



LIQUID HANDLING



LABORATORY EQUIPMENT



OPTICAL INSTRUMENTS



LABORATORY GLASSWARE



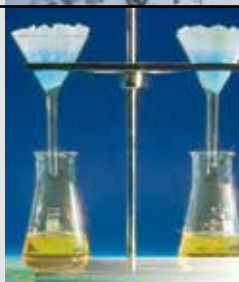
LABORATORY PLASTICWARE



DENSITY, TEMPERATURE  
AND TIME MEASUREMENT



LABORATORY FILTER PAPER



**B** **BOECO**  
Germany  
CATALOG 14-16



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## BOECO

The family-owned company Boeckel + Co (GmbH + Co) KG was founded in 1929 and now exists in the third generation.

To our customers in all 5 continents we are pleased to introduce our third general BOECO catalog with our extended and updated complete line of laboratory equipment and consumables.

We offer high quality at competitive prices by a convenient and cost-effective one-stop supply.

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IBAN- No. DE 65 2007 0000 0010 5601 00

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SWIFT: DEUTDEHHXXX

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# LIQUID HANDLING

 **BOECO**  
Germany



# MICROPIPETTES

Simple volume adjustment

Fully autoclavable



Streamlined shaft for use in narrow reaction vessels



Our premium BOECO GP Series single- and multichannel air-interface adjustable Micropipettes include all features requested by the user: Robustness, simple operation, complete autoclavability and ergonomic design as well as highest accuracy and easy calibration for long lasting reliability.

Color-coded display window for easy tip selection

Precise, 4-digit volume display with integrated zoom function for optimal readability

- ▶ Completely autoclavable at 121°C (2 bar) as by DIN EN 285
- ▶ Ergonomic design
- ▶ Simple volume adjustment for left- and right-handers
- ▶ Integrated calibration function for easy calibration without the need for tools
- ▶ Good chemical & UV-light resistance
- ▶ conformity certified to DIN 12600 and CE/IVD compliant

Every package includes:  
BOECO GP Pipettor, manual, quality-certificate.

Manufactured in Germany in accordance with ISO 9001:9008 / ISO 14001:2009 quality and environmental standards.

All pipettors are tested acc. to DIN ISO 8655-2.

## BOECO GP SERIES PREMIUM ADJUSTABLE VOLUME PIPETTE, WITH TIP EJECTOR, FULLY AUTOCLAVABLE

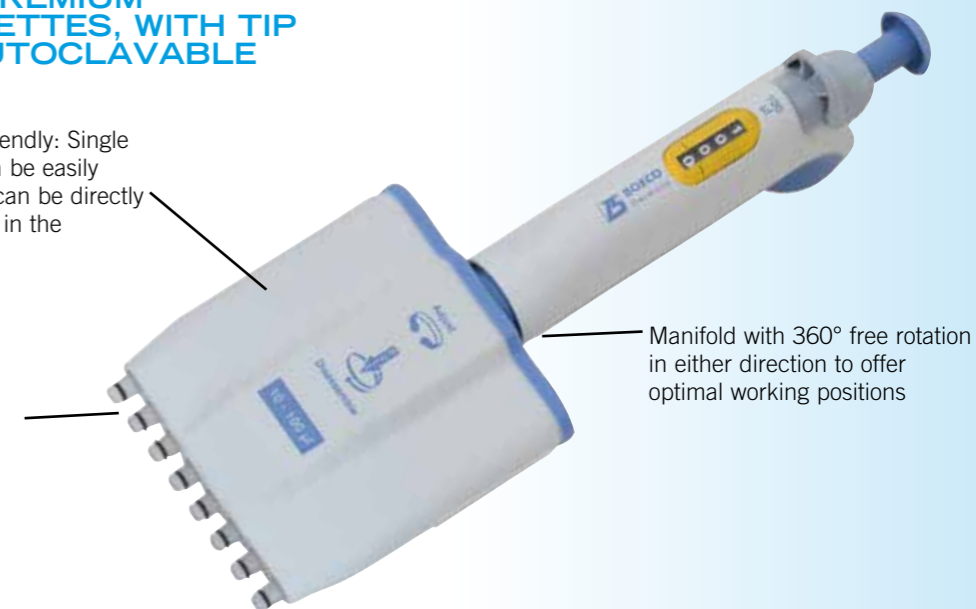
Cat. No	Volume	Increment	Test Volume	Inaccuracy	Imprecision	Tip Type
BOE 9910010	0,5 - 10 µl	0,01 µl	10 µl	±1,00%	±0,60%	A,B,C
			5 µl	±1,60%	±1,00%	
			1 µl	±7,00%	±4,00%	
BOE 9910020	2 - 20 µl	0,02 µl	20 µl	±0,80%	±0,40%	D,E,F
			10 µl	±1,20%	±0,70%	
			2 µl	±5,00%	±2,00%	
BOE 9910100	10 - 100 µl	0,1 µl	100 µl	±0,60%	±0,20%	D,E,F
			50 µl	±0,80%	±0,40%	
			10 µl	±3,00%	±1,00%	
BOE 9910220	20 - 200 µl	0,2 µl	200 µl	±0,60%	±0,20%	D,E,F
			100 µl	±0,80%	±0,30%	
			20 µl	±3,00%	±0,60%	
BOE 9911100	100 - 1000 µl	1 µl	1000 µl	±0,60%	±0,20%	G,H,I
			500 µl	±0,80%	±0,30%	
			100 µl	±3,00%	±0,60%	
BOE 9915000	500 - 5000 µl	5 µl	5000 µl	±0,60%	±0,20%	K
			2500 µl	±0,80%	±0,30%	
			500 µl	±3,00%	±0,60%	
BOE 9911111	1000 - 10000 µl	10 µl	10000 µl	±0,60%	±0,20%	M
			5000 µl	±0,80%	±0,30%	
			1000 µl	±3,00%	±0,60%	

## BOECO GP SERIES PREMIUM MULTICHANNEL PIPETTES, WITH TIP EJECTOR, FULLY AUTOCLAVABLE



Especially service friendly: Single shafts and seals can be easily removed, and thus can be directly cleaned or replaced in the laboratory

The combination of the stepped design of the ejector and spring made of FKM reduces the effort needed for ejecting the tips



Manifold with 360° free rotation in either direction to offer optimal working positions

Cat. No	Channels	Volume	Increment	Test Volume	Inaccuracy	Imprecision	Tip Type
BOE 9908050	8-ch	0,5 - 50 µl	0,1 µl	50 µl	±0,80%	±0,40%	D,E,F
				25 µl	±1,40%	±0,80%	
				5 µl	±6,00%	±3,00%	
BOE 9908100	8-ch	10 - 100 µl	0,2 µl	100 µl	±0,80%	±0,30%	D,E,F
				50 µl	±1,40%	±0,60%	
				10 µl	±4,00%	±2,00%	
BOE 9908300	8-ch	30 - 300 µl	0,2 µl	300 µl	±0,60%	±0,30%	F
				150 µl	±1,20%	±0,60%	
				30 µl	±3,00%	±1,50%	
BOE 9912050	12-ch	0,5 - 50 µl	0,1 µl	50 µl	±0,80%	±0,40%	D,E,F
				25 µl	±1,40%	±0,80%	
				5 µl	±6,00%	±3,00%	
BOE 9912100	12-ch	10 - 100 µl	0,2 µl	100 µl	±0,80%	±0,30%	D,E,F
				50 µl	±1,40%	±0,60%	
				10 µl	±4,00%	±2,00%	
BOE 9912300	12-ch	30 - 300 µl	0,2 µl	300 µl	±0,60%	±0,30%	F
				150 µl	±1,20%	±0,60%	
				30 µl	±3,00%	±1,50%	

## ACCESSORIES

Cat. No.	Description
BOE 1672010	Filter for GP Pipette 5 ml, Pack of 25 pcs.
BOE 1672012	Filter for GP Pipette 10 ml, Pack of 25 pcs.
BOE 1672015	Silicon oil for GP Pipettes up to 1000 µl
BOE 1672016	Silicon grease for GP Pipettes 5ml / 10 ml
BOE 1672110	Shelf/rack mount for GP-Series Micropipettes
BOE 1672112	Rotary Bench top stand for 6 GP-Series Micropipettes
BOE 9600006	Linear acrylic stand for up to 6 BOECO SA/GP Series Micropipettes, grey.
BOE 3190990	Autoclavable and transparent reagent reservoir with lid. Optimally suited for working with multichannel pipettes. Capacity 60 ml, Pack of 10 units

RACK MOUNT

ROTARY CAROUSEL STAND

LINEAR STAND

REAGENT RESERVOIR



Our BOECO SA Series single- and multichannel Micropipettes, are our standard fully autoclavable Pipettes, which due to their high accuracy and precision, robustness quality and fantastic ergonomic design make them an excellent price value pipette for all laboratory needs all over the world

- ▶ Completely autoclavable at 121°C
- ▶ Ergonomic design
- ▶ Tip Ejector, for smooth ejection of the tip\*
- ▶ Precise setting of the selected volume ensures accurate aspiration & dispensing of the liquid
- ▶ Grip made out of TPE (Thermo Plasto Elastomer) prevents transfer of heat to internal components ensuring accurate pipette operation even on continuous use.
- ▶ Good chemical & UV-light resistance

Every package includes:  
BOECO SA Pipettor, manual, quality-certificate, service tool, grease

All pipettors are tested acc. to ISO 8655 / DIN 12650 and have been calibrated in an ISO/IEC 17025 accredited laboratory.

Manufactured in accordance with ISO 9001:2008 and ISO 13485:2003 quality standards

\*The 10.000 µl (10 ml) models BOE 9621111 and BOE 9611111 do have a blocked tip ejector. The 10 ml tips have to be removed by hand

**BOECO SA SERIES ADJUSTABLE VOLUME PIPETTES, WITH TIP EJECTOR**

Cat. No	Channel	Volume	Increment	Test Volume	Inaccuracy	Imprecision	Tip Type
BOE 9610002	1-ch	0,1 - 2,5 µl	0,01 µl	2,5 µl	±2,50%	±1,60%	A,B,C
				1,25 µl	±3,00%	±3,00%	
				0,25 µl	±12,00%	±6,00%	
BOE 9610010	1-ch	0,5 - 10 µl	0,1 µl	10 µl	±1,00%	±0,80%	A,B,C
				5 µl	±2,00%	±1,00%	
				1 µl	±2,50%	±1,50%	
BOE 9610020	1-ch	2 - 20 µl	0,1 µl	20 µl	±0,90%	±0,40%	B,C
				10 µl	±1,50%	±1,00%	
				2 µl	±3,00%	±2,00%	
BOE 9610050	1-ch	5 - 50 µl	0,5 µl	50 µl	±0,60%	±0,30%	D,E,F
				25 µl	±0,80%	±0,40%	
				5 µl	±2,00%	±2,00%	
BOE 9610100	1-ch	10 - 100 µl	0,5 µl	100 µl	±0,80%	±0,15%	D,E,F
				50 µl	±1,00%	±0,50%	
				10 µl	±3,00%	±1,50%	
BOE 9610220	1-ch	20 - 200 µl	1 µl	200 µl	±0,60%	±0,15%	D,E,F
				100 µl	±0,70%	±0,30%	
				20 µl	±2,00%	±0,80%	
BOE 9611100	1-ch	100 - 1000 µl	5 µl	1000 µl	±0,60%	±0,20%	G,H,I
				500 µl	±1,00%	±0,40%	
				100 µl	±2,00%	±0,70%	
BOE 9615000	1-ch	500 - 5000 µl	50 µl	5000 µl	±0,50%	±0,15%	J
				2500 µl	±0,60%	±0,30%	
				500 µl	±2,00%	±0,60%	
BOE 9611111	1-ch	1000 - 10000 µl	100 µl	10000 µl	±0,60%	±0,20%	L
				5000 µl	±1,20%	±0,30%	
				1000 µl	±3,00%	±0,60%	



**BOECO SA SERIES, FIXED VOLUME PIPETTE, WITH TIP EJECTOR**












Cat. No.	Volume	Inaccuracy	Imprecision	Tip Type
BOE 9620005	5 µl	± 1,30 %	± 1,20 %	D,E,F
BOE 9620010	10 µl	± 0,80 %	± 0,80 %	D,E,F
BOE 9620020	20 µl	± 0,60 %	± 0,50 %	D,E,F
BOE 9620025	25 µl	± 0,50 %	± 0,30 %	D,E,F
BOE 9620050	50 µl	± 0,50 %	± 0,30 %	D,E,F
BOE 9620100	100 µl	± 0,50 %	± 0,30 %	D,E,F
BOE 9620200	200 µl	± 0,40 %	± 0,20 %	D,E,F
BOE 9620250	250 µl	± 0,40 %	± 0,20 %	G,H,I
BOE 9620500	500 µl	± 0,30 %	± 0,20 %	G,H,I
BOE 9621000	1000 µl	± 0,30 %	± 0,20 %	G,H,I
BOE 9622000	2000 µl	± 0,30 %	± 0,15 %	J
BOE 9625000	5000 µl	± 0,30 %	± 0,15 %	J
BOE 9621111	10000 µl	± 0,60 %	± 0,20 %	L

**LINEAR BENCH STAND FOR BOECO SA/GP SERIES MICROPIPETTES**


Cat. No.	Description
BOE 9600006	Linear acrylic stand for up to 6 BOECO SA/GP Series Micropipettes, grey.

Cat. No	Channel	Volume	Increment	Test Volume	Inaccuracy	Imprecision	Tip Type
BOE 9608010	8-ch	0,5 - 10 µl	0,1 µl	10 µl	±2,00%	±1,00%	A,B,C
				5 µl	±4,00%	±2,00%	
				1 µl	±8,00%	±1,00%	
BOE 9608050	8-ch	5 - 50 µl	0,5 µl	50 µl	±1,00%	±0,70%	D,E,F
				25 µl	±1,50%	±1,00%	
				5 µl	±3,00%	±2,00%	
BOE 9608100	8-ch	10 - 100 µl	1 µl	100 µl	±0,80%	±0,30%	D,E,F
				50 µl	±1,00%	±0,80%	
				10 µl	±3,00%	±2,00%	
BOE 9608300	8-ch	30 - 300 µl	1 µl	300 µl	±0,60%	±0,30%	F
				150 µl	±1,00%	±0,50%	
				30 µl	±3,00%	±1,00%	
BOE 9612010	12-ch	0,5 - 10 µl	0,1 µl	10 µl	±2,00%	±1,00%	A,B,C
				5 µl	±4,00%	±2,00%	
				1 µl	±8,00%	±1,00%	
BOE 9612050	12-ch	5 - 50 µl	0,5 µl	50 µl	±1,00%	±0,70%	D,E,F
				25 µl	±1,50%	±1,00%	
				5 µl	±3,00%	±2,00%	
BOE 9612100	12-ch	10 - 100 µl	1 µl	100 µl	±0,80%	±0,30%	D,E,F
				50 µl	±1,00%	±0,80%	
				10 µl	±3,00%	±2,00%	
BOE 9612300	12-ch	30 - 300 µl	1 µl	300 µl	±0,60%	±0,30%	F
				150 µl	±1,00%	±0,50%	
				30 µl	±3,00%	±1,00%	

# PIPETTE TIPS

Cat. No.	Volume	Length	Type	Description	Packaging
					
BOE 1-000-81-0	0,1-10 µl	34,1mm	A	Top Line Natural Tip	bag / 1000 pcs. / carton 20.000 pcs.
BOE 1-000-96-0	0,1-10 µl		A	Top Line Natural Tip	96-tip Rackbox / pack 10 racks
BOE 1-001-96-0	0,1-10 µl		A	Top Line Natural Tip, sterile	96-tip Rackbox / pack 10 racks
BOE 2-001-96-0	0,1-10 µl		A	Top Line Filter Tip, sterile	96-tip Rackbox / pack 10 racks
					
BOE 03.033.0100	0,1-20 µl	40,5 mm	B	Standard Tip, Natural, long type	bag / 1000 pcs. / carton / 10.000 pcs.
					
BOE 1-050-81-0	0,5-20 µl	45,7 mm	C	Top Line Natural Tip, long type	bag / 1000 pcs. / carton/20.000 pcs.
BOE 1-050-96-0	0,5-20 µl		C	Top Line Natural Tip, long type	96-tip Rackbox / pack 10 racks
BOE 1-051-96-0	0,5-20 µl		C	Top Line Natural Tip, long type, sterile	96-tip Rackbox / pack 10 racks
					
BOE 03.013.0103	2- 200 µl	52,6 mm	D	Standard Tip, yellow	bag / 1000 pcs. / carton / 25.000 pcs.
					
BOE 1-110-81-1	1-200 µl	50,8 mm	E	Top Line Yellow Tip, bevelled, graduated	bag / 1000 pcs. / carton / 20.000 pcs.
BOE 1-110-96-1	1-200 µl		E	Top Line Natural Tip, bevelled graduated, nonsterile	96-tip Rackbox / pack 10 racks
BOE 1-111-96-0	1-200 µl		E	Top Line Natural Tip, bevelled graduated, sterile	96-tip Rackbox / pack 10 racks
BOE 2-114-96-0	20 µl		E	Top Line Filter Tip, natural, sterile	96-tip Rackbox / pack 10 racks
BOE 2-116-96-0	30 µl		E	Top Line Filter Tip, natural, sterile	96-tip Rackbox / pack 10 racks
BOE 2-111-96-0	50 µl		E	Top Line Filter Tip, natural, sterile	96-tip Rackbox / pack 10 racks
BOE 2-112-96-0	100 µl		E	Top Line Filter Tip, natural, sterile	96-tip Rackbox / pack 10 racks
BOE 2-113-96-0	200 µl		E	Top Line Filter Tip, natural, sterile	96-tip Rackbox / pack 10 racks
BOE 2-115-96-0	230 µl		E	Top Line Filter Tip, natural, sterile	96-tip Rackbox / pack 10 racks
					
BOE 739030	5-300 µl	52 mm	F	Natural Tip	box / 1000 pcs. / carton / 10.000 pcs.
					
BOE 03.023.0101	50-1000 µl	70,5 mm	G	Standard Tip, blue	bag / 1000 pcs. / carton / 10.000 pcs.
					
BOE 1-209-06-2	100-1000 µl	70,1 mm	H	Top Line Tip, clear blue	60-tip Rackbox / pack 10 racks
BOE 1-207-06-2	100-1000 µl		H	Top Line Tip, clear blue, sterile	60-tip Rackbox / pack 10 racks
BOE 2-209-06-0	1000 µl		H	Filter Tip, natural, sterile	60-tip Rackbox / pack 10 racks
					
BOE 1-200-80-2	100-1000 µl	86,0 mm	I	Top Line Tip, blue, bevelled, graduated	bag / 500 pcs. / carton / 10.000 pcs.
BOE 1-200-96-2	100-1000 µl		I	Top Line Tip, blue, bevelled graduated	96-tip Rackbox / pack 10 racks
BOE 1-201-96-2	100-1000 µl		I	Top Line Tip, blue, bevelled graduated, sterile	96-tip Rackbox / pack 10 racks
BOE 2-201-96-0	1000 µl		I	Top Line Filter Tip, sterile	96-tip Rackbox / pack 10 racks


BOECO Top Line Tips are certified to be free of any detectable human DNA, DNase, RNase and PCR-inhibitors.

Cat.No.	Volume	Length	Type	Description	Packaging
					
BOE 9600650	1 - 5 ml	133 mm	J	Natural Tip, for SA Series	carton / 300 pcs.

This Tip is also suitable for our previous Standard and SP pipettes with 2000 µl and 5000 µl as well as BIOHIT® pipettes

					
BOE 702601	0,5 - 5 ml	160 mm	K	Natural Tip, for GP Series	bag / 200 pcs. / carton 1000 pcs.

This Tip is also suitable for Thermo Fisher Scientific Finnpipette® F1 and F2 of 5 ml

					
BOE 9600640	2 - 10 ml	150 mm	L	Natural Tip, for SA Series	bag / 100 pcs.

This Tip is also suitable for Thermo Fisher Scientific Finnpipette® F1 and F2 of 10 ml

					
BOE 702604	1 - 10 ml	156,5 mm	M	Natural Tip, for GP Series	bag / 100 pcs. / carton 1000 pcs.

This Tip is also suitable for the old SP Pipettes with 10 ml volume, as well as for Eppendorf® and Gilson® Pipettes of 10 ml



BOECO RACKBOXES

# PIPETTE AIDS



BOECO PIPETTE FILLER BALLS

## BOECO PIPETTE FILLER BALLS

natural rubber, red, with 3 valves

Cat. No.	Description
BOE 100	Model STANDARD, short cone for pipettes up to 20 ml
BOE 101	Model UNIVERSAL, long cone for all pipettes



BOECO PIPETTE PUMPS, PP

## BOECO PIPETTE PUMPS, PP

can be operated with one hand. Glass and plastic pipettes fit easily. Precise filling or emptying is done by rotating their actuator-wheels forward or backward. For rapid emptying simply depress plunger.

Cat. No.	Description
BOE 120	0 - 2 ml, blue
BOE 121	0 - 10 ml, green
BOE 122	0 - 25 ml, red



BOECO PIPETTE CONTROLLER

## BOECO PIPETTE CONTROLLER

offers safer, more convenient filling and dispensing, with glass and plastic pipettes. With one sensitive lever filling and delivery are easily controlled. Pipetting with ease and comfort.

- ▶ Easy and tireless handling for left and right-handed people
- ▶ An especially designed intake cone allows the use of pipettes from 0,1 ml to 100 ml
- ▶ The perfectly harmonized valve unit ensures effortless liquid intake
- ▶ Precise and high sensitive set of the meniscus
- ▶ An easy replaceable hydrophobic membrane filter protects the interior from penetrating liquids
- ▶ Completely autoclavable at 121° C (2 bar)

Cat. No.	Description
BOE 160	BOECO Manual Pipette controller, complete
BOE 1670650	Membrane filter, 3 µm, sterile, hydrophobic, PTFE, pack of 10
BOE 1670211	Suction bellows / Intake element
BOE 1670202	Intake cone, silicone
BOE 1655590	Valve unit



BOECO ELECTRONIC PIPETTE CONTROLLER

## BOECO ELECTRONIC PIPETTE CONTROLLER

for all pipettes from 0,1 to 100 ml.

With the BOECO electronic pipette controller pipette handling is simple and comfortable. The ergonomic handle - very light weight at about 190 grams - and excellent balance all contribute to ease of operation. The speed can be adjusted easily, continuously and exactly with one hand using two buttons. A 50 ml pipette can be filled comfortably in less than 10 seconds. The liquid release can be done either by gravity delivery when calibrated 'ex' (to deliver) or in blow out mode using the battery-operated motor. Pipettes are held securely and tightly in the exchangeable adapter. Liquid vapours are purged directly to protect the instrument. The charge level of the recyclable battery is shown in the LED display.

Cat. No.	Description
BOE 9900000	BOECO Electronic Pipette Controller with battery, battery charger 100-230V, EURO plug, and 2 x 0,2 µm replacement membrane filters
BOE 9900001	Idem, with battery charger, U.S. Plug
BOE 9900002	Idem, with battery charger, U.K. Plug

# SERIES PIPETTOR

## BOECO SERIES PIPETTOR PRO

The BOECO handheld Series Pipettor PRO is an extremely easy-to-handle piston pipette which allows rapid repeat dispensing of pre-set volumes with 12 tip sizes, 10 volume adjustments and 120 program steps

▶ **Clear:** Volume adjustments and dosing volumes for different tips are shown in a vision panel

▶ **Handy:** A perfect ergonomic design makes an easy and comfortable use possible. With the easy-moving dosing button in combination with the low weight, long dosing series can be dispensed conveniently

▶ **Compatible:** The BOECO Series Pipettor PRO apart from the BOECO Multitips is also compatible with PD-tips from Brand and as well with Combitips and Combitips plus from Eppendorf.

▶ **Independent:** In addition to the handy design the BOECO Series Pipettor PRO has been constructed consistent mechanical. The BOECO Series Pipettor PRO is **maintenance-free** and does not need any additional resources such as power supply or batteries.

▶ **Dosing table:** The below dosing table shows all dosing possibilities at a glance for choosing the most-suitable tip for your application.



BOECO SERIES PIPETTOR PRO

Tip Size	Program number									
	1	2	3	4	5	6	7	8	9	10
0,05 ml	1	1,5	2	2,5	3	3,5	4	4,5	5	5,5
0,10 ml	2	3	4	5	6	7	8	9	10	11
0,20 ml	4	6	8	10	12	14	16	18	20	22
0,50 ml	10	15	20	25	30	35	40	45	50	55
1,00 ml	20	30	40	50	60	70	80	90	100	110
1,25 ml	25	37,5	50	62,5	75	87,5	100	112,5	125	137,5
2,50 ml	50	75	100	125	150	175	200	225	250	275
5,00 ml	100	150	200	250	300	350	400	450	500	550
10,00 ml	200	300	400	500	600	700	800	900	1000	1100
12,50 ml	250	375	500	625	750	875	1000	1125	1250	1375
25,00 ml	500	750	1000	1250	1500	1750	2000	2250	2500	2750
50,00 ml	1000	1500	2000	2500	3000	3500	4000	4500	5000	5500
	48	35	23	19	15	13	11	9	8	7

Steps

Cat. No.	Description
BOE 9542023	BOECO Series Pipettor PRO incl. 1 adapter for 25 ml and 50 ml tips

BOECO MULTITIPS



		Cat. No.	Cat. No.	Packing unit	
		standard	sterile	standard	sterile
multitips	0,05 ml	BOE 980 222	-	100 pcs	100 pcs
multitips / PRO	0,10 ml	BOE 980 243	BOE 980 261	100 pcs	100 pcs
multitips / PRO	0,20 ml	BOE 980 244	BOE 980 262	100 pcs	100 pcs
multitips	0,50 ml	BOE 980 223	BOE 980 252	100 pcs	100 pcs
multitips / PRO	1,00 ml	BOE 980 245	BOE 980 264	100 pcs	100 pcs
multitips	1,25 ml	BOE 980 224	BOE 980 253	100 pcs	100 pcs
multitips	2,50 ml	BOE 980 225	BOE 980 254	100 pcs	100 pcs
multitips	5,00 ml	BOE 980 226	BOE 980 255	100 pcs	100 pcs
multitips / PRO	10,00 ml	BOE 980 246	BOE 980 267	100 pcs	100 pcs
multitips	12,50 ml	BOE 980 227	BOE 980 256	100 pcs	100 pcs
multitips	25,00 ml	BOE 980 228	BOE 980 257	25 pcs	25 pcs
multitips	50,00 ml	BOE 980 229	BOE 980 258	25 pcs	25 pcs
multitips adapter		BOE 980 234	-	1 pc	-



## DISPENSER



## BOECO BOTTLE-TOP DISPENSER

- ▶ Exact reproducibility of delivered quantities, due to rapid and precise volume adjustment by serrated setting device.
  - ▶ Piston with pressure-dependent active sealing, will resist even aggressive media.
  - ▶ Service friendly and easy to clean, because of a removable piston and suction valve.
  - ▶ Can be calibrated by service personal with an analytical balance.
  - ▶ Manufactured with high quality and durable materials.
- The parts of the BOECO dispenser which come into contact with the liquid are:
- Piston out of PTFE
  - TPX safety sheeted borosilicate glass cylinder
  - Platinum-Iridium Spring
  - Valve out of ETFE
- Any liquid which does not attack these materials can be dispensed.
- ▶ Manufactured under ISO 9001 norms.
  - ▶ Dispensing with all known original reagent bottles owing to the offer of different adapters.
  - ▶ Completely autoclavable at 121°C

**BOECO Bottle-Top Dispenser, complete with 3 adapters, intake tube FEP, Discharge-tube (with safety thread) FEP, closure cap, without reservoir bottle.**

Code	Volume	Thread at the dispenser	Adapters	Increment	Inaccuracy	Imprecision
BOE 9700525	0,5 - 2,5 ml	32	28/40/45	0,05 ml	± 0,6 %	0,1 %
BOE 9701050	1,0 - 5,0 ml	32	28/40/45	0,10 ml	± 0,5 %	0,1 %
BOE 9702100	2,0 - 10,0 ml	32	28/40/45	0,20 ml	± 0,5 %	0,1 %
BOE 9705250	5,0 - 25,0 ml	45	40/38/32	0,50 ml	± 0,5 %	0,1 %
BOE 9710500	10,0 - 50,0 ml	45	40/38/32	1,00 ml	± 0,5 %	0,1 %
BOE 9725100	20,0 - 100,0 ml	45	40/38/32	2,00 ml	± 0,5 %	0,1 %

## ACCESSORIES AND SPARE PARTS

## Intake and Discharge tube

Code	Description
BOE 1650020	Intake tube 220 mm, FEP, for volume 2.5, 5 and 10 ml
BOE 1650030	Intake tube 250 mm, FEP, for volume 25, 50 and 100 ml
BOE 1671085	Telescopic intake tube 250 till 350 mm, FEP, all ranges
BOE 1650400	Discharge tube, FEP, for volume 2.5, 5 and 10 ml
BOE 1650401	Discharge tube, FEP, for volume 25, 50 and 100 ml
BOE 1650090	Flexible discharge tube, PTFE, 80 cm, for volume 2.5, 5, 10 ml
BOE 1650095	Flexible discharge tube, PTFE, 80 cm, for volume 25,50,100 ml

## Adapters

Code	Bottle neck / Dispenser
BOE 1670150	25/32
BOE 1670155	28/32
BOE 1670165	38/32
BOE 1670170	40/32
BOE 1670175	45/32
BOE 1670085	32/38
BOE 1670110	38/45
BOE 1670120	40/45

**Dispenser-thread bottles, with screw cap, amber glass, with synthetic coating**

Code	Volume	Outer diam. (mm)
BOE 9772010	100 ml	28
BOE 9772020	250 ml	32
BOE 9772030	500 ml	32
BOE 9772040	1000 ml	45
BOE 9772050	2500 ml	45



ACCESSORIES AND SPARE PARTS

## BOTTLE TOP BURETTE

## BOECO DIGITAL CONTINUOUS BOTTLE-TOP BURETTES

- ▶ The digital BOECO Continuous Bottle-top Burette makes manual titration safer, easier, with more reliable results.
- ▶ The DCB burettes can be used for titration agents up to a concentration of 2 Mol/l. During the titration process, the burette fills automatically, eliminating time-consuming refills.
- ▶ Continuous pulse-free operation for faster titrations up to 5 ml per second.
- ▶ Titrant delivery is controlled by turning the wheels, and the amount dispensed is immediately shown on the display - from 10 µl to 999,9 ml, with a velocity of 2,5 ml/turn using model DCB 2500 or 5,0 ml/turn with model DCB 5000.
- ▶ The DCB models eliminate the errors of reading the meniscus and volume graduations of conventional hanging glass burettes.
- ▶ There is no exposed glassware to break and direct connection to the reagent bottle avoids pouring dangerous chemicals.
- ▶ Safety recirculating valve allows for recirculation within the closed system to avoid reagent waste.
- ▶ Angled digital display for easier reading from different heights by different users.
- ▶ Unique telescopic intake tube with length from 210 till 310 mm can be re-adjusted without cutting for different bottle sizes.
- ▶ Dosing spectrum from 10 µl to 999,9 ml.
- ▶ Battery-operated, easily replaceable micro-batteries 1,5 V (LR 03/AAA). One charge lasts a minimum of 500 hours (dispensing 4500 l of reagent).
- ▶ Burette can be rotated 360° on the bottle.
- ▶ Titrating tube removable and adjustable: horizontal 142-220 mm, vertical 10-200 mm.
- ▶ Service friendly modular assembly.
- ▶ Electronic can be completely removed.
- ▶ Low battery indicator.
- ▶ User-serviceable and calibratable to meet ISO and GLP requirements.
- ▶ Optional drying tube protects reagents from moisture or CO<sub>2</sub>.
- ▶ Manufactured under ISO 9001 norms.
- ▶ Adapters are available to fit most bottle neck sizes.



**BOECO Digital Continuous Bottle-Top Burettes, complete with 3 PP adapters 45/38, 38/32, 40/45 (45 thread at the burette), 1 telescopic intake tube (FEP), 1 telescopic titration tube, 2 micro-batteries 1,5 V (LR 03/AAA), without reservoir bottle.**

Code	Model	Accuracy	Coefficient of variation
BOE 9882500	DCB 2500 (2.5 ml/turn)	± 0,2 %	0,1 %
BOE 9885000	DCB 5000 (5,0 ml/turn)	± 0,2 %	0,1 %

## Accessories

Code	Description
BOE 1671095	Drying Tube
BOE 9772050	Amber Glass bottle, 2500 ml
BOE 1671085	Telescopic Intake Tube, 200-350 mm



**SIMDOS 02**  
FEM 1.02 KT.18RC



**SIMDOS 10**  
FEM 1.10 KT.18RC

## CHEMICAL-RESISTANT DIAPHRAGM DOSING PUMPS KNF SIMDOS®

the chemically-resistant, microprocessor-controlled SIMDOS diaphragm metering pumps meter the smallest volumes continuously and evenly. Thanks to a special drive technology, these pumps feature a remarkably wide metering range. A knob makes it easy to vary the pumping function.

- ▶ Intuitive operation
- ▶ Adaptable to fluid characteristics
- ▶ Analog and impulse control
  - ▶ Analog control: 0-10 V, 0-20 MA, 4-20 mA from 0 to 100 %
  - ▶ Start/Stop through logic control (TTL)
  - ▶ Reset/prime through logic control (TTL)
  - ▶ Output signal (i.e. the end of cycle)
- ▶ Pause function without data loss
- ▶ Chemically-resistant versions
- ▶ Self priming
- ▶ Dry running
- ▶ Low maintenance
- ▶ Easy calibration
- ▶ Small footprint
- ▶ Supplied with connection-Set (cable for external control and 2m hose)

### Specification:

	<b>SIMDOS 02</b>	<b>SIMDOS 10</b>
Flow rate:	30 µl/min-20ml/min	1-100 ml/min
Dosing volume:	30 µl - 999 ml	1 - 999 ml (higher with time metered dosing volume)
Max. Pressure:		60 mWg (6 bar)
Suction height:	2 mWg	3 mWg
Hydraulic connection:	UNF 1/4"-28	4/6 mm
Time metering:		1s - 99h 59 min (manual)
Mains:		100-240 V 50/60 Hz
Permissible liquid temp.:		+5...+80°C
Permissible ambient temp.:		+5...+40°C
Max. viscosity allowed:		up to 150 cSt (reduced performance up to 500 cSt)
Repeatability:		± 1%
Motor protection:		IP65 (splash proof)
Weight:		0,9 kgs
Dimensions LxWxH mm:	150x93x144	134x93x144
<b>PP</b> Pump Head:		Suitable for aqueous solutions and bases
<b>PVDF</b> Pump Head:		Suitable for medium acid concentrations
<b>PTFE</b> Pump Head:		Suitable for high acid concentrations and solvents

### Code

### Description

KNF 166073/165467	KNF SIMDOS®02 Diaphragm Dosing Pump FEM 1.02 KT.18RC, Pump head: <b>PP</b>
KNF 166074/165467	KNF SIMDOS®02 Diaphragm Dosing Pump FEM 1.02 TT.18RC, Pump head: <b>PVDF</b>
KNF 164971/165467	KNF SIMDOS®02 Diaphragm Dosing Pump FEM 1.02 FT.18RC, Pump head: <b>PTFE</b>
KNF 159995/160157	KNF SIMDOS®10 Diaphragm Dosing Pump FEM 1.10 KT.18RC, Pump head: <b>PP</b>
KNF 159997/160157	KNF SIMDOS®10 Diaphragm Dosing Pump FEM 1.10 TT.18RC, Pump head: <b>PVDF</b>
KNF 159998/160157	KNF SIMDOS®10 Diaphragm Dosing Pump FEM 1.10 FT.18RC, Pump head: <b>PTFE</b>

### Accessories:

### Code

### Description

KNF 155872	Footswitch Impuls
KNF 160473	Wall fixture
KNF 160474	Column fixture

Optional available KNF filters protect both pumps and other upstream instrumentation and hydraulic circuits against particulate, crystals and fibres which can impede optimum operation.

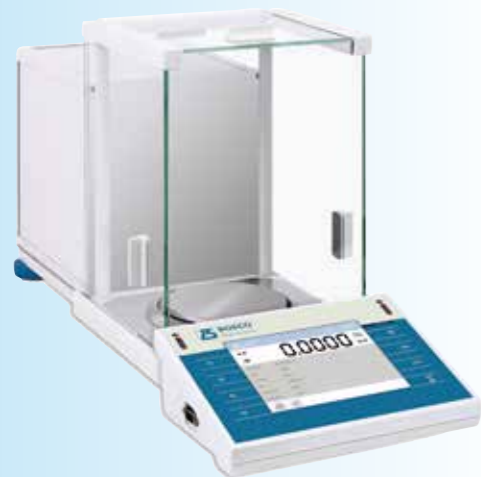


# LABORATORY EQUIPMENT

 **BOECO**  
Germany



# BALANCES



## BOECO BBY MODELS

Our professional Semi-Micro Analytical balances with internal calibration, 5,7" colour touch screen, infrared proximity sensors, electronic level indicator, communication interfaces and data exchange through USB storage devices.

► Functions:  
Parts Counting, Checkweighing, Dosing, Weighing in percent, Density determination (with optional kit), Animal weighing, Formulation, Statistics, Differential weighing, GLP procedures

Menu navigation selectable in 6 languages: GB / SP / D / F / I / PL

Specifiaction	BBY 21	BBY 22
Max. capacity	100 g	82 / 220 g
Minimal load	0,01g	0,01g
Readability	0,00001 g	0,00001 g
		0,0001 g
Tare range	- 100 g	- 220 g
Repeatability	50 g 0,00002 g	50 g 0,00002 g
	50 - 100 g 0,00003 g	50-82 g 0,00003 g
		82 - 220 g 0,00008 g
Linearity	± 0,00007 g	± 0,00006 g
		± 0,0002 g
Pan size	ø 85 mm	ø 85 mm
Stabilization time	5 sec.	5 sec.
Calibration	Internal (automatic)	
Interface	RS 232 / 2 x USB / Ethernet	
Display	Graphic LCD with backlight	
Working temperature	+10°C - +40°C	
Power Supply	110-230 V AC, 50/60 Hz	
Netweight / Grossweight	12,7 kgs / 16,4 Kg	
Size / Packing size	573x252x348 / 715x385x485 mm	

Model	Readability	Capacity
BBY 21	0,00001 g	100 g
BBY 22	0,00001 g	82 g
(dual range)	0,0001 g	220 g



## BOECO BBX MODELS

Our advanced Semi-Micro and Analytical balances with internal calibration.

► Functions:  
Parts Counting, Filling, Weighing in percent, Animal weighing, checking, density determination (with optional kit), Formulation, GLP procedures, underfloor weighing

Menu navigation selectable in 6 languages: GB / SP / D / F / I / PL

Specifiaction	BBX 22	BBX 31
Max. capacity	82 /220 g	310 g
Minimal load	0,001g	0,01g
Readability	0,00001 g	0,0001 g
	0,0001 g	
Tare range	- 220 g	- 310 g
Repeatability	50 g 0,00002 g	220 g 0,00008 g
	50 - 82 g 0,00003 g	220-310 g 0,0002 g
	82 - 220 g 0,00008 g	
Linearity	± 0,00006 g	± 0,0003 g
	± 0,0002 g	
Pan size	ø 85 mm	ø 100 mm
Stabilization time	5 / 3 sec.	3 sec.
Calibration	Internal (automatic)	
Interface	RS 232 / USB	
Display	Graphic LCD with backlight	
Working temperature	+10°C - +40°C	
Power Supply	110-230 V AC, 50/60 Hz	
Netweight / Grossweight	9 kgs / 12 kg	
Size / Packing size	484x202x294 / 685x405x495 mm	

Model	Readability	Capacity
BBX 22	0,00001 g	82 g
(dual range)	0,0001 g	220 g
BBX 31	0,0001 g	310 g

## BOECO BAS PLUS MODELS

Our Standard Analytical balances with automatic internal calibration

The new Plus Version with: New display with enlarged characters, New keypad with quick access buttons, New communication interfaces 2 xUSB (1 x to work with printers with PCL protocol) (and optional WIFI)

► Functions: Parts Counting, weighing in percent, checking, density determination (with optional kit), GLP procedures, underfloor weighing

Specifiaction	BAS 31 plus	BAS 32 plus
Max. capacity	220 g	110 g
Minimal load	0,01g	0,01g
Readability	0,0001 g	0,0001 g
Tare range	- 220 g	- 110 g
Repeatability	0,0001 g	0,0001 g
Linearity	± 0,0002 g	± 0,0002 g
Pan size	ø 85 mm	ø 85 mm
Stabilization time	3,5 sec.	3,5 sec.
Calibration	Internal (automatic)	
Interface	2xRS232, 2xUSB(A+B), WIFI (optional)	
Display	large LCD with backlight	
Working temperature	+10°C - +40°C	
Power Supply	110-230 V AC, 50/60 Hz	
Netweight / Grossweight	5,6 kgs / 7,7 Kg	
Size / Packing size	333x210x335 / 490x400x505 mm	

Both BASplus balances are available in an optional WIFI interface version



Model	Readability	Capacity
BAS 31 plus	0,0001 g	220 g
BAS 32 plus	0,0001 g	110 g

## BOECO BPS PLUS MODELS

Our Standard Precision balances with automatic internal calibration

The new Plus Version with: New display with enlarged characters, New keypad with quick access buttons, New communication interfaces 2 xUSB (1 x to work with printers with PCL protocol) and optional WIFI.

► Functions: Parts Counting, weighing in percent, checking, totalizing, filling, GLP procedures

Specifiaction	BPS 40 plus	BPS 41 plus	BPS 51 plus	BPS 52 plus
Max. capacity	750 g	360 g	4500 g	2100 g
Minimal load	0,02 g	0,02 g	0,5 g	0,5 g
Readability	0,001 g	0,001 g	0,01 g	0,01 g
Tare range	- 750 g	- 360 g	- 4500 g	- 2100 g
Repeatability	0,015 g	0,001 g	0,01 g	0,01 g
Linearity	± 0,003 g	± 0,002 g	± 0,02 g	± 0,02 g
Pan size	128 x 128 mm		195 x 195 mm	
Stabilization time	2 sec.		1,5 sec.	
Calibration	Internal (automatic)			
Interface	2xRS232, 2xUSB (A+B), WIFI (optional)			
Display	large LCD with backlight			
Working temperature	+10°C - +40°C			
Power Supply	110-230 V AC, 50/60 Hz			
Netweight / Grossweight	4,3 kgs / 6,3 kg		4,8 / 6,3 kg	
Size / Packing size	333x206x100/170 / 470x380x336 mm			

All 4 BPSplus balances are available in an optional WIFI interface version



Model	Readability	Capacity
BPS 40 plus	0,001 g	750 g
BPS 41 plus	0,001 g	360 g



Model	Readability	Capacity
BPS 51 plus	0,01 g	4500 g
BPS 52 plus	0,01 g	2100 g

## Accessories

Code	Description
BOE KIT 85	Density determination KIT for solids and liquids for balances featuring weighing pan ø 85 and ø 100 mm
BOE KIT 128	Density determination KIT for balances with weighing pan 128 x 128 mm
BOE WINPC	BALANCE-WIN PC Software
BOE P0108	RS 232 cable (Balance - Computer)





Model	Readability	Capacity
BWL 51	0,01 g	2000 g
BWL 61	0,1 g	6000 g
BWL 60	0,1 g	10 kg

## BOECO BWL MODELS

Our Basic Precision balances with external calibration and internal rechargeable accu with power charger. This makes them independent from a mains supply and therefore portable.

### ► Functions:

Parts Counting, weighing in percent, totalising, checking, animal weighing, GLP procedures, measurement in Newton,

Specification	BWL 51	BWL 61	BWL 60
Max. capacity	2000 g	6000 g	10 kg
Readability	0,01 g	0,1 g	0,1 g
Tare range	- 2000 g	- 6000 g	- 10 kg
Repeatability	0,03 g	0,3 g	0,1 g
Linearity	± 0,03 g	± 0,3 g	± 0,1 g
Pan size	195 x 195 mm		
Stabilization time	3 sec.		
Calibration	external		
Interface	RS 232		
Display	LCD with backlight		
Working temperature	+15°C - +30°C		
IP rating	IP 43		
Power Supply	110-230 V AC, 50/60 Hz		
Operation time on batteries	45 hours (average time)		
Netweight / Grossweight	2,8 / 4,3 kg		
Size / Packing size	335x210x88 / 470x380x336 mm		

### Accessories

Code	Description
BOE F1-2000	Calibration weight, 2 kg, F1
BOE F1-5000	Calibration weight, 5 kg, F1
BOE F1-10000	Calibration weight, 10 kg, F1



## BOECO BLC MODELS

Our range of low-cost balances, an alternative for most basic weighing applications.

### ► Functions:

Simple three-key operation, Large weighing pan, Energy saving mode, Usable with single 9V battery or power supply. Multiple weigh units: Choose from: grams, ounces, pounds/ounces, pennyweight or troy ounces, Parts counting application.

The BLC 220 is supplied with a plastic windshield and an AC adaptor  
The BLC 1500/BLC 3000 are supplied without battery and AC adaptor

Specification	BLC 220	BLC 1500	BLC 3000
Max. capacity	220 g	1500 g	3000 g
Readability	0,01 g	0,1 g	1 g
Tare range	0-220 g	0-1500 g	0-3000 g
Repeatability	± 0,02 g	± 0,1 g	± 1 g
Linearity	± 0,02 g	± 0,1 g	± 1 g
Pan size	∅ 110 mm	138 x 134 mm	
Stabilization time	4 sec.	2 sec.	
Calibration	external		
Display	LCD with LED backlight		
Working temperature	+10°C - +35°C		
Power Supply	9V/100mA battery or AC adaptor		
Netweight / Grossweight	458 g / 390 g		
Size	190x140x63 / 190x140x45 mm		

Code	Description
BOE 138134	Stainless steel platform for BLC 1500 / 3000



Model	Readability	Capacity
BLC 220	0,01 g	220 g



optional st. steel platform

Model	Readability	Capacity
BLC 1500	0,1 g	1500 g
BLC 3000	1 g	3000 g

## BOECO MOISTURE ANALYZER BMA H50, BMA I50

Specification	BMA H50	BMA I50
Heating Module	Halogen emitter	IR emitter
Range of Drying temp	250°C	160°C
Max. capacity	50 g	
Readability	0,001 g	
Tare range	- 50 g	
Max mass sampling	50 g	
Accuracy of moisture reading	0,001 %	
Repeatability	±0,24 % (sample < 2 g) ±0,06 % (sample 2-10 g) ±0,04 % (sample >10 g)	
Max. height of tested sample	h = 20 mm	
Pan size	∅ 90 mm, h = 8 mm	
Drying modes	4 drying modes (standard, quick, step, mild)	
Auto switch off options	3 modes (manual, automatic, time defined)	
Additional functions	sample identification	
Power of heating device	400 W	
Interface	RS 232	
Display	LCD with backlight	
Working temperature	+10°C - +40°C	
Power Supply	110-240 V AC, 50/60 Hz	
Netweight / Grossweight	4,9 kgs / 6,4 Kg	
Size / Packing size	333x206x190 / 470x380x336 mm	



## ACCESSORIES FOR BMA MOISTURE ANALYZERS

Code	Description
BOE PAN90	Aluminium sample pans, round, ∅ = 90 mm (box of 50)
BOE 440017	Glass fiber filters MG 161, 90 mm ∅, with binder, anorganic, 75 g/m <sup>2</sup> (box of 50)
BOE F1-50	Calibration weight, 50 g, F1



## PRINTER FOR BOECO BALANCES

Code	Description
BOE TMU220D	Epson TM-U 220D dot-matrix printer
BOE P0151	Cable to connect the printer with the BOECO balances with RS232 interface



## DUST COVER FOR BOECO BALANCES

Code	Description
BOE DC-1	Dust cover for BAS 31 / BAS 32 PLUS balances
BOE DC-2	Dust cover for BAS 31 / BAS 52 PLUS balances BWL 51 / BWL 69 / BWL 61 balances

# SPECTROPHOTOMETERS

## BOECO SPECTROPHOTOMETER MODELS S-200 VIS & S-220 UV/VIS

The BOECO S-220 (UV/VIS) and S-200 (VIS) are high quality, compact, low cost measurement systems for daily analysis in education, QC and basic research.

### ► Compact single beam optics with full range scanning

The single beam optics are compact and bench space saving. The long life Hamamatsu Xenon lamp optics in the S-220 ensure quick and reliable performance and the Tungsten Halogen lamp used in S-200 also provide a reliable measurement.

### ► Color touch screen operation

The intuitive color touch screen operation provides simple access to an extensive range of functions. The touch screen is sensitive to stylus and laboratory gloves. Icon driven on-board software improves accessibility and the graphical display allows spectrum or standard curve to be shown on the screen. The forward and back quick key allows the user to proceed or swiftly return to the process. An enlarged data display for photometry measurement makes result reading easier.

### ► Various measurement modes

Operation modes include photometric, multiple wavelength analysis, spectrum scanning, time scan and kinetics; direct concentration results are included.

### ► Optional accessories

A variety of accessories are included such as test tube holder, flow cell with sipper, temperature control holder, long path length cuvette holder & multiple cell holder are available to enhance different application needs.

### ► Storage and data output

External storage with SD card and free downloadable PC Software MasterReport ([www.boeco.com](http://www.boeco.com)) allows data export to PC in compatible text or spreadsheet format for further data processing in the PC. Method and result storage is almost unlimited by exchanging SD card when needed. Printer options are available for direct result printing with graphics.

### ► Validation function

To ensure optimum instrument performance, self diagnosis functions are equipped in GLP/GMP feature for performance validation and auditing.

Code	Description
BOE 8620000	Model S-200 Vis Spectrophotometer, single beam with full range scanning and color touch screen operation. Supplied with 10 x 10 mm cuvette holder
BOE 8622000	Model S-220 UV/Vis Spectrophotometer, single beam with full range scanning and color touch screen operation. Supplied with 10 x 10 mm cuvette holder



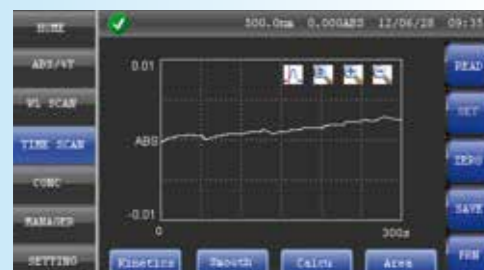
S-200  
S-220



MAIN MENU



LARGE DISPLAY MEASURE



TIME SCAN RESULTS AND DATA PROCESSING

## Specification

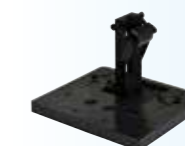
	S-200 Vis	S-220 UV/Vis
Wavelength Range:	320 to 1100nm	190 to 1000nm
Spectral Bandwidth:	6nm	5nm
Transmittance accuracy:	±0,5% T (NIST 930 Filter)	±1% T (NIST 930 Filter)
Transmittance repeatability:	0.2% T	0.5% T
Baseline flatness:	± 0.002Abs (330-1090nm)	± 0.005Abs (200-990nm)
Noise level:	≤ 0.001 Abs (500nm)	≤ 0.005 Abs (250 nm)
Baseline stability:	≤ 0.001Abs/h (500nm) (after 2 hours warm up)	≤ 0.005Abs/h (250nm) (after 2 hours warm up)
Stray light:	≤ 0.5% T	≤ 0.5% T
Wavelength controlled variable:	0.2nm	0,2nm
Wavelength accuracy:	± 1nm	± 2nm
Wavelength repeatability:	≤ 0,5nm	≤ 1nm
Wavelength scan speed:	2400nm/min (0,2 sampling interval without filter)	300nm/min (0,2 sampling interval without filter)
Wavelength move speed:	to any specified position within 1sec.	to any specified position within 1sec.
Absorbance:	-0.3 to 1.999	-0.3 to 1.999
Transmittance:	0 to 199.9%	0 to 199.9%
Spectrum Scanning:	Yes	Yes
Concentration:	-300 to 1999	-300 to 1999
Selectable Resolution:	1, 0.1, 0.01 or 0.001	1, 0.1, 0.01 or 0.001
Light source:	Tungsten Halogen lamp	pulsed-Xenon lamp
Detector:		Silicon photodiode
Display screen:		4,3 inches colorful touch LCD screen
Printer:		specified 80-column thermal printer (series port)
Metering mode:		Single beam
Memory:		SD card storage
Time Scan:		Graphical and calculated concentration value
Analysis:		Absorbance and wavelength of peaks and valleys
GLP:		Real time clock and calendar, Self Diagnosis
Size:		400 (W) x 280 (D) x160 (H) mm
Power requirement:		AC, 100-240V, 50/60Hz
Power consumption:		100VA
Communication ports:		Serial printer port connects thermal printer USB port connects PC

Weight:

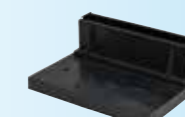
4 kgs

## Accessories

Code	Description
BOE 8620005	Test tube holder (only for S-200)
BOE 8622004	Rectangular long-path cuvette holder for cuvettes with 10, 20, 30, 50 and 100 mm path-length
BOE 8620003	Micro-cuvette holder, for cuvettes with centre height of 15 mm
BOE 8620020	Flow cuvette holder, incl. quartz glass flow cuvette of 150 µl
BOE 8620030	Set of Auto sample sipper and Flow cuvette holder with quartz glass flow cuvette of 150 µl
BOE 8622040	Electronic thermostat (Peltier element) TC cuvette holder (only for S-220)
BOE 8620050	Automatic 5 position cuvette holder
BOE 8620060	Thermo printer (with battery)
BOE 8620001	Tungsten halogen lamp (S-200)
BOE 8622001	Xenon Lamp module (S-220)



TEST TUBE HOLDER



LONG PATH  
CUVETTE HOLDER



5-PLACE AUTO  
SAMPLE HOLDER



ELECTRONIC THER-  
MOSTAT HOLDER



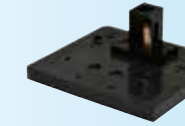
FLOW CUVETTE  
HOLDER



SAMPLE SIPPER



THERMO PRINTER



MICRO CUVETTE  
HOLDER

## CUVETTES

### Disposable Cuvettes:

Code	Description
BRA 759007	Disposable Macro Cuvettes, PS, Window: 10 x 35 mm; 10 mm light path Filling volume: min 2,5 / max 4,5 ml grouped by mold cavity number, neutral packing Wavelength: From 340 to 900 nm Packing: 100 pcs./box, 1000 pcs./carton
BRA 759017	Disposable Semi-Micro Cuvettes, PS, Window: 4,5 x 23 mm; 10 mm light path Filling volume: min 1,5 / max 3,0 ml grouped by mold cavity number, neutral packing Wavelength: From 340 to 900 nm Packing: 100 pcs./box, 1000 pcs./carton
BRA 759170	BRAND Disposable UV Macro Cuvettes, Filling volume: min 2,5 / max 4,5 ml grouped by mold cavity number, Wavelength: From 220 to 900 nm, 10 mm light path, pack of 100 pcs.
BRA 759150	BRAND Disposable UV Semi-Micro Cuvettes, Filling volume: min 1,5 / max 3,0 ml grouped by mold cavity number, Wavelength: From 220 to 900 nm, 10 mm light path, pack of 100 pcs.
BRA 759220	BRAND Disposable UV Micro Cuvettes, Center height 15 mm, Vol. 70 µl up to 550 µl, Wavelength: From 220 to 900 nm, 10 mm light path, pack of 100 pcs.

### Optical and quartz glass Cuvettes:

Code	Description
BOE 104010	BOECO economic Macro cell, Optical glass, 340-2500 nm 10 mm light path, PTFE lid, 2 pcs. / pack
BOE 204010	BOECO economic Macro cell, Quartz glass, 190-2500 nm 10 mm light path, PTFE lid, 2 pcs. / pack
HEL 6030-10-10	HELLMA Macro Cuvette 6030-OG without lid, Optical glass, 360-2500 nm, 10 mm light path
HEL 6030-UV-10-531	HELLMA Macro Cuvette 6030-UV without lid, Quartz glass, 260-2500 nm, 10 mm light path
HEL 6040-10-10	HELLMA Semi-Micro Cuvette 6040-OG without lid, Optical glass, 360-2500 nm, 10 mm light path
HEL 6040-UV-10-531	HELLMA Semi-Micro Cuvette 6040-UV without lid, Quartz glass, 260-2500 nm, 10 mm light path
HEL 100-10-20	HELLMA Macro Cuvette 100-OS with PTFE lid, Optical glass, 320-2500 nm, 10 mm light path
HEL 100-20-20	100-OS with 20 mm light path
HEL 100-50-20	100-OS with 50 mm light path
HEL 100-100-20	100-OS with 100 mm light path
HEL 100-10-40	HELLMA Macro Cuvette 100-QS with PTFE lid, Quartz glass, 200-2500 nm, 10 mm light path
HEL 100-20-40	100-QS with 20 mm light path
HEL 100-50-40	100-QS with 50 mm light path
HEL 100-100-40	100-QS with 100 mm light path
HEL 105-202-15-40	HELLMA Ultra-Micro Cuvette 105.202-QS with PE stopper, Quartz glass, 200-2500 nm 10 mm light path, Centre height 15 mm Chamber volume 50 µl, Filling volume 70 µl

## BOECO CLINICAL PHOTOMETER, MODEL PM-51

- ▶ Semi-automated photometric system
- ▶ Effective temperature regulation system
- ▶ Flexible cuvette concept, interchangeable flow-through or standard cuvette
- ▶ Reagent-open system with high capacity for programmable methods
- ▶ Teach-in capability for reagent application via touchscreen
- ▶ Minimum sipping volume 250 µl
- ▶ Double-secured liquid control with infrared bubble detector
- ▶ Future-proof operation, can easily be upgraded



### Specification:

Type:	Semi-automatic, single-beam filter photometer
Light Source:	Halogen lamp - 12 V, 20 W with protection for lifetime
Wavelength:	340 nm - 800 nm
Wavelength Selection:	Automatic via 9-position filter wheel : 6 standard interference filters: 340 nm, 405 nm, 492 nm, 546 nm, 578 nm, 623 nm, 3 positions for optional filter of choice
Photometric Range:	0 - 2.5 Bel
Cuvette System:	Microflow cell: 32 µl, 10 mm light path interchangeable with normal standard cuvettes (macro or semi-micro, disposable or special optical glass) Temperature Control Internal Peltier element, temperature variable, pre-adjusted to 25 °C, 30 °C and 37 °C Equilibration time for aspirated reaction mixture to reach 37 °C from ambient temperature: 15 sec
Aspiration System:	Built-in peristaltic pump driven by stepper motor programmable aspiration volume controlled by infrared light barrier
Sipping Volume:	Minimum 250 µl, typically 500 µl up to 2000 µl Separate setting of aspirate volume and wash volume
Operator interface:	Touchscreen, for direct functions and alphanumeric inputs
Data Presentation:	Graphic display, White characters or symbols, blue background, lighted, resolution 240 x 126 dots.
Integrated Printer:	Thermal printer, 24 characters per line
Languages:	English, German, Spanish, French, Russian and Indonesian
Memory:	General operating software can be updated by PC Reagent open system with capacity for up to 231 programmable methods Import of data by touchscreen or PC Up to 50 non-linear calibration curves with max. 20 sets of points can be stored Up to 1000 results can be saved in memory automatically
Data Logging:	1 serial port for connection to an external printer or PC (bidirectional interface)
Signal Port:	▶ Absorbance
Measurement Procedures:	▶ Endpoint with standard, factor or multiple standards, with or without reagent blank and/or sample blank ▶ Bichromatic end point ▶ Kinetics with standard, factor or multiple standards, with or without blank ▶ Fixed time with standard, factor or multiple standards, with or without reagent blank ▶ Turbidimetry with optional timer function ▶ Single, double and triple determinations ▶ Curve fitting for non-linear standard curves ▶ Free hemoglobin in combination with optional interference filters ▶ Kinetic: variable from 3 - 19 deltas, time per delta 4 - 255 sec. ▶ Fixed time: variable from 0 - 65535 sec. Programmable from 0 - 65535 sec.
Measuring Time:	Programmable from 0 - 65535 sec.
Delay Time:	Range 100 VAC up to 240 VaACat 50/60 Hz
Mains Supply:	Length 33 cm x Width 34 cm x Height 18 cm
Dimensions:	Weight: 5,3 kg
Weight:	

Code	Description
BOE PM-51	BOECO photometer PM-51, with integrated printer, flow-through cell, standard cuvette adapter and filter wheel (340-405-492-546-578-623 nm), 90-264 V, 50/60 Hz



BOE 104010



HEL 6030-OG

HEL 6030-UV



HEL 6040-OG

HEL 6040-UV



HEL 100-OS/100



HEL 100-OS/10

HEL 105.202-QS

# MILK ANALYZER

## BOECO MILK ANALYZER LAC-SP, LAC-SPA

The function of the BOECO Ultrasonic Milk Analyzer is to make quick analyses of milk samples directly after milking, at collecting and during processing.

The BOECO Milk analyzer makes quick analyses of milk and liquid dairy products as: Cow milk, UHT milk, Sheep milk, Goat milk, Buffalo milk, Whey, Cream (up to 45%), Recovered milk.

Each unit will be delivered with 3 calibrations (standard are sheep, cow and UHT milk)

The model LAC-SP has one peristaltic pump for the sample aspiration. The model LAC-SPA has two pumps. the second one for automatic cleaning

The key features are:

- ▶ User-friendly: simple in operation, maintenance, calibration and installation
- ▶ Portable and compact design
- ▶ Very small quantity of milk required (25 ml per one measurement)
- ▶ Low power consumption
- ▶ No use of hazardous chemicals
- ▶ Measuring accuracy adjustment can be done by the user RS 232 interface
- ▶ ESC POS Printer Support
- ▶ Two samples self-calibration
- ▶ Dimensions 175x175x150 mm (WxDxH)
- ▶ Weight: < 1,5 kg
- ▶ Power: Input 100-240V ~1,6 A max, 50/60 Hz, Output +12V 4.17 A min

The following Parameters can be measured from the Ultrasonic system: Fat, Solid-non-fat (SNF), Density, Protein, Lactose, Milk sample temperature, Added water, Salts, Freezing point.

The following Parameters can be measured from integrated systems: pH (together with an electrode), Conductivity, Inhibitors

Parameter	Measuring range	Accuracy
Fat	from 0,01% to 25% (option 45%)	± 0.1%
SNF (Solids-non-fat)	from 3% to 15%	± 0.15%
Density	from 1015 to 1140 kg/m <sup>3</sup> (option 1160 kg/m <sup>3</sup> )	± 0.3 kg/m <sup>3</sup>
Protein	from 2% to 7%	± 0,15%
Lactose	from 0.01% to 6%	± 0.15
Added Water content	from 0% to 70%	± 3.0%
Temperature of milk	from 1°C to 40°C	± 1°C
Freezing point	from -0,4 to -0,7°C	± 0.001°C
Salts	from 0,4 to 1,5%	± 0.05%
pH	from 0 to 12	± 0,05%
Total solids	from 0 to 50 %	± 0,17%
Option		
Conductivity	from 3 to 14 (mS/cm)	± 0,05%

BOECO LAC-SP  
BOECO LAC-SPA



BACKPANEL

Code	Description
BOE 5290800	BOECO LAC-SP-60 Milk Analyzer, Standard Plastic Model, 60 sec. measuring time, with pH measuring system, USB/RS 232 dataport
BOE 5290860	BOECO LAC-SPA-60 Milk Analyzer, Standard Plastic Automat with 2 peristaltic pump inside (1 for the sample, 1 for the cleaning) 60 sec. measuring time, with pH measuring system, USB/RS 232 dataport
BOE 5291860	BOECO LAC-SPA-60 Milk Analyzer, Standard Automat Model 60 sec. measuring time, with pH measuring system and integrated Conductivity measurement, real time clock, USB/RS 232 dataport
<b>Option:</b>	
BOE 5451160	High-fat (45%) / Density 1160 kg/m <sup>3</sup> measuring function

## BOECO MILK ANALYZER LAC-S, LAC-SA

The function of the BOECO Ultrasonic Milk Analyzer is to make quick analyses of milk samples directly after milking, at collecting and during processing.

The BOECO Milk analyzer makes quick analyses of milk and liquid dairy products as: Cow milk, UHT milk, Sheep milk, Goat milk, Buffalo milk, Camel milk, Whey, Cream (up to 45%), Skimmed milk (0,01% FAT, Ice-cream mixtures, Concentrated milk (up to 1160 kg/m<sup>3</sup>), Yogurt, Flavoured milk, Recovered milk.

Each unit will be delivered with 3 calibrations (standard are sheep, cow and UHT milk)

The standard model LAC-S has one peristaltic pump for the sample, the LAC-SA models have two pumps, the second one for automatic cleaning.

- ▶ Direct measurement of cold milk samples, starting at 5°C
- ▶ No need of periodical calibration
- ▶ The measurement accuracy is not dependant on milk's acidity
- ▶ High-end ultrasonic technology for analyzing any kind of milk
- ▶ Dimensions 100x223x216 mm (WxLxH)
- ▶ Weight: < 3 kg
- ▶ Power: Input 100-240V ~1,6 A max, 50/60 Hz, Output +12V 4.17 A min

The following Parameters can be measured from the Ultrasonic system: Fat, Solid-non-fat (SNF), Density, Protein, Lactose, Milk sample temperature, Added water, Salts, Freezing point

The following Parameters can be measured from integrated systems: pH (together with a electrode), Conductivity, Inhibitors

Parameter	Measuring range	Accuracy
Fat	from 0,01% to 25% (option 45 %)	± 0.1%
SNF (Solids-non-fat)	from 3% to 15%	± 0.15%
Density	from 1015 to 1140 kg/m <sup>3</sup> (option 1160 kg/m <sup>3</sup> )	± 0.3 kg/m <sup>3</sup>
Protein	from 2% to 7%	± 0,15%
Lactose	from 0.01% to 6%	± 0.15
Added Water content	from 0% to 70%	± 3.0%
Temperature of milk	from 1°C to 40°C	± 1°C
Freezing point	from -0,4 to -0,7°C	± 0.001°C
Salts	from 0,4 to 1,5%	± 0.05%
pH	from 0 to 12	± 0,05%
Total solids	from 0 to 50 %	± 0,17%
Option		
Conductivity	from 3 to 14 (mS/cm)	± 0,05%

Code	Description
BOE 5290090	BOECO LAC-S-60 Milk analyzer, Standard Model, 60 sec. measuring time, with pH measuring system, USB/RS 232 data port, USB flash drive
BOE 5290950	BOECO LAC-SA-50 Milk analyzer, Standard <b>Automat (2 pumps)</b> , 50 sec. measuring time, with pH measuring system, USB/RS 232 data port, USB flash drive
BOE 5291950	BOECO LAC-SA-50 Milk analyzer, Standard <b>Automat (2 pumps)</b> , 50 sec. measuring time, with pH measuring system and integrated Conductivity measurement, real time clock, USB/RS 232 data port, USB flash drive

**Option:**  
BOE 5451160 High-fat (45%) / Density 1160 kg/m<sup>3</sup> measuring function

### Accessories

Code	Description
BOE 5290020	Thermal Printer
BOE 5095626	Basic pH combination electrode BA 17, liquid electrolyte, 0...14 pH, 0...100°C, with BNC plug, 1m cable. With leak proof refill opening, platinum diaphragm

USB FLASH DRIVE

BOECO LAC SA 50



Results  
F=83.82 S=87.93  
D=28.55 P=82.98  
L=84.35 U=84.23

Measurement results



BOECO LAC-SA with 2 peristaltic pumps inside, 1 for cleaning, 1 for sample

USB dataport

input for alkaline detergent for automatic cleaning on every hour

The optional built-in conductivity sensor gives high performance freezing point analysis - avoid poor quality milk due to added water, detects mastitis and falsification with added salt





# SHAKER AND STIRRER

## BOECO VORTEX MIXER V1 PLUS

Vortex mixer V1 plus with variable speed control. Continuous operation as well as with automatic starter, triggered by pressing the attachment. Incl. standard attachment for test tubes up to 20 mm ø.



V1 PLUS

### Specification:

Kind of motion:	orbital, 4 mm
Speed range:	300 - 3000 rpm.
Time of acceleration:	3 sec.
Tube's capacity:	1,5-50ml
Speed display:	scale (min/max)
Switch:	touch / continuous mode
Overall size:	80 x 140 x 70 mm
Weight:	0,9 kg
Power:	12 V, 1,5A 18W (External power adapter)

### Code

BOE 8055000

### Description

Vortex mixer V1plus, AC Adapter 100-240V with Multi plug (EU, US, UK, AU)

Available Q1/2015 !



V2H

## BOECO VORTEX MIXER V2H

Heavy Vortex mixer with brushless motor, digital display and optional attachments.

### Specification:

Motor:	brushless DC motor
Kind of motion:	orbital, 4 mm
Speed range:	300 - 4200 rpm. / speed accuracy: ± 10 rpm
Max loading capacity:	500 g
Display:	digital speed / time setting
Switch:	ON / OFF/ Touch
Pulse mode (default):	vibration for 5 secs than pause for 5 secs.
Pulse mode (programm):	vibration time & pause time can be defined by user between 1 to 99 secs.
Timer	1 to 999 mins. & continuous mode
Overall size:	205 x 136 x 138,5 mm
Weight:	2,8 kg
Power:	external power adapter, 1,6A

### Code

BOE 8062000

### Description

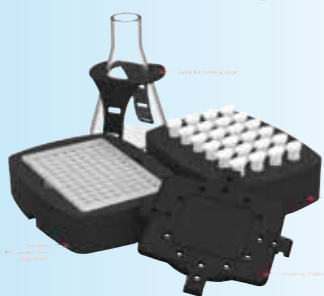
Vortex mixer V2H, with standard Vortex cup

BOE 8062001

Microplate/Microtube (20x1,5/2,0ml) attachment

BOE 8062003

Erlenmeyer flask attachment



## BOECO SUNFLOWER MINI-SHAKER 3D

Mini-Shaker 3D with adjustable speed and constant angle of mixing. Very small and ideal for private diagnostics. Incl. black non-slip rubber mat.

### Specification:

Kind of motion:	three-dimensional orbital movement
Angle:	7°
Speed range:	10 - 30 rpm
Speed display:	scale (min/max)
Platform size:	200 x 200 mm
Overall size:	85 x 150 x 80 mm
Max Loading:	500 g
Weight:	1,0 kg
Power:	12 V, 300 mA (External power adapter)

### Code

BOE 8058000

### Description

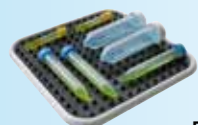
Sunflower Mini Shaker 3D, AC Adapter 100-240V with Multi plug (EU, US, UK, AU)

BOE 8050200

Dimpled mat



3D



DIMPLED MAT

## BOECO MAGNETIC STIRRER MMS 3000

Motor drive magnetic stirrer, with stainless steel plate and speed regulation up to 3000 rpm. An optional to be ordered detachable support rod allows to fix different sensors (temperature, pH etc. inside the Liquid).

### Specification:

Speed range:	0 - 3000 1/min
Max. stirring volume:	up to 20,0 L
Platform size:	160 mm diam.
Platform material:	stainless steel
Support rod height:	320 mm
Overall size:	185 x 230 x 80 mm
Weight:	1,5 kg
Power:	12 V, 1,5A 18W (External power adapter)

### Code

BOE 8056500

### Description

Magnetic stirrer MMS-3000, AC Adapter 100-240V with Multi plug (EU, US, UK, AU)

BOE 8056501

Detachable support rod



MMS 3000



## BOECO MAGNETIC STIRRER WITH HOTPLATE MSH 130

Motor drive Magnetic stirrer with aluminum hot plate for simultaneously stirring and heating of chemical reagents. „Hot-Surface“ alert indicator light when the plate temperature exceeds 60°C

### Specification:

Speed range:	250 - 1500 1/min
Max- plate temp.:	370 C°.
Max. stirring volume:	Up to 5,0 L
Hot Platform size:	130 mm diameter
Hot Platform material:	Aluminium
Control:	Thermostatic
Overall size:	173 (w) x 281 (d) x 101 (h) mm
Heating power:	220 Watts
Weight:	3,1 kg

### Code

BOE 8013000

### Description

Magnetic stirrer with hotplate MSH 130,220V

BOE 8013100

Magnetic stirrer with hotplate MSH 130,110V



MSH 130

## BOECO MAGNETIC STIRRER WITH HOTPLATE MSH 420

Motor drive Magnetic stirrer with all in one glass-ceramic hot plate for simultaneously stirring and heating of chemical reagents.

The Glass-ceramic top plate is easy to clean, chemical-resistant, corrosion-resistant and scratch resistant.

The MSH 420 provides LED Indicators for Power, Heating and Stirring.

### Specification:

Speed range:	60 - 1110 1/min
Temperature regulation:	ambient temperature to 450 C°.
Max. stirring volume:	up to 15,0 l
Hot Platform size:	200 x 200 mm
Hot Platform material:	glass-ceramic
“Hot Top” indicator:	a “Hot” light illuminates if the temperature on the hot plate exceeds 55°C
Over-Heat protection:	The heating power will cutoff in abnormal situations by limiting top plate temperature to 550 °C and light flash
Overall size:	320 (w) x 210 (d) x 105 (h) mm
Heating power:	750 Watts
Weight:	3,6 kg

### Code

BOE 8054000

### Description

Magnetic stirrer with hotplate MSH 420, 220V

BOE 8054100

Magnetic stirrer with hotplate MSH 420, 110V



MSH 420



MR-1

### BOECO MINI-ROCKER SHAKER MR-1

provides gentle rocking motion. It is perfect for soft mixing of biological components. Incl. black non-slip rubber mat

#### Specification:

Kind of motion:	rocking with fixed 7° angle
Speed range:	7,5 - 30 rpm
Speed display:	scale (min/max)
Timer:	digital, 1 min - 23h 59min
Platform size:	200 x 200 mm
Overall size:	220 x 205 x 120 mm
Max Loading:	500 g
Weight:	1,6 kg
Power:	12 V. 500 mA (External power adapter)

Code	Description
BOE 8058500	MR-1, Mini-rocker Shaker, AC Adapter 100-240V with Multi plug (EU, US, UK, AU)

### BOECO ROTATOR MULTI BIO RS-24

is a intelligent rotator for soft mixing microtubes and vacutainers. The BioRotator RS-Multi provides 3 types of motion, which can be used separately (except for vortex mode, which works in conjunction with reciprocal motion mode) and consecutively in a cycle:

#### 1. Orbital motion

simple even circular motion - common type of motion used in Rotators. Adjustable speed from 5 to 30 rpm.

#### 2. Reciprocal motion

vertical rotation with changing direction of rotation. Adjustable turning angle (from 15° to 90°, increment 15°) sets the limits for this type of motion. The speed is the same as set for rotational motion (from 5 to 30 rpm). In this type of motion there is a pause function (from 0 to 5 sec., increment 1 sec.) settable in the Vortex/pause mode.

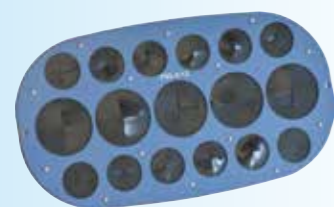
#### 3. Vortex motion

intensive mixing of samples at high speed with small amplitude - Vortex motion. The vortex mode is necessary for intensive mixing in and it is provided to decrease adhesion of solutions with tube surface, which is especially important for conducting microquantity research when the sample weight may be equal to the adhesion force. The vortex mode has an adjustable turning angle of 0° to 5° (increment 1°) and the timer has a pause function from 0 to 5 sec., increment 1 sec.)

#### Specification:

Standard platform capacity:	26 (Microtubes and vacutainers)
Power (external):	12 V. 500 mA
Size:	365 mm x 195 mm x 155 mm
Weight:	1,8 kg

Code	Description
BOE 8073000	Rotator Multi Bio RS-24, with platform PRS-26 AC Adapter 100-240V with Multi plug (EU, US, UK, AU)
BOE 8073002	Platform PRS-5/12 (5 x 30 mm diam. and 12 x 15 mm diam.)

ROTATOR  
MULTI BIO RS-24

PRS-5/12

### BOECO ROTATOR BIO RS-24

Mini-rotator with vertical rotation of the platform for soft mixing of test tubes, microtubes and vacutainers.

Incl. Standard platform PRS-22 for 22 tubes up to 15 mm diam.

#### Specification:

Speed range:	5 - 30 1/min
Digital Timer:	from 1 min to 23 h 59 min
Overall size:	310 x 110 x 175 mm
Weight:	1,5 kg
Power:	12 V. 500 mA (External power adapter)

Code	Description
BOE 8024000	Rotator Bio RS-24, with platform PRS-22, AC Adapter 100-240V with Multi plug (EU, US, UK, AU)
BOE 8073001	Platform PRS-4/12 (4x30 mm diam and 12x15 mm)



RS-24

### BOECO MICROTITER PLATE SHAKER PSU-2T PLUS

Specially designed for medical diagnostic. Orbital shaking platform IPP-2 with a holding mechanism for 2 standard microtiter plates. The variable speed control provides a optimally adapted speed range from 150 to 1000 rpm with an orbit of 2 mm.

#### Specification:

Orbit size:	2 mm
Speed range:	150 - 1000 1/min
Speed display:	scale (min/max)
Timer:	digital, 1 min - 23h 59min
Overall size:	220 x 205 x 90 mm
Weight:	2,5 kg
Power:	12 V. 500 mA (External power adapter)

Code	Description
BOE 8052000	Microtiter Plate Shaker PSU-2T plus, AC Adapter 100-240V with Multi plug (EU, US, UK, AU)
BOE 8052002	Platform IPP-4 for 4 Microtiter Plates



PSU-2T PLUS



### BOECO MICROPLATE INCUBATOR SHAKER PST-60 HL

The PST-60 HL shakers provide orbital shaking of the samples and have a heating platform for 2 x 96 or 4 x 96 wells microplates and an upper heating lid. The display indicates simultaneous set and actual time, temperature and shaking speed. The PST-60 HL are ideal for a variety of cytochemistry, immunochemistry, biochemistry and research applications.

#### Specification:

Temperature regulation range:	25°C ..... 60°C	
Accuracy:	± 0,1 °C	
Temp. Uniformity over the platform:	± 0,2 °C	
Time of thermoblock heating from RT till 37°C:	15 - 20 min.	
Orbit :	2 mm	
Speed regulation:	250 -1200 rpm / increment 10 rpm	
Timer with sound signal:	0 min - 96 hrs, increment 1 min	
Power (external) :	DC 12 V. 4,16 A	
Platform dimensions:	PST-60 HL 250 x 150 mm	PST-60 HL 4 210 x 290
Number of microplates:	2	4
Size :	270x260x125 mm	380x390x140mm
Weight incl. power supply :	6,0 kg	9,0 kg

Code	Description
BOE 8072000	Microplate Incubator Shaker PST-60 HL, for 2 plates, AC 100-240V, 50/60 Hz
BOE 8072040	Microplate Incubator Shake PST-60 HL 4, for 4 plates, AC 100V-240V, 50/60 Hz

PST-60 HL  
PLUSPST-60 HL 4  
PLUS



OS-20 ILLUSTRATED WITH PP-4 PLATFORM

## BOECO UNIVERSAL ORBITAL SHAKER OS-20

Compact, low-profile, orbital laboratory shaker for versatile applications in the fields of biotechnology, microbiology and medical diagnostics. The OS-20 provides gentle rotational mixing and precise circulation at each point of the platform. Variable digital displayed speed control from 50-250 rpm. Digital timer for setting a time interval and continuous operation.

### Specification:

Kind of motion:	orbital
Orbit size:	20 mm
Speed regulation:	50 - 250 rpm
speed display:	digital (LED)
Timer:	from 1 min to 999 min / continuous
Time display:	digital (LED)
Max. load:	2,5 kg excl. attachment
Power:	12VDC 500 mA (External power adapter)
Overall size :	265 x 270 x 70 mm (w/o attachment)
weight:	3,9 kg.

Code	Description
BOE 8059000	Universal Orbital Shaker OS-20, AC Adapter 100-240V with Multi plug (EU, US, UK, AU)

## BOECO UNIVERSAL ORBITAL SHAKER PSU-10i

Equipped with the direct drive system and brushless motor, our compact, powerful and quiet microprocessor controlled orbital laboratory shaker for many general purpose shaking applications. Speed and time setting are easy and during operation the LCD status display clearly indicates both set and actual speed, plus set and elapsed time.

### Specification:

Kind of motion:	orbital
Orbit size:	10 mm
Speed regulation:	50 - 450 rpm
speed display:	digital (LCD)
Timer:	from 1 min to 96 hours / continuous
Time display:	digital (LCD)
Max. load:	3 kg excl. attachment
Power:	12V. AC 1000 mA (External power adapter)
Overall size:	270 x 260 x 85 mm (w/o attachment)
weight:	3 kg

Code	Description
BOE 8069200	Universal Orbital Shaker PSU-10i, AC Adapter 100-240V with Multi plug (EU, US, UK, AU)

## ACCESSORIES FOR OS-20 AND PSU-10i

Code	Description
BOE 8059001	Dish platform PP-4 with rubber mat for petri dishes, culture flasks etc. 235 x 235 mm
BOE 8059002	Universal platform UP-12 for all kind of flasks 285 x 215 mm, stainless steel with variable clamping rolls and rubber mat. Numbers of flasks at the platform 100- 150 ml flasks max 12-9 pieces 200- 250 ml flasks max 6-4 pieces 500-1000 ml flasks max 4-2 pieces
BOE 8059003	Platform P-6/250 with fixed clamps for 6 flasks 250/300 ml., 250 x 190 mm
BOE 8059004	Platform P-12/100 with fixed clamps for 12 flasks 100/150 ml., 250 x 190 mm



PLATFORM P-6/250



PLATFORM P-12/100

## BOECO PROGRAMMABLE ORBITAL SHAKER PSU-15i

The PSU-15i belongs to a new generation of multifunctional mixing devices: The new design, direct drive system, brushless motor (service life up to 35000 hours) and automatic loading balancing system make the new PSU-15i even more reliable especially for the long non-stop operation. The PSU-15i has a microprocessor control which allows real-time program correction, indication of set and actual speed, angle and time, operation timer in the display.

### 1. Orbital motion

simple even circular motion - common type of motion used in shakers. Adjustable speed from 30 to 250 rpm.



### 2. Reciprocal motion

vertical rotation with changing direction of rotation. Adjustable turning angle (from 15° to 360°, increment 30°) sets the limits for this type of motion. The speed is the same as set for rotational motion (from 20 to 250 rpm).



### 3. Vortex motion of the platform (vibration)

intensive mixing of samples at high speed with small amplitude - Vortex motion. Adjustable turning angle of 0° to 5° (increment 1°)



### Specification:

Kind of motion:	orbital
Orbit size:	20 mm
Speed regulation:	20 - 250 rpm
Speed display:	digital (LCD)
Timer:	from 1 min to 96 hours / continuous
Time display:	digital (LCD)
Max. load:	8 kg
Continuous operation time:	max 168 hrs.
Power (external):	DC 12 V. 4,1 A
Overall size (w/o platform):	410 x 410 x 130 mm
weight:	14 kg

Code	Description
BOE 8079000	Orbital Shaker PSU-15i, 100-240VAC/12DC 4,16A without platform

### Accessories

Code	Description
BOE 8079010	Universal platform UP-330 for all kind of flasks 430 x 330 mm, stainless steel with 4 variable clamping rolls and rubber mat.
BOE 8080011	Flat platform PP-20, 480 x 380 mm
BOE 8080012	4 level platform PP-20-4, 480 x 380 x 170 mm Distance between platforms: 170 mm Total height: 510 mm
BOE 8080005	Tray platform made out of Aluminium, 360 x 360 mm with holes to accommodate clamps for Erlenmeyer flasks, separating funnels and test tube racks
BOE 8081001	Spring clamp, 25 ml max.: 36 pcs.
BOE 8081002	Spring clamp, 50 ml max.: 36 pcs.
BOE 8081003	Spring clamp, 100 ml max.: 25 pcs.
BOE 8081004	Spring clamp, 250 ml max.: 16 pcs.
BOE 8081005	Spring clamp, 500 ml max.: 9 pcs.
BOE 8081006	Spring clamp, 1000 ml max.: 9 pcs.
BOE 8081007	Spring clamp, 2000 ml max.: 4 pcs.
BOE 8081009	Holding device for Separating funnels 250-1000 ml
BOE 8081103	Erlenmeyer clamp, plastic, 100 ml max.: 16 pcs.
BOE 8081104	Erlenmeyer clamp, plastic, 250 ml max.: 9 pcs.
BOE 8081105	Erlenmeyer clamp, plastic, 500 ml max.: 9 pcs.
BOE 8081106	Erlenmeyer clamp, plastic, 1000 ml max.: 5 pcs.



PSU-15i WITH PLATFORM UP-330



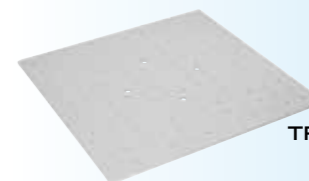
PSU-15i WITH TRAY PLATFORM



PP-20



PP-20-4



TRAY PLATFORM



SPRING CLAMPS / ERLLENMEYER CLAMPS



HOLDING DEVICE FOR SEPARATING FUNNELS

# OVERHEAD STIRRER

## BOECO OVERHEAD STIRRER OSD-20

- ▶ With digital display
- ▶ Robust, slimline, ergonomic design
- ▶ With constant power-drive
- ▶ Two speed ranges for universal use from 60-2.000 rpm
- ▶ Push-through agitator shafts (only when stationary)

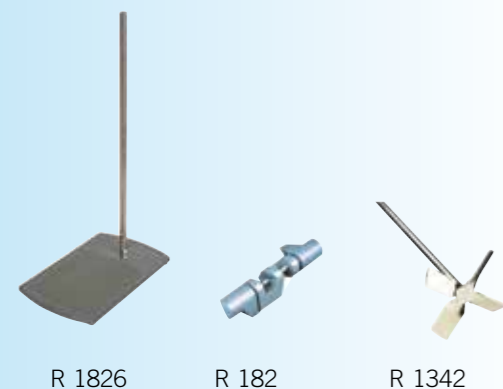
### Technical details

Stirring quantity (H <sub>2</sub> O):	20 L
Max. viscosity:	10.000 mPas
Motor rating input/output:	70 / 35 W
Output at stirring shaft:	26 W
Max. ON-time	100%
Max. torque at chuck (100rpm)	150 Ncm
Speed range I (50 Hz)	60 - 500 rpm
Speed range II (50 Hz)	240 - 2.000 rpm
Speed display:	digital
Chuck range:	0,5 - 10 mm
Diameter:	13 mm
Length of extension arm:	160 mm
Protection class:	IP 20
(acc. to DIN EN 60529)	
Dimensions in mm (WxDxH):	88 x 212 x 294
Net weight:	approx. 3,1 kg

The OSD-20 conforms to the CE mark and all relevant EC standards and DIN norms and has been manufactured under ISO 9001:2000

Code	Description
BOE 8901160	BOECO overhead stirrer OSD-20, 220-240V, 50/60 Hz, Euro plug, <b>package</b> , incl. Plate stand R 1826, Boss head clamp R 182 and Propeller stirrer R 1342
BOE 8901162	BOECO overhead stirrer OSD-20, 220-240V, 50/60 Hz, UK plug, <b>package</b> , incl. Plate stand R 1826, Boss head clamp R 182 and Propeller stirrer R 1342
BOE 8901161	BOECO overhead stirrer OSD-20, 115 V, 50/60 Hz, US plug, <b>package</b> , incl. Plate stand R 1826, Boss head clamp R 182 and Propeller stirrer R 1342

### ACCESSORIES INCLUDED:



R 1826

R 182

R 1342

BOECO OVERHEAD STIRRER OSD-20

## BOECO ROTARY VISCOMETER BRV 3000

is a rotational viscometer for fast determination of viscosity as specified in ISO 2555 and other ASTM norms. The BRV 3000 offers viscosity measurements which are 100 % compatible with Brookfield method and permits to carry out comparative measurements in accordance to recognized standards in quality control laboratories.

Viscometers are present in different industrial sectors - chemical, food, pharmaceutical, cosmetic and print industry - to measure viscosity beneath others of products like: adhesives, paints and coatings, inks, dairy products, hot wax, solvents, paper, pulp, gel, asphalt, chocolate, varnish, oils.

The BRV 3000 comes with under- and over range warning signal, RS 232 interface, temperature probe (PT 100) and has a digital display for direct reading of the following parameters:

Speed selected:	RPM
Spindle used:	Spindle Reference
Dynamic viscosity:	mPas or CP
Full scale percentage:	%
Sample temperature:	°C or °F
Auto range to display viscosity limits:	mPas or CP

Two different versions are available "L" for low to medium viscosity and "R" for medium to high viscosity.

They will be supplied with PC based Software "ViscosoftBasic", which allows to download data directly from the Viscometer. Measured values are shown in a chart and can be saved in Excel format for posterior evaluation.

### Scope of Delivery:

The BRV 3000 is supplied as a complete system in a very robust carrying case, incl. stand, a complete set of standard spindles with storage rack (4 spindles with version L and 6 spindles with version R), spindle guard, temperature sensor, Viscosoft Basic Software, calibration certificate and user manual.

Code	Description
BOE 8803001	BOECO BRV 3000 Rotary Viscometer L Version - for low to medium viscosity 3 - 2.000.000 mPas in 76 ranges 19 speeds with 4 spindles. 100-240V, 50-60HZ
BOE 8803003	BOECO BRV 3000 Rotary Viscometer R Version - for medium to high viscosity 20 - 13.000.000 mPas in 114 ranges 19 speeds with 6 spindles. 100-240V, 50-60HZ

### Optional accessories:

BOE 8803007	Special Spindel R1 applicable to version R. It allows to extend the lower viscosity limit: 5 - 33.000 mPas/cP
BOE 8803100	Adapter for low viscosity materials incl. coaxial spindle
BOE 8803110	Adapter for low viscosity materials with integrated temperature sensor
BOE 8803200	Adapter for small sample volumes
BOE 8803210	Adapter for small sample volumes with integrated temperature sensor
BOE 8803202	Special Spindel Set V1 L (TL5-TL7) for adapter for small sample volumes
BOE 8803203	Special Spindel Set V1 R (TR8-TR11) for adapter for small sample volumes
BOE 8803201	Adapter for helicoidal movement



# ROTARY EVAPORATOR

## BOECO ROTARY EVAPORATOR RVO 400 SD

- ▶ With digital display and control
- ▶ Water or oil bath
- ▶ Motorized lift
- ▶ Built in vacuum controller
- ▶ function of pressure and temperature gradient
- ▶ Variable inclination angle of evaporating flask
- ▶ With vertical or diagonal condenser
- ▶ fitted and designed for control and communication by PC

### Technical details:

Evaporating flasks:	20 - 4000 ml
Rotation speed:	0 - 280 rpm
Bath temperature:	max. 100°C for water filling max. 180°C for oil filling
Regulation accuracy:	± 1°C up to 100°C ± 3°C up to 180°C
Pressure measurement:	absolute
Pressure difference:	adjustable 1-500 mbar.
Digital settings:	Temperature, rotations, vacuum
Gradient settings:	Temperature, pressure
Temperature unit selection:	°C, °K
Pressure units selections:	hPa, Torr
Cooler condensation size:	1200 sq cm
Switched vacuum pump:	output max 650 VA, input max. 2000 VA
Power supply:	230 V ±10%, 50 Hz
Power input:	max. 2000 W (excluding vacuum pump)
Dimensions in mm (WxHxD):	650 x 900 x 360 (incl. glass)
Net weight:	approx 20 kg

The RVO 400 SD conforms to the CE mark and all relevant EC standards and DIN norms and has been manufactured under ISO 9001:2000

Code	Description
BOE 8090020	BOECO Rotary Evaporator RVO 400 SD, with heating bath, motorized lift, built-in vacuum controller, digital measuring and control system with vertical condenser, 230 V
BOE 8090021	Idem for 110 V
BOE 8090030	BOECO Rotary Evaporator RVO 400 SD, with heating bath, motorized lift, built-in vacuum controller, digital measuring and control system with diagonal condenser, 230 V
BOE 8090031	Idem for 110 V

### Options:

BOE 8090005	Safety bath cover, Plexiglass
BOE 8090006	Wireless remote controller
BOE 8090007	PC-based evaporation control software



SAFETY BATH COVER

## CHEMICAL RESISTANT VACUUM PUMP

- ▶ 100 % oil-free transfer
- ▶ Pure transfer, evacuation and compression
- ▶ Chemically-resistant, suitable for highly aggressive or corrosive gases and vapors
- ▶ Maintenance-free
- ▶ Environmentally friendly
- ▶ Gas tight, leakage rate approx.  $6 \times 10^{-3}$  mbar x l/s

### Specification:

Delivery:	20 l/min
Vacuum:	8 mbar abs.
Pressure:	1 bar
Connectors for tube:	ID 10 mm
Permissible gas and ambient temp:	+5...+40°C
Motor protection:	IP 44
Weight:	7,1.kgs
Dimensions LxHxB:	312x207x154 mm

Code	Description
KNF 057501/026366	KNF LABOPORT® Diaphragm Vacuum Pump N 820.3FT.18, 220 V, 50 Hz, Pump head: PTFE, Diaphragm: PTFE-coated, Valves: FFPM;
KNF 057501/029163	Idem, 220 V, 60 Hz
KNF 057501/027170	Idem, 115 V, 60 Hz

## BOECO VACUUM PUMPS R-300, R-400

are piston-powered, oil-free vacuum pumps, adaptable to many laboratory requirements.

- ▶ quiet and low vibration
- ▶ Compact and light weight
- ▶ Oil free and Maintenance-free

Specification:	R-300	R-400
Max. vacuum:	650 mm Hg = 85,5Pa = 110Torr	
	50 Hz    60 Hz	50 Hz    60 Hz
Max flow rate:	17 l/min    20 l/min	34 l/min    37 l/min
Horse power:	1/8 HP	1/6 HP
Pole:	4 P	
Net weight:	4.1.kg	6,2 kg
Port thread:	5/16 inch	
Noise level:	50db	

Code	Description
BOE 8830000	BOECO R-300 vacuum pump 220-240 V, 50/60 Hz
BOE 8830100	BOECO R-300 vacuum pump 110-120 V, 60 Hz
BOE 8840000	BOECO R-400 vacuum pump 220-240 V, 50/60 Hz
BOE 8840100	BOECO R-400 vacuum pump 110-120 V, 60 Hz



R-300



R-400

**MINI DIAPHRAGM VACUUM PUMPS**

are dry-running diaphragm Vacuum Pumps, adaptable to many laboratory requirements.

- ▶ 100 % oil-free transfer
- ▶ Pure transfer, evacuation and compression
- ▶ Maintenance-free
- ▶ Environmentally friendly
- ▶ High level of gas tightness

**Specification N 86.KN.18:****single head**

Delivery:	6 l/min
Vacuum:	100 mbar abs. / 684 mm Hg
Pressure:	2,4 bar
Connectors for tube:	ID 4 mm
Permissible gas and ambient temp:	+5...+40°C
Motor protection:	IP 20
Weight:	1,9 kgs
Dimensions LxHxB:	164x141x90 mm



N 86.KN.18

Code	Description
KNF 046208/046242	KNF LABOPORT® Diaphragm Vacuum Pump N 86.KN.18, 220 V, 50 Hz, Pump head: PPS, Diaphragm: EPDM, Valves: FPM
KNF 046208/046948	Idem, 220 V, 60 Hz
KNF 046208/046241	Idem, 115 V, 60 Hz

**Options:**

KNF 001787	Fine control valve (suction side)
KNF 001786	Fine control valve (pressure side)

**Specification N 816.1.2KT.45.18:****double head with fine-adjustment-valve and vacuum gauge**

Delivery:	30 l/min
Vacuum:	160 mbar abs. / 1,8 m <sup>3</sup> /h
Pressure:	0,5 bar
Connectors for tube:	ID 6 mm
Permissible gas and ambient temp:	+5...+40°C
Motor protection:	IP 20
Weight:	3,95 kgs
Dimensions LxHxB:	361x141x102 mm



N 816.1.2KT.45.18

Code	Description
KNF 057810/055163	KNF LABOPORT® Diaphragm Vacuum Pump N 816.1.2KT.45.18, 220 V, 50 Hz, Pump head: PPS, Diaphragm: PTFE-coated Valves: FFPM
KNF 057811/029163	Idem, 220 V, 60 Hz
KNF 057811/055162	Idem, 115 V, 60 Hz

**Filtration Accessories**

Code	Description
BOE 88330001	Filtration unit for 47-50 mm membrane filter with vacuum-resistant flask, capacity 1 litre
BOE 16710310	Stainless Steel funnel, 100 ml, 47 mm Diam.
BOE 16710324	3-branch stainless steel (SS316) manifold Capacity 3 x 100 ml funnels
SAR 16824	3-branch stainless steel manifold Capacity 3 x 100 ml funnels; SARTORIUS brand

FILTRATION UNIT  
BOE 88330001ST. STEEL FUNNEL  
BOE 16710310

SAR 16824



BOE 16710324

**BOECO ASPIRATOR WITH TRAP FLASK MODEL FTA-1**

is designed for aspiration/removal of alcohol/buffer remaining quantities from microtest tube walls during DNA/RNA purification and other macromolecule reprecipitation techniques.

The FTA-1 can also be used for routine operations of cell washing from culture medium and resuspension in buffer.

A suction microbiological filter eliminates the risk of contamination from the trap flask with bacteria, viruses and infected particles.

**Specification:**

Operating Principle:	Creating negative pressure in trapping flask using built-in microprocessor
Vacuum:	-500mbar
Traps Flask vol.:	1000 ml
Dimension:	160 mm x 210 mm x 340 mm (with trap flask)
Power:	External power supply DC 12 V, 125 A
Net Weight:	1,5 kgs.

Code	Description
BOE 8039000	Aspirator with trap flask, model FTA-1
BOE 8039001	Optional 8-channel adapter manifold MA-8



SUCTION HYDROPHOBIC MICROBIOLOGIC FILTER

**BOECO COLONY COUNTER CC-1**

is suitable for counting bacteria growing on agar contained Petri dishes.

Built-in electronic register, operated by any pen. Every time a count is registered the beeper gives an audible signal to verify entry.

The pressure sensor system provides uniform sensitivity over the whole of working field.

A reset button provides immediate zeroing of the 4-digit counter

Flexible adjuster accepts 10 cm to 15 cm petri dishes

The adjustable focusing arm allows the 1.5x magnifying glass to be placed at various angles of working position.

The background plate can be changed to white or black for easy counting.

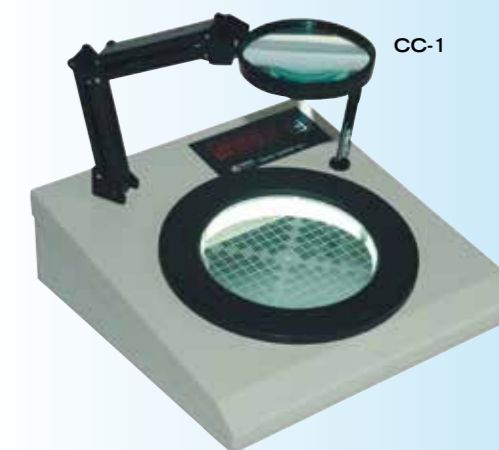
Ring-shaped lamp provides uniform working field illumination.

The number of counts is capable of being registered to maximum of 4-digits i.e. 9999, and displayed on bright red LED.

**Specification:**

Working Principle:	Pressure sensor system provides uniform sensitivity over the whole working field
Readout:	4-digit bright red, 0,6" LED display
Modes of Counting:	Marking pen Counting (any pen)
Dimension:	30 cm x 33 cm x 10 cm (W x D x H)
Power:	115 / 230 VAC, 50/60 Hz
Net Weight:	5 kgs.

Code	Description
BOE 5157000	Colony Counter CC-1, with 1,5x standard lens, adjustable focusing arm, marking pen, power cord



CC-1

## BOECO FUEGO SCS BASIC SAFETY LABORATORY GAS BURNER

is a new standard among laboratory gas burners. With its innovative design this laboratory gas burner is suitable for all flame related applications in the laboratory.



### Specification:

<b>Technology:</b>	Microprocessor
<b>Programs</b>	
Foot pedal:	Standard (flame during pressed foot pedal)
	Start-Stop with timer, 60 min
	Start-Stop with timer, 60 min

Button:

### Safety features

Safety Control System (SCS) with gas safety cut off:	ignition and flame control temperature monitor burner head clogging and assembly monitor (BHC) automatic unit switch off, 4 h residual heat display
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### Gas supply and consumption

Gas connection:	1/4" left with gas filter
Gas types:	I12ELL3B/P: natural gas E/LL, 18-25 mbar liquid gas, 20 - 50 mbar
Connected load:	70 g/h liquid gas
Continuous cartridge operation:	CV 360 - 40 min, Express 444 -50 min CG 1750 - 150 min, C 206 - 170 min CP 250 - 210 min, CV 470 - 370 min

### Temperatures

Flame temperature:	1350 °C on liquid gas 1300 °C on natural gas (E)
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### Electrical

Power consumption:	2VA
Power connection:	100 - 240 V / 50/60 Hz / max 0,3 A 9 V DC / 1A

### Mechanical

Casing and operation controls:	stainless steel / glass, UV and solvent resistant
Cover of burner shaft:	ø 23 mm, with drains
Size (w x h x d):	103 x 49 x 130 mm
Weight:	700 g

### Licenses

DIN-DVGW Reg.-No:	NG-2211AS0167
CE:	EN 61326-1, EN61000-3-2, EN 61010
EEC guidelines:	89/336/EEC, 73/23/EEC

### Code Description

BOE 8201000	BOECO Fuego SCS basic, Safety Laboratory gas burner with button function and foot pedal, 3 standard-programs for button (function knob) and foot pedal SCS (Safety Control System) with BHC (Burner Head Control), Removable and decomposable burner head Tild mechanism, right / left, Holding device for 3 inoculation loop holders. Nozzles for natural gas, propane / butane gas, Turbo flame Wrench 17 mm for gas connection, Screwdriver for burner head and cover of burner shaft. Tubing connector with swivel nut, Switching power supply
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### Accessories

Code	Description
USB 5431	Inoculation Loop / needle holder, 230 mm,
USB 5460	Inoculation Loop, st.steel wire ø 0,6mm, ø loop 1,5mm
USB 5461	Inoculation Loop, st.steel wire ø 0,6mm, ø loop 2,5mm
USB 5462	Inoculation Loop, st.steel wire ø 0,6mm, ø loop 4,0mm



## BOECO WATER BATH PWB-4 AND PWB-8

The personal advanced PID microprocessor controlled waterbath PWB-4 and PWB-8 with their specification, easy operation and small foot print are designed for chemical, pharmaceutical, medical and biological routine laboratory use and as well as for research purpose.

### Control Panel:

Easy setting and operating, adjustable temperature, alarm signal display  
Single Line 4 digitals LED

### Overheat Protection:

The power will automatically be turned of when the internal temperature is over 110 °C

### Specification

	PWB-4	PWB-8
Capacity:	4 l	8 l
Temperature Range:	Room Temperature +5°C.. +99,9°C	0,1°C
Temperature Setting:	± 0,2 (37°C)	± 0,5°C (RT + 5-80°C), ± 0,8 (80 - 99,9°C)
Fluctuation of Temp.:	≤ 100 min (from 30°C to 90°C at RT 25°C)	
Heating Time:		
Input Power:	400 W	600 W
Water outlet:	No	Yes
Bath Inner Dimensions: (LxWxH mm)	238x135x146	325x265x150
Outside Dimensions: (LxWxH mm)	380x212x250	445x285x316
Weight:	4 kgs	8 kgs

### PWB-4

Code	Description
BOE 8036000	Waterbath PWB-4, without lid, 220V, 50/60 Hz
BOE 8036100	Waterbath PWB-4, without lid, 115V, 60 Hz

### Accessories for PWB-4

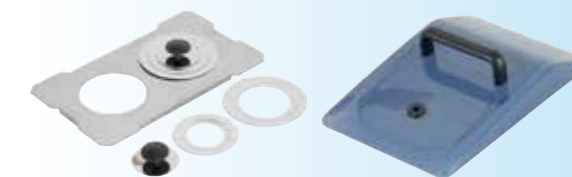
Code	Description
BOE 8036001	Gabled plastic lid
BOE 8036002	Flat stainless steel lid with 2 concentric rings
BOE 8036018	Test tube rack st.steel with 41 x 18 mm ø holes
BOE 8036015	Test tube rack st.steel with 41 x 15 mm ø holes
BOE 8036003	Flask tray, stainless steel

### PWB-8

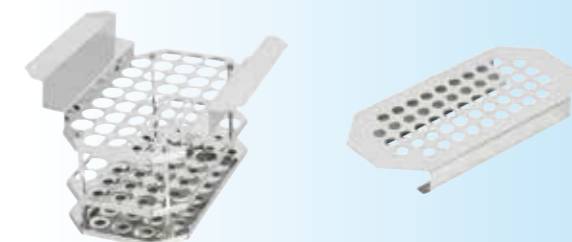
Code	Description
BOE 8037000	Waterbath PWB-8, without lid, 220V, 50/60 Hz
BOE 8037100	Waterbath PWB-8, without lid, 115V, 60 Hz

### Accessories for PWB-8

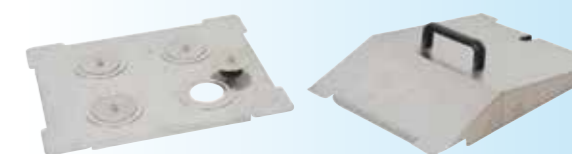
Code	Description
BOE 8037001	Gabled stainless steel lid
BOE 8037002	Flat stainless steel lid with 4 concentric rings
BOE 8037018	Test tube rack st.steel with 76 x 18 mm ø holes
BOE 8037015	Test tube rack st.steel with 76 x 15 mm ø holes
BOE 8037003	Flask tray, stainless steel



FLAT LID FOR PWB-4 GABLED PLASTIC LID FOR PWB-4



TEST TUBE RACK FOR PWB-4 FLASK TRAY FOR PWB-4



FLAT LID FOR PWB-8 GABLED LID FOR PWB-8



TEST TUBE RACK FOR PWB-8 FLASK TRAY FOR PWB-8

## BOECO DRY BATH BLOCK INCUBATOR DBI-100, DBI-200

are ideal for incubation and activation of cultures, enzyme reactions, blood urea nitrogen determinations, immunoassays, melting/boiling points and a wide variety of laboratory procedures.

A supplied special block extraction tool allows to remove blocks easily.

### Specification:

Model:	DBI-100	DBI-200
Temperature control range:	RT +5°C - 105°C	
Display Accuracy :	0,1°C	
Temperature Stability @100°C	0,4°C	
Uniformity <sup>1)</sup> within the block @37°C	0,2°C	
Heating Time (25 to 100°C)	less than 15 min	
Timer:	1 min - 99,99 hrs	
Block Quantity:	1	2
Power, max:	100 W	200 W
Size mm :	250x190x130	365x210x150
Weight:	2,5 kg	4,5

Code	Description
BOE 8018000	Dry Block Thermostat DBI-100, 200/240 V 50/60 Hz
BOE 8018100	Dry Block Thermostat DBI-100, 110/120 V 50/60 Hz
BOE 8019000	Dry Block Thermostat DBI-200, 200/240 V 50/60 Hz
BOE 8019100	Dry Block Thermostat DBI-200, 110/120 V 50/60 Hz

### Blocks with conical bottom for microtubes:

Code	Description
BOE 8018001	Block DB 01 for 96 x 0,2 ml PCR tubes
BOE 8018002	Block DB 02 for 45 x 0,5 ml tubes
BOE 8018003	Block DB 03 for 35 x 1,5 ml tubes
BOE 8018004	Block DB 04 for 35 x 2,0 ml tubes
BOE 8018005	Block DB 05 for 15 x 0,5 ml + 20 x 1,5 ml tubes
BOE 8018006	Block DB 06 for 20 x 1,5 ml + 15 x 2,0 ml tubes
BOE 8018007	Block DB 07 for 32 x 0,2 ml + 22 x 0,5 ml + 9 x 1,5 ml tubes

### Blocks with flat bottom:

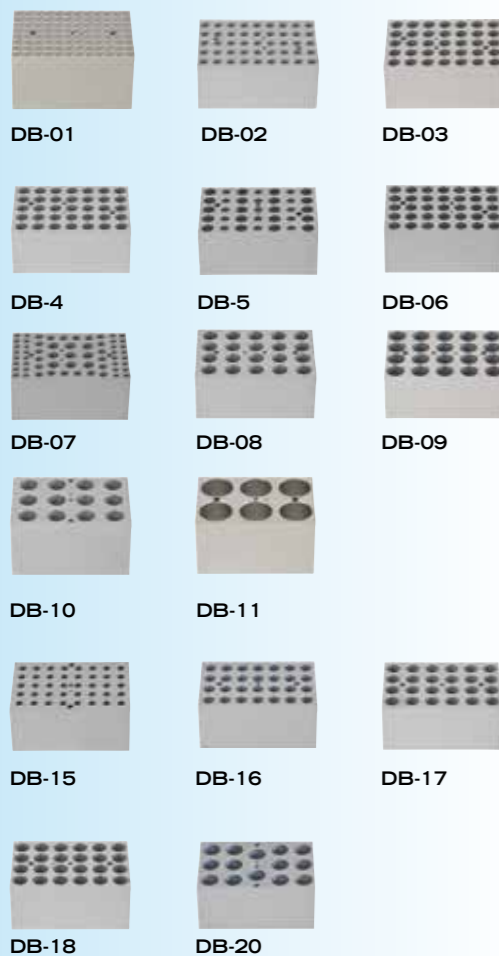
Code	Description
BOE 8018008	Block DB 08 for 20 x 5 ml tubes Bore size: 14 mm $\varnothing$ , Depth 40 mm
BOE 8018009	Block DB 09 for 20 x 10 ml tubes Bore size: 16 mm $\varnothing$ , Depth 47 mm
BOE 8018010	Block DB 10 <sup>2)</sup> for 12 x 15 ml tubes Bore size: 16,9 mm $\varnothing$ , Depth 58,5 mm
BOE 8018011	Block DB 11 <sup>2)</sup> for 6 x 50 ml tubes Bore size: 29 mm $\varnothing$ , Depth 58,5 mm

### Blocks with round bottom:

Code	Description
BOE 8018015	Block DB 15 <sup>2)</sup> for 40 x 6 mm $\varnothing$ tubes Bore size: 6,5 mm $\varnothing$ , Depth: 33 mm
BOE 8018016	Block DB 16 <sup>2)</sup> for 28 x 10 mm $\varnothing$ tubes Bore size: 10,5 mm $\varnothing$ , Depth: 47 mm
BOE 8018017	Block DB 17 <sup>2)</sup> for 24 x 12 mm $\varnothing$ tubes Bore size: 12,5 mm $\varnothing$ , Depth: 47 mm
BOE 8018018	Block DB 18 <sup>2)</sup> for 24 x 13 mm $\varnothing$ tubes Bore size: 13,5 mm $\varnothing$ , Depth: 47 mm
BOE 8018020	Block DB 20 <sup>2)</sup> for 14 x 16 mm $\varnothing$ tubes Bore size: 16,5 mm $\varnothing$ , Depth: 47 mm
BOE 8018027	External Sensor, PT 1000

<sup>1)</sup> uniformity is measured with a sample height within the block

<sup>2)</sup> for blocks DB 10, 11 the lid cannot be closed, for blocks DB 15-19 the lid could only be closed if the tube height is less than 80 mm



## BOECO THERMO-SHAKER FOR MICROTUBES, TS-100

is a compact and cost-efficient solution for shaking and temperature control of small samples in 0,5 ml, 1,5 ml and 2,0 ml microtubes. The TS-100 is microprocessor controlled and has a display which indicates simultaneous set and actual time, temperature and shaking speed.

### Specification:

Orbit size:	2 mm
Temperature range:	25°C - 100°C
Speed range:	250 - 1400 1/min, increment 10 rpm
Acceleration time:	3 sec
Timer with sound signal:	digital, 1 min - 96 h increment 1 min
Power (external):	DC 12 V. 4,16 A
Overall size:	205 x 230 x 130 mm
Weight:	3,25 kg

Code	Description
BOE 8064000	Thermo-Shaker for microtubes TS-100, without block, AC 100-240V 50/60 Hz
BOE 8064001	Interchangeable block, SC-18 for 20x0,5 ml and 12 x 1,5 ml microtubes
BOE 8064004	Interchangeable block, SC-18/02 for 20x0,2 ml and 12 x 1,5 ml microtubes
BOE 8064005	Interchangeable block, SC-24N for 24x1,5 ml microtubes
BOE 8064007	Interchangeable block, SC-24 for 24x2,0 ml microtubes
BOE 8064006	Interchangeable block, SC-96A for 96-well PCR microplate



TS-100 with block SC-24N

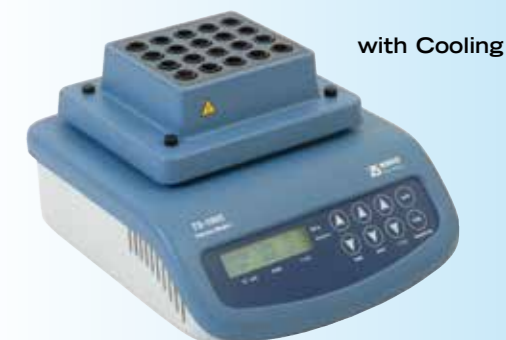
## BOECO THERMO-SHAKER FOR MICROTUBES, TS-100C

is a heating and cooling thermomixer. Active cooling using Peltier technology offers a temperature regulation range from +4°C to +100°C. Temperature control and mixing modes can be used simultaneously and independently. The TS-100C is microprocessor controlled and has a display which indicates simultaneous set and actual time, temperature and shaking speed. The low voltage power supply enables safe cold room or incubator operation. The TS-100C is applicable for DNA analysis, extraction of proteins, polysaccharids, lipids and other cell components

### Specification:

Speed range:	250 - 1400 1/min, increment 10 rpm
Acceleration time:	3 sec
Orbit size:	2 mm
Temperature control range:	15°C below room temp. to +100°C
Temperature setting range:	+4°C to 100°C
Average heating rate:	5°C / min (from +25 to +100°C in 15 min)
Average cooling speed:	From +100°C to +25°C: 5°C / min From +25°C to +4°C: 1,8°C / min
Timer with sound signal:	digital, 1 min - 96 h, increment 1 min
Power (external):	DC 12 V. 4,16 A
Overall size:	205 x 230 x 130 mm (w x d x h)
Weight:	4 kg

Code	Description
BOE 8064050	Thermo-Shaker for microtubes TS-100C, without block, AC 100-240V 50/60 Hz
BOE 8064051	Interchangeable block, SC-18C for 20x0,5 ml and 12 x 1,5 ml microtubes
BOE 8064054	Interchangeable block, SC-18/02C for 20x0,2 ml and 12 x 1,5 ml microtubes
BOE 8064057	Interchangeable block, SC-24NC for 24x1,5 ml microtubes
BOE 8064055	Interchangeable block, SC-24C for 24x2,0 ml microtubes
BOE 8064056	Interchangeable block, SC-96AC for 96-well PCR microplate



TS-100C with block





## BOECO PERSONAL DIGITAL INCUBATOR SI-22

due to its compact architecture the SI-22 provides an economical, efficient and space saving personal solution for incubating culture flasks, dishes, tubes and test plates. A personal incubator avoids contamination and reagent confusion caused by multiple people using one machine.

The integrated UV light provides disinfection after use. The UV disinfection mode is blocked during incubation.

The SI-22 has a double-deck metal plate reinforced door with door open alarm and automatic turn off UV lamp function. The watch window adopts anti-UV-explosion-proof glass, which allows people to inspect running condition of the machine.

The inner chamber is made out of stainless steel and easy to clean.

A small cord port at the back of the unit allows the use of small mixers.

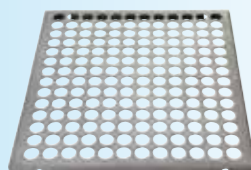
### Specification:

Volume:	22,5 l
Operating Temp. Range:	Room Temperature + 5°C... + 80°C
Temp. Uniformity:	± 0,65 (37°C)
Temp. Fluctuation:	± 0,65 (37°C)
Temperature Setting:	0,1°C
Ramping Time:	30 min
Timekeeping Time:	99 hours, 59 min, 59 sec.
UV Disinfection Power:	6 W
Max. Number of shelves:	2
Internal Dimension:	273 x 300 x 304 mm (L x W x H)
External Dimension:	366 x 343 x 463 mm (L x W x H)
Weight:	18 kg

Code	Description
BOE 8038000	Digital Incubator SI-22, 220V, 50/60 Hz incl. 1 stainless steel shelf
BOE 8038100	Digital Incubator SI-22, 115V, 60 Hz incl. 1 stainless steel shelf

### Accessories

Code	Description
BOE 8038001	Additional perforated stainless steel shelf



COMBISPIN  
FVL-2400N  
PLUS



SR-16

## BOECO COMBI-SPIN, FVL-2400N PLUS

this combination of a centrifuge and a vortex mixer for Micro test tubes is specially designed for the genetic engineering researches (especially for PCR-diagnostics experiments). It can be used also in biochemical clinical laboratories as well as microbiological and industrial biotechnology laboratories. Combi-Spin ensures the possibility for the simultaneous mixing and separation of the samples, using centrifuge and mixing modules

### Specification:

Rotation speed (constant):	2400 rpm
Max RCF:	from the middle of the test tube 300 x g from the bottom of the test tube 700 x g
Continuous operation time:	< 60 min
Accessories included:	1 rotor for 12 x 1,5 ml 1 rotor for 12 x 0,5 and 0,2 ml
Overall size:	190 x 235 x 125 mm
Weight:	2,1 kg

Code	Description
BOE 8071000	Combi-Spin, FVL-2400N plus, 220V 50/60 Hz
BOE 8071100	Combi-Spin, FVL-2400N plus, 110V 60 Hz
BOE 8071001	SR-16, rotor for 2 x 8-well 0,2 ml microtest strips

## BOECO PCR WORKSTATION WITH UV AIR RECIRCULATOR, TYPE UVC/T-AR

For the preparation of PCR reactions and many other methods in molecular biology, a contamination-free working environment is required. The UVC/T-AR PCR Workstation is designed for DNA/RNA decontamination in the laboratory working place.

The UVC/T-AR is a bench top model, constructed from metallic skeleton and plexiglas and has a painted metal working place and a digital timer control of UV exposure. One open 25 W UV-lamp substantially decreases contamination level during UV-exposure (15-30 min).

White 15 W lamp provides local illumination of the working place and ensures good conditions for visual control of operation.

The model UVC/T-AR includes not only traditional UV source for direct lighting the surface of the inner working place of the PCR-box, but also additional UV air flow cleaner (UV - recirculator) for biosafety DNA decontamination to protect the user from direct UV-light during operation.

UV-recirculator consists of a UV lamp, fan and dust filters organized in a special box for maximum increasing (1000 x fold) density of UV-light leading sufficiently to effectivity of DNA inactivation. UV-recirculator generates 100 volumes of the PCR per 1 hour air flow exchange giving maximum aseptic conditions inside the box.

### Advantages

No HEPA filters-Ozone free high density UV decontamination  
Long living UV lamps (8000 hrs)-No noise, low energy consumption-  
Compact bench top for personal labs.

The PCR workstation UVC/T-AR is recommended for labs working in the fields of DNA analysis, genetic engineering, molecular biology.

### Specification

Direct UV-lamp light:	TUV 25W G13 UV-C Special Philips
Radiation type:	Ultraviolet (254 nm), ozone free
UV-lamp life time:	8000 hrs
UV-recirculator:	TUV 25W G13 UV-C Special Philips
Digital time setting of direct UV-exposure	1 min - 24 hrs
Luminescent (visible light lamp)	15W/830 G13 Philips
Plexiglass type:	Polymethylmethacrylate
Optical transmission:	92 %
UV-protection:	99,9%
Thickness of plexiglass sides:	4 mm
Thickness of upper front side:	8 mm
Thickness of protective front screen:	8 mm
Working place:	650x475 mm
Overall size:	690x535x555 mm
Power:	100-240 V, 50/60 Hz, 67 W
Weight:	23,0 kg

Code	Description
BOE 8040000	PCR Workstation UVC/T-AR, 100-240VAC, 50/60 Hz



UVC/T-AR



THERMAL CYCLER TC-SQ

### BOECO THERMAL CYCLER TC-SQ

is a personal Thermal Cycler with compact structure and small footprint and a friendly user interface with big LCD display which gives reliable results for teaching and research laboratories.

The TC-SQ provides superior performance especially in the cooling and heating speed, temperature control accuracy and uniformity of the block.

#### Specification:

Sample Capacity:	24 x 0,2 ml, 8-strip, 24 x 0,2 ml plate
Temperature control range:	+ 4 ~ +99 °C
Heating rate (max.):	≥ 5,0°C /sec
Cooling rate (max.):	≥ 4,0°C /sec
Block temp. uniformity:	≤ ± 0,3°C
Block temp. accuracy:	≤ ± 0,3°C
Temp. of hot lid:	30°C - 110°C
Adjustability of hot lid press:	Yes
Temp. control mode:	Block or Tube
Display:	320 x 240 LCD
Program storage:	100 files
Max. segments	5 segments
Max. program steps:	16 steps
Max. cycles:	99 cycles
Size:	297 (L) x 212 (W) x 200 (H) mm
Weight:	3,2 kg
Interface:	RS 232

Code	Description
BOE 8085240	Thermal cycler TC-SQ, 220-240 V, 50/60 Hz with sample block for 24 x 0,2 ml
BOE 8085241	Thermal cycler TC-SQ, 100-120 V, 50/60 Hz with sample block for 24 x 0,2 ml

#### Optional Block:

Code	Description
BOE 8085185	Sample Block for 18 x 0,5 ml

### BOECO THERMAL CYCLER TC-TE

is a personal Thermal Cycler with compact structure and small footprint and a friendly user interface with colored 5,7" touch screen and a fixed gradient block for 96 x 0,2 ml which gives reliable results for teaching and research laboratories.

#### Specification:

Sample capacity:	96 x 0,2 ml, 8-strip, 24 x 0,2 ml plate
Cooling technology:	Peltier
Temperature control range:	+ 4 ~ +99°C
Heating speed of ramping:	up to 4,0°C /sec
Cooling speed of ramping :	up to 4,0°C /sec
Block temp. uniformity:	≤ ± 0,3°C
Block temp. accuracy:	≤ ± 0,1°C (55°C) ≤ ± 0,2°C (≥90°C)
Display resolution:	0,1°C
Temp. control mode:	Block or Tube
Ramping rate adjustable:	0,1°C - 4°C
Memories:	250 typical programs (unlimited by USB)
Max. cycles:	99 cycles for Nested PCR
Time up/down:	0-9 min59s, suit for LongPCR
Temperature up/down:	0,1 - 9,9°C suit for TouchdownPCR
Soak function:	Yes
Gradient range:	30°C ~ 105°C
Temp. differential range:	1°C ~ 30°C
Temp. of hot lid:	30°C -110 °C (Temp. / pressure adjusted)
Size:	335 (W) x 260 (D) x 270 (H) mm
Weight:	8 kg
Interface:	1 x USB
Power Supply:	100 - 240V, 50-60 Hz ≤ 600W

Code	Description
BOE 8089602	Thermal cycler TC-TE, 100-240 V, 50-60 Hz with gradient sample block for 96 x 0,2 ml



THERMAL CYCLER TC-TE

### BOECO THERMAL CYCLER TC-PRO

is a multifunctional compact sized thermal cycler equipped with high end Peltier technology. His five interchangeable sample block give the BOECO TC-PRO an exceptional versatility for PCR methods using tubes, strip wells or plates. Its high ramping rate and precision temperature control provide fast, accurate results. The extra large display and user-friendly interface make operation easy. The unit automatically recognizes which sample block is in place, eliminating the need for an operator to manually supply this information. The instrument can work either by itself or with computer control. One computer can control up to 30 sets of the thermal cyclers.

#### Specification:

Temperature control range:	+ 4 ~ +99°C
Heating rate (max.):	≥ 4,0°C /sec
Cooling rate (max.):	≥ 4,0°C /sec
Block temp. uniformity:	≤ ± 0,3°C
Block temp. accuracy:	≤ 0,1°C (55°C), ≤ 0,2°C (90°C)
Temp. of hot lid:	20°C - 110°C
Gradient range:	1°C - 30°C
Temp. control mode:	Block or tube
Program storage:	≥ 100 files (No limitation with USB flash disk)
Max. segments	5 segments
Max. program steps:	16 steps
Max. cycles:	99 cycles
Power max.:	600 W
Size:	368 (L) x 250 (W) x 285 (H) mm
Weight:	6,3 kg (main body) + 4,2 kg (block)
Interface:	USB, LAN
Operation System:	Windows 2000 / XP (Memory:> 256M, Hard disk: >10G, CPU: Pentium 4)

Code	Description
BOE 8085000	Thermal cycler TC-PRO, AC 110-240 V

#### Interchangeable Blocks:

Code	Description
BOE 8085001	Block 96G: 96 x 0,2 ml gradient block

This aluminium alloy block and hot lid is for 96 x 0,2 ml microplate or tube; 12 x 8 strip; 8 x 12 strip This block can be used run gradient temperature programs. The temperature and hot lid are adjustable.

Code	Description
BOE 8085002	Block 384G: 384 wells plate gradient block

This aluminium alloy block and hot lid is for 384 well plates. This block can be used run gradient temperature programs. The temperature and hot lid are adjustable.

Code	Description
BOE 8085003	Block 3048: mixed block, 30 x 0,5 + 48 x 0,2 ml

This aluminium alloy mixed block and hot lid is for a max. of 30 x 0,5 ml 48 x 0,2 ml microtest tubes. The temperature and hot lid are adjustable.

Code	Description
BOE 8085004	Block 48D: dual block, 2 x 48 x 0,2 ml

This module is two separate aluminium alloy blocks, both for 0,2 ml microtest tubes, but each with its own hot lid. Each block accepts a maximum of 48 tubes for a total of 96 tubes. The temperature and pressure of the hot lids are independently adjustable.

Code	Description
BOE 8085005	Block 4I: block for 4 In Situ plates

This aluminium alloy block and hot lid is for 4 in situ plates. The temperature and hot lid are adjustable.



THERMAL CYCLER TC-PRO



BLOCK 96G



BLOCK 384G



BLOCK 3048



BLOCK 48D



BLOCK 4I

# HEATING MANTLES

- ▶ for operating temperatures up to 450°C
- ▶ for glass flasks, round bottom up to 20 L.
- ▶ flexible glass yarn heating element
- ▶ plastic coated metal housing
- ▶ thermally insulated and grounded
- ▶ predrilled threaded hole on rear allows connection of the clamp KM-SK (accessory)

## BOECO LabHEAT® KM-M SERIES

1,5 m power supply (earthed) cable with heating-zone switch



KM-M

Volume ml/l	Flask ø mm	Power W	Heating zones	Order No. 220V AC	Order No. 110V AC
50	51	55	1	BOE 91000050	BOE 91500050
100	64	100	1	BOE 91000100	BOE 91500100
250	85	150	2	BOE 91000250	BOE 91500250
500	105	200	2	BOE 91000500	BOE 91500500
1	131	300	2	BOE 91001000	BOE 91501000
2	166	500	2	BOE 91002000	BOE 91502000
3	185	600	2	BOE 91003000	BOE 91503000
4	207	750	2	BOE 91004000	BOE 91504000
5	223	860	2	BOE 91005000	BOE 91505000
6	236	1000	2	BOE 91006000	BOE 91506000
10	279	1400	2	BOE 91010000	BOE 91510000
20	345	2000	2	BOE 91020000	BOE 91520000

## BOECO LabHEAT® KM-ME SERIES

designed identical to series KM-M, but in addition equipped with a built-in heating-zone switch and a power controller which allows a continuous adjustment of the heater power.



KM-ME

Volume ml/l	Flask ø mm	Power W	Heating zones	Order No. 220V AC	Order No. 110V AC
50	51	55	1	BOE 92000050	BOE 92500050
100	64	100	1	BOE 92000100	BOE 92500100
250	85	150	2	BOE 92000250	BOE 92500250
500	105	200	2	BOE 92000500	BOE 92500500
1	131	300	2	BOE 92001000	BOE 92501000
2	166	500	2	BOE 92002000	BOE 92502000
3	185	600	2	BOE 92003000	BOE 92503000
4	207	750	2	BOE 92004000	BOE 92504000
5	223	860	2	BOE 92005000	BOE 92505000
6	236	1000	2	BOE 92006000	BOE 92506000
10	279	1400	2	BOE 92010000	BOE 92510000
20	345	2000	2	BOE 92020000	BOE 92520000

## BOECO LabHEAT® KM-MER SERIES

designed identical to series KM-ME, but in addition equipped with a built-in separate switched magnetic stirrer with an infinitely variable speed range - up to 1600 rpm.



KM-MER

Volume ml/l	Flask ø mm	Power W	Heating zones	Order No. 220V AC
100	64	100	1	BOE 94000100
250	85	150	2	BOE 94000250
500	105	200	2	BOE 94000500
1	131	300	2	BOE 94001000

Code	Description
BOE 970000001	Support clamp KM-SK for the attachment of the metal-cased heating mantles to support rod or within support wall.



# WATER STILLS

## DEST-4

standard water stiller with integrated low-water cut-out, continuous production of high pure water, free of dissolved metals and pyrogens

### Specification:

Distillate flow rate	approx 4 l/h
Conductivity of distilled water (20°C)	1 µS/cm
Wattage:	3000 W
Heater element:	Silica heater
Material of glass parts:	Borosilicate glass 3.3
Water consumption:	approx 60 l/hr
Weight:	approx 4,5 kg

Code	Description
BOE 8704000	DEST-4, 230 V



DEST-4

## DEST-4M PLUS

reliable water still with stainless steel boiler and element and borosilicate condenser. Integrated low-water cut-off, water inlet & flow regulator, continuous production

### Specification:

Distillate flow rate:	approx 4 l/h
Conductivity of distilled water (20°C):	3 µS/cm
Wattage:	3.000 W / 2400 W (110 V)
Heater element:	Stainless steel (AISI 304)
Material of glass parts:	Borosilicate glass 3.3
Safety:	Low water cut-off
Water consumption:	approx 50-60 l/hr
Weight:	approx 2,5 kg

Code	Description
BOE 8704100	DEST-4M plus, 230 V
BOE 8704101	DEST-4M plus, 110 V



DEST-4M PLUS

## BOECO WS 4000 / WS 8000

Stainless steel water still with thermostatic low water cut-off and level switch which activates the heater if there is enough level of water in the boiler.

### Specification:

	WS 4000	WS 8000
Distillate flow rate:	approx 4 l/h	approx 7,5-8 l/h
Conductivity of distilled water (20°C):	approx. 1,5 µS/cm	
Heater:	3 KW	6 KW
Cooling water:	approx. 60 l/h	approx. 84 l/h
Material: Inner part:	Stainless steel	
Outer part:	Stainless steel & Powder coating	
Dimensions: (h x w x d)	435x370x220mm	635x370x260mm
Switch:	Main power with pilot lamp	
Sealing:	Silicone gasket	
Safety:	Low water level & over heating cut-off	

Code	Description
BOE 8703600	WS 4000, 230 V
BOE 8703601	WS 4000, 110 V
BOE 8707500	WS 8000, 230 V



BOECO WS 4000 / WS 8000



### BOECO DEST 4L

vertical water still with stainless steel boiler and borosilicate condenser. Integrated low-water cut-off, water inlet & flow regulator, continuous production of high purity distilled water, free of metal ions, salts, dissolved gases and pyrogenic substances. With flow regulator to avoid excessive water consumption.

#### Specification:

Distillate flow rate:	approx 4 l/h
Conductivity of distilled water (20°C):	1,5 µS/cm
Heater:	3.000 W
Heater element:	Stainless steel (AISI 304)
Material of glass parts:	Borosilicate glass 3.3
Safety:	Low water cut-off & level switch
Water consumption:	approx. 55 l/h
Size:	690 x 280 x 280 mm (hwxwd)
Weight:	approx 6,3 kg

Code	Description
BOE 8704200	DEST 4L, 230 V

### BOECO DEST TANK 4000

Stainless steel water still for automatic and continuous operation with built-in 8 l storage tank. For bench and wall mounting. Supplied with wall mounting bracket. Excellent quality of distillation. An electronic level switch switches the still off when the storage tank is full and restarts it automatically when distilled water is withdrawn. Dispenser Tap of distilled water. With flow regulator to avoid excessive water consumption.

#### Specification:

Distillate flow rate:	approx 4 l/h
Water tank capacity:	8 l
Conductivity of distilled water (20°C):	approx 1,5 µS/cm
Power:	3000 W
Cooling water:	approx. 55 l/h
Material: Inner part:	Stainless steel
Outer part:	Galvanized steel & powder coating
Switch:	Main power with pilot lamp
Safety:	Low water level & over heating cut-off
Size:	620 x 330 x 460 mm (wxdxh)
Weight:	approx 24 kg

Code	Description
BOE 8704500	DEST TANK 4000, 230 V
BOE 8704501	DEST TANK 4000, 110 V

### PRESSURELESS DEIONIZER DS 450

pressureless Ion exchanger in disposable cartridges of synthetic material. Excellently suited for medical practices and small laboratories requiring up to 10 litres a day. Supplied with conductivity meter, wall mount and set of hoses.

#### Specification:

Flow rate:	50 l/h
Capacity at 10° GSG:	425 l
Quality:	0,1 - 20 µS/cm
Temperature max:	30°C
Material:	Polyethylene
Size:	100 x 600 mm (incl. cond. meter)
Weight:	3 kg

Code	Description
BOE 11042506	Deionizer DS 450, 230 V, 50-60 Hz
BOE 11042507	Deionizer DS 450, 110 V, 60 Hz
BOE 11042706	Set of two replacement cartridges



### BOECO AUTOCLAVE BTE-23D

#### Features:

- ▶ Three times fractionated pre-vacuum
- ▶ Stainless steel chamber
- ▶ LCD display
- ▶ Equipped with high quality and high performance pump
- ▶ 1 tray holder, 1 tray handle and 3 trays included
- ▶ High quality water pump and valves
- ▶ Independent steam generator
- ▶ Two samples self-calibration
- ▶ Overhead type water storage tank, easy to clean.
- ▶ Drying procedure: Dry by vacuum.
- ▶ Sterilization temperature: 121°C and 134°C
- ▶ Test programs: Helix test, B&D test and Vacuum test.
- ▶ Sterilization cycles: 9 cycles are available and 3 test programs.

Program	Temperature	Pressure	Sterilization time	Total time
SOLID 134	134°C	2.1 bar	4 min	25-45 min
SOLID 121	121°C	1.1 bar	20 min	35-60 min
LIQUID 134	134°C	2.1 bar	10 min	35-60 min
LIQUID 121	121°C	1.1 bar	30 min	35-65 min
WRAPPED 134	134°C	2.1 bar	4 min	35-60 min
WRAPPED 121	121°C	1.1 bar	20 min	35-65 min
TEXTILE 134	134°C	2.1 bar	6 min	45-65 min
TEXTILE 121	12°C	1.1 bar	20 min	50-70 min
PRION	134°C	2.1 bar	18 min	45-70 min
B&D TEST	134°C	2.1 bar	3.5 min	22-35 min
Helix TEST	134°C	2.1 bar	3.5 min	22-35 min
Vacuum TEST	-	-	-	15-20 min

- ▶ Only have several buttons, very easy to use, any people can run it easily.
- ▶ All cycles are fully automatic; there is no need for human intervention in cycle management.
- ▶ Pressure protection locking system that ensures the door will not be opened once there is any pressure in chamber.
- ▶ Sterilization documentation: Integrated Micro Printer and USB port to store the information of the programm cycle in flash memory.
- ▶ The sterilization time and dry time can be adjusted by manual, ensure user obtain best sterilization effects according to private requirements.
- ▶ Malfunction detection system, corresponding error code will be showed on the display once there is something going wrong.

#### Safety:

- ▶ Warning system prevents starting a cycle if door is not properly locked.
- ▶ Triple threat protection for overheating and overpressure.
  - The pressure protection system will automatically cut off the electricity supply once the temperature of chamber inside is abnormally. Motorola pressure sensor is used to accurately sense the state of pressure inside chamber.
- ▶ Temperature control system is using high quality PT1000 temperature sensor, it is high precision, reliable service and prompt measure, ensure accurate and timely transmission of temperature fluctuation.
- ▶ The safety valve will release steam in case the pressure inside chamber exceed normal levels.

#### Technical Information:

- ▶ Conform to CE and EN13060
- ▶ Manufactured under ISO 13485 norms
- ▶ Chamber Size: ø 247 x 460 mm (23 l)
- ▶ External dimension: 690 x 480 x 455 mm, Net weight 51 kg
- ▶ Packing box 750x560x460 mm, Gross weight 58 kg
- ▶ Power: 220V, 50/60 Hz or 110V, 60Hz

Code	Description
BOE 8902300	BOECO BTE-23D Bench Top Autoclave, Vol. 23 l. incl 1 tray holder, 1 tray handle and 3 trays, micro printer and USB port, 220V, 50/60Hz
BOE 8902310	BOECO BTE-23D as above but for 110 V, 60 Hz

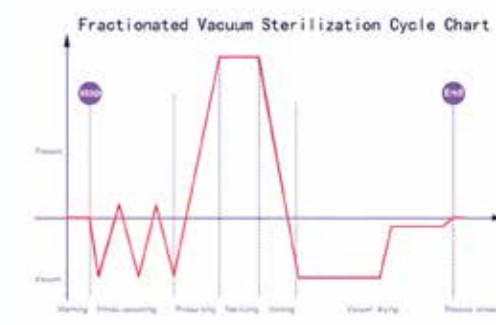


BOECO BTE-23D



MICRO PRINTER AND USB PORT

This BTE-23D adopts 3 times pre-fractionated vacuum system, the following chart simply describes the status of its process



# WATER PURIFICATION

## LABORATORY WATER PURIFICATION SYSTEM BOECOpure

laboratory system for direct connection to the tap for purified water according to ASTM Type I and Type II

### ASTM Type I Ultrapure water applicable for

Molecular biology, microbiology, PCR, inorganic and organic trace analysis  
HPLC, ICP, TOC-analysis

### ASTM Type II Ultrapure water applicable for

Rinsing laboratory glassware, preparing and diluting buffers, reagents, tissue culture media and dyes.  
Sample preparation for analytical methods such as flame AAS

The BOECOpure is a compact complete system that produces 6 litres of ultrapure water per hour. The built-in 6 litre tank for ultrapure water has a conical bottom for complete emptying. It is equipped with a sterile vent filter and a pressure pump for supplying equipment connected downstream (e.g. autoclaves, analyzers). If required, a flexible dispenser with a sterile filter can be connected to the tank.

#### ► Powerful performance

Permeate flow 6 l/h  
Flow rate 1,0 l/min

#### ► Lasting economy

Water purification progresses through separate modules, each with quick connects for simple individual replacement

#### ► Module 1

Pretreatment module with integrated reverse osmosis membrane

#### ► Module 2

Cartridge containing high-quality ultrapure resins with very long service intervals

#### ► Easy to operate

Just turn the dispense button to get ultrapure water  
Ultrapure water quality is ensured by the limiting value input RS 232 interface  
The display can be tilted to your optimal reading position

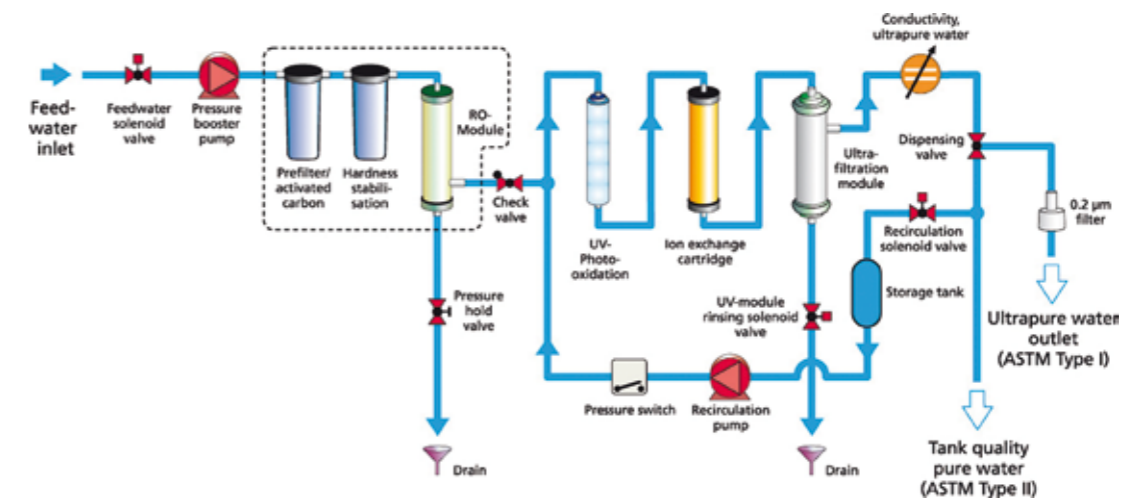
#### ► Placement anywhere

Stand it on the laboratory bench  
Mount it on the wall



EASY REPLACEMENT OF CARTRIDGES DUE TO QUICK CONNECTS

## BOECOpure UV/UF Flow chart



Specification:	BOECOpure	BOECOpure UF	BOECOpure UV	BOECOpure UF/UV
Permeate performance at 15°C:			6 l/h	
Flow rate:	1.0 l/min	0.6 l/min	1.0 l/min	0.6 l/min
Operating pressure in bar, min./max.			1-6 bar	
ASTM I conductivity:			0.055 µS/cm	
Resistance at 25°C:			18.2 M xcm	
TOC Value:	5-10 ppb	5-10 ppb	1-5 ppb	1-5 ppb
Bacterial content in CFU/ml:			< 1	
Particle content:			< 1	
Endotoxines in EU/ml			0.005	
ASTM II conductivity:			0.067-0.1µS/cm	
Resistance at 25°C:			15-10 M x cm	
Supply voltage:			Automatic voltage regulation to 24 V	
Power consumption:			0.06 kW	
Connector size:			R 2/4"	
Dimensions, W x D x H mm			305 x 400 x 545	
Weight:			22 kg	

The BOECOpure UF is supplemented with an ultrafilter  
The BOECOpure UV is supplemented with UV-oxidation, 185/254 nm  
The BOECOpure UF/UV is supplemented with an ultrafilter and UV-oxidation, 185/254 nm

Code	Description
BOE 8082060	BOECOpure standard
BOE 8082061	BOECOpure UF
BOE 8082062	BOECOpure UV
BOE 8082063	BOECOpure UF/UV

#### Accessories

Code	Description
BOE 8092212	Wall-mount
BOE 8092006	Pretreatment module (1) with RO-membrane, 6 l/h
BOE 8091020	Ultrapure water cartridge (module 2)
BOE 8091003	Sterile filter
BOE 8220091	Vent filter for tank

#### optional

The Pretreatment pack for BOECOpure protects the reverse osmosis module against particulates, dirt, and colloids. The complete pack consists of one filter housing with wall mount, one 1 µm cartridge and 2 x 1.5 m hose with R 3/4 connectors

Code	Description
BOE 8094003	Pretreatment pack for BOECOpure
BOE 8065101	Replacement, pre-filter insert



# ELECTROCHEMISTRY

## BOECO PORTABLE PH/ORP/TEMP METER MODEL PT-380

- ▶ Simultaneous displays pH or mV and temperature.
- ▶ Convenient calibration with automatic buffer recognition of European and US buffer sets. Calibration data is stored in memory and is ready for use on power up.
- ▶ Automatic or manual temperature compensation
- ▶ Automatic lock mode and end point sensing are available to lock in stable readings
- ▶ 50 data set reviewable memory
- ▶ Automatic shut off function (30 minutes of non-use)
- ▶ Battery life 1000 hours
- ▶ Low battery indicator
- ▶ IP65 waterproof case

The PT-380 will be delivered incl. the following standard accessories:  
1 x ATC probe 6000AST, each 1 x 100 ml BOECO Buffer solution pH 4,01, pH 7,00, 1 x 9 V battery, 1 x operating manual, 1 x carrying case

### Specification:

pH		
<b>Range</b>	<b>Resolution</b>	<b>Accuracy</b>
-2 to 16,00 pH	0.01 pH	± 0,01 ± 1 digit
mV		
<b>Range</b>	<b>Resolution</b>	<b>Accuracy</b>
-1999 to 1999 mV	1 mV	± 0,1 %
Temperature		
<b>Range</b>	<b>Resolution</b>	<b>Accuracy</b>
-10,0 to 120,0 °C	0.1 °C	±0,5 %

pH buffer recognition:	US (4,01, 7,00, 10,01) NIST (4,00, 6,86, 9.18) user selectable
pH electrode offset Recognition:	±90mV at pH 7,00 or 6.86
pH electrode slope Recognition:	±30% at pH 4,00,4,01,9,18 or 10,01
pH temp. compensation:	Auto / manual -10,0 to 120 °C
Input Impedance:	10 <sup>12</sup> ohms
Temperature sensor:	Thermistor, 10K ohms at 25°C
RS 232 interface:	no
Power requirement:	9 Volt battery
Dimensions (LxWxH):	198x70x37 mm
Weight:	0,26 kg (Battery included)

Code	Description
BOE 5190380	Portable pH/ORP/Temperature meter, model PT-380 in carrying case with standard accessories without electrode



BOECO PORTABLE PH/ORP/TEMP METER MODEL PT-380



## BOECO ELECTRODES

The electrodes are not included with the pH meters and have to be ordered separately:

Code	Description
BOE 5190600	Basic pH combination electrode, BA ECO plastic PC shaft, gel electrolyte, 0...14 pH, 0...80°C, with BNC plug, 1m cable, glass sensor
BOE 5095695	Basic pH combination electrode BA 25, Noryl plastic shaft, gel electrolyte, 0...14 pH, -5...80°C, with BNC plug, 1m cable, fibre diaphragm
BOE 5095626	Basic pH combination electrode BA 17, glass shaft, liquid electrolyte, 0...14 pH, 0...100°C, with BNC plug, 1m cable. With leak proof refill opening, platinum diaphragm



BOECO ELECTRODES

## BOECO PH/MV/ION/TEMP BENCH TOP METER MODEL BT-675

- ▶ Large display with backlight
- ▶ Simultaneous display of pH / ORP and temperature readings
- ▶ Dual buffer set selection: (4,01, 7,00 10,01) or 4,00, 6,86, 9,18)
- ▶ Calibration data is stored in memory and is ready for use on power up.
- ▶ Resolution to 0,1 mV for Ion measurement
- ▶ Automatic or manual temperature compensation
- ▶ Automatic lock mode and end point sensing are available to lock in stable readings
- ▶ AC adaptor or battery power (low battery indicator)
- ▶ IP54 waterproof case

The BT-675 will be delivered incl. the following standard accessories:  
1 x ATC probe, each 1 x 500 ml Buffer solution pH 4,01, pH 7,00  
1 x AC adaptor, 1 x operating Manual, 1 x flexible electrode holder

### Specification:

pH		
<b>Range</b>	<b>Resolution</b>	<b>Accuracy</b>
0 to 14,00 pH	0.01 pH	± 0,01
mV		
<b>Range</b>	<b>Resolution</b>	<b>Accuracy</b>
-1999,9 to 1999,9 mV	0,1 mV	± 0,4 mV (-1500,0 -1500,0); ± 1 mV (-1999,9 - -1500,0 and 1500,0 - 1999,9)
Temperature		
<b>Range</b>	<b>Resolution</b>	<b>Accuracy</b>
0.0 to 100,0°C	0.1°C	±0,2°C

pH buffer recognition:	US (4,01, 7,00, 10,01) or NIST (4,00, 6,86, 9,18) user selectable
Buffer temp. range	0 - 60,0 °C
pH calibration	1,2 or 3 point calibration
pH electrode offset Recognition:	±1,50 pH
pH electrode slope Recognition:	±30% at pH 4,00, 4,01, 9,18 or 10,01
pH temp. compensation:	Auto / manual 0,0 to 100°C
Input impedance:	10 <sup>13</sup> ohms
Temperature sensor:	Thermistor, 10K ohms at 25°C
RS 232 interface:	no
Power requirement:	6 x 1,5 Volt AAA batteries or AC adaptor
Dimensions (LxWxH):	150 x 203 x 72 mm
Weight:	0,54 kg (battery included)

Code	Description
BOE 5196750	Bench Top pH/mV/Ion/Temp Meter, Model BT-675, AC adaptor with EURO plug with standard accessories, without electrode
BOE 5196751	Bench Top pH/mV/Ion/Temp Meter, Model BT-675, AC adaptor with US plug with standard accessories, without electrode



BT-675



## PH/TEMP. POCKET TESTER PT-70

with replaceable electrode

- ▶ Large display screen - displays pH and temperature at the same time
- ▶ 1, 2 or 3 point calibration, with automatic buffer recognition of US and NIST buffer sets.
- ▶ Readings are automatically compensated for temperature (ATC)
- ▶ Electrode efficiency display
- ▶ Replaceable electrode module ensures extended usefulness
- ▶ IP67 water-tight housing
- ▶ Auto power off after 10 minutes of inactivity
- ▶ Battery life over 200 hours

### Specification:

Modes:		pH, °C
Ranges:	pH	0 to 14 pH
	Temp.	-9,9...99,9 °C
Resolution:	pH	0,01 pH
	Temp.	0,1 °C
Accuracy:	pH	± 0,02 pH ± 1 digit
	Temp.	± 0,3 °C ± 1 digit
Temperature compensation:		Auto from -9,9 to 99,9°C
pH buffer recognition:		US (pH 4,01, 7,00 10,01) NIST (pH 4,00, 6,86, 9,18)
Buffer temp range:		0,0 - 60 °C
Input impedance:		> 10 <sup>12</sup> ohms
pH calibration:		1, 2 or 3 point calibration
pH electrode offset recognition:		±90mV at pH 7,00 ±98,3mV to -81,7mV at pH 6,86
pH electrode slope recognition:		±30% at pH 4,00; 4,01; 9,18 and 10,01
Power:		4 x LR44 batteries
Dimensions :		193 x 44 x 25 mm
Weight :		105 grams (incl. batteries)

Code	Description
BOE 5190070	PH/Temp. Tester PT-70
BOE 5190071	Spare pH electrode module PT-70-1 for PT-70

## TECHNICAL BUFFER SOLUTIONS

In square plastic bottles, PE, 500 ml, labeled with an individual batch no. on the bottles, traceable to SRM of NIST

Code	Description
BOE 104000	pH 4,00 (20°C), 500 ml
BOE 107000	pH 7,00 (20°C), 500 ml
BOE 110000	pH 10,00 (20°C), 500 ml
BOE 104004	pH 4,00 (20°C), 500 ml, red color coded
BOE 107006	pH 7,00 (20°C), 500 ml, green color coded
BOE 110008	pH 10,00 (20°C), 500 ml, blue color coded

## CONDUCTIVITY CALIBRATION SOLUTIONS

In square plastic bottles, PE, 250 ml, labeled with an individual batch no. on the bottles, traceable to PTB and NIST

Code	Description
BOE 300141	1,413 mS/cm KCL 0,01 mol/l (25°C), 250 ml
BOE 301288	12,88 mS/cm KCL 0,1 mol/l (25°C), 250 ml
BOE 311180	111,8 mS/cm KCL 1 mol/l (25°C), 250 ml

## ELECTROLYTE SOLUTION

In square plastic bottles, PE, 500 ml, labeled with an individual batch no. on the bottles.

Code	Description
BOE 400300	Potassium chloride 3 mol/l, 500 ml

## PH INDICATORS

pH-Fix is the most popular indicator stick for all purposes. The indicator dyes are chemically bound to the cellulose fibres, avoiding bleeding even in strong alkaline samples. Presentation: Box of 100 sticks 6 x 85 mm

Code	Description
M-N 92110	pH-Fix 0-14, pH Graduation 1,0

The budget priced universal indicator papers can be used for most standard applications. For each pH-value these papers show a single colour which can be matched with the colour scale at an interval of 1 pH-unit. Presentation: Reel of 5 m length and 7 mm width

Code	Description
M-N 90201	pH-Universal Indicator Paper, pH 1-11, pH Graduation 1,0
M-N 90204	pH-Universal Indicator Paper, pH 1-14, pH Graduation 1,0/2,0



PH INDICATORS

PH/TEMP. TESTER PT-70 WITH REPLACEABLE ELECTRODE

ELECTRODE MODULE



## BOECO PORTABLE DO/TEMP. METER MODEL DO-580

- ▶ Simultaneous display of dissolved oxygen and temperature measurements
- ▶ Automatic temperature compensated (ATC) dissolved oxygen readings
- ▶ User selectable salinity and pressure compensated dissolved oxygen readings
- ▶ Works with accurate and reliable galvanic dissolved oxygen probes
- ▶ 50 data set reviewable memory
- ▶ Automatic shut off function (30 minutes of non-use)
- ▶ Battery life approx. 200-500 hours
- ▶ Low battery indicator
- ▶ IP65 waterproof case

### Specification:

<b>Dissolved Oxygen (ppm)</b>	
Ranges	0.00 to 20.00 ppm (mg/L)
Resolution	0.01 ppm (mg/L)
Accuracy	±2 % of the reading or ±0,2 ppm
<b>Dissolved Oxygen (%)</b>	
Ranges	0,0 to 200,0 %
Resolution	0.1 %
Accuracy	±2 % of the reading or ±0,2 air saturation
<b>Temperature</b>	
Ranges	-6 to 46,0 °C
Resolution	0.1°C
Accuracy	±0,3 °C ±1 digit

Pressure compensation:	600 to 1100 mBar (450 to 825 mmHg)
Salinity compensation:	From 0,0 to 40,0 ppt
Electrode type:	Galvanic
Temperature sensor:	Thermistor, 10K ohms, at 25 °C
Calibration backup:	Yes
Automatic temp. comp:	Yes
Power	9 Volt battery
Size (LxWxD)	198x70x37 mm
Weight:	0,26 kg (Battery included)

The DO-580 will be delivered incl. the following standard accessories:  
1 x Watertight dissolved oxygen probe LD-900G-1, 1 x 30 ml Galvanic O2 Fill Solution, 1 x 9 V battery, 1 x Operating Manual, 1 x carrying case

Code	Description
BOE 5190580	Portable DO/Temperature Meter, Model DO-580 in carrying case with dissolved oxygen probe LD-900G-1



BOECO PORTABLE DO/TEMP METER MODEL DO-580





BOECO PORTABLE CONDUCTIVITY/  
TDS/SALINITY/TEMP METER  
MODEL CT-480



### BOECO PORTABLE CONDUCTIVITY/TDS/SALINITY/TEMP. METER MODEL CT-480

- ▶ Simultaneous displays of conductivity, salinity or TDS with temperature measurements.
- ▶ Convenient one point calibration. Calibration data is stored in memory and is ready for use on power up.
- ▶ Adjustable TDS coefficient, reference temperature and temperature coefficient
- ▶ Uses one conductivity cell for conductivity, salinity and TDS measurement
- ▶ Accepts 4-wire conductivity cells with  $k=0,475$  cell constant and 2-wire  $K=0,1$  cell constant for improved flexibility and accuracy
- ▶ 50 data set reviewable memory
- ▶ Automatic shut off function (30 minutes of non-use)
- ▶ Battery life approx 200 -500 hours
- ▶ Low battery indicator
- ▶ IP65 waterproof case

#### Specification:

##### Conductivity K = 0,475

Range	Resolution	Accuracy
0,0 to 475 $\mu$ S/cm	0,1 $\mu$ S/cm	$\pm 1\%$ of reading +2 $\mu$ S/cm
475 to 4750 $\mu$ S/cm	1 $\mu$ S/cm	$\pm 1\%$ of reading +5 $\mu$ S/cm
4,75 to 47,50mS/cm	0,01mS/cm	$\pm 1\%$ of reading +0,05mS/cm
47,5 to 200,0mS/cm	0,1mS/cm	$\pm 2,5\%$ of reading +0,5mS/cm

##### Conductivity K = 0,1

Range	Resolution	Accuracy
0.00 to 99,99 $\mu$ S/cm	0,01 $\mu$ S/cm	$\pm 1\%$ of reading
100 to 200 $\mu$ S/cm	0,1 $\mu$ S/cm	$\pm 1\%$ of reading

##### Salinity

Range	Resolution	Accuracy
0.0 to 70,0 ppt	0,1 ppt	$\pm 0,2\%$ Full Scale

##### Temperature

Range	Resolution	Accuracy
-10,0 to 90,0 °C	0,1 °C	$\pm 0,2\%$ or $\pm 4\%$ Full Scale whichever is greater

Reference Temp.:	From 15,0 to 25,0°C, default is 25,0°C
Temperature Coefficient:	From 0,00 to 4,00 °C, default is 1,91°C
TDS Constant:	From 0,30 to 1,00, default is 0,65
Cell Constant	4 wire conductivity cell: $K = 0,475$
ATC	Thermistor, 10K ohms, at 25°C
Power	9 Volt battery
Size (LxWxD)	196x70x37 mm
Weight	0,26 kg (Battery included)

The CT-480 will be delivered incl. the following standard accessories:  
1 x 4-wire conductivity cell 3020P with  $k=0,475$   
1 x 9 V battery, 1 x Operating Manual, 1 x carrying case

Code	Description
BOE 5190480	Portable Conductivity/Salinity/TDS/Temperature Meter, Model CT-480 in carrying case with 4-wire Conductivity Cell 3020P with 6 PIN connector, $K=0,475$ (50 $\mu$ S - 200mS/cm)

#### Optional Conductivity Cell:

BOE 5190109	2-wire Conductivity Cell 109P with 6 PIN connector, $K=0,1$ (0,0 - 200,0 $\mu$ S/cm)
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### BOECO BENCH TOP CONDUCTIVITY/ TDS/ SALINITY/TEMP. METER MODEL CT-676

- ▶ Simultaneous displays of conductivity, salinity or TDS with temperature measurements.
- ▶ Convenient one point calibration. Calibration data is stored in memory and is ready for use on power up.
- ▶ Adjustable TDS coefficient, reference temperature and temperature coefficient
- ▶ Uses one conductivity cell for conductivity, salinity and TDS measurement
- ▶ Accepts 4-wire conductivity cells with  $k=0,475$  cell constant and 2-wire  $K=0,1$  cell constant for improved flexibility and accuracy
- ▶ Low battery indicator
- ▶ IP54 waterproof case

#### Specification:

##### Conductivity K = 0,475

Range	Resolution	Accuracy
0,0 to 475 $\mu$ S/cm	0,1 $\mu$ S/cm	$\pm 1\%$ of reading +2 $\mu$ S/cm
475 to 4750 $\mu$ S/cm	1 $\mu$ S/cm	$\pm 1\%$ of reading +5 $\mu$ S/cm
4,75 to 47,50mS/cm	0,01mS/cm	$\pm 1\%$ of reading +0,05mS/cm
47,5 to 200,0mS/cm	0,1mS/cm	$\pm 2,5\%$ of reading +0,5mS/cm

##### Conductivity K = 0,1

Range	Resolution	Accuracy
0.00 to 99,99 $\mu$ S/cm	0,01 $\mu$ S/cm	$\pm 1\%$ of reading
100 to 200 $\mu$ S/cm	0,1 $\mu$ S/cm	$\pm 1\%$ of reading

##### Salinity

Range	Resolution	Accuracy
0,0 to 70,0 ppt	0,1 ppt	$\pm 0,2\%$ Full Scale

##### Temperature

Range	Resolution	Accuracy
-10,0 to 90,0 °C	0,1 °C	$\pm 0,2\%$ or $\pm 4\%$ Full Scale whichever is greater

Reference Temp.:	From 15,0 to 25,0°C, default is 25,0°C
Temperature Coefficient:	From 0,00 to 4,00 °C, default is 1,91°C
TDS Constant:	From 0,30 to 1,00, default is 0,65
Cell Constant	4 wire conductivity cell: $K = 0,475$
ATC	Thermistor, 10K ohms, at 25°C
Power Requirement:	6 x 1,5 Volt AAA batteries or AC adaptor
Dimensions (LxWxH):	150 x 203 x 72 mm
Weight:	0,54 kg (Battery included)

The CT-676 will be delivered incl. the following standard accessories:  
1 x 4-wire conductivity cell 3020P with  $k=0,475$ , 6 x 1,5V AAA batteries,  
1 x Operating Manual, 1 x Flexible electrode holder

Code	Description
BOE 5196760	Bench Top Conductivity/Salinity/TDS/Temperature Meter, Model CT-676 with 4-wire Conductivity Cell 3020P with 6 PIN connector, $K=0,475$ (50 $\mu$ S - 200mS/cm), with EURO plug
BOE 5196761	Idem, with US plug AC adaptor

#### Optional Conductivity Cell:

BOE 5190109	2-wire Conductivity Cell 109P with 6 PIN connector, $K=0,1$ (0,0 - 200,0 $\mu$ S/cm)
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CT-676



# CENTRIFUGES



**BOECO HEMATOCRIT CENTRIFUGE HC-240**

## BOECO HEMATOCRIT CENTRIFUGE HC-240

High-speed bench-top centrifuge for hematocrit determinations with brushless frequency drive. At 16.060 g sedimentation is completed in just a little over 6 minutes.

The HC-240 centrifuge includes a segmented hematocrit rotor for 24 capillaries. With the segmented hematocrit rotor every capillary has its own chamber. If a capillary breaks, the fragments stay in this chamber or segment without affecting other capillaries.

The lid of the rotor is evaluation disc and cover in one. The hematocrit value can be read off the lid/evaluation disc right after centrifugation.

### Controls and displays

- ▶ During centrifugation the actual values of the parameters are indicated
- ▶ The centrifuge's speed and running time can be variably adjusted for different applications:
- ▶ Speed display in RPM or RCF
  - RPM input from 200 to 10.000 in steps of 10, starting from 10.000 to the maximum speed in steps of 100
  - RCF input from 200 to 10.000 in steps of 1, starting from 10.000 to the maximum speed in steps of 10
- ▶ Time t/min: 1 - 99 min. in steps of 1 min.,  
Time t/sec: 1-59 sec. in steps of 1 sec.,  
Continuous operation
- ▶ Brake stage, selectable between fast and slow
- ▶ Pulse key: For short centrifugation operations
- ▶ Open lid key

### Safety

- ▶ Lid locking and holding device
- ▶ Emergency lid lock release
- ▶ Lid closure of metal
- ▶ Imbalance switch-off
- ▶ Flexible motor bearings
- ▶ Deep metal rotor chamber (die-cast-aluminium) to securely accommodate the rotor

### Design

- ▶ Smooth plastic housing, easy to clean
- ▶ Metal lid
- ▶ Deep metal rotor chamber

### Technical details

Max. RPM (speed) / RCF: 13,000 rpm / 16,060 RCF  
 Noise level: ≤ 57 dB(A)  
 Dimensions in mm (HxWxD): 228 x 262 x 352  
 Net weight: approx. 10 kg  
 Emission / Immunity : EN / IEC 61326-1, class B / FCC class B

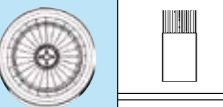

The HC-240 conforms to safety regulations such as IEC 61010, or the CE mark and all relevant EC standards and DIN norms and has been manufactured under ISO 9001:2008

### Code Description

- BOE 01801-13 BOECO centrifuge HC-240, 208-240V, 50/60 Hz, with hematocrit rotor and lid as evaluation disc
- BOE 01801-12 BOECO centrifuge HC-240, 100-127V, 50/60 Hz, with hematocrit rotor and lid as evaluation disc



haematocrit rotor with lid as evaluation disc included.

capacity	75 µl
Capillaries	1,5 x 75 mm
	
Rotor and Lid as evaluation disc incl.	
Cat.-No.	-
capillaries per rotor	24
RCF	16,060
radius in mm	85
run-up in sec	8
run-down in sec <sup>2)</sup>	10

## BOECO CENTRIFUGE SC-8

Practical and handy the SC-8 is the ideal centrifuge for small sample volumens. It is supplied with a 8-place angle steel rotor, which accomodates various tube systems as well as 15 ml glass tubes without adapters. The centrifuge is microprocessor controlled.

### Controls and displays

- ▶ During centrifugation the actual values of the parameters are indicated
- ▶ The centrifuge's speed and running time can be variably adjusted for different applications:
- ▶ Speed display in RPM or RCF
  - RPM input from 200 to the maximum speed in steps of 10
  - RCF input from 200 to the maximum speed in steps of 1
- ▶ Time t/min: 1 - 99 min. in steps of 1 min.,  
Time t/sec: 1-59 sec. in steps of 1 sec.,  
Continuous operation
- ▶ Brake stage, selectable between fast and slow
- ▶ Pulse key: For short centrifugation operations
- ▶ Open lid key

### Safety

- ▶ Lid locking and holding device
- ▶ Emergency lid lock release
- ▶ Lid closure of metal
- ▶ Imbalance switch-off
- ▶ Flexible motor bearings
- ▶ Deep metal rotor chamber (die-cast-aluminium) to securely accomodate the rotor

### Design

- ▶ Smooth plastic housing, easy to clean
- ▶ Metal lid
- ▶ Deep metal rotor chamber














The SC-8 conforms to safety regulations such as IEC 61010, or the CE mark and all relevant EC standards and DIN norms and has been manufactured under ISO 9001:2008

### Technical details

Max RPM (speed) / RCF: 6,000 rpm / 3,421 RCF  
 Noise level: ≤ 50 dB(A)  
 Dimensions in mm (HxWxD): 228 x 262 x 352  
 Net weight: approx. 9 kg  
 Emission / Immunity: EN / IEC 61326-1, class B / FCC class B

### Code Description

- BOE 01800-13 BOECO centrifuge SC-8, 208-240 V, 50/60 Hz, complete with 8-place angle rotor
- BOE 01800-12 BOECO centrifuge SC-8, 100-127 V, 50/60 Hz, complete with 8-place angle rotor

capacity in ml	4	5	7	15	15	blood collection / urine tubes			
dimensions Ø x L mm	10 x 88	12/13 x 75	13 x 100	17 x 100	17 x 120	max 17 x 100			
									
n=6,000 min <sup>-1</sup> Rotor included									
Cat.-No.	06305	01054-A	01058	-	-	-			
tubes per rotor	8	8	8	8	4	8			
RCF	2,817	2,697	3,461	3,461		3,461			
radius in mm	70	67	86	86		99			
run-up in sec						26			
run-down in sec <sup>2)</sup>						37			



**BOECO CENTRIFUGE SC-8**

### BOECO CENTRIFUGE SC-6

The BOECO SC-6 is a small centrifuge with a swing-out rotor especially designed for use in clinical laboratories and medical practices. It accepts common blood or urine tubes up to a volume of 15 ml and accelerates them to a maximum speed of 4,000 rpm<sup>-1</sup>

The BOECO SC-6 delivers optimal separation results and a horizontal layer of the separating gel that is identical to that achieved with a large centrifuge. Samples are therefore optimally prepared for analysis.

#### Controls and displays

- ▶ During centrifugation the actual values of the parameters are indicated
- ▶ The centrifuge's speed and running time can be variably adjusted for different applications.
- ▶ Speed display in RPM x 100, input in steps of 100
- ▶ Time t/min: 1 - 99 min, continuous operation
- ▶ Pulse key: For short centrifugation operations
- ▶ Open lid key

#### Safety

- ▶ Lid locking and holding device
- ▶ Centrifuge chamber of stainless steel
- ▶ Emergency lid lock release
- ▶ Lid closure of metal
- ▶ Imbalance switch-off
- ▶ Flexible motor bearings

#### Design

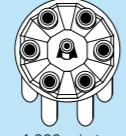
















- ▶ Smooth plastic housing, easy to clean
- ▶ Metal lid
- ▶ Stainless steel centrifuging chamber, deep-drawn and seamless

The SC-6 conforms to safety regulations such as IEC 61010, or the CE mark and all relevant EC standards and DIN norms and has been manufactured under ISO 9001:2008

#### Technical details

Max RPM (speed) / RCF: 4,000 rpm / 2.254 RCF  
 Noise level: ≤ 50 dB(A)  
 Dimensions in mm (HxWxD): 239 x 326 x 389  
 Net weight: approx 13 kg  
 Emission / Immunity: EN / IEC 61326-1, class B / FCC class B

Code	Description
BOE 02300-13	BOECO centrifuge SC-6, 200-240V, 50/60 Hz, complete with 6-place swing-out rotor and carriers 02331 and 02333 (6 of each)
BOE 02300-12	BOECO centrifuge SC-6, 100-127V, 50/60 Hz, complete with 6-place swing-out rotor and carriers 02331 and 02333 (6 of each)

capacity in ml	4	5	6	1,6-7	4-7	8,5-10	15	blood collection / urine tubes	
dimensions Ø x L mm	10 x 88	12x75	13x82	13/16x75	13x100	16x100	17x100	max 17 x 100	
 n=4,000 min <sup>-1</sup> Rotor and carriers included									
									
Cat.-No.	02331	02333	02333	02333	02331	02331	02331	02331	
tubes per rotor	6	6	6	6	6	6	6	6	
RCF	2,254	1,807	1,807	1,807	2,254	2,254	2,254	2,254	
radius in mm	126	101	101	101	126	126	126	126	
run-up in sec								10	
run-down in sec <sup>2)</sup>								21	



BOECO CENTRIFUGE SC-6



### BOECO CENTRIFUGE C-28A

The non-refrigerated microprocessor-controlled C-28A is the ideal bench-top centrifuge for performing daily routine tasks in doctors' laboratories and small hospitals. But because of the wide range of accessories the C-28A can also be used for sample preparation in research and industrial laboratories.

The centrifuge has a brushless frequency drive (no carbon brushes). A special locking device allows effortless opening and closing of the lid with just one hand.

#### Controls and displays

- ▶ During centrifugation the actual values of the parameters are indicated
- ▶ Entry of the running parameters via foil keypad
- ▶ Speed display in RPM x 100, input in steps of 100
- ▶ Time t/min: 1 - 99 min, continuous operation
- ▶ Impulse key: For short centrifugation operations

#### Safety










- ▶ Housing and lid of metal finished in a scratch and impact resistant coating
- ▶ Centrifuge chamber of stainless steel
- ▶ Lid locking and holding device
- ▶ See-through glass in the lid
- ▶ Emergency lid lock release
- ▶ Imbalance switch-off
- ▶ Easily exchangeable rotors
- ▶ Automatic rotor recognition

The C-28A conforms to safety regulations such as IEC 61010 or the CE mark and all relevant EC standards and DIN norms and has been manufactured under ISO 9001:2008

#### Technical details

Max. RPM (speed) / RCF: 6,000 rpm / 4,226 RCF  
 Noise level: < 58 dB(A) (dependent on rotor)  
 Dimensions in mm: 257 (H) x 366 (W) x 430 (D)  
 Net weight: approx. 23 kg  
 Emission / Immunity: EN / IEC 61326-1 class B, FCC class B

Code	Description
BOE 01206-13	BOECO centrifuge C-28A, 208-240 V, 50-60 Hz, without rotor
BOE 01206-12	BOECO centrifuge C-28A, 100-127 V, 50-60 Hz, without rotor

capacity in ml	5	4-7	15	15	50	12	50	50	
dimensions Ø x L mm	12 x 75	13 x 100	17 x 100	17 x 120	29 x 115	17 x 100	29 x 115	29 x 107	
 n=4,000 min <sup>-1</sup> Cat.-No. 01418									
	+ 01054A	+ 00716	+ E2109	+ E2110	+ 00716				
Cat.-No.	01467	01467	01467	01467	01468	01467	01468		
tubes per rotor	32	32	32	32	8	32	8		
RCF	2,182	2,612	2,540	2,594	2,486	2,540	2,486		
radius in mm	122	146	142	145	139	142	139		
run-up in sec								30	
run-down in sec <sup>2)</sup>								31	



BOECO CENTRIFUGE C-28A



ROTOR 01418 WITH 01467





**BOECO MINI CENTRIFUGE M-6**

### BOECO MINI CENTRIFUGE M-6

This Mini-centrifuge is ideal for quick spin downs for Micro and PCR tubes and PCR strip. The M-6 is supplied with a 6 x 1,5/2,0ml angle rotor, a 2 x 8x0,2ml strip rotor and a slide rotor. Operation of the centrifuge begins when the lid is closed. When opening the lid the rotor automatically decelerates and comes to a stop. A rubber footplate keeps the unit stable and avoids vibration. The M-6 is CE marked and has been manufactured under ISO 9001

#### Technical details

Max. RPM (speed) / RCF: 6.000 rpm / 2000 x g  
 Noise level: 50 dB(A)  
 Power: 120V to 240V, 50/60Hz  
 Dimensions in mm: 175 (D) x 148 (W) x 118 (H)  
 Net weight: approx 1,1 kg

Code	Description
BOE 8074000	BOECO Mini Centrifuge M-6, EU Plug
BOE 8074100	BOECO Mini Centrifuge M-6, US Plug
BOE 8074200	BOECO Mini Centrifuge M-6, UK Plug

### BOECO CENTRIFUGE MICROSPIN 12

is a compact bench-top microliter centrifuge for medical and biological research, molecular diagnostics, biochemistry, immunology and cell technologies. It can be used for extracting RNA/DNA samples, separation of cell suspensions and other micro quantitative analysis.

The microprocessor control provides precise control of the set parameters and a user-friendly interface allows a easy entry of parameters.

The brushless motor provides quite, vibration free performance, even at high speeds and a long product service life.

The angle rotor is made out of aluminium.

Due to the low voltage external power supply, the Microspin 12 can be used in cold rooms.

#### Controls and displays

- ▶ During centrifugation the actual values of the parameters are indicated
- ▶ Entry of the running parameters via foil keypad
- ▶ Speed display in RPM x 100, increment 100 rpm
- ▶ Time t/min: 1 - 30 min, increment 1 min
- ▶ Open lid key

#### Safety

- ▶ Lid locking and holding device
- ▶ Emergency lid lock release
- ▶ Metal protective inserts and enclosures inside the body
- ▶ See-through glass in the lid
- ▶ Imbalance switch-off

The Microspin 12 conforms to safety regulations such as EN 61326, EN 61010 or the CE mark and all relevant EC standards and DIN norms and has been manufactured under ISO 9001:2000

#### Technical details

Max. RPM (speed) / RCF: 14,500 rpm / 12,400 x g  
 Noise level: ≤ 62 dB(A)  
 Power (external): AC 100-240V, 60W/DC24V, 2.5A  
 Dimensions in mm: 200 (D) x 240 (W) x 125 (H)  
 Net weight: approx. 3,5 kg

Code	Description
BOE 8075000	BOECO Micro centrifuge Microspin 12, 100-240V, 50/60 Hz, with angle rotor for 12 x 1,5/2,0 ml tubes and each 12 adapters for 0,2 and 0,5 ml tubes

**BOECO CENTRIFUGE MICROSPIN 12**



### BOECO CENTRIFUGE MC-24

Powerful, space-saving, low-noise, reliable and microprocessor-controlled microlitre centrifuge with brushless frequency drive.

#### Controls and displays

- ▶ During centrifugation the actual values of the parameters are indicated
- ▶ Entry of the running parameters via foil keypad
- ▶ Speed display in RPM or RCF  
 RPM input from 200 to 10.000 in steps of 10, starting from 10.000 to the maximum speed in steps of 100  
 RCF input from 200 to 10.000 in steps of 1, starting from 10.000 to the maximum speed in steps of 10
- ▶ Time t/min: 1 - 99 min. in steps of 1min.,  
 Time t/sec: 1-59 sec. in steps of 1 sec.,  
 Continuous operation
- ▶ Brake stage, selectable between fast and slow
- ▶ Pulse key: For short centrifugation operations ▶ Open lid key

#### Safety

- ▶ Lid locking and holding device ▶ Emergency lid lock release
- ▶ Motor overheating protection ▶ Imbalance switch-off
- ▶ Deep metal rotor chamber (die-cast-aluminium) to securely accommodate the rotor

The MC-24 conforms to safety regulations such as IEC 61010 or the CE mark and all relevant EC standards and DIN norms and has been manufactured under ISO 9001:2008

#### Technical details

Max. RPM (speed) / RCF: 13,300 rpm / 17,008 RCF  
 Noise level: ≤ 58 dB(A)  
 Emission / Immunity: EN / IEC 61326-1 class B / FCC class B  
 Dimensions in mm: 228 (H) x 262 (W) x 352 (D)  
 Net weight: approx. 11 kg

Code	Description
BOE 01203-13	BOECO centrifuge MC-24, 208-240 V, 50-60 Hz, without rotor
BOE 01203-12	BOECO centrifuge MC-24, 100-127 V, 50-60 Hz, without rotor

45°



**Angle rotor, 12-place, Cat. No. 01252**  
 n = 13,300 min<sup>-1</sup>, max RCF 14,041

capacity in ml	1.5	0.5/0.8	0.2 /0.4	2.0
dimensions Ø x L mm	11x38	8x30/45	6x18/45	11x38
n = 13,300 min <sup>-1</sup>	with high speeds we recommend to use adapter No. 02031			
Cat.-No.	01252	02023	02024	-
tubes per rotor	12			
RCF	14.041			
radius in mm	71			
run-up in sec.	15			
run-down in sec. <sup>2)</sup>	16			

45°



**Angle rotor, 18-place, Cat. No. 01258**  
 n = 13,300 min<sup>-1</sup>, max RCF 15,030

capacity in ml	1.5	0.5/0.8	0.2 /0.4	2.0
dimensions Ø x L mm	11x38	8x30/45	6x18/45	11x38
n = 13,300 min <sup>-1</sup>	with high speeds we recommend to use adapter No. 02031			
Cat.-No.	01258	02023	02024	-
tubes per rotor	18			
RCF	15.030			
radius in mm	76			
run-up in sec.	15			
run-down in sec. <sup>2)</sup>	16			

45°



**Angle rotor, 24-place, Cat. No. 01226**  
 n = 13,300 min<sup>-1</sup>, max RCF 17,008

capacity in ml	1.5	0.5/0.8	0.2 /0.4	2.0
dimensions Ø x L mm	11x38	8x30/45	6x18/45	11x38
n = 13,300 min <sup>-1</sup>	with high speeds we recommend to use adapter No. 02031			
Cat.-No.	01226	02023	02024	-
tubes per rotor	24			
RCF	17.008			
radius in mm	86			
run-up in sec.	15			
run-down in sec. <sup>2)</sup>	16			



**Angle rotor, 18-place, Cat. No. 01213**  
 n = 13,300 min<sup>-1</sup>, max RCF 15,030

capacity in ml	1.5	0.5/0.8	0.2 /0.4	2.0	1.5	2.0
dimensions Ø x L mm	11x38	8x30/45	6x18/45	11x38	micro spin columns 11x38	
n = 13,300 min <sup>-1</sup>	with high speeds we recommend to use adapter No. 02031					
Cat.-No.	01213	02023	02024	-	-	-
tubes per rotor	18					
RCF	15,030					
radius in mm	76					
run-up in sec.	15					
run-down in sec. <sup>2)</sup>	16					

The special raised rim of the rotor 01213 enables centrifugation with open tube lids.

Available Q1/2015 !



**BOECO CENTRIFUGE MC-24**

THE IMAGE SHOWS A WRONG DISPLAY, THE ACTUAL DISPLAY WILL BE LIKE THE DISPLAY FROM MODELS HC-240 / SC-8

## BOECO CENTRIFUGES M-240 / M-240R

The M-240 and M-240R rank among the fastest centrifuges in their class – with a maximum speed of 15,000 rpm and an RCF of 21,382. Not only are they fast, the M-240R also refrigerates quickly: to +4°C with the Fast Cool function in 10 to 15 minutes. Even thermosensitive samples can be gently centrifuged thanks to highly reliable refrigeration. Best separation results are guaranteed with the smooth-running, high-performance motor featuring a maintenance-free frequency drive. With the optional autoclavable and aerosol-tight accessories, even infectious materials can be processed safely for both the user and the environment.

### User-Friendliness

- ▶ Automatic lid locking
- ▶ Quick-entry foil keypad
- ▶ Easy-to-read, digital display
- ▶ Display of current parameter values
- ▶ Select key for parameter selection
- ▶ Impulse key for short centrifuging
- ▶ Open lid key
- ▶ RCF key
- ▶ Twist knob to enter values
- ▶ RPM in increments of 10
- ▶ Running time in minutes, max. 99 min
- ▶ Temperature in increments of 1°C (M-240R)
- ▶ 4 programmable memories

### Refrigeration (M-240R)

- ▶ Infinitely variable setting from -10 °C to +40 °C
- ▶ Fast Cool function in 10 - 15 min to +4 °C
- ▶ Stand-by mode maintains the set temperature
- ▶ Automatic refrigeration switch-off when the lid is opened

### Safety

- ▶ Lid dropping protection
  - ▶ Lid locking and holding
  - ▶ Emergency lid lock release
  - ▶ Motor overheating protection
  - ▶ Chamber overheating protection
  - ▶ Imbalance switch-off
  - ▶ Standstill indication
- with the refrigerated model M-240R the LED in the Open key lights up with the M-240 the lid opens automatically after the rotor has come to a standstill

The M-240 / M-240R conform to safety regulations such as IEC 61010, all relevant EC standards and DIN norms and have been manufactured under ISO 9001:2008

### Technical details

	M-240	M-240R
Max. RPM (speed) / RCF:	15,000 RPM / 21,382 RCF	
Noise level: (dependent on rotor)	≤ 59 dB (A)	≤ 52 dB(A)
Dimensions in mm (HxWxD):	260 x 275 x 344	260 x 281 x 533
Net weight:	approx 11,5 kg	28 kg
Emission / Immunity:	EN / IEC 61326-1 / class B / FCC class B	

Code	Description
BOE 02400-13	BOECO centrifuge M-240, 200-240 V, 50-60 Hz, without rotor
BOE 02400-12	BOECO centrifuge M-240, 100-127 V, 50-60 Hz, without rotor
BOE 02405-13	BOECO refrigerated centrifuge M-240R, 200-240 V, 50 Hz, without rotor
BOE 02405-12	BOECO refrigerated centrifuge M-240R, 100-127 V, 50-60 Hz, without rotor



BOECO CENTRIFUGE M-240



BOECO CENTRIFUGE M-240R

## Rotors for M-240 and M-240 R

40°



**Angle rotor, 24-place**  
Cat. No. 02424B  
n = 15,000 min<sup>-1</sup>,  
max RCF 21.382  
Lid OE3243 incl.

capacity in ml	1.5	0.5/0.8	0.2 /0.4	2.0
dimensions Ø x L mm	11x38	8x30/45	6x18/45	11x38
n = 15,000 min <sup>-1</sup>	with high speeds we recommend to use adapter No. 02031			
Cat.-No.	02424B			
Cat.-No.	–	02023	02024	–
tubes per rotor	24			
RCF	21,382			
radius in mm	85			
run-up in sec.	20			
run-down in sec. <sup>2)</sup>	28			
temperature °C <sup>1)</sup>	+4			

45°



**Angle rotor, 30-place,**  
Cat. No. 02430B  
n = 15,000 min<sup>-1</sup>  
max RCF 20.376  
Lid OE3243 incl.

capacity in ml	0,5
dimensions Ø x L mm	8 x 30
n = 15,000 min <sup>-1</sup>	
Cat.-No.	02430B
Cat.-No.	–
tubes per rotor	30
RCF	20,376
radius in mm	81
run-up in sec.	19
run-down in sec. <sup>2)</sup>	28
temperature °C <sup>1)</sup>	+4

45°



**Angle rotor, 24-place**  
Cat. No. 02428  
n = 15,000 min<sup>-1</sup>,  
max RCF 21,382  
Lid with bio-containment,  
autoclavable, phenol-re-  
sistant incl.

capacity in ml	1.5	0.5/0.8	0.2 /0.4	2.0	1,5	2.0
dimensions Ø x L mm	11x38	8x30/45	6x18/45	11x38	micro spin columns 11x38	
n = 15,000 min <sup>-1</sup>	with high speeds we recommend to use adapter No. 02031				with high speeds we recommend to use adapter No. 02031	
Cat.-No.	02428					
Cat.-No.	–	02023	02024	–	–	–
tubes per rotor	24					
RCF	21,382					
radius in mm	85					
run-up in sec.	20					
run-down in sec. <sup>2)</sup>	28					
temperature °C <sup>1)</sup>	+4					

52,5° inner /  
40° outer



**Angle rotor, 30-place,**  
Cat. No. 02427A  
n = 15,000 min<sup>-1</sup>,  
max RCF 20.627  
Lid OE3243 incl.

capacity in ml	1.5	0.5/0.8	0.2 /0.4	2.0
dimensions Ø x L mm	11x38	8x30/45	6x18/45	11x38
n = 15,000 min <sup>-1</sup>	with high speeds we recommend to use adapter No. 02031			
Cat.-No.	02427A			
Cat.-No.	–	02023	02024	–
tubes per rotor	30			
RCF	20.627			
radius in mm	82			
run-up in sec.	22			
run-down in sec. <sup>2)</sup>	30			
temperature °C <sup>1)</sup>	+4			

45°



**Angle rotor, 32-place, 4x 8  
for PCR tubes and strips**  
Cat. No. 02418A  
n = 15,000 min<sup>-1</sup>  
max RCF 14,338  
Optional Lid OE3423

capacity in ml	0,2
dimensions Ø x L mm	6 x 18 PCR strips
n = 15,000 min <sup>-1</sup>	
Cat.-No.	02418A
Cat.-No.	–
tubes per rotor	32   4 x 8
RCF	14.338
radius in mm	57
run-up in sec.	19
run-down in sec. <sup>2)</sup>	28
temperature °C <sup>1)</sup>	+4

40°



**Angle rotor, 20-place  
for cryo tubes**  
Cat. No. 02426B  
n = 15,000 min<sup>-1</sup>  
max RCF 21,130  
Lid OE3243 incl.

capacity in ml	1,8
dimensions Ø x L mm	cryo tubes
n = 15,000 min <sup>-1</sup>	
Cat.-No.	02426B
Cat.-No.	–
tubes per rotor	20
RCF	21,130
radius in mm	84
run-up in sec.	19
run-down in sec. <sup>2)</sup>	28
temperature °C <sup>1)</sup>	+4

The special raised rim of the rotor 02428 enables centrifugation of tubes with open lids. The rim supports the lids so they will not rip off during centrifugation. Centrifugation with open tube lids is performed for example when spinning tubes with filter elements, so called „spin columns“

Optional for rotor 02424B, 02430B, 02426B and 02427A



Lid (Cat. No. 02425) with bio-containment autoclavable



Lid (Cat. No. 02423) with bio-containment autoclavable, phenol-resistant



BOECO CENTRIFUGE U-320



BOECO CENTRIFUGE U-320R

## BOECO CENTRIFUGES U-320 / U-320R

Because of their comprehensive range of accessories, the U-320 and U-320R centrifuges are the perfect universal centrifuges for routines in basic research and R&D laboratories of the pharmaceutical and biotechnical industry. The microprocessor controlled centrifuges have a brushless frequency drive (no carbon brushes) and a motorized lid locking.

### Performance

- ▶ High RCF
- ▶ Extremely short run-up and run-down times

### Design

- ▶ Metal housing, metal lid
- ▶ Stainless steel centrifuging chamber
- ▶ Viewing port in the lid

### Refrigeration (U-320R)

- ▶ Infinitely variable setting from -20 °C to +40 °C
- ▶ Fast cool function

### User-Friendliness

- ▶ Automatic lid locking
- ▶ Emergency lid-lock release
- ▶ Easily exchangeable rotors
- ▶ 10 programmable memories
- ▶ 9 acceleration and braking ramps, or unbroken run down time

### Safety

- ▶ Lid locking and holding during rotor run
- ▶ Emergency lid lock release
- ▶ Motor overheating protection
- ▶ Chamber overheating protection (with U-320R)
- ▶ Imbalance switch-off
- ▶ Automatic rotor recognition
- ▶ Lid dropping protection

### Controls and displays

- ▶ During centrifugation the actual values of the parameters are indicated
- ▶ Change-over RPM/RCF: by entering the rotor radius r/mm the Centrifuge will calculate/indicate speed or RCF.
- ▶ Time preselection in steps of minutes and seconds / continuous operation
- ▶ Temperature T/°C: Input in increments of 1°C
- ▶ Impulse key: For short centrifugation operations

The U-320 / U-320R conform to safety regulations such as IEC 61010 or the CE mark and all relevant EC standards and DIN norms and have been manufactured under ISO 9001:2008

### Technical details

	U-320	U-320 R
Max RPM (speed) / RCF:	15,000 RPM / 21,382 RCF	
Noise level: (dependent on rotor)	≤ 68 dB (A)	≤ 58 dB(A)
Dimensions in mm (HxWxD):	346 x 395 x 520	346 x 401 x 695
Net weight:	approx 31 kg	53 kg
Emission / Immunity:	EN IIEC 61326-1, class B / FCC Class B	

Code	Description
BOE 01401-13	BOECO centrifuge U-320, 200-240 V, 50-60 Hz, without rotor
BOE 01401-12	BOECO centrifuge U-320, 100-127 V, 50-60 Hz, without rotor
BOE 01406-13	BOECO refrigerated centrifuge U-320R, 200-240 V, 50 Hz / 240 V, 60 Hz, without rotor
BOE 01406-12	BOECO refrigerated centrifuge U-320R, 115-127 V, 60 Hz, without rotor



Swing-out rotor, 4-place,  
n= 4,000 min<sup>-1</sup>,  
RCF 2,665,  
for max. 4 x 100 ml

1) Lowest attainable temperature in the U-320 R at max. speed.

2) braked run-down

Please take care not to exceed the tubes' max. permissible RCF!

capacity in ml	5	9	9	15	1,6 - 7	15	20	25	45	50
dimensions Ø x L mm	12/13x75	14 x 100	14 x 100	17 x 100	12/13x75 16 x 75	17 x 100	21 x 100	24 x 100	31 x 100	34 x 100
n=4,000 min <sup>-1</sup> Cat.-No. 01624										
Cat.-No.	01372	01370	01741	01369	01742	01742	01346	01745	01345	01746
tubes per rotor	68	20	40	16	28	28	8	8	4	4
RCF	2,164	2,308	2,415	2,308	2,325	2,415	2,361	2,415	2,361	2,415
radius in mm	121	129	135	129	130	137	132	137	132	137
run-up in sec	22									
run-down in sec. <sup>2)</sup>	25									
temperature °C <sup>1)</sup>	- 17	- 15	- 17	- 19	- 15	- 17	- 15	- 17	- 15	- 15

capacity in ml	1	3	5/6/7	4-10	9/15	25	30	50	50	85	100	15	50	1,6 - 7	4 - 10
dimensions Ø x L mm	6x45 rhesus	10 x 60	12 x 82/100	16x75/100	14/17 x 100	24 x 100	26 x 95	29 x 107	34 x 100	38 x 106	44 x 100	17 x 120	29 x 115	13x75/100	16x75/100
lid 01492 Cat.-No. 01481															
Cat.-No.	01339	01343	01383	01348	01329	01330	04417	04416	01331	01396	00761	01347	01384	01383	01348
tubes per rotor	108	36	20	16	16	4	4	4	4	4	4	4	4	20	16
RCF	2,594	2,630	2,558	2,522	2,540	2,433	2,451	2,630	2,397	2,612	2,558	2,665	2,558	2,558	2,522
radius in mm	145	147	143	141	142	136	137	147	134	146	143	149	143	143	141
run-up in sec	20														
run-down in sec. <sup>2)</sup>	25														
temperature °C <sup>1)</sup>	- 15														



Swing-out rotor, 4-place,  
No 01494,  
n= 5,000 min<sup>-1</sup>,  
max. RCF 4,193,  
illustrated with buckets  
01427

capacity ml	1,5/2,0	1	3	5	6	7	9	15	25	50	15	25	30	50
dimensions Ø x L mm	11 x 38	6 x 45 Rhesus	10 x 60	13 x 75	12 x 82	12 x 100	14 x 100	17 x 100	24 x 100	34 x 100	17 x 120	25 x 90	25 x 110	29 x 115
lid 01421 Cat.-No. 01427														
Cat.-No.	05277	01357	01327	01732	05229	05230	05237	05231	05232	05233	05275	01731	05272	05276
tubes per rotor	36	120	48	32	48	48	24	24	8	4	4	8	4	4
RCF	4,109	4,081	4,053	4,025	4,053	3,941			4,165		3,969	4,025	4,053	
radius in mm	147	146	145	144	145	141			149		142	144	145	
run-up in sec	30													
run-down in sec. <sup>2)</sup>	32													
temperature °C <sup>1)</sup>	- 7													

2) When using these tubes, bucket 01427 cannot be closed with lid 01421



Swing-out rotor, 4-place,  
No 01494,  
n= 5,000 min<sup>-1</sup>,  
max. RCF 4,193,  
illustrated with buckets 01425

capacity ml	1,5/2,0	1	3	2,6-7	5/6/7	9/15	25	50	100	15	50	50	4 - 10
dimensions Ø x L mm	11 x 38	6 x 45 Rhesus	10 x 60	11x100	12x75-100	14/17x100	24 x 100	34 x 100	44 x 100	17 x 120	29 x 115	29 x 115	16x75/100
Cat.-No. 01425													
Cat.-No.	01444	01432	01433	01438	01434	01431	01435	01436	01437	01442	01443	01737	01441
tubes per rotor	36	144	56	28	48	28	8	4	4	4		28	
RCF	3,885	3,969	3,913			3,801		4,081		3,913			
radius in mm	139	142	140			136		146		140			
run-up in sec	30												
run-down in sec. <sup>2)</sup>	32												
temperature °C <sup>1)</sup>	- 10												





Swing-out rotor,  
2-place, n=4,000 min<sup>-1</sup>,  
RCF 2,218,  
for microtitre plates,  
aluminium, coated,  
with suspensions No.  
01453A, stainless steel.

	microtitre plate	culture plate	deep well plate	MS	QP	Microtest plate (Terasaki)	PCR plate 96 wells	PCR strips 0,2	
n=4,000 min <sup>-1</sup> Rotor Cat.-No. 01460									
	01453A						01453A + 01485		
	10	8	8	2	2	2	4	2	24 x 8
RCF	2,218								
radius in mm	124								
run-up in sec	40								
run-down in sec. <sup>2)</sup>	45								
temperature °C <sup>1)</sup>	-6								



Swing-out rotor,  
4-place,  
n= 4,000 min<sup>-1</sup>, RCF  
1,896,  
for microtitre  
plates, rotor and  
carriers No. 04345 of  
stainless steel.

	microtitre plate	culture plate
n=4,000 min <sup>-1</sup> Rotor Cat.-No. 01645		
Cat.-No.	04345	
plates per rotor	4	
RCF	1,896	
radius in mm	106	
run-up in sec	20	
run-down in sec. <sup>2)</sup>	19	
temperature °C <sup>1)</sup>	- 16	



Angle rotor,  
Cat. No. 01689A  
30-place,  
n= 14,000 min<sup>-1</sup>  
max RCF 21,255

capacity in ml	1.5	0.5/0.8	0,2 /0.4	2.0
dimensions Ø x L mm	11x38	8x30/45	6x18/45	11x38
lid with bio-containment incl. n= 14,000 min <sup>-1</sup> Cat.-No. 01689A				
with high speeds we recommend to use adapter No. 02031				
Cat.-No.	-	02023	02024	-
tubes per rotor	30			
RCF	21,255			
radius in mm	97			
run-up in sec	35			
run-down in sec. <sup>2)</sup>	31			
temperature °C <sup>1)</sup>	0			



Angle rotor,  
Cat. No. 01420B  
24-place,  
n= 15,000 min<sup>-1</sup>,  
max RCF 21,382

capacity in ml	1.5	0.5/0.8	0,2 /0.4	2.0
dimensions Ø x L mm	11x38	8x30/45	6x18/45	11x38
Lid OE2040 incl. n= 15,000 min <sup>-1</sup> Cat.-No. 01420B				
with high speeds we recommend to use adapter No. 02031				
Cat.-No.	-	02023	02024	-
tubes per rotor	24			
RCF	21,382			
radius in mm	85			
run-up in sec	25			
run-down in sec. <sup>2)</sup>	23			
temperature °C <sup>1)</sup>	-4			

Optional for rotor 01420



Lid (Cat. No. 02425  
with bio-containment  
autoclavable



Lid (Cat. No. 02423  
with bio-containment  
autoclavable,  
phenol-resistant



Cyto rotor, 6-place, aluminium, coated with cyto suspensions, suitable for U-320 and U-320R more information is available in a detailed cyto brochure.

1) Lowest attainable temp. in precooled refrigerated centrifuges at max. speed

2) Rund down in sec. braked

Please make sure not to exceed the tubes max. permissible RCF. For glass tubes the max RCF is 4.000



A close-up photograph of a microscope's objective lens and eyepiece. The image is partially obscured by a white horizontal band containing text and a logo. The background is a blurred laboratory setting with blue and yellow elements.

# OPTICAL INSTRUMENTS

 **BOECO**  
Germany

# BIOLOGICAL MICROSCOPES

## BOECO LABORATORY BINOCULAR MICROSCOPE MODEL BM-800

### Specification BM-800:

**Optical System:** Infinity corrected system, field diameter 22 mm  
**Viewing Head:** Bin- or Trinocular compensation free Head, 30° inclined, 360° rotatable, Interpupillary Distance 48 - 75 mm  
**Nosepiece:** Backward quintuple revolving nosepiece  
**Eyepiece:** Larger viewing area with extra wide field eyepiece EWF 10X /22 mm  
**Objectives:** BOECO Infinity corrected Plan Achromat Objectives 4x/0.10, 10x/0.25, 40x/0.65 (S), 100x/1.25 (S, Oil)  
**Stage:** Large sized double layer mechanical specimen stage. 185 x 142 mm, Moving range 75 x 55 mm,  
**Focusing:** Coaxial coarse and calibrated fine focus control, graduated 0,001 mm, Safety autofocus stop unit.  
**Condenser:** Swing condenser, N.A. 0,9/0,25,  
**Field diaphragm:** With aspherical condenser and Köhler Illumination  
**Illumination:** 6V 30W external Halogen lamp, light intensity adjustable.  
**Body / power:** Modern and ergonomic body made from die-cast aluminium with inbuilt power supply  
**Supplied with:** Dust cover, immersion oil, 1 spare halogen bulb, green + blue filter and instruction manual  
**Dimension:** 280 x 358 x 304/416 mm

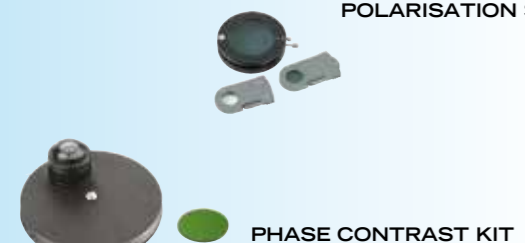
Code	Description
BOE 8000.550	Model BM-800/I/PL, 220V 50/60 Hz
BOE 8000.551	Model BM-800/I/PL, 110V 60 Hz
BOE 8000.560	Model BM-800/T/I/PL, 220V 50/60 Hz
BOE 8000.561	Model BM-800/T/I/PL, 110V 60 Hz

### Accessories

Code	Description
BOE 8000.301	EWF eyepiece 10X/22
BOE 8000.302	EWF eyepiece 10x/22 with pointer
BOE 8000.303	EWF eyepiece 10x/22 with micrometer
BOE 1800.552	BOECO Infinity E Plan Achrom. Objective 4X
BOE 1800.553	BOECO Infinity E Plan Achrom. Objective 10X
BOE 1800.559	BOECO Infinity E Plan Achrom. Objective 20X
BOE 1800.554	BOECO Infinity E Plan Achrom. Objective 40X (S)
BOE 1800.555	BOECO Infinity E Plan Achrom. Objective 100X (S/Oil)
BOE 8000.305	Dark Field Condenser (Dry) NA 0,9
BOE 8000.306	Dark Field Condenser (Oil) NA 1,25-1,36
BOE 8000.325	Simple Polarization set
BOE 8000.802	1x Video Attachment with C mount
BOE 8000.903	Turret Annular Phase Contrast Kit, consisting of: Phase Contrast Infinity Plan-achromatic Objectives 10X,20X(S), 40X(S), 100X(S,Oil), Turret Annular Phase, Contrast Condenser, Centering Telescope, Green Filter
BOE 8000.906	Epi-Fluorescent Attachment B (Blue) BP460-490, G (Green) BP 510-550 Exciting Light Filter system, O Ordinary Light System, 100WHBO Ultra Hi-voltage Spherical Mercury Lamp, Barrier to resist the Ultraviolet light, Power Supply with Digital Display, AC Input 220V/110V
BOE 8000.923	Infinity Plan Fluorescence Free Obj. 4X
BOE 8000.924	Infinity Plan Fluorescence Free Obj. 10X
BOE 8000.925	Infinity Plan Fluorescence Free Obj. 20X
BOE 8000.926	Infinity Plan Fluorescence Free Obj. 40X
BOE 8000.927	Infinity Plan Fluorescence Free Obj. 100X
BOE 8000.908	U (ultraviolet) BP330-385 Exciting light filter system
BOE 8000.909	V (violet) BP400-410 Exciting light filter system



POLARISATION SET



PHASE CONTRAST KIT



EPI-FLUORESCENT ATTACHMENT

## BOECO INVERTED BIOLOGICAL MICROSCOPE MODEL BIB-100

### Specification BIB-100:

**Optical System:** Infinity corrected system, field diameter 22 mm  
**Viewing Head:** Bin- or Trinocular Head, 30° inclined, 360° rotatable, Interpupillary Distance 48 - 75 mm  
**Nosepiece:** Quintuple revolving nosepiece  
**Eyepiece:** High-point, Extra Wide Field Eyepiece EW 10X /22 mm  
**Objectives:** LWD Infinity corrected Plan Achromat Objective 4X/0,1 WD 2.6 mm  
 LWD Infinity corrected Plan Achromat Objective 40X/0,8 WD 18 mm  
 Infinity corrected Plan Achromat Phase Objective 10X/0,25 WD 10 mm  
 Infinity corrected Plan Achromat Phase Objective 20X/0,4 WD 5.1 mm  
**Condenser:** ELWD condenser NA 0.3. LWD 72 mm (without condenser 150 mm)  
**Centering:** Centering Telescope 30 mm diam. Telescope Phase Annulus 10X -20X Phase Annulus Plate  
**Stage:** Plain Stage 160 x 250 mm, Glass Insert Auxiliary Stage 70 x 180 mm Attachable Mechanical Ruler  
**Focusing:** Coaxial coarse and fine adjustment. Vertical objective movement, Coarses stroke 37.7 mm per rotation, Fine Stroke: 0,2 mm per Rotation  
**Filter:** Diameter 45 mm, Blue, Green and Ground Glass  
**Illumination:** 6V 30W Halogen lamp, light intensity adjustable.  
**Body / power:** Innovative stand structure with inbuilt power supply  
**Supplied with:** Dust cover, immersion oil, 1 spare halogen bulb and instruction manual

Code	Description
BOE 5000.900	Model BIB-100, 220V 50/60 Hz
BOE 5000.901	Model BIB-100, 110V 60 Hz
BOE 5000.930	Model BIB-100/T, 220V 50/60 Hz
BOE 5000.931	Model BIB-100/T, 110V 60 Hz

### Optional Accessories

Code	Description
BOE 5000.220	Terasaki Holder
BOE 5000.221	38 mm diam. Petri dish holder
BOE 5000.222	54 mm diam. Slide glass holder

BOE 5000.906 Inverted Fluorescent Attachment for BIB-100, without objectives



HOLDER





## BOECO BINOCULAR MICROSCOPE MODEL BM-700

Our new advanced biological Microscope for educational, teaching, life science and clinical applications. The Anti-Fungus treatment protects the optical system, objectives and eyepieces in high-humidity environments. The new designed F=200 mm Infinite Plan achromatic objectives provide a fully corrected image for clear visual and digital results.

### Specification BM-700:

**Optical Head:** Seidentopf Binocular Head, 30° inclined, 360° rotatable, with high quality infinite optical system  
**Nosepiece:** Backward quadruple revolving nosepiece  
**Eyepiece:** Pair Eyepiece WF 10X /20 mm, diopter adjustable, with anti fungus treatment, Interpupillary Distance 47-75 mm  
**Objectives:** BOECO Anti Fungus Infinite Plan Achromat Objectives 4x, 10x, 40x (S), 100x (S) (Oil)  
**Stage:** Double layer mechanical specimen stage. 216 x 150 mm Travel area 78 x 54 mm, Right hand stage handle  
**Focusing:** Low position, coaxial coarse and calibrated fine focus control, with graduation reading 2 microns per division. Total focusing range 20 mm, Safety autofocus stop unit.  
**Condenser:** Sliding-in centerable Bright field condenser, n.A. 1,25, Integrated Iris diaphragm and filter tray.  
**Illumination:** S LED lamp, light intensity adjustable.  
**Body /power:** Sturdy body with supportive rubber and inbuilt power supply 100 - 240V  
**Supplied with:** Dust cover, green filter, immersion oil and instruction manual  
**Dimension:** 230 x 376 x 406 mm  
**Weight:** Netweight 8 kgs, Grossweight 9 kg  
**Packing:** styrofoam shelf in a cardboard box



BACK HANDLE / POWER CORD WRAP



ANTI FUNGUS TREATED OBJECTIVES



COLLECTOR AND CONDENSER



RIGHT HAND CONTROL STAGE

Code	Description	Head	Plug
BOE 7000.570	BM-700/I/PL	Binocular	Euro
BOE 7000.571	BM-700/I/PL	Binocular	US
BOE 7000.580	BM-700/T/I/PL	Trinocular	Euro
BOE 7000.581	BM-700/T/I/PL	Trinocular	US

### Objectives for BM-700

Code	Description
BOE 7000.552	BOECO Infinity Plan Achromatic AF Obj. 4X
BOE 7000.553	BOECO Infinity Plan Achromatic AF Obj. 10X
BOE 7000.559	BOECO Infinity Plan Achromatic AF Obj. 20X
BOE 7000.554	BOECO Infinity Plan Achromatic AF Obj. 40X (S)
BOE 7000.555	BOECO Infinity Plan Achromatic AF Obj. 100X (S) (Oil)



### Accessories for BM-700

Code	Description
BOE 7000.303	WF eyepiece 10x/20 with Micrometer
BOE 7000.302	WF eyepiece 10x/20 with Pointer
BOE 7000.307	WF eyepiece 10x/22
BOE 7000.304	Eyepiece 15x/16
BOE 7000.702	Collector, Field Iris Diaphragm and Auxiliary Lens for Koehler Illumination
BOE 7000.305	Dark Field Condenser (Dry) NA 0,9
BOE 7000.306	Dark Field Condenser (Oil) NA 1,36-1,25
BOE 7000.325	Polarization attachment
BOE 7000.903	Phase Contrast kit, dial type. Consisting of Phase Contrast Infinity Plan-achromatic Objectives 10X, 40X(S), 100X(S,Oil), Turret Annular Phase Contrast Condenser, Green Filter
BOE 7000.906	Epi-Fluorescence attachment, power supply, mercury lamp, blue and green filter
BOE 7000.907	Epi-Fluorescence attachment FL-LED, with B excitation filter (465-475 nm blue) and LED lamp



EYEPIECE WITH POINTER



EYEPIECE WITH MICROMETER



DARK FIELD CONDENSER DRY AND OIL



KOEHLER ILLUMINATION



PHASE CONTRAST CONDENSER (DIAL)



BM-700 WITH FL-LED

## BOECO BINOCULAR MICROSCOPE MODEL BM-300/I/SP

### Specification BM-300/I/SP:

**Optical Head:** Seidentopf Binocular Head, 30° inclined, 360° rotatable, with Infinity corrected optical system interpupillary Distance 48 - 75 mm  
**Nosepiece:** Backward quadruple revolving nosepiece  
**Eyepiece:** Pair Eyepiece WF 10X /18 mm Widefield  
**Objectives:** BOECO Anti Fungus Infinite Semi-plan Achromat Objectives F=180 mm: 4x, 10x, 40x (S), 100x (S) (Oil)  
**Stage:** Double layer mechanical specimen stage. 140 x 140 mm Travel area 75 x 50 mm, Right hand stage handle  
**Focusing:** Low position, coaxial coarse and calibrated fine focus control, with graduation reading 2 microns per division. Total focusing range 20 mm., Safety autofocus stop unit.  
**Condenser:** Sliding-in centerable Abbe Bright field condenser, n.A. 1,25, Integrated Iris diaphragm and filter tray. with rack & pinion height adjustment  
**Illumination:** S-LED, light intensity adjustable.  
**Body /power:** Sturdy body with supportive rubber and inbuilt power supply, 110-220V, 50/60Hz  
**Supplied with:** Dust cover, green filter, immersion oil, instruction manual  
**Dimension:** 200(W) x 397(D) x 422(H) mm  
**Weight:** Netweight 7,5 kgs, Grossweight 9,2 kg  
**Packing:** Two styrofoam shelves in a cardboard box, 335(W)x330(D)x530(H) mm

Code	Description
BOE 3000.200	Model BM-300/I/SP, Euro plug
BOE 3000.201	Model BM-300/I/SP, US plug
BOE 3000.300	Model BM-300/T/I/SP, Euro plug
BOE 3000.301	Model BM-300/T/I/SP, US plug

BOE 3000.512	BOECO Infinite Semi-Plan Achromatic AF Obj. 4X
BOE 3000.514	BOECO Infinite Semi-Plan Achromatic AF Obj. 10X
BOE 3000.519	BOECO Infinite Semi-Plan Achromatic AF Obj. 20X
BOE 3000.516	BOECO Infinite Semi-Plan Achromatic AF Obj. 40X(S)
BOE 3000.517	BOECO Infinite Semi-Plan Achromatic AF Obj. 100X (S) (Oil)



## BOECO BINOCULAR MICROSCOPE MODEL BM-180 SP

### Specification BM-180/SP:

Magnification: 40X- 1600X  
 Optical Head: Sliding Binocular Head, 45° inclined, 360° rotatable, Interpupillary Distance 55 - 75 mm  
 Nosepiece: Quadruple revolving nosepiece  
 Eyepiece: Pair Eyepiece WF 10X /18 mm Widefield  
 Pair Eyepiece P 16X  
 Objectives: BOECO Semi-plan Achromat DIN Objectives 4x/0.10, 10x/0.25, 40x/0.65 (S), 100x/1.25 (S, Oil)  
 Stage: Double layer mechanical specimen stage. 140 x 140 mm  
 Travel area 75 x 50 mm, Right hand stage handle  
 Focusing: Low position, coaxial coarse and calibrated fine focus control, with graduation reading 2 microns per division. Total focusing range 20 mm, Safety autofocus stop unit.  
 Condenser: Abbe Brightfield condenser, n.A. 1,25, Integrated Iris diaphragm and filter tray. With rack & pinion height adjustment  
 Illumination: 6V 20W Halogen, light intensity adjustable.  
 Body /power: Sturdy body with supportive rubber and inbuilt power supply 110-240V  
 Supplied with: Dust cover, blue + green filter, immersion oil, 1 spare halogen bulb and instruction manual  
 Dimension: 170(W) x 250(D) x 375(H) mm  
 Weight: Netweight 7,65 kgs, Grossweight 9,5 kg  
 Packing: Two styrofoam shelves in a cardboard box, 290(W)x330(D)x530(H) mm



TRINOCULAR MODEL BM-180/T/SP



EASY REPLACE OF LAMP



SEMI-PLAN ACHROMAT OBJECTIVES

Code	Model	Head	Plug
BOE 1800.200	BM-180/SP	Binocular, Sliding	Euro
BOE 1800.201	BM-180/SP	Binocular, Sliding	US
BOE 1800.230	BM-180/T/SP	Trinocular, Sliding	Euro
BOE 1800.231	BM-180/T/SP	Trinocular, Sliding	US

### Objectives for BM-180

Code	Description
BOE 1800.413	BOECO Black Semi-Plan Achromat DIN Obj. 4X
BOE 1800.414	BOECO Black Semi-Plan Achromat DIN Obj. 10X
BOE 1800.418	BOECO Black Semi-Plan Achromat DIN Obj. 20X
BOE 1800.415	BOECO Black Semi-Plan Achromat DIN Obj. 40X (S)
BOE 1800.416	BOECO Black Semi-Plan Achromat DIN Obj. 100X (S)(Oil)

### Eyepieces for BM-117, BM-120, BM-180, N-10

Code	Description
BOE 1800.301	Wide Field Eyepiece WF 10x, pc.
BOE 1800.302	Wide Field Eyepiece WF 10x with Pointer, pc.
BOE 1800.303	Wide Field Eyepiece WF 10x with 0,1 Micrometer, pc.
BOE 1800.304	Eyepiece P 16x, pc.

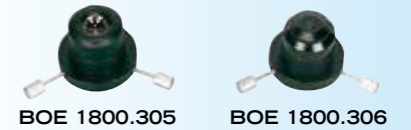
### Koehler Illumination set for BM-180

Code	Description
BOE 1800.702	Collector, Field Iris Diaphragm and Auxiliary Lens for Koehler Illumination



### Dark Field Condenser for BM-180

Code	Description
BOE 1800.305	Dark Field Condenser (Dry) NA 0,9
BOE 1800.306	Dark Field Condenser (Oil) NA 1,25-1,36
BOE 1800.412	Achromatic Objective 100X for Dark Field (Oil)
BOE 1800.417	Plan-Achromatic Objective 100X for Dark Field (Oil)



### Phase Contrast Kits for BM-180/SP

Code	Description
BOE 1800.902	Single Annular Phase Contrast Kit, consisting of: Phase Contrast Achromatic Objectives & Diaphragms PH10X, PH40X & PH100X, Centering Telescope
BOE 1800.903	Turret Annular Phase Contrast Kit, consisting of: Phase Contrast Plan-achromatic Objectives 10X, 20X(S), 40X(S), 100X(S,Oil), Turret Annular Phase Contrast Condenser, Centering Telescope, Green Filter
BOE 1800.904	Sliding Phase Contrast Kit, consisting of: Sliding Phase Contrast Condenser 10x,40x, Green Filter Achromatic Phase Contrast Objectives PH10X, PH40X, Centering Telescope



### Epi-Fluorescent Attachment for BM-180

Code	Description
BOE 1800.906	Epi-Fluorescent Attachment complete set B (Blue), G (Green) Exciting Light Filter system, O Ordinary Light System, 100WHBO Ultra Hi-voltage Spherical Mercury Lamp, Barrier to resist the Ultraviolet light, Power Supply with Digital Display, AC Input 220V/110V, Fluorescence Free Objective 4X, 10X, 40X(S), 100X(S)(Oil), Fluorescence Free Oil
BOE 1800.908	U (ultraviolet) Exciting light filter system
BOE 1800.909	V (violet) Exciting light filter system



## BOECO ROUTINE BINOCULAR MICROSCOPE MODEL BM-120

Magnification: 40X- 1000X  
 Optical Head: Compensation Free Binocular Head, 30° inclined, 360° rotatable, Interpupillary Distance 55 - 75 mm  
 Nosepiece: Quadruple revolving nosepiece  
 Eyepiece: Pair Eyepiece WF 10X /18 mm Widefield  
 Objectives: BOECO Achromat DIN Objectives 4x/0.10, 10x/0.25, 40x/0.65 (S), 100x/1.25 (S, Oil)  
 Stage: Double layer mechanical specimen stage. 140 x 140 mm  
 Travel aerea 75 x 50 mm,  
 Focusing: Coaxial coarse and Fine Focus Adjustment, Range 24mm  
 Fine Division 2 microns safety autofocus stop unit.  
 Condenser: Abbe Brightfield condenser, n.A. 1,25, Integrated iris diaphragm and filter tray. With rack & pinion height adjustment  
 Illumination: 6V 20W Halogen, light intensity adjustable.  
 Body /power: Sturdy body with supportive rubber and inbuilt power supply 110-240V  
 Supplied with: Dust cover, blue filter, immersion oil, 1 spare Halogen bulb and instruction manual  
 Dimension: 178 x 227 x 360 mm, Netweight 6,20 kg  
 Packing: 360 x 260 x 465 mm, Grossweight 7,90 kg

Code	Description
BOE 1200.100	Model BM-120, 110-240V 50/60 Hz, Euro Plug
BOE 1200.101	Model BM-120, 110-240V 50/60 Hz, US Plug
BOE 1200.005	Mirror attachment for BM-120



OPTIONAL MIRROR-ATTACHMENT

# STUDENT MICROSCOPES



## BOECO STUDENT MICROSCOPES, MODEL BM-117

Optical Head: Binocular or Monocular Head, 30° inclined, 360° rotatable,  
 Nosepiece: Backward Quadruple revolving nosepiece  
 Eyepiece: Widefield Eyepiece WF 10X /18 mm  
 Objectives: Achromatic DIN Objectives  
 4x/0.10, 10x/0.25, 40x/0.65 (S), 100x/1.25, Oil, (S)  
 Stage: Double Layers mechanical stage 132 x 142 mm  
 Travel aerea 75 x 40 mm,  
 Focusing: Coaxial Coarse & Fine Adjustment System  
 Range 24 mm, Fine Division 0,004 mm  
 Condenser: Abbe Condenser, n.A. 1,2, with iris  
 diaphragm and filter  
 Illumination: S-LED. light intensity adjustable  
 Body /power: Sturdy body with supportive rubber and  
 inbuilt power supply 110-240V  
 Supplied with: Dust cover, green filter, spare fuses, Immersion oil  
 Dimension: 170 x 310 x 355 mm, netweight 5 kg  
 Packing: Styrofoam shelve in a cardboard box

Code	Description
BOE 1170.100	Model BM-117 Binocular, 110-240V, 50/60Hz, Euro plug
BOE 1170.101	Model BM-117 Binocular, 110-240V, 50/60Hz, US Plug
BOE 1170.110	Model BM-117 Monocular, 110-240V, 50/60Hz, Euro Plug
BOE 1170.111	Model BM-117 Monocular, 110-240V, 50/60Hz, US Plug



## BOECO STUDENT MONOCULAR MICROSCOPE MODEL 10

### Specification Model 10:

Optical Head: Monocular Head, 45° inclined,  
 Nosepiece: Triple revolving nosepiece  
 Eyepiece: Pair Eyepiece WF 10X /18 mm Widefield  
 Objectives: Achromatic DIN Objective  
 4x/0.10, 10x/0.25, 40x/0.65, spring loaded  
 Stage: Plain stage with attachable mechanical stage. 110 x  
 120 mm, Travel aerea 60 x 30 mm  
 Focusing: Coaxial coarse and Fine Adjustment, Range 10 mm  
 Condenser: Abbe Brightfield condenser, n.A. 1,25, with iris  
 diaphragm and green filter. Spiral Adjustment for  
 Condenser  
 Illumination: 1W LED, Brightness adjustable  
 Supplied with: Reflecting Mirror, Dust cover, spare fuse  
 Power: Output DC 7,5V  
 Dimension: 180x130x340 mm  
 Packing: Styrofoam shelve in a cardboard box, 28x20x40cm, 3,3kg

Code	Description
BOE 1000.030	Model 10, 100-220V, 50/60Hz, Euro Plug AC adapter
BOE 1000.031	Model 10, 100-220V, 50/60Hz, US Plug AC adapter

### Objectives for BM-120 and BM-117, Model 10

Code	Description
BOE 1800.403	BOECO DIN Achromatic Objective 4X
BOE 1800.402	BOECO DIN Achromatic Objective 10X
BOE 1800.409	BOECO DIN Achromatic Objective 20X
BOE 1800.404	BOECO DIN Achromatic Objective 40X (S)
BOE 1800.406	BOECO DIN Achromatic Objective 100X (S) (Oil)



# STEREO MICROSCOPES

## BOECO ZOOM STEREO MICROSCOPE MODEL BSZ-405

### Specification BSZ-405:

Optical head: Binocular head inclined at 45°  
 Interpupillary Distance 55 - 75 mm  
 Eyepiece dioptic adjustment range ± 5D  
 Working distance: 97 mm  
 Field of View: 20,0 to 4.4 mm diam.  
 Eyepiece: EWF 10X/20 eyepieces  
 Zoom Optics: 1X to 4,5X , Zoom ratio 1:4,5  
 Illumination: 2-way illumination  
 LED 1,2W Reflected (upper) illumination  
 LED 0,7W Transmitted (lower) illumination  
 Stage Plate: Frosted glass stage plate 9 cm  
 Base: Stable 262 x 185 mm base, fitted with anti-skid  
 rubber feet  
 Main Body 360° rotatable  
 Dimensions: 185 (W) x 262 (L) x 315 (H) mm, Netweight 4,5 kg  
 Packing: 360 x 310 x 530 mm, Grossweight 6,5 kg

Code	Description
BOE 4050.000	BSZ-405, Binocular, 100-240V, 50-60Hz, Euro plug
BOE 4050.001	BSZ-405, Binocular, 100-240V, 50-60Hz, USA plug
BOE 4050.300	BSZ-405/T, Trinocular, 100-240V, 50-60Hz, Euro plug
BOE 4050.301	BSZ-405/T, Trinocular, 100-240V, 50-60Hz, USA plug

optional Code	Description
BOE 3460.020	Wide Field Eyepiece WF 20x/12 w/ diopter adjustment
BOE 4050.002	Auxiliary Objective 2x, for BSZ-405 and BS-80
BOE 4050.007	Auxiliary Objective 0,75x, for BSZ-405 and BS-80



BSZ-405 TRINOCULAR WITH HDCE-20C DIGITAL MICROSCOPE CAMERA



## BOECO ZOOM STEREO MICROSCOPE MODEL BST-606

### Specification BST-606:

Optical head: Binocular head inclined at 45°  
 Interpupillary Distance 55 - 75 mm  
 Eyepiece dioptic adjustment range ± 5D  
 Working distance: 115 mm  
 Field of View: 28,0 to 4.5 mm diam.  
 Eyepiece: EWF 10X/22 eyepieces with eyeshadow  
 Zoom Optics: 0,8X to 5X, Zoom ratio 1:6,3  
 Illumination: 2-way illumination switch allows upper and  
 lower illumination  
 Transmitted (lower) LED light source 100V-240V.  
 Incident (upper) LED light source 100V-240V  
 Stage Plate: 100 mm ø frosted glass stage plate and black/white  
 reversible stage plate  
 Base: Stable 300x225 mm base, fitted with anti-skid  
 rubber feet  
 Main Body 360° rotatable  
 Dimensions: 300 (W) x 225 (L) x 300 (H) mm, Netweight 6,15 kg  
 Packing: 400 x 340 x 670 mm, Grossweight 10,1 kg

Code	Description
BOE 6060.000	BST-606, EURO Plug
BOE 6060.001	BST-606, US Plug
BOE 6060.300	BST-606/T, Trinocular, Euro Plug
BOE 6060.301	BST-606/T, Trinocular, US Plug

optional Code	Description
BOE 3460.020	Wide Field Eyepiece WF 20x/12 w/ diopter adjustment
BOE 6060.002	Auxiliary Objective 2x, for BST-606
BOE 6060.005	Auxiliary Objective 0,5x, for BST-606



## BOECO STEREO MICROSCOPE MODEL BS-80



### Specification BS-80:

Optical head	Binocular head inclined at 45° Interpupillary Distance 55 - 75 mm Eyepiece dioptic adjustment range ± 5D
Working distance:	100 mm
Eyepiece:	WF10X/23 eyepieces
Stereo Optics:	Objectives 2x & 4X in revolving nosepiece
Illumination:	2-way LED transmission and reflecting illumination Top Illuminator 1W, Bottom Illuminator 0,5W
Stage Plate:	Frosted glass stage plate and black/white reversible stage plate
Base:	Stable 262 x 185 mm base, fitted with anti-skid rubber feet
Dimensions:	262 (L) x 262 (L) x 315 (H) mm, Netweight 4,80
Packing:	380 x 340 x 410 mm, Grossweight 6,40 kg

Code	Description
BOE 3800.000	BS-80, AC 110-240V, 50-60Hz, EURO Plug
BOE 3800.001	BS-80, AC 110-240V, 50-60HZ, US Plug

### optional

Code	Description
BOE 3460.020	Wide Field Eyepiece WF 20x/12 w/ diopter adjustment
BOE 4050.002	Auxiliary Objective 2x, for BS-80 and BSZ-405
BOE 4050.007	Auxiliary Objective 0,75x, for BS-80 and BSZ-405

## DIGITAL MICROSCOPE CAMERAS

for capture of microscope images and display of real-time live video on a computer screen. Delivered incl. optical relay lens 0,45x, USB 2.0 cable, Eyepiece tube adapter Ø23,2/Ø30 mm and image processing software.



MDCE-5C



HDCE-20C



HDCE-X5 / 90D

### Specifications:

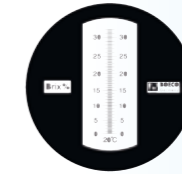
Model:	MDCE-5C	HDCE-20C	HDCE-X5	HDCE-90D
Type:	1.3M pixel	2.0M pixel	5.0M pixel	9.0M pixel
Image Sensor:	1/3,2" CMOS	1/3,2" CMOS	1/2,5" CMOS	1/2,3" CMOS
Pixel size:	5,6	5,6	7,13	7,63
Viewing field:	69%	69%	88%	94%
Diagonal:	2,8µm x 2,8µm	2,8µm x 2,8µm	2,2µm x 2,2µm	1,75µm x 1,75µm
Relay lens:	0,45x	0,45x	0,45x	0,45x
Image format:	1280x1024	1600x1200	2592x1944	3488x2616
SNR:	42,3dB	42,3dB	40dB	37,4dB
Dynamic Range:	71dB	71dB	66,5dB	62,7dB
Exposure Time:	approx. 20s -1/1000s	approx. 20s -1/1000s	approx. 15s -1/1500s	approx. 1-500ms
Effective No.:	10bit, on chip	10bit, on chip	12bit, on chip	12bit on chip
Sensitivity:	1,0 V/lux-sec (550nm)	1,0 V/lux-sec (550nm)	0,53 V/lux-sec (550nm)	0,44 V/lux-sec (550nm)
Out Put:	Auto/Manual Exposure			
White Balance:	Auto/Manual White Balance			
Connecting Mode:	Insert it into Eyepiece Tube of Microscope directly or using standard C mount			
Image Output:	USB 2.0			
Working Temp.:	-30°C - 70°C			
Windows System:	Windows 2000/XP/Vista/Win 7/ (Win 8 only MDCE-5C and HDCE-20C), 32bit or 64bit			
Max OS X:	Support, driver free, with MAC's own native image software like Photobooth or IChat you can take pictures and recordvideo with the camera. (Not valid for HDCE-90D)			
Image software:	ScopelImage (only Windows) (7 languages)			

Code	BOE 1800.805	BOE 1800.806	BOE 1800.811	BOE 1800.819
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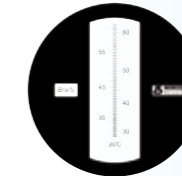
# REFRACTOMETER

## BOECO HAND REFRACTOMETER

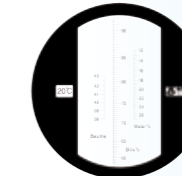
Code	Description
BOE 30103	Saccharic Concentration 0-32 % Resolution: 0,2 %



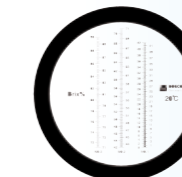
Code	Description
BOE 30104	Saccharic Concentration 28-62 % Resolution: 0,2 %



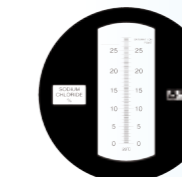
Code	Description
BOE 30106	Saccharic Concentration 58-90% 58-90% Brix, 38°-43°Be', 17-27% water Resolution: 0,5 % Brix, 0,5° Be', 1% water (Sugar content, Baume and Water content)



Code	Description
BOE 30107	Saccharic Concentration 0-90 % (3 ranges) 0-42%, 42-71%, 71-90% Resolution: 0,2 %



Code	Description
BOE 30202	Salinity 0-28 % Resolution: 0,2 %



Code	Description
BOE 30301	Protein in Serum 0-12g/dl / 0,2 g/dl Urine Gravity 1.000-1.040 / 0,002 sg



## DIGITAL HAND REFRACTOMETER

with Automatic Temperature Compensation,  
Dimension: 135x65x40 mm

Code	Description
BOE 32145	Range: 0-45 % Brix Resolution: 0,1% Accuracy: ± 0,2 % Refractive Index: 1.3330 - 1.4098 Resolution: 0,0001 Accuracy: ± 0,0003
BOE 32195	Range: 0-95 % Brix Resolution: 0,1% Accuracy: ± 0,2 % Refractive Index: 1.3330 - 1.5300 Resolution: 0,0001 Accuracy: ± 0,0002





## DIGITAL MINI REFRACTOMETER

which, due to his wide range works perfectly to measure almost any fruit juice, food or drink.

with Automatic Temperature Compensation,

Dimension: 130x49x24 mm (LxWxH)

Code	Description
BOE 32153	Range: 0-53 % Brix Resolution: 0,1% Accuracy: $\pm 0,1$ %

## BOECO ABBE REFRACTOMETER

complete with: 1 x set special thermometer (with protective shield) 1 pc. Standard Specimen, 1 x screw driver, 1 x instruction manual.



### Specification:

Measuring range of ND:	1.300-1.700
Measuring accuracy of ND (room temperature):	$\pm 0.0002$
Minimum scale value for ND:	0.0005
Minimum scale value for the concentration: of sugar content (%)	0.25
Measuring range of the concentration: of sugar content (%)	0-95
Magnification of telescopic system:	2x
Magnification of reading system:	30x
Weight of the instrument (kg):	2,6
Dimensions (mm):	100x200x240

Code	Description
BOE 32200	ABBE Refractometer, with aluminium carrying case

## BOECO DIGITAL ABBE REFRACTOMETER

this instrument can widely be used in petroleum, chemical, pharmaceutical, sugar refining and food industries, as well as in related colleges, universities and scientific research institutions for measuring the refractive index ND of transparent or subtransparent liquid or solid substance. This instrument can also be used to measure Brix (BX) of the sugar solution and to correct the affect of temperature on the Brix automatically.

In addition the instrument can display the temperature of the sample.

Complete with: 1 x standard sample (standard block), 1 x inner - hexagon spanner, 3 x Illuminating Bulb, 1 x Plastic Cover Hood, 3 x fuse, 1 x operating instructions

### Specification:

Measuring range	
Refractive index ND:	1.300-1.700
Brix BX - TC:	0-95 %
Brix BX:	0-95 %
Measuring accuracy	
Refractive index ND:	$\pm 0.0002$
Brix BX - TC:	$\pm 0.1$ %
Brix BX:	$\pm 0.1$ %
Temperature	
Temperature displaying range:	0-50°C
Correcting range of BX versus temperature:	15-45°C
Weight (kg):	10,0
Dimensions (mm):	330x180x380

Code	Description
BOE 32400	Digital ABBE Refractometer, 220 V with aluminium carrying case
BOE 32401	Digital ABBE Refractometer, 110 V with aluminium carrying case

A close-up photograph of laboratory glassware against a blue background. In the foreground, a test tube is tilted, containing a red liquid. In the background, a graduated cylinder is partially visible, containing a blue liquid. The glassware is sharply focused, with reflections on its surfaces.

# LABORATORY GLASSWARE AND PORCELAIN

 **BOECO**  
Germany



## LABORATORY BOTTLES

"BOECO GERMANY" boro 3.3., graduated. Retrace code  
Complete with **blue** screw cap and pouring ring of PP.  
Resistant to steam sterilisation up to 140 °C



Capacity	GL	Code	Pack of
50 ml	32	BOE 5080175	10
100 ml	45	BOE 5080245	10
250 ml	45	BOE 5080365	10
500 ml	45	BOE 5080445	10
1000 ml	45	BOE 5080545	10
2000 ml	45	BOE 5080635	10
5000 ml	45	BOE 5080735	6
10000 ml	45	BOE 5080865	1
20000 ml	45	BOE 5080915	1

## LABORATORY BOTTLES

"BOECO GERMANY" boro 3.3., graduated. Retrace code  
Complete with **red** screw cap (PBTB), PTFE protected seal and pouring ring of ETFE. Resistant to steam sterilisation up to 200 °C



Capacity	GL	Code	Pack of
100 ml	45	BOE 5080241	10
250 ml	45	BOE 5080361	10
500 ml	45	BOE 5080441	10
1000 ml	45	BOE 5080541	10
2000 ml	45	BOE 5080631	10
5000 ml	45	BOE 5080731	6
10000 ml	45	BOE 5080861	1
20000 ml	45	BOE 5080911	1

## LABORATORY BOTTLES

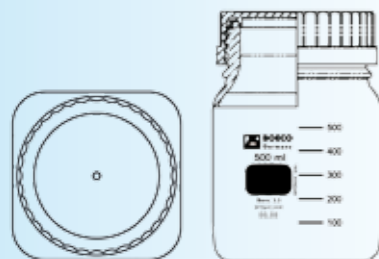
"BOECO GERMANY" boro 3.3., amber, graduated. Retrace code  
Complete with **blue** screw cap and pouring ring of PP.  
Resistant to steam sterilisation up to 140 °C



Capacity	GL	Code	Pack of
50 ml	32	BOE 5086175	10
100 ml	45	BOE 5086245	10
250 ml	45	BOE 5086365	10
500 ml	45	BOE 5086445	10
1000 ml	45	BOE 5086545	10
2000 ml	45	BOE 5086635	10
5000 ml	45	BOE 5086735	6
10000 ml	45	BOE 5086865	1
20000 ml	45	BOE 5086915	1

## LABORATORY BOTTLES, WIDE NECK

"BOECO GERMANY" boro 3.3., graduated, square, Retrace code  
Complete with **blue** GL 80 screw cap and pouring ring of PP.  
Resistant to steam sterilisation up to 140 °C

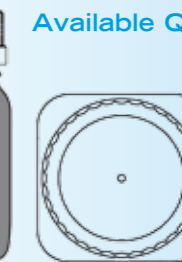
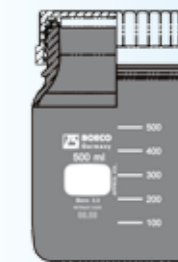


Capacity	GL	Code	Pack of
500 ml	80	BOE 5098445	10
1000 ml	80	BOE 5098545	10
2000 ml	80	BOE 5098635	10
5000 ml	80	BOE 5098735	6

## LABORATORY BOTTLES, WIDE NECK

"BOECO GERMANY" boro 3.3., amber, graduated, square, Retrace code  
Complete with **blue** GL 80 screw cap and pouring ring of PP.  
Resistant to steam sterilisation up to 140 °C

Capacity	GL	Code	Pack of
500 ml	80	BOE 5096445	10
1000 ml	80	BOE 5096545	10
2000 ml	80	BOE 5096635	10
5000 ml	80	BOE 5096735	6



Available Q3/2014 !

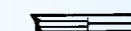
## SCREW CAPS

GL	Color, material	Heat resistant	Code	Pack of
32	Blue, PP	up to 140°C	BOE 5923919	10
45	Blue, PP	up to 140°C	BOE 5923928	10
45	Red, PBTB	up to 200°C	BOE 5924028	10
80	Blue, PP	up to 140°C	BOE 5923916	10



## POURING/OUTLET RINGS,

GL	Color, material	Heat resistant	Code	Pack of
32	Blue, PP	up to 140°C	BOE 5924219	10
45	Blue, PP	up to 140°C	BOE 5924228	10
45	Red, ETFE	up to 200°C	BOE 5924428	10
80	Blue, PP	up to 140°C	BOE 5924207	10



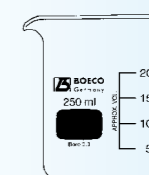
## PTFE COATED SILICON GASKET,

Diameter	Heat resistant	Code	Pack of
43 mm	up to 200°C	BOE 9180001195	10

## BEAKERS

low form, with lip and graduation, "BOECO Germany", boro 3.3.

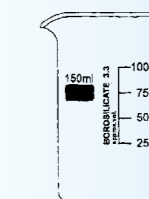
Capacity	Code	Pack of
25 ml	BOE 5010614	10
50 ml	BOE 5010617	10
100 ml	BOE 5010624	10
150 ml	BOE 5010629	10
250 ml	BOE 5010636	10
400 ml	BOE 5010641	10
600 ml	BOE 5010648	10
800 ml	BOE 5010653	10
1000 ml	BOE 5010654	10
2000 ml	BOE 5010663	4
3000 ml	BOE 5010668	4
5000 ml	BOE 5010673	2

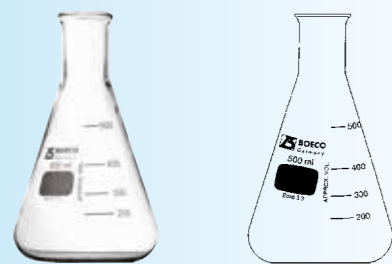


## BEAKERS

tall form, with lip and graduation, borosilicate glass 3.3.

Capacity	Code	Pack of
50 ml	BOE 5011617	10
100 ml	BOE 5011624	10
150 ml	BOE 5011629	10
250 ml	BOE 5011636	10
400 ml	BOE 5011641	10
600 ml	BOE 5011648	10
800 ml	BOE 5011653	10
1000 ml	BOE 5011654	10
2000 ml	BOE 5011663	6
3000 ml	BOE 5011668	6





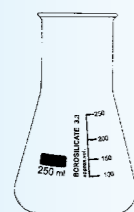
### ERLENMEYER FLASKS

narrow neck, flange-edged, graduated, "BOECO Germany" boro 3.3.

Capacity	Code	Pack of
25 ml	BOE 5021614	10
50 ml	BOE 5021617	10
100 ml	BOE 5021624	10
200 ml	BOE 5021632	10
250 ml	BOE 5021636	10
300 ml	BOE 5021639	10
500 ml	BOE 5021644	10
1000 ml	BOE 5021654	10
2000 ml	BOE 5021663	6
3000 ml	BOE 5021668	6
5000 ml	BOE 5021673	2

### ERLENMEYER FLASKS

wide neck, flange-edged, graduated, borosilicate glass 3.3.



Capacity	Code	Pack of
25 ml	BOE 5022614	10
50 ml	BOE 5022617	10
100 ml	BOE 5022624	10
200 ml	BOE 5022632	10
250 ml	BOE 5022636	10
300 ml	BOE 5022639	10
500 ml	BOE 5022644	10
1000 ml	BOE 5022654	10
2000 ml	BOE 5022663	6



### ROUND BOTTOM FLASKS

(Boiling Flasks), "BOECO Germany", boro 3.3., ISO 1773

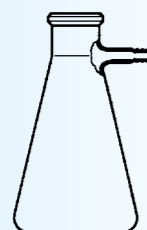
Capacity	Code	Pack of
250 ml	BOE 5072136	10
500 ml	BOE 5072144	10



### FLAT BOTTOM FLASKS

narrow neck, with beaded rim, "BOECO Germany", boro 3.3

Capacity	Code	Pack of
250 ml	BOE 5071136	10
500 ml	BOE 5071144	10



### FILTERING FLASKS

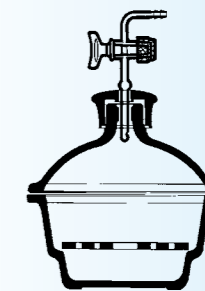
Erlenmeyer shape, SIMAX borosilicate glass with glass hose connection, for vacuum use

Capacity	Code	Pack of
100 ml	BOE 5120124	10
250 ml	BOE 5120136	10
500 ml	BOE 5120144	8
1000 ml	BOE 5120154	8
2000 ml	BOE 5120163	6

### DESICCATORS

with plastic knob and stopcock, borosilicate glass 3.3., without porcelain plate

Nom. size	Code	Pack of
100 mm	GLA 415262112	1
150 mm	GLA 415262162	1
200 mm	GLA 415262212	1
250 mm	GLA 415262262	1
300 mm	GLA 415262303	1



### DESICCATORS

with plastic knob, borosilicate glass 3.3., without porcelain plate

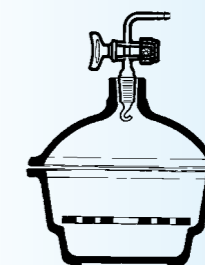
Nom. size	Code	Pack of
100 mm	GLA 415262111	1
150 mm	GLA 415262161	1
200 mm	GLA 415262211	1
250 mm	GLA 415262261	1
300 mm	GLA 415262302	1



### DESICCATORS

with outlet tube and stopcock NS 24/29, borosilicate glass 3.3., without porcelain plate

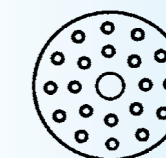
Nom. size	Code	Pack of
100 mm	GLA 415262120	1
150 mm	GLA 415262170	1
200 mm	GLA 415262220	1
250 mm	GLA 415262270	1
300 mm	GLA 415262330	1



### DESICCATOR PLATES

porcelain, glazed

Ø	Code	Pack of
90 mm	GLA 9180000358	1
140 mm	GLA 9180000354	1
190 mm	GLA 9180000355	1
240 mm	GLA 9180000356	1
280 mm	GLA 9180000357	1



### FUNNELS

60°, short stem, borosilicate glass

Ø	Code	Pack of
30 mm	LMS 11241020	10
35 mm	LMS 11241030	10
40 mm	LMS 11241040	10
45 mm	LMS 11241050	10
50 mm	LMS 11241060	10
55 mm	LMS 11241070	10
60 mm	LMS 11241080	10
70 mm	LMS 11241110	10
80 mm	LMS 11241160	10
100 mm	LMS 11241190	10
120 mm	LMS 11241230	10
150 mm	LMS 11241310	10
200 mm	LMS 11241380	5





### REAGENT BOTTLES

narrow mouth, round shoulder, with ground-in NS Stopper

Capacity	clear glass	brown glass	Pack of
50 ml	GLA 414102050	GLA 414202050	48
100 ml	GLA 414102100	GLA 414202100	70
250 ml	GLA 414102250	GLA 414202250	30
500 ml	GLA 414102500	GLA 414202500	15
1000 ml	GLA 414102940	GLA 414202940	12
2000 ml	GLA 414102950	GLA 414202950	6



### REAGENT BOTTLES

wide mouth, round shoulder, with ground-in NS Stopper

Capacity	clear glass	brown glass	Pack of
50 ml	GLA 414104050	GLA 414204050	40
100 ml	GLA 414104100	GLA 414204100	48
250 ml	GLA 414104250	GLA 414204250	30
500 ml	GLA 414104500	GLA 414204500	15
1000 ml	GLA 414104940	GLA 414204940	12
2000 ml	GLA 414104950	GLA 414204950	6



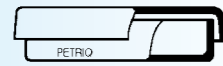
### DROPPING BOTTLES

wide mouth, round shoulder, with ground-in NS Stopper

Capacity	clear glass	brown glass	Pack of
50 ml	GLA 414109050	GLA 414209050	96
100 ml	GLA 414109100	GLA 414209100	70

### PETRI DISHES PETRIQ

Ø x height	Code	pcs./carton
60 x 15 mm	PET 4006015	144
70 x 15 mm	PET 4007015	144
80 x 15 mm	PET 4008015	144
90 x 15 mm	PET 4009015	72
100 x 10 mm	PET 4010010	72
100 x 15 mm	PET 4010015	72
100 x 20 mm	PET 4010020	72
120 x 20 mm	PET 4012020	72
150 x 25 mm	PET 4015025	72
180 x 30 mm	PET 4018030	6
200 x 30 mm	PET 4020030	6
200 x 50 mm	PET 4020050	6



### WATCH GLASSES

fused edges, acc. to DIN 12341

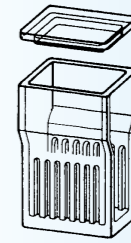
Ø	Code	pcs./carton
50 mm	PET 3106050	100
60 mm	PET 3008060	100
70 mm	PET 3010070	100
80 mm	PET 3012080	100
90 mm	PET 3011090	80
100 mm	PET 3013100	80
120 mm	PET 3015120	60
125 mm	PET 3016125	60
150 mm	PET 3019150	60
200 mm	PET 3027200	30



### STAINING DISHES

acc. to Hellendahl, with wider upper section, with cover, for 16 slides 76 x 26 mm, sodaglass

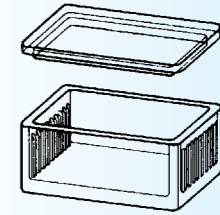
l x w x h	Code	Pack of
60 x 60 x 100 mm	HAV 23253111	10



### STAINING DISHES

acc. to Schieferdecker, with cover, for 10 slides 76 x 26 mm, sodaglass

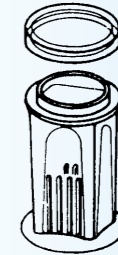
l x w x h	Code	Pack of
90 x 70 x 40 mm	HAV 23253201	10



### STAINING JAR

acc. to Coplin, with cover, for 10 slides 76 x 26 mm, sodaglass

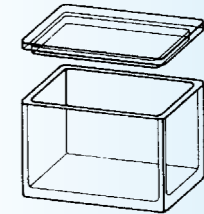
w x h	Code	Pack of
40 / 100 mm	HAV 23253401	10



### STAINING GLASS BOX

for staining tray, with cover, sodaglass

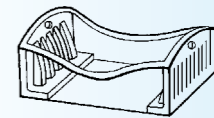
l x w x h	Code	Pack of
108 x 90 x 70 mm	HAV 23253423	10



### STAINING TRAY

for 10 slides 76 x 26 mm, sodaglass

l x w x h	Code	Pack of
88 x 40 x 70 mm	HAV 23253422	10

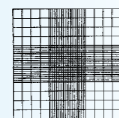
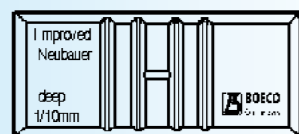


### STAINLESS STEEL HANDLE

for staining trays

Code	Pack of
HAV 23253427	10





## BOECO BLOOD COUNTING CHAMBERS

Description	Code	Pack of
Neubauer improved, double ruling without coverglasses	BOE 01	1
Neubauer improved, double ruling with 2 coverglasses	BOE 13	1
Neubauer improved, bright-line double ruling, without coverglasses	BOE 02	1
Neubauer improved, bright-line, double ruling, with 2 coverglasses	BOE 14	1
Neubauer improved, bright-line, double ruling, with <b>V-slash</b> with 2 coverglasses	BOE 14V	1

We can also deliver all other types like: Neubauer, Thoma, Thoma new, Bürker, Türk, Nageotte, Fuchs-Rosenthal, Malassez.  
As well as complete HAEMACYTOMETER SETS

## BOECO HAEMATOLOGY PIPETTES

Description	Code	Pack of
Blood diluting pipette, acc. to Thoma, red, 1 : 11, 13 cm, blue graduation	BOE 04	10
Blood diluting pipette, acc. to Thoma, white, 1 : 11, 13 cm, blue graduation	BOE 05	10
red mouthpiece and rubber tubing	BOE 19	
white mouthpiece and rubber tubing	BOE 20	

## BOECO HAEMATOLOGY PIPETTES

Description	Code	Pack of
SAHLI Haemoglobin pipette w/o funnel top, mark at 0,02 ml in 20 C°.	BOE 06	25
Haematocrit tubes acc. to WINTROBE length 110mm, 0-100mm in 1mm double scale, blue graduation	BOE 17	10
Blood sedimentation pipettes acc. to WESTERGREEN, macro method length 300mm, 0-200mm in 1mm white graduation	LMS 63722101	100

## PASTEUR PIPETTES, SODAGLASS

Description	Code	Pack of
150mm long	BOE 5010601	4 x 250 pcs.
230mm long	BOE 5010602	4 x 250 pcs.

## TEST TUBES

Round bottom, without rim, borosilicate glass 5.1.

Ø x L mm	Wall thickness	Code	Pack of
12 x 75	0,6 mm	BOE 03.3411.1118	250
13 x 100	0,5-0,6 mm	BOE 03.3411.1019	250
16 x 160	0,6 mm	BOE 03.3411.3020	250

Round bottom, without rim, heavy wall, with printed logo "BOECO GERMANY" and matt label, borosilicate glass 5.1.

Ø x L mm	Wall thickness	Code	Pack of
12 x 75	1,0 mm	BOE 03.3421.1126	250
13 x 100	1,0 mm	BOE 03.3421.1128	250
16 x 160	1,0±0,15 mm	BOE 03.3421.2038	250

## GRADUATED PIPETTES

"BOECO GERMANY", total delivery, zero at top, from 5 ml with filter bed, amber graduation, sodaglass, Cl. AS / ISO 835

Capacity	Subdivision	Code	Pack of
0,5 ml	0,01	BOE 5116312	50
1 ml	0,01	BOE 5116314	50
2 ml	0,02	BOE 5116516	50
5 ml	0,05	BOE 5116618	50
5 ml	0,1	BOE 5116718	50
10 ml	0,1	BOE 5116719	50
20 ml	0,1	BOE 5116722	25
25 ml	0,1	BOE 5116823	25
50 ml	0,2	BOE 5116827	5
100 ml	0,2	BOE 5116830	5

## VOLUMETRIC PIPETTES

"BOECO GERMANY", with one mark, amber stain graduation, sodaglass, Cl. AS / ISO 648

Capacity	Tolerance +/-ml	Code	Pack of
1 ml	0,008	BOE 5111014	50
2 ml	0,010	BOE 5111016	50
3 ml	0,010	BOE 5111017	50
4 ml	0,015	BOE 5111117	25
5 ml	0,015	BOE 5111018	25
10 ml	0,020	BOE 5111019	25
15 ml	0,030	BOE 5111021	25
20 ml	0,030	BOE 5111022	10
25 ml	0,030	BOE 5111023	10
50 ml	0,050	BOE 5111025	1
100 ml	0,080	BOE 5111030	1
200 ml	0,100	BOE 5111037	1

## TEST TUBES WITH THREAD

without cap, borosilicate glass 5.1.

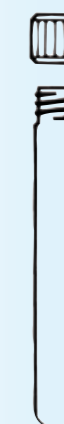
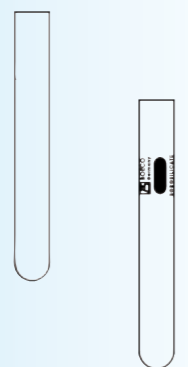
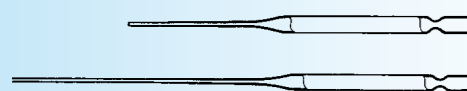
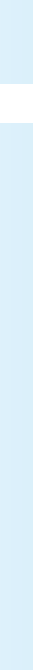
Ø x L mm	Code	Pack of
13 x 100	BOE 155030	1000
16 x 100	BOE 155060	1000
16 x 125	BOE 155061	1000
16 x 150	BOE 155062	1000
20 x 125	BOE 155000	500
20 x 150	BOE 155001	500

## PP SCREW CAPS, FOR TEST TUBES WITH THREAD

for tubes with Ø	Code	Pack of
13 mm	BOE 155403	1000
16 mm	BOE 155406	1000
20 mm	BOE 155409	500

## PHENOLIC SCREW CAPS, WITH RUBBER SEAL (STYRENE/BUTADIEN), FOR TEST TUBES WITH THREAD

for tubes with Ø	Code	Pack of
13 mm	BOE 113415	1000
16 mm	BOE 115415	1000
20 mm	BOE 118415	500





### BURETTES

"BOECO GERMANY" acc. to Mohr, with straight interchangeable glass stopcock borosilicate glass, CL. AS, ISO 385

Capacity	Subdiv. ml	Code	Pack of
10 ml	0,05	BOE 5156619	1
10 ml	0,1	BOE 5156719	1
25 ml	0,05	BOE 5156623	1
25 ml	0,1	BOE 5156723	1
50 ml	0,1	BOE 5156725	1
100 ml	0,2	BOE 5156831	1

### SCHELLBACH BURETTES

"BOECO GERMANY" acc. to Mohr, with straight interchangeable glass stopcock borosilicate glass, CL. AS, ISO 385

Capacity	Subdiv. ml	Code	Pack of
10 ml	0,05	BOE 5176619	1
10 ml	0,1	BOE 5176719	1
25 ml	0,05	BOE 5176623	1
25 ml	0,1	BOE 5176723	1
50 ml	0,1	BOE 5176725	1
100 ml	0,2	BOE 5176831	1



### BURETTES

"BOECO GERMANY" acc. to Mohr, with straight PTFE stopcock borosilicate glass, CL. AS, ISO 385

Capacity	Subdiv. ml	Code	Pack of
10 ml	0,05	BOE 5256619	1
10 ml	0,1	BOE 5256719	1
25 ml	0,05	BOE 5256623	1
25 ml	0,1	BOE 5256723	1
50 ml	0,1	BOE 5256725	1
100 ml	0,2	BOE 5256831	1

### SCHELLBACH BURETTES

"BOECO GERMANY" acc. to Mohr, with straight PTFE stopcock borosilicate glass, CL. AS, ISO 385

Capacity	Subdiv. ml	Code	Pack of
10 ml	0,05	BOE 5276619	1
10 ml	0,1	BOE 5276719	1
25 ml	0,05	BOE 5276623	1
25 ml	0,1	BOE 5276723	1
50 ml	0,1	BOE 5276725	1
100 ml	0,2	BOE 5276831	1



### BURETTES

"BOECO GERMANY" acc. to Mohr, with straight PTFE spindle stopcock borosilicate glass, CL. AS, ISO 385

Capacity	Subdiv. ml	Code	Pack of
10 ml	0,05	BOE 5458619	1
10 ml	0,1	BOE 5458719	1
25 ml	0,05	BOE 5458623	1
25 ml	0,1	BOE 5458723	1
50 ml	0,1	BOE 5458725	1
100 ml	0,2	BOE 5458831	1

### SCHELLBACH BURETTES

"BOECO GERMANY" acc. to Mohr, with straight PTFE spindle stopcock stopcock borosilicate glass, CL. AS, ISO 385

Capacity	Subdiv. ml	Code	Pack of
10 ml	0,05	BOE 5478619	1
10 ml	0,1	BOE 5478719	1
25 ml	0,05	BOE 5478623	1
25 ml	0,1	BOE 5478723	1
50 ml	0,1	BOE 5478725	1
100 ml	0,2	BOE 5478831	1

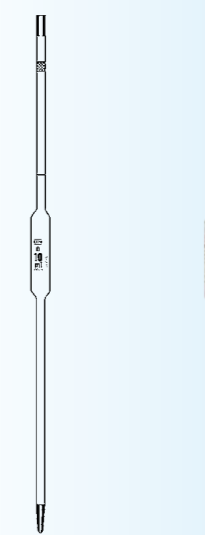


# GRADUATED GLASSWARE

### VOLUMETRIC PIPETTES

with one mark, amber stain graduation, sodaglass, DIN EN ISO 648

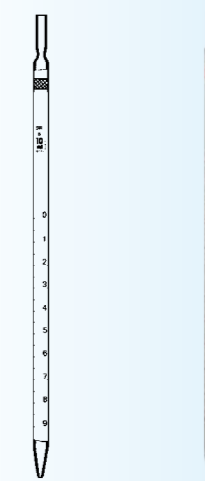
Capacity	Tolerance +/-ml	Cl. B	Cl. AS	Pack of
0,5 ml	0,010/0,005	LMS 63331401	LMS 63331421	50
1 ml	0,015/0,007	LMS 63331402	LMS 63331422	50
2 ml	0,020/0,010	LMS 63331403	LMS 63331423	40
3 ml	0,030/0,015	LMS 63331404	LMS 63331424	30
4 ml	0,030/0,015	LMS 63331405	LMS 63331425	10
5 ml	0,030/0,015	LMS 63331406	LMS 63331426	10
6 ml	0,040/0,020	LMS 63331407	LMS 63331427	10
10 ml	0,040/0,025	LMS 63331408	LMS 63331428	10
15 ml	0,060/0,030	LMS 63331409	LMS 63331429	25
20 ml	0,060/0,030	LMS 63331410	LMS 63331430	25
25 ml	0,060/0,030	LMS 63331411	LMS 63331431	20
30 ml	0,100/0,050	LMS 63331412	LMS 63331432	10
40 ml	0,100/0,050	LMS 63331413	LMS 63331433	10
50 ml	0,100/0,050	LMS 63331414	LMS 63331434	10
100 ml	0,160/0,080	LMS 63331415	LMS 63331435	6



### GRADUATED PIPETTES

total delivery, zero at top, from 5 ml with filter bed, amber graduation, sodaglass, Cl. B / DIN 12695, Cl. AS / DIN 12697

Capacity	Subdivision	Cl. B	Cl. AS	Pack of
0,1 ml	0,001	LMS 63336151	LMS 63336161	100
0,2 ml	0,002	LMS 63336152	LMS 63336162	100
0,5 ml	0,01	LMS 63336153	LMS 63336163	100
1 ml	0,01	LMS 63336154	LMS 63336164	100
2 ml	0,02	LMS 63336155	LMS 63336165	100
5 ml	0,05	LMS 63336156	LMS 63336166	100
5 ml	0,1	LMS 63336157	LMS 63336167	100
10 ml	0,1	LMS 63336158	LMS 63336168	100
20 ml	0,1	LMS 63336159	LMS 63336169	100
25 ml	0,1	LMS 63336160	LMS 63336170	100
50 ml	0,2	LMS 63336181	LMS 63336182	100



### PYCNOMETER ACC. TO GAY LUSSAC

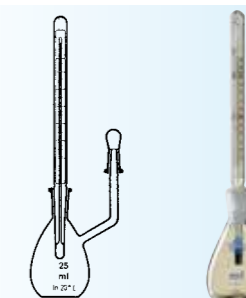
Capacity	uncalibrated	calibrated to Contain (In)	Pack of
1 ml	LMS 61372100	LMS 61372110	2
2 ml	LMS 61372101	LMS 61372111	2
5 ml	LMS 61372102	LMS 61372112	2
10 ml	LMS 61372103	LMS 61372113	2
25 ml	LMS 61372104	LMS 61372114	2
50 ml	LMS 61372105	LMS 61372115	2
100 ml	LMS 61372106	LMS 61372116	2

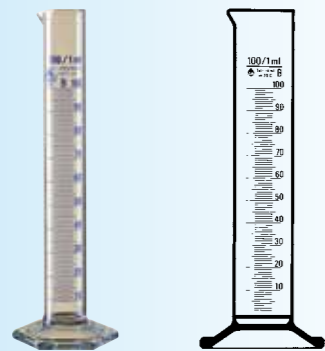


### PYCNOMETER

acc. to Gay Lussac with lateral capillary tube and thermometer, calibrated to contain (In)

Capacity	Code	Pack of
10 ml	LMS 61372313	2
25 ml	LMS 61372314	2
50 ml	LMS 61372315	2
100 ml	LMS 61372316	2



**MEASURING CYLINDER**

tall form, hexagonal glass base, Cl. B,  
borosilicate glass, acc. to DIN 12680 T1

Capacity	Subdiv. ml	blue graduation	amber stain graduation	Pack of
5 ml	0,1	LMS 61321201	LMS 61321231	10
10 ml	0,2	LMS 61321202	LMS 61321232	10
25 ml	0,5	LMS 61321203	LMS 61321233	10
50 ml	1	LMS 61321204	LMS 61321234	10
100 ml	1	LMS 61321205	LMS 61321235	10
250 ml	2	LMS 61321206	LMS 61321236	10
500 ml	5	LMS 61321207	LMS 61321237	10
1000 ml	10	LMS 61321208	LMS 61321238	10
2000 ml	20	LMS 61321209	LMS 61321239	10

**MIXING CYLINDER**

hexagonal glass base, plastic stopper,  
blue graduation, borosilicate glass, acc. to DIN 12685 T1

Capacity	Neck size	Cl. B	Cl. A	Pack of
10 ml	NS 10/19	LMS 61322832	LMS 61322822	10
25 ml	NS 14/23	LMS 61322833	LMS 61322823	10
50 ml	NS 19/16	LMS 61322834	LMS 61322824	10
100 ml	NS 24/29	LMS 61322835	LMS 61322825	10
250 ml	NS 29/32	LMS 61322836	LMS 61322826	10
500 ml	NS 34/35	LMS 61322838	LMS 61322828	10
1000 ml	NS 45/40	LMS 61322839	LMS 61322829	10
2000 ml	NS 45/40	LMS 61322840	LMS 61322830	10

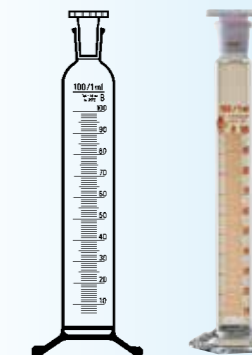
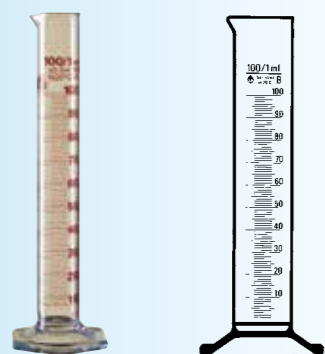


IMAGE WITH AMBER  
GRADUATION

**MEASURING CYLINDER**

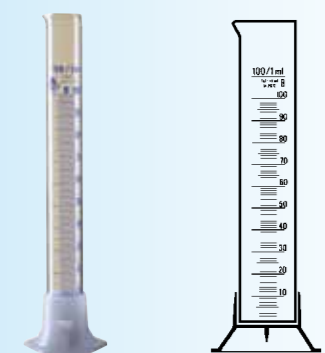
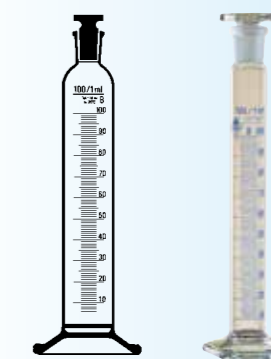
tall form, hexagonal glass base, Cl. A,  
borosilicate glass, acc. to DIN 12680 T2

Capacity	Subdiv. ml	blue graduation	amber stain graduation	Pack of
5 ml	0,1	LMS 61321021	LMS 61321031	10
10 ml	0,2	LMS 61321022	LMS 61321032	10
25 ml	0,5	LMS 61321023	LMS 61321033	10
50 ml	1	LMS 61321024	LMS 61321034	10
100 ml	1	LMS 61321025	LMS 61321035	10
250 ml	2	LMS 61321026	LMS 61321036	10
500 ml	5	LMS 61321027	LMS 61321037	10
1000 ml	10	LMS 61321028	LMS 61321038	10
2000 ml	20	LMS 61321029	LMS 61321039	10

**MIXING CYLINDER**

hexagonal glass base, glass stopper,  
blue graduation, borosilicate glass, acc. to DIN 12685 T1

Capacity	Neck size	Cl. B	Cl. A	Pack of
10 ml	NS 10/19	LMS 61322812	LMS 61322852	10
25 ml	NS 14/23	LMS 61322813	LMS 61322853	10
50 ml	NS 19/16	LMS 61322814	LMS 61322854	10
100 ml	NS 24/29	LMS 61322815	LMS 61322855	10
250 ml	NS 29/32	LMS 61322816	LMS 61322856	10
500 ml	NS 34/35	LMS 61322818	LMS 61322858	10
1000 ml	NS 45/40	LMS 61322819	LMS 61322859	10
2000 ml	NS 45/40	LMS 61322820	LMS 61322860	10

**MEASURING CYLINDER**

tall form, hexagonal plastic-base, Cl. B,  
sodaglass, acc. to DIN 12680 T1

Capacity	Subdiv. ml	blue graduation	amber stain graduation	Pack of
10 ml	0,2	LMS 63321302	LMS 63321332	10
25 ml	0,5	LMS 63321303	LMS 63321333	10
50 ml	1	LMS 63321304	LMS 63321334	10
100 ml	1	LMS 63321305	LMS 63321335	10
250 ml	2	LMS 63321306	LMS 63321336	10
500 ml	5	LMS 63321307	LMS 63321337	10
1000 ml	10	LMS 63321308	LMS 63321338	10
2000 ml	20	LMS 63321309	LMS 63321339	10

**SEDIMENTATION CONES**

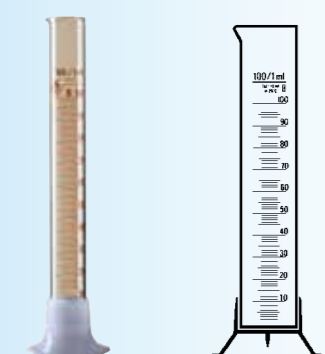
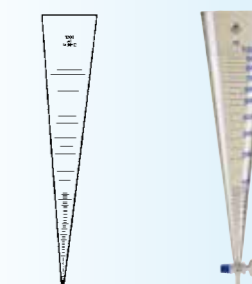
acc. to Imhoff graduation till 100 ml, ringmarks at 1000 ml  
borosilicate glass

Capacity	without stopcock	with stopcock	Pack of
1000 ml	LMS 61329102	LMS 61329107	2



graduation till 1000 ml

Capacity	without stopcock	with stopcock	Pack of
1000 ml	LMS 61329114	LMS 61329118	2

**MEASURING CYLINDER**

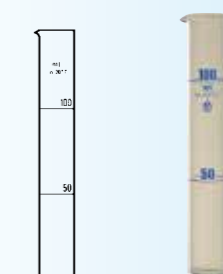
tall form, hexagonal plastic-base, Cl. A,  
sodaglass, acc. to DIN 12680 T2

Capacity	Subdiv. ml	blue graduation	amber stain graduation	Pack of
10 ml	0,2	LMS 63321312	LMS 63321322	10
25 ml	0,5	LMS 63321313	LMS 63321323	10
50 ml	1	LMS 63321314	LMS 63321324	10
100 ml	1	LMS 63321315	LMS 63321325	10
250 ml	2	LMS 63321316	LMS 63321326	10
500 ml	5	LMS 63321317	LMS 63321327	10
1000 ml	10	LMS 63321318	LMS 63321328	10
2000 ml	20	LMS 63321319	LMS 63321329	10

**COLOUR COMPARISON TUBES**

acc. to Nessler, sodaglass, 2 ring marks at 50 and 100 ml

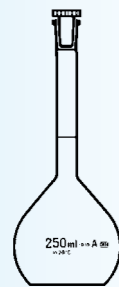
Capacity	type	Code	Pack of
100 ml	low form	LMS 63324203	10
100 ml	tall form	LMS 63324103	10





STANDARD STOPPER

OCTAGONAL STOPPER



### VOLUMETRIC FLASKS

Cl. A with plastic stopper, borosilicate glass, acc. to DIN 12664

Capacity	Neck size	standard stopper	octagonal stopper	Pack of
5 ml	NS 7/16	LMS 61319620	LMS 61319520DP	10
10 ml	NS 7/16	LMS 61319621	LMS 61319521DP	10
25 ml	NS 10/19	LMS 61319622	LMS 61319522DP	10
50 ml	NS 12/21	LMS 61319623	LMS 61319523DP	10
100 ml	NS 12/21	LMS 61319624	LMS 61319524DP	10
200 ml	NS 14/23	LMS 61319625	LMS 61319525DP	10
250 ml	NS 14/23	LMS 61319626	LMS 61319526DP	10
500 ml	NS 19/26	LMS 61319627	LMS 61319527DP	10
1000 ml	NS 24/29	LMS 61319628	LMS 61319528DP	10
2000 ml	NS 29/32	LMS 61319629	LMS 61319529DP	5
5000 ml	NS 34/35	LMS 61319630	LMS 61319530DP	1

### VOLUMETRIC FLASKS

Cl. A, with glass stopper, borosilicate glass, acc. to DIN 12664

Capacity	Neck size	glass stopper	Pack of
5 ml	NS 7/16	LMS 61319520	10
10 ml	NS 7/16	LMS 61319521	10
25 ml	NS 10/19	LMS 61319522	10
50 ml	NS 12/21	LMS 61319523	10
100 ml	NS 12/21	LMS 61319524	10
200 ml	NS 14/23	LMS 61319525	10
250 ml	NS 14/23	LMS 61319526	10
500 ml	NS 19/26	LMS 61319527	10
1000 ml	NS 24/29	LMS 61319528	10
2000 ml	NS 29/32	LMS 61319529	5
5000 ml	NS 29/32	LMS 61319530	1

### VOLUMETRIC FLASKS

Cl. A, with plastic stopper, with NS neck, amber borosilicate glass white graduation, acc. to DIN 12664

Capacity	Neck size	standard stopper	octagonal stopper	Pack of
5 ml	NS 7/16	LMS 61319960	LMS 61319960DP	10
10 ml	NS 7/16	LMS 61319961	LMS 61319961DP	10
25 ml	NS 10/19	LMS 61319962	LMS 61319962DP	10
50 ml	NS 12/21	LMS 61319963	LMS 61319963DP	10
100 ml	NS 12/21	LMS 61319964	LMS 61319964DP	10
200 ml	NS 14/23	LMS 61319965	LMS 61319965DP	10
250 ml	NS 14/23	LMS 61319966	LMS 61319966DP	10
500 ml	NS 19/26	LMS 61319967	LMS 61319967DP	10
1000 ml	NS 24/29	LMS 61319968	LMS 61319968DP	10
2000 ml	NS 29/32	LMS 61319969	LMS 61319969DP	5

### VOLUMETRIC FLASKS

Cl. A, with glass stopper, with NS neck, amber borosilicate glass white graduation, acc. to DIN 12664

Capacity	Neck size	glass stopper	Pack of
5 ml	NS 7/16	LMS 61319820	10
10 ml	NS 7/16	LMS 61319821	10
25 ml	NS 10/19	LMS 61319822	10
50 ml	NS 12/21	LMS 61319823	10
100 ml	NS 12/21	LMS 61319824	10
200 ml	NS 14/23	LMS 61319825	10
250 ml	NS 14/23	LMS 61319826	10
500 ml	NS 19/26	LMS 61319827	10
1000 ml	NS 24/29	LMS 61319828	10
2000 ml	NS 29/32	LMS 61319829	5

### VOLUMETRIC FLASKS

for sugar testing, with 2 marks and rim borosilicate glass, calibrated "to contain" and marked at 20°C

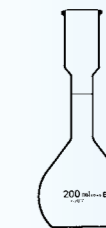
Capacity	Cl. B	Cl. A	Pack of
50/55 ml	LMS 61319101	LMS 61319121	10
100/110 ml	LMS 61319102	LMS 61319122	10
200/220 ml	LMS 61319103	LMS 61319123	10



### VOLUMETRIC FLASKS

for sugar testing acc. to Kohlrausch with rim borosilicate glass, calibrated "to contain" and marked at 20°C

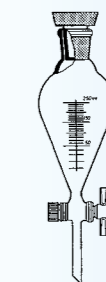
Capacity	Cl. B	Cl. A	Pack of
100 ml	LMS 61313105	LMS 61313125	10
200 ml	LMS 61313106	LMS 61313126	10



### SEPARATING FUNNELS

conical form (pear type) acc. to DIN ISO 4800, with plastic stopper, graduation, borosilicate glass

Capacity	Neck size	PTFE stopcock key	glass stopcock key	Pack of
50 ml	NS 19/26	LMS 61165601	LMS 61165611	10
100 ml	NS 19/26	LMS 61165602	LMS 61165612	10
250 ml	NS 29/32	LMS 61165603	LMS 61165613	10
500 ml	NS 29/32	LMS 61165604	LMS 61165614	10
1000 ml	NS 29/32	LMS 61165605	LMS 61165615	10
2000 ml	NS 29/32	LMS 61165606	LMS 61165616	2



### SEPARATING FUNNELS

acc. to Squibb acc. to DIN SIO 4800, with plastic stopper, graduation, borosilicate glass

Capacity	Neck size	PTFE stopcock key	glass stopcock key	Pack of
50 ml	NS 19/26	LMS 61165620	LMS 61165101	10
100 ml	NS 19/26	LMS 61165621	LMS 61165102	10
250 ml	NS 29/32	LMS 61165622	LMS 61165103	10
500 ml	NS 29/32	LMS 61165623	LMS 61165104	10
1000 ml	NS 29/32	LMS 61165624	LMS 61165105	10
2000 ml	NS 29/32	LMS 61165625	LMS 61165106	2

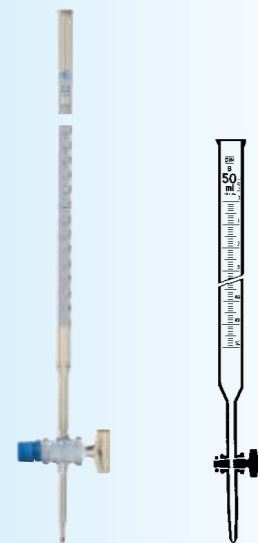


### DROPPING FUNNELS

cylindrical form, acc. to DIN ISO 4800, with conical ground socket and cone, plastic stopper, graduation, borosilicate glass

Capacity	NS size	PTFE stopcock key	glass stopcock key	Pack of
50 ml	NS 14/23	LMS 61164551	LMS 61164531	1
100 ml	NS 14/23	LMS 61164552	LMS 61164532	10
250 ml	NS 29/32	LMS 61164553	LMS 61164534	10
500 ml	NS 29/32	LMS 61164554	LMS 61164535	10
1000 ml	NS 29/32	LMS 61164555	LMS 61164536	10
2000 ml	NS 29/32	LMS 61164556	LMS 61164537	2





## BURETTES

acc. to Mohr, with straight interchangeable glass stopcock borosilicate glass

Capacity	Subdiv. ml	Cl. B	CL. AS	Pack of
10 ml	0,02	LMS 61346401	LMS 61346411	2
10 ml	0,05	LMS 61346402	LMS 61346412	2
25 ml	0,05	LMS 61346403	LMS 61346413	2
25 ml	0,1	LMS 61346404	LMS 61346414	2
50 ml	0,1	LMS 61346405	LMS 61346415	2
100 ml	0,2	LMS 61346406	LMS 61346416	2

## SCHELLBACH BURETTES

acc. to Mohr, with straight interchangeable glass stopcock, borosilicate glass

Capacity	Subdiv. ml	Cl. B	CL. AS	Pack of
10 ml	0,02	LMS 61346431	LMS 61346441	2
10 ml	0,05	LMS 61346432	LMS 61346442	2
25 ml	0,05	LMS 61346433	LMS 61346443	2
25 ml	0,1	LMS 61346434	LMS 61346444	2
50 ml	0,1	LMS 61346435	LMS 61346445	2
100 ml	0,2	LMS 61346436	LMS 61346446	2



## BURETTES

acc. to Mohr, with straight PTFE stopcock, borosilicate glass

Capacity	Subdiv. ml	Cl. B	CL. AS	Pack of
10 ml	0,02	LMS 61346501	LMS 61346511	2
10 ml	0,05	LMS 61346502	LMS 61346512	2
25 ml	0,05	LMS 61346503	LMS 61346513	2
25 ml	0,1	LMS 61346504	LMS 61346514	2
50 ml	0,1	LMS 61346505	LMS 61346515	2
100 ml	0,2	LMS 61346506	LMS 61346516	2

## SCHELLBACH BURETTES

acc. to Mohr, with straight PTFE stopcock, borosilicate glass

Capacity	Subdiv. ml	Cl. B	CL. AS	Pack of
10 ml	0,02	LMS 61346531	LMS 61346541	2
10 ml	0,05	LMS 61346532	LMS 61346542	2
25 ml	0,05	LMS 61346533	LMS 61346543	2
25 ml	0,1	LMS 61346534	LMS 61346544	2
50 ml	0,1	LMS 61346535	LMS 61346545	2
100 ml	0,2	LMS 61346536	LMS 61346546	2

## BURETTES

acc. to Mohr, with straight PTFE spindle stopcock, borosilicate glass

Capacity	Subdiv. ml	Cl. B	CL. AS	Pack of
10 ml	0,02	LMS 61346601	LMS 61346611	2
10 ml	0,05	LMS 61346602	LMS 61346612	2
25 ml	0,05	LMS 61346603	LMS 61346613	2
25 ml	0,1	LMS 61346604	LMS 61346614	2
50 ml	0,1	LMS 61346605	LMS 61346615	2
100 ml	0,2	LMS 61346606	LMS 61346616	2

## SCHELLBACH BURETTES

acc. to Mohr, with straight PTFE spindle stopcock, borosilicate glass

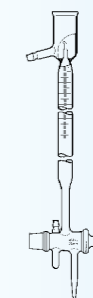
Capacity	Subdiv. ml	Cl. B	CL. AS	Pack of
10 ml	0,02	LMS 61346531	LMS 61346541	2
10 ml	0,05	LMS 61346532	LMS 61346542	2
25 ml	0,05	LMS 61346533	LMS 61346543	2
25 ml	0,1	LMS 61346534	LMS 61346544	2
50 ml	0,1	LMS 61346535	LMS 61346545	2
100 ml	0,2	LMS 61346536	LMS 61346546	2



## BURETTES

acc. to Daffert, Cl. AS, Schellbach, blue graduation, stopcock with two oblique bores, borosilicate glass

Capacity	Subdiv. ml	interchangeable glass key	PTFE key	Pack of
25	0,05 ml	LMS 61447401	LMS 61447400	4
25	0,1 ml	LMS 61447403	LMS 61447402	4
50	0,1 ml	LMS 61447405	LMS 61447404	4
100	0,2 ml	LMS 61447407	LMS 61447406	4



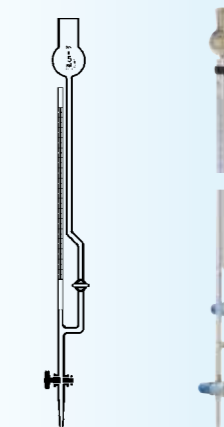
## MICROBURETTES

acc. to Bang, with straight glass stopcock Cl. B, with glass key, borosilicate glass

Capacity	Subdiv. ml	clear glass	Schellbach	Pack of
1 ml	0,01	LMS 61342211	LMS 61342261	4
2 ml	0,01	LMS 61342212	LMS 61342262	4
5 ml	0,01	LMS 61342214	LMS 61342264	4
10 ml	0,02	LMS 61342216	LMS 61342266	4

acc. to Bang, with straight glass stopcock Cl. AS, with glass key, borosilicate glass

Capacity	Subdiv. ml	clear glass	Schellbach	Pack of
1 ml	0,01	LMS 63342231	LMS 63342281	4
2 ml	0,01	LMS 63342232	LMS 63342282	4
5 ml	0,01	LMS 63342234	LMS 63342284	4
10 ml	0,02	LMS 63342236	LMS 63342286	4



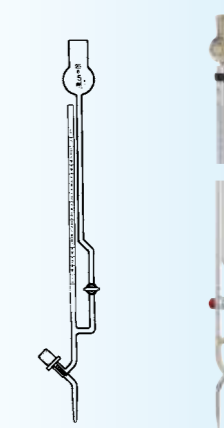
## MICROBURETTES

acc. to Bang, with straight PTFE spindle stopcock, Cl. B, with PTFE intermedium stopcock, borosilicate glass

Capacity	Subdiv. ml	clear glass	Schellbach	Pack of
1 ml	0,01	LMS 61342611	LMS 61342661	4
2 ml	0,01	LMS 61342612	LMS 61342662	4
5 ml	0,01	LMS 61342614	LMS 61342664	4
10 ml	0,02	LMS 61342616	LMS 61342666	4

acc. to Bang, with straight PTFE spindle stopcock Cl. AS, with PTFE intermedium stopcock, borosilicate glass

Capacity	Subdiv. ml	clear glass	Schellbach	Pack of
1 ml	0,01	LMS 61342631	LMS 61342481	4
2 ml	0,01	LMS 61342632	LMS 61342482	4
5 ml	0,01	LMS 61342634	LMS 61342484	4
10 ml	0,02	LMS 61342636	LMS 61342486	4



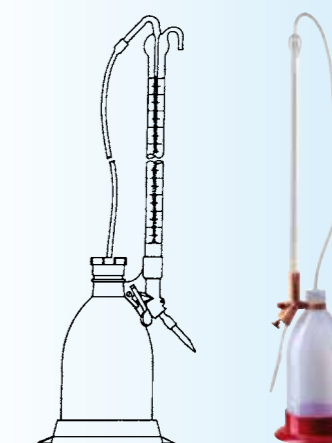
## AUTOMATIC BURETTES

acc. to Dr. Schilling, Cl. B, Schellbach with automatic zero adjustment, for rapid titration with pinchcock for delivery drop by drop, blue graduation, consisting of: burette, plastic bottle and plastic base

Capacity	code	Pack of
5 ml	LMS 61046401	10
10 ml	LMS 61046402	10
25 ml	LMS 61046403	10
50 ml	LMS 61046404	10

Spare burettes

Capacity	code	Pack of
5 ml	LMS 61046411	10
10 ml	LMS 61046412	10
25 ml	LMS 61046413	10
50 ml	LMS 61046414	10





## AUTOMATIC BURETTES

acc. to Pellet, without intermediate stopcock, Cl. B, with glass key, without bottle, borosilicate glass

Capacity	Subdiv. ml	clear glass	Schellbach	Pack of
10 ml	0,02	LMS 61347401	LMS 61347431	2
10 ml	0,05	LMS 61347402	LMS 61347432	2
25 ml	0,05	LMS 61347403	LMS 61347433	2
25 ml	0,1	LMS 61347404	LMS 61347434	2
50 ml	0,1	LMS 61347405	LMS 61347435	2

## AUTOMATIC BURETTES

acc. to Pellet, without intermediate stopcock, Cl. AS, with glass key, without bottle, borosilicate glass

Capacity	Subdiv. ml	clear glass	Schellbach	Pack of
10 ml	0,02	LMS 61347411	LMS 61347441	2
10 ml	0,05	LMS 61347412	LMS 61347442	2
25 ml	0,05	LMS 61347413	LMS 61347443	2
25 ml	0,1	LMS 61347414	LMS 61347444	2
50 ml	0,1	LMS 61347415	LMS 61347445	2

## AUTOMATIC BURETTES

acc. to Pellet, without intermediate stopcock, Cl. B, with PTFE spindle stopcock, without bottle, borosilicate glass

Capacity	Subdiv. ml	clear glass	Schellbach	Pack of
10 ml	0,02	LMS 61347601	LMS 61347631	2
10 ml	0,05	LMS 61347602	LMS 61347632	2
25 ml	0,05	LMS 61347603	LMS 61347633	2
25 ml	0,1	LMS 61347604	LMS 61347634	2
50 ml	0,1	LMS 61347605	LMS 61347635	2

## AUTOMATIC BURETTES

acc. to Pellet, without intermediate stopcock, Cl. AS, with PTFE spindle stopcock, without bottle, borosilicate glass

Capacity	Subdiv. ml	clear glass	Schellbach	Pack of
10 ml	0,02	LMS 61347611	LMS 61347641	2
10 ml	0,05	LMS 61347612	LMS 61347642	2
25 ml	0,05	LMS 61347613	LMS 61347643	2
25 ml	0,1	LMS 61347614	LMS 61347644	2
50 ml	0,1	LMS 61347615	LMS 61347645	2

## AUTOMATIC BURETTES

acc. to Pellet, without intermediate stopcock, Cl. B, with PTFE key, without bottle, borosilicate glass

Capacity	Subdiv. ml	clear glass	Schellbach	Pack of
10 ml	0,02	LMS 61347501	LMS 61347531	2
10 ml	0,05	LMS 61347502	LMS 61347532	2
25 ml	0,05	LMS 61347503	LMS 61347533	2
25 ml	0,1	LMS 61347504	LMS 61347534	2
50 ml	0,1	LMS 61347505	LMS 61347535	2

## AUTOMATIC BURETTES

acc. to Pellet, without intermediate stopcock, Cl. AS, with PTFE key, without bottle, borosilicate glass

Capacity	Subdiv. ml	clear glass	Schellbach	Pack of
10 ml	0,02	LMS 61347511	LMS 61347541	2
10 ml	0,05	LMS 61347512	LMS 61347542	2
25 ml	0,05	LMS 61347513	LMS 61347543	2
25 ml	0,1	LMS 61347514	LMS 61347544	2
50 ml	0,1	LMS 61347515	LMS 61347545	2

## RESERVOIR BOTTLES

for Automatic Burettes, NS 29/32

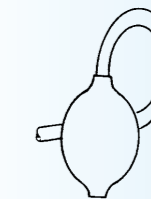
Capacity	clear glass	amber glass	Pack of
2000 ml	LMS 63231953	LMS 63231952	4



## RED RUBBER BULBS

for Automatic Burettes

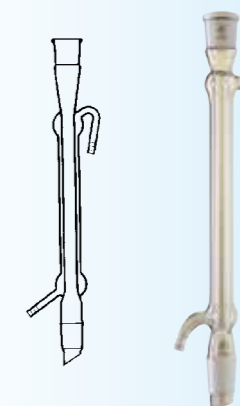
Type	Code	Pack of
Single bulb	BOE 110	1



## LIEBIG CONDENSERS

borosilicate glass, olive diam. 11 mm

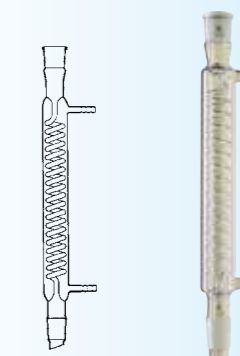
Jacket length	Cone/socket size	Code	Pack of
100 mm	NS 14/23	LMS 61451118	4
160 mm	NS 14/23	LMS 61451119	4
160 mm	NS 19/26	LMS 61451120	4
200 mm	NS 14/23	LMS 61451121	4
200 mm	NS 29/32	LMS 61451122	4
250 mm	NS 19/26	LMS 61451123	2
250 mm	NS 24/29	LMS 61451124	2
250 mm	NS 24/40	LMS 61451224	2
250 mm	NS 29/32	LMS 61451125	2
400 mm	NS 24/29	LMS 61451202	1
400 mm	NS 24/40	LMS 61451202-40	1
400 mm	NS 29/32	LMS 61451203	1



## COILED CONDENSERS

borosilicate glass

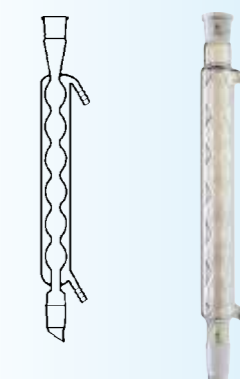
Jacket length	Cone/socket size	Code	Pack of
200 mm	NS 14/23	LMS 61455121	4
200 mm	NS 29/32	LMS 61455122	4
300 mm	NS 29/32	LMS 61455132	2
400 mm	NS 24/40	LMS 61455930	1
400 mm	NS 29/32	LMS 61455142	1

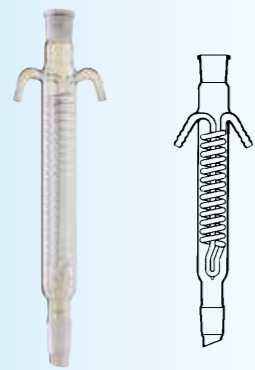


## ALLIHN CONDENSERS

borosilicate glass, olive diam. 11 mm

Jacket length	Cone/socket size	Code	Pack of
160 mm	NS 14/23	LMS 61452129	4
160 mm	NS 19/26	LMS 61452130	4
250 mm	NS 19/26	LMS 61452131	2
250 mm	NS 24/29	LMS 61452132	2
250 mm	NS 24/40	LMS 61452225	2
250 mm	NS 29/32	LMS 61452133	2
400 mm	NS 24/29	LMS 61452134	1
400 mm	NS 24/40	LMS 61452134-40	1
400 mm	NS 29/32	LMS 61452135	1

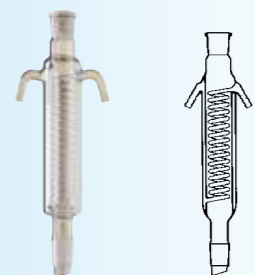




## DIMROTH CONDENSERS

borosilicate glass, olive diam. 11 mm

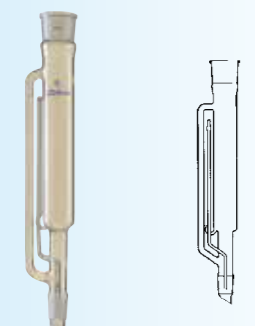
Jacket length	Cone/socket size	Code	Pack of
160 mm	NS 14/23	LMS 61453120	4
160 mm	NS 19/26	LMS 61453121	4
250 mm	NS 19/26	LMS 61453122	2
250 mm	NS 24/29	LMS 61453123	2
250 mm	NS 29/32	LMS 61453124	2
400 mm	NS 24/29	LMS 61453125	1
400 mm	NS 29/32	LMS 61453126	1



## JACKET COILED CONDENSERS

borosilicate glass

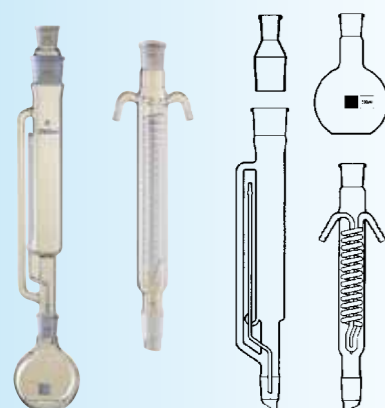
Jacket length	Cone/socket size	Code	Pack of
200 mm	NS 29/32	LMS 61454119	2
250 mm	NS 29/32	LMS 61454120	2
300 mm	NS 29/32	LMS 61454121	2
400 mm	NS 29/32	LMS 61454122	2



## SOXHLET EXTRACTORS

cones NS 29/32, borosilicate glass

Vol. extractor	socket size	Code	Pack of
30 ml	NS 29/32	LMS 61435100	4
50 ml	NS 29/32	LMS 61435101	4
100 ml	NS 45/40	LMS 61435102	4
150 ml	NS 45/40	LMS 61435103	4
250 ml	NS 45/40	LMS 61435104	2
250 ml	NS 24/40	LMS 61435104-40	2
500 ml	NS 60/46	LMS 61435105	2
1000 ml	NS 71/51	LMS 61435106	1
2000 ml	NS 71/51	LMS 61435107	1



## SOXHLET EXTRACTION APPARATUS

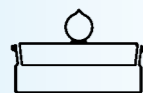
complete with: Soxhlet extractor, flat bottom flask NS 29/32, Dimroth condenser NS 29/32, reduction adapter, tension hooks and springs

Vol. extractor	flat bottom flask	Code	Pack of
30 ml	100 ml	LMS 61612102	1
50 ml	250 ml	LMS 61612103	1
100 ml	250 ml	LMS 61612104	1
150 ml	500 ml	LMS 61612105	1
250 ml	500 ml	LMS 61612106	1
500 ml	1000 ml	LMS 61612107	1
1000 ml	2000 ml	LMS 61612108	1
2000 ml	2000 ml	LMS 61612109	1

## WEIGHING BOTTLES

with interchangeable knob lid, matt label, low form

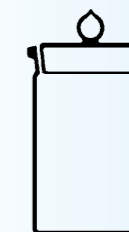
Ø x Height	Code	Pack of
25 x 25 mm	LMS 61135102	10
35 x 30 mm	LMS 61135106	10
45 x 30 mm	LMS 61135109	10
50 x 30 mm	LMS 61135111	10
60 x 30 mm	LMS 61135113	10
80 x 30 mm	LMS 61135116	10



## WEIGHING BOTTLES

with interchangeable knob lid, matt label, tall form

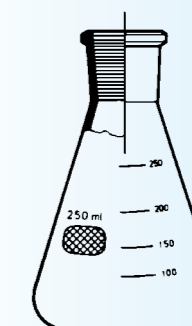
Ø x Height	Code	Pack of
25 x 40 mm	LMS 61135104	10
30 x 50 mm	LMS 61135107	10
40 x 50 mm	LMS 61135140	10
35 x 70 mm	LMS 61135137	10
50 x 80 mm	LMS 61135158	10
60 x 80 mm	LMS 61135168	10



## ERLENMEYER FLASKS

with conical ground socket, borosilicate glass 3.3., with approximated volume scale, acc. to DIN 12387

Capacity	Socket size	Code	Pack of
25 ml	NS 14 / 23	LMS 61217601	10
25 ml	NS 19 / 26	LMS 61217604	10
50 ml	NS 14 / 23	LMS 61217602	10
50 ml	NS 19 / 26	LMS 61217605	10
50 ml	NS 24 / 29	LMS 61217611	10
50 ml	NS 29 / 32	LMS 61217621	10
100 ml	NS 14 / 23	LMS 61217603	10
100 ml	NS 19 / 26	LMS 61217606	10
100 ml	NS 24 / 29	LMS 61217612	10
100 ml	NS 29 / 32	LMS 61217622	10
200 ml	NS 19 / 26	LMS 61217607	10
200 ml	NS 24 / 29	LMS 61217613	10
200 ml	NS 29 / 32	LMS 61217623	10
200 ml	NS 45 / 40	LMS 61217629	10
250 ml	NS 19 / 26	LMS 61217608	10
250 ml	NS 24 / 29	LMS 61217614	10
250 ml	NS 29 / 32	LMS 61217624	10
250 ml	NS 45 / 40	LMS 61217630	10
300 ml	NS 19 / 26	LMS 61217609	10
300 ml	NS 24 / 29	LMS 61217615	10
300 ml	NS 29 / 32	LMS 61217625	10
300 ml	NS 45 / 40	LMS 61217631	10
500 ml	NS 24 / 29	LMS 61217616	10
500 ml	NS 29 / 32	LMS 61217626	10
500 ml	NS 45 / 40	LMS 61217632	10
1000 ml	NS 24 / 29	LMS 61217617	10
1000 ml	NS 29 / 32	LMS 61217627	10
1000 ml	NS 45 / 40	LMS 61217633	10
2000 ml	NS 24 / 29	LMS 61217618	10
2000 ml	NS 29 / 32	LMS 61217628	10
2000 ml	NS 45 / 40	LMS 61217634	10



## STOPPERS

with flat and pointed bottom, borosilicate glass

Size	Code	Pack of
NS 5 / 13	LMS 61424401	25
NS 7 / 16	LMS 61424402	25
NS 10 / 19	LMS 61424403	25
NS 12 / 21	LMS 61424404	25
NS 14 / 23	LMS 61424405	25
NS 19 / 26	LMS 61424406	25
NS 24 / 29	LMS 61424407	10
NS 29 / 32	LMS 61424408	10



## FLAT BOTTOM FLASKS

with conical ground socket, borosilicate glass 3.3.

Capacity	Socket size	Code	Pack of
25 ml	NS 14 / 23	LMS 61212201	10
50 ml	NS 14 / 23	LMS 61212202	10
50 ml	NS 19 / 26	LMS 61212204	10
50 ml	NS 24 / 29	LMS 61212207	10
50 ml	NS 29 / 32	LMS 61212215	10
100 ml	NS 14 / 23	LMS 61212203	10
100 ml	NS 19 / 26	LMS 61212205	10
100 ml	NS 24 / 29	LMS 61212208	10
100 ml	NS 29 / 32	LMS 61212216	10
250 ml	NS 19 / 26	LMS 61212206	10
250 ml	NS 24 / 29	LMS 61212209	10
250 ml	NS 24 / 40	LMS 61212212-40	10
250 ml	NS 29 / 32	LMS 61212217	10
500 ml	NS 24 / 29	LMS 61212210	10
500 ml	NS 24 / 40	LMS 61212213-40	10
500 ml	NS 29 / 32	LMS 61212218	10
1000 ml	NS 24 / 29	LMS 61212211	10
1000 ml	NS 24 / 29	LMS 61212214-40	10
1000 ml	NS 29 / 32	LMS 61212219	10
1000 ml	NS 45 / 40	LMS 61212221	10
2000 ml	NS 45 / 40	LMS 61212222	10



## ROUND BOTTOM FLASKS

with conical ground socket, borosilicate glass 3.3.

Capacity	Socket size	Code	Pack of
10 ml	NS 14 / 23	LMS 61211200	10
25 ml	NS 14 / 23	LMS 61211201	10
25 ml	NS 19 / 26	LMS 61211205	10
50 ml	NS 14 / 23	LMS 61211202	10
50 ml	NS 19 / 26	LMS 61211206	10
50 ml	NS 24 / 29	LMS 61211210	10
50 ml	NS 29 / 32	LMS 61211216	10
100 ml	NS 14 / 23	LMS 61211203	10
100 ml	NS 19 / 26	LMS 61211207	10
100 ml	NS 24 / 29	LMS 61211211	10
100 ml	NS 29 / 32	LMS 61211217	10
250 ml	NS 14 / 23	LMS 61211204	10
250 ml	NS 19 / 26	LMS 61211208	10
250 ml	NS 24 / 29	LMS 61211212	10
250 ml	NS 24 / 40	LMS 61211212-40	10
250 ml	NS 29 / 32	LMS 61211218	10
250 ml	NS 34 / 35	LMS 61211228	10
250 ml	NS 45 / 40	LMS 61211236	10
500 ml	NS 19 / 26	LMS 61211209	10
500 ml	NS 24 / 29	LMS 61211213	10
500 ml	NS 24 / 40	LMS 61211213-40	10
500 ml	NS 29 / 32	LMS 61211219	10
500 ml	NS 34 / 35	LMS 61211229	10
500 ml	NS 45 / 40	LMS 61211237	10
1000 ml	NS 24 / 29	LMS 61211214	10
1000 ml	NS 24 / 40	LMS 61211214-40	10
1000 ml	NS 29 / 32	LMS 61211220	10
1000 ml	NS 34 / 35	LMS 61211230	10
1000 ml	NS 45 / 40	LMS 61211238	10
2000 ml	NS 24 / 29	LMS 61211215	10
2000 ml	NS 29 / 32	LMS 61211221	10
2000 ml	NS 34 / 35	LMS 61211231	10
2000 ml	NS 45 / 40	LMS 61211239	10



# JIPO PORCELAIN

## CRUCIBLES, LOW FORM

Ø (mm)	H (mm)	Vol (ml)	Code	Pack of
30	19	5	JIP 100301	5
35	22	10	JIP 100351	5
40	25	17	JIP 100401	5
45	28	21	JIP 100451	5
50	32	34	JIP 100501	5
60	38	62	JIP 100601	5
70	44	91	JIP 100701	5



## CRUCIBLES, MIDDLE FORM

Ø (mm)	H (mm)	Vol (ml)	Code	Pack of
30	25	10	JIP 200301	5
35	28	12	JIP 200351	5
40	32	20	JIP 200401	5
45	36	30	JIP 200451	5
50	40	45	JIP 200501	5
60	48	80	JIP 200601	5
70	56	120	JIP 200701	5
80	82	200	JIP 200801	5



## CRUCIBLES, HIGH FORM

Ø (mm)	H (mm)	Vol (ml)	Code	Pack of
30	38	15	JIP 300301	5
35	44	26	JIP 300351	5
40	50	35	JIP 300401	5
45	56	50	JIP 300451	5
50	62	72	JIP 300501	5
60	75	130	JIP 300601	5



## LIDS FOR CRUCIBLES

Ø (mm) crucible	Ø (mm) lid	Code	Pack of
30	34	JIP 000301	5
35	39	JIP 000351	5
40	44	JIP 000401	5
45	49	JIP 000451	5
50	54	JIP 000501	5
60	64	JIP 000601	5
70	74	JIP 000701	5
80	84	JIP 000801	5



## GOOCH CRUCIBLES

Ø (mm)	H (mm)	Vol (ml)	Code	Pack of
30	36	17	JIP 234101	5
35	43	25	JIP 234301	5
39	49	35	JIP 234401	5
60	71	120	JIP 234501	5



## FILTER CRUCIBLES

with porous base



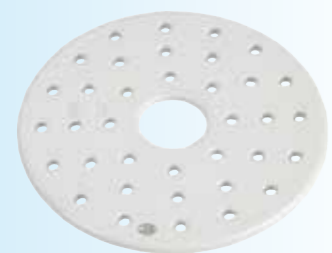
H (mm)	Vol (ml)	Porosity	Code	Pack of
28	8	P1 = 6μ	JIP 400256	2
28	8	P2 = 7μ	JIP 400257	2
28	8	P2 = 8μ	JIP 400258	2
35	15	P1 = 6μ	JIP 400306	2
35	15	P2 = 7μ	JIP 400307	2
35	15	P2 = 8μ	JIP 400308	2
40	25	P1 = 6μ	JIP 400356	2
40	25	P2 = 7μ	JIP 400357	2
40	25	P2 = 8μ	JIP 400358	2
43	35	P1 = 6μ	JIP 400406	2
43	35	P2 = 7μ	JIP 400407	2
43	35	P2 = 8μ	JIP 400408	2
50	50	P1 = 6μ	JIP 400456	2
50	50	P2 = 7μ	JIP 400457	2
50	50	P2 = 8μ	JIP 400458	2

## BUECHNER FUNNELS



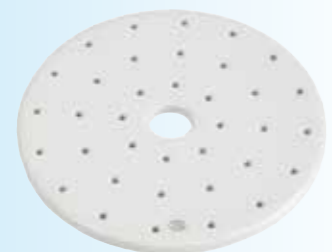
Nom. size	Stem length	Hole Ø	Code	Pack of
45	43	1	JIP 237101	1
55	64	1	JIP 237201	1
70	64	1	JIP 237301	1
90	71	2	JIP 237401	1
110	83	2	JIP 237501	1
125	85	2	JIP 237601	1
150	96	2	JIP 237701	1
185	117	2	JIP 237801	1
240	117	2	JIP 237901	1
270	130	2	JIP 237921	1
320	133	2	JIP 237991	1

## DESICCATOR PLATES, ACC. TO CSN



Ø (mm)	for Desic.	Code	Pack of
90	100	JIP 238101	1
140	150	JIP 238331	1
189	200	JIP 238521	1
241	250	JIP 238821	1
290	300	JIP 238991	1

## DESICCATOR PLATES, ACC. TO DIN



Ø (mm)	for Desic.	Code	Pack of
90	100	JIP 138101	1
140	150	JIP 138201	1
190	200	JIP 138301	1
235	250	JIP 138401	1
280	300	JIP 138501	1

## EVAPORATION DISH, ROUND BOTTOM

deep form, with lip

Ø (mm)	H (mm)	Vol (ml)	Code	Pack of
42	19	10	JIP 206001	5
51	24	24	JIP 206101	5
61	28	36	JIP 206121	5
77	33	72	JIP 206201	5
81	38	107	JIP 206221	5
94	42	140	JIP 206301	5
103	45	190	JIP 206321	5
125	50	285	JIP 206411	5
132	55	390	JIP 206421	5
138	61	500	JIP 206501	5
160	64	580	JIP 206611	5
170	74	920	JIP 206621	1
200	80	1000	JIP 206721	1
202	86	1500	JIP 206801	1
320	140	6000	JIP 206991	1



## EVAPORATION DISH, ROUND BOTTOM

semideep form, with lip

Ø (mm)	H (mm)	Vol (ml)	Code	Pack of
72	26	41	JIP 207101	5
83	27	62	JIP 207201	5
96	30	110	JIP 207301	5
110	37	160	JIP 207401	5
117	41	215	JIP 207421	5
127	42	240	JIP 207501	5
142	46	325	JIP 207521	5
154	50	420	JIP 207601	5
170	55	558	JIP 207701	5



## EVAPORATION DISH, FLAT BOTTOM

with lip

Ø (mm)	H (mm)	Vol (ml)	Code	Pack of
54	22	22	JIP 274101	5
70	30	62	JIP 274121	5
86	33	93	JIP 274201	5
98	40	154	JIP 274301	5
112	50	265	JIP 274401	5
126	53	330	JIP 274501	5
145	55	450	JIP 274601	5
151	63	620	JIP 274701	5
169	68	800	JIP 274801	1
195	74	1200	JIP 274901	1
254	105	3000	JIP 274991	1



## MORTARS WITH LIP, GLAZED



∅ (mm)	H (mm)	Vol (ml)	Code	Pack of
51	32	25	JIP 211001	5
56	37	30	JIP 211101	3
63	42	70	JIP 211111	3
76	46	75	JIP 211121	2
83	50	110	JIP 211201	2
90	56	160	JIP 211221	1
105	64	220	JIP 211301	1
125	71	400	JIP 211321	1
139	82	500	JIP 211401	1
150	90	650	JIP 211501	1
180	104	1000	JIP 211601	1
224	127	2250	JIP 211701	1
268	150	4300	JIP 211801	1

## PESTLES, GLAZED



∅ (mm)	length (mm)	Code	Pack of
14	54	JIP 213001	5
24	115	JIP 213101	5
30	135	JIP 213201	3
36	150	JIP 213301	2
42	175	JIP 213401	1
55	210	JIP 213501	1
74	250	JIP 213601	1
85	280	JIP 213701	1
101	370	JIP 213801	1

## MORTARS WITH LIP, ROUGH



∅ (mm)	H (mm)	Vol (ml)	Code	Pack of
51	32	25	JIP 211000	5
56	36	30	JIP 211100	3
63	41	70	JIP 211110	3
76	45	75	JIP 211120	2
83	50	110	JIP 211200	2
90	56	160	JIP 211220	1
105	64	220	JIP 211300	1
125	71	400	JIP 211320	1
139	82	500	JIP 211400	1
150	90	650	JIP 211500	1
180	104	1000	JIP 211600	1
224	127	2250	JIP 211700	1
268	150	4300	JIP 211800	1

## PESTLES, ROUGH



∅ (mm)	length (mm)	Code	Pack of
14	54	JIP 213000	5
24	115	JIP 213100	5
30	135	JIP 213200	3
36	150	JIP 213300	2
42	175	JIP 213400	1
55	210	JIP 213500	1
74	250	JIP 213600	1
85	280	JIP 213700	1
101	370	JIP 213800	1

A close-up photograph of laboratory glassware. In the foreground, a clear glass graduated cylinder is shown with black markings and numbers '2', '3', and '4' visible. To the right, several small, clear plastic vials with white caps are arranged. The background is a soft-focus laboratory setting. The entire image is overlaid with a semi-transparent white banner containing text and a logo.

# LABORATORY PLASTICWARE

 **BOECO**  
Germany

# REUSABLE PLASTICWARE



## GRADUATED CYLINDERS PP

tall, class B per DIN 12681/ISO 6706, highly transparent, with raised, scale and ring marks at the primary scale points, hexagonal base

Volume	Code	Tolerance	Height	Pack
10 ml	VIT 646-941	± 0,2 ml	145 mm	12
25 ml	VIT 647-941	± 0,5 ml	170 mm	12
50 ml	VIT 648-941	± 1,00 ml	200 mm	12
100 ml	VIT 649-941	± 1,00 ml	250 mm	12
250 ml	VIT 650-941	± 2,00 ml	315 mm	6
500 ml	VIT 651-941	± 5,00 ml	360 mm	6
1000 ml	VIT 652-941	± 10,00 ml	440 mm	6
2000 ml	VIT 653-941	± 20,00 ml	482 mm	3



## GRADUATED CYLINDERS PP

tall, class B per DIN 12681/ISO 6706, highly transparent, with raised blue scale and ring marks at the primary scale points, hexagonal base

Volume	Code	Tolerance	Height	Pack
10 ml	VIT 646-081	± 0,2 ml	145 mm	12
25 ml	VIT 647-081	± 0,5 ml	170 mm	12
50 ml	VIT 648-081	± 1,00 ml	200 mm	12
100 ml	VIT 649-081	± 1,00 ml	250 mm	12
250 ml	VIT 650-081	± 2,00 ml	315 mm	6
500 ml	VIT 651-081	± 5,00 ml	360 mm	6
1000 ml	VIT 652-081	± 10,00 ml	440 mm	6
2000 ml	VIT 653-081	± 20,00 ml	482 mm	3

## GRADUATED CYLINDERS, PMP

Class A per DIN 12681/ISO 6706, crystal clear. Certified compliant With a raised scale and ring marks at the primary scale points, calibrated 'in', hexagonal base. **With laser engraved batch number and the year of manufacture.** The lot certificate supplied bears the batch number and the actual nominal value ascertained under the test conditions. Thermal stress up to 121°C (autoclaving) does not cause tolerance limits to be permanently exceeded

Volume	Code	Tolerance	Graduation	Height	Pack
10 ml	VIT 646-04	± 0,10 ml	0,2 ml	145 mm	2
25 ml	VIT 647-04	± 0,25 ml	0,5 ml	170 mm	2
50 ml	VIT 648-04	± 0,50 ml	1,00 ml	200 mm	2
100 ml	VIT 649-04	± 0,50 ml	1,00 ml	250 mm	2
250 ml	VIT 650-04	± 1,00 ml	2,00 ml	315 mm	2
500 ml	VIT 651-04	± 5,00 ml	5,00 ml	360 mm	1
1000 ml	VIT 652-04	± 10,00 ml	10,00 ml	440 mm	1
2000 ml	VIT 653-04	± 20,00 ml	20,00 ml	482 mm	1

Sample of the lot certificate supplied which bears the batch number and the actual nominal value ascertained under the test condition:

VITLAB Compliance in Labware		QUALITÄTSCERTIFIKAT CERTIFICATE OF PERFORMANCE	
Artikel-Nr. / Article No:	64904		
Lot-Nr. / Batch No:	13.02		
Produkt / Product:	Messzylinder / Graduated Cylinder		
Material / Material:	PMP (Polymethylpenten) / PMP (polymethylpentene)		
Klasse / Class:	A KB		
Toleranz / Tolerance:	± 0,500 ml, DIN 12681 / ISO 6706		
Nennvolumen / Nominal volume:	100 ml		
Mittelwert / Mean value:	99,929 ml		
Standardabweichung / Standard deviation:	± 0,191 ml		
Prüfmittel / Testing devices:			
Waage / Balance:	1, (2000 g/0,001 g) kalibriert bis, calibrated till 10/2013		
Thermometer / Thermometer:	16, (0-60 °C) kalibriert bis, calibrated till 09/2013		
Dest. Wasser / Dist. Water:	20 °C, ± 3µS		
Die Endgeschwerte sind bezogen auf 20 °C. Die Prüfung erfolgte gemäß ISO 4787. Die verwendeten Normale sind an die Normale der PTB angeschlossen.		These final test values refer to 20 °C, the test was effected according to ISO 4787. The used standards are connected with the standards of the PTB (German Federal Institute of Physics and Metrology).	
Datum / Date:	10.04.2013		
VITLAB GmbH, Postfach 1272, 63917 Giesheim, Germany Tel: +49 (0) 6028 97719-0, Fax: +49 (0) 6028 97719-35, e-mail: info@vitlab.com, www.vitlab.com			

## VOLUMETRIC FLASKS (PP)

translucent, individually ring-marked, The tolerances are approx. 20% better than class B according to DIN EN ISO 1042.

To preserve markings, cleaning at no higher temperature than 60°C is recommended.

### with screw-caps (PP)

Volume	Code	Height	Thread	Pack
10 ml	VIT 677-891	90 mm	GL 18	6
25 ml	VIT 671-891	115 mm	GL 18	6
50 ml	VIT 672-891	150 mm	GL 18	6
100 ml	VIT 673-891	180 mm	GL 18	6
250 ml	VIT 674-891	235 mm	GL 25	5
500 ml	VIT 675-891	270 mm	GL 25	4
1000 ml	VIT 676-891	310 mm	GL 32	3

### with NS stoppers (PP)

Volume	Code	Height	Stopper	Pack
10 ml	VIT 677-941	90 mm	NS 10/19	6
25 ml	VIT 671-941	115 mm	NS 10/19	6
50 ml	VIT 672-941	150 mm	NS 12/21	6
100 ml	VIT 673-941	180 mm	NS 14/23	6
250 ml	VIT 674-941	235 mm	NS 19/26	5
500 ml	VIT 675-941	270 mm	NS 19/26	4
1000 ml	VIT 676-941	310 mm	NS 24/29	3

## VOLUMETRIC FLASKS (PMP), CLASS A

With NS stoppers (PP), crystal clear. With ring mark individually calibrated to 'In', Class A tolerances according to DIN EN ISO 1042, **with imprinted lot number and batch certificate.** Thermal stress up to 121°C (autoclaving) does not permanently exceed the tolerance limit. To preserve markings, cleaning at no higher temperature than 60°C is recommended.

Volume	Code	Height	Stopper	Pack
10 ml	VIT 677-04	90 mm	NS 10/19	6
25 ml	VIT 671-04	115 mm	NS 10/19	6
50 ml	VIT 672-04	150 mm	NS 12/21	6
100 ml	VIT 673-04	180 mm	NS 14/23	6
250 ml	VIT 674-04	235 mm	NS 19/26	5
500 ml	VIT 675-04	270 mm	NS 19/26	4
1000 ml	VIT 676-04	310 mm	NS 24/29	3

## VOLUMETRIC FLASKS (PMP), OPAQUE

Class A tolerances according to DIN EN ISO 1042, **with imprinted lot number and batch certificate.** UV-absorbent, highly transparent. For storage of light-sensitive substances.

### with NS stoppers (PP)

Volume	Code	Height	Stopper	Pack
10 ml	VIT 670-050	90 mm	NS 10/19	2
25 ml	VIT 671-050	115 mm	NS 10/19	2
50 ml	VIT 672-050	150 mm	NS 12/21	2
100 ml	VIT 673-050	180 mm	NS 14/23	2
250 ml	VIT 674-050	235 mm	NS 19/26	2
500 ml	VIT 675-050	270 mm	NS 19/26	2
1000 ml	VIT 676-050	310 mm	NS 24/29	1

### with coloured screw caps (PP)

Volume	Code	Height	Thread	Pack
10 ml	VIT 670-040	90 mm	GL 18	2
25 ml	VIT 671-040	115 mm	GL 18	2
50 ml	VIT 672-040	150 mm	GL 18	2
100 ml	VIT 673-040	180 mm	GL 18	2
250 ml	VIT 674-040	235 mm	GL 25	2
500 ml	VIT 675-040	270 mm	GL 25	2
1000 ml	VIT 676-040	310 mm	GL 32	1





### ERLENMEYER FLASKS (PP)

wide neck, blue scale, highly transparent, supplied complete with PP screw-caps. NS-stoppers can also be used (not included)

Volume	Code	Grad	Thread GL NS-Stopper	Pack
50 ml	VIT 666-941	10 ml	40 - NS 34/35	6
100 ml	VIT 667-941	20 ml	40 - NS 34/35	6
250 ml	VIT 668-941	50 ml	52 - NS 45/40	6
500 ml	VIT 669-941	100 ml	52 - NS 45/40	6
1000 ml	VIT 670-941	200 ml	52 - NS 45/40	4

### BEAKER (PP)

highly transparent, raised graduation.  
Autoclavable at 121°C (2bar) acc. to DIN EN 285



Volume	Code	Grad	Height	Pack
25 ml	VIT 606-941	5 ml	47 mm	12
50 ml	VIT 607-941	10 ml	60 mm	12
100 ml	VIT 608-941	20 ml	70 mm	12
150 ml	VIT 609-941	20 ml	80 mm	12
250 ml	VIT 610-941	50 ml	94 mm	6
400 ml	VIT 611-941	50 ml	109 mm	6
500 ml	VIT 618-941	100 ml	122 mm	6
600 ml	VIT 612-941	100 ml	125 mm	6
1000 ml	VIT 614-941	100 ml	149 mm	6
2000 ml	VIT 615-941	200 ml	183 mm	6
3000 ml	VIT 616-941	200 ml	214 mm	4
5000 ml	VIT 617-941	500 ml	248 mm	4



### BEAKER (PP)

highly transparent, with easily readable, raised blue scale.  
to preserve markings, cleaning at no higher than 60°C is recommended



Volume	Code	Grad	Height	Pack
10 ml*	VIT 605-081	2 ml	35 mm	12
25 ml*	VIT 606-081	5 ml	47 mm	12
50 ml*	VIT 607-081	10 ml	60 mm	12
100 ml	VIT 608-081	20 ml	70 mm	12
150 ml	VIT 609-081	20 ml	80 mm	12
250 ml	VIT 610-081	50 ml	94 mm	6
400 ml	VIT 611-081	50 ml	109 mm	6
500 ml	VIT 618-081	100 ml	122 mm	6
600 ml	VIT 612-081	100 ml	125 mm	6
1000 ml	VIT 614-081	100 ml	149 mm	6
2000 ml	VIT 615-081	200 ml	183 mm	6
3000 ml	VIT 616-081	200 ml	214 mm	4
5000 ml	VIT 617-081	500 ml	248 mm	4

\* the 10 ml, 25 ml and 50 ml versions do have a printed blue scale



### GRADUATED PITCHERS (PP)

raised scale, highly transparent, Autoclavable at 121°C (2 bar)



Volume	Code	Grad	Height	Pack
50 ml	VIT 446-941	2 mm	70 mm	24
100 ml	VIT 447-941	2 mm	80 mm	24
250 ml	VIT 440-941	5 mm	120 mm	12
500 ml	VIT 441-941	10 mm	133 mm	12
1000 ml	VIT 442-941	10 mm	170 mm	6
2000 ml	VIT 443-941	20 mm	215 mm	6
3000 ml	VIT 444-941	50 mm	242 mm	6
5000 ml	VIT 445-941	100 mm	270 mm	6



### GRADUATED PITCHERS (PP)

raised blue scale, highly transparent



Volume	Code	Grad	Height	Pack
50 ml	VIT 446-081	2 mm	70 mm	24
100 ml	VIT 447-081	2 mm	80 mm	24
250 ml	VIT 440-081	5 mm	120 mm	12
500 ml	VIT 441-081	10 mm	133 mm	12
1000 ml	VIT 442-081	10 mm	170 mm	6
2000 ml	VIT 443-081	20 mm	215 mm	6
3000 ml	VIT 444-081	50 mm	242 mm	6
5000 ml	VIT 445-081	100 mm	270 mm	6



### GRADUATED PITCHERS, COLORED (PP)

size 500 ml, in four different colors, Stackable. Transparent with easy readable, printed scale and stable handle. To preserve markings, cleaning at no higher than 60°C is recommended. Suitable for food stuffs acc. to EC directive No. 10/2011



Color	Code	Grad	Height	Pack
blue	VIT 481942	10 mm	140 mm	12
yellow	VIT 481943	10 mm	140 mm	12
red	VIT 481944	10 mm	140 mm	12
green	VIT 481945	10 mm	140 mm	12

Set of 1 VIT 4811111 10 mm 140 mm 1  
item each: blue, yellow, red, green



### MEASURING SCOOPS, COLOURED (PP)

size 100 ml in seven colours. Also suitable as weighing scoops. With precisely formed filling edge and comfortable, stable handle. Easily readable volume quantities on the upper side of the handle. Suitable for food stuffs according to EC directive No. 10/2011



Colour	Code	Volume	Pack
white	VIT 39694	100 ml	12
red	VIT 396940	100 ml	12
gray	VIT 396943	100 ml	12
black	VIT 396944	100 ml	12
yellow	VIT 396946	100 ml	12
blue	VIT 396950	100 ml	12
green	VIT 396952	100 ml	12
bright blue	VIT 396955	100 ml	12

set of 1 VIT 3961111  
item each: white, red, gray, black, yellow, blue, green, bright blue



= Food safe products acc. do EC Directive No. 10/2011





### SEDIMENTATION CONE

Imhoff-type (SAN), moulded graduations, screw-cap at tip for easy cleaning

Volume	Code	Grad	Division	Pack
1000 ml	VIT 759-91	0 - 2 ml	0,1 ml	3
		2 - 10 ml	0,5 ml	
		10 - 40 ml	1,0 ml	
		40 - 100 ml	2,0 ml	
		100 - 1000 ml	50 ml	

### ASPIRATOR BOTTLES

HDPE, natural color, with blue litre scale and screwed-on closure with stopcock, HDPE, blue (480-76459)

Volume	Code	Pack
5 L	KAU 350-84137	11
10 L	KAU 350-84132	6
25 L	KAU 350-84138	5
60 L	KAU 350-84139	2



### WASH BOTTLES

Narrow neck bottles in polyethylene soft (LDPE), natural

Volume	Code	Dimensions D-d-H (mm)	Pack
50 ml	KJS E50	37 - 11 - 87	100
100 ml	KJS E100	47 - 11 - 105	635
250 ml	KJS E250	61 - 18 - 140	252
500 ml	KJS E500	75 - 18 - 177	123
1000 ml	KJS E1000	97 - 20 - 215	75
2000 ml	KJS E2000	120 - 20 - 264	36

Screw caps for wash bottles, with spraying tube (swan neck)

Diam.	Code	fit to narrow neck bottles:	Pack
18 mm	KJS SR18	E50, E100	25
25 mm	KJS SR25	E250, E500	25
28 mm	KJS SR28	E1000, E2000	25



### MAGNETIC PTFE ENCAPSULATED STIRRING BARS

cylindrical, smooth round profile, universal application

ØxLmm	Code
4,5 x 12	BOE 114512
6 x 10	BOE 110610
6 x 13	BOE 110613
6 x 20	BOE 110620
6 x 25	BOE 110625
7 x 20	BOE 110720
7 x 30	BOE 110730
7 x 40	BOE 110740
8 x 50	BOE 110850
10 x 60	BOE 111060
10 x 70	BOE 111070
10 x 80	BOE 111080

### MAGNETIC PTFE ENCAPSULATED STIRRING BARS

with pivot ring

ØxLmm	Code
6 x 25	BOE 130625
8 x 13	BOE 130813
8 x 40	BOE 130840
8 x 50	BOE 130850
10 x 25	BOE 131025
10 x 50	BOE 131050
10 x 60	BOE 131060

### MAGNETIC STIRRING BAR RETRIEVER, PTFE

Length mm	Code
350	BOE 114350



### FUNNELS (PP)

transparent

Diameter	Code	Height	Stem Diam.	Pack
30 mm	VIT 408-94	47 mm	1,5 mm	24
30 mm	VIT 410-94	47 mm	4 mm	24
40 mm	VIT 411-94	65 mm	4 mm	24
50 mm	VIT 412-94	85 mm	7 mm	24
75 mm	VIT 413-94	110 mm	6 mm	12
100 mm	VIT 414-94	155 mm	8 mm	12
120 mm	VIT 415-94	180 mm	11 mm	12
150 mm	VIT 416-94	220 mm	15 mm	12

### TEST TUBE RACKS

for general purpose, round holes, easy to assemble blue, autoclavable at temperatures up to 121°C. Dimension: 246 x 104 x 64 mm

Tube Ø	Code	Capacity
13	BOE 190131	90
16	BOE 160161	60
20	BOE 140201	40
25	BOE 124251	24
30	BOE 121301	21

### MULTISTAND RACK

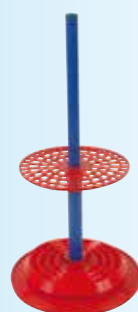
with the Multistand rack it is possible to use several tubes from 10 mm to 17 mm diameter (microtubes, cryo tubes and test tubes) through the patented holder to fix safely. Dimension: 140 x 140 x 42 mm

Code	Capacity	Pack
Multirack RAD 3712101	5x5	1

### PIPETTE RACK, PP,

Rotary model, for 94 pipettes of different sizes autoclavable at temperatures up to 121°C.

Code
BOE 194



# DISPOSABLE PLASTICWARE

## BOECO TOP-LINE HIGH QUALITY THIN WALLED PCR-TUBES

Certified to be free of any detectable human DNA, DNase, RNase and PCR-inhibitors.

Capacity	Colour	Code	Pcs./bag	Pcs./case
0,2 ml	natural	BOE 3-010-80-0	1.000	10.000
0,2 ml	yellow	BOE 3-010-80-1	1.000	10.000
0,2 ml	blue	BOE 3-010-80-2	1.000	10.000



domed cap				
0,2 ml	natural	BOE 3-020-80-0	1.000	10.000

flat cap				
0,5 ml	natural	BOE 3-110-80-0	1.000	10.000
0,5 ml	yellow	BOE 3-110-80-1	1.000	10.000
0,5 ml	blue	BOE 3-110-80-2	1.000	10.000



domed cap				
0,5 ml	natural	BOE 3-120-80-0	1.000	10.000

## MICROTEST TUBES

graduated, with cap, PP

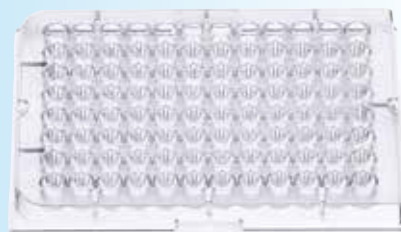
Capacity	Colour	Code	Pcs./bag	Pcs./case
0,5 ml	natural	BOE 02.053.0100	1.000	10.000
1,5 ml	natural	BOE 02.023.0100	1.000	8.000
1,5 ml	blue	BOE 02.023.0101	1.000	8.000
1,5 ml	red	BOE 02.023.0102	1.000	8.000
1,5 ml	yellow	BOE 02.023.0103	1.000	8.000
1,5 ml	green	BOE 02.023.0104	1.000	8.000
2,0 ml	natural	BOE 02.043.0100	1.000	8.000



## MICROTEST PLATES

96-well, crystal clear, PS, machinesterile

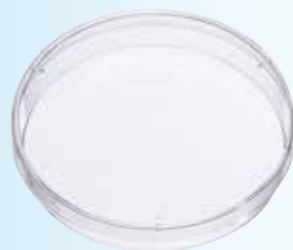
Type	Code	Pcs./bag	Pcs./case
U-shape	BOE 05.011.0100	5	100
V-shape	BOE 05.021.0100	5	100
F-shape	BOE 05.031.0100	5	100
Lid	BOE 05.041.0100	5	100



## PETRI DISHES

for Bacteriology, 94 x 16 mm, crystal clear, PS, machinesterile

Type	Code	Pcs./bag	Pcs./case
with vents	BOE 04.031.2100	20	480
without vents	BOE 04.041.2100	20	480
2 compartments with vents	BOE 04.051.2100	20	480



## CENTRIFUGE TUBE

16x100 mm, round bottom

Capacity	Material	Code	Pcs./bag	Pcs./case
12 ml	PS	BOE 01.011.0100	1.000	2.000
12 ml	PP	BOE 01.013.0100	1.000	2.000



## SEDIMENTATION TUBE

16x105 mm, conical pointed, clear PS

Capacity	Material	Code	Pcs./bag	Pcs./case
12 ml	PS	BOE 01.021.0100	1.000	2.000



## SPECIAL RIBBED STOPPER

LD-PE, for test tubes with 16 mm diam.

Colour	Material	Code	Pcs./bag	Pcs./case
natural	LD-PE	BOE 01.604.0100	1000	10.000
blue	LD-PE	BOE 01.604.0101	1000	10.000
red	LD-PE	BOE 01.604.0102	1000	10.000
yellow	LD-PE	BOE 01.604.0103	1000	10.000
green	LD-PE	BOE 01.604.0104	1000	10.000



## COAGULOMETER TUBE

12x55 mm, round bottom, clear PS

Capacity	Material	Code	Pcs./bag	Pcs./case
3,5 / 4 ml	PS	BOE 01.031.0100	1000	5.000



## TEST TUBE

12x75 mm, round bottom

Capacity	Material	Code	Pcs./bag	Pcs./case
4,5 ml	PS	BOE 01.051.0100	1000	4.000
4,5 ml	PP	BOE 01.053.0100	1000	4.000



## SPECIAL RIBBED STOPPER

LD-PE, for test tubes with 12 mm diam.

Color	Material	Code	Pcs./bag	Pcs./case
natural	LD-PE	BOE 01.624.0100	1000	20.000
blue	LD-PE	BOE 01.624.0101	1000	20.000
red	LD-PE	BOE 01.624.0102	1000	20.000
yellow	LD-PE	BOE 01.624.0103	1000	20.000
green	LD-PE	BOE 01.624.0104	1000	20.000



## DISPOSABLE PASTEUR PIPETTES

Polyethylene

Cat. No.	Type	Pcs./box	Pcs./case
BOE 204325	1,0 ml, graduated, 150 mm, non-sterile	500	5000
BOE 204323	3,0 ml, Macro graduated, 150 mm, non-sterile	500	3000





## STERILE DISPOSABLE SEROLOGICAL PIPETTES

Non pyrogenic, non cytotoxic, non haemolytic  
Individually wrapped in paper/plastic peel pack. gammasterile

Vol	Increm.	Code	Pcs./bag	Pcs./case
1 ml	1/100 ml	BOE 9840001	500	2000
2 ml	1/50 ml	BOE 9840002	500	2000
5 ml	1/10 ml	BOE 9840005	250	1000
10 ml	1/10 ml	BOE 9840010	200	800
25 ml	1/5 ml	BOE 9840025	100	400
50 ml	1/2 ml	BOE 9840050	100	100



## CONICAL TEST TUBES

with screw cap, printed graduation and writing surface, free of RNA, DNA, RNase, DNase, gammasterile, max centrifugation: 12300 RCF

Vol.	Size	Code	Pcs./bag	Pcs./case
15 ml	17x120	BOE 92159	40	1400
50 ml	30x115	BOE 92160	20	500

## DISPOSABLE CUVETTES

MACRO



SEMI-MICRO



MICRO



Code	Description
BRA 759007	Disposable Macro Cuvettes, PS, Window: 10 x 35 mm; 10 mm light path Filling volume: min 2,5 / max 4,5 ml grouped by mold cavity number, neutral packing Wavelength: from 340 to 900 nm Packing: 100 pcs./box, 1000 pcs./carton
BRA 759017	Disposable Semi-Micro Cuvettes, PS, Window: 4,5 x 23 mm; 10 mm light path Filling volume: min 1,5 / max 3,0 ml grouped by mold cavity number, neutral packing Wavelength: from 340 to 900 nm Packing: 100 pcs./box, 1000 pcs./carton
BRA 759170	BRAND Disposable UV Macro Cuvettes, Filling volume: min 2,5 / max 4,5 ml grouped by mold cavity number, Wavelength as from 220 to 900 nm, 10 mm light path, pack of 100 pcs.
BRA 759150	BRAND Disposable UV Semi-Micro Cuvettes, Filling volume: min 1,5 / max 3,0 ml grouped by mold cavity number, Wavelength as from 220 to 900 nm, 10 mm light path, pack of 100 pcs.
BRA 759220	BRAND Disposable UV Micro Cuvettes, Center height 15 mm, Vol. 70 µl up to 550 µl, Wavelength as from 220 to 900 nm, 10 mm light path, pack of 100 pcs.



# DENSITY, TEMPERATURE AND TIME MEASUREMENT

 **BOECO**  
Germany

# BOECO HYDROMETERS

## DENSITY HYDROMETERS

without thermometer, reference temperature 20°C (27,5°C upon request)  
Nominal range 0.100 g/cm<sup>3</sup> divided in 0,001

Range g/cm <sup>3</sup>	mm	Code
0.600-0.700	300	BOE 6700
0.700-0.800	300	BOE 6701
0.800-0.900	300	BOE 6702
0.900-1.000	300	BOE 6703
1.000-1.100	300	BOE 6704
1.100-1.200	300	BOE 6705
1.200-1.300	300	BOE 6706
1.300-1.400	300	BOE 6707
1.400-1.500	300	BOE 6708
1.500-1.600	300	BOE 6709
1.600-1.700	300	BOE 6710
1.700-1.800	300	BOE 6711
1.800-1.900	300	BOE 6712
1.900-2.000	300	BOE 6713
2.000-2.100	300	BOE 6714



BOE 6707

## DENSITY HYDROMETERS

without thermometer, reference temperature 20°C (27,5°C upon request)  
Nominal range 0.200 g/cm<sup>3</sup> divided in 0,002

Range g/cm <sup>3</sup>	mm	Code
0.600-0.800	320	BOE 6960
0.800-1.000	280	BOE 6961
1.000-1.200	280	BOE 6962
1.200-1.400	280	BOE 6963
1.400-1.600	280	BOE 6964
1.600-1.800	280	BOE 6965
1.800-2.000	280	BOE 6966



BOE 6960

## DENSITY HYDROMETERS

without thermometer, reference temperature 20°C (27,5°C upon request)  
Nominal range 0.300/0.400/0.500 g/cm<sup>3</sup> divided in 0,005

Range g/cm <sup>3</sup>	mm	Code
0.700-1.000	320	BOE 7000
1.000-1.300	280	BOE 7001
1.300-1.600	280	BOE 7002
1.000-1.500	280	BOE 7004
1.500-2.000	280	BOE 7005
2.000-2.500	280	BOE 7040
2.500-3.000	280	BOE 7041
3.000-3.500	280	BOE 7042
3.500-4.000	280	BOE 7043

## UNIVERSAL-DENSITY HYDROMETERS

without thermometer, reference temperature 20°C (27,5°C upon request)

Range g/cm <sup>3</sup>	mm	Code
0.700-2.000	330	BOE 7020
1.000-2.000	280	BOE 7021

## UNIVERSAL-HYDROMETERS AND BAUME-SCALE

without thermometer, reference temperature 20°C (27,5°C upon request)

Range g/cm <sup>3</sup>	mm	Code
0.700-2.000	330	BOE 7019
1.000-2.000	280	BOE 7022

## ASTM E100 HYDROMETERS

Specific gravity 82H-90H  
Nominal range 0..50/0.0005  
Temp. 60/60 °F

Range		mm	Code
0.600-6.500		330	BOE 6149
0.650-0.700	82H	330	BOE 6150
0.700-0.750	83H	330	BOE 6151
0.750-0.800	84H	330	BOE 6152
0.800-0.850	85H	330	BOE 6153
0.850-0.900	86H	330	BOE 6154
0.900-0.950	87H	330	BOE 6155
0.950-1.000	88H	330	BOE 6156
1.000-1.050	89H	330	BOE 6157
1.050-1.100	90H	330	BOE 6158

0.950-1.100	98H	330	BOE 6165
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## ASTM E100 SOIL-HYDROMETERS

for the determination of particle size distribution in soil  
Standard temp. 68/68 °F

Range		mm	Code
0.995-1.038/0,001	151 H	280	BOE 6050
-5 - +60/1	152 H	280	BOE 6055

## ASTM E100 HYDROMETERS

API gravity 51H-60H  
Nominal range 12° API/0.1  
Thermometer scale: 0-150/2,0 °F  
Temp. 60 °F

Range		mm	Code
-1-11	51H	380	BOE 3061
9-21	52H	380	BOE 3062
19-31	53H	380	BOE 3063
29-41	54H	380	BOE 3064
39-51	55H	380	BOE 3065
49-61	56H	380	BOE 3066
59-71	57H	380	BOE 3067
69-81	58H	380	BOE 3068
79-91	59H	380	BOE 3069
89-101	60H	380	BOE 3070



BOE 6055



BOE 1330



BOE 4082

### BRIX-HYDROMETERS

without thermometer, reference temperature 20°C (27,5°C upon request)  
Nominal range 10/0,1 Brix

Range °Brix	mm	Code
0-10	260	BOE 1330
10-20	260	BOE 1331
20-30	260	BOE 1332
30-40	260	BOE 1333
40-50	260	BOE 1334
50-60	260	BOE 1335
60-70	260	BOE 1336
70-80	260	BOE 1337
80-90	260	BOE 1338

### BRIX-HYDROMETERS

with thermometer, reference temperature 20°C (27,5°C upon request)  
Nominal range 10/0,1 Brix, Thermo range 0-40 °C/1,0 °C

Range °Brix	mm	Code
0-10	350	BOE 1340
10-20	350	BOE 1341
20-30	350	BOE 1342
30-40	350	BOE 1343
40-50	350	BOE 1344
50-60	350	BOE 1345
60-70	350	BOE 1346
70-80	350	BOE 1347
80-90	350	BOE 1348



BOE 4054

### LACTOMETERS

plain form, type Quevenne "Original"  
Range 15-40/1,0, reference temperature 20°C (15°C upon request)

Range	mm	Code
15-40	210	BOE 4080

### THERMO-LACTOMETERS

type Quevenne "Original" with thermometer in stem  
Thermo range 0-40/1,0°C  
Range 15-40/1,0, reference temperature 20°C (15°C upon request)

Range	mm	Code
15-40	300	BOE 4082

### LACTOMETERS

plain form, type Gerber "Original"  
Range 1.020-1.040/0.0005  
reference temperature 20°C (15°C, 27,5°C upon request)

Range g/ml	mm	Code
1.020-1.040	230	BOE 4054

### THERMO-LACTOMETERS

type Gerber "Original" with thermometer in stem  
Thermo range 0-40/1,0°C  
Range 1.020-1.040/0.0005  
reference temperature 20°C (15°C, 27,5°C upon request)

Range g/ml	mm	Code
1.020-1.040	320	BOE 4058

### ALCOHOLOMETERS

Commercial grade, reference temperature 20°C  
Range 0 - 100/1,0

%vol	mm	Code
0-100	265	BOE 2910
0-100 dual scale	265	BOE 2970

### THERMO-ALCOHOLOMETERS

Commercial grade, reference temperature 20°C  
Range 0 - 100/1,0

%vol	mm	Code
0-100	290	BOE 2912

### ALCOHOLOMETERS

Type Gay-Lussac  
standard temperature 15°C

Range %vol Gl	mm	Code
0-100	265	BOE 2944

### THERMO-ALCOHOLOMETERS

Type Gay-Lussac  
standard temperature 15°C

Range %vol Gl	mm	Code
0-100	290	BOE 2946

### ALCOHOLOMETERS

Type Richter + Tralles  
standard temperature 20°C

%vol %mas	mm	Code
0-100	265	BOE 2940

### THERMO-ALCOHOLOMETERS

Type Richter + Tralles  
standard temperature 20°C

%vol %mas	mm	Code
0-100	290	BOE 2942

### ALCOHOLOMETERS EC CLASS II

standard temperature 20°C  
Nominal range 10% / 0,1% vol.

Range %vol	mm	Code
00-10	360	BOE 2610
10-20	360	BOE 2611
20-30	360	BOE 2612
30-40	360	BOE 2613
35-45	260	BOE 2620
40-50	360	BOE 2614
50-60	360	BOE 2615
60-70	360	BOE 2616
70-80	360	BOE 2617
80-90	360	BOE 2618
90-100	360	BOE 2619



BOE 2944



BOE 2940

## BAUMÉ-HYDROMETERS

plain form, without thermometer,  
reference temperature 20°C (15°C, 27,5°C upon request)  
Nominal range 10/1,0

Range Be	mm	Code
00-10	220	BOE 1810
10-20	220	BOE 1811
20-30	220	BOE 1812
30-40	220	BOE 1813
40-50	220	BOE 1814
50-60	220	BOE 1815
60-70	220	BOE 1816

## BAUMÉ-HYDROMETERS

plain form, without thermometer, nominal range 10/0,1  
reference temperature 20°C (15°C, 27,5°C upon request)

Range Be	mm	Code
00-10	280	BOE 1830
10-20	280	BOE 1831
20-30	280	BOE 1832
30-40	280	BOE 1833
40-50	280	BOE 1834
50-60	280	BOE 1835
60-70	280	BOE 1836

## BAUMÉ-HYDROMETERS

plain form, without thermometer, Nominal range 20/1,0  
reference temperature 20°C (15°C, 27,5°C upon request)

Range Be	mm	Code
00-20	240	BOE 1980
20-40	240	BOE 1981
40-60	240	BOE 1982
10-30	240	BOE 1985
30-50	240	BOE 1986
50-70	240	BOE 1987

## BAUMÉ-HYDROMETERS

plain form, without thermometer, nominal range 20/0,1  
reference temperature 20°C (15°C, 27,5°C upon request)

Range Be	mm	Code
00-20	330	BOE 2030
20-40	330	BOE 2031
40-60	330	BOE 2032
10-30	330	BOE 2035
30-50	330	BOE 2036
50-70	330	BOE 2037

## BAUMÉ-HYDROMETERS

plain form, without thermometer, range finder,  
reference temperature 20°C (15°C, 27,5°C upon request)  
Nominal range / 1,0

Range Be	mm	Code
00-50	250	BOE 2115
00-70	250	BOE 2126



BOE 1831



BOE 7019

# TIMER

## MECHANICAL TIMER

0-60 min, sec. alarm, housing color white/blue

### Code

BOE 124



## DIGITAL STOPWATCH

water resistant, 30 min., 1/100 sec. Time, calendar and alarm, with battery

### Code

BOE 240



## DIGITAL TIMER

Count down 99 min., 59 sec., alarm when countdown reaches "zero", magnet, silver, with battery

### Code

BOE 200



## DIGITAL TIMER

Count down/up timer, 99 min. 59 sec. alarm when countdown reaches "zero", magnet, blue, with battery

### Code

BOE 210



## 2-LINE DIGITAL TIMER, JUMBO DISPLAY

2 independent timers in one model. Count down/Count up timer and clock in one. Count down 99 min., 59 sec., alarm when countdown reaches "zero", clip for hanging and standing, magnet, with battery

### Code

BOE 220



## 3-LINE DIGITAL TIMER, JUMBO DISPLAY

Displays current time, alarm time and month & date or 3 channels timer timing. Count down 99 min., 59 sec., alarm when countdown reaches "zero", distinct alarms for each channel. Clip for hanging and standing, magnet, with battery

### Code

BOE 225



# THERMOMETERS



## DIAL BIMETAL POCKET THERMOMETER

- 10°C to + 100°C / 1°C  
Measuring probe st. steel, 125mm and protective plastic sleeve.

**Code**  
BOE 316



## DIGITAL POCKET THERMOMETER

- 50°C to + 300°C / 0,1°C  
Measuring probe st. steel, 120mm and protective plastic sleeve.  
Min/Max memory, Measuring time 1 or 10 sec.  
Selectable °C/°F, with battery

**Code**  
BOE 310



## DIGITAL WATERPROOF THERMOMETER

Pocket size, with easy to read Jumbo Display  
- 50°C to + 300°C  
Accuracy: ± 1°C in the range of -30° till +150°, otherwise ± 2°C  
Visible 115 mm stainless steel piercing sensor probe  
IP67 waterproof.  
Alarm at high-/low temperature with battery,  
Max/Min (°C) Memory recalling. One hour auto shut off

**Code**  
BOE 311



## DIGITAL WATERPROOF THERMOMETER

- 50°C to + 300°C  
Resolution: ± 0,1°C for 19,9° till +199,9°, otherwise 1°C  
Accuracy ± 1°C in the range of 151°C till + 250°C, otherwise ± 2°C.  
130 mm stainless steel temperature sensor probe, with 1 metre wire,  
alarm at high-/low temperature  
Selectable °C/°F, with battery, Max/Min (°F/°C) memory recalling  
without auto shutt off - **suitable for overnight Max/Min measurements**

**Code**  
BOE 305

# MAX/MIN THERMOMETER

## MAXIM/MINIMA THERMOMETER

mercury free  
-30°C to + 50°C  
With push button for automatic resetting  
Ivory coloured plastic housing with removable top shield and eyelet.  
For wall mounting  
Size: 230 x 55 mm

**Code**  
BOE 23940



## DIGITAL MAX/MIN THERMOMETER

Display with current temperature, minimum temperature  
and maximum temperature  
Indoor/outdoor minimum and maximum temperature measurement  
Temperature measuring range:  
Indoor: -5°C to + 50°C (+23°F to +122°F)  
Outdoor: -50°C to + 70°C (-58°F to +158°F)  
With sensor probe for outdoor minimum and maximum temperature  
measurement  
Supplied with wire holder for fixing sensor probe on wall  
Table standing and hanging features  
Size: 66 x 68 x 21 mm (L x W x H)

**Code**  
BOE 325



## DIGITAL JUMBO MAX/MIN THERMOMETER

°F/°C, Max/Min (°F/°C) memory  
Instant reading of Max/Min temperature record or High/low alarm setting  
Alerting alarm beeps and flashing symbol displays when  
temperature reaches/beyond the pre-set limit  
Jumbo LCD Display with digit height 35 mm  
Flip out stand and hanging hole at the back of the unit

Measuring range: -50°C to +70°C or -58°F to +158°F  
Accuracy: 1°C or ±1,8°F in the range of 0°C to +50°C  
or 32°F to +122 °F  
otherwise more than ±1°C or ±1,8°F  
Resolution: 0,1° for the whole range

Ambient temp. for the plastic case: 0°C till +50°C or 32°F till +122°  
External sensor: 3m sensor wire with probe (22,5 x ø 5,5 mm)  
for outdoor temperature measurement  
Size: 120 x 110 x 25 mm,  
Battery: 1 x AAA (1,5VDC) battery incl.

**Code**  
BOE 328





# THERMO-HYGROMETERS

## DIGITAL MAX/MIN THERMO HYGROMETER



Current indoor and Outdoor temperature,  
and indoor humidity in the display  
Indoor/Outdoor min. / max. measurement by  
Pressing the MAX./MIN key

Measuring range:

IN: 0°C to + 50°C / 1°C (+32°F to 122°F)

OUT: - 50°C to + 70°C / 1°C (-58°F to +158°F)

Indoor hygro range: 20 to 98 RH / ± 5%

Supplied with 1,5 m cable sensor probe for outdoor min.  
and max temp. measurement

Size: 123 x 70 x 20 mm,

Battery: AAA (1,5VDC) battery not included

### Code

BOE 326

## DIGITAL THERMO- / HYGROMETER



Dual LCD display with indoor temp. and relative  
indoor humidity at the same time.

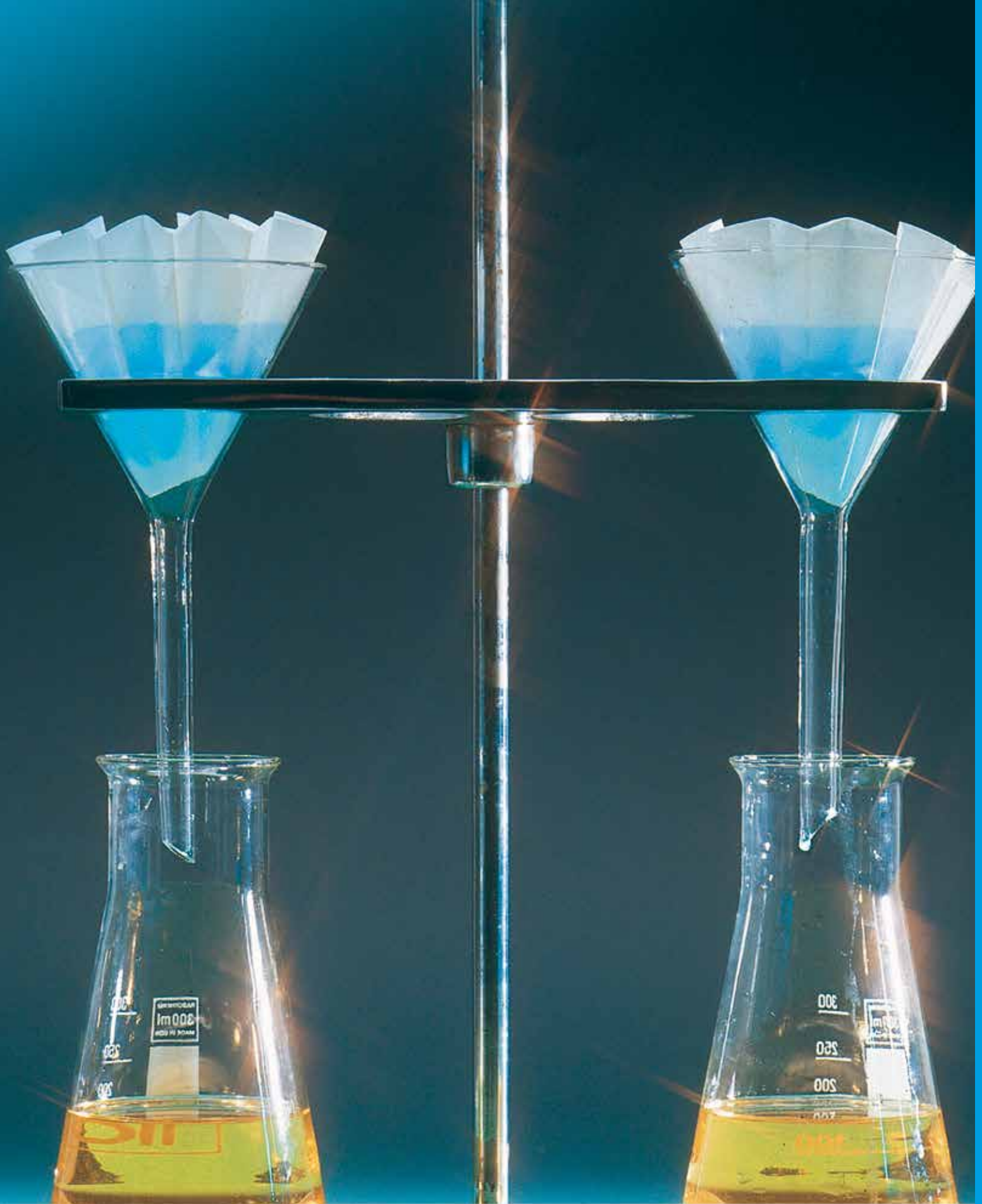
Measuring range:

Indoor temp.: 0°C to + 50°C /1°C

Rel. humidity indoor: 25% to 95%/1%

### Code

BOE 330



# LABORATORY FILTER PAPER

# BOECO FILTER PAPERS

## QUANTITATIVE FILTERS

quantitative ashless filter papers are recommended for quantitative analysis. As quantitative analysis requires a high purity, these filters are being washed out with acid



### 388 - black spot - fast filtering, wide pores, ashless hardened

For coarse and voluminous precipitates such as iron-aluminium and chromium hydroxide; Si-determination in steel and pig iron analysis

Basis weight: 84 g/m<sup>2</sup>  
Filtration velocity: 10 ml / 10 seconds  
Typical pore size: 12 - 15 µm  
Similar to: S&S 589/1, M-N 640w

Diam.	Code	Grade/Description	Pack of
55 mm	FTR 3.101.055	388 / Filter discs. Black dot	100
70 mm	FTR 3.101.070	388 / Filter discs. Black dot	100
90 mm	FTR 3.101.090	388 / Filter discs. Black dot	100
110 mm	FTR 3.101.110	388 / Filter discs. Black dot	100
125 mm	FTR 3.101.125	388 / Filter discs. Black dot	100
150 mm	FTR 3.101.150	388 / Filter discs. Black dot	100
185 mm	FTR 3.101.185	388 / Filter discs. Black dot	100
240 mm	FTR 3.101.240	388 / Filter discs. Black dot	100

### 389 - white spot - medium fast filtering, medium wide pores, ashless hardened

Typical grade for quantitative tasks, coarser precipitates, such as lead-, iron and silver sulphide alkali carbonates, food stuff and soil analysis

Basis weight: 84 g/m<sup>2</sup>  
Filtration velocity: 10 ml / 20 seconds  
Typical pore size: 8 - 12 µm  
Similar to: Whatman 41, S&S 589/2, M-N 640m

Diam.	Code	Grade/Description	Pack of
55 mm	FTR 3.102.055	389 / Filter discs. White dot	100
70 mm	FTR 3.102.070	389 / Filter discs. White dot	100
90 mm	FTR 3.102.090	389 / Filter discs. White dot	100
110 mm	FTR 3.102.110	389 / Filter discs. White dot	100
125 mm	FTR 3.102.125	389 / Filter discs. White dot	100
150 mm	FTR 3.102.150	389 / Filter discs. White dot	100
185 mm	FTR 3.102.185	389 / Filter discs. White dot	100
240 mm	FTR 3.103.240	389 / Filter discs. White dot	100

### 392 - red spot - medium to slowly filtering, medium tight, ashless hardened

Fast filtration of fine precipitates such as calcium oxalate, magnesium ammonium phosphate, coarser forms of barium sulphate

Basis weight: 84 g/m<sup>2</sup>  
Filtration velocity: 10 ml / 50 seconds  
Typical pore size: 5 - 8 µm  
Similar to: Whatman 43, S&S 589/5, M-N 640md

Diam.	Code	Grade/Description	Pack of
55 mm	FTR 3.105.055	392 / Filter discs. Red dot	100
70 mm	FTR 3.105.070	392 / Filter discs. Red dot	100
90 mm	FTR 3.105.090	392 / Filter discs. Red dot	100
110 mm	FTR 3.105.110	392 / Filter discs. Red dot	100
125 mm	FTR 3.105.125	392 / Filter discs. Red dot	100
150 mm	FTR 3.105.150	392 / Filter discs. Red dot	100
185 mm	FTR 3.105.185	392 / Filter discs. Red dot	100
240 mm	FTR 3.105.240	392 / Filter discs. Red dot	100

### 390 - green spot - slowly filtering, narrow pores, ashless hardened

Filtration of fine precipitates such as lead dioxide, calcium fluoride nickel sulphide, zinc sulphide

Basis weight: 84 g/m<sup>2</sup>  
Filtration velocity: 10 ml / 100 seconds  
Typical pore size: 3 - 5 µm  
Similar to: Whatman 40, S&S 589/6, M-N 640d

Diam.	Code	Grade/Description	Pack of
55 mm	FTR 3.103.055	390 / Filter discs. Green dot	100
70 mm	FTR 3.103.070	390 / Filter discs. Green dot	100
90 mm	FTR 3.103.090	390 / Filter discs. Green dot	100
110 mm	FTR 3.103.110	390 / Filter discs. Green dot	100
125 mm	FTR 3.103.125	390 / Filter discs. Green dot	100
150 mm	FTR 3.103.150	390 / Filter discs. Green dot	100
185 mm	FTR 3.103.185	390 / Filter discs. Green dot	100
240 mm	FTR 3.103.240	390 / Filter discs. Green dot	100



### 391 - blue spot - very slowly filtering, fine pores, ashless hardened

Fine-grained precipitates such as barium sulphate, metannic acid, cupros oxide

Basis weight: 84 g/m<sup>2</sup>  
Filtration velocity: 10 ml / 180 seconds  
Typical pore size: 2 - 3 µm  
Similar to: Whatman 44, S&S 589/3, M-N 640de

Diam.	Code	Grade/Description	Pack of
55 mm	FTR 3.104.055	391 / Filter discs. Blue dot	100
70 mm	FTR 3.104.070	391 / Filter discs. Blue dot	100
90 mm	FTR 3.104.090	391 / Filter discs. Blue dot	100
110 mm	FTR 3.104.110	391 / Filter discs. Blue dot	100
125 mm	FTR 3.104.125	391 / Filter discs. Blue dot	100
150 mm	FTR 3.104.150	391 / Filter discs. Blue dot	100
185 mm	FTR 3.104.185	391 / Filter discs. Blue dot	100
240 mm	FTR 3.104.240	391 / Filter discs. Blue dot	100



### 393 - purple spot - particularly slow filtering, especially fine pores, ashless hardened

For extremely difficult filtration conditions and particularly fine precipitates

Basis weight: 100 g/m<sup>2</sup>  
Filtration velocity: 10 ml / 250 seconds  
Typical pore size: 1 - 2 µm  
Similar to: Whatman 42

Diam.	Code	Grade/Description	Pack of
55 mm	FTR 3.127.055	393 / Filter discs. Purple dot	100
70 mm	FTR 3.127.070	393 / Filter discs. Purple dot	100
90 mm	FTR 3.127.090	393 / Filter discs. Purple dot	100
110 mm	FTR 3.127.110	393 / Filter discs. Purple dot	100
125 mm	FTR 3.127.125	393 / Filter discs. Purple dot	100
150 mm	FTR 3.127.150	393 / Filter discs. Purple dot	100
185 mm	FTR 3.127.185	393 / Filter discs. Purple dot	100
240 mm	FTR 3.127.240	393 / Filter discs. Purple dot	100



## QUALITATIVE FILTERS

### Grade 1288 - wide-pored, spongy structure, soft, very high rate of filtration

coarse-flocculent and bulky precipitates, in particular hydroxides of iron, aluminium and chromium; sulphides of copper, bismuth, cobalt and iron; various organic metal precipitates; determination of silicon in the analysis of steel and pig iron, etc.  
 Basis weight 84 g/m<sup>2</sup>  
 Filtration velocity: 10 ml / 10 seconds  
 Typical pore size: 12 - 15 µm  
 Similar to: Whatman 4, S&S 604, M-N 617

Diam.	Code	Grade/Description	Pack of
55 mm	FTR 3.206.055	1288 / Filter discs.	100
70 mm	FTR 3.206.070	1288 / Filter discs.	100
90 mm	FTR 3.206.090	1288 / Filter discs.	100
110 mm	FTR 3.206.110	1288 / Filter discs.	100
125 mm	FTR 3.206.125	1288 / Filter discs.	100
150 mm	FTR 3.206.150	1288 / Filter discs.	100
185 mm	FTR 3.206.185	1288 / Filter discs.	100
240 mm	FTR 3.206.240	1288 / Filter discs.	100

### Grade 1289 - plain, medium wide pores, medium fast

commonly used grade for analytical work, coarser precipitates like sulphides of silver, arsenic, antimony, cadmium, lead, iron and magnesium; lead chromate, ammonium molybdate, alkaline earth carbonates etc.  
 Basis weight 84 g/m<sup>2</sup>  
 Filtration velocity: 10 ml / 20 seconds  
 Typical pore size: 8 - 12 µm  
 Similar to: S&S 597, M-N 616

Diam.	Code	Grade/Description	Pack of
55 mm	FTR 3.207.055	1289 / Filter discs.	100
70 mm	FTR 3.207.070	1289 / Filter discs.	100
90 mm	FTR 3.207.090	1289 / Filter discs.	100
110 mm	FTR 3.207.110	1289 / Filter discs.	100
125 mm	FTR 3.207.125	1289 / Filter discs.	100
150 mm	FTR 3.207.150	1289 / Filter discs.	100
185 mm	FTR 3.207.185	1289 / Filter discs.	100
240 mm	FTR 3.207.240	1289 / Filter discs.	100

### Grade 1291 - fine pored, very dense, very low rate of filtration

fine-grained precipitates cold-precipitated barium sulphate, meta-stannic acid  
 Basis weight 84 g/m<sup>2</sup>  
 Filtration velocity: 10 ml / 180 seconds  
 Typical pore size: 2 - 3 µm  
 Similar to: S&S 602 h, M-N 619 de

Diam.	Code	Grade/Description	Pack of
55 mm	FTR 3.209.055	1291 / Filter discs.	100
70 mm	FTR 3.209.070	1291 / Filter discs.	100
90 mm	FTR 3.209.090	1291 / Filter discs.	100
110 mm	FTR 3.209.110	1291 / Filter discs.	100
125 mm	FTR 3.209.125	1291 / Filter discs.	100
150 mm	FTR 3.209.150	1291 / Filter discs.	100
185 mm	FTR 3.209.185	1291 / Filter discs.	100
240 mm	FTR 3.209.240	1291 / Filter discs.	100

### Grade 292 - medium to slowly filtering, medium tight

fast filtration of fine precipitates such as calcium oxalate, magnesium ammonium phosphate, coarser forms of barium sulphate  
 Basis weight 87 g/m<sup>2</sup>  
 Filtration velocity: 10 ml / 45 seconds  
 Typical pore size: 5 - 8 µm  
 Similar to: Whatman 1, S&S 593, M-N 616 md

Diam.	Code	Grade/Description	Pack of
55 mm	FTR 3.205.055	292 / Filter discs.	100
70 mm	FTR 3.205.070	292 / Filter discs.	100
90 mm	FTR 3.205.090	292 / Filter discs.	100
110 mm	FTR 3.205.110	292 / Filter discs.	100
125 mm	FTR 3.205.125	292 / Filter discs.	100
150 mm	FTR 3.205.150	292 / Filter discs.	100
185 mm	FTR 3.205.185	292 / Filter discs.	100
240 mm	FTR 3.205.240	292 / Filter discs.	100



### Grade 292a - slowly filtering, narrow pores

filtration of fine precipitates such as lead dioxide, calcium fluoride, nickel sulphide, zinc sulphide  
 Basis weight 97 g/m<sup>2</sup>  
 Filtration velocity: 10 ml / 60 seconds  
 Typical pore size: 5 - 8 µm  
 Similar to: Whatman 2, S&S 2095

Diam.	Code	Grade/Description	Pack of
55 mm	FTR 3.215.055	292a / Filter discs.	100
70 mm	FTR 3.215.070	292a / Filter discs.	100
90 mm	FTR 3.215.090	292a / Filter discs.	100
110 mm	FTR 3.215.110	292a / Filter discs.	100
125 mm	FTR 3.215.125	292a / Filter discs.	100
150 mm	FTR 3.215.150	292a / Filter discs.	100
185 mm	FTR 3.215.185	292a / Filter discs.	100
240 mm	FTR 3.215.240	292a / Filter discs.	100

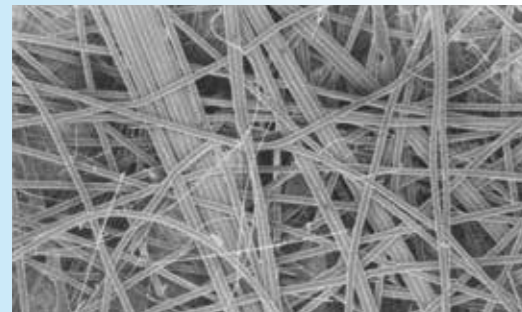
## GENERAL PURPOSE, QUALITATIVE-TECHNICAL FILTERS

### Grade 3 hw - medium rate of filtration, increased wet strength, plain

filtration of fine precipitates such as lead dioxide, calcium fluoride, nickel sulphide, zinc sulphide  
 Basis weight 65 g/m<sup>2</sup>  
 Filtration velocity: 10 ml / 20 seconds  
 Typical pore size: 8 - 12 µm  
 Similar to: Whatman Student Grade, S&S 595, 3002 M-N 615

Diam.	Code	Grade/Description	Pack of
55 mm	FTR 3.303.055	3 hw / Filter discs.	100
70 mm	FTR 3.303.070	3 hw / Filter discs.	100
90 mm	FTR 3.303.090	3 hw / Filter discs.	100
110 mm	FTR 3.303.110	3 hw / Filter discs.	100
125 mm	FTR 3.303.125	3 hw / Filter discs.	100
150 mm	FTR 3.303.150	3 hw / Filter discs.	100
185 mm	FTR 3.303.185	3 hw / Filter discs.	100
240 mm	FTR 3.303.240	3 hw / Filter discs.	100

## GLASS MICROFIBRE FILTERS



MICRO-GLASS FIBRE FILTERS BINDER FREE UNDER A RASTER ELECTRON MICROSCOPE

### Grade MGA

Highly efficient for general laboratory filtration, clarification of buffer and reagent solutions corresponds to many international standards for air and water pollution monitoring

Basis weight	52 g/m <sup>2</sup>
Thickness	0,25 mm
Particle retention in liquids:	1,6 µm
Pressure drop:	33 mbar (a=10 m <sup>2</sup> , flow velocity 40 cm/sec. )
Finish:	binder-free
Similar to:	Whatman GF/A, S&S GF 50, M-N GF 1

Diam.	Code	Grade/Description	Pack of
25 mm	FTR 3.1101.025	MGA / Glass Microfibre discs.	100
47 mm	FTR 3.1101.047	MGA / Glass Microfibre discs.	100
50 mm	FTR 3.1101.050	MGA / Glass Microfibre discs.	100
55 mm	FTR 3.1101.055	MGA / Glass Microfibre discs.	100
70 mm	FTR 3.1101.070	MGA / Glass Microfibre discs.	100
90 mm	FTR 3.1101.090	MGA / Glass Microfibre discs.	100
100 mm	FTR 3.1101.100	MGA / Glass Microfibre discs.	100
110 mm	FTR 3.1101.110	MGA / Glass Microfibre discs.	100
125 mm	FTR 3.1101.125	MGA / Glass Microfibre discs.	100
150 mm	FTR 3.1101.150	MGA / Glass Microfibre discs.	100
180 mm	FTR 3.1101.180	MGA / Glass Microfibre discs.	100

### Grade MGC

Standard filter for the clarification and monitoring of waste water and water, scintillation counting on the filter, cell harvesting, hydrocarbon analysis where cellulose fibres a nuisance.

Basis weight	52 g/m <sup>2</sup>
Thickness	0,26 mm
Particle retention in liquids:	1,2 µm
Pressure drop:	54 mbar (a=10 m <sup>2</sup> , flow velocity 40 cm/sec. )
Finish:	binder-free
Similar to:	Whatman GF/C, S&S GF 52, M-N GF 3

Diam.	Code	Grade/Description	Pack of
25 mm	FTR 3.1103.025	MGC / Glass Microfibre discs.	100
47 mm	FTR 3.1103.047	MGC / Glass Microfibre discs.	100
50 mm	FTR 3.1103.050	MGC / Glass Microfibre discs.	100
55 mm	FTR 3.1103.055	MGC / Glass Microfibre discs.	100
70 mm	FTR 3.1103.070	MGC / Glass Microfibre discs.	100
90 mm	FTR 3.1103.090	MGC / Glass Microfibre discs.	100
100 mm	FTR 3.1103.100	MGC / Glass Microfibre discs.	100
110 mm	FTR 3.1103.110	MGC / Glass Microfibre discs.	100
125 mm	FTR 3.1103.125	MGC / Glass Microfibre discs.	100
150 mm	FTR 3.1103.150	MGC / Glass Microfibre discs.	100
180 mm	FTR 3.1103.180	MGC / Glass Microfibre discs.	100

## CELLULOSE EXTRACTION THIMBLES

for Soxhlet extraction

### Grade 30

extraction thimbles made of cellulose, are perfect sample reservoirs for Soxhlet extraction in quality control, research and/or analysis. Solvent extraction from solids and semi-solids can be carried out easily and reliably. The thimbles fit Soxhlet extractors and automatic extractors.

Material	Cellulose
Shape	hollow cylinders with round bottom
Max. temp. res.:	120 °C

ID x H	Code	Grade/Description	Pack of
22 x 80 mm <sup>1</sup> .	FTR 1201.022080	30/extraction thimbles	25
25 x 80 mm	FTR 1201.025080	30/extraction thimbles	25
25 x 100 mm <sup>1</sup> .	FTR 1201.025100	30/extraction thimbles	25
26 x 60 mm <sup>3</sup> .	FTR 1201.026060	30/extraction thimbles	25
28 x 22 mm <sup>4</sup> .	FTR 1201.028022	30/extraction thimbles	25
30 x 80 mm	FTR 1201.030080	30/extraction thimbles	25
33 x 80 mm <sup>2,3,5</sup> .	FTR 1201.033080	30/extraction thimbles	25
33 x 94 mm <sup>1</sup> .	FTR 1201.033094	30/extraction thimbles	25
33 x 118 mm	FTR 1201.033118	30/extraction thimbles	25
43 x 123 mm <sup>1</sup> .	FTR 1201.043123	30/extraction thimbles	25

- fits Büchi B-811
- fits Gerhardt Soxterm Automatic
- fits Foss Tecator System
- fits Foss Soxtec 2050
- fits Velp Extractors SER 148



## GRIDDED MEMBRANE FILTERS

Sartorius® brand

Sterile, individually packed membrane filters have long become standard for routine microbiological quality control because of the user benefits they offer. They are ready-to-use and save preparatory time, they avoid the possibility of contamination of remaining filters in opened packs and are GLP conform, having filter identification and lot number printed on each individual envelope.

Material:	Cellulose nitrate, white with black grid
Reaction to water:	Hydrophilic
Grid size:	3,1 x 3.1 mm
Pore size:	0,45 micron
Diameter:	47 mm
Presentation:	sSterile, individually packed

Diam.	Code	Pack of
47 mm	SAR 11406-47ACR	1000 (10 x 100)



**SYRINGE FILTERS**

Sartorius® brand

Cellulose acetate syringe filters are used for the filtration of volumes up to 100 ml. The syringe filters units are ideal for applications requiring maximum sample recovery such as: Tissue culture preparation, sterile filtration and clarification of biological fluids, specimen solutions, protein and enzyme filtration, hybridization buffers and other aqueous solutions.



**Specification:**

Pore size	0,20 µm	0,45 µm
Color code	blue	yellow
Membrane	Cellulose Acetate	
Housing	Cyrolite	
Diameter	28 mm	
Filter aerea	5,3 cm <sup>2</sup>	
Idle Volume	0,1 ml	
Bubble Point	3,2 bar	1,6 bar
Max. Pressure	4,5 bar	
Burst Strength	6 bar	
Max. temperature	50 °C	
Flow Rate (water)	60 ml/min	180 ml/min
Hydrophilic	yes	
Inlet	Luer lock	
Outlet	Luer lock	
Presentation	sterile, individually packed	

Pore size	Code	Color Code	Pack of
0,20 µm	SAR 16534-K	blue	50
0,45 µm	SAR 16555-K	yellow	50



ABBE Refractometers .....	84	Erlenmeyer Flasks, glass .....	88
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