless steel plunger.

	Range ml	Increments ml
SY720-15	0.025 to 0.3	0.025
SY720-25	0.1 to 0.5	0.1
SY720-35	0.1 to 1	0.05
SY720-45	0.3 to 2	0.1
SY720-55	0.5 to 5	0.5
SY720-65	1 to 10	1
SY720-85	5 to 20*	1

* Supplied without feed tubing and sinker.

Accessory Stand

Convenient bench mounting stand for holding SY700 or SY720 syringes.

SY724-06 Bench stand

Needles – see SY365.



SY700 on SY724



SY720

Tachometers, Tanks

Tachometers

Hand-held, digital tachometers for measurement of rotational speed.

- ◆ Choice of specification levels:
 - Optical with speed readout only
 - Optical/contact with choice of readout ranges
- ◆ Accuracy: $\pm 0.2\%$ or ± 1 digit - whichever is higher
- ◆ Memory function stores last read, Max./Min. levels and average value of the previous reading session

Cat. no.		TA870-80	TA870-95
Speed ranges	Optical Contact	1.00 to 99,999 —	1.00 to 99,999 0.1 to 19,999
Resolution		0.01/0.1/1 autoranging — both models	
Measurement system		Optical only	Optical/contact
Alternative units		—	m/min., ft/min., in/min., m/sec., distance (metres, feet, inches)
Memory		Max./Min./average/most recent reading — both models	
Optical range	mm	600 — both models	
Power		2 x 1.5V AA batteries — both models	
Overall H x W x D	mm	175 x 60 x 28 — both models	
Weight	g	250 — both models	

Tachometers

As described. Supplied with reflective tape, calibration certificate, operation manual, 2 x 1.5V AA batteries and soft carrying case. TA870-95 is additionally supplied with an adapter for contact measurement, test and hollow probes and a 6" measuring wheel.

TA870-80 Tachometer, optical

TA870-95 Tachometer, optical/contact

Accessories and spares

BL610-15 1.5V AA battery (2 required)

TA870-97 Reflective tape, pack 10 strips



TA870

Tanks

Aquarium

Transparent plastic, 15 litres. 220 x 370 x 250mm H x W x D.

AQ100-11 Plastic tank

Tanks, glass

Rectangular. Suitable for use as aquaria or vivaria. Moulded, heavy wall, flint glass with smooth-ground rim.

	Capacity litres	W x D x H mm
TB350-15	2	100 x 150 x 150
TB350-20	3	130 x 180 x 180
TB350-25	6	180 x 220 x 250



AQ100-11



TB350

Test Papers

Test Papers

Test Paper Books, Whatman

Supplied in packs of 100 books. Each book containing 20 leaves.

- TD150-20** pH 1 to 11
- TD158-12** Litmus blue
- TD158-18** Litmus red
- TD158-45** Starch iodide

Test Paper Reels, Whatman

Each reel contains a paper strip 5 metres long x 7mm wide. Supplied singly.

- TD170-22** pH 1 to 14
- TD174-12** pH 0.5 to 5.5
- TD174-15** pH 4 to 7
- TD174-18** pH 6.4 to 8
- TD174-21** pH 8 to 10

- TD178-14** Litmus blue
- TD178-20** Litmus red
- TD178-32** Phenolphthalein
- TD178-47** Potassium iodide

Test Paper Wide Reel, Whatman

Range pH1-11. Reel 5 metres long x 10mm wide. With three separate colour bands on each strip.

- TD185-20** pH 1 to 11

Test Paper Strips, Whatman CF

Supplied in packs of 100 strips 6 x 80mm. Dyes chemically bonded to ensure no leaching.

- TD200-20** pH 0 to 14, bonded
- TD200-30** pH 4.5 to 10, bonded

Test Paper Strips, Whatman CS

Supplied in packs of 200 strips 11 x 100mm. With blank central segment. Suitable for coloured solutions.

- TD205-20** pH 1 to 12
- TD209-10** pH 1.8 to 3.8
- TD209-13** pH 3.8 to 5.5
- TD209-16** pH 5.2 to 6.8
- TD209-19** pH 6.0 to 8.1
- TD209-22** pH 8.0 to 9.7

Test Paper Books, Johnsons

Supplied in packs of 10 books. Each book containing 20 leaves. TD300-21 is additionally CE-marked in compliance with the IVD Directive.

- TD300-20** pH 1 to 11 universal
- TD300-21** pH 1 to 11 universal, CE-marked
- TD308-12** Litmus blue
- TD308-15** Litmus neutral

- TD308-18** Litmus red
- TD308-20** Congo red
- TD308-45** Starch iodide

Test Paper Reels, Johnsons

Each reel contains a paper strip 5 metres long x 7mm wide. Supplied singly.

- TD312-10** pH 1 to 14 universal
- TD312-15** Litmus blue
- TD312-20** Litmus red



TD312



Test Tubes

Glass Test Tubes, Round Bottom

Sizes are nominal length x o.d. Pack quantities are nominal.

Test Tubes

Soda-lime glass. To ISO4142. The medium wall range TE154 series are bacteriological grade. Supplied in packs as indicated.

Size mm	Pack qty.	Light wall rimmed	Medium wall rimless
50 x 6	150	TE150-10	—
50 x 6	300	—	TE154-10
50 x 10	150	TE150-12	TE154-12
75 x 10	150	TE150-20	TE154-20
75 x 12*	150	TE150-22	TE154-22
100 x 12	150	TE150-30	TE154-30
100 x 16	150	TE150-32	TE154-32
125 x 12	150	TE150-36	TE154-36
125 x 16	150	TE150-38	TE154-38
125 x 18	150	TE150-40	TE154-40
150 x 16	150	TE150-46	TE154-46
150 x 18	150	TE150-48	TE154-48
150 x 24	75	TE150-50	TE154-50

* TE154-22 is suitable for Kahn tests.

Test Tubes

Borosilicate glass. To ISO4142. Supplied in packs as indicated.

Size mm	Pack qty.	Light wall rimmed	Medium wall rimless
75 x 10	100	TE200-20	TE204-20
75 x 12*	100	TE200-22	TE204-22
100 x 12*	100	TE200-30	TE204-30
100 x 16	100	TE200-32	TE204-32
125 x 16	100	TE200-38	TE204-38
150 x 16	100	TE200-46	TE204-46
150 x 18	100	TE200-48	TE204-48
150 x 24	100	TE200-50	TE204-50
180 x 18	100	TE200-68	TE204-68

* TE204-22 and TE204-30 are suitable for the Wasserman test.

Test Tubes, disposable

Borosilicate glass. Rimless. Without cap. Supplied in packs of 1000.

	Size mm
TP160-13	75 x 10
TP160-18	75 x 12
TP160-28	100 x 13
TP160-33	100 x 16
TP160-38	125 x 16
TP160-43	150 x 16

Stoppers, Steristoppers

Preformed cellulose plugs for sealing culture tubes and flasks. They are permeable to air and can be hot air sterilised up to 200°C. All stoppers are tapered and the cellulose material will depress slightly to ensure a tight fit into the tube or neck. Length varies from approximately 30 to 60mm according to size. Supplied in packs as indicated.

	To fit tube i.d. mm	Pack qty.
SW536-21	10	1000
SW536-27	12	1000
SW536-39	15	500
SW536-50	17	1000
SW536-58	20	400
SW536-80	32	800



TE150/TE200

TE154/TE204/TP160



SW536 in use

Test Tubes

Glass Test Tubes, Round Bottom and Special Purpose

Sizes are nominal length x o.d. Pack quantities are nominal.

Test Tubes, Pyrex

Borosilicate glass. Medium wall. Conform to ISO4142. Supplied singly.

Size mm	Rimmed 1620 series	Rimless 1622 series
75 x 10	TE250-20	TE254-20
75 x 12	TE250-22	TE254-22
100 x 12	TE250-30	TE254-30
100 x 16	TE250-32	TE254-32
125 x 16	TE250-38	TE254-38
150 x 16	TE250-46	TE254-46
150 x 18	TE250-48	TE254-48
150 x 24	TE250-50	TE254-50
160 x 16	TE250-56	TE254-56
180 x 18	TE250-68	TE254-68
200 x 24	TE250-80	TE254-80

Test Tubes, Pyrex

Borosilicate glass. Heavy wall. Conform to ISO4142. Supplied singly.

Size mm	Rimmed 1624 series	Rimless 1626 series
125 x 16	TE270-38	TE274-38
150 x 16	TE270-46	TE274-46
150 x 18	TE270-48	—
150 x 24	TE270-50	—

Test Tubes, Pyrex stoppered

Borosilicate glass with polyethylene stopper. Supplied singly.

	Size mm	Stopper	Capacity x subdivisions, ml
Graduated 1628 series			
TE310-32	100 x 13	10/13	5 x 0.1
TE310-40	125 x 18	14/15	10 x 0.2
TE310-50	150 x 22	19/17	25 x 0.5
TE310-80	200 x 26	24/20	50 x 1.0

Dreyer Tubes

For agglutination tests. To BS625. Size 60 x 7mm. With conical base and rimmed funnel top. Supplied in packs as indicated.

TE400-15 Soda-lime glass, pack 300

TE404-15 Neutral resistance glass, pack 100

Durham Tubes

For fermentation tests. To BS625. Supplied in packs as indicated.

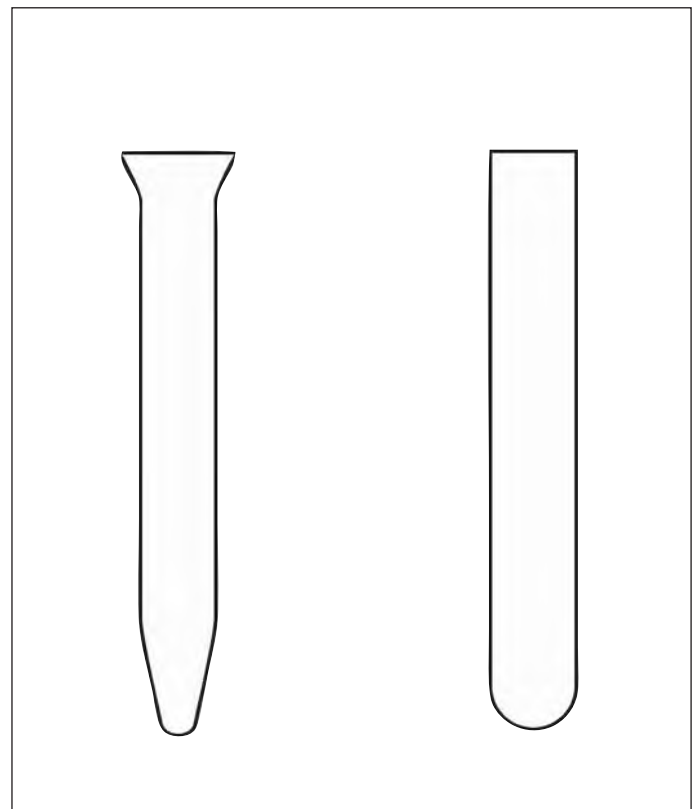
	Size mm	Pack qty.
Soda-lime glass		
TE420-13	25 x 6	300
TE420-17	30 x 6	300
TE420-23	35 x 8	300
TE420-27	50 x 7.5	250
Neutral glass		
TE424-13	25 x 6	250
TE424-17	30 x 6	250
TE424-23	35 x 7.5	250
TE424-27	50 x 7.5	250



TE250
TE270

TE254
TE274

TE310



TE400/TE404

TE420/TE424

Test Tubes

Plastic Test Tubes

All dimensions, capacities and pack quantities are nominal.

Test Tubes, Sterilin

Disposable polystyrene. All cylindrical with rounded base except tubes 144AS which have a conical base. Supplied in packs as indicated.

Ref.	Size, mm	Pack qty.
Non-Sterile		
TE600-10	RT15	40 x 6
10000		
Sterile with polyethylene screw cap		
TE604-65	142AS	100 x 16
450		
TE604-70	144AS	100 x 16*
450		

Accessories

TE622-15 Caps 147A for tubes TE600-65 and TE600-70, pack of 1200

Test Tubes, Elkay

Disposable. Cylindrical with rounded base. Non-sterile. Dimensions are nominal. Supplied in packs as indicated. TE730-28 is suitable for clinical analysers.

Size, mm	Polystyrene	Pack qty.	Polypropylene	Pack qty.
75 x 12	TE730-26	4000	TE738-25	1000
75 x 13	TE730-28	4000	TE738-28	4000
100 x 13	TE730-30	3000	TE738-31	3000

Test Tube Accessories

Test Tube Caps, Elkay

Polyethylene. Supplied in packs as indicated.

Type	For tubes, mm	Pack qty.
TE765-55	Plug	75 x 12, 75 x 13
TE765-60	Plug	125 x 16

Closures, Lab-O-Cap

Anodised aluminium in single colours as indicated, with internal, stainless steel, radial spring providing a gentle grip on glass tubes. Maximum operating temperature 140°C. Supplied in packs of 100 of one colour as specified.

For tube o.d. mm	Colour	Colour	Colour
	Silver	Blue	Red
12 to 13	TE870-13	TE873-13	TE877-13
15 to 16	TE870-16	TE873-16	TE877-16
17 to 18	TE870-18	TE873-18	TE877-18
19 to 20	TE870-20	TE873-20	TE877-20
24 to 26	TE870-26	TE873-26	TE877-26

Bacteriological Seals, Astell-type

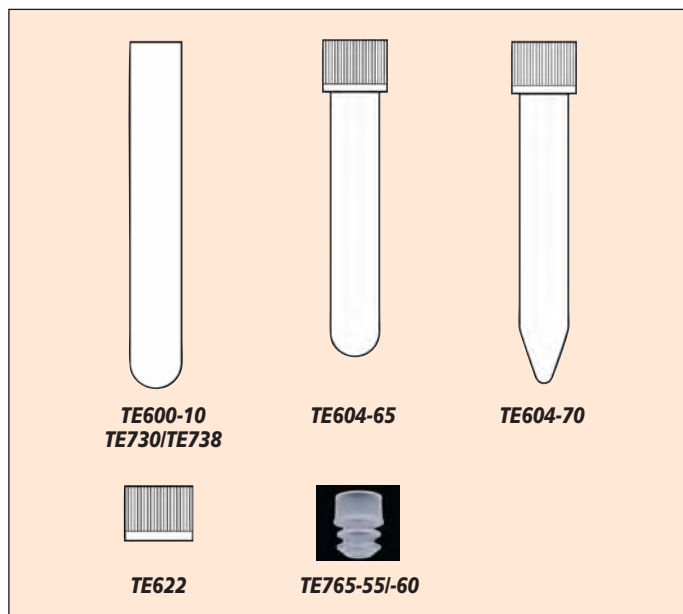
Moulded, non-toxic rubber, plug-sealing stoppers which are autoclavable at 121°C. Designed to fit 17mm i.d. tubes or media bottle necks, allowing them to vent automatically when heated. Available in a choice of colours within packs of 144, as indicated.

TE885-10	Blue
TE885-20	Red
TE885-30	Grey

Test Tube Holders

Dimension given is the maximum diameter of tube which can be held. Supplied in packs as indicated.

Dia. mm	Material	Pack qty.
TE920-20	19	Hardwood/steel spring
TE920-30	30	Spring steel, nickel plated
TE920-45	45	Brass/wooden handle



Thermometers

General Purpose Series

Nominal diameter 7mm. Spirit filled, with ranges and graduations as indicated. Supplied singly.

T = Total immersion

P = Partial immersion (76mm)

Thermometers, general purpose

Nominal length 300mm unless otherwise stated.

	Ref.	Range, °C	Grad. °C	Imm.
White back, Red spirit filled				
	TG150-22	—	-50 to 50	1.0 P
	TG154-26	—	-10 to 50	0.5 P
	TG154-30	—	-10 to 110	0.5 P
	TG154-35	—	-10 to 110	1.0 P
	TG154-40	—	-10 to 150	1.0 P
	TG154-50	—	-10 to 250	2.0 P

Yellow Back, Blue Spirit filled, PTFE encapsulated

PTFE encapsulation retains glass and filling should the thermometer be broken.

	TG225-30	—	-50 to 110	1.0 P
	TG225-35	—	-10 to 110	1.0 P
	TG225-40	—	-10 to 150	1.0 P
	TG225-50	—	-10 to 250 [#]	1.0 P

*Red spirit filled

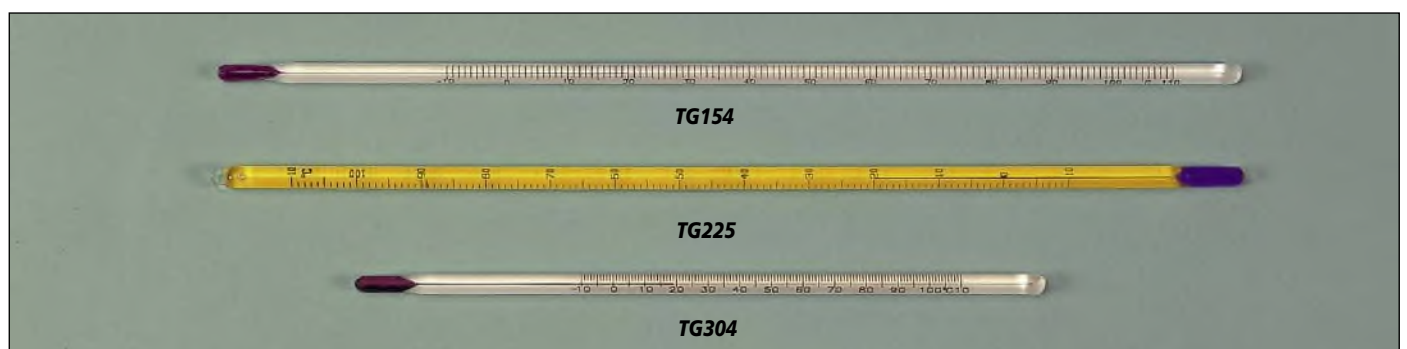
Thermometer, general purpose

Nominal length 200mm. White back. Red spirit filled.

	Range, °C	Grad. °C	Imm.
TG304-35	-10 to 110	1.0	T

Mercury Thermometers

Under European Regulation (EC) no. 1907/2006 amend. (EU) no. 847/2012, mercury thermometers can no longer be supplied within the EU.



Thermometers

UKAS Certified Thermometers

UKAS Certified BS1704:1985 (ISO1770:1981) Thermometers

White backed. Spirit filled. The certificate issued provides observed correction at 5 points on the thermometer scale. 75mm immersion.

	Schedule	Range, °C	Grad. °C	Length, mm
TG525-30	D/75 UKAS	0 to 100	1.0	305
TG525-35	E/75 UKAS	0 to 160	1.0	305
TG525-40	F/75 UKAS	0 to 250	1.0	305

Certification of Thermometers

Most types of standard thermometer including BS1704, BS593, IP and ASTM can be certified either as:-

- a) A certificate of conformity.
- or b) The manufacturer's test which provides observed corrections at 5 points on the scale.
- or c) A UKAS (BCS/NPL) test which provides observed corrections at 5 points on the scale.

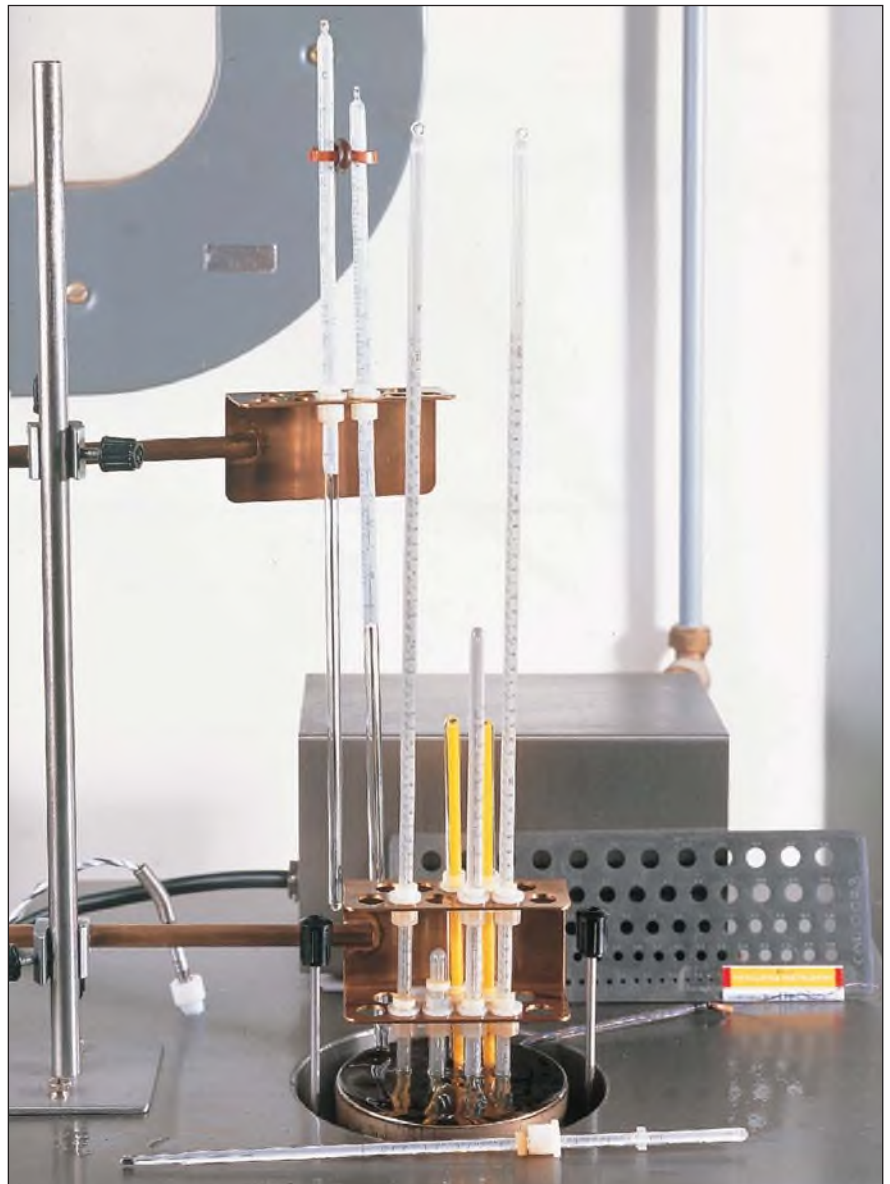
If you require prices for Certified Thermometers please contact our Sales Department for a quotation.

UKAS – United Kingdom Accreditation Service, formerly NAMAS.

Mercury Thermometers

Under the requirements of Annex XVII of EC552/2009 REACH Regulations, mercury thermometers can no longer be sold within the UK or EU.

Uncertified BS1704 thermometers remain available to special order only and subject to deletion without notice - details on request.



Thermometers

Standard, BS593

Spirit filled. Yellow back. Nominal diameter 7mm. Nominal length: 400mm.

	Schedule	Range °C	Grad. °C
A-Series 100mm Immersion			
TG604-15	A10C/100	-30 to 10	0.1
TG604-25	A40C/100	0 to 40	0.1
TG604-30	A70C/100	40 to 70	0.1
TG604-35	A100C/100	70 to 100	0.1

Mercury Thermometers

Under the requirements of Annex XVII of EC552/2009 REACH Regulations, mercury thermometers can no longer be sold within the UK or EU.

Clinical Thermometers

Clinical Thermometer

Gallium filled. With enclosed scale, range 35°C to 42°C x 0.1°C. Length approximately 100mm. In plastic case.

TG700-45 Clinical thermometer, 35°C to 42°C

Digital Clinical Thermometer

Range 32 to 43.9°C with LCD temperature indication to 0.1°C. Symbols "L" (low) and "H" (high) indicate when the temperature is outside the normal limits and the °C symbol flashes until the temperature has stabilised. Accuracy $\pm 0.1^\circ\text{C}$ between 35 and 38°C and $\pm 0.2^\circ\text{C}$ outside this range. Powered by one 1.5V silver oxide battery type SR41 which has a life equivalent to about 4000 temperature measurements in normal use. Overall 110 x 14 x 8mm. Weight 7g. With battery.

TG715-10 Digital clinical

BL630-06 Spare battery, 1.5V



TG700



TG715



TG604

Thermometers

Special Purpose Thermometers

Dipping Thermometer

Spirit filled glass thermometer in a stainless steel case. Range -10 to 110°C. Overall length 320mm.

TG745-15 Dipping

Soil Thermometer

A spirit-in-glass thermometer, range 0 to 110°C mounted in an aluminium tube 225mm long with probe end for inserting into soil or compost and a cut-out front for reading the temperature. The top of the tube is marked with a large red sphere for ease of identification in the field.

SG680-10 Soil

Standard Joint Thermometers – see *Quickfit* section.

Digital Max./Min. thermometer – see *TJ365-10*.

Maximum/Minimum Thermometer

Six's pattern. Spirit filled. Dual scaled -30 to 50°C and -20 to 120°F and with two, push-button resettable, cursors. In wall mounting, cream plastic case with sloping weather shield.

TG775-37 Max./Min.

Maximum/Minimum Thermometer, Dial

With large, easy-to-read dual scale -40 to 50°C and -40 to 120°F. Simple twist dial resetting. With keyhole attachment hook for wall mounting.

TG780-10 Dial

Oven Thermometer

Dual scale dial thermometer, 50 to 300°C (100 to 600°F) in a stainless steel housing with integral hook. Dial diameter 50mm.

TG795-10 Oven thermometer

Pocket Thermometer

Red spirit filled. Range -10 to 110°C. Total immersion. Length 150mm. Mounted in opaque case which has a pocket clip.

TG805-15 Pocket

Wall Thermometers

Spirit filled. Dual scaled -10 to 50°C and 20 to 120°F. White plastic frame for wall mounting.

TG835-15 General purpose

TG835-20 Factory Act model

Wall Thermometer, dial

Dual scaled -10 to 50°C and 14 to 120°F. Wall mounting.

TG850-20 Dial wall

Thermometer Cases

For solid stem thermometers from 5 to 7mm diameter. Brass case with front cut out, screw top and hanging ring.

	Thermometer length, mm
TG950-30	300/305
TG950-35	350/355

Mercury Thermometers

Under the requirements of Annex XVII of EC552/2009 REACH Regulations, mercury thermometers cannot be sold within the UK or EU.



TG775-37



TG795-10



TG850



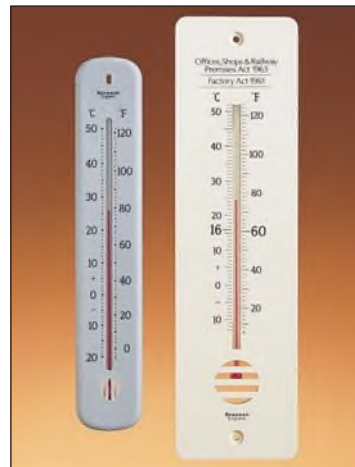
TG745



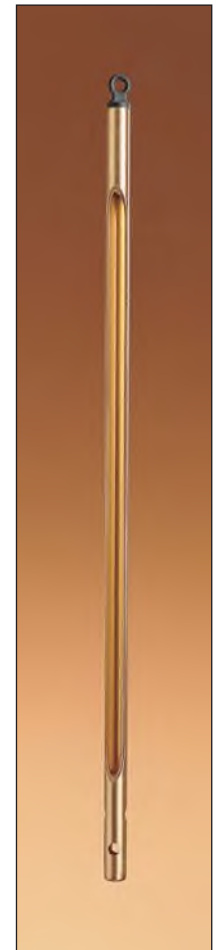
SG680



TG805



TG835-15



TG950

TG835-20

Thermometers

ASTM and IP Petroleum Test Thermometers

Spirit filled. Where a reference number appears in both ASTM and IP columns this designates that the thermometer has been agreed by ASTM and IP as direct equivalents. Lengths given are nominal. Other references and titles are available to special order only.

Reference	ASTM	IP	Title	Range	Grad.	Imm. x length, mm
TH300-10	1C	-	Partial Immersion	-20° to +150°C	1°C	76 x 327
TH300-23	3C	73C	Partial Immersion	-5° to +400°C	1°C	76 x 420
TH300-30	5C	1C	Cloud and Pour	-38° to +50°C	1°C	108 x 235
TH300-37	6C	2C	Low Cloud and Pour	-80 to +20°C	1°C	76 x 235
TH300-44	7C	5C	Low Distillation	-2° to +300°C	1°C	total x 390
TH300-77	12C	64C	Density-Wide Range	-20° to +102°C	0.2°C	total x 425
TH300-80	12F	64F	Density-Wide Range	-5° to +215°F	0.5°F	total x 425
TH300-94	15C	60C	Low Softening Point	-2° to +80°C	0.2°C	total x 400
TH304-72	28C	31C	Kinematic Viscosity	36.6° to 39.4°C	0.05°C	total x 310
TH308-32	37C	77C	Solvents Distillation	-2° to +52°C	0.2°C	100 x 400
TH328-52	120C	92C	Kinematic Viscosity	38.6° to 41.4°C	0.05°C	total x 310
TH328-55	121C	32C	Kinematic Viscosity	98.6° to 101.4°C	0.05°C	total x 310
TH406-74	-	39C	Density	-1° to +38°C	0.1°C	total x 450

Mercury Thermometers

Under the requirements of Annex XVII of EC552/2009 REACH Regulations, mercury thermometers cannot be sold twithin the UK or EU.



Thermometers

Irreversible Strips and Checkers

THERMAX

- Simple to use, self adhesive strips and liquid crystals for monitoring surface temperatures

Temperature Strips, 5-step

Each strip measures 35 x 15mm, is self-adhesive and printed with a temperature range in 5 steps, both in °C and °F. The temperature sensitive strip is encapsulated to resist oil, water and steam. When subjected to heat, an irreversible colour change from silver white to black occurs along the strip in stages thereby recording the maximum temperature reached. Supplied in packs of 10 strips.

	Range, °C	Range, °F
TH700-10	29/40	84/105
TH700-13	37/46	100/115
TH700-16	49/71	120/160
TH700-19	77/99	170/210
TH700-22	104/127	220/260
TH700-26	132/154	270/310
TH700-30	160/182	320/360
TH700-34	188/210	370/410
TH700-38	216/249	420/480
TH700-42	249/290	480/554

Temperature Strips, 8-step

Comprising irreversible self-adhesive strips generally as TH700 series but with dual °C/°F temperature range printed in 8-stages. Each strip measures 51 x 18mm. Supplied in packs of 10 strips.

	Range, °C	Range, °F
TH704-12	37/65	99/149
TH704-15	71/110	160/230
TH704-18	116/154	241/309
TH704-21	160/199	320/390
TH704-24	204/260	399/500

Temperature Strips, 10-step

Generally as TH704 but with dual °C/°F temperature range printed in 10-stages. Each strip measures 51 x 18mm. Supplied in packs of 10 strips.

	Range, °C	Range, °F
TH715-10	40/71	104/106
TH715-15	77/127	717/261
TH715-20	132/182	270/360
TH715-25	188/249	370/480

Reversible Liquid Crystals

Liquid Crystal Strips

Self adhesive. The liquid crystal changes from black through a spectrum of colours as the temperature changes. Supplied in packs of 10 strips.

	Range, °C	Range, °F
--	-----------	-----------

7-step (5°C steps)

44 x 12mm.

TH782-18	0/30	32/86
TH782-22	30/60	86/140
TH782-26	60/90	140/194

8-step (1°C steps)

63 x 12mm.

TH784-12	-3/+4	26/40
TH784-20	14/22	58/72
TH784-24	23/31	74/88

Liquid Crystal Strips

Self-adhesive, 12-step, horizontal scale, reversible liquid crystal thermometer strips. Colour panels appear behind figures as the specific temperature is reached. Available in two scales for use in refrigerators or monitoring room temperature. Size 90 x 10mm L x W. Supplied in packs of 10 strips.

TH786-15	Refrigerator, 0 to 12°C x 1°C
TH786-25	Room, 10 to 32°C x 2°C

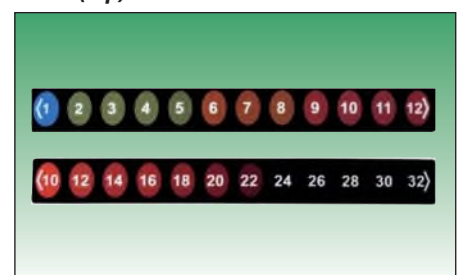
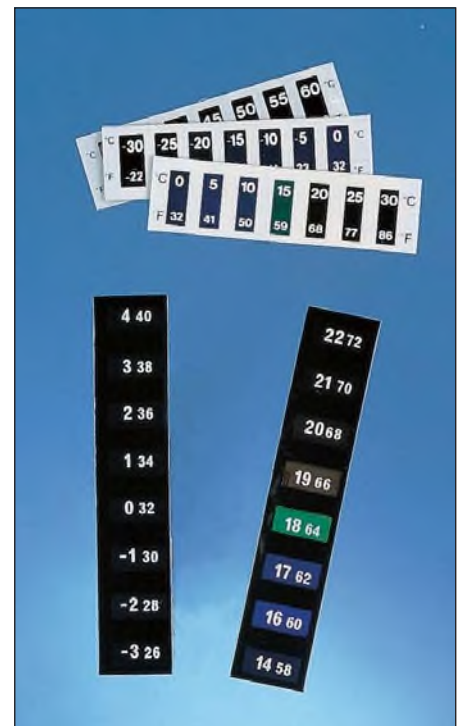
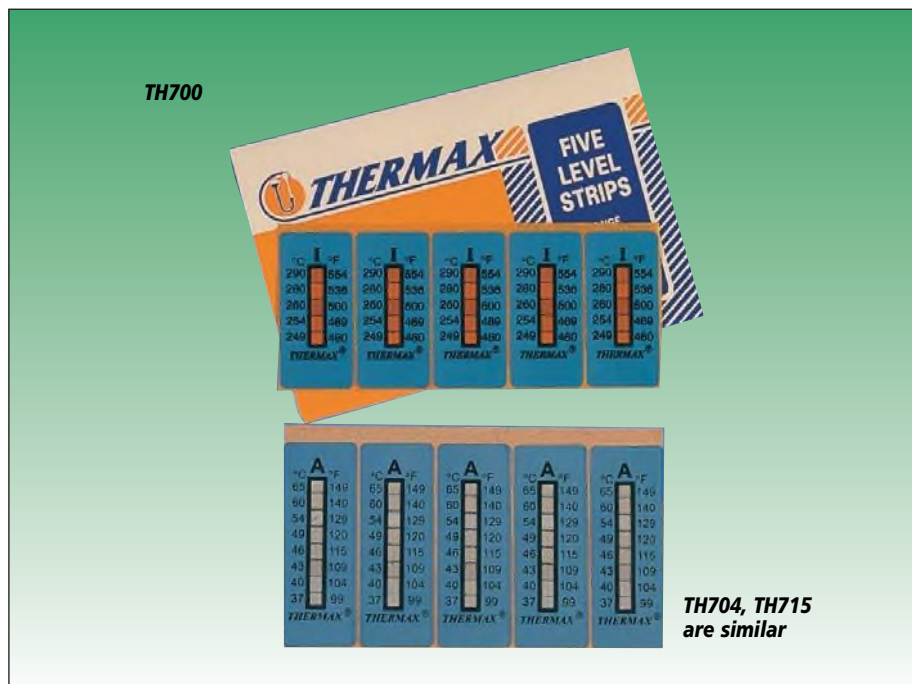
Important Note - Irreversible temperature strips

Irreversible temperature strips have a limited shelf life which can be maximised by storage in a sealed bag at temperatures as follows. If stored correctly the approximate shelf-lives of strips will be:

Ranges from 29 to 34°C / 84 to 93°F – 6 months (require refrigerated storage between +2 and +10°C).

Ranges from 37 to 49°C / 99 to 120°F – 12 months (require refrigerated storage between +2 and +10°C).

Ranges from 54 to 290° / 130 to 554°F – 24 months (require storage at room temperature & Humidity, i.e. 20°C or 68°F & 50% relative humidity).



Thermometers

Digital Thermometers, C2000 Series

A range of compact, high accuracy, microprocessor controlled digital thermometers offering enhanced specifications at a competitive price.

- ◆ Choice of Pt100 or thermocouple sensor input models
- ◆ Waterproof, rugged ABS casing to IP67 standard
- ◆ Very wide ambient temperature operating range, -30 to +50°C
- ◆ High contrast LCD and user-friendly keypad operation
- ◆ Secondary display feature on Models C2010, C2020 and C2050
- ◆ Thermocouple sensor models feature user selection of probe type input via the keypad (types K, J, E, T, R or N thermocouples selectable)
- ◆ Dual input thermocouple model available with differential display (Model C2020)
- ◆ Open circuit sensor detection and "low battery" warning featured on all models

Range Specifications

Sensor input		Measurement ranges* °C	Accuracy °C (at ambient 23°C)
Thermocouples	K	-200 to +1372	±0.2 ±0.15% of reading
	J	-200 to +1200	±0.2 ±0.15% of reading
	E	-200 to +1000	±0.2 ±0.15% of reading
	T	-200 to +400	±0.2 ±0.15% of reading
	R	-50 to 200	±0.8 ±0.6% of reading
	N	>+200 to +1767	±0.8 ±0.3% of reading
Pt100		-200 to +850	±0.2 ±0.1% of reading

* These are the display capabilities of the instruments only, measurable range will depend on the thermocouple probe used - please contact us if you require a probe for use outside our standard range.

General Specifications

Model	C2000	C2010	C2020	C2050
Sensor inputs	K, J, E, T, R, N	K, J, E, T, R, N	K, J, E, T, R, N	Pt100
Temperature scales	°C, °F	°C, °F, °A	°C, °F, °A	°C, °F, °A
Resolution °C, °F, °A	0.1 (range 1000), 1 (range >1000) — all models			
Additional features	—	Max./min. Hold	Twin inputs, Difference, Hold	Max./min. Hold
Power	9V PP3 Alkaline battery — all models			
Dimensions W x D x H mm	70 x 130 x 33 — all models (meter only)			

Digital Thermometer, Model C2000

Budget level, general purpose instrument for use with thermocouple sensor probes. °C or °F display selectable. Supplied with rubber surround, 9V battery and instructions. Without sensor probe.

TJ105-10 C2000

Digital Thermometer, Model C2010

Generally as TJ105-10 but with additional °A display selection and max./min./hold feature on a secondary display whilst real-time measurement continues on the primary display. Without sensor probe.

TJ105-20 C2010

Digital Thermometer, Model C2020

For direct or differential measurement applications. Generally as TJ105-20 but with dual thermocouple inputs. Simultaneous display of both inputs or differential measurement reading on the primary display, whilst input 1 readings continue on the secondary display (thermocouple inputs must be of the same type). A hold facility is also provided. Without sensor probes.

TJ105-30 C2020

Digital Thermometer, Model C2050

High accuracy Pt100 thermometer with long-term stability, four wire system, °C, °F, °A display selection, max./min./hold feature with secondary display. Without sensor probe.

TJ107-25 C2050

BL610-25 Spare 9V battery

Accessory sensor probes – see following page.



Thermometers

Thermocouple Simulator C2030

COPE

A highly accurate and versatile instrument which can simulate a known temperature to cross check calibration accuracy of other type K, J, E, T, R or N thermocouple thermometers or alternatively be used itself as a measuring instrument.

Model	C2030	
Ranges*	Type K	°C 0 to +1372
	Type J	°C -200 to +1200
	Type E	°C -200 to +1000
	Type T	°C -200 to +400
	Type R	°C -50 to +1767
	Type N	°C -200 to +1200
Accuracy (at 23°C ambient)	°C	±0.2 ±0.15% of reading (±0.8 ±0.6% max. with Type R sensor)
Scales	°C, °F, °A	
Resolution °C, °F, °A		0.1 (range 1000), 1 (range >1000)
Power		9V PP3 Alkaline battery
Dimensions W x D x H	mm	70 x 130 x 33

* Measure or simulate modes.

Thermocouple Simulator C2030

As described. Supplied with thermometer connector, with 1m coiled cable and miniplugs at each terminal, 9V battery and instructions.

TJ109-05 C2030
BL610-25 Spare 9V battery



TJ109-05

Accessory Probes for C2000 Series Thermometers and Model C2030

Platinum Resistance (Pt100) Probes for TJ107-25 only

With encapsulated handle, 2 metre coiled cable and connector.

	Temp. range °C	Shape, dimensions
Immersion* TJ114-01	-50 to +500	
Penetration* TJ114-08	-50 to +500	
Moving air TJ114-14	-50 to +500	

* Waterproof.

Thermocouple Probes for TJ105-10 to TJ105-30 and TJ109-05

Mineral insulated. Types K or T thermocouples with encapsulated handle, 2 metre coiled cable and connector with heavy duty, food safe, polyurethane sleeving and miniplug.

	Type	Temp. range °C	Shape, dimensions
Still air TJ115-30	K	-100 to +750	
TJ117-30	T	-100 to +450	
General purpose TJ115-33	K	-200 to +1100	
	T	-200 to +400	
General purpose* TJ115-36	K	-200 to +1100	
	T	-200 to +400	
Needle* TJ115-39	K	-100 to +280	
	T	-100 to +280	
Spring-loaded TJ115-42	K	-50 to +600	

* Waterproof.

Fine Wire Thermocouple Sensors for TJ105-10 to TJ105-30 and TJ109-05

Low mass, small bead thermocouples, 0.2mm diameter, giving fast response and excellent repeatability in air, liquid or surface applications. Supplied 1 metre long with miniplug.

	Type	Temp. range °C	Style
PTFE insulation TJ115-65	K	-100 to +250	
TJ117-65	T	-100 to +250	
Glass fibre insulation TJ115-67	K	-50 to +450	
	T	-50 to +400	

Alternative Thermocouples

A wide variety of thermocouple types and styles and for use at extreme ranges can be offered on receipt of detailed specifications - please contact us with your requirements.

Thermometers

Printing Thermometer P4101

Portable, dual input, type K or type T thermocouple thermometer with integral thermal printer for permanent recording of results.

- ◆ Prints temperature with time and date record
- ◆ Programmable printing intervals
- ◆ Min./Max./Average temperature functions
- ◆ Optical High/Low alarm
- ◆ °C, °F selectable
- ◆ Membrane keypad operation
- ◆ Supplied with NIST-traceable certificate, print roll and carrying case

Model	P4101	
Ranges*	Type K	°C -200 to +1333
	Type T	°C -200 to +400
Accuracy	°C ±1.0	
Scales	°C, °F	
Resolution	°C, °F 0.1	
Power	9V PP3 Alkaline battery	
Dimensions W x D x H	mm	75 x 190 x 38
Weight	g	300

Printing Thermometer P4101

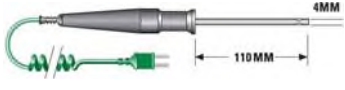
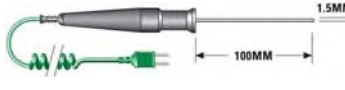


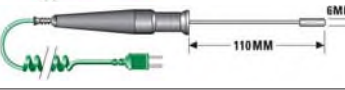
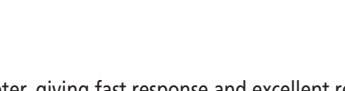
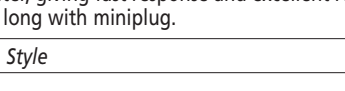


As described. Supplied with NIST-traceable calibration certificate, print roll, carrying case and 6 x 1.5V batteries. Without sensor probes.

- TJ108-20** P4101
- TJ108-56** Spare print roll for TJ108-20
- TJ108-59** Accessory a.c. adapter for TJ108-20, 100-240V supplies
- BL610-08** Spare 1.5V battery (6 required)

Accessory Probes for P4101

Thermocouple Probes for TJ108-20





Mineral insulated. Types K or T thermocouples with encapsulated handle, 2 metre coiled cable and connector with heavy duty, food safe, polyurethane sleeving and miniplug.

	Type	Temp. range °C	Shape, dimensions
Still air			
TJ115-30	K	-100 to +750	
TJ117-30	T	-100 to +450	
General purpose			
TJ115-33	K	-200 to +1100	
TJ117-33	T	-200 to +400	
General purpose*			
TJ115-36	K	-200 to +1100	
TJ117-36	T	-200 to +400	
Needle*			
TJ115-39	K	-100 to +280	
TJ117-39	T	-100 to +280	
Spring-loaded			
TJ115-42	K	-50 to +600	

* Waterproof.

Fine Wire Thermocouple Sensors for TJ108-20

Low mass, small bead thermocouples, 0.2mm diameter, giving fast response and excellent repeatability in air, liquid or surface applications. Supplied 1 metre long with miniplug.

	Type	Temp. range °C	Style
PTFE insulation			
TJ115-65	K	-100 to +250	
TJ117-65	T	-100 to +250	
Glass fibre insulation			
TJ115-67	K	-50 to +450	
TJ117-67	T	-50 to +400	

Alternative Thermocouples

A wide variety of thermocouple types and styles and for use at extreme ranges can be offered on receipt of detailed specifications - *please contact us with your requirements.*



TJ108-20

Thermometers

Digital Thermometers

Indoor/Outdoor Thermometer

Ranges -10°C to +50°C (indoor), -50 to +70°C (outdoor), resolution 0.1°C (0.1°F) accuracy ±1°C (±1.5°F). With 12mm high, dual LCD readout. The upper display shows the temperature measured by the built-in sensor. The lower display shows the temperature measured by the water-resistant remote probe which is fitted to a 3 metre cable. A max./min. memory function is provided which allows the maximum and minimum recorded value for each sensor to be recalled and displayed; the user then has the option to reset. Overall 70 x 20 x 110mm W x D x H. Supplied with 1 x 1.5V AAA battery for operation.

TJ355-15 Indoor/outdoor thermometer

BL610-08 Battery, 1.5V AAA

Digital Maximum/Minimum Thermometer

For indoor or outdoor use. Range -20°C to +50°C switchable to -4°F to +122°F with reset. Displays current temperature and maximum and minimum temperatures since the last reset. With splash-resistant casing, overall 75 x 44 x 115mm W x D x H, with keyhole for hanging and battery.

TJ365-10 Digital max./min. thermometer

BL610-15 Battery, 1.5V AA

Mini Infra-red Thermometer

For non-contact temperature measurement. With Min./Max. display modes. "Hold" and "Lock" functions.

Range: -33°C to +220°C x 0.1°C

Accuracy: ±1.5°C (0 to 50°C) otherwise ±2°C or 2%, whichever is larger (for rest of the range)

Emissivity: Fixed (E=0.95)

Response time: 1 second

With ergonomically designed casing, LCD readout, and 1 x 3V battery. Overall 68 x 37 x 18mm W x D x H. Weight 31g.

TJ380-40 Infra-red thermometer

BL590-25 Battery, 3V

Infra-red Thermometer

For non-contact temperature measurement. With Min./Max. display modes, and differential, averaging and "Hold" functions.

- ◆ Ergonomic, pistol-grip, hand-held design
- ◆ Over/under temperature audio/visual alarm
- ◆ Backlit LCD readout

Range	Temperature:	-10°C to +199.9°C x 0.1°C
Accuracy	Temperature:	±2°C
Measuring time		<1 second
Range distance : spot dia. ratio		12:1
Overall H x W x D	mm	174 x 40 x 72
Weight	g	180
Power		2 x 1.5V AAA batteries

As described. Supplied with carrying case and 2 x 1.5V AAA batteries.

TJ390-20 Infra-red thermometer

BL610-08 Battery, 1.5V AAA (2 required)

Digital memory thermohygrometer - see HY390-20.



TJ355-15



TJ365-10



TJ380-40



TJ390-20

Thermometers

Digital Thermometers, Certified and Traceable

Waterproof Thermometer, Certified

Hand-held, waterproof (to IP65 ingress level), digital thermometer, range -40 to +240°C x 0.1°C with 120 x 4mm L x diameter, fixed stainless steel probe, Max./Min. function, manufacturer's certificate of calibration (two point) traceable to national and international standards, including NPL and NIST and 1.4V LR48 button cell battery. Overall 20 x 15 x 200mm W x D x H weight: 33g.

TJ460-35 Waterproof thermometer, certified

Waterproof Folding Probe Thermometer, Certified

Hand-held, waterproof (to IP65 ingress level), digital thermometer, range -50 to +150°C x 0.1°C with 85 x 3.5mm L x diameter, folding stainless steel probe, Auto On/Off and Hold functions, manufacturer's certificate of calibration (two point) traceable to national and international standards, including NPL and NIST and 1.4V LR44 button cell battery. Overall 45 x 18 x 125mm W x D x H, weight: 85g.

TJ460-40 Waterproof thermometer, certified

BL610-04 Spare 1.4V LR44 battery

Twin reading Thermometer, Certified

Digital thermometer with attached probe and 2m cable with single display that can be toggled between unit and probe temperatures respectively. Ideal for monitoring fridges, freezers or outdoor/indoor temperatures simultaneously. Ranges -20 to +70°C (internal), -50 to +70°C (external probe) x 0.1°C resolution, with Max./Min.function, magnetic attachment and supplied with 1.5V AAA battery and manufacturer's certificate of calibration (two point) traceable to national and international standards including NPL and NIST. Overall 110 x 35 x 170mm W x D x H (unit) , weight 62g.

TJ460-50 Twin reading thermometer, certified

BL610-08 Spare 1.5V AAA battery



TJ460-35



TJ460-40



TJ460-50

Thermometers

Digital Thermometers

HANNA

Digital Thermometers, Checktemp

Temperature range:

-50 to +150°C. Resolution 0.1°C

Accuracy:

±0.3°C (-20 to 90°C), ±0.5°C (rest of range)

All-in-one unit with thermometer housing mounted on a stainless steel cased thermistor probe, on/off switch, LCD readout, calibration test switch and 1.4V battery. Overall 171 x 50 x 25mm L x W x H. Probe 105 x 3mm L x dia. Weight 50g.

TJ702-10 Checktemp C

BL610-04 Spare battery, 1.4V

Digital Thermometers, Checktemp 1

Ranges, resolutions and features as TJ702 but with stainless steel cased thermistor probe on 1 metre flexible lead for remote operation. Overall 106 x 58 x 19mm L x W x H. Probe 106 x 3mm L x dia. Weight 80g.

TJ705-12 Checktemp 1C

Digital Thermometer, Checktemp 4C

Temperature range: -50 to +220°C

Resolution:

0.1°C (-50 to 199.9°C),
1°C (rest of range)

Accuracy:

±0.3°C (-20 to +90°C), ±1%fsd (rest of range)

With hinged, stainless steel thermistor probe 117 x 3.5mm L x dia., folding into case when not in use. Automatic calibration check at switch-on. With 1 x 1.5V AA battery and wrist strap. Overall 165 x 50 x 20mm L x W x H (probe folded). Weight 100g.

TJ710-17 Checktemp 4C

Digital Thermometer, dual range, HI-935007

Dual measurement ranges:

-50 to +199.9°C. Resolution 0.1°C

+200 to +900°C. Resolution 1°C

-58 to +399.9°F. Resolution 0.1°F

+400 to +1650°F. Resolution 1°F

Accuracy:

±0.2% of full scale

Microprocessor based, with splashproof keypad. Includes temperature 'hold' facility and maximum/minimum temperature memory with twin-line LCD display featuring actual, min and max (since switch-on) temperatures. Readings can be user-selected in °C or °F. Overall 150 x 80 x 36mm L x W x H. Weight 300g. With fixed, Type K thermocouple probe and 3 x 1.5V AA batteries.

TJ720-85 HI-935007

BL610-15 Spare battery, 1.5V AA (3 required)

Digital Clinical Thermometer – see TG715.

Digital Hygrometers – see HY390/HY530.

Digital Thermometers

Ergonomically designed, high accuracy Type K thermocouple thermometers.

Dual measurement ranges:

-200 to +1371°C -328 to +2500°F

Resolution:

0.1°C/0.1°F <1000°C/1000°F

1.0°C/1.0°F >1000°C/1000°F

Accuracy:

±0.2% of full scale

Microprocessor controlled, with splashproof rubber keypad. Includes on/off switch, display "hold" key, °C/°F mode key, wrist strap and 9V battery. In addition TJ725-20 has a memory to register both highest and lowest values and separate recall keys. Overall dimensions 150 x 80 x 36mm L x W x H. Weight 235g. Requires, but does not include, type K thermocouple probe.

TJ725-10 HI-93530

TJ725-20 HI-93531, with memory

BL610-25 Spare battery, 9V

Thermocouple Probes Type K

For TJ725-10 and TJ725-20. With handle and 1 metre of flexible cable.

	Max. temp. °C	Length x dia. mm	Type
TJ733-10	900	120 x 3	Immersion. Air/liquid
TJ733-15	300	250 x 3	Air probe. Fast response
TJ733-17	900	125 x 3.2	Hypodermic insertion for most semi-solids
TJ733-22	650	205 x 5	Surface



TJ702



TJ710



TJ705



TJ725-10, TJ725-20 is similar



TJ720-85

Thermometers

Temperature Sticks



Temperature Sticks, Testo 905 series

Compact temperature measurement sticks with choice of immersion or surface type K thermocouple probes. Range -50 to +350°C, accuracy ±1% reading. With swivelling display head, large LCD readout, on/off key, auto-off function and 3 x 1.5V AAA batteries. Overall 230 x 37 x 36mm H x W x D. Weight 80g. Dimensions stated are probe length x diameter.

- TJ780-20** Testo 905-T1, immersion, 200 x 3mm
- TJ780-30** Testo 905-T2, surface, 150 x 12mm
- BL610-08** Spare battery, 1.5V AAA (2 required)

Penetration Thermometers, Testo 106

Penetration Thermometers, Testo 106

For rapid, spot checking of temperature in a variety of applications. Range -50 to +275°C x 0.1°C. With robust ABS casing, LCD readout, push button operation including 'hold' function, LED alarm indicator which operates should a set temperature range be exceeded or undershot, fixed stainless steel probe with protection sleeve and batteries. Also available as a set supplied with protective outer casing, giving IP67 level protection, and belt holster. Overall 215 x 34 x 19mm, L x W x H. Weight 80g.

- TJ785-24** Testo 106
- TJ785-26** Testo 106 set
- BL590-25** Spare battery, 3V (2 required)



TJ780-30

TJ780-20



TJ785

Thermometers

Digital Thermometers



Ergonomically designed, compact and easy-to-use digital thermometers. With infra-red data output to accessory printer, adjustable alarm settings, max./min. display and backlit LCD readout.

Model	110	720	925
Input	NTC sensor	Pt100 sensor	Type K thermocouple
Measurement range*	°C -50 to +150	-100 to +800	-50 to +1000
Accuracy (± 1 significant digit)	°C ±0.2 (-20 to +80) ±0.3 (rest of range)	±0.2% of reading (+100 to +800°C), ±0.2°C (rest of range)	±0.5°C ±0.3% of reading (-40 to +900°C), ±0.7°C ±0.5% of reading (rest of range)
Resolution	°C 0.1	0.1	0.1 (-50 to +199.9), 1.0 (rest of range)
Display	13mm LCD, with hold facility — all models		
Overall L x W x H	mm 182 x 64 x 40 — all models		
Power supply	9V PP3 battery with auto shut off — all models		

* This is the display capability of the instrument only, measurable range will depend on the thermocouple probe used.

Digital Thermometers, Testo

As described. With carrying case, instruction manual and 9V battery. Without probe.

TJ800-20 Testo 110

TJ810-30 Testo 720

TJ820-35 Testo 925

Spares and accessories for all models

BL610-25 Spare 9V PP3 battery

Thermal paper printer. With infra-red cordless data communication. Supplied with 4 x AA batteries and 1 roll of paper.

AN472-40 Printer

Rechargeable battery charger for AN472-40. With 4 x NiMH rechargeable AA batteries and built-in mains adapter requiring a 100-240V 50/60Hz single phase supply.

AN472-42 Battery charger/pack

AN472-45 Spare thermal paper for AN472-40, pack of 6 rolls.

BL610-15 Spare 1.5V AA battery for AN472-40 (4 required)

HY472-08 TopSafe protection boot, protects against impacts and dirt

Accessory probes

Stainless steel, with water-tight handles and 1.2 metre cables (except laboratory probes which are glass sheathed, have non water-tight handles and 1.5 metre cables). For applications as indicated.

Probe dimensions: 115 x 5mm L x diameter, except TJ812-20 which is 200 x 6mm L x diameter.

For meter	Probe range, °C	Immersion/ Penetration	Air	Surface*	Laboratory
TJ800-20	-50 to +150	TJ802-14	TJ802-17	TJ802-19	—
TJ810-30	-50 to +400	TJ812-12	TJ812-15	TJ812-18	TJ812-20
TJ820-35	-60 to +400	TJ822-10	TJ822-17	TJ822-19*	—

*This probe has a 12mm diameter flat tip with sprung sensor strip and has a range of -60 to +300°C.



TJ800



TJ820 in use, TJ810 is similar

Thermometers

Mini Datalogger 174T



Compact, economical, single channel datalogger for temperature monitoring in various applications.

- ◆ Non-volatile memory, even when battery exhausted
- ◆ Internal NTC thermistor sensor
- ◆ Conforms to EN12830
- ◆ Large LCD readout with alarm and battery status indicators
- ◆ Data transfer via USB interface which also enables programming
- ◆ Push-button start
- ◆ IP65 protection class casing
- ◆ Battery powered, with easy replacement

Range x resolution °C	-30.0 to +70.0 x 0.1
Accuracy ±°C	0.5
Maximum storage	16,000 readings
Measuring time cycle	Adjustable 1 minute to 24 hours
Overall, L x W x H mm	59 x 37 x 16
Weight g	25
Power supply	2 x CR2032 lithium battery giving approximately 500 days operation

As described. With wall holder, USB interface port, receiver and cable, and 2 x batteries. Requires Comsoft basic download/programming software (free, internet download).

- TJ847-20** Testo 174T set
- TJ847-24** Accessory Testo 174T logger only
- HY618-24** Accessory interface port receiver and cable
- BL590-15** Spare battery (2 required)



TJ847-20 in use

Dataloggers, 175, 176



Long term, reliable temperature loggers with robust ABS casing offering either IP65 or IP68 protection, push-button start, SD card or USB data connection and flexible data handling options.

- Model 175 T1 Single channel, with internal NTC sensor and LCD readout
- Model 175 T2 Two channel, with internal NTC sensor, external NTC probe socket for use with accessory probes and LCD readout
- Model 176 T1 Single channel, expanded memory version, with internal sensor, but without display
- ◆ Internal interfaces for both USB or SD card data collection
- ◆ Measuring time cycle adjustable from 10 seconds to 24 hours (175 series) or 1 second to 24 hours (model 176)

Model	175 T1	175 T2	176 T1
Ranges	internal sensor °C -35 to +55 external sensor °C —	-35 to +55 -40 to +120	-35 to +70 —
Resolution °C	0.1 — both models		0.01
Memory readings	1 million - both models		2 million
Protection rating	IP65 - both models		IP68
Overall, L x W x H mm	53 x 27 x 89	53 x 27 x 89	63 x 33 x 103
Weight g	150	150	260
Battery life (average) years	>3	>3	>8

As described. Supplied with both USB and SD card data collection interfaces, wall holder, infra-red data transfer/control port, battery and calibration protocol. Requires, but is not supplied with, either an accessory USB cable or SD card for data transfer.

- TJ847-60** Testo 175 T1
- TJ847-65** Testo 175 T2
- TJ847-80** Testo 176 T1

Accessories

Accessory probes for TJ847-65

With 1.5m lead. Dimensions are probe length x diameter.

- TJ802-14** Immersion, 110 x 4mm
- TJ802-17** Air, 110 x 4mm
- TJ802-20** Laboratory, glass sheathed, 200 x 6mm

- TJ847-87** USB cable for connecting 175 and 176 dataloggers to the user's PC

Comsoft 4 Professional software

With data handling, database, graphical and trend analysis functions for Windows™ OS.

- TJ847-98** Comsoft 4

SD cards - local purchase recommended



TJ847-60



TJ847-65



TJ847-80

Tiles

Tiles

Cavity Tile/Plate, plastic

White polypropylene. With 12 cavities. Suitable for spotting applications. 115 x 95mm. Supplied singly.

TJ995-10 Cavity tile, plastic

Cavity Tile/Plate, ceramic

White glazed ceramic with 12 cavities. Suitable for spotting applications. 115 x 90mm. Supplied singly.

TJ995-25 Cavity tile, ceramic

Flat Tile/Plate, ceramic

White ceramic glazed top 150 x 150mm. Supplied in a pack of 5.

TJ998-30 Flat tile, ceramic

Ceramic Plates for bench protection – see *Mats section*.

Microtest and Multiwell Plates – see *Tissue Culture and Microtitration sections*.

Support Plates for use with retort stands – see *Stands section*.

Mats

Mats, ceramic fibre

Provide heat protection to benches. An alternative to asbestos bench mats. Approximately 5mm thick. Supplied singly.

	Size, mm
MB800-15	150 x 150
MB800-22	225 x 225
MB800-30	300 x 300

Mats, PTFE

5mm thick, white PTFE. Operating temperature range -200°C to +250°C. Note: DO NOT EXPOSE TO DIRECT HEAT. Supplied singly.

	Size, mm
MB810-25	150 x 150

Mats, Ceran®

Ceran® is a highly resistant, glass ceramic material. Operating temperature range -200 to +700°C, allowing the mat to be used as a heating surface in place of a wire gauze or fireclay triangle. Care should be taken to ensure that the maximum operating temperature is not exceeded when using with a Bunsen burner. Supplied in packs of 10.

	Size, mm
MB820-10	135 x 135
MB820-20	155 x 155
MB820-30	175 x 175

Ceran® is a registered trade mark of Schott Glaswerk.

Bench Protection Sheets – see *Safety section*.



TJ995-10



TJ995-25



TJ998-30



MB800



MB810



MB820 in use

Timers

Countdown/Countup Timers, Interval Timers, Stopclocks

Timer, Countdown, with memory

Digital, with large 35mm high display. Measures lapsed time up to 99 minutes 59 seconds. With end-of-period, audible alarm. A memory function allows the set time period to be repeated. With magnetic attachment and 1.5V battery.

- TL645-33** 35mm display
- BL610-08** Spare battery 1.5V

Multifunction Timer, Countup

Digital, with large 12mm high, inclined LCD readout for easy viewing. High accuracy countup timer from 0.01 seconds to 9 hours 59 minutes 59.99 seconds. Split and lap timing facilities selectable. Also available with 4mm sockets for external triggering. Supplied with 1.5V battery.

- TL648-15** Multifunction timer
- TL648-22** Multifunction timer/sockets
- BL610-15** Spare battery 1.5V

Dual timer/clock, Countdown/Countup

Digital, with 12mm high LCD readout. 2 separate timing units with countup or countdown displays from 1 second to 23 hours 59 minutes 59 seconds and can be used as a 12/24 hour clock with setting keys and audible alarm. Supplied with back clip, stand and 1.4V battery.

- TL660-80** Dual timer/clock
- BL610-04** Spare battery 1.4V

Dual timer, Countdown/Countup

Digital, 2 separate timing units with countup or countdown displays from 1 second to 99 hours 59 minutes and 59 seconds. LED visual and audible alarm (with 3 volume settings selectable). The case incorporates a combined bench stand/hanging clip with magnetic attachment. Requires 2 x 1.5V batteries for operation.

- TL664-50** Dual timer
- BL610-08** Spare battery 1.5V (2 required)

Triple Timer, Countdown/Countup

Digital, 3 separate timing units with countup or countdown displays from 1 second to 20 hours. Each unit has a different audible alarm at the end of its counting period. The case incorporates a combined bench stand/hanging clip with magnetic attachment. Supplied with 1.4V battery.

- TL665-20** Triple timer
- BL610-04** Spare battery 1.4V

Timer, 1-hour, mechanical

Freestanding, benchtop model, with spring-driven clock movement activated by setting the easy to read dial. With audible bell alarm at the end of the timed period. Range 1 to 60 minutes.

- TL675-24** 1-hour, 50mm dial

Timer, 1-hour, mechanical

Spring-driven clock movement activated by setting the easy to read dial knob. The remaining time is clearly visible as a shaded area. With audible alarm and magnetic attachment.

- TL675-60** 1-hour, 60mm dial

Stopclock, 1-hour, high accuracy

Spring-driven, Kienzle clock movement. With 95mm dial, scaled 0 to 60 minutes in 1 minute intervals. With start, stop and reset buttons and housed in a robust case. Overall 110 x 60 x 110mm W x D x H.

- TL677-40** 1-hour, 95mm dial

Timer/Stopclock, Countdown/Countup

Digital, compact timer with large 27mm high main digit and 20mm high secondary digit display. Counts up or down from 99 minutes and 59 seconds with audible alarm at the end of the timed period. Supplied with pocket clip/bench stand and magnetic attachment, instructions and battery.

- TL680-09** Timer/stopclock
- BL610-08** Spare battery 1.5V

Timer/Stopclock, Countdown/Countup

Digital, with large 30mm high main digit and 25mm high secondary digit display. Counts up or down from 23 hours, 59 minutes and 59 seconds to 1 second, alternatively counts up from 0.01 seconds to 59 minutes 59 seconds or 9999.9 seconds or 0.01 minute to 19999.99 minutes. A loud audible alarm is emitted at the end of the timed period. Lap facility available on countup feature. 12/24 hour clock, day and month displays and a daily alarm are also selectable. Supplied with 1.5V C battery.

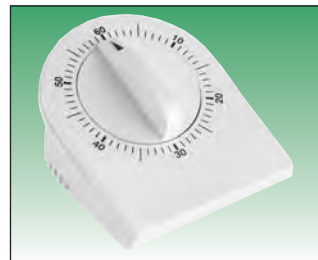
- TL680-15** Timer/stopclock
- BL610-20** Spare battery 1.5V



TL645-33



TL660-80



TL675-24



TL680-09



TL648-22 in use



TL664-50



TL675-60 (inset: in use)



TL680-15



TL665-20



TL677-40

Timers

Stopwatches

Cat. No.	TM400-05	TM480-12	TM480-23	TM485-30
Type	Mechanical	Electronic	Electronic	Electronic
Movement	Standard lever	—	—	—
Jewels	13	—	—	—
Hours	—	23	23	23
Minutes	30	59	59	59
Seconds	0.2	59	59	59.99
Side flyback	✓	—	—	—
Split	—	✓	✓	✓
Day/Date/Time	—	✓	✓	✓

Mechanical Stopwatch

As described. 13 jewel standard lever mechanism. Stainless steel case with centre crown stop/start and side flyback.

TM400-05 Mechanical stopwatch, 30 minutes x 0.2 seconds

Electronic Stopwatches

As described. Quartz controlled movement, 24 hour models with liquid crystal display in robust plastic cases. Split time facility count to 0.01 seconds for first 30 (TM480-21) or 40 (TM480-12, -23) minutes and then in 1 second increments to 24 hours. Include time/calendar display mode and alarm. With battery. TM480-12, -21 and -23 are additionally supplied in a water resistant case.

TM480-12 With 8mm high display

TM480-23 With 12mm high display

BL590-25 Battery, 3V, spare for TM480-series

Water Resistant, Electronic Stopwatch

As described. Battery operated, water resistant stopwatch. 8mm high liquid crystal display with selectable backlighting. Stopwatch incorporates 24 hour timer to 1/100th of a second with lap facility holding up to 100 laps, clock, alarm and calendar display modes. With battery.

TM485-30 Water resistant, electronic stopwatch

BL590-25 Battery, 3V, spare for TM485-30

Time Switch and Wall Clocks

Time Switch

With integral 13A 3-pin plug and socket fitting for connecting directly to the mains supply and to equipment being controlled. Large dial with simple time setting by switch pins. Overall 70 x 70 x 33mm deep.

Minimum setting interval

15 minutes

Minimum time period

30 minutes

For 230V 50Hz single phase supplies. Maximum rating 13A.

TM850-20 24 hour

Wall Clock, analogue

Quartz mechanism, battery operated. White moulded plastic case with 254mm diameter, 12 hour dial with sweep second hand. Overall diameter 270mm. With battery and integral wall mounting bracket.

TM900-12 Wall clock, analogue

BL610-15 Spare battery 1.5V

Wall Clock, analogue, with hygrometer and thermometer

Quartz mechanism, battery operated. Moulded plastic case finished in silver with 280mm diameter, 12 hour dial with sweep second hand and subsidiary dial hygrometer (0 to 100%RH) and thermometer (-24 to +54°C). With battery and integral wall mounting bracket.

TM900-30 Wall clock/hygrometer/thermometer

BL610-15 Spare battery 1.5V



TM400-05



TM485-30



TM850-20



TM900-12



TM480-12



TM480-23



TM900-30

Tissue Culture

Culture Tubes, Glass

Dimensions are approximate length x o.d.

Culture Tubes, Comet, Disposable

Borosilicate glass. Round bottom, rimless. Without cap. Supplied in packs as indicated.

	Size, mm	Pack qty.
TP160-13	75 x 10	1000
TP160-18	75 x 12	1000
TP160-28	100 x 13	1000
TP160-33	100 x 16	1000
TP160-38	125 x 16	1000
TP160-43	150 x 16	1000

Culture Tubes, Corning, Disposable

Borosilicate glass. Without caps. Supplied in packs as indicated.

	Ref.	Size, mm	Pack qty.
Round bottom, rimless			
TP180-15	99445-10	75 x 10	1000
TP180-20	99445-12	75 x 12	1000
TP180-25	99445-15	85 x 15	1000
TP180-30	99445-13	100 x 13	1000
TP180-35	99445-16	100 x 16	1000
TP180-40	99445-16X	125 x 16	1000
TP180-45	99445-16XX	150 x 16	1000
TP180-50	99445-18	150 x 18	500
TP180-55	99445-20	150 x 20	500
Round bottomed, screw neck			
TP190-25	99449-13	100 x 13	1000
TP190-35	99449-16	100 x 16	1000
TP190-40	99449-16X	125 x 16	1000
TP190-45	99449-20	125 x 20	500
TP190-50	99449-16XX	150 x 16	1000
TP190-55	99449-20X	150 x 20	500
Flat bottomed, screw neck			
TP215-40	99448-16	125 x 16	1000

Accessory Screw Caps for TP190/TP215

Supplied in packs as indicated.

	Ref.	To fit tube diameter	Pack qty.
Disposable with rubber liner			
TP220-13	99999-13	13mm	1000
TP220-16	99999-15	16mm	1000
TP220-20	99999-18	20mm	1000
Autoclavable with PTFE faced rubber liner			
TP224-13	9998-13	13mm	288
TP224-16	9998-15	16mm	288
TP224-20	9998-18	20mm	192

Culture Tubes, Pyrex

Borosilicate glass. With SVL polybutylene terephthalate (PBT) screw-cap, having an inert PTFE-lined, rubber disc insert, resistant to repeated dry heat and steam sterilisation cycles (up to 180°C). Supplied singly.

	Ref.	Size, mm	Cap size
TP250-25	1636/24	100 x 14	13
TP250-30	1636/26	100 x 16	15
TP250-35	1636/32	100 x 18	18
TP250-40	1636/36	100 x 20	20
TP250-45	1636/42	100 x 26	25
TP250-55	1636/04	125 x 16	15
TP250-65	1636/30	160 x 16	15
TP250-70	1636/34	180 x 18	18
TP250-75	1636/38	200 x 20	20
TP250-80	1636/10	200 x 22	22
TP250-85	1636/44	200 x 26	25

Spare caps and inserts for TP250-series

Supplied singly.

	Cap size
--	-------------

SVL Polybutylene Terephthalate (PBT) Caps

SW460-13	13
SW460-15	15
SW460-18	18
SW460-20	20
SW460-22	22
SW460-25	25

Inserts for Caps

SW464-13	13
SW464-15	15
SW464-18	18
SW464-20	20
SW464-22	22
SW464-25	25



TP160
TP180

TP190
with cap

TP215
with cap

TP250

Tissue Culture

Culture Tubes, Plastic

Dimensions are approximate length x o.d.

Culture Tubes, Corning

Available in polystyrene (PS) or treated polystyrene (TPS) for anchorage dependent cells. Sterilised by gamma irradiation. TP320-37 has a screw cap and is supplied loose in bags of 25, TP320-40 is supplied with screw cap in 50-tube polyfoam racks, both within outer packs as indicated.

	Ref.	Material	Size, mm	Pack qty.
TP320-37	430157	PS	125 x 16	500
TP320-40	430172	TPS	125 x 16	500

Culture Tubes, Elkay

Polystyrene, with printed graduations and fitted with "push-on" polyethylene caps for gassing or gas-tight use. Sterilised by gamma irradiation. Supplied in trays of 25 within outer packs as indicated.

	Ref.	Material	Size, mm	Pack qty.
TP367-30	2058	PS	75 x 12	500
TP367-40	2001	PS	100 x 17	500

Safety Notes

Do not use cryogenic vials for storage in the liquid phase of liquid nitrogen.

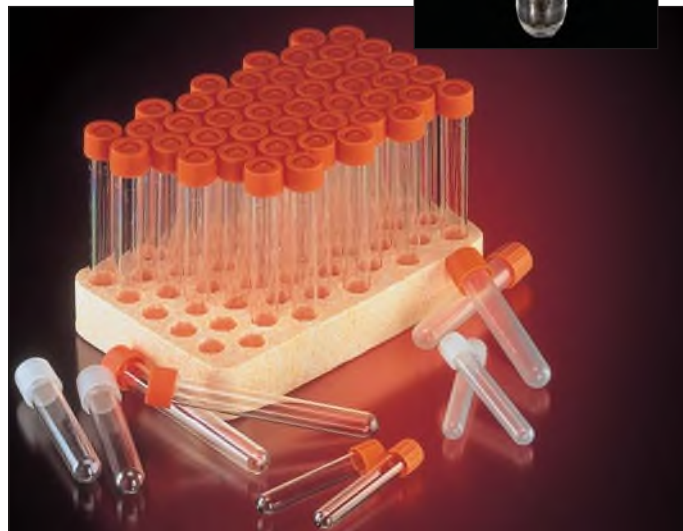
It is recommended that insulated gloves and face protection be worn when inserting or removing cryovials from cryogenic storage.

Incubators – see *IN060* et seq.

Slow speed mixer – see *CM470*.

Orbital shaker – see *SE745*.

Inset: TP367



TP320

Cryogenics

Cryogenic Vials, Corning

Polypropylene with cap, permanent marking spot and graduations. Withstand temperatures down to -196°C . Sterilised by gamma irradiation. Supplied in sterile packs of 50 within the outer packs of 500. Self-standing vials have an integral skirt.

	Ref.	Cap fitting	Capacity
With external cap			
TP445-11	430658	Screw	1.2ml self standing
TP445-14	430659	Screw	2ml self standing
TP445-15	430661	Screw	2ml
TP445-17	430662	Screw	4ml self standing
TP445-18	430663	Screw	5ml self standing
With internal plug seal cap			
TP445-20	430487	Screw	1.2ml self standing
TP445-24	430488	Screw	2ml self standing
TP445-27	430489	Screw	2ml
TP445-32	430490	Screw	4ml
TP445-35	430491	Screw	4ml self standing
TP445-40	430492	Screw	5ml
TP445-43	430656	Screw	5ml self standing

Accessories for TP445

Vial rack. Polypropylene. Holds 50 cryogenic vials. Supplied in a pack of 2.

TP447-08 431131

Cryogenic Workstation

ABS plastic. Includes an ice bath, self-locking vial rack, an open area for odd size tubes and alphanumeric identification markings. Holds 30 cryogenic vials.

TP447-30 430525

Coloured inserts for Cryogenic Vials

These inserts are unsuitable for TP445-10 and TP445-12. Supplied in an inner pack of 50, containing 10 each white, blue, red, green and yellow inserts, within an outer pack of 500.

TP447-52 430499

Cryogenic Boxes

ABS plastic. To hold 81 x cryogenic vials TP445 with capacities as indicated. With clear, drop-on lid, with printed numeric grid to aid sample identification. Supplied in packs of 10.

	Ref.	For vials, ml
TP447-60	431119	1 to 2
TP447-65	431120	4 to 5



TP445 series with TP447

Tissue Culture

Cryoware



Cryovials

Polypropylene with polyethylene closure. Skirted and self-standing. With marking area and fill line. Sterilised by irradiation. Supplied in sleeves as indicated.

	Ref.	Cap. ml	Sleeve qty.
TP453-09	5000-0012	1.2	25
TP453-12	5000-0020	2	25
TP453-14	5000-0050	5	10

Cryovial Holder

Polycarbonate. Accommodates fifty TP453 vials in 5 x 10 array. With identification letters and numbers moulded in the upper surface. Can be autoclaved. Overall 197 x 102 x 28mm high.

TP453-20 5030-0510

Cryovials, System 100

Space saving design for use in the System 100 CryoBox. Polypropylene with polyethylene closure. Skirted and self standing. With marking area and fill line. Sterilised by irradiation.

	Ref.	Cap. ml	Pack qty.
TP453-24	5000-1012	1	500
TP453-27	5000-1020	1.5	500

Cryo Freezing Container

Polycarbonate outer container with HDPE closure and cryovial holder. When used as instructed with isopropyl alcohol and a mechanical freezer it will provide the 1°C critical cooling rate required for successful cell cryopreservation and recovery. The rigid vial holder, which accepts up to 18 x 1.2ml or 2ml cryovials (TP453-10 and TP453-13) prevents vials contacting the alcohol. Moulded numbers provide quick vial identification. The vial holder floats in a water bath for thawing. Overall 86 x 117mm H x D.

TP453-37 5100-0001

CryoBoxes™

Polycarbonate. For ultra-low temperature storage of vials. Identification numbers on box and lid are keyed so that grid numbers match. Overall:

TP453-40 76 x 76 x 51mm high TP453-45 133 x 133 x 51mm high
TP453-47 133 x 133 x 95mm high

	Ref.	Array
TP453-40	5025-0505	5 x 5*
TP453-45	5026-0909	9 x 9*
TP453-47	5027-0909	9 x 9**

* For 1.2 and 2ml vials

** For 5ml vials

CryoBox™, System 100

Polycarbonate. For ultra-low temperature storage of up to 100 x TP453-24/-27 vials. With matching identification numbers on box and lid in 10 x 10 grid array. Overall 133 x 133 x 51mm high. Supplied singly.

	Ref.	Array
TP453-50	5026-1010	10 x 10

Microcentrifuge Tube Boxes

Polycarbonate. Provides safe storage of filled microcentrifuge tubes. The transparent lid allows viewing of the tubes. Can be autoclaved. Must not be immersed in liquid nitrogen. Overall 52 x 133 x 133mm H x W x D.

	Ref.	For tubes
TP453-54	5055-5005	81 x 0.5ml
TP453-56	5055-5015	64 x 1.5ml

Safety Note

It is recommended that insulated gloves and face protection be worn when inserting or removing cryovials from freezer storage. Extreme care must be exercised when using any screw cap vials with liquid nitrogen.

continued on next page



TP453-20 with vials TP453



CryoBoxes



TP453-37 with vials TP453



TP453-54

Tissue Culture

Cryoware continued

CryoCane™

Aluminium. Holds five x 1, 1.2, 1.5 or 2ml cryovials for storage in Dewar-type liquid nitrogen freezers. Overall length 290mm. It is recommended that the cane be enclosed in a sleeve TP453-65 for extra security. Supplied singly.

TP453-60 5015-0001

CryoSleeve™

Transparent PVC. For enclosing cane to provide extra security during handling and storage. Overall 273mm. Supplied singly.

TP453-65 5016-0001

Cryoware Labels

Plain cloth labels 25 x 50mm which adhere to plastic or cardboard storage boxes. Designed for use at ultra-low temperatures. Supplied in pack of 10 sheets of labels with each sheet containing 20 labels.

TP455-25 5040-0002

Cryoware Marker Set

For marking labels. Will not fade at ultra-low temperatures. Supplied in pack containing one each fine point pens in black, blue, green and red.

TP455-30 6313-0010

Cryo-aprons and Gloves – see SA260 and SA720 series in the Safety section.

Dewar Storage – see DE710 to DE760 in the Dewars section.

Dry Ice Makers – see IC410.

Goggles and Shields – see SA952 to SA980 and SB970/SB973 in the Safety section.

Liquid nitrogen refrigerators – see CX800/CX810.

Minus 80°C Freezers – see RG400/RG415 in the Refrigeration section.

Safety Note

It is recommended that insulated gloves and face protection be worn when inserting or removing cryovials from freezer storage. Extreme care must be exercised when using any screw cap vials with liquid nitrogen.



CryoCanes and Sleeves

CryoBox Racks, vertical

Stainless steel. With top handle. For use in chest freezers.

For CryoBox TP453-40

Cat. No.		TP455-50	TP455-53
Shelves		4	9
Overall, mm	W	83	83
	D	84	84
	H	225	502

TP455-50 5035-0004

TP455-53 5035-0009

For CryoBox TP453-45

Cat. No.		TP455-60	TP455-63
Shelves		4	9
Overall, mm	W	140	140
	D	143	143
	H	225	502

TP455-60 5036-0004

TP455-63 5036-0009

For CryoBox TP453-47

Cat. No.		TP455-70	TP455-73	TP455-76
Shelves		2	4	7
Overall, mm	W	140	140	140
	D	143	143	143
	H	206	406	705

TP455-70 5037-0002

TP455-73 5037-0004

TP455-76 5037-0007

CryoBox Racks, horizontal

Stainless steel. With side handles. For use in upright freezers. For CryoBox TP453-45.

Cat. No.		TP456-10	TP456-13
Shelves		12 (4 x 3)	16 (4 x 4)
Overall, mm	W	143	143
	D	445	590
	H	225	225

TP456-10 5038-4322

TP456-13 5038-4422



TP456 in use



CryoBox Racks, vertical

Tissue Culture

Storage Boxes

Storage Boxes

Rigid cardboard, with drop on lid. Suitable for use at freezer temperatures down to -85°C. Overall 133mm x 133mm x W x D. Choice of height and colour, as indicated. Accessory grid dividers are available to accommodate a variety of tube sizes. Supplied singly.

	Box height, mm	Colour
TP458-02	50	White
TP458-04	50	Blue
TP458-06	50	Red
TP458-08	50	Green
TP458-10	50	Yellow
TP458-22	75	White
TP458-24	75	Blue
TP458-26	75	Red
TP458-28	75	Green
TP458-30	75	Yellow
TP458-42	100	White
TP458-44	100	Blue
TP458-46	100	Red
TP458-48	100	Green
TP458-50	100	Yellow

Accessory Grid Dividers for TP458-02 to TP458-50 boxes only

Plain white card. With compartments to hold tube sizes and to fit box heights as indicated. Supplied singly.

	Grid array	To hold tubes, mm	For box height, mm
TP458-61	7 x 7	16	50
TP458-63	8 x 8	14	50
TP458-65	9 x 9	13	50
TP458-67	10 x 10	12	50
TP458-71	7 x 7	16	75
TP458-73	8 x 8	14	75
TP458-75	9 x 9	13	75
TP458-77	10 x 10	12	75
TP458-81	7 x 7	16	100
TP458-83	8 x 8	14	100
TP458-85	9 x 9	13	100
TP458-87	10 x 10	12	100



TP458-02 to TP458-50 boxes



TP458-08 in use with TP458-65

Tissue Culture

Storage Boxes

Storage Boxes

Translucent, polypropylene sectioned boxes, autoclavable at 121°C for 15 minutes and suitable for use at temperatures down to -85°C. Bases and lids have raised rims to enable boxes to be securely stacked.

Rectangular boxes, 50-section

As described, with drop-on lid. Accommodate up to 50 x 0.5 to 2ml microcentrifuge tubes or cryovials with maximum height 55mm. Overall 144 x 75 x 55mm L x W x H maximum. Colour coded as indicated. Supplied singly.

	Box colour
TP460-09	Natural
TP460-12	Pink
TP460-15	Green
TP460-18	Blue
TP460-20	Yellow

Square boxes, 100-section

As described, with hinged lid. Accommodate up to 100 x 2ml microcentrifuge tubes or cryovials with maximum height 53.5mm. An all black version is available for light sensitive samples or for easy batch identification. Overall 140 x 140 x 60mm L x W x H. Supplied singly.

	Base colour	Lid colour
TP462-04	Natural	Natural
TP462-09	Natural	Red
TP462-14	Natural	Green
TP462-19	Natural	Blue
TP462-23	Natural	Yellow
TP462-47	Black	Black

Rack Inserts

Polypropylene. For use with square 100 section boxes TP462-series or as stand-alone racks. Available in two capacities to hold up to 64 x 0.5ml or 1.5ml microcentrifuge tubes in 8 x 8 configuration. Autoclavable at 121°C for 15 minutes and suitable for use at temperatures down to -85°C. With locating rings on the top surface to allow stacking, moulded-in alphanumeric references for easy sample identification and available in a choice of colours. Supplied singly.

	Colour
For 0.5ml microtubes	
TP464-12	Natural
TP464-15	Red
TP464-18	Green
TP464-21	Blue
TP464-24	Yellow

For 1.5ml microtubes

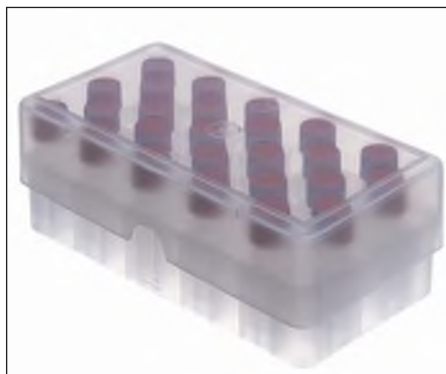
TP464-62	Natural
TP464-65	Red
TP464-68	Green
TP464-72	Blue
TP464-75	Yellow

Cryogenic vial boxes

Polycarbonate. For ultra-low temperature storage of most types of 1 to 2ml capacity cryogenic vials in 9 x 9 standard array. Suitable for use between -196°C and 121°C (autoclavable at 121°C for 20 minutes). With clear lid printed with numeric identification key and choice of coloured base. Overall 133 x 133 x 52mm W x D x H. Supplied in packs of 5.

	Base colour
TP465-20	Blue
TP465-25	Green
TP465-30	Orange
TP465-35	White
TP465-40	Yellow

Freezer racks suitable for use with TP460/TP462/TP465 boxes can be found overleaf.



TP460-09 in use



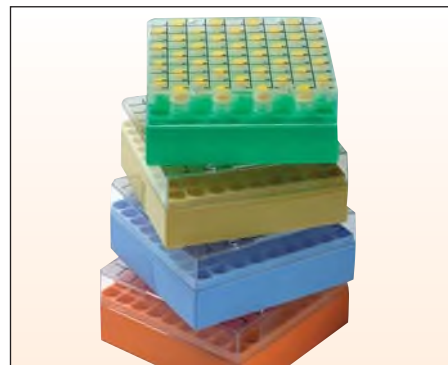
TP462 in use



TP464 in use with TP462



TP462-47 in use



TP465 in use

Tissue Culture

Freezer Racks

Chest Freezer Racks

Stainless steel. With handle and retaining bar (to secure boxes during transportation). Dimensions stated are overall W x D x H. Supplied singly and empty.

	Dimensions, mm	Shelves
TP466-32	150 x 160 x 539	8
TP466-36	150 x 160 x 605	9

Stainless steel. For use particularly with cryogenic boxes up to maximum dimensions 135 x 135 x 51mm L x W x H. With handle and retaining bar (to secure boxes during transportation). Dimensions stated are overall W x D x H. Supplied singly and empty.

	Dimensions, mm	Shelves
RG416-90	140 x 140 x 335	6
RG416-95	140 x 140 x 610	11

Note

These racks are not freezer-specific and therefore we suggest that dimensions are checked before ordering.



TP466, RG416 are similar

Inventory Systems, Lab Tower

Flexible, multi-deck storage rack/inventory tower systems to hold 1.5ml conical micro tubes, cryogenic vials and other tubes up to 12mm o.d. with maximum height 55mm, in removable racks of 81 (9 x 9 format). Ideal for benchtop transport, or freezer storage, and wet/dry incubation. Polycarbonate construction with very wide operating temperature range, -196°C to +121°C. The small 16 x 16cm footprint minimises valuable space requirements. The internal dimensions of each deck are 142 x 142mm and the standard rack can be replaced by any storage rack, tray or box up to these dimensions and maximum 60mm high. Each deck platform has a front lip to secure the rack or box and the top deck has a carry-grip* mounted on it to aid portability. Available as standard tower systems comprising 5, 8 or 10 decks with or without standard racks, or alternatively as components for self assembly by the user.

Inventory Systems, Lab Tower, assembled

As described. The dimension stated is overall assembled height. All systems are 160 x 160mm W x D. Supplied singly.

	Decks	With racks	Height, mm
TP468-05	5	✓	340
TP468-07	5	x	340
TP468-16	8*	✓	660
TP468-18	8*	x	660
TP468-27	10*	✓	820
TP468-29	10*	x	820

*The 8 and 10-deck systems are supplied with 2 carry-grips to allow "splitting" of the towers.

Inventory System components

TP468-72 Lab Tower decks (supplied with two carry-grips), pack of 16

TP468-76 81-place polycarbonate tube racks, pack of 10

TP468-78 Carry-grips, pack of 5

Dry-ice makers – see IC410.

Igloo ice containers and trays – see IC475.

Storage boxes – see TP460/TP462.

Ultralow freezers – see RG400/IRG415.



TP468 in use

Tissue Culture

Dishes

Dishes, Corning

Polystyrene. Treated to ensure reproducible growth and adhesion. Optically clear. All dishes are triple vented, except where indicated and have stacking rims. Supplied in packs as indicated.

	Ref.	Size, mm	Pack qty.
TP475-17	430165	35 x 10	500
TP475-30	430166	60 x 15	500
TP475-33	430196	60 x 15 gridded	500
TP475-48	430293*	100 x 20	480
TP475-50	430167	100 x 20	500
TP475-65	430599†	150 x 25	60
TP475-80	431110††	245 x 25	16

* With 6 pack carrier † 6 vents †† Square dish 245 x 245mm

Dishes, Corning

Polystyrene, untreated for non-anchorage dependent cell culture. Triple vented, except where indicated. Supplied in packs as indicated.

	Ref.	Size, mm	Pack qty.
TP477-15	430588	35 x 10	500
TP477-28	430589	60 x 15	500
TP477-31	3261**	60 x 15	20
TP477-34	3262**	100 x 15	20
TP477-47	430591	100 x 20	500
TP477-64	430597†	150 x 25	60
TP477-79	431111††	245 x 25	16

† 6 vents. †† Square dish 245 x 245mm. **With ultra-low attachment surface.

Spatulas, Corning

Antistatic, modified polystyrene. Single-use, disposable spatulas designed to reduce time in repetitive, contamination-free, sampling applications in quality assurance and research labs, eliminating the need for sterilisation of, or the risk of contamination from, reusable spatulas. With spoon one end and choice of styles at the other. Supplied sealed individually in a sterile sleeve within outer packs of 100, certified non-pyrogenic and RNase- and DNase-free.

	Ref.	Style
TP493-06	3003	Tapered blade/spoon
TP493-09	3004	Small spoon/spoon
TP493-12	3005	Round end/spoon
TP493-15	3006	V-scoop/spoon
TP493-18	3007	Flat-end/spoon



TP475/TP477 series



TP493

Flasks

Flasks, Corning

Polystyrene. Treated surface for optimum cell adhesion and growth. With wide locating rims and graduated volume markings. Sterilised by gamma irradiation. With screw cap. Pe = polyethylene with plug seal; Ph = Phenolic. The vented cap includes a hydrophobic acrylic copolymer membrane; pore size 0.22 µm. Supplied in packs as indicated.

	Ref.	Culture area	Cap	Pack qty.
Canted neck				
TP525-10	430372	25cm ²	Ph	500
TP525-15	430168	25cm ²	Pe	500
TP525-48	430824	150cm ²	Ph	50
TP525-50	430823	150cm ²	Pe	50
TP526-12	430639	25cm ²	Pe Vented	200
TP526-47	430825	150cm ²	Pe Vented	50
Straight neck				
TP527-24	3275	75cm ²	Ph	100
Angled neck				
TP527-50	431079	175cm ²	Pe	50
TP527-52	431085	175cm ²	Ph	50
TP527-54	431080	175cm ²	Pe Vented	50
TP527-62	431081	225cm ²	Pe	25
TP527-70	431082	225cm ²	Pe Vented	25

flasks continued on next page

Cell Scrapers, Corning

For aseptic harvesting of tissue culture cells from flat surface flasks and dishes. A flat blade is pivoted on the offset stem head to facilitate ease of use, maximise harvest volumes and minimise cell damage. Sealed individually in a sterile sleeve within outer packs of 100.

	Ref.	Blade length, mm	Handle length, mm
TP535-20	3010	18	250
TP535-40	3011	30	390



TP525/TP526/TP527 series



TP535 series

Tissue Culture

Flasks continued

Erlenmeyer Flasks, Corning

Polycarbonate with polypropylene adjustable screw cap which can provide a gassing or a leak-proof seal. Transparent and graduated. Sterilised by gamma irradiation. Sealed singly in a sterile sleeve within outer packs as indicated.

	Ref.	Capacity ml	Neck size, mm	Pack qty.
Plug Seal				
TP550-15	430421	125	26	50
TP550-20	430183	250	31	50
TP550-25	430422	500	43	25
TP550-30	431146	1000	43	25
Vented cap				
TP552-15	431143	125	26	50
TP552-20	431144	250	31	50
TP552-25	431145	500	43	25
TP552-30	431147	1000	43	25

Culture Flasks, disposable, Corning

Polycarbonate with wide mouth and flat screw caps in polypropylene. Available in Erlenmeyer or Fernbach styles. With or without baffles moulded into the base. Supplied singly in a sterile sleeve within outer packs as indicated.

	Ref.	Capacity ml	Neck size, mm	Baffled	Pack qty.
Erlenmeyer					
TP554-40	431255	2000	50	—	6
TP554-42	431256	2000	50	✓	6
Fernbach					
TP554-80	431252	3000	60	—	4
TP554-85	431253	3000	60	✓	4

Culture Flasks, baffled, Nalgene

Tough polycarbonate flasks with indented baffles which increase mixing when trypsinizing and aerating in a variety of processes such as cell culture growth and fermentation. Supplied in packs as indicated.

	Ref.	Capacity ml	Pack qty.
TP575-13	4110-0250	250	4
TP575-16	4110-0500	500	4
TP575-19	4110-1000	1000	2

Culture Flasks, Pyrex, 1134/1135/1138 Series

Erlenmeyer (conical) or Fernbach shape. Suitable for culture preparation. Available either plain or with baffled sides to increase agitation during shaking of culture media. With 38mm o.d., rimless tube neck (except 1134-series which are rimmed) for use with TP587-series closures, approximate graduations and large marking area.

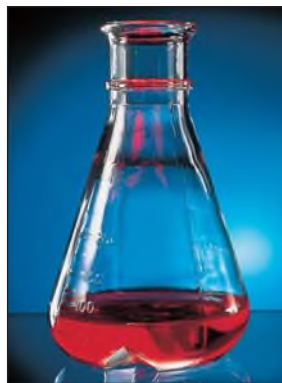
	Ref.	Capacity ml
Erlenmeyer, baffled		
TP585-05	1134/08	250
TP585-10	1134/10	500
TP585-15	1134/12	1000
TP585-20	1134/14	2000
Erlenmeyer, plain		
TP585-30	1135/14D	250
TP585-35	1135/20D	500
TP585-40	1135/26D	1000
TP585-45	1135/30D	2000
Fernbach, baffled		
TP585-80	1138/10	2800

Closures for 1135- and 1138-series flasks only. 38mm i.d. Suitable for autoclaving.

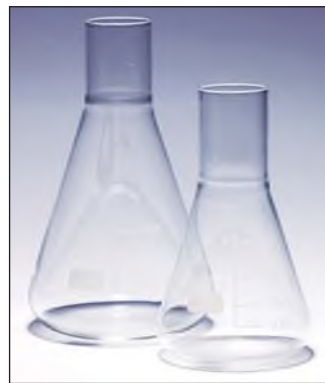
TP587-12 Aluminium, pack of 10
TP587-15 2-position polypropylene, supplied singly



TP550, TP552 are similar



TP575



TP585-30 to -45



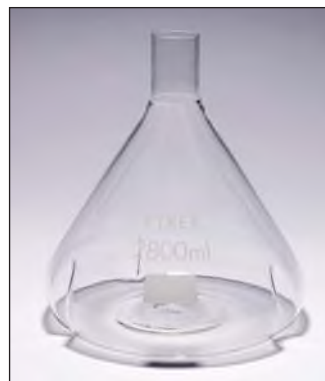
TP587-12 and -15



TP554



TP585-10 to -20



TP585-80

Tissue Culture

Multiwell Plates

Multiwell Plates, Corning

Optically clear polystyrene (except TP680-40 which is polypropylene) treated for optimal cell attachment (except TP680-26, -28 and -40 which are untreated). Optically flat. TP680-40 is additionally DMSO-, ethanol- and methanol-resistant. Sterilised by gamma irradiation (except TP680-26, -28 and -40). Each well individually numbered. A raised rim on each cell reduces the risk of accidental contamination. Supplied with non-reversible lids (except TP680-26, -28 and -40) which have condensation rings to reduce evaporation. Sealed in a sterile sleeve within packs, as indicated.

	Ref.	No. of wells	Sleeve qty.	Pack qty.
Flat bottom well				
TP676-05	3516	6	1	50
TP676-06	3471**	6	1	24
TP676-07	3513	12	1	50
TP676-11	3526	24	1	50
TP676-13	3473**	24	1	24
TP676-14	3548	48	1	100
TP676-18	3595†	96	1	50
TP676-20	3997	96	10	50
TP676-22	3598	96	5	100
TP676-25	3696*	96	1	50
TP676-27	3474**	96	1	24
U-bottom well				
TP677-26	3799	96	1	50
U-bottom well without lid. Untreated polystyrene				
TP680-26	3795	96	25	100
TP680-28	3798	96	25	100
U-bottom well without lid. Untreated polypropylene				
TP680-40	3365	96	25	100
V-bottom well				
TP682-18	3894	96	1	50
Lid only for 96-well plates				
TP650-59	3098		1	100

†Supplied with low-evaporation lid.

* This is a 96 half-well plate.

**With ultra-low attachment surface, hydrogel.

Tissue Culture Filters

4, 13 and 25mm Syringe Disc Filters – see FC370 to FC390.

Complete Membrane Filter Units – see FD244.

Microplate Block Heaters and Coolers – see BK205, MN663-14/-18 and MW340

Microplate Incubators – see *Microtitration*.

Microplate Washers and Reader – see MN615/MN625.

Multichannel Pipettors – see PR160/PR164 series.

Microplate sealing film and sealers – see MN380/MN385 and MN400/MN405.



TP676

Tissue Culture

Multiwell Plates



Optically clear or opaque coloured, polystyrene 96-well plates with lid. Sterilised by beta radiation. SBS format ensures compatibility with robotic systems. With choice of well profile; U-, V-, F- (flat), or C- (flat with radiused corners). Plasma surface treatments available.

cellGrade™

Standard surface for culture of adhesive cell lines. Chemical groups on the surface of the plate bind to serum compounds, stimulating immobilised cell growth.

cellGrade™ plus

This surface is a Poly-D-Lysine equivalent, with optimised surface characteristics, enabling culture of the most fastidious cell lines, with comparable growth to Poly-D-Lysine surfaces.

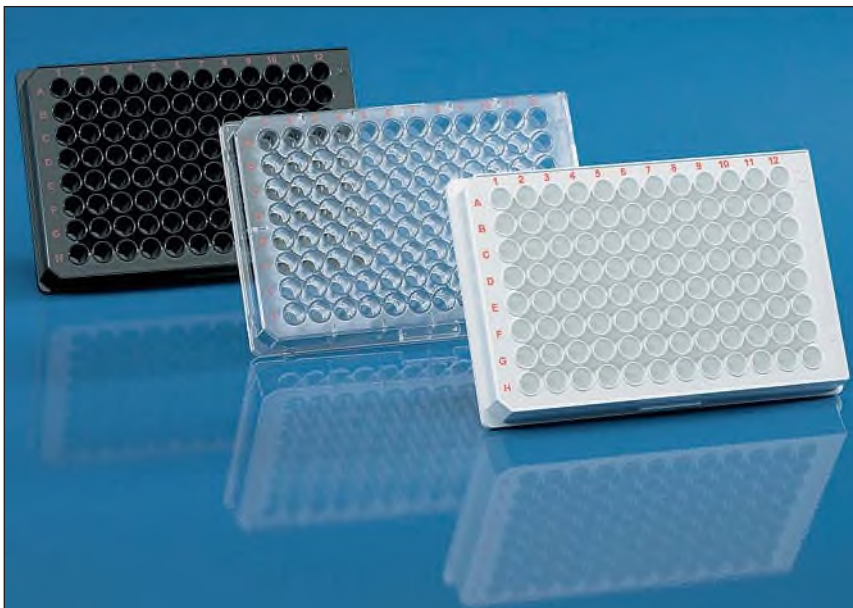
inertGrade™

Inhibits cell binding, ideal for working with cell suspensions or stem cells where cell adhesion is not desired.

As described. Supplied individually sleeved in packs of 50.

	Colour*	Well profile	Well volume, μ l
cellGrade™ surface			
TP690-05	T	U	330
TP690-10	T	V	360
TP690-15	T	F	350
TP690-30	W	F	350
TP690-45	B	F	350
TP690-55	W/T	F	330
TP690-60	B/T	F	330
cellGrade™ plus surface			
TP692-15	T	F	350
TP692-55	W/T	F	330
TP692-60	B/T	F	330
cellGrade™ premium surface			
TP694-15	T	F	350
TP694-55	W/T	F	330
TP694-60	B/T	F	330
inertGrade™ surface			
TP697-05	T	U	330
TP697-15	T	F	350
TP697-55	W/T	F	330
TP697-60	B/T	F	330

*Key: T = transparent, W = white, B = black, /T = transparent base.



TP690/TP697-series

Tissue Culture

Flasks, Culture, Roux

Culture Flasks, Pyrex 1350 series

Roux culture. With fire polished, offset neck.

	Ref.	Capacity ml	Neck
FK502-37	1350/04	600	Offset
FK502-42	1350/06	1200	Offset

Cylindrical Culture Flasks

Culture vessels

A range of cylindrical, flat bottom vessels suitable for fermentation and certain culture work. When fitted with flat flange/multi-socket lids they will accommodate large stirrers and thermometers. The lids also permit the addition of solutions and gases and facilitate sampling. Culture vessels are not suitable for use under vacuum or pressure.

	Nom. cap. ml	Flange bore mm	Approx. overall height mm	Approx. dia. of body mm
QFV500	500	75	130	80
QFV1L	1000	100	160	105
QFV2L	2000	100	225	133
QFV5L	5000	100	290	181
QFV10L	10000	100	375	227
QFV20L	20000	100	465	288

Proculture® spinner flasks - see next page



FK502



QFV:

Tissue Culture

Biological Stirrers



Suitable for microcarrier and suspension cell culture. Uniform suspension of the microcarrier beads in the medium is achieved by a gentle stirring action which aids attachment and promotes circulation of the medium around the cells on each microcarrier bead to encourage a high rate of growth.

- ◆ Stainless steel stirrer platform
- ◆ Siliconised borosilicate glass culture vessels and stirrer rods
- ◆ Negligible heat input to culture vessels
- ◆ Can be operated inside an incubator
- ◆ Speed range 0 to 80rpm

Stirrer Units, MCS

Model	102L	104S	104L	104XL	
Vessels/system	2	4	4	4	
Max. vessel size	litres	1	0.5	1	5
Overall, H	mm	90	90	90	90
W	mm	140	250	395	530
D	mm	400	365	495	595
Weight	kg	3.0	4.1	6.1	11.5

Culture Vessels

Size	250ml	500ml	1 litre	
Working volume min./max.	100/350ml	200/700ml	0.5/1.5 litre	
Overall height x depth	mm	170 x 80	205 x 100	280 x 135
Side necks	2	2	2	

Biological Stirrers, Techne

For 220-240V 50/60Hz single phase supplies. Without culture vessel or stirring rod.

- TR150-30 MCS102L
- TR150-45 MCS104S
- TR154-25 MCS104L
- TR154-50 MCS104XL

Culture Vessels

As described. Siliconised borosilicate glass. Complete with caps and stirrer rod.

- TR170-20 250ml
- TR170-30 500ml
- TR170-40 1 litre

Incubator – see IN800-10.

Culture Vessels

Spinner Flasks, Proculture®, Corning®

Borosilicate glass. With extended design, vortex impellor which maximises cell growth and viability by ensuring gentle, constant, liquid motion from top to bottom, eradicating dead spots, and agitation of the gas:liquid interface to promote better aeration.

- ◆ Wide centre neck opening
- ◆ Angled side arms that easily accommodate 50ml pipettes
- ◆ Unique dual-bearing impellor and shaft securing mechanism
- ◆ Constant flask height to width ratios for greater predictability in scale up across the range
- ◆ Baffled sides enhance liquid agitation
- ◆ All materials used in construction are FDA-approved

As described. Supplied with two angle side-arms and centre neck with diameters as indicated, screw cap assemblies and a polysulphone shaft with vortex impellor paddle. Supplied singly.

	Ref. 4500-	Cap. litres	Centre neck, mm	Side arm, mm
TR285-10	-125	0.125	70	32
TR285-20	-250	0.250	70	32
TR285-30	-500	0.500	100	45
TR285-40	-1L	1	100	45
TR285-50	-3L	3	100	45
TR285-60	-6L	6	100	45
TR285-70	-8L	8	100	45
TR285-80	-15L	15	100	45
TR285-90	-36L	36	100	45



TR150-45 in use



TR285

Titrators

Potentiometric Titrators, Titroline® 7000

SI Analytics

Innovative, multifunction titrators for routine, analytical and Q.C. applications within food, water, waste water and environmental testing regimes.

- ◆ Typical applications:
 - Food: salt content, pH value, Formol number, ascorbic acid content, protein and/or calcium levels in dairy products, iodine number, sulphurous acid and/or reducing sugar content in wine and juices
 - Water/environment: pH value, permanganate index, Chemical Oxygen Demand, FOS/TAC (total volatile fatty acids/total inorganic carbon), chloride in waste water, Free and Total chlorine, Total Hardness, dissolved oxygen levels
- ◆ High resolution pH/mV and temperature inputs
- ◆ Polarisable electrode input for set end-point applications
- ◆ Linear and dynamic equivalence point titration modes
- ◆ Manual titration and routine dosing functions available
- ◆ Membrane keypad operation
- ◆ Interchangeable titrant delivery modules of 5ml, 10ml, 20ml or 50ml capacity with built-in RFID reagent data storage available
- ◆ High visibility, colour graphics display with titration curve output and equivalence point values
- ◆ USB and RS232C outputs allow connection with accessory peripherals such as a printer, balance, personal computer, manual titration controller or USB keyboard

Measurement ranges	pH	-3.000 to 18.000 x 0.001
x resolution	mV	-2000.0 to 2000.0 x 0.1
	µA	0 to 100.0 x 0.1
	°C	-75.0 to 175.0 x 0.1
Dosing	accuracy	+/- 0.15%
	precision	+/- 0.05 to 0.07 (dependent on delivery module chosen) According to DIN EN ISO 8655 pt. 3
Inputs		pH/mV with DIN or BNC socket, µA for double platinum electrode (polarisation voltage fully adjustable from 40 to 220mV). Pt1000 temperature probe (2 x 4mm socket).
Interfaces		3 x USB and 2 x RS232C
Delivery module materials		PTFE/ETFE valve, borosilicate glass cylinder, FEP tubing
Overall W x D x H	mm	153 x 296 x 450
Weight	kg	4.5
Power		a.c. adapter requiring a 100-240V 50/60Hz single phase supply

Potentiometric Titrators, Titroline® 7000

As described. Supplied with magnetic stirrer, amber glass titrant reservoir bottle, GL45 and S40 bottle adapters, inlet tubing, drip tube, titration tip, a.c. adapter for 100-240V 50/60Hz single phase supplies and titrant delivery module with capacity as indicated. TR480-50 is additionally supplied with a standard pH combination/temperature electrode and calibration buffers.

- TR480-10** TL 7000-M1/10, with 10ml module
- TR480-20** TL 7000-M1/20, with 20ml module
- TR480-30** TL 7000-M1/50, with 50ml module
- TR480-50** TL 7000-M2/20, with 20ml module and pH/temp. electrode

Interchangeable Delivery Modules

Supplied with data RFID chip, amber glass reservoir bottle, GL45 and S40 bottle adapters, drip tube and titration tip. With capacities as indicated.

- TR481-05** WA 05, 5ml
- TR481-10** WA 10, 10ml
- TR481-20** WA 20, 20ml
- TR481-30** WA 50, 50ml

- TR481-54** TZ 3800, manual titration controller with cable and USB plug
- TR481-65** A 7780, Spare/accessory combination pH/temp. electrode
- TR481-72** W 5780 NN, Pt1000 probe, glass-coated, range -30 to 135°C, 120 x 6mm length x diameter, with 1metre cable and 4mm plugs



TR480

Alternative probes, including ISE, KF and conductivity versions are available - details on request.

Tongs

Crucible Tongs

Crucible Tongs, Straight

Flat hinge. Dimension given is overall length.

Mild steel*

TR500-15 150mm
TR500-20 200mm

Stainless steel

TR504-15 150mm
TR504-20 200mm

Platinum (97%)-Iridium (3%) tipped

Chrome-nickel with solid Pt-Ir tips. Tip weight 6g.

TR510-25 200mm
TR510-40 400mm

Crucible Tongs, Bowed

Flat hinge. Dimension given is overall length.

Mild steel*

TR540-15 150mm
TR540-20 200mm

Stainless steel

TR544-15 150mm
TR544-20 200mm

* Mild steel tongs are supplied chemically blackened.

Fisher Tongs

Fisher Pattern Tongs

Stainless steel. With handles that extend into the palm of the hand for extra support and thumb and forefinger position for added grip and single hand operation. Dimension given is the overall length.

For Beakers 100 to 1500ml. With glass fibre fabric sleeved jaws.

TR600-20 325mm

For Conical Flasks 100 to 2000ml or necked bottles.

TR600-30 235mm

For Furnace use with crucibles from 30mm to 70mm diameter

TR600-50 460mm

Ward Tongs

Ward Pattern Tongs

Stainless steel. One handed operation using thumb action to open the jaws. Fitted with wooden handle and circular heat shield for the hand. Dimensions given are overall length x length to the heat shield.

TR620-10 590 x 410mm

TR620-25 740 x 560mm

Heat Resistant Gloves

Gloves, Leather

With heat resisting leather palm and fingers. Fleece lined. Overall length 290mm. Nominally sized 8/9. Supplied in single pairs.

SA700-25 Leather

Gloves, Autoclave

Heat resistant to 121°C. Soft, supple gloves made from washable terry cloth knit. White. Supplied in single pairs.

	Length, mm
SA704-10	320

Gloves, High Temperature

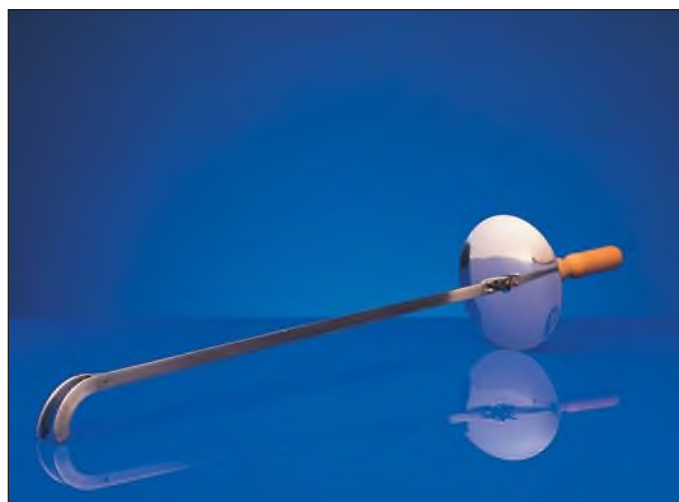
Heat resistant to 232°C. Heavyweight, soft, washable terry cloth knit construction with cotton lining. Brown. Supplied in single pairs.

	Length, mm	Cuff
SA706-14	270	Short
SA706-18	320	Gauntlet

Gloves, Clavies®

Heat resistant to 230°C. Soft, pliable, easy-to-wear gloves fabricated from washable terry cloth knit. Supplied in single pairs.

	Length, mm
SA710-12	330
SA710-15	470



TR620



SA710 in use

Tools

Files

Needle File Set

Set of 12. Profile shapes are flat head, flat taper, joint, taper round, half round, square, three square, oval, crossing, crochet, barrette and knife. Length 140mm. In plastic wallet.

TS150-20 File set

Knives

Trimming Knife

With retractable blade. The blade can be used in three positions and is fully retractable by using a slide button. Supplied with five standard blades stored inside the body.

TS170-10 Trimming knife

Spare blades

TS174-08 Standard, pk of 10

TS174-12 Hooked, pk of 5

Scalpel/Tool Set, Swann-Morton

Comprising slotted plastic handle with clamping screw and one each No. 1 straight edge and No. 2 convex curved edge blades.

DS260-10 Tool Set

Glass Cutting

Tungsten Carbide Knife

- ◆ For cutting soda-lime, borosilicate and silica glass tubing and rod
- ◆ Long lasting tough reversible blade which can be sharpened on a silicon carbide stone

Moulded plastic handle.

GM222-10 Blade length 40mm

GM222-14 Spare blade

Glass Cutting Diamond

Mounted in wood handle.

GM230-10 Diamond

Pliers

Combination Pliers

Tool steel with cushion grip handles. Length 160mm.

TS200-10 With slip guards

TS200-12 Without slip guards

Note: These pliers are not suitable for use on live power circuits.

Watchmakers Pliers

Chrome vanadium hardened steel with cushion grip handles. The flat-wide jaws have smooth gripping surfaces. Overall length 125mm.

TS215-10 Flat-wide

Scissors

Scissors, heavy duty

Side bent with polished steel blades. Blade length 125mm. Overall 225mm.

TS285-12 Scissors

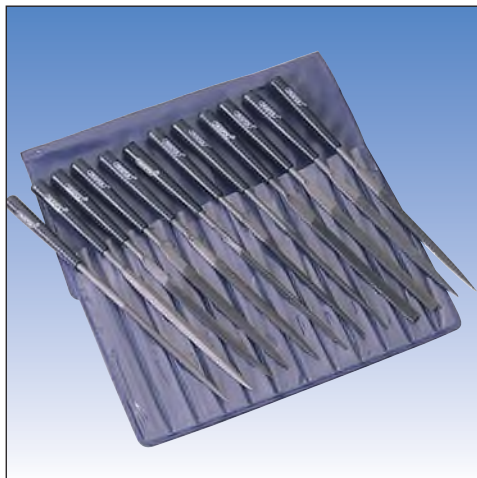
Scissors, general purpose

Stainless steel. Straight, closed shanks. Dimension given is overall length.

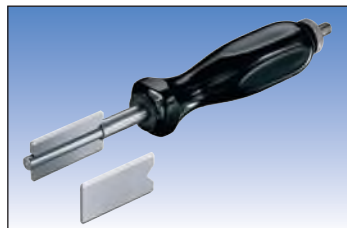
DS500-20 125mm

DS500-25 150mm

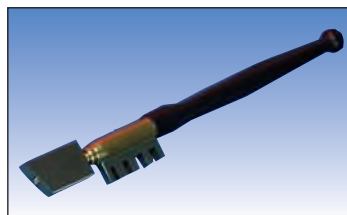
DS500-30 175mm



TS150



GM222-10 and GM222-14



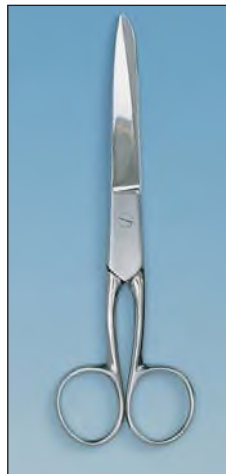
GM230-10



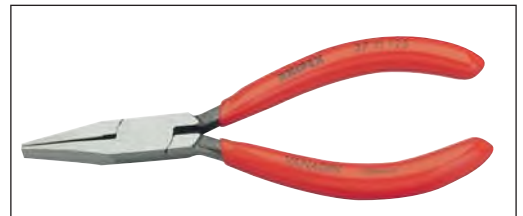
TS200



TS170



DS500



TS215



TS285

Tools

Screwdrivers

Screwdrivers

Chrome vanadium steel blade and transparent plastic handle. For plain slot screws except where stated.

Blade

Electricians

TS350-14 150 x 6.5mm

Instrument

TS350-25 75 x 3mm

Chubby

TS350-30 38 x 6mm

Engineers

TS350-40 150 x 8mm

Engineers Cross Slot

TS350-50 100 x 6mm
(Tip No. 2)

TS350-55 250 x 6mm
(Tip No. 2)

Chubby Cross Slot

TS350-60 38 x 6mm
(Tip No. 2)

Watchmakers/Jewellers Screwdriver Set

Comprising six screwdrivers with hardened steel blades and plated brass bodies in a plastic wallet. Blade widths from 1 to 3.8mm.

TS370-10 Screwdriver set

Sealers

Impulse Heat Sealers

For heat sealing polyethylene film and other low melting point plastics, metallised film laminates etc. With hand operated hinged sealing bar and automatic control for adjusting the weld time. Will seal film up to 250 microns thick (1000 gauge). For 220-240V 50Hz single phase supplies.

Single timer model

TS400-20 Seal length 230mm

Dual timer model

Provides additional control of the cooling part of the weld cycle. Includes also a cutter for layflat tubing.

TS400-30 Seal length 300mm

Hot Air Blower – see *HE775*.

Safety Equipment – see *Safety section*.

Sealing film – see *SE165/SE175*.

Sealing Labels – see *LA290*.



TS350



TS400-30, TS400-20 is similar



TS370

Tools

Soldering to Storage

Soldering Kit

Comprising 30W iron and 100W soldering gun, both with 1.2 metre cable and UK plug, soldering tip, tube of solder, flux, solder sucker, tweezers, wire holder/pointer and workpiece clamp with magnifier. For 230V 50/60Hz single phase supplies. Supplied in a rigid carrying case.

TS480-15 Soldering kit

Tool Roll

Heavy duty PVC with fabric bound edges and securing tapes. With eight pockets. Overall length when opened 390mm.

TS550-10 Tool roll

Storage Containers

Transparent acrylic. Designed to provide visible storage of small laboratory items. Hinged lids provide rapid filling and dispensing. These bench-mounting units provide simple, convenient and visible storage for small items such as pipette tips, septa etc. Dimensions stated are H x W x D.

SX200-15 2-compartment unit
365 x 140 x 160mm

SX200-18 3-compartment unit
210 x 210 x 160mm

SX200-20 4-compartment unit
210 x 290 x 160mm

Storage Rack

Polypropylene open tiered rack, bench mounting, for storing small laboratory items such as corks, bungs, pipettor tips, small bottles etc. Stops prevent the bins falling off the ends and to improve visibility the bins can be angled down by approximately 7°. Overall dimensions of each assembly 380 x 500 x 305mm H x W x D.

	Tiers	Bins of H x W x D, mm
SX210-14	4	8 of 50 x 125 x 130 4 of 75 x 125 x 170 4 of 100 x 125 x 225

Storage Cabinets

With transparent tough plastic drawers mounted in a strong steel frame. Allow clean storage of small laboratory items, components, spares etc. Units can be wall or bench mounted. A retaining lip at the rear prevents the drawers from falling out of the cabinet. Overall dimensions of each cabinet 420 x 307 x 150mm H x W x D.

	Drawers of H x W x D, mm
SX225-10	36 of 35 x 64 x 135
SX225-14	18 of 57 x 87 x 135
SX225-18	6 of 57 x 275 x 135
SX225-22	24 of 35 x 64 x 135 3 of 57 x 87 x 135 1 of 57 x 275 x 135

Storage Cabinet, large depth

General construction and uses as SX225 series but with transparent, tough plastic drawers 240mm deep. Overall 440 x 360 x 250mm. Can be wall or bench mounted. With 8 drawers each 85 x 160 x 240mm H x W x D.

SX230-10 Cabinet, large depth

Wall mounting Storage Bin panels – see SX215.



TS480-15



SX200-18, SX200-15 and SX200-20 are similar



SX210



TS550



SX225-22



SX230

Trays, Triangles

Plastic Trays

Trays, multipurpose

White polypropylene, deep, tough trays which resist flexing and have a strong rounded edge. Resistant to most common acids, alkalis and solvents. Maximum operating temperature +60°C (+80°C can be sustained for short periods). The polished surface makes them easy to clean. Empty trays can be stacked one inside the other to save space. Dimensions given are nominal. Widely used for:

- collecting aggressive materials
- storing instruments
- collecting medical samples
- holding photographic chemicals

	Cap. litres	External L x W x D, mm
TT210-12	0.5	180 x 230 x 42
TT210-15	1.5	250 x 310 x 65
TT210-18	3	310 x 370 x 75
TT210-24	10	420 x 520 x 120
TT210-28	21	534 x 634 x 140
TT210-32	39	648 x 846 x 160

Trays, deep

White polypropylene.

	Ref. TWR-	L x W x D, mm
TT215-30	204	390 x 290 x 110

Accessory lids

White polystyrene.

TT217-32 TWR205 for TT215-30



TT210 in use



TT218



TT220

Plastic/Glass Trays

Trays, multipurpose, autoclavable

Blue polypropylene, robust trays with rounded edges which resist flexing and most acids, alkalis and solvents. Smooth surfaces enable easy cleaning and the trays are autoclavable at 121°C for 15 minutes or 134°C for 3 minutes. Trays can be nested to save space. Dimensions and capacities indicated are nominal.

	Cap. litres	External L x W x D, mm
TT218-15	0.6	181 x 134 x 54
TT218-25	1.1	200 x 150 x 51
TT218-35	2.0	300 x 250 x 52

Trays, instrument

White melamine resin. Autoclavable at 121°C for 15 minutes.

	L x W x D, mm
TT220-25	240 x 180 x 20
TT220-35	300 x 150 x 20
TT220-45	360 x 240 x 20
TT220-55	430 x 290 x 20

Tray, instrument

Polypropylene. With vertical sides. Can be autoclaved.

	Ref. TWR-	L x W x D, mm
TT230-40	022	610 x 350 x 22

Tidy Trays

White polystyrene. Designed for use inside a drawer to store pipettes, thermometers and other small items. Can be used for light or occasional carrying but will not support heavy loads.

Compartments of L x W, mm

55mm deep

TT250-15 2 of 100 x 400
1 of 140 x 400

TT250-25 12 of 95 x 95

65mm deep

TT250-35 2 of 90 x 190
1 of 95 x 400
2 of 120 x 190



TT215-30 with TT217-32



TT250 in use



TT230



TT350

Trays, Pyrex glass

Autoclavable.

	Ref. 1490/-	L x W x D, mm
TT350-17	02	275 x 200 x 51
TT350-22	04	200 x 210 x 60
TT350-27	06	337 x 230 x 57
TT350-34	08	389 x 270 x 57

Triangles

Dimension given is the length of side.

	Length, mm
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Pipeclay tubes on iron wire

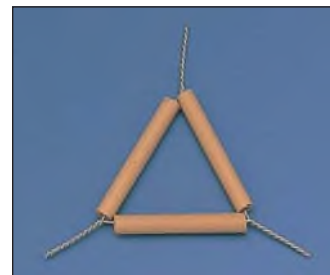
TT600-20 40
TT600-25 50
TT600-32 65
TT600-38 75
TT600-45 90

Silica tubes on nickel/chromium wire

TT620-25 50
TT620-32 63

Silica

TT630-32 65



TT600



TT620



TT630

Trolleys

Platform Trolleys

Robust construction, with rigid, fixed, polypropylene shelves, aluminium pillars and large, thermoplastic rubber wheels, two with brakes.

- ◆ Choice of 2 or 3-platform versions and two platform sizes
- ◆ Easily cleaned

Catalogue no.	TT730 -15	-30	-45	-60
Platforms	2	2	3	3
Size	mm 630 x 424	866 x 500	630 x 424	866 x 500
Height between platforms	mm 560 — both models		280 — both models	
Overall capacity	kg 100	120	150	200
Overall	W, mm	750	990	750
	D, mm	460	513	460
	H, mm	940	970	980

As described. Supplied flat-packed for assembly by the user.

- TT730-15** 2-platform, small
- TT730-30** 2-platform, large
- TT730-45** 3-platform, small
- TT730-60** 3-platform, large

Claxmobil Trolley

Stable aluminium frame with high-strength plastic fittings. Lightweight, portable, folding trolley with "pram-style" handle, 2 tray tiers 530 x 370mm L x W, 175mm diameter rear wheels with elastic foam tyres, foot brake and 90mm diameter swivelling front castors. Max. loading: 20kg top tier, 40kg bottom tier. Overall 890 x 550 x 1030mm W x D x H assembled, 670 x 470 x 110mm W x D x H folded. Weight 6.7kg. Supplied with one collapsible box to fit either tray tier.

TT745-10 Claxmobil

TT745-35 Collapsible box, 270mm high, to fit TT745-10

Tray Trolleys

Stainless steel construction with welded-in flat plates and four 100mm diameter swivel castor tyred wheels, two with brakes. Number of trays supplied match tiers stated. Dimensions and weights are nominal.

	Tray size, mm	Tiers	Max. loading, kg	Overall height, mm	Weight kg
TT810-20	875 x 465	2	100	900	14
TT810-25	875 x 465	3	100	900	18
TT810-30	875 x 465	4	100	1100	24
TT810-35	875 x 465	5	100	1400	28
TT810-40	1090 x 545	3	100	900	24



TT730-15 in use



TT745-10



TT730-45 in use



TT810

Trolleys

Flatbed Trolley and Sack Truck

Flatbed Trolley

Robust steel trolley with non-slip, rubber platform, folding steel handle powder-coated in grey and 100mm diameter, non-marking wheels (two fixed, two swivelling). Capacity 150kg. Overall 810 x 470 x 730mm H x W x D unfolded, 230mm high when folded.

TT870-25 Flatbed trolley

Telescopic Folding Sack Truck

For transporting small items or packages. Lightweight, aluminium construction with collapsible frame and telescopic handle for convenient storage when not in use. Maximum capacity 90kg. Fitted with 355 x 240mm W x D, folding footplate and 150mm diameter rubber cushioned wheels. Overall 1105 x 400 x 410mm H x W x D unfolded, 740 x 400 x 180mm when collapsed.

TT880-10 Sack Truck

Gas Cylinder Trolleys

Gas Cylinder Trolleys

Single cylinder capacity. Stoved enamel steel frame finished in blue, incorporating side shield bars for added protection of the cylinder, galvanised retaining chain, wide, perforated base platform to aid condensation drainage and provide support, and tyred wheels. Maximum capacity 150kg and cylinder height 1220mm. Maximum cylinder diameter as indicated. Available with, or without, dismountable rear arm with castors to aid manoeuvrability.

GF402-10 For 280mm cylinder, without castor arm

GF404-15 For 280mm cylinder, with castor arm

GF406-20 For 380mm cylinder, without castor arm

GF406-25 For 380mm cylinder, with castor arm



TT870-25



GF406-20, GF406-25 is similar



TT880-10 folded and unfolded in use



GF404, GF402 is similar

Tubes

Glass Specimen Tubes

Glass Specimen Tubes

Clear soda glass or Type 1 neutral glass. Flat bottom. Dimensions are nominal height x diameter. TW157 and TW164 ranges are supplied without closure. Supplied in packs as indicated.

	Size, mm	Capacity, ml	Pack qty.
Soda glass. Supplied with push-in plastic closure			
TW150-13	50 x 12	4	300
TW150-19	50 x 18	12	150
TW150-23	50 x 24	20	100
TW150-25	75 x 9	5	150
TW150-26	75 x 12	7	150
TW150-29	75 x 18	15	150
TW150-36	75 x 24	30	100
TW150-46	100 x 24	40	100
Neutral glass. Without closure, requires TW159-09 snap-on closure			
TW157-13	34 x 23	7	190
TW157-21	48 x 25	15	162
TW157-29	72 x 27	30	140
Neutral glass. Without closure, requires TW167 series screw cap			
TW164-50	36 x 11	1.75 (½ dram)	882
TW164-55	46 x 12	3.5 (1 dram)	666
TW164-60	58 x 17	7 (2 dram)	399
TW164-70	72 x 20	14 (4 dram)	264
TW164-80	96 x 23	28 (8 dram)	190

Accessory Caps

Snap-on caps

Opaque polyethylene. For use with TW157-series tubes. Supplied in packs as indicated.

- TW159-13** Snap-on caps, pack of 190
- TW159-21** Snap-on caps, pack of 162
- TW159-29** Snap-on caps, pack of 140

Screw caps, black polypropylene

For use with TW164-series tubes. With "buttress" thread and foil lined wad. Supplied in a pack of 100.

	For tubes	Pack qty.
TW168-50	TW164-50	882
TW168-55	TW164-55	666
TW168-60	TW164-60	399
TW168-70	TW164-70	264
TW168-80	TW164-80	190

Bottles, culture

Clear glass. All caps where specified have a rubber liner.

		Capacity	Pack qty.
With aluminium screw cap, plain			
BS150-10	Bijou	7ml (¼oz)	288
BS150-25	Universal	28ml (1oz)	144
Without cap			
BS152-10	Bijou	7ml (¼oz)	255
BS152-25	Universal	28ml (1oz)	150

Caps for BS150/152

Aluminium with rubber liner. Supplied in packs of 100.

- BR247-06** For 7ml and 14ml Bijou size R3/20
- BR247-15** For 28ml Universal size R3/28

Caps, Sterilin, polypropylene

Wadless, non-sterile. Supplied in pack of 2850.

- BS165-10** For 28ml Universal size R3/28

Culture vials, Universal, tubular glass

Tubular formed, Type III soda glass vials, capacity 30ml. With R3/24 neck and fitted white PP caps. Supplied in pack of 500.

- BS170-25** Tubular vials, 14ml Universal size



BS150



BS152



BS170



TW150

TW157 with TW159



TW164 with TW168

Tubes

Plastic Specimen Tubes

Polycarbonate Specimen Tubes, Azlon

Transparent, shatterproof polycarbonate with leakproof polypropylene cap. Withstand freezing down to -80°C and can be autoclaved at 121°C up to 10 times. Supplied in packs of 100.

	Ref.	Capacity, ml	H x o.d., mm	Neck i.d., mm
TW216-10	BRC0005	5	52 x 22	14
TW216-20	BRC0010	10	62 x 24	14

Polystyrene Specimen Tubes, Azlon

Transparent. With snap-on polyethylene cap. Flat bottom. Dimensions are nominal height x diameter. Supplied in packs as indicated.

	Ref.	Size, mm	Pack qty.
TW225-50	BGG456P	87 x 65	5

Polyethylene Specimen Tubes, Azlon

With captive hinged cap. Flat bottom. Dimensions are nominal height x diameter. Supplied in packs of 10.

	Ref.	Size, mm
Squat form		
TW240-20	BGG308	32 x 29
Tall form		
TW244-25	BGG304	40 x 12
TW244-30	BGG306	49 x 15
TW244-35	BGG312	78 x 25



TW216



TW225



TW240/TW244

Tubing

Rubber

Tubing, Normal Wall, to BS2775

Supplied in coils of 10 metres.

Size	Bore x wall, mm	Natural red	Neoprene black
N3	3 x 0.75	TY200-10	TY204-10
N5	5 x 1.5	TY200-15	TY204-15
N6.5	6.5 x 1.5	TY200-20	TY204-20
N8	8 x 2	TY200-25	TY204-25
N10	10 x 2	TY200-30	TY204-30
N12.5	12.5 x 2.25	TY200-35	TY204-35
N16	16 x 3.25	TY200-40	TY204-40
N20	20 x 3.25	TY200-45	—
N25	25 x 3.25	TY200-50	—

Tubing, Heavy Wall, to BS2775

Supplied in coils of 10 metres.

Size	Bore x wall, mm	Natural red	Neoprene black
H3	3 x 3	TY230-12	TY234-12
H5	5 x 4	TY230-17	TY234-17
H6.5	6.5 x 5	TY230-22	TY234-22
H8	8 x 6	TY230-27	TY234-27
H10	10 x 7	TY230-32	—
H12.5	12.5 x 8.5	TY230-37	—

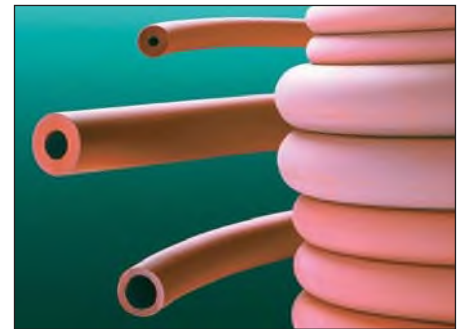
Tubing, for gas burners

Neoprene rubber with 8mm i.d. reinforced ends. Supplied singly.

	Length, mm		Length, mm		Length, mm
TY280-15	450	TY280-20	600	TY280-25	900



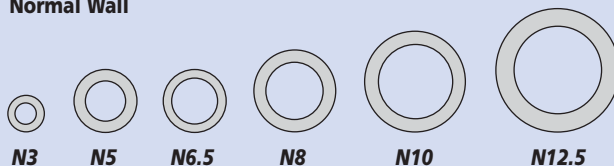
TY280 in use



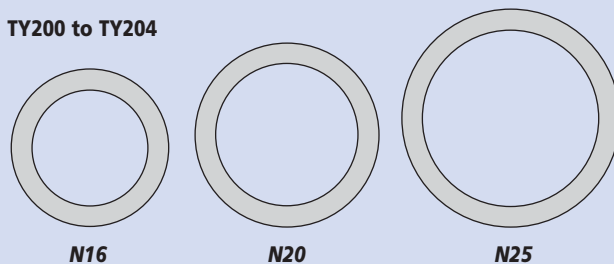
TY240/TY260

Natural and Neoprene tubing to BS2775. The illustrations below show the approximate full size diameters.

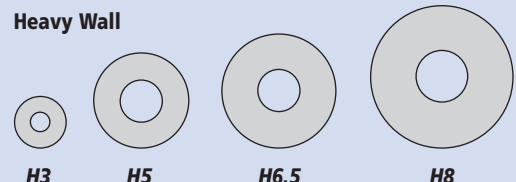
Normal Wall



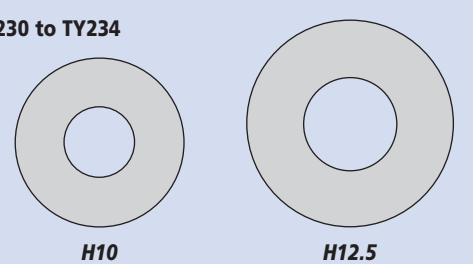
TY200 to TY204



Heavy Wall



TY230 to TY234



Tubing

Plastic

Tubing, PVC

Flexible transparent non-toxic general purpose tubing in coils as indicated.

	Bore x o.d. mm	Coil length metres
TY403-15	3 x 4.5	30
TY403-20	5 x 8	30
TY403-30	8 x 12	30
TY403-35	10 x 14	30
TY403-40	12.5 x 17	30
TY403-50	16 x 22.5	10
TY403-55	20 x 26.5	10
TY403-60	25 x 31.5	10

Tubing, reinforced PVC

Transparent and flexible but with terylene mesh reinforced thick wall for increased strength and to resist kinking. Can be used for low pressure and vacuum. Coil of 30 metres. Dimensions given are nominal.

	Bore x wall, mm
TY410-14	5 x 2.5
TY410-18	6.5 x 2.8
TY410-22	8 x 3
TY410-26	10 x 3
TY410-30	12.5 x 3.2
TY410-34	16 x 3
TY410-38	19 x 3

Tubing, translucent PVC

Food quality unreinforced tubing BSS No 43/45. Operating range -20 to +55°C. Silicone and Cadmium free. In coils of 30 metres.

	Bore x o.d. mm
TY505-20	3 x 6
TY505-24	4 x 6
TY505-28	5 x 8
TY505-32	5 x 11
TY505-36	6 x 9
TY505-40	8 x 11
TY505-44	8 x 14
TY505-48	9 x 12
TY505-52	10 x 16

Tubing, reinforced PVC, colour-coded

As TY505 series but reinforced with polyester yarn for higher operating pressures and with a coloured outer coating as indicated. In coils of 30 metres.

	Bore x o.d. mm	Colour
TY512-12	6.3 x 11.2	Black
TY512-14	6.3 x 11.5	Blue
TY512-16	6.3 x 11.5	Green
TY512-18	6.3 x 11.5	Red
TY512-20	6.3 x 11.5	Yellow
TY514-12	8 x 13.5	Black
TY514-14	8 x 13.5	Blue
TY514-18	8 x 13.5	Red
TY514-20	8 x 13.5	Yellow
TY516-12	10 x 16	Black
TY516-14	10 x 16	Blue
TY516-18	10 x 16	Red
TY516-20	10 x 16	Yellow
TY518-12	12.5 x 18.5	Black
TY518-14	12.5 x 18.5	Blue
TY518-16	12.5 x 18.5	Green
TY518-18	12.5 x 18.5	Red
TY518-20	12.5 x 18.5	Yellow

Tubing, Polyethylene

Flexible, food quality, translucent polyethylene. Operating temperature range -35 to +55°C. In coils of 30 metres.

	Bore x o.d., mm
TY535-04	2.5 x 4
TY535-07	3 x 5
TY535-09	4 x 6
TY535-14	6 x 8
TY535-17	8 x 10
TY535-19	10 x 12

Tubing, Nylon 12

Flexible, lightweight tubing with operating temperature range from -35 to +70°C. In coils of 30 metres.

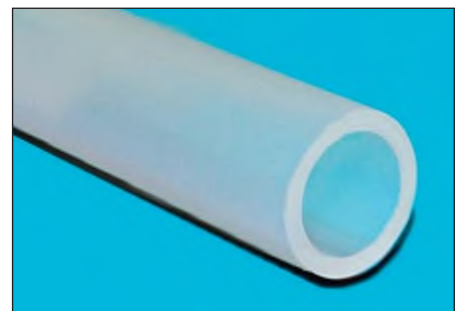
	Bore x o.d., mm
TY565-04	2.5 x 4
TY565-07	3 x 5
TY565-13	5.5 x 8
TY565-16	7 x 10



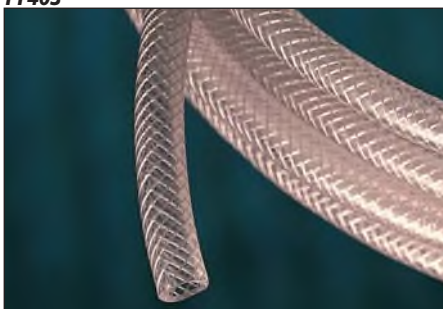
TY403



TY505



TY535



TY410



TY512/TY514/TY516/TY518



TY565

Tubing

Plastic, continued

Tubing, PFA

Flexible, highly inert, perfluoroalkoxy (PFA) copolymer tubing which is mainly corrugated for strength under vacuum use, dampening vibrations and compensating thermal expansion. Transparent and non-porous. Available in lengths of 0.5 or 1 metre. The last 40mm of each end is uncorrugated for easy fitting onto connectors or bars.

	Bore x o.d., mm	Coil length metres
TY600-05	6 x 8	0.5
TY600-07	6 x 8	1.0
TY600-10	8 x 10	0.5
TY600-12	8 x 10	1.0
TY600-15	10 x 12	0.5
TY600-17	10 x 12	1.0
TY600-20	12 x 14	0.5
TY600-22	12 x 14	1.0
TY600-25	14 x 16	0.5
TY600-27	14 x 16	1.0
TY600-30	16 x 18	0.5
TY600-32	16 x 18	1.0
TY600-35	18 x 20	0.5
TY600-37	18 x 20	1.0

Peristaltic pumps – see *Pumps* section.

Santoprene®, Silicone

Tubing, Santoprene®

Highly resistant, medical grade, peristaltic pump tubing offering extended working life and wide chemical compatibility, with USP Class VI and EU 2003/11/EC approval. It is also autoclavable. For highest dispensing precision silicone tubing is recommended. All tubing has 1.6mm wall thickness and is supplied in packs of 15 metres.

	Bore x o.d., mm
TY567-22	1.6 x 4.8
TY567-26	3.2 x 6.4
TY567-32	4.8 x 8.0
TY567-36	6.4 x 9.6
TY567-42	8.0 x 11.2

Santoprene® is a registered trademark of ExxonMobil Chemical Company, USA.

Tubing, Silicone

Translucent, flexible, platinum cured, pure silicone tubing ideal for most laboratory and food handling applications, especially in use with peristaltic pumps. Medical grade, but not suitable for in-vivo use. Operating temperature range -80 to +200°C. Shore hardness 60. Non toxic and National Water Council approved. In coils of 10 metres.

	Bore x o.d., mm
TY571-11	1.6 x 4.8
TY571-15	3.2 x 4.8
TY571-16	3.2 x 6.4
TY571-22	4.0 x 8.0
TY571-28	5.0 x 8.0
TY571-35	6.3 x 9.5
TY571-39	8.0 x 11.2
TY571-41	8.0 x 12.0
TY571-50	9.5 x 15.9
TY571-54	12.5 x 19.0

Silclear
SILICONE SOLUTIONS

Tubing, Silicone, Silclear

Precision extruded, medical grade, transparent silicone tubing, optimised to provide strength, tear resistance and clarity throughout a long working life.

- ◆ Complies with Eur. Pharmacopoeia 7.1.9 Hygiene standards; FDA 177.2600; BfR XV Part A: Silicone; 3-A 18-03; (EC) No 1935/2004 Food Contact regulations; Eur. Pharmacopoeia EP 7.0 3.19
- ◆ Operating temperature range: -70 to +170°C
- ◆ Unaffected by UV or ozone

Dimensions given are bore i.d. x o.d. in mm. Supplied in coils of 10 metres.

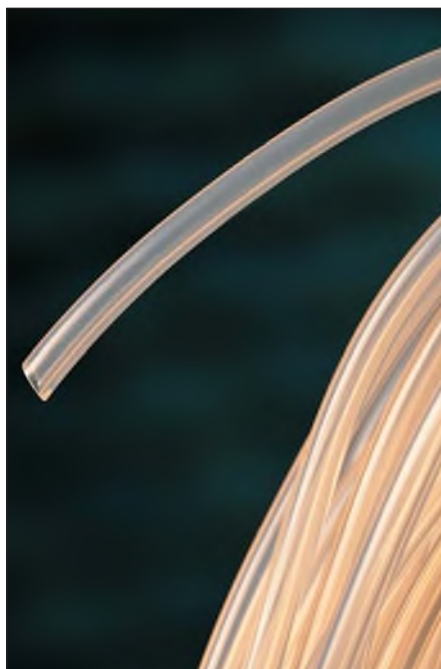
	Bore x o.d., mm
TY574-05	6 x 12
TY574-10	7 x 15
TY574-15	8 x 16
TY574-20	9 x 17
TY574-25	10 x 18
TY574-30	14 x 24
TY574-35	16 x 26
TY574-45	19 x 29
TY574-50	19 x 31.8
TY574-60	22 x 34



TY600



TY567



TY571



TY574

Tubing Accessories

Tubing Accessories

Clamps

With non-slip serrated wheel and sloped floor which allow variable flow regulation. Plastic. Can be autoclaved up to 134°C.

	Ref.	Max. tubing o.d. mm
TY900-20	KT4.5	4.5
TY900-25	KT6	6
TY900-30	KT10	10
TY900-40	KT14	14

Tubing Cutter

For normal wall rubber and plastic flexible tubing up to 19mm o.d. With spring loaded hardened steel blade which is covered when the cutter is not in use.

TY915-20	Cutter
TY917-18	Spare blade

Non-return valve – see PX185.

Tubing adapters – see AD100/AD220.

Clips/Clamps

Providing shut-off or flow control for flexible tubing.

	Type	Max. tubing dia. mm	Material
CP100-15	Mohr	10	Nickel plated alloy
CP100-19		12	
CP103-10	Ratchet	10	Polypropylene
CP106-08	Centre hinged, spring	8	Stainless steel and acetal
CP106-10		10	
CP109-10	'Stop-it', bottom hinged	10	PVDF and zinc plated steel
CP109-15		15	
CP109-20		20	
CP114-25	Hoffman, bottom hinged, light	25	Nickel plated brass
CP114-30		30	
CP114-40		40	
CP115-40	Hoffman, bottom hinged	40	Nickel plated brass
CP120-14	Hoffman, side hinged	14	Acetal



TY900 in use



CP103



CP106



CP120



TY915 in use



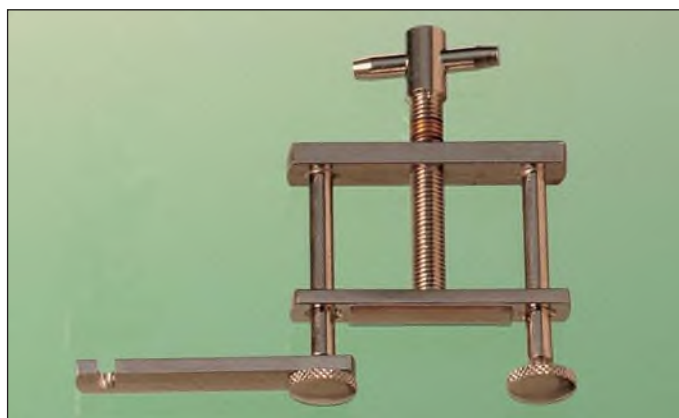
CP109



CP114



CP100



CP115

Ultrasonic Cleaners

Analogue Ultrasonic Cleaning Baths



- ◆ Tank and housing all stainless steel
- ◆ Integral heater with dial setting and separate on/off switch (except models U100 and U300); range ambient to +70°C
- ◆ Integral timer with dial setting from 0 to 15 minutes and separate on/off switch
- ◆ Integral side handles allow bath to be moved easily and safely
- ◆ Models U500H and U2500H have a built-in tank drain
- ◆ Supplied with stainless steel basket and ABS lid which can also be used as a drip tray when removing the basket

Catalogue no.		UL110-20	UL110-25	UL110-35	UL110-40	UL110-45	UL110-80
Model		U100	U100H	U300	U300H	U500H	U2500H
Capacity, maximum, litres		1.75	1.75	2.75	2.75	5.0	28.0
	working, litres	1.5	1.5	2.5	2.5	4.5	25.0
Peak output	W	35	35	35	35	100	400
Heater power	W	—	80	—	150	150	650
Timer		0 to 15 minutes — all models					
Bath dimensions							
Internal (Overall)	W, mm	150 (180)	150 (180)	240 (270)	240 (270)	300 (330)	500 (550)
	D, mm	140 (160)	140 (160)	140 (170)	140 (170)	150 (180)	300 (345)
	H, mm	100 (190)	100 (190)	100 (210)	100 (210)	150 (275)	200 (365)
Weight, empty	kg	3.2	3.2	4.2	4.2	8.5	17

Analogue Ultrasonic Cleaning Baths

With stainless steel tank and outer case, integral heater and timer where indicated, ABS lid and stainless steel basket. For 230V 50/60Hz single phase supplies.

- UL110-20** Model U100, 1.75 litres, timer
- UL110-25** Model U100H, 1.75 litres, timer/heater
- UL110-35** Model U300, 2.75 litres, timer
- UL110-40** Model U300H, 2.75 litres, timer/heater
- UL110-45** Model U500H, 5.0 litres, timer/heater
- UL110-80** Model U2500H, 28.0 litres, timer/heater

Note:

Items to be cleaned should not be allowed to rest on the bottom of the tank during operation. We recommend all items are cleaned within the stainless steel basket provided.



UL110-20



UL110-45

Ultrasonic Cleaners

Digital Ultrasonic Cleaning Baths



- ◆ Stainless steel tank with rugged, industrial plastics housing
- ◆ Tank capacities 2.50 to 25.00 litres
- ◆ Combined frequency sweep and Leap-and-degas ultrasonics ensure superior cleaning activity and results
- ◆ Digital setting and readout of timer and heating
- ◆ Heating range ambient +5°C to +70°C
- ◆ Built-in SD Flash memory card slot enables storage and download of procedural records to the user's PC
- ◆ Easily accessible tank drain included
- ◆ Supplied with stainless steel basket and tight-fitting, ABS lid

Specifications:-

Catalogue No.		UL325-25	UL325-30	UL325-35	UL325-40	UL325-45
Model		QS5	QS10	QS12	QS18	QS25
Capacity,	litres	4.50	9.50	12.50	17.50	25.00
Peak power,	W	100	200	200	300	400
Heater	°C	Ambient +5 to +70 — all models				
Timer		0 to 99 minutes — all models				
Bath dimensions*	mm					
Internal	D	150 (267)	150 (267)	200 (366)	200 (366)	200 (366)
(External)	L	300 (345)	500 (350)	295 (345)	330 (374)	500 (551)
	W	150 (200)	150 (183)	245 (288)	300 (347)	300 (347)
Weight	kg	5.6	8.5	10	13	17

*All dimensions are nominal. All tanks have radiused corners.

Digital Ultrasonic Baths, Ultrawave

As described. Supplied with tight-fitting ABS lid, stainless steel basket, SD memory card slot and drain. For 230V 50/60Hz single phase supplies. Supplied without SD memory card.

- UL325-25** Model QS5
- UL325-30** Model QS10
- UL325-35** Model QS12
- UL325-40** Model QS18
- UL325-45** Model QS25

Note:

Items to be cleaned should not be allowed to rest on the bottom of the tank during operation. The use of an accessory basket is recommended to avoid this.



UL325-15



UL325-25

Viscosity

Flow Cups

Simple to use flow cups for the approximate measurement of apparent viscosity in a wide range of materials including paints, varnishes, lacquers, inks and other viscous products.

BS-ISO Flow Cups

To BS3900 part A6 : 1996; ASTM D5125; EN - ISO2431; DIN 53224. Aluminium alloy with stainless steel jet. The cup number is the orifice diameter in mm.

VC100-15 No. 3
VC100-20 No. 4
VC100-25 No. 5

VC100-30 No. 6
VC100-40 No. 8*

*Note: This cup is not in the current BS-ISO series but is offered for use with high viscosity samples.

B-Type Flow Cups

Aluminium alloy. As specified in former BS3900 Section A6: 1971. Viscosity range stated is approximate.

	Jet	Orifice diameter inches	Viscosity range stokes
VC120-10	B2	0.093	0 to 0.5
VC120-15	B3	0.125	0.4 to 1.2
VC120-20	B4	0.156	0.8 to 2.5
VC120-25	B5	0.187	1.5 to 10
VC120-30	B6	0.281	10 to 50

Accessory stand for Flow Cups

VC148-18 Stand, with levelling feet and built-in spirit level

Zahn Flow Cups

Stainless steel with 300mm looped handle with ring which allows cup to be held vertically. Cup capacity 44ml. To ASTM D816 and ASTM D1084.

	No.	Orifice diameter inches	Viscosity range centipoise
VC170-10	1	0.078	20 to 85
VC170-20	2	0.108	30 to 170
VC170-30	3	0.148	170 to 550
VC170-40	4	0.168	200 to 900
VC170-50	5	0.208	250 to 1200

Stopwatches – see *Timers* section.

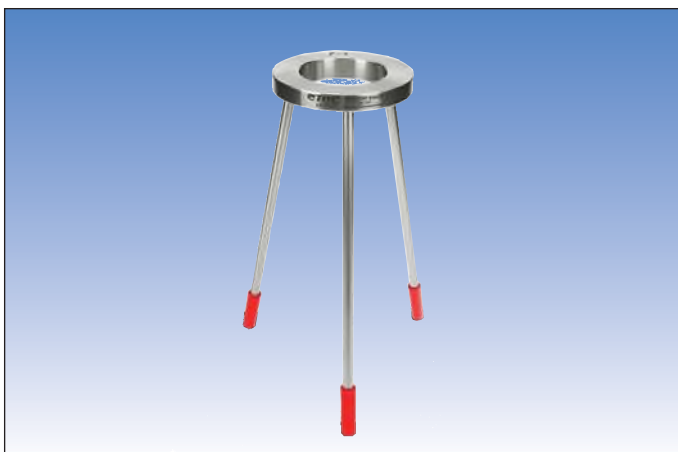
ASTM/IP Thermometers – see *Thermometers* section.

Note

To convert readings in centistokes (cSt) into centipoise (cP) the value should be multiplied by the sample liquid's specific gravity.



VC100



VC148-18



VC170

Viscosity

Calibrated, Glass Capillary, Kinematic Viscometers

To ASTM D445-IP71, BS188, ASTM D446; 51 562, BS2000 Part 71, ISO3104, ISO3105.

- ◆ All viscometers are supplied calibrated in accordance with ASTM D445-IP71, BS188 and ISO3105 and are supplied with a UKAS-traceable certificate
- ◆ Calibration certificate supplied includes the calculated constant (C)
- ◆ All viscometers can be used with transparent liquids and in addition the reverse flow models VC534 series can be used with opaque liquids

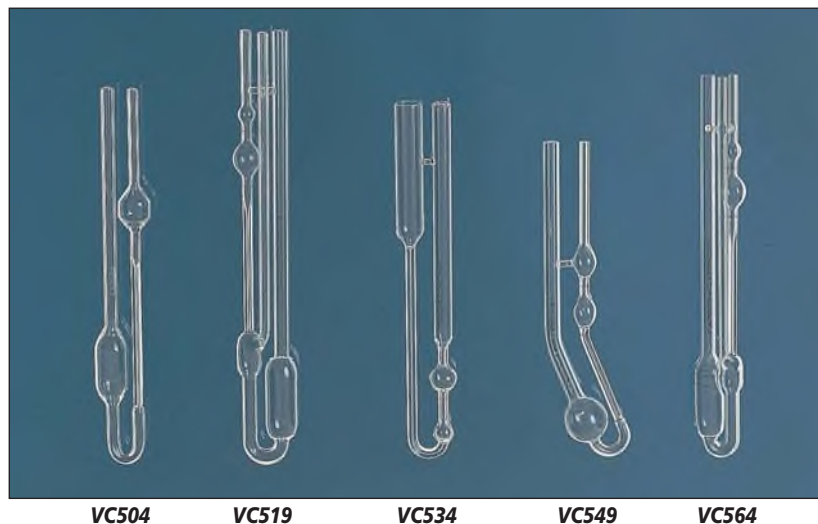
	Size	Nominal constant	Viscosity range cSt.
U-Tube, calibrated			
VC504-10	O	0.001	0.3 to 1
VC504-15	A	0.003	0.9 to 3
VC504-20	B	0.01	2.0 to 10
VC504-25	C	0.03	6 to 30
VC504-30	D	0.1	20 to 100
VC504-35	E	0.3	60 to 300
VC504-40	F	1.0	200 to 1,000
VC504-45	G	3.0	600 to 3,000
VC504-50	H	10.0	2,000 to 10,000
Suspended level, calibrated			
VC519-10	1	0.01	3.5 to 10
VC519-15	1A	0.03	6 to 30
VC519-20	2	0.1	20 to 100
VC519-25	2A	0.3	60 to 300
VC519-30	3	1.0	200 to 1,000
VC519-35	3A	3.0	600 to 3,000
VC519-40	4	10.0	2,000 to 10,000
VC519-45	4A	30.0	6,000 to 30,000
VC519-50	5	100.0	20,000 to 100,000

Dimensions and sample size The approximate length of the viscometer and sample size required by the viscometers is:

	Sample ml	Length mm
U-tube	13 to 40	300
Suspended level	22 to 40	330
Reverse flow	12 to 25	275
Cannon Fenske	7	250
Ubbelohde	18	283

Standard Reference Oils

Calibrated to UKAS requirements at either 25 or 40°C are available. Details on request. Please specify your requirements.



VC504

VC519

VC534

VC549

VC564

	Size	Nominal constant	Viscosity range cSt.
Reverse flow, calibrated			
VC534-10	1	0.003	0.6 to 3
VC534-15	2	0.01	2 to 10
VC534-20	3	0.03	6 to 30
VC534-25	4	0.1	20 to 100
VC534-30	5	0.3	60 to 300
VC534-35	6	1.0	200 to 1,000
VC534-40	7	3.0	600 to 3,000
VC534-45	8	10.0	2,000 to 10,000
VC534-50	9	30.0	6,000 to 30,000
VC534-55	10	100.0	20,000 to 100,000
VC534-60	11	300.0	60,000 to 300,000
Cannon-Fenske Routine, calibrated			
VC549-10	25	0.002	0.4 to 2
VC549-15	50	0.004	0.8 to 4
VC549-20	75	0.008	1.6 to 8
VC549-25	100	0.015	3 to 15
VC549-30	150	0.035	7 to 35
VC549-35	200	0.1	20 to 100
VC549-40	300	0.25	50 to 250
VC549-45	350	0.5	100 to 500
VC549-50	400	1.2	240 to 1,200
VC549-55	450	2.5	500 to 2,500
VC549-60	500	8.0	1,600 to 8,000
VC549-65	600	20.0	4,000 to 20,000
Ubbelohde, calibrated			
VC564-10	0	0.001	0.3 to 1
VC564-15	0C	0.003	0.6 to 3
VC564-20	0B	0.005	1 to 5
VC564-25	1	0.01	2 to 10
VC564-30	1C	0.03	6 to 30
VC564-35	1B	0.05	10 to 50
VC564-40	2	0.1	20 to 100
VC564-45	2C	0.3	60 to 300
VC564-50	2B	0.5	100 to 500
VC564-55	3	1.0	200 to 1,000
VC564-60	3C	3.0	600 to 3,000
VC564-65	3B	5.0	1,000 to 5,000
VC564-70	4	10.0	2,000 to 10,000
VC564-75	4C	30.0	6,000 to 30,000
VC564-80	4B	50.0	10,000 to 50,000
VC564-85	5	100.0	20,000 to 100,000

Viscosity

Viscosity Bath, TCB-7

PSL Rheotek

For the determination of kinematic viscosity using capillary viscometers under ASTM D445; IP71; ISO3104; ISO3105; ASTM D1298.

Accommodates up to seven standard viscometer tubes using accessory holders. Digital temperature control and setting to 0.01°C readability with readout and separate thermometer holder. A built-in cooling coil allows cooling to near and sub-ambient temperatures using mains water or an accessory chiller circulator. Corrosion-resistant, stainless steel tank with toughened glass windows in the front and rear panels for ease of viewing (an accessory backlighting unit is available).

Capacity		40 litres
Range	°C	Ambient to +150
Stability (typical)	°C	± 0.01
Overall L x W x H	mm	405 x 380 x 420
Weight, empty	kg	36
Supply requirement		230V 50/60Hz single phase

Viscometer Bath, TCB-7

As described. With top plate, covers for unused holes in top plate and instruction manual. For 230V 50/60Hz single phase supplies.

VC825-20 TCB-7

Accessories

VC827-05 Universal viscometer holder

Bath Filling Oil

Clear silicone oil formulated for long-term use at the operating temperatures as indicated. Supplied in containers of 5 litres.

VC827-10 25°C to 100°C

VC827-14 100°C to 150°C

VC827-40 Viscometer bench stand

VC827-45 LED backlighting unit for VC825-20, 230V 50/60Hz a.c.

Refrigerated circulators - see *CL120/CL125*

Filling Liquids

It is recommended that before any additive or inhibitor is mixed with your bath liquid, or any proprietary fluid is used in place of mains tap water, the tank content should be checked regularly and if necessary buffered to pH7. Acidic liquids, over very long periods of time can cause damage to the bath due to electrolysis.



VC825-20

Viscosity

Torsional Viscometer

A simple to use comparative viscometer for quality control applications, particularly suited for use in the ceramics industry but can be used with other viscous materials with viscosities up to approximately 10,000cp.

- ◆ Simple manual operation - no electrical connections required
- ◆ Results can be obtained in minutes
- ◆ Can be located on the factory or workshop floor

The instrument comprises a torsion wire attached to a flywheel, suspended above an engraved 360°C scale and a bob for immersing in the sample. Applying a torsion allows the fly-wheel to overswing. This is a measure of the sample viscosity. Results obtained are usually expressed in overswing degrees.

Torsional Viscometer

As described. Overall 150 x 240 x 730mm high. With flywheel, engraved scale and stand. Supplied with one each 30swg wire, $1\frac{1}{16}$ inch bob, sample cup and instructions.

VC830-10 Torsional viscometer

Accessories and Spares

VC832-08 Wire, 30swg

VC832-12 Wire, 36swg

VC832-20 Bob, $\frac{1}{4}$ inch

VC832-23 Bob, $\frac{1}{2}$ inch

VC832-26 Bob, $1\frac{1}{16}$ inch

VC832-29 Bob, $1\frac{1}{8}$ inches

VC832-32 Bob, $1\frac{5}{8}$ inches

VC832-50 Sample cup,
69 x 62mm
diameter x height

VC832-53 Stirrer to provide
manual stirring

Consistometer

A simple, low cost, easy-to-use device for accurately checking laboratory or production samples against consistency, viscosity or flow rate standards. Widely used in the chemical, paint, cosmetic and food processing industries.

- ◆ Robust, stainless steel construction allows easy cleaning after test
- ◆ Low sample requirement (75ml)
- ◆ Engraved graduations every 0.5cm give accuracy and ensure long operational life
- ◆ Supplied with built-in spirit level and adjustment screws

Consistometer

As described. Supplied with spirit level and levelling screws. Overall 355 x 88 x 104mm L x W x H.

VC845-10 Consistometer

Circulators – see *CL120/CL125*.

Stopwatches – see *TM480*.



VC830



VC845

Washing

Cub Laboratory Glassware Washing Machines

Underbench machines offering a choice of:

Washer only

Washer/Hot Air Dryer

- ◆ Compact size
- ◆ 10 standard programmes covering most chemical or biological washing applications
- ◆ Microprocessor controlled programming
- ◆ Membrane keypad and backlit, graphics LCD readout with clock, calendar, timer, temperature, programme or machine status outputs, alarm function and troubleshooting menu
- ◆ Drop-down door for easy loading
- ◆ Hot and cold water filling
- ◆ No special plumbing required
- ◆ Dispenser for liquid detergent
- ◆ Wash and rinse temperatures up to 95°C
- ◆ Built-in water softener
- ◆ Acid rinse and distilled/deionised water rinse facilities
- ◆ Front opening easy access door
- ◆ Separate RS232 serial ports for printer and PC connection if required

Additional Features for Dryer Model

- ◆ Drying by HEPA-filtered hot air
- ◆ Drying time/temperature selection
- ◆ Programme cycle times can be extended by up to 60 minutes each

Facilities

Ten standard programmes are provided by the microprocessor controller, all individually designed and tested for specific chemical or biological washing applications. In addition a further 40 custom programmes may be defined by the operator, if required.

Detergent. Built-in dispensers for liquid detergent.

Distilled/Deionised Water Rinse. Built-in pump for non-pressurised (e.g. storage aspirator) distilled/deionised water rinse. Can also be operated on pressurised distilled/deionised water supplies.

Neutralization/Acid Rinsing. Built-in pump automatically injects required amount of solution directly into washing machine chamber.

Water softener: Regeneration takes place automatically, only needs periodic addition of salt.

Hot Air Drying. The integral, compact unit directs hot air either into the individual spigots of the jet rack used, or into the wash chamber when using baskets, trays and special purpose racks.

Cleaning concentrates for use in washing machines – see *CL565 to CL615*

Installation and Services

Hot and cold water supplies are through flexible hoses. A separate distilled /deionised water inlet is provided. The emptying hose requires a discharge drain tube with inlet set from the floor minimum 320mm, maximum 800mm.

Water pressure: 1.5 to 5 bar for hot, cold and pressurised distilled. 0 to 0.5 bar for unpressurised distilled.

Power requirements: 230V 50Hz single phase, 30A, 2.8kW.

Dimensions

	H x W x D, mm
Washing chamber	610 x 520 x 490
Overall	
Washer model	845 x 600 x 645*
Washer/Dryer model	845 x 900 x 645*
Weight empty	85kg (120kg Dryer model)

*The door extends a further 610mm when open.

Effective washing heights

With basket trays on two levels
bottom level = 280mm, top level = 190mm

With Jet racks on two levels
bottom level = 240mm, top level = 205mm

With Jet rack on bottom level only = 460mm

Fittings

The washing machine is supplied empty and requires basket trays with spray arms or jet racks for operation. Please refer to WB218/WB220 for details.

continued on next page



WB200



WB210

Washing

Cub Washing Machines continued

Glassware Washer, Cub

As described. Supplied empty without basket trays and spray arms that are required for operation. For 230V 50Hz single phase supplies, 30A.

WB200-45 Washer

Glassware Washer/Dryer, Cub Extra

As described. With integral hot air drying unit. Supplied empty without basket trays and spray arms that are required for operation. For 230V 50Hz single phase supplies, 30A.

WB210-50 Washer/Dryer

Note

Orders for glassware washers can only be processed after completion of an installation check list detailing the user's water/electrical supply requirements. Please contact us for details.

Standard Basket Trays

With spray arms. Universal basket trays suitable for washing wide mouth vessels, beakers, petri dishes, evaporating basins etc. and for test tubes held vertically in accessory baskets. One each upper and lower level baskets are recommended for use in WB200/WB210.

WB218-10 Upper level tray

WB218-20 Lower level tray

Jet Racks

Provide thorough internal washing of narrow necked vessels, volumetric flasks, medical flats, small cylinders etc. on two levels.

	For machines	Hollow spigots
WB220-30	WB200/WB205	68 each
WB220-35	WB210/WB215	68 each



Bottle/Tube Washers

Baskets, Stainless steel mesh, wedge shape

For test tubes. For use on lower basket tray.

WB224-20 105mm high

WB224-26 165mm high

WB224-32 200mm high

Petri Dish Rack

Plastic coated stainless steel. For use on lower level only. For 38 dishes, from 70 to 100mm diameter.

WB230-20 Petri dish rack

Beaker/Bottle Support

Supports up to 28 items. Two supports can be used on each of the upper and lower basket trays.

WB232-10 Beaker/Bottle support

Bottle Washer

For rinsing the interior of bottles and other containers with neck diameters between 9.5 and 100mm and approximately 75mm minimum height. The spring loaded nozzle, when depressed by an inverted bottle, ejects jets of water. Waste water is dispersed through channels in the sloping distributor. The water flow ceases when the bottle is removed from the nozzle. Supplied with centre vertical nozzle, four-arm horizontal distributor, heavy base and 1 metre of hose.

WB450-10 Bottle washer

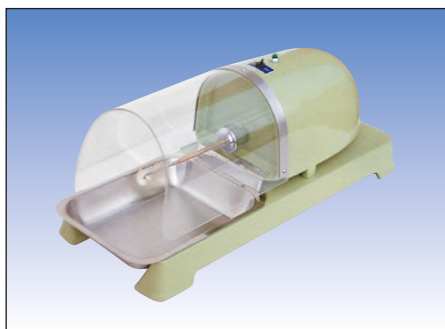
Brushing Washer

For cleaning the inside of small bottles, test tubes and similar glassware using an electrically driven brush. Comprising a quiet running motor with quick release chuck within an enamel painted aluminium housing. A transparent plastic shield extends over the rotating brush and stainless steel drip tray. Overall 270 x 630 x 255mm W x D x H. Weight 14kg. For 220-240V 50Hz single phase supplies. Without brushes.

WB500-10 Brushing washer



WB450



WB500 in use

Pipette/Burette Washers

Accessory Brushes

For bottles and similar containers.

	Approximate capacity ml
WB504-20	100/125
WB504-30	200/250

For test tubes

	Approximate diameter mm
WB506-10	6
WB506-20	10
WB506-30	13
WB506-40	16
WB506-45	19
WB506-55	25

Pipette/Burette Washers

Heavy duty polyethylene. Modular system, comprising a basket which holds the items to be cleaned and fits inside the soaking jar. After soaking the basket is transferred to the siphoning rinser which is connected to a mains water supply. The fill/drain siphoning cycle repeats automatically for as long as the rinsing water flows at the correct rate. Require a source of mains water and a suitable waste water drain. For pipettes and burettes up to 600mm long. Individual components must be ordered separately, as required.

	Item	Int. dia. mm	Ht. mm
WB610-14	Rinser	165	740
WB610-24	Jar	165	650
WB610-34	Basket	130	650

Burette Brushes etc. – see *Brushes* section.

Cleaning Baths – see *Ultrasonics* section.



WB610-14



WB610-24



WB610-34

Washing

Colour Coded Washbottles, Narrow Neck

Azlon

Washbottles, Azlon traditional

Round, square shouldered bottle with swan neck jet and screw closure. Natural polyethylene with white closure. Supplied in packs of 5.

	Ref. WGF-	Cap. ml
WB706-25	230P	250
WB706-30	236P	500

Washbottles, Azlon sloping shoulder

Round, sloping shoulder bottle with swan neck jet and screw closure. Natural polyethylene with white closure. Supplied in packs of 5.

	Ref. WGF-	Cap. ml
White closure		
WB726-25	330P	250
WB726-30	336P	500
WB726-40	240P	1000

Washbottles, Azlon integral jet

Squared oval bottle with integrally moulded tube and removable jet tip. Natural polyethylene with screw closure. Registered design 974610. Supplied in packs of 5.

	Ref. BGF-	Cap. ml
WB750-25	130P	250
WB750-30	136P	500

Quickfit Washbottles – see *Quickfit* section.



WB706



WB726



WB750

Washing

Colour Coded and Printed Washbottles, Narrow Neck, continued

Azlon

Washbottles, Azlon, printed

Round, sloping shoulder bottle with swan neck jet and screw closure. Natural polyethylene with colour coded printing and cap. Supplied in packs of 5.

	Ref. WGF-	Cap. ml	Colour code
Printed "Distilled Water"			
WB818-25	600P	250	White
WB818-30	601P	500	White
Printed "Water"			
WB820-25	530P	250	White
WB820-30	536P	500	White
Printed "Acetone"			
WB822-25	531P	250	Red
WB822-30	537P	500	Red
Printed "Methanol"			
WB824-25	532P	250	Green
WB824-30	538P	500	Green
Printed "Isopropanol"			
WB826-25	533P	250	Blue
WB826-30	539P	500	Blue
Printed "IMS"			
WB828-25	534P	250	Yellow
WB828-30	540P	500	Yellow
Printed "Ethanol"			
WB830-25	535P	250	Orange
WB830-30	541P	500	Orange



WB818/WB830

Washbottle Carriers

Bottle carriers, Azlon wire

Epoxy coated steel wire for carrying up to six bottles or washbottles.

	Ref. BGS-	For bottles max. dia.mm
BT512-10	040	60
BT512-20	042	74

Drip trays – see BT595.



BT512 in use

Washing

Colour Coded and Printed Washbottles, Wide Neck

Azlon

- ◆ Wide neck for easy, spill-free filling
- ◆ Leakproof closure with swan-neck spout

Washbottles, wide neck Azlon

Round shape in flexible natural polyethylene (LDPE) with leak-proof colour coded closure and spout. Labelled versions also available as indicated. All bottles marked with SPI recycling codes on the base. Supplied in packs of 5.

	Ref. WGW-	Capacity ml
Blue closure		
<i>WB875-10</i>	234P	250
<i>WB875-12</i>	235P	500
<i>WB875-14</i>	446P	1000
Green closure		
<i>WB875-26</i>	233P	250
<i>WB875-28</i>	239P	500
<i>WB875-30</i>	447P	1000
Red closure		
<i>WB875-40</i>	231P	250
<i>WB875-42</i>	237P	500
<i>WB875-44</i>	445P	1000
White closure		
<i>WB875-56</i>	230P	250
<i>WB875-58</i>	236P	500
<i>WB875-60</i>	443P	1000
Yellow closure		
<i>WB875-70</i>	232P	250
<i>WB875-72</i>	238P	500
<i>WB875-74</i>	444P	1000
Printed "Deionised Water", white closure		
<i>WB890-10</i>	602PML	250
<i>WB890-12</i>	603PML	500
Printed "Distilled Water", white closure		
<i>WB890-20</i>	600PML	250
<i>WB890-22</i>	601PML	500
Printed "Water", white closure		
<i>WB890-30</i>	530PML	250
<i>WB890-32</i>	536PML	500



WB875

Washbottles for flammable liquids and solvents, wide neck Azlon, printed

Round shape in flexible natural polyethylene (LDPE). With integral valve mechanism which automatically vents any volatile vapour, depressurising the bottle and eliminating potentially hazardous liquid "drip". Printed with a variety of multilingual solvent labels (English, French, German, Spanish) including a blank for customer use. The printing has been tested for solvent resistance and each label contains a selection of international hazard identification codes including GHS pictograms, NFPA diamonds, risk phrases and safety information. All bottles are marked with SPI recycling codes on the base. Printing and closure colours as indicated. Supplied in packs of 5.

	Ref. WGW-	Capacity ml	Colour code
Printed "Acetone"			
<i>WB950-10</i>	531VTML	250	Red
<i>WB950-12</i>	537VTML	500	Red
Printed "Isopropanol"			
<i>WB950-20</i>	533VTML	250	Blue
<i>WB950-22</i>	539VTML	500	Blue
Printed "Methanol"			
<i>WB950-30</i>	532VTML	250	Green
<i>WB950-32</i>	538VTML	500	Green
Printed "Ethanol"			
<i>WB950-40</i>	535VTML	250	Orange
<i>WB950-42</i>	541VTML	500	Orange
Printed "IMS"			
<i>WB950-50</i>	534VTML	250	Yellow
<i>WB950-52</i>	540VTML	500	Yellow
Blank			
<i>WB950-90</i>	001VTML	250	White
<i>WB950-92</i>	002VTML	500	White



WB950 Venting system



WB890 and WB950

Washing

Colour Coded and Printed Washbottles, Wide Neck, continued

Azlon

Washbottles, Integral Spout, Wide Neck, Printed

500ml capacity. Round shape in flexible natural polyethylene (LDPE) with integral delivery tube and spout and colour-coded, polypropylene closure. Printed with a variety of multilingual solvent labels with international hazard identification codes. All bottles are marked with SPI recycling codes on the base. Printing and closure colours as indicated. Supplied in packs of 5.

	Ref. WGW-	Label	Colour code
WB965-14	801P	Distilled Water	White
WB965-24	802P	Acetone	Red
WB965-34	803P	Methanol	Green
WB965-44	804P	Isopropanol	Blue
WB965-54	805P	Ethanol	Orange

Washbottles, Tracker, Wide Neck

Round shape in flexible natural polyethylene (LDPE) pre-printed with labelling areas for bottle contents, originator, preparation date, first use and expiry dates, lot number and COSHH hazard data symbol position. Vented, with 250ml or 500ml versions available. Supplied with a pack of self-adhesive hazard warning labels. Information is easily inscribed using accessory solvent-based marker pens. Supplied in packs of 5.

	Ref. WGW-	Capacity ml
WB975-50	250P	250
WB975-52	500P	500

Ink Markers, Laboratory

Ideal for marking polystyrene petri dishes, metal, glass and most plastics, cold (above 0°C) or moist surfaces. Water and alcohol resistant, autoclavable ink. Can be removed from non-porous surfaces by scrubbing with detergent. Colours as indicated. Supplied singly.

LA620-04	Black
LA620-08	Red
LA620-12	Blue
LA620-16	Green

Washbottles, LDPE, Bleach, Wide Neck

Wide neck, round shape, opaque white LDPE washbottles for light-sensitive sodium hypochlorite (bleach) with multilingual labelling in English, French and Spanish, GHS symbols, NFPA diamond, risk phrases and safety information and one-piece, yellow PP dispensing closures. Supplied in a pack of 5.

Note: for dispensing only, not suitable for storage.

WB979-10 WGW401PML

Washbottles, Polypropylene, Wide Neck

Round shape, wide neck, 500ml washbottles in translucent polypropylene, printed with multilingual (English, French, German and Spanish) solvent labels and international identification codes including GHS pictograms, NFPA diamonds, risk phrases and safety information. Fitted with unvented polypropylene dispensing closures in colours as indicated. Supplied in packs of 5.

Note: these bottles are not autoclavable.

	Ref. WGW-	Label	Closure colour
WB982-15	701PP	Dichloromethane	White
WB982-25	703PP	Methyl Ethyl Ketone	Green

Washbottles, Polypropylene, Autoclavable

Round shape, 500ml washbottles in translucent polypropylene, autoclavable* at 121°C. Fitted with white, unvented polypropylene dispensing closures and labelled "Autoclavable". Supplied in packs of 5.

WB984-10 WGW700PP

*Note: bottles should be autoclaved empty or only if containing non-flammable and/or non-hazardous solutions. Always loosen or remove the cap to prevent implosion.



WB982-25, WB982-15 is similar



WB965



WB975



WB979



WB984

Washing

Spray Bottles, LaboPlast®



Pressurised

Capacity 1500ml. Robust, industrial quality, pressurised spray bottle for use in varied applications including visualisation of colourless components on TLC plates, cleaning, disinfection or plant protection. In use, a hand pump pressurises the container up to 4 bar and the spray can then be activated by a separate push button. Materials in contact with the sprayed solution are polypropylene, high density polyethylene, fibre-glass reinforced polyamide, stainless steel and fluorocarbon rubber.

An accessory, 300mm long, extension lance allows precise spraying into restricted spaces or the operator to remain further away from the spray area. Supplied singly.

WB988-10 Spray bottle

WB988-17 Accessory 300mm extension lance for WB988-10

Trigger-action

LDPE bottle and PP, trigger-action spray head with adjustable nozzle and stainless steel ball valve. Each stroke dispenses approximately 1.2ml. Supplied singly.

	<i>Bottle Cap. ml</i>	<i>Overall height mm</i>
BS835-42	250	220
BS835-50	500	240
BS835-82	1000	295



WB988-10 in use with WB988-17



BS835

Waste

Waste Bins and Sacks

Waste Bins

Polyethylene. Dimensions and capacities stated are approximate*.

	Capacity, litres	H x W x D, mm
Swing top, removable hood		
WD215-25	45	700 x 350 x 350
WD215-27	Disposable bin liners for WD215-25, pack of 100	

	Capacity, litres	H x dia. mm
Loose lid, carrying handles		
WD220-35	90	700 x 500

* Please Note. These bins are subject to regular design and dimensional changes and may be supplied in a variety of colours.

Waste Sacks

Black plastic. Dimensions 450 x 725 x 975mm. Supplied in a pack of 100.

WD300-20 Waste sacks

"Hazardous Waste" Sacks

Yellow polyethylene bags with ties, printed with "Hazardous Waste" text and warning symbols. Dimensions stated are nominal flat width x depth. Supplied in packs as indicated.

WD315-10 460 x 900mm, pack of 100

WD315-20 600 x 1100mm, pack of 50

Waste Bins

Polyethylene. With loose fitting lid.

	Capacity, litres	H x dia. mm
WD370-12	15	185 x 425
WD370-22	20	390 x 350
WD370-44	70	585 x 510
WD370-47	120	650 x 575

Clinical Waste Bins

Single use polypropylene containers for safe disposal and incineration of all types of clinical waste as defined in the "Safe Disposal of Clinical Waste" report issued by the H.S.A.C. With non-reversible locking lid giving an air and water tight seal once closed and moulded-in carrying handles. Supplied singly.

WD380-12 Clinical waste bin, 30 litres, 355 x 400 x 315mm high

WD380-22 Clinical waste bin, 60 litres, 336 x 406 x 619mm high

Disposal Bins, Azlon

Self-assembled, rigid cardboard boxes with strong, leakproof LDPE liner and integral waste flap in the lid, for disposal of broken glass. The lid flap can be sealed when the bin is full. A choice of floor-standing or benchtop versions are available. Printed with safety hazard symbol and instructions for use. Supplied in a pack of 6.

WD405-15 DBG001P, floor standing, 300 x 300 x 700mm high

WD405-25 DBG002P, bench top, 230 x 230 x 265mm high

Clinical sharps bins - see *CM915-ICM920-ICM926-series*.



WD215-25



WD370



WD380



WD405



WD220-35



WD300



WD315

Waste, Watch Glasses

Beta and Gamma Radiation Shielding, Boxes

A range of benchtop storage boxes with hinged lids to accept accessory inserts as indicated. Dimensions stated are H x W x D.

For beta radiation

- RA612-15** Mini-box,
75 x 105 x 105mm
- RA612-25** Midi-box,
80 x 185 x 105mm
- RA612-35** Maxi-box,
160 x 300 x 185mm

For gamma radiation

- RA615-25** Midi-box,
784 x 189 x 109mm
- RA615-35** Maxi-box,
164 x 304 x 189mm

SAFETY NOTES

- 1) Beta radiation shields are unsuitable for use against secondary x-rays (Bremsstrahlung) or gamma radiation.
- 2) Gamma radiation shields will block emissions effectively from ¹²⁵I and any low energy gamma emitters. They are not suitable for more energetic isotopes of iodine. Heavier-walled shields are available for use with these isotopes - details on request. Gamma shields must not be used with beta isotopes since Bremsstrahlung will be produced.
- 3) Radioactive waste must never be stored on the benchtop for long periods and must be disposed of properly. Proper handling and storage of isotopes minimises unnecessary exposure to radiation.



RA612-15 in use with accessories



RA612-25 with accessories, RA615-25 is similar

Watch Glasses

Watch Glasses

Clear glass with ground edges. Diameters are nominal. Supplied singly.

	Dia. mm
WG100-10	30
WG100-15	40
WG100-20	50
WG100-25	60
WG100-30	70
WG100-35	80
WG100-40	90
WG100-45	100
WG100-50	130
WG100-55	150
WG100-60	200

Watch Glasses, Pyrex

Borosilicate glass. Diameters are nominal. Supplied singly.

	Ref. 1060-	Dia. mm
WG130-13	/04D	40
WG130-18	/06D	50
WG130-23	/09D	60
WG130-38	/10D	80
WG130-48	/14D	100
WG130-52	/18D	125
WG130-58	/20D	150
WG130-63	/21D	200
WG130-70	/24D	250

Watch glasses

Polypropylene. Transparent with stable ring base. Autoclavable 121°C.

	Dia. mm
WG145-23	60
WG145-38	80
WG145-48	100
WG145-52	125

Gas jar covers – see GE302.

Weighing boats – see BD750/BD757.



WG100

WG130



WG145

Water Stills

Automatic Water Stills



- ◆ Comply with EN61010
- ◆ Operate from virtually any water supply
- ◆ Integral filter and flow control system allows use with low quality or low pressure water supply
- ◆ Accessory filter unit available for handling heavily contaminated supply water
- ◆ Accessory deioniser available to remove inorganics from the water supply
- ◆ Can be linked to most types of deioniser or reverse osmosis units

Construction

All Aquatron stills incorporate a borosilicate glass double coil vertical condenser and boiler system. This combined with a silica sheathed heating element provides an exceptionally high quality output ready for immediate use. Raw water carry over is prevented by an extra long baffled tube between the boiler and condenser. Screwthread connectors on the internal glassware enable safe easy connection of flexible tubing. Cleaning of the boiler can be carried out without dismantling the glassware. The still is contained in a robust metal cabinet with tinted plastic front screen and simple illuminated push-button switches. The cabinet roof and front screen are easily removed for access to all glassware and components.

Models A4000 and A8000 can be wall or bench mounted.

Model A4000D is for bench mounting only.

Safety Features

A flow control safety cut-out prevents the still from boiling dry if the water flow is interrupted. It is not dependent on water pressure which means the still can be operated from header tanks or other low pressure sources. The flow control safety cut-out is backed by a resettable thermostat to ensure protection against coolant or water feed failure. A built-in filter which is accessible from outside the cabinet removes particulate matter from the input water before it enters the still. All stills are supplied with a distillate level control system which fits to any collection reservoir. This automatically switches off the still when the reservoir is filled and back on again when the distillate level falls.

Catalogue No.		WL100-15	WL102-15	WL105-15
Model		A4000	A8000	A4000D
Output	litres/hour	4 single distilled	8 single distilled	4 double distilled
Quality of distillate:				
pH		5.0 - 6.5	5.0 - 6.5	5.0 - 6.5
Conductivity	S/cm	1.0 - 2.0	1.0 - 2.0	1.0 - 1.5
Resistivity	megohm-cm	0.5 - 1.0	0.5 - 1.0	0.7 - 1.0
Pyrogen free*		A pyrogen free distillate is possible on all models		
Temperature	°C	25 to 35 — all models		
Services required:				
Cold water input		1 litre/minute	2 litres/minute	2 litres/minute
Supply pressure		0.3 x 10 ⁵ Nm ⁻² (5lb/in ²) minimum — all models		
Electricity supply		240V 50/60Hz single phase 13A fused	240V 50/60Hz single phase 30A fused	240V 50/60Hz single phase 30A fused
Cabinet dimensions W x D x H	mm	550 x 240 x 410	550 x 240 x 410	550 x 410 x 410

* Care is needed to obtain Pyrogen-free water and the distillate must be tested before use. pH, conductivity and resistivity are similarly affected by temperature and the presence of absorbed carbon dioxide. The basis of the tests is 20°C on distilled water free of carbon dioxide.

Ordering data and accessories - see next page



Water Stills

Aquatron Stills continued

Aquatron Water Stills

As described. With borosilicate glass condenser and boiler system and silica sheathed heating element in a totally enclosed cabinet. Supplied with reservoir level control. For 240V 50/60Hz single phase fused supplies rated as specified.

WL100-15 Model A4000, 4 litres/hour* single

WL102-15 Model A8000, 8 litres/hour* single

WL105-15 Model A4000D, 4 litres/hour* double

* Maximum outputs stated will only be achieved at the stated voltage. 220V versions are available on request.

Spare parts

WL114-12 Heater W48H. For all models. 240V 50/60Hz single phase supplies

WL114-18 Condenser WC48/M2. For all models

WL114-30 Boiler WB4. For models A4000 and A4000D

WL114-34 Boiler WB8. For model A8000

Accessories

Reservoir Assembly I/WR20

Comprising 20 litre borosilicate glass bottle complete with stopcock, lid, feed pipe and bacteriological filter.

WL120-10 Ref. I/WR20

Reservoir Stand WS20

Height 430mm. For mounting reservoir assembly WR20.

WL130-10 Ref. WS20

Water Feed Kits

For converting stills A4000, A8000 or A4000D to accept a feed from deionisers and other pre-treated water supplies.

WL140-17 Ref. A4000/WCK, for WL100-15 only

WL140-19 Ref. A4000D/WCK, for WL102-15 and WL105-15 only

Aquatron Accessories

Deioniser/Filter Units ADHSINGLE and ADHDOUBLE

For removing inorganics quickly from the feed water supply to produce high quality water with a conductivity better than 15µS/cm, or coarse particulates from the feed water supply using separate, accessory deioniser or filter cartridges. Comprising single or double (dual singles in series), free-standing, clear ABS housings, 130mm diameter x 315mm high. Maximum flow rate 60 litres/hour, maximum operating pressure 100lb/in². Supplied with hose fitting for connection to a normal water supply tap and flow control stopcock. Can be wall mounted with accessory wall brackets. Require, but are not supplied with, WL164-12 or WL184-08 for operation.

WL160-20 ADHSINGLE, single unit

WL160-30 ADHDOUBLE, dual unit

Disposable Deioniser Cartridge ADICART

Each cartridge produces up to 55 litres of deionised water with feed water of average hardness (300ppm TDS). For use with WL160-20 or WL160-30 (2 required) only. Supplied singly.

WL164-12 ADICART, deioniser cartridge

Disposable Filter Cartridges AFI

For removing coarse particulates such as rust from the feed water supply. Disposable polypropylene 10 micron filter.

Maximum flowrate 25 litres/minute

Maximum working pressure 100lb/in²

Maximum working temperature 40°C

For use with WL160-20 or WL160-30 (2 required) only. Supplied in a pack of 3.

WL184-08 AFI, filter cartridges, pack of 3

Mountings/Couplings

For Deioniser/Filter units.

WL200-13 ADHSIBKT, single wall bracket for WL160-20

WL200-14 ADHDOBKT, double wall bracket for WL160-30



WL120 with WL130



WL160-20 with WL164-12



WL160-30 with WL164-12 and WL184-08

Water Stills

Water Still

stuart

- ◆ Output 4 litres/hour* single distilled
- ◆ Long life metal sheathed heater
- ◆ Safety thermostat protects still in the event of water supply failure
- ◆ Borosilicate glass boiler and double coil condenser
- ◆ Plumbing connections via screwthread connectors
- ◆ Can be descaled without dismantling
- ◆ Bench or wall mounting
- ◆ Water consumption 60 litres/hour
- ◆ Distillate quality:
 - Conductivity 3 to 4 S/cm
 - pH 5 to 6.5
 - Pyrogen free (output must be tested)

Water Still, Merit W4000

As described. Output 4 litres/hour* single distilled. With bench/wall mounting stand. Overall 500 x 150 x 450mm high. For 240V 50/60Hz single phase supplies. Rating 3kW.

WL420-10 Merit W4000

* Maximum outputs stated will only be achieved at the stated voltage. A 220V version is available on request.

Spare parts

WL114-18 Condenser, ref. WC48/M2

WL424-08 Boiler, ref. W4000/B

WL437-08 Heating element, 3kW. With safety thermostat. 240V, ref. A6/6

WL437-18 Set of heater fittings (flange gaskets etc), ref. W4000/GK

Water Still

stuart

- ◆ All glass still with silica sheathed heater
- ◆ Output 4 litres/hour* single distilled
- ◆ Complies with IEC1010-1/EN61010-1:1993
- ◆ Distillate to European Pharmacopoeia for purified water and ASTM type 4
- ◆ Borosilicate glass boiler and double coil condenser
- ◆ Independent safety cut-outs for coolant water failure or low boiler water level
- ◆ Wall or bench mounting
- ◆ Reservoir level control device switches off heater when reservoir is full
- ◆ Boiler can be drained and cleaned without dismantling glassware
- ◆ Plumbing connections via screwthread connectors
- ◆ Water consumption 60 litres/hour
- ◆ Distillate quality:
 - Conductivity 3 to 4 S/cm
 - pH 5 to 6.5
 - Pyrogen free (output must be tested)

Water Still, Distinction D4000

As described. Output 4 litres/hour* single distilled. With brackets for wall or bench mounting and reservoir level control device. Overall 540 x 160 x 410mm high. For 240V 50/60Hz single phase supplies. Rating 3kW. Without reservoir.

WL460-10 Distinction D4000

* Maximum outputs stated will only be achieved at the stated voltage. A 220V version is available on request.

Spare parts

WL114-18 Condenser, ref WC48/M2

WL464-15 Heater, 240V 50/60Hz single phase supplies, ref. D240H

WL464-20 Boiler, ref. D4000/B



WL420



WL460

Water Testing

Sediment Determination

Imhoff Cone

For determining the amount of sediment in sewage. Transparent and tough styrene acrylonitrile with moulded graduations.

Graduation intervals:

0.1ml	up to 2ml
0.5ml	2 to 10ml
1.0ml	10 to 40ml
2.0ml	40 to 100ml
50.0ml	100 to 1000ml

The lower end of the cone is stoppered to allow for removal of sample and cleaning.

WR150-10 Imhoff cone

Stand

Acrylic for mounting Imhoff cone. Rectangular and holds 2 cones in line, with locating recess on the base plate.

WR160-18 Stand, 2-hole

Settleometer Kit, Nasco

For the evaluation of sludge quality and settlement. Comprises a 1.4 litre acrylic measuring cylinder, dual scale graduated in % and settled sludge volume (SSV) and supplied with a mixing paddle, snap-on lid and instructions. Overall H x diameter 216 x 114mm. Weight 0.6kg.

WR170-05 Settleometer kit



WR150



WR160-18 in use



WR170-05

Flocculators



For flocculation tests on water and sewage.

- ◆ 2-bank or 6-bank models available
- ◆ Digital speed indication
- ◆ Include two adjustable speed presets
- ◆ Electronic feedback control achieves precise and reproducible speeds
- ◆ Diffused base illumination with black background
- ◆ Accepts beakers up to 1000ml

Flocculators, Stuart

As described. Variable speed 25 to 250 rpm. Overall 320 x 210 x 500mm W x D x H (2-bank model), 750 x 210 x 460mm W x D x H (6-bank model). For 230V 50Hz single phase supplies. Supplied with rotor blades but without sample beakers.

WR230-05 Flocculator, 2-bank

WR230-20 Flocculator, 6-bank

Accessories

BN120-60 Sample beaker, 1000ml. Borosilicate glass

Coagulant injector for WR230-20 only. Allows simultaneous addition of coagulant or reagent into the six sample beakers.

WR230-50 Coagulant injector



WR230-05



WR230-20

Secchi Disk

Water depth and clarity measurement disk, diameter 200mm, with black/white quadrants. Weighted, with 14 metre cord.

WR239-25 Secchi Disk

BOD Testing

BOD Bottles

BS900-42 250ml

BS900-50 500ml

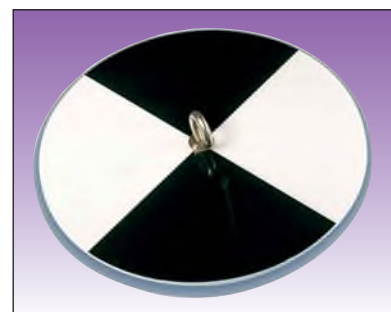
For full details – see *main page*.

BOD Incubators

With temperature ranges from 0 to +60°C and sizes from 53 to 416 litres capacity – see *IN505/IN685 in the Incubators section*.

Disposable filter units – see *FD250*.

continued on next page



WR239



BS900

Water Testing

BOD System, BD600

Lovibond®

A 6-sample, mercury-free, precision BOD measurement system based on the manometric principle.

- ◆ Direct display of BOD values ranging from 0 to 4000mg/l
- ◆ User-selectable measuring period from 1 to 28 days
- ◆ Applications: BOD₅, BOD₇, OECD 301F
- ◆ Large, graphical display, USB and SD card ports and optional Bluetooth® wireless output using accessory dongle
- ◆ Non-wearing, inductive, magnetic stirring system for the sample vessels
- ◆ User-selectable, automatic start function when used in an incubator, readings commence when sample temperature matches the cabinet internal temperature

Ranges	mg/l O ₂	0 to 40, 0 to 80, 0 to 200, 0 to 400, 0 to 800, 0 to 2000, 0 to 4000
Measurement period		1 to 28 days
Result memory		up to 28 results, depending on measurement period selected
Sampling interval	hours	1 (1 day measurement period) 2 (2 day measurement period) 24 (3 to 28 day measurement period)
Power		3 x 1.5V type C batteries - sensor 110-240V 50/60Hz - stirrer system
Overall, W x D x H	mm	181 x 375 x 230
Weight	kg	5.8

Supplied with 6 sensor heads, control unit with 3 x 1.5V batteries, inductive stirring unit with a.c. adapter for 110-240V 50/60Hz single phase supplies, 6 sample bottles with seals and stirring bars, 1 each 157ml and 428ml overflow measures (0 to 400mg/l and 0 to 40mg/l BOD ranges), one each bottles of potassium hydroxide (CO₂ absorbent) and nitrification inhibitor solutions, and instructions.

WR245-20 BD600, 6-sample

Spares and accessories

- WR247-05** Spare BOD sample bottle
- WR247-15** Accessory Bluetooth® dongle for wireless download of results
- BL610-20** Spare 1.5V battery (3 required)

Overflow Measures

	Volume, ml	BOD range, mg/litre O ₂
WR247-20	428	0 to 40
WR247-22	360	0 to 80
WR247-24	244	0 to 200
WR247-26	157	0 to 400
WR247-28	94	0 to 800
WR247-31	56	0 to 2000
WR247-33	21.7	0 to 4000



WR245

Samplers



TeleScoop Sample Dippers

Modular system featuring telescopic sampling rods in corrugated aluminium for lightness with rigidity, with snap-on fitment at the end for attaching accessory PP angular or pendulum beakers in a choice of volumes. Angular beakers can be adjusted to a wide variety of positions and pendulum beakers swing to an upright position.

- SD065-10** Sampling rod, 0.65 to 1.2 metres
- SD065-20** Sampling rod, 0.95 to 2.8 metres
- SD065-25** Sampling rod, 1.15 to 3.0 metres
- SD065-30** Sampling rod, 1.25 to 2.5 metres
- SD065-40** Sampling rod, 1.65 to 4.5 metres
- SD065-50** Sampling rod, 1.74 to 6 metres
- SD065-53** Angular beaker, PP, 600ml
- SD065-56** Angular beaker, PP, 1000ml
- SD065-59** Angular beaker, PP, 2000ml
- SD065-72** Pendulum beaker, PP, 600ml
- SD065-75** Pendulum beaker, PP, 1000ml
- SD065-78** Pendulum beaker, PP, 2000ml
- SD065-79** Pendulum beaker, stainless steel, 1000ml
- SD065-84** Bottle holder for bottles up to 750ml*
- SD065-87** Metal cup, 1000ml
- SD065-90** Surface net, PVC/PA, 310 x 280mm L x W
2.5 to 5mm mesh
- SD065-95** Depth net, PP/PA, 190 x 430 x 250mm L x W x D
2.5 to 5mm mesh

*Bottles - see BR767 series.

Full details of these products can be found in the Samplers section.



SD065-53 to SD065-59



SD065-72 to SD065-78



SD065-10 to SD065-50

Water Testing

Water Sample Bottles



Clear PET, with choice of 350ml, 500ml or 1000ml capacities and stable, square or space-saving, rectangular profile. With leakproof, 'double cap' with tamper-evident seal and colour-coded blue (dosed with 120mg/l sodium thiosulphate) or white (undosed). Both versions are labelled with batch details and expiry date. Sterilised by gamma irradiation. Supplied in packs as indicated.

	Ref.	Capacity ml	Dosed?	Cap	Pack qty.
Rectangular					
WR284-02	WSC350	350	✓	Blue	144
WR284-04	WSC350/NT	350	—	White	144
WR284-06	WSC500T	500	✓	Blue	144
WR284-08	WSC500T/NT	500	—	White	144
Square					
WR284-32	WSC500	500	✓	Blue	108
WR284-34	WSC500/NT	500	—	White	108
WR284-36	WSC1000	1000	✓	Blue	70
WR284-38	WSC1000/NT	1000	—	White	70

Water Sampling Bottles

Sterile, rectangular, polypropylene bottles in a range of sizes with offset neck for easy dispensing, tamper-evident caps and attached label. Supplied dosed with Sodium Thiosulphate or undosed and in packs as indicated.

	Capacity ml	Dosed?	Cap	Pack qty.
WR286-10	250	✓	Blue	140
WR286-14	250	—	Green	140
WR286-20	500	✓	Blue	84
WR286-24	500	—	Green	84
WR286-30	1000	✓	Blue	56
WR286-34	1000	—	Green	56



WR284



WR286

Thio-Bags®



Whirl-Pak® sample bags suitable for water sampling. Available in either non self-standing or self-standing versions. Ready dosed with sodium thiosulphate to neutralise chlorine in the sample (100ml capacity bags contain 10mg and 300ml capacity bags 30mg of active sodium thiosulphate). Supplied in packs of 100.

Non Self-standing

WR290-02 Thio-Bags®, 100ml

WR290-11 Thio-Bags®, 300ml

Self-standing

WR290-07 Thio-Bags®, 100ml

WR290-12 Thio-Bags®, 300ml

Racks for Thio-Bags®

Dimensions shown are number of apertures x dimensions of apertures.

BA110-10 21 x (40 x 50mm), for WR290-02/-07

BA110-20 18 x (50 x 50mm), for WR290-02/-07

BA110-30 20 x (64 x 64mm), for WR290-11/-12



WR290-02, -11 is similar



WR290-07, -12 is similar



BA110-10 in use



BA110-30 in use

Water Testing

Multiparameter Meters, SevenGo Duo Pro™

METTLER TOLEDO

Portable, robust, dual-channel meters with high functionality and accuracy.

- ◆ Choice of models:
 - SG68: pH, mV, relative mV, ion concentration, dissolved oxygen
 - SG78: pH, mV, relative mV, conductivity
- ◆ Twin-line, alphanumeric display of separate channel parameters and temperature
- ◆ Intelligent sensor management (ISM) stores information in a data chip on-board the probe, including calibrations (factory, current and up to last five historical), probe I.D. and measurement temperature for recall by the meter
- ◆ IP67 protected housing, with or without probes attached
- ◆ Data storage for 500 GLP date records with infra-red communication port
- ◆ 5-point pH calibration with a choice of 7 pre-defined and one user-defined buffer sets, manual or automatic temperature control
- ◆ High or low limit value display alarms with with audible signal selectable
- ◆ Separate PIN protection functions for key settings and data deletion
- ◆ Large, backlit LCD readout with user prompts and choice of 10 languages, probe condition indicator and user I.D.

Model		SG68	SG78
Ranges x resolution, accuracy	pH	-2.00 to 19.999 x 0.001, ±0.002 — both models	
	mV (rel. mV)	-1999.9 to +1999.9 x 0.1, ±0.1 — both models	
	ions (units)	0 to 999.9%, ±0.5%	—
	mg/l, mmd/l	9 to +9999ppm	—
	mol/l	1.00E ⁻⁹ to 9.9E ⁺⁹	—
	Oxygen (mg/l, ppm), %	0.00 to 99.00 x 0.01, ±0.5 (max.)	—
	Oxygen saturation, %	0.0 to 600.0 x 0.1 to 1, ±0.5	—
	Barometric pressure, mbar	500 to 11000 x 1, ±1	—
	Conductivity	—	0.01µS to 1000mS x 0.1, ±0.5%
	TDS	—	0.1mg/l to 600g/l x 0.01 to 1, ±0.5%
	Salinity, ppt	—	0.00 to 80.00
	Specific resistance MΩcm ⁻¹	—	0.00 to 100.00
	Temperature (ATC) °C	-5 to +105.00 x 0.1, ±0.2 — both models	
	(MTC) °C	-30 to +130.00 x 0.1, ±0.2 — both models	
Power supply		4 x 1.5V AA batteries — both models	
Overall, H x W x D	mm	220 x 90 x 45 — both models	
Weight	g	368 — both models	



WR655

As described. Supplied as a kit with IP67 probes, wrist strap, instructions, test certificate, declaration of conformity and batteries. Alternatively available as a field kit additionally offering a choice of cable length and containing a field case, rubber meter protection holster, probe clips, 2 x pH4.00 and pH7.00 buffer sachets, calibration bottles (and 2 x 1413µS/cm and 12.88mS/cm sachets - SG78 only).

- WR655-10** SG68-ELK, standard kit, 1.8m cables
- WR655-20** SG68-FK2, field kit, 1.8m cables
- WR655-30** SG68-FK5, field kit, 5m cables
- WR655-40** SG78-ELK, standard kit, 1.8m cables
- WR655-50** SG78-FK2, field kit, 1.8m cables
- WR655-60** SG78-FK5, field kit, 5m cables

Accessories and spares

- WR658-05** Inlab ExpertPro-ISM pH electrode with 1.8m cable
 - WR658-09** Inlab ExpertPro-ISM pH electrode with 5m* cable
 - WR658-11** Inlab 738-ISM conductivity probe with 1.8m cable
 - WR658-14** Inlab 738-ISM conductivity probe with 5m* cable
 - WR658-17** Inlab 605-ISM DO₂ sensor probe with 1.8m cable
 - WR658-21** Inlab 605-ISM DO₂ sensor probe with 5m* cable
 - WR658-23** Membrane kit for DO₂ probes, with 25ml electrolyte and 3 membranes
 - WR658-26** DO₂ electrolyte, 25ml
 - WR658-35** Infra-red download cable with USB adapter (requires WR658-39)
 - WR658-39** LabX® -data transfer software for use with the users' Windows™ OS computer
 - BL610-15** Spare battery, 1.5V (4 required)
- *10m length cable versions are available - details on request.

Water testing

Multiparameter Meter, HI98194

HANNA

A portable, ruggedly constructed, multichannel meter and probe system.

- ◆ Provides measurement of conductivity, TDS, resistivity, salinity and seawater units, dissolved oxygen, pH/ORP, atmospheric pressure and temperature
- ◆ IP67-rated meter and IP68-rated probe suitable for depths up to 20 metres and temperatures between -5 and +55°C
- ◆ Auto-sensing of sensors within the probe
- ◆ Automatic logging with storage of up to 45000 samples
- ◆ GLP features include calibration time-out notification, calibration memory of five previous calibrations and reading validation
- ◆ High resolution, backlit dot matrix display
- ◆ Intuitive keypad with hard and virtual soft keys and multilingual menu prompts
- ◆ Easy sensor replacement
- ◆ Approximately 200 hours battery life

<i>Model</i>	HI98194	
<i>Ranges x resolution, accuracy</i>	<i>pH</i>	0.00 to 14.00 x 0.01, ±0.02
	<i>mV (rel. mV)</i>	-600.0 to +600.0 x 0.1, ±0.5
	<i>ORP (mV)</i>	-2000.0 to +2000.0 x 0.1, ±1.0
	<i>Oxygen %</i>	0.0 to 500.0 x 0.1, (up to 300.0%: ±1.5% of reading or ±1%, whichever is greater, ±3% of reading; rest of range)
	<i>ppm (mg/l)</i>	0.00 to 50.00 x 0.01, (up to 30.0ppm: ±1.5% of reading or ±0.1ppm, whichever is greater, ±3% of reading; rest of range)
	<i>Barometric pressure mm Hg</i>	450 to 850 x 0.1, ±3mm Hg within ±15°C from the temperature during calibration
	<i>mbar</i>	600.0 to 1133.2 x 0.1, ±3mbar within ±15°C from the temperature during calibration
	<i>Conductivity EC</i>	0.1µS to 400mS x 0.1 (manual or autoranging), ±1% of reading or ±1µS, whichever is greater
	<i>TDS</i>	1mg/l to 400g/l x 0.1 (manual or autoranging), ±1% of reading or ±1mg/l, whichever is greater
	<i>Salinity PSU</i>	0.00 to 70.00 x 0.01, ±2% of reading or ±0.01PSU, whichever is greater
	<i>Seawater σ</i>	0.0 to 50.0 σ _t , σ _θ , σ ₁₅
	<i>Specific resistance MΩcm⁻¹</i>	0 to 1.0000 x 0.0001 (autoranging: Ωcm ⁻¹ , kΩcm ⁻¹ , MΩcm ⁻¹)
	<i>Temperature (and ATC) °C (K)</i>	-5.00 to +55.00 x 0.01, ±0.15
	<i>°F</i>	23.00 to +131.00 x 0.01, ±0.27
<i>Logging</i>	45,000 records with one second to three hour intervals selectable	
<i>Output</i>	Opto-isolated micro USB port	
<i>Power supply</i>	4 x 1.5V AA batteries	
<i>Overall, H x W x D</i>	<i>mm</i>	185 x 93 x 36
<i>Weight</i>	<i>g</i>	400

Multiparameter meter, HI98194, Hanna

As described. Supplied with ABS and stainless steel probe housing containing replaceable pH, conductivity and dissolved oxygen sensors with reinforced, 4 metre cable*, micro USB cable and downloading/data handling software for use on the user's computer, carrying case, instructions and 4 x 1.5V AA batteries.

WR686-10 HI98194 Multiparameter meter

Accessories and spares

WR687-04 Spare pH sensor

WR687-08 Spare conductivity (EC) sensor

WR687-12 Spare dissolved oxygen (DO) sensor

WR687-16 Accessory pH/ORP sensor

WR687-20 Spare sensor housing only, with 4m cable*

BL610-15 Spare battery, 1.5V (4 required)

* Other cable lengths up to 20m are available - details on request.



WR686

Water Testing

Multiparameter Meters, LAQUA F-series

Horiba

- ◆ Model F-74BW: Benchtop, 2-channel, multiparameter meter for routine laboratory analysis of pH, ORP, ions, conductivity, resistivity, salinity and TDS
 - Large, twin line, custom backlit LCD and membrane keypad operation
 - 999 reading memory
- ◆ Model F-74: High specification, 2-channel meter for pH, ORP, ions, conductivity, resistivity, salinity and TDS with touchscreen operation, colour LCD readout, numeric, graphical or analogue display selectable, USP/EP/JP/CP conductivity standards support, analogue, USB printer/PC and flash memory extension outputs
 - 2000 reading memory
 - GLP function and validation facility with on-board operator navigation and guidance
 - Multiple operating languages: Japanese, English, Chinese, Korean
- ◆ Simultaneous reading and temperature display
- ◆ Supplied with probe stand and 360° rotating, swing-arm clamp

Catalogue No.		WR720-15	WR720-35
Model		F-74BW	F-74
Parameters	Channel 1 Channel 2	pH, ORP, Ion Conductivity, resistivity salinity, TDS	pH, ORP, Ion Conductivity, resistivity salinity, TDS
Ranges x resolution (accuracy)	pH mV (ORP) Ion conc. Conductivity, K = 0.1 K = 1 K = 10 Resistivity, K = 0.1 K = 1 K = 10 Salinity TDS Temperature, ATC Display	-2 to +19.999 x 0.001 (±0.05 ±1 digit) -1999.9 to +1999.9 x 0.1 (±0.1 ±1 digit) — both models 0.00mg/l to 999g/l x 3 digits (±0.5% ±1 digit) — both models 0.0 S to 1.999S x 0.0001 (±0.5% ±1 digit) — both models 0.000 S to 19.99S x 0.001 (±0.5% ±1 digit) — both models 0.00 S to 199.9S x 0.01 (±0.5% ±1 digit) — both models 0 to 1.999MΩhm x 0.0001 (±0.5% ±1 digit) — both models 0 to 19.99kΩhm x 0.001 (±0.5% ±1 digit) — both models 0 to 199.9kΩhm x 0.1 (±0.5% ±1 digit) — both models 0 to 80.00ppt x 0.01 (±0.5% ±1 digit) — both models 0.01mg/l to 100g/l x 0.01mg/l (±0.5% ±1 digit) — both models 0 to 100.0°C x 0.1 (±0.1% ±1 digit) — both models -30 to 130.0°C x 0.1 (±0.1% ±1 digit) — both models	-2 to 20.000 x 0.01/0.001 (±0.001 ±1 digit)
Autocalibration	pH/Ion	Up to 5 point — both models	
Memory		999 readings	2000 readings
Display		Monochrome, backlit LCD	Colour graphics LCD
Outputs		USB/RS232 printer ports	Analogue output, USB/RS232 printer PC ports, USB flash drive memory expansion port
Dimensions W x D x H	mm	170 x 174 x 73 — both models	
Weight	kg	0.5	

Multiparameter Meters, LAQUA F-series

As described. Supplied with swing-arm probe holder, stand and a.c. adapter for 100-240V single phase supplies.

WR720-15 F-74BW

WR720-35 F-74



WR720-35 in use, WR720-15 is similar

Accessories

PJ294-08 3-in-1 pH electrode, plastic bodied, waterproof

Tough electrodes

Robustly constructed, toughened glass, 3-in-1 electrodes with rapid response membrane and increased stability reference system. Waterproof.

	Sample type	Operating range, °C	L x dia. mm
PJ294-12	General purpose	0 to 100	115 x 23
PJ294-16	High viscosity	0 to 60	120 x 8
PJ294-22	Micro, >50 l	0 to 60	102 x 3
PJ294-24	Deep	0 to 100	200 x 7

Conductivity probes

CU662-72 Accessory K = 0.1 conductivity probe

CU662-75 Spare K = 1 conductivity probe

CU662-79 Accessory K = 10 conductivity probe

CU662-81 USB cable to connect meter to the user's PC

CU662-83 Impact printer, 230V 50/60Hz. Requires CU662-89 for connection to meter

CU662-86 Printer paper rolls, pack of 20

CU662-88 Ink ribbons, pack of 5

CU662-89 Printer cable to connect CU662-83 to meters. 1.5m long

Water Testing

Hach Portable Turbidimeters

Direct reading, portable turbidimeters providing ease of use and accuracy in the turbidity measurement.

- ◆ Choice of models:
 - 2100QIS, ISO 7027 design criteria compliant
 - 2100Q, USEPA Method 180.1 design criteria compliant
- ◆ Two-detector optical system with sample colour compensation, light fluctuation and straylight compensation
- ◆ Innovative Rapidly Setting Turbidity™ mode to provide accurate, repeatable measurements
- ◆ On-screen, assisted calibration and verification with intuitive screen interface
- ◆ Up to 500 measurements automatically stored for easy access and backup including date and time, operator ID reading mode, sample ID, sample number, units, calibration item, status, error messages and result
- ◆ Accessory USB and power module allows data transfer to the users' PC without additional software

Turbidimeters, Hach 2100QIS and 2100Q

As described. Supplied with primary calibration standards (20, 100, 800NTU), 10NTU primary verification standard, 6 sample cells, instrument manual, silicone oil and cloth, 4 x 1.5V alkaline batteries and carrying case.

- WR795-15** 2100QIS
- WR795-20** 2100Q
- WR796-08** Battery eliminator, 110-230V 50/60Hz a.c.
- WR796-10** Power/download module. With USB connection and cable. For 110-230V 50/60Hz supplies. Requires WR796-11 for operation
- WR796-11** NiMH rechargeable AA batteries for download module WR796-10, pack of 6
- BL610-15** Spare 1.5V battery (4 required)

<i>Model</i>		2100QIS	2100Q
<i>Regulatory compliance</i>		ISO7027	EPS Method 180.1
<i>Range x resolution</i>	<i>NTU</i>	0 to 1000 x 0.01 (0 to 9.99), 0.1 (10 to 99.9) and 1 (100 to 1000) — both models	
<i>Accuracy</i>		±2% of reading plus straylight — both models	
<i>Repeatability</i>		±2% of reading or ±0.01NTU (whichever is greater) — both models	
<i>Straylight</i>	<i>NTU</i>	<0.02 — both models	
<i>Light source</i>		LED @ 860nm	Tungsten filament lamp
<i>Power supply</i>		4 x 1.5V AA batteries — both models	
<i>Overall H x W x D</i>	<i>mm</i>	77 x 107 x 229 — both models	
<i>Weight</i>	<i>g</i>	618 — both models	



WR795

Water Testing

Hach Laboratory Turbidimeters, TL2300-series

Highly sophisticated, nephelometric turbidimeters for laboratory analysis of suspended particles in liquids.

- ◆ Regulatory Method specific models:
 - TL2300/TL2350: EPA Method 180.1
 - TL2310/TL2360: ISO7027, DIN EN27027, DIN 38404, NFT9033
- ◆ Intuitive user interface with large, full colour touchscreen display
- ◆ Optical cell air purge system, requiring a source of dry nitrogen or instrument-quality air
- ◆ Instruments display result only after sample stability is detected

Model	TL2300	TL2310	TL2350	TL2360
Method	EPA	ISO/DIN	EPA	ISO/DIN
Units	NTU, EBC	FNU, NTU	NTU, EBC, Abs., %T, mg/l	FNU, FAU, NTU, Abs., %T, mg/l
Ranges	NTU 0 to 4000 (ratio on) 0 to 40 (ratio off) FNU – EBC 0 to 980 (ratio on) 0 to 9.8 (ratio off) FAU – Abs. – %T – mg/l –	0 to 1000 – 0 to 1000 – – – – –	0 to 10000 (ratio on) 0 to 40 (ratio off) – 0 to 2450 (ratio on) 0 to 9.8 - (ratio off) – 0 to 1.0 1.0 to 100.0 1 to 100	0 to 10000 (ratio on) 0 to 40 (ratio off) 0 to 1000 (ratio on) 0 to 40 (ratio off) 0 to 2450 (ratio on) 0 to 9.8 - (ratio off) 20 to 1000 0 to 2.00 1.0 to 100.0 0 to 100
Light source	Tungsten filament	LED at 860nm	Tungsten filament	LED at 860nm
Sample size	95 x 25mm round sample cell, minimum 20ml volume - all models			
Output	2 x USB ports for flash drive or external printer - all models			
Datalogging	2000 records, including results, verification and calibration logs - all models			
Overall H x W x D	mm	153 x 395 x 305 - all models		
Weight	kg	3 - all models		

Turbidimeters, Hach TL2300-series

As specified. Supplied with silicone oil, oiling cloth, filter assembly, 6 x 95 x 25mm (1") cells with caps, Gelex secondary turbidity standards kit, Stabcal calibration kit, dust cover and power supply for 100-240V supplies.

- WR800-14** TL2300
- WR800-16** TL2310
- WR810-20** TL2350
- WR810-25** TL2360

WR812-08 Spare sample cells for WR800- and WR810-series, pack of 6



WR800/WR810

Water Testing

COD Tube Test Kits, Hach

A scaled down version of the traditional digestion test, greatly reducing the hazards associated with contact between the technician and the reagents. Ready-to-use cuvette tests containing predispensed volumes of COD testing reagents are cost-efficient and environmentally benign. Developed to conform to the requirements of ISO15705. The cuvettes are borosilicate glass with plastic screw caps, resisting up to 6kPa (bar) pressure. Supplied in packs of 24. Require a block heater and photometer to complete the test.

- WR818-10** 0 to 150mg/l
- WR818-20** 0 to 1000mg/l

Block heater for COD testing - see *BK280-55* with *BK282-04* blocks.

Spectrophotometer - see *WR830-45*.

Hach-Lange Spectrophotometer, DR3900

Highly accurate, water analysis instrument designed to help meet regulatory requirements for drinking, waste, boiler or cooler water.

- ◆ Menu-driven, backlit, touchscreen interface for rapid operation
- ◆ RFID tagging technology provides sample/user/location ID and rapid data transfer
- ◆ Over 220 pre-programmed Hach-Lange methods stored internally, plus 100 user programmes can be entered
- ◆ Automatic test identification using accessory, bar-coded reagent cuvettes
- ◆ Automatic rotation of cuvette tests with averaging of 10 readings and outlier rejection
- ◆ Reference detector monitors and compensates for optical fluctuations and lamp ageing
- ◆ 3 x USB and 1 x ethernet output ports

Wavelength range	nm	320 to 1100 x 1
Wavelength accuracy	nm	±1.5 (within 340 to 900nm)
Spectral Bandwidth	nm	5
Readout modes		Transmittance (%), Absorbance, Concentration, Scanning (wavelength, time)
Wavelength selection		Automatic, based on method selected
Photometric accuracy		5mAbs from 0.0 to 0.5Abs 1% from 0.50 to 2.0Abs
Data storage		2000 measured values (result, date, time, sample ID, user ID)
Cell accommodated		10mm dia. Lange AccuVac® vials, 10mm, 50mm, 1 inch rectangular cells, 13mm and 1 inch dia. cells
Overall H x W x D	mm	151 x 350 x 255
Weight	kg	4.2

Spectrophotometer, Hach-Lange DR3900

As described. Supplied with cell holder for 10mm diameter Lange AccuVac® 10mm or 1 inch square cuvettes or 1 inch diameter tubes, operating manual and a.c. adapter requiring a 100-240V 50/60Hz single phase supply.

- WR830-45** DR3900
- WR832-08** Sample cells, 10mm square, matched pair
- WR832-15** Sample cells, 1 inch square, matched pair
- WR832-19** RFID set for sample identification, including RFID locator, user, location and sample tags
- WR832-49** Spare tungsten-halogen bulb, 6V, 10W, for WR830-45

Both Hach and Lange cuvette tests and other cell sizes are available - *details on request*.



WR818



WR830-45 in use

Water Testing

Portable Laboratories, Hach DREL/1900

Complete systems with reagents and apparatus for 24 common water quality tests, incorporating the DR1900 spectrophotometer.

- ◆ Choice of 2 systems:
 - Complete
 - Industrial

The systems comprise:

- ◆ DR1900 Spectrophotometer operating from 100-240V 50/60Hz mains supplies or from Lithium iron rechargeable batteries (included)
- ◆ Procedures and Instrument Manual
- ◆ Digital Titrator
- ◆ Reagents and apparatus for tests as indicated

Spectrophotometer DR1900 specifications

Wavelength range	nm	340 to 800 x 1
Wavelength accuracy	nm	±2
Bandwidth	nm	5
Photometric measuring range	Abs.	0 to 3
Photometric accuracy	Abs.	±0.003
Readout modes		Absorbance, Transmittance, Concentration
Wavelength selection		Automatic, based on method selected
Photometric calibration		Automatic at start up
Data storage		Up to 500 measurements, more than 220 pre-programmed Hach or user method protocols
Interface		Micro USB
Cell holder		10mm, 13mm, 1 inch diameter, 10mm or 1 inch rectangular cells
Light source		Long-life Xenon flash
Overall H x W x D	mm	98 x 178 x 267
Weight	kg	1.5

Portable Laboratories, DREL/1900

Comprising instruments, apparatus, reagents and instructions for the common water quality tests as specified. Supplied in two robust carrying cases, each 530 x 290 x 280mm with manuals, vial adapters and 4 x 1.5V rechargeable batteries giving up to 15 days field operation (less if the display backlight function is switched on) with charger for 100-240V 50/60Hz a.c. supplies. Combined weight 30kg.

- WR840-37** DREL/1900 Complete
- WR840-47** DREL/1900 Industrial

Accessory

- WR796-10** Power/download module. With USB connection and cable. For 110-230V 50/60Hz supplies.

Turbidimeters, Hach 2100QIS and 2100Q

Choice of models for either ISO7027 (2100QIS) or USEPA Method 180.1 (2100Q) design compliance. Provide turbidity measurement in the range 0 to 1000NTU. Supplied with primary calibration standards (20, 100, 800NTU), 10NTU primary verification standard, 6 sample cells, instrument manual, silicone oil and cloth, 4 x 1.5V alkaline batteries and carrying case.

- for full details, see WR795-series.

Tests included:	Portable Laboratory	
	Complete	Industrial
Acidity	x	—
Alkalinity, (CaCO ₃)	x	x
Ammonia (Nitrogen)	x	x
Bromine	x	x
Calcium	x	x
Chloride	x	x
Chlorine, free	x	x
Chlorine, total	x	x
Chromium	x	x
Colour	x	x
Copper	x	x
Hardness, (CaCO ₃)	x	x
Iodide	x	x
Iron, Total	x	x
Manganese	x	x
Molybdate	—	x
Nitrate, (N)	x	x
Nitrite, (N)	x	x
Oxygen, binders	—	x
pH	x	x
Phosphate	x	x
Silica	x	x
Sulphate	x	x
Sulphide	x	—
Sulphite	x	x
Suspended solids	x	x

Portable conductivity and pH meters – see *Conductivity and pH sections*.



Inset: DR1900 in use



WR840-37/WR840-47 with accessory turbidimeter and pH meter



WR795

Water Testing

Hach Water test Kits

A range of simple water test kits for the most commonly required parameters.

Alkalinity Test Kit AL-AP

Determines both phenolphthalein (P) and total (M) alkalinity using Drop Count titrations.

Range: 0.4 to 8 or 1 to 20ppg

Smallest increment: 0.4 or 1ppg as calcium carbonate

With reagents for approximately 100 tests each P and M alkalinity.

WS400-10 Alkalinity Kit

Note: gpg = grains/U.S.gallon. 1gpg = 17ppm.

Chlorine Test Kit CN-70

Determines free or total chlorine using the DPD/Colour disc method.

Ranges: 0 to 0.7 or 0 to 3.5mg/l

Smallest increment: 0.02 or 0.1mg/l

With reagents for approximately 100 tests.

WS410-15 Chlorine Kit

Hardness Test Kit 5-B

A simple Drop Count/EDTA test using a measuring spoon to dispense reagent.

Range: 1 to 30gpg

Smallest increment: 1gpg

With reagents for approximately 100 tests.

WS420-12 Hardness Kit

Note: gpg = grains/U.S.gallon. 1gpg = 17ppm.

Iron Test Kit IR-18A (low)

Uses Colour Disc method on a 25ml sample.

Range: 0 to 1mg/l

Smallest increment: 0.02mg/l as Iron

With reagents for approximately 100 tests.

WS430-10 Iron Kit Low

Iron Test Kit IR-18B (high)

Uses Colour Disc method on a 5ml sample.

Range: 0 to 10mg/l

Smallest increment: 0.2mg/l as Iron

With reagents for approximately 100 tests.

WS430-13 Iron Kit High

Ammonia Test Kit

A simple test utilising the Colour Disc method on a 5ml sample. Ideal for field use by students.

Range: 0 to 2.4mg/l

Smallest increment: 0.2mg/l as ammonia nitrogen

With reagents for approximately 100 tests.

WS440-11 Ammonia Disc Kit

Nitrite Test Kit

A simple test utilising the Colour Disc method on a 5ml sample.

Range: 0 to 0.4mg/l

Smallest increment: 0.02mg/l as nitrite nitrogen

With reagents for approximately 100 tests.

WS440-30 Nitrite Disc Kit

Dissolved Oxygen Test Kit OX-2P

A simple Drop Count method to produce a colour change. Each drop of titrant used equals 1mg/l of dissolved oxygen.

Range: 0.2 to 4 or 1 to 20mg/l

Smallest increment: 0.2 or 1mg/l as dissolved oxygen

With reagents for approximately 100 tests.

WS455-10 Dissolved Oxygen Kit

pH Test Kit 17-N

Uses a Colour Disc method with a wide range of pH reagents on a 5ml sample.

Range: 4 to 10pH units

Smallest increment: 0.5pH unit

With reagents for approximately 300 tests.

WS460-12 pH Kit

Phosphate Test Kit PO-19A

Includes filtration equipment to allow testing of turbid samples or samples that have suspended particulate matter. Uses a Colour Disc method on 0.5ml or 5ml samples.

Range: 0 to 5 or 0 to 50mg/l

Smallest increment: 0.1 or 1.0mg/l as phosphate

With reagents for approximately 100 tests.

WS470-25 Phosphate Kit



WS400-10



WS430-13



WS440-30



WS410-15



WS430-13



WS455-10



WS420-12



WS440-11



WS460-12



WS470-25

Water Testing

Portable Water Laboratory, Paqualab® 50

A portable testing system for monitoring key drinking water parameters on-site, even in remote areas.

- ◆ Meets WHO and EC guideline requirements
- ◆ Provides microbiological, chemical and physical testing facilities

Microbiological testing

Paqualab® 50 provides the facility to indicate harmful bacteria and virus presence using membrane filtration and incubation of faecal and total coliforms. A manual vacuum filtration unit allow a measured sample to be drawn through a sterile gridded membrane filter and then applied to an absorbent pad which has been pre-soaked in membrane lauryl sulphate medium and held within a reusable aluminium petri dish. The sample pad is then incubated in a portable incubator compartment. Up to 50 dishes can be simultaneously incubated in two separate compartments at +37°C or +44°C depending on method (chambers are individually switchable). Components and consumables for up to 200 tests in total are included.

Chemical and Physical testing

Instruments and apparatus are provided enabling measurement of pH, temperature, conductivity, TDS, turbidity and photometric testing of chlorine, ammonia, nitrates and nitrites.

Portable Water Laboratory Paqualab® 50

As described. With manual filtration unit, separate incubators with +37°C or +44°C setting and "heat" indicator LED. Also included are pH/C, conductivity/TDS and turbidity meters, a photometer with reagents for testing chlorine, ammonia, nitrates and nitrites, and necessary equipment and consumables/reagents to conduct up to 50 microbiological tests simultaneously (200 total), all contained in a rugged aluminium case. Overall 810 x 620 x 800mm W x D x H. Weight 30kg. the incubators require a 110-240V 50/60Hz single phase supply or can be run from a 12V vehicle battery using the cigar lighter plug or crocodile clip attachments provided. A rechargeable battery is also included for temporary field operation of the incubators.

WS510-25 Paqualab® 50

Spares and accessories

- WS513-04** Lauryl sulphate medium, pack 38.1g for 200 coliform tests
- WS513-06** Slanetz and Bartley medium, pack 100g for 200 faecal streptococci tests
- WS513-08** Absorbent pads and membranes only, pack of 200
- WS513-15** Coliform starter pack, membranes, pads and medium for 200 tests
- WS513-20** Faecal streptococci starter pack, membranes, pads and medium for 200 tests
- WS513-30** Aluminium petri dishes, pack of 25



WS510-25

Test Strips

Single or multiple parameter test strips especially formulated for water quality measurement. The unique design incorporates an aperture within the test strip that holds an indicator-treated membrane ensuring complete immersion in the test sample. Colour intensity is directly proportional to concentration of the test parameter in the sample.

- ◆ Rapid response
- ◆ Safe to use and transport
- ◆ Low cost per test
- ◆ Excellent reproducibility

As described. Supplied in bottle packs of strips with ranges as indicated and colour comparison key label.

	Parameter(s)	Method: Range/increments, mg/l (except pH)	Pack qty.
Single parameter			
WS550-10	Free chlorine	A: 0, 1, 2, 3, 4, 5, 6, 7 B: 0, 0.05, 0.1, 0.2, 0.4, 0.6, 0.8, 1.2	50
WS550-15	High free chlorine	0, 1, 2, 5, 10, 20, 40, 80, 120	50
WS550-20	Total chlorine	A: 0, 0.1, 0.2, 0.5, 0.8, 4, 10 B: 0, 0.05, 0.1, 0.15, 0.2, 0.5, 1	50
WS550-25	Iodine	A: 0, 0.5, 1, 2, 3, 4, 5 B: 0, 0.02, 0.05, 0.1, 0.2, 0.3, 0.4	50
WS550-34	Iron (Fe ₂ /Fe ₃)	0, 0.02, 0.05, 0.1, 0.2, 0.3, 0.5, 0.75, 1, 2, 5	25
WS550-35	Copper (Cu/Cu ₂)	0, 0.5, 1, 2.5, 5	25
WS550-40	Peroxide (H ₂ O ₂)	0, 0.5, 2, 5, 10, 25, 50, 100	50
WS550-60	Total Hardness (Ca)	0, 40, 80, 120, 180, 250, 425, 1000	50
Multiple parameter			
WS560-15	Free chlorine Total chlorine	0, 0.1, 0.2, 0.5, 1, 2.5, 5 0, 0.1, 0.2, 0.5, 1, 2.5, 5	30
WS560-25	Nitrate Nitrite	0, 0.5, 2, 5, 10, 20, 50 0, 0.15, 0.3, 1, 1.5, 3, 10	50
WS560-30	pH Total alkalinity	6, 6.5, 7, 7.5, 8.0, 8.5, 11 0, 40, 80, 120, 180, 240, 720	50
WS560-44	pH Total Alkalinity Total Hardness (Ca) Free & Total chlorine	6, 6.5, 7, 7.5, 8, 8.5, 9 0, 40, 80, 120, 240, 360 0, 50, 120, 180, 250, 425 0, 0.1, 0.2, 0.5, 1, 2.5, 5	50



WS550, WS560

Water Testing

Test Strips continued

Arsenic Test Kits

Comprising reaction vessels, reagents and test strips to conduct colorimetric tests under modified Gutzeit methodology. Reaction of the reagents and sample generates arsine gas (if arsenic is present) which is brought into contact with a test pad impregnated with mercuric bromide indicator. After a specified exposure period (generally 14 minutes) the pad is removed and the colour compared with a colour chart supplied. In packs of tests and with detection limit ranges as indicated.

	Range/increments, g/l (ppb)	Pack quantity
WS565-44	<1, 2, 3, 4, 5, 6, 7, 8, 10, 13, 20, 25, 30, 40, >50, >80, >160	50
WS565-47	0, 5, 10, 20, 60, 100, 300, 500, >500	100

Other ranges are available - details on request.

Chlorine Test Strips, J-Quant®

For routine checks of chlorine levels in reservoirs, water mains and swimming pools and to monitor the concentration of chlorine-based sanitisers in these applications. Supplied in packs of 100 and with ranges as indicated.

WS574-10	0, 0.5, 1, 3, 5, 10, 20mg/l
WS574-20	0, 25, 50, 100, 200, 300mg/l
WS574-30	0, 50, 100, 250, 500, 1000mg/l
WS574-40	0, 1000, 2500, 5000, 7500, 10000mg/l

J-Quant® is a registered trademark of Johnsons Test Papers Ltd.

Bacteria Check

Tests for the presence of coliform bacteria. Follows the APHA Standard Method 9221D screen test for total coliforms in potable water. U.S. EPA compliant. Simple test involves filling a 100ml sterile bottle with a water sample, capping and standing for 24 hours at room temperature. Indicating media within the bottle will turn purple if coliforms are present or yellow if absent. Supplied in a pack of 12.

WS580-10 Bacteria check, 100ml bottles, pack of 12



WS565-44



WS574



WS565-47



WS580-10

Water Testing

Photometer, Exact® Micro 20

Dual wavelength (525nm and 638nm), portable photometer using patented technologies (solutions and/or reagent dosing strips) to analyse a wide range of parameters within water samples, on-site.

- ◆ 20mm pathlength cell with 4ml sample volume requires minimal reagents, reducing cost
- ◆ Built-in timer for accurate testing
- ◆ 20 reading memory for each test regime
- ◆ Waterproof housing to IP67 protection level

As described. Supplied as a meter only. Overall W x D x H 50 x 30 x 165mm. Weight 181g. Requires, but is not supplied with, 4 x 1.5V AAA batteries and parameter strips/reagents for operation.

WS585-55 Exact Micro 20

BL610-08 1.5V AAA batteries (4 required)

WS585-85 Carrying case for Exact Micro 20 meter



WS585-55

Test strips/reagents for WS585 Photometer

For use with photometers of wavelength and in parameter ranges, chemistries and packs as indicated.

	Parameter range x resolution, ppm	Chemistry	Pack qty. strips
Single Parameter			
WS587-04	Alkalinity, total, 1 to 320 x 0.1/1	Alizarin red S + citrate	100
WS587-14	Aluminium, 0.02 to 1.5 x 0.01	PV	50
WS587-19	Ammonia, 0 to 2.0 x 0.01	Salicylate method	25
WS587-24	Calcium (CaCO ₃), 18 to 420 x 1	Oxalic acid	50
WS587-29	Total Chlorine (DPD-3)**, 0 to 5 x 0.01	KI	100
WS587-34	HR Chlorine, 0.3 to 300 x 1	KI + buffer	50
WS587-39	Chloride (NaCl), 1 to 430 x 1	Silver (ppt)	25
WS587-44	Chromium (VI), 0 to 1.8 x 0.01	Diphenylcarbazine	50
WS587-49	Copper (Cu ²⁺), 0 to 11 x 0.01	Biquinoline	50
WS587-54	Cyanide, 0 to 3 x 0.01	Isonicotinic/Barbituric acid	50
WS587-59	Fluoride, 0.03 to 1.45 x 0.01	SPADNS	25
WS587-65	Total Hardness (CaCO ₃), 4 to 300 x 1	Phthalein purple	50
WS587-74	LR Hydrogen Peroxide, 0 to 2 x 0.01	DPD + PO ₄ + MoO ₄ + KI	50
WS589-03	Total Iron Fe ²⁺ / Fe ³⁺ , 0.04 to 8 x 0.01/0.1	TPTZ + PP	50
WS589-08	Manganese, 0.02 to 1.5 x 0.01	PAN + cyanide	24
WS589-13	Nitrate (NO ₃), 0.12 to 30 x 0.01/0.1	Zinc reduction	50
WS589-18	Nitrite (NO ₂), 0 to 1.8 x 0.01	Chromotropic acid	50
WS589-23	pH, pH 5.5 to 8.8 x 0.01	Phenol red	100
WS589-28	pH (BT reagent), pH 4.5 to 9 x 0.01	Bromothymol blue + thymol blue	50
WS589-33	Phosphate, 0 to 4 x 0.01/0.1	Molybdate method	50
WS589-38	Sulphate, 1 to 250 x 1	Barium (ppt)	50
WS589-42	Sulphide, 0 to 1.7 x 0.01	DPD + FeCl ₃	50
Multiparameter			
WS589-85	Bromine (DPD-1), 0.1 to 12 x 0.01/0.1	DPD	100
	Free Chlorine (DPD-1), 0 to 5 x 0.01	DPD	
	Chlorine dioxide (DPD-1), 0 to 10 x 0.01	DPD	
	Permanganate (DPD-1), 0 to 5 x 0.01	DPD	
WS589-90	Total Chlorine (DPD-4), 0 to 5 x 0.01	DPD + KI	50
	Ozone (DPD-4), 0 to 5 x 0.01	DPD + KI	
	Peracetic acid (PAA), 0.02 to 6 x 0.01	DPD + KI	

**Requires Free Chlorine DPD-1 test WS587-34 to be run beforehand.

Water Testing

COD Tube Test Photometer

Lovibond®

COD Tube Test Photometer, Vario MD 100

A compact, precise, photometer dedicated to COD measurement in water samples, using accessory tube test reagents for accuracy, convenience and safety, and an accessory block heater for sample digestion.

- ◆ Choice of ranges:
 - low 0 to 150mg/l
 - medium 0 to 1500mg/l
 - high 0 to 15000mg/l
- ◆ Portable, battery-powered photometer
- ◆ Long-life LED illumination with temperature compensation
- ◆ Waterproof sample chamber

<i>Model</i>		COD Vario MD 100	
<i>Ranges</i>	<i>low</i>	<i>mg/l O₂</i>	0 to 150
	<i>medium</i>	<i>mg/l O₂</i>	0 to 1500
	<i>high</i>	<i>mg/l O₂</i>	0 to 15000
<i>Accuracy</i>		%	±3
<i>Optics</i>		Temperature compensated LED's and interference filters providing 430, 530, 560, 580, 610 and 660nm wavelengths with photosensor amplifier	
<i>Measurement time</i>	<i>secs.</i>	15	
<i>Readout</i>		LCD	
<i>Overall W x D x H</i>		<i>mm</i>	75 x 155 x 35
<i>Weight</i>		<i>g</i>	260
<i>Power</i>		4 x AAA batteries	

As described. Supplied with battery and instructions. Without COD tubes.

WS810-20 COD tube test photometer MD 100

BL610-08 Spare 1.5V AAA battery (4 required)

Tube Tests

16mm diameter, screw cap tubes containing COD reagents to test within ranges as specified, once digested in an accessory block heater. Supplied in packs of 25.

	With mercury	Mercury free
0 to 150mg/l, LR	WS810-42	WS810-43
0 to 1500mg/l, MR	WS810-45	WS810-46
0 to 15000mg/l, HR	WS810-49	WS810-51



WS810-20 in use

Block Heater

stuart®

For uniform and stable heating of test tubes, Eppendorf tubes and cuvettes.

- ◆ Maximum temperature 200°C
- ◆ Digital control with bright LED display
- ◆ 'Hot warning' light illuminates whenever block temperature exceeds 70°C even when unit is switched off (but remains connected to the mains supply socket)
- ◆ Heat to 100°C in less than twelve minutes

<i>Model</i>		SBH200D	
<i>Range</i>	°C	ambient +8 to +200	
<i>Stability (at 37°C)</i>		±°C	0.1
<i>Uniformity</i>	at 37°C	±°C	0.1
	at 130°C	±°C	1.0
<i>Blocks accepted</i>		2	
<i>Heater power</i>		<i>W</i>	300
<i>Overall, W x D x H</i>		<i>mm</i>	235 x 310 x 115
<i>Weight</i>		<i>kg</i>	2.3

Block Heater, Stuart

As described. With 'power on' and 'hot warning' lamps and block extraction tool. For 230V 50Hz single phase supplies. Without blocks.

BK280-55 SBH200D

Accessory Aluminium block

Supplied singly.

BK282-12 for 12 x 16.5mm diameter tubes



BK280-55 in use

Water Testing

Dipslides, Standard **COPE**

An easy-to-use system for monitoring microbes in industrial fluids.

- ◆ For use in applications including:
 - compliance with L8 (Legionella bacteria control in water systems) directives set out by the UK Health and Safety Executive
 - microbial control to extend working life of fluids, filters and pumps
 - corrosion prevention in machines, tanks and pipes by minimising the amount of microbial metabolites
 - enhancing the microbial quality of final products
- ◆ Available in three versions:
 - Standard TTC: for determination of total bacterial counts in industrial fluids. With TTC medium
 - Standard Combi: a two-medium dipslide for checking total bacterial counts as well as yeast and fungi. With TTC medium and Rose-Bengal medium
 - Standard S: For monitoring anaerobic sulphate reducing bacteria. Diagnostic gel test

Principles

Comprise plastic outer sample tube and screw cap which is attached to an inner plastic sampling paddle. Agar medium slides are cast into the paddle (Standard Combi has TTC and Rose-Bengal agar cast respectively on alternate sides). In use, the paddle is removed from the outer tube and immersed in the liquid under test or exposed to liquid spray or mist then returned to the outer tube and incubated. Type S has a capillary tube instead of a paddle into which the fluid is drawn and the capillary tube then immersed in sulphate-rich gel contained in the outer tube, before incubation. Any microbial growth appearing after incubation can be interpreted with the aid of a card giving approximate contamination levels in terms of colony numbers.

Dipslides, Standard

As described. Supplied in packs of tests as indicated, with results interpretation card and instructions.

- HT802-20** Standard TTC, pack 10
- HT802-40** Standard Combi, pack 10
- HT802-60** Standard S, pack 10

Disinfectants – see CL900.

Portable Incubator

Portable Incubator, Challenger MX25

Versatile, robust, rectangular portable incubator for small scale incubation of samples in the field or where use of a standard incubator is impractical. Temperature range ambient +5°C to +45°C, variation $\pm 5^\circ\text{C}$ (at 20°C ambient). Capacity 5.2 litres. An overtemperature cut-out engages at +70°C. Solid-state heating and control electronics are sealed in the case and a heat reservoir chassis ensures even heat distribution and rapid heat recovery to set temperature. With moulded co-polymer case, transparent polycarbonate lid and spirit thermometer. With a separate, external, universal power supply for increased safety and operation on 100-240V a.c. supplies. An accessory cigar lighter plug and cable allows alternative 12V d.c. operation in the field. Usable internal dimensions 180 x 150 x 180mm W x D x H, overall 320 x 260 x 270mm W x D x H. Weight 1.9kg.

- IN085-75** Challenger MX25
- IN085-77** Cigar lighter plug cable for IN085-75



HT802



IN085-75 in use

Water Testing

Spectrophotometer Model 6320D

JENWAY

Single-beam, visible spectrophotometer system suited to environmental and water analysis.

- ◆ Microprocessor controlled, menu driven operation
- ◆ High resolution, graphics liquid crystal display
- ◆ Dual display mode gives continuous readout of selected wavelength and results
- ◆ Sealed optical system is protected from degradation by harsh environments
- ◆ Multi-purpose sample holder accepts 10 and 50mm path length square cuvettes, 13, 16 and 25mm diameter test tubes, and 16mm and 24mm screw cap vials (optional Aquanova reagent kit cell holder available)
- ◆ Dome shaped lid accommodates test tubes with a height of up to 105mm

Model		6320D
Ranges		Test methods, Photometrics (Abs./%T)
Wavelength	range nm	320 to 1000
	resolution nm	1
	accuracy nm	±2
Bandwidth	nm	8
Transmission	range % T	0 to 199.9
	resolution % T	0.1
	accuracy % T	±1
Straylight	% T	<0.5
Absorption	range A	-0.300 to 1.999
	resolution A	0.001
Concentration	range C	-300 to 1999
	resolution C	0.1 to 1
Factor		9999.999 to 0.001
Photometric noise level	%	<1
Photometric stability	%	<1 per hour after 15 minutes
Units		ppm, mg/l, g/l, M, %, blank
Display		Custom graphics LCD with 20-character test name readout
Outputs		Analogue (0 to 1999V d.c.), RS232 serial
Light source		Tungsten-Halogen
Overall H x W x D	mm	160 x 365 x 272
Weight	kg	6

Accessories and Spares

SJ364-05 Tungsten-halogen lamp for SJ360-10 and SJ360-20

SJ364-06 Xenon lamp module for SJ360-40 and SJ360-50

SJ364-09 Cell holder for 10mm cells

SJ364-18 Cell holder, adjustable, for 20 to 100mm cells

Cell holder for 10mm square cuvettes, and 10mm, 16mm and 24mm diameter vials. Also required for use with Aquanova reagent kits.

SJ364-36 Aquanova cell holder

CT102-05 Square cuvettes, disposable PS, 10mm path length, 4ml, pack of 100

CS780-14 Square cuvettes, optical glass, 10mm path length

CS780-32 Rectangular cuvettes, optical glass, 50mm path length

Impact printer, 40 column, with connecting cable, rechargeable batteries and charger. A 220-240V 50Hz supply is required for the charger.

CU656-20 Impact printer

CU656-22 Paper roll for CU656-20

As described. Supplied with single 10mm cell holder, 100 x 10mm disposable cuvettes and instructions. For 230V 50Hz single phase supplies.

SJ360-20 6320D visible



SJ360-20

Water Testing

Single Parameter Meters

HANNA

Dedicated, ion-specific colorimeters offering rapid and accurate determinations in a convenient portable instrument. Ideal for use in water treatment analysis, testing drinking water and quality control.

- ◆ Direct reading LCD
- ◆ Reader/timer function counts down to appropriate time interval between measurement
- ◆ Silicon photocell detector
- ◆ Battery-powered, with automatic shutdown after 10 minutes of non-use
- ◆ CAL CHECK™ validation procedure ensures correct calibration
- ◆ LED or tungsten light source with working life as long as the instrument

Single Parameter Meters

Supplied with two sample cuvettes, 9V PP3 battery giving up to 40 hours operation and instruction manual. Overall dimensions as indicated. Weight 290g (except WS890-27 which is 420g). Require, but are not supplied with, related accessory reagent kits.

	Ref.	Parameter	Range (resolution) mg/l	Filter nm	Overall H X W X D	Reagent kit
WS890-12	HI-96712	Aluminium	0.00 to 1.00 (0.01)	470	180 x 83 x 46	WS894-10
WS890-17	HI-96715	Ammonia	0.00 to 9.99 (0.01)	466	192 x 102 x 67	WS894-15
WS890-22	HI-96716	Bromine	0.00 to 8.00 (0.01)	525	192 x 102 x 67	WS894-20
WS890-27	HI-96711	Free chlorine	0.00 to 2.50 (0.01)	525	216 x 83 x 65	WS894-25
		Total chlorine	0.00 to 3.50 (0.01)			WS894-27
WS890-32	HI-96702	Copper	0.00 to 5.00 (0.01)	555	180 x 83 x 46	WS894-30
WS890-37	HI-97721	Iron	0.00 to 5.00 (0.01)	525	143 x 103 x 51	WS894-35
WS890-42	HI-96728	Nitrate	0.0 to 30.0 (0.1)	525	192 x 102 x 67	WS894-40
WS890-47	HI-96707	Nitrite, low	0.00 to 0.35 (0.01)	525	192 x 102 x 67	WS894-45
WS890-52	HI-96708	Nitrite, high	0.0 to 150.0 (0.1)	585	180 x 83 x 46	WS894-50
WS890-57	HI-96713	Phosphate, low	0.00 to 2.50 (0.01)	610	180 x 83 x 46	WS894-55
WS890-62	HI-96717	Phosphate, high	0.0 to 30.0 (0.1)	470	180 x 83 x 46	WS894-60
WS890-72	HI-96731	Zinc	0.00 to 3.00 (0.01)	585	180 x 83 x 46	WS894-70

Reagent Kits for 100 tests

For use only with meters as indicated in the main table.

	Parameter
WS894-10	Aluminium
WS894-15	Ammonia
WS894-20	Bromine
WS894-25	Free chlorine
WS894-27	Total chlorine
WS894-30	Copper
WS894-35	Iron
WS894-40	Nitrate
WS894-45	Nitrite, low
WS894-50	Nitrite, high
WS894-55	Phosphate, low
WS894-60	Phosphate, high
WS894-70	Zinc

- BL610-25** 9V PP3 battery
- DT369-12** Spare cuvettes, pack of 4



Inset: WS890-37



Water Testing

Turbidity Meter HI93703-C

HANNA

- ◆ Microprocessor controlled
- ◆ LED light source
- ◆ Automatic range selection
- ◆ Two line LCD with error codes, messages and self diagnosis
- ◆ Battery saving auto shut-off after 5 minutes of non-use
- ◆ Supplied with non-toxic calibration standards
- ◆ Non-volatile memory of last calibration data

Ranges (resolution)	FTU*	0.00 to 50.00 (0.01) 50 to 1000 (1)
Accuracy		±0.5 FTU or ±5% reading - whichever is greater
Calibration	FTU*	Automatic at 0, 10 and 500
Light source		LED
Display		Two line LCD
Power		4 x 1.5V AA batteries
Overall L x W x D mm		220 x 82 x 66
Weight	g	510

* FTU (Formazine Turbidity Unit). 1FTU = 1NTU.

Turbidity Meter, Hanna HI93703-C

As described. Supplied with non-toxic 0 FTU and 10 FTU calibration solutions in packs of 30ml, two cuvettes, batteries, instruction manual and carrying case.

WT095-10 HI93703-C

Accessories and Spares

- DT369-12** Spare measurement cuvettes, pack of 4
- WT097-12** Calibration solution, 0FTU, pack of 30ml
- WT097-16** Calibration solution, 10FTU, pack of 30ml
- BL610-15** Battery, 1.5V (4 required)



WT095 in use

Minikits

Lovibond®

Lovibond® Minikits

Titrimetric test kits supplied in compact box containing step-by-step instructions and all equipment and reagents for an average of 40 tests.

	Ref.	Test	Range mg/l
WT150-30	AF 413	Alkalinity, Total	0 to 500
WT154-10	AF 416	Calcium Hardness	0 to 500
WT160-10	AF 418	Chloride	0 to 5000
WT180-30	AF 424	Hardness, Total	0 to 500
WT180-40	AF 423	Hardness, Yes/No	4.8 or 20
WT204-20	AF 431	Sulphate, (Turbidity)	0 to 3000
WT208-20	AF 435	Sulphite, high range	0 to 500



Minikits

Water Testing

Turbidity Meter, TB211IR

Lovibond®

A compact, infra-red turbidity meter for rapid and precise on-site testing.

- ◆ The unit measures light scatter at 90°, as stated in EN ISO 7027
- ◆ Suitable for measuring in both coloured and colourless liquids
- ◆ Temperature compensated, LED light source operating at 860nm wavelength
- ◆ Real-time clock and date
- ◆ On-board memory of 16 data sets
- ◆ Micro USB data output for results
- ◆ Waterproof sample chamber

<i>Ranges (resolution)</i>	<i>NTU</i>	0.01 to 9.99 (0.01) 0.0 to 99.9 (0.1) 100 to 1100 (1)
<i>Accuracy</i>		±2.5% of reading or ±0.01 NTU (up to 500NTU) ±5% of reading (rest of range)
<i>Calibration points</i>	<i>NTU</i>	<0.1, 20, 200, 800
<i>Power</i>		1 x 9V PP3 battery
<i>Output interface</i>		micro USB
<i>Overall, L x W x D</i>	<i>mm</i>	190 x 110 x 55
<i>Weight</i>	<i>g</i>	400

Turbidity Meter, Lovibond TB211IR

As described. Supplied with turbidity standards (<0.1, 20, 200 and 800NTU), sample vials, Micro USB output and cable, 9V battery and instructions.

WT400-11 TB211IR

Accessories and Spares

WT403-05 Turbidity standards set, T-CAL

WT403-07 Sample vials, pack of 12

BL610-25 Battery, 9V (1 required)



WT400 in use

Water Testing

Drinking Water Kits

Lovibond®

Drinking Water Kit

For the analysis of: Free and Combined Chlorine, pH, Fluoride, Hardness and Colour.

Ranges:

Chlorine	0.05 to 4.0mg/l as Cl ₂
pH	6.0 to 8.4
Hardness	0 to 600mg/l as CaCO ₃
Fluoride	0 to 1.6mg/l as F
Hazen	10 to 90 units (A.P.H.A.)

WT500-10 Kit AF357

Free & Combined Chlorine Kits

For analysing the free residual and combined chlorine level in water using DPD reagent tablets.

Range: 0.1 to 1.0mg/l Chlorine (Cl₂)

WT510-10 Kit AF112A

pH and Chlorine Kits

For Free, Combined and Total Chlorine, as well as pH analysis.

Ranges:

Free, Combined and Total Chlorine: 0.1 to 1.0mg/l as Cl₂. pH: 6.8 to 8.4

WT516-12 Kit AF116A

Aluminium Kit

For control of aluminium levels following coagulation and filter backwash operations in treatment plants.

Range: 0 to 0.5mg/l Al

WT530-10 Kit AF157

Sodium Hypochlorite Kit

Provides a rapid and accurate means of analysing the strength of sodium hypochlorite solutions.

Range: 2% to 16% w/w.

WT560-10 Kit AF139

Replacement Reagents

	Title	Code	Quantity
WT960-15	Acidifying General Purpose	515481	250 tablets
WT960-25	Alkalinity M	51532	250 tablets
WT960-30	Alkalinity P	51510	250 tablets
CS180-11	Ammonia combi Nos. 1 & 2	517612	250 tablets
WT962-12	BDH Universal	45177	25ml
WT962-15	BDH 4080	45178	25ml
WT964-10	Chlorine (High Range)	51300	250 tablets
WT964-34	Copper combi Nos. 1 and 2	517692	250 tablets
WT964-35	Copper No. 1	51355	250 tablets
WT964-38	Copper No. 2	51356	250 tablets
WT964-41	Cyanuric acid	51132	100 tablets
CS181-10	DPD No. 1 (Comparator)	51106	100 tablets
CS181-11	DPD No. 1 (Comparator)	51161	250 tablets
CS181-14	DPD No. 3 (Comparator)	51108	100 tablets
CS181-15	DPD No. 3 (Comparator)	51181	250 tablets
CS181-16	DPD No. 4 (Comparator)	51122	100 tablets
CS181-30	DPD No. 1 (Nessleriser)	51123	100 tablets
CS181-34	DPD No. 3 (Nessleriser)	51125	100 tablets
WT966-55	DPD No. 1 (Rapid Dissolving)	51131	250 tablets
WT966-58	DPD Nitrite	50269	250 tablets
WT966-64	DPD Glycine	502171	250 tablets
WT966-80	EDTA	51239	250 tablets
WT968-12	Excess Aluminium	51141	250 tablets
WT970-50	Iron LR	51537	250 tablets
WT970-55	Iron HR	51538	250 tablets
WT972-16	Nitrate combi Nos. 1 and 2	517642	250 tablets
WT972-35	Nitrate test	51281	100 tablets
WT972-40	Nitrite Low range	51231	250 tablets
WT972-45	Nitrite Acidifying	51237	250 tablets
WT972-55	Phenol Red pH	51177	100 tablets
CS181-55	Chlorine combi KI and acidifying G.P.	517722	250 tablets
CS184-22	Phenol Red	51175	100 tablets
WT976-18	Sulphate (Turbidity)	51545	250 tablets



WT500



WT510



WT516



Foil Packed tablets

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