Laboratory Glass Instruments of Highest Quality

Lenz Laborglas GmbH & Co.KG

Address

Am Ried 8
D-97877 Wertheim/Main

Telephone
+49 (0) 93 42 - 96 09-0

Telefax
+49 (0) 93 42 - 96 09-30

E-Mail
info@lenz-laborglas.de

Internet
www.lenz-laborglas.de

Banking connections:

Volksbank Main-Tauber
Swift: GENO DE 6K
Sort code: 673 900 00
IBAN: DE38 6739 0000 0000 0338 04
A/C: 338 04

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Laborglas GmbH & Co. KG

Tradition and Modern Technology

Ahead of Times out of Tradition

With 70 years company tradition and our advanced know-how we are today a leading manufacturer of laboratory glass instruments with customers and interests worldwide. Our laboratory glass instruments can be found in countless chemical and scientific laboratories.

Product quality without compromises, innovative solutions and perfect service - they are the pillars of our success.

We strive to offer our clients, suppliers and distribution partners these services on a reliable basis and highest standard.

More than 100 qualified specialists continuously work on the development and improvement of the proven quality of Lenz laboratory glass instruments.

We feel obligated to the progress of modern technology and the growing demands of our clients.

Today and in the future.

Function und Precision

The production of our laboratory glass instruments is determined by modern process-technology. Half and fully-automatic micro-processor-controlled glass-processing machines, particularly supported by robotics, guarantee a continuous economical production.

But despite our advanced technology: In order to secure highest demands on function and precision, Lenz laboratory glass instruments receive the finishing touch by hand.

Manufacturing of large voluminous instruments

Assignment-orientated production of small series

Glass-blowing machines

Automatic hot processing

Integral Quality Philosophy

From the development to the manufacturing of our laboratory glass instruments, quality is our goal.

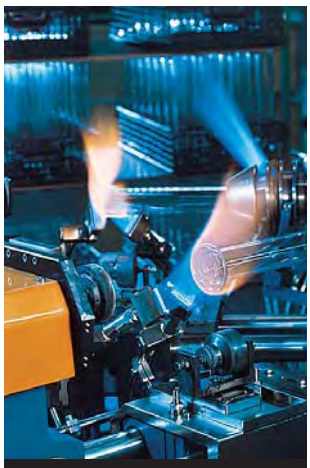
We test each and every manufacturing step by means of an extensive quality management system, based on DIN ISO 9001 / EN 29001. This guarantees high quality from the development to the delivery. We are not only committed to the quality of our products, but also to that of our environment. As an example, we are automatically reprocessing our grinding waste water by means of a microprocessor-controlled distillation and lead it back in the production cycle.

Individual Solutions

Staying true to our self-image as a service-enterprise for chemistry and science, we offer our clients a global service. Our high-quality glass blowers make products made to measure:
Pretentious special preparations and small production series, high precision application- and melting-processes, and manufacturing of large capacity glass instruments.

Innovative Product Diversity

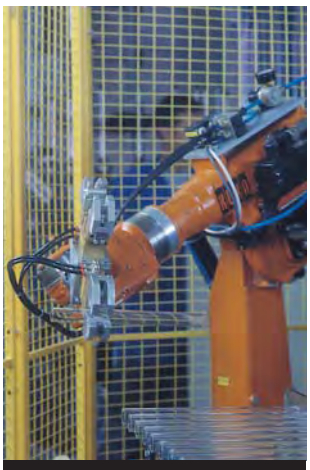
With more than 10,000 products we offer an outstanding range of glass instruments. The Lenz product range reaches from standard test tubes to high-tech distillation apparatus.



Glass-forming machine with 8 processing stations

Grinding shop

Fully automatic glass-forming machine with 8 processing stations



Robotic processing

Lenz - The Specialist for Ground Joints

The Ground Joint Instruments Range

With decades of experience, advanced technological know-how and the outstanding properties of DURAN® glass we guarantee the proven quality of our precision ground joints.

The Lenz ground joint instruments range includes conical joints, stopcocks, ground joint flasks, separating and dropping funnels as well as a large range of ground joint components.

Quality with System

Lenz ground joint instruments are produced according to DIN 12242 / ISO 393.
Each production step is tested by a quality management system, based on DIN ISO 9001 / EN 29001. The test are examined by a cone measuring device for checking the taper, a surface roughness meter for testing the roughness parameters and a wall thickness measuring apparatus with a magnetic inductive measuring process to guarantee a homogenuos concentricity and wall thickness.

A multiple-station unit serves for grinding , for pre- and post polishing of of our ground joints. An electro-mechanical scanner ensures constant quality.
In cases of specific high demands on function and precision the grinding is processed by hand.

SQC - Statistical Quality Control

Circular grinding machines grind NS-cones half-automatically

Multiple-station unit for pre- and post-polishing of NS-sockets

Lenz Ground Joint Instruments

Lenz ground joint instruments are branded by:

- high taper accuracy of the cones
- precise concentricity
- small roughness of the surfaces

These properties guarantee

- excellent tightness
- minimized need for grease
- no bend out of line

How to identifiy Lenz Ground Joint Instruments

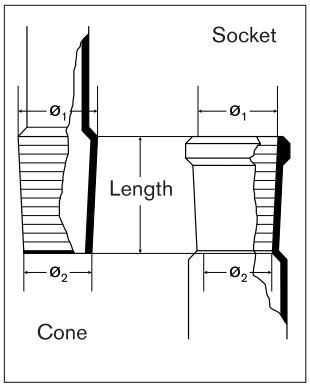
Lenz ground joint instruments are marked with the logo of our company and indicate the respective size of the ground joint.

Lenz Laborglas GmbH & Co. KG

Conical Joints NS to DIN 12242 / ISO 383

Size NS	Cone Ø$_1$* mm	Socket Ø$_2$* mm	Length mm
5/13	5	3.6	13
7/16	7.5	5.8	16
10/19	10	8	19
12/21	12.5	10.3	21
14/23	14.5	12.1	23
19/26	18.8	16.1	26
24/29	24	21	29
29/32	29.2	25.9	32
34/35	34.5	30.9	35
45/40	45	40.9	40
60/46	60	55.3	46
71/51	71	65.8	51
85/55	85	79.4	55

* approximate measures



Important Information about the Catalog

Figures

The figures serve for illustration purposes. They do not necessarily have to agree with the described article in every detail.

Dimensions

Dimensions given without exact tolerances are approximate figures. The actual test and measuring results may vary due to numerous factors beyond our control. For this reason, the user must carefully check the data when transferring it to particular application in question. Catalog numbers and technical specifications are subject to change without notice.

Packaging Units

The packaging units correspond with the recommended order quantitiy. The minimum order quantities are indicated in the respective current price list.

Ordering Possibilities

Our products can be purchased from mayor supply dealers. Should you have difficulties finding a dealer in your vicinity, please contact us.

Custom Made Products

Beside our standard product range we manufacture special custom made products according to your individual demands. For further information, please contact us.

How to contact us:

LENZ Laborglas GmbH & Co.KG
Am Ried 8
D-97877 Wertheim/Main

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Telefax
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E-Mail
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Internet
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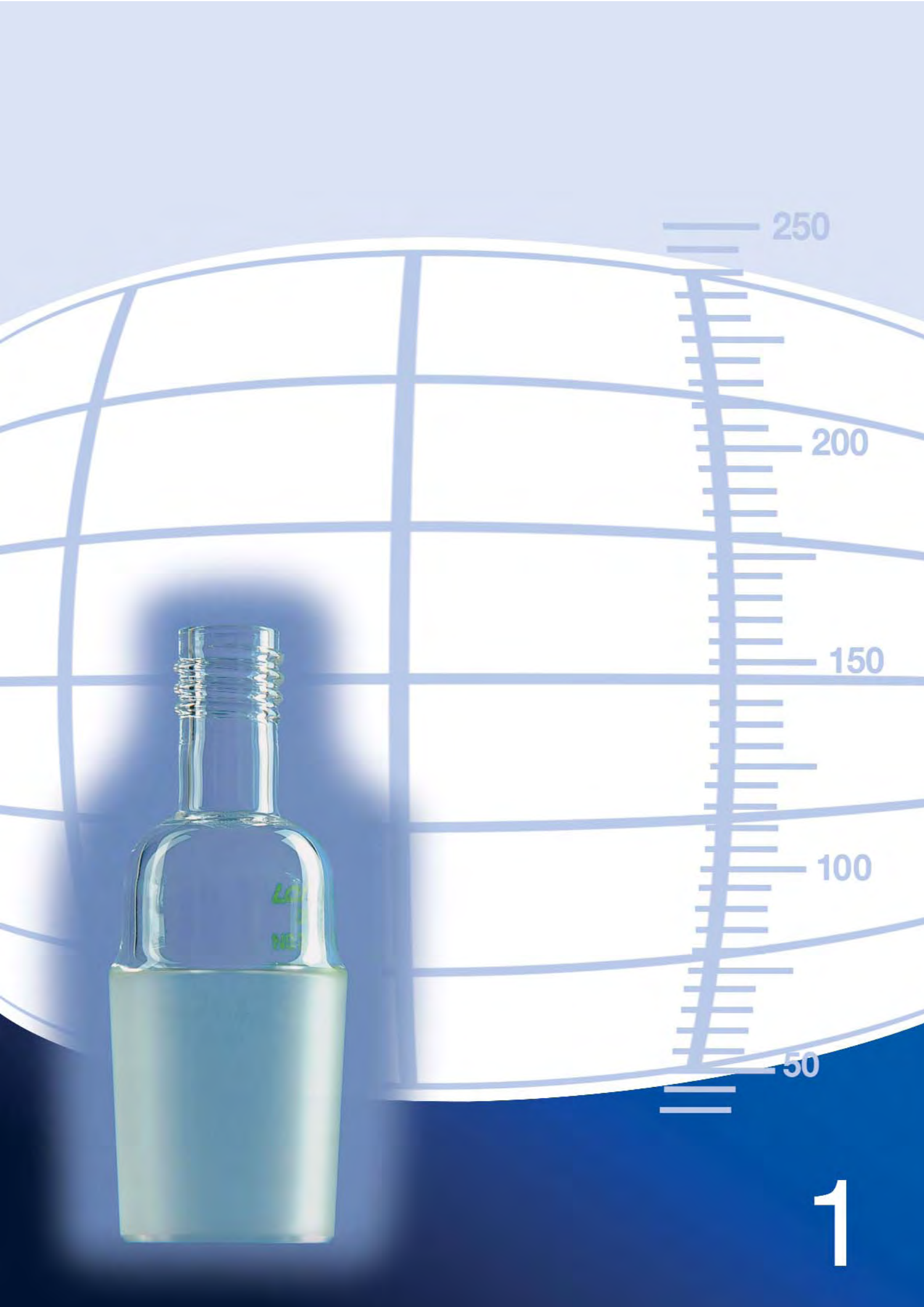
Content



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Cone


Cone with Cone Tip


Cone with Angle Tip


Cone with Short Tip

Cones

DURAN®. DIN 12242 Form B.
Precisely grinded conical ground cones.
Edges melted, ground rims bevelled.

Cone NS	Ø mm	Wall Th. mm	Total Length approx. mm	SP pcs.	Cat. No.
5/13	4	0,8	115	10	1.1002.05
7/16	6	1,5	115	10	1.1002.07
10/19	8	1,5	115	10	1.1002.10
12/21	11	1,5	120	10	1.1002.12
14/23	13	1,5	120	10	1.1002.14
19/26	17	1,8	120	10	1.1002.19
24/29	22	1,8	130	10	1.1002.24
29/32	26	2,0	130	10	1.1002.29
34/35	30	2,0	130	10	1.1002.34
40/38	36	2,0	140	10	1.1002.40
45/40	40	2,3	140	10	1.1002.45
50/42	46	2,3	140	1	1.1002.50
55/44	50	2,5	140	1	1.1002.55
60/46	54	2,5	150	1	1.1002.60
71/51	65	3,2	180	1	1.1002.71
85/55	80	3,5	180	1	1.1002.85

Cones with Cone Tip

DURAN®. DIN 12242 Form G.

Cone NS	Ø mm	Wall Th. mm	Total Length approx. mm	SP pcs.	Cat. No.
7/16	6	1,5	115	10	1.1003.07
10/19	8	1,5	115	10	1.1003.10
12/21	11	1,5	120	10	1.1003.12
14/23	13	1,5	120	10	1.1003.14
19/26	17	1,8	120	10	1.1003.19
24/29	22	1,8	130	10	1.1003.24
29/32	26	2,0	130	10	1.1003.29
34/35	30	2,0	130	10	1.1003.34
40/38	36	2,0	140	10	1.1003.40
45/40	40	2,3	140	10	1.1003.45
50/42	46	2,3	140	1	1.1003.50
55/44	50	2,5	140	1	1.1003.55
60/46	54	2,5	160	1	1.1003.60
71/51	65	3,2	180	1	1.1003.71
85/55	80	3,5	180	1	1.1003.85

Cones with Angle Drip

DURAN®. DIN 12242 Form F.

Cone NS	Ø mm	Wall Th. mm	Total Length approx. mm	SP pcs.	Cat. No.
14/23	13	1,5	120	10	1.1004.14
19/26	17	1,8	120	10	1.1004.19
24/29	22	1,8	130	10	1.1004.24
29/32	26	2,0	130	10	1.1004.29

Cones with Short Tip

DURAN®.

Cone NS	Ø mm	Wall Th. mm	Total Length approx. mm	SP pcs.	Cat. No.
14/23	13	1,5	120	10	1.1005.14
19/26	17	1,8	120	10	1.1005.19
24/29	22	1,8	130	10	1.1005.24
29/32	26	2,0	130	10	1.1005.29

Cones, Full Length

DURAN®.

Cone NS	Ø mm	Wall Th. mm	Total Length approx. mm	SP pcs.	Cat. No.
5/20	4	0,8	115	10	1.1007.05
7/25	6	1,5	115	10	1.1007.07
10/30	8	1,5	115	10	1.1007.10
12/32	11	1,5	120	10	1.1007.12
14/35	13	1,5	120	10	1.1007.14
19/38	17	1,8	120	10	1.1007.19
24/40	22	1,8	130	10	1.1007.24
29/42	26	2,0	130	10	1.1007.29
34/45	30	2,0	140	10	1.1007.34
45/50	40	2,3	150	10	1.1007.45

Cone, Full Length

Cone, Full Length, with Cone Tip

Cones, Full Length, with Cone Tip

DURAN®.

Cone NS	Ø mm	Wall Th. mm	Total Length approx. mm	SP pcs.	Cat. No.
14/35	13	1,5	120	10	1.1008.14
19/38	17	1,8	120	10	1.1008.19
24/40	22	1,8	130	10	1.1008.24
29/42	26	2,0	130	10	1.1008.29

Cones with Cone Tip and Special Tube Dimensions

DURAN®.

Cone NS	Ø mm	Wall Th. mm	Total Length approx. mm	SP pcs.	Cat. No.
29/32	40	2,3	300	1	1.1012.01
34/35	40	2,3	300	1	1.1012.02
45/40	40	2,3	300	1	1.1012.03
60/46	50	2,5	300	1	1.1012.04
71/51	50	2,5	350	1	1.1012.05

Cone with Cone Tip and Special Tube Dimensions

Sockets

DURAN®. DIN 12249 Form E.
Precisely grinded conical ground sockets.
Edges melted, ground rims bevelled.

Socket NS	Ø mm	Wall Th. mm	Total Length approx. mm	SP pcs.	Cat. No.
5/13	8	1,5	115	10	1.1001.05
7/16	10	1,5	115	10	1.1001.07
10/19	13	1,5	115	10	1.1001.10
12/21	15	1,8	120	10	1.1001.12
14/23	17	1,8	120	10	1.1001.14
19/26	22	1,8	120	10	1.1001.19
24/29	28	2,0	130	10	1.1001.24
29/32	33	2,0	130	10	1.1001.29
34/35	40	2,3	130	10	1.1001.34
40/38	44	2,3	140	10	1.1001.40
45/40	50	2,5	140	10	1.1001.45
50/42	54	2,5	140	1	1.1001.50
55/44	60	2,2	140	1	1.1001.55
60/46	65	2,2	160	1	1.1001.60
71/51	75	3,2	180	1	1.1001.71
85/55	90	3,5	180	1	1.1001.85

Socket

Socket, Full Length

Socket with Special Tube Dimensions

Sockets, Full Length

DURAN®.

Socket NS	Ø mm	Wall Th. mm	Total Length approx. mm	SP pcs.	Cat. No.
5/20	8	1,5	115	10	1.1006.05
7/25	10	1,5	115	10	1.1006.07
10/30	13	1,5	115	10	1.1006.10
12/32	15	1,8	120	10	1.1006.12
14/35	17	1,8	120	10	1.1006.14
19/38	22	1,8	120	10	1.1006.19
24/40	28	2,0	130	10	1.1006.24
29/42	33	2,0	130	10	1.1006.29
34/45	40	2,3	140	10	1.1006.34
45/50	50	2,5	150	10	1.1006.45

Sockets with Special Tube Dimensions

DURAN®.

Socket NS	Ø mm	Wall Th. mm	Total Length approx. mm	SP pcs.	Cat. No.
14/23	16	1,2	160	1	1.1010.01
14/23	22	1,8	145	1	1.1010.02
29/32	32	2,0	210	1	1.1010.05
29/32	40	2,3	380	1	1.1010.07
45/40	48	2,3	280	1	1.1010.11

Tube with Socket and Cone

Tubes with Socket and Cone

DURAN®.

Socket NS	Cone NS	Ø mm	Wall Th. mm	Length mm	SP pcs.	Cat. No.
14/23	14/23	17	1,8	120	10	1.1014.11
14/23	29/32	26	2,0	130	10	1.1014.14
19/26	19/26	22	1,8	125	10	1.1014.22
29/32	29/32	33	2,0	150	10	1.1014.44

Disposable Ground Joint Sleeves, PTFE

Ground Joint Sleeve with Grip Collar, PTFE

Disposable Ground Joint Sleeves, PTFE

Outstanding chemical resistance at operating temperatures from -200 to + 260 °C. Only 50 µm wall thicknes. The sleeves fit like a second skin without adding bulk. Without protruding rim, simplifying use of joint clips.

for NS	SP pcs.	Cat. No.
14/23	10	1.1015.14
19/26	10	1.1015.19
24/29	10	1.1015.24
29/32	10	1.1015.29
45/40	10	1.1015.45

Ground Joint Sleeves with Grip Collar, PTFE

Outstanding chemical resistance at operating temperatures from -200 to + 260 °C. Sturdy design for permanent use. With grip collar and sealing rings for excellent tightness.

for NS	SP pcs.	Cat. No.
14/23	1	1.1017.14
19/26	1	1.1017.19
24/29	1	1.1017.24
29/32	1	1.1017.29
45/40	1	1.1017.45

Alu-Ring with Hooks

Spring

Alu-Rings with Hooks

For cones and sockets to be used with springs for the safe connection of conical ground joints. No breakage of glass hooks.

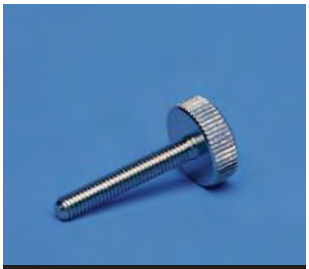
for NS	SP pcs.	Cat. No.
12-14	10	1.1025.14
19-24	10	1.1025.19
29-34	10	1.1025.29
45	10	1.1025.45

Springs

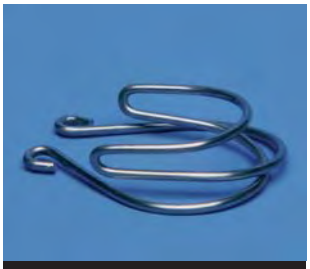
Stainless steel with 2 rings for the safe connection of conical ground joints in combination with Alu-rings with hooks.

Total Length mm	SP pcs.	Cat. No.
25	10	1.1028.25
35	10	1.1028.35
40	10	1.1028.40
60	10	1.1028.60
85	10	1.1028.85

Fork Clamp for NS



Set Screw for NS Fork Clamps



Clip

Fork Clamps for NS

Cr-Ni steel. For ground joints.
Set screw must be ordered separately.

for NS	SP pcs.	Cat. No.
14/23	10	1.1035.14
19/26	10	1.1035.19
24/29	10	1.1035.24
29/32	10	1.1035.29
45/40	10	1.1035.45

Clips

Cr-Ni steel. For ground joints..

for NS	SP pcs.	Cat. No.
14/23	10	1.1032.14
19/26	10	1.1032.19
24/29	10	1.1032.24
29/32	10	1.1032.29
45/40	10	1.1032.45

Set Screws for NS Fork Clamps

Fits all sizes of NS fork clamps Art. 1.1035.14 ff.

for NS	SP pcs.	Cat. No.
14-45	10	1.1035.99

Conical Joint Clip Type „Keck"

Conical Joint Clip Type „Safety Clip"

Conical Joint Clips Type „Keck"

POM. Will not scratch glass surfaces. Excellent resilliance and stability. Outstanding chemical resistance. Operating temperature up to approx. 150 °C.

for NS	Color	SP pcs.	Cat. No.
10/19	turquoise	10	1.1037.10
12/21	violet	10	1.1037.12
14/23	yellow	10	1.1037.14
19/26	blue	10	1.1037.19
24/29	green	10	1.1037.24
29/32	red	10	1.1037.29
34/35	orange	10	1.1037.34
40/38	yellow	10	1.1037.40
45/40	brown	10	1.1037.45

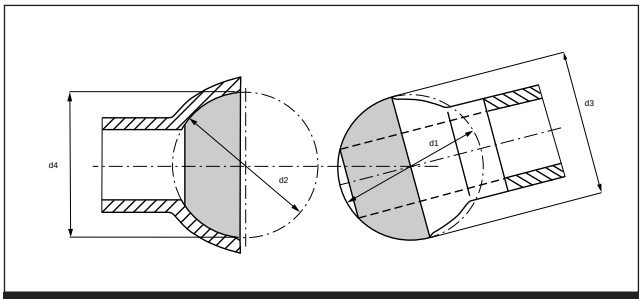
Conical Joint Clips Type „Safety Clip"

POM. Will not scratch glass surfaces. Due to variable gear rods also for use with sleeves with grip collar. Outstanding chemical resistance. Operating temperature up to approx. 150 °C.

for NS	Color	SP pcs.	Cat. No.
10/19	blue	10	1.1038.10
12/21	blue	10	1.1038.12
14/23	blue	10	1.1038.14
19/26	blue	10	1.1038.19
24/29	blue	10	1.1038.24
29/32	blue	10	1.1038.29
34/35	blue	10	1.1038.34
40/38	blue	10	1.1038.40
45/40	blue	10	1.1038.45

Our Spherical Joints are manufactured to Inch dimensions.
The measures are in accordance with DIN 12244 and ISO 641.

Nominal Size	d_1 mm	d_2 mm	d_3 mm	d_4 mm
S13	12,700	12,706	12,50	12,5
S19	19,050	19,057	18,90	18,9
S29	28,575	28,582	28,35	28,3
S35	34,925	34,934	34,65	34,6
S40	38,100	38,109	37,80	37,7
S41	41,275	41,284	40,95	40,9
S51	50,800	50,810	49,40	49,3
S64	63,500	63,510	62,95	62,9



Spherical joints to DIN 12244

Socket Member, Inch Range

Ball Member, Inch Range

Socket Members, Inch Range

DURAN®.

Socket S	Total Length approx. mm	SP pcs.	Cat. No.
13/2	100	10	1.2013.02
13/5	100	10	1.2013.05
19	120	10	1.2019.09
29	120	10	1.2029.15
35	120	10	1.2035.20
40	120	1	1.2040.25
41	120	1	1.2041.25
51	150	1	1.2051.30
65	170	1	1.2065.40

Ball Members, Inch Range

DURAN®.

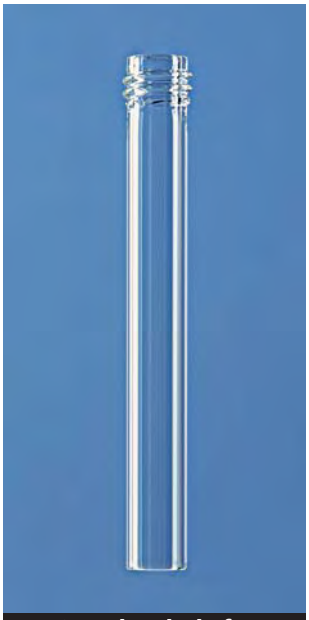
Ball S	Total Length approx. mm	SP pcs.	Cat. No.
13/2	100	10	1.2113.02
13/5	100	10	1.2113.05
19	120	10	1.2119.09
29	120	10	1.2129.15
35	120	10	1.2135.20
40	120	1	1.2140.25
41	120	1	1.2141.25
51	150	1	1.2151.30
65	170	1	1.2165.40

Fork Clamps for Spherical Joints

Stainless steel. Clips for spherical joints, with set screw.

for S	SP pcs.	Cat. No.
13	1	1.2313.02
19	1	1.2319.09
29	1	1.2329.15
35	1	1.2335.20
40/41	1	1.2341.25
51	1	1.2351.30
65	1	1.2365.40

Fork Clamp for Spherical Joints



Screwthread Tube for Glassblowers

Screwthread Tubes for Glassblowers

DURAN®. DIN 12216. With DIN-thread GL.

Thread GL	Ø mm	Wall Th. mm	SP pcs.	Cat. No.
14	12	1,5	10	1.3000.14
18	16	1,8	10	1.3000.18
25	22	1,8	10	1.3000.25
32	28	2,0	10	1.3000.32
45	40	2,3	10	1.3000.45

Screwthread Tube with NS Cone

Screwthread Tubes with NS Cone

DURAN®. DIN 12257. With DIN-thread GL and NS cone.

Thread GL	Cone NS	SP pcs.	Cat. No.
14	14/23	1	1.3114.14
14	19/26	1	1.3114.19
14	24/29	1	1.3114.24
14	29/32	1	1.3114.29
18	14/23	1	1.3118.14
18	19/26	1	1.3118.19
18	24/29	1	1.3118.24
18	29/32	1	1.3118.29
25	14/23	1	1.3125.14
25	19/26	1	1.3125.19
25	24/29	1	1.3125.24
25	29/32	1	1.3125.29

Screw-Cap for Screwthread Tubes

Screw-Caps for Screwthread Tubes

PBT with PTFE coated silicone rubber sealing. With DIN-thread GL. Closed top. Resistant up to 180 °C. Color: red

Thread GL	SP pcs.	Cat. No.
14	10	1.3200.14
18	10	1.3200.18
25	10	1.3200.25
32	10	1.3200.32
45	10	1.3200.45

Screw-Cap with Aperture for Screwthread Tubes

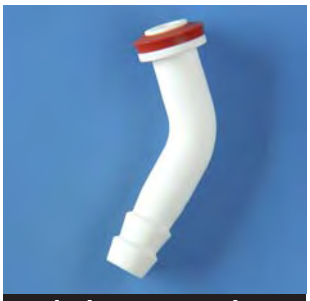
Screw-Caps with Aperture for Screwthread Tubes

PBT. With DIN-thread GL. With aperture. Resistant up to 180 °C. Color: red

Thread GL	Bore mm	SP pcs.	Cat. No.
14	8	10	1.3210.14
18	11	10	1.3210.18
25	15	10	1.3210.25
32	20	10	1.3210.32
45	34	10	1.3210.45

Screwthread Coupling for Screwthread Tubes

Plastic Hose Connection, Straight



Plastic Hose Connection, Bent

Screwthread Couplings for Screwthread Tubes

PBT with integral silicone (VMQ)-PTFE sealing.
For flexible coupling of 2 glass threads GL.
Resistant up to approx. 200°C. Color: red.

Thread GL	SP pcs.	Cat. No.
14	1	1.3215.14
18	1	1.3215.18
25	1	1.3215.25
32	1	1.3215.32

Plastic Hose Connections

PP with silicone (VMQ) sealing.
For screw-caps with bore and DIN-thread GL.

for GL	Description	SP pcs.	Cat. No.
14	straight	10	1.3500.00
18	straight	10	1.3500.01
14	bent	10	1.3600.00
18	bent	10	1.3600.01

Silicone Rubber Sealings with Bore

Silicone Rubber Seals, Septa

Silicone Rubber Sealings with Bore

Silicone (VMQ) with PTFE washers.
For screw-caps with bore.

for GL	O-Ø mm	Bore mm	for Tube O-Ø mm	SP pcs.	Cat. No.
14	12	6	5,5-6,5	10	1.3314.06
18	16	6	5,5-6,5	10	1.3318.06
18	16	8	7,5-9,0	10	1.3318.08
18	16	10	9,0-11,0	10	1.3318.10
25	22	8	7,5-9,0	10	1.3325.08
25	22	10	9,0-11,0	10	1.3325.10
25	22	12	11,0-13,0	10	1.3325.12
32	29	10	9,0-11,0	10	1.3332.10
32	29	12	11,0-13,0	10	1.3332.12
32	29	14	13,0-15,0	10	1.3332.14
32	29	16	15,0-17,0	10	1.3332.16
32	29	18	17,0-19,0	10	1.3332.18
45	42	26	25,0-27,0	10	1.3345.26
45	42	32	31,0-33,0	10	1.3345.32

Silicone Rubber Seals, Septa

Silicone (VMQ). For piercing (Septa).
For screw-caps.

for GL	O-Ø mm	Thickn. mm	SP pcs.	Cat. No.
14	12	2	100	1.3412.14
18	16	2	100	1.3416.18
25	22	2	100	1.3422.25
32	29	2	100	1.3429.32
45	42	3	100	1.3442.45

Hollow Stopper, Hexagonal Plate, Pointed Bottom

Hollow Stopper, Hexagonal Plate, Flat Bottom

Hollow Stoppers, Hexagonal Plate, Pointed Bottom

DIN 12252 Form C. Hollow, with pointed bottom.

Cone NS	SP pcs.	Cat. No.
7/16	10	1.4000.07
10/19	10	1.4000.10
12/21	10	1.4000.12
14/23	10	1.4000.14
19/26	10	1.4000.19
24/29	10	1.4000.24
29/32	10	1.4000.29
34/35	5	1.4000.34
45/40	5	1.4000.45

Hollow Stoppers, Hexagonal Plate, Flat Bottom

DIN 12252. Hollow, with flat bottom.

Cone NS	SP pcs.	Cat. No.
7/16	10	1.4003.07
10/19	10	1.4003.10
12/21	10	1.4003.12
14/23	10	1.4003.14
19/26	10	1.4003.19
24/29	10	1.4003.24
29/32	10	1.4003.29
34/35	5	1.4003.34
45/40	5	1.4003.45

Stopper, Octagonal Plate, Glass

Stopper, Octagonal Plate, Plastic

Stoppers, Octagonal Plate, Glass

DIN 12252. Solid or semi-hollow.

Cone NS	Description	SP pcs.	Cat. No.
10/19	solid	10	1.4005.10
12/21	solid	10	1.4005.12
14/23	solid	10	1.4005.14
19/26	solid	10	1.4005.19
24/29	solid	10	1.4005.24
29/32	semi-hollow	10	1.4005.29
34/35	semi-hollow	1	1.4005.34
45/40	semi-hollow	1	1.4005.45

Stoppers, Octagonal Plate, Plastic

PE. DIN 12254. Color: white/red

Cone NS	SP pcs.	Cat. No.
7/16	10	1.4010.07
10/19	10	1.4010.10
12/21	10	1.4010.12
14/23	10	1.4010.14
19/26	10	1.4010.19
24/29	10	1.4010.24
29/32	10	1.4010.29
34/35	5	1.4010.34
45/40	5	1.4010.45

Adapter with Ground Joint

Adapter, NS-Cone
to Spherical Joint Socket

Reduction and Expansion Adapters with Ground Joint

DURAN®. DIN 12257.

Socket NS	Cone NS	Description	SP pcs.	Cat. No.
12/21	14/23	(1)	1	1.5012.14
14/23	12/21	(1)	1	1.5014.12
14/23	19/26	DIN	1	1.5014.19
14/23	24/29	(1)	1	1.5014.24
14/23	29/32	DIN	1	1.5014.29
19/26	14/23	DIN	1	1.5019.14
19/26	24/29	(1)	1	1.5019.24
19/26	29/32	DIN	1	1.5019.29
19/26	34/35	(1)	1	1.5019.34
24/29	14/23	(1)	1	1.5024.14
24/29	19/26	(1)	1	1.5024.19
24/29	29/32	(1)	1	1.5024.29
24/29	34/35	(1)	1	1.5024.34
24/29	45/40	(1)	1	1.5024.45
29/32	14/23	DIN	1	1.5029.14
29/32	19/26	DIN	1	1.5029.19
29/32	24/29	(1)	1	1.5029.24
29/32	34/35	(1)	1	1.5029.34
29/32	45/40	DIN	1	1.5029.45
29/32	60/46	(1)	1	1.5029.60
29/32	71/51	(1)	1	1.5029.71
34/35	19/26	(1)	1	1.5034.19
34/35	24/29	(1)	1	1.5034.24
34/35	29/32	(1)	1	1.5034.29
45/40	29/32	(1)	1	1.5045.29
45/40	34/35	(1)	1	1.5045.34
45/40	60/46	(1)	1	1.5045.60
45/40	71/51	(1)	1	1.5045.71
60/46	29/32	(1)	1	1.5060.29
60/46	45/40	(1)	1	1.5060.45
71/51	29/32	(1)	1	1.5071.29
71/51	45/40	(1)	1	1.5071.45

(1) in addition to DIN

Adapters, NS Cone to Spherical Joint Socket

DURAN®.

Adapters from ground joint cone to spherical joint socket.

Cone NS	Socket S	SP pcs.	Cat. No.
14/23	19	1	1.5219.14
29/32	19	1	1.5219.29
29/32	29	1	1.5229.29
29/32	35	1	1.5235.29

Adapter, Ground Joint Socket
to Spherical Joint Ball

Adapters, NS Socket to Spherical Joint Ball

DURAN®.

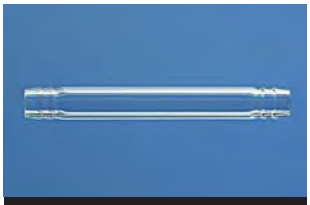
Adapters from ground joint socket to spherical joint ball.

Socket NS	Ball S	SP pcs.	Cat. No.
14/23	19	1	1.5314.19
29/32	29	1	1.5329.29
29/32	35	1	1.5329.35
29/32	41	1	1.5329.41

Tubing Connectors, straight

DURAN®. Tubing connectors straight, with 2 hose connectors.

Total Length mm	O-Ø mm	SP pcs.	Cat. No.
115	8	10	1.6000.08
115	9	10	1.6000.09
115	10	10	1.6000.10



Tubing Connector, Straight

Tubing Connectors, T-shape

DURAN®. Tubing connectors T-shape, with 3 hose connectors.

Total Length mm	O-Ø mm	SP pcs.	Cat. No.
115	8-9	1	1.6005.08
115	10-11	1	1.6005.10

T-StückTubing Connector, T-shape

Tubing Connectors, Y-shape

DURAN®. Tubing connectors Y-shape, with 3 hose connectors.

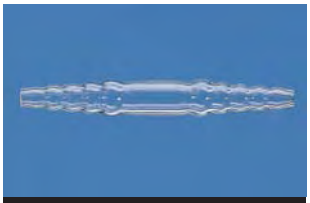
Total Length mm	O-Ø mm	SP pcs.	Cat. No.
115	8-9	1	1.6007.08
115	10-11	1	1.6007.10

Tubing Connector, Y-shape

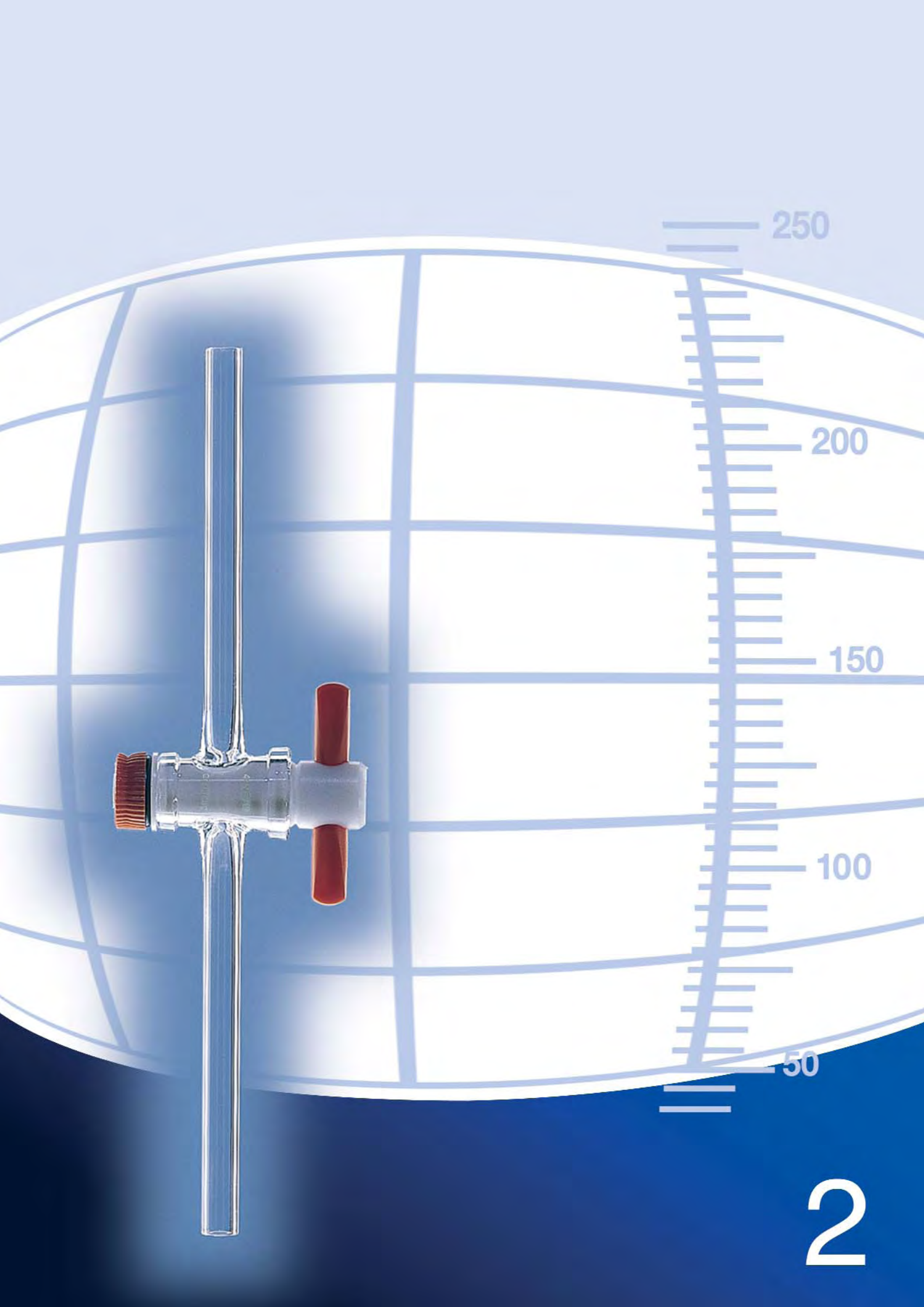
Universal Tubing Connectors

DURAN®. Universal tubing connectors for tubings with different diameters.

Total Length mm	for Tubing I-Ø mm	SP pcs.	Cat. No.
110	6 - 14	1	1.6010.00



Universal Tubing Connector



2

Stopcocks, Straight Bore with Solid Glass Plug

DURAN®. DIN 12541-1. With solid NS glass plug and screwthread retaining device. With one straight bore.
Leakage rate acc. to DIN 12540-1.

Stopcock NS	Bore mm	Description	SP pcs.	Cat. No.
12,5	1,5	DIN	1	2.1012.01
12,5	2,5	(1)	1	2.1012.02
14,5	2,5	DIN	1	2.1014.02
14,5	4,0	(1)	1	2.1014.04
18,8	4,0	DIN	1	2.1018.04
18,8	6,0	(1)	1	2.1018.06
21,5	6,0	DIN, (2)	1	2.1021.06
24	8,0	(1), (2)	1	2.1024.08
29,2	10,0	DIN, (2)	1	2.1029.10
12,5	1,5 cap	DIN, capillary side arms	1	2.2212.01
14,5	2,5 cap	DIN, capillary side arms	1	2.2214.02

(1) in addition to DIN range

(2) supplied with rubber retaining device

Stopcock, Straight Bore with Solid Glass Plug

Stopcock, Straight Bore with Hollow Glass Plug

Stopcock, Straight Bore with PTFE Plug

Stopcocks, Straight Bore with Hollow Glass Plug

DURAN®. DIN 12451-1. With hollow NS glass plug and screwthread retaining device. With one straight bore.
Leakage rate acc. to DIN 12540-1.

Stopcock NS	Bore mm	SP pcs.	Cat. No.
12,5	1,5	1	2.1312.01
14,5	2,5	1	2.1314.02
18,8	4,0	1	2.1318.04
21,5	6,0	1	2.1321.06
24	8,0	1	2.1324.08
29,2	10,0	1	2.1329.10

Stopcocks, Straight Bore with PTFE Plug

DURAN®. DIN 12541-1. With PTFE plug and screwthread retaining device. With one straight bore
Leakage rate acc. to DIN 12540-1.

Stopcock NS	Bore mm	Description	SP pcs.	Cat. No.
12,5	1,5	DIN	1	2.1612.01
12,5	2,5	(1)	1	2.1612.02
14,5	2,5	DIN	1	2.1614.02
14,5	4,0	(1)	1	2.1614.04
18,8	4,0	DIN	1	2.1618.04
18,8	6,0	(1)	1	2.1618.06
21,5	6,0	DIN	1	2.1621.06
24	8,0	(1)	1	2.1624.08
29,2	10,0	DIN	1	2.1629.10
12,5	1,5 cap	DIN, capillary side arms	1	2.2412.01
14,5	2,5 cap	DIN, capillary side arms	1	2.2414.02

(1) in addition to DIN

Spare Plugs for Stopcocks, Straight Bore

With retaining device.

Stopcock NS	Bore mm	Plug	SP pcs.	Cat. No.
12,5	1,5	solid	1	2.1112.01
12,5	2,5	solid	1	2.1112.02
14,5	2,5	solid	1	2.1114.02
14,5	4,0	solid	1	2.1114.04
18,8	4,0	solid	1	2.1118.04
18,8	6,0	solid	1	2.1118.06
21,5	6,0	solid	1	2.1121.06
24	8,0	solid	1	2.1124.08
29,2	10,0	solid	1	2.1129.10
12,5	1,5	hohl	1	2.1412.01
14,5	2,5	hohl	1	2.1414.02
18,8	4,0	hohl	1	2.1418.04
21,5	6,0	hohl	1	2.1421.06
24	8,0	hohl	1	2.1424.08
29,2	10,0	hohl	1	2.1429.10
12,5	1,5	PTFE	1	2.1712.01
12,5	2,5	PTFE	1	2.1712.02
14,5	2,5	PTFE	1	2.1714.02
14,5	4,0	PTFE	1	2.1714.04
18,8	4,0	PTFE	1	2.1718.04
18,8	6,0	PTFE	1	2.1718.06
21,5	6,0	PTFE	1	2.1721.06
24	8,0	PTFE	1	2.1724.08
29,2	10,0	PTFE	1	2.1729.10

Needle-valve Stopcocks

Needle-valve Stopcock, Straight

Needle-valve Stopcock, Right-angled

Needle-valve Stopcocks, Straight

DURAN®. Smooth operating spindle of PTFE, with retention device to avoid accidentially dismounting. Screw cap and retention device of PP. Operating temperature -20 to 150 °C. Needle-valve stopcocks can be used for accurate dosing and perfectly fit to glass apparatus.

Valve Bore mm	SP pcs.	Cat. No.
0-2,5	1	2.2700.02
0-4,0	1	2.2700.04
0-6,0	1	2.2700.06

Needle-valve Stopcocks, Right-angled

DURAN®. Smooth operating spindle of PTFE, with retention device to avoid accidentially dismounting. Screw cap and retention device of PP. Operating temperature -20 to 150 °C. Needle-valve stopcocks can be used for accurate dosing and perfectly fit to glass apparatus.

Valve Bore mm	SP pcs.	Cat. No.
0-2,5	1	2.2702.02
0-4,0	1	2.2702.04
0-6,0	1	2.2702.06

Valve Keys for Needle-valve Stopcocks

Spare spindles of PTFE for easy exchange for needle-valve stopcocks.

Valve Bore mm	SP pcs.	Cat. No.
0-2,5	1	2.2800.02
0-4,0	1	2.2800.04
0-6,0	1	2.2800.06

Stopcock, Two Way with Solid Glass Plug

Stopcock, Two Way with PTFE Plug

Stopcocks, Two Way with Solid Glass Plug

DURAN®. With solid NS glass plug and screwthread retaining device. With two oblique bores.
Leakage rate acc. to DIN 12540-1.

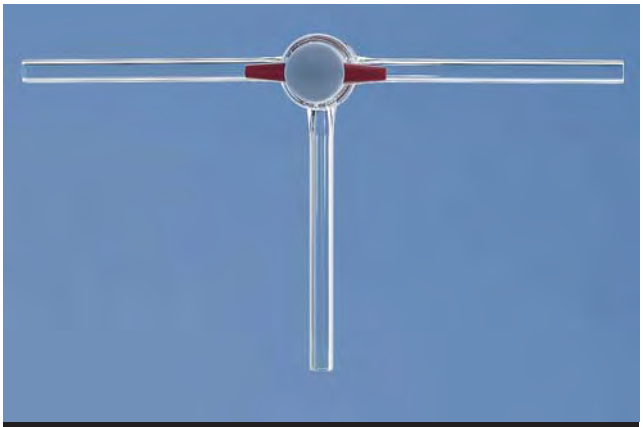
Stopcock NS	Bore mm	Description	SP pcs.	Cat. No.
14,5	1,5		1	2.4014.01
14,5	2,5		1	2.4014.02
18,8	4,0		1	2.4018.04
14,5	1,5 cap	capillary side arms	1	2.4614.01
14,5	2,5 cap	capillary side arms	1	2.4614.02

Stopcocks, Two Way with PTFE Plug

DURAN®. With solid NS glass plug and screwthread retaining device. With two oblique bores.
Leakage rate acc. to DIN 12540-1.

Stopcock NS	Bore mm	Description	SP pcs.	Cat. No.
14,5	1,5		1	2.4314.01
14,5	2,5		1	2.4314.02
18,8	4,0		1	2.4318.04
14,5	1,5 cap	capillary side arms	1	2.4914.01
14,5	2,5 cap	capillary side arms	1	2.4914.02

Stopcock, Three Way with Solid Glass Plug



Stopcock, Three Way with PTFE Plug

Stopcocks, Three Way with Solid Glass Plug

DURAN®. DIN 12554. With solid NS glass plug and screwthread retaining device. T-Bore.
Leakage rate acc. to DIN 12540-1.

Stopcock NS	Bore mm	Description	SP pcs.	Cat. No.
14,5	1,5		1	2.5014.01
14,5	2,5	(1)	1	2.5014.02
18,8	2,5		1	2.5018.02
18,8	4,0	(1)	1	2.5018.04
24	4,0	(2)	1	2.5024.04
29,2	6,0	(2)	1	2.5029.06

(1) in addition to DIN

(2) supplied with rubber retaining device

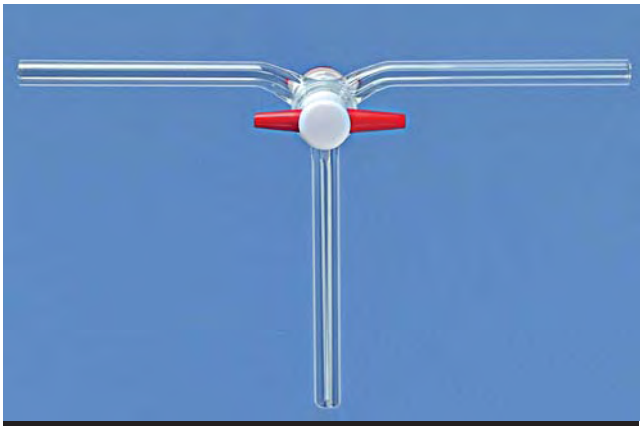
Stopcocks, Three Way with PTFE Plug

DURAN®. DIN 12554. With NS PTFE plug and screwthread retaining device. T-Bore.
Leakage rate acc. to DIN 12540-1.

Stopcock NS	Bore mm	Description	SP pcs.	Cat. No.
14,5	1,5		1	2.5414.01
14,5	2,5	(1)	1	2.5414.02
18,8	2,5		1	2.5418.02
18,8	4,0	(1)	1	2.5418.04
24	4,0		1	2.5424.04
29,2	6,0		1	2.5429.06

(1) in addition to DIN

Stopcock, Three Way with Solid Glass Plug, Czako



Stopcock, Three Way with PTFE Plug, Czako

Stopcocks, Three Way, to Czako

DURAN®. DIN 12563. With solid NS glass plug or PTFE plug and screwthread retaining device. Bore at an angle of 120° acc. to Czako. Leakage rate acc. to DIN 12540-1.

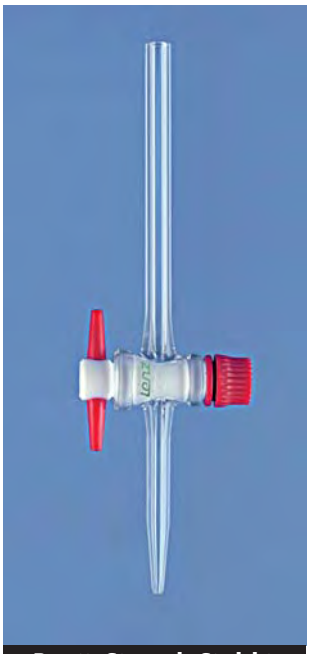
Stopcock NS	Bore mm	Plug	SP pcs.	Cat. No.
14,5	1,5	solid	1	2.6114.01
18,8	2,5	solid	1	2.6118.04
14,5	1,5	PTFE	1	2.6314.01
18,8	2,5	PTFE	1	2.6318.04

Burette Stopcock, Straight, with Glass Plug

Burette Stopcocks, Straight

NS stopcock made of borosilicate- or AR-Glass®. Facetted tip. Plug of solid glass or PTFE, with screwthread retaining device.

Stopcock NS	Bore mm	Stopcock	Plug	SP pcs.	Cat. No.
12,5	1,5	Boro 3.3	solid	1	2.7000.01
12,5	1,5	AR-Glas®	solid	1	2.7002.01
12,5	1,5	Boro 3.3	PTFE	1	2.7005.01
12,5	1,5	AR-Glas®	PTFE	1	2.7007.01



Burette Stopcock, Straight, with PTFE Plug

Burette Stopcock, Lateral,
with Glass Plug

Burette Stopcock, Lateral,
with PTFE Plug

Burette Stopcocks, Lateral

NS stopcock made of borosilicate- or AR-Glass®. Facetted tip. Plug of solid glass or PTFE, with screwthread retaining device.

Stopcock NS	Bore mm	Stopcock	Plug	SP pcs.	Cat. No.
12,5	1,5	Boro 3.3	solid	1	2.7020.01
12,5	1,5	AR-Glas®	solid	1	2.7022.01
12,5	1,5	Boro 3.3	PTFE	1	2.7025.01
12,5	1,5	AR-Glas®	PTFE	1	2.7027.01

Burette Needle-valve Stopcock,
Straight

Burette Needle-valve Stopcock, Lateral

Burette Needle-valve Stopcocks

DURAN®. Valve housing with facetted tip, straight or lateral. PTFE spindle. Cap and security device of PP. Valve bore 0-2,5 mm.

Bore mm	Description	SP pcs.	Cat. No.
NW 2,5	straight	1	2.7009.02
NW 2,5	lateral	1	2.7029.02

Tab for Aspirator Bottles

Tabs for Aspirator Bottles

With solid NS glass plug and screwthread retaining device.

Cone NS	Bore mm	Description	SP pcs.	Cat. No.
19/26	4,0		1	2.8019.04
29/32	6,0	(2)	1	2.8029.06

(2) supplied with rubber retaining device

Needle-valve Stopcock for Desiccators, Lid Tubulation

Needle-valve Stopcock for Desiccators, Side Tubulation

Needle-valve Stopcocks for Desiccators

DURAN®. PTFE spindle. Hose connection with outer diameter 8 mm. Needle-valve Stopcock for lid tubulation with lateral ventilation bore for reducing turbulences.

for	Cone NS	Bore mm	SP pcs.	Cat. No.
Lid tubulation	24/29	NW 2,5	1	2.8224.04
Side tubulation	24/29	NW 2,5	1	2.8424.04

Vacuum-stopcock, One Way, Straight

Vacuum-stopcock, One Way, Parallel

Vacuum-stopcocks, One Way , Straight

DURAN®. With straight side arms and hollow NS glass plug.
Leakage rate acc. to DIN 12540-1.

Stopcock NS	Bore mm	SP pcs.	Cat. No.
14,5	2,5	1	2.9014.02
18,8	4,0	1	2.9018.04
21,5	6,0	1	2.9021.06
24	8,0	1	2.9024.08
29	10,0	1	2.9029.10

Vacuum-stopcocks, One Way, Parallel

DURAN®. DIN 12545. With parallel side arms and hollow NS glass plug.
Leakage rate acc. to DIN 12540-1.

Stopcock NS	Bore mm	Description	SP pcs.	Cat. No.
14,5	2,5	DIN	1	2.9414.02
18,8	4,0	DIN	1	2.9418.04
21,5	6,0	DIN	1	2.9421.06
24	8,0	(1)	1	2.9424.08
29	10,0	DIN	1	2.9429.10

(1) in addition to DIN range

Vacuum-stopcock, One Way, Right-angled

Vacuum-stopcock, Two Way, Right-angled

Vacuum-Stopcocks, One Way, Right-angled

DURAN®. DIN 12545. With right-angled side arms and hollow NS glass plug.
Leakage rate acc. to DIN 12540-1.

Stopcock NS	Bore mm	Description	SP pcs.	Cat. No.
14,5	2,5	DIN	1	2.9214.02
18,8	4,0	DIN	1	2.9218.04
21,5	6,0	DIN	1	2.9221.06
24	8,0	(1)	1	2.9224.08
29	10,0	DIN	1	2.9229.10

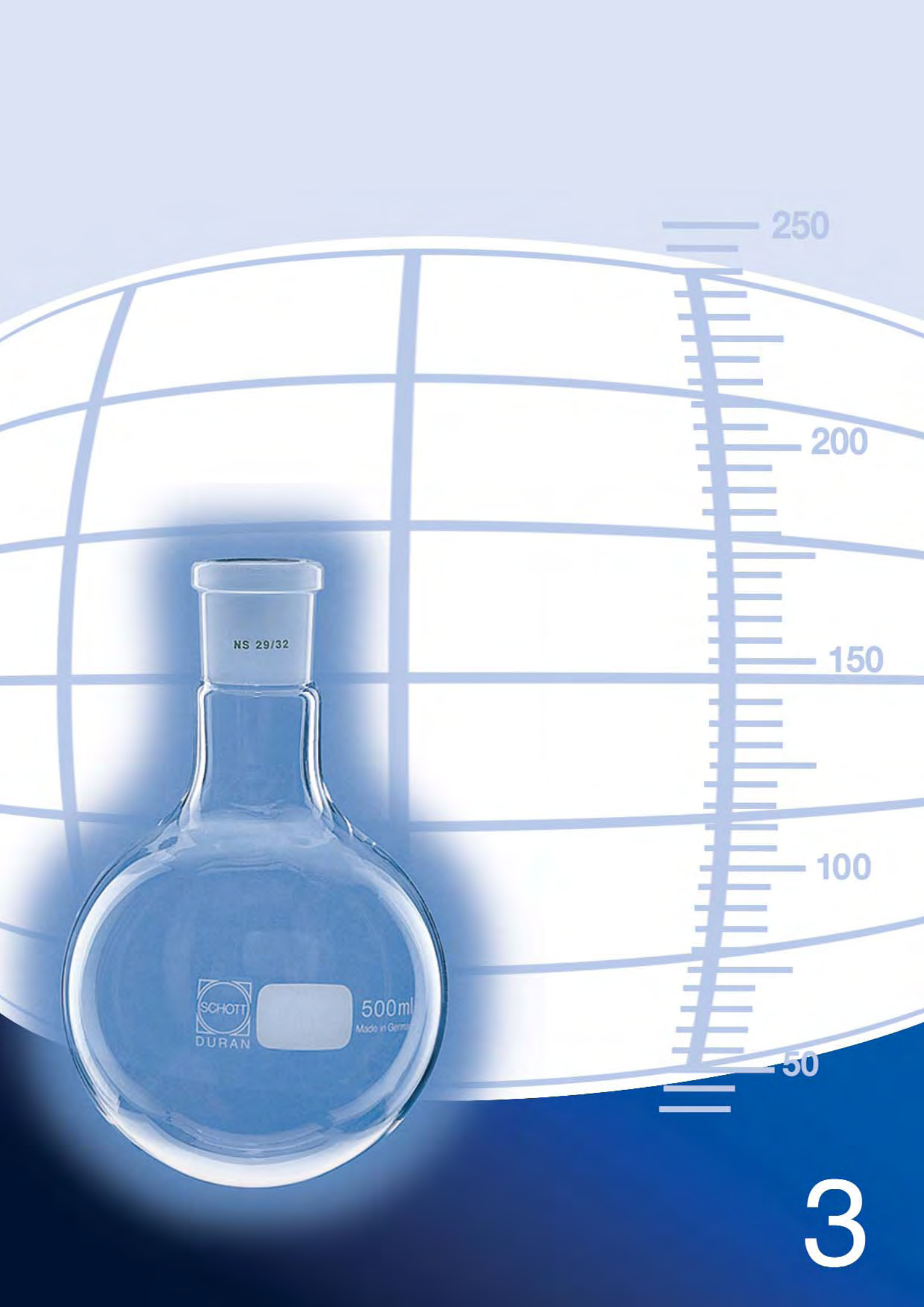
(1) in addition to DIN range

Vacuum-Stopcocks, Two Way, Right-angled

DURAN®. DIN 12545. T-shaped stopcocks with right-angled side arms and hollow NS glass plug.
Leakage rate acc. to DIN 12540-1.

Stopcock NS	Bore mm	Description	SP pcs.	Cat. No.
14,5	2,5	DIN	1	2.9614.02
18,8	4,0	DIN	1	2.9618.04
21,5	6,0	DIN	1	2.9621.06
24	8,0	(1)	1	2.9624.08
29	10,0	DIN	1	2.9629.10

(1) in addition to DIN range


250
200
150
100
50
NS 29/32
SCHOTT
DURAN
500ml

Round-bottom Flasks with Conical Joint

DURAN®. DIN 12348. With inscription label.

Capacity ml	Socket NS	Flask O-Ø mm	Description	SP pcs.	Cat. No.
5	14/23	30	(1)	10	3.0014.10
10	14/23	35	(1)	10	3.0014.13
25	14/23	41	DIN	10	3.0014.22
50	14/23	51	DIN	10	3.0014.28
100	14/23	64	DIN	10	3.0014.37
250	14/23	85	(1)	10	3.0014.49
25	19/26	41	DIN	10	3.0019.22
50	19/26	51	DIN	10	3.0019.28
100	19/26	64	DIN	10	3.0019.37
250	19/26	85	(1)	10	3.0019.49
500	19/26	105	(1)	10	3.0019.58
50	24/29	51	(1)	10	3.0024.28
100	24/29	64	(1)	10	3.0024.37
250	24/29	85	(1)	10	3.0024.49
500	24/29	105	(1)	10	3.0024.58
1000	24/29	131	(1)	10	3.0024.70
2000	24/29	166	(1)	10	3.0024.73
50	29/32	51	DIN	10	3.0029.28
100	29/32	64	DIN	10	3.0029.37
250	29/32	85	DIN	10	3.0029.49
500	29/32	105	DIN	10	3.0029.58
1000	29/32	131	DIN	10	3.0029.70
2000	29/32	166	DIN	10	3.0029.73
3000	29/32	185	(1)	1	3.0029.76
4000	29/32	207	(1)	1	3.0029.79
5000	29/32	223	(1)	1	3.0029.82
6000	29/32	236	(1)	1	3.0029.85
10000	29/32	279	(1)	1	3.0029.88
20000	29/32	345	(1)	1	3.0029.94
250	45/40	85	DIN	10	3.0045.49
500	45/40	105	DIN	10	3.0045.58
1000	45/40	131	DIN	10	3.0045.70
2000	45/40	166	DIN	10	3.0045.73
3000	45/40	185	DIN	1	3.0045.76
4000	45/40	207	DIN	1	3.0045.79
5000	45/40	223	DIN	1	3.0045.82
6000	45/40	236	DIN	1	3.0045.85
10000	45/40	279	DIN	1	3.0045.88
20000	45/40	345	(1)	1	3.0045.94

(1) in addition to DIN range

Round-bottom Flask with Conical Joint

Round-bottom Flask with Conical Joint, Amber Glass

Round-bottom Flasks with Conical Joint, Amber

DURAN®. DIN 12348. With inscription label.

Capacity ml	Socket NS	Flask O-Ø mm	SP pcs.	Cat. No.
50	29/32	51	10	3.0031.28
100	29/32	64	10	3.0031.37
250	29/32	85	10	3.0031.49
500	29/32	105	10	3.0031.58
1000	29/32	131	10	3.0031.70

Flat-bottom Flask with Conical Joint

Erlenmeyer Flask with Conical Joint

Flat Bottom Flasks with Conical Joint

DURAN®. DIN 12348. With inscription label.

Capacity ml	Socket NS	Flask O-Ø mm	Description	SP pcs.	Cat. No.
50	19/26	51	DIN	10	3.0119.28
100	19/26	64	DIN	10	3.0119.37
250	19/26	85	(1)	10	3.0119.49
500	19/26	105	(1)	10	3.0119.58
50	24/29	51	(1)	10	3.0124.28
100	24/29	64	(1)	10	3.0124.37
250	24/29	85	(1)	10	3.0124.49
500	24/29	105	(1)	10	3.0124.58
1000	24/29	131	(1)	10	3.0124.70
2000	24/29	166	(1)	10	3.0124.73
50	29/32	51	DIN	10	3.0129.28
100	29/32	64	DIN	10	3.0129.37
250	29/32	85	DIN	10	3.0129.49
500	29/32	105	DIN	10	3.0129.58
1000	29/32	131	DIN	10	3.0129.70
2000	29/32	166	DIN	10	3.0129.73

(1) in addition to DIN range

Erlenmeyer Flasks with Conical Joint

DURAN®. DIN 12387. With graduation for the reading of the approx. volume and inscription label.

Capacity ml	Socket NS	Flask O-Ø mm	Description	SP pcs.	Cat. No.
10	14/23	42	(1)	10	3.0214.13
25	14/23	42	DIN	10	3.0214.22
50	14/23	51	DIN	10	3.0214.28
100	14/23	64	DIN	10	3.0214.37
25	19/26	42	DIN	10	3.0219.22
50	19/26	51	DIN	10	3.0219.28
100	19/26	64	DIN	10	3.0219.37
200	19/26	79	(1)	10	3.0219.46
250	19/26	85	(1)	10	3.0219.49
50	24/29	51	(1)	10	3.0224.28
100	24/29	64	(1)	10	3.0224.37
200	24/29	79	(1)	10	3.0224.46
250	24/29	85	(1)	10	3.0224.49
300	24/29	87	(1)	10	3.0224.52
500	24/29	105	(1)	10	3.0224.58
1000	24/29	131	(1)	10	3.0224.70
2000	24/29	166	(1)	10	3.0224.73
50	29/32	51	DIN	10	3.0229.28
100	29/32	64	DIN	10	3.0229.37
200	29/32	79	(1)	10	3.0229.46
250	29/32	85	DIN	10	3.0229.49
300	29/32	87	(1)	10	3.0229.52
500	29/32	105	DIN	10	3.0229.58
1000	29/32	131	DIN	10	3.0229.70
2000	29/32	166	(1)	10	3.0229.73
200	45/40	79	(1)	10	3.0245.46
250	45/40	85	DIN	10	3.0245.49
300	45/40	87	(1)	10	3.0245.52
500	45/40	105	DIN	10	3.0245.58
1000	45/40	131	DIN	10	3.0245.70
2000	45/40	166	(1)	10	3.0245.73
3000	45/40	185	(1)	10	3.0245.76
5000	45/40	223	(1)	10	3.0245.82

(1) in addition to DIN range

Erlenmeyer Flask with DIN-thread

Pear-shape Flask, Single-neck

Erlenmeyer Flasks with DIN-Thread

DURAN®. With DIN-thread GL and screw cap, red, PBT. With graduation for the reading of the approx. volume and inscription label.

Capacity ml	Thread GL	Flask O-Ø mm	SP pcs.	Cat. No.
100	25	64	10	3.0251.37
250	32	85	10	3.0251.49
500	32	105	10	3.0251.58
1000	32	131	10	3.0251.70

Pear-shape Flasks, Single-neck

DURAN®. DIN 12383. With conical joint and inscription label.

Capacity ml	Socket NS	Flask O-Ø mm	Description	SP pcs.	Cat. No.
5	14/23	26	(1)	10	3.0314.10
10	14/23	30	(1)	10	3.0314.13
25	14/23	40	(1)	10	3.0314.22
50	14/23	50	(1)	10	3.0314.28
100	14/23	64	(1)	10	3.0314.37
250	14/23	85	DIN	10	3.0314.49
25	19/26	40	(1)	10	3.0319.22
50	19/26	50	DIN	10	3.0319.28
100	19/26	64	DIN	10	3.0319.37
250	19/26	85	DIN	10	3.0319.49
50	29/32	50	(1)	10	3.0329.28
100	29/32	64	(1)	10	3.0329.37
250	29/32	85	(1)	10	3.0329.49

(1) in addition to DIN range

Iodine Flask without Collar

Iodine Determination Flasks

DURAN®. Two types available:
- DIN 12387. Without collar, with hollow hexagonal stopper NS 29/32.
- With collar and iodine stopper NS 29/32.

Capacity ml	Socket NS	Flask O-Ø mm	Description	SP pcs.	Cat. No.
100	29/32	64	w/o collar	10	3.0260.37
250	29/32	85	w/o collar	10	3.0260.49
300	29/32	87	w/o collar	10	3.0260.52
500	29/32	105	w/o collar	10	3.0260.58
1000	29/32	131	w/o collar	10	3.0260.70
100	29/32	64	with collar	10	3.0262.37
250	29/32	85	with collar	10	3.0262.49
500	29/32	105	with collar	10	3.0262.58

Iodine Flask with Collar

Evaporating Flask

Kjeldahl Flask

Evaporating Flasks

DURAN®. Especially for rotary evaporators.
With center neck and conical joint. Pear-shaped.

Capacity ml	Socket NS	Flask O-Ø mm	SP pcs.	Cat. No.
50	29/32	56	10	3.0429.28
100	29/32	60	10	3.0429.37
250	29/32	81	10	3.0429.49
500	29/32	101	10	3.0429.58
1000	29/32	126	10	3.0429.70
2000	29/32	158	10	3.0429.73
3000	29/32	175	10	3.0429.76

Kjeldahl Flasks

DURAN®. For the determination of nitrogen in organic compounds.
With center neck and conical joint.

Capacity ml	Socket NS	Flask O-Ø mm	SP pcs.	Cat. No.
50	19/26	51	10	3.0519.28
100	19/26	60	10	3.0519.37
250	29/32	81	10	3.0529.49
500	29/32	101	10	3.0529.58
750	29/32	115	10	3.0529.64
1000	29/32	126	10	3.0529.70

Powder Flask

Receiving Flask

Powder Flasks

DURAN®. Especially for rotary evaporators. For the drying of powder-like substances . With center neck and conical joint.

Capacity ml	Socket NS	Flask O-Ø mm	SP pcs.	Cat. No.
100	29/32	60	1	3.0430.37
250	29/32	81	1	3.0430.49
500	29/32	101	1	3.0430.58
1000	29/32	126	1	3.0430.70
2000	29/32	158	1	3.0430.73

Receiving Flasks

DURAN®. Especially for rotary evaporators.
With spherical joint socket S 35.

Capacity ml	Socket S	Flask O-Ø mm	SP pcs.	Cat. No.
100	35	64	1	3.0635.37
250	35	85	1	3.0635.49
500	35	105	1	3.0635.58
1000	35	131	1	3.0635.70
2000	35	166	1	3.0635.73

Round-bottom Flasks, Two-neck, Side Neck Parallel

DURAN®.

Capacity ml	C. Neck NS	Side Neck NS	Flask O-Ø mm	SP pcs.	Cat. No.
100	29/32	14/23	64	1	3.2041.37
250	29/32	14/23	85	1	3.2041.49
500	29/32	14/23	105	1	3.2041.58
1000	29/32	14/23	131	1	3.2041.70
2000	29/32	14/23	166	1	3.2041.73
250	29/32	29/32	85	1	3.2044.49
500	29/32	29/32	105	1	3.2044.58
1000	29/32	29/32	131	1	3.2044.70
2000	29/32	29/32	166	1	3.2044.73
4000	29/32	29/32	207	1	3.2044.79

Round-bottom Flask, Two-neck, Side Neck Parallel

Round-bottom Flask, Two-neck, Side Neck Angled

Round-bottom Flasks, Two-neck, Side Neck Angled

DURAN®. DIN 12394. Side neck at 20° angle. Distillation flask.

Capacity ml	C. Neck NS	Side Neck NS	Flask O-Ø mm	Description	SP pcs.	Cat. No.
25	14/23	14/23	41	DIN	1	3.2111.22
50	14/23	14/23	51	DIN	1	3.2111.28
100	14/23	14/23	64	(1)	1	3.2111.37
250	14/23	14/23	85	DIN	1	3.2111.49
100	24/29	14/23	64	(1)	1	3.2131.37
250	24/29	14/23	85	(1)	1	3.2131.49
500	24/29	14/23	105	(1)	1	3.2131.58
100	24/29	19/26	64	(1)	1	3.2132.37
250	24/29	19/26	85	(1)	1	3.2132.49
500	24/29	19/26	105	DIN	1	3.2132.58
1000	24/29	19/26	131	(1)	1	3.2132.70
100	29/32	14/23	64	(1)	1	3.2141.37
250	29/32	14/23	85	DIN	1	3.2141.49
500	29/32	14/23	105	DIN	1	3.2141.58
1000	29/32	14/23	131	DIN	1	3.2141.70
2000	29/32	14/23	166	DIN	1	3.2141.73
100	29/32	19/26	64	DIN	1	3.2142.37
250	29/32	19/26	85	DIN	1	3.2142.49
500	29/32	19/26	105	DIN	1	3.2142.58
1000	29/32	19/26	131	DIN	1	3.2142.70
2000	29/32	19/26	166	DIN	1	3.2142.73
100	29/32	29/32	64	DIN	1	3.2144.37
250	29/32	29/32	85	DIN	1	3.2144.49
500	29/32	29/32	105	(1)	1	3.2144.58
1000	29/32	29/32	131	DIN	1	3.2144.70
2000	29/32	29/32	166	DIN	1	3.2144.73
4000	29/32	29/32	207	DIN	1	3.2144.79

(1) in addition to DIN range

Pear-shape Flasks, Two-neck

DURAN®. Side neck at an angle of 25°.

Capacity ml	C. Neck NS	Side Neck NS	Flask O-Ø mm	SP pcs.	Cat. No.
25	14/23	14/23	40	1	3.2211.22
50	14/23	14/23	50	1	3.2211.28
100	14/23	14/23	64	1	3.2211.37
250	14/23	14/23	85	1	3.2211.49
25	19/26	14/23	40	1	3.2221.22
50	19/26	14/23	50	1	3.2221.28
100	19/26	14/23	64	1	3.2221.37
250	19/26	14/23	85	1	3.2221.49

Pear-shape Flask, Two-neck

Nitrogen Round-bottom Flask (Schlenk-Flasks)

Nitrogen Tube with Socket

Nitrogen Tube with Cone

Nitrogen Round-bottom Flasks (Schlenk-Flasks)

DURAN®. With conical joint and NS stopcock.

Capacity ml	Socket NS	NS Stopcock Bore mm	SP pcs.	Cat. No.
25	14/23	2,5	1	3.3601.22
50	14/23	2,5	1	3.3601.28
100	14/23	2,5	1	3.3601.37
250	14/23	2,5	1	3.3601.49
50	29/32	2,5	1	3.3604.28
100	29/32	2,5	1	3.3604.37
250	29/32	2,5	1	3.3604.49
500	29/32	2,5	1	3.3604.58
1000	29/32	2,5	1	3.3604.70

Nitrogen Tubes (Schlenk-Tubes)

DURAN®. With conical joint and NS stopcock.

Capacity ml	Socket NS	NS Stopcock Bore mm	SP pcs.	Cat. No.
10	14/23 Socket	2,5	1	3.3701.13
25	14/23 Socket	2,5	1	3.3701.22
50	14/23 Socket	2,5	1	3.3701.28
100	14/23 Socket	2,5	1	3.3701.37
250	14/23 Socket	2,5	1	3.3701.49
10	14/23 Cone	2,5	1	3.3702.13
25	14/23 Cone	2,5	1	3.3702.22
50	14/23 Cone	2,5	1	3.3702.28
100	14/23 Cone	2,5	1	3.3702.37
250	14/23 Cone	2,5	1	3.3702.49

Round-bottom Flask, Three-neck, Side Necks Parallel

Round-bottom Flasks, Three-neck, Side Necks Parallel

DURAN®. DIN 12392. Side necks parallel. Reaction flasks.

Capacity ml	C. Neck NS	Side Necks NS	Flask O-Ø mm	Description	SP pcs.	Cat. No.
100	24/29	19/26	64	(1)	1	3.3032.37
250	24/29	19/26	85	(1)	1	3.3032.49
500	24/29	19/26	105	(1)	1	3.3032.58
1000	24/29	19/26	131	(1)	1	3.3032.70
2000	24/29	19/26	166	(1)	1	3.3032.73
100	29/32	14/23	64	(1)	1	3.3041.37
250	29/32	14/23	85	(1)	1	3.3041.49
500	29/32	14/23	105	(1)	1	3.3041.58
1000	29/32	14/23	131	(1)	1	3.3041.70
2000	29/32	14/23	166	(1)	1	3.3041.73
3000	29/32	14/23	185	(1)	1	3.3041.76
4000	29/32	14/23	207	(1)	1	3.3041.79
6000	29/32	14/23	236	(1)	1	3.3041.85
100	29/32	19/26	64	DIN	1	3.3042.37
250	29/32	19/26	85	DIN	1	3.3042.49
500	29/32	19/26	105	DIN	1	3.3042.58
1000	29/32	19/26	131	DIN	1	3.3042.70
2000	29/32	19/26	166	(1)	1	3.3042.73
100	29/32	29/32	64	DIN	1	3.3044.37
250	29/32	29/32	85	DIN	1	3.3044.49
500	29/32	29/32	105	DIN	1	3.3044.58
1000	29/32	29/32	131	(1)	1	3.3044.70
2000	29/32	29/32	166	(1)	1	3.3044.73
3000	29/32	29/32	185	(1)	1	3.3044.76
4000	29/32	29/32	207	DIN	1	3.3044.79
5000	29/32	29/32	223	DIN	1	3.3044.82
6000	29/32	29/32	236	DIN	1	3.3044.85
10000	29/32	29/32	279	DIN	1	3.3044.88
1000	45/40	29/32	131	(1)	1	3.3054.70
2000	45/40	29/32	166	(1)	1	3.3054.73
3000	45/40	29/32	185	(1)	1	3.3054.76
4000	45/40	29/32	207	(1)	1	3.3054.79
5000	45/40	29/32	223	(1)	1	3.3054.82
6000	45/40	29/32	236	(1)	1	3.3054.85
10000	45/40	29/32	279	(1)	1	3.3054.88
20000	45/40	29/32	345	(1)	1	3.3054.94

(1) in addition to DIN range

Round-bottom Flasks, Three-neck, Side Necks Angled

DURAN®. DIN 12394. Side necks at 20° angle. Distillation flasks.

Capacity ml	C. Neck NS	Side Necks NS	Flask O-Ø mm	Description	SP pcs.	Cat. No.
50	14/23	14/23	51	(1)	1	3.3111.28
100	14/23	14/23	64	(1)	1	3.3111.37
100	24/29	14/23	64	(1)	1	3.3131.37
250	24/29	14/23	85	(1)	1	3.3131.49
500	24/29	14/23	105	(1)	1	3.3131.58
1000	24/29	14/23	131	(1)	1	3.3131.70
100	24/29	19/26	64	(1)	1	3.3132.37
250	24/29	19/26	85	(1)	1	3.3132.49
500	24/29	19/26	105	(1)	1	3.3132.58
1000	24/29	19/26	131	(1)	1	3.3132.70
2000	24/29	19/26	166	(1)	1	3.3132.73
100	29/32	14/23	64	(1)	1	3.3141.37
250	29/32	14/23	85	DIN	1	3.3141.49
500	29/32	14/23	105	DIN	1	3.3141.58
1000	29/32	14/23	131	DIN	1	3.3141.70
2000	29/32	14/23	166	DIN	1	3.3141.73
3000	29/32	14/23	185	(1)	1	3.3141.76
4000	29/32	14/23	207	(1)	1	3.3141.79
6000	29/32	14/23	236	(1)	1	3.3141.85
100	29/32	19/26	64	(1)	1	3.3142.37
250	29/32	19/26	85	DIN	1	3.3142.49
500	29/32	19/26	105	DIN	1	3.3142.58
1000	29/32	19/26	131	DIN	1	3.3142.70
2000	29/32	19/26	166	DIN	1	3.3142.73
100	29/32	29/32	64	(1)	1	3.3144.37
250	29/32	29/32	85	(1)	1	3.3144.49
500	29/32	29/32	105	(1)	1	3.3144.58
1000	29/32	29/32	131	(1)	1	3.3144.70
2000	29/32	29/32	166	(1)	1	3.3144.73
3000	29/32	29/32	185	(1)	1	3.3144.76
4000	29/32	29/32	207	(1)	1	3.3144.79
5000	29/32	29/32	223	(1)	1	3.3144.82
6000	29/32	29/32	236	(1)	1	3.3144.85
10000	29/32	29/32	279	(1)	1	3.3144.88
1000	45/40	29/32	131	(1)	1	3.3154.70
2000	45/40	29/32	166	(1)	1	3.3154.73
3000	45/40	29/32	185	(1)	1	3.3154.76
4000	45/40	29/32	207	(1)	1	3.3154.79
5000	45/40	29/32	223	(1)	1	3.3154.82
6000	45/40	29/32	236	(1)	1	3.3154.85
10000	45/40	29/32	279	(1)	1	3.3154.88
20000	45/40	29/32	345	(1)	1	3.3154.94

(1) in addition to DIN range

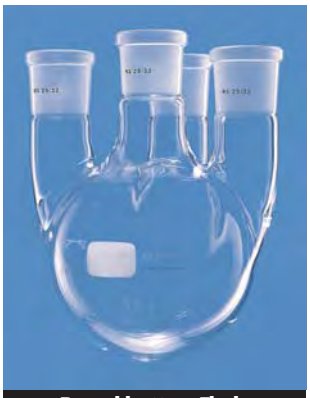
Round-bottom Flask, Three-neck, Side Necks Angled

Round-bottom Flasks, Four-neck

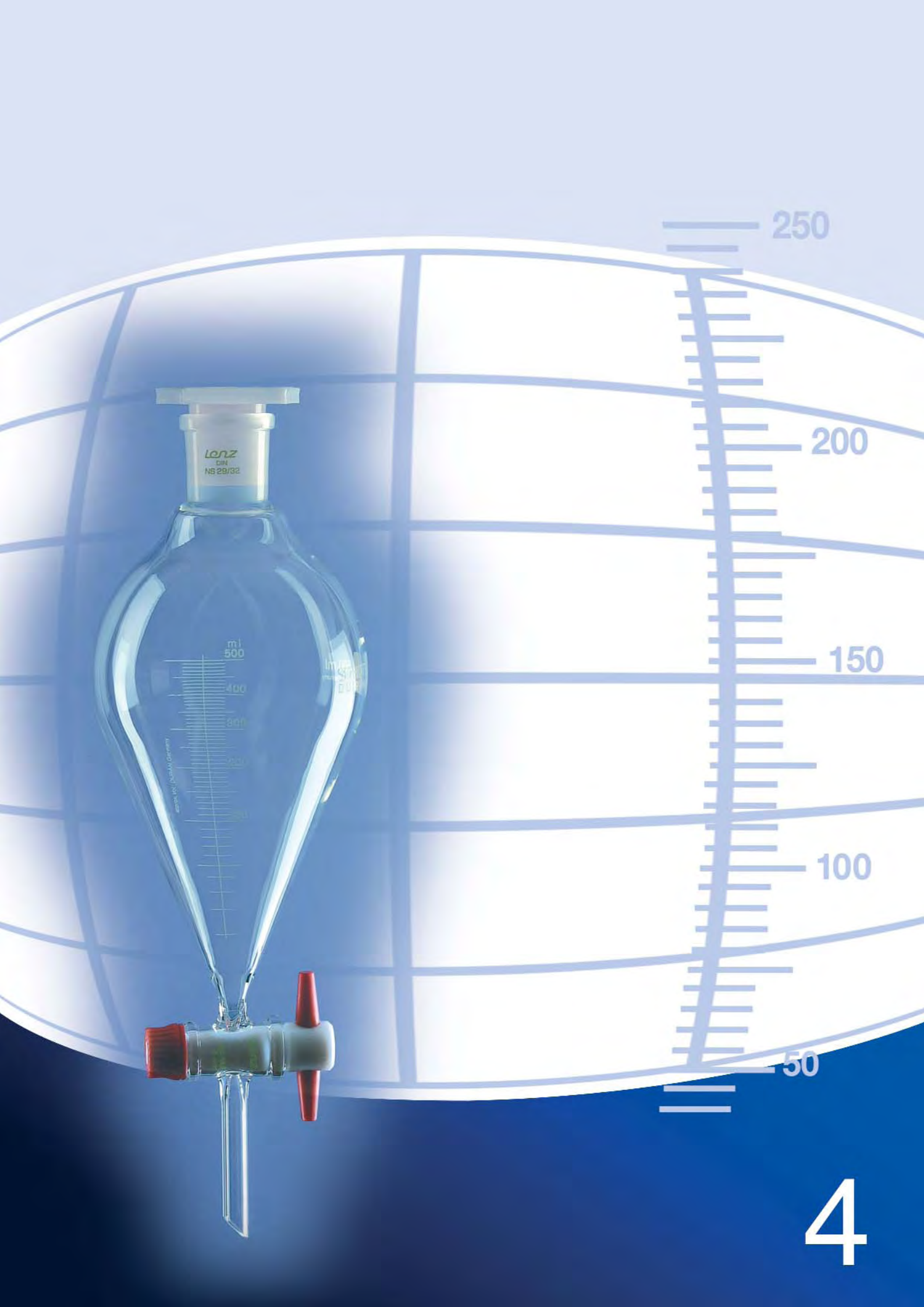
DURAN®. DIN 12392. With 3 parallel side necks. Reaction flasks.

Capacity ml	C. Neck NS	Side Necks NS	Flask O-Ø mm	Description	SP pcs.	Cat. No.
500	29/32	29/32	105	DIN	1	3.3444.58
1000	29/32	29/32	131	DIN	1	3.3444.70
2000	29/32	29/32	166	DIN	1	3.3444.73
3000	29/32	29/32	185	(1)	1	3.3444.76
4000	29/32	29/32	207	(1)	1	3.3444.79
6000	29/32	29/32	236	(1)	1	3.3444.85
1000	45/40	29/32	131	DIN	1	3.3454.70
2000	45/40	29/32	166	DIN	1	3.3454.73
3000	45/40	29/32	185	(1)	1	3.3454.76
4000	45/40	29/32	207	DIN	1	3.3454.79
5000	45/40	29/32	223	(1)	1	3.3454.82
6000	45/40	29/32	236	DIN	1	3.3454.85
10000	45/40	29/32	279	(1)	1	3.3454.88

(1) in addition to DIN range



Round-bottom Flask, Four-neck


250
200
150
100
50
lenz
DIN
NS 29/32
ml
500
400

Separating Funnel, Conical, without Graduation, Glass Plug

Separating Funnel, Conical, without Graduation, PTFE Plug

Separating Funnel, Conical, with Graduation, Glass Plug

Separating Funnel, Conical, with Graduation, PTFE Plug

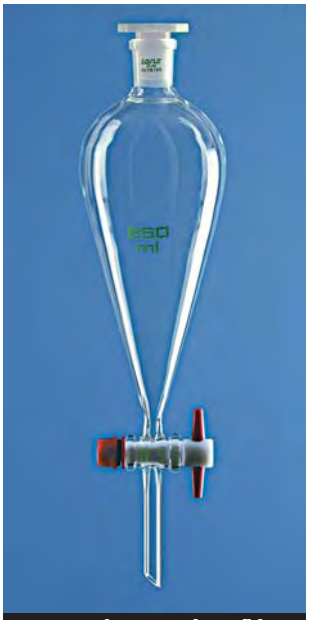
Separating Funnels, Conical

DURAN®. Conical shape. With NS-socket and interchangeable PE stopper, plug with retaining device.

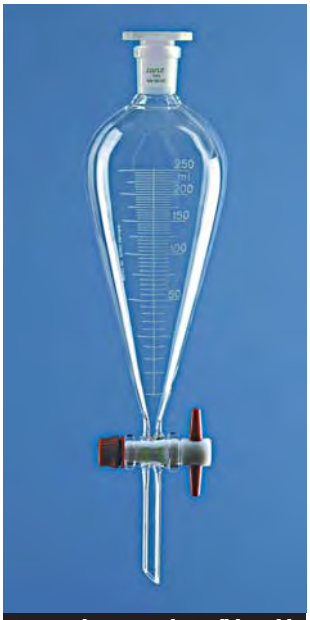
Four types available:
- **Without graduation, with solid glass plug**
- **Without graduation, with PTFE plug**
- **With graduation for reading of the approx. volume, with solid glass plug**
- **With graduation for reading of the approx. volume, with PTFE plug**

Capacity ml	Socket NS	Bore mm	Graduation ml	Plug	SP pcs.	Cat. No.
50	19/26	2.5	-	solid	2	4.0000.28
100	19/26	2,5	-	solid	2	4.0000.37
250	29/32	4,0	-	solid	2	4.0000.49
500	29/32	4,0	-	solid	2	4.0000.58
1000	29/32	6,0	-	solid	2	4.0000.70
2000	29/32	6,0	-	solid	1	4.0000.73
50	19/26	2,5	-	PTFE	2	4.0041.28
100	19/26	2,5	-	PTFE	2	4.0041.37
250	29/32	4,0	-	PTFE	2	4.0041.49
500	29/32	4,0	-	PTFE	2	4.0041.58
1000	29/32	6,0	-	PTFE	2	4.0041.70
2000	29/32	6,0	-	PTFE	1	4.0041.73
50	19/26	2,5	2	solid	2	4.0020.28
100	19/26	2,5	5	solid	2	4.0020.37
250	29/32	4,0	10	solid	2	4.0020.49
500	29/32	4,0	10	solid	2	4.0020.58
1000	29/32	6,0	20	solid	2	4.0020.70
2000	29/32	6,0	50	solid	1	4.0020.73
50	19/26	2,5	2	PTFE	2	4.0061.28
100	19/26	2,5	5	PTFE	2	4.0061.37
250	29/32	4,0	10	PTFE	2	4.0061.49
500	29/32	4,0	10	PTFE	2	4.0061.58
1000	29/32	6,0	20	PTFE	2	4.0061.70
2000	29/32	6,0	50	PTFE	1	4.0061.73


Separating Funnel, Squibb, without Graduation, Glass Plug


Separating Funnel, Squibb, without Graduation, PTFE Plug


Separating Funnel, Squibb, with Graduation, Glass Plug


Separating Funnel, Squibb, with Graduation, PTFE Plug

Separating Funnels, Squibb

Borosilicate glass 3.3.With NS-socket and interchangeable PE stopper, plug with retaining device.

Four types available:
- **Without graduation, with solid glass plug**
- **Without graduation, with PTFE plug**
- **With graduation for reading of the approx. volume, with solid glass plug**
- **With graduation for reading of the approx. volume, with PTFE plug**

Capacity ml	Socket NS	Bore mm	Graduation ml	Plug	SP pcs.	Cat. No.
50	19/26	2,5	-	solid	2	4.0100.28
100	19/26	2,5	-	solid	2	4.0100.37
250	19/26	4,0	-	solid	2	4.0100.49
500	29/32	4,0	-	solid	2	4.0100.58
1000	29/32	6,0	-	solid	2	4.0100.70
2000	29/32	6,0	-	solid	1	4.0100.73
50	19/26	2,5	-	PTFE	2	4.0141.28
100	19/26	2,5	-	PTFE	2	4.0141.37
250	19/26	4,0	-	PTFE	2	4.0141.49
500	29/32	4,0	-	PTFE	2	4.0141.58
1000	29/32	6,0	-	PTFE	2	4.0141.70
2000	29/32	6,0	-	PTFE	1	4.0141.73
50	19/26	2,5	2	solid	2	4.0120.28
100	19/26	2,5	5	solid	2	4.0120.37
250	19/26	4,0	5	solid	2	4.0120.49
500	29/32	4,0	10	solid	2	4.0120.58
1000	29/32	6,0	20	solid	2	4.0120.70
2000	29/32	6,0	50	solid	1	4.0120.73
50	19/26	2,5	2	PTFE	2	4.0161.28
100	19/26	2,5	5	PTFE	2	4.0161.37
250	19/26	4,0	5	PTFE	2	4.0161.49
500	29/32	4,0	10	PTFE	2	4.0161.58
1000	29/32	6,0	20	PTFE	2	4.0161.70
2000	29/32	6,0	50	PTFE	1	4.0161.73

Separating Funnels, Cylindrical

Borosilicate glass 3.3. Cylindrical shape with straight discharge tube. With NS-socket and interchangeable PE stopper, plug with retaining device. With graduation for reading of the approx. volume.
Two types available:
- With solid glass plug
- With PTFE plug

Capacity ml	Socket NS	Bore mm	Graduation ml	Plug	SP pcs.	Cat. No.
50	29/32	2,5	1	solid	2	4.0220.28
100	29/32	2,5	2	solid	2	4.0220.37
250	29/32	4,0	5	solid	2	4.0220.49
500	29/32	4,0	10	solid	2	4.0220.58
1000	29/32	6,0	20	solid	2	4.0220.70
50	29/32	2,5	1	PTFE	2	4.0261.28
100	29/32	2,5	2	PTFE	2	4.0261.37
250	29/32	4,0	5	PTFE	2	4.0261.49
500	29/32	4,0	10	PTFE	2	4.0261.58
1000	29/32	6,0	20	PTFE	2	4.0261.70

Separating Funnel, Cylindrical, with Glass Plug

Separating Funnel, Cylindrical, with PTFE Plug

Separating Funnel, Gilson, with Glass Plug

Separating Funnel, Gilson, with PTFE Plug

Separating Funnels, Gilson

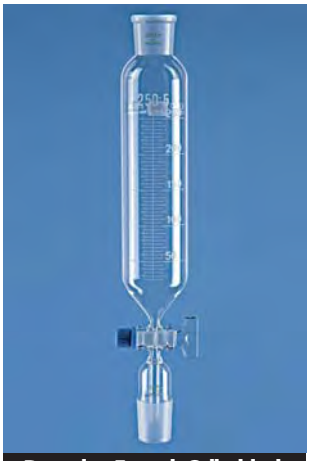
DURAN®. With NS-socket and interchangeable PE stopper, plug with retaining device. Without graduation.
Two types available:
- With solid glass plug
- With PTFE plug

Capacity ml	Socket NS	Bore mm	Plug	SP pcs.	Cat. No.
50	19/26	2,5	solid	2	4.0300.28
100	19/26	2,5	solid	2	4.0300.37
250	29/32	4,0	solid	2	4.0300.49
500	29/32	4,0	solid	2	4.0300.58
1000	29/32	6,0	solid	2	4.0300.70
2000	29/32	6,0	solid	1	4.0300.73
50	19/26	2,5	PTFE	2	4.0301.28
100	19/26	2,5	PTFE	2	4.0301.37
250	29/32	4,0	PTFE	2	4.0301.49
500	29/32	4,0	PTFE	2	4.0301.58
1000	29/32	6,0	PTFE	2	4.0301.70
2000	29/32	6,0	PTFE	1	4.0301.73

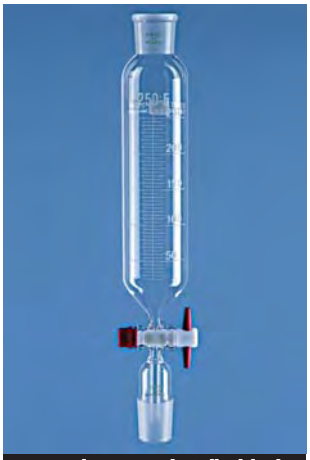
Dropping Funnels, Cylindrical

Borosilicate glass 3.3. Cylindrical shape. With NS-socket and interchangeable PE stopper, plug with retaining device. With graduation for reading of the approx. volume.
Two types available:
- With solid glass plug
- With PTFE plug

Capacity ml	Socket / Cone NS	Bore mm	Graduation ml	Plug	SP pcs.	Cat. No.
25	14/23	2,5	1	solid	2	4.1522.11
50	14/23	2,5	1	solid	2	4.1528.11
50	29/32	2,5	1	solid	2	4.1528.14
100	14/23	2,5	2	solid	2	4.1537.11
100	29/32	2,5	2	solid	2	4.1537.14
250	29/32	4,0	5	solid	2	4.1549.14
500	29/32	4,0	10	solid	2	4.1558.14
1000	29/32	6,0	20	solid	2	4.1570.14
25	14/23	2,5	1	PTFE	2	4.1722.11
50	14/23	2,5	1	PTFE	2	4.1728.11
50	29/32	2,5	1	PTFE	2	4.1728.14
100	14/23	2,5	2	PTFE	2	4.1737.11
100	29/32	2,5	2	PTFE	2	4.1737.14
250	29/32	4,0	5	PTFE	2	4.1749.14
500	29/32	4,0	10	PTFE	2	4.1758.14
1000	29/32	6,0	20	PTFE	2	4.1770.14

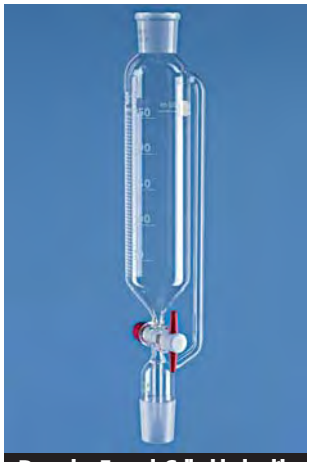


Dropping Funnel, Cylindrical, with Glass Plug



Dropping Funnel, Cylindrical, with PTFE Plug

Dropping Funnel, Cylindrical, with Pressure Equalizing Tube, Glass Plug



Dropping Funnel, Cylindrical, with Pressure Equalizing Tube, PTFE Plug

Dropping Funnels, Cylindrical, with Pressure Equalizing Tube

Borosilicate glass 3.3. Cylindrical shape, with pressure balance tube. With NS-socket and interchangeable PE stopper, plug with retaining device. With graduation for reading of the approx. volume.
Two types available:
- With solid glass plug
- With PTFE plug

Capacity ml	Socket / Cone NS	Bore mm	Graduation ml	Plug	SP pcs.	Cat. No.
25	14/23	2,5	1	solid	2	4.3522.11
50	14/23	2,5	1	solid	2	4.3528.11
50	29/32	2,5	1	solid	2	4.3528.14
100	14/23	2,5	2	solid	2	4.3537.11
100	29/32	2,5	2	solid	2	4.3537.14
250	29/32	4,0	5	solid	2	4.3549.14
500	29/32	4,0	10	solid	2	4.3558.14
1000	29/32	6,0	20	solid	2	4.3570.14
25	14/23	2,5	1	PTFE	2	4.3722.11
50	14/23	2,5	1	PTFE	2	4.3728.11
50	29/32	2,5	1	PTFE	2	4.3728.14
100	14/23	2,5	2	PTFE	2	4.3737.11
100	29/32	2,5	2	PTFE	2	4.3737.14
250	29/32	4,0	5	PTFE	2	4.3749.14
500	29/32	4,0	10	PTFE	2	4.3758.14
1000	29/32	6,0	20	PTFE	2	4.3770.14

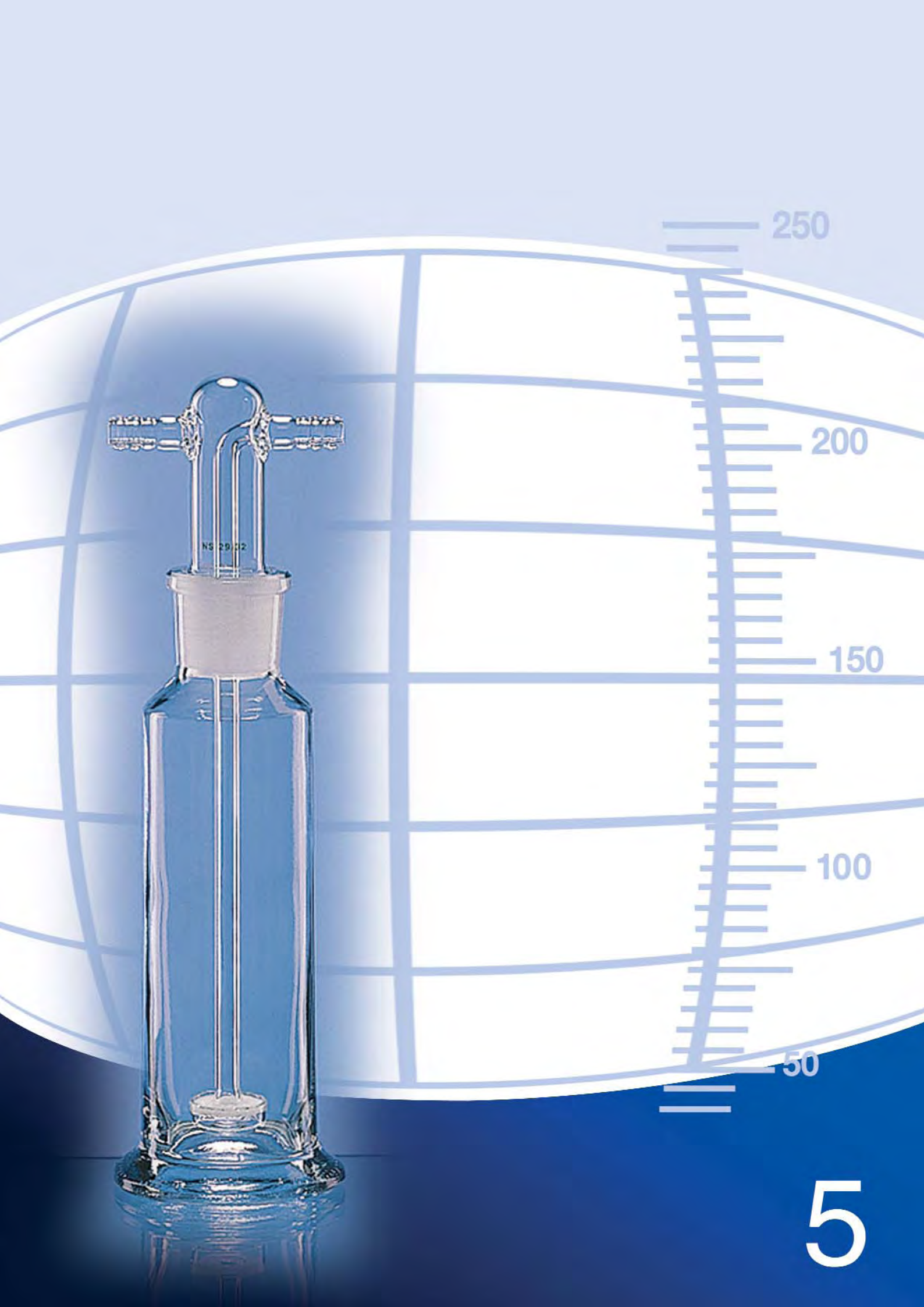
Dropping Funnel, Conical Shape, with Glass Plug

Dropping Funnel, Conical Shape, with PTFE Plug

Dropping Funnels, Conical Shape

DURAN®. Conical shape. With NS-socket and interchangeable PE stopper, plug with retaining device. Without graduation.
Two types available:
- With solid glass plug
- With PTFE plug

Capacity ml	Socket / Cone NS	Bore mm	Plug	SP pcs.	Cat. No.
50	19/26	2,5	solid	1	4.4528.02
100	19/26	2,5	solid	1	4.4537.02
250	29/32	4,0	solid	1	4.4549.04
500	29/32	4,0	solid	1	4.4558.04
1000	29/32	6,0	solid	1	4.4570.04
2000	29/32	6,0	solid	1	4.4573.04
50	19/26	2,5	PTFE	1	4.4728.02
100	19/26	2,5	PTFE	1	4.4737.02
250	29/32	4,0	PTFE	1	4.4749.04
500	29/32	4,0	PTFE	1	4.4758.04
1000	29/32	6,0	PTFE	1	4.4770.04
2000	29/32	6,0	PTFE	1	4.4773.04



5

Multiple Adapters, 2 Necks

DURAN®. With two sockets and one cone.
One neck 105° upwards.

Socket vertical NS	Socket oblique NS	Cone NS	SP pcs.	Cat. No.
14/23	14/23	14/23	1	5.0001.11
19/26	19/26	19/26	1	5.0002.22
29/32	14/23	29/32	1	5.0004.14
29/32	29/32	29/32	1	5.0004.44

Multi Neck Adapter, 2 Necks

Multi Neck Adapter, 2 Necks

Multiple Adapters, 2 Necks

DURAN®. With one socket and two cones.
One neck 75° downwards.

Cone vertical NS	Cone oblique NS	Socket NS	SP pcs.	Cat. No.
14/23	14/23	14/23	1	5.0051.11
29/32	29/32	29/32	1	5.0054.44

Multiple Adapters, 2 Necks

DURAN®. With two sockets and one cone.
With two parallel necks.

Cone NS	Sockets NS	SP pcs.	Cat. No.
14/23	14/23	1	5.0100.11
19/26	19/26	1	5.0100.22
24/29	19/26	1	5.0100.23
24/29	24/29	1	5.0100.33
29/32	14/23	1	5.0100.14
29/32	29/32	1	5.0100.44

Multi Neck Adapter, 2 Necks

Multi Neck Adapter, 3 Necks

Multiple Adapters, 3 Necks

DURAN®. With three sockets and one cone.
With two parallel necks and one neck 45° upwards.

Cone NS	Sockets NS	SP pcs.	Cat. No.
14/23	14/23	1	5.0150.11
24/29	19/26	1	5.0150.23
29/32	19/26	1	5.0150.24
24/29	24/29	1	5.0150.33
29/32	29/32	1	5.0150.44

Bends

DURAN®. 75° bent. With two cones.

Cones NS	SP pcs.	Cat. No.
14/23	1	5.0200.01
19/26	1	5.0200.02
24/29	1	5.0200.03
29/32	1	5.0200.04

Bend

Bend

Bends

DURAN®. 90° bent. With two cones.

Cones NS	SP pcs.	Cat. No.
14/23	1	5.0250.01
19/26	1	5.0250.02
24/29	1	5.0250.03
29/32	1	5.0250.04

Distilling Heads

DURAN®. With one socket and two cones at 75°.
For distillation thermometers, 55 mm fitting length.

Socket vertical NS	Cone vertical NS	Cone oblique NS	SP pcs.	Cat. No.
14/23	14/23	14/23	1	5.0280.11
14/23	19/26	19/26	1	5.0280.22
14/23	24/29	19/26	1	5.0280.32
14/23	24/29	24/29	1	5.0280.33
14/23	29/32	29/32	1	5.0280.44

Distilling Head

Claisen Head

Claisen Heads

DURAN®. With two parallel sockets NS 14/23 and two cones at 75°.
For distillation thermometers, 55 mm fitting length.

Cone vertical NS	Cone oblique NS	SP pcs.	Cat. No.
14/23	14/23	1	5.0300.11
19/26	19/26	1	5.0300.22
24/29	19/26	1	5.0300.32
24/29	24/29	1	5.0300.33
29/32	14/23	1	5.0300.41
29/32	29/32	1	5.0300.44

Still Head for Steam Distillation

Still Heads for Steam Distillation

DURAN®. With two cones, GL 14, for 2000 ml flasks.

Cone oblique NS	Flask Conn. Cone NS	SP pcs.	Cat. No.
29/32	29/32	1	5.0330.44

Splash Head, Stutzer, Straight

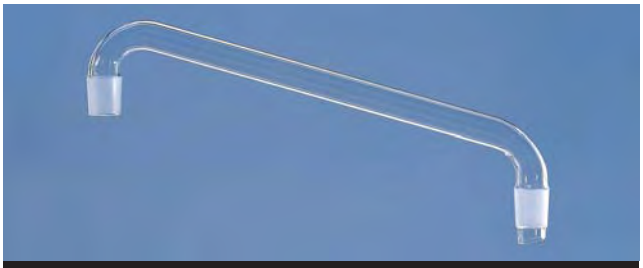
Splash Head, Stutzer, Bent

Splash Heads to Stutzer

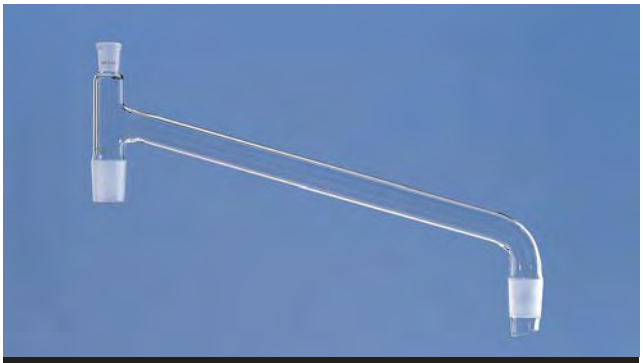
DURAN®. Two versions available:
- Straight, with cone and socket
- Bent with two cones at 75°.

Splash heads are directly placed onto distillation flasks for separation of drops.

Cones NS	Socket NS	Description	SP pcs.	Cat. No.
14/23	14/23	straight	1	5.0350.11
24/29	19/26	straight	1	5.0350.32
29/32	29/32	straight	1	5.0350.44
14/23	14/23	bent	1	5.0370.11
19/26	19/26	bent	1	5.0370.22
24/29	19/26	bent	1	5.0370.32
24/29	24/29	bent	1	5.0370.33
29/32	29/32	bent	1	5.0370.44



Distilling Link without Socket



Distilling Link with Socket

Distilling Links

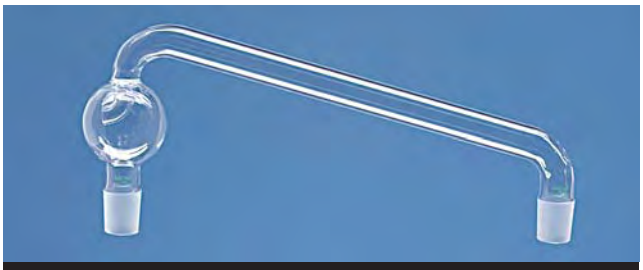
DURAN®. Distilling links without condenser, with two vertical cones. Without or with socket NS 14/23 for distillation thermometers, 55 mm fitting length.

Cones NS	Socket NS	Jacket Length mm	SP pcs.	Cat. No.
14/23	-	150	1	5.0400.01
19/26	-	200	1	5.0400.02
24/29	-	300	1	5.0400.03
29/32	-	350	1	5.0400.04
14/23	14/23	150	1	5.0470.01
19/26	14/23	200	1	5.0470.02
24/29	14/23	300	1	5.0470.03
29/32	14/23	350	1	5.0470.04

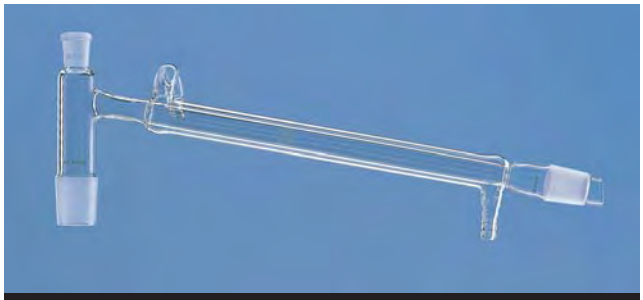
Distilling Links with Splash Head

DURAN®. Distilling links with two vertical cones and splash head.

Cones NS	Jacket Length mm	SP pcs.	Cat. No.
14/23	150	1	5.0430.01
19/26	200	1	5.0430.02
24/29	300	1	5.0430.03
29/32	350	1	5.0430.04



Distilling Link with Splash Head



Distilling Link with Liebig Condenser and Nozzle

Distilling Link with Liebig Condenser, Vacuum Receiver Adapter and Nozzle

Distilling Link with Liebig Condenser and GL Thread

Distilling Link with Liebig Condenser, Vacuum Receiver Adapter and GL Thread

Distilling Links with Liebig Condenser

DURAN®. Distilling links with Liebig condenser and socket NS 14/23 for distillation thermometers, 55 mm fitting length. With cone at the outlet, water connection with nozzle or GL 14.

Cones NS	Water Conn.	Jacket Length mm	SP pcs.	Cat. No.
14/23	nozzle	160	1	5.0502.01
14/23	nozzle	250	1	5.0503.01
29/32	nozzle	250	1	5.0503.04
29/32	nozzle	400	1	5.0504.04
14/23	GL 14	160	1	5.0502.G1
14/23	GL 14	250	1	5.0503.G1
29/32	GL 14	250	1	5.0503.G4
29/32	GL 14	400	1	5.0504.G4

Distilling Links with Liebig Condenser and Vacuum Receiver Adapter

DURAN®. Distilling links with Liebig condenser and socket NS 14/23, for distillation thermometers, 55 mm fitting length, with vacuum receiver adapter.

Water connection with nozzle or with thread GL 14 and outlet with thread GL 18.

Cones NS	Water Conn.	Vacumm Conn.	Jacket L. mm	SP pcs.	Cat. No.
14/23	nozzle	nozzle	160	1	5.0532.01
14/23	nozzle	nozzle	250	1	5.0533.01
29/32	nozzle	nozzle	250	1	5.0533.04
29/32	nozzle	nozzle	400	1	5.0534.04
14/23	GL 14	GL 18	160	1	5.0532.G1
14/23	GL 14	GL 18	250	1	5.0533.G1
29/32	GL 14	GL 18	250	1	5.0533.G4
29/32	GL 14	GL 18	400	1	5.0534.G1

Distilling Link, Claisen, with Nozzle

Distilling Link, Claisen, with Vacuum Receiver Adapter and Nozzle

Distilling Link, Claisen, with GL Thread

Distilling Link, Claisen, with Vacuum Receiver Adapter and GL Thread

Distilling Links, Claisen

DURAN®. Distilling links with Liebig condenser and head to Claisen, sockets NS 14/23, for distillation thermometers, 55 mm fitting length. Liebig condenser with straight outlet.
Water connection
- with nozzle
- with GL 14

Cones NS	Water Conn.	Jacket Length mm	SP pcs.	Cat. No.
14/23	nozzle	160	1	5.0552.01
14/23	nozzle	250	1	5.0553.01
29/32	nozzle	250	1	5.0553.04
29/32	nozzle	400	1	5.0554.04
14/23	GL 14	160	1	5.0552.G1
14/23	GL 14	250	1	5.0553.G1
29/32	GL 14	250	1	5.0553.G4
29/32	GL 14	400	1	5.0554.G4

Distilling Links, Claisen

DURAN®. Distilling links with Liebig condenser and head to Claisen, sockets NS 14/23, for distillation thermometers, 55 mm fitting length, with vacuum receiver adapter.
Water connection
- with nozzle
- with thread GL 14 and outlet with thread GL 18

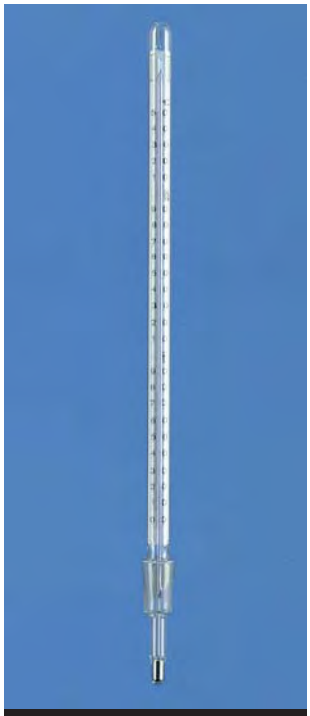
Cones NS	Water Conn.	Vacuum Conn.	Jacket Length mm	SP pcs.	Cat. No.
14/23	nozzle	nozzle	160	1	5.0572.01
14/23	nozzle	nozzle	250	1	5.0573.01
29/32	nozzle	nozzle	250	1	5.0573.04
29/32	nozzle	nozzle	400	1	5.0574.04
14/23	GL 14	GL 18	160	1	5.0572.G1
14/23	GL 14	GL 18	250	1	5.0573.G1
29/32	GL 14	GL 18	250	1	5.0573.G4
29/32	GL 14	GL 18	400	1	5.0574.G4

Distilling Links for Short Path Distillation

DURAN®. Compact design of condenser and vacuum connection guarantee a short path for the condensates. Connections GL 14.

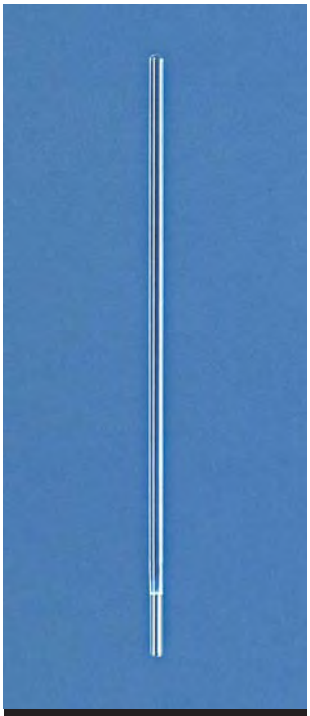
Cones NS	Socket NS	SP pcs.	Cat. No.
14/23	14/23	1	5.0580.01

Distilling Link for Short Path Distillation



Distillation Thermometer

Gas Inlet Tubes



Air Leak Tube with Bell

Gas Inlet Tube with Valve Stopcock

Distillation Thermometers

Thermometers with cone NS 14/23. Top end melted round. Frosted glass scale with black graduation. With blue reflecting Hg-column, suitable for certification.

Note:
fitting length = distance from the top of the joint to the bottom of the mercury reservoir

Range °C	Graduation °C	Fitting Length mm	SP pcs.	Cat. No.
0-150	0,5	55	1	5.0650.01
0-150	0,5	70	1	5.0650.02
0-150	0,5	85	1	5.0650.03
0-250	1	55	1	5.0650.04
0-250	1	70	1	5.0650.05
0-250	1	85	1	5.0650.06
0-360	1	55	1	5.0650.07
0-360	1	70	1	5.0650.08
0-360	1	85	1	5.0650.09

Gas Inlet Tubes / Air Leak Tubes, Straight

DURAN®. With cone. Can be used for cutting or capillarising the tube to the length needed.
Available in two versions
- straight, fitting length 200 mm
- 90° bent, fitting length 250 mm

Cone NS	Description	SP pcs.	Cat. No.
14/23	straight	1	5.0800.01
19/26	straight	1	5.0800.02
24/29	straight	1	5.0800.03
29/32	straight	1	5.0800.04
14/23	bent	1	5.0830.01
19/26	bent	1	5.0830.02
24/29	bent	1	5.0830.03
29/32	bent	1	5.0830.04

Gas Inlet Tubes with Valve Stopcock

DURAN®. With valve stopcock for dosing and 90° nozzle. Tube length from top of the joint approx. 250 mm.

Cone NS	SP pcs.	Cat. No.
14/23	1	5.0860.01

Air Leak Tubes

DURAN®. With bell. To avoid boiling splash.

Size approx. mm	SP pcs.	Cat. No.
180 x 4	1	5.0810.00

Adapter, Straight

Adapter, Bent

Adapters, Straight

Adapters with cone and straight nozzle.

Cone NS	SP pcs.	Cat. No.
14/23	1	5.0920.01
19/26	1	5.0920.02
24/29	1	5.0920.03
29/32	1	5.0920.04

Adapters, Bent

Adapters with cone and 90° bent nozzle.

Cone NS	SP pcs.	Cat. No.
14/23	1	5.0950.01
19/26	1	5.0950.02
24/29	1	5.0950.03
29/32	1	5.0950.04

Adapter with NS-Stopcock, Straight

Adapter with NS-Stopcock, Bent

Adapters with NS-Stopcock, Straight

Adapters with cone and straight nozzle.
With NS stopcock with solid glass plug, bore 2,5 mm.

Cone NS	SP pcs.	Cat. No.
14/23	1	5.0970.01
19/26	1	5.0970.02
24/29	1	5.0970.03
29/32	1	5.0970.04

Adapters with NS-Stopcock, Bent

Adapters with cone and 90° bent nozzle.
With NS stopcock with solid glass plug, bore 2,5 mm.

Cone NS	SP pcs.	Cat. No.
14/23	1	5.0980.01
19/26	1	5.0980.02
24/29	1	5.0980.03
29/32	1	5.0980.04

Adapter, Straight

Adapter, Bent

Adapters, Straight

Adapters with socket and straight nozzle.

Socket NS	SP pcs.	Cat. No.
14/23	1	5.1010.01
19/26	1	5.1010.02
24/29	1	5.1010.03
29/32	1	5.1010.04

Adapters, Bent

Adapters with socket and 90° bent nozzle.

Socket NS	SP pcs.	Cat. No.
14/23	1	5.1030.01
19/26	1	5.1030.02
24/29	1	5.1030.03
29/32	1	5.1030.04

Adapter with NS Stopcock, Bent

Adapters with NS Stopcock, Bent

Adapters with socket and 90° bent nozzle.
With NS stopcock with solid glass plug, bore 2,5 mm.

Socket NS	SP pcs.	Cat. No.
14/23	1	5.1050.01
19/26	1	5.1050.02
24/29	1	5.1050.03
29/32	1	5.1050.04

Small Flange, Male, with Nozzle

Small Flange, Female, with Nozzle

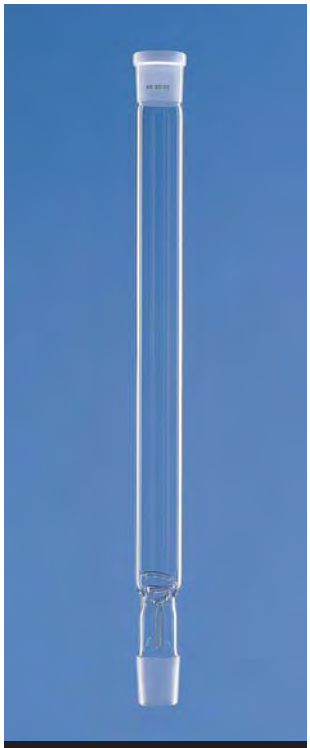
Small Flanges, KF, with Nozzle

Description	KF	Nozzle	SP pcs.	Cat. No.
Small flange, socket	15	10	1	5.1061.10
Small flange, socket	15	16	1	5.1061.16
Small flange, socket	25	16	1	5.1062.16
Small flange, ball	15	10	1	5.1071.10
Small flange, ball	15	16	1	5.1071.16
Small flange, ball	25	16	1	5.1072.16

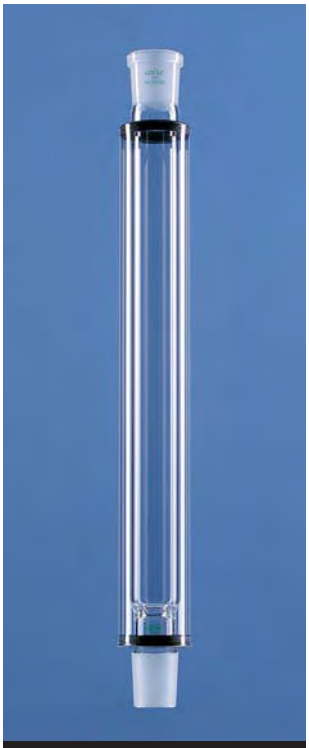
Small Flanges with Thread, Steel

KF-socket, with thread M 16 x 1.

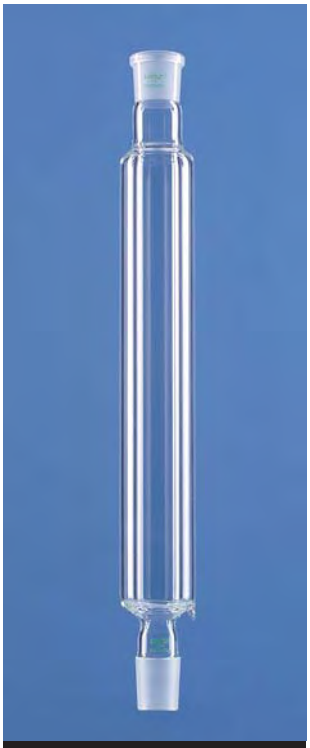
Description	KF	Thread	SP pcs.	Cat. No.
Small flange, socket	15	M16 x 1	1	5.1081.10
Small flange, socket	25	M16 x 1	1	5.1082.16



Column to Hempel



Column to Hempel, with Removable Glass Jacket



Column to Hempel, with Fixed Vacuum Jacket

Columns to Hempel

DURAN®. Without oder with removable glass jacket. For packings like glass rings, Raschig, or glass beads.

Eff. L. mm	Socket/Cone NS	Description	SP pcs.	Cat. No.
200	14/23	without jacket	1	5.1152.01
300	14/23	without jacket	1	5.1153.01
300	24/29	without jacket	1	5.1153.03
300	29/32	without jacket	1	5.1153.04
500	24/29	without jacket	1	5.1155.03
500	29/32	without jacket	1	5.1155.04
800	24/29	without jacket	1	5.1158.03
800	29/32	without jacket	1	5.1158.04
200	14/23	with jacket	1	5.1172.01
300	14/23	with jacket	1	5.1173.01
300	29/32	with jacket	1	5.1173.04
500	29/32	with jacket	1	5.1175.04
800	29/32	with jacket	1	5.1178.04

Columns to Hempel with Vacuum Jacket

DURAN®. With fixed vacuum jacket. For packings like glass rings, Raschig, or glass beads.

Eff. L. mm	Socket/Cone NS	SP pcs.	Cat. No.
200	14/23	1	5.1192.01
300	29/32	1	5.1193.04
500	29/32	1	5.1195.04
800	29/32	1	5.1198.04

Glass Beads, Solid

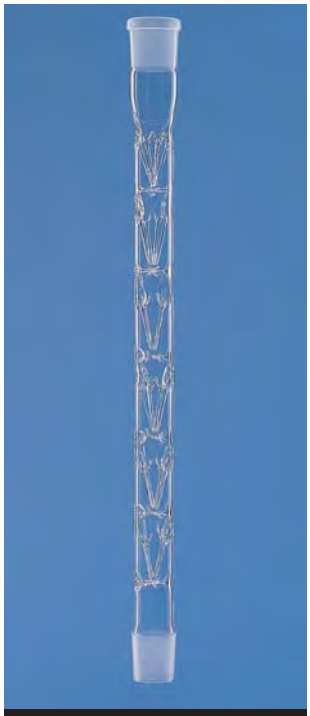
Soda-lime glass.

Ø mm	SP kg	Cat. No.
2	1	5.1240.02
3	1	5.1240.03
4	1	5.1240.04
5	1	5.1240.05
6	1	5.1240.06
8	1	5.1240.08

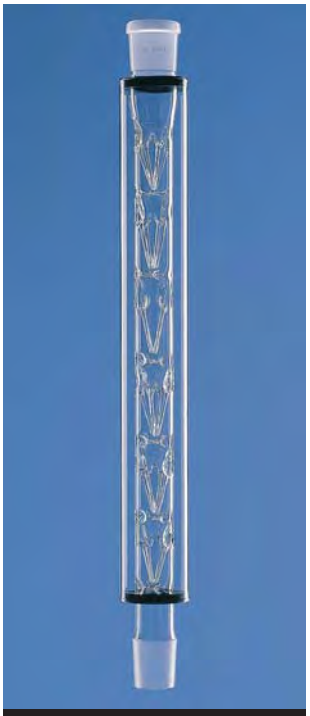
Glass Rings, Raschig

Soda-lime glass.

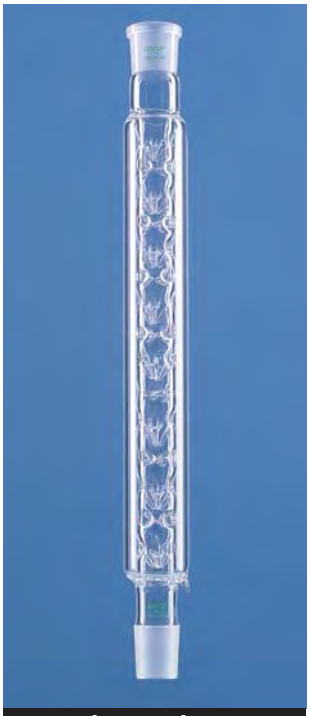
Ø x H mm	SP kg	Cat. No.
3 x 3	1	5.1270.03
4 x 4	1	5.1270.04
5 x 5	1	5.1270.05
6 x 6	1	5.1270.06
8 x 8	1	5.1270.08
10 x 10	1	5.1270.10



Column to Vigreux



Column to Vigreux, with Removable Glass Jacket



Column to Vigreux, with Fixed Vacuum Jacket

Columns to Vigreux

DURAN®. Without oder with removable glass jacket. Alterating horizontal and lateral pushed punts.

Eff. Length mm	Socket / Cone NS	Description	SP pcs.	Cat. No.
200	14/23	without jacket	1	5.1302.01
300	14/23	without jacket	1	5.1303.01
300	24/29	without jacket	1	5.1303.03
300	29/32	without jacket	1	5.1303.04
600	24/29	without jacket	1	5.1305.03
600	29/32	without jacket	1	5.1305.04
200	14/23	with jacket	1	5.1332.01
300	14/23	with jacket	1	5.1333.01
300	24/29	with jacket	1	5.1333.03
300	29/32	with jacket	1	5.1333.04
600	24/29	with jacket	1	5.1335.03
600	29/32	with jacket	1	5.1335.04

Columns to Vigreux

DURAN®. With fixed vacuum jacket.

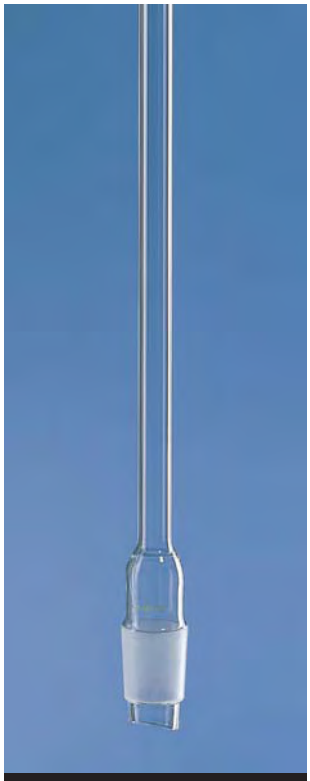
Eff. Length mm	Socket / Cone NS	SP pcs.	Cat. No.
200	14/23	1	5.1362.01
300	14/23	1	5.1363.01
300	24/29	1	5.1363.03
300	29/32	1	5.1363.04
600	24/29	1	5.1365.03
600	29/32	1	5.1365.04

Column Head with Valve Stopcock

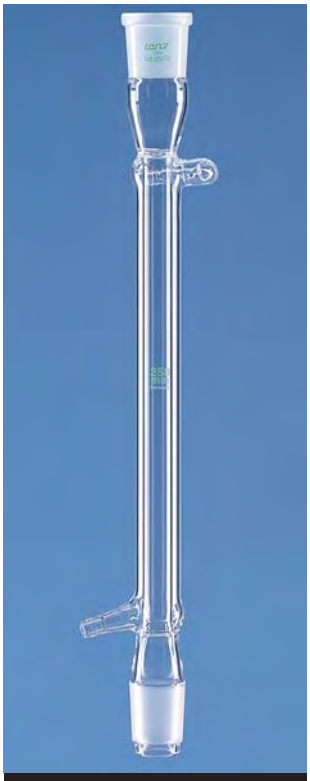
Column Heads with Valve Stopcock

DURAN®. With PTFE valve for easy and accurate reflux adjustment. Thermometer connection NS 14/23 for thermometers with 55 mm fitting length.

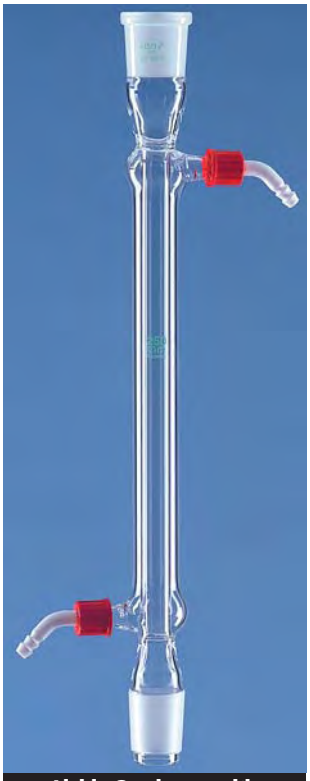
Column NS	Receiver NS	SP pcs.	Cat. No.
14/23	14/23	1	5.1701.11
29/32	29/32	1	5.1701.44



Air Condenser without Jacket



Liebig Condenser with Nozzle



Liebig Condenser with GL Thread

Air Condensers without Jacket

DURAN®. For condensing vapours. With cone and drain ring.

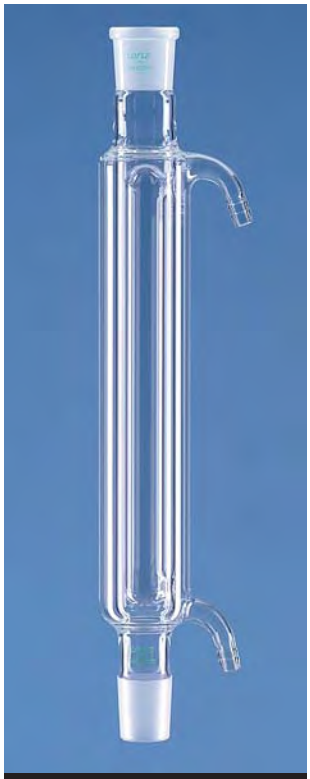
Cone NS	Length mm	SP pcs.	Cat. No.
14/23	700	1	5.2000.01
29/32	1000	1	5.2000.04

Liebig Condensers

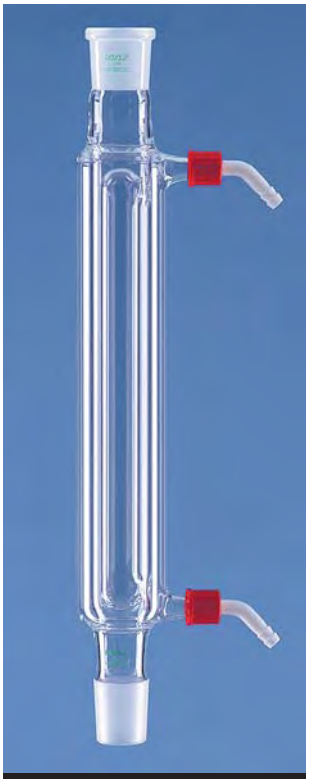
DURAN®. DIN 12576. For condensing vapours. With fixed jacket, cone and socket. Water connection with nozzle or thread GL 14, with two threaded plastic nozzles.

Socket/Cone NS	Jacket L. mm	Water Conn.	Ausf.	SP pcs.	Cat. No.
14/23	160	nozzle	DIN	1	5.2102.01
19/26	160	nozzle	DIN	1	5.2102.02
14/23	250	nozzle	(1)	1	5.2103.01
19/26	250	nozzle	DIN	1	5.2103.02
24/29	250	nozzle	(1)	1	5.2103.03
29/32	250	nozzle	DIN	1	5.2103.04
14/23	400	nozzle	(1)	1	5.2104.01
19/26	400	nozzle	(1)	1	5.2104.02
24/29	400	nozzle	(1)	1	5.2104.03
29/32	400	nozzle	DIN	1	5.2104.04
29/32	500	nozzle	(1)	1	5.2105.04
29/32	750	nozzle	(1)	1	5.2107.04
14/23	160	GL 14	DIN	1	5.2102.G1
19/26	250	GL 14	DIN	1	5.2103.G2
14/23	250	GL 14	(1)	1	5.2103.G1
19/26	250	GL 14	DIN	1	5.2103.G2
24/29	250	GL 14	(1)	1	5.2103.G3
29/32	250	GL 14	DIN	1	5.2103.G4
14/23	400	GL 14	(1)	1	5.2104.G1
19/26	400	GL 14	(1)	1	5.2104.G2
24/29	400	GL 14	(1)	1	5.2104.G3
29/32	400	GL 14	DIN	1	5.2104.G4
29/32	500	GL 14	(1)	1	5.2105.G4
29/32	750	GL 14	(1)	1	5.2107.G4

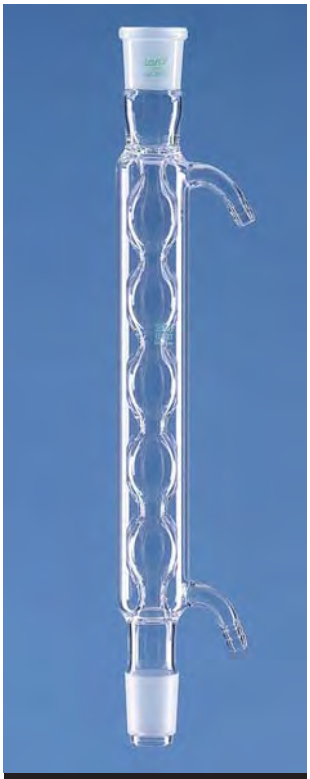
(1) in addition to DIN-range



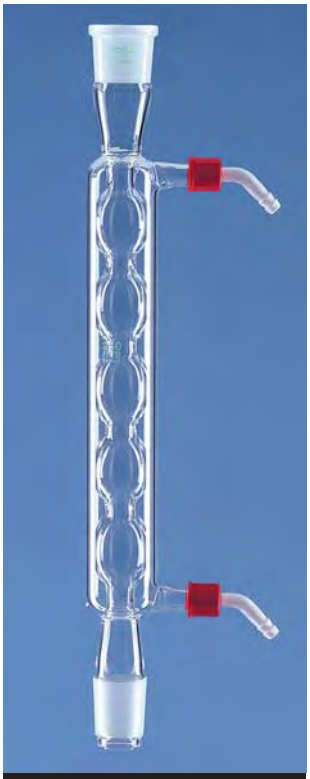
Davies Condenser with Nozzle



Davies Condenser with GL Thread



Allihn Condenser with Cone, Socket and Nozzle



Allihn Condenser with Cone, Socket and GL Thread

Davies Condensers

DURAN®. For condensing vapours. With double sized cooling area, cone and socket. Water connection with nozzle or thread GL 14, with two threaded plastic nozzles.

Socket/Cone NS	Jacket L. mm	Water Conn.	SP pcs.	Cat. No.
24/29	250	nozzle	1	5.2153.03
29/32	250	nozzle	1	5.2153.04
24/29	400	nozzle	1	5.2154.03
29/32	400	nozzle	1	5.2154.04
24/29	250	GL 14	1	5.2153.G3
29/32	250	GL 14	1	5.2153.G4
24/29	400	GL 14	1	5.2154.G3
29/32	400	GL 14	1	5.2154.G4

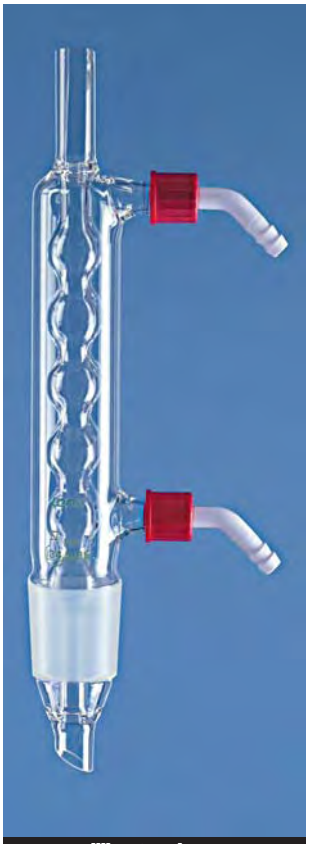
Allihn Condensers

DURAN®. DIN 12581. For condensing vapours. With cone and socket, water connection with nozzle or thread GL 14, with two thread plastic nozzles.

Socket / Cone NS	Jacket Length mm	No. of Balls	Water Conn.	Desc.	SP pcs.	Cat. No.
14/23	160	5	nozzle	(1)	1	5.2232.01
19/26	160	5	nozzle	DIN	1	5.2232.02
24/29	160	5	nozzle	(1)	1	5.2232.03
29/32	160	5	nozzle	(1)	1	5.2232.04
14/23	250	5	nozzle	(1)	1	5.2233.01
19/26	250	5	nozzle	(1)	1	5.2233.02
24/29	250	5	nozzle	(1)	1	5.2233.03
29/32	250	5	nozzle	DIN	1	5.2233.04
24/29	400	8	nozzle	(1)	1	5.2234.03
29/32	400	8	nozzle	(1)	1	5.2234.04
29/32	500	10	nozzle	(1)	1	5.2235.04
14/23	160	5	GL 14	(1)	1	5.2232.G1
19/26	160	5	GL 14	DIN	1	5.2232.G2
24/29	160	5	GL 14	(1)	1	5.2232.G3
29/32	160	5	GL 14	(1)	1	5.2232.G4
14/23	250	5	GL 14	(1)	1	5.2233.G1
19/26	250	5	GL 14	(1)	1	5.2233.G2
24/29	250	5	GL 14	(1)	1	5.2233.G3
29/32	250	5	GL 14	DIN	1	5.2233.G4
24/29	400	8	GL 14	(1)	1	5.2234.G3
29/32	400	8	GL 14	(1)	1	5.2234.G4
29/32	500	10	GL 14	(1)	1	5.2235.G4

(1) in addition to DIN-range

Allihn Condenser with Cone and Nozzle



Allihn Condenser with Cone and GL Thread

Spiral-condenser with Nozzle

Spiral-condenser with GL Thread

Allihn Condensers

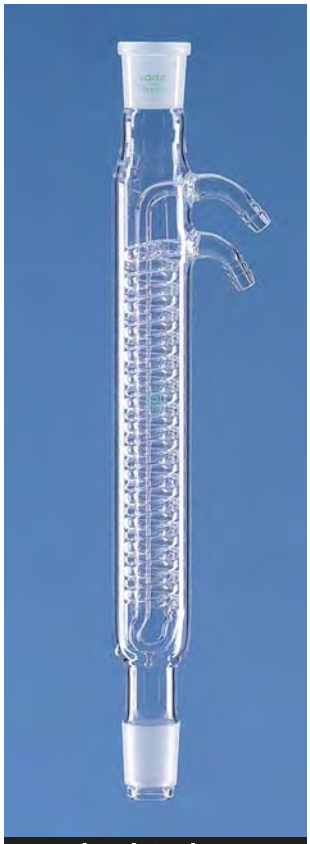
DURAN®. For condensing vapours. With cone, water connection with nozzle or thread GL 14, with two thread plastic nozzles.

Cone NS	Extractor ml	Water Conn.	SP pcs.	Cat. No.
29/32	30	Nozzle	1	5.2260.04
34/35	70	Nozzle	1	5.2260.05
45/40	100-250	Nozzle	1	5.2260.06
29/32	30	GL 14	1	5.2260.G4
34/35	70	GL 14	1	5.2260.G5
45/40	100-250	GL 14	1	5.2260.G6

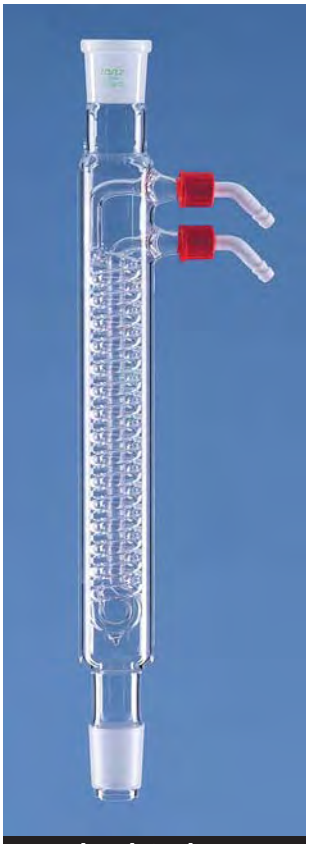
Spiral-condensers

DURAN®. For cooling condensates. With cone and socket. Water connection with nozzle or thread GL 14, with two threaded plastic nozzles.

Socket/Cone NS	Jacket L. mm	Water Conn.	SP pcs.	Cat. No.
14/23	160	nozzle	1	5.2332.01
29/32	250	nozzle	1	5.2333.04
29/32	400	nozzle	1	5.2334.04
29/32	500	nozzle	1	5.2335.04
14/23	160	GL 14	1	5.2332.G1
29/32	250	GL 14	1	5.2333.G4
29/32	400	GL 14	1	5.2334.G4
29/32	500	GL 14	1	5.2335.G4



Dimroth Condenser with Nozzle



Dimroth Condenser with GL Thread

Dimroth Condenser with Cone, with Nozzle

Dimroth Condenser with Cone, with GL Thread

Dimroth Condensers

DURAN®. DIN 12591. For condensing vapours. With cone and socket. Water connection with nozzle or thread GL 14, with two threaded plastic nozzles.

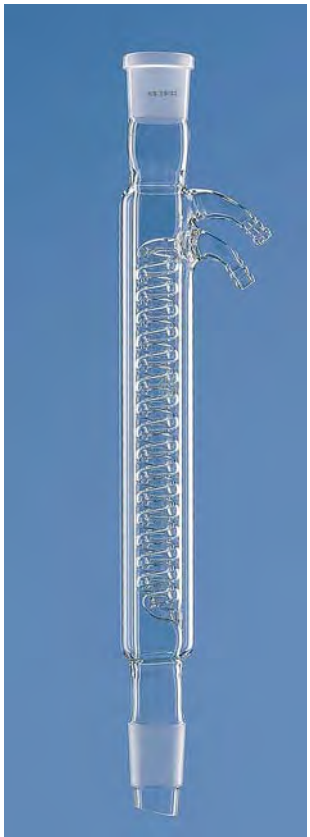
Socket/Cone NS	Jacket L. mm	Water Conn.	Desc.	SP pcs.	Cat. No.
14/23	160	nozzle	(1)	1	5.2402.01
19/26	160	nozzle	(1)	1	5.2402.02
14/23	250	nozzle	(1)	1	5.2403.01
19/26	250	nozzle	(1)	1	5.2403.02
24/29	250	nozzle	(1)	1	5.2403.03
29/32	250	nozzle	DIN	1	5.2403.04
45/40	250	nozzle	(1)	1	5.2403.06
29/32	400	nozzle	DIN	1	5.2404.04
45/40	400	nozzle	(1)	1	5.2404.06
14/23	160	GL 14	(1)	1	5.2402.G1
19/26	160	GL 14	(1)	1	5.2402.G2
14/23	250	GL 14	(1)	1	5.2403.G1
19/26	250	GL 14	(1)	1	5.2403.G2
24/29	250	GL 14	(1)	1	5.2403.G3
29/32	250	GL 14	DIN	1	5.2403.G4
45/40	250	GL 14	(1)	1	5.2403.G6
29/32	400	GL 14	DIN	1	5.2404.G4
45/40	400	GL 14	(1)	1	5.2404.G6

(1) in addition to DIN-range

Dimroth Condensers with Cone

DURAN®. For extractors. For condensing vapours. With cone. Water connection with nozzle or thread GL 14, with two threaded plastic nozzles.

Cone NS	Extractor ml	Water Conn.	SP pcs.	Cat. No.
29/32	30	nozzle	1	5.2460.04
34/35	70	nozzle	1	5.2460.05
45/40	100-250	nozzle	1	5.2460.06
60/46	300-500	nozzle	1	5.2460.07
71/51	1000	nozzle	1	5.2460.08
29/32	30	GL 14	1	5.2460.G4
34/35	70	GL 14	1	5.2460.G5
45/40	100-250	GL 14	1	5.2460.G6
60/46	300-500	GL 14	1	5.2460.G7
71/51	1000	GL 14	1	5.2460.G8



Coil Condenser (double walled) with Nozzle

Coil Condenser (double walled) with GL Thread

High Efficient Condenser with 4 Coils

Coil Condensers (double walled)

DURAN®. DIN 12593. For condensing vapours. With cooling coil and jacket, with cone and socket. Water connection with nozzle or thread GL 14, with two threade plastic nozzles.

Socket/Cone NS	Jacket L. mm	Water Conn.	Ausf.	SP pcs.	Cat. No.
14/23	160	nozzle	(1)	1	5.2502.01
29/32	160	nozzle	DIN	1	5.2502.04
24/29	250	nozzle	(1)	1	5.2503.03
29/32	250	nozzle	DIN	1	5.2503.04
29/32	400	nozzle	DIN	1	5.2504.04
29/32	500	nozzle	(1)	1	5.2505.04
14/23	160	GL 14	(1)	1	5.2502.G1
29/32	160	GL 14	DIN	1	5.2502.G4
24/29	250	GL 14	(1)	1	5.2503.G3
29/32	250	GL 14	DIN	1	5.2503.G4
29/32	400	GL 14	DIN	1	5.2504.G4
29/32	500	GL 14	(1)	1	5.2505.G4

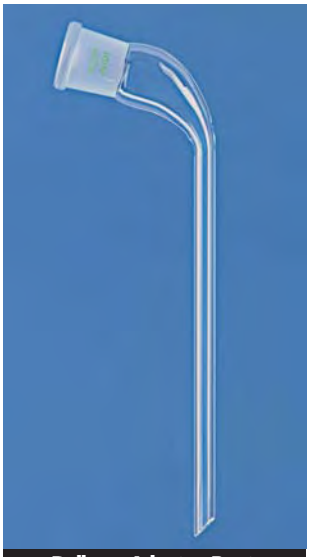
(1) in addition to DIN-range

High efficient Condensers with 4 Coils

DURAN®. With 4 cooling coils, cooling area 3000 cm^2, jacket length 300 mm. Available with cone and socket NS 45/40 and water connections with nozzle or ball and socket KF 50 and water connections ball member KF 15.

Description	Jacket L. mm	Water Conn.	SP pcs.	Cat. No.
NS 45/40	300	nozzle	1	5.2550.00
KF 50	300	KF 15	1	5.2550.50

Delivery Adapter, Bent, with Short Tube



Delivery Adapter, Bent, with Long Tube

Delivery Adapters, Bent

DURAN®. With socket and bent tube, 105°, with short tube.

Socket NS	Tube Length mm	SP pcs.	Cat. No.
14/23	65	1	5.2600.01
19/26	65	1	5.2600.02
24/29	65	1	5.2600.03
29/32	65	1	5.2600.04

Delivery Adapters, Bent

DURAN®. With socket and bent tube, 105°, with long tube.

Socket NS	Tube Length mm	SP pcs.	Cat. No.
14/23	190	1	5.2630.01
19/26	200	1	5.2630.02
24/29	200	1	5.2630.03
29/32	200	1	5.2630.04

Delivery Adapter, Bent, with Drain Tip

Delivery Adapter, Straight, with Vacuum Tube

Delivery Adapters, Bent

DURAN®. With cone and socket, bent, 105°, with drain tip.

Socket NS	SP pcs.	Cat. No.
14/23	1	5.2650.01
19/26	1	5.2650.02
24/29	1	5.2650.03
29/32	1	5.2650.04

Delivery Adapters, Straight

DURAN®. With cone and socket, straight, with vacuum tube.

Socket NS	SP pcs.	Cat. No.
14/23	1	5.2660.01
19/26	1	5.2660.02
24/29	1	5.2660.03
29/32	1	5.2660.04

Delivery Adapter, Bent, with Ventilation

Delivery Adapters, Bent

DURAN®. For high boiling liquids, with cone and socket, bent, 105°, with ventilation.

Socket / Cone NS	SP pcs.	Cat. No.
14/23	1	5.2680.01
19/26	1	5.2680.02
24/29	1	5.2680.03
29/32	1	5.2680.04

Receiver Adapter, Straight, with Nozzle

Receiver Adapter, Straight, with GL Thread

Receiver Adapter, Bent, with Nozzle

Receiver Adapter, Bent, with GL Thread

Receiver Adapters, Straight

DURAN®. With cone and socket, straight. With drain tip and vacuum connection with nozzle or thread GL18.

Socket / Cone NS	Vacuum Conn.	SP pcs.	Cat. No.
14/23	nozzle	1	5.2720.01
19/26	nozzle	1	5.2720.02
24/29	nozzle	1	5.2720.03
29/32	nozzle	1	5.2720.04
14/23	GL 18	1	5.2720.G1
19/26	GL 18	1	5.2720.G2
24/29	GL 18	1	5.2720.G3
29/32	GL 18	1	5.2720.G4

Receiver Adapters, Bent

DURAN. With cone and socket, bent, 105°. With drain tip and vacuum connection with nozzle or thread GL18.

Socket / Cone NS	Vacuum Conn.	SP pcs.	Cat. No.
14/23	nozzle	1	5.2750.01
19/26	nozzle	1	5.2750.02
24/29	nozzle	1	5.2750.03
29/23	nozzle	1	5.2750.04
14/23	GL 18	1	5.2750.G1
19/26	GL 18	1	5.2750.G2
24/29	GL 18	1	5.2750.G3
29/32	GL 18	1	5.2750.G4

Distilling Receiver to Bredt, Bent

Distilling Receiver to Bredt, Straight

Distilling Receivers to Bredt, Bent

DURAN®. With 4 flasks NS 14/23. With bent adapter and vacuum connection GL 18.

Socket lateral NS	Socket / Cone vertical NS	Flasks ml	SP pcs.	Cat. No.
14/23	19/26	50	1	5.2800.01
29/32	29/32	100	1	5.2800.04

Distilling Receivers to Bredt, Straight

DURAN®. With 4 flasks NS 14/23. With straight adapter and vacuum connection GL 18.

Socket top NS	Cone / Socket vertical NS	Flasks ml	SP pcs.	Cat. No.
14/23	19/26	50	1	5.2850.01
29/32	29/32	100	1	5.2850.04
29/32	29/32	250	1	5.2850.05

Adapter, Bent

Adapter, Straight

Adapters for Distilling Receivers to Bredt

DURAN®. With two sockets, 105° bent, or straight, with vacuum connection GL 18.

Socket lateral NS	Socket down NS	Description	SP pcs.	Cat. No.
14/23	19/26	bent	1	5.2851.01
29/32	29/32	bent	1	5.2851.04
14/23	19/26	straight	1	5.2851.06
29/32	29/32	straight	1	5.2851.08

Distributor to Bredt

Distributors for Distilling Receivers to Bredt

DURAN®. With 4 cones NS 14/23 for round bottom flasks up to max. 250 ml capacity.

Cone NS	SP pcs.	Cat. No.
19/26	1	5.2852.02
29/32	1	5.2852.04

Distilling Receiver to Bernauer

Distilling Receiver to Bernauer

Distilling Receivers to Bernauer

DURAN®. Modified, with vacuum connection, with 3 flasks NS 14/23 or without flasks.

Flask ml	Socket NS	SP pcs.	Cat. No.
50	14/23	1	5.2880.01
100	19/26	1	5.2880.02
100	29/32	1	5.2880.04
without flask	14/23	1	5.2881.01
without flask	19/26	1	5.2881.02
without flask	29/32	1	5.2881.04

Distilling Receiver to Anschütz-Thiele, Straight

Distilling Receiver to Anschütz-Thiele, Straight

Distilling Receivers to Anschütz-Thiele, Straight

DURAN®. Receiver with straight adapter, graduated. With cone and socket, vacuum connection GL 18.
NS stopcock with glass- or PTFE stopcock.

Capacity ml	Socket / Cone NS	Description	SP pcs.	Cat. No.
25	14/23	glass solid	1	5.2950.01
50	29/32	glass solid	1	5.2950.04
100	29/32	glass solid	1	5.2950.14
25	14/23	PTFE	1	5.2951.01
50	29/32	PTFE	1	5.2951.04
100	29/32	PTFE	1	5.2951.14

Distilling Receiver to Anschütz-Thiele, Bent, Glass Stopcock

Distilling Receiver to Anschütz-Thiele, Bent, PTFE Stopcock

Distilling Receiver to Anschütz-Thiele, Straight, with Cooling Jacket, Glass Stopcock

Distilling Receiver to Anschütz-Thiele, Straight, with Cooling Jacket, PTFE Stopcock

Distilling Receivers to Anschütz-Thiele, Straight, with Cooling Jacket

DURAN®. Receiver with straight adapter, with cooling jacket, graduated. With cone and socket, vacuum connection GL 18.
NS stopcock with glass- or PTFE stopcock.

Capacity ml	Socket / Cone NS	Description	SP pcs.	Cat. No.
50	29/32	glass solid	1	5.3050.04
100	29/32	glass solid	1	5.3050.14
50	29/32	PTFE	1	5.3051.04
100	29/32	PTFE	1	5.3051.14

Distilling Receivers to Anschütz-Thiele, Bent

DURAN®. Receiver with bent adapter, graduated. With cone and socket, vacuum connection GL 18.
NS stopcock with glass- or PTFE stopcock.

Capacity ml	Socket / Cone NS	Description	SP pcs.	Cat. No.
25	14/23	glass solid	1	5.2980.01
50	29/32	glass solid	1	5.2980.04
100	29/32	glass solid	1	5.2980.14
25	14/23	PTFE	1	5.2981.01
50	29/32	PTFE	1	5.2981.04
100	29/32	PTFE	1	5.2981.14

Connector with Stopcock

Funnel, Plain

Connectors with Stopcock

DURAN®. With NS stopcock, cone and socket.

Cone NS	Socket NS	Bore mm	SP pcs.	Cat. No.
14/23	14/23	2,5	1	5.3100.11
29/32	29/32	8	1	5.3100.44

Connector Bent

Connectors, Bent

DURAN®. Bent, with socket NS 14/23 for thermometer or air leak tubes, cone and lateral socket.

Cone NS	Socket NS	SP pcs.	Cat. No.
29/32	29/32	1	5.3130.44
45/40	29/32	1	5.3130.64

Funnels, Plain

Soda-Lime Glass. 60° angle. With short stem.

Funnel O-Ø mm	Stem O-Ø mm	Stem Length mm	SP pcs.	Cat. No.
30	6	30	10	5.3180.03
35	6	35	10	5.3180.05
40	6	40	10	5.3180.08
45	7	45	10	5.3180.09
50	7	50	10	5.3180.12
55	8	55	10	5.3180.15
60	8	60	10	5.3180.17
70	9	70	10	5.3180.20
80	9	80	10	5.3180.25
100	10	100	10	5.3180.33

Funnel with Cone

Funnels with Cone

Solid addition funnels 60° angle, with cone.

Funnel O-Ø mm	Cone NS	SP pcs.	Cat. No.
45	14/23	1	5.3210.01
55	19/26	1	5.3210.02
70	24/29	1	5.3210.03
80	29/32	1	5.3210.04

Drying Tube, Straight

Drying Tube, Bent

Drying Tube with Cone, Bent

Drying Tubes (Chlorcalcium Tubes)

DURAN®. DIN 12610. With ball and tubing nozzle, straight or bent.

Nom. Length mm	I-Ø mm	Description	SP pcs.	Cat. No.
100	13	straight	1	5.3300.10
150	13	straight	1	5.3300.13
100	13	bent	1	5.3330.10
150	13	bent	1	5.3330.13

Drying Tubes with Cone, Bent

DURAN®. With cone. 75° bent.

I-Ø mm	Cone NS	SP pcs.	Cat. No.
15	14/23	1	5.3370.01
15	19/26	1	5.3370.02
15	24/29	1	5.3370.03
15	29/32	1	5.3370.04

Drying Tube, U-shaped

Drying Tube, U-shaped, with NS Stopcocks

Cold Trap without Condensate Drain

Cold Trap with Condensate Drain

Drying Tubes, U-Shaped

DURAN®. Side tubes with nozzle. Outer diameter 6 mm.

Nom. Length mm	I-Ø mm	SP pcs.	Cat. No.
100	13	1	5.3390.10
130	13	1	5.3390.13
180	18	1	5.3390.18

Drying Tubes, U-Shaped

DURAN®. DIN 12616. With removable NS stopcocks. Side tubes with nozzle. Outer diameter 6 mm.

Nom. Length mm	Socket NS	SP pcs.	Cat. No.
125	14/23	1	5.3420.13
150	19/26	1	5.3420.15

Cold Traps

DURAN®. Without oder with valve stopcock. Valve stopcock with retaining device for condensate drain. Can be filled directly with cooling agents. Low consumption of cooling agent due to double walled design. Two connections NS 29/32: Apparatus onto socket, vacuum pump onto cone.

Coolant Cap. ml	Description	SP pcs.	Cat. No.
200	without condensate drain	1	5.3550.46
500	without condensate drain	1	5.3550.58
1000	without condensate drain	1	5.3550.70
200	with condensate drain	1	5.3555.46
500	with condensate drain	1	5.3555.58
1000	with condensate drain	1	5.3555.70

Soxhlet Extractor
with Dimroth Condenser

Soxhlet Extractor
with Allihn Condenser

Soxhlet Extractors

DURAN®. For the extraction from solids with solvents. The solvent is recirculated continuously and distilled from the extracted sample before contacting the solid again. The extract is concentrated in the distillation flask. The method allows an effective separation with relatively small amounts of extracting solvents.

The complete apparatus consists of

- round bottom flask
- compact and robust designed extractor with NS 29/32 flask connection
- Dimroth- or Allihn condenser with thread GL 14

For Dimroth condenser, individually, see page 59.
For Allihn condenser, individually, see page 58.

Extractor ml	Condenser NS	Flask ml	Condenser	SP pcs.	Cat. No.
30	29/32	100	Dimroth	1	5.3600.25
70	34/35	100	Dimroth	1	5.3600.31
100	45/40	250	Dimroth	1	5.3600.37
150	45/40	250	Dimroth	1	5.3600.43
200	45/40	250	Dimroth	1	5.3600.46
250	45/40	500	Dimroth	1	5.3600.49
300	60/46	500	Dimroth	1	5.3600.52
500	60/46	1000	Dimroth	1	5.3600.58
1000	71/51	2000	Dimroth	1	5.3600.70
30	29/32	100	Allihn	1	5.3650.25
70	34/35	100	Allihn	1	5.3650.31
100	45/40	250	Allihn	1	5.3650.37
150	45/40	250	Allihn	1	5.3650.43
200	45/40	250	Allihn	1	5.3650.46
250	45/40	500	Allihn	1	5.3650.49

Soxhlet Extractor Head without Stopcock

Soxhlet Extractor Head with NS Stopcock

Soxhlet Extractor Heads

DURAN®. DIN 12602. Available without or with NS glass stopcock.

Extractor ml	Condenser NS	Description	Desc.	SP pcs.	Cat. No.
30	29/32	w/o stopcock	DIN	1	5.3951.25
70	34/35	w/o stopcock	(1)	1	5.3951.31
100	45/40	w/o stopcock	DIN	1	5.3951.37
150	45/40	w/o stopcock	(1)	1	5.3951.43
200	45/40	w/o stopcock	(1)	1	5.3951.46
250	45/40	w/o stopcock	DIN	1	5.3951.49
300	60/46	w/o stopcock	(1)	1	5.3951.52
500	60/46	w/o stopcock	DIN	1	5.3951.58
1000	71/51	w/o stopcock	DIN	1	5.3951.70
70	34/35	NS stopcock	(1)	1	5.4001.31
100	45/40	NS stopcock	DIN	1	5.4001.37
150	45/40	NS stopcock	(1)	1	5.4001.43
250	45/40	NS stopcock	DIN	1	5.4001.49
500	60/46	NS stopcock	DIN	1	5.4001.58

(1) In addition to DIN range.

Soxhlet Extractors with Flange

DURAN®. Extractor with flange LF 100, head LF 100, with socket NS 45/40. Complete with 2 l round bottom flask and Dimroth condenser. For Dimroth condenser, individually, see page 59.

Extractor ml	Condenser NS	Flask ml	SP pcs.	Cat. No.
2000	45/40	2000	1	5.3670.73

Soxhlet Extractor Heads with Flange

DURAN®. Extractor head 2000 ml, with flange LF 100.

Extractor ml	SP pcs.	Cat. No.
2000	1	5.3672.01

Soxhlet Extractor with Flange

Thielepape Extractor

Thielepape Extractors

DURAN®. For the extraction of solids. The vapours pass directly into the condenser. The condensate flows continuously through the extraction sample back into the flask.
The complete apparatus consists of
- round bottom flask
- extractor with glass frit, porositiy 0
- Dimroth condenser with thread GL 14
For Dimroth condenser, individually, see page 59.

Extractor ml	Condenser NS	Flask ml	SP pcs.	Cat. No.
30	29/32	100	1	5.3700.25
150	45/40	250	1	5.3700.43
250	45/40	500	1	5.3700.49

Extractor Head

Frit Sleeve

Thielepape Extractor Heads

DURAN®. With NS stopcock, two-way.

Extractor ml	Condenser NS	SP pcs.	Cat. No.
30	29/32	1	5.4051.25
150	45/40	1	5.4051.43
250	45/40	1	5.4051.49

Tubes with Sintered Glass for Thielepape Extractors

Glass tube with sintered filter disc, porositiy 0.

Extractor ml	SP pcs.	Cat. No.
30	1	5.4052.25
150	1	5.4052.43
250	1	5.4052.49

Jacketed Extractor to Knöfler-Böhm

Jacketed Extractors, Knöfler-Böhm

DURAN®. The condensate passes the extraction sample and flows back into the flask continuously without interrupting the extraction process, i.e. the solvent is recirculated continuously.
The complete apparatus consists of
- round bottom flask
- Dimroth condenser with thread GL 14
- extractor
For Dimroth condenser individually see page 59.

Extractor ml	Condenser NS	Flask ml	SP pcs.	Cat. No.
30	29/32	100	1	5.3750.25
150	45/40	250	1	5.3750.43
250	45/40	500	1	5.3750.49
500	60/46	1000	1	5.3750.58

Head for Jacketed Extractor

Heads for Jacketed Extractors, Knöfler-Böhm

Extractor ml	Condenser NS	SP pcs.	Cat. No.
30	29/32	1	5.4101.25
100	45/40	1	5.4101.37
250	45/40	1	5.4101.49
500	60/46	1	5.4101.58

Twisselmann Extractor

Twisselmann Extractors

DURAN®. With improved Twisselmann condenser with vacuum jacket and round bottom flask, water connection GL 14.

Extractor ml	Condenser NS	Flask ml	SP pcs.	Cat. No.
30	29/32	100	1	5.3800.25
70	34/35	100	1	5.3800.31
100	45/40	250	1	5.3800.37
150	45/40	250	1	5.3800.43


Extractor Head with Vacuum Jacket


Condenser with Receiver

Twisselmann Extractor Heads with Vacuum Jacket

Extractor ml	Condenser NS	SP pcs.	Cat. No.
30	29/32	1	5.4151.25
70	34/35	1	5.4151.31
100	45/40	1	5.4151.37
150	45/40	1	5.4151.43

Condensers with Receiver to Twisselmann

With water connection GL 14.

Cone NS	for Extractor Cap. ml	SP pcs.	Cat. No.
29/32	30	1	5.4201.04
34/35	70	1	5.4201.05
45/40	100-250	1	5.4201.06

Extractor for Solids

Extractors for Solids

DURAN®. For the extraction of solids (warm). With water connection GL 14.

Extractor ml	Condenser NS	Flask ml	SP pcs.	Cat. No.
70	45/40	250	1	5.4310.31
100	45/40	250	1	5.4310.37
250	45/40	500	1	5.4310.49

Extractor Head for Solids

Extractor Sleeve for Solids

Extractor Heads for Solids

For the extraction of solids (warm), with glass insert for the extraction sleeve.

Extractor ml	Condenser NS	SP pcs.	Cat. No.
70	45/40	1	5.4311.31
100	45/40	1	5.4311.37
250	45/40	1	5.4311.49

Glass Inserts with Bores for Solids

Extractor ml	SP pcs.	Cat. No.
70	1	5.4312.01
100	1	5.4312.02
250	1	5.4312.03

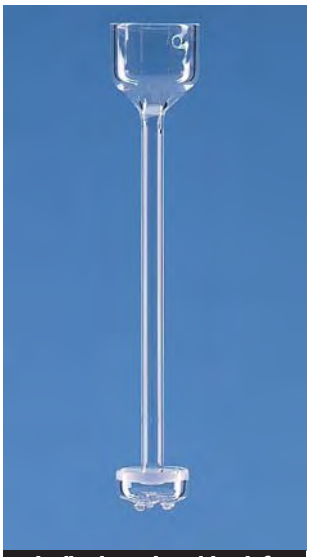
Extractor for Specific Light Solvents

Extractors for Specific Light Solvents

DURAN®. Extraction apparatus consisting of:
Extractor head with insert filter (frit, porositiy 0) and PTFE valve stopcock
- Dimroth condenser with thread GL 14
- round bottom flask.
For Dimroth condenser individually see page 59.

Extractor ml	Condenser NS	Flask ml	SP pcs.	Cat. No.
100	45/40	250	1	5.4320.37
250	45/40	500	1	5.4320.49
500	60/46	1000	1	5.4320.58

Extractor Head for Specific Light Solvents



Distribution Tube with Frit for Specific Light Solvents

Extractor Heads for Specific Light Solvents

For the extraction of liquids light solvents, with insert filter (frit, porositiy 0).

Extractor ml	Condenser NS	SP pcs.	Cat. No.
100	45/40	1	5.4321.37
250	45/40	1	5.4321.49
500	60/46	1	5.4321.58

Distribution Tubes with Frit (Porosity 0) for Specific Light Solvents

Extractor ml	SP pcs.	Cat. No.
100	1	5.4322.02
250	1	5.4322.03
500	1	5.4322.04

Extractor for Specific Heavier Solvents

Extractors for Specific Heavier Solvents

Extraction apparatus consisting of:
- Extractor head with insert filter (frit, porositiy 0) and PTFE valve stopcock
- Dimroth condenser
- round bottom flask

For Dimroth condenser individually see page 59

Extractor ml	Condenser NS	Flask ml	SP pcs.	Cat. No.
100	45/40	250	1	5.4330.37
250	45/40	500	1	5.4330.49
500	60/46	1000	1	5.4330.58

Extractor Head for Specific Heavier Solvents

Extractor Distribution Tube for Specific Heavier Solvents

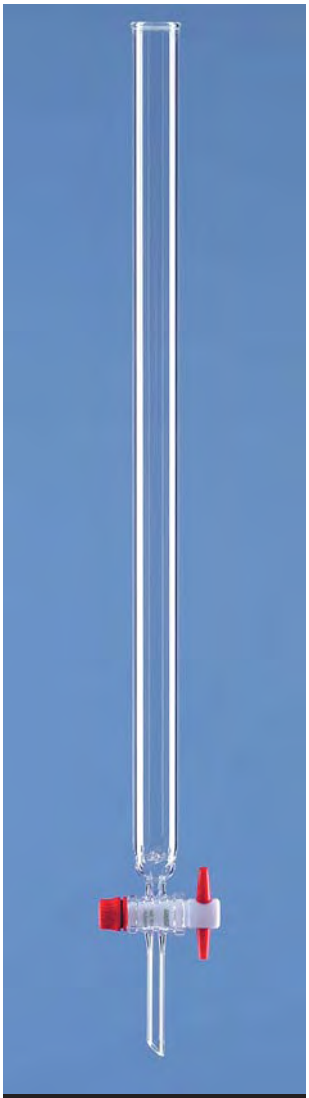
Extractor Heads for Specific Heavier Solvents

For the extaction of liquids with specific heavier solvents. With insert filter (frit, porositiy 0).

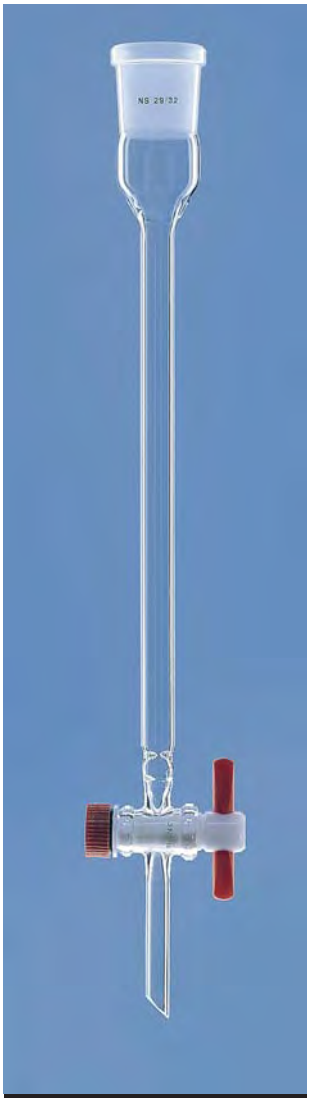
Extractor ml	Condenser NS	SP pcs.	Cat. No.
100	45/40	1	5.4331.37
250	45/40	1	5.4331.49
500	60/46	1	5.4331.58

Distribution Tubes with Frit (Porosity 0) for Specific Heavier Solvents

Extractor ml	SP pcs.	Cat. No.
100		5.4332.02
250		5.4332.03
500		5.4332.04



Chromatographic Column with Indentations and Beaded Rim

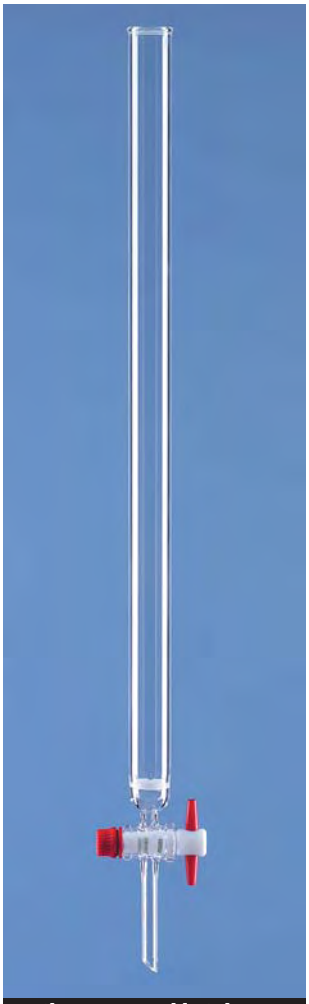


Chromatographic Column with Indentations and NS Socket

Chromatographic Columns with Indentations and PTFE Stopcock

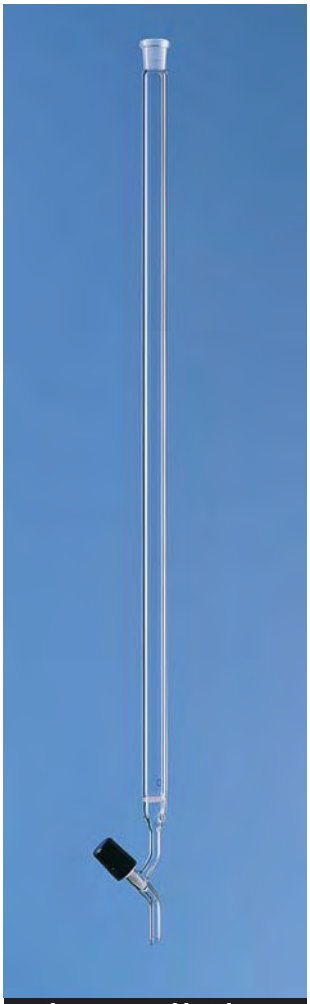
Basic chromatographic columns with indentations above the stopcock for placing a cotton plug.
With PTFE stopcock and retaining device.
Available in two versions:
- with beaded rim
- with NS socket

Eff. Length mm	Column-Ø mm	Capacity ml	Description	SP pcs.	Cat. No.
200	10	15	beaded rim	1	5.4357.01
200	15	35	beaded rim	1	5.4357.02
400	20	125	beaded rim	1	5.4357.04
600	30	430	beaded rim	1	5.4357.06
800	40	1000	beaded rim	1	5.4357.08
200	10	15	socket NS 14/23	1	5.4407.01
200	15	35	socket NS 14/23	1	5.4407.02
400	20	125	socket NS 29/32	1	5.4407.04
600	30	430	socket NS 29/32	1	5.4407.06
800	40	1000	socket NS 29/32	1	5.4407.08



Chromatographic Column with Frit, PTFE Stopcock and Beaded Rim

Chromatographic Column with Frit, PTFE Stopcock and NS Socket

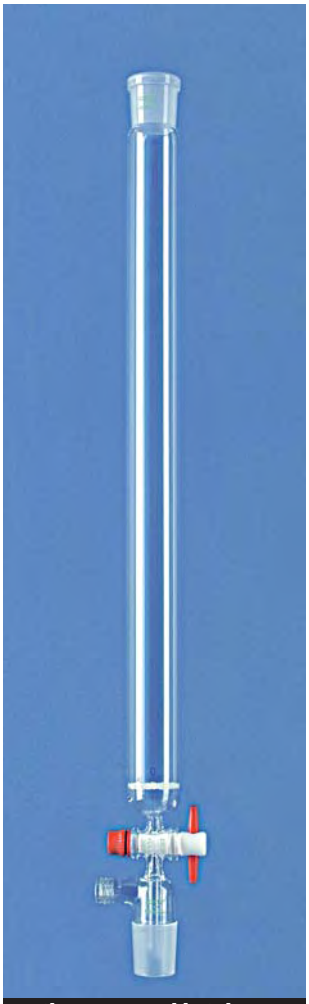


Chromatographic Column with Frit, Valve Stopcock and NS Socket

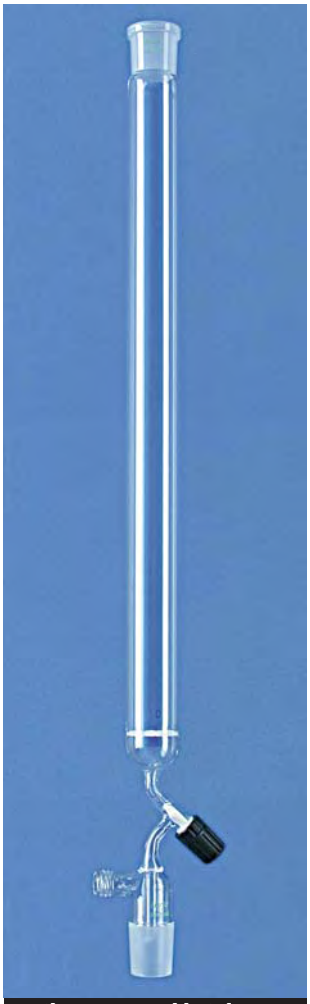
Chromatographic Columns with Frit, PTFE- or Valve Stopcock

Chromatographic columns with sintered frit, porositiy 0.
Available in three versions:
- with beaded rim and PTFE stopcock
- with NS socket and PTFE stopcock
- with NS socket and valve stopcock (bore 0-2,5 mm)

Eff. Length mm	Column-Ø mm	Capacity ml	Description	Stopcock	SP pcs.	Cat. No.
200	10	15	beaded rim	PTFE	1	5.4457.01
200	15	35	beaded rim	PTFE	1	5.4457.02
400	20	125	beaded rim	PTFE	1	5.4457.04
600	30	430	beaded rim	PTFE	1	5.4457.06
800	40	1000	beaded rim	PTFE	1	5.4457.08
100	10	8	socket NS 14/23	PTFE	1	5.4507.00
200	10	15	socket NS 14/23	PTFE	1	5.4507.01
300	10	23	socket NS 14/23	PTFE	1	5.4507.02
200	15	35	socket NS 14/23	PTFE	1	5.4507.03
400	20	125	socket NS 29/32	PTFE	1	5.4507.04
600	30	430	socket NS 29/32	PTFE	1	5.4507.06
100	10	8	socket NS 14/23	valve	1	5.4508.00
200	10	15	socket NS 14/23	valve	1	5.4508.01
300	10	23	socket NS 14/23	valve	1	5.4508.02
200	15	35	socket NS 14/23	valve	1	5.4508.03
400	20	125	socket NS 29/32	valve	1	5.4508.04
600	30	430	socket NS 29/32	valve	1	5.4508.06



Chromatographic Column with Frit, Cone and Socket and PTFE Stopcock



Chromatographic Column with Frit, Cone and Socket and Valve Stopcock

Chromatographic Columns with Frit, Cone and Socket

Chromatographic columns with sintered frit, porositiy 0, suction tube thread GL 18.
Available in two versions:
- with PTFE stopcock
- with valve stopcock (bore 0-2,5 mm)

Eff. Length mm	Column-Ø mm	Capacity ml	Socket/Cone NS	Stopcock	SP pcs.	Cat. No.
200	15	35	14/23	PTFE	1	5.4509.01
400	20	120	14/23	PTFE	1	5.4509.02
400	30	280	29/32	PTFE	1	5.4509.04
600	30	430	29/32	PTFE	1	5.4509.06
200	15	35	14/23	valve	1	5.4509.11
400	20	120	14/23	valve	1	5.4509.12
400	30	280	29/32	valve	1	5.4509.14
600	30	430	29/32	valve	1	5.4509.16

Sprayer, Complete

Test Tube Sprayer

Wash Bottle

Wash Bottle Head

Sprayers

DURAN®. Consists of an Erlenmeyer flask, 100 ml, with NS 19/26, sprayer head, clamp and rubber bulb.

Description	SP pcs.	Cat. No.
Sprayer, complete	1	5.4700.00
Erlenmeyer flask, 100 ml, NS 19/26	1	3.0219.37
Sprayer head, NS 19/26	1	5.4700.04
Rubber bulb	1	5.4700.05
Clamp, NS 19/26	1	1.1037.18

Wash Bottles

DURAN®. Consists of a flat bottom flask, 500 resp. 1000 ml, to DIN 12348, with NS 29/32 and wash bottle head.

Description	Capacity ml	SP pcs.	Cat. No.
Wash bottle, complete	500	1	5.4750.58
Wash bottle, complete	1000	1	5.4750.70
Wash bottle head	500	1	5.4751.58
Wash bottle head	1000	1	5.4751.70

Test Tube Sprayers

DURAN®. Consists of a test tube NS 14/23 resp. 19/26, sprayer head, clamp and rubber bulb.

Description	Capacity ml	Joint NS	SP pcs.	Cat. No.
Sprayer, complete	6	14/23	1	5.4706.00
Sprayer, complete	12	19/26	1	5.4712.00
Sprayer head	6	14/23	1	5.4706.05
Sprayer head	12	19/26	1	5.4712.05
Test tube	6	14/23	1	5.4706.06
Test tube	12	19/26	1	5.4712.06
Rubber bulb			1	5.4700.05
Clamp		14/23	1	1.1037.14
Clamp		19/26	1	1.1037.19

Kipp Dispenser

Kipp Dispenser Head

Kipp Dispensers

Dispenser head with 1 l bottle with NS 29/32.

Capacity ml	SP pcs.	Cat. No.
1	1	5.4760.01
2	1	5.4760.04
3	1	5.4760.07
5	1	5.4760.10
10	1	5.4760.13
20	1	5.4760.19
25	1	5.4760.22
50	1	5.4760.28
100	1	5.4760.37

Kipp Dispenser Heads

DURAN®.

Capacity ml	SP pcs.	Cat. No.
1	1	5.4761.01
2	1	5.4761.04
3	1	5.4761.07
5	1	5.4761.10
10	1	5.4761.13
20	1	5.4761.19
25	1	5.4761.22
50	1	5.4761.28
100	1	5.4761.37

Gas Washbottles

Bottles and Heads to DIN 12596.
Supplied with oder without filter disc, porositiy 1.
The heads correspond with the safety requirements of DIN.

Gas Washbottle to Drechsel without Filter Disc

Gas Washbottle Head to Drechsel without Filter Disc

Gas Washbottles to Drechsel without Filter Disc

Conical joint NS 29/32.
Available with hose nozzle O-Ø 11 mm or thread GL 14.

Capacity ml	Description	SP pcs.	Cat. No.
100	nozzle	1	5.5005.37
250	nozzle	1	5.5005.49
500	nozzle	1	5.5005.58
1000	nozzle	1	5.5005.70
100	GL 14	1	5.5005.G1
250	GL 14	1	5.5005.G2
500	GL 14	1	5.5005.G3
1000	GL 14	1	5.5005.G4

Gas Washbottle Heads without Filter Disc

Cone NS 29/32. For all bottle sizes to DIN 12463.
Aivailable with hose nozzle O-Ø 11 mm or thread GL 14.

Description	SP pcs.	Cat. No.
Nozzle	1	5.5006.00
GL 14	1	5.5006.G0

Gas Washbottles to Drechsel with Filter Disc

Conical joint NS 29/32.
Available with hose nozzle O-Ø 11 mm or thread GL 14.

Capacity ml	Porositiy	Description	SP pcs.	Cat. No.
100	0	nozzle	1	5.5100.37
250	0	nozzle	1	5.5100.49
500	0	nozzle	1	5.5100.58
1000	0	nozzle	1	5.5100.70
100	1	nozzle	1	5.5101.37
250	1	nozzle	1	5.5101.49
500	1	nozzle	1	5.5101.58
1000	1	nozzle	1	5.5101.70
100	2	nozzle	1	5.5102.37
250	2	nozzle	1	5.5102.49
500	2	nozzle	1	5.5102.58
1000	2	nozzle	1	5.5102.70
100	0	GL 14	1	5.5100.G1
250	0	GL 14	1	5.5100.G2
500	0	GL 14	1	5.5100.G3
1000	0	GL 14	1	5.5100.G4
100	1	GL 14	1	5.5101.G1
250	1	GL 14	1	5.5101.G2
500	1	GL 14	1	5.5101.G3
1000	1	GL 14	1	5.5101.G4
100	2	GL 14	1	5.5102.G1
250	2	GL 14	1	5.5102.G2
500	2	GL 14	1	5.5102.G3
1000	2	GL 14	1	5.5102.G4

Gas Washbottle to Drechsel with Filter Disc and Hose Nozzle

Gas Washbottle Head to Drechsel with Filter Disc and Hose Nozzle

Gas Washbottle Heads with Filter Disc

Cone NS 29/32. Fits all bottle sizes to DIN 12463.
Available with hose nozzle O-Ø 11 mm or thread GL 14.

Description	Porositiy	SP pcs.	Cat. No.
Nozzle	0	1	5.5104.00
Nozzle	1	1	5.5104.01
Nozzle	2	1	5.5104.02
GL 14	0	1	5.5104.G0
GL 14	1	1	5.5104.G1
GL 14	2	1	5.5104.G2

Gas Washbottle without Head

Gas Washbottles without Head

DURAN®. NS 29/32, to DIN 12463.

Capacity ml	Ø mm	Height mm	Description	SP pcs.	Cat. No.
100	40	200	with base	1	5.5150.37
250	55	200	with base	1	5.5150.49
500	75	200	without base	1	5.5150.58
1000	107	200	without base	1	5.5150.70

Gas Washbottles to Drechsel with Screw Connections

DURAN®. With screw connections.
Available with or without filter disc porositiy 1, insert height adjustable.

Capacity ml	thread GL	Description	SP pcs.	Cat. No.
500	45	without filter disc	1	5.5300.58
500	45	with filter disc	1	5.5301.58

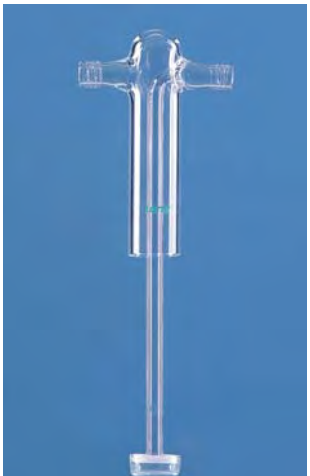
Gas Washbottle to Drechsel without Filter Disc

Gas Washbottle to Drechsel with Filter Disc

Spare Parts for Gas Washbottles with Screw Connections

Description	SP pcs.	Cat. No.
Gas washbottle to Drechsel without filter disc	1	5.5303.00
Gas washbottle to Drechsel with filter disc porositiy 1	1	5.5303.01
Laboratory bottle 500 ml with thread GL 45	1	7.1000.58
Plastic nozzle, straight	1	1.3500.00
Screw-cap GL 14	1	1.3210.14
Screw-cap GL 45	1	1.3210.45
Silicone ring, 26 x 42 x 5 mm	1	5.5303.05

Gas Washbottle Head to Drechsel without Filter Disc



Gas Washbottle Head to Drechsel with Filter Disc

Weighing Bottles with NS Stopper

Weighing Bottles with NS Cap

Weighing Bottles with NS Stopper

With interchangeable NS stopper. With white inscription label. Burned-in imprint of capacity and size.
Available in high or tall shape.

Ø x H mm	Joint NS	Shape	SP pcs.	Cat. No.
20 x 40	19/12	high	6	5.5600.02
25 x 40	24/12	high	6	5.5600.05
30 x 50	29/12	high	6	5.5600.08
35 x 50	34/12	high	6	5.5600.12
40 x 50	40/12	high	6	5.5600.15
40 x 65	40/12	high	6	5.5600.19
35 x 70	34/12	high	6	5.5600.22
40 x 80	40/12	high	6	5.5600.25
50 x 80	50/12	high	6	5.5600.28
25 x 25	24/12	tall	6	5.5605.02
40 x 25	40/12	tall	6	5.5605.04
35 x 30	34/12	tall	6	5.5605.09
50 x 30	50/12	tall	6	5.5605.13
60 x 30	60/12	tall	6	5.5605.16
80 x 30	80/12	tall	6	5.5605.21

Weighing Bottles with NS Cap

DURAN®. With interchangeable NS cap. With white inscription label. Available in tall, medium or high shape.

Ø x H mm	Joint NS	Shape	SP pcs.	Cat. No.
30 x 30	34/12	tall	6	5.5653.34
38 x 35	40/12	tall	6	5.5653.40
48 x 35	50/12	tall	6	5.5653.50
75 x 35	80/12	tall	1	5.5653.80
30 x 50	34/12	medium	6	5.5655.34
38 x 50	40/12	medium	6	5.5655.40
48 x 50	50/12	medium	6	5.5655.50
75 x 50	80/12	medium	1	5.5655.80
30 x 70	34/12	high	6	5.5657.34
38 x 70	40/12	high	6	5.5657.40
48 x 70	50/12	high	6	5.5657.50
75 x 95	80/12	high	1	5.5657.80

Weighing Scoop, Glass, round

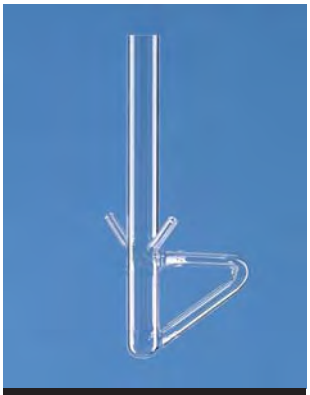
Weighing Scoops, Glass

Borosilicate glass. Due to the tube design of the stem the scoop works as a weighing funnel and allows complete emptying without losses. Available with round or pointed shape.

Eff. Length mm	Capacity mm	Shape	SP pcs.	Cat. No.
82	3	round	1	5.5680.03
95	6	round	1	5.5680.06
116	10	round	1	5.5680.10
65	3	pointed	1	5.5690.03
70	6	pointed	1	5.5690.06
80	10	pointed	1	5.5690.10

Weighing Scoop, Glass, pointed

Bubble Counter



Melting Point Apparatus to Thiele

Bubble Counters

DURAN®. For controlling the gas flow in distilling apparatus.

Height mm	SP pcs.	Cat. No.
100	1	5.5960.00

Melting Point Determination Apparatus to Thiele

Description	SP pcs.	Cat. No.
without side tubes	1	5.4850.00
with side tubes	1	5.4850.01

Water Estimators to Dean Stark

DURAN®. DIN 12420. Xylol method. With round bottom flask, 500 ml, NS 29/32 and Liebig condenser, jacket length 400 mm, cone and socket NS 29/32. Measuring tube with or without stopcock, capacity 10:0,1 ml.

Volumen ml	Zero Point	Description	SP pcs.	Cat. No.
10: 0,1	at the stopcock	with stopcock	1	5.6000.00
10: 0,1	above the stopcock	with stopcock	1	5.6000.02
10: 0,1	at the top	w/o stopcock	1	5.6000.04

Spare Parts for Water Estimators to Dean Stark

Description	SP pcs.	Cat. No.
Measuring tube with stopcock, 10: 0,1 ml, zero point at the stopcock	1	5.6003.01
Measuring tube with stopcock, 10: 0,1 ml, zero point above the stopcock	1	5.6003.03
Measuring tube without stopcock, 10: 0,1 ml, zero point at the top	1	5.6003.05
Round bottom flask, 500 ml, NS 29/32	1	3.0029.58
Liebig condenser, jacket length 400 mm, cone and socket NS 29/32	1	5.2104.G4

Water Estimator to Dean Stark

Pycnometer to Gay-Lussac, unadjusted

Pycnometer to Gay-Lussac, adjusted

Pycnometer to Gay-Lussac, adjusted, with Thermometer and Side Capillary

Pycnometers to Gay-Lussac, unadjusted

DURAN®. DIN 12797 and ISO 3507. Stopper NS 10/19 with capillary. The topend of the stopper is grounded and polished. The nominal capacity is printed at the bottom.

Nom. Cap. cm³	Description	SP pcs.	Cat. No.
5	(1)	1	5.6300.10
10	DIN	1	5.6300.13
25	DIN	1	5.6300.22
50	DIN	1	5.6300.28
100	(1)	1	5.6300.37

(1) in addition to DIN-range.

Pycnometers to Gay-Lussac, adjusted

DURAN®. DIN 12 797 and ISO 3507. Stopper NS 10/19 with capillary. The topend of the stopper is grounded and polished. The actual capacity is engraved with an accuracy of 0,001 cm³. Adjusted to In, i.e. the loaded amount of liquid corresponds with the engraved capacitiy.

Nom. Cap. cm³	Description	SP pcs.	Cat. No.
5	(1)	1	5.6302.10
10	DIN	1	5.6302.13
25	DIN	1	5.6302.22
50	DIN	1	5.6302.28
100	(1)	1	5.6302.37

(1) in addition to DIN-range.

Pycnometers to Gay-Lussac, adjusted, with Thermometer and Side Tube

DURAN®. DIN 12809 and ISO 3507. Side capillary with conical joint cap NS 7/16. Thermometer with frosted glass scale, with NS 10/19, measuring range 10 to 35 °C, subdivisions 0,2 °C, filled with mercury. The actual capacity is engraved with an accuracy of 0,001 cm³.

Nom. Cap. cm³	Description	SP pcs.	Cat. No.
10	DIN	1	5.6400.13
25	DIN	1	5.6400.22
50	DIN	1	5.6400.28
100	(1)	1	5.6400.37

(1) in addition to DIN-range.

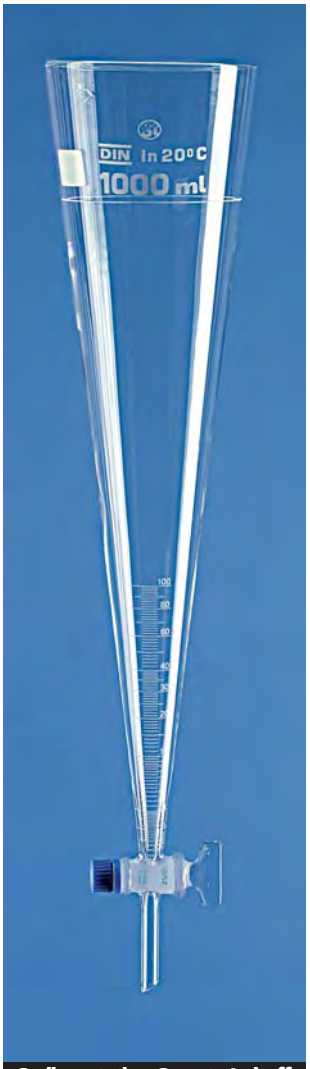
Pycnometer Head with Wide-Neck Bottle with Conical Shoulder

Pycnometer Heads with Wide-Neck Bottle with Conical Shoulder

For density determinations (raw density) of bitumen-like materials and mineral materials. Consists of wide-neck bottle, conical shoulder, 500 resp. 1000 ml with NS joint and pycnometer head.

Description	Capacity ml	Joint NS	SP pcs.	Cat. No.
Pycnometer head with conical shoulder bottle	500	45/27	1	5.6600.06
Pycnometer head with conical shoulder bottle	1000	60/37	1	5.6600.07
Pycnometer head without conical shoulder bottle		45/27	1	5.6602.06
Pycnometer head without conical shoulder bottle		60/37	1	5.6602.07

Sedimentation Cone to Imhoff without Stopcock



Sedimentation Cone to Imhoff with Stopcock

Sedimentation Cone to Imhoff

Sedimentation Cones to Imhoff

Borosilicate glass 3.3. DIN 12672. Graduation up to 100 ml, ring mark at 1000 ml, available with or without stopcock.

Graduation (ml)	Subdivision (ml)
0- 2	0,1
2- 10	0,5
10- 40	1,0
40-100	2,0
ring mark	1000

Description	SP pcs.	Cat. No.
without stopcock	1	5.6700.01
with stopcock	1	5.6700.05

Sedimentation Cones to Imhoff

Borosilicate glass 3.3. DIN 12672. Graduation up to 1000 ml, without stopcock.

Graduation (ml)	Subdivision (ml)
0- 2	0,1
2- 10	0,5
10- 40	1,0
40- 100	2,0
100-1000	50

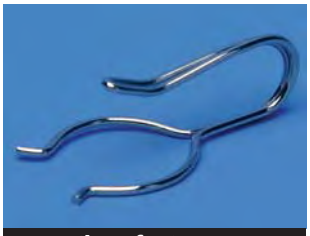
Description	SP pcs.	Cat. No.
without stopcock	1	5.6700.03

Oxygen Determination Bottle to Winkler

Oxygen Determination Bottles to Winkler

For the determination of the solved oxygen in water. The capacitiy is engraved at the bottle with an accuracy of ± 0,01 ml . With white inscription label. Solid, oblique grounded NS stopper, which can be fixed with a clamp. Each bottle is individually adjusted with its stopper, which is not interchangeable. An identical serial number at the bottle and the stopper prevents accidentially mistakes.

Description	Capacity ml	Joint NS	SP pcs.	Cat. No.
Oxygen det. bottle to Winkler	100-150	14/23	1	5.6050.37
Oxygen det. bottle to Winkler	250-300	19/26	1	5.6050.49
Clamp		14/23	1	5.6055.00
Clamp		19/26	1	5.6055.01



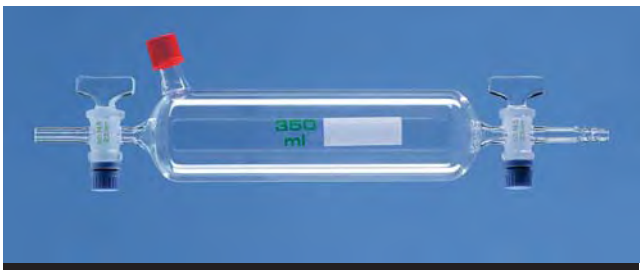
Clamp for Oxygen Determination Bottles

Gauge to Bennert

Gauges to Bennert

For measuring the absolute pressure. With adjustable mirror scale on a hard-wood stand. With mercury transportation filling. Measuring range 2-180 mbar.

Description	SP pcs.	Cat. No.
Gauge to Bennert, complete	1	5.8020.00
Glass part for gauge to Bennert, with mercury transportation filling	1	5.8021.00



Gas Collecting Tube with Distributor Tube

Gas Collecting Tubes

DURAN®. DIN 12473-1. With 2 stopcocks, one-way, 3NS/14, with retaining device. With capillary tube at one end (I-Ø 2,7 mm, O-Ø 8 mm) and nozzle (O-Ø 8 mm) at the other end. With inscription label. Available without or with distributor tube with thread GL 14.

Capacity ml	Description	SP pcs.	Cat. No.
150	without nozzle	1	5.6800.43
350	without nozzle	1	5.6800.52
500	without nozzle	1	5.6800.58
1000	without nozzle	1	5.6800.70
150	with nozzle	1	5.6801.43
350	with nozzle	1	5.6801.52
500	with nozzle	1	5.6801.58
1000	with nozzle	1	5.6801.70

Water Jet Pump to Friedrichs-Antlinger

Water Jet Pump

Water Jet Pumps to Friedrichs-Antlinger

DURAN®. Friedrichs-Antlinger, with spiral ejector.
High suction capacity.
Specifications at 4 bar water pressure:
- water consumption 10 l/min
- flow rate 400 ml/sec
- no return safety up to 1 kg/cm²
- ultimate pressure 16 mbar

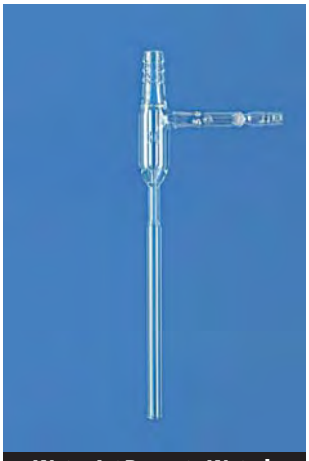
Description	SP pcs.	Cat. No.
Water jet pump to Friedrichs-Antlinger	1	5.5800.03

Water Jet Pumps

DURAN®. Robust design. GL 18 male thread for water connector with hose nozzle Ø 11 mm.
Specifications at 4,5 bar waterpressure and 12°C water temperature:
- water consumption aprox. 340l/h
- ultimate pressure 16 mbar
- flow rate against atmospheric pressure: 950 l air/h

Description	SP pcs.	Cat. No.
Water jet pump	1	5.5860.00

Water Jet Pump to Wetzel, without No-return Valve



Water Jet Pump to Wetzel, with No-return Valve

Water Jet Pumps to Wetzel

DURAN®. Wetzel. Without or with no-return valve.
Specifications:
- water pressure min. 1,2 bar
- water consumption 300 l/h

Description	SP pcs.	Cat. No.
without no-return valve	1	5.5850.00
with no-return valve	1	5.5852.00

Water Connector

Water Connectors

With male thread GL 18 with sleeve nut R 3/4", PP and O-ring sealings 15 x 3 mm and 10 x 3 mm, nitrile rubber (NBR).

Description	SP pcs.	Cat. No.
Water Connector	1	5.5861.00

No-return Valve

No-return Valves

DURAN®. Standard design, no removable parts.

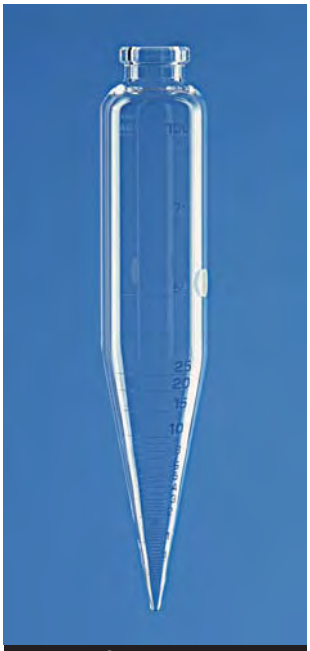
Description	SP pcs.	Cat. No.
No-return valve	1	5.5900.00

Centrifuge Tubes, ASTM, Cylindrical

DURAN®. DIN 51793. ASTM D91 and ASTM D96. Capacitiy 100 ml (8"). Can be used up to RCA 700 (relative centrifuge acceleration). With conical bottom.

Graduation ml	Subdivision ml
0 - 0,5	0,1
0,5 - 2	0,1
2 - 3	0,2
3 - 5	0,5
5 - 10	1,0
10 - 25	5,0
25 - 100	25,0

Description	SP pcs.	Cat. No.
Centrifuge tube, cylindrical	1	5.6750.00



Centrifuge Tube, ASTM, Cylindrical

Centrifuge Tubes, ASTM, Cylindrical

DURAN®. ASTM D96. Capacitiy 100 ml (6"). Can be used up to RCA 700 (relative centrifuge acceleration). With conical bottom.

Graduation ml	Subdivision ml
0 - 0,5	0,1
0,5 - 2	0,1
2 - 3	0,2
3 - 5	0,5
5 - 10	1,0
10 - 25	5,0
25 - 100	25,0

With marks at 50 and 100 ml

Description	SP pcs.	Cat. No.
Centrifuge tube, cylindrical	1	5.6750.03

Centrifuge Tube, ASTM, Cylindrical

Centrifuge Tubes, ASTM, Pear-shaped

DURAN®. ASTM D96. Capacitiy 100 ml. Can be used up to RCA 700 (relative centrifuge acceleration). With cylindrical bottom.

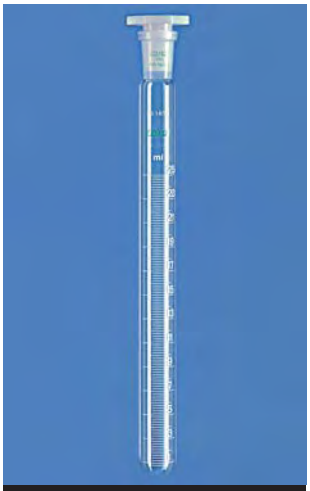
Graduation ml	Subdivision ml
0 - 1,5	0,1
1,5 - 3	0,5
3 - 5	0,5
5 - 10	1,0
10 - 25	5,0
25 - 100	25,0

With marks at 50 and 100 ml

Description	SP pcs.	Cat. No.
Centrifuge tube, pear-shaped	1	5.6750.05

Centrifuge Tube, ASTM, Pear-shaped

Test Tube, Round Bottom



Test Tube with Ground Joint

Test Tubes, Round Bottom with NS

DURAN®. With NS-Socket. Available without stopper, with PE -stopper or hexagonal hollow glass stopper.

Socket NS	Ø x Height mm	Description	SP pcs.	Cat. No.
14/23	16 x 100	without stopper	1	5.7000.07
14/23	16 x 125	without stopper	1	5.7000.10
14/23	16 x 160	without stopper	1	5.7000.14
14/23	18 x 150	without stopper	1	5.7000.26
14/23	18 x 180	without stopper	1	5.7000.30
19/26	22 x 150	without stopper	1	5.7000.34
24/29	28 x 150	without stopper	1	5.7000.38
24/29	28 x 200	without stopper	1	5.7000.42
14/23	16 x 100	PE stopper	1	5.7001.07
14/23	16 x 125	PE stopper	1	5.7001.10
14/23	16 x 160	PE stopper	1	5.7001.14
14/23	18 x 150	PE stopper	1	5.7001.26
14/23	18 x 180	PE stopper	1	5.7001.30
19/26	22 x 150	PE stopper	1	5.7001.34
24/29	28 x 150	PE stopper	1	5.7001.38
24/29	28 x 200	PE stopper	1	5.7001.42
14/23	16 x 100	hexag. hollow stopper	1	5.7002.07
14/23	16 x 125	hexag. hollow stopper	1	5.7002.10
14/23	16 x 160	hexag. hollow stopper	1	5.7002.14
14/23	18 x 150	hexag. hollow stopper	1	5.7002.26
14/23	18 x 180	hexag. hollow stopper	1	5.7002.30
19/26	22 x 150	hexag. hollow stopper	1	5.7002.34
24/29	28 x 150	hexag. hollow stopper	1	5.7002.38
24/29	28 x 200	hexag. hollow stopper	1	5.7002.42

Test Tubes with Ground Joint

DURAN®. Graduation and inscription in high contrast enamel. With NS socket and PE stopper.

Socket NS	Ø x Height mm	Capacity ml	Subdiv. ml	SP pcs.	Cat. No.
12/21	15 x 165	10	0,1	1	5.7060.01
14/23	17 x 200	20	0,2	1	5.7060.02
14/23	17 x 220	25	0,2	1	5.7060.03
14/23	19 x 220	30	0,5	1	5.7060.04

Test Tube, Conical Bottom

Test Tubes, Conical Bottom with Ground Joint

DURAN®. With NS socket. Available without stopper, with PE stopper or hexagonal hollow glass stopper.

Socket NS	Ø x Height mm	Description	SP pcs.	Cat. No.
14/23	17 x 115	without stopper	1	5.7050.15
14/23	17 x 120	without stopper	1	5.7050.16
14/23	17 x 115	PE stopper	1	5.7051.15
14/23	17 x 120	PE stopper	1	5.7051.16
14/23	17 x 115	hexag. hollow stopper	1	5.7052.15
14/23	17 x 120	hexag. hollow stopper	1	5.7052.16

Lenz water stills guarantee optimum specifications:

- simple operation
- easy to clean without dismantling the apparatus
- compact design
- stainless steel heaters
- separate circuits for feed and cooling water
- low water consumption
- thermostatically controlled heating cutoff switch provides a high level of safety if the water supply is interrupted

How conductivity values are obtained:

The freshly produced distillate was measured directly at the outlet , in a closed system, during continuous flow, at a temperature of 96 ± 1°C, without access of atmospheric air, temperature-compensated to 25 °C. The conductivity of the feeding water was approx. 800 µS/cm.

Scope of delivery MonoDest
- Basic unit with mains cable
- PVC tubing, 7 m, I-Ø 10 mm
- Tubing pinchcock for the PVC tubing

Water Still MonoDest 3000 E

Water Still MonoDest 3000 N

Water Still MonoDest 3000 E

Ideal for applications requiring small quantities of pure water
The particularly high water quality level with a conductivity of 0,7 µS/cm is obtained by the special design of the condenser.
The freshly obtained distillate is virtually free of dissolved gases, metals, salts and pyrogens.

Description	SP pcs.	Cat. No.
MonoDest 3000 E	1	5.9000.40

Water Still MonoDest 3000 N

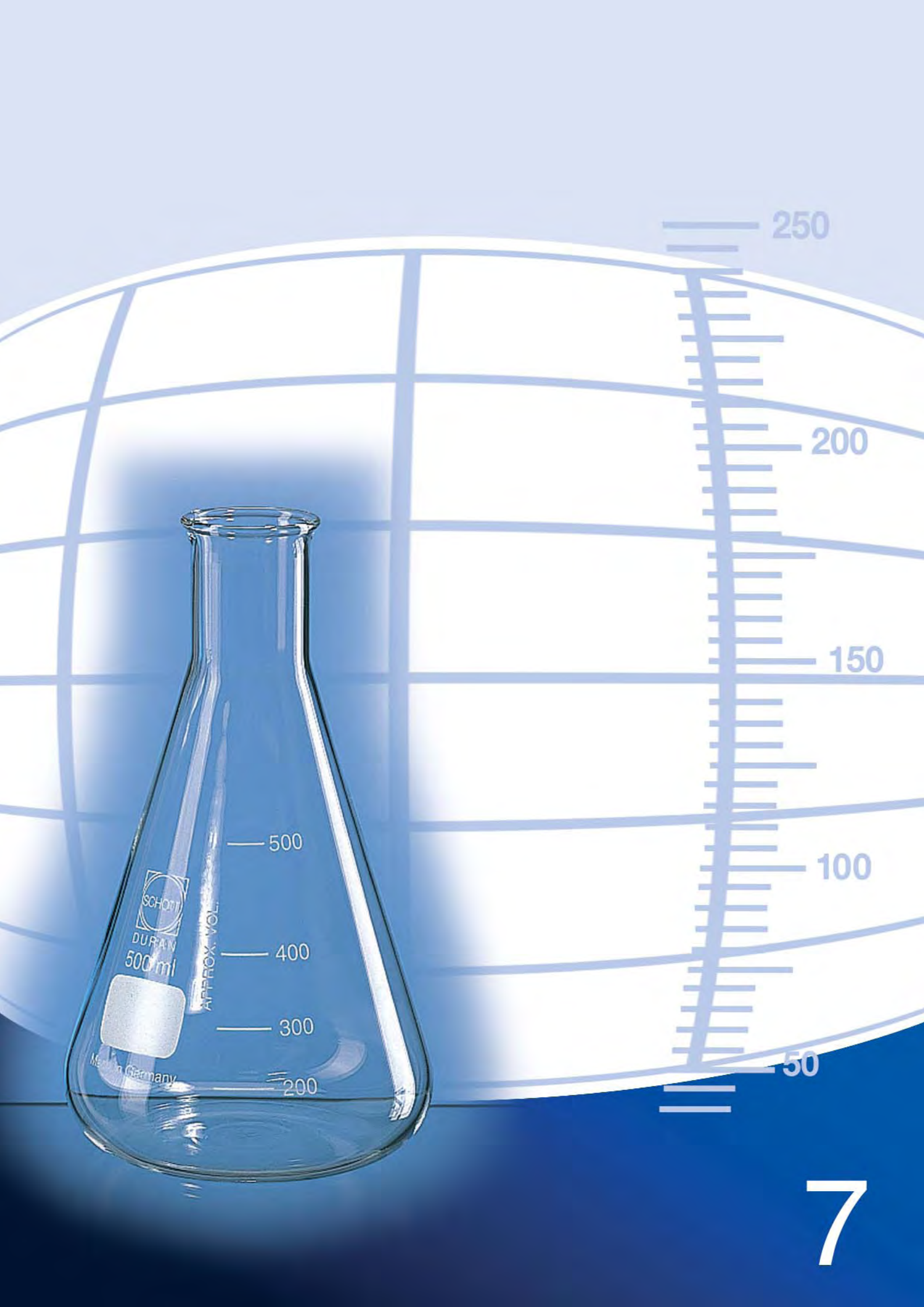
The low-cost alternative to the MonoDest 3000 E.
Recommended for applications where conductivity of 1,5 µS/cm is sufficient.

Description	SP pcs.	Cat. No.
MonoDest 3000 N	1	5.9000.30

Specifications	MonoDest 3000 E	MonoDest 3000 N
Power consumption	3000 W	3000 W
Rated current	14 A	14 A
Voltage	220-240 V/50-60 Hz	220-240 V/50-60 Hz
Tab water connection:		
- Minimum pressure	2 bar	2 bar
Distillate output		
- with tab water	4,2 l/h	4,2 l/h
- with deionized water	4,0 l/h	-
Conductivity of distillate referred to 25°C	0,7 µS/cm	1,5 µS/cm
Distillate temperature	96 °C	96 °C
Cooling water consumption		
- with tab water	45 l/h	45 l/h
- with deionized water	55 l/h	-
Cooling water temperature:		
- Inlet	16 °C	16 °C
- Outlet		
- with tab water	64 °C	64 °C
- with deionized water	48 °C	-
Heater	stainless steel 1.4529	stainless steel 1.4529
Glass parts	DURAN®	DURAN®
Height required (without distillate bottle)	750 mm	600 mm
Weight	6 kg	6 kg

Accessories and Spare Parts for Water Stills MonoDest 3000

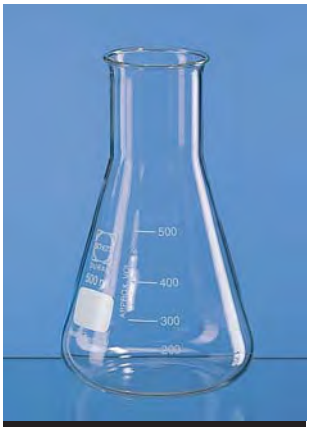
Description	SP pcs.	Cat. No.
Glass part only, DURAN®, MonoDest 3000 E	1	5.9010.40
Glass part only, DURAN®, MonoDest 3000 N	1	5.9010.30
O-ring, silicone, 100 x 5 mm for glass part	1	5.9015.00
Flange clamp (metal), aperture angle 60°, NW 90/10, for glass part	1	5.9015.02
Screw-cap GL 14	1	1.3200.14
Base complete with heater and mains cable	1	5.9020.00
Receiver bottle for distillate, 5 l, complete with stopcock (PTFE plug), joint clip and PTFE ground joint sleeve	1	5.9006.00
Receiver bottle only, borosilicate glass, 5 l, neck NS 45/40, socket NS 29/32	1	5.9006.01
Stopcock DURAN®, cone NS 29/32, PTFE plug, nominal size 4 NS, bore 4 mm	1	5.9006.03
PTFE ground joint sleeves NS 29/32	10	1.1015.29
Joint clip NS 29/32	1	1.1032.29
Bottle top for receiver bottle, complete	1	5.9007.00
Glass part only, DURAN®, NS 45/40 for bottle top	1	5.9007.01
PTFE ground joint sleeves NS 45/40	10	1.1015.45
Joint clip NS 45/40	1	1.1032.45
Silicone tubing, 100 mm, I-Ø 10 mm	1	5.9007.03
Silicone tubing, length according to order, I-Ø 10 mm	1	5.9008.03
PVC tubing, length according to order, I-Ø 10 mm	1	5.9008.01
Hosecock tubing clamp for tubing with O-Ø to 18 mm	1	5.9008.05
Funnel, polypropylene, Ø 120 mm	1	5.9008.06


250
200
150
100
50
500
400
300
200
SCHOTT
DURAN
500 ml
APPROX. VOL.

Beaker, Low Form

Beaker, High Form

Erlenmeyer Flask, Narrow Neck



Erlenmeyer Flask, Wide Neck

Beakers, Low Form

DURAN®. DIN 12331/ ISO 3819. With graduation and spout.

Capacity ml	Ø x H mm	Description	SP pcs.	Cat. No.
5	22 x 30	(1)	10	7.0010.10
10	26 x 35	(1)	10	7.0010.13
25	34 x 50	DIN/ISO	10	7.0010.22
50	42 x 60	DIN/ISO	10	7.0010.28
100	50 x 70	DIN/ISO	10	7.0010.37
150	60 x 80	DIN/ISO	10	7.0010.43
250	70 x 95	DIN/ISO	10	7.0010.49
400	80 x 110	DIN/ISO	10	7.0010.55
600	90 x 125	DIN/ISO	10	7.0010.61
800	100 x 135	DIN/ISO	10	7.0010.67
1000	105 x 145	DIN/ISO	10	7.0010.70
2000	132 x 185	DIN/ISO	10	7.0010.73
3000	152 x 210	DIN/ISO	4	7.0010.76
5000	170 x 270	DIN/ISO	1	7.0010.82
10000	217 x 350	(1), (2)	1	7.0010.88

(1) without graduation

(2) not to DIN and ISO

Beakers, High Form

DURAN®. DIN 12331/ ISO 3819. With graduation and spout.

Capacity ml	Ø x H mm	SP pcs.	Cat. No.
50	38 x 70	10	7.0040.28
100	48 x 80	10	7.0040.37
150	54 x 95	10	7.0040.43
250	60 x 120	10	7.0040.49
400	70 x 130	10	7.0040.55
600	80 x 150	10	7.0040.61
800	90 x 175	10	7.0040.67
1000	95 x 185	10	7.0040.70
2000	120 x 240	10	7.0040.73
3000	135 x 280	2	7.0040.76

Erlenmeyer Flasks, Narrow Neck

DURAN®. DIN 12380/ ISO 1773. With graduation.

Capacity ml	Flask-Ø mm	Neck-Ø mm	Height mm	SP pcs.	Cat. No.
25	42	22	75	10	7.0200.22
50	51	22	90	10	7.0200.28
100	64	22	105	10	7.0200.37
200	79	34	131	10	7.0200.46
250	85	34	145	10	7.0200.49
300	87	34	156	10	7.0200.52
500	105	34	180	10	7.0200.58
1000	131	42	220	10	7.0200.70
2000	166	50	280	10	7.0200.73
3000	187	51	310	2	7.0200.76
5000	220	51	365	1	7.0200.82

Erlenmeyer Flasks, Wide Neck

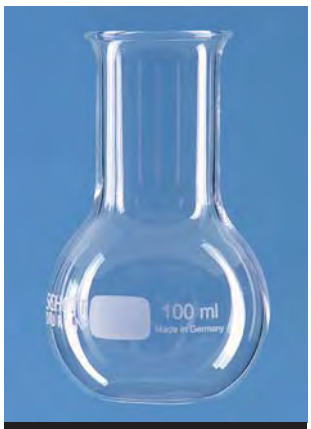
DURAN®. DIN 12380/ ISO 1773. With graduation.

Capacity ml	Flask-Ø mm	Neck-Ø mm	Height mm	SP pcs.	Cat. No.
25	43	31	70	10	7.0250.22
50	51	34	85	10	7.0250.28
100	64	34	105	10	7.0250.37
200	79	50	131	10	7.0250.46
250	85	50	140	10	7.0250.49
300	87	50	156	10	7.0250.52
500	105	50	175	10	7.0250.58
1000	131	50	220	10	7.0250.70
2000	153	72	276	10	7.0250.73

Round Bottom Flask, Narrow Neck

Round Bottom Flask, Wide Neck

Flat Bottom Flask, Narrow Neck



Flat Bottom Flask, Wide Neck

Round Bottom Flasks, Narrow Neck

DURAN®. DIN 12347/ ISO 1773. With beaded rim.

Capacity ml	Flask-Ø mm	Neck-Ø mm	Description	SP pcs.	Cat. No.
50	51	26	DIN/ISO	10	7.0300.28
100	64	26	DIN/ISO	10	7.0300.37
250	85	34	DIN/ISO	10	7.0300.49
500	105	34	(1)	10	7.0300.58
1000	131	42	DIN/ISO	10	7.0300.70
2000	166	42	(1)	10	7.0300.73
3000	185	50	(1)	1	7.0300.76
4000	207	50	(1)	1	7.0300.79
5000	223	50	(1)	1	7.0300.82
6000	236	51	(1)	1	7.0300.85
10000	279	65	(1)	1	7.0300.88
20000	345	76	(2)	1	7.0300.94

(1) not to ISO

(2) in addition to DIN and ISO range

Flat Bottom Flasks, Narrow Neck

DURAN®. DIN 12347/ ISO 1773. With beaded rim.

Capacity ml	Flask-Ø mm	Neck-Ø mm	Description	SP pcs.	Cat. No.
50	51	34	DIN/ISO	10	7.0450.28
100	64	22	(1)	10	7.0450.37
250	85	35	DIN/ISO	10	7.0450.49
500	105	34	(1)	10	7.0450.58
1000	131	42	DIN/ISO	10	7.0450.70
2000	166	42	(1)	10	7.0450.73
3000	185	50	(1)	1	7.0450.76
4000	207	50	(1)	1	7.0450.79
5000	223	50	(1)	1	7.0450.82
6000	237	65	(1), (2)	1	7.0450.85
10000	280	65	(1), (2)	1	7.0450.88

(1) in addition to DIN range

(2) with strengthened rim

Round Bottom Flasks, Wide Neck

DURAN®. DIN 12347. With beaded rim.

Capacity ml	Flask-Ø mm	Neck-Ø mm	SP pcs.	Cat. No.
50	51	34	10	7.0350.28
100	64	35	10	7.0350.37
250	85	51	10	7.0350.49
500	105	50	10	7.0350.58
1000	131	50	10	7.0350.70
1000	131	65	10	7.0350.71
2000	166	76	10	7.0350.72
2000	166	50	10	7.0350.73
3000	185	65	10	7.0350.76
4000	206	76	10	7.0350.79
5000	223	65	1	7.0350.82
6000	236	89	1	7.0350.84
6000	236	65	1	7.0350.85
10000	279	89	1	7.0350.88
20000	345	89	1	7.0350.94

Flat Bottom Flasks, Wide Neck

DURAN®. DIN 12347. With beaded rim.

Capacity ml	Flask-Ø mm	Neck-Ø mm	Description	SP pcs.	Cat. No.
50	51	35	DIN/ISO	10	7.0500.28
100	64	34	DIN/ISO	10	7.0500.37
250	85	50	DIN/ISO	10	7.0500.49
500	103	50	DIN/ISO	10	7.0500.58
1000	131	50	DIN/ISO	10	7.0500.70
2000	166	50	(1), (2)	10	7.0500.73
2000	166	76	DIN/ISO	10	7.0500.74

(1) in addition to DIN range

(2) with strengthened rim

Laboratory Bottles

DURAN®. With DIN thread, ISO 4796. Studded base for stability and abrasion resistance. With graduation and inscription label. With screw cap and pouring ring, PP, blue.

Capacity ml	Ø x H mm	Thread GL	SP pcs.	Cat. No.
25	36 x 70	25	10	7.1050.22
50	46 x 87	32	10	7.1050.28
100	56 x 100	45	10	7.1050.37
250	70 x 138	45	10	7.1050.49
500	86 x 176	45	10	7.1050.58
1000	101 x 225	45	10	7.1050.70
2000	136 x 260	45	10	7.1050.73
5000	182 x 330	45	1	7.1050.82
10000	227 x 410	45	1	7.1050.88
15000	268 x 445	45	1	7.1050.91
20000	288 x 505	45	1	7.1050.94

Laboratory Bottle


Screw-cap


Screw-cap

Screw-caps

PP, blue, with lip sealing.
Resistant up to 140 °C.

Thread GL	SP pcs.	Cat. No.
25	1	7.1051.00
32	1	7.1052.00
45	1	7.1053.00

Screw-caps

PBT, red, with PTFE coated sealing.
Resistant up to 180 °C.

Thread GL	SP pcs.	Cat. No.
25	1	7.1055.02
32	1	7.1055.01
45	1	7.1055.00


Pouring Ring


Pouring Ring

Pouring Rings

PP, blue. Resistant up to 140 °C.

Thread GL	SP pcs.	Cat. No.
32	1	7.1054.01
45	1	7.1054.00

Pouring Rings

ETFE, red. Resistant up to 180 °C.

Thread GL	SP pcs.	Cat. No.
32	1	7.1056.01
45	1	7.1056.00

Filter Plates

Filter Plates

Centralised, rim not fused.

Filter Plate-Ø mm	Porosity	SP pcs.	Cat. No.
10	0	10	7.1800.10
10	1	10	7.1801.10
10	2	10	7.1802.10
10	3	10	7.1803.10
10	4	10	7.1804.10
20	0	10	7.1800.20
20	1	10	7.1801.20
20	2	10	7.1802.20
20	3	10	7.1803.20
20	4	10	7.1804.20
30	0	10	7.1800.30
30	1	10	7.1801.30
30	2	10	7.1802.30
30	3	10	7.1803.30
30	4	10	7.1804.30
40	0	10	7.1800.40
40	1	10	7.1801.40
40	2	10	7.1802.40
40	3	10	7.1803.40
40	4	10	7.1804.40
50	0	10	7.1800.50
50	1	10	7.1801.50
50	2	10	7.1802.50
50	3	10	7.1803.50
50	4	10	7.1804.50
60	0	10	7.1800.60
60	1	10	7.1801.60
60	2	10	7.1802.60
60	3	10	7.1803.60
60	4	10	7.1804.60

Filter Crucible

Filter Crucibles

Capacity ml	Porosity	Filter Plate-Ø mm	SP pcs.	Cat. No.
8	2	20	1	7.1852.20
8	3	20	1	7.1853.20
8	4	20	1	7.1854.20
15	1	23	1	7.1851.23
15	2	23	1	7.1852.23
15	3	23	1	7.1853.23
15	4	23	1	7.1854.23
30	1	30	1	7.1851.30
30	2	30	1	7.1852.30
30	3	30	1	7.1853.30
30	4	30	1	7.1854.30
50	1	40	1	7.1851.40
50	2	40	1	7.1852.40
50	3	40	1	7.1853.40
50	4	40	1	7.1854.40

Rubber Sleeves

Rubber Sleeves

Natural rubber. Fits filter crucibles.

O-Ø mm	SP pcs.	Cat. No.
26	1	7.1870.26
33	1	7.1870.33
41	1	7.1870.41
49	1	7.1870.49

Filter Adapter

Filter Funnel

Filter Adapters

Fits filter crucibles.

I-Ø top mm	Height mm	SP pcs.	Cat. No.
27	110	1	7.1890.27
34	110	1	7.1890.34
41	125	1	7.1890.41
50	132	1	7.1890.50

Micro Filter Funnel

Micro Filter Funnels

Capacity ml	Porosity	Tube O-Ø mm	Filter Plate-Ø mm	SP pcs.	Cat. No.
2	0	6	10	1	7.1900.10
2	1	6	10	1	7.1901.10
2	2	6	10	1	7.1902.10
2	3	6	10	1	7.1903.10
2	4	6	10	1	7.1904.10

Filter Funnels

Capacity ml	Porosity	Filter Plate-Ø mm	Height mm	SP pcs.	Cat. No.
50	1	35	130	1	7.1951.28
50	2	35	130	1	7.1952.28
50	3	35	130	1	7.1953.28
50	4	35	130	1	7.1954.28
75	1	45	130	1	7.1951.34
75	2	45	130	1	7.1952.34
75	3	45	130	1	7.1953.34
75	4	45	130	1	7.1954.34
125	1	60	140	1	7.1951.40
125	2	60	140	1	7.1952.40
125	3	60	140	1	7.1953.40
125	4	60	140	1	7.1954.40
500	1	95	200	1	7.1951.58
500	2	95	200	1	7.1952.58
500	3	95	200	1	7.1953.58
500	4	95	200	1	7.1954.28
1000	1	120	320	1	7.1951.70
1000	2	120	320	1	7.1952.70
1000	3	120	320	1	7.1953.70
1000	4	120	320	1	7.1954.79
4000	1	175	400	1	7.1951.79
4000	2	175	400	1	7.1952.79
4000	3	175	400	1	7.1953.79
4000	4	175	400	1	7.1954.79

Filter Funnels, Conical

Capacity ml	Porosity	Filter Plate-Ø mm	Height mm	SP pcs.	Cat. No.
25	3	25	100	1	7.2003.25
25	4	25	100	1	7.2004.25

Filter Funnel, Conical

Filter Plug

Filter Plugs

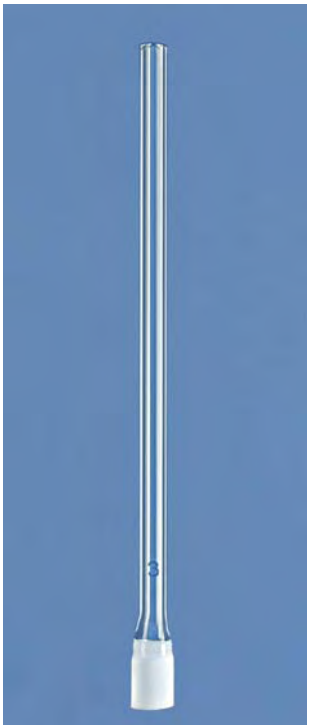
Cylindrical, without tube.

Porosity	Plug-Ø x Length mm	SP pcs.	Cat. No.
0	9 x 20	1	7.2050.20
1	9 x 20	1	7.2051.20
2	9 x 20	1	7.2052.20
3	9 x 20	1	7.2053.20
4	9 x 20	1	7.2054.20
0	13 x 25	1	7.2060.25
1	13 x 25	1	7.2061.25
2	13 x 25	1	7.2062.25
3	13 x 25	1	7.2063.25
4	13 x 25	1	7.2064.25

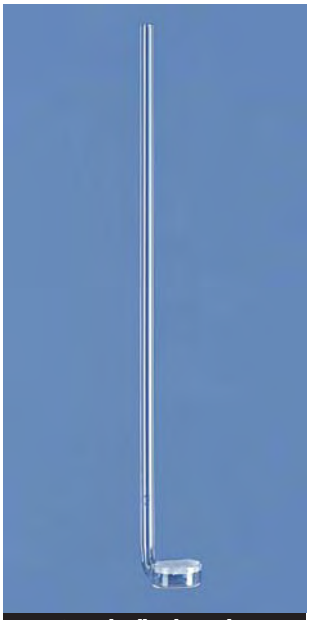
Filter Plugs

Cylindrical, with tube. Tube-Ø 8 mm.
Total length 210 mm.

Porosity	Plug-Ø x Length mm	SP pcs.	Cat. No.
0	9 x 20	1	7.2080.20
1	9 x 20	1	7.2081.20
2	9 x 20	1	7.2082.20
3	9 x 20	1	7.2083.20
4	9 x 20	1	7.2084.20
0	13 x 25	1	7.2090.25
1	13 x 25	1	7.2091.25
2	13 x 25	1	7.2092.25
3	13 x 25	1	7.2093.25
4	13 x 25	1	7.2094.25



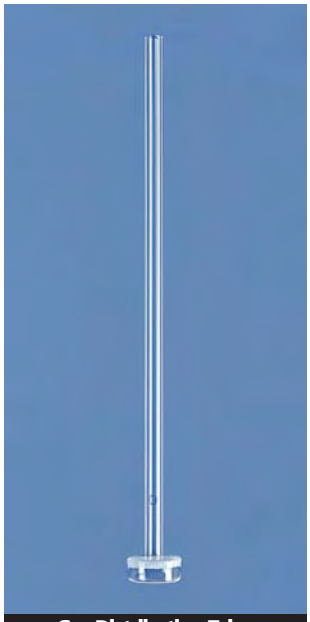
Filter Plug



Gas Distribution Tube, Lateral Ring

Gas Distribution Tubes, Lateral Ring

Ring-Ø mm	Porosity	Tube O-Ø mm	Height mm	SP pcs.	Cat. No.
22	0	6	250	1	7.2110.25
22	1	6	250	1	7.2111.25
22	2	6	250	1	7.2112.25



Gas Distribution Tube, Central Ring

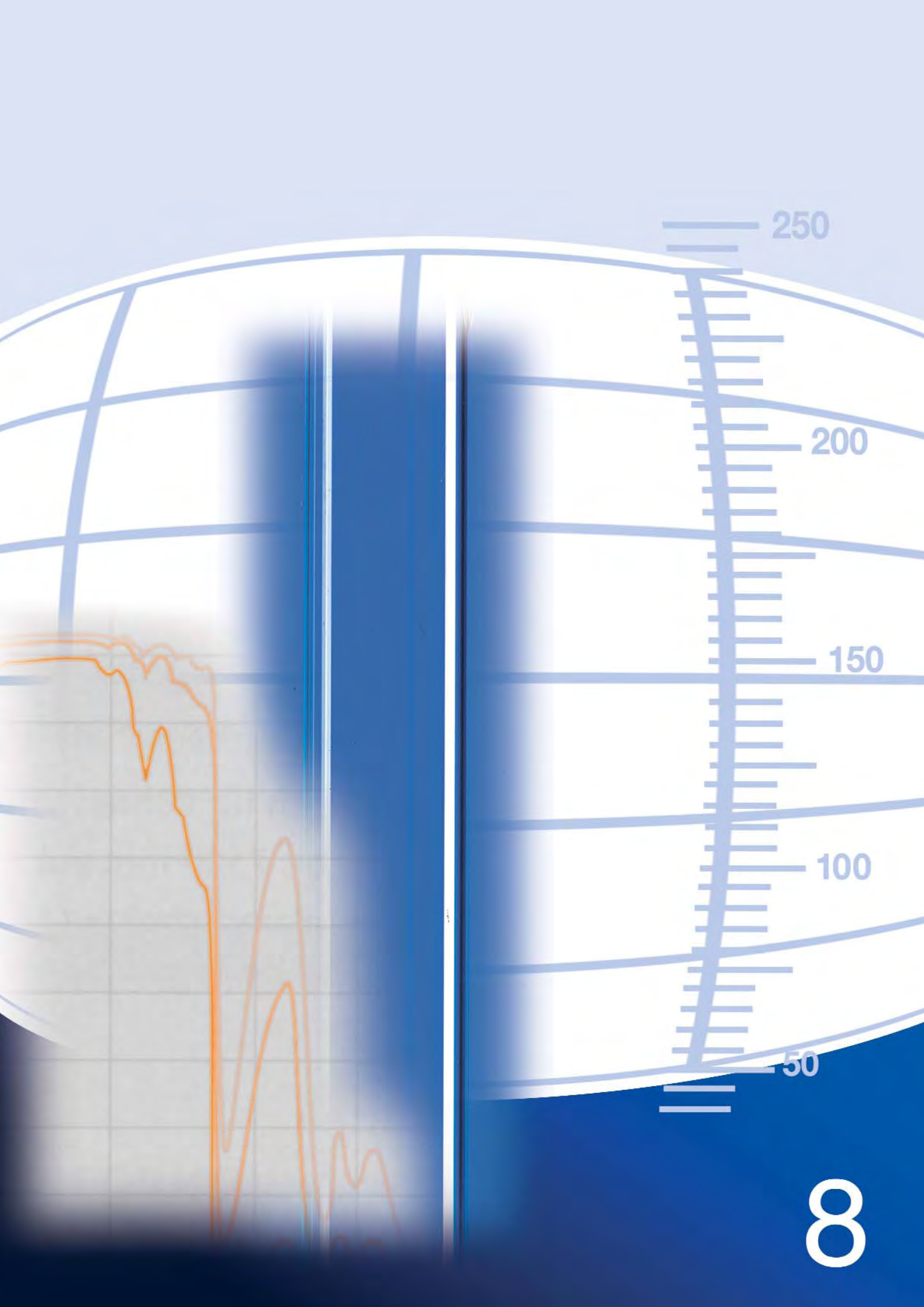
Gas Distribution Tubes, Central Ring

Ring-Ø mm	Porosity	Tube O-Ø mm	Height mm	SP pcs.	Cat. No.
25	0	9	250	1	7.2120.25
25	1	9	250	1	7.2121.25
25	2	9	250	1	7.2122.25

Filter Tube to Allihn

Filter Tubes to Allihn

Porosity	Capacity ml	Tube O-Ø mm	Filter Plate-Ø mm	SP pcs.	Cat. No.
1	30	9	20	1	7.2200.01
2	30	9	20	1	7.2200.02
3	30	9	20	1	7.2200.03
4	30	9	20	1	7.2200.04


250
200
150
100
50

Production Process

Glass filters are made of borosilicate glass 3.3 (DURAN®), according to DIN/ISO 3585. Base material for filter discs is sintered glass grit. By a special grinding procedure, at first accurately defined grit sizes are preprocessed. In an afterwards applied high-temperature sintering-process, all surfaces of the seperate glass-bodies are melted at their points of contact

Properties

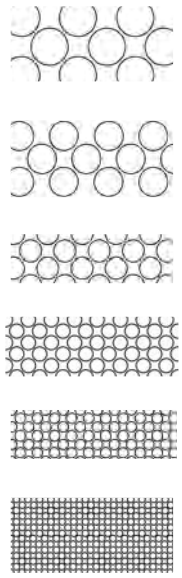
The sintering-process produces a porous filter product with a homogenous appearance and a large inner surface. This product has excellent mechanical properties and a high thermal capacity, as well as a high resistance against most chemicals.

Excellent Purity

All glass filters are made of pure, high-grade borosilicate glass 3.3 without additional binding agents and can be smelt with all known laboratory glasses in this quality.

Porosity Classes

Glass filters are characterized by their pore-size in porosity classes from 0 to 5. Meassurement of the porosity takes place through a bubble point process according to Bechthold. The following table provides an overview of porosity areas as well as their main fields of application. The denoted pore size refers to the respective largest pore of a disc. Pore sizes mark also the minimum diameter of particles which can just be held back during filtration.



Porosity Classes - Technical Information

Porosity	ISO 4793	Nominal pore size	Examples of application
0	P 250	160-250 µm	Gas distribution, filtration of coarse deposits, gas distribution in liquids.
1	p 160	100-160 µm	Filtration of coarse deposits, gas distribution in liquids, rough gas filtration, extractors for coarse materials, mats for filterlayers against gelatinous deposits.
2	P 100	40-100 µm	Preparative fine filtration, mercury filtration, preparative operations with crystalline deposits.
3	P 40	13-40 µm	Analytical filtration, preparative operations with fine deposits, filtration in cellulose chemistry, refined gas filtration, extraction instruments for fine-grained materials.
4	P 16	10-16 µm	Analytical presicion filtration and operations with very fine deposits, as check and stop valve for mercury.
5	P 1,6	1,0-1,6 µm	Filtration of bacteria, sterile filtration.

Flow Rates and Pressure Drop

The flow rates of liquids and the pressure drop of gases depend on:
- filter size
- filter porosity
- pressure and vacuum properties of the apparatus
- physical properties of the sample.

Flow rates of liquids and drop in pressure of gases are functions of:
- diameter of the filter
- porosity of the filter
- relation of pressure/vacuum in the apparatus
- physical properties of the medium to be filtered.

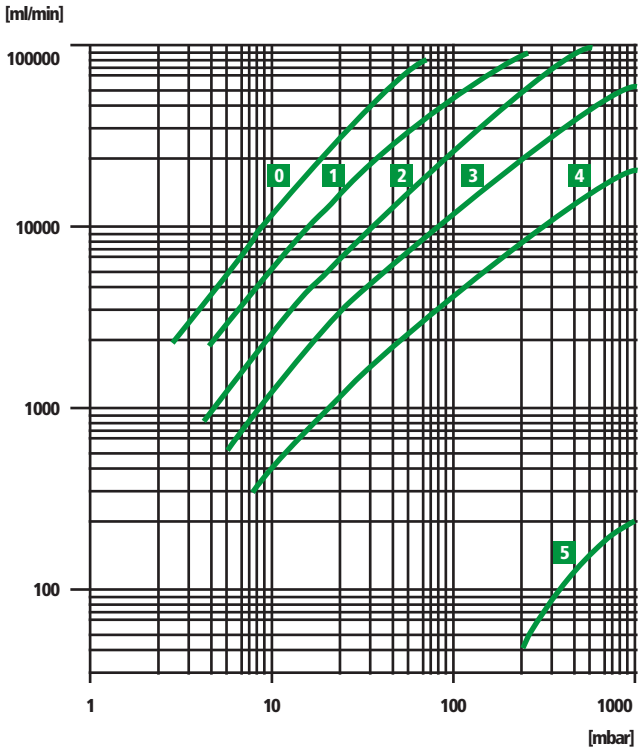
To determine the possible applications of glass filter instruments and to choose the best apparatus for the work intended, it is necessary to know the flow rates of liquids and gases. Please use the diagrams on the next page which show data for water and air. The data apply to filter discs of 30 mm diameter with average properties and usually effective filter area and thickness, as well as pore sizes. The flow rates for other diamteres can easily be calculated by multiplying this data by the conversion factor.

Flow Rates

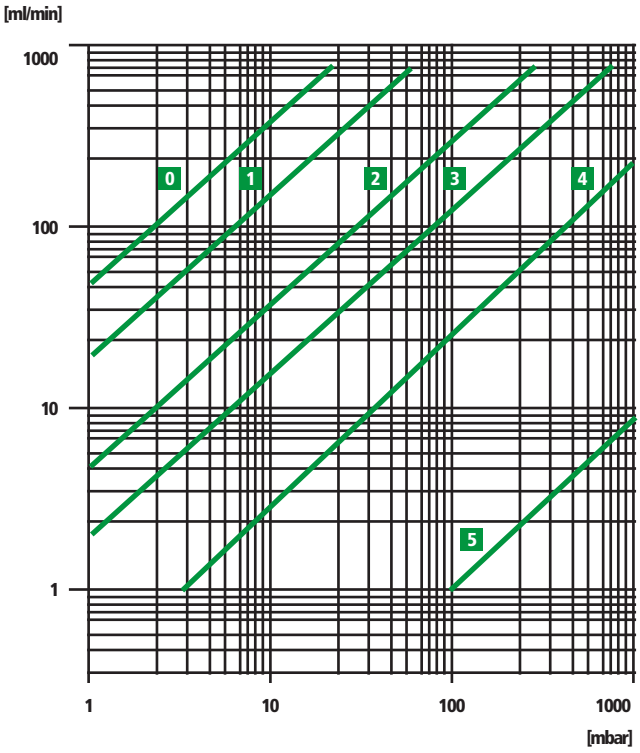
Filter disc Ø mm	Conversion factor
10	0.13
20	0.55
30	1.00
40	1.50
50	2.50
60	4.30
90	6.80
120	9.70
175	15.00

Informations for the Application of Glass Filters and Instruments

Flow rate of dry air [ml/min] through a filter plate of Ø 30 mm in relation to the pressure difference [mbar].



Flow rate of water [ml/min] through a filter plate of Ø 30 mm in relation to the pressure difference [mbar].



Prime Cleaning

Before using a glass filter apparatus for the first time, it should be cleared of all dust and dirt particles. For that you use hot hydrochloric acid, followed by several steps of destilled water sucked under good vaccum through the filter disc..

Mechanical Cleaning

Glass filter instruments have to be cleaned at once after usage, to increase their life-span. If the pores of the filter disc are clean, it is sufficient to spray the surface with water and to clean it with a brush or rubber spatula. If the pores are contaminated, a cleaning with water or rinsing solution in reverse filtration direction is absolutely necessary. 1 bar must not be exceeded. After that a reverse sparging with pure air dries and cleans the filter disc additionally.

Chemical Cleaning

If there are still clogged pores after a mechanical cleaning, a careful chemical cleaning is advisable. Depending on the contamination different solutions may have to be used. Afterwards you should carefully rinse the filter discs with water.

Drying and Sterilization

To prevent tensions between filter and vessel, you have to avoid temperature shocks, which can lead to breakages in the filter apparatus. Heating and cooling of glass filter instruments have to be slow and even.

Pressure- and Vacuum Resistance

Pressure- and vacuum resistance cannot be guaranteed because of the material. Even smallest sufarce damage of the glass, like scratches, can lead to a stability loss.

Temperature Resistance

The maximum temperature is 500°C. Glass filter instruments must never be subjected to sudden temperature changes. Furthermore, it is necessary to observe the designated heating and cooling rates for borosilicate glass 3.3 to prevent permanent tension in the glass.

Special Notes

An increase in pore size is unavoidable with filtration of phosphoric acid, hydrofluoric acid and hot bases. These media corrode the surface and must not be used as cleaning solutions. Their usage decreases the life-span of glass filter instruments immensely.

Beakers, Erlenmeyer flasks, round bottom flasks and test tubes, assemblies of flasks, coolers, distillation links and other well known glass components characterise the image of the chemical laboratory. Fuming liquids in different colours bubble and sizzle in vessels and tubes. Glass has a long tradition in laboratories and was continuously improved to fulfill the growing demands of chemical laboratories:
- excellent chemical resistance
- minimum ion transfer
- maximum constancy of shape and volume
- heat resistance and temperature shock resistance
- transparency

What is glass?
Glass is an anorganic melting product which solidifies without cristallisation. The basic components are network forming and network changing components. Typical forming components are SiO_2, B_2O_3, P_2O_5 and depending on certain conditions Al_2O_3. These components are able to embed a certain concentration of metal oxides without influencing the glass character. The metal oxides define and modify the specific properties of the type of glass.
Chemical substances which solidify glass-like show mixed types of chemical bindings (atom binding and ion binding). Already when melted they show a tendency to link diffuse without any cristalline net. The amorphous network of glass is constructed by the network forming components and the embedded network changing components (ions).

Types of glass
For the special demands of laboratories different glasses are developed which belong to two main classes:
- Borosilicate glass and
- Soda-lime glass

Depending on the composites of the raw material the chemical and physical properties can be varied.
Soda-lime glass (e.g. AR®-Glass) provides good chemical resistance and physical properties. It is applicable for products with short-term contact with chemicals and in cases where no extreme temperatures are applied (e.g. pipettes, test tubes).

Borosilicate glass with its optimised properties is almost universal applicable. Glass types like e.g. SUPRAX® and DURAN® borosilicate glass. Because of the extraordinary heat resistance, temperature shock resistance and mechanical stability as well as the excellent chemical resistance DURAN® - laboratory glass is well known in almost any laboratory worldwide since decades of years.

The following table shows the main properties of different types of typical laboratory glass brands:

	DURAN® Boro 3.3	FIOLAX® Boro 4.1	AR-GLAS® Soda-lime
Lin. coefficient of expansion 20/300 °C, 10^{-6} K^{-1}	3,3	4,1	9,1
Transformation Temperature °C	525	555	525
Water resistance DIN-ISO 719	1	1	3
Acid resistance DIN12116	1	1	1
Alkali resistance DIN 52322 / ISO 695	2	2	2

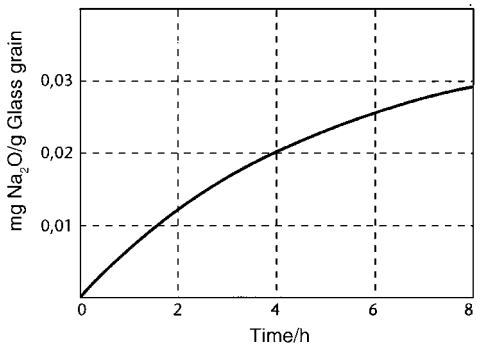
DURAN®
Due to its unsurpassed chemical, physical and thermal properties, DURAN® laboratory glass gained a solid and dominant position in laboratories. Considering DURAN® as example its material properties are described below.
DURAN® is a borosilicate glass type 3.3 as specified in international standard (DIN-ISO 3585).

Chemical Composition:

SiO_2	81 % by weight
B_2O_3	13 % by weight
Na_2O/K_2O	4 % by weight
Al_2O_3	2 % by weight

Choice raw materials guarantee that DURAN® is virtually free from contamination, especially heavy metals. Even with analyses in the ppm-range, contaminations are eliminated.

Chemical Properties:
Exposure to water and acids only result in the leaching out of very small amounts of mainly univalent ions from the glass. The resultant very thin layer of silica with few pores in it that is formed on the glass surface, inhibits further attacks.
DURAN® has very high resistance against water, neutral and acid salt solutions, strong acids and mixtures thereof, and also chlorine, bromine, iodine and organic substances. Only hydrofluoric acid, solutions containing fluorides such as ammonium fluoride, very hot phosphoric acid and strongly alkaline solutions attack the surface of the glass to an increasing extent at higher concentrations and temperatures.



Water attack at DURAN® versus time (100 °C) approx. DIN ISO 719.

Hydrolytic Resistance:
DURAN® is classified in the highest hydrolitic resistance class 1. Hydrolytic resistance is determined by two methods at 98°C and 121°C:

1. Hydrolytic resistance according to DIN-ISO 719 (98°C)
DURAN® belongs to glass grain method class ISO 719-HGB 1, since there is used only up to 0.026 ml HCl (0.01 mol) of 1 g DURAN® glass grain after one hour heating at 98 °C in water, according to the grain-titration method DIN 12111/ISO 719. This corresponds to an alkali release of 0.008 mg Na_2O per 1 g glass grain.

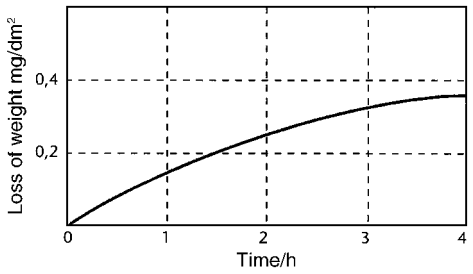
2. Hydrolytic resistance according to DIN-ISO 720 (121°C). Grain hydrolytic resistance class ISO 720 HGA 1, method at 121°C

DURAN® is a neutral glass with a high hydrolitic resistance of glass type 1, and according to DAB 10 of the European Pharmacopoe and USP 23, DURAN® is food safe.

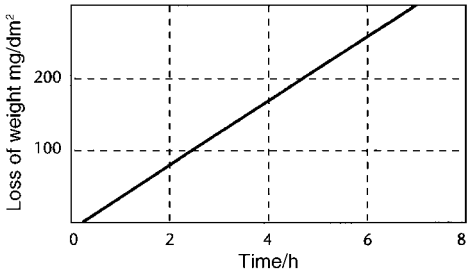
Acid Resistance:
DURAN® is classified in the highest acid class 1.
Acid resistance can be determined by two methods.:

1. Acid resistance according to DIN-ISO 12116
The acid removal is measured at fire finished glass surfaces, as a time dependent weight loss under the exposure of 18% hydrochloric acid. After a boiling period of three hours this removal with DURAN® is only 0,3 mg/dm².

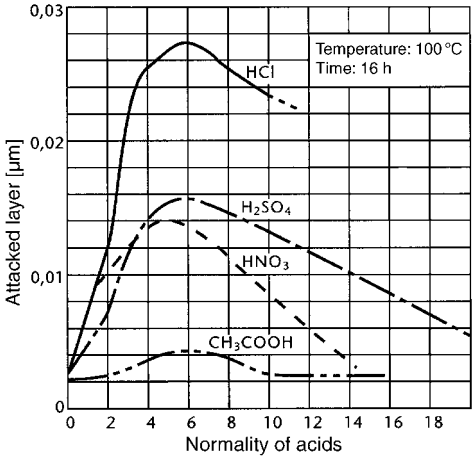
2. Acid resistance according to DIN-ISO 1776
The attacked layer thickness of the glass is examined in dependancy of the type of acid and its concentration. The results for four acids are shown in the diagram below. The maximum attack occurs at acid ranges of 4-7n. At higher concentrations, the reaction rate decreases significantly, so that the layer thicknesses which are attacked are only in the range of a few thousand µm after years. Thus, the mechanisms of acid attack are not relevant for the wall thicknesses of laboratory glasses used in practice.



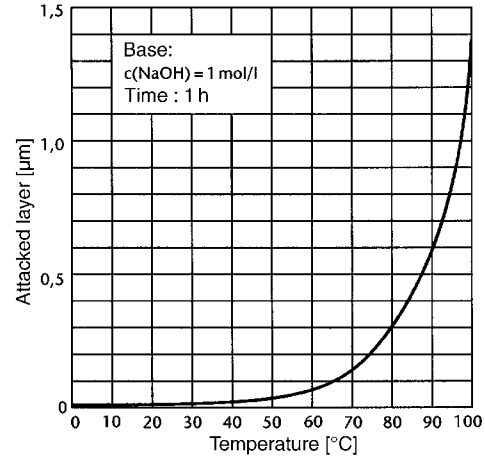
Acid attack at DURAN® versus time. DIN 12116.



Alkali attack at DURAN® versus time. DIN 52322, ISO 695.



Attack of 4 acids at DURAN® versus concentration.



Alkali attack at DURAN® versus temperature.

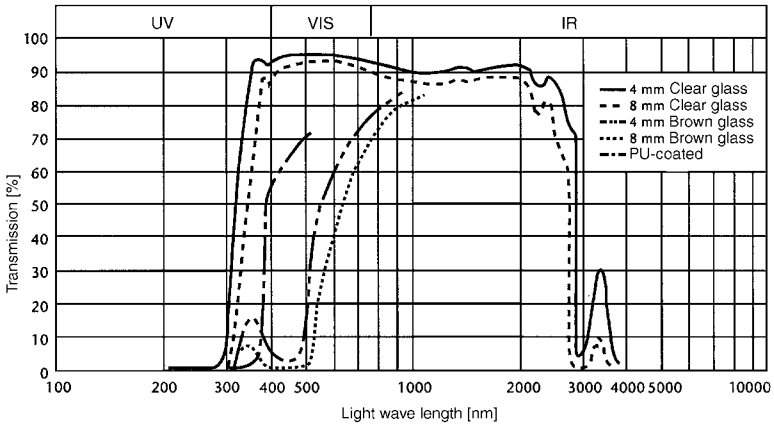
Alkali Resistance:
DURAN® is classified in alkali resistance class ISO 695-A2.
The test takes place according to DIN 52322, ISO 695 at fire finished DURAN® surfaces, which are boiled in a mixture of a sodium hydroxide solution, 1 mol/L and sodium carbonate solution, 0.5 mol/L, of the same volume. After three hours a weight loss of only 134 mg/dm² can be observed at DURAN®. The surface removal through alkali ist directly proportional to time. A visible attack on the glass surface takes place only at temperatures above 60°C, at lower temperatures the reaction rates are so low that hardly any reduction of the wall thickness takes place over a period of years. Long-term tests have shown that the use of NaOH having a concentration of 1 mol/L at an operating temperature of 50 °C produces a glass surface removal of 1 mm after 25 years in a continuous flow through a DURAN® glass pipeline.

Temperature Resistance:
The maximum permisable operating temperature of DURAN® exceeds clearly those of plastics usually used in laboratories. The maximum operating temperature of DURAN® is 500°C. DURAN® starts to „soften" above 525°C. DURAN® can be heated directly with heating coils or heating hoods and DURAN® is suitable for use in microwaves. DURAN® can be cooled down to -192 °C, which means that it is also suitable for use in liquid air. Generally DURAN® products are recommended for use down to -70 °C.
When freezing substances in e.g. DURAN® bottles or test tubes, the container should only be filled to a maximum of 3¼4 of its capacity and it must be frozen on the slant (45°).
With all thermal processes the threshold value of the thermal shock resistance (below) has to be taken into account.

Thermal Shock Resistance:
DURAN® resists sudden temperature changes from hot to cold and vice versa up to DT = 100K. DURAN® does not break when boiling water is poured into it at room temperature. The thermal shock resistance exceeds that of ordinary glass (e.g. soda-lime-silicate glass) by a fator of three.

Linear Coefficient of Expansion:
The linear coefficient of expansion of DURAN® (20 to 300 °C) is 3.3×10^{-6}/K. That means that for an increase in temperature of 1 K a 1 m long pipeline expands its length only by 3.3 µm. Therefore, the thermal shock resistance of DURAN® (above) is so outstanding. The volume of DURAN® glass ware and volumetric intruments keeps constant even under the influence of extreme temperatures.

Optical Properties:
DURAN® is transparent and colourless. In spectral ranges from 310 to 2200 nm the absorption is negligibly low.
For work with light sensitive substances the DURAN® surface can be tinted brown with a diffusion colour. This results in a strong absorption in the short wave range. The absorption margin of tinted glass is at about 500 nm.
Photochemical reactions in the UV-range like chlorinations and sulfochlorinations can be carried out well. The chlorine molecule absorbs in the 280 to 400 nm range and thus serves as a carrier for the radiation energy.



Transmission for DURAN®

Cleaning of Laboratory Glass:
Laboratory glass apparatus should be cleaned immediately after use at low temperatures, a short residence time and low alkalinity.

1. Manual Cleaning
Laboratory glass must never be treated with abrasive scouring agents or sponges which would damage the surface. In the dipping bath procedure, laboratory glass is placed into a cleaning solution at room temperature for 20 to 30 minutes, then rinsed with tap water and followed by distilled water.
Lengthen the time and increase the temperature only with persistent impurities. However, this can result in destruction of the print.

2. Machine Cleaning
The machine cleaning of laboratory glass in laboratory dishwashers is a milder treatment than cleaning in a dipping bath, since the glass comes only in contact with cleaning solutions during a relatively short period of time. This conserves glass surfaces and prints. Use the customary cleaning solutions for laboratory dishwashers.

Disinfection of Laboratory Glass:
Laboratory glass instruments can be disinfected. With manual cleaning use a disinfectant cleaning solution. With machine cleaning use physical thermal processes (10 minutes residence time at 93 °C according to BGA) or chemo-thermal processes. After that laboratory instruments can be autoclaved.

Autoclaving of Laboratory Glass:
According to DIN 58900, part 1 and DIN 58946, part 1/2, 1987, hot air sterilisation is the „killing resp. irreversible diasabling of all augmentable microorganisms" under the influence of „saturated steam of at least 120°C and 2 bar". As minimum residence time (time to kill + excess time) are considered t_e = 20 minutes at 121°C.

A raised vapour temperature of 121°C is only possible with a raised pressure of 2 bar. Vessels must only be hot air sterilised with open closures, to avoid additional pressure build-up and resulting breakage.
The hygenie manager is responsible for proper sterilisation and biological saftey (DIN 58946, part 3).

Notes concerning Sterilisation:
- Contaminated laboratory instruments must be cleaned before sterilisation.
  Dirt particles bake and enclose microrganisms, so that they are protected by the dirt particles and cannot be effectively killed.
  Chemicals embedded in dirt particles can attack the surface because of the high temperatures during the sterilisation process.
- Open closed vessels to avoid pressure build-up.
- Effective sterilisation is only possible with saturated vapour which can reach unhindered any part of the contaminated vessel.

Disposal:
Contaminated glass has to be disposed of according to waste material key No. 17 01 99 D1, „Wood, Glass and Plastics with Dangerous Contaminations". DURAN® may not be disposed of in common recycling glass containers, since the high melting point of DURAN® shards leads to considerable problems during the recycling process.

Safe Handling of DURAN®

Important Safety Tips for Users

- ❒ Previous to handling DURAN® laboratory glass, it has to be tested for suitability and function.
- ❒ Damaged laboratory glass provides a source for danger which must not be underestimated.
- ❒ Damaged volumetric instruments of glass must not be repaired, since the risk of breakage increases dramatically.
- ❒ Prevent glass instruments from sudden temperature changes.
- ❒ Apparatus must always be build up safe and without tensions with appropriate tripods.
- ❒ Pressurized or evacuated glass apparatus must never be touched to avoid surface damage.
- ❒ To avoid tensions in the glass, never heat up evacuated or pressurized glasswares with a single-sided heat source or open flame.
- ❒ Previous to evacuating or pressurizing glass instruments, there has to be a visual check to secure proper conditions.
- ❒ Glassware must never be subjected to sudden pressure changes, like sudden venting.

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Terms and Conditions

1. General conditions

1.1 Conflicting conditions, written form, contractual language: Our terms and conditions shall apply to all - including future - contracts with the customer. No other conditions shall become subject matter of the contract, even if not explicitly rejected by us. The customer may claim special agreements prior to or upon conclusion of a contract only if such an agreement is immediately confirmed in writing. The contractual language shall be German or English.

1.2 Offers, right to change: Our offers shall be subject to confirmation. We reserve the right to technically improve our products.

1.3 Collection of data: We may electronically store and process data relevant for the conclusion of the contract.

1.4 Offsetting, withholding: Unless a customer has undisputed counterclaims, he shall neither be entitled to offset nor to withhold payments for deliveries received.

1.5 Packing units, rush orders/small orders: As a matter of principle, all deliveries shall be made in packing units (VE) determined by the valid price list. For orders requested to be delivered within 5 business days and/or for order values up to 500 Euro we reserve the right to ship immediately without separate order confirmation.

1.6 Court of jurisdiction/governing law: The court of jurisdiction shall be Wertheim/Mosbach. All contracts shall be governed by German law and the Convention on the International Sale of Goods (CISG) of the United Nations. All disputes relating to foreign contracts shall be resolved in accordance with the arbitration rules of the German Institution of Arbitration (DIS) at the arbitration tribunal of IHK Heilbronn-Franconia.

2. Delivery

2.1 The place of performance shall be our Wertheim plant. Even if we make partial deliveries or we provide additional services, e.g. delivery, transport, packing, insurance, export, or assembly, the risk shall transfer to the customer when the shipment departs our plant. This shall also apply in case of delivery to a consignment warehouse of the customer.

2.2 If we agreed to orders to be delivered on demand, the customer shall accept the total quantity within 6 months.

2.3 If the customer delays the acceptance, we may store the items at the expense of the customer while maintaining our claim for performance. Alternatively we may submit a notice, set a deadline, and sell the items at the expense of the customer to third parties upon expiry of the deadline.

3. Delivery times, delivery delays

3.1 All delivery times are approximate. If the technical preliminary questions have been clarified and all relevant documents, permissions, or releases have been received from the customer, delivery terms shall be applied from the date of our order confirmation to the customer. Under no circumstances may a delivery term be applied prior to receiving an agreed-upon deposit. The delivery term is fulfilled if the delivery item has been shipped from the plant or a notice regarding the readiness for shipment has been provided prior to expiration.

3.2 Force majeure and strikes, lockouts, operational disturbances, lack of raw materials and manufacturing resources, delayed deliveries or lack of deliveries by suppliers which are outside of our control as well as additional or changed performances requested by the customer extend the delivery terms accordingly and release us from the delivery requirement if they make delivery impossible. Even if the aforementioned circumstances occur during an existing delay, they are outside of our control.

3.3 Regardless the reason for our delivery delay, the customer shall submit a notice and extend an adequate grace period.

3.4 Our liability for damages resulting from delays is limited to cases of intent or gross negligence. Any claim requires that the customer has immediately informed us in writing with regard to possible damages resulting from a delay. The liability shall not exceed the maximum damages which can be typically expected during the conclusion of the contract.

4. Prices, terms of payment

4.1 All prices are EXW. The customer covers the packing, transport, freight, and insurance costs.

4.2 All invoices shall be immediately paid in full and/or within the indicated payment period. All payments shall be submitted net and free of costs and expenses to our account. The receipt of the payment is decisive. We accept bills of exchange and checks in fulfillment and at the expense of the customer only.

4.3 We may require a deposit or a security provision for the amount of the invoice of every individual order from new or sporadic customers, after delayed payments, or in cases of justified doubt regarding the credit-worthiness of the customer.

4.4 If the conclusion of the contract precedes the agreed-upon delivery or the request for delivery by more than 3 months, we may charge the prices valid at the time of delivery. If the prices vary by more than 15%, either party may cancel the contract.

4.5 If the customer has agreed to return the items free of defects, we will charge an inspecting and processing fee of 15% of the invoice amount (at least 10 Euro).

4.6 If a payment of the customer is delayed, all of our claims against the customer shall immediately become due and we shall not be obligated to provide further deliveries in accordance with the existing supply contracts. We may abolish payment terms and demand cash payment prior to delivering items in further deliveries. The same applies in cases of dishonor relating to bills of exchange or checks, failures and/or recalls of debit orders/direct debit authorizations, cessations of payment, or insolvency of the customer. Subject to further claims for damages, we charge an interest of 5% above the basic interest of the European Central Bank.

4.7 Payables for the customer (e.g. from credit) may be settled against our open claims against the customer - even before the due date if necessary.

5. Retention of title, assignment in advance

5.1 All delivered items remain our property until all claims of ours against the customer have been fully paid without restrictions.

5.2 The customer shall not use or connect retained items with any other item if third parties hold rights to such an item. If the customer fails to comply with this regulation and a retained item is connected to and becomes a component of a new (complete) item, then we become a partial owner of the new item. Even if the new item is the main item, our ownership shall be a direct proportion of the invoice amount of the retained item in relation to the value of the new item at the time of connection.

5.3 The customer may sell retained items in the context of its normal business activities as long as the proceeds from the sale are not retained, pledged, seized, or in any other manner subject to charges or counterclaims.

5.4 As a security, the customer assigns us all claims arising from the sale of retained items (Sec. 5.3) and/or newly formed items (Sec. 5.2) to the amount of our invoice for the retained items in advance. As long as the payments of the customer for the retained items arrive on time, the customer may include the assigned claims during the normal course of business. The customer shall use the proportionate proceeds for our payment of the retained items only.

5.5 Upon request of the customer and at our discretion, we may release securities of the customer if the nominal value of the securities exceeds 120% of the nominal value of our open claims against the customer.

5.6 The customer shall immediately give us notice if retained items or items in which we share property rights are impounded, seized, or disposed of by third parties.

5.7 The customer forfeits all rights specified in Sec. 5.3 in cases of dishonor relating to bills of exchange or checks, failures and/or recalls of payments performed by means of debit orders/direct debit authorizations, cessations of payment, or insolvency of the customer or the ultimate buyer. The customer shall immediately notify the ultimate buyer regarding the extended retention of title. The proportion of the proceeds relating to the assignment shall be used for paying the retained items only.

5.8 If cases specified in Sec. 4.6 occur, we may cancel the contract, demand the return of all retained items from the customer, and collect the assigned claims on our own. We may request that a person required to maintain professional confidentiality reviews all documents/books of the customer which relate to our retained rights in order to determine our rights.

6. Warranty for defects, obligation to reprimand, claims for indemnification

6.1 We guarantee that all delivered items are free from defects when the risk is transferred. The warranted condition, durability, and use of our delivered items exclusively fulfils the specifications, product descriptions, and/or operating instructions agreed upon in writing. Additional characteristics (e.g. advertising statements, preliminary talks, technical/industrial standards) only become part of the contract if they are explicitly included in writing.

6.2 If the customer requires the delivered items for purposes other than defined in Sec. 6.1, the customer shall be responsible for examining their specific suitability for these requirements - including product security - and its conformation to all relevant technical, legal, or civil service regulations prior to utilization. If the customer determines a material or provides a design, we shall not be liable for the suitability or validity of the requested materials or designs and shall not be required to perform any special tests.

6.3 We shall not be liable for the consequences of improper treatment, use, maintenance, or operation of the delivered items, normal wear of wearing parts, e.g. pistons, seals, valves, broken glass or ceramic parts, chemical, electrochemical, or electrical influences, or the disobedience of operating instructions.

6.4 Upon receiving the delivered items, the customer shall immediately perform an examination - including product security - and immediately notify us of any obvious defects in writing. The customer shall immediately notify the carrier of any transport damages. If the customer fails to examine the items or submit a notice regarding any defects, we shall not be liable for defects or damages. The warranty period for subsequently delivered items ends at the end of the warranty period for the originally delivered items.

6.5 The statute of limitations for all other claims of the customer relating to defects - other than claims relating to items which are commonly used in buildings - is one year after the shipment to the customer. This also applies to breeches of accessory obligations and to possible damages which do not relate to the delivered items.

6.6 Contribution claims of the customer towards us shall only exist to such an extent that they may not cover agreements with the ultimate buyer which exceed the legally required warranty.

6.7 Our liability for defects or contributions shall be limited to our choice of successive performance in a first stage. The customer shall only be entitled to all other legal warranty claims if the subsequent performance has been refused, has been determined to be impossible, or has failed.

6.8 The customer shall be responsible for all additional costs during the provision of warranty services which result from the delivered item being operated at another location than the original shipping address. The provision of warranty services does not include cleaning the delivered items exhibiting a defect.

6.9 Our liability for replacing physical and financial losses shall be limited to cases of intent or gross negligence. If such damages occur to items other than the delivered items, we shall only be liable if the customer has notified us of such a possibility in writing during the conclusion of the contract and we explicitly confirmed our obligation for liability regarding the specific possibility in writing. In any case our liability shall not exceed the maximum damages which can be typically expected during the conclusion of the contract and shall not exceed the net value of the delivery.

6.10 If the customer uses the delivered items with environmentally harmful, poisonous, radioactive, or other dangerous materials, the customer shall clean the delivered items prior to their return. We may charge the customer for any costs resulting from the need for decontamining, cleaning, and/or disposing waste.

6.11 If we are obligated to maintain stocks of spare parts, this obligation shall be limited to 5 years from the time of shipment. Our obligation to supply spare parts expires if we no longer manufacture spare parts and if they are no longer available on the market - e.g. electronic components - or if the raw materials necessary for producing the spare parts are no longer available.

7. Additional provisions, industrial property rights, secrecy

7.1 We reserve ownership as well as all copyrights, proprietary and intellectual property rights in any moulds, tools, other mechanisms, samples, diagrams, commercial or technical documents which we manufacture or provide. This also applies if the customer has partly or wholly borne their costs. The customer shall only use the items in manners we approve in writing, nor is the customer entitled to manufacture these items or have them manufactured on his behalf.

7.2 The customer is responsible that the use of drawings, models, samples as provided by the customer for manufacturing and supplying items shall not infringe industrial property rights or other rights of third parties.

7.3 All information acquired through the business relationship with us which is not deemed to be public knowledge shall be deemed proprietary and may not be disclosed to third parties.

Status: April 2003