1

1 Laboratory sewage plants, behrotest®

Behr

According to DIN/DEV 38412 - L 24 and L 26 and OECD 303 A (Coupled Units Test).
Trolley mounted. All glassware is made of borosilicate glass 3.3, with pumps for water transport and aeration, flow meters and storage containers. Model KPL 1 with jacketed Plexiglass containers allows the operator to additionally investigate the influence of the water temperature on biodegradation.
Laboratory sewage unit KLD 4 has an additional preliminary denitrification stage, in which activated sludge is held under virtually anaerobic conditions. In this way the sludge is denitrified and certain wastewater pollutants are more easily degraded. In combination with aeration, two stirrers prevent unwanted sludge deposits in the denitrification stage and in the aeration vessel. The operator can set the pumping and pause times for the return of the sludge to the denitrification vessel.

Type	Description	PK	Cat. No.
KA 1	Lab-scale waste water system, complete	1	**9.920 600**
KA 1/SR	Lab-scale waste water system, complete with oxygen level control	1	**9.920 605**
KLD 4	Lab-scale waste water system, complete with denitrification stage	1	**9.920 602**
KLD 4/SR	Lab-scale waste water system, complete with denitrification stage and oxygen level control	1	**9.920 606**
KLD 4/N	As KLD 4, with sludge reinnoculation	1	**9.920 598**
KLD 4N/SR	As KLD 4/SR, with sludge reinnoculation	1	**9.920 599**

2 Air sampler SAS SUPER IAQ for Petri dishes or RODAC plates

NEW!

International P.B.I.

A simple well known air sampler to be used by Industrial Hygienists for "SBS" (Sick Building Syndrome) and "HVAC" (Heating Ventilation Air Conditioning) studies and by Agro - Food - Dairy technologists for "HACCP" (Hazard Analysis Critical Control Point) applications
The SAS SUPER IAQ features:
- Volume of aspirated air programmable from 1 to over 1999 litres
- Air flow rate 100 litres per minute
- It uses 55mm Contact plates (RODAC) or Standard 90mm Petri dishes
- Can accommodate any type of Contact plate (US or European shape)
- Reduced weight: only 1.750 grams
- Robust construction for use in industrial environments
- Autonomy over 50.000 litres (8 hours)
- Sampling cycles record
- Delay start

Supplied with: battery charger, aluminium head,sterile disposable head, remote control and trasport case.

Type	PK	Cat. No.
SAS SUPER IAQ	1	**9.303 690**

2

1 Dräger Tubes®

NEW!

Dräger

The Dräger Tubes® measuring system is the safe method for measuring pollutants in the soil, water and air. More than 500 substances can be measured in varying concentrations. The long-established principle of Dräger Tubes® is still the same. A defined volume of gas/air must be pumped through the sampling tube. This can be achieved by using the Accuro® gas pump. On contact with the substance under test the reagent system contained in the tube reacts and displays a colour. The strength of the concentration of the substance is shown by the length of the colour band displayed and can be read directly from the scale. The Dräger-Tubes® sampling system provides accuracy, economy, efficiency, quick and easy handling. Over 250 tubes are available on request for all substances and measuring fields. Further sampling devices, diffusion tubes for long-term measurements as well as sampling systems with activated carbon tubes, ORSA collector and TDS thermodesorption tubes are also available.

1

Type	Measuring range	PK	Cat. No.
Accuro gas pump		1	**9.620 410**
Gas pump set accuro (incl. bag a. E-Set)		1	**9.620 411**
Alcohol 25/a tubes	25 to 5000 ppm	10	**9.620 423**
Acetone 100/b tubes	100 to 12000 ppm	10	**9.620 421**
Ammonia 2/a tubes	2 to 30 ppm	10	**9.620 404**
Ammonia 5/a tubes	5 to 700 ppm	10	**9.620 405**
Ammonia 5/b tubes	5 to 100 ppm	10	**9.620 424**
Petroleum hydrocarbons 10/a tubes	10 to 300 ppm	10	**9.620 426**
Benzene 0.5/a tubes	0.5 to 10 ppm	10	**9.620 406**
Benzene 0.5/c tubes	0.5 to 10 ppm	5	**9.620 427**
Hydrocyanic acid 2/a tubes	2 to 30 ppm	10	**9.620 428**
Chlorine 0.2/a tubes	0.2 to 3 ppm	10	**9.620 407**
Formaldehyde 0.2/a tubes	0.2 to 5 ppm	10	**9.620 429**
Carbon dioxide 100/a tubes	100 to 3000 ppm	10	**9.620 408**
Carbon dioxide 5/a	5 to 60 Vol.%	10	**6.050 554**
Carbon monoxide 2/a tubes	2 to 60 ppm	10	**9.620 432**
Carbon monoxide 5/c tubes	8 to 700 ppm	10	**9.620 409**
Nitrous fumes 0.5/a tubes	0.5 to 10 ppm	10	**9.620 433**
Ozone 0.05/b tubes	0.05 to 0.7 ppm	10	**9.620 434**
Perchloroethylene 2/a tubes	2 to 300 ppm	10	**9.620 436**
Phenol 1/b tubes	1 to 20 ppm	10	**9.620 437**
Hydrogen phosphide 0.01/a tubes	0.01 to 1 ppm	10	**9.620 438**
Mercury vapour 0.1/b tubes	0.05 to 2 mg/m³	10	**9.620 439**
Hydrochloric acid 1/a tubes	1 to 10 ppm	10	**9.620 413**
Hydrochloric acid/nitric acid 1/a tubes	1 to 10/15 ppm	10	**9.620 441**
Oxygen 5%/c	5 to 23 Vol.% 10	10	**9.620 448**
Sulphur dioxide 0.5/a tubes	0.5 to 25 ppm	10	**9.620 420**
Carbon disulphide3/a tubes	3 to 95 ppm	10	**9.620 442**
Hydrogen sulfide 0.2%/a	0.2 to 7 Vol.%	10	**6.088 166**
Hydrogen sulphide 1/d tubes	1 to 200ppm	10	**9.620 443**
Hydrogen sulfide 100/a	100 to 2000 ppm	10	**6.050 553**
Hydrogen sulphide 5/b tubes	5 to 60 ppm	10	**9.620 425**
Flow test tubes	Visualization 10	10	**6.076 362**
Toluene 5/b tubes	5 to 300 ppm	10	**9.620 446**
Trichloroethylene 2/a tubes	20 to 250 ppm	10	**9.620 447**

2 Air Flow Tester

NEW!

Dräger

In many fields, such as mining or industry, it is very important to detect even the smallest air flows, in order to quickly and reliably evaluate the possible diffusion of dangerous substances. With the air flow test tubes, the source, direction and speed of the air flow are visible immediately.

2

Type	PK	Cat. No.
Air Flow Tester	1	**6.054 581**

3 Dräger Sampling Tubes

NEW!

Dräger

Using the Dräger activated charcoal tubes or silica gel tubes, hazardous substances in the air are collected using a suitable medium via adsorption or chemisorption. The sample is then analysed in the laboratory by means of various analytical methods such as gas chromatography (GC), high performance liquid chromatography (HPLC), UV-VIS photometry, or IR spectroscopy.

3

Description	Type	PK	Cat. No.
Charcoal tubes	BiA	10	**9.620 414**
Charcoal tubes	G	10	**9.620 415**
Charcoal tubes	B/G	10	**9.620 416**
Silica gel tubes	BiA	10	**9.620 417**
Silica gel tubes	G	10	**9.620 418**
Silica gel tubes	B/G	10	**9.620 419**
Isocyanate sampling set incl. analysis 1		1	**6.070 187**

Test kits, *VISOCOLOR*®

1

9.304 581

***VISOCOLOR*® *HE* Ammonium.** Highly sensitive test kit for testing of ammonium. *MACHEREY-NAGEL*
Measuring range (scale gradation):
0.0/0.02/0.04/0.07/0.10/0.15/0.20/0.30/0.40/0.50mg/l NH_4^+

***VISOCOLOR*® *ECO* Nitrate.** Test kit for Nitrate testing.
Measuring range (scale gradation): 0/1/3/5/10/20/30/50/70/90/120mg/l NO_3^-
This test kit is qualified for the analysis of seawater.

***VISOCOLOR*® *ECO* Nitrite.** Test kit for Nitrite testing.
Measuring range (scale gradation): 0.0/0.02/0.03/0.05/0.07/0.1/0.2/0.3/0.5mg/l NO_2^-
This method is qualified for the analysis of seawater.

2

9.304 570

***VISOCOLOR*® *alpha* pH 5 to 9.** Test kit for the pH analysis.
Measuring range (scale gradation): pH 5.0/5.5/6.0/6.5/7.0/7.5/8.0/8.5/9.0
This test kit is qualified for the analysis of seawater.

***VISOCOLOR*® *HE* Phosphate.** Highly sensitive test kit for Phosphate analysis.
Measuring range (scale gradation): 0.0/0.05/0.10/0.15/0.20/0.3/0.4/0.6/0.8/1.0mg/l P
This test kit is qualified for the analysis of seawater.

***VISOCOLOR*® *HE* Oxygen SA 10.** Test kit for the titrimetric analysis of dissolved oxygen in water according to DIN EN 25 813.
Measuring range: 1 syringe filling is enough for testing 0.2 to 10.0mg/l O_2. 1 scale line = 0.2mg/l O_2
Contents: sufficient for 100 tests with an average oxygen content of 9.0 mg/l
This test kit is qualified for the analysis of seawater.

3

9.304 583

***VISOCOLOR*® *HE* Carbonate hardness C 20.** Test kit for carbonate hardness in water as well as for the partial alkalinity. Dual range test kit for carbonate hardness (=m-value) as well as the partial alkalinity (=p-value).
Measuring range: 1 syringe filling is enough for testing 0.5 to 20.0°d and /or 0.2 to 7.0mmol/l H^+.
This test kit is qualified for the analysis of seawater.

***VISOCOLOR*® *alpha* Total Hardness.** Test kit for total hardness.
Reaction basis: Titration
Measuring range: 1 drop = 1°d
Contents: sufficient reagents for 100 tests with an average hardness of 10°d.
This test kit is qualified for the analysis of seawater after dilution (1+29).

4

9.304 569

5

9.304 585

Type	For	PK	Cat. No.	
VISOCOLOR® *HE* Ammonium	110 tests	1	**9.304 581**	1
VISOCOLOR® *ECO* Nitrate	110 tests	1	**9.304 565**	
VISOCOLOR® *ECO* Nitrite	120 tests	1	**9.304 582**	
VISOCOLOR® *alpha* pH 5.0-9.0	200 tests	1	**9.304 570**	2
VISOCOLOR® *HE* Phosphate	300 tests	1	**9.304 583**	3
VISOCOLOR® *HE* Oxygen SA 10	100 tests	1	**9.304 569**	4
VISOCOLOR® *HE* Carbonate hardness C 20	200 tests	1	**9.304 585**	5
VISOCOLOR® *alpha* Total hardness	100 tests	1	**9.304 586**	6

6

9.304 586

VISOCOLOR® analysis kit and photometer

NEW!

***VISOCOLOR*® *ECO* Analysis kit** *MACHEREY-NAGEL*

The *VISOCOLOR*® *ECO* Analysis kit contains the following test kits:
Ammonium: 0.2 to 3mg/l NH_4^+/Carbonate hardness: 1 drop = 1°d/Total hardness: 1 drop = 1°d/Nitrate: 1 to 120mg/l NO_3^-/Nitrite: 0.02 to 0.5mg/l NO_2^-/pH: 4.0 to 9.0/Phosphate 0.2 to 5mg/l P
Shelf life of reagents: at least 18 months

***VISOCOLOR*® soil kit**

The *VISOCOLOR*® soil kit contains all reagents, apparatus and accessories for the processing of soil samples and the subsequently regulation of
- Phosphate (P) - Soil structure - Potassium (K) - pH - Ammonium, Nitrite, Nitrate (N)

***VISOCOLOR*® Environmental analysis**

with photometer PF-12.
Ammonium 15: 0.5 to 8.0mg/l NH_4^+, Carbonate hardness C 20: 0.1mmol/l or 0.5°d, Iron: 0.1 to 2.0mg/l Fe, Hardness H 20 F (total): 0.1mmol/l or 0.5°d, Nitrate: 4 to 60mg/l NO_3-, Nitrite: 0.02 to 0.50mg/l NO_2^-, pH 4.0-9.0; 4.0 to 9.0, Phosphate: 0.2 to 5.0mg/l P

PF-12 portable photometer for laboratories, complete in kit with manual, rechargeable batteries and battery charger.

Light source: Tungstenlamp
Detector: Silicon photo-element
Display: Backlit graphic display, 64 x 128 pixels
Operation: Display user guidance, plastic foil keyboard
Test selection via test number or parameter lists
12 languages (de, en, fr, es, it, nl, hu, pl, pt, cz, id, si)
Accuracy: ±1%
Long-term stability: < 0.002A/h
Interface: USB 2.0
Power supply: Via USB power supply, standard or rechargeable batteries
Dimensions: 215 x 100 x 65mm
Weight: 0.7kg

Type	PK	Cat. No.	
VISOCOLOR® *ECO* Analysis kit	1	**9.304 587**	1
VISOCOLOR® soil kit, incl. manual	1	**9.304 578**	2
VISOCOLOR® Environmental analysis	1	**9.304 573**	3
PF-12 portable photometer for laboratories	1	**9.304 590**	4

List price for one package, volume discount at 10 packages.

1

9.304 587

2

9.304 578

3

9.304 573

4

9.304 590

1 Lovibond® water testing equipment

NEW!

Single-parameter and multi-parameters kits, including for chlorine and pH *Tintometer*

The Lovibond® product range contains a large selection of single and multi-parameter water testing equipment. Each kit is a complete, portable system that guarantees accurate water tests and contains all of the colour discs, reagents, accessory parts and detailed instructions necessary for the respective tests ensuring that reliable results may be obtained. The table below illustrates the most popular water testing kits. In addition, kits can also be created in accordance with specific user requirements on request.

Type	Description	For	Measuring range	Accessories	PK	Cat. No.
AF 112E	Chlorine - free, chlorine combined	chlorine	0.02 to 0.3mg/l Cl_2	comparator, colour disc	1	**9.947 203**
AF 112A	Chlorine - free, chlorine combined, tot	chlorine	0.1 to 1.0mg/l Cl_2	comparator, colour disc	1	**9.947 204**
AF 112B	Chlorine - free, chlorine combined, tot	chlorine	0.2 to 4.0mg/l Cl_2	comparator, colour disc	1	**9.947 205**
AF 116A	Chlorine & pH	chlorine pH value	0.1 to 1 mg/l Cl_2 6.8 to 8.4 pH	comparator, colour disc	1	**9.922 315**
AF 116B	Chlorine & pH	Chlorine pH value	0.2 to 4 mg/l Cl_2 6.8 to 8.4 pH	comparator, colour disc	1	**9.947 208**
AF 357	Drinking water	Chloride Chlorine Fluoride tot. hardness Hazen pH value	0 to 5000 mg/l Cl 0.02 to 0.3 & 0.2 to 4 mg/l Cl_2 0 to 1.6 mg/l F 0 to 500 mg/l $CaCO_3$ 10 to 90 mg Pt/l 6 to 8.4 pH	Tablet count. method nessleriser, colour disc nessleriser, colour disc Tablet count. method comparator, colour disc comparator, colour disc	1	**9.947 209**

All test apparatus for parameters listed against individual kits are supplied.

Comparator System 2000

AQUALYTIC

For water testing.
- Simple and flexible system guarantees reliable results in the laboratory and in the field.
- Compact, portable and robust, therefore particularly suitable for in-situ analyses
- Reagents for many parameters are available in the proven tablet form
- Glass colour discs with guaranteed fade-free glass filters which can be certified in accordance with ISO 9001 QA

The following are required:
- Comparator standard equipment (Comparator 2000+ or corresponding nessleriser)
- Test specific colour discs
- Test specific reagents
- Cells with the corresponding path length
- Daylight illuminator (optional), to ensure constant light conditions

2 Lovibond® Comparator 2000+

Tintometer

Lovibond® Comparator 2000+ is a quality instrument for the visual analysis of colour intensity in analysis samples using Lovibond colour discs. The integral cell attachment enables cells with a depth of 40mm to be accepted. The Lovibond® Nessleriser system provides greater depths by using corresponding accessory Nessler tubes. This enables the determination of concentrations below the detection limit of the Lovibond® Comparator 2000+. The integral prism in the Lovibond® Comparator 2000+ brings the glass standard of the colour discs and the colour samples optically into the field of view. The prism is hermetically sealed, preventing the lens from being contaminated. Both the Comparator 2000+ and the Nessleriser are designed in such a way that they compensate for cloudy or coloured water samples. Each device is available for use in daylight or in combination with the artificial daylight unit 2000.

Type	Description	For	PK	Cat. No.
Comparator 2000+		see method	1	**9.947 150**
Nessleriser 2150	with stand	50ml tubes, path length 113mm	1	**9.947 151**
Nessleriser 2250	with stand	path length 250mm	1	**9.947 152**
Nessleriser 2150	with daylight unit 2000	50ml tubes, path length 113mm	1	**9.947 153**
Nessleriser 2250	with daylight unit 2000	path length 250mm	1	**9.947 154**

Cuvettes and Nessler tubes for Lovibond® Comparator System 2000

Tintometer

Type	Description	PK	Cat. No.
A	10ml cells, 13.5mm path length with plug stoppers, pack of 5	5	**9.947 170**
B	W 680/OG/40 cell, 40mm path length, calibrated at 20ml	1	**9.600 784**
C	Nessler tubes, 50ml, 113mm path length, with anti-meniscus plungers, pair	1	**9.947 174**
D	Nessler tubes, 250mm path length, with anti-meniscus plungers, pair	1	**9.947 175**

1 Comparator system 2000, water test discs and reagent tablets

AQUALYTIC

A large selection of water test discs are available for colorimetric chemical analyses and colour classification. Each test disc is equipped with fade-free, non porous glass filters, the quality of which is not impaired by UV light or other environmental influences.

Test discs whose code begins with "N", are designed for use in the Nessleriser 2150. Test discs which start with the letter "C" are designed for use in the Nessleriser 2250. All other test discs are designed for use in the comparator 2000+ . The most popular water test discs feature in the table below. Other test discs are available on request.

For	Disc	Measuring range	PK	Cat. No.
Ammonia	3/112	0 to 0.40mg / l NH_4	1	**9.947 001**
	3/113	0 to 1.0 mg / l N	1	**9.947 002**
	3/125	0 to 10 mg/l N	1	**9.947 003**
	NAB	10 to 26µg NH_3	1	**9.947 006**
Bromine	3/53A	0.2 to 2.0mg / l	1	**9.947 009**
	3/53B	1 to 10mg / l	1	**9.947 010**
Chlorine	3/40E	0.02 to 0.3mg / l	1	**9.947 011**
	3/40A	0.1 to 1.0mg / l	1	**9.947 012**
	3/40J	0.1 to 2.0mg / l	1	**9.947 013**
	3/40B	0.2 to 4.0mg / l	1	**9.947 014**
	3/40K	0.5 to 6.0mg / l	1	**9.947 015**
	3/40S	1 to 4mg / l	1	**9.947 016**
	3/40P	2 to 5mg / l	1	**9.947 017**
	3/40HN	2 to 10mg / l	1	**9.947 018**
	3/2ARP	5 to 50 mg / l	1	**9.947 019**
	3/2IOD	5 to 250 mg / l	1	**9.947 020**
	NDPB	0.01 to 0.10mg / l	1	**9.947 021**
	NDP	0.05 to 0.50mg / L	1	**9.947 023**
	NDPD	0.1 to 1.0mg / l	1	**9.947 024**
Hazen / APHA	NSH	10 to 90 mg Pt / l	1	**9.947 029**
	CAA	0 to 30 mg Pt / l	1	**9.947 030**
	CAB	30 to 70 mg Pt / l	1	**9.947 031**
Hydrazine	3/126	0 to 0.5mg / l	1	**9.947 032**
	3/135	0.02 to 0.2mg / l	1	**9.947 033**
Iron	3/116	0.1 to 1.0 mg / L	1	**9.947 034**
	3/117	1 to 10 mg / l	1	**9.947 035**
Nitrate	3/124	0.1 to 1.0 mg/l N	1	**9.947 037**
Nitrite	3/103	0.05 to 0.50 mg/l N	1	**9.947 039**
	NJ	0.05 to 1.0mg / l	1	**9.947 041**
Phosphate	3/133	0 to 4.0 mg/l PO_4	1	**9.947 042**
	3/70	0 to 100 mg / l PO_4	1	**9.947 044**
Sulphide	3/128	0 to 0.5 mg / l S	1	**9.947 046**
Zinc	3/151	0 to 1.0 mg / l	1	**9.947 047**
	3/102	0 to 4.0 mg / l	1	**9.947 048**

1

1 Reagent tablets for Comparator system 2000

Reagent tablets for Comparator system 2000 *AQUALYTIC*

For	Type	PK	Cat. No.
Ammonia	Ammonia No. 1	100	**9.947 060**
	Ammonia No. 1	250	**9.947 061**
	Ammonia No. 2	100	**9.947 062**
	Ammonia No. 2	250	**9.947 063**
Bromine, Chlorine, Chlorine dioxid	DPD No. 1	100	**9.947 065**
	DPD No. 1	250	**9.947 066**
Chlorine	DPD No. 2	100	**9.947 069**
	DPD No. 2	250	**9.947 070**
	DPD No. 3	100	**9.947 071**
	DPD No. 3	250	**9.947 072**
	DPD No. 4	100	**9.947 073**
	DPD No. 4	250	**9.947 074**
	Chlorine HR (Kj)	100	**9.947 075**
	Chlorine HR (Kj)	250	**9.947 076**
	Acidifying GP	100	**9.947 077**
	Acidifying GP	250	**9.947 078**
	DPD (Ness) No. 1	100	**9.947 079**
	DPD (Ness) No. 2	100	**9.947 080**
	DPD (Ness) No. 3	100	**9.947 081**
Hydrazine	Hydrazine Test powder	1	**9.947 089**
Iron	Iron LR	100	**9.947 100**
	Iron LR	250	**9.947 101**
	Iron HR	100	**9.947 102**
	Iron HR	250	**9.947 103**
Nitrate	Nitrate Test tablets	100	**9.947 106**
	Nitrate Test powder	1	**9.947 107**
Nitrite, Nitrate	Nitrite LR	100	**9.947 108**
	Nitrite LR	250	**9.947 109**
Nitrite	Nitrite Acidifying	250	**9.947 118**
Phosphate	Phosphate No. 1 LR	100	**9.947 119**
	Phosphate No. 1 LR	250	**9.947 120**
	Phosphate No. 2 LR	100	**9.947 121**
	Phosphate No. 2 LR	250	**9.947 122**
	Phosphate HR	100	**9.947 123**
	Phosphate HR	250	**9.947 124**
Sulphide	Sulphide No. 1	100	**9.947 128**
	Sulphide No. 2	100	**9.947 129**
Zinc	Copper/Zinc HR	100	**9.947 130**
	Copper/Zinc HR	250	**9.947 131**

2

9.920 806

3

9.920 808

Thermoreactor CR 2200/CR 4200

CR 2200: *WTW*

- routine unit for waste water analysis
- Stored programs for all important digestions
- thermoblock with 12 holes for 16mm o.d. reaction tubes
- temperatures: 100°C, 120°C, 148°C and 150°C
- 8 fixed heating programmes: 148°C and 2 hours, 148°C and 20 minutes, 120°C and 30 minutes, 120°C and 60 minutes, 150°C and 120 minutes, 120°C and 120 minutes, 100°C and 60 minutes, 30 minutes
- Automatic temperature switch-off after end of set programs

CR 4200:

- Professional unit for waste water analysis
- 2 thermoblocks with 12 holes each for 16mm o.d. reaction tubes,
- 8 fixed heating programs (as CR2200) and 8 user-defined programs (from room temperature (25°C) to 170°C and 0 to 180 minutes)
- High Temperature Capability
- 2 different programs and and temperates can be used simultaneously (CR 4200 only)
- Automatic temperature switch-off after end of set programs
- Optional: External temperature probe TFK CR

Type	PK	Cat. No.	
CR 2200	1	**9.920 806**	2
CR 4200	1	**9.920 808**	3

1 QUANTOFIX® test strips

NEW!

For semi-quantitative determinations. Strips 6mm wide x 95mm long.
Supplied in packs of 100 strips.

MACHEREY-NAGEL

For	Measuring range	PK	Cat. No.
Aluminium*	5 to 500 mg/l Al^{3+}	100	**9.130 401**
Ammonia*	10 to 400 mg/l NH_4^+	100	**9.130 414**
Arsenic 50*	0.05 to 3.00 mg/l $As^{3+/5+}$	100	**9.130 415**
Arsenic 10*	0.01 to 0.50 mg/l $As^{3+/5+}$	100	**9.130 416**
Ascorbic acid	50 to 2000 mg/l	100	**9.130 402**
Calcium**	10 to 100 mg/l Ca^{2+}	60	**9.130 417**
Carbon hardness	0 to 20 °d	100	**9.130 418**
Chlorine*	1 to 100 mg/l Cl_2	100	**9.130 419**
Chloride	0 to 3000 mg/l Cl^-	100	**9.130 420**
Chromate*	3 to 100 mg/l CrO_4^{2-}	100	**9.130 403**
Cyanide*	1 to 30 mg/l CN^-	100	**9.130 421**
EDTA	100 to 400 mg/l EDTA	100	**9.130 432**
Iron 1000*	5 to 1000 mg/l $Fe^{2+/3+}$	100	**6.243 754**
Iron 100*	2 to 100 mg/l $Fe^{2+/3+}$	100	**9.130 405**
Formaldehyde*	10 to 200 mg/l HCHO	100	**9.130 422**
Potassium*	200 to 1500 mg/l K^+	100	**9.130 423**
Cobalt	10 to 1000 mg/l Co^{2+}	100	**9.130 406**
Alkalinity of cooling lubricant	10 to 1000 mg/l Quat	100	**9.130 434**
Copper	10 to 300 mg/l Cu^{2+}	100	**9.130 407**
Molybdate*	5 to 250 mg/l Mo^{6+}	100	**9.130 424**
Nickel	10 to 1000 mg/l Ni^{2+}	100	**9.130 408**
Nitrate/Nitrite	10 to 500 mg/l NO_3^-, 1 to 80 mg/l NO_2^-	100	**9.130 409**
Nitrite	1 to 80 mg/l NO_2^-	100	**9.130 410**
Nitrite/pH	1 to 80 mg/l NO_2^-, pH 6.0 to 9.5	100	**6.227 796**
Nitrite 3000	100 to 3000 mg/l NO_2^-	100	**9.130 425**
Peroxide 1000	50 to 1000 mg/l H_2O_2	100	**9.130 426**
Peroxide 100	1 to 100 mg/l H_2O_2	100	**9.130 411**
Peroxide 25	0.5 to 25 mg/l H_2O_2	100	**9.130 427**
Phosphate*	3 to 100 mg/l PO_4^{3-}	100	**9.130 428**
Quaternary ammonium compounds	15 to 200 mmol/l KOH	100	**9.130 433**
Sulphate	200 to 1600 mg/l SO_4^{2-}	100	**9.130 429**
Sulphite	10 to 1000 mg/l SO_3^{2-}	100	**9.130 412**
Zinc*	2 to 100 mg/l Zn^{2+}	100	**9.130 430**
Tin	10 to 500 mg/l Sn^{2+}	100	**9.130 413**
Chlorine Sensitive CE	0.1 to 10 mg/l Cl_2	100	**4.005 102**
Peracetic acid 50 CE	5 to 50 mg/l PAA	100	**6.238 574**
Peracetic acid 500 CE	50 to 500 mg/l PAA	100	**9.130 436**
Peracetic acid 2000 CE	500 to 2000 mg/l PAA	100	**9.130 437**
Glutaraldehyde CE	0.5 to 2.5 %	100	**9.130 438**

* Test strips with reagent
**Box with 60 test strips and reagent
CE-marked according to the directive for medical products 93/42/EWG.

1

1 2 Merckoquant test strips

Merck

For	Measuring range	PK	Cat. No.
Aluminium	10 to 250 mg/l Al^{3+}	100	**9.129 901**
Ammonia	10 to 400 mg/l NH_4^+	100	**9.129 902**
Ascorbic acid	50 to 2000 mg/l	100	**9.129 904**
Lead	20 to 500 mg/l Pb	100	**9.129 905**
Calcium	10 to 100 mg/l Ca^{2+}	60	**9.129 907**
Chromate	3 to 100 mg/l CrO_4^{2-}	100	**9.129 909**
Cobalt	10 to 1000 mg/l Co^{2+}	100	**9.129 911**
Cyanide	1 to 30 mg/l CN^-	100	**9.129 912**
Iron	3 to 500 mg/l $Fe^{2+/3+}$	100	**9.129 913**
Formaldehyde	10 to 100 mg/l HCHO	100	**9.129 914**
Total hardness	5 to 25 °dH	100	**9.129 916**
Total hardness	3 to 21 °dH	100	**9.129 918**
Total hardness	3 to 21°dH	1000	**9.129 919**
Total hardness	4 to 21 °dH	5000	**9.129 921**
Potassium	250 to 1500 mg/l K^+	100	**9.129 922**
Copper	10 to 300 mg/l Cu^{2+}	100	**9.129 923**
Manganese	2 to 100 mg/l Mn	100	**9.129 926**
Molybdenum	5 to 250 mg/l Mo^{6+}	100	**9.129 927**
Nickel	10 to 500 mg/l Ni^{2+}	100	**9.129 928**
Nitrate	10 to 500 mg/l NO_3^-,	100	**9.129 931**
Nitrite	2 to 80 mg/l NO_2^-	100	**9.129 932**
Nitrite	0.1 to 3 mg/l NO_2^-	100	**9.129 933**
Peracetic acid	5 to 50 mg/l	100	**9.129 943**
Peroxide	0.5 to 25 mg/l H_2O_2	100	**9.129 934**
Silver	0.5 to 10 mg/l Ag	100	**9.129 936**
Sulphate	200 to 1600 mg/l SO_4^{2-}	100	**9.129 937**
Sulphite	10 to 400 mg/l SO_3^{2-}	100	**9.129 938**
Zinc	10 to 250 mg/l Zn^{2+}	100	**9.129 941**
Tin	10 to 200 mg/l Sn^{2+}	50	**9.129 942**

3 4 Photometer AL100

NEW!

AQUALYTIC

The AQUALYTIC® AL100 Photometers are designed for analysis of different parameters in drinking water, industrial process water and waste water. With a total of more then 30 different types, instruments are available for routine testing as well as for special applications.
The AL100 uses high quality interference filters with long-life LEDs as a light source without any moving parts in a transparent sample chamber. The units supply accurate, reproducible results very quickly. Other major advantages include ease of operation, ergonomic design, compact dimensions and safe handling. Provided with calibration and software-based adjustment options the AL100 is suitable for use as a testing instrument. The tests are conducted using either AQUALYTIC® tablet reagents with long-term stability and a shelf life of 5 or 10 years, VARIO powder reagents or using liquid reagents.

- Optics: LEDs, interference filters (IF) and photo sensors in transparent sample chamber. Depending on the version up to 3 different interference filters are used.

Wavelength accuracy: ±1 nm.
- Power supply: 4 micro batteries (AAA), capacity approx. 17 hours or 5000 tests.
- Automatic switch-off.
- LCD Display (backlit on keypress).
- Internal ring memory for 16 data sets.
- Dimensions (L x W x H): 155 x 75 x 35 mm.

Supplied in a plastic carrying case, with reagents, batteries and round glass vials with lid.

Optional: IRiM - infrared interface module for data transfer to computer or printer.

Description	Measuring range	PK	Cat. No.
Ammonium	0,02 - 1,0 mg/l	1	**9.699 280**
Chlorine	0,01 - 6,0 mg/l	1	**7.627 340**
Chlorine dioxide	0,05 - 11 mg/l	1	**9.699 281**
Iron	0,02 - 1,0 mg/l	1	**9.699 282**
Copper	0,05 - 5,0 mg/l	1	**9.699 283**
Manganese LR	0,2 - 4,0 mg/l	1	**9.699 284**
Phosphate	0,05 - 4,0 mg/l	1	**9.699 285**
Silicium dioxide	0,05 - 4,0 mg/l	1	**9.699 286**
2 in 1 Chlorine /pH	0,01 - 6,0 mg/l / 6,5 - 8,4 pH	1	**9.699 287**
3 in 1 Chlorine LR / Chlorine HR / Chlorine dioxide	0,05 - 11 mg/l / 5 - 200 mg/l / 0,05 - 11 mg/l	1	**9.699 288**
5 in 1 Chlorine / pH / Cyanuric acid / Alkalinity-M / Calcium hardness	0,01 - 6,0 mg/l / 6,5 - 8,4 pH / 0 - 160 mg/l Cys / 5 - 200 mg/l $CaCO_3$ (TA); 0 - 500 mg/l $CaCO_3$ (CaH)	1	**9.699 289**
Reference standard kit Chlorine	0,2 / 1,0 mg/l	1	**7.627 352**
Reference standard kit Chlorine	1,0 / 4,0 mg/l	1	**9.699 290**
Reference standard kit pH	7,45 pH	1	**9.699 291**
Infrared data transfer module IRiM		1	**9.699 247**

Handheld photometers photoFlex® series

Handheld photometers for use in a wide range of areas such as process control, mobile water testing or wine industry. Easy operation with menu driven, user guidance. *WTW*

- Smart cuvette adapter: holds 28mm or 16mm round cuvettes with height 91 to 104mm; to be used with a variety of different test types
- Optics: LED's with filters, accuracy < 2nm, 436nm, 517nm, 557nm, 594nm, 610nm, 690nm
- Concentration, Absorption, Transmission
- Methods can be downloaded from the Internet
- 100 user defined routines
- 1000 data sets, RS 232 interface
- pH range: pH 0 to 16.00 (±0.01) for DIN standard combination electrodes
- incl. calibration interval and calibration protocol
- Batteries: 4 button cells

Optional: LabStation with rechargeable batttery and power plug, GLP-compliant software LSdata for simplified laboratory evaluation and operation, charging function; accu and power supply separately. LSdata is also available as stand-alone package.

1

9.923 625

2

9.923 601

photoFlex® Turb:
Generally as pHotoFlex, with additional turbidity measurement:

- IR light source acc. DIN 27027 /ISO 7027
- Measuring range: 0 to 1100 NTU/FNU
- Resolution: 0 to 9.99 NTU: 0.01; 10 to 99 NTU: 0.1; 100 to 1100 NTU: 1NTU
- Accuracy: 0.01 NTU or 2% of measured value
- 3 point calibration
- Standard set with traceable AMCO® Standards (0.02 - 10 - 1000 NTU)

Complete photoFlex® Sets:
The mobile laboratory: smart with integrated lab table to hold instrument, cuvettes, beaker and stand for pH electrode. Complete sets with:

- pH electrode SenTix 41 with technical buffers
- 1 adjustable Pipette with 5ml volume for pHotoFlex® models
- Calibration standard kit for pHotoFlex® Turb and Turb 40 IR/T

photoFlex® Set:
Field case with photoFlex®, table insert, pH electrode Sentix® 41 and stand, TEC buffer, 5ml variable pipette, and accessories, PC cable and LSdata software.

photoFlex® Turb Set:
Field case with photoFlex® Turb, table insert, pH electrode Sentix® 41 and stand, TEC buffer, 5ml variable pipette, and accessories, PC cable and LSdata software.

Type	PK	Cat. No.	
photoFlex®	1	**9.923 625**	1
photoFlex® Turb	1	**9.923 626**	
photoFlex® Set	1	**9.923 601**	2
pHotoFlex® Turb/Set	1	**9.923 602**	

3 Accessories for photometer photoFlex® series and turbidimeters Turb® 430 series

NEW!

LabStation with LSdata software for easy data evaluation. The rechargeable battery is included in the delivery. *WTW*

- direct export to MS-Excel
- GLP-conform data transfer
- calibration curve calculation
- adjustment between meter and PC

3

Type	Description	PK	Cat. No.
LabStation	for photoFlex® model, with LSdata, rechargeable battery and charger	1	**9.923 627**
photoFlex® Akku	Rechargeable battery and charger for photoFlex® and Turb® 430 models	1	**9.923 628**
AK540/B	Interface cable for sytems with 6-pin plug on PC via RS 232 incl. 9/25 pin adapter	1	**9.923 629**
FC photoFlex®/Turb® 430	Field case with table insert and inserts and cuvettes accessories	1	**9.923 600**
LSdata PC-Software	for photoFlex® and Turb® 430	1	**9.923 630**

1 Photometer system AL400

NEW!

AQUALYTIC

With the modern design of the AL400 we have succeeded in combining the mobility of a portable photometer with the characteristics of a modern laboratory photometer.
This new unit covers all the important parameters of water analysis, from aluminium to zinc. The high level of accuracy of Aqualytic® reagents and the user-friendly nature of the instrument guarantee rapid and reliable analysis of your water samples. Depending on the application, the unit will operate with tablet reagents, powder reagents, liquid reagents or tube tests (16/13mm).
The AL400 operates with 6 interference filters and uses long-life LEDs as a light-source. No moving parts are involved. The AL400 has a memory, in which up to 1000 data sets can be stored. The optional infra-red interface (IRIM = infra-red interface module) enables data to be transmitted to a computer or printer (RS232/USB).

Highlights:
- easy to use
- more then 70 pre-programmed methods
- automatic wavelength selection
- user Interface in English, German, French, Spanish, Italian, etc.
- Storage of 1000 data sets
- More than 20 user-defined methods possible
- Infrared Interface
- Waterproof Housing
- Mobile
- CE marked

Supplied with:
The instrument is supplied complete and ready-to-use incl. 4 batteries, 3 vials diam. 24 mm, 3 vials diam. 16 mm, 1 adapter each for 16 mm and 13 mm vials, carrying case with water resistance foam, but without reagents.

Specifications

Optics:	LEDs, interference filters (IF) and photo sensor in transparent sample chamber
Power Supply:	4 batteries (1.5V Mignon AA/LR6)
Operation time:	approx. 26 hours; continuous operation or 3500 tests
Dimensions (WxDxH):	approx. 210 x 95 x 45mm (unit)
	approx. 395 x 295 x 106mm (case)
Wavelengths:	530/ 560/ 610/ 430/ 580/ 660 nm

Type	Description	PK	Cat. No.
Photometer AL400		1	**9.699 225**
Verification standard kit		1	**9.699 246**
Set of 12 round cuvettes with cap	24 mm dia.	1	**9.699 231**
Set of 10 round cuvettes with cap	16 mm dia.	1	**9.699 240**
Adapter	for 16mm dia. cuvettes	1	**9.699 241**
Adapter	for 13mm dia. cuvettes	1	**9.699 242**
Sealing ring for cuvette	24mm dia.	12	**9.699 243**
Plastic funnel with handle		1	**9.699 244**
Stirring rod, plastic	13 cm long	1	**9.699 266**
Cleaning brush	10 cm long	1	**9.699 267**
Infrared data transfer module IRiM		1	**9.699 247**

1 Photometer-System AL450

NEW!

AQUALYTIC

The Multi Direct is a modern, microprocessor-controlled photometer with ergonomically designed keypad and large-format graphic display. It is equipped with a wide range of pre-programmed
methods (e.g. ammonia, COD, phosphate) based on the proven range of Aqualytic® tablet reagents, liquid reagents, vial tests and powder reagents. The calibration and software-supported control options mean that the unit is also suitable for use as a testing instrument. The seven standard rechargeable batteries (supplied) ensure easy mobile use.
Advantages
- wide range of pre-programmed methods
- large, graphics display
- RS232 interface
- suitable for use with standard rechargeable batteries
- updates for new methods and languages via the Internet
- 1000 data set memory
- custom method recall is also possible

Comprises: Multi direct, ready-to-use incl. 7 x rechargeable batteries and battery charger for 100 - 240V, 3 each 24mm and 16mm cuvettes, 16mm cuvette adapter, 3 x syringes, 1 x 100ml plastic beaker and case with waterproof insert. **Without reagents.**

Specifications

Optics:	temperature compensating LED, internal reference channel
Measuring time:	approx. 10 seconds
Power supply:	7 NiCd-battery pack (1.5V AA), charged in the unit using external power pack
Dimensions (HxWxD):	70 x 265 x 195mm
Ambient operating conditions:	up to max 90% humidity (non condensing), approx. 5 to 40°C
Approval:	CE
Wavelengths:	430/ 530/ 560/ 580/ 610/ 660nm

Type	Description	PK	Cat. No.
Photometer AL450		1	**9.699 230**
Set of 12 round cuvettes with cap	24mm dia.	1	**9.699 231**
Set of 10 round cuvettes with cap	16mm dia.	1	**9.699 240**
Adapter	for round vials, 16mm dia.	1	**9.699 264**
CSB reactor AL125	with 24 apertures	1	**9.920 204**
Stirring rod, plastic	13cm long	1	**9.699 266**
Cleaning brush	10cm long	1	**9.699 267**
Battery charger	100 -240V 50/60Hz, EU plug	1	**9.699 271**
Verification standard kit		1	**6.226 018**

2 Photometer photoLab® S6 and S12 - Filter photometer

WTW

High-precision, laboratory photometers with multilevel AQA/IQC functions. Feature easy operation, GLP-conforming documentation, simultaneous turbidity compensation: open cover, place cell, measure! Automatic selftest and zeroing of the optical systems during start up. Graphics display with instructions. AutoSelect for cuvettes recognition via barcode; all necessary settings automatically of more than 150 programmed methods with automatic cuvette detection. The RS232 interface transfers data to the user's PC. With real time clock and memory (incl. date/time) for 500 (S6) or 1000 (S12) data records. To be used with 16mm round cells and rectangular cells (only S12) 10, 20 and 50mm path length. Autozeroing. CE, UL, CUL tested.

photoLab® S6
With 6 interference filters for 340/445/525/550/605/690nm ±2nm. For routine applications with round cuvettes in waste water analysis.

photoLab® S12
With 12 interference filters ±2nm. Wavelength according to S6 with additional filters for 410/500/565/620/665/820nm. All test kits can be used (round cuvettes and reagent test kits), 50 user defined methods, Kinetic functions.

Type	Description	PK	Cat. No.
photoLab® S6	Mains version, 220V European plug	1	**9.923 631**
photoLab® S6-A	Rechargeable battery version, 220V European plug	1	**9.923 632**
photoLab® S12	Mains version, 220V European plug	1	**9.923 635**
photoLab® S12-A	Rechargeable battery version, 220V European plug	1	**9.923 636**
LP 6/12	Spare lamp for S6, S12	1	**9.923 638**
LPSpektral	Spare lamp, Spektral	1	**9.923 639**

1 photoLab® 6000 series for VIS and UV-VIS

NEW!

WTW

Whether for water analysis, food and beverage or education and research applications, the photoLab® 6000 series is universally applicable and offers complete photometric functionality at an outstanding price: performance ratio and precision. Fast, routine measurement, as well as complex spectral analytics can be performed easily, supported by function keys F1-F4. The on-screen user guide almost replaces the operating manual. The photoLab® meters and the WTW Online-system IQ Sensornet are now interactively connected with the easy IQ-LabLink procedure for easy data referencing.

Routine Measurement:
- more than 150 methods for routine parameters
- barcode recognition for more than 150 cell and reagent test kits
- direct methods such as SAC at 436 and 254nm

Spectral Analysis:
- absorbance spectra
- kinetics
- multi wavelength measurement (e.g. for the wine industry)
- User defined methods and profiles
- PC software photoLab® Data spectral and application packages for brewing optional
- enhanced AQS with user administration for environmental analytics and industrial needs
- optional direct printing to PDF file
- extensive testing routines and optical testing equipment (optional)
- 4nm band pass
- wavelength accuracy/reproducibility: 1nm/0.5nm
- photometric reproducibility t ±0.002 E @ 1 E (or better)
- photometric accuracy 0.003 for < 0.600E, 0.5% of result for 0.600 to 2.000E
- IQ-LabLink for easy data referencing with WTW-Online System IQ Sensornet
- update and data exchange via USB stick
- interfaces: USB-A, USB-B, RS232
- approx. 4 MB storage for 1000 measurement values and spectral data sets
- weight: 4 kg (allows onsite usage with car battery and optional WTW adapter cable)

Type	Description	PK	Cat. No.
photoLab® 6100 VIS	340-1100nm for VIS range with Tungsten halogen lamp	1	**6.232 685**
photoLab® 6600 UV-VIS	190-1100nm for UV-VIS range with Xenon flash lamp	1	**6.234 159**
photoLab® Brew	Application package brewery analysis for the photoLab® 6000 Series	1	**9.920 080**
photoLab® Data spectral	PC software for data management of photoLab® 6000 Series	1	**9.920 081**

1 Photometer photoLab® and photoFlex®, stored test programs

NEW!

A: Stored in photoLab® S6, S12, photoLab® 6000 Serie and photoLab® Spektral *WTW*
B: Stored in photoLab® S12, photoLab® 6000 Serie and photoLab® Spektral
C: Stored in photoFlex® and photoFlex® Turb

Reagent-free tests:
Cu - copper plating bath, 690nm, 820nm - copper plating bath - B
CrO_3 - chromium plating bath - chromium plating bath - B
Ni - nickel plating bath - nickel plating bath - B
HZ - Hazen colour - Hazen colour - B
IFZ - iodine number, 340nm, 455nm - iodine number - B
m-1 (DFZ) - colouring - FB445 - B, C
m-1 (DFZ) - colouring - FB525 - A, C
m-1 (DFZ) - colouring - FB620 - B, C
FAU - turbidity 620 - T620 - B
E - extinction - extinction - A, B, C
SAK - Spectral absorption coefficient at 254 and 436nm photoLab® 6100 VIS (436nm) and photoLab® 6600 UV-VIS (254/436nm)

Further tests on demand, range information is based on max. range and can also be smaller for photoFlex®.

Type	Description	For	Measuring range mg / l	No. of determinations	PK	Cat. No.
14697	a-Ten, Surfactants anionic	B, C	0,05 - 2,00	25	1	**9.920 904**
14831	Ag, Silver	B, C	0,25 - 3,00	100	1	**9.920 905**
14825	Al, Aluminium	B, C	0,02 - 1,20	300	1	**9.920 906**
14821	Au, Gold	B, C	0,50 - 12,00	80	1	**9.920 907**
14839	B, Boron	B	0,05 - 0,80	60	1	**9.920 908**
14551	C_6H_5OH, Phenol	B, C	0,10 - 2,50	25	1	**9.920 893**
14815	Ca, Calcium	B, C	5,00 - 160,00	100	1	**9.920 909**
14834	Cd, Cadmium	A, C	0,025 - 1,00	25	1	**9.920 873**
01745	Cd, Cadmium	A, C	0,002 - 0,50	55	1	**9.920 946**
00595	Cl_2, Free chlorine	A, C	0,03 - 6,00	200	1	**9.920 949**
00597	Cl_2, Free + total chlorine	A, C	0,03 - 6,00	200	1	**9.920 950**
00599	Cl_2, Free + total chlorine	B	0,01 - 6,00	200	1	**9.920 951**
Cl-3 TP	Cl_2, Total chloride	C	0,00 - 2,00	100	1	**9.920 864**
14730	Cl, Chloride	A, C	5,00 - 125,00	25	1	**9.920 910**
14897	Cl, Chloride	B, C	2,50 - 250,00	100	1	**9.920 911**
14561	CN, Cyanide	A, C	0,01 - 0,50	25	1	**9.920 881**
09701	CN, Cyanide	B, C	0,002 - 0,5	100	1	**9.920 914**
14552	Cr, Chromate (Chromium)	A, C	0,05 - 2,00	25	1	**9.920 875**
14758	Cr, Chromate (Chromium)	B	0,01 - 3,00	250	1	**9.920 915**
Cu-1 TP	Cu, Copper	C	0,00 - 5,00	100	1	**9.920 862**
14553	Cu, Copper	A, C	0,05 - 8,00	25	1	**9.920 887**
14767	Cu, Copper	B	0,02 - 6,00	250	1	**9.920 916**
14557	F, Fluoride	B, C	0,10 - 1,50	25	1	**9.920 884**
14549	Fe, Iron	A, C	0,05 - 4,00	25	1	**9.920 883**
14761	Fe, Iron	B, C	0,005 - 5,00	1000	1	**9.920 917**
14896	Fe, Iron	C	1,00 - 50,00	25	1	**9.920 918**
00961	GH, total hardness / Ca	A, C	5,00 - 215,00	25	1	**9.920 919**
14500	HCHO, Formaldehyde	C	0,10 - 8,00	25	1	**9.920 885**
14678	HCHO, Formaldehyde	B	0,02 - 8,00	100	1	**9.920 921**
14779	HS, Hydrogen sulphide	B	0,02 - 1,50	220	1	**9.920 922**
14562	K, Potassium	A, C	5,0 - 50,0	25	1	**9.920 886**
00815	Mg, Magnesium	A, C	5,0 - 75,0	25	1	**9.920 953**
14770	Mn, Manganese	B, C	0,01 - 10,0	500	1	**9.920 924**
00816	Mn, Manganese	A, C	0,10 - 5,00	25	1	**9.920 963**
Mo-1 TP	Mo, Molybdenum	C	0,0 - 35,0	100	1	**9.920 965**
19252	Mo, Molybdenum	B	0,5 - 45,0	100	1	**9.920 964**
09711	N_2H_4, Hydrazine	B	0,005 - 2,00	100	1	**9.920 983**
00860	Molybdate	B, C	0,02 - 1,00	25	1	**6.225 979**
14537	N_{total}, Totale Nitrogen	A, C	0,5 - 15,0	25	1	**9.920 897**
14763	N_{total}, Totale Nitrogen	A	10,0 - 150,0	25	1	**9.920 926**
14544	NH_4-N, Ammonium	A, C	0,5 - 16,0	25	1	**9.920 927**
14559	NH_4-N, Ammonium	A	4,0 - 80,0	25	1	**9.920 928**
14752	NH_4-N, Ammonium	B, C	0,01 - 3,00	500	1	**9.920 929**
A6/25	NH_4-N, Ammonium	A, C	0,20 - 8,00	25	1	**9.920 958**
14554	Ni, Nickel	A	0,10 - 6,00	25	1	**9.920 888**
14785	Ni, Nickel	B, C	0,02 - 5,00	250	1	**9.920 930**

Photometer photoLab® and photoFlex®, stored test protocols

WTW

Type	Description	For	Unit	No. of determinations	PK	Cat. No.
14776/1	NO_2-N, Nitrite	B, C	0,005 - 1,00 mg/l	1000	1	**9.920 931**
N5/25	NO_2-N, Nitrite	A, C	0,010 - 0,700 mg/l	25	1	**9.920 960**
14542	NO_3-N, Nitrate	A, C	0,5 - 18,0 mg/l	25	1	**9.920 890**
14556	NO_3-N, Nitrate	B, C	0,10 - 3,00 mg/l	25	1	**9.920 891**
14773	NO_3-N, Nitrate	B	0,2 - 20,0 mg/l	100	1	**9.920 932**
14764	NO_3-N, Nitrate	A	1,0 - 50,0 mg/l	25	1	**9.920 933**
14942	NO_3-N, Nitrate	B, C	0,2 - 17,0 mg/l	50	1	**9.920 870**
N2/25	NO_3-N, Nitrate	A, C	0,5 - 25,0 mg/l	25	1	**9.920 959**
14694	O_2, Oxygen	A	0,5 - 12,0 mg/l	25	1	**9.920 925**
14555	O_2 COD, COD	A, C	500 - 10000 mg/l	25	1	**9.920 879**
14560	O_2 COD, COD	A	4,0 - 40,0 mg/l	25	1	**9.920 880**
14690	O_2 COD, COD	A, C	50 - 500 mg/l	25	1	**9.920 934**
14691	O_2 COD, COD	A, C	300 - 3500 mg/l	25	1	**9.920 935**
14895	O_2 COD, COD	A, C	15 - 300 mg/l	25	1	**9.920 936**
C3/25	O_2 COD, COD	A, C	10 - 150 mg/l	25	1	**9.920 956**
C4/25	O_2 COD, COD	A, C	25 - 1500 mg/l	25	1	**9.920 957**
00607/1	O_3, Ozone	B, C	0,010 - 4,0 mg/l	200	1	**9.920 952**
14833	Pb, Lead	A	0,10 - 5,00 mg/l	25	1	**9.920 872**
01744	pH	A, B	6,4 - 8,6 pH	280	1	**9.920 945**
14546	PO_4-P, Phosphate	A, C	0,5 - 25,0 mg/l	25	1	**9.920 896**
14842	PO_4-P, Phosphate	B	0,5 - 30,0 mg/l	400	1	**9.920 939**
14848	PO_4-P, Phosphate	B, C	0,01 - 5,00 mg/l	420	1	**9.920 940**
00616	PO_4-P, Phosphate	A, C	3,0 - 100,0 mg/l	25	1	**9.920 954**
00798	PO_4-P, Phosphate	B, C	1,0 - 100,0 mg/l	100	1	**9.920 955**
P6/25	PO_4-P, Phosphate	A, C	0,05 - 5,00 mg/l	25	1	**9.920 961**
P7/25	PO_4-P, Phosphate	A, C	0,5 - 25 mg/l	25	1	**9.920 962**
14683	RH, Residual hardness	A	0,50 - 5,00 mg/l Ca	25	1	**9.920 941**
14794	Si, Silicate	B, C	0,005 - 5,00 mg/l	300	1	**9.920 942**
00857	Si, Silicate	B, C	0,5 - 500,0 mg/l	100	1	**9.920 868**
14622	Sn, Tin	B	0,10 - 2,50 mg/l	25	1	**9.920 943**
14394	SO_3, Sulfite	B	1,0 - 20,0 mg/l	25	1	**9.920 900**
01746	SO_3, Sulfite	B	1,0 - 60,0 mg/l	150	1	**9.920 948**
14564	SO_4, Sulfate	A	100 - 1000 mg/l	25	1	**9.920 899**
14791	SO_4, Sulfate	B	25 - 300 mg/l	200	1	**9.920 944**
14548	SO_4, Sulfate	A, C	5 - 250 mg/l	25	1	**9.920 898**
14566	Zn, Zinc	A, C	0,20 - 5,00 mg/l	25	1	**9.920 901**
14832	Zn, Zinc	B	0,05 - 2,50 mg/l	90	1	**9.920 902**
00861	Zn, Zinc	B, C	0,025 - 1,000 mg/l	25	1	**9.920 866**

1 CSB measuring station, AL250 COD Vario

NEW!

AQUALYTIC

ISO 15705. This measuring station from AQUALYTIC® allows the accurate rapid, and economical determination of meaningful waste water COD levels (chemical oxygen consumption). Easy operation, even by unskilled operators. Comprises COD photometer, 25 tube tests covering lower measuring ranges, a reactor block for sample digestion an a tube stand. Twin, long-life LED light sources in the AL250 photometer guarantee stability and the ergonomic keyboard ensures operating safety and ease-of-use.

Specifications:

Measurement cycle:	approx. 3 seconds (method dependent)
Display:	LCD readout
Optics:	Temperature compensated LED and photosensor amplifier in protected sample chamber
Power:	9V PP3 battery, giving approx. 40 hrs operation
Overall WxDxH:	190 x 110 x 55mm

Type	Description	PK	Cat. No.
CSB measuring station AL250 COD Vario		1	**9.920 205**
AL250 COD Vario(photometer only)		1	**9.950 531**
CSB reactor AL125	with 24 borings	1	**9.920 204**
CODvario tube test	0 to 150mg/l O_2	25	**9.950 533**
CODvario tube test	0 to 1500mg/l O_2	25	**9.950 534**
CODvario tube test	0 to 15000mg/l O_2	25	**9.950 535**

1 COD workstations, PB-CSB/M

Behr

For COD determination. Complete workstations for the simultaneous determination of a maximum of 6 or 12 samples in accordance with DIN/DEV and ISO. Manual dosing and titration.
The workstations comprise:
- TRS 300/CSB-Automatic microprocessor-controlled, time and temperature regulator
- COD/E precision block thermostat heater for RG 2 reaction vessels
- E/B insert/capping rack for RG 2 reaction vessels
- KW/N cooling trough with holder and stand E/B
- SM 12/N serial magnetic stirrer for E 12/B insert/capping rack (PB-CSB 12/M only)
- RG 2 reaction vessels
- MRST 2 magnetic stirrer bar set, pack of 12
- SIST 100 boiling stones, capacity 100g
- LK 1 COD air condenser
- LS air condenser stand
- PTFE 29 sleeves for LK 1, set of 12
- TS CSB transport stand for E/B insert/capping rack E/B
- HTI 1manual titrating station.

Type	PK	Cat. No.
PB-CSB 6/M	1	**9.920 542**
PB-CSB 12/M	1	**9.920 543**

2 COD magnetic stirrer

Behr

The continuously adjustable COD series magnetic stirrer with 12 stirring points is used to mix the samples during the metering process. Due to its watertight casing and also its external power supply and control, it is suitable for use under water.

Type	Description	PK	Cat. No.
SM/N	Series magnetic stirrer for E 12/B insert	1	**6.055 561**
IMR	COD magnetic stirrer for 1 reaction vessel	1	**6.051 034**

3 COD sample digestion units PA-CSB

Behr

Units configured to simultaneously treat a maximum of 6 or 12 x COD samples in accordance with DIN/DEV and ISO.
The digestion unit contains the following components:
- TRS 300/CSB-Automatic microprocessor-controlled, time and temperature regulator
- CSB/E precision block heater for RG 2 reaction vessels
- E/B insert/capping rack for RG 2 reaction vessels
- KW/N cooling trough with holder and stand for E/B
- RG 2 reaction vessels
- LK 1 air condenser
- LS stand for LK air condenser.

Type	PK	Cat. No.
PA-CSB 6	1	**9.920 540**
PA-CSB 12	1	**9.920 541**

1

1 behrotest ® HTI 1 manual titration station

Behr

The HTI 1 manual titration station consists of
- a burette with digital display and
- a magnetic stirrer with a precisely fitting holder for COD reaction vessels. A screen serves as a neutral background and allows the user to determine the colour change at the end of the titration precisely. He/she will therefore always carry out titration under similar visual conditions. This improves the precision and the reproducibility of the results.

The precise positioning of the reaction vessels in the holder on the top of the magnetic stirrer also contributes to this. The angled wing of the screen protects against lateral dazzling light.

Specifications

Voltage	115/230V a.c.
Frequency	50/60 Hz
Weight	approx. 3.5 kg
Dimensions in mm (WxDxH)	approx. 330 x 200 x 600

Type	Description	PK	Cat. No.
HTI	Manual titration station	1	**9.920 730**

2

2 COD cooling trough

Behr

The cooling trough prevents the overheating of the COD samples during the critical addition of sulphuric acid. In addition, it is used to cool the samples after the heating phase.

Type	Description	PK	Cat. No.
KW 6 /N	Cooling trough for E 6/B insert frame	1	**9.920 706**
KW 12/N	Cooling trough for 2 E 12/B insert frame	1	**6.052 519**
KW 24/N	Cooling trough for E 12/BV insert frame	1	**6.089 903**
LS 6	Stands for 6 COD air coolers	1	**9.920 723**
LS 12	Stands for 12 COD air coolers	1	**6.051 958**

3

3 COD metering funnel

Behr

COD metering funnels, placed on top of the COD reaction vessels, simplify the addition of sulphuric acid to several samples simultaneously. The user fills the metering funnel with the standard volume of 30ml. He/she can do this much more quickly than when metering straight into the sample. The sulphuric acid is then dripped onto the sample by means of a spindle stopcock. After adjusting once, the user can then meter the sulphuric acid evenly into a large number of samples comparatively quickly and without time-consuming manipulation.
COD metering funnel together with a cooling trough and a series magnetic stirrer increase the safety and offer considerable relief to the user when determining the COD.

Type	Description	PK	Cat. No.
DT 30	metering funnel, 30 ml, for sulphuric acid	1	**9.920 713**

4

4 HCl-absorber

Behr

To expel chloride, e.g. when determining the COD of sea water.

Type	Description	PK	Cat. No.
HCL 29	HCL absorber to expel chloride	1	**6.060 789**

1 Boiling stones

Behr

behrotest® boiling stones are made from a ceramic material. Compared to conventional boiling stones made of glass, they provide optimum protection against defervescence due to their porosity and their shape, even with badly blended samples.
behrotest® boiling stones are chemically pure and guarantee unadulterated results when determining the COD.

Type	Description	PK	Cat. No.
SIST 100	Boiling stones, contens 100g	1	**9.920 710**

1

2 B.O.D. auto-check measurement systems, OxiTop®

WTW

In accordance with DIN EN 1899 H55.
Modular and mercury-free B.O.D. systems for practical, daily operation. The system is TÜV/GS tested. With no mechanical moving parts the programme-controlled, Inductive Stirring System is durable and does not require any type of maintenance. The magnetically coupled stirring bars are periodically speeded up to, or slowed down from the minimum to the maximum stirring speed respectively. A controlled "catching device" forces the stirrer bars into the magnetic field and synchronises them with the stirring speed. An optimal gas exchange for BOD determinations is therefore guaranteed in the sample bottle. The mercury-free, OxiTop measuring system works manometrically with a pressure sensor and 2-digit digital display.
- Large measuring range with overflow indicator
- Auto Temp function - intelligent temperature monitoring for automatic start under the best possible conditions
- Automatic zero setting at start
- Integral memory - daily readings no longer required
- Battery powered with typical running time of 2 years.

system comprises:
B.O.D. measuring units with inductive stirring system and OxiTop® measuring system, ready for use in thermostatic cabinets and incubators with amber sample bottles 600ml, stirring bars, stirring bar remover, sodium hydroxide pellets, rubber sleeves, 164ml and 432ml overflow measuring flasks, chart paper block and nitrification inhibitor. Any conventional manometric B.O.D. system can be converted to the OxiTop® system. Various conversion kits are available for this - details on request.

IS 6 and IS 12:

Number of stirring positions:	6 or 12
Speed:	180 to 450 rpm.
Safety class:	3, IEC 1010
Protection system:	IP 30 DIN 40050
Supply requirements:	Mains adapter 230 V (+ 10 % to - 15 %)

OxiTop-System:

Instrument range:	0 to 50 digits (display units)
Operating pressure range:	500 to 1100 hPa
Display accuracy:	±1 digit (±3.55 hPa)
Safety class:	3, IEC 1010
Protection system:	IP 54 DIN 40050

Type	Description	PK	Cat. No.
OxiTop® IS 6	for 6-place	1	**9.920 000**
OxiTop® IS 12	for 12-place	1	**9.920 001**
OxiTop® IS 12-6	generally as OxiTop® IS 12, but with 6 OxiTop® measuring systems, suitable for expansion to 12 measuring units	1	**9.920 003**

2

1

1 B.O.D. auto-check measurement systems, OxiTop® Control

WTW

In accordance with DIN EN 1899 H55.
OxiTop® Measuring System with infra-red communication between measuring head
Oxitop C and the Controller Oxitop Control 100. Sample administration for up to 100 parallel samples and automatic sample ID. The display presents a clear view of the whole sample management and process with indication of the process step. The display function means that manual identification or labelling is no longer necessary. The two operating modes included, " Routine B.O.D." and "Standard B.O.D." fulfil standard requirements and additional demands such as calculation and statistics. GLP-compliant documentation with testing agent monitoring is included. It is not possible to switch samples. The progress of individual sample procedures is stored in the measuring head with 180 to 360 data records. Each measuring system independently implements a temperature-controlled start using the integral AutoTemp function. The measuring positions can be called up at any time using the controller and their measurements loaded into the controller's memory (even through the closed insulating glass door or cover of the thermostatic cabinets and OxiTop® boxes). B.O.D. evaluation and curve construction is carried out in the controller. Data output to PC is possible via the RS 232 interfaces. OxiTop® Control can be expanded as required using extension sets. The inductive stirring system corresponds with OxiTop® (see previous page).

Complete system comprises:
OxiTop® B.O.D. controller, OxiTop®-C measuring heads (each battery operated) and inductive stirring system, ready for use in OxiTop® thermostatic cabinets and incubators. Controller inludes graphics display, sample management for up to 100 measuring positions, amber sample bottles 600 ml, stirring bars, stirring bar remover, sodium hydroxide pellets, rubber sleeves, 164ml and 432ml overflow measuring flasks, chart paper block and nitrification inhibitor.

Controller OxiTop® OC 100:	
Measuring ranges:	0 to 40/80/200/400/800/2000/4000mg/L B.O.D.
Safety class:	3, IEC 1010
Protection system:	IP 42 DIN 40050.
OxiTop®-C measuring head:	
Measurement principle:	manometric, by means of a pressure sensor
Operating pressure range:	500 to 1350 hPa
Accuracy:	±1 % Meas. value ±1 hPa
Resolution:	1 hPa (corresponds with 0.7 % of the B.O.D. measuring range)
Display:	LED pilot lamp
Safety class:	3, IEC 1010
Protection system:	IP 54 DIN 40050

Type	Description	PK	Cat. No.
OxiTop® Control 6	for 6-place	1	**9.920 010**
OxiTop® Control 12	for 12-place	1	**9.920 011**

2

2 Controlled temperature cabinet, OxiTop® Box

WTW

With temperature regulated forced air circulation.
Benchtop model with transparent, hinged cover. can be used with various accessories,
including OxiTop® IS, OxiTop® Control and IS 602. With interior power supply socket to allow operation of stirrers etc. within the chamber. Corrosion-resistant housing made of stainless steel or plastic. Temperature control is maintained using forced air circulation refrigeration unit. Cross flow ventilation provides uniform temperature distribution. Overtemperature protection, automatic defrosting and condensate evaporation are also provided, to maximise system efficiency. Stability at 20°C ±0.5°C. A special storage rack is provided for methylene blue samples. Also suitable for "BOD dilution" samples.

Dimensions (WxDxH):	425 x 600x 375 mm
Weight:	approx. 30 kg
Supply requirements:	230 V 50 Hz (+10 %, -15 %) 200 W.

Type	PK	Cat. No.
OxiTop® Box	1	**9.920 025**

1 Controlled temperature cabinets BOD

WTW

To maintain samples at the same temperature during incubation, there is a need for an controlled temperature cabinet. WTW offers a choice of cabinet with temperature range adjustable from 10°C to 40°C (temperature stability ±0.5°C), power supply 230 V 50Hz. For stirring the samples there is a supply socket for a mixer inside the cabinet. Depending on the size of the samples there is max. space for 2 to 4 shelves. So up to 48 standard BOD samples, 4 x type IS 12 or 8 x IS 6-Var stirring platforms can be accommodated. For special applications the larger Model TS 1006-i is required, having enough space between the shelves for 1.5 litre bottles. Models TS 606/2-i and TS 606/4-i with separate glass door are designed for use with the larger OxiTop® Control system, allowing the digital readout to be viewed through the glass.

1

Temperature range:	+10°C to +40°C
Settable resolution:	1°C
Ambient temperature:	+10°C to +32°C (Climate class SN)
Storage:	-25°C to +65°C

Type	For	PK	Cat. No.
TS 606/2-i	2 BOD OxiTop® units	1	**9.926 304**
TS 606/3-i	3 BOD OxiTop® units	1	**9.926 305**
TS 606/4-i	4 BOD OxiTop® units	1	**9.926 308**
TS 1006-i	4 BOD OxiTop® units	1	**9.926 311**

2 BOD-Measurement-System AL606

AQUALYTIC

The sensor system AL606 is a 6-sample system which allows precise measurement of BOD, based on the manometric principle. Manometric respirometers relate oxygen uptake to the change in pressure caused by oxygen consumption, while maintaining a constant volume. Thanks to modern, integral pressure sensors, it is no longer necessary to use mercury for pressure measurement.
In addition to the BOD unit for measurement and recording of BOD levels, the AL606 BOD measuring system includes sample bottles, measuring sensors, non-wearing inductive stirring system, overflow measuring flasks for exact sample volumes, nitrification inhibitor and potassium hydroxide as an absorbent.
System comprises:
- Aqualytic AL606, complete with 6 sensors, control unit and batteries
- magnetic, inductive stirring system with power supply
- 6 sample bottles
- 6 adapter caps and 6 stirring bars
- 1 volumetric flask, 157ml
- 1 volumetric flask, 248ml
- 1 x 50 ml bottle potassium hydroxide solution
- 1 x 50 ml bottle nitrification inhibitor
- 1 user manual

2

Specifications

Measuring principle:	manometric, electronic pressure sensor
Ranges:	0 to 40, 0 to 80, 0 to 200, 0 to 400, 0 to 800, 0 to 2000, 0 to 4000mg/l O_2
Measurement period:	User-selectable, between 1 and 28 days
Power supply:	3 x 1.5V alkaline batteries, size "C"
Protection class:	IP 54 (Sensor)
Approval:	CE
Interface:	RS232 for printer or PC
Clock:	Real time
Application:	BOD5/ BODF/ OECD301F

Type	Description	PK	Cat. No.
BOD AL606	6 positions, complete with accessories	1	**9.699 238**
BOD AL612	12 positions, complete with accessories	1	**9.699 239**
BOD sample bottle	Amber glass, 500 ml, 6 bottles	6	**9.303 436**
Tubing		1	**9.303 437**
Potassium hydroxide solution	45 %, 50 ml	1	**9.303 438**
Nitrification inhibitor (N-ATH)	50 ml	1	**9.303 433**

1

1 Thermostatic cabinets

AQUALYTIC

Thermostatic cabinets produced by Aqualytic® provide continuous temperature control for a number of different applications. The low temperature range from 2 to 40°C allows use as cooled incubators for microbiology, amongst other uses. Furthermore, samples can be incubated, or BOD tests for sewage analysis carried out.
All temperatures can be selected in 0.1°C steps and are maintained with a stability of ±0.5°C at 20°C in the sample. An LCD digital readout simultaneously indicates the current and set-point temperatures within the cabinet.

Description	Capacity L	PK	Cat. No.
With normal door	135	1	**9.699 040**
With normal door	195	1	**9.699 042**
With normal door	280	1	**9.699 044**
With normal door	395	1	**9.699 038**
With glass door	140	1	**9.699 041**
With glass door	195	1	**9.699 043**
With glass door	280	1	**9.699 045**
With glass door	395	1	**9.699 039**

2

2 BOD mixing equipment

Behr

behrotest® BOD mixing equipment is reliable and simple to operate. In conjunction with appropriate accessories - from dilution water containers with cooling coils to circulation thermostat and right on up to Micro-dosing units for allylthiourea - complete work stations can be configured. You can significantly reduce the operation overhead for determining BOD via DIN EN 1899-1 (=DEV H 51), thereby also reducing costs.

Available on request.

3

3 BOD (Karlsruher) bottles with stoppers

Behr

behrotest®.The funnel shaped bottle neck is filled with sample water, which is displaced when the meter electrode is inserted. This ensures results are not affected by unwanted air bubbles, allowing oxygen into the samples, giving a false reading.

Capacity ml	Length*	PK	Cat. No.
100	20	1	**9.920 514**
100	60	1	**9.920 515**
250	20	1	**9.920 513**
250	60	1	**9.920 509**

* Stopper handle length (mm)

4

4 BOD meters Type KF 12, accessory funnel bottle

WTW

Karlsruher BOD bottle with NS19 conical ground joint.

Type	PK	Cat. No.
Karlsruher BOD bottle, 250ml	1	**9.304 170**

5

5 BOD bottles with stoppers

Behr

With NS 19 cone glass stopper.

Type	PK	Cat. No.
BOD bottles with stoppers, 100 ml	1	**9.920 500**

1 Dissolved oxygen bottles, Winkler pattern

Winkler pattern. Soda-lime glass. *BRAND*
For determination of dissolved oxygen in water. The measured capacity is specified to ±0.01ml. With white labelling area. Solid, bevelled glass stopper, secured with an accessory spring clip. Each bottle is adjusted to the relevant stopper. Stoppers and bottles are therefore not interchangeable. Each bottle and its stopper is marked with a unique, matching identification number.

Nominal capacity ml	NS	Snap-on clip	PK	Cat. No.
100 to 150	14/23	9.304 050	1	**9.304 038**
250 to 300	19/26	9.304 051	1	**9.304 048**

2 Spring clips for oxygen bottles according to Winkler

For bottles ml	PK	Cat. No.
100 to 150	1	**9.304 050**
250 to 300	1	**9.304 051**

3 Behr COD Heating Blocks

NEW!

Precision heating blocks with 6, 12 or 24 sample positions. Flat surface heater for even temperature distribution to each sample position. Stainless steel and powder coated steel casing. Extensive insulation provides for inoffensive temperatures of the casing surfaces.
End-to-end grooves in the precision aluminum plate at the bottom of the bores simplify sample handling and provide for exemplary safety of the analyst.
During sample insertion the grooves cause pressure compensation. Thus even the most accurately fitting reaction vessels slip easily into the bores, which is required to effortlessly handle the behr insert and yoke type frames for RG 2 reaction vessels.
When inserting the samples into the hot heating block adherent moisture on the vessel surface evaporates in sudden bursts. The grooves drain off the vapor which otherwise might cause the vessels to jump up and down which might eventually lead to the destruction of the vessels.
In case of one or more vessels overflowing the liquid COD samples discharge through the grooves minimizing the danger of damages inside the block caused by acids.

Type	Description	Rating W	Temp. range °C	PK	Cat. No.
CSB 6 / E	COD acc. to ISO: Precision heating block for 6 RG reaction vessels	800	300	1	**9.920 721**
CSB 12 / E	COD acc. to ISO: Precision heating block for 12 RG reaction vessels	1500	300	1	**6.510 709**
CSB 24 / E	COD acc. to ISO: Precision heating block for 24 RG reaction vessels	2000	300	1	**6.054 780**

Adapter for heating blocks

NEW!

Adapter for heating blocks for inspection equipment monitoring according to DIN EN ISO/IEC 17025 *Behr*
- special aluminum alloy
- high measurement accuracy
- 4 borings for PT 100 sensors with standard diameters
- safe handling
- large PTFE end cap for protection from contact with hot metal parts

Description	PK	Cat. No.	
Adapter for heating blocks, diam. 41 mm, deep boring	1	**9.843 840**	4
Adapter for heating blocks, diam. 42 mm, deep boring	1	**9.843 841**	5
Adapter for heating blocks, diam. 65 mm, deep boring	1	**9.843 842**	
Adapter for heating blocks, diam. 42 mm, flat boring	1	**9.843 843**	

9.843 840

9.843 841

1 TRS 300 programmable temperature and time control unit

NEW!

Programmable control unit for behrotest® digester blocks — *Behr*

behr one-button operation for particularly easy and quick programming. Menu navigation in the language of the country. 10 optionally configurable programs for block temperature and digestion time.
The TRS 300 has a special COD program which has already been set by the plant. Therefore in the operation mode „COD" it heats up to a temperature which is 20°C above the set target temperature. After inserting the samples, the 20°C higher target value remains for another 6 minutes. This procedure ensures heating up to 148°C within 10 minutes which is specified by the ISO norm, and at the same time causes extremely high temperature constancy during the subsequent reaction process. The supplied Windows software permits the user to transfer time/temperatures profiles, which are specifically for the application, via the RS232 interface in both directions between one or more units (TRS 300) and a PC. Temperature data can also be transmitted from the unit to the PC via the RS232 interface while operating. The user can save them if necessary and print them out as graphics. Integrated safety function switches the connected units off if there is a short-circuit and an interruption of the temperature sensor.

Type	Description	PK	Cat. No.
TRS 300	Temperature and control unit, microprocessor controlled unit, up to 10 temperature/time combinations can be programmed	1	**6.229 909**

2 Automatic metering and titration unit DT 20

NEW!

Metering: — *Behr*
Metering in optimal time intervals: The metering of sulphuric acid is carried out in several processes, the samples are thus constantly cooled and stirred. This method accelerates the preparation of samples and at the same time prevents non-standard overheating of the samples during addition.
Titration:
Instead of the commonly known over-titration, the behr-specific dynamic titration guarantees the exact end-point recognition, even in the case of the typical COD edge steepness, and thus particularly accurate test results

Type	Description	PK	Cat. No.
DT 20	Automatic metering and titration	1	**9.920 748**

3 4 Sedimentation cones, glass

Imhoff pattern. DIN 12672. Borosilicate glass 3.3. — *BRAND*
Graduations and inscriptions in contrasting white enamel. Ring mark at 1000ml.

Graduations, ml:	Subivisions ml/Tolerance ±ml:
0 to 2	0.1/0.1
2 to 10	0.5/0.5
10 to 40	1/1
40 to 100	2/2
100 to 1000	50/10

Type	Grad. ml	PK	Cat. No.
Without stopcock	up to 100*	1	**9.304 262**
With stopcock	up to 100*	1	**9.304 272**
Without stopcock	up to 1000	1	**9.304 273**

* No subdivisions from 100 to 1000 ml.

5 Sedimentation cone, plastic

Imhoff pattern. DIN 12672. SAN. Transparent SAN (Styrene acrylonitrile). With screw cap for draining the contents. Temperature-resistant up to max. 85°C. — *Kartell*

Graduations, ml:	Subdivisions, ml
0 to 2	0.1
2 to 10	0.5
10 to 40	1
40 to 100	2
100 to 1000	50

Type	Grad. ml	PK	Cat. No.
With screw cap	up to 1000	1	**9.304 280**

1 Sedimentation cones, accessory stand

Acrylic/PP. To hold two Imhoff sedimentation cones. Compact and easy to transport even when fully loaded. *Kartell*

Width mm	Length mm	Height mm	PK	Cat. No.
150	300	300	1	**9.304 281**

1

2 Sedimentation cones, accessory holders

Imhoff pattern, solid grey PVC. Stable design. *Behr*

For	PK	Cat. No.
2 Imhoff funnels without stopcock	1	**9.882 101**
4 Imhoff funnels without stopcock	1	**9.882 102**
2 Imhoff funnels with stopcock	1	**9.882 103**
4 Imhoff funnels with stopcock	1	**9.882 104**

2

3 Flocculation testers

For flocculation tests of water and waste water. *Stuart*
- choice of 2- or 6-bank models
- digital speed display
- two adjustable speed presets
- accurate and reproducible speeds
- diffused base illumination with black background
- accepts beakers up to 1000ml.

Adjustable speed range 25 to 250rpm. Dimensions (H x W x D): 460 x 320 x 220mm (two-bank model) 460 x 750 x 220mm (six-bank model). For 230 V 50 Hz, single phase supplies. Supplied with rotor blades but without beakers. With BioCote silver based antimicrobial protection.

Type	Description	PK	Cat. No.	
SW5	Flocculation tester, 2-bank	1	**9.951 491**	4
SW6	Flocculation tester, 6-bank	1	**9.951 492**	5

4

9.951 491

5

9.951 492

Accessories for flocculation testers

Coagulant injector for SW6 flocculator only. For simultaneous injection of coagulant or reagents in six sample beakers. *Stuart*

Type	Description	PK	Cat. No.
SW6/2	Coagulant injector for flocculator	1	**9.951 493**

3

BioCote

1 Turbidity meter AL250T-IR

AQUALYTIC

With infrared light source.
Highlights:
- measuring ranges from 0.01 to 1100NTU (autorange)
- measurement with infrared light at an angle of 90°
- measurement of coloured liquids
- easy operation
- 600 tests between battery charges

The compact Aqualytic® infrared turbidity meter AL250T-IR is designed to allow fast, precise on-site testing. The unit measures the scattered light at an angle of 90°, as stipulated in EN ISO 27 027.
The wide measuring range from 0.01 to 1100 TE/F = NTU = FNU permits use of the unit for various media, ranging from drinking water to waste water.
As infrared light is used for measurement, the unit can be used to test both coloured and colourless liquids.
The standards required for calibration of the unit are also supplied. A second adjustment mode allows alternative adjustment with user-defined turbidity standards.

Package contents:
AL250T-IR turbidity meter as described above, complete with 4 turbidity standards <0.1, 20, 200 and 800NTU, battery and test vial, in case.

Specifications:

Measurement cycle:	approx. 9 seconds
Display/Function:	LCD
Optics:	temperature-compensated LED and photosensor amplifier in water proof sample chamber
Keypad:	4 key polycarbonate membrane
Measuring range:	0.01 to 1100NTU (autorange)
Resolution:	0.01 to 9.99NTU = 0.01NTU 10.0 to 99.9NTU = 0.1NTU 100 to 1100NTU = 1NTU
Accuracy:	±2.5% of measuring value or ±0.01 NTU (0 to 500 NTU) ±5% (500 to 1100NTU)
Housing:	ABS
Dimensions (L x W x H):	190 x 110 x 55mm
Weight (Basis unit):	approx. 0.4kg
Ambient	
Temperature:	0 to 40°C
Humidity (rel.):	30 to 90% R.H.
Test equipment suitability:	Software supported user adjustment with T-CAL-standards (see accessories)
CE-conformity:	DIN EN 50081-1, VDE 0839 part 81-1: 1993-03, DIN EN 50082-2, VDE 0839 part 82-2: 1996-02

Type	PK	Cat. No.
AL250T-IR	1	**9.920 203**

Accessories for turbidity meter AL250T-IR/AL450T-IR

AQUALYTIC

Description	PK	Cat. No.
Set of 12 empty sample vials, diam. 24 mm	1	**6.223 191**
Set of turbidity standards T-CAL (<0.1, 20, 200, 800 NTU)	1	**9.920 493**

1 Laboratory turbidimeter AL450T-IR

AQUALYTIC

Turbidity is measured according to ISO 7027 by nephelometric means (90° scattered light). The infra-red light-source permits measurement of coloured and colour-free samples.
The automatic measurement range detection facility (Autorange) enables direct turbidity measurement from 0.01 to 1100NTU.

Advantages:
- automatic overall range adjustment with 4 standards
- high accuracy
- suitable for laboratory and mobile use
- memory storage of up to 1000 data-sets
- real-time clock
- waterproof sample chamber and housing

Specifications

Light source:	IR-LED (860nm)
Keypad:	conditional acid and solvent resistant; membrane switch keypad with audible feedback
Auto - Off:	automatic switch off approx. 20 min after last key press
Display:	Graphics multisegment
Update:	Software update via internet
Memory:	1000 data sets with date, time and registration no.
Measuring range:	0.01 to 1100NTU (Auto range)
Resolution:	0.01NTU (0.01 to 9.99NTU) 0.1NTU (10 to 99.9NTU) 1NTU (100 to 1000NTU)
Accuracy:	±2% of measured value or 0.01 (0 to 500NTU)/±5% of measured value (500 to 1100NTU)
Ambient conditions:	0 to 40°C at 30 to 90% R.H. (non condensing)
Interface:	RS232 for printer and PC-connection; 9-pin D-sub-mail connector; data format ASCII
Power supply:	7 NiCd rechargeable batteries (Type AA/Mignon, 800mAh); wall plug mains adapter and Lithium battery for data storage and real time clock

Type	PK	Cat. No.
AL450T-IR	1	**9.920 492**

2 soxhlet extractors, without stopcock

NEW!

Isolab

Borosilicate glass 3.3 which is resistant to heat and almost all chemicals. They meet the highest quality standards according to DIN 12602. The side arms accept tubings with 8/9mm bore size.

Capacity ml	Cone NS	Socket NS	PK	Cat. No.
30	29/32	45/40	1	**4.008 417**
70	29/32	45/40	1	**4.008 418**
100	29/32	45/40	1	**4.008 419**
150	29/32	45/40	1	**4.008 420**
250	29/32	45/40	1	**4.008 421**

3 Extraction apparatus

Lenz

Soxhlet-pattern.The siphon is protected by the vapour tube. Compact design: with NS 29/32 flask connections. Please order separately: condenser, extractor top pipe and round-bottom flask.

Extraction apparatus, Soxhlet-pattern. With Dimroth condenser and round-bottom flask. Made of Duran® tubing.

Extractor ml	Condenser NS	Round bottom flasks Capacity ml	PK	Cat. No.
30	29/32	100	1	**9.043 001**
70	34/35	100	1	**9.043 002**
100	45/40	250	1	**9.043 003**
150	45/40	250	1	**9.043 004**
200	45/40	250	1	**9.043 008**
250	45/40	500	1	**9.043 005**
300	60/46	500	1	**9.043 009**
500	60/46	1000	1	**9.043 006**
1000	71/51	2000	1	**9.043 007**

1

1 2 3 Items

Condensers, ground glass joint, Dimroth

For Extractor ml	Condenser NS	PK	Cat. No.
30	29/32	1	**9.043 021**
70	34/35	1	**9.043 022**
100, 150, 200, 250	45/40	1	**9.043 023**
300, 500	60/46	1	**9.043 026**
1000	71/51	1	**9.043 027**

2

Soxhlet Extraction stillheads

For Extractor ml	NS top	NS bottom	PK	Cat. No.
30	29/32	29/32	1	**9.043 011**
70	34/35	29/32	1	**9.043 012**
100	45/40	29/32	1	**9.043 013**
150	45/40	29/32	1	**9.043 014**
200	45/40	29/32	1	**9.043 018**
250	45/40	29/32	1	**9.043 015**
300	60/46	29/32	1	**9.043 019**
500	60/46	29/32	1	**9.043 016**
1000	71/51	29/32	1	**9.043 017**

3

Round-bottom flasks

For Extractor ml	Capacity ml	NS	PK	Cat. No.
30, 70	100	29/32	1	**9.011 840**
100, 150, 200	250	29/32	1	**9.011 845**
250, 300	500	29/32	1	**9.011 850**
500	1000	29/32	1	**9.011 855**
1000	2000	29/32	1	**9.011 860**

4

5

4 5 Extraction thimbles

Cellulose. Supplied in packs of 25. Dimensions given are nominal internal diameter x external length in mm. *GE Healthcare*

Type	Int. dia. mm	Length mm	PK	Cat. No.
Single	10	50	25	**9.951 335**
Single	18	55	25	**9.951 336**
Single	19	90	25	**9.951 337**
Single	22	80	25	**9.951 338**
Single	25	80	25	**9.951 339**
Single	25	100	25	**9.951 340**
Single *	26	60	25	**9.951 341**
Single	28	80	25	**9.951 342**
Single	28	100	25	**9.951 343**
Single	28	120	25	**9.951 344**
Single	30	80	25	**9.951 345**
Single	30	100	25	**9.951 346**
Single	33	80	25	**9.951 347**
Single	33	94	25	**9.951 348**
Single	33	100	25	**9.951 349**
Single	33	118	25	**9.951 350**
Single	37	130	25	**9.951 351**
Single	41	123	25	**9.951 352**
Single	43	123	25	**9.951 353**
Single	60	180	25	**9.951 354**
Double	22	80	25	**9.951 355**
Double	33	80	25	**9.951 356**

*Fits Soxtec™ extractor

1 LLG-Extraction thimbles, Cellulose

NEW!

Neutral and fat free.

Dia. mm	Length mm	PK	Cat. No.
22	80	25	**9.045 700**
20	80	25	**9.045 701**
33	80	25	**9.045 702**
33	94	25	**9.045 703**
33	100	25	**9.045 704**
19	90	25	**9.045 705**
33	118	25	**9.045 706**
26	60	25	**9.045 707**
30	80	25	**9.045 708**
25	100	25	**9.045 709**
43	123	25	**9.045 710**
28	80	25	**9.045 711**

2 Extraction and filter thimbles Grade 603

Manufactured in pure cellulose according to DIN 12449. *GE Healthcare*

Dia. mm	Length mm	Standard extractor capacity ml	For	PK	Cat. No.
22	80	30	Büchi (1)	25	**9.043 901**
25	80			25	**9.043 909**
25	100	70	Büchi (1)	25	**9.043 902**
26	60			25	**9.043 910**
33	80		Gerhardt (2) / Foss Tecator (3)	25	**9.043 907**
33	90			25	**9.043 911**
33	94	100	Büchi (1)	25	**9.043 903**
33	100			25	**9.043 916**
33	118			25	**9.043 904**
33	130			25	**9.043 917**
33	205	250		25	**9.043 905**
35	150			25	**9.043 915**
40	85			25	**9.043 918**
43	123		Büchi (1)	25	**9.043 950**
44	230			25	**9.043 906**

3 Extraction thimbles, cellulose

Hahnemühle

Int. dia. mm	Length mm	PK	Cat. No.
19	90	25	**4.006 075**
22	60	25	**4.006 076**
22	70	25	**4.006 077**
22	80	25	**4.006 078**
22	100	25	**4.006 079**
25	60	25	**4.006 080**
25	70	25	**4.006 081**
25	80	25	**4.006 082**
25	100	25	**4.006 083**
28	60	25	**4.006 084**
28	70	25	**4.006 085**
28	80	25	**4.006 086**
28	100	25	**4.006 087**
30	60	25	**4.006 088**
30	70	25	**4.006 089**
30	80	25	**4.006 090**
30	100	25	**4.006 091**
33	60	25	**4.006 092**
33	80	25	**4.006 093**
33	90	25	**4.006 094**
33	94	25	**4.006 095**
33	100	25	**4.006 096**
33	118	25	**4.006 097**
33	130	25	**4.006 098**
33	205	25	**4.006 099**
35	60	25	**4.006 100**
35	80	25	**4.006 101**
35	100	25	**4.006 102**
35	110	25	**4.006 103**
35	150	25	**4.006 104**
40	100	25	**4.006 105**
40	123	25	**4.006 106**
40	150	25	**4.006 107**
43	123	25	**4.006 108**
43	150	25	**4.006 109**
26	60	25	**4.006 110**

1 Complete compact extraction systems

Behr

Complete compact extraction systems with stand, heating module, mount, hoses and glassware (round-bottom reaction flask, extractor, Dimroth condenser for extraction).
Infinitely variable heating regulation.
- practical stand for holding the condensers securely between extractions
- extractor sizes from 30 ml to 1000 ml
- the use of extractors with a stopcock does away with the need for any additional distillation after extraction
- Condensers with screwed- on tubing nipples

Type	Description	PK	Cat. No.
KEX 30	Compact system for 30ml Soxhlet extraction	1	**9.843 777**
KEX 100	Compact system for 100ml Soxhlet extraction	1	**9.843 778**
KEX 70	Compact system for 70ml Soxhlet extraction	1	**9.843 835**
KEX 30 F	Compact system for 30ml extraction with stopcock	1	**9.843 836**
KEX 70 F	Compact system for 70ml extraction with stopcock	1	**9.843 837**
KEX 100 F	Compact system for 100ml extraction with stopcock	1	**9.843 786**
KEX 250 F	Compact system for 250ml extraction with stopcock	1	**9.843 779**
KEX 500 F	Compact system for 500ml extraction with stopcock	1	**9.843 838**
KEX 1000	Compact system for 1000ml Soxhlet extraction	1	**9.843 839**

2 Serial Extraction Apparatus behrotest® for Soxhlet-/Fat-Extraction

Behr

behrotest® serial heaters are the economical and user-friendly solution for the classic Soxhlet or fat extraction:
- energy for each sample position is individually adjustable
- cooling water distributor ensures even cooling at all sample positions
- practical stand for holding the condensers securely between extractions
- mounts for holding the extraction spacers after removing the sample vessels
- S models: The extractors with stopcock do away with the need for any additional distillation after extraction
- comes with Euro Schuko and UK wallpower supply

Type	Type	Capacity ml	PK	Cat. No.
R 304	Serial hotplate system, soxhlet, 4-position	30	1	**9.043 030**
R 306	Serial hotplate system, soxhlet, 6-position	30	1	**9.043 031**
R 304 S	Serial hotplate system, soxhlet, 4-position, with stop-cock	30	1	**9.043 035**
R 306 S	Serial hotplate system, soxhlet, 6-position, with stop-cock	30	1	**9.043 036**
R 704	Serial hotplate system, soxhlet, 4-position	70	1	**9.043 037**
R 706	Serial hotplate system, soxhlet, 6-position	70	1	**9.043 038**
R 704 S	Serial hotplate system, soxhlet, 4-position, with stop-cock	70	1	**9.043 039**
R 706 S	Serial hotplate system, soxhlet, 6-position, with stop-cock	70	1	**9.043 040**
R 104 S	Serial hotplate system, soxhlet, 4-position, with stop-cock	100	1	**9.043 029**
R 106 S	Serial hotplate system, soxhlet, 6-position, with stop-cock	100	1	**9.043 028**
R 108 S	Serial hotplate system, soxhlet, 8-position, with stop-cock	100	1	**9.043 041**
R 254 S	Serial hotplate system, soxhlet, 4-position, with stop-cock	250	1	**9.043 042**
R 256 S	Serial hotplate system, soxhlet, 6-position, with stop-cock	250	1	**9.043 043**

1 Hydrolysis extraction set, behrotest®

behrotest® Hydrolysis apparatus, complete with: *Behr*
- Serial heating unit
- Cooling water distribution with condenser rack and hoses
- Beakers (600ml), cold fingers

Type	Description	PK	Cat. No.
Hydro 1	Hydrolysis apparatus, single sample	1	**9.043 032**
Hydro 4	Hydrolysis apparatus, 4-sample, complete	1	**9.043 034**
Hydro 6	Hydrolysis apparatus, 6-sample, complete	1	**9.043 033**

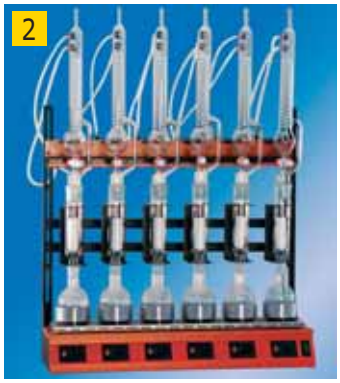
Compact Extraction System

Compact Extraction System in accordance with Twisselmann *Behr*
Complete compact extraction system with stand, heating module, mount, hoses and glassware (round-bottom reaction flask, extractor, Dimroth condenser for extraction).

Type	Description	PK	Cat. No.
KEX 100 T	Compact system for Twisselmann extraction	1	**9.843 824**

2 behrotest® Multi-sample Extractors for Twisselmann Extraction

Economical and user-friendly units for extraction in accordance with Twisselmann: *Behr*
- each sample position is individually adjustable
- cooling water distributor ensures an even cooling at all sample positions
- practical stand for holding the condensers securely between the extractions
- mounts for holding the spacers after the removal of the sample containers



Type	Description	PK	Cat. No.
R 104 T	Multi-sample extractor for an extraction in accordance with Twisselmann, complete for 4 samples	1	**9.843 825**
R 106 T	Multi-sample extractor for an extraction in accordance with Twisselmann, complete for 6 samples	1	**9.843 826**

3 Serial extraction apparatus, Soxhlet

For 4 or 6 extractions in 250 to 500ml flasks using the traditional Soxhlet method. The system is based on serial 4 or 6-place heater banks with 85mm diameter hotplates. Each heater can be individually controlled. *Gerhardt*
Supplied with: Spherical bowl and air bath hotplate fittings, support rods (600 x 12mm) and power supply cable.

The cooling water supply, soxhlet glass components and holders are not supplied (see accessories).

Type	Zones	Power	Dimensions (W x D x H)	Weight	PK	Cat. No.
		W	mm	kg		
EV6 All/14	4	1800	600 x 225 x 650	10.00	1	**9.595 024**
EV6 All/16	6	2400	900 x 225 x 650	14.00	1	**9.595 026**

1

1 Extraction Unit for the Randall Method

Behr

Manual extraction unit for the Randall method. Up to 6 sample positions with individual temperature control.
Up to 5 times faster than conventional Soxhlet extraction systems.
With 25 x 100ml extraction thimbles.

Specifications

Dimensions (H x W x D, cm):	approx. 81 x 55 x 63
Weight, kg:	approx. 32
Voltage:	230V 50Hz a.c.
Power consumption:	Max. 1500W

Type	Description	PK	Cat. No.
EZ 250	Extraction thimbles	25	**9.843 807**
E4	Manual extraction unit for the Randall method, 4 sample places	1	**9.843 922**
E1	Manual extraction unit for the Randall method, 1 sample place	1	**9.843 923**
E6	Manual extraction unit for the Randall method, 6 sample places	1	**9.843 924**
EX 75 HS	Extraction thimbles	25	**9.843 926**
EB 75	reaction tubes	1	**9.843 927**

2

2 Infrared rapid sample digestors

Behr

InKjel 1210 M manually adjustable infrared digestion system
Rapid digestion system with manually adjustable energy control and direct heating of the samples through high-quality quartz radiators (1500W).
- Quartz infra-red radiators peak at 830°C within 1 min.

Particularly uniform heating at all sample positions
All InKjel systems are fitted completely with multi-level consoles, fume extraction unit, sample rack and glass digestion vessels.

InKjel P infrared digestion system with 10 freely configurable programmes for power and digestion time
Rapid digestion system with 10 freely configurable programmes for power and digestion time and direct heating of the samples through high-quality quartz radiators (1500W).
- Quartz infra-red radiators peak at 830°C within 1 min.
- Particularly uniform heating at all sample positions
- The supplied Windows software permits the user to transfer time/temperatures profiles, which are specifically for the application, via the RS232 interface in both directions between one or more units and a PC.
- A library with common applications is already included on the CD.

All InKjel systems are fitted completely with multi-level consoles, fume extraction unit, sample rack and glass digestion vessels.

Configurations available:
- 6 sample vessels each 250ml
- 12 sample vessels each 100ml
- 12 sample vessels each 250ml
- 4 sample vessels each 500ml
- 4 sample vessels each 750ml

Type	For	PK	Cat. No.
InKjel 450 M	4 sample vessels each 500ml	1	**9.843 768**
InKjel 475 M	4 sample vessels each 750ml	1	**9.843 769**
InKjel 625 M	6 sample vessels each 250ml	1	**9.843 770**
InKjel 1210 M	12 sample vessels each 100ml	1	**9.843 757**
InKjel 1225 M	12 sample vessels each 250ml	1	**9.843 771**
InKjel 450 P	4 sample vessels each 500ml	1	**9.843 758**
InKjel 475 P	4 sample vessels each 750ml	1	**9.843 759**
InKjel 625 P	6 sample vessels each 250ml	1	**9.843 760**
InKjel 1210 P	12 sample vessels each 100ml	1	**9.843 756**
InKjel 1225 P	12 sample vessels each 250ml	1	**6.233 440**

1 Accessories for infrared rapid sample digestors

Behr

Type	Description	PK	Cat. No.
KT 1	Catalyst tablets	1000	**9.843 767**
KT 2	Catalyst tablets	1000	**9.843 773**
SR 3i	Sample vessel, 250ml, for InKjel	1	**9.843 766**
KJ 500	Sample vessel, 500ml, for InKjel	1	**9.843 775**
KJ 750	Sample vessel, 750ml, for InKjel	1	**9.843 776**
EG 6	Vessel holding frame for six 250ml vessels. Component of InKjel 625 M and P	1	**9.843 788**
EG 12	Vessel holding frame for twelve 250ml vessels. Component of InKjel 1225 M and P	1	**9.843 789**
EG 4/ 500	Vessel holding frame for four 500ml vessels. Component of InKjel 450 M and P	1	**9.843 790**
EG 4/ 750	Vessel holding frame for four 750ml vessels. Component of InKjel 475 M and P	1	**9.843 791**
AE 4	Fume exhaust manifold for InKjel 450 and 475 (M and P)	1	**9.843 792**
AE 6	Fume exhaust manifold for InKjel 625 (M and P)	1	**9.843 793**
AE12	Fume exhaust manifold for InKjel 1225 (M and P)	1	**9.843 794**
SR 4	Sample vessel	1	**9.843 750**
SR 5	Sample vessel	1	**9.843 751**
KT 3	Catalyst tablets	1000	**9.843 752**
AFS	Antifoam tablets	1	**9.843 753**
WP	Nitrogen-free weighing boats	100	**9.843 754**
SIST 100	Boiling stones, contens 100g	1	**9.920 710**

1

2

2 behrosog 3 Scrubber

Behr

- Infinitely variable throughput
- Transparent protective shield for safe operation of the unit
- Exterior manual control elements with easy access prevent the analyst from touching hot glass parts
- Acid resistant diaphragm pump

Type	Description	PK	Cat. No.
BEHROSOG 3	Circulation cooler for	1	**9.920 584**
ACS	Additional cooling for BEHROSOG 3	1	**9.920 585**

1

1 Steam distillation unit D1 and D2

NEW!

Behr

Distillation units for determining alcohol and volatile acid content in wine and other alcoholic drinks. Complete glassware, with volumetric flasks and pycnometer. Because of its rapidity, the behr D 1 and D 2 are especially suitable for high sample throughputs.
The supplied Windows software permits the user to transfer distillation parameters, which are specifically for the application, via the RS232 interface in both directions between one or more units and a PC. A library with common applications is already included on the CD. Data can also be transmitted from the unit to the PC via the RS232 interface while operating. The user can save them if necessary and print them out as graphics.
- Alcohol
- Volatile acid contents
- Fermentation process (beer, etc.)
- Ammonium chloride in liquorice products

Type	Description	PK	Cat. No.
D1	Steam distillation unit for determining alcohol content, distillation into a pycnometer	1	**9.843 830**
D2	Steam distillation unit for determining Volatile acid content, distillation into an erlenmeyer flask 500 ml	1	**9.843 831**

2

2 Steam Distillation Unit S 1and 2 with Automatc Addition of NaOH

Behr

- Exemplary safety and reliability
- Robust casing of polyurethane
- Distillation time approx.. 3 mins. per sample
- Detection limit 0.2 mg N
- Recovery rate >99.5%
- Reproducibility ±1%
- Steam generating capacity adjustable from 40% - 100%
- Extremely simple, menu-controlled operation of the programmable units via one single operating element (behr one-button operation)
- Programmable reaction time
- Serial interface (RS232)
- Filling level monitoring for can set
- Practical quick clamping device equally suited for the "left-handed" analyst

Supply requirements:	230 V 50 Hz a.c.
Power rating:	1700 W
Cooling water consumption:	approx. 5 l/min
Distillation time:	approx. 2 to 3 min per sample
Reagent containers:	Size is optional.
Interface:	RS232
Dimensions (W x H x D):	410 x 675 x 410mm
Weight:	32kg

Type	Description	PK	Cat. No.
KAS 20	Can set for S 1 and S 2	1	**6.236 005**
S 2	Steam distillation unit, partly automated	1	**9.843 813**
S 1	Steam distillation unit, partly automated	1	**9.843 814**

1 Steam distillation unit S 3

Behr

Semi-automatic steam distillation unit for a routine number of samples. Choice of manual or automatic addition of H_2O and NaOH. Single distillation programme. Variable steam generating capacity (40% to 100%) Error diagnosis with both visible and audible indication.

Supply requirements:	230 V 50 Hz a.c.
Power rating:	1700 W
Cooling water consumption:	approx. 5 l/min
Distillation time:	approx. 2 to 3 min per sample
Reagent containers:	size is optional
Interface:	RS232
Display:	LCD
Programme storage:	1
Dimensions (W x H x D):	410 x 675 x 410mm
Weight:	35kg

Type	Description	PK	Cat. No.
S 3	Steam distillation unit, partly automated	1	**9.843 815**
KAS 30	Set of 3 canisters (20 l each) for S 3, incl. float switch	1	**9.843 816**

2 Steam distillation unit S 4

Behr

Complete water still. Programmed addition of H_2O, NaOH and H_3BO and automatic removal of sample residues by suction. The steam production can be varied between 40 % and 100 %. Up to 99 programmes can be stored and recalled.

Supply requirements:	230 V 50 Hz a.c.
Power rating:	1700 W
Cooling water consumption:	approx. 5 l/min
Distillation time:	approx. 2 to 3 min per sample
Reagent containers:	behrotest® containers recommended
Interface:	RS232
Display:	LCD
Programme storage:	99
Dimensions (W x H x D):	410 x 675 x 410mm
Weight:	35kg

Type	Description	PK	Cat. No.
S 4	Steam distillation unit, fully automatic	1	**9.843 817**
KAS 40	Set of 4 x 20 l containers for S 4, incl. float switch	1	**9.843 818**
S 5	Steam distillation unit,, fully automatic, prepared for external titrator (e.g. TB 1)	1	**9.843 803**
TB 1	Titration module for connection to steam distillation unit S 5	1	**9.843 832**

3 Micro II centrifuge, dairy testing

Gerber

For determining fat levels in milk and dairy products. Microprocessor-controlled with time and temperature preselection. Heater, brake, locking lid, digital time and temperature display.
With steel housing 430 x 460 x 280mm.

Type	PK	Cat. No.
With rotor for 8 butyrometers	1	**9.112 580**
With rotor for 12 butyrometers	1	**9.112 579**

1

1 Universal centrifuge, dairy testing

Gerber

Multi-purpose centrifuge for dairy laboratories. With four pre-programmed speeds for:
- Gerber: 350xg
- Solubility in milk powder: 164xg
- Roese-Gottlieb (Mojonnier): 80 xg
- Speed range 200 to 1300rpm

Microprocessor controller with LED display for speed, run time, temperature and error messages. With steel housing, locking lid, automatic brake and imbalance detector. External dimensions (WxDxH) 640 x 450 x 640 mm. For 230 V 50/60 Hz a.c. Accessory chamber heating available. Without rotor.

Type	PK	Cat. No.
Universal Gerber Centrifuge w/o rotor, 230 V, 50/60 Hz	1	**9.112 581**
Heater, 1300 W	1	**9.112 582**

2

2 Rotor for Universal dairy centrifuge

Stainless steel.

Gerber

Type	PK	Cat. No.
Rotor with 12 places, for stainless steel inserts as indicated	1	**9.112 584**
Insert for butyrometer	1	**9.112 585**
Insert for ADPI solubility tubes	1	**9.112 586**
Insert for Mojonnier tubes	1	**9.112 587**
Swing-out rotor with 36 inserts, complete	1	**9.112 583**

3

3 Milk Butyrometer

Milk Butyrometer Original Gerber with frosted label on bulb, plain neck, without stopper, for milk quantities of 10.73-11ml. All instruments manufactured according to ISO-standard 488, grad. 0.2, Gerber Code 10-AF

Gerber

Description	PK	Cat. No.
Milk-Butyrometer Original Gerber Standard 0-14 %	1	**6.236 845**

4

4 Butyrometer water bath

Robust white-coated stainless steel bath to hold 12 butyrometers, adjustable temperature with LED display, with stainless steel heating element. For 230V supplies, 500W.

Gerber

Type	PK	Cat. No.
Butyrometer water bath	1	**9.112 591**

Accessories for Butyrometer water bath

Gerber

Type	PK	Cat. No.
PP stand, for 12 butyrometers	1	**9.112 592**
Shaking cover for above	1	**9.112 593**
Cover, stainless steel, 12 openings for Butyrometer on stand 9.112 592	1	**9.112 594**

1 Butyrometers

DURAN® glass, to ISO. *Gerber*

Description	PK	Cat. No.
Milk butyrometer, volumetric method 0 to 6%:0.1	1	**9.112 588**
Milk/Skimmed milk butyrometer, Kehe, volumetric method 0 to 4%:0.05	1	**9.112 565**
Skimmed milk butyrometer, Siegfeld, volumetric method 0 to 0.5%:0.02	1	**9.112 566**
Cream butyrometer, Koehler, volumetric method 5 ml, 0 to 40 %:0.5	1	**9.112 567**
Cream butyrometer, Koehler, volumetric method 5 ml, 0 to 70 %:0.5	1	**9.112 568**
Milk powder butyrometer, Teichert, gravimetric method 2.5 g, 0 to 35%:0.5	1	**9.112 569**
Cream butyrometer, Roeder, gravimetric method 5 g, 0 to 50%:0.5	1	**9.112 570**
Cream butyrometer, Roeder, gravimetric method 5 g, 0 to 35 to 65%:0.5	1	**9.112 571**
Cheese butyrometer van Gulik/DIN, gravimetric method 3 g, 0-40%:0.5, with stoppers and beakers	1	**9.112 572**
Rubber stopper, Gerbal M, for volumetric method butyrometers	1	**9.112 573**
Key for Gerbal M stopper	1	**9.112 574**
Rubber stopper 30/17x22 mm, large, single conical with hole for gravimetric method	1	**9.112 575**
Rubber stopper 15/10x13 mm, small, single conical without hole for gravimetric method	1	**9.112 576**
Glass beaker for Roeder cream butyrometer	1	**9.112 577**
Glass beaker for cheese butyrometer	1	**9.112 578**

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2 Accessories for butyrometers

Duran DURAN®, to ISO. *Gerber*

Type	PK	Cat. No.
Milk pipettes 11 ml	1	**9.112 589**
Milk pipettes 10.75 ml	1	**9.112 603**
Amyl alcohol pipette 1 ml	1	**9.112 604**
Tilt measure for 1 ml amyl alcohol, with rubber stopper, without bottle	1	**9.112 590**
Milk syringe, exchangeable barrel, 11 ml	1	**9.112 605**
Milk syringe, exchangeable barrel, 10.75 ml	1	**9.112 606**
Sulphuric acid pipette 10 ml	1	**9.112 607**
Tilt measure for 10 ml sulphuric acid, rubber stopper, without bottle	1	**9.112 608**
Cream pipette 5 ml	1	**9.112 609**
Water pipette 5 ml	1	**9.112 610**
Cream syringe, exchangeable barrel, 5 ml	1	**9.112 611**

1 Mono Water Stills without storage tank

GFL

Models 2001/2 and 2001/4 without storage tank, capacity 2L and 4L/hr., for bench mounting. Low-gas, bacteria and pyrogen free distillate, in conformity with DAB requirements and international pharmacopoeia regulations. Conductivity of distillate approx. 2.3µs/cm at 25°C. Evaporator, condenser (cooler) with baffle and heating element made of stainless steel. Evaporator is easily accessible by lifting out the condenser. Degassing of carbon dioxide through vent in the condenser. Main switch with pilot lamp on the front of the unit. Housing electrostatically powder-coated with epoxy resin. Cooling water inlet and outlet*on the right-hand side of the unit.
Water connection: cooling water inlet ½ inch (12.7mm i.d.), cooling water outlet ½ inch* (12.7mm i.d.). Thermometer to display the temperature of the cooling water. Distillate withdrawal through drain tube on the front of the unit. Economical energy consumption by distilling the heated cooling water. Thermostatic low water cut-off, to protect the heating element in case of low water. Power connection
through mains connection cable with German shock-proof type (Schuko) plug, for 230V 50/60Hz (other voltages are available - details on request).

*Tubing for water inlet and outlet can be supplied as accessory items.

Type	Output	Water consumption	Dimensions (W x D x H)	Power	Weight	PK	Cat. No.
	L / hr.	approx. L / hr.	mm	W	g		
2001/2	2	20	280 x 250 x 490	2000	7500	1	**9.910 600**
2001/4	4	40	280 x 250 x 490	3000	7500	1	**9.910 601**

2 Mono Water Stills with storage tank

GFL

Models with storage tank; 2002 (4 litres), 2004 (8 litres), 2008 (16 litres) and 2012 (24 litres) Models with storage tank, suitable for bench and wall mounting.
Low-gas, bacteria- and pyrogen-free distillate, in conformity with DAB requirements and international pharmacopoeia regulations. Conductivity of distillate approx. 2.3µs/cm at 25°C. Evaporator with baffle is easily accessible by lifting the lid. Evaporator, condenser (cooling coil) positioned in the storage tank, storage tank for distillate and heating element are of stainless steel. Storage tank for distillate holds double the hourly capacity of the unit. Water supply through a built-in solenoid valve with connection for mains pressure water tubing, ½ inch* (12.7 mm i.d.), cooling water pressure required: > 3 bar to max. 7 bar. After turning on the main switch the solenoid valve opens the water supply and closes it once the storage tank is full, thus avoiding unnecessary waste of water. Economical energy consumption by distilling the heated cooling water. Cooling water outlet with ¾ inch (19 mm i.d.) tubing connection. Water that has not been condensed flows off through the cooling water outlet*. The evaporator is drained via a tap on the right-hand side of the unit. Automatic indication when cleaning required. Degassing of carbon dioxide through vent in the top. An electronic level switch switches the still off when the storage tank is full and restarts it automatically when distillate is withdrawn. Distillate withdrawal through a tap on the front of the unit. Thermostatic low water cut-off, to protect the heating element in case of low water. Main switch and pilot lamps on the front of the unit. Double-walled housing, outer housing made of electrolytically galvanized sheet steel, electrostatically powder-coated with epoxy resin. Power connection through connection cable; 2 and 4 litre units have German shock-proof type (Schuko) plug.

*Tubing for water inlet and outlet can be supplied as accessory items.

Type	Output	Water consumption	Dimensions (W x D x H)	Power	Voltage	Weight	PK	Cat. No.
	L / hr.	approx. L / hr.	mm	W	50/60 Hz	kg		
2002	2	30	540 x 290 x 420	1500	230V	15.40	1	**9.910 602**
2004	4	48	620 x 330 x 460	3000	230V	20.20	1	**9.910 604**
2008	8	72	780 x 410 x 540	6000	400V*	30.70	1	**9.910 608**
2012	12	198	780 x 410 x 670	9000	400V*	43.00	1	**9.910 612**

* 400V/3/N/PE/three-phase current

Other voltages available - details on request.

1 Double Distillation Stills

1

GFL

Double distillation stills, models 2102, 2104 and 2108, suitable for bench and wall mounting. Low-gas, bacteria- and pyrogen-free distillate, in conformity with DAB requirements and international pharmacopoeia regulations. Conductivity of mono-distillate approx. 2.2µs/cm at 25°C, conductivity of bi-distillate approx. 1.6µs/cm at 25°C. Evaporator and baffle of the mono stage are easily accessible by lifting the condensers. Evaporator, condensers (coolers) 1st stage and heating element made of stainless steel, 2nd stage including baffle made of DURAN® D50 glass. Water supply through built-in, solenoid valve with ½ inch* (12.7 mm i.d.) tubing connection for mains water inlet, required cooling water pressure: > 3 bar to max. 7 bar. After switching on the power, the solenoid valve opens the water supply. Cooling water outlet with ¾ inch* (19 mm i.d.) tubing connection. Water that has not been condensed flows off through the cooling water outlet*.
Distillate withdrawal: stop valve made of D50 DURAN® glass with PTFE plunger for mono distillate, outlet with dustproof shield made of D50 DURAN® glass for bi-distillate. Low energy consumption achieved by distilling the heated cooling water. Low water cut-off: float switch and thermostatic overtemperature cut-out. Automatic indication for cleaning. Degassing of carbon dioxide through vent on the condensers. Two-part housing made of electrolytically galvanized sheet steel, electrostatically powder-coated with epoxy resin; upper part easily removable through quick-release catches. Mains switch and pilot lamps to monitor both distillation stages are on the front of the unit. Power connection through connection cable.

*Tubing for water inlet and outlet can be supplied as accessory items.
Model.

Type	Output	Water consumption	Dimensions (W x D x H)	Power	Voltage	Weight	PK	Cat. No.
	L / hr.	approx. L / hr.	mm	W	50/60 Hz	kg		
2102	2	72	500 x 260 x 470	3500	230V	18.00	1	**9.910 642**
2104	4	120	550 x 280 x 570	6500	400V*	23.00	1	**9.910 644**
2108	8	198	700 x 390 x 700	11500	400V*	39.00	1	**9.910 648**

* 400V/3/N/PE/three-phase current

Other voltages available - details on request.

2 Mono/Double Distillation Glass Water Stills

2

GFL

Mono Water Stills: models 2202, 2204, 2208 for 2, 4 and 8 litres/hr, Bi Distillation Stills: models 2302, 2304 for 2 and 4 litres /hr, fully automatic. Suitable for bench and wall mounting. Low-gas, bacteria- and pyrogen-free distillate, in conformity with DAB requirements and international pharmacopoeia regulations. Conductivity of mono-distillate approx. 2.2µs/cm at 25°C, conductivity of bi-distillate approx. 1.6µs/cm at 25°C. Minimal metal ion content in the distillate. Evaporator, condenser and overflow made of DURAN® D50 glass. Condensers with dribble guard. Quartz sleeved heating element. Condensers are kept sterile by steam. Water supplied through built-in solenoid valve with connection for ½ inch* (12.7mm i.d.) mains water pressure tubing, required water pressure >3 bar up to max. 7 bar. After the main switch is switched on, the solenoid valve opens to start the water supply. Cooling water outlet with ½ inch* (12.7mm i.d.) tubing connection . Water that has not been condensed flows out through the cooling water outlet*. Low energy consumption through distilling the heated cooling water. Distillate withdrawal at the right-hand side of the unit through tubing connection*. Electronic level control during the whole distillation process. Water level control in the condenser has automatic power cut-off in the event of water shortage. Electronic impurity detector starts automatic water change to rinse and clean the condenser. Degassing of carbon dioxide through vents on the condenser. Main and function switches as well as pilot lamps for monitoring are on the front of the unit. Housing made of electrolytically galvanized sheet steel, electrostatically powder-coated with epoxy resin. Visible distillation process through easily removable, unbreakable front screen that does not steam up. Power connection through connection cable (models 2202, 2204 and 2302 with German shock-proof type (Schuko) plug.

*Tubing for water inlet and outlet can be supplied as accessory items.

Technical Specification
Dimensions (WxDxH)
2202/2204: 650 x 200 x 390mm
2208/2302/2304: 650 x 365 x 390mm

Type	Output	Water consumption	Power	Voltage	Weight	PK	Cat. No.
	L / hr.	approx. L / hr.	W	50/60 Hz	kg		
2202 (Mono)	2	48	1500	230V	16.00	1	**9.910 672**
2204 (Mono)	4	96	3000	230V	17.00	1	**9.910 673**
2208 (Mono)	8	144	6000	400V*	24.00	1	**9.910 674**
2302 (Bi)	2	96	2900	230V	24.00	1	**9.910 675**
2304 (Bi)	4	144	5800	400V*	24.00	1	**9.910 676**

* 400V/3/N/PE/three-phase current

Other voltages available - details on request.

1 2 Accessories for water stills

GFL

Dechlorite Filter 2904
For all GFL water stills. Eliminates chlorine particles in the mains water, added by the local water suppliers. Complete with connections for ½ inch (12.7mm i.d.) pressure tubing, including first filter charge. The charge should be changed every six months. Tubing for the water inlet and outlet are not included as standard.

Spare Filling 2905
Spare filter charge for Dechlorite Filter 2904.

Phosphate Cartridge 2906
For all GFL water stills. Prevents limescale formation in the condenser by phosphatising the supply water. Can be used from 4-15°dH (German hardness). Complete with connections for ½ inch (12.7mm i.d.) pressure tubing, including first filling. The filling should be replaced according to consumption. Tubing for the water inlet and outlet are not included as standard.

Spare Filling 2907
Spare Filling for Phosphate Cartridge 2906.

Separate Water Supply 2901/2902/2903
To feed the evaporator with softened or desalinated water (pressure >1 bar) and the cooling coil (pressure >3 bar) with phosphate-treated, or standard mains water. Efficiency of the still is reduced by approx. 10 to 15%. **2901** for Water Stills 2002 to 2012, **2902** for Glass Water Stills, **2903** for Water Stills 2102 to 2108. Tubing for the water inlet and outlet are available as accessories.

Level Control Switch 2908/2910
To control the water level in external reservoirs for Water Stills. To switch off power and water when the external reservoir is full (not included as standard). **2908** for Glass Water Stills 2202 to 2208, 2302 and 2304. **2910** for Water Stills 2004 to 2012 and 2102 to 2108.

Type	Description	PK	Cat. No.
2904	Dechlorite filter	1	**9.910 664**
2905	Spare filling for dechlorite filter	1	**9.910 665**
2906	Phosphate cartidge	1	**9.910 666**
2907	Spare filling for phosphate cartidge	1	**9.910 667**
2901	Separate water supply for water stills 2002 to 2012	1	**9.910 661**
2902	Separate water supply for glass water stills	1	**9.910 662**
2903	Separate water supply for water stills 2102 to 2108	1	**9.910 663**
2908	Level control switch for an external storage tank for glass water stills 2202-2208 and 2302 and 2304	1	**9.910 668**
2910	Level control switch for an external storage tank for Water Stills 2004 to 2012 and 2102 to 2108	1	**9.910 669**

Other accessories such as pre-filter, wall brackets, hose sets, separate water supply with solenoid valve and heating with thermostat for the internal storage tank on request.

1 Deioniser, behropur®

Behr

Heavy-walled, robust and practical mixed bed deioniser in blue polyethylene with free flow output to the reservoir. Also ideal for the post desalination of reverse osmosis systems or for aquariums.

- Can be directly connected to the water supply and is immediately ready for operation.
- Automatic venting as water is supplied from below.
- Minimal risk of contamination due to slotted filter in the raw water inlet.
- Nozzles are durable and easy to clean. Highly resistant to abrasion or shocks.
- Extremely sturdy, heavy-duty nozzle welding by the manufacturer's own welding process.
- Resistivity meter fitted.
- B5 and B10 can also be used as wall mounted devices (wall mounting included).
- Also available with water quality cut-out and solenoid valve which engages if specified limits are exceeded and reservoir level control.
- Resistivity control available directly on the unit or remotely at any location.

Output data:

Model	**B5/B10**
Cation exchange capacity*at 10°dH:	500 L/1000 L
Flow max.:	50/100 L/hr.
Dia.:	16/21 cm
Height:	53/63 cm

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Type	Description	PK	Cat. No.
B5	unpressurised, complete with resistivity meter	1	**9.882 114**
B10	unpressurised, complete with resistivity meter	1	**9.882 115**
B5Z	dual cartridge for unpressurised	1	**9.882 116**
B10Z	dual cartridge for unpressurised	1	**9.882 117**
B5A	unpressurised, resistivity meter with water quality cut-out and solenoid valve	1	**9.882 118**
B10A	unpressurised, resistivity meter with water quality cut-out and solenoid valve	1	**9.882 119**

* Limiting value 20 µS

2 Deionisers, pressure-resistant, behropur®

2

Compact and secure mixed bed deionisers for small to medium-sized volumes of ultra pure water. Ideal for feeding laboratory washing machines, general requirements in the laboratory, low level consumption in industry and for post-treatment desalination of the output from reverse osmosis systems.

- Optimal utilisation of the deioniser due to totally uniform water distribution in the resin chamber.
- Can be connected directly to the raw water mains without a pressure reducer.
- Back pressure resistant.
- Also available with water quality cut-out and solenoid valve, which engages if specified limits are exceeded, and reservoir level control.
- Resistivity control available directly on the unit or remotely at any location.

Performance data:

Model	**B10dN/B22dN/B45dN**
Cation exchange capacity at 10°dH:	1200 L/2400 L/5500 L
Flow max.:	300/500/800 L/hr
Dia.:	21/21/26 cm
Height incl. LF:	68/112/125 cm
Height, cartridge only:	55/98/110 cm

Type	Description	PK	Cat. No.
B10dN	Pressure-resistant mixed bed unit made of nylon, for steady loads up to 8 bar, with resistivity meter	1	**9.882 120**
B10dNZ	Dual cartridge for pressure-resistant mixed bed unit B10dN	1	**9.882 123**
B10dNA	Pressure-resistant mixed bed unit made of nylon, for steady loads up to 8 bar resistivity, meter with water quality cut-out and	1	**9.882 126**
B22dN	Pressure-resistant mixed bed unit made of nylon, for steady loads up to 8 bar, with resistivity meter	1	**9.882 121**
B22dNZ	Dual cartridge for pressure-resistant mixed bed unit B22dN	1	**9.882 124**
B22dNA	Pressure-resistant mixed bed unit made of nylon, for steady loads up to 8 bar resistivity, meter with water quality cut-out and	1	**9.882 127**
B45dN	Pressure-resistant mixed bed unit made of nylon,for steady loads up to 8 bar,with resistivity meter	1	**9.882 122**
B45dNZ	Dual cartridge for pressure-resistant mixed bed unit B45dN	1	**9.882 125**
B45dNA	Pressure-resistant mixed bed unit made of nylon, for steady loads up to 8 bar resistivity, meter with water quality cut-out and	1	**9.882 128**

1

1 Mixed-bed ion exchanger made of stainless steel

Behr

Standard cartridge made of V4A stainless steel for general purpose application: To supply laboratory glassware washers, for general laboratory maintenance and for small industrial consumers.
For subsequent demineralization of reverse osmosis systems.
- pressure resistant to 10 bar
- optimum exploitation of the ion exchanger capacity due to absolute uniform water distribution in the unit
- flow rates up to 700 litres/hour
- the unique behropur® jet nozzle system distributes the raw water over the entire resin bed. This ensures an optimum exchange capacity and quality
- can be connected to the raw water network directly and without a pressure reducer
- resistant to alternating pressure
- hard rubber collars vulcanized to the base and top of the unit offer effective protection
- convenient transport thanks to the handles embedded into the top part of the unit
- conductivity is controlled directly on the unit (installed measuring equipment) or with remote location meter
- Also available with shut-off when the limit value is reached and limit control

E28d Pressure resistant mixed-bed unit made of V4A special alloy, permanent pressure resistant to 10 bar, complete with conductivity meter
E40d Pressure resistant mixed-bed unit made of V4A special alloy, permanent pressure resistant to 10 bar, complete with conductivity meter
E28dZ Pressure resistant mixed-bed unit made of V4A special alloy, permanent pressure resistant to 10 bar, spare cartridge
E40dZ Pressure resistant mixed-bed unit made of V4A special alloy, permanent pressure resistant to 10 bar, spare cartridge
E28dA Pressure resistant mixed-bed unit made of V4A special alloy, permanent pressure resistant to 10 bar, conductivity meter with limit switch and electrovalve
E40dA Pressure resistant mixed-bed unit made of nylon, permanent pressure resistant to 8 bar, conductivity meter with limit switch and electrovalve

Specifications	**E 28**
Exchange capacity*at 10°dH	2800 litres
Flow max. litres/hour	500
Diameter in cm	24
Height incl. LF in cm	74
Height of cartridge only in cm	60
Specifications	**E 40 d**
Exchange capacity*at 10°dH	4000 litres
Flow max. litres/hour	700
Diameter in cm	24
Height incl. LF in cm	84
Height of cartridge only in cm	70

Type	PK	Cat. No.
E28d	1	**9.915 730**
E40d	1	**9.915 731**
E28dZ	1	**9.915 732**
E40dZ	1	**9.915 733**
E28dA	1	**9.915 734**
E40dA	1	**9.915 735**

* Limit value 20 µS/cm

2

2 Filter for behropur® mixed-bed ion exchanger

Behr

Filter for pressure-resistant behropur® mixed-bed ion exchangers. Transparent casing.
Once added to the ion exchanger, it completely retains even the finest particles and protects your high-quality equipment. Due to the transparent casing of the FG 130, you can see the state of the filter insert at any time and at a glance.
Depending on the requirements, you can use a universal filter (5µ) or a carbon filter (20µ). Downstream filters may only be used on pressure-resistant behropur® ion exchangers. Pressure-free exchangers are destroyed by the counter pressure. It could also subsequently result in expensive damage.

FG 130 behropur® filter housing for filter inserts with a length of 5". Transparent casing made of PP. Connections ¾", maximum operating pressure 8bar, max. temp. 50°C

FE 130 behropur® filter insert, PP, 5µ, length 5", max. pressure 6bar, max. temp. 80°C

AF 130 behropur® filter insert, carbon, 20, length 5", max. pressure 6bar, max. temp. 50°C

Type	PK	Cat. No.
FG 130	1	**9.915 736**
FE 130	1	**9.915 737**
AF 130	1	**9.915 738**

1 Ultra pure water system, arium® 611

Sartorius Stedim

arium® 611 Type 1 laboratory water purification systems designed to meet the requirements of reagent grade water for critical and routine analysis according to ASTM, NCCLS, ISO and USP specifications.

Applications:
- Buffer and reagent preparation for molecular biology applications
- chromatography applications (GC, HPLC, AA, ICP-MS)
- cell culture applications

Features:
- Four line alphanumerical display with language selection (german, english, france, spain, italian and japanese)
- Displaying water quality in MWxcm or µS/cm
- Flexible Display/Dispenser unit (can be mounted in up to 2m distance)
- Production capacity up to 2L/min
- Typical conductivity 0.055µS/cm (18.2MWxcm)
- Typical TOC < 1ppb (arium 611UV and 611VF)
- Automatic recirculation also in standby (15min/h) for constant high product water quality
- High Effective, full automatic sanitisation procedure in only 1.5h
- Several visual alarm functions
- Horizontal UV-lamp (arium 611UV and 611VF)
- Ultrafilter in crossflow mode
- TOC monitoring by external equipment (optional accessory)
- Serial interface RS-232
- PLC interface for external communication

Type	Description	TOC value	PK	Cat. No.
arium® 611 DI	Basic system, for all critical laboratory applications	< 4 ppb	1	**9.914 589**
arium® 611 UV	With UV oxidation chamber for all applications which require ultra pure water with an extremely low TOC value, e.g. HPLC	< 1 ppb	1	**9.914 590**
arium® 611 UF	With ultra filtration module for all applications that require pyrogen free water, e.g. cell culture	< 4 ppb	1	**9.914 591**
arium® 611 VF	With UV oxidation and UF module for extremely critical ultra pure water applications	< 1 ppb	1	**9.914 592**

2 Deionisers, SG stainless steel (V4A)

Siemens AG

High quality, (V4A) stainless steel deionisers, pressure-resistant to 10 bar. Excellent build quality ensures long working life, with robust couplings made of cast metal and components in contact with the ion-exchange resin made of stainless steel. Optimised water distribution flow throughout the cartridge. Complete deionisers include P2/30 conductivity meter and tubing set.

Larger deionisers are also available on request.

Type	Output L / hr.	Dia. mm	Height mm	Weight kg	PK	Cat. No.
SG 2000 SK*	450	240	535	18	1	**9.914 440**
Spare cartridge for SG 2000 SK	450	240	405	16	1	**9.914 442**
SG 2800 SK*	800	240	695	24	1	**9.914 450**
Spare cartridge for SG 2800 SK	800	240	570	22	1	**9.914 452**
SG 4500 SK*	1000	240	925	35	1	**9.914 435**
Spare cartridge for SG 4500 SK	1000	240	800	33	1	**9.914 437**
SG 6200 SK*	1000	240	1145	48	1	**9.914 430**
Spare cartridge for SG 6200 SK	1000	240	1020	46	1	**9.914 432**
SG 2000**	450	240	485	18	1	**9.914 511**
Spare cartridge for SG 2000	450	240	405	16	1	**9.914 512**
SG 2800**	800	240	650	24	1	**9.914 508**
Spare cartridge for SG 2800	800	240	570	22	1	**9.914 509**
SG 4500**	1000	240	880	35	1	**9.914 505**
Spare cartridge for SG 4500	1000	240	800	33	1	**9.914 506**
SG 6200**	1000	240	1100	48	1	**9.914 586**
Spare cartridge for SG 6200	1000	240	1120	46	1	**9.914 587**

* with connector coupling
**with ¾ " threaded connectors

1

1 Conductivity meters

NEW!

Siemens AG

Model P 2/30 Sk.
With analogue display 0 to 30µS/cm and connector coupling. With integrated cell (c=0.2).

Model P2/30.
With analogue display 0 to 30µS/cm and threaded connections. With integrated cell (c=0.2).

Model LFW 200.
With digital display 0.1 to 199.9µS/cm. With potential free switching contact, malfunction alarm indicator, connections for solenoid valve, K = 0.2 cell with or without temperature compensation (Pt 500) and reservoir float switch with external indication. Designed for wall mounting. Dimensions (Wx D x H): 200 x 60 x 120mm. Cell not included. Please order separately.

Model P1/50 WA
With analogue display, measuring range 0 to 50µS/cm, potential free switching contact (value free selectable), for wall mounting. Cell not included. Please order separately.

Type	PK	Cat. No.
P 2/30 Sk	1	**9.914 460**
P 2/30	1	**9.914 516**
LFW 200	1	**9.914 517**
P1/50 WA	1	**9.914 518**
Scew-in cell, 1/2'', c=0.2, 3m cable for P1/50 WA/LFW 200	1	**6.057 070**

2 Reverse osmosis systems, Ultra Clear™ RO EDI

2

Siemens AG

The well-proven Ultra Clear™ RO range has been enhanced to peak water quality level in the plus series by adding electronic deionisation cells: accessory deionisers for removing inorganic materials from the output are therefore no longer required.

- Resistance up to 18.2 megohm (0.06µS/cm)
- TOC < 3 to 5ppb at RO cell output (if feed water < 100ppb)
- Micro-organism reduction > 99%
- Typical pure water quality < 0.06µS

In all Ultra Clear™ RO systems the quality of the feed and output water will be shown on the display.

Specifications

Connections:	Permeate, concentrate, raw water: 8/6 mm/R ¾"
Rating:	200/300W
Dimensions (WxDxH):	340 x 420 x 520mm
Colloidal index (SDI):	< 3
Supply water pressure:	2 to 6 bar
	(0 to 5 bar Ultra Clear™ RO EDI 10)

Type	Pure water output at 15°C L / hr.	Weight kg	PK	Cat. No.
Ultra Clear™ RO EDI 10	10	20	1	**9.914 620**
Ultra Clear™ RO EDI 20	20	32	1	**9.914 621**
Ultra Clear™ RO EDI 40	40	33	1	**9.914 622**
Ultra Clear™ RO EDI 55	55	35	1	**9.914 623**

1 Reverse osmosis system, Ultra Clear™ RO

Eleven models with outputs from 10 to 350 l/hr that provide pure water supplies from 50 to 7000 litres per day. The application of low- energy- membranes ensures an efficient and economical operation.

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Features:
- pure water treatment for simple analysis, laboratory rinsing machines, autoclaves, up to ultrapure water systems
- germ/pyrogen retention rate >99%
- modern, maintenance-friendly design
- modular flushing for long service life
- complete, connection-ready system; fittings allow supply tanks to be expanded if required (e.g. Ultra Clear™ RO supply tanks with 30, 60 and 80 litre capacities)
- conductivity monitor e.g. for downstream ion exchanger possible
- menu-driven controller, RS232 interface
- Ultra Clear™ RO DI: includes post-treatment module for residual desalination of permeate Entrance- and Product water quality will be shown on the display.

Specifications

Connections:	permeate, concentrate, raw water: R ¾"
Salt retention rate, normal:	99%
Residual conductivity, Ultra Clear™ RO DI:	< 0.1S/cm
Power requirement:	200W (Ultra Clear™ RO 200: 550 W)
Input conductivity:	<2000µS
Blocking index SDI:	<3
Dimensions (WxDxH):	340 x 420 x 520mm (Ultra Clear™ RO 200: H= 1350mm)
Supply water pressure:	2 to 6bar (0 to 5bar Ultra Clear™ RO 10/Ultra Clear™ RO DI 10)

Type	Pure water output at 15°C L / hr.	Weight kg	PK	Cat. No.
Ultra Clear™ RO 10	10	22	1	**9.914 653**
Ultra Clear™ RO DI 10	10	23	1	**9.914 654**
Ultra Clear™ RO 20	20	30	1	**9.914 610**
Ultra Clear™ RO DI 20	20	26	1	**9.914 656**
Ultra Clear™ RO 40	40	35	1	**9.914 611**
Ultra Clear™ RO DI 40	40	28	1	**9.914 658**
Ultra Clear™ RO 60	60	40	1	**9.914 612**
Ultra Clear™ RO 100	100	33	1	**9.914 661**
Ultra Clear™ RO 200	200	83	1	**9.914 662**

2 Accessories for ultra pure water systems Ultra Clear™ RO

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Type	For	Change interval	PK	Cat. No.
Pre-treatment module AMB*	all sytems Ultra Clear™ RO	every 6 months***	1	**9.914 524**
Pre-treatment module VMD	Ultra Clear™ RO DI 10-40	every 3 months***	1	**9.914 520**
RO membrane	Ultra Clear™ RO 10 Ultra Clear™ RO 10 DI	every 2 to 3 years	1	**9.914 515**
RO module**	Ultra Clear™ RO DI 20-40 Ultra Clear™ RO 20-200	every 2 to 3 years	1	**9.914 519**

*Ultra Clear™ RO 200: 2 pre-treatment module AMB
**number depending on the size of the system
***Interval of exchanges depends on raw water quality and throughput

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1 Ultra pure water systems, Ultra Clear™

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The Ultra Clear™ series is a user-friendly ultra-pure water system which is available in 12 different versions - for each application there is the right system. The units are modular and can be upgraded with UV-Oxidation or Ultra-filtration accessories. The Ultra Clear™ system can be mounted on the wall without any accessories - a wall bracket is included. Requirements for AAS, HPLC, IC, ICP/MS, cell cultures, micro biology and TOC- Analytic etc. have not only been fulfilled but significantly exceeded, depending on the unit. The Ultra Clear is a bench top system, the Integra a space saving, under-bench installation. Ultra Clear™ (Integra) UV and Ultra Clear™ (Integra) UV UF are available with TOC- Monitoring (TM-version) and UV- intensity measurement

- programmable microprocessor control system with keypad, plain text display, resistance or conductance display with temperature compensation
- additional pressure reducing valve is not required
- input and output conductivity levels given, together with entry of limits
- internal sterile filtration filter 0.1µm, 1000cm², and additional disinfection
- circulation mode programmable (intermittent/non-stop)
- very quiet (under 40dB)
- easy module change by quick-connector coupling system
- supply requirements: 100-240V 50/60Hz

Specifications:

Ultra-pure water output up to L/min:	2
Resistance at 25°C Megohm:	18.2
Conductivity at 25°C µS/cm:	0.055
Bacteria KbE/ml:	<1
Particle >0.1µm amount/ml:	<1
Dimensions (WxDxH):	340 x 320 x 540mm

Type	TOC value	Endotoxin content EU/ml	PK	Cat. No.
Ultra Clear™	5 - 10 ppb	-	1	**9.914 497**
Ultra Clear™ UV	<1 ppb	-	1	**9.914 496**
Ultra Clear™ Integra UV	<1 ppb	-	1	**9.914 473**
Ultra Clear™ UF	5 - 10 ppb	<0,001	1	**9.914 498**
Ultra Clear™ UV UF	<1 ppb	<0,001	1	**9.914 495**
Ultra Clear™ Integra UV UF	<1 ppb	<0,001	1	**9.914 475**
Ultra Clear™ UV TM*	<1 ppb	-	1	**9.914 476**
Ultra Clear™ Integra UV TM*	<1 ppb	-	1	**9.914 477**
Ultra Clear™ UV UF TM*	<1 ppb	<0,001	1	**9.914 478**
Ultra Clear™ Integra UV UF TM*	<1 ppb	<0,001	1	**9.914 479**

* pure water system with TOC-Monitoring

1 Ultra pure water system, Ultra Clear™ TWF

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The Ultra Clear™ TWF is an ultra-pure water system which accommodates almost any option that can be directly connected to the drinking water mains system - with an output of up to 2 l/min. UV oxidation, ultra-filtration and TOC monitoring can be integrated into all UV models. Permeate can be easily tapped directly from the tank for simple flushing purposes and a separate flushing machine can also be operated. Typical system applications: AAS, IC, GC, HPLC, TOC analysis, cell and tissue cultures, DNA sequencing, in-vitro fertilisation, PCR, and much more.

- microprocessor control with clear text display, resistance and conductivity display temperature compensated
- conductivity control with limit value entries for permeate and purest water
- sterile filter 0.1µm
- circulation mode with day and night programme to condition individual components during night-time periods
- simple module changing with pluggable connector system featuring "Aqua-Stop"
- supply requirements 220 V 50Hz, other voltages available without extra charge

Specifications*:

Ultra-pure water rating:	up to 2L/min
Resistance at 25°C:	18.2Megohm
Conductivity at 25°C:	0.055µS/cm
Bacteria:	<1KbE/ml
Particle >0.1 to 1µm:	<1 count/ml
Permeate rating:	<10 l/h
Input conductivity:	<1000µS/cm
Power requirement:	50W
Silt density index SDI:	<3
Dimensions (WxDxH):	560 x 320 x 530mm

Type	TOC value	Endotoxin content EU/ml	PK	Cat. No.
Ultra Clear™ TWF	5 to 10 ppb	-	1	**9.914 643**
Ultra Clear™ TWF UV	<1 ppb	-	1	**9.914 644**
Ultra Clear™ TWF UV TM + TOC Monitor	<1 ppb	-	1	**9.914 645**
Ultra Clear™ TWF UF	5 to 10 ppb	0.001	1	**9.914 646**
Ultra Clear™ TWF UV UF	<1 ppb	0.001	1	**9.914 647**
Ultra Clear™ TWF UV UF TM + TOC Monitor	<1 ppb	0.001	1	**9.914 648**

* For supply water conductivity < 1000 µS/cm

Available with 30l, 60l or 80l tank.

Ultra Clear TWF pure water systems, accessories

Type	Change interval	PK	Cat. No.
Pre-treatment module AMB	every 6 months	1	**9.914 524**
Post-treatment module MF III D	1 to 2 x a year	1	**9.914 521**
Sterile filter 0.1 µm	every 6 months	1	**9.914 522**
Sterile filter 0.2 µm	every 6 months	1	**9.914 525**
UV-spare lamp UC (for systems with TM only)	1 to 2 x a year	1	**9.114 526**
UV-spare lamp UC (for systems without TM only)	1 to 2 x a year	1	**9.914 523**
RO-Module	every 2 to 3 years	1	**9.914 519**
CO2 trap CT1 incl. Vent filter (spare cartridge)	1 x a year	1	**9.914 527**
Vent filter VF1 (spare cartridge)	1 x a year	1	**9.914 528**
UV-submersion light UV-SL 1	1 x a year	1	**9.914 529**