

# MN, TR

## Технические характеристики

### По вопросам продаж и поддержки обращайтесь:

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Вологда (8172)26-41-59	Липецк (4742)52-20-81	Рязань (4912)46-61-64	Ульяновск (8422)24-23-59
Воронеж (473)204-51-73	Магнитогорск (3519)55-03-13	Самара (846)206-03-16	Уфа (347)229-48-12
Екатеринбург (343)384-55-89	Москва (495)268-04-70	Санкт-Петербург (812)309-46-40	Хабаровск (4212)92-98-04
Иваново (4932)77-34-06	Мурманск (8152)59-64-93	Саратов (845)249-38-78	Челябинск (351)202-03-61
Ижевск (3412)26-03-58	Набережные Челны (8552)20-53-41	Севастополь (8692)22-31-93	Череповец (8202)49-02-64
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Россия (495)268-04-70	Киргизия (996)312-96-26-47	Казахстан (7172)727-132	

# 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.
<b>96-well plates</b>			
<b>MN340-15</b>	0.5	PP	48
<b>MN340-25</b>	1.1	PS	32
<b>MN340-35</b>	1.1	PP	24
<b>MN340-45</b>	2.2	PP	24
<b>MN340-47</b>	2.2*	PP	32
<b>384-well plates</b>			
<b>MN340-70</b>	0.3	PP	48

\* V-bottom wells.

### Sealing covers for MN340- deep-well microplates

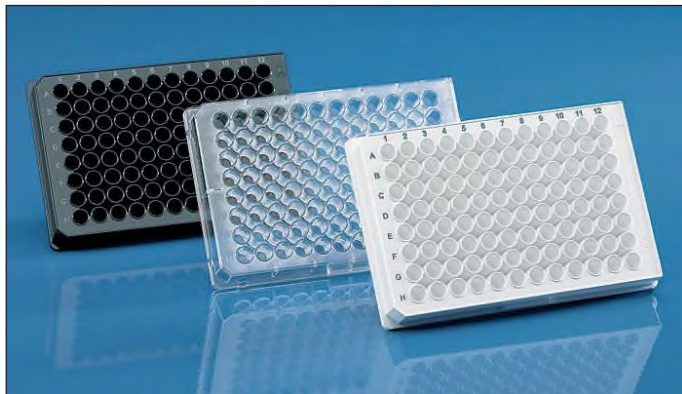
To fit plates with well capacities as indicated.

- 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.
<b>Non-sterile</b>				
<b>MN342-05</b>	T	U	330	100
<b>MN342-10</b>	T	V	360	100
<b>MN342-20</b>	T	C	350	100
<b>MN342-25</b>	W	U	330	100
<b>MN342-30</b>	W	F	350	100
<b>MN342-40</b>	B	U	330	100
<b>MN342-45</b>	B	F	350	100
<b>MN342-80</b>	T	F**	360	100
<b>MN342-85</b>	T	F**	350	100
<b>Sterile</b>				
<b>MN343-05</b>	T	U	330	50
<b>MN343-10</b>	T	V	360	50
<b>MN343-15</b>	T	F	350	50
<b>MN343-20</b>	T	C	350	50
<b>MN343-30</b>	W	F	350	50
<b>MN343-45</b>	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. $\mu$ l	Plate colour	Pack qty.
<b>96-well plates</b>			
<b>MN344-10</b>	330	White	100 (4)
<b>MN344-20</b>	330	Black	100 (4)
<b>384-well plates</b>			
<b>MN344-45</b>	120	White	50 (2)
<b>MN344-55</b>	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™

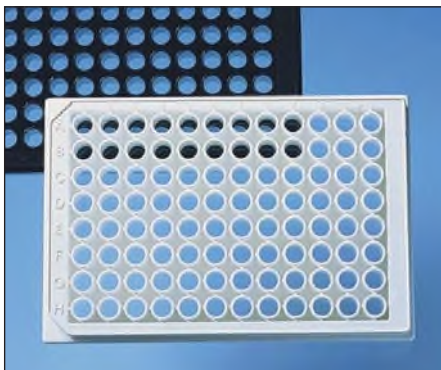
With a strongly hydrophobic (lipophilic) surface. Especially suitable for binding molecules hydrophobic regions. For use in liquid phase assays with hydrophilic components.

As described. Supplied in packs of 100.

	Colour*	Well profile	Well volume, $\mu$ l
<b>ImmunoGrade™</b>			
<b>MN347-05</b>	T	U	330
<b>MN347-10</b>	T	V	360
<b>MN347-15</b>	T	F	350
<b>MN347-25</b>	W	U	330
<b>MN347-60</b>	B/T	F	330
<b>MN347-85</b>	T	F**	360
<b>MN347-90</b>	T	F**	350
<b>hydroGrade™</b>			
<b>MN348-05</b>	T	U	330
<b>MN348-15</b>	T	F	350
<b>lipoGrade™</b>			
<b>MN349-05</b>	T	U	330
<b>MN349-15</b>	T	F	350

\*Key: T = transparent, W = white, B = black, /T = transparent base.

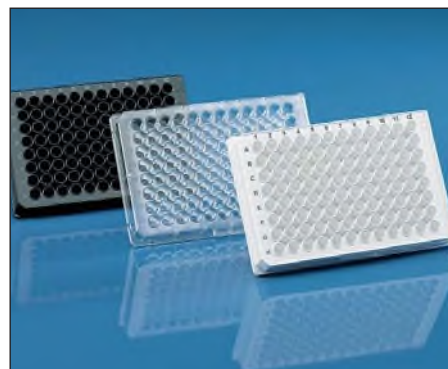
\*\*Includes removable well strips.



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

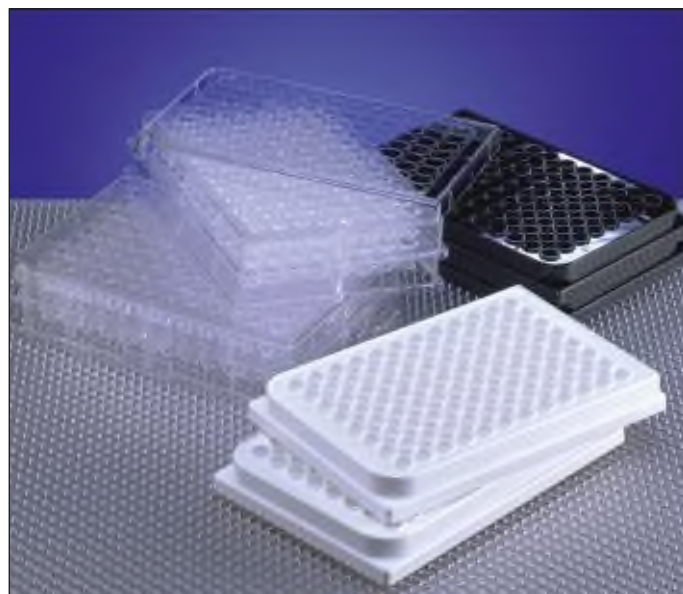
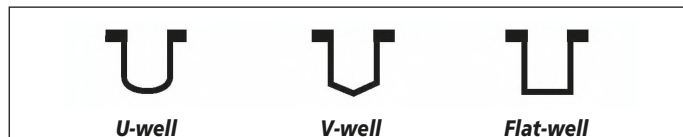
### Accessory Lids

**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>
<b>Non-sterile</b>		
<b>MN380-25</b>	Polyester	2
<b>MN380-40</b>	Polypropylene	2
<b>Sterile</b>		
<b>MN385-25</b>	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>
<b>MN387-20</b>	PCR	-40 to 150
<b>MN387-30</b>	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®

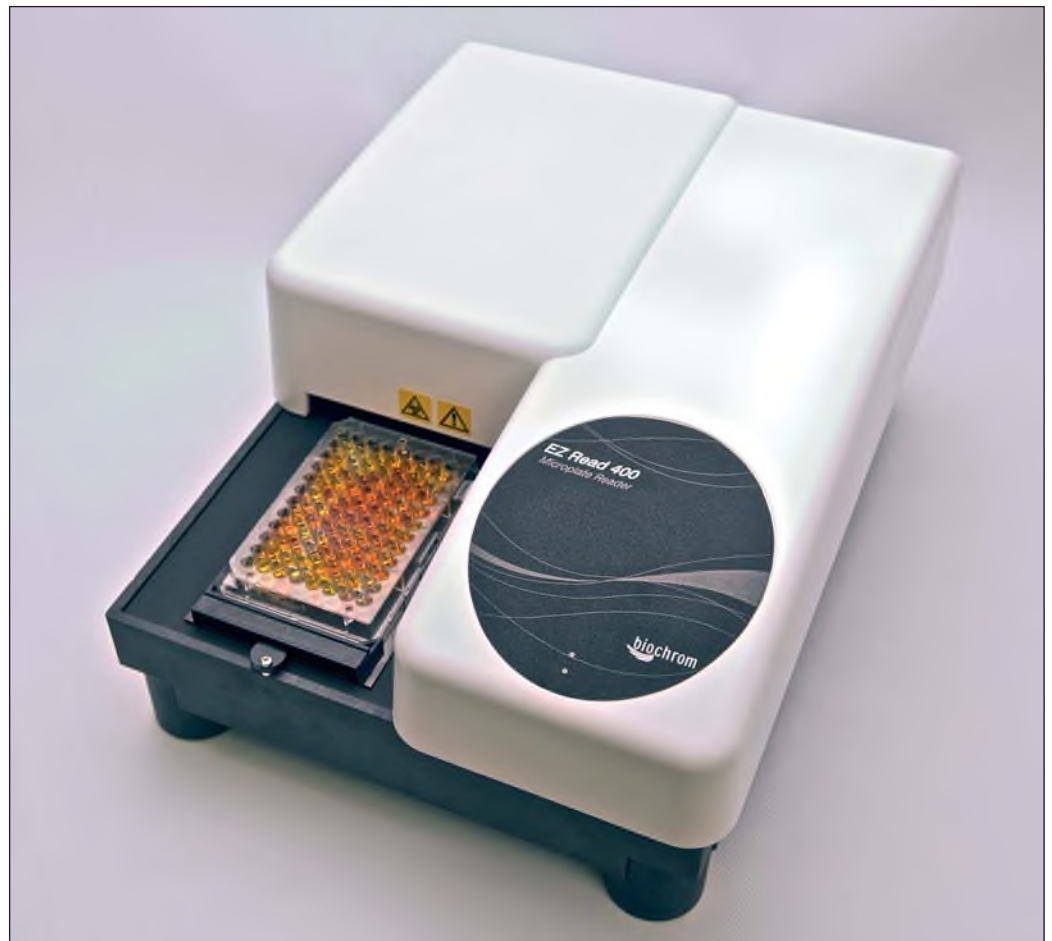
As described. Supplied with four standard filters, dust cover, power cable and "Galapagos" software with user manual. For 100-240V 50/60Hz single phase supplies. Requires, but is not supplied with, a personal computer running Windows™ software, for operation

**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>	$\mu\text{l}$	50 to 2000 x 50	50 to 500 x 25
<i>Dispensing precision (across the plate)</i>		< $\pm$ 5% at 300 $\mu\text{l}$	< $\pm$ 5% at 100 $\mu\text{l}$
<i>Residual volume</i>	$\mu\text{l}$	<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

<i>Model</i>		SI19
<i>Temperature range</i>	°C	Amb. +8 to +80
<i>Working capacity</i>	litres	20
<i>Temperature variation*</i>	°C	±0.5
<i>Temperature fluctuation*</i>	°C	±0.5
<i>Shelves supplied</i>		4
<i>Dimensions, W x D x H</i>		
	<i>internal, mm</i>	250 x 230 x 200
	<i>external, mm</i>	380 x 380 x 435
<i>Weight</i>	kg	24
<i>Power rating</i>	W	280
<i>Voltage requirements</i>		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

<i>Model</i>		SI505
<i>Temperature range</i>	°C	Amb. +7 to +60
<i>Temperature variation*</i>	°C	0.6
<i>Temperature fluctuation*</i>	°C	±0.5
<i>Orbital speed range</i>	rpm	250 to 1250 x 10
<i>Temperature range</i>	°C	Amb. +7 to +60
<i>Timer range</i>		1 second to 9 days
<i>Platform</i>	mm	220 x 220
<i>Capacity</i>		4 x microplates or 2 x accessory tube racks
<i>Dimensions, W x D x H</i>		
	<i>internal, mm</i>	307 x 300 x 190
	<i>external, mm</i>	361 x 405 x 430
<i>Weight</i>	kg	22.5
<i>Power rating</i>	W	250
<i>Voltage requirements</i>		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**

# 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.

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