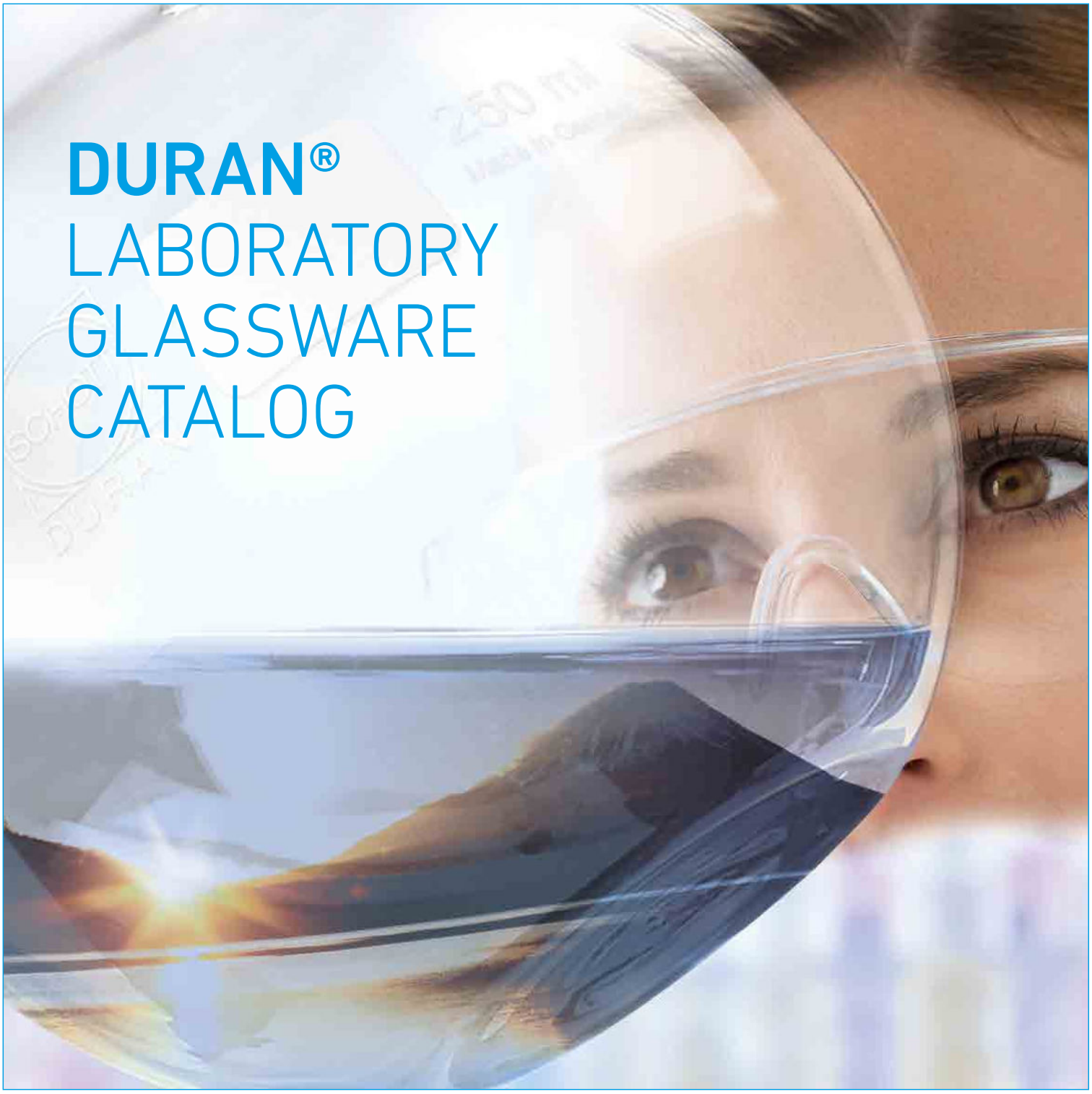


DURAN®
LABORATORY GLASSWARE CATALOG

DURAN
WHEATON
KIMBLE

Excellence in your hands

WELCOME TO THE DWK LIFE SCIENCES

Many thanks for the interest you have shown in our new catalog of DURAN® laboratory glassware. It will provide you with an overview of our entire range of DURAN® laboratory glassware. This has for years satisfied even the most stringent quality requirements, allowing our company to establish itself as a reliable partner for the safe handling of demanding lab work.

Over 3,000 articles are available – tried and tested countless times and suitable for a virtually unlimited number of laboratory applications. From the simple test tube through the classical Erlenmeyer flask to the new generation of laboratory bottles, such as the seven-times award-winning ergonomically shaped DURAN ® YOUTILITY, or the unique DURAN® *TILT* media bottle for cell cultures.

Our products, manufactured from DURAN® borosilicate 3.3 glass, and our ever-expanding selection of plastic accessories, impress with their outstanding product features. They will make your daily routine easier and ensure reliable lab results while also offering greater safety in use.

Over 600 experienced and committed employees are continuously engaged in the development and optimization of DURAN® laboratory glassware – in close cooperation with our specialist dealers and in dialog with the customer. It is this approach that has allowed us to steadily expand our existing range and introduce many innovative new products.

Get in touch with us! Our experienced product managers and sales staff will be delighted to answer your questions. For details of your contacts at DURAN and specialist dealers, as well as plenty of other information, please see our website: www.DWK-LifeSciences.com

Michael Merz
Managing Director

> **DWK Life Sciences** is the new name for precision labware. Our company unites the expertise of the three global leading brands DURAN®, WHEATON® and KIMBLE® with a single aim: to help you achieve excellence in your field.
Find out more about DWK Life Sciences on page 4.

DURAN
WHEATON
KIMBLE

Excellence in your hands

CONTENTS

	DWK LIFE SCIENCES – AN OVERVIEW	4
	THE DURAN® PREMIUM BRAND	6
	DURAN® QUALITY	7
01	LABORATORY GLASS BOTTLES AND ACCESSORIES	9
02	BOILING FLASKS AND GENERAL LABORATORY GLASSWARE	65
03	VOLUMETRIC GLASSWARE	87
04	INTERCHANGEABLE GLASSWARE	115
05	GLASS FILTRATION APPARATUS AND ACCESSORIES	143
06	DESICCATORS	163
07	GLASSWARE FOR MICROBIOLOGY	173
08	TECHNICAL INFORMATION	191
	INDEX BY CATALOGUE NUMBERS	222
	ALPHABETICAL INDEX	225
	TERMS AND CONDITIONS	228

DWK LIFE SCIENCES

DURAN Group, Wheaton Industries and Kimble Chase have come together to create a new global company – DWK Life Sciences.

DWK Life Sciences is a leading international manufacturer of premium laboratory products and packaging and storage solutions for a for a wide range of scientific and technical applications.

We provide more than 30,000 products manufactured at 11 locations. Worldwide, 1,700 employees work on the development and supply of high-quality products and services that meet the highest requirements of our customers in the chemical, pharmaceutical and life science industries.

Our corporate values are passion, precision, creativity and trust. These values give us orientation and form the basis for our daily activities.

Our company combines the expertise of the world-leading brands DURAN®, WHEATON® and KIMBLE® with a single goal: to provide excellent products for your needs according to our guideline “Excellence in your hands”.

WHEATON®

Excellent products for life science laboratories. Satisfied customers, scientists and trade partners worldwide rely on WHEATON® products. The WHEATON® brand is distinguished by decades of experience in the development and production of glass and plastic containers. The portfolio currently comprises not only innovative products for the life science laboratory, but also instruments, tailor-made container solutions and closure systems for research and industry.

www.DWK-LifeSciences.com/WHEATON

KIMBLE®

Under the KIMBLE® brand name, DWK Life Sciences produces laboratory glassware and specialty glass products for scientific applications. We supply customers in the pharmaceutical, environmental, petrochemical, life science and education sectors. Our products are mainly manufactured to ASTM standards and include glass beakers, flasks, cylinders, tubes and closures as well as test tubes, funnels and pipettes. We thus supply customer-specific solutions for the collection, storage, processing, analysis and disposal of sample materials.

www.DWK-LifeSciences.com/KIMBLE

DURAN WHEATON KIMBLE

Excellence in your hands

DURAN®

DURAN® is a premium brand that has proven itself worldwide over the last 80 years – not only in laboratories, but also in the industrial and household sectors. Working in close dialog with our customers, we create solutions that cater to individual wishes and enable high-precision applications in a wide range of areas. We also offer our pharmaceutical customers a comprehensive range of certification and auditing services. DURAN® products are mainly manufactured to DIN/ISO standards.

DURAN® borosilicate 3.3 glass is an attractive material that offers inexhaustible design possibilities. The DURAN® brand combines safety, innovation, reliability and quality for the benefit of our customers – especially in laboratory applications.

www.DWK-LifeSciences.com/DURAN

DURAN® INDUSTRIAL GLASS

The product range in the field of industrial special glass extends from calibrated precision glass to hand-blown special designs and from individual parts to series production.

www.DURAN-IndustrialGlass.com

DURAN® CONSUMER GLASS

DURAN® borosilicate glass is perfect for all heat-resistant applications, and is used in a variety of everyday products, but also in various special fields.

www.DURAN-ConsumerGlass.com

DURAN® QUALITY WITHOUT COMPROMISE

QUALITY MANAGEMENT

Our customers require us to develop and manufacture reliable and safe products in accordance with the highest possible quality standards. This factor is at the very center of our quality policy.

Working in close cooperation with all our staff and with the active involvement of our customers and suppliers, DWK Life Sciences has established a quality management system that conforms to **DIN EN ISO 9001, ISO 50001** and **ISO 14001** and which is integrated into daily practice.

This **quality management system determines all the steps** that our products have to go through: from the customer's initial enquiry, through to order processing and delivery, and up to customer feedback. We value the success of DURAN® products as a sign that our customers trust our quality system, our logistics and our service.

OUR QUALITY SEAL IS A PROMISE TO OUR CUSTOMERS

Millions of laboratory customers trust in the proven quality of our premium product brand DURAN®, which has been a **registered trademark since 1938.**

With the change of name to DWK Life Sciences GmbH, we updated the previous product logo with the **new DURAN® logo.**

SCHOTT DURAN = DURAN®

In the future, all DURAN® products will bear the new logo.

DURAN® BOROSILCATE 3.3 GLASS: A "MADE IN GERMANY" MATERIAL

Very high chemical resistance, inert behavior, transparency, a high usage temperature, minimal thermal expansion and the resulting **high resistance to thermal shock** are the most significant properties of DURAN® borosilicate 3.3 glass. It also conforms to the requirements of a USP/EP/JP Type 1 neutral glass suitable for use by the pharmaceutical industry.

The properties of DURAN® are specified to ISO 3585 and ASTM-E438-1992 Class A.
DURAN® is notable for its highly consistent, technically reproducible quality.

In the production of DURAN® borosilicate 3.3 glass, we attach particular importance to **consistently high raw material quality.** State-of-the-art weighing systems, fully automatic batch preparation and daily archived samples of the raw materials guarantee the best results in glass production and processing.

The recipe for this resistant glass was **developed by Otto Schott over 125 years ago.**
The DURAN® name was registered in 1938 as a premium brand for laboratory glassware.

UNIQUE PRODUCTION KNOW-HOW

We have decades of experience in manual and fully automated production. This enables us to ensure **efficient, high-quality production processes.** This expertise is of course also applied to the **development of new, customer-oriented products.**

UNIFORM WALL THICKNESS

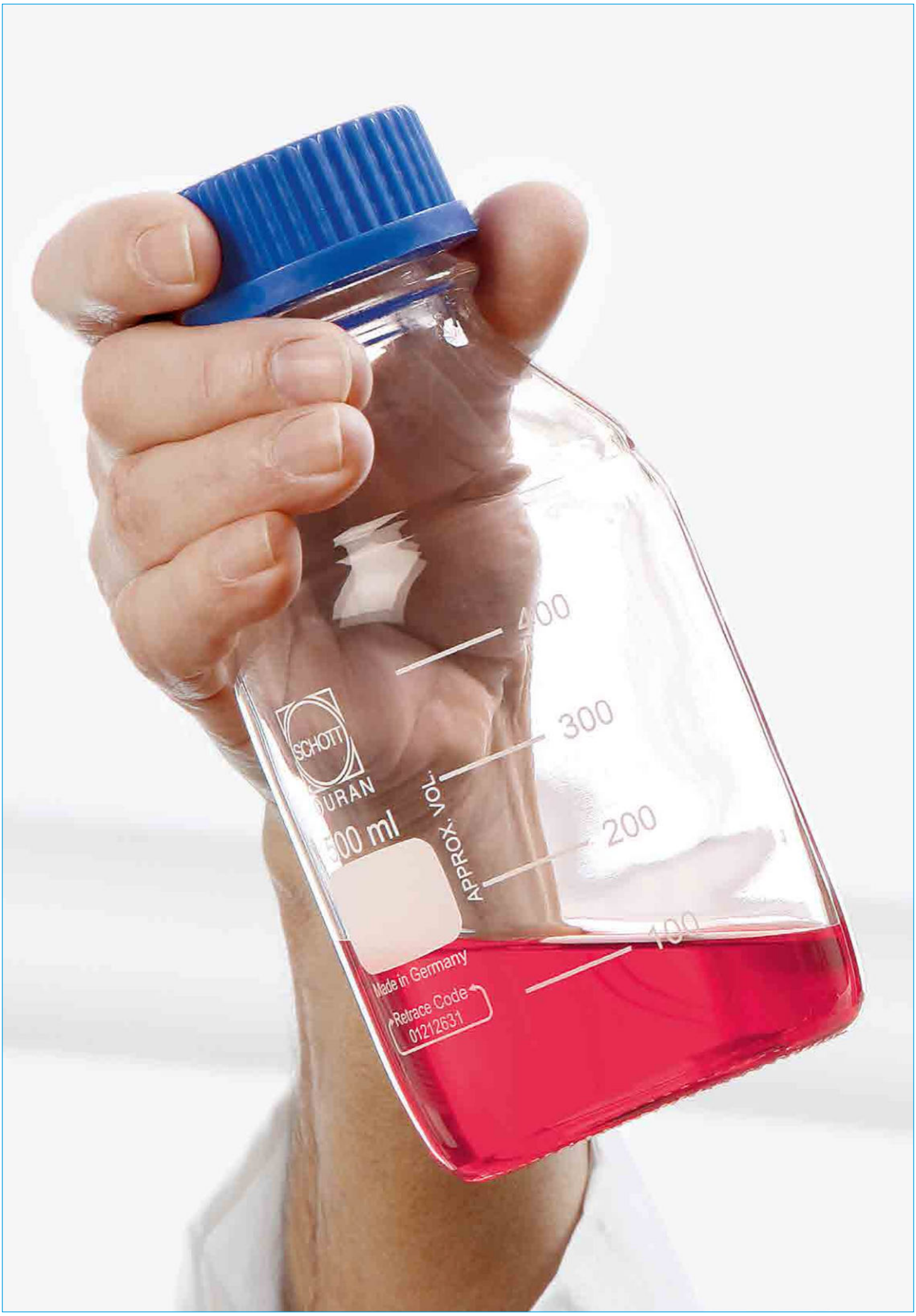
DURAN® laboratory glassware is characterized by better mechanical stability and higher resistance to temperature changes. This ensures **increased safety** in use, plus an **extended service life** of the products which, in turn, **reduces overall lifetime costs.**

RELIABILITY

Thanks to the **high manufacturing standards,** we can make products for our customers of a consistent and reliable quality. Our **worldwide distribution network ensures local availability;** comprehensive warehousing assures the fast supply of all articles.

TRACEABILITY: THE RETRACE CODE

DURAN® products with Retrace Code can be traced back to the date of manufacture with all production relevant data.
The corresponding batch certificates are available online at:
www.DWK-LifeSciences.com/DURAN/retracecode


SCHOTT
DURAN
00 ml
APPROX. VOL.
400
300
200
100
Made in Germany
Retrace Code
01212631

01

LABORATORY GLASS BOTTLES AND ACCESSORIES

LABORATORY GLASS BOTTLES AND ACCESSORIES

01

Thoroughly proven – universally applicable

DURAN® laboratory glass bottles impress because of their outstanding properties. For more than forty years of production, the bottles have been consistently developed and improved. Thanks to this experience, the DWK Life Sciences offers quality that remains unmatched.

With numerous variants and the comprehensive original equipment from DURAN®, a broad range of high-quality products and systems is available, permitting almost unlimited applications.

The advantages at a glance:

- **Standardised GL-thread and matching cap systems**
  for particularly tight sealing and simple, clean pouring out
- **Outstanding chemical resistance and near inert behaviour**
  no interfering ion exchange
- **High temperature and thermal shock resistance**
  ideal for autoclaving and dry sterilising
- **Sturdy design and uniform wall thickness distribution**
  for improved safety and longer service life
- **Transparent**
  contents and volume can be quickly checked
- **Glass Type 1 (neutral glass) conforming to USP/EP**
  especially suited to applications in the pharmaceutical and food industries
- **Very stable**
  due to large base
- **Easy labelling**
  thanks to large labelling field
- **Practicality**
  easy to read, permanent graduations
- **Retrace Code**
  using the eight-character Retrace Code and the corresponding article number, the batch and quality certificate for every DURAN® laboratory glass bottle can be obtained at www.DWK-LifeSciences.com

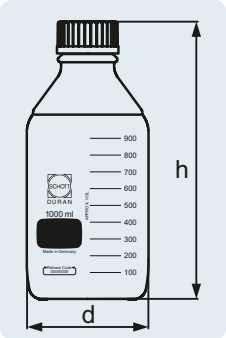
> Find your nearest **distributor** on our global network:
www.DWK-LifeSciences.com/DURAN/distributors

DURAN® Original Laboratory Bottle

with DIN thread

With easy-to-read scale and large labelling field for easy marking, in fired-on, highly durable white ceramic. With proven DURAN® properties. Complete with blue screw cap (PP, integral lip seal) and pouring ring (PP) for drip-free pouring and clean, safe working. Service temperature level of screw cap and pouring ring: + 140 °C.

Typical applications: storage, sample preparation, transport. Autoclaving media.

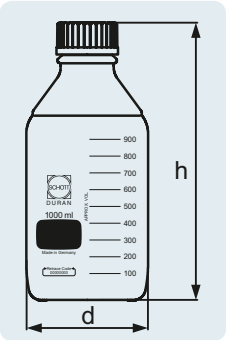


ISO 4796-1 | Retrace Code | A 121 °C | USP Standard

Cat. No.	Capacity (mL)	DIN Thread (GL)	d (OD) (mm)	h (mm)	Remark	Pack Unit
with screw cap and pouring ring from PP (blue)						
21 801 08 51	10	25	36	54	Acceptance within ISO 4 796 standard has been requested. With specially shaped glass edge for improved pouring out (so that an additional plastic pouring ring is not required).	10
21 801 14 53	25	25	36	74	With specially shaped glass edge for improved pouring out (so that an additional plastic pouring ring is not required).	10
21 801 17 53	50	32	46	91		10
21 801 24 58	100	45	56	105		10
21 801 29 55	150	45	62	115		10
21 801 36 51	250	45	70	143		10
21 801 44 59	500	45	86	181		10
21 801 51 55	750	45	95	208		10
21 801 54 55	1 000	45	101	230		10
21 801 63 57	2 000	45	136	265		10
21 801 69 57	3 500	45	160	300		1
21 801 73 53	5 000	45	182	335		1
21 801 86 58	10 000	45	227	415		1
21 801 88 55	15 000	45	268	450		1
21 801 91 57	20 000	45	288	510		1
21 801 92 51	25 000	45	316	545		1
without screw cap and pouring ring						
21 801 08 02	10	25	36	50	Acceptance within ISO 4 796 standard has been requested. With specially shaped glass edge for improved pouring out (so that an additional plastic pouring ring is not required).	10
21 801 14 04	25	25	36	70	With specially shaped glass edge for improved pouring out (so that an additional plastic pouring ring is not required).	10
21 801 17 04	50	32	46	87		10
21 801 24 09	100	45	56	100		10
21 801 29 06	150	45	62	110		10
21 801 36 02	250	45	70	138		10
21 801 44 01	500	45	86	176		10
21 801 51 06	750	45	95	203		10
21 801 54 06	1 000	45	101	225		10
21 801 63 08	2 000	45	136	260		10
21 801 69 08	3 500	45	160	295		1
21 801 73 04	5 000	45	182	330		1
21 801 86 09	10 000	45	227	410		1
21 801 88 06	15 000	45	268	445		1
21 801 91 08	20 000	45	288	505		1

DURAN® Original GL 45 Laboratory Bottles complete with High Temperature Closures

with DIN Thread, clear, graduated



ISO 4796-1 · Retrace Code · A 121 °C · USP Standard

DURAN® original GL 45 Laboratory Bottles are available complete with high temperature screw caps and pouring rings. The PBT cap and ETFE pouring rings offer greater thermal and chemical resistance than the equivalent polypropylene components.

Typical applications: Dry heat sterilization, autoclaving of liquid media, storage of corrosive reagents and sampling.

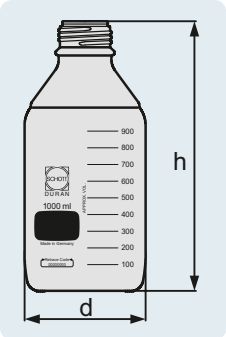
Cat. No.	Capacity (mL)	DIN Thread (GL)	d (OD) (mm)	h (mm)	Pack Unit
With high temperature screw cap and ETFE pouring ring					
21 801 24 17	100	45	56	105	10
21 801 36 19	250	45	70	143	10
21 801 44 18	500	45	86	181	10
21 801 54 14	1 000	45	101	230	10
21 801 63 16	2 000	45	136	265	10
21 801 73 12	5 000	45	182	335	1
21 801 86 17	10 000	45	227	415	1

DURAN® Laboratory Bottle Amber

with DIN thread, USP <660> and USP <671> (Spectral Transmission) compliant

With easy-to-read scale and large labelling field for easy marking, in fired-on, highly durable white ceramic. UV protection up to approx. 500 nm wavelength. Unchanged DURAN® properties within the bottle, as colouration is only on the outer surface. Very uniform, durable and chemically resistant amber colour due to use of innovative technology.

Typical applications: storage and transport of light-sensitive substances.

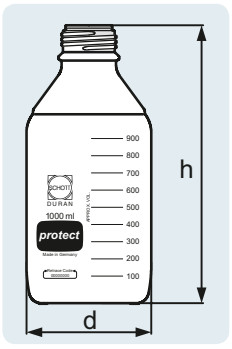


ISO 4796-1 | Retrace Code | A 121 °C | USP Standard

Cat. No.	Capacity (mL)	DIN Thread (GL)	d (OD) (mm)	h (mm)	Remark	Pack Unit
with screw cap and pouring ring from PP (blue)						
21 806 08 56	10	25	36	54	Acceptance within ISO 4 796 standard has been requested. With specially shaped glass edge for improved pouring out (so that an additional plastic pouring ring is not required).	10
21 806 14 58	25	25	36	74	With specially shaped glass edge for improved pouring out (so that an additional plastic pouring ring is not required).	10
21 806 17 58	50	32	46	91		10
21 806 24 54	100	45	56	105		10
21 806 29 51	150	45	62	115		10
21 806 36 56	250	45	70	143		10
21 806 44 55	500	45	86	181		10
21 806 51 51	750	45	95	208		10
21 806 54 51	1 000	45	101	230		10
21 806 63 53	2 000	45	136	265		10
21 806 69 53	3 500	45	160	300		1
21 806 73 58	5 000	45	182	335		1
21 806 86 54	10 000	45	227	415		1
without screw cap and pouring ring						
21 806 08 07	10	25	36	50	Acceptance within ISO 4 796 standard has been requested. With specially shaped glass edge for improved pouring out (so that an additional plastic pouring ring is not required).	10
21 806 14 09	25	25	36	70	With specially shaped glass edge for improved pouring out (so that an additional plastic pouring ring is not required).	10
21 806 17 09	50	32	46	87		10
21 806 24 05	100	45	56	100		10
21 806 29 02	150	45	62	110		10
21 806 36 07	250	45	70	138		10
21 806 44 06	500	45	86	176		10
21 806 51 02	750	45	95	203		10
21 806 54 02	1 000	45	101	225		10
21 806 63 04	2 000	45	136	260		10
21 806 69 04	3 500	45	160	295		1
21 806 73 09	5 000	45	182	330		1
21 806 86 05	10 000	45	227	410		1
21 806 88 02	15 000	45	268	445		1
21 806 91 04	20 000	45	288	505		1

DURAN® Protect Laboratory Bottle

with DIN thread, plastic coated



ISO 4796-1 | Retrace Code | A 121 °C | USP Standard

With easy-to-read scale. In fired-on, highly durable white ceramic. Service temperature limit of the PU plastic coating: – 30 °C to + 135 °C. The coating provides scratch, leak* and splinter* protection and is ideally suited to both the transport and storage of hazardous media or valuable samples. UV protection up to approx. 380 nm wavelength. High transparency. Suitable for microwaving. (* only applies to bottles 5 000 mL and less)

Typical applications: storage, transport and safe handling of hazardous or valuable substances.

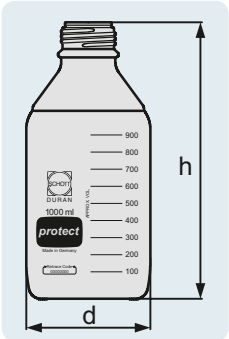
Cat. No.	Capacity (mL)	DIN Thread (GL)	d (OD) (mm)	h (mm)	Remark	Pack Unit
with screw cap and pouring ring						
21 805 24 53	100	45	56	100		10
21 805 29 59	150	45	62	110		10
21 805 36 55	250	45	70	138		10
21 805 44 54	500	45	86	176		10
21 805 51 59	750	45	95	203		10
21 805 54 59	1 000	45	101	225		10
21 805 63 52	2 000	45	136	260		10
21 805 69 52	3 500	45	160	295		1
21 805 73 57	5 000	45	182	330		1
without screw cap and pouring ring						
21 805 08 06	10	25	36	50	Acceptance within ISO 4 796 standard has been requested. With specially shaped glass edge for improved pouring out (so that an additional plastic pouring ring is not required).	10
10 926 76	25	25	36	70	With specially shaped glass edge for improved pouring out (so that an additional plastic pouring ring is not required).	10
10 926 77	50	32	46	87		10
21 805 24 04	100	45	56	100		10
21 805 29 01	150	45	62	110		10
21 805 36 06	250	45	70	138		10
21 805 44 05	500	45	86	176		10
21 805 51 01	750	45	95	203		10
21 805 54 01	1 000	45	101	225		10
21 805 63 03	2 000	45	136	260		10
21 805 69 03	3 500	45	160	295		1
21 805 73 08	5 000	45	182	330		1
21 805 86 04	10 000	45	228	410		1
21 805 88 01	15 000	45	268	445		1
21 805 91 03	20 000	45	289	505		1

DURAN® Protect Laboratory Bottle Amber

with DIN thread, plastic coated, USP <660> and USP <671> (Spectral Transmission) compliant

With easy-to-read scale. In fired-on, highly durable white ceramic. Service temperature limit of the PU plastic coating: – 30 °C to + 135 °C. The coating provides scratch, leak and splinter protection and is ideally suited to both the transport and storage of hazardous media or valuable samples. UV protection up to approx. 500 nm wavelength. Unchanged DURAN® properties within the bottle, as colouration is only on the outer surface. Very uniform, durable and chemically resistant amber colour due to use of innovative technology. Suitable for microwaving.

Typical applications: storage, transport and safe handling of hazardous or valuable substances.



ISO 4796-1 | Retrace Code | A 121 °C | USP Standard

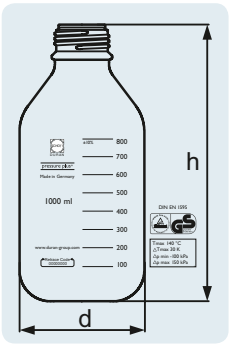
Cat. No.	Capacity (mL)	DIN Thread (GL)	d (OD) (mm)	h (mm)	Remark	Pack Unit
without screw cap and pouring ring						
21 806 14 33	25	25	36	70	With specially shaped glass edge for improved pouring out (so that an additional plastic pouring ring is not required).	10
21 806 17 33	50	32	46	87		10
21 806 24 38	100	45	56	110		10
21 806 36 31	250	45	70	138		10
21 806 44 39	500	45	86	176		10
21 806 54 35	1 000	45	101	225		10
21 806 63 37	2 000	45	136	260		10
21 806 73 33	5 000	45	182	330		1
11 735 48	10 000	45	227	410		1

DURAN® pressure plus+ Laboratory Bottle

with DIN thread, GL 45

With easy-to-read scale and large labelling field for easy marking, in fired-on, highly durable ceramic. Pressure resistance conforms to DIN EN 1595, confirmed by GS marking (TÜV ID: 0000020716). Vacuum and/or pressure resistant from – 1 bar to + 1.5 bar due to modified geometry (based on ISO 4796-1). When pressure loaded the following apply: thermal shock resistance 30 K and maximum usage temperature + 140 °C. Blue scale for visual differentiation from the standard laboratory bottle. Also available in amber.

Typical applications: safe working under pressure or vacuum, sampling under pressure, storage of gas generating media.

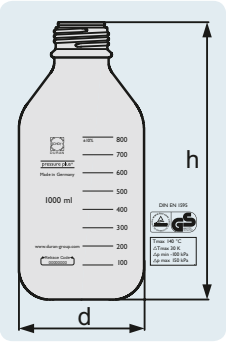


DIN EN 1595 | Retrace Code | A 121 °C | USP Standard

Cat. No.	Capacity (mL)	DIN Thread (GL)	d (OD) (mm)	h (mm)	Pack Unit
without screw cap and pouring ring					
21 810 24 06	100	45	56	100	10
10 922 34	250	45	70	138	10
10 922 35	500	45	86	176	10
21 810 54 03	1 000	45	101	225	10

DURAN® pressure plus+ Laboratory Bottle Amber

with DIN thread, GL 45, USP <660> and USP <671> (Spectral Transmission) compliant



DIN EN 1595 | Retrace Code | A 121 °C | USP Standard

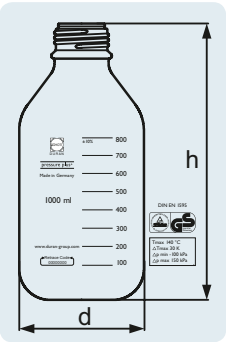
With easy-to-read scale and large labelling field for easy marking, in fired-on, highly durable ceramic. Pressure resistance conforms to DIN EN 1595, confirmed by GS marking (TÜV ID: 0000020716). Vacuum and/or pressure resistant from – 1 bar to + 1.5 bar due to modified geometry (based on ISO 4796-1). When pressure loaded the following apply: thermal shock resistance 30 K and maximum usage temperature + 140 °C. Blue scale for visual differentiation from the standard laboratory bottle. UV protection up to approx. 500 nm wavelength. Unchanged DURAN® properties within the bottle, as colouration is only on the outer surface. Very uniform, durable and chemically resistant amber colour due to use of innovative technology.

Typical applications: safe working under pressure or vacuum, sampling under pressure, storage of gas generating media.

Cat. No.	Capacity (mL)	DIN Thread (GL)	d (OD) (mm)	h (mm)	Pack Unit
without screw cap and pouring ring					
21 816 24 03	100	45	56	100	10
10 943 67	250	45	70	138	10
10 943 68	500	45	86	176	10
21 816 54 09	1 000	45	101	225	10

DURAN® pressure plus+ Laboratory Bottle Protect

plastic coated, with DIN thread, GL 45



DIN EN 1595 | Retrace Code | A 121 °C | USP Standard

With easy-to-read scale and large labelling field for easy marking, in fired-on, highly durable ceramic. Pressure resistance conforms to DIN EN 1595, confirmed by GS marking (TÜV ID: 0000020716). Vacuum and/or pressure resistant from – 1 bar to + 1.5 bar due to modified geometry (based on ISO 4796-1). When pressure loaded the following apply: thermal shock resistance 30 K and maximum usage temperature + 140 °C. Blue scale for visual differentiation from the standard laboratory bottle. The coating provides scratch, leak and splinter protection and is ideally suited to both the transport and storage of hazardous media or valuable samples.

Typical applications: safe working under pressure or vacuum, sampling under pressure, storage of gas generating media.

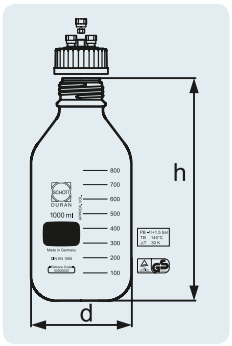
Cat. No.	Capacity (mL)	DIN Thread (GL)	d (OD) (mm)	h (mm)	Pack Unit
without screw cap and pouring ring					
21 815 24 02	100	45	56	100	10
11 759 25	250	45	70	138	10
11 759 26	500	45	86	176	10
21 815 54 08	1 000	45	101	225	10

DURAN® HPLC Bottle

with DIN thread, GL 45

With easy-to-read scale and large labelling field for easy marking, in fired-on, highly durable ceramic. Complete system comprising: DURAN® pressure plus+ laboratory bottle with 4-port screw cap (PP); four screw connections (black, M8 thread) and silicone seals. Connection of different hose diameters (1.6 mm and 3.2 mm) as well as sterile pressure equalisation sets (syringe filter 0.2 µm) is possible. Unused ports can be sealed with silicone blanking seals.

Typical applications: safe transfer of liquid media within a closed and sterile system (evaporation is reduced).



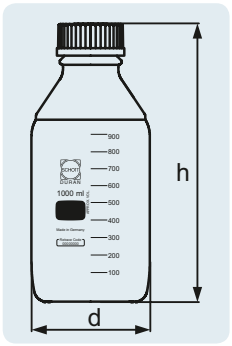
Cat. No.	Description	Capacity (mL)	DIN Thread (GL)	d (OD) (mm)	h (mm)	Pack Unit
11 298 21	HPLC Bottle complete	500	45	86	176	2
11 298 20	HPLC Bottle complete	1 000	45	101	225	2
Accessories						
11 298 12	Screw cap HPLC, GL 45, 4 ports, complete (GL 45 screw cap, 4 x M8 black screw caps, 12 x silicone seals for 1.6, 3.2 mm tubing or blanks)					2
11 298 13	Replacement parts for HPLC screw cap includes M8 caps and 1.6 , 3.2 mm and blind silicone seals					1
11 378 01	Pressure compensation set 4-port cap (incl. 0.2 µm syringe filter)					1
11 298 19	Spare syringe filter for pressure compensation, 0.2 µm					2

DURAN® Laboratory Bottle, Square

with DIN thread

With easy-to-read scale and large labelling field for easy marking, in fired-on, highly durable white ceramic. Complete with blue screw cap (PP, integral lip seal) and pouring ring (PP) for drip-free pouring and clean, safe working. Service temperature limit of screw cap and pouring ring: +140 °C. Ergonomic handling due to angular shape, highly stable, good stackability. Alongside proven DURAN® properties, a space saving of 44 % in comparison with standard laboratory bottles (example applies to 100 mL bottles). Screw caps are also available in the following colours: green, yellow and grey.

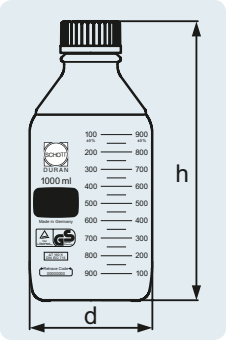
Typical applications: space-saving storage, space-saving transport.



Cat. No.	Capacity (mL)	DIN Thread (GL)	d (OD) (mm)	h (mm)	Pack Unit
with screw cap and pouring ring from PP (blue)					
21 820 24 53	100	32	50	109	10
21 820 36 55	250	45	64	143	10
21 820 44 54	500	45	78	181	10
21 820 54 59	1 000	45	94	222	10
without screw cap and pouring ring					
21 820 24 04	100	32	50	109	10
10 088 34	250	45	64	143	10
10 088 42	500	45	78	181	10
10 088 43	1 000	45	94	222	10

DURAN® Premium Bottle

with DIN thread, GL 45



ISO 4796-1 | DIN ISO 718 | Retrace Code | A 121 °C

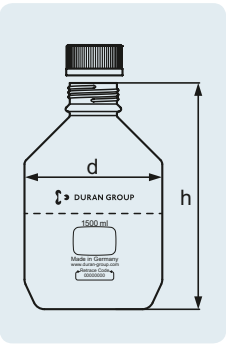
With easy-to-read scale and large labelling field for easy marking, in fired-on, highly durable white ceramic. Complete with pouring ring and cap from TpCh260 (similar to PFA). The premium cap with its PTFE coated silicone seal is colourless and temperature resistant from –196 °C to +200 °C. Together with proven DURAN® properties, TÜV tested thermal shock resistance of 160 K, confirmed by GS-marking (TÜV ID: 0000020715). USP/FDA conformity for the entire system comprised of bottle, screw cap and pouring ring. Accurate scale: ± 5 %. Additional graduations as well as additional opposing scale simplify reading off.

Typical applications: Due to its properties, ideal for applications in the pharmaceutical industry, handling of aggressive media, sterilisation processes (hot air and dry sterilisation) and depyrogenation.

Cat. No.	Capacity (mL)	DIN Thread (GL)	d (OD) (mm)	h (mm)	Pack Unit
with premium screw cap and pouring ring					
11 270 75	100	45	56	105	10
11 270 76	250	45	70	143	10
11 270 77	500	45	86	181	10
11 270 78	1 000	45	101	230	10

Stainless Steel Laboratory Bottle

with DIN thread, GL 45



Retrace Code | A 121 °C

The unbreakable steel bottle is ideal for storage applications where glass is not applicable, due to the risk of breakage or chemical incompatibility. Manufactured from corrosion resistant AISI Type 316L (1.4404) stainless steel, and hygienically constructed with all welded seams. The bottle has a smooth inner surface finish that corresponds to IIIc (DIN 17441) with rounded inner edges for ease of cleaning. Polished and brushed durable exterior finish. The bottle has a GL 45 thread with a built-in pouring lip. Supplied without a cap, stainless steel cap is available. It is fully compatible with all the GL 45 caps.

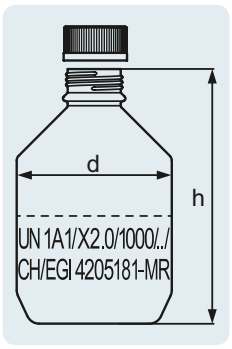
Typical applications: Hazardous materials laboratory container for storage of liquids, intermediates, or solid product. Storage of precious materials, such as high purity fine chemicals, pharmaceutical or cosmetic products. Storage of light sensitive materials.

Cat. No.	Description	Capacity (mL)	DIN Thread (GL)	d (OD) (mm)	h (mm)	Pack Unit
29 901 60 06	GL 45 Stainless Steel Laboratory Bottle	1 500	45	122.5	207	1
29 911 28 08	Stainless Steel cap, with PTFE sealing-disc GL 45		45	50	27	1

Stainless Steel Shipping Bottle UN certified

from stainless steel type 316 L (1.4404)

The unbreakable steel bottle is ideal for the storage and safe shipping of dangerous liquid goods such as solvents, and reagents, without the need for additional protective outer packaging. Manufactured from corrosion resistant AISI Type 316L (1.4404) stainless steel, and hygienically constructed with all welded seams. The bottle has a smooth inner surface finish that corresponds to IIIc (DIN 17441) with rounded inner edges for ease of cleaning. Polished and brushed durable exterior finish. The bottle has a GL 45 thread with a built-in pouring lip. Supplied complete with GL 45 Stainless Steel screw cap and PTFE surfaced Platinum-catalyzed silicon cap liner, and UN certification number. Certified to UN standards for the carriage of liquids classified as dangerous goods in UN packing Groups II (medium danger) and III (low danger). It is suitable for liquids with a relative density of 2.0 or less. International regulations are subject to change, it is the user's responsibility for complying with all applicable laws and regulations.



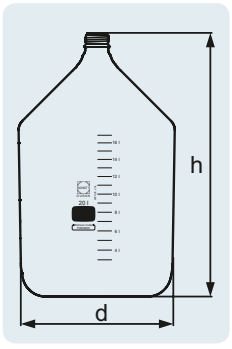
Typical applications: Container for the shipping of hazardous or non-hazardous liquids. Storage or shipping of precious liquids, such as high purity fine chemicals, pharmaceutical or cosmetic products. Storage of light sensitive liquids.

Cat. No.	Description	Capacity (mL)	DIN Thread (GL)	d (OD) (mm)	h (mm)	Pack Unit
29 901 60 55	Stainless Steel Shipping Bottle, UN-certified, complete	1 500	45	120	201	1

DURAN® Production and Storage Bottle Carboys

with DIN thread, GL 45

These larger sized bottles / carboys are ideal for bulk storage and handling of both liquid and solid intermediates and final formulations. Manufactured from Type 1 borosilicate 3.3 glass for durable performance and resistance to thermal stress. The glass conforms to American (USP), European (EP) and Japanese pharmacopoeia (JP) standards making the carboys ideal for pharmaceutical production applications. Manufactured with thickened, uniform side walls for higher mechanical strength. Retrace Code for batch traceability and conformance certification. Manufactured from inorganic materials (Certified BSE / TSE free). Suitable for high temperature sterilization, depyrogenisation or autoclaving. Feature large, permanent, easy-to-read, white enamel graduations marks. Also available with an external Polyurethane coating for enhanced scratch resistance, and to contain leakage in the event of damage. Available with customized logos, identification labeling or graduations Supplied without screw cap or pouring ring, but can be used in conjunction caps and connector systems.

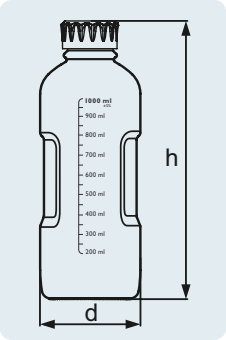


Typical applications: Flat robust base is ideal for mixing processes with large magnetic stir bars.

Cat. No.	Capacity (mL)	DIN Thread (GL)	d (OD) (mm)	h (mm)	Pack Unit
without screw-cap and pouring ring					
11 601 00	20 000	45	289	505	1
11 602 00	10 000	45	228	410	1

DURAN® YOUTILITY Laboratory Bottle

GL 45



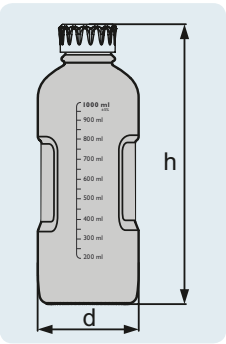
Retrace Code | A 121 °C | USP Standard

The specially shaped gripping zones on both sides of the bottle enable easier and safer handling. With the new DURAN® YOUTILITY bottle thread opening or closing the bottle is significantly faster. The thread is fully compatible with DIN GL 45 closures and other accessories. The slimmer DURAN® YOUTILITY bottle shape allows a more optimal use of limited space in autoclaves and laboratory refrigerators. A pre-defined labelling area is compatible with the dedicated DURAN® self-adhesive YOUTILITY bottle labels. Nominal volume is shown at the top of the easy-to-read graduation scale for fast determination of the volumes. Each DURAN® YOUTILITY bottle is supplied as a complete system, with a pouring ring (PP) and a GL 45 cap (PP).

Cat. No.	Capacity (mL)	DIN Thread (GL)	d (OD) (mm)	h (mm)	Pack Unit
with screw-cap and pouring ring from PP					
21 881 28 54	125	45	55	124	4
21 881 36 53	250	45	66	158	4
21 881 44 52	500	45	78	193	4
21 881 54 57	1 000	45	93	253	4

DURAN® YOUTILITY Laboratory Bottle Amber

GL 45, USP <660> and USP <671> (Spectral Transmission) compliant



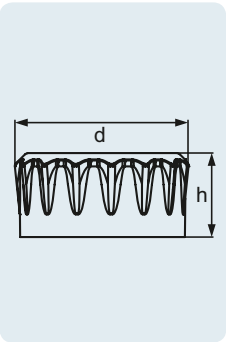
Retrace Code | A 121 °C | USP Standard

The specially shaped gripping zones on both sides of the bottle enable easier and safer handling. With the new DURAN® YOUTILITY bottle thread opening or closing the bottle is significantly faster. The thread is fully compatible with DIN GL 45 closures and other accessories. The slimmer DURAN® YOUTILITY bottle shape allows a more optimal use of limited space in autoclaves and laboratory refrigerators. A pre-defined labelling area is compatible with the dedicated DURAN® self-adhesive YOUTILITY bottle labels. Nominal volume is shown at the top of the easy-to-read graduation scale for fast determination of the volumes. The glass bottle body is moulded from the tried and tested DURAN® borosilicate 3.3 pharmacopoeial Type 1 neutral glass. DURAN® glass offers very good chemical resistance and high temperature resistance. Each DURAN® YOUTILITY bottle is supplied as a complete system, with a pouring ring (PP) and a GL 45 cap (PP).

Cat. No.	Capacity (mL)	DIN Thread (GL)	d (OD) (mm)	h (mm)	Pack Unit
with screw-cap and pouring ring from PP					
21 886 28 59	125	45	55	124	4
21 886 36 58	250	45	66	158	4
21 886 44 57	500	45	78	193	4
21 886 54 53	1 000	45	93	253	4

DURAN® YOUTILITY Screw Cap from PP

GL 45



Retrace Code | A 121 °C | Tmax. 140 °C

The DURAN® YOUTILITY Screw Cap GL 45 is manufactured from a food-grade polypropylene (PP). Ergonomically shaped screw cap with optimised grooves and ridges for a more efficient and easier tightening or removal. The faster opening and closing thread of the YOUTILITY screw cap is fully compatible with DIN GL 45 bottle threads. The optimised cap sealing system ensures a liquid tight seal. A pre-defined labelling area on the cap is compatible with the dedicated DURAN® self-adhesive YOUTILITY labels.

Cat. No.	DIN Thread (GL)	d (OD) (mm)	h (mm)	Colour	Pack Unit
screw cap					
29 229 28 02	45	53	25	cyan	10
pouring ring					
29 241 28 08	45		4	cyan	16

DURAN® **YOU**TILITY

DESIGNED FOR YOU

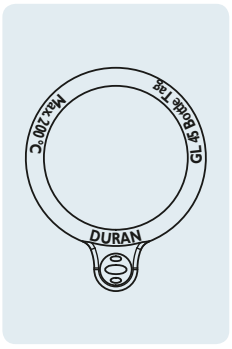
www.duran-youtility.com

DURAN WHEATON KIMBLE

Excellence in your hands

DURAN® YOUTILITY Bottle Tag

GL 45, from silicone



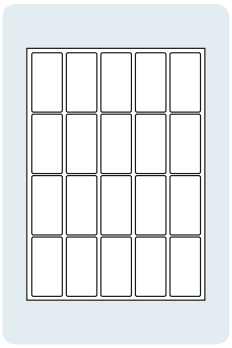
A 121 °C | Tmax. 200 °C

The silicone GL 45 Bottle Tags can be securely attached around the neck of the YOUTILITY bottle for easy customisation and unambiguous bottle identification. The elastic Bottle Tags will fit around any DIN GL 45 bottle neck.

Cat. No.	Thread	Colour	Pack Unit
29 243 29 04	45	eight colours, two pieces each	16
29 243 28 18	45	red	20
29 243 28 26	45	orange	20
29 243 28 34	45	yellow	20
29 243 28 42	45	green	20
29 243 28 59	45	blue	20
29 243 28 67	45	purple	20
29 243 28 75	45	black	20
29 243 28 83	45	white	20

DURAN® YOUTILITY LABELS

Printable self-adhesive

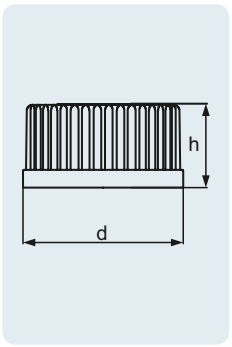


The robust DURAN® YOUTILITY identification labels are suitable for use with the YOUTILITY bottle, plus many other types of laboratory glassware, such as GL 45 bottles, beakers and conical flasks. The tear resistant, white polyester labels use a high performance, peelable adhesive. An easy-to-use label creator web app. is available (**www.duranlabels.com**) to design, and print your own label designs. Ideal for use in fridges, freezers, autoclaves, incubators, and water baths, without the risk of the labels falling off. Can be printed with office printers, copiers, or marked with technical lab pens. Chemically resistant to many typical laboratory chemicals, and solvents. Wide – 40 to + 150 °C thermal performance range.

Cat. No.	Description	Pack Unit
29 401 02 03	white, polyester	1 x 100 labels

DURAN® Original GL Screw Cap from PP

with lip seal



A 121 °C | Tmax. 140 °C

Available in the colours blue, green, yellow and grey with matching colour pouring rings. Distinguishing media types is simplified and interchanging of screw caps and carry over of substances is practically eliminated.

Typical applications: visual aid to the safe identification of different media.

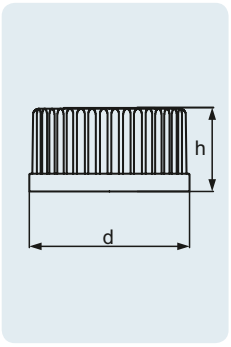
Cat. No.	DIN Thread (GL)	d (OD) (mm)	h (mm)	Colour	Pack Unit
screw cap					
29 239 13 07	25	33	19	blue	10
29 239 19 07	32	40	24	blue	10
29 239 28 09	45	54	25	blue	10
29 338 28 02	45	54	25	yellow	10
29 338 28 68	45	54	25	green	10
29 338 28 84	45	54	25	grey	10
Pouring ring					
29 242 19 07	32		4	blue	10
29 242 28 09	45		4	blue	10
10 899 11	45		4	green	10
10 899 14	45		4	grey	10
10 899 17	45		4	yellow	10

DURAN® GL Membrane Vented Screw Cap

from PP, blue, with welded-in PTFE, membrane for pressure equalisation

For all GL 45, GL 32 and GL 25 threads. Ideal for autoclaving processes because the 0.2 micron ePTFE membrane permits pressure equalisation and tight sealing, greatly reducing the risk of contamination. Ingress of liquids or solids is prevented and the bottle contents remain sterile.

Typical applications: storage or transport of gas generating media, autoclaving of media.



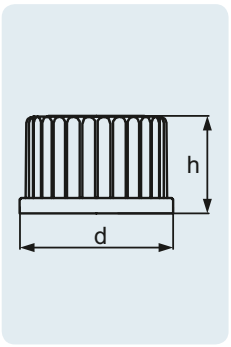
A 121 °C | Tmax. 140 °C

Cat. No.	DIN Thread (GL)	d (OD) (mm)	h (mm)	Pack Unit
29 118 13 07	25	33	19	5
29 118 19 07	32	41	24	5
29 118 28 09	45	54	25	5

DURAN® Red GL High Temperature Screw Cap from PBT

with PTFE coated silicone seal

High leak tightness through use of PTFE coated silicone seal (peroxide-cured silicone). More chemically and heat resistant than PP screw cap. A matching ETFE pouring ring is also available, permitting clean, drip-free use.



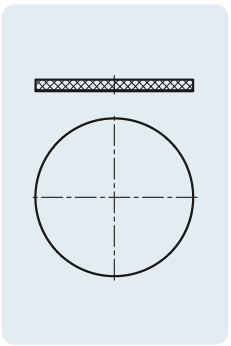
A 121 °C | Tmax. 180 °C

Cat. No.	DIN Thread (GL)	d (OD) (mm)	h (mm)	Pack Unit
screw cap				
29 240 08 06	14	20	17	10
29 240 11 08	18	23	20	10
29 240 13 05	25	33	23	10
29 240 19 05	32	41	26	10
29 240 28 07	45	54	28	10
Pouring ring				
29 244 19 09	32		4	10
29 244 28 02	45		4	10

DURAN® Replacement Cap Liner

PTFE coated silicone, VMQ

Suitable for PBT screw caps and tamper-evident screw caps. Heat resistance: 130 °C (vapour) and 200 °C (dry heat). Good chemical resistance due to PTFE coating. Silicon is peroxidically cured.

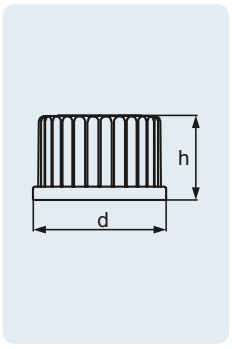


A 121 °C | Tmax. 200 °C

Cat. No.	For screw-caps, red (GL)	Pack Unit
29 248 08 05	14	10
29 248 11 07	18	10
29 248 13 04	25	10
29 248 19 04	32	10
29 248 28 06	45	10

DURAN® Screw Cap with aperture

from PBT, red



A 121 °C Tmax. 180 °C

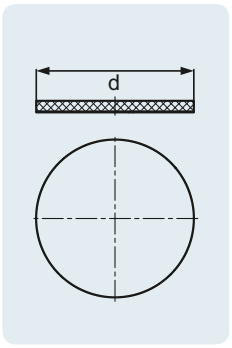
Suitable for silicone seal for piercing (Septa). More chemically resistant than PP cap.

Typical applications: Injection or removal of media.

Cat. No.	DIN Thread (GL)	Aperture bore d (OD) (mm)	d (OD) (mm)	h (mm)	Pack Unit
29 227 05 08	14	9.5	20	17	10
29 227 06 02	18	11	23	20	10
29 227 09 02	25	15	33	23	10
29 227 08 08	32	20	42	26	10
29 227 10 07	45	34	54	28	10

DURAN® Silicone Septum Seal

for piercing, VMQ



A 121 °C Tmax. 200 °C

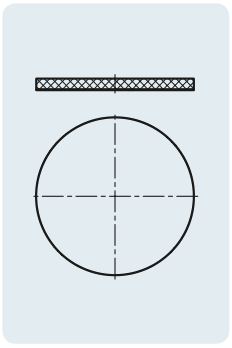
Suitable for PBT screw cap with aperture Heat resistance: 130 °C (vapour) and 200 °C (dry heat). Silicon is peroxide catalysed.

Typical applications: injection or removal of media.

Cat. No.	DIN Thread (GL)	d (OD) (mm)	Thickness (mm)	Pack Unit
29 246 05 03	14	12	2	100
29 246 06 06	18	16	2	100
29 246 09 06	25	22	2	100
29 246 08 03	32	29	2	100
29 246 10 02	45	42	3	100

DURAN® PTFE coated GL 45 Silicone Septum for piercing

Platinum catalysed VMQ



High purity PTFE coated silicone septum for use with DURAN® GL 45 open topped screw cap and all sizes of DURAN® GL 45 laboratory bottles. Can be used for the addition, inoculation or sampling using a syringe and needle. Ideal for chemistry, life science and biopharma laboratories.

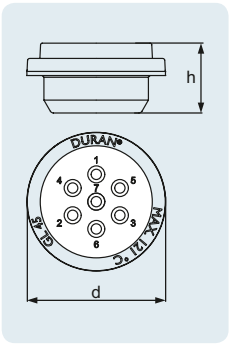
Cat. No.	Thread	d (OD) (mm)	Thickness (mm)	Pack Unit
29 248 30 05	GL 45	43	3	10

DURAN® GL 45 Bromobutyl Rubber Stopper

straight plug, Grey Bromobutyl, for GL 45 laboratory bottles

DURAN® bromobutyl rubber closure provide a gas tight seal for all GL 45 laboratory bottles. Bromobutyl rubber is essentially impermeable to most gasses, and provides a controlled environment inside the glass bottle for oxygen sensitive materials. Useful for maintaining anaerobic culture conditions. Butyl rubber allows for multiple punctures providing easy access to the contents with a syringe.

Cat. No.	DIN Thread (GL)	d (OD) (mm)	h (mm)	Pack Unit
29 206 28 03	GL 45	41	21	10



A 121 °C

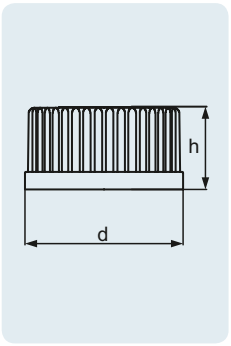
DURAN® Premium Cap

PFA, with PTFE faced silicone cap liner

Cap is moulded from a pigment free polymer to reduce the risk of leaching. Wide usable temperature range from –196 °C to +200 °C. Very high chemical resistance. Complete with colourless PTFE faced silicone cap liners for high leak tightness. The matching PFA pouring ring permits drip-free pouring is available separately. Replacement PTFE faced silicone cap liners are availabe (platinum-cured silicone).

Typical applications: Due to its exceptional properties, it is ideal for applications in the pharmaceutical industry, storage of aggressive materials, and demanding sterilisation processes such as hot air sterilisation or depyrogenation.

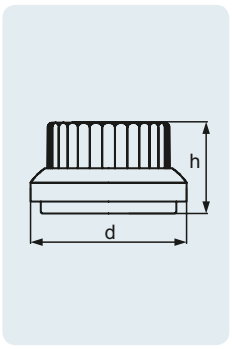
Cat. No.	DIN Thread (GL)	d (OD) (mm)	h (mm)	Colour	Pack Unit
Screw cap					
10 886 79	45	51	26	colourless	5
11 296 00	25	32	22	colourless	5
Pouring ring					
10 886 78	45		4	colourless	5
Replacement cap liners					
29 248 14 07	25	23.5	3.1		10
29 248 29 09	45	43.1	3.1		10



Retrace Code | A 121 °C | Tmax. 200 °C | USP Standard

DURAN® Tamper Evident Screw Caps

from PP, for laboratory bottles, with DIN thread



A 121 °C | Tmax. 140 °C

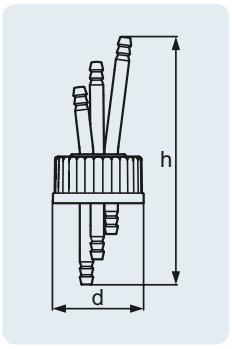
The tamper-evident screw caps are available with either a plug seal or a PTFE faced silicone cap liner (peroxide cured silicone). The integral coloured plastic ring tears when the cap is first opened, and is retained on the bottle neck. Therefore it can be clearly seen if the bottle has been opened after being first sealed. After the initial removal, both caps will still function as "normal" screw cap.

Typical applications: secure storage and transport / shipping of valuable media.

Cat. No.	DIN Thread (GL)	d (OD) (mm)	h (mm)	Colour	Pack Unit
Plug sealing					
10 175 26	45	66	38	blue-red	10
PTFE faced silicone cap liner					
11 558 86	45	66	38	blue-yellow	10

DURAN® Stainless Steel Multiport Connector GL 45

from PBT, GL 45, with 2 or 3 ports



A 121 °C | Tmax. 180 °C | Retrace Code

A robust and durable tubing connection system for use with all sizes of DURAN® GL 45 laboratory and media bottles. The bottle top adaptor facilitates the transfer of liquids within a closed and sterile system. The barbed hose connectors are suitable for flexible tubing with an 8.0 mm inner diameter. Freely rotating stainless steel centre allows the bottle to be unscrewed without the need to disconnect the tubing. Connectors and body are manufactured from Type 316L (1.4404 / S31603) stainless steel. A silicone gasket and the red PBT GL 45 screw cap provide a liquid tight seal. Wide temperature usage range (up to 180 °C). Autoclavable (121 °C for 15 minutes). Retrace coded for full traceability. Ideal for chemistry, life science and biopharma laboratories.

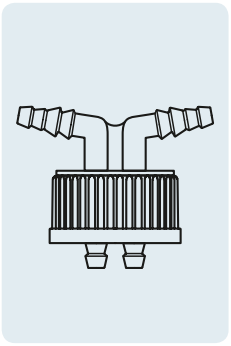
Cat. No.	Description	DIN Thread (GL)	d (OD) (mm)	h (mm)	Pack Unit
29 261 27 01	2-port connector	45	54	137	1
29 261 28 04	3-port connector	45	54	145	1
Replacement silicone gasket					
29 223 28 05	silicone gasket with aperture (diameter 27.5 mm)		40.5	3	10

GL 45 cap connection system for the easy connection of flexible tubing to the DURAN® GL 45 bottles. The two polyproplylene connectors have angled top and straight underside connectors. Grey polypropylene cap center rotates freely, allowing the bottle to be unscrewed without the need to disconnect the tubing. The cap is ideal for use with soft elastic tubing that has an inner diameter of 6 – 9 mm silicone tubing. An optional venting connector is available with, or without a syringe filter. Highly versatile as the screw cap is based on the standard GL 45 thread. Temperature resistant up to + 140 °C. Fully autoclavable and washer-proof.

Typical applications: Possible biotech applications include the transfer of sterile media from one container to another using a peristaltic pump.

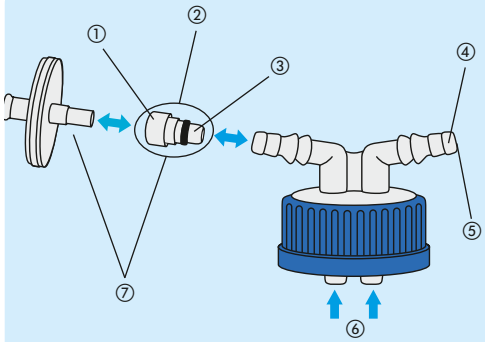
Cat. No.	Description	DIN Thread (GL)	Pack Unit
29 310 28 07	DURAN® Screw Cap GL 45 with 2 hose connections EDPM Gasket	45	2
11 298 25	Syringe Filter (0.2 µm) with connector, non-sterile 0.2 µm filter and female Luer Slip to 5.8 mm male connector, with o-ring seal		2
11 298 29	Syringe Filter Connector only (without syringe filter), female Luer Slip to 5.8 mm male connector, with o-ring seal		2
11 527 52	40 mm ring gasket seal for GL 45 mulifunction caps. Circular EPDM Seals 1.5 mm thick with a 40 mm outer and 29 mm inner diameter.		5

DURAN® GL 45 Screw Cap with two hose connections



A 121 °C

Tmax. 140 °C

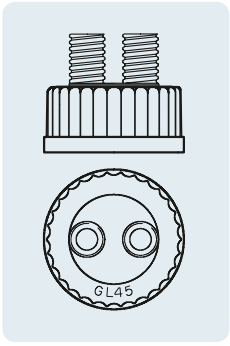


Screw cap GL 45 with 2 hose connections (29 310 28 07)

① Female Luer slip
② Syringe Filter Connector (11 298 29)
③ 5.8 mm connector with O-ring seal
④ Connector suitable for tubing with 6 – 9 mm inner diameter
⑤ 5.8 mm inner diameter
⑥ Connectors suitable for tubing with 6 – 9 mm inner diameter
⑦ Syringe Filter with connector (11 298 25)

DURAN® GL 45 Connection System

screw cap GL 45, with two or three ports, GL 14 thread



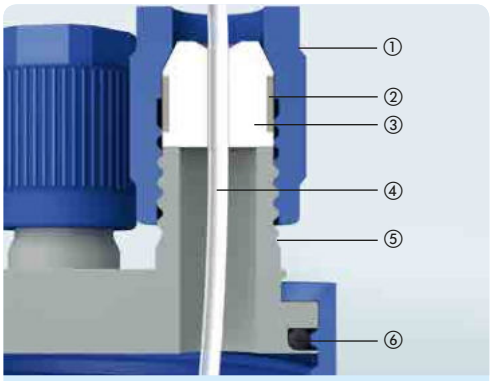
A 121 °C

Tmax. 140 °C

Materials used: PP and PTFE. Flexible modular system. Four different tubing diameters (1.6 mm; 3.0 mm; 3.2 mm and 6.0 mm) can be connected. Sterile pressure equalisation is possible through use of syringe filter. Unused ports can be sealed off with a red GL 14 screw cap.

Typical applications: Safe transfer of liquid media within a closed and sterile system (evaporation is reduced).

Cat. No.	Description	DIN Thread (GL)	Pack Unit
11 297 50	Screw cap GL 45, PP, 2 ports GL 14	45	2
11 297 51	Screw cap GL 45, PP, 3 ports GL 14	45	2
11 298 14	Screw cap GL 14 PP, for tubing connection	14	2
11 298 15	Insert for screw cap GL 14, ID 1.6 mm (1/16 inch)		1
11 298 16	Insert for screw cap GL 14, ID 3.0 mm (~1/8 inch)		1
11 298 17	Insert for screw cap GL 14, ID 3.2 mm (1/8 inch)		1
11 298 18	Insert for screw cap GL 14, ID 6.0 mm (~1/4 inch)		1
11 298 19	Spare syringe filter for pressure compensation, 0.2 µm		2
11 562 92	Screw cap, PBT, with PTFE coated seal, red, GL 14	14	2
11 377 99	Set for pressure compensation 2- and 3-port screw cap (incl. 0.2 µm syringe filter), GL 14	14	1



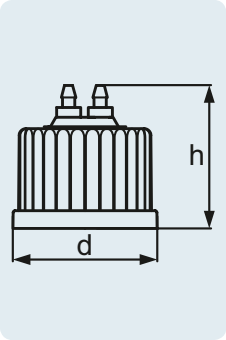
Schematic diagram of GL 45 connection system

① Screw cap GL 14 (PP)
② Silicone sealing ring on insert
③ PTFE insert / tubing connector
④ Tubing (not supplied)
⑤ Port (PP)
⑥ O-ring seal

DURAN® Multiport Connector Cap GL 25

from PBT, GL 25, with 2, 3 or 4 ports

DURAN® GL 25 connector caps with multiple ports are suitable for a range of applications were small volumes of liquid need to be sampled or dispensed, such as a media supply for small bioreactors, in a perfusion circuit for cell culture, or oxygenation of very small samples. The caps feature a GL 25 thread that fits 10 or 25 mL DURAN® bottles, and are available with two tubing connectors. The barbed male tubing connector are made from a surgical grade stainless steel (316L) and will fit tubing with a 3.2 mm (1/8") inner diameter. Construction materials are certified as approved for food contact, and offer a high temperature resistance (up to 180 °C). The caps are fully autoclavable (121 °C / 15 minutes) and reusable.



A 121 °C

Tmax. 180 °C

Cat. No.	DIN Thread (GL)	d (OD) (mm)	h (mm)	Pack Unit
2-ports				
29 260 13 01	25	33	32	1
3-ports				
29 261 13 02	25	33	32	1
4-ports				
29 262 13 03	25	33	32	1

DURAN® GL 45 Stirred Reactor

materials used PP / PTFE / PEEK / stainless steel

Self contained stirring system ideal for mixing processes. Stirrer shaft can be adjusted to the optimal position in either a 500 or 1 000 mL DURAN® GL 45 bottles. Drive with standard magnetic stirrers up to 500 rpm. Significantly improved mixing performance compared to standard magnetic stirring bars. Multi-connector cap is compatible with the proven DURAN® connection systems; tubing with 1.6 mm to 6.0 mm bores can be used to add or remove liquid or gas. Fully autoclavable. Parts in contact with media conform to FDA requirements. Available separately or with bottle.

Typical applications: mixing chemicals, media or cultures in the DURAN® GL 45 laboratory bottle.

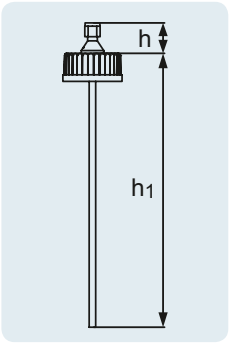
A 121 °C

Tmax. 140 °C

Cat. No.	Description	DIN Thread (GL)	Pack Unit
12 003 95	GL 45 stirred reactor, incl. 500 mL DURAN® GL 45 bottle, folding magnetic stirrer and GL 45 PP cap with 2 x GL 14 ports, 2 x GL 14 PBT caps red	45	1
12 003 96	GL 45 stirred reactor, incl. 1 000 mL DURAN® GL 45 bottle, folding magnetic stirrer and GL 45 PP cap with 2 x GL 14 ports, 2 x GL 14 PBT caps red	45	1
12 003 91	Folding magnetic stirrer for GL 45 stirred reactor, incl. shaft	45	1
12 003 90	Spare screw cap 2-ports for GL 45 stirred reactor (excl. stirrer) with GL 14 screw cap (PP, blue)	45	1

DURAN® Screw Cap with Temperature Probe Holder

GL 45



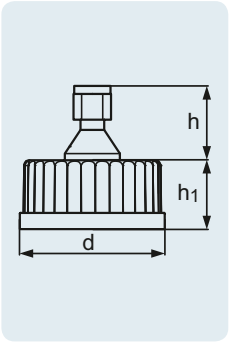
A 121 °C | Tmax. 140 °C | Retrace Code

The DURAN® temperature probe holder GL 45 consists of a stainless steel holder that is permanently fitted into a blue DURAN® polypropylene GL 45 cap. The holder will accept the 6.0 mm metal temperature measuring probes that are commonly used in laboratory autoclaves and sterilizers. Many DURAN® customers use an autoclave to sterilise the liquid contents of DURAN® original GL 45 laboratory bottles. Autoclaves use a metal temperature measuring probe to ensure that the correct sterilisation temperature as been reached.

Cat. No.	DIN Thread (GL)	d (OD) (mm)	h (mm)	h_1 (mm)	Pack Unit
29 991 28 01	45	54	21.3	25.7	1

DURAN® Screw Cap with Thermocouple Holder

GL 45



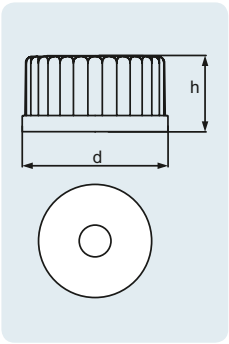
A 121 °C | Tmax. 140 °C | Retrace Code

The DURAN® Screw Cap GL 45 Thermocouple Holder consists of a holder fitted into a blue DURAN® polypropylene GL 45 cap that accepts up to three separate thermocouple wires used in autoclaves or sterilizers. A particular issue when using thermocouples is that their very thin connection wires have a tendency to curl, making it difficult to maintain the tip (where the temperature is measured) in the correct position within the bottle during the entire sterilizing cycle. To overcome this problem, the DURAN® Screw Cap GL 45 Thermocouple Holder has a hollow PTFE tube to keep the wires straight.

Cat. No.	DIN Thread (GL)	d (OD) (mm)	h (mm)	h_1 (mm)	Pack Unit
29 992 28 02	45	54	21.3	248.7	1

DURAN® Screw Cap GL 45 for pH Sensor

from PBT



A 121 °C | Tmax. 140 °C

Cat. No.	DIN Thread (GL)	d (OD) (mm)	h (mm)	Pack Unit
11 713 95	45	54	28	1

DURAN® *TILT*

CHANGES EVERYTHING

GOOD DESIGN

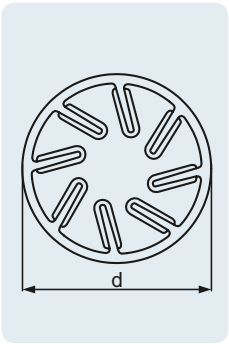
As awarded by The Chicago Athenaeum: Museum of Architecture and Design.

Discover a new angle in cell culture media preparation, with the new tilting bottle system that turns usability into security.
DURAN® *TILT* Media Bottle System.

www.duran-tilt.com

DURAN
WHEATON
KIMBLE
Excellence in your hands

Silicone Bottle Holder

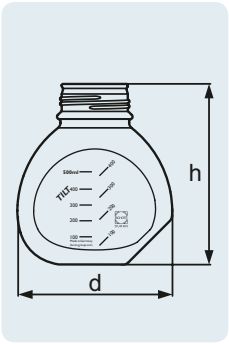


The holder helps stabilise bottles during activities such as liquid dispensing or pipetting. The flexible ribs accommodate both round and square bottles with diameters or base widths of between 75 mm and 120 mm. The solid silicone construction makes the holder autoclavable, durable, and chemically resistant.

Cat. No.	d (OD) (mm)	h (mm)	Colour	Pack Unit
29 213 54 01	165	40	grey	1

DURAN® *TILT* Media Bottle

GL 56



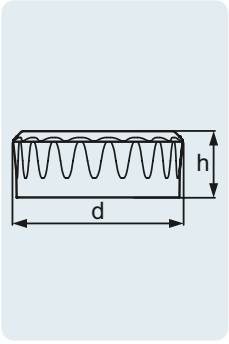
A 121 °C | USP Standard | Retrace Code

The DURAN® *TILT* bottle has two positions: upright for filter sterilization or storage, and tilted at 45° for pipetting. The bottle systems allows working with cell culture media under sterile conditions in biosafety cabinets and clean hoods.

Cat. No.	Capacity (mL)	DIN Thread (GL)	d (OD) (mm)	h (mm)	Pack Unit
with screw cap and pouring ring from PP (blue)					
21 891 44 59	500	56	124	148	4

DURAN® *TILT* Screw Cap

GL 56, from PP



A 121 °C | Tmax. 140 °C | Retrace Code

The ergonomic cap is easy to open and close. Made from non-cytotoxic materials.

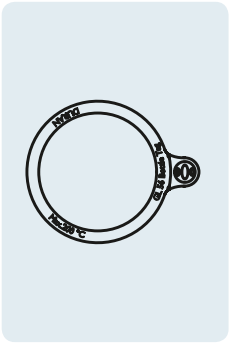
Cat. No.	DIN Thread (GL)	d (OD) (mm)	h (mm)	Colour	Pack Unit
29 229 56 02	56	62	27	white	10

DURAN® *TILT* Bottle Tag

GL 56, from silicone

The Bottle Tags can be used on their own for colour identification or to secure the protective Light Shield around the bottle. The GL 56 Bottle Tags are available in four colours: orange, yellow, blue and purple.

Cat. No.	DIN Thread (GL)	Colour	Pack Unit
29 243 56 26	56	orange	20
29 243 56 34	56	yellow	20
29 243 56 59	56	blue	20
29 243 56 67	56	purple	20



Tmax. 200 °C

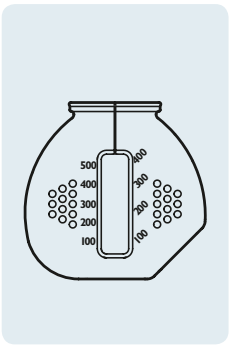
A 121 °C

DURAN® *TILT* Light Shield

white, from silicone

The DURAN® *TILT* Light Shield is a white silicone sleeve that covers 94 % of the bottle surface. The sleeve has a number of protective functions: it blocks damaging ultraviolet light (UV), protects the glass surface from damage, and facilitates safer handling. DURAN® *TILT* Light Shield includes four GL 56 Bottle Tags (Orange, Yellow, Blue, Purple) made from silicone.

Cat. No.	Colour	Pack Unit
29 243 56 01	white	4



Tmax. 200 °C

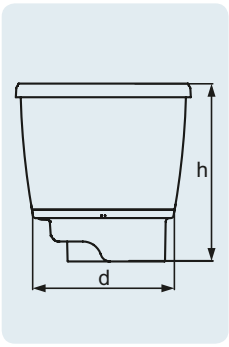
A 121 °C

DURAN® *TILT* Bottle Top Filter Unit

GL 45

Designed for sterilization or clarification of aqueous cell culture media Supplied as a filter funnel unit for use with the DURAN® *TILT* bottle (with GL 45 thread adaptor) or 45 mm media bottles. Comes in three different asymmetric pore sizes (0.1 µm, 0.2 µm, or 0.45 µm). Raised moulded graduation marks for easy volume reading. Manufactured in a Class 100,000 clean room from Class VI, non-cytotoxic materials. Supplied sterile.

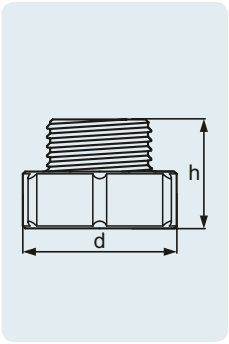
Cat. No.	Description	Capacity (mL)	DIN Thread (GL)	d (OD) (mm)	h (mm)	Pack Unit
29 270 28 18	PES 0.1 µm	500	45	92	103	12
29 270 28 26	PES 0.2 µm	500	45	92	103	12
29 270 28 42	PES 0.45 µm	500	45	92	103	12



Retrace Code

DURAN® *TILT* Adaptor

GL 45 / GL 56, from PTFE



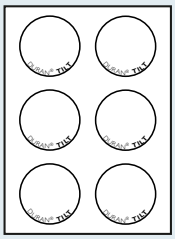
A 121 °C

The re-usable adaptor (GL 45 external / GL 56 internal) allows the use of the DURAN® *TILT* bottle with 45 mm filtation units for the filter sterilisation of cell culture media. Manufactured from inert PTFE; can be autoclaved and depyrogenised at 300 °C.

Cat. No.	Thread	d (OD) (mm)	h (mm)	Colour	Pack Unit
29 119 56 01	GL 45 / GL 56	65	46	white	1

DURAN® *TILT* GL 56 Cap Labels

self-adhesive



A 121 °C

Tmax. 150 °C

Careful labelling is very important to prevent mix-ups and mistakes. The GL 56 self-adhesive polyester cap labels can be used to clearly indicate the separate bottles of media for each cell line, preventing possible cross-contamination. A pack contains 60 screw cap labels.

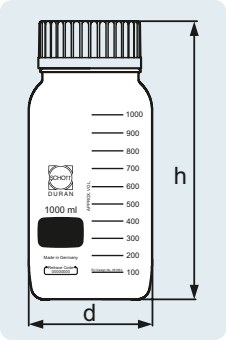
Cat. No.	Description	Pack Unit
29 401 56 04	White polyester	1

With easy-to-read scale and large labelling field for easy marking, in fired-on, highly durable white ceramic. Complete with blue quick release closure (PP, integral lip seal) and pouring ring (PP) for drip-free pouring and clean, safe working. Service temperature limit of closure and pouring ring: +140 °C. Special thread means opening takes less than a turn. The 80 mm wide outer diameter of the bottle mouth permits easy filling and pouring out of powders and viscous substances.

Typical applications: storage, transport, safekeeping and sampling of substances, easy to use with granulated material, powders and viscous media, sampling of hot media.

DURAN® GLS 80® Laboratory Bottle Wide Mouth

with GLS 80® thread

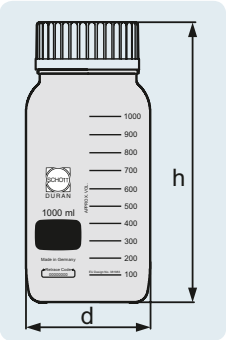


Retrace Code | A 121 °C | USP Standard

Cat. No.	Capacity (mL)	Thread	d (OD) (mm)	h (mm)	Pack Unit
with screw cap and pouring ring from PP (blue)					
21 860 36 56	250	80	95	110	10
11 126 27	500	80	101	153	10
11 127 13	1 000	80	101	223	10
11 127 15	2 000	80	136	253	10
21 860 69 53	3 500	80	160	276	1
11 139 49	5 000	80	182	315	1
11 139 50	10 000	80	227	390	1
11 139 51	20 000	80	288	485	1
12 002 65	30 000	80	340	548	1
12 001 54	50 000	80	400	590	1
without screw cap and pouring ring from PP (blue), clear					
21 860 36 07	250	80	95	105	10
11 783 92	500	80	101	148	10
11 784 24	1 000	80	101	218	10
11 784 25	2 000	80	136	248	10
21 860 69 04	3 500	80	160	271	1
11 784 26	5 000	80	182	310	1
11 784 27	10 000	80	227	385	1
11 784 28	20 000	80	288	480	1

DURAN® GLS 80® Laboratory Bottle Wide Mouth Amber

with GLS 80®, USP <660> and USP <671> (Spectral Transmission) compliant



Retrace Code | A 121 °C | USP Standard

With easy-to-read scale and large labelling field for easy marking, in fired-on, highly durable white ceramic. Complete with blue quick release closure (PP, integral lip seal) and pouring ring (PP) for drip-free pouring and clean, safe working. Service temperature limit of closure and pouring ring: + 140 °C. Alongside easy handling, UV protection up to 500 nm. Unchanged DURAN® properties within the bottle, as colouration is only to the outer surface. Very uniform, durable and chemically resistant amber colour due to use of innovative technology.

Typical applications: storage, transport and safekeeping of light-sensitive substances, easy to use with granulated material, powders and viscous media.

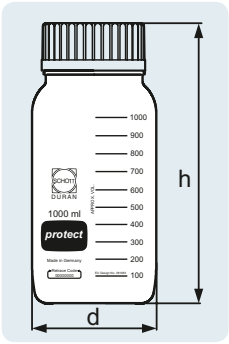
Cat. No.	Capacity (mL)	Thread	d (OD) (mm)	h (mm)	Pack Unit
with screw cap and pouring ring from PP (blue)					
21 866 36 53	250	80	95	110	10
11 601 46	500	80	101	153	10
11 601 47	1 000	80	101	223	10
11 601 48	2 000	80	136	253	10
21 866 69 59	3 500	80	160	276	1
11 601 49	5 000	80	182	315	1
11 601 50	10 000	80	227	390	1
11 601 51	20 000	80	288	485	1
without screw cap and pouring ring					
21 866 36 04	250	80	95	105	10
11 784 29	500	80	101	148	10
11 784 30	1 000	80	101	218	10
11 784 31	2 000	80	136	248	10
21 866 69 01	3 500	80	160	271	1
11 784 32	5 000	80	182	310	1
11 784 33	10 000	80	227	385	1
11 784 34	20 000	80	288	480	1

DURAN® GLS 80® Protect Laboratory Bottle Wide Mouth

with GLS 80® thread, plastic coated

With easy-to-read scale. In fired-on, highly durable white ceramic. Complete with blue quick release closure (PP, integral lip seal) and pouring ring (PP) for drip-free pouring and clean, safe working. Service temperature limit of closure and pouring ring: + 140 °C. Service temperature limit of the PU plastic coating: – 30 °C to + 135 °C. The coating provides scratch, leak and splinter protection and is ideally suited to both the transport and storage of hazardous media or valuable samples. UV protection up to approx. 380 nm wavelength. High transparency. Suitable for microwaving.

Typical applications: storage, transport and safe handling of hazardous substances. Storage of high value viscous liquids, pastes and powder.



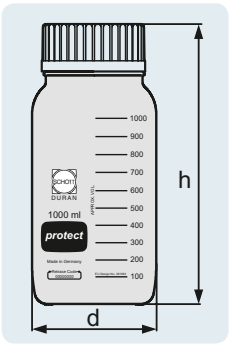
Cat. No.	Capacity (mL)	Thread	d (OD) (mm)	h (mm)	Pack Unit
with screw cap and pouring ring from PP (blue)					
21 865 36 52	250	80	95	110	10
11 601 52	500	80	101	153	10
11 601 63	1 000	80	101	223	10
11 601 64	2 000	80	136	253	10
21 865 69 53	3 500	80	160	276	1
11 601 65	5 000	80	182	315	1
without screw cap and pouring ring					
21 865 36 03	250	80	95	105	10
21 865 69 09	3 500	80	160	271	1

DURAN® GLS 80® Protect Laboratory Bottle Wide Mouth Amber

with GLS 80®, plastic coated, USP <660> and USP <671> (Spectral Transmission) compliant

With easy-to-read scale and large labelling field for easy marking, in fired-on, highly durable white ceramic. Complete with blue quick release closure (PP, integral lip seal) and pouring ring (PP) for drip-free pouring and clean, safe working. Service temperature limit of closure and pouring ring: + 140 °C. Service temperature limit of the PU plastic coating: – 30 °C to + 135 °C. The coating provides scratch, leak and splinter protection and is ideally suited to both the transport and storage of hazardous media or valuable samples. UV protection up to approx. 380 nm wavelength. Suitable for microwaving.

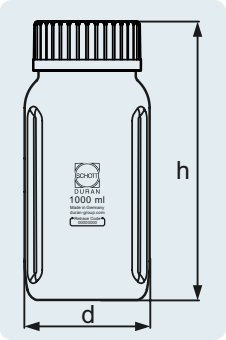
Typical applications: storage, transport and safe handling of hazardous substances. Storage of high value viscous liquids, pastes and powder.



Cat. No.	Capacity (mL)	Thread	d (OD) (mm)	h (mm)	Pack Unit
with screw cap and pouring ring from PP (blue)					
11 673 08	500	80	101	153	10
11 673 09	1 000	80	101	223	10
without screw cap and pouring ring					
21 866 44 36	500	80	101	148	10
21 866 54 32	1 000	80	101	218	10
21 866 63 34	2 000	80	136	248	10
21 866 73 39	5 000	80	182	310	1

DURAN® GLS 80® Baffled Bottle Wide Mouth

with GLS 80® thread

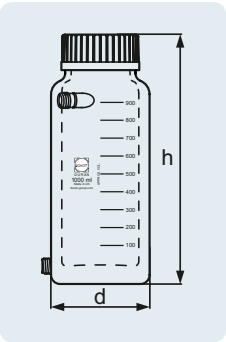


A 121 °C | USP Standard | Retrace Code

During mixing in standard DURAN® GLS 80® laboratory bottles, the liquid moves in a swirling motion that approximates a solid-body rotation. This is a very inefficient flow pattern, and very little mixing actually occurs. By adding three vertical baffles into the inner surface of the DURAN® GLS 80® bottles, the swirling motion is disrupted and an improvement of the top-to-bottom circulation occurs which produces a greater radial and more effective mixing.

Cat. No.	Capacity (mL)	Thread	d (OD) (mm)	h (mm)	Pack Unit
with screw cap and pouring ring from PP (blue)					
21 286 36 58	250	80	95	110	1
21 286 44 57	500	80	101	153	1
21 286 54 53	1 000	80	101	223	1

DURAN® GLS 80® Double Walled Bottle Wide Mouth



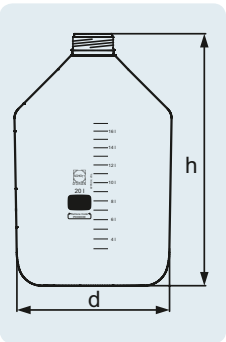
A 121 °C | USP Standard

The DURAN® double walled, wide mouth bottles GLS 80® incorporate an integral jacket that isolates the contents from the external environment. Heated or cooled liquids can be circulated through the jacket to control the temperature within the screw topped DURAN® bottle. The DURAN® double walled bottles offer a sealable and more flexible alternative to open topped jacketed beakers.

Cat. No.	Capacity (mL)	Thread	d (OD) (mm)	h (mm)	Pack Unit
with screw cap and pouring ring from PP (blue)					
24 256 44 51	500	80	110	175	1
24 256 54 56	1 000	80	110	275	1

DURAN® GLS 80® Production and Storage Bottle Carboys

with GLS 80® thread



Retrace Code | A 121 °C | USP Standard

These larger sized bottles / carboys are ideal for bulk storage and handling of both liquid and solid intermediates and final formulations. Manufactured from Type 1 borosilicate 3.3 glass for durable performance and resistance to thermal stress. The glass conforms to American (USP), European (EP) and Japanese pharmacopoeia (JP) standards making the carboys ideal for pharmaceutical production applications. Manufactured with thickened, uniform side walls for higher mechanical strength. Retrace Code for batch traceability and conformance certification. Manufactured from inorganic materials (Certified BSE / TSE free). Suitable for high temperature sterilization, depyrogenisation or autoclaving. Feature large, permanent, easy-to-read, white enamel graduations marks. Available with customized logos, identification labeling or graduations Supplied without screw cap or pouring ring, but can be used in conjunction caps and connector systems.

Typical applications: Flat robust base is ideal for mixing processes with large magnetic stir bars.

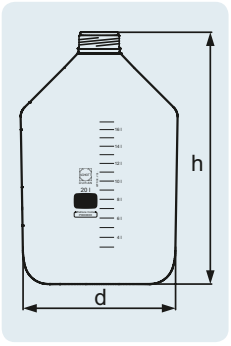
Cat. No.	Capacity (mL)	Thread	d (OD) (mm)	h (mm)	Pack Unit
without screw cap and pouring ring					
11 602 20	10 000	80	228	385	1
11 601 10	20 000	80	289	480	1

DURAN® GLS 80® Protect Coated Production Bottle carboys

with GLS 80® thread, plastic coated

These larger sized bottles / carboys are ideal for bulk storage and handling of both liquid and solid intermediates and final formulations. Manufactured from Type 1 borosilicate 3.3 glass for durable performance and resistance to thermal stress. The glass conforms to American (USP), European (EP) and Japanese pharmacopoeia (JP) standards making the carboys ideal for pharmaceutical production applications. Manufactured with thickened, uniform side walls for higher mechanical strength. Retrace Code for batch traceability and conformance certification. Manufactured from inorganic materials (Certified BSE / TSE free). Suitable for high temperature sterilization, depyrogenisation or autoclaving. Feature large, permanent, easy-to-read, white enamel graduations marks. External polyurethane protect coating for enhanced scratch resistance. Available with customized logos, identification labeling or graduations Supplied without screw cap or pouring ring, but can be used in conjunction caps and connector systems.

Typical applications: Flat robust base is ideal for mixing processes with large magnetic stir bars.



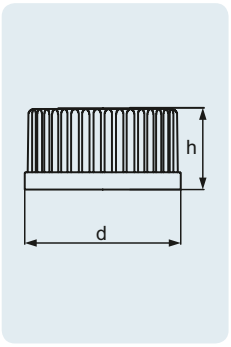
Retrace Code | A 121 °C | USP Standard

Cat. No.	Capacity (mL)	Thread	d (OD) (mm)	h (mm)	Pack Unit
without screw cap and pouring ring					
21 991 86 03	10 000	80	228	385	1
21 991 91 02	20 000	80	289	480	1

DURAN® GLS 80® Quick Release Screw Cap

from PP, blue, with lip seal

Permits opening and closing of the DURAN® GLS 80® bottle with only a three-quarter turn. A matching PP pouring ring is also available, permitting clean, drip-free use.

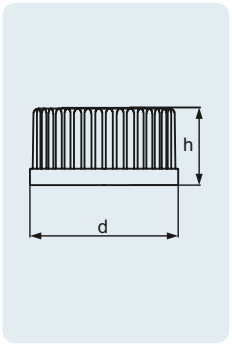


A 121 °C | Tmax. 140 °C

Cat. No.	Thread	d (OD) (mm)	h (mm)	Pack Unit
screw cap				
11 127 16	80	87	40	10
Pouring ring				
11 601 66	80		6.85	10

DURAN® GLS 80® Membrane Vented Screw Cap

from PP, blue, with welded-in PTFE membrane for pressure equalisation



A 121 °C Tmax. 140 °C

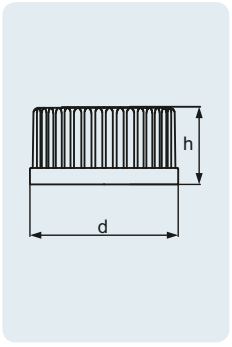
For GLS 80® thread. Ideal for autoclaving processes because the 0.2 micron ePTFE membrane permits pressure equalisation and screw tight sealing. Hence the risk of contamination is greatly reduced. Ingress of liquids or solids is prevented and the bottle contents remain sterile.

Typical applications: storage or transport of gas generating media, autoclaving of media.

Cat. No.	Thread	d (OD) (mm)	h (mm)	Pack Unit
29 118 91 05	80	87	40	2

DURAN® GLS 80® High Temperature Screw Cap

with cap liner, PSU material

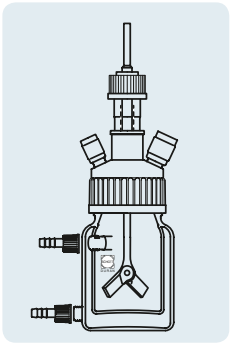


A 121 °C Tmax. 180 °C

The material used is a special compound based on polyarylsulphone. Consequently the chemical, thermal and mechanical properties of the material are noticeably improved and matched to laboratory requirements. Thanks to the thread, the DURAN® GLS 80® bottle can be opened or closed with only a three-quarter turn. The seal, which is coated on both sides with PTFE, ensures the bottle can be tightly sealed (cap liner: Platinium-cured silicone). A matching PTFE pouring ring is also available, permitting clean, drip-free use.

Cat. No.	Thread	d (OD) (mm)	h (mm)	Pack Unit
screw cap				
11 658 88	80	88.5	40	5
pouring ring				
11 673 07	80		6.85	5
replacement cap liner				
11 529 21	80	79	3.1	5

DURAN® GLS 80® Connection Cap System for Overhead Mixer



A 121 °C Tmax. 140 °C

For use with overhead laboratory mixers, Materials used: PP and PTFE. Flexible modular system with a central ground joint 29/32 fitting. Five different tubing diameters (3.2 mm; 6.0 mm; 8.0 mm; 10.0 mm and 12.0 mm) can be used by changing the inserts. Sterile pressure equalisation is possible by using the syringe filter. Unused ports can be closed with a blind cap. Components: Screw Cap GLS 80® with NS 29/32 (Cat. no. 11 601 75), KPG® Stirrer Shaft WS 10 (Cat. no. 24 583 84 04), KPG® Stirrer Bearing HB 10 (Cat. no. 24 750 09 06), Screw Cap GL 14 (Cat. no. 29 240 08 14, 2 pieces) and Screw Cap GL 18 (Cat. no. 29 240 11 16, 2 pieces). Not supplied with GLS 80® bottle.

Typical applications: safe transfer of liquid media within a closed and sterile system (evaporation is reduced).

Cat. No.	Pack Unit
29 120 91 04	1

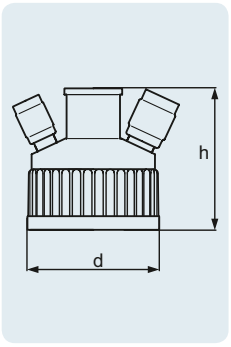
Materials used: PP and PTFE. Flexible modular system with a central ground joint 29/32 fitting. Five different tubing diameters (3.2 mm; 6.0 mm; 8.0 mm; 10.0 mm and 12.0 mm) can be connected. Sterile pressure equalisation is possible by using the syringe filter. Unused ports can be closed with a blind cap.

Typical applications: safe transfer of liquid media within a closed and sterile system (evaporation is reduced).

Cat. No.	Thread	d (OD) (mm)	h (mm)	Pack Unit
11 601 75	80	87	94	2

DURAN® GLS 80® Connection System

screw cap GLS 80®, with NS 29/32, with four ports GL 18 thread



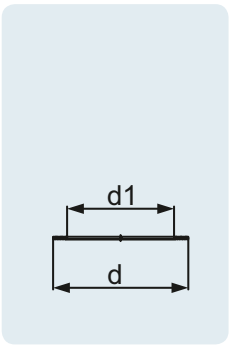
A 121 °C

Tmax. 140 °C

Cat. No.	d (OD) (mm)	d_1 (OD) (mm)	Pack Unit
11 529 13	78	63.5	5

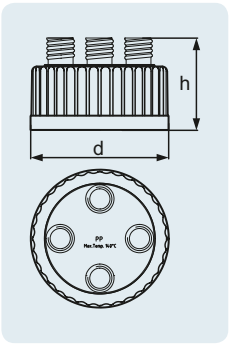
DURAN® O-Ring Gasket Seal from EPDM

for GLS 80® bottles



DURAN® GLS 80® Connection Cap System

screw cap GLS 80®, with four ports, GL 18 thread, EPDM seal



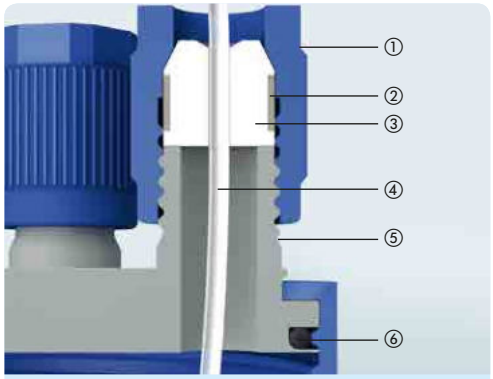
A 121 °C

Tmax. 140 °C

Materials used: PP and PTFE. Flexible modular system. Five different tubing diameters (3.2 mm; 6.0 mm; 8.0 mm; 10.0 mm and 12.0 mm) can be connected. Sterile pressure equalisation is possible by using the syringe membrane filter. Unused ports can be closed with a closed top GL 18 PBT cap.

Typical applications: safe transfer of liquid media within a closed and sterile system (evaporation is reduced).

Cat. No.	Description	Thread	d (OD) (mm)	h (mm)	Pack Unit
29 310 91 03	GLS 80® 4-port EPDM seal	80	87	59	2
Accessories					
11 601 69	Insert for screw cap GL 18, ID 3.2 mm				1
11 601 70	Insert for screw cap GL 18, ID 6.0 mm				1
11 601 71	Insert for screw cap GL 18, ID 8.0 mm				1
11 601 72	Insert for screw cap GL 18, ID 10.0 mm				1
11 601 73	Insert for screw cap GL 18, ID 12.0 mm				1
11 601 74	Screw cap for tube connection, blue, GL 18				2
11 601 67	Pressure equalisation cap set for 4-port, GL 18				1
11 706 82	Blanking screw cap, red, PBT, GL 18				2

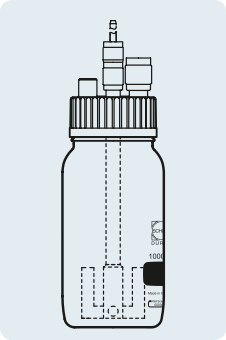


Schematic diagram of GLS 80® connection system

① Screw cap GL 18 (PP)
② Silicone sealing ring on insert
③ PTFE insert / tubing connector
④ Tubing (not supplied)
⑤ Port (PP)
⑥ O-ring seal

DURAN® GLS 80® Stirred Reactor

materials used: PP / PTFE / PEEK / stainless steel



A 121 °C

Tmax. 140 °C

The GLS 80® stirred reactor is suitable for a wide range of laboratory mixing processes. The connections (2 x GL 14 and 2 x GL 18) provided permit addition or removal of media from the bottle during the mixing process. The whole unit can be autoclaved and is therefore suitable for biological applications. By using components from the GLS 80® connection system, an additional media bottle (Tubing outer diameter: 1.6 – 12.0 mm) can be connected or a sterile pressure equalizer attached. Drive for the stirrer may provided by a standard commercial magnetic stirrer. The variable stirrer shaft can be used in DURAN® GLS 80® laboratory glass bottles (1 000 mL and 2 000 mL) and provides notably improved mixing in comparison with standard magnetic stir bars. The stirrer unit is interchangeable and can be used up to 500 rpm is possible.

Typical applications: mixing of liquids, dissolving of solids, simple fermentation processes.

Cat. No.	Description	Thread	Anchor stirrer d (mm)	Impeller stirrer d (mm)	Pack Unit
12 003 79	Stirred reactor cap, stirrer anchor type, magnetic, complete with shaft, connection and screw cap	80	62		1
21 263 91 07	Stirred reactor anchor type, magnetic, complete with DURAN® GLS 80® bottle (250 mL), 1x GLS 80® cap (PP, grey / blue), 1x GL 14 screw cap (PP, blue), 2x GL 14 screw cap (PBT red), 2x GL 18 screw cap (PBT red)	80	62		
12 003 80	Stirred reactor anchor type, magnetic, complete with DURAN® GLS 80® bottle (1 000 mL), 1x GLS 80® cap (PP, grey / blue), 1x GL 14 screw cap (PP, blue), 2x GL 14 screw cap (PBT red), 2x GL 18 screw cap (PBT red)	80	62		1
12 003 81	Stirred reactor anchor type, magnetic, complete with DURAN® GLS 80® bottle (2 000 mL), 1x GLS 80® screw cap (PP, grey / blue), 1x GL 14 screw cap (PP, blue), 2x GL 14 screw cap (PBT red), 2x GL 18 screw cap (PBT red)	80	62		1
Accessories for GLS 80® stirred reactor					
12 003 82	Stirrer impeller type, magnetic, for GLS 80® stirred reactor			62	1
12 003 83	Stirrer anchor type, magnetic, for GLS 80® stirred reactor		62		1
12 003 85	Spare screw cap for GLS 80® stirred reactor, PP, blue/grey	80			1
12 003 86	Spare shaft for GLS 80® stirred reactor, stainless steel, including PEEK connection				1

DURAN® Reagent Bottle Wide Neck

ISO 4796-2 | Retrace Code | A 121 °C | USP Standard

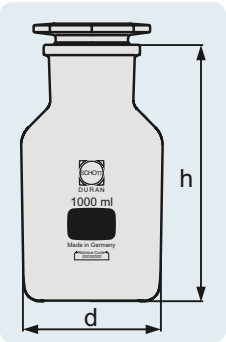
With precision ground neck. All glass components, therefore also suitable for storage of aggressive media, which could attack plastic parts.

Typical application: storage of powders.

Cat. No.	Capacity (mL)	Neck	d (OD) (mm)	h (mm)	Remark	Pack Unit
Neck with standard ground joint and glass flat-head stopper						
21 185 17 07	50	24/20	44	79		10
21 185 24 03	100	29/22	52	97		10
21 185 36 05	250	34/35	70	133		10
21 185 44 04	500	45/40	86	163		10
21 185 54 09	1 000	60/46	107	201		10
21 185 63 02	2 000	60/46	133	247		10
21 185 73 07	5 000	85/55	182	358	No norm available.	1
21 185 86 03	10 000	85/55	229	443	No norm available.	1
21 185 91 02	20 000	85/55	290	570	No norm available.	1
Neck with standard ground joint						
21 184 17 06	50	24/20	44	79		10
21 184 24 02	100	29/22	52	97		10
21 184 36 04	250	34/35	70	133		10
21 184 44 03	500	45/40	86	163		10
21 184 54 08	1 000	60/46	107	201		10
21 184 63 01	2 000	60/46	133	247		10
21 184 73 06	5 000	85/55	182	358	No norm available.	1
21 184 86 02	10 000	85/55	229	443	No norm available.	1
21 184 91 01	20 000	85/55	290	570	No norm available.	1

DURAN® Reagent Bottle Wide Neck Amber

USP <660> and USP <671> (Spectral Transmission) compliant



ISO 4796-2 | Retrace Code | A 121 °C | USP Standard

With precision ground neck. All glass components, therefore also suitable for storage of aggressive media, which could attack plastic parts. Unchanged DURAN® properties within the bottle, as colouration is only on the outer surface. Very uniform, durable and chemically resistant amber colour due to use of innovative technology.

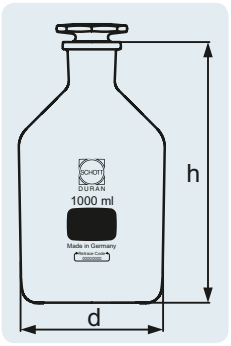
Typical application: storage of powders.

Cat. No.	Capacity (mL)	Neck	d (OD) (mm)	h (mm)	Remark	Pack Unit
Neck with standard ground joint and glass flat-head stopper						
21 188 17 01	50	24/20	44	79		10
21 188 24 06	100	29/22	52	97		10
21 188 36 08	250	34/35	70	133		10
21 188 44 07	500	45/40	86	163		10
21 188 54 03	1 000	60/46	107	201		10
21 188 63 05	2 000	60/46	133	247		10
21 188 73 01	5 000	85/55	182	358	No norm available.	1
21 188 86 06	10 000	85/55	229	443	No norm available.	1
21 188 91 05	20 000	85/55	290	570	No norm available.	1

DURAN® Reagent Bottle Narrow Neck

With precision ground neck. All glass components, therefore also suitable for storage of aggressive media, which could attack plastic parts.

Typical application: storage of liquids.



ISO 4796-2 | Retrace Code | A 121 °C | USP Standard

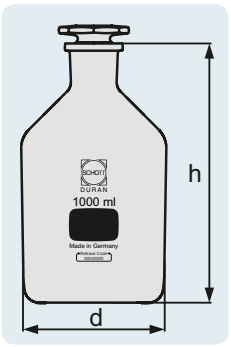
Cat. No.	Capacity (mL)	Neck	d (OD) (mm)	h (mm)	Remark	Pack Unit
Neck with standard ground joint and glass flat-head stopper						
21 165 08 09	10	10/19	28	52	Non ISO size.	10
21 165 14 02	25	12/21	36	64		10
21 165 17 02	50	14/15	42	80		10
21 165 24 07	100	14/15	52	96		10
21 165 36 09	250	19/26	70	130		10
21 165 44 08	500	24/29	86	164		10
21 165 54 04	1 000	29/32	107	200		10
21 165 63 06	2 000	29/32	134	248		10
21 165 73 02	5 000	45/40	182	323		1
21 165 86 07	10 000	60/46	227	398		1
21 165 91 06	20 000	60/46	288	492		1
Neck with standard ground joint						
21 164 08 08	10	10/19	28	52		10
21 164 14 01	25	12/21	36	64		10
21 164 17 01	50	14/15	42	80		10
21 164 24 06	100	14/15	52	96		10
21 164 36 08	250	19/26	70	130		10
21 164 44 07	500	24/29	86	164		10
21 164 54 03	1 000	29/32	107	200		10
21 164 63 05	2 000	29/32	134	248		10
21 164 73 01	5 000	45/40	182	323		1
21 164 86 06	10 000	60/46	227	398		1
21 164 91 05	20 000	60/46	288	492		1

DURAN® Reagent Bottle Narrow Neck Amber

USP <660> and USP <671> (Spectral Transmission) compliant

With precision ground neck. All glass components, therefore also suitable for storage of aggressive media, which could attack plastic parts. Unchanged DURAN® properties within the bottle, as colouration is only on the outer surface. Very uniform, durable and chemically resistant amber colour due to use of innovative technology.

Typical application: storage of liquids.

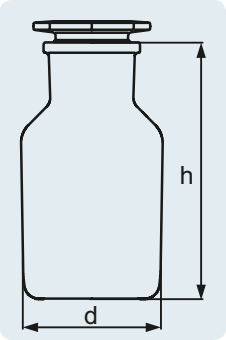


ISO 4796-2 | Retrace Code | A 121 °C | USP Standard

Cat. No.	Capacity (mL)	Neck	d (OD) (mm)	h (mm)	Pack Unit
Neck with standard ground joint and glass flat-head stopper					
21 168 14 05	25	12/21	36	64	10
21 168 17 05	50	14/15	42	80	10
21 168 24 01	100	14/15	52	96	10
21 168 36 03	250	19/26	70	130	10
21 168 44 02	500	24/29	86	164	10
21 168 54 07	1 000	29/32	107	200	10
21 168 63 09	2 000	29/32	134	248	10
21 168 73 05	5 000	45/40	182	323	1
21 168 86 01	10 000	60/46	227	398	1
21 168 91 09	20 000	60/46	288	492	1

Reagent Bottle Wide Neck from Soda-lime Glass

neck with standard ground joint



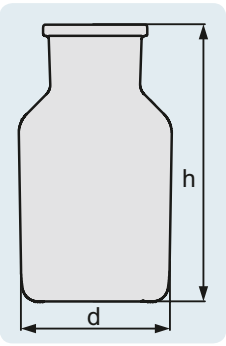
ISO 4796-2

A maximum usage temperature of +100 °C is recommended. Thermal shock resistance 30 K. Hydrolytic class 3. Note on using DURAN® glass stoppers with soda-lime glass bottles: If the bottle and the stopper have a temperature difference greater than 30 °C, the glass stoppers can become stuck!

Cat. No.	Capacity (mL)	Neck	d (OD) (mm)	h (mm)	Pack Unit
with standard ground glass flat-head stopper					
23 185 17 08	50	24/20	44	79	10
23 185 24 04	100	29/22	52	97	10
23 185 36 06	250	34/24	71	129	10
23 185 44 05	500	45/40	86	164	10
23 185 54 01	1 000	60/46	107	200	10
without stoppers					
23 184 17 07	50	24/20	44	79	10
23 184 24 03	100	29/22	52	97	10
23 184 36 05	250	34/24	71	129	10
23 184 44 04	500	45/40	86	164	10
23 184 54 09	1 000	60/46	107	200	10

Reagent Bottle Wide Neck, Amber from Soda-lime Glass

neck with standard ground joint



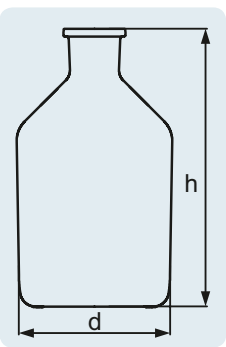
ISO 4796-2

A maximum usage temperature of + 100 °C is recommended. Thermal shock resistance 30 K. Hydrolytic class 3. Note on using DURAN® glass stoppers with soda-lime glass bottles: If the bottle and the stopper have a temperature difference greater than 30 °C, the glass stoppers can become stuck!

Cat. No.	Capacity (mL)	Neck	d (OD) (mm)	h (mm)	Pack Unit
with standard ground glass flat-head stopper					
23 188 24 07	100	29/22	52	97	10
23 188 36 09	250	34/24	71	129	10
23 188 44 08	500	45/27	86	164	10
23 188 54 04	1 000	60/46	107	200	10
without stoppers					
23 187 24 06	100	29/22	52	97	10
23 187 36 08	250	34/24	71	129	10
23 187 44 07	500	45/27	86	164	10
23 187 54 03	1 000	60/46	107	200	10

Reagent Bottle Narrow Neck from Soda-lime Glass

neck with standard ground joint



ISO 4796-2

A maximum usage temperature of + 100 °C is recommended. Thermal shock resistance 30 K. Hydrolytic class 3. Note on using DURAN® glass stoppers with soda-lime glass bottles: If the bottle and the stopper have a temperature difference greater than 30 °C, the glass stoppers can become stuck!

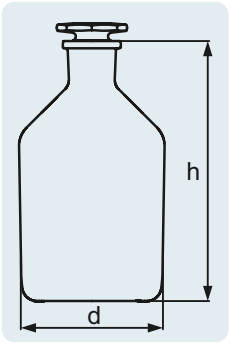
Cat. No.	Capacity (mL)	Neck	d (OD) (mm)	h (mm)	Pack Unit
with standard ground glass flat-head stopper					
23 165 24 08	100	14/15	52	96	10
23 165 36 01	250	19/26	72	130	10
23 165 44 09	500	24/29	89	165	10
23 165 54 05	1 000	29/32	110	200	10
without stoppers					
23 164 24 07	100	14/15	52	96	10
23 164 36 09	250	19/26	72	130	10
23 164 44 08	500	24/29	89	165	10
23 164 54 04	1 000	29/32	110	200	10

Reagent Bottle Narrow Neck, Amber from Soda-lime Glass

neck with standard ground joint

A maximum usage temperature of + 100 °C is recommended. Thermal shock resistance 30 K. Hydrolytic class 3. Note on using DURAN® glass stoppers with soda-lime glass bottles: If the bottle and the stopper have a temperature difference greater than 30 °C, the glass stoppers can become stuck!

Cat. No.	Capacity (mL)	Neck	d (OD) (mm)	h (mm)	Pack Unit
with standard ground glass flat-head stopper					
23 168 17 06	50	14/15	42	80	10
23 168 24 02	100	14/15	52	96	10
23 168 36 04	250	19/26	72	130	10
23 168 44 03	500	24/29	89	165	10
23 168 54 08	1 000	29/32	110	200	10
without stoppers					
23 167 17 05	50	14/15	42	80	10
23 167 24 01	100	14/15	52	96	10
23 167 36 03	250	19/26	72	130	10
23 167 44 02	500	24/29	89	165	10
23 167 54 07	1 000	29/32	110	200	10



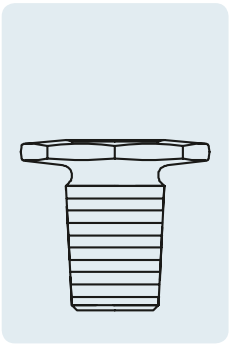
ISO 4796-2

DURAN® Glass Stopper

with standard ground joint, octagonal

From borosilicate 3.3 glass. Note on using DURAN® glass stoppers with soda-lime glass bottles: If the bottle and the stopper have a temperature difference greater than 30 °C, the glass stoppers can become stuck!

Cat. No.	Neck	Pack Unit
solid		
21 624 03 07	10/19	10
21 624 04 01	12/21	10
21 624 07 01	19/26	10
21 624 08 04	24/29	10
semi-hollow		
21 624 09 07	29/32	10
21 624 11 06	34/35	1
21 624 12 09	45/40	1
21 624 13 03	60/46	1
21 624 16 03	85/55	1



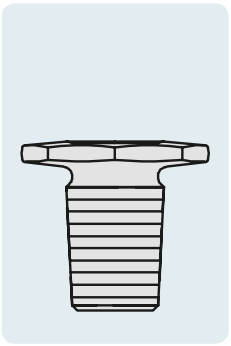
DIN 12252

DURAN® Glass Stopper Amber

with standard ground joint, octagonal

From borosilicate 3.3 glass. Note on using DURAN® glass stoppers with soda-lime glass bottles: If the bottle and the stopper have a temperature difference greater than 30 °C, the glass stoppers can become stuck!

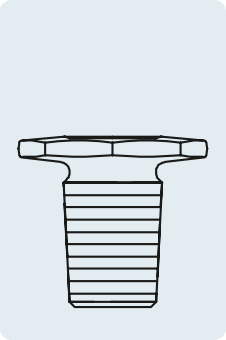
Cat. No.	Neck	Pack Unit
solid		
21 627 03 01	10/19	10
21 627 04 04	12/21	10
21 627 08 07	24/29	10
semi-hollow		
21 627 09 01	29/32	10
21 627 11 09	34/35	1
21 627 12 03	45/40	1
21 627 13 06	60/46	1
21 627 16 06	85/55	1



DIN 12252

Glass Stopper from SBW glass

with standard ground joint, octagonal

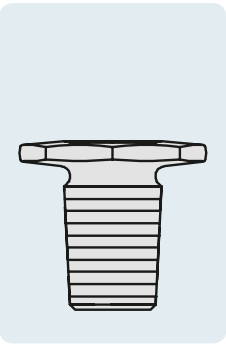


DIN 12252

Cat. No.	Neck	Pack Unit
solid		
24 624 06 04	14/23	10

Glass Stopper Amber from SBW glass

with standard ground joint, octagonal

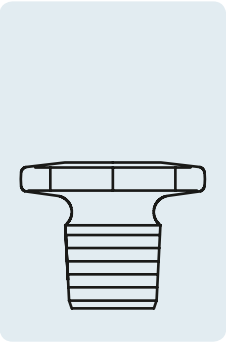


DIN 12252

Cat. No.	Neck	Pack Unit
solid		
24 627 06 07	14/23	10
24 627 07 01	19/26	10

DURAN® Glass Stopper

with short ground joint, octagonal



DIN 12252

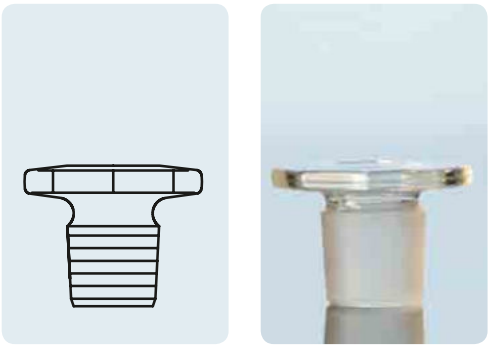
From borosilicate 3.3 glass. Note on using DURAN® glass stoppers with soda-lime glass bottles: If the bottle and the stopper have a temperature difference greater than 30 °C, the glass stoppers can become stuck!

Cat. No.	Neck	Pack Unit
semi-hollow		
21 625 09 08	29/22	10

Cat. No.	Neck	Pack Unit
solid		
24 625 06 05	14/15	10
24 625 08 02	24/20	10
semi-hollow		
24 625 09 05	29/22	10
24 625 11 04	34/24	1
24 625 12 07	45/27	1

Glass Stopper from SBW glass

with short ground joint, octagonal



DIN 12252

From borosilicate 3.3 glass. Note on using DURAN® glass stoppers with soda-lime glass bottles: If the bottle and the stopper have a temperature difference greater than 30 °C, the glass stoppers can become stuck!

Cat. No.	Neck	Pack Unit
solid		
24 622 06 02	14/23	10
21 622 07 08	19/26	10

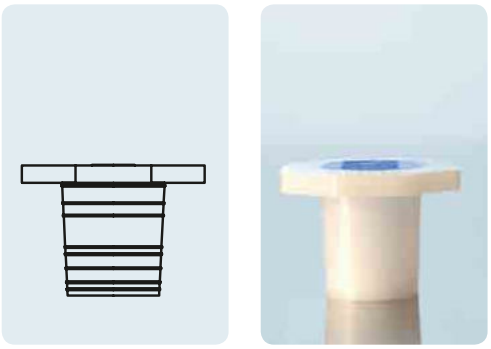
DURAN® Glass Stopper

ground conical, for reagent bottles, oxygen bottles according to Winkler

Cat. No.	Neck	Remark	Pack Unit
29 204 02 09	7/16		10
29 204 03 03	10/19		10
29 204 04 06	12/21		10
29 204 06 03	14/23		10
29 204 07 06	19/26		10
29 204 08 09	24/29		10
29 204 09 03	29/32		10
29 204 11 02	34/35	Non-DIN size.	1
29 204 12 05	45/40	Non-DIN size.	1
29 204 13 08	60/46	Non-DIN size.	1
29 204 16 08	85/55	Non-DIN size.	1

DURAN® Plastic Stopper

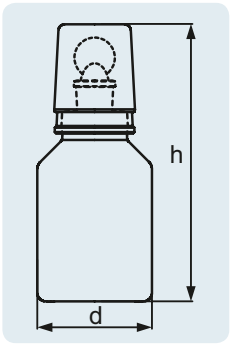
from polyethylene, octagonal



DIN 12254 Tmax. 80 °C

DURAN® Acid Bottle

with standard ground "pennyhead" stopper, conical shoulders, interchangeable glass cap



A 121 °C

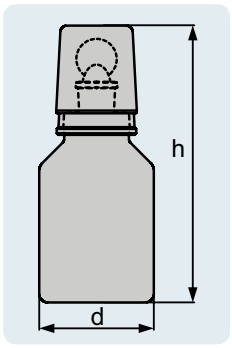
USP Standard

In addition to the ground stopper, a glass cap with ground joint is supplied. This provides an improved seal and protection against acid vapours.

Cat. No.	Description	Capacity (mL)	Neck	d (OD) (mm)	h (mm)	Pack Unit
21 275 24 08		100	19/17	55	145	10
21 275 36 01		250	19/17	75	180	10
21 275 44 09		500	24/20	82	220	10
21 275 54 05		1 000	29/32	109	260	10
Components						
21 273 24 06	Bottle	100	19/17	55	104	10
21 273 36 08	Bottle	250	19/17	75	133	10
21 273 44 07	Bottle	500	24/20	87	166	10
21 273 54 03	Bottle	1 000	29/32	108	208	10
21 274 24 07	Cap for Bottle 100 mL			48	73	10
21 274 36 09	Cap for bottle 250 mL			55	75	10
21 274 44 08	Cap for Bottle 500 mL			66	87	10
21 274 54 04	Cap for Bottle 1 000 mL			75	103	10

DURAN® Acid Bottle Amber

with standard ground "pennyhead" stopper, conical shoulders, interchangeable glass cap



A 121 °C

USP Standard

In addition to the ground stopper, a glass cap with ground joint is supplied. This provides an improved seal and protection against acid vapours.

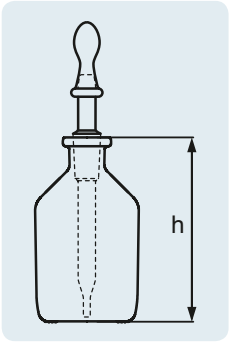
Cat. No.	Description	Capacity (mL)	Neck	d (OD) (mm)	h (mm)	Pack Unit
21 275 24 65		100	19/17	55	145	10
21 275 36 67		250	19/17	75	180	10
21 275 44 66		500	24/20	82	220	10
21 275 54 62		1 000	29/32	109	260	10
Components						
21 273 24 63	Bottle	100	19/17	55	104	10
21 273 36 65	Bottle	250	19/17	76	133	10
21 273 44 64	Bottle	500	24/20	87	166	10
21 273 54 69	Bottle	1 000	29/32	108	208	10
21 274 24 64	Cap for Bottle 100 mL			48	73	10
21 274 36 66	Cap for Bottle 250 mL			55	75	10
21 274 44 65	Cap for Bottle 500 mL			66	87	10
21 274 54 61	Cap for Bottle 1 000 mL			75	103	10

Dropping Bottle from Soda-lime Glass

with interchangeable clear glass pipette standard ground joint, complete with rubber teats

For dosing use with the dropping pipette. Spare pipettes, clear glass, Cat. No. 23 271 17 09 and 23 271 24 05 (Quantity 10); Rubber teats, transparent, Cat. No. 29 200 01 02 (Quantity 100).

Cat. No.	Capacity (mL)	Neck	h (mm)	Pack Unit
23 270 17 08	50	14/15	79	10
23 270 24 04	100	14/15	105	10

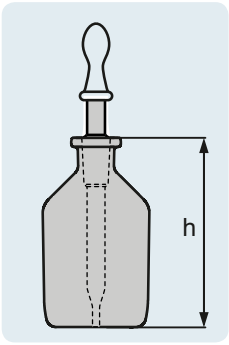


Dropping Bottle Amber from Soda-lime Glass

with interchangeable clear glass pipette standard ground joint, complete with rubber teats

For dosing use the dropping pipette. Spare pipettes, clear glass, Cat. No. 23 271 17 09 and 23 271 24 05 (Quantity 10): rubber teats, transparent, Cat. No. 29 200 01 02 (Quantity 100).

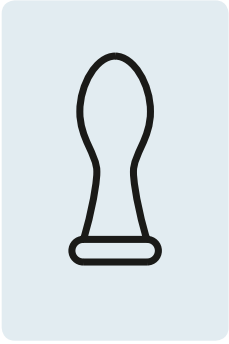
Cat. No.	Capacity (mL)	Neck	h (mm)	Remark	Pack Unit
23 270 17 65	50	14/15	79		10
23 270 24 61	100	14/15	105	from borosilicate 3.3	10



Rubber Teat transparent

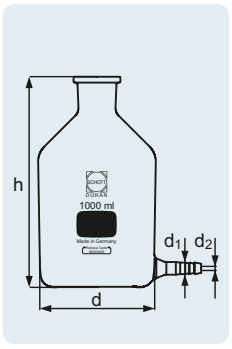
from natural rubber

Cat. No.	d_1 (OD) (mm)	h (mm)	Pack Unit
29 200 01 02	15	35	100



DURAN® Aspirator (levelling) Bottle

with plain neck and bottom sidearm



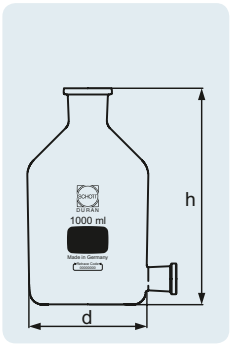
Retrace Code | A 121 °C | USP Standard

Useful as a delivery or storage container for solutions. Outlet facilitates attachment of flexible tubing.

Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	d_2 (OD) (mm)	h (mm)	Pack Unit
24 708 36 03	250	73	11	5	130	10
24 708 44 02	500	89	11	5	164	10
24 708 54 07	1 000	111	11	5	200	1

DURAN® Aspirator (levelling) Bottle

tubulated with standard ground joint, without stoppers, neck unground



ISO 4796-3 | Retrace Code | A 121 °C

Dosing of liquids is possible via an outlet.

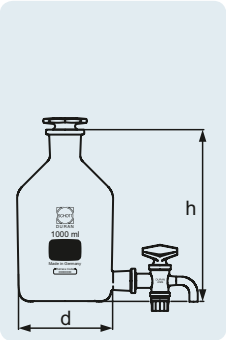
Cat. No.	Capacity (mL)	Tubulature (NS)	d (OD) (mm)	h (mm)	Pack Unit
24 701 44 04	500	19/26	86	164	10
24 701 54 09	1 000	19/26	107	200	10
24 701 63 02	2 000	19/26	134	249	1
24 701 73 07	5 000	29/32	182	320	1
24 701 86 03	10 000	29/32	228	398	1
24 701 91 02	20 000	29/32	289	492	1

DURAN® Aspirator (levelling) Bottle

tubulated with standard ground joint, complete with standard ground stopcock and standard ground stopper

Dosing of liquids is possible via a stopcock.

Cat. No.	Capacity (mL)	Neck	Tubulature (NS)	d (OD) (mm)	h (mm)	Pack Unit
24 702 44 05	500	24/29	19/26	86	164	10
24 702 54 01	1 000	29/32	19/26	107	200	10
24 702 63 03	2 000	29/32	19/26	134	249	1
24 702 73 08	5 000	45/40	29/32	182	320	1
24 702 86 04	10 000	60/46	29/32	228	398	1
24 702 91 03	20 000	60/46	29/32	289	492	1



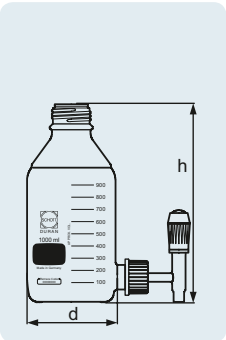
ISO 4796-3 | Retrace Code | A 121 °C

DURAN® Aspirator (levelling) Bottle

neck with DIN thread GL 45, tabulator with GL 32

Complete with screw connection cap, silicone seal and stopcock with PTFE spindle. Dosing of liquids is possible via a stopcock.

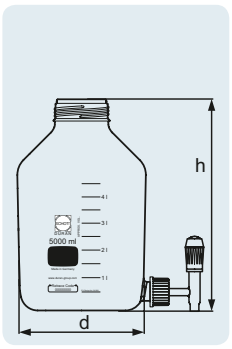
Cat. No.	Capacity (mL)	DIN Thread (GL)	d (OD) (mm)	h (mm)	Pack Unit
24 703 54 02	1 000	45	101	225	1
24 703 63 04	2 000	45	136	260	1
24 703 73 09	5 000	45	182	330	1
24 703 86 05	10 000	45	230	410	1



ISO 4796-3 | Retrace Code | A 121 °C

DURAN® Aspirator (levelling) Bottle

neck with DIN thread GLS 80®, tabulator with GL 32

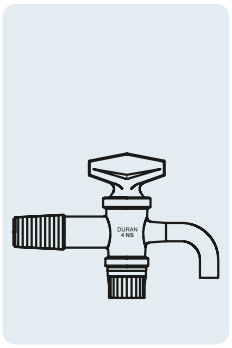


ISO 4796-3 | Retrace Code | A 121 °C

Complete with screw connection cap, silicone seal and stopcock with PTFE spindle. Dosing of liquids is possible via a stopcock.

Cat. No.	Capacity (mL)	DIN Thread (GL)	d (OD) (mm)	h (mm)	Pack Unit
24 704 73 01	5 000	80	182	330	1

Stopcock with Standard Ground Joint for Aspirator Bottle

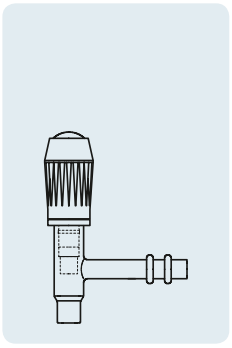


Spare part for aspirator bottle.

Cat. No.	Capacity (mL)	Neck	Pack Unit
24 148 03 07	500 – 2 000	19/26	1
24 148 04 01	5 000 – 20 000	29/32	1

Stopcock for Aspirator Bottle

with PTFE spindle, for GL 32 screw thread



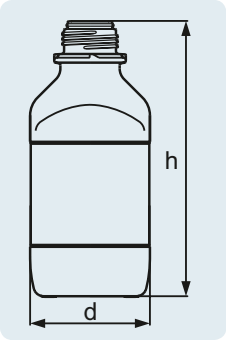
Cat. No.	Capacity (mL)	Hole (mm)	Remark	Pack Unit
24 147 03 06	1 000 + 2 000	6	suitable silicone sealing ring: cat.no. 29 236 10 04	1
24 147 04 09	5 000 + 10 000	8	suitable silicone sealing ring: cat. no. 29 236 12 01	1

Screw Cap Bottle Square from Soda-lime Glass

narrow neck, with thread, high form

High form glass thread. A maximum usage temperature of + 100 °C is recommended. Thermal shock resistance 30 K. Hydrolytic class 3.

Cat. No.	Capacity (mL)	Thread	d (OD) (mm)	h (mm)	Pack Unit
23 810 24 56	100	32	49	119	10
23 810 36 58	250	32	64	155	10
23 810 44 57	500	32	77	186	10
23 810 54 53	1 000	45	97	223	10

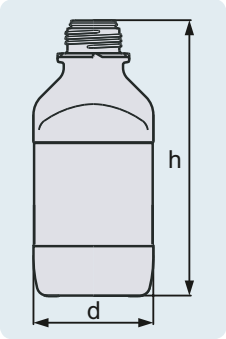


Screw Cap Bottle Square, Amber from Soda-lime Glass

narrow neck, with thread, high form

High form glass thread. A maximum usage temperature of + 100 °C is recommended. Thermal shock resistance 30 K. Hydrolytic class 3.

Cat. No.	Capacity (mL)	Thread	d (OD) (mm)	h (mm)	Pack Unit
23 816 24 53	100	32	49	119	10
23 816 36 55	250	32	64	155	10
23 816 44 54	500	32	77	186	10
23 816 54 59	1 000	45	97	223	10

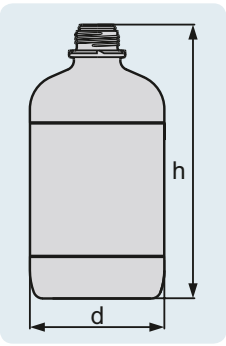


Screw Cap Bottle Round, Amber from Soda-lime Glass

with thread, high form

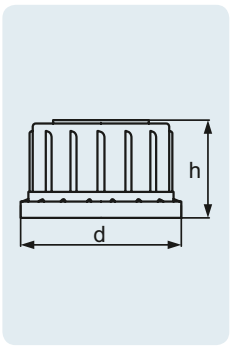
High form glass thread. A maximum usage temperature of + 100 °C is recommended. Thermal shock resistance 30 K. Hydrolytic class 3.

Cat. No.	Capacity (mL)	Thread	d (OD) (mm)	h (mm)	Pack Unit
23 835 66 56	2 500	45	139	283	1



Vented Screw Cap Narrow Neck

from PP, with valve, red, for soda-lime screw cap bottles



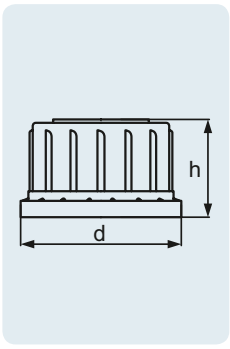
A 121 °C Tmax. 140 °C

High form thread

Cat. No.	Thread	d (OD) (mm)	h (mm)	Pack Unit
29 302 19 09	32	45	32	10
29 302 28 02	45	60	35	10

Tamper-Evident Screw Cap Narrow Neck

from PP (blue), for soda-lime screw cap bottle



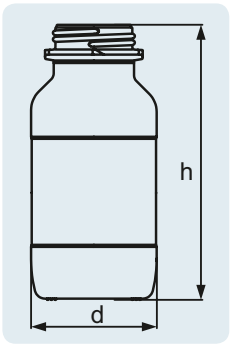
A 121 °C Tmax. 140 °C

High form thread.

Cat. No.	Thread	d (OD) (mm)	h (mm)	Pack Unit
Temper evident screw cap				
29 301 19 08	32	45	32	10
29 301 28 01	45	60	35	10
Pouring ring				
29 251 19 04	32	45	32	10
29 251 28 06	45	60	35	10

Screw Cap Bottle Square from Soda-lime Glass

wide neck, with thread, short form



Short form glass thread. A maximum usage temperature of + 100 °C is recommended. Thermal shock resistance 30 K. Hydrolytic class 3.

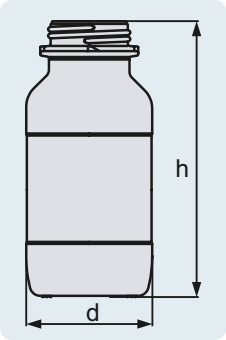
Cat. No.	Capacity (mL)	Thread	d (OD) (mm)	h (mm)	Pack Unit
23 820 17 09	50	32	48	70	10
23 820 24 05	100	32	49	111	10
23 820 36 07	250	45	64	146	10
23 820 44 06	500	54	76	173	10
23 820 54 02	1 000	60	97	213	10

Screw Cap Bottle Square, Amber from Soda-lime Glass

wide neck, with thread, short form

Short form glass thread. A maximum usage temperature of + 100 °C is recommended. Thermal shock resistance 30 K. Hydrolytic class 3.

Cat. No.	Capacity (mL)	Thread	d (OD) (mm)	h (mm)	Pack Unit
23 826 24 02	100	32	49	111	10
23 826 36 04	250	45	64	146	10
23 826 44 03	500	54	76	173	10
23 826 54 08	1 000	54	97	213	10

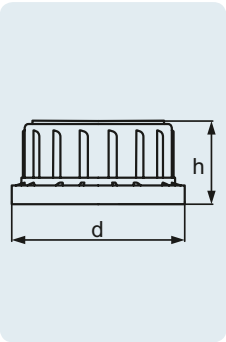


Tamper Evident Screw Cap Wide Neck

from PP (blue), for soda-lime square screw cap bottles

Short form thread.

Cat. No.	Thread	d (OD) (mm)	h (mm)	Pack Unit
29 303 19 01	32	44	23	10
29 303 28 03	45	58	27	10
29 303 32 08	54	69	29	10
29 303 35 08	60	78	29	10



A 121 °C

Tmax. 140 °C

DURAN® RANGE OF GL 25 / GL 32 / GL 45 BOTTLES

Product range	DURAN® ORIGINAL LABORATORY BOTTLE	DURAN® LABORATORY BOTTLE, AMBER	DURAN® LABORATORY BOTTLE, PROTECT
Borosilicate 3.3. glass bottle body			
Caps[5]	Available with blue PP, or red PBT GL cap, or as a bottle only	Available with or without GL screw cap from PP	Available with or without GL screw cap from PP
Temperature resistance	Bottle: –70 °C to +500 °C Cap, blue: –40 °C to +140 °C Cap, red: –45 °C bis +180 °C	Bottle: –70 °C to +500 °C Cap: –40 °C to +140 °C	Bottle: –30 °C to +135 °C Cap: –40 °C to +140 °C
Main advantage	Tried and tested, classic DURAN® bottle suitable for multiple applications	• UV protection up to approx. 500 nm wavelength • USP <660> and USP <671> (Spectral Transmission) compliant	• The coating provides scratch, leak[4] and splinter[4] protection • UV protection up to ca. 380 nm (ca. 500 nm Amber)

Color of bottle		clear			amber		clear		amber	
mL	GL thread	With blue screw Cap (PP)	With red screw Cap (PBT)	Without screw cap	With screw Cap (PP)	Without screw cap	With screw Cap (PP)	Without screw cap	With screw Cap (PP)	Without screw cap
10[1,2]	25	21 801 08 51	–	21 801 08 02	21 806 08 56	21 806 08 07	–	21 805 08 06	–	–
25[1]	25	21 801 14 53	–	21 801 14 04	21 806 14 58	21 806 14 09	–	10 926 76	–	21 806 14 33
50	32	21 801 17 53	–	21 801 17 04	21 806 17 58	21 806 17 09	–	10 926 77	–	21 806 17 33
100	45	21 801 24 58	21 801 24 17	21 801 24 09	21 806 24 54	21 806 24 05	21 805 24 53	21 805 24 04	–	21 806 24 38
150	45	21 801 29 55	–	21 801 29 06	21 806 29 51	21 806 29 02	21 805 29 59	21 805 29 01	–	–
250	45	21 801 36 51	21 801 36 19	21 801 36 02	21 806 36 56	21 806 36 07	21 805 36 55	21 805 36 06	–	21 806 36 31
500	45	21 801 44 59	21 801 44 18	21 801 44 01	21 806 44 55	21 806 44 06	21 805 44 54	21 805 44 05	–	21 806 44 39
750	45	21 801 51 55	–	21 801 51 06	21 806 51 51	21 806 51 02	21 805 51 59	21 805 51 01	–	–
1 000	45	21 801 54 55	21 801 54 14	21 801 54 06	21 806 54 51	21 806 54 02	21 805 54 59	21 805 54 01	–	21 806 54 35
2 000	45	21 801 63 57	21 801 63 16	21 801 63 08	21 806 63 53	21 806 63 04	21 805 63 52	21 805 63 03	–	21 806 63 37
3 500	45	21 801 69 57	–	21 801 69 08	21 806 69 53	21 806 69 04	21 805 69 52	21 805 69 03	–	–
5 000	45	21 801 73 53	21 801 73 12	21 801 73 04	21 806 73 58	21 806 73 09	21 805 73 57	21 805 73 08	–	21 806 73 33
10 000	45	21 801 86 58	21 801 86 17	21 801 86 09	21 806 86 54	21 806 86 05	–	21 805 86 04	–	–
15 000	45	21 801 88 55	–	21 801 88 06	–	21 806 88 02	–	21 805 88 01	–	–
20 000	45	21 801 91 57	–	21 801 91 08	–	21 806 91 04	–	21 805 91 03	–	–
25 000	45	21 801 92 51	–	–	–	–	–	–	–	–

[1] With specially shaped glass lip for improved pouring out, so a seperate pouring ring from PP is not required.
[2] Acceptance within ISO 4796-I:2013 standard has been requested.
[3] Bottle with plastic coating available on request.
[4] Only applies to bottles 5 000 mL and less.
[5] All these bottles are compatable with the full range of DURAN® GL caps, including chemically resistant, venting membrane, temper-evident, pharmaceutical grade, and connection system caps.
[6] Only available with GL 32 thread.

	DURAN® LABORATORY BOTTLE, PRESSURE PLUS+			DURAN® PREMIUM BOTTLE		DURAN® LABORATORY BOTTLE, SQUARE	
							
	Supplied without screw cap			Available with or without GL 45 Premium cap from PFA		Available with or without GL screw cap from PP	
	Bottle: –70 °C to +140 °C			Bottle: –70 °C to +500 °C Cap: –196 °C to +200 °C		Bottle: –70 °C to +500 °C Cap: –40 °C to +140 °C	
	• Vacuum and pressure resistance –1 to +1.5 bar • Suitable for HPLC applications • UV protection up to ca. 500 nm (Amber)			USP/FDA Conformity of bottle, screw cap and pouring ring		• Space saving shape • Ideal for storage and transport	
	clear	clear, protect	amber	clear		clear	
	Without screw cap	Without screw cap	Without screw cap	With premium screw cap PFA	Without premium screw cap	With screw Cap (PP)	Without screw cap
	–	–	–	–	–	–	–
	–	–	–	–	–	–	–
	–	–	–	–	–	–	–
	21 810 24 06	21 815 24 02	21 816 24 03	11 270 75	11 270 79	21 820 24 53[6]	21 820 24 04[6]
	–	–	–	–	–	–	–
	10 922 34	11 759 25	10 943 67[3]	11 270 76	–	21 820 36 55	10 088 34
	10 922 35	11 759 26	10 943 68[3]	11 270 77	–	21 820 44 54	10 088 42
	–	–	–	–		–	–
	21 810 54 03	21 815 54 08	21 816 54 09[3]	11 270 78	11 279 76	21 820 54 59	10 088 43
	–	–	–	–	–	–	–
	–	–	–	–	–	–	–
	–	–	–	–	–	–	–
	–	–	–	–	–	–	–
	–	–	–	–	–	–	–
	–	–	–	–	–	–	–
	–	–	–	–	–	–	–

DURAN WHEATON KIMBLE
Excellence in your hands

DURAN® RANGE OF GL THREADED SCREW CAPS AND CLOSURES

Name	DURAN® Original GL Laboratory Bottle Cap	DURAN® GL Membrane Vented Cap	DURAN® GL Tamper Evident Cap	DURAN® GL Tamper Evident Cap
				
Description	Excellent general purpose cap. Autoclavable. Good chemical resistance. Colour choice.	Venting membrane. Safe autoclaving. Sterile storage of liquids.	Tamper evident cap. Liner less sealing. Autoclavable.	Tamper evident cap. Reliable liner sealing. Autoclavable.
Materials of Construction	Polypropylene + colour	Polypropylene + colour + PTFE membrane	Polypropylene + colour	Polypropylene + colour (PTFE / silicone cap liner)
Available Colours	Blue / Yellow / Green or Grey	Blue	Blue / red	Blue / yellow
Type of Seal	Plug seal / Liner less	Plug seal / Liner less	Plug seal / Liner less	Cap liner
Maximum Temperature	+140 °C	+140 °C	+140 °C	+140 °C
Minimum Temperature	–40 °C	–40 °C	–40 °C	–40 °C
Available GL Thread Sizes (acc. DIN 168-1 (1998-04))	25, 32 and 45	25, 32 and 45	45	45
Safe for Food Contact (E.g. FDA & EU)	Yes	Yes	Yes	Yes
Pharmacopoeia Compliant (USP / EP)	No	No	No	No
Lot Specific Retrace Code	No	No	No	No
Matching Pouring Ring	Yes, GL 32 and GL 45 only Polypropylene + colour (Blue / Yellow / Green or Grey)	Yes, GL 45 only Polypropylene + colour (Blue)	Yes, GL 45 only Polypropylene + colour (Blue)	Yes, GL 45 only Polypropylene + colour (Blue)
GL 14	–	–	–	–
GL 18	–	–	–	–
GL 25	● 29 239 13 07	● 29 118 13 07	–	–
GL 32	Cap: ● 29 239 19 07 / Pouring ring: ● 29 242 19 07	Cap: ● 29 118 19 07 / Pouring ring: ● 29 242 19 07	–	–
GL 45	Cap: ● 29 239 28 09, ● 29 338 28 02, ● 29 338 28 68, ● 29 338 28 84 / Pouring ring: ● 29 242 28 09, ● 10 899 17, ● 10 899 11, ● 10 899 14	Cap: ● 29 118 28 09 / Pouring ring: ● 29 242 28 09	Cap: ◐ 10 175 26 / Pouring ring: ● 29 242 28 09	Cap: ◐ 11 558 86 / Pouring ring: ● 29 242 28 09
GL 56	–	○ 29 118 56 09	–	–

	DURAN® GL 45 YOUTILITY Cap	DURAN® *TILT* GL 56 Cap	DURAN® GL PBT Cap	DURAN® GL PBT Open Topped (Aperture) Cap	DURAN® GL PREMIUM Cap
					
	Ergonomic shape. Autoclavable. Faster thread GL 45 compatible.	Ergonomic shape. Autoclavable.	High temperature and chemical resistance. Autoclavable. Reliable sealing.	Excellent temperature and chemical resistance. Autoclavable. Open topped for septa or connectors.	High purity and performance. Autoclavable. Uncoloured for biopharmaceutical processing.
	Polypropylene + colour	Polypropylene + colour	Polybutylene terephthalate (PBT) + 30 % glass fibre + colour (PTFE / silicone cap liner)	Polybutylene terephthalate (PBT) + 30 % glass fibre + colour	Uncoloured Perfluoroalkoxy alkanes (PFA / TpCH260) (PTFE / silicone cap liner)
	Cyan	White	Red	Red	Translucent
	Plug seal / Liner less	Plug seal / Liner less	Cap liner	Not applicable – open topped	Cap liner
	+140 °C	+140 °C	+180 °C	+180 °C	+200 °C
	–40 °C	–40 °C	–45 °C	–45 °C	–196 °C
	45	56	14, 18, 25, 32 and 45	14, 18, 25, 32 and 45	25 and 45
	Yes	Yes	Yes	Yes	Yes
	No	No	No (Cap liner – Yes EP)	No	Yes (Cap body – USP <87> Class VI (120 °C)) (Cap liner – EP)
	Yes	Yes	No	No	Yes
	Yes, GL 45 only Polypropylene + colour (Cyan)	None	Yes, for GL 32 and GL 45 only red ETFE	Yes, for GL 32 and GL 45 only red ETFE	Yes, for GL 45 only PFA Translucent
	–	–	● 29 240 08 06	● 29 227 05 08	–
	–	–	● 29 240 11 08	● 29 227 06 02	–
	–	–	● 29 240 13 05	● 29 227 09 02	● 11 296 00
	–	–	Cap: ● 29 240 19 05 / Pouring ring: ● 29 244 19 09	● 29 227 08 08	–
	Cap: ● 29 229 28 02 / Pouring ring: ● 29 241 28 08	–	Cap: ● 29 240 28 07 / Pouring ring: ● 29 244 28 02	● 29 227 10 07	Cap: ● 10 886 79 / Pouring ring: ● 10 886 78
	–	○ 29 229 56 02	–	–	–

DURAN WHEATON KIMBLE
Excellence in your hands

DURAN® RANGE OF GLS 80® BOTTLES AND CAPS

Product range	DURAN® GLS 80® WIDE MOUTH LABORATORY BOTTLE	DURAN® GLS 80® WIDE MOUTH LABORATORY BOTTLE, AMBER	DURAN® GLS 80® WIDE MOUTH LABORATORY BOTTLE, PROTECT
Borosilicate 3.3. glass bottle body			
Caps[1]	Available with or without GLS 80® screw cap from PP	Available with or without GLS 80® screw cap from PP	Available with or without GLS 80® screw cap from PP
Temperature resistance	Bottle: –70 °C to +500 °C Cap: –40 °C to +140 °C	Bottle: –70 °C to +500 °C Cap: –40 °C to +140 °C	Bottle: –30 °C to +135 °C Cap: –40 °C to +140 °C
Main advantage	• Tried and tested, DURAN® glass • Wide mouth enables easy access	• USP <660> and USP <671> (Spectral Transmission) compliant • UV protection up to ca. 500 nm	• The coating provides scratch, leak and splinter protection[2] • UV protection up to ca. 380 nm (ca. 500 nm Amber)

Colour		clear		amber		clear		amber	
mL	GLS thread	With screw cap (PP)	Without screw cap	With screw cap (PP)	Without screw cap	With screw cap (PP)	Without screw cap	With screw cap (PP)	Without screw cap
250	80	21 860 36 56	21 860 36 07	21 866 36 53	21 866 36 04	21 865 36 52	21 865 36 03	–	–
500	80	11 126 27	11 783 92	11 601 46	11 784 29	11 601 52	–	11 673 08	21 866 44 36
1 000	80	11 127 13	11 784 24	11 601 47	11 784 30	11 601 63	–	11 673 09	21 866 54 32
2 000	80	11 127 15	11 784 25	11 601 48	11 784 31	11 601 64	–	–	21 866 63 34
3 500	80	21 860 69 53	21 860 69 04	21 866 69 59	21 866 69 01	21 865 69 53	21 865 69 09	–	–
5 000	80	11 139 49	11 784 26	11 601 49	11 784 32	11 601 65	–	–	21 866 73 39
10 000	80	11 139 50	11 784 27	11 601 50	11 784 33	–	–	–	–
20 000	80	11 139 51	11 784 28	11 601 51	11 784 34	–	–	–	–

[1] All these bottles are compatible with the full range of DURAN® GLS caps, including chemically resistant, venting membrane, pharmaceutical grade, and connection system caps.

[2] For the bottle sizes from 250 – 5 000 mL

	DURAN® GLS 80® QUICK RELEASE CLOSURE FROM PP		DURAN® GLS 80® QUICK RELEASE CLOSURE WITH CAP LINER (PSU COMPOUND)			DURAN® GLS 80® MEMBRANE VENTED SCREW CAP FROM PP
						
	A matching PP pouring ring is available		A matching PTFE pouring ring is available			Use with either PP or PTFE pouring ring
	–40 °C to +140 °C		–45 °C to +180 °C			–40 °C to +140 °C
	Permits opening and closing of the DURAN® GLS 80® bottle with only a three-quarter turn		The PSU material with PTFE coated liners offers improved chemical, thermal and mechanical properties			Ideal for autoclave application, membrane permits pressure equalisation
	blue		white			blue
	Screw cap	Pouring ring	Screw cap	Pouring ring	Replacement cap liner	Screw cap
	11 127 16	11 601 66	11 658 88	11 673 07	11 529 21	29 118 91 05

DURAN WHEATON KIMBLE
Excellence in your hands


250 ml
Made in Germany
SCHOTT
DURAN

02

BOILING FLASKS AND GENERAL LABORATORY GLASSWARE

BOILING FLASKS AND GENERAL LABORATORY GLASSWARE

02

DURAN® laboratory glassware, including heating vessels, has very good thermal-shock resistance (ΔT=100 K) and a high operating temperature (+500 °C). Not only the glass type, but also its uniform wall thickness distribution are critical in preventing uneven expansion and stressing of the glass which could result in failure. For this reason, wall thickness distribution is, as a vital quality characteristic, continuously checked during the production process.

The beakers are primarily used as heating vessels. The tall shape is particularly suited to heating in liquid baths where the beaker contents are protected against the surrounding medium.

Erlenmeyer flasks are well suitable for mixing, because of their conical shape.

Weighing bottles are used when accurately weighing out substances. Close fitting lids with moulded grips are used to prevent the substances from being lost, e.g. during transport within the laboratory.

Watch glass dishes can be used both for covering beakers and Erlenmeyer flasks as well as for weighing small quantities of substances.

Our product range also includes a wide range of test tubes. In addition to DURAN® glass, other glass types are available (FIOLAX®, soda-lime). The characteristics of each glass type may be found in the chapter technical information.

Usage tips:

- Due to the uniform wall thickness distribution suitable for very high temperature changes.
- The printed scale on many items of DURAN® laboratory glassware is indicated with an accuracy of ±10 %. Therefore the items are not suitable for use as volumetric glassware.
- The products are not designed for use under differential pressure or vacuum conditions.

DURAN® beakers and Erlenmeyer flasks are provided with a retrace code. Using the eight-character code and the corresponding article number, a batch and quality certificate can be obtained at **www.DWK-LifeSciences.com** abrufen.

> Find your nearest **distributor** on our global network:
www.DWK-LifeSciences.com/DURAN/distributors

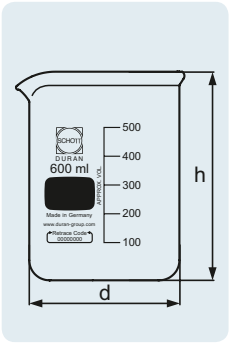
DURAN® SUPER DUTY Beaker

low form, with spout, with reinforced rim

The DURAN® SUPER DUTY products are characterized by a higher mechanical strength achieved by reinforcing the rim. As a result of this modification, the impact strength is improved, and the risk of accidental breakage is significantly reduced.

Application note: To avoid breakages due to thermal stress, uniform and slow heating of SUPER DUTY products is recommended.

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Pack Unit
21 107 29 09	150	60	80	10
21 107 36 05	250	70	95	10
21 107 41 04	400	80	110	10
21 107 48 07	600	90	125	10
21 107 54 09	1 000	105	145	10
21 107 63 02	2 000	132	185	10
21 107 73 07	5 000	170	270	1



Retrace Code | A 121 °C | USP Standard

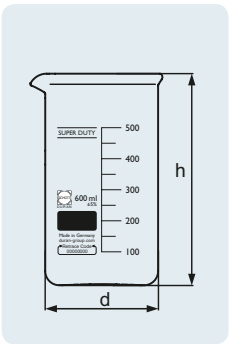
DURAN® SUPER DUTY Beaker

high form, with spout, with reinforced rim

The DURAN® SUPER DUTY products are characterized by a higher mechanical strength achieved by reinforcing the rim. As a result of this modification, the impact strength is improved, and the risk of accidental breakage is significantly reduced.

Application note: To avoid breakages due to thermal stress, uniform and slow heating of SUPER DUTY products is recommended.

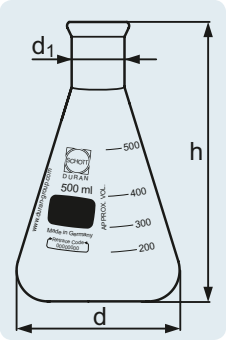
Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Pack Unit
21 118 29 08	150	54	95	10
21 118 36 04	250	60	120	10
21 118 48 06	600	80	150	10



Retrace Code | A 121 °C | USP Standard

DURAN® SUPER DUTY Erlenmeyer Flask

narrow neck, with reinforced rim



Retrace Code | A 121 °C | USP Standard

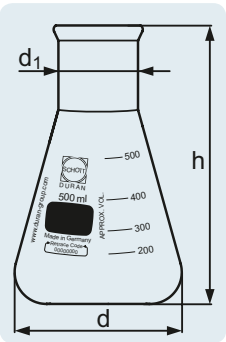
The DURAN® SUPER DUTY products are characterized by a higher mechanical strength achieved by reinforcing the rim. As a result of this modification, the impact strength is improved, and the risk of accidental breakage is significantly reduced.

Application note: To avoid breakages due to thermal stress, uniform and slow heating of SUPER DUTY products is recommended.

Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Pack Unit
21 217 14 08	25	42	22	75	10
21 217 17 08	50	51	22	90	10
21 217 24 04	100	64	22	105	10
21 217 36 06	250	85	34	145	10
21 217 44 05	500	105	34	180	10
21 217 54 01	1 000	131	42	220	10
21 217 63 03	2 000	166	50	280	10
21 217 73 08	5 000	220	52	365	1

DURAN® SUPER DUTY Erlenmeyer Flask

wide neck, with reinforced rim



Retrace Code | A 121 °C | USP Standard

The DURAN® SUPER DUTY products are characterized by a higher mechanical strength achieved by reinforcing the rim. As a result of this modification, the impact strength is improved, and the risk of accidental breakage is significantly reduced.

Application note: To avoid breakages due to thermal stress, uniform and slow heating of SUPER DUTY products is recommended.

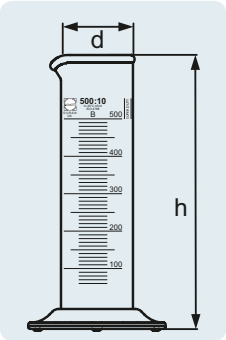
Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Pack Unit
21 227 24 02	100	64	34	105	10
21 227 36 04	250	85	50	140	10
21 227 44 03	500	105	50	175	10
21 227 54 08	1 000	131	50	220	10

DURAN® SUPER DUTY Measuring Cylinder

low form, class B, with graduation and hexagonal base

The DURAN® SUPER DUTY products are characterized by a higher mechanical strength achieved by reinforcing the rim. As a result of this modification, the impact strength is improved, and the risk of accidental breakage is significantly reduced.

Application note: To avoid breakages due to thermal stress, uniform and slow heating of SUPER DUTY products is recommended.



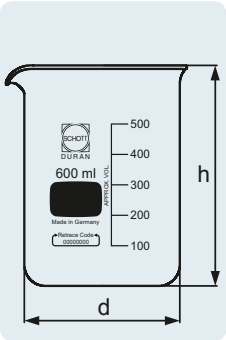
ISO 4788 | A 121 °C

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Accuracy limits (mL)	Graduation (mL)	Pack Unit
21 394 24 06	100	39	168	1	2	2
21 394 36 08	250	54	205	2	5	2
21 394 44 07	500	66	253	5	10	2
21 394 54 03	1 000	85	290	10	20	2

DURAN® Beaker

low form, with spout

With easy-to-read scale and large labelling field for easy marking in fired-on, highly durable, white ceramic. Spout for clean pouring. Uniform wall thickness distribution makes these beakers ideal for heating applications.

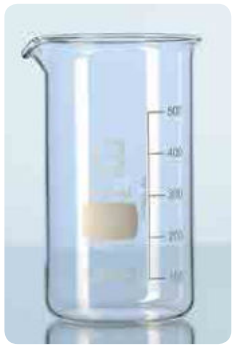


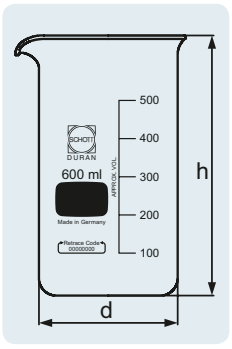
ISO 3819 | Retrace Code | A 121 °C

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Remark	Pack Unit
21 106 07 01	5	22	30	Without graduation.Without Retrace Code.	10
21 106 08 04	10	26	35	Without graduation.Without Retrace Code.	10
21 106 14 06	25	34	50		10
21 106 17 06	50	42	60		10
21 106 24 02	100	50	70		10
21 106 29 08	150	60	80		10
21 106 36 04	250	70	95		10
21 106 41 03	400	80	110		10
21 106 48 06	600	90	125		10
21 106 53 05	800	100	135		10
21 106 54 08	1 000	105	145		10
21 106 63 01	2 000	132	185		10
21 106 68 07	3 000	152	210		4
21 106 73 06	5 000	170	270		1
21 106 86 02	10 000	217	350	Non-DIN/ISO size.	1

DURAN® Beaker

high form, with spout





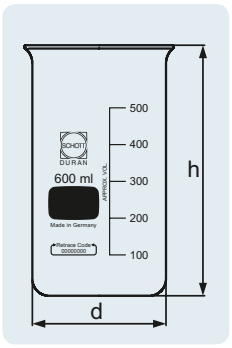
ISO 3819 | Retrace Code | A 121 °C

With easy-to-read scale and large labelling field for easy marking in fired-on, highly durable, white ceramic. With spout for clean pouring. Uniform wall thickness distribution makes these beakers ideal for heating applications.

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Pack Unit
21 116 17 04	50	38	70	10
21 116 24 09	100	48	80	10
21 116 29 06	150	54	95	10
21 116 36 02	250	60	120	10
21 116 41 01	400	70	130	10
21 116 48 04	600	80	150	10
21 116 53 03	800	90	175	10
21 116 54 06	1 000	95	180	10
21 116 63 08	2 000	120	240	10
21 116 68 05	3 000	135	280	2

DURAN® Beaker

high form, without spout



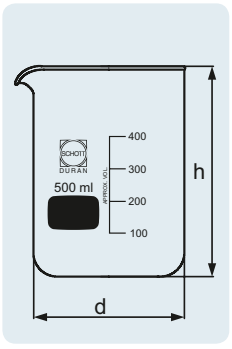
Retrace Code | A 121 °C | USP Standard

With easy-to-read scale and large labelling field for easy marking in fired-on, highly durable, white ceramic. Uniform wall thickness distribution makes these beakers ideal for heating applications.

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Pack Unit
21 117 17 05	50	38	70	10
21 117 24 01	100	48	80	10
21 117 29 07	150	54	95	10
21 117 36 03	250	60	120	10
21 117 41 02	400	70	130	10
21 117 48 05	600	80	150	10
21 117 54 07	1 000	95	180	10

DURAN® Beaker

heavy-wall (filtering beaker)



A 121 °C | USP Standard

With easy-to-read scale and large labelling field for easy marking in fired-on, highly durable, white ceramic. Has, due to the increased wall thickness, better mechanical properties than the standard beaker. Thermal shock resistance, however, is reduced so only limited application for heating. With spout for clean pouring.

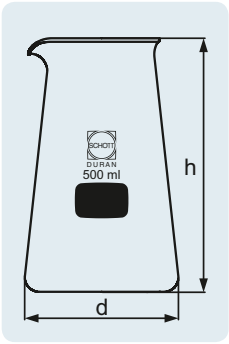
Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Remark	Pack Unit
21 131 24 09	100	52	85		10
21 131 29 06	150	54	93		10
21 131 36 02	250	70	94		10
21 131 44 01	500	89	124		10
21 131 54 06	1 000	105	160		10
21 131 63 08	2 000	135	195		10
21 131 68 05	3 000	157	205		4
21 131 73 04	5 000	182	256		1
21 131 86 09	10 000	225	340	Without graduation.	1
21 131 88 06	15 000	260	390	Without graduation.	1
21 131 91 08	20 000	285	430	Without graduation.	1

Spout for clean pouring.

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Pack Unit
21 141 29 04	150	59	87	10
21 141 36 09	250	68	105	10
21 141 44 08	500	86	142	10

DURAN® Philips Beaker

with spout

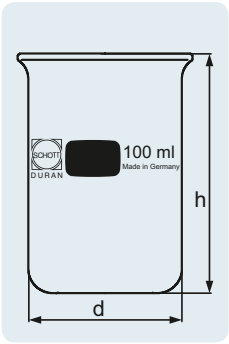


A
121 °C

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Pack Unit
21 126 01 06	100	50	78	10

DURAN® Berzelius Beaker

without spout

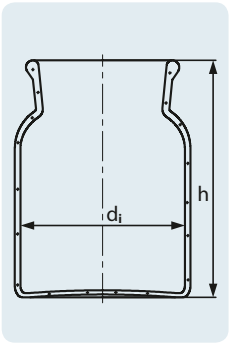


A
121 °C

Manufactured according to DIN ISO 9665.

Cat. No.	d_i (ID) (mm)	h (mm)	Pack Unit
21 125 01 05	59	85	10

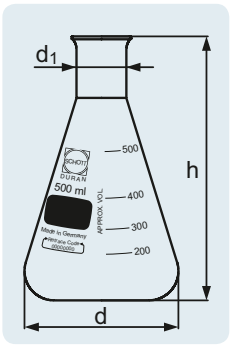
DURAN® Bloom Test Vessel



A
121 °C

DURAN® Erlenmeyer Flask

narrow neck



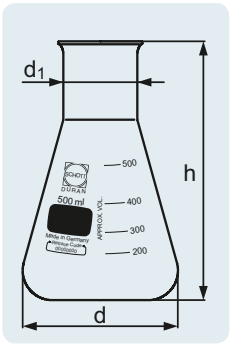
DIN ISO 1773 | A 121 °C | Retrace Code | USP Standard

With easy-to-read scale and large labelling field for easy marking in fired-on, highly durable, white ceramic. Due to conical form, suited to the mixing of liquids. Uniform wall thickness distribution makes these flasks ideal for heating applications.

Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Remark	Pack Unit
21 216 14 07	25	42	22	75	Without Retrace Code.	10
21 216 17 07	50	51	22	90		10
21 216 24 03	100	64	22	105		10
21 216 28 06	125	67	28	112		10
21 990 27 02	150	74	28	118	Non-DIN ISO size.	10
21 216 32 02	200	79	34	131	Non-DIN ISO size.	10
21 216 36 05	250	85	34	145		10
21 216 39 05	300	87	34	156	Non-DIN ISO size.	10
21 216 44 04	500	105	34	180		10
21 216 53 06	800	120	42	200		10
21 216 54 09	1 000	131	42	220		10
21 216 63 02	2 000	166	50	280		10
21 216 68 08	3 000	187	52	310		2
21 216 73 07	5 000	220	52	365		1

DURAN® Erlenmeyer Flask

wide neck



DIN ISO 24450 | Retrace Code | A 121 °C | USP Standard

With easy-to-read scale and large labelling field for easy marking in fired-on, highly durable, white ceramic. Due to conical form, suited to the mixing of liquids. Uniform wall thickness distribution makes these flasks ideal for heating applications. The wide neck enables easy filling and cleaning.

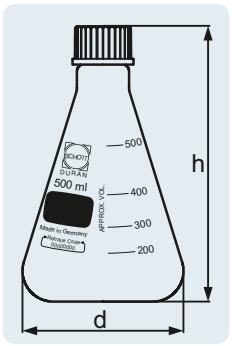
Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Remark	Pack Unit
21 226 14 05	25	43	31	70	Non-DIN EN ISO size.	10
21 226 17 05	50	51	34	85		10
21 226 24 01	100	64	34	105		10
21 226 32 09	200	79	50	131	Non-DIN EN ISO size.	10
21 226 36 03	250	85	50	140		10
21 226 39 03	300	87	50	156	Non-DIN EN ISO size.	10
21 226 44 02	500	105	50	175		10
21 226 54 07	1 000	131	50	220		10
21 226 63 09	2 000	153	72	276	Non-DIN EN ISO size.	10

DURAN® Erlenmeyer Flask

with DIN thread

With easy-to-read scale and large labelling field for easy marking in fired-on, highly durable, white ceramic. The flask can be closed with a PBT cap or membrane cap (permits gas exchange).

Typical applications: The flask is suitable for storage, media preparation and cultivation.



Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	DIN Thread (GL)	Pack Unit
with PBT cap					
21 803 24 51	100	64	109	25	10
21 803 36 53	250	85	149	32	10
21 803 44 52	500	105	180	32	10
21 803 54 57	1 000	131	225	32	10
without screw cap					
21 803 24 02	100	64	105	25	10
21 803 36 04	250	85	145	32	10
21 803 44 03	500	105	175	32	10
21 803 54 08	1 000	131	220	32	10

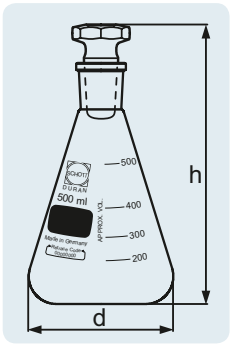
Retrace Code | A 121 °C | USP Standard

DURAN® Iodine Flask

Erlenmeyer shape, with standard ground joint and glass stopper

With easy-to-read scale and large labelling field for easy marking in fired-on, highly durable, white ceramic. The flask can be closed with a glass stopper.

Typical applications: the iodine flask is suitable for determining the iodine number, i.e. the content of unsaturated fatty acids in oils and fats.

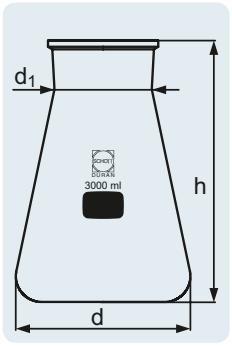


Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Neck	Pack Unit
24 192 27 04	100	64	120	29/32	10
24 192 37 09	250	85	160	29/32	10
24 192 46 02	500	105	195	29/32	10
24 192 56 07	1 000	131	235	29/32	10

Retrace Code | A 121 °C | USP Standard

DURAN® Conical Flask

Erlenmeyer shape, wide neck

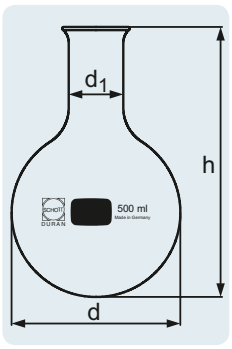


Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Remark	Pack Unit
21 227 68 07	3 000	190	106	285	Without graduation.	1
21 227 73 06	5 000	220	108	322	Without graduation.	1
21 227 86 02	10 000	285	147	420	Without graduation.	1

A 121 °C | USP Standard

DURAN® Round Bottom Flask Narrow Neck

with beaded rim



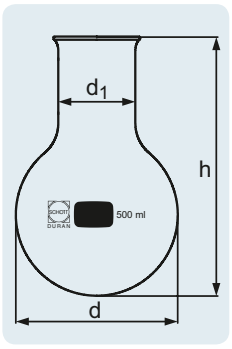
DIN ISO 1773 | A 121 °C | USP Standard

Uniform wall thickness distribution makes these flasks ideal for heating applications. The geometry permits very uniform heating. Flasks with a neck diameter of 65 mm or more have a reinforced rim.

Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Remark	Pack Unit
21 721 17 06	50	51	26	95		10
21 721 24 02	100	64	26	110		10
21 721 36 04	250	85	34	144		10
21 721 44 03	500	105	34	168		10
21 721 54 08	1 000	131	42	200		10
21 721 64 04	2 000	166	42	250	Non-DIN ISO size.	10
21 721 68 07	3 000	185	50	260	Non-DIN ISO size.	1
21 721 71 09	4 000	207	52	290		1
21 721 73 06	5 000	223	50	305	Non-DIN ISO size.	1
21 721 77 09	6 000	236	51	355	Non-DIN ISO size.	1
21 721 86 02	10 000	279	65	380		1
21 721 87 05	12 000	295	65	380	Non-DIN ISO size. Conforms to ASTM E 1403.	1
21 721 91 01	20 000	345	76	515	Conforms to ASTM E 1403.	1

DURAN® Round Bottom Flask Wide Neck

with beaded rim



DIN ISO 24450 | A 121 °C | USP Standard

Uniform wall thickness distribution makes these flasks ideal for heating applications. The geometry permits very uniform heating. The wide neck permits easy filling and removal of flask contents. Flasks with a neck diameter of 76 mm or more have a reinforced rim.

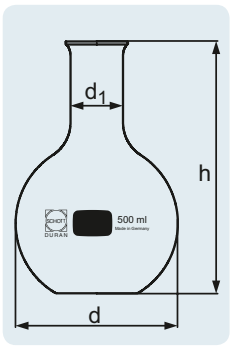
Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Remark	Pack Unit
21 741 17 02	50	51	34	105	Non-DIN EN ISO size.	10
21 741 24 07	100	64	35	110		10
21 741 36 09	250	85	51	143		10
21 741 44 08	500	105	50	168		10
21 741 54 04	1 000	131	50	200		10
21 741 55 07	1 000	131	65	200	Non-DIN EN ISO size.	10
21 741 63 06	2 000	165	76	240		10
21 741 64 09	2 000	166	50	240	Non-DIN EN ISO size.	10
21 741 68 03	3 000	185	65	260	Non-DIN EN ISO size.	1
21 741 71 05	4 000	206	76	290		1
21 741 73 02	5 000	223	65	310	Non-DIN EN ISO size.	1
21 741 76 02	6 000	236	89	330		1
21 741 77 05	6 000	236	65	330	Non-DIN EN ISO size.	1
21 741 86 07	10 000	279	89	420	Non-DIN EN ISO size.	1
21 741 91 06	20 000	345	89	520	Non-DIN EN ISO size.	1

DURAN® Flat Bottom Flask Narrow Neck

with beaded rim

Uniform wall thickness distribution makes these flasks ideal for heating applications. Flat base means flasks can be set down without a supporting ring. Flasks with a neck diameter of 65 mm have a reinforced rim.

Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Remark	Pack Unit
21 711 17 08	50	51	26	90		10
21 711 24 04	100	64	26	105		10
21 711 36 06	250	85	34	138		10
21 711 44 05	500	105	34	163		10
21 711 54 01	1 000	131	42	190		10
21 711 64 06	2 000	166	42	250	Non-DIN ISO size.	10
21 711 68 09	3 000	185	50	250	Non-DIN ISO size.	1
21 711 71 02	4 000	207	50	275		1
21 711 73 08	5 000	223	50	290	Non-DIN ISO size.	1
21 711 76 08	6 000	237	65	315		1
21 711 86 04	10 000	280	65	360		1



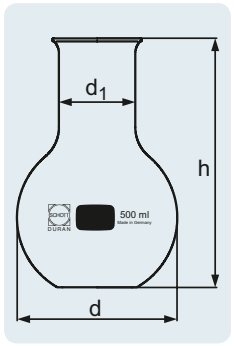
DIN ISO 1773 | A 121 °C | USP Standard

DURAN® Flat Bottom Flask Wide Neck

with beaded rim

Uniform wall thickness distribution makes these flasks ideal for heating applications. Flat base means flasks can be set down without a supporting ring. The wide neck permits easy filling and removal of flask contents. Flasks with a neck diameter 76 mm have a reinforced rim.

Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Remark	Pack Unit
21 731 17 04	50	51	34	90		10
21 731 24 09	100	64	34	105		10
21 731 36 02	250	85	50	138		10
21 731 44 01	500	105	50	163		10
21 731 54 06	1 000	131	50	190		10
21 731 63 08	2 000	166	76	230	Non-DIN EN ISO size.	10
21 731 64 02	2 000	166	50	230		10



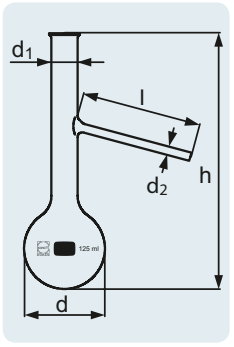
DIN ISO 24450 | A 121 °C | USP Standard

DURAN® Engler Flask

with beaded rim, side outlet

Uniform wall thickness distribution makes these flasks ideal for heating applications and distillations. DURAN® Engler Distilling Flasks comply with the requirements of ASTM D86 and DIN EN ISO 3405 for the atmospheric distillation of petroleum products.

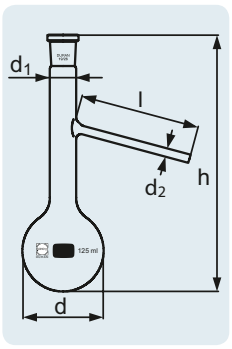
Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	Side arm d_2 (OD) (mm)	Side arm l (mm)	h (mm)	Pack Unit
21 653 24 04	100	66	20	6	100	215	10
21 653 28 07	125	69	22	7	100	215	10
21 653 29 01	150	73	20	6	100	223	10
according to ASTM D86 and DIN EN ISO 3405							
21 654 28 08	125	69	22	7	100	215	2



A 121 °C | USP Standard

DURAN® Engler Flask

with standard ground joint 19/26, side outlet



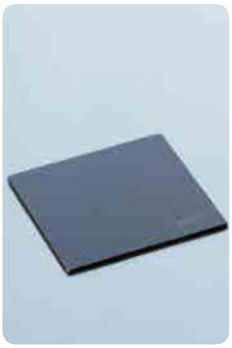
A 121 °C

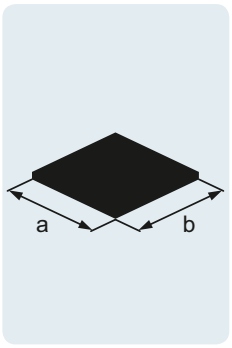
USP Standard

Uniform wall thickness distribution makes these flasks ideal for heating applications and distillations. DURAN® Engler Distilling Flasks comply with the requirements of ASTM D86 and DIN EN ISO 3405 for the atmospheric distillation of petroleum products.

Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	Side arm d_2 (OD) (mm)	Side arm l (mm)	h (mm)	Pack Unit
according to ASTM D86 and DIN EN ISO 3405							
24 654 28 05	125	69	22	7	100	215	10

Glass Ceramic Laboratory Protection Plate





Due to low thermal expansion stresses, these glass ceramic plates are well suited to heating glassware with a Bunsen burner.

Cat. No.	Plate dimensions (a x b mm)	Pack Unit
23 821 53 09	135 x 135	10
23 821 57 03	155 x 155	10
23 821 58 06	175 x 175	10

Square Quadrupod

for glass ceramic laboratory protection plate

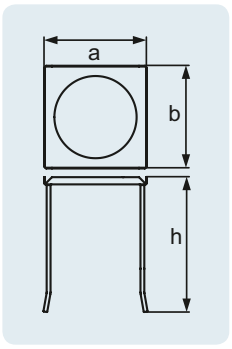


Plate holder for glass ceramic plates. Made from heat-resistant chrome-nickel steel with four legs for extra stability.

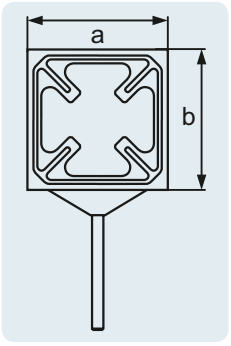
Cat. No.	h (mm)	Plate dimensions (a x b mm)	Pack Unit
29 077 53 02	210	135 x 135	5
29 077 57 05	210	155 x 155	5
29 077 58 08	220	175 x 175	5

Plate Holder

for glass ceramic laboratory protection plate

Plate holder for glass ceramic plates. Made from heat-resistant chrome-nickel steel.

Cat. No.	Plate dimensions (a x b mm)	Pack Unit
29 078 53 03	135 x 135	5
29 078 57 06	155 x 155	5
29 078 58 09	175 x 175	5

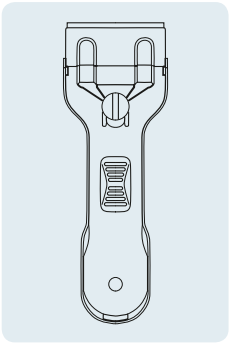


Cleaning Scraper

for glass ceramic laboratory protection plate

Ideal for cleaning glass ceramic plates.

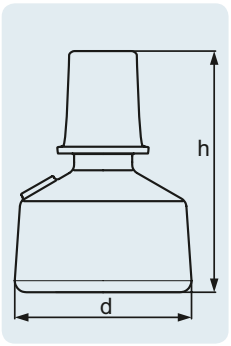
Cat. No.	Pack Unit
29 079 01 09	10



Spirit Lamp from Soda-lime Glass

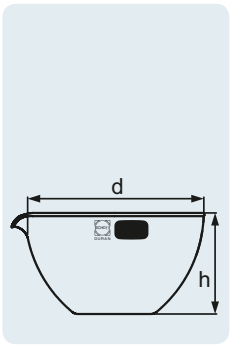
without filling tubulature, with ground over-cap

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Pack Unit
without socket and wick				
23 400 24 06	100	75	103	10
with socket and wick				
23 400 24 55	100	75	103	10
Accessories for spirit lamp: wicks for spirit lamps				
29 402 00 07				50
Accessories for spirit lamp: sockets for spirit lamps (of aluminium)				
29 403 00 08				50



DURAN® Evaporating Dish

with spout

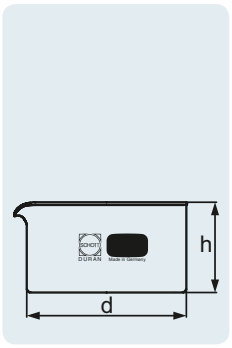


DIN 12336 | A 121 °C

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Remark	Pack Unit
21 301 32 02	15	50	25	Without labelling field.	10
21 301 34 08	45	60	30	Without labelling field.	10
21 301 38 02	60	70	35	Without labelling field.	10
21 301 41 04	90	80	45	Without labelling field.	10
21 301 44 04	170	95	55		10
21 301 49 01	320	115	65		10
21 301 54 09	600	140	80		10
21 301 59 06	1 500	190	100		10
21 301 63 02	2 500	230	130		10

DURAN® Crystallizing Dish

with and without spout



DIN 12337 | DIN 12338 | A 121 °C

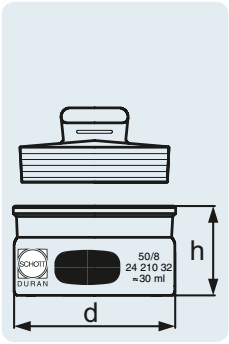
Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Pack Unit
with spout, DIN 12 338				
21 311 24 01	20	40	25	10
21 311 32 09	40	50	30	10
21 311 34 06	60	60	35	10
21 311 38 09	100	70	40	10
21 311 41 02	150	80	45	10
21 311 44 02	300	95	55	10
21 311 49 08	500	115	65	10
21 311 54 07	900	140	75	10
21 311 59 04	2 000	190	90	10
21 311 63 09	3 500	230	100	10
without spout, DIN 12 337				
21 313 24 03	20	40	25	10
21 313 32 02	40	50	30	10
21 313 34 08	60	60	35	10
21 313 38 02	100	70	40	10
21 313 41 04	150	80	45	10
21 313 44 04	300	95	55	10
21 313 49 01	500	115	65	10
21 313 54 09	900	140	75	10
21 313 59 06	2 000	190	90	10
21 313 63 02	3 500	230	100	10

DURAN® Weighing Bottle

with ground lid

Close-fitting lid prevents any sample loss during transport after weighing. Available in low and high forms.

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Pack Unit
Low form				
24 210 13 04	5	28	25	10
24 210 23 09	15	38	30	10
24 210 32 02	30	54	30	10
24 210 41 04	80	85	30	10
High form				
24 211 13 05	10	28	40	10
24 211 18 02	20	32	50	10
24 211 23 01	45	38	70	10
24 211 24 04	70	44	80	10



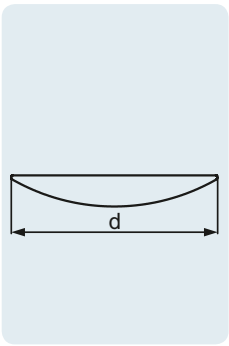
A 121 °C

DURAN® Watch Glass Dish

fused rim

Available in DURAN® and also in soda-lime glass.

Cat. No.	d (OD) (mm)	Pack Unit
DURAN®		
21 321 24 08	40	10
21 321 32 07	50	10
21 321 34 04	60	10
21 321 41 09	80	10
21 321 46 06	100	10
21 321 52 08	125	10
21 321 57 05	150	10
21 321 61 01	200	10
21 321 66 07	250	1
Soda-lime glass		
23 321 24 09	40	10
23 321 32 08	50	10
23 321 34 05	60	10
23 321 38 08	70	10
23 321 41 01	80	10
23 321 43 07	90	10
23 321 46 07	100	10
23 321 51 06	120	10
23 321 52 09	125	10
23 321 57 06	150	10
23 321 61 02	200	10
23 321 66 08	250	10



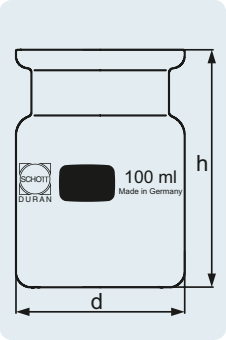
DIN 12341

A 121 °C

DURAN® Organ Storage Jar

without stopper

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Pack Unit
24 204 23 06	75	50	70	10
24 204 24 09	100	54	75	10

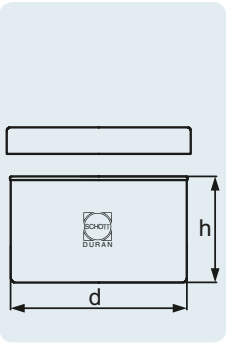


A
121 °C

DURAN® Jar

with lid

Cat. No.	d (OD) (mm)	h (mm)	Volume approx. (mL)	Pack Unit
24 208 34 09	60	40	75	10
24 208 41 05	80	50	175	10
24 208 45 08	100	60	325	10
24 208 57 01	150	80	1000	10

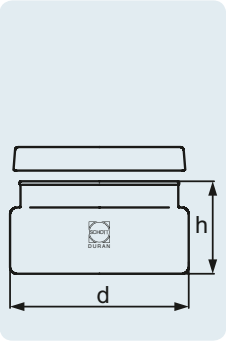


A
121 °C

DURAN® Jar

with shoulder and lid

Cat. No.	d (OD) (mm)	h (mm)	Volume approx. (mL)	Pack Unit
24 207 34 08	60	35	70	10
24 207 45 07	103	55	250	10
24 207 51 09	121	64	500	10



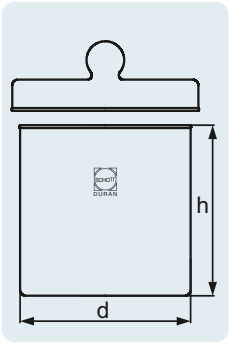
DIN
12340

A
121 °C

Cat. No.	d (OD) (mm)	h (mm)	Volume approx. (mL)	Pack Unit
24 205 01 09	80	80	250	10
24 205 03 06	100	100	500	10
24 205 05 03	120	120	1000	1
24 205 10 02	150	150	2000	1
24 205 21 01	210	210	6000	1
24 205 32 09	260	260	12000	1

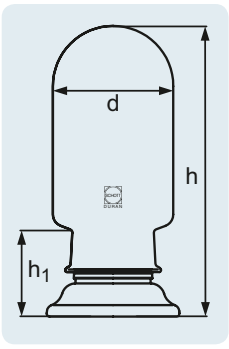
DURAN® Cylinder

with knobbed lid, polished rim



Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	h_1 (mm)	Neck	Pack Unit
21 580 24 01	100	52	135	39	NS 34.5	10
21 580 39 03	300	69	163	48	NS 45	10
21 580 48 05	600	81	214	50	NS 50	10
21 580 51 07	750	90	240	57	NS 60	10
21 580 58 01	1 200	100	253	57	NS 60	10

DURAN® Specimen Jar

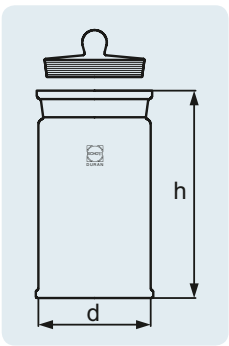


The precise grinding of the knobbed lid and base vessel enables a very tight seal.

Cat. No.	d (OD) (mm)	h (mm)	Volume approx. (mL)	Pack Unit
24 209 02 07	65	63	80	10
24 209 09 01	65	103	175	10
24 209 11 09	115	103	460	10
24 209 16 06	90	123	395	10
24 209 17 09	132	123	875	1
24 209 24 05	90	153	530	1
24 209 26 02	115	153	890	1
24 209 28 08	162	153	1875	1
24 209 38 04	115	203	1150	1
24 209 39 07	162	203	2675	1
24 209 49 03	115	253	1575	1
24 209 50 08	162	253	3475	1
24 209 57 02	132	303	2400	1
24 209 59 08	268	303	11250	1

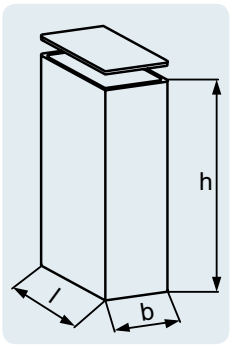
DURAN® Specimen Jar

with ground, knobbed lid



DURAN® Museum Jar

with ground glass plate

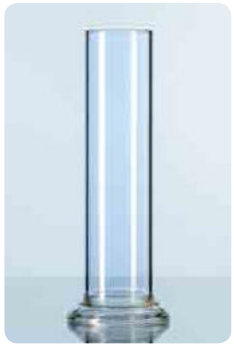


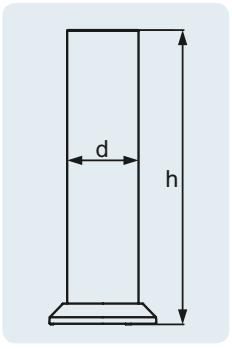
The precise grinding of the glass plate and base vessel enables a very tight seal.

Cat. No.	h (mm)	l (mm)	b (mm)	Pack Unit
21 363 05 04	100	60	50	10
21 363 11 06	120	100	50	1
21 363 13 03	130	130	50	1
21 363 19 03	150	150	50	1
21 363 28 05	180	120	60	1
21 363 47 03	210	210	100	1
21 363 58 02	250	250	140	1

DURAN® Multi-purpose Cylinder

with round base, without graduation





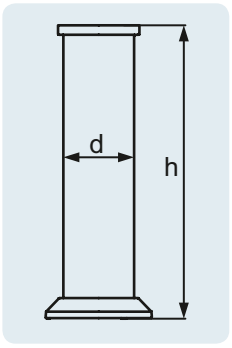
A
121 °C

Rough ground rim.

Cat. No.	d (OD) (mm)	h (mm)	Volume approx. (mL)	Pack Unit
21 398 21 01	50	150	220	10
21 398 34 06	40	200	180	10
21 398 36 03	60	200	420	10
21 398 46 08	60	250	530	10
21 398 52 01	40	300	280	10
21 398 53 04	50	300	450	10
21 398 68 06	40	400	380	10
21 398 74 08	80	400	1650	10
21 398 77 08	65	450	1250	10
21 398 80 01	50	500	770	10

DURAN® Standing Cylinder

with round base, without graduation



A
121 °C

Plane ground rim.

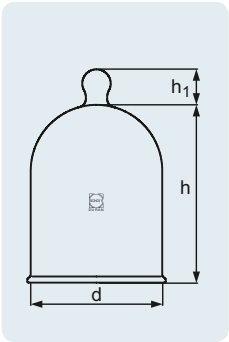
Cat. No.	d (OD) (mm)	h (mm)	Volume approx. (mL)	Pack Unit
21 399 07 01	40	100	80	10
21 399 34 07	40	200	190	10
21 399 36 04	60	200	440	10
21 399 46 09	60	250	550	10
21 399 68 07	40	400	390	10

DURAN® Bell Jar

with glass knob top

Wall thickness and geometry designed to suit vacuum applications.

Cat. No.	d (OD) (mm)	h (mm)	h_1 (mm)	Pack Unit
24 460 59 02	185	250	50	1
24 460 66 07	260	255	50	1
24 460 69 07	315	300	50	1

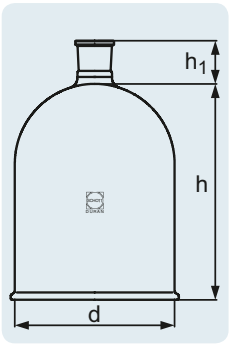


DURAN® Bell Jar

with aperture in neck, open topped

Wall thickness and geometry designed to suit vacuum applications. Neck aperture, standard ground joint NS 34/35.

Cat. No.	d (OD) (mm)	h (mm)	h_1 (mm)	Neck	Pack Unit
24 465 59 07	185	250	50	34/35	1
24 465 61 06	215	300	50	34/35	1
24 465 69 03	315	500	50	34/35	1



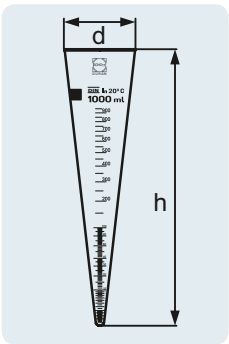
DURAN® Sedimentation Cone

Imhoff type, graduated

For scale divisions and accuracy limits, see table.

Cat. No.	Capacity (mL)	h (mm)	d (OD) (mm)	Pack Unit
21 401 54 03	1 000	470	120	10

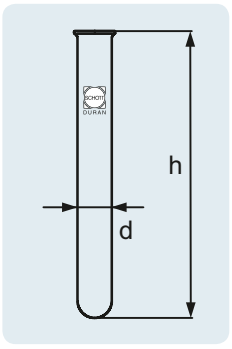
Scale (mL)	Division (mL)	Tolerance ± (mL)
0 – 2	0.1	0.1
2 – 10	0.5	0.5
10 – 40	1	1
40 – 100	2	2
1 000	Circular marking	10



DIN 12672

DURAN® Test Tube

with beaded rim or straight rim



A 121 °C

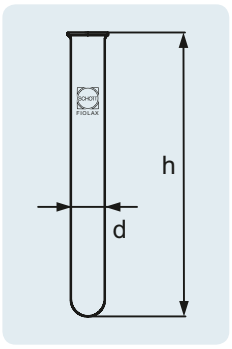
USP Standard

The test tubes are thick-walled and therefore mechanically very resistant, yet still retain good thermal shock resistance.

Cat. No.	d (OD) (mm)	h (mm)	Volume approx. (mL)	Wall thickness (mm)	Pack Unit
beaded rim					
26 130 01 05	8	70	2	0.8 – 1.0	100
26 130 03 02	10	75	4	0.8 – 1.0	100
26 130 06 02	10	100	5	0.8 – 1.0	100
26 130 08 08	12	75	6	0.8 – 1.0	100
26 130 11 01	12	100	8	0.8 – 1.0	100
26 130 12 04	13	100	9	0.8 – 1.0	100
26 130 13 07	14	130	16	0.8 – 1.0	100
26 130 16 07	16	130	17	1.0 – 1.2	100
26 130 21 06	16	160	21	1.0 – 1.2	100
26 130 23 03	18	180	32	1.0 – 1.2	100
26 130 26 03	20	150	34	1.0 – 1.2	100
26 130 28 09	20	180	40	1.0 – 1.2	100
26 130 33 08	25	150	55	1.0 – 1.2	50
26 130 36 08	25	200	70	1.0 – 1.2	50
26 130 38 05	30	200	100	1.0 – 1.4	50
straight rim					
26 131 01 06	8	70	2	0.8 – 1.0	100
26 131 03 03	10	75	4	0.8 – 1.0	100
26 131 06 03	10	100	5	0.8 – 1.0	100
26 131 08 09	12	75	6	0.8 – 1.0	100
26 131 11 02	12	100	8	0.8 – 1.0	100
26 131 12 05	13	100	9	0.8 – 1.0	100
26 131 13 08	14	130	16	0.8 – 1.0	100
26 131 16 08	16	130	17	1.0 – 1.2	100
26 131 21 07	16	160	21	1.0 – 1.2	100
26 131 23 04	18	180	32	1.0 – 1.2	100
26 131 26 04	20	150	34	1.0 – 1.2	100
26 131 28 01	20	180	40	1.0 – 1.2	100
26 131 33 09	25	150	55	1.0 – 1.2	50
26 131 36 09	25	200	70	1.0 – 1.2	50
26 131 38 06	30	200	100	1.0 – 1.4	50

Fiolax® Borosilicate Test Tube

with beaded rim



A 121 °C

Thin-walled test tubes suited to rapid temperature changes or localized heating.

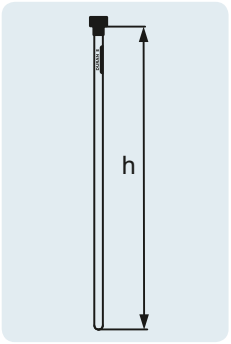
Cat. No.	d (OD) (mm)	h (mm)	Volume approx. (mL)	Wall thickness (mm)	Pack Unit
26 110 01 09	8	70	2	0.4 – 0.5	100
26 110 03 06	10	75	4	0.4 – 0.5	100
26 110 06 06	10	100	6	0.4 – 0.5	100
26 110 08 03	12	75	6,5	0.4 – 0.5	100
26 110 11 05	12	100	9	0.4 – 0.5	100
26 110 13 02	14	130	16	0.4 – 0.5	100
26 110 16 02	16	130	20	0.5 – 0.6	100
26 110 21 01	16	160	25	0.5 – 0.6	100
26 110 23 07	18	180	35	0.5 – 0.6	100
26 110 26 07	20	150	39	0.5 – 0.6	100
26 110 28 04	20	180	45	0.5 – 0.6	100
26 110 33 03	25	150	60	0.6 – 0.7	50
26 110 36 03	25	200	80	0.6 – 0.7	50
26 110 38 09	30	200	110	0.7 – 0.8	50

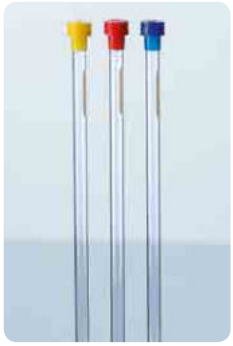
DURAN® NMR Tubes

three accuracy classes, with closures in mixed colours

NMR tubes are available, according to requirement, in three accuracy classes. The correct tube can be selected depending on resonant frequency. These tubes are noteworthy for their close tolerances and accuracy, especially to their straightness, wall thickness and wall thickness distribution. Consequently, quick and accurate test results are achievable.

Cat. No.	h (mm)	OD (mm)	ID (mm)	Camber (mm)	MHZ	Pack Unit
Economic with Retrace Code						
23 170 01 17	178	4.95 ± 0.05	4.20 ± 0.05	0.07	300	250
Professional with Retrace Code						
23 170 02 11	178	4.97 ± 0.025	4.20 ± 0.025	0.03	400	250
Scientific with Retrace Code						
23 170 03 14	178	4.97 ± 0.013	4.20 ± 0.025	0,013	500	5

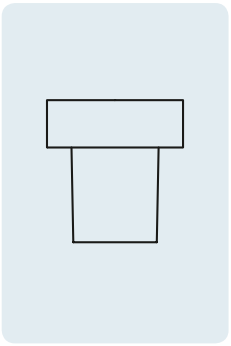




Spare Caps for NMR Tubes

from EVA

Cat. No.	Colour	Pack Unit
29 917 01 01	blue	250
29 917 02 04	red	250
29 917 03 07	yellow	250
29 917 04 01	black	250
29 917 05 04	green	250




SCHOTT
DURAN

03

VOLUMETRIC GLASSWARE

DURAN® VOLUMETRIC GLASSWARE

Volume measurement – a routine laboratory procedure. So making long-term quality assurance for the associated instrumentation all the more important, from volumetric flasks to stoppers. From one day to the next, with each analysis.

Made of DURAN® borosilicate glass 3.3, our volumetric flasks, measuring and mixing cylinders, and burettes offer excellent chemical and thermal resistance, something that is above all reflected in the mechanical properties of the glassware. Thanks to exact processing and precisely calibrated scales, they permit the highly accurate determination and measurement of volumes.

DURAN® products are available in two accuracy classes: class A/AS and class B (see the Chapter on Technical Information). The two classes differ in terms of volume tolerances, with class A being the highest accuracy class and class B being approximately half that of class A. Class AS has the same tolerances as class A, but is designed to permit a more rapid outflow. Volumetric glassware which meets the requirements of the German weights and measures regulations display the conformity marking "DE-M".

Volumetric flasks and cylinders are calibrated to measure the exact amount of fluid they contain ("In"), i.e. up to the ring mark on the vessel. This allows, for example, the desired concentration to be set precisely. Pipettes and burettes are calibrated to measure the amount of fluid delivered ("Ex"). This calibration takes into account surface adhesion to the glass / capillary effects. This is however only the case if the waiting times specified in the product information are observed.

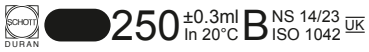
03

ALL INFORMATION AT A GLANCE

Screen print label for volumetric flasks

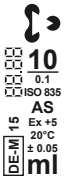
Volumetric flasks, accuracy class A

Volumetric flasks, accuracy class A, compliant with USP <31>



Volumetric flasks, accuracy class B

Screen print label for pipettes and burettes



Measurement pipette

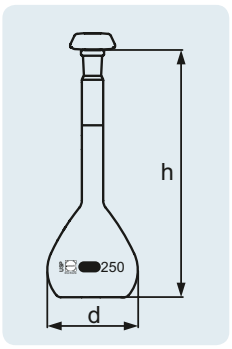
Full pipette

Burette

88.88	Batch number, e.g. 15.01
DE-M 15	Conformity mark – verifies compliance with the requirements of the German weights and measures regulation and applicable standards.
USP	United States Pharmacopoeia – the product satisfies the requirements specified in USP <31>
250	Nominal volume in mL
±0.12ml	Accuracy tolerance – the deviation of the nominal volume must be no greater than this value which is specified in standards
20°C	Reference temperature – the temperature at which a volumetric instrument must achieve the nominal volume (20°C) stated on it.
A	Accuracy class – denotes the accuracy limit
NS 14/23	Standard taper ground size
ISO 1042	Standard designation
UK	Country of origin
AAA-0001	Individual number (laser-etched onto the base)
DD.MM.YY	Production date (laser-etched onto the base)
In	Calibration based on "In" (poured in volume). The quantity of liquid held corresponds to the volume specification printed on the product.
Ex	Calibration based on discharged volume. The quantity of liquid discharged corresponds to the volume specification printed on the product, e.g. pipettes, burettes. The remaining liquid on the walls of the vessel or in the tip is also taken into consideration.
Ex +30s	Calibrated to deliver after the specified waiting time. In this example 30 seconds. It is important to comply with the waiting time to prevent measurement errors.
10 / 0.02	Total measurement volume – scale increment is specified below

DURAN® Volumetric Flask, class A, USP conformity <31>, USP individual certificate

with scribed graduation mark and ergonomic polyethylene stopper, blue printed image, with USP individual certificate and certificate of conformity



ISO 1042 A 121 °C

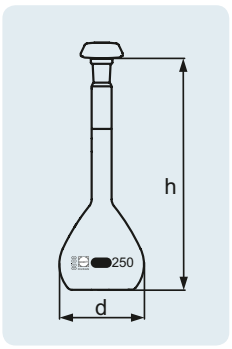
Calibration is based on the poured in volume ("In") at a + 20 °C reference temperature. The volume content tolerances conform to accuracy class A, the accuracy limits of the German weights and measures regulations and DIN and ISO specifications.

Typical applications: precise measurement of specified liquid amounts, preparation and storage of standard solutions.

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Neck	Stopper size	Accuracy limits (mL)	Remark	Pack Unit
24 671 09 58	5 W	22	70	9 ± 1	10/19	0.02	wide neck	2
24 671 10 54	10 W	27	90	9 ± 1	10/19	0.02	wide neck	2
24 671 14 57	25	40	110	9 ± 1	10/19	0.03		2
24 671 17 57	50	50	140	11 ± 1	12/21	0.05		2
24 671 25 56	100	60	170	13 ± 1	14/23	0.08		2
24 671 32 52	200	75	210	15.5 ± 1.5	14/23	0.1		2
24 671 36 55	250	80	220	15.5 ± 1.5	14/23	0.12		2
24 671 44 54	500	100	260	19 ± 2	19/26	0.2		2
24 671 54 59	1 000	125	300	23 ± 2	24/29	0.3		2
24 671 63 52	2 000	160	370	27.5 ± 2.5	29/32	0.5		2

DURAN® Volumetric Flask, class A, individual certificate

with scribed graduation mark and ergonomic polyethylene stopper, blue printed image, with individual certificate and certificate of conformity



ISO 1042 A 121 °C

Calibration is based on the poured in volume ("In") at a + 20 °C reference temperature. The volume content tolerances conform to accuracy class A, the accuracy limits of the German weights and measures regulations and DIN and ISO specifications.

Typical applications: precise measurement of specified liquid amounts, preparation and storage of standard solutions.

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Neck	Stopper size	Accuracy limits (mL)	Remark	Pack Unit
24 679 01 51	1	13	65	7 ± 1	7/16	0.025		2
24 679 02 54	2	17	70	7 ± 1	7/16	0.025		2
24 679 09 57	5 W	22	70	9 ± 1	10/19	0.04	wide neck	2
24 679 10 53	10 W	27	90	9 ± 1	10/19	0.04	wide neck	2
24 679 12 59	20	39	110	9 ± 1	10/19	0.04		2
24 679 14 56	25	40	110	9 ± 1	10/19	0.04		2
24 679 17 56	50	50	140	11 ± 1	12/21	0.06		2
24 679 24 52	100	60	170	13 ± 1	12/21	0.1		2
24 679 25 55	100	60	170	13 ± 1	14/23	0.1		2
24 679 32 51	200	75	210	15.5 ± 1.5	14/23	0.15		2
24 679 36 54	250	80	220	15.5 ± 1.5	14/23	0.15		2
24 679 44 53	500	100	260	19 ± 2	19/26	0.25		2
24 679 54 58	1 000	125	300	23 ± 2	24/29	0.4		2
24 679 55 52	1 000 W	125	300	27.5 ± 2.5	29/32	0.6	wide neck	2
24 679 63 51	2 000	160	370	27.5 ± 2.5	29/32	0.6		2
24 679 73 56	5 000	215	475	38 ± 3	34/35	1.2		1

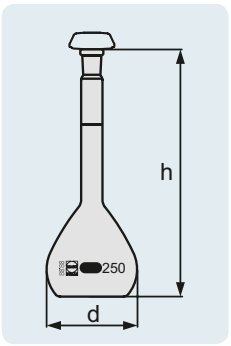
DURAN® Volumetric Flask, class A, amber, individual certificate

with scribed graduation mark and ergonomic polyethylene stopper, white printed image, with individual certificate and certificate of conformity

Calibration is based on the poured in volume ("In") at a + 20 °C reference temperature. The volume content tolerances conform to accuracy class A, the accuracy limits of the German weights and measures regulations and DIN and ISO specifications.

Typical applications: precise measurement of specified liquid amounts, preparation and storage of standard solutions.

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Neck	Stopper size	Accuracy limits (mL)	Remark	Pack Unit
24 677 09 55	5 W	22	70	9 ± 1	10/19	0.04	wide neck	2
24 677 10 51	10 W	27	90	9 ± 1	10/19	0.04	wide neck	2
24 677 12 57	20	39	110	9 ± 1	10/19	0.04		2
24 677 14 54	25	40	110	9 ± 1	10/19	0.04		2
24 677 17 54	50	50	140	11 ± 1	12/21	0.06		2
24 677 24 59	100	60	170	13 ± 1	12/21	0.1		2
24 677 25 53	100	60	170	13 ± 1	14/23	0.1		2
24 677 32 58	200	75	210	15.5 ± 1.5	14/23	0.15		2
24 677 36 52	250	80	220	15.5 ± 1.5	14/23	0.15		2
24 677 44 51	500	100	260	19 ± 2	19/26	0.25		2
24 677 54 56	1 000	125	300	23 ± 2	24/29	0.4		2
24 677 63 58	2 000	160	370	27.5 ± 2.5	29/32	0.6		2



ISO 1042 | A 121 °C

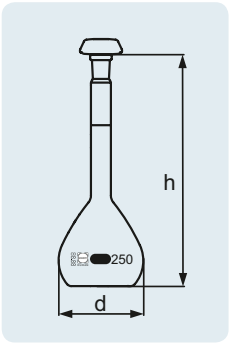
DURAN® Volumetric Flask, class A, batch certificate

with scribed graduation mark and ergonomic polyethylene stopper, blue printed image, with batch certificate and certificate of conformity

Calibration is based on the poured in volume ("In") at a + 20 °C reference temperature. The volume content tolerances conform to accuracy class A, the accuracy limits of the German weights and measures regulations and DIN and ISO specifications.

Typical applications: precise measurement of specified liquid amounts, preparation and storage of standard solutions.

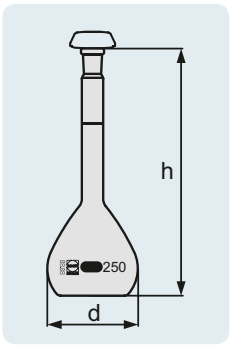
Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Neck	Stopper size	Accuracy limits (mL)	Remark	Pack Unit
24 678 01 59	1	13	65	7 ± 1	7/16	0.025		2
24 678 02 53	2	17	70	7 ± 1	7/16	0.025		2
24 678 09 56	5 W	22	70	9 ± 1	10/19	0.04	wide neck	2
24 678 10 52	10 W	27	90	9 ± 1	10/19	0.04	wide neck	2
24 678 12 58	20	39	110	9 ± 1	10/19	0.04		2
24 678 14 55	25	40	110	9 ± 1	10/19	0.04		2
24 678 17 55	50	50	140	11 ± 1	12/21	0.06		2
24 678 24 51	100	60	170	13 ± 1	12/21	0.1		2
24 678 25 54	100	60	170	13 ± 1	14/23	0.1		2
24 678 32 59	200	75	210	15.5 ± 1.5	14/23	0.15		2
24 678 36 53	250	80	220	15.5 ± 1.5	14/23	0.15		2
24 678 44 52	500	100	260	19 ± 2	19/26	0.25		2
24 678 54 57	1 000	125	300	23 ± 2	24/29	0.4		2
24 678 55 51	1 000 W	125	300	27.5 ± 2.5	29/32	0.6	wide neck	2
24 678 63 59	2 000	160	370	27.5 ± 2.5	29/32	0.6		2
24 678 73 55	5 000	215	475	38 ± 3	34/35	1.2		1



ISO 1042 | A 121 °C

DURAN® Volumetric Flask, class A, amber, batch certificate

with scribed graduation mark and ergonomic polyethylene stopper, white printed image, with batch certificate and certificate of conformity



ISO 1042 A 121 °C

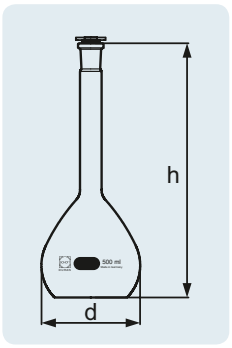
Calibration is based on the poured in volume ("In") at a + 20 °C reference temperature. The volume content tolerances conform to accuracy class A, the accuracy limits of the German weights and measures regulations and DIN and ISO specifications.

Typical applications: precise measurement of specified liquid amounts, preparation and storage of standard solutions.

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Neck	Stopper size	Accuracy limits (mL)	Remark	Pack Unit
24 676 09 54	5 W	22	70	9 ± 1	10/19	0.04	wide neck	2
24 676 10 59	10 W	27	90	9 ± 1	10/19	0.04	wide neck	2
24 676 12 56	20	39	110	9 ± 1	10/19	0.04		2
24 676 14 53	25	40	110	9 ± 1	10/19	0.04		2
24 676 17 53	50	50	140	11 ± 1	12/21	0.06		2
24 676 24 58	100	60	170	13 ± 1	12/21	0.1		2
24 676 25 52	100	60	170	13 ± 1	14/23	0.1		2
24 676 32 57	200	75	210	15.5 ± 1.5	14/23	0.15		2
24 676 36 51	250	80	220	15.5 ± 1.5	14/23	0.15		2
24 676 44 59	500	100	260	19 ± 2	19/26	0.25		2
24 676 54 55	1 000	125	300	23 ± 2	24/29	0.4		2
24 676 63 57	2 000	160	370	27.5 ± 2.5	29/32	0.6		2

DURAN® Volumetric Flask, class A, without certificate of conformity

with scribed graduation mark and octagonal stopper from PE, white printed image, with batch certificate, without certificate of conformity



ISO 1042 A 121 °C

Calibration is based on the poured in volume ("In") at a + 20 °C reference temperature. The volume content tolerances conform to accuracy class A, the accuracy limits of the German weights and measures regulations and DIN and ISO specifications.

Typical applications: precise measurement of specified liquid amounts, preparation and storage of standard solutions.

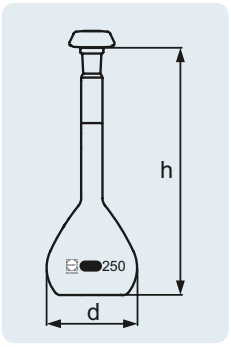
Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Neck	Stopper size	Accuracy limits (mL)	Pack Unit
21 678 07 04	5	22	70	7 ± 1	7/16	0.025	2
21 678 08 07	10	27	90	7 ± 1	7/16	0.025	2
21 678 12 03	20	39	110	9 ± 1	10/19	0.04	2
21 678 14 09	25	40	110	9 ± 1	10/19	0.04	2
21 678 17 09	50	50	140	11 ± 1	12/21	0.06	2
21 678 24 05	100	60	170	13 ± 1	12/21	0.1	2
21 678 25 08	100	60	170	13 ± 1	14/23	0.1	2
21 678 32 04	200	75	210	15.5 ± 1.5	14/23	0.15	2
21 678 36 07	250	80	220	15.5 ± 1.5	14/23	0.15	2
21 678 44 06	500	100	260	19 ± 2	19/26	0.25	2
21 678 54 02	1 000	125	300	23 ± 2	24/29	0.4	2
21 678 63 04	2 000	160	370	27.5 ± 2.5	29/32	0.6	2
21 678 73 09	5 000	215	475	38 ± 3	34/35	1.2	1

DURAN® Volumetric Flask, class B

with scribed graduation mark and ergonomic polyethylene stopper, white printed image

Calibration is based on the poured in volume ("In") at a + 20 °C reference temperature. The volume content tolerances conform to accuracy class B, the accuracy limits of the German weights and measures regulations and DIN and ISO specifications.

Typical applications: precise measurement of specified liquid amounts, preparation and storage of standard solutions.

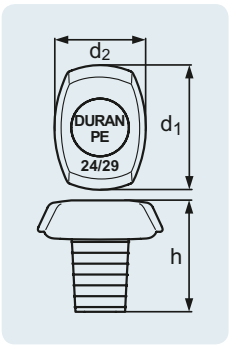


ISO 1042 | A 121 °C

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Neck	Stopper size	Accuracy limits (mL)	Remark	Pack Unit
24 670 09 57	5 W	22	70	9 ± 1	10/19	0.08	wide neck	2
24 670 10 53	10 W	27	90	9 ± 1	10/19	0.08	wide neck	2
24 670 12 59	20	39	110	9 ± 1	10/19	0.08		2
24 670 14 56	25	40	110	9 ± 1	10/19	0.08		2
24 670 17 56	50	50	140	11 ± 1	12/21	0.12		2
24 670 25 55	100	60	170	13 ± 1	14/23	0.2		2
24 670 32 51	200	75	210	15.5 ± 1.5	14/23	0.3		2
24 670 36 54	250	80	220	15.5 ± 1.5	14/23	0.3		2
24 670 44 53	500	100	260	19 ± 2	19/26	0.5		2
24 670 54 58	1 000	125	300	23 ± 2	24/29	0.8		2
24 670 63 51	2 000	160	370	27.5 ± 2.5	29/32	1.2		2
24 670 73 56	5 000	215	475	38 ± 3	34/35	2.4		1

DURAN® Polyethylene Stoppers

DURAN® polyethylene stoppers are ergonomically shaped. This ensures that measuring flasks, mixing cylinders and storage bottles can be easily opened and securely closed. Furthermore, a taper with several grooves ensures the perfect seal. The standard taper joint size can be easily and quickly assigned using stopper inserts with different colours.



DIN 12254 | Tmax. 80 °C

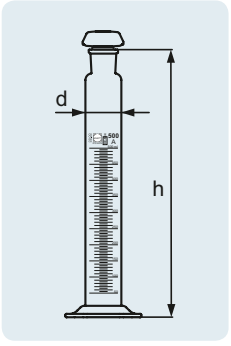
Cat. No.	d_1 (OD) (mm)	d_2 (OD) (mm)	h (mm)	Colour	Stopper size	Pack Unit
29 205 02 01	29.5	17.5	28	blue	7/16	10
29 205 03 04	32.5	20	32	green	10/19	10
29 205 04 07	36.5	22	35	violet	12/21	10
29 205 06 04	40	25	38	yellow	14/23	10
29 205 07 07	44.5	31	42	blue	19/26	10
29 205 08 01	51.5	38	46	green	24/29	10
29 205 09 04	61	45.5	50	red	29/32	10
29 205 11 03	71	54.5	54	orange	34/45	1
29 205 12 06	81.5	65.5	60	brown	45/40	1

DURAN® Mixing Cylinder with hexagonal base, class A

blue scale, ring graduations, with standard ground joint and ergonomic polyethylene stopper, with batch certificate and certificate of conformity

The large hexagonal base prevents the cylinder from rolling. The base is equipped with three knobs which increase its stability. The cylinders have uniform wall thickness over the entire measurement range, so wedge errors are avoided. Calibration is based on the poured in volume ("In") at a + 20 °C reference temperature. Mixing cylinder accuracy limits conform to DIN and ISO standards. The batch certificates for the mixing cylinders are also available to download online.

Typical applications: diluting solutions, mixing several components with specified proportions.

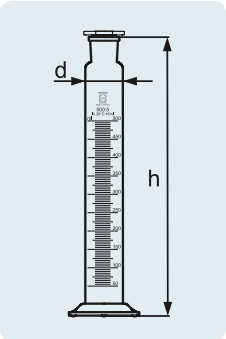


ISO 4788 | A 121 °C

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Stopper size	Accuracy limits (mL)	Graduation (mL)	Pack Unit
24 618 08 56	10	14	156	10/19	0.1	0.2	2
24 618 14 58	25	21	190	14/23	0.25	0.5	2
24 618 17 58	50	25	222	19/26	0.5	1	2
24 618 24 54	100	29	287	24/29	0.5	1	2
24 618 36 56	250	39	363	29/32	1	2	2
24 618 44 55	500	53	395	34/35	2.5	5	2
24 618 54 51	1 000	65	500	45/40	5	10	1
24 618 63 53	2 000	85	540	45/40	10	20	1

DURAN® Mixing Cylinder with hexagonal base, class B

white scale, with graduation, standard ground joint and polypropylene octagonal stopper



ISO 4788 | A 121 °C

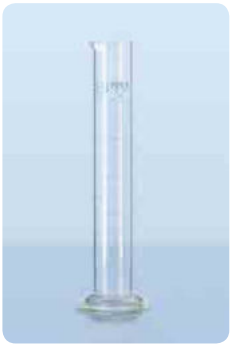
The large hexagonal base prevents the cylinder from rolling. The base is equipped with three knobs which increase its stability. The cylinders have uniform wall thickness over the entire measurement range, so wedge errors are avoided. Calibration is based on the poured in volume ("In") at a + 20 °C reference temperature. Mixing cylinder accuracy limits conform to DIN and ISO standards.

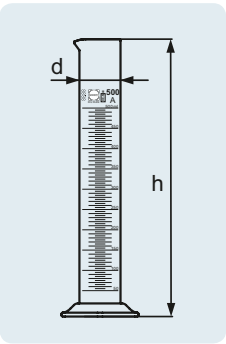
Typical applications: diluting solutions, mixing several components with specified proportions.

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Stopper size	Accuracy limits (mL)	Graduation (mL)	Pack Unit
21 618 08 01	10	14	156	10/19	0.2	0.2	2
21 618 14 03	25	21	190	14/23	0.5	0.5	2
21 618 17 03	50	25	222	19/26	1	1	2
21 618 24 08	100	29	287	24/29	1	1	2
21 618 36 01	250	39	363	29/32	2	2	2
21 618 44 09	500	53	395	34/35	5	5	2
21 618 54 05	1 000	65	500	45/40	10	10	1
21 618 63 07	2 000	85	540	45/40	20	20	1

DURAN® Measuring Cylinder with hexagonal base, class A

blue scale, ring graduations, with batch certificate and certificate of conformity





ISO 4788 | A 121 °C

The large hexagonal base prevents the cylinder from rolling. The base is equipped with three knobs which increase its stability. The cylinders have uniform wall thickness over the entire measurement range, so wedge errors are avoided. Calibration is based on the poured in volume ("In") at a + 20 °C reference temperature. Measuring cylinder accuracy limits conform to DIN and ISO standards. The batch certificates for the mixing cylinders are also available to download online.

Typical applications: holding and simultaneous measurement of varying liquid amounts.

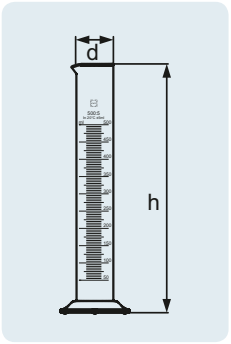
Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Accuracy limits (mL)	Graduation (mL)	Pack Unit
21 390 07 01	5	12	112	0.05	0.1	2
21 390 08 04	10	14	137	0.1	0.2	2
21 390 14 06	25	21	167	0.25	0.5	2
21 390 17 06	50	25	196	0.5	1	2
21 390 24 02	100	29	256	0.5	1	2
21 390 36 04	250	39	331	1	2	2
21 390 44 03	500	53	360	2.5	5	2
21 390 54 08	1 000	65	460	5	10	1
21 390 63 01	2 000	85	500	10	20	1

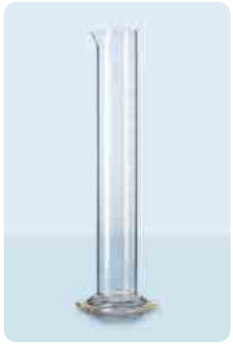
DURAN® Measuring Cylinder with hexagonal base, class B

white scale, with graduation

The large hexagonal base prevents the cylinder from rolling. The base is equipped with three knobs which increase its stability. The cylinders have uniform wall thickness over the entire measurement range, so wedge errors are avoided. Calibration is based on the poured in volume ("In") at a + 20 °C reference temperature. Measuring cylinder accuracy limits conform to DIN and ISO standards (class B).

Typical applications: holding and simultaneous measurement of varying liquid amounts.





ISO 4788 | A 121 °C

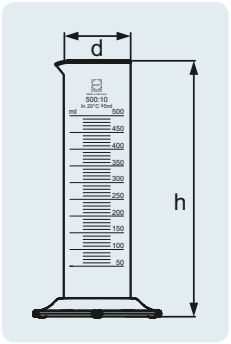
Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Accuracy limits (mL)	Graduation (mL)	Pack Unit
21 396 07 07	5	12	112	0.1	0.1	2
21 396 08 01	10	14	137	0.2	0.2	2
21 396 14 03	25	21	167	0.5	0.5	2
21 396 17 03	50	25	196	1	1	2
21 396 24 08	100	29	256	1	1	2
21 396 36 01	250	39	331	2	2	2
21 396 44 09	500	53	360	5	5	2
21 396 54 05	1 000	65	460	10	10	1
21 396 63 07	2 000	85	500	20	20	1

DURAN® Measuring Cylinder with hexagonal base, class B, graduated low form

white scale, with graduation

The large hexagonal base prevents the cylinder from rolling. The base is equipped with three knobs which increase its stability. The cylinders have uniform wall thickness over the entire measurement range, so wedge errors are avoided. Calibration is based on the poured in volume ("In") at a + 20 °C reference temperature. Measuring cylinder accuracy limits conform to DIN and ISO standards (class B).

Typical applications: holding and simultaneous measurement of varying liquid amounts.

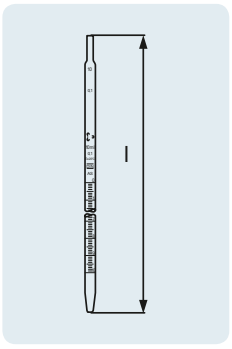


ISO 4788 | A 121 °C | USP Standard

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Accuracy limits (mL)	Graduation (mL)	Pack Unit
21 395 08 09	10	21	90	0.2	1	2
21 395 14 02	25	25	115	0.5	1	2
21 395 17 02	50	29	145	1	2	2
21 395 24 07	100	39	165	1	2	2
21 395 36 09	250	54	195	2	5	2
21 395 44 08	500	65	250	5	10	2
21 395 54 04	1 000	85	285	10	20	1
21 395 63 06	2 000	105	340	20	50	1

Measuring Pipette from Soda-lime Glass, class AS, type 1

blue printed image, Drain-out, zero at top, with main graduations as circular divisions and cotton plug, with certificate of conformity and With batch certificate



ISO 835

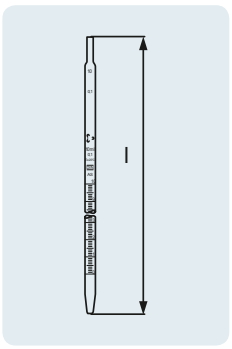
Numbering from the top down. Calibration is based on the poured out volume ("Ex") at a + 20 °C reference temperature. Due to the scale, variable volumes can be held and then dispensed in the same or differing increments.

Typical applications: accurate measurement and decanting of liquids.

Cat. No.	Capacity (mL)	l (mm)	Accuracy limits (mL)	Graduation (mL)	Colour code DIN 12621	Pack Unit
23 346 06 06	0.5	360	0.006	0.01	3 x yellow	12
23 346 11 05	1	360	0.007	0.01	2 x yellow	12
23 346 16 02	2	360	0.01	0.02	2 x black	12
23 346 23 07	5	360	0.03	0.05	2 x red	12
23 346 29 07	10	360	0.05	0.1	2 x orange	12
23 346 32 09	20	360	0.1	0.1	3 x yellow	6
23 346 34 06	25	450	0.1	0.1	2 x white	6
23 346 36 03	50	450	0.2	0.2	2 x black	6

Measuring Pipette from Soda-lime Glass, class AS, type 2

blue inscription, Blow-out, zero at bottom, graduated to tip (total delivery), with main graduations as circular divisions and cotton plug, with certificate of conformity and batch certificate



ISO 835

Numbering: zero at bottom. Calibration is based on the poured out volume ("Ex") at a + 20 °C reference temperature. Due to the scale, variable volumes can be held and then dispensed in the same or differing increments.

Typical applications: accurate measurement and decanting of liquids.

Cat. No.	Capacity (mL)	l (mm)	Accuracy limits (mL)	Graduation (mL)	Colour code DIN 12621	Pack Unit
23 348 06 08	0.5	360	0.006	0.01	2 x yellow	12
23 348 11 07	1	360	0.007	0.01	1 x yellow	12
23 348 16 04	2	360	0.01	0.02	1 x black	12
23 348 23 09	5	360	0.03	0.05	1 x red	12
23 348 29 09	10	360	0.05	0.1	1 x orange	12
23 348 32 02	20	360	0.1	0.1	2 x yellow	6
23 348 34 08	25	450	0.1	0.1	1 x white	6
23 348 36 05	50	450	0.2	0.2	1 x black	6

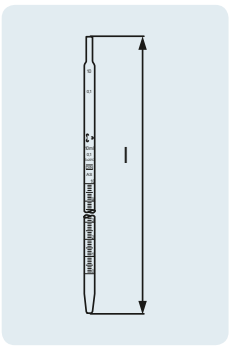
Measuring Pipette from Soda-lime Glass, class AS, type 2

brown inscription, Blow-out, zero at bottom, graduated to tip (total delivery), with main graduations as circular divisions and cotton plug, with certificate of conformity and batch certificate

Numbering: zero at bottom. Calibration is based on the poured out volume ("Ex") at a + 20 °C reference temperature. Due to the scale, variable volumes can be held and then dispensed in the same or differing increments.

Typical applications: accurate measurement and decanting of liquids.

Cat. No.	Capacity (mL)	l (mm)	Accuracy limits (mL)	Graduation (mL)	Colour code DIN 12621	Pack Unit
23 347 06 07	0.5	360	0.006	0.01	2 x yellow	12
23 347 11 06	1	360	0.007	0.01	1 x yellow	12
23 347 16 03	2	360	0.01	0.02	1 x black	12
23 347 23 08	5	360	0.03	0.05	1 x red	12
23 347 29 08	10	360	0.05	0.1	1 x orange	12
23 347 32 01	20	360	0.1	0.1	2 x yellow	6
23 347 34 07	25	450	0.1	0.1	1 x white	6
23 347 36 04	50	450	0.2	0.2	1 x black	6



ISO 835

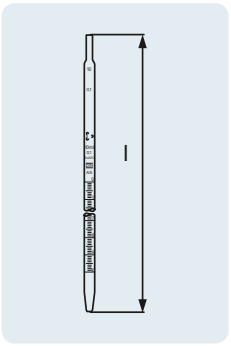
Measuring Pipette from Soda-lime Glass, class AS, type 3

blue inscription, Blow-out, zero at top, graduated to tip (total delivery), with main graduations as circular divisions and cotton plug, with certificate of conformity and batch certificate

Numbering from the top down. Calibration is based on the poured out volume ("Ex") at a + 20 °C reference temperature. Due to the scale, variable volumes can be held and then dispensed in the same or differing increments.

Typical applications: accurate measurement and decanting of liquids.

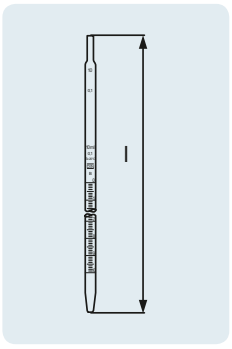
Cat. No.	Capacity (mL)	l (mm)	Accuracy limits (mL)	Graduation (mL)	Colour code DIN 12621	Pack Unit
23 349 06 09	0.5	360	0.006	0.01	2 x yellow	12
23 349 11 08	1	360	0.007	0.01	1 x yellow	12
23 349 16 05	2	360	0.01	0.02	1 x black	12
23 349 23 01	5	360	0.03	0.05	1 x red	12
23 349 29 01	10	360	0.05	0.1	1 x orange	12
23 349 32 03	20	360	0.1	0.1	2 x yellow	6
23 349 34 09	25	450	0.1	0.1	1 x white	6
23 349 36 06	50	450	0.2	0.2	1 x black	6



ISO 835

Measuring Pipette from Soda-lime Glass, class AS, type 3

Brown diffusion print, blow-out, zero at top, with ring graduations, with cotton plug, with batch certificate and certificate of conformity



ISO 835

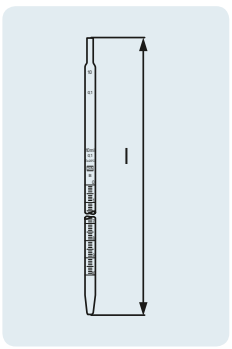
Numbering from the top down. Due to the scale, variable volumes can be held and then dispensed in the same or differing increments.

Typical applications: accurate measurement and decanting of liquids.

Cat. No.	Capacity (mL)	l (mm)	Accuracy limits (mL)	Graduation (mL)	Colour code DIN 12621	Pack Unit
24 345 11 09	1	360	0.007	0.01	1 x yellow	12
24 345 17 09	2	360	0.01	0.02	1 x black	12
24 345 23 02	5	360	0.03	0.05	1 x red	12
24 345 29 02	10	360	0.05	0.1	1 x orange	12
24 345 34 01	25	450	0.1	0.1	1 x white	12

Measuring Pipette from Soda-lime Glass, class B, type 1

Brown diffusion print, drain-out, zero at top, graduated, with cotton plug



ISO 835

Numbering from the top down. Calibration is based on the poured out volume ("Ex") at a +20 °C reference temperature. Due to the scale, variable volumes can be held and then dispensed in the same or differing increments.

Typical applications: accurate measurement and decanting of liquids.

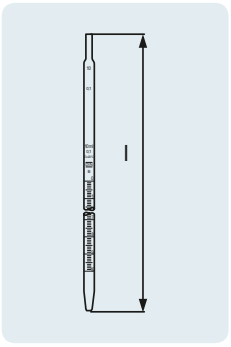
Cat. No.	Capacity (mL)	l (mm)	Accuracy limits (mL)	Graduation (mL)	Colour code DIN 12621	Remark	Pack Unit
24 343 01 02	0.1	360	0.01	0.001	3 x green	Non-ISO size, calibrated to contain ("Ex").	12
24 343 03 08	0.2	360	0.01	0.001	3 x blue	Non-ISO size, calibrated to contain ("Ex").	12
24 343 06 08	0.5	360	0.008	0.01	3 x yellow		12
24 343 11 07	1	360	0.008	0.01	2 x yellow		12
24 343 16 04	2	360	0.015	0.02	2 x black		12
24 343 23 09	5	360	0.04	0.05	2 x red		12
24 343 29 09	10	360	0.08	0.1	2 x orange		12
24 343 34 08	25	450	0.15	0.1	2 x white		12

Measuring Pipette from soda-lime glass, class B, type 3

Brown diffusion print, blow-out, zero at top, graduated, with cotton plug

Numbering from the top down. Calibration is based on the poured out volume ("Ex") at a +20 °C reference temperature. Due to the scale, variable volumes can be held and then dispensed in the same or differing increments.

Typical applications: accurate measurement and decanting of liquids.



ISO 835

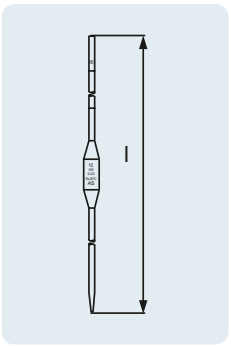
Cat. No.	Capacity (mL)	l (mm)	Accuracy limits (mL)	Graduation (mL)	Colour code DIN 12621	Remark	Pack Unit
24 344 01 03	0.1	360	0.01	0.001	2 x green	Calibrated to contain ("Ex") .	12
24 344 03 09	0.2	360	0.01	0.001	2 x blue	Calibrated to contain ("Ex") .	12
24 344 06 09	0.5	360	0.008	0.01	2 x yellow		12
24 344 11 08	1	360	0.008	0.01	1 x yellow		12
24 344 16 05	2	360	0.015	0.02	1 x black		12
24 344 23 01	5	360	0.04	0.05	1 x red		12
24 344 29 01	10	360	0.08	0.1	1 x orange		12
24 344 34 09	25	450	0.15	0.1	1 x white		12

Full Pipette from Soda-lime Glass, class AS

blue inscription, with certificate of conformity and batch certificate

Calibrated to measure and discharge a single volume ("Ex") at a +20 °C reference temperature. Calibrated to measure and discharge a single volume.

Typical applications: accurate measurement and decanting of liquids.

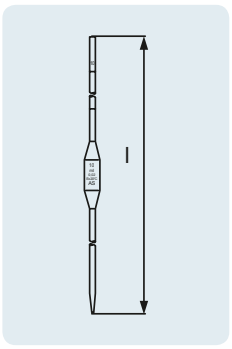


ISO 648

Cat. No.	Capacity (mL)	l (mm)	Accuracy limits (mL)	Colour code DIN 12621	Remark	Pack Unit
23 339 00 51	0.5	300	0.005	2 x black	No bulb.	12
23 339 01 05	1	325	0.008	1 x blue	No bulb.	12
23 339 02 08	2	350	0.01	1 x orange		12
23 339 03 02	3	350	0.01	1 x black		6
23 339 04 05	4	410	0.015	2 x red		6
23 339 05 08	5	410	0.015	1 x white		6
23 339 06 02	6	410	0.015	2 x orange		6
23 339 07 05	7	410	0.015	2 x green		6
23 339 08 08	8	450	0.02	1 x blue		6
23 339 09 02	9	450	0.02	1 x black		6
23 339 10 07	10	450	0.02	1 x red		6
23 339 15 04	15	520	0.03	1 x green		6
23 339 20 03	20	520	0.03	1 x yellow		6
23 339 25 09	25	530	0.03	1 x blue		6
23 339 30 08	30	530	0.03	1 x black		6
23 339 40 04	40	550	0.05	1 x white		6
23 339 50 09	50	550	0.05	1 x red		6
23 339 00 02	100	600	0.08	1 x yellow		6

Bulb Pipette from Soda-lime Glass, class AS

brown diffusion print, with batch certificate and certificate of conformity



ISO 648

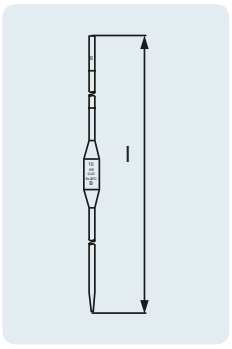
Calibrated to measure and discharge a single volume ("Ex") at a +20 °C reference temperature. Calibrated to measure and discharge a single volume.

Typical applications: accurate measurement and decanting of liquids.

Cat. No.	Capacity (mL)	l (mm)	Accuracy limits (mL)	Colour code DIN 12621	Remark	Pack Unit
24 338 01 09	1	325	0.008	1 x blue	No bulb.	12
24 338 02 03	2	350	0.01	1 x orange		12
24 338 07 09	5	410	0.015	1 x white		12
24 338 08 03	10	450	0.02	1 x red		12
24 338 12 08	20	520	0.03	1 x yellow		6
24 338 14 05	25	530	0.03	1 x blue		6
24 338 17 05	50	550	0.05	1 x red		6
24 338 24 01	100	600	0.08	1 x yellow		6

Bulb Pipette from Soda-lime Glass, class B

Brown diffusion print



ISO 648

Calibration is based on the poured out volume ("Ex") at a +20 °C reference temperature. Calibrated to measure and discharge a single volume.

Typical applications: accurate measurement and decanting of liquids.

Cat. No.	Capacity (mL)	l (mm)	Accuracy limits (mL)	Colour code DIN 12621	Remark	Pack Unit
24 337 01 08	1	325	0.01	1 x blue	No bulb.	12
24 337 02 02	2	350	0.015	1 x orange		12
24 337 07 08	5	410	0.02	1 x white		12
24 337 08 02	10	450	0.03	1 x red		12
24 337 12 07	20	520	0.05	1 x yellow		6
24 337 14 04	25	530	0.05	1 x blue		6
24 337 17 04	50	550	0.08	1 x red		6
24 337 24 09	100	600	0.12	1 x yellow		6

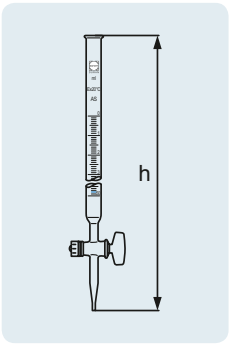
DURAN® Burette with Schellbach stripe and glass key, class AS

with straight standard ground stopcock, 30 seconds waiting time, with batch certificate and certificate of conformity

With Schellbach stripe and main graduations as circular divisions. Calibration is based on the poured out volume ("Ex") at a + 20 °C reference temperature. Volume content tolerances conform to DIN.

Typical application: titrations

Cat. No.	Capacity (mL)	h (mm)	Accuracy limits (mL)	Graduation (mL)	Pack Unit
24 329 27 04	10	820	0.02	0.02	2
24 329 33 06	25	820	0.03	0.05	2
24 329 36 06	50	820	0.05	0.1	2
24 329 39 06	100	870	0.1	0.2	2



ISO 385 A 121 °C

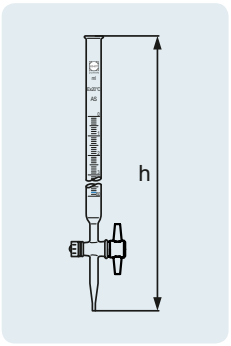
DURAN® Burette with Schellbach stripe and PTFE key, class AS

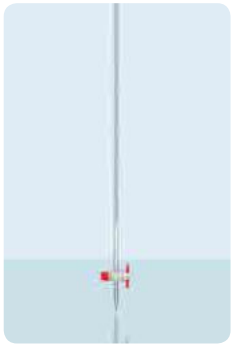
with straight standard ground stopcock, 30 seconds waiting time, with batch certificate and certificate of conformity

With Schellbach stripe and main graduations as circular divisions. Calibration is based on the poured out volume ("Ex") at a + 20 °C reference temperature. Volume content tolerances conform to DIN.

Typical application: titrations

Cat. No.	Capacity (mL)	h (mm)	Accuracy limits (mL)	Graduation (mL)	Pack Unit
24 330 27 02	10	820	0.02	0.02	2
24 330 33 04	25	820	0.03	0.05	2
24 330 36 04	50	820	0.05	0.1	2
24 330 39 04	100	870	0.1	0.2	2

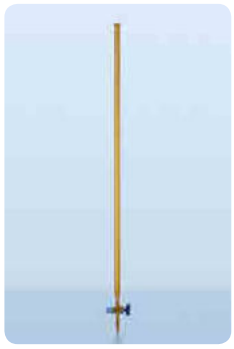


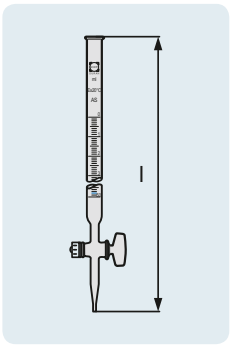


ISO 385 A 121 °C

DURAN® Burette Amber, with glass key, class AS

with straight standard ground stopcock, white inscription, waiting time: 30 seconds, with batch certificate and certificate of conformity





ISO 385 | A 121 °C

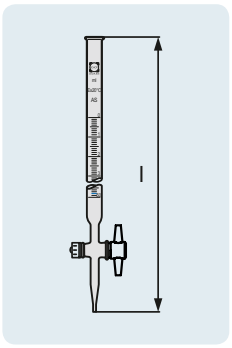
With main graduations as circular divisions. Calibration is based on the poured out volume ("Ex") at a + 20 °C reference temperature. Volume content tolerances conform to DIN.

Typical application: titrations.

Cat. No.	Capacity (mL)	l (mm)	Accuracy limits (mL)	Graduation (mL)	Pack Unit
24 326 27 01	10	820	0.02	0.02	2
24 326 33 03	25	820	0.03	0.05	2
24 326 36 03	50	820	0.05	0.1	2
24 326 39 03	100	870	0.1	0.2	2

DURAN® Burette Amber, with PTFE key, class AS

with straight standard ground stopcock, white inscription, waiting time: 30 seconds, with batch certificate and certificate of conformity



ISO 385 | A 121 °C

With main graduations as circular divisions. Calibration is based on the poured out volume ("Ex") at a + 20 °C reference temperature. Volume content tolerances conform to DIN.

Typical application: titrations.

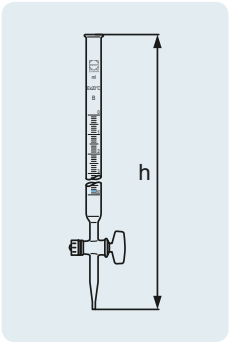
Cat. No.	Capacity (mL)	l (mm)	Accuracy limits (mL)	Graduation (mL)	Pack Unit
24 336 27 08	10	820	0.02	0.02	2
24 336 33 01	25	820	0.03	0.05	2
24 336 36 01	50	820	0.05	0.1	2
24 336 39 01	100	870	0.1	0.2	2

DURAN® Burette, class B

with straight standard ground stopcock

Calibration is based on the poured out volume ("Ex") at a + 20 °C reference temperature. Volume content tolerances conform to DIN and ISO. The Class B accuracy limit is roughly one and a half times wider than for Class AS. The tolerances are thus more strict than specified by DIN.

Typical application: titrations.



ISO 385 | A 121 °C

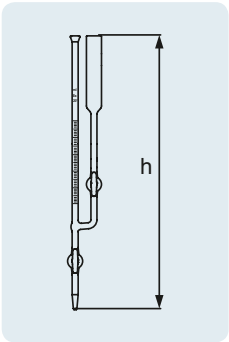
Cat. No.	Capacity (mL)	h (mm)	Accuracy limits (mL)	Graduation (mL)	Remark	Pack Unit
24 328 27 03	10	820	0.03	0.02		2
24 328 33 05	25	820	0.04	0.05		2
24 328 36 05	50	820	0.08	0.1		2
24 328 39 05	100	870	0.15	0.2	Non-DIN/ISO size.	2

DURAN® Micro-Burette with Schellbach stripe and glass key, class AS

with straight standard ground stopcock, 30 seconds waiting time, with batch certificate and certificate of conformity

With Schellbach stripe and main graduations as circular divisions. Calibration is based on the poured out volume („Ex") at a + 20 °C reference temperature. Volume content tolerances conform to DIN.

Typical application: titrations.

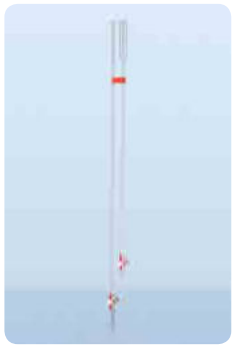


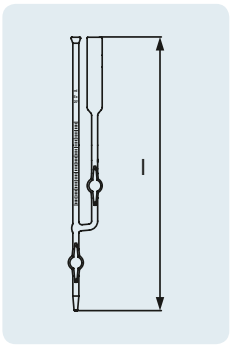
ISO 385 | A 121 °C

Cat. No.	Capacity (mL)	h (mm)	Accuracy limits (mL)	Graduation (mL)	Pack Unit
24 320 11 08	1	475	0.01	0.01	1
24 320 16 05	2	550	0.01	0.01	1
24 320 22 07	5	700	0.01	0.02	1

DURAN® Micro-Burette with Schellbach stripe and PTFE key, class AS

with straight standard ground stopcock, 30 seconds waiting time, with batch certificate and certificate of conformity





ISO 385 | A 121 °C

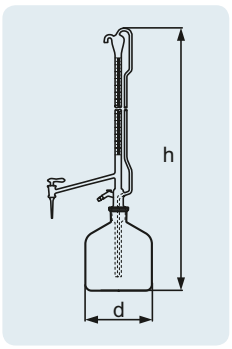
With Schellbach stripe and main graduations as circular divisions. Calibration is based on the poured out volume („Ex") at a + 20 °C reference temperature. Volume content tolerances conform to DIN.

Typical application: titrations.

Cat. No.	Capacity (mL)	l (mm)	Accuracy limits (mL)	Graduation (mL)	Pack Unit
24 321 11 09	1	475	0.01	0.01	2
24 321 16 06	2	550	0.01	0.01	2
24 321 22 08	5	700	0.01	0.02	2
24 321 27 05	10	781	0.02	0.02	2

DURAN® Automatic Burette Pellet-type, with glass key, class AS

with Schellbach stripe and glass key, side-positioned standard ground stopcock, 30 seconds waiting time, with batch certificate and certificate of conformity



ISO 385 | A 121 °C

With Schellbach stripe and main graduations as circular divisions, reservoir bottle (2 000 mL) and rubber air pump.

Typical application: titrations.

Cat. No.	Capacity (mL)	h (mm)	Accuracy limits (mL)	Graduation (mL)	Pack Unit
24 318 27 54	10	930	0.02	0.02	1
24 318 33 56	25	930	0.03	0.05	1
24 318 36 56	50	930	0.05	0.1	1

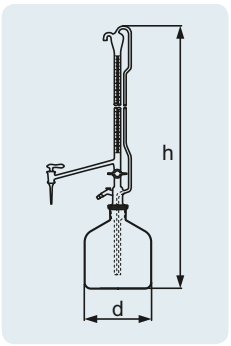
DURAN® Automatic Burette Pellet-type, with PTFE key, class AS

with Schellbach stripe and PTFE key, side-positioned standard ground stopcock, 30 seconds waiting time, with batch certificate and certificate of conformity

With Schellbach stripe and main graduations as circular divisions, reservoir bottle (2 000 mL) and rubber air pump.

Typical application: titrations.

Cat. No.	Capacity (mL)	h (mm)	Accuracy limits (mL)	Graduation (mL)	Pack Unit
24 317 27 53	10	930	0.02	0.02	1
24 317 33 55	25	930	0.03	0.05	1
24 317 36 55	50	930	0.05	0.1	1

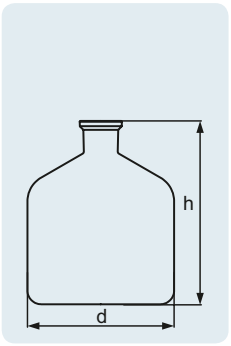


ISO 385 | A 121 °C

DURAN® Reservoir Bottle

Replacement bottle for automatic burettes.

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Remark	Pack Unit
Neck unground, clear					
21 150 63 03	2 000	160	200	Non-DIN/ISO size.	1
with standard ground NS 29/32, clear					
21 159 63 03	2 000	160	200		1
with standard ground NS 29/32, amber					
21 159 63 69	2 000	160	200		1



A 121 °C

DURAN® RANGE OF VOLUMETRIC FLASKS

Product Range		DURAN® VOLUMETRIC FLASKS, CLEAR				
Accuracy class		Class A				
DURAN® glass volumetric flasks body						
Certificate*		Batch certificate	Batch certificate	Individual certificate	Individual certificate, USP <31> conformity	
Certificate of conformity		yes	no	yes	yes	
Maximum recommended temperature without affecting accuracy		250 °C	250 °C	250 °C	250 °C	
Temperature resistance PE Stopper**		–40 °C to +80 °C	–40 °C to +80 °C	–40 °C to +80 °C	–40 °C to +80 °C	
Print Colour		Blue	White	Blue	Blue	
mL	Stopper size	**With new PE Stopper**	**With octagonal PE Stopper**	**With new PE Stopper**	**With new PE Stopper**	
1	7 / 16	24 678 01 59	–	24 679 01 51	–	
2	7 / 16	24 678 02 53	–	24 679 02 54	–	
5	7 / 16	–	21 678 07 04	–	–	
5 W[1]	10 / 19	24 678 09 56	–	24 679 09 57	24 671 09 58	
10	7 / 16	–	21 678 08 07	–	–	
10 W[1]	10 / 19	24 678 10 52	–	24 679 10 53	24 671 10 54	
20	10 / 19	24 678 12 58	21 678 12 03	24 679 12 59	–	
25	10 / 19	24 678 14 55	21 678 14 09	24 679 14 56	24 671 14 57	
50	12 / 21	24 678 17 55	21 678 17 09	24 679 17 56	24 671 17 57	
100	12 / 21	24 678 24 51	21 678 24 05	24 679 24 52	–	
100	14 / 23	24 678 25 54	21 678 25 08	24 679 25 55	24 671 25 56	
200	14 / 23	24 678 32 59	21 678 32 04	24 679 32 51	24 671 32 52	
250	14 / 23	24 678 36 53	21 678 36 07	24 679 36 54	24 671 36 55	
500	19 / 26	24 678 44 52	21 678 44 06	24 679 44 53	24 671 44 54	
1 000	24 / 29	24 678 54 57	21 678 54 02	24 679 54 58	24 671 54 59	
1 000 W[1]	29 / 32	24 678 55 51	–	24 679 55 52	–	
2 000	29 / 32	24 678 63 59	21 678 63 04	24 679 63 51	24 671 63 52	
5 000	34 / 35	24 678 73 55	21 678 73 09	24 679 73 56	–	

* Batch certificates also available online
W[1] = Wide neck

** Chemical resistance at + 20 °C

Alcohols, aliphatic	+	Hydrocarbons, aromatic	–
Aldehydes	+	Hydrocarbons, halogenated	–
Alkaline solutions	++	Ketones	+
Esters	+	Acids, dilute or weak	+
Esters	–	Acids, conc. or strong	+
Hydrocarbons, aliphatic	–	Acids, oxidising	–

	DURAN® VOLUMETRIC FLASKS, CLEAR	DURAN® VOLUMETRIC FLASKS, AMBER		DURAN® STOPPER PE	OCTAGONAL STOPPER PE
	Class B	Class A			
					
	–	Batch certificate	Individual certificate	–	–
	no	yes	yes	–	–
	250 °C	250 °C	250 °C	–	–
	–40 °C to +80 °C	–40 °C to +80 °C	–40 °C to +80 °C	–40 °C to +80 °C	–40 °C to +80 °C
	White	White	White	–	–
	With new PE Stopper	**With new PE Stopper**	**With new PE Stopper**	**Replacement Stopper**	**Replacement Stopper**
	–	–	–	29 205 02 01	29 204 02 09
	–	–	–		
	–	–	–		
	24 670 09 57	24 676 09 54	24 677 09 55	29 205 03 04	29 204 03 03
	–	–	–	29 205 02 01	29 204 02 09
	24 670 10 53	24 676 10 59	24 677 10 51	29 205 03 04	29 204 03 03
	24 670 12 59	24 676 12 56	24 677 12 57		
	24 670 14 56	24 676 14 53	24 677 14 54		
	24 670 17 56	24 676 17 53	24 677 17 54	29 205 04 07	29 204 04 06
	–	24 676 24 58	24 677 24 59		
	24 670 25 55	24 676 25 52	24 677 25 53	29 205 06 04	29 204 06 03
	24 670 32 51	24 676 32 57	24 677 32 58		
	24 670 36 54	24 676 36 51	24 677 36 52		
	24 670 44 53	24 676 44 59	24 677 44 51	29 205 07 07	29 204 07 06
	24 670 54 58	24 676 54 55	24 677 54 56	29 205 08 01	29 204 08 09
	–	–	–	29 205 09 04	29 204 09 03
	24 670 63 51	24 676 63 57	24 677 63 58		
	24 670 73 56	–	–	29 205 11 03	29 204 11 02

DURAN WHEATON KIMBLE
Excellence in your hands

DURAN® RANGE OF MEASURING AND MIXING CYLINDERS

Product Range		DURAN® MIXING CYLINDERS		
Accuracy class		Class A	Class B	
DURAN® glass cylinder body				
Certificate*		Batch certificate	–	
Maximum recommended temperature for drying without affecting accuracy.		250 °C	250 °C	
Temperature resistance PE Stopper		–40 °C to +80 °C	–40 °C to +80 °C	
Print colour		Blue	White	
mL	Stopper size[1]	**With new PE Stopper**	**With octagonal PE Stopper**	
5	–	–	–	
10	10 / 19	24 618 08 56	21 618 08 01	
25	14 / 23	24 618 14 58	21 618 14 03	
50	19 / 26	24 618 17 58	21 618 17 03	
100	24 / 29	24 618 24 54	21 618 24 08	
250	29 / 32	24 618 36 56	21 618 36 01	
500	34 / 35	24 618 44 55	21 618 44 09	
1 000	45 / 40	24 618 54 51	21 618 54 05	
2 000	45 / 40	24 618 63 53	21 618 63 07	

*Batch certificates also available online

[1] Valid for mixing cylinders only

	DURAN® MEASURING CYLINDERS		DURAN® MEASURING CYLINDERS	DURAN® SUPER DUTY MEASURING CYLINDERS
	Class A	Class B	Class B	Class B
				
	Batch certificate	–	–	–
	250 °C	250 °C	250 °C	250 °C
	–	–	–	–
	Blue	White	White	White
	21 390 07 01	21 396 07 07	–	–
	21 390 08 04	21 396 08 01	21 395 08 09	–
	21 390 14 06	21 396 14 03	21 395 14 02	–
	21 390 17 06	21 396 17 03	21 395 17 02	–
	21 390 24 02	21 396 24 08	21 395 24 07	21 394 24 06
	21 390 36 04	21 396 36 01	21 395 36 09	21 394 36 08
	21 390 44 03	21 396 44 09	21 395 44 08	21 394 44 07
	21 390 54 08	21 396 54 05	21 395 54 04	21 394 54 03
	21 390 63 01	21 396 63 07	21 395 63 06	–

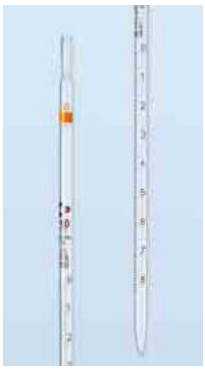
DURAN WHEATON KIMBLE
Excellence in your hands

RANGE OF BULB AND MEASURING PIPETTES FROM SODA-LIME GLASS

Product Range	BULB PIPETTES			MEASURING PIPETTES	
Accuracy class	Class AS		Class B	Class AS	
Material of the pipettes: soda-lime glass (AR® glass)					
Certificate*	Batch certificate	Batch certificate	–	Batch certificate	
Maximum recommended temperature for drying without affecting accuracy	250 °C	250 °C	250 °C	250 °C	
Print colour	Amber stain graduation	Blue	Amber stain graduation	Amber stain graduation	
mL				TYPE 3	
0.1	–	–	–	–	
0.2	–	–	–	–	
0.5	–	23 339 00 51	–	–	
1	24 338 01 09	23 339 01 05	24 337 01 08	24 345 11 09	
2	24 338 02 03	23 339 02 08	24 337 02 02	24 345 17 09	
3	–	23 339 03 02	–	–	
4	–	23 339 04 05	–	–	
5	24 338 07 09	23 339 05 08	24 337 07 08	24 345 23 02	
6	–	23 339 06 02	–	–	
7	–	23 339 07 05	–	–	
8	–	23 339 08 08	–	–	
9	–	23 339 09 02	–	–	
10	24 338 08 03	23 339 10 07	24 337 08 02	24 345 29 02	
15	–	23 339 15 04	–	–	
20	24 338 12 08	23 339 20 03	24 337 12 07	–	
25	24 338 14 05	23 339 25 09	24 337 14 04	24 345 34 01	
30	–	23 339 30 08	–	–	
40	–	23 339 40 04	–	–	
50	24 338 17 05	23 339 50 09	24 337 17 04	–	
100	24 338 24 01	23 339 00 02	24 337 24 09	–	

TYPE 1 – partial delivery, zero point at the top
TYPE 2 – total delivery, nominal volume at the top
TYPE 3 – total delivery, zero point at the top

*Batch certificates also available online
AR® glass = registered trademark of SCHOTT AG

MEASURING PIPETTES						
	Class AS				Class B	
						
	Batch certificate	Batch certificate	Batch certificate	Batch certificate	–	–
	250 °C	250 °C	250 °C	250 °C	250 °C	250 °C
	Blue	Amber stain graduation	Blue	Blue	Amber stain graduation	Amber stain graduation
	TYPE 1	**TYPE 2**	**TYPE 2**	**TYPE 3**	**TYPE 1**	**TYPE 3**
	–	–	–	–	24 343 01 02	24 344 01 03
	–	–	–	–	24 343 03 08	24 344 03 09
	23 346 06 06	23 347 06 07	23 348 06 08	23 349 06 09	24 343 06 08	24 344 06 09
	23 346 11 05	23 347 11 06	23 348 11 07	23 349 11 08	24 343 11 07	24 344 11 08
	23 346 16 02	23 347 16 03	23 348 16 04	23 349 16 05	24 343 16 04	24 344 16 05
	–	–	–	–	–	–
	–	–	–	–	–	–
	23 346 23 07	23 347 23 08	23 348 23 09	23 349 23 01	24 343 23 09	24 344 23 01
	–	–	–	–	–	–
	–	–	–	–	–	–
	–	–	–	–	–	–
	–	–	–	–	–	–
	23 346 29 07	23 347 29 08	23 348 29 09	23 349 29 01	24 343 29 09	24 344 29 01
	–	–	–	–	–	–
	23 346 32 09	23 347 32 01	23 348 32 02	23 349 32 03	–	–
	23 346 34 06	23 347 34 07	23 348 34 08	23 349 34 09	24 343 34 08	24 344 34 09
	–	–	–	–	–	–
	–	–	–	–	–	–
	23 346 36 03	23 347 36 04	23 348 36 05	23 349 36 06	–	–
	–	–	–	–	–	–

DURAN WHEATON KIMBLE
Excellence in your hands

DURAN® RANGE OF BURETTES

Product Range	DURAN® BURETTES				
Accuracy class	Class AS				
Material of the burettes: DURAN® glass					
Certificate*	Batch certificate	Batch certificate	Batch certificate	Batch certificate	
Max. recommended temperature for drying without affecting accuracy	250 °C	250 °C	250 °C	250 °C	
Glass colour	clear glass	amber glass	clear glass	amber glass	
Print colour	Blue	White	Blue	White	
Schellbach stripe	yes	no	yes	no	
mL	**Straight glass stopcock**	**Straight glass stopcock**	**Straight PTFE stopcock**	**Straight PTFE stopcock**	
1	–	–	–	–	
2	–	–	–	–	
5	–	–	–	–	
10	24 329 27 04	24 326 27 01	24 330 27 02	24 336 27 08	
25	24 329 33 06	24 326 33 03	24 330 33 04	24 336 33 01	
50	24 329 36 06	24 326 36 03	24 330 36 04	24 336 36 01	
100	24 329 39 06	24 326 39 03	24 330 39 04	24 336 39 01	

* Batch certificates also available online

DURAN® BURETTES					
		AUTOMATIC BURETTES – PELLET TYPE		MICRO-BURETTES	
	Class B	Class AS			
					
	–	Batch certificate	Batch certificate	Batch certificate	Batch certificate
	250 °C	250 °C	250 °C	250 °C	250 °C
	clear glass	–	–	–	–
	Blue	Blue	Blue	Blue	Blue
	no	yes	yes	yes	yes
	Straight glass stopcock	**Lateral glass stopcock**	**PTFE spindle stopcock, intermediate PTFE stopcock**	**Straight glass stopcock**	**Straight PTFE stopcock, intermediate PTFE stopcock**
	–	–	–	24 320 11 08	24 321 11 09
	–	–	–	24 320 16 05	24 321 16 06
	–	–	–	24 320 22 07	24 321 22 08
	24 328 27 03	24 318 27 54	24 317 27 53	–	24 321 27 05
	24 328 33 05	24 318 33 56	24 317 33 55	–	–
	24 328 36 05	24 318 36 56	24 317 36 55	–	–
	24 328 39 05	–	–	–	–

DURAN WHEATON KIMBLE
Excellence in your hands


500 ml

04

INTERCHANGEABLE GLASSWARE

INTERCHANGEABLE GLASSWARE

DURAN® interchangeable glassware is indispensable for laboratory work. DWK Life Sciences offers a wide range of bottles and flasks with standard ground necks, vessels with flat flanges, condensers and stirrer shafts.

The DURAN® flat flange reaction vessels are valued for their universal suitability for use in the laboratories of a wide range of specialisations.

Whether reaction, distillation, evaporation or desiccation, DURAN® offers a wide range of unfinished and finished parts which always provide the optimum solution for the particular application. Due to the pure glass-to-glass connections, reactions with highly corrosive or highly chemically reactive substances can be carried out without problems.

The vessels are notable due to a robust glass flange design with an optimum external flange angle of 45°. Due to the precisely ground joint, the vessels can be closed tightly when using a sealing ring.

Matching stainless-steel quick release clamps, with three retaining clips, ensure easy and safe handling.

All individual parts and a wide range of accessories such as lids, seals, quick-release clamps etc. are compatible and can be interchanged as required. Vessels and lids can be matched using their DN (nominal diameter) number.

Usage tips:

- All components are suitable for use under full vacuum and approved for operating over-pressures (see product related pages).
- Before use, it is recommended that the glass surfaces of the vessels be checked for damage such as scratches, cracks or nicks.
- Damaged glass vessels should not be used for safety reasons.
- Due to the high wall thickness and reduced thermal shock resistance under pressure loading, the flat flange vessels should be heated uniformly and gradually.

04

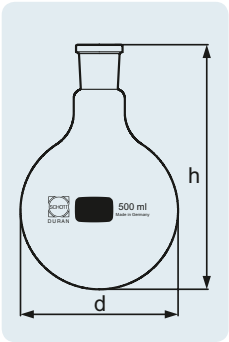
> Find your nearest **distributor** on our global network:
www.DWK-LifeSciences.com/DURAN/distributors

DURAN® Round Bottom Flask

with standard ground joint

Thanks to the uniform wall thickness, round bottom flasks are ideal as heating vessels. The geometry permits very uniform heating. Closable with glass and plastic stopper. Combinable with other standard ground joint articles.

Typical applications: distillation, extraction.



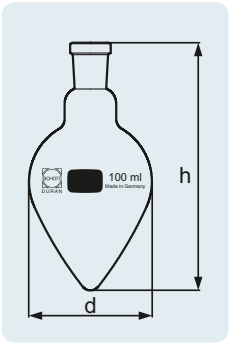
DIN ISO 4797 | A 121 °C | USP Standard

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Neck	Remark	Pack Unit
24 170 13 07	25	41	85	14/23		10
24 170 14 01	25	41	85	19/26	Non-DIN ISO size.	10
24 170 20 03	50	51	90	14/23		10
24 170 17 01	50	51	90	19/26		10
24 170 18 04	50	51	105	24/29	Non-DIN ISO size.	10
24 170 19 07	50	51	105	29/32	Non-DIN ISO size.	10
24 170 25 09	100	64	105	14/23		10
24 170 24 06	100	64	105	19/26		10
24 170 26 03	100	64	105	24/29		10
24 170 27 06	100	64	105	29/32		10
24 170 36 08	250	85	140	24/29		10
24 170 37 02	250	85	140	29/32		10
24 170 44 07	500	105	163	24/29		10
24 170 46 04	500	105	163	29/32		10
24 170 47 07	500	105	163	45/40	Non-DIN ISO size.	10
24 170 54 03	1 000	131	200	24/29		10
24 170 56 09	1 000	131	200	29/32		10
24 170 57 03	1 000	131	200	45/40	Non-DIN ISO size.	10
24 170 63 05	2 000	166	240	29/32		10
24 170 64 08	2 000	166	240	45/40	Non-DIN ISO size.	10
24 170 72 07	4 000	207	290	45/40		1

DURAN® Pear Shape Flask

with standard ground joint

The conical geometry makes them ideal for small-scale reactions.

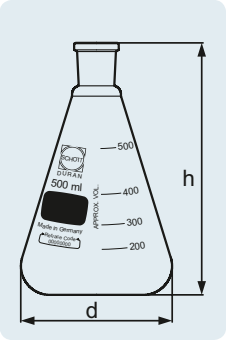


A 121 °C | USP Standard

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Neck	Pack Unit
24 195 08 09	10	30	75	14/23	10
24 195 14 02	25	40	90	14/23	10
24 195 20 04	50	50	110	14/23	10
24 195 25 01	100	62	125	14/23	10

DURAN® Erlenmeyer Flask

with standard ground joint



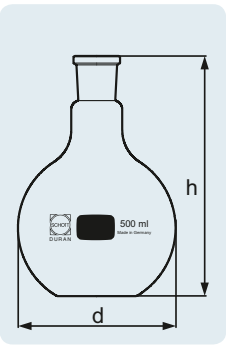
DIN ISO 4797 | Retrace Code | A 121 °C | USP Standard

With easy-to-read scale and large labelling field for easy marking. The conical shape makes these flasks ideal for mixing liquids and, due to the even wall thickness, also suitable for use as heating glassware.

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Neck	Remark	Pack Unit
24 193 13 06	25	42	75	14/23		10
24 193 20 02	50	51	85	14/23		10
24 193 17 09	50	51	85	19/26		10
24 193 18 03	50	51	85	24/29	Non-DIN ISO size.	10
24 193 19 06	50	51	85	29/32		10
24 193 24 05	100	64	105	19/26		10
24 193 26 02	100	64	105	24/29	Non-DIN ISO size.	10
24 193 27 05	100	64	105	29/32		10
24 193 32 04	200	79	131	29/32	Non-DIN ISO size.	10
24 193 36 07	250	85	140	24/29		10
24 193 37 01	250	85	140	29/32		10
24 193 38 04	250	85	140	45/40	Non-DIN ISO size.	10
24 193 39 07	300	87	155	29/32	Non-DIN ISO size.	10
24 193 44 06	500	105	175	24/29		10
24 193 46 03	500	105	175	29/32		10
24 193 47 06	500	105	175	45/40	Non-DIN ISO size.	10
24 193 54 02	1 000	131	220	24/29		10
24 193 56 08	1 000	131	220	29/32		10
24 193 57 02	1 000	131	220	45/40	Non-DIN ISO size.	10

DURAN® Flat Bottom Flask

with standard ground joint



DIN ISO 4797 | A 121 °C | USP Standard

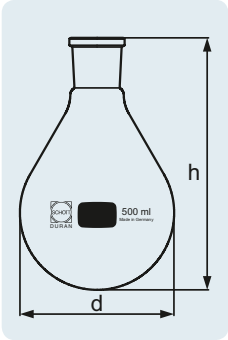
Due to the flat bottom the flask can be set upon a bench without a support ring.

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Neck	Remark	Pack Unit
24 171 19 08	50	51	85	29/32		10
24 171 24 07	100	64	103	19/26		10
24 171 26 04	100	64	103	24/29		10
24 171 27 07	100	64	103	29/32		10
24 171 36 09	250	85	130	24/29	Non-DIN ISO size.	10
24 171 37 03	250	85	130	29/32		10
24 171 44 08	500	105	160	24/29	Non-DIN ISO size.	10
24 171 46 05	500	105	160	29/32		10
24 171 54 04	1 000	131	187	24/29	Non-DIN ISO size.	10
24 171 56 01	1 000	131	187	29/32		10
24 171 63 06	2 000	166	230	29/32	Non-DIN ISO size.	10

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Neck	Pack Unit
24 120 27 07	100	60	110	29/32	10
24 120 37 03	250	81	140	29/32	10
24 120 46 05	500	101	170	29/32	10
24 120 56 01	1 000	126	210	29/32	10

DURAN® Evaporating Flask

with standard ground joint, pear shape



A 121 °C

USP Standard

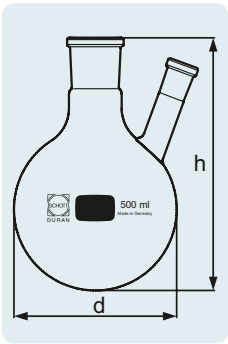
Thanks to the uniform wall thickness, round bottom flasks are ideal as heating vessels. The geometry permits very uniform heating. Depending upon the application, accessories, columns, thermometers, dropping funnels, boiling capillaries, etc. can be fitted.

Typical applications: distillation, extraction.

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Center neck (NS)	Side neck (NS)	Remark	Pack Unit
24 183 26 04	100	64	105	24/29	14/23	Non-DIN ISO size.	1
24 183 27 07	100	64	105	29/32	14/23	Non-DIN ISO size.	1
24 183 36 09	250	85	140	24/29	14/23	Non-DIN ISO size.	1
24 183 37 03	250	85	140	29/32	14/23		1
24 183 44 08	500	105	163	24/29	14/23	Non-DIN ISO size.	1
24 183 46 05	500	105	163	29/32	14/23		1
24 183 54 04	1 000	131	200	24/29	14/23	Non-DIN ISO size.	1
24 183 56 01	1 000	131	200	29/32	14/23		1
24 183 63 06	2 000	166	240	29/32	14/23		1

DURAN® Twin-Neck Round Bottom Flask

with standard ground joint, inclined side neck



DIN ISO 12394

A 121 °C

USP Standard

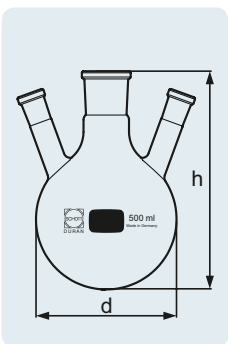
Thanks to the uniform wall thickness, round bottom flasks are ideal as heating vessels. The geometry permits very uniform heating. Depending upon the application, accessories, columns, thermometers, dropping funnels, boiling capillaries, etc. can be fitted.

Typical applications: distillation, extraction.

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Center neck (NS)	Side neck (NS)	Pack Unit
24 188 27 03	100	64	105	29/32	14/23	1
24 188 36 05	250	85	140	24/29	14/23	1
24 188 37 08	250	85	140	29/32	14/23	1
24 188 43 01	500	105	163	24/29	14/23	1
24 188 46 01	500	105	163	29/32	14/23	1
24 188 53 06	1 000	131	200	24/29	14/23	1
24 188 55 03	1 000	131	200	29/32	14/23	1

DURAN® Triple-Neck Round Bottom Flask

with standard ground joint, inclined side necks

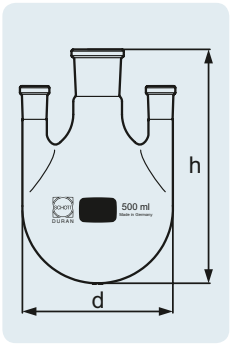


A 121 °C

USP Standard

DURAN® Triple-Neck Round Bottom Flask

with standard ground joint, parallel side necks



DIN ISO 12392 | A 121 °C | USP Standard

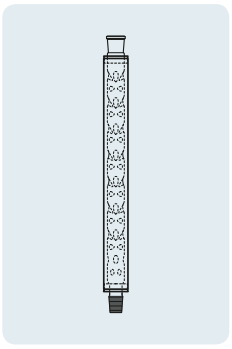
Thanks to the uniform wall thickness, round bottom flasks are ideal as heating vessels. The geometry permits very uniform heating. Depending upon the application, accessories, columns, thermometers, dropping funnels, boiling capillaries, etc. can be fitted.

Typical applications: distillation, extraction.

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Center neck (NS)	Side neck (NS)	Remark	Pack Unit
24 185 36 02	250	85	105	24/29	19/26	Non-DIN ISO size.	1
24 185 37 05	250	85	140	29/32	14/23	Non-DIN ISO size.	1
24 185 44 01	500	105	140	24/29	19/26	Non-DIN ISO size.	1
24 185 46 07	500	105	163	29/32	14/23	Non-DIN ISO size.	1
24 185 45 04	500	105	163	29/32	29/32		1
24 185 56 03	1 000	131	163	29/32	14/23	Non-DIN ISO size.	1
24 185 55 09	1 000	131	200	29/32	29/32		1
24 185 63 08	2 000	166	240	29/32	14/23	Non-DIN ISO size.	1
24 185 65 05	2 000	166	240	29/32	29/32		1

DURAN® Vigreux Column

with 2 standard ground joints, complete, with slide-on glass jacket

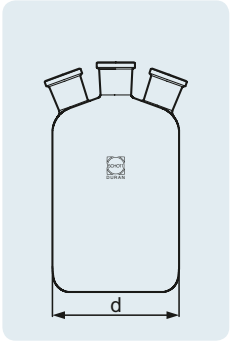


Typical application: distillation.

Cat. No.	Overall length (mm)	Socket size (NS)	Cone (NS)	Effective length (mm)	Pack Unit
24 240 71 04	450	24/29	24/29	300	1
24 240 72 07	450	29/32	29/32	300	1
24 240 87 09	650	24/29	24/29	500	1
24 240 88 03	650	29/32	29/32	500	1

DURAN® Woulff Bottle

3 standard ground necks



A 121 °C | USP Standard

Vacuum resistant due to the wall thickness and geometry.

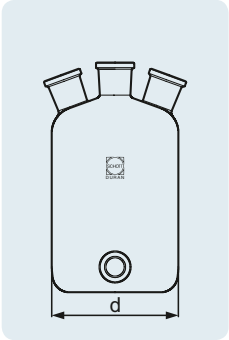
Cat. No.	Capacity (mL)	d (OD) (mm)	Neck	Pack Unit
24 709 44 03	500	87	19/26	1
24 709 54 08	1 000	113	24/29	1
24 709 63 01	2 000	135	29/32	1
24 709 73 06	5 000	185	34/35	1

Vacuum resistant due to the wall thickness and geometry.

Cat. No.	Capacity (mL)	d (OD) (mm)	Neck	Remark	Pack Unit
24 710 44 01	500	87	19/26	Bottom NS 19/26	1
24 710 54 06	1 000	113	24/29	Bottom NS 19/26	1
24 710 63 08	2 000	135	29/32	Bottom NS 19/26	1
24 710 73 04	5 000	185	34/35	Bottom NS 29/32	1

DURAN® Woulff Bottle

3 standard ground necks, and bottom tubulature



A 121 °C

USP Standard

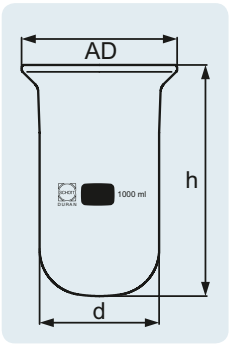
Pressure and vacuum resistant due to the wall thickness and geometry. Groove for O-ring seal.

Typical applications: reactions under pressure and/or high temperature.

Cat. No.	Capacity (mL)	Full capacity (mL)	Outer diameter (AD) Flange (mm)	Vessel d (OD) (mm)	h (mm)	Max. operating pressure at 250 °C	Remark	Pack Unit
DN 60								
24 390 24 08	100	195	100	70	85	2.5 bar	cylindrical	1
24 390 36 01	250	315	100	70	125	2.5 bar	cylindrical	1
DN 100								
24 390 44 09	500	740	138	106	120	1.5 bar	cylindrical	1
24 390 54 05	1 000	1 395	138	106	205	1.5 bar	cylindrical	1
24 390 63 07	2 000	2 620	138	140	270	1.5 bar	flask shaped	1
DN 150								
24 390 71 06	4 000	5 765	184	200	290	1.0 bar	flask shaped	1
24 390 76 03	6 000	7 320	184	215	320	1.0 bar	flask shaped	1
24 390 86 08	10 000	11 935	184	240	410	0.5 bar	flask shaped	1

DURAN® Flat Flange Reaction Vessel

flange with groove

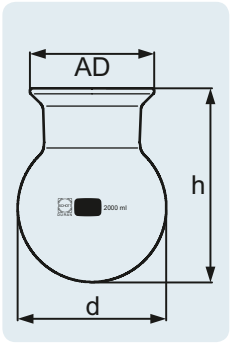


A 121 °C

USP Standard

DURAN® Flat Flange Round Bottomed Flask

flange with groove, for vacuum use



A 121 °C

USP Standard

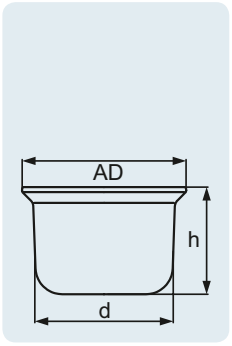
Pressure and vacuum resistant due to the wall thickness and geometry. Groove for O-ring seal. Note: At the maximum usage temperature of 250 °C and the maximum operating pressure, the temperature difference in the glass wall of the flat flange reaction vessels must not exceed 30 °C.

Typical applications: reactions under pressure and/or high temperature.

Cat. No.	Capacity (mL)	h (mm)	Outer diameter (AD) Flange (mm)	Full capacity (mL)	Vessel d (OD) (mm)	Max. operating pressure at 250 °C	Pack Unit
DN 100							
24 395 63 03	2 000	215	138	2 610	165	1.0 bar	1
24 395 71 02	4 000	265	138	4 660	206	1.0 bar	1
24 395 76 08	6 000	295	138	6 675	236	1.0 bar	1
24 395 86 04	10 000	340	138	11 720	280	0.5 bar	1
24 395 91 03	20 000	410	138	21 415	350	0.5 bar	1
DN 120							
24 397 73 01	5 000	270	158		223		1
DN 150							
24 399 86 08	10 000	340	184		280		1
34 399 91 07	20 000	410	184		350		1

DURAN® Flat Flange Beaker

flange with groove



A 121 °C

USP Standard

Pressure and vacuum resistant due to the wall thickness and geometry. Groove for O-ring seal. Suitable for Witt-type filter apparatus. Note: only heat flat-flange beakers in water or oil baths. At the maximum usage temperature of 250 °C and the maximum operating pressure, the temperature difference in the glass wall of the flat flange reaction vessels must not exceed 30 °C.

Typical applications: reactions under pressure and/or high temperature.

Cat. No.	Capacity (mL)	h (mm)	Outer diameter (AD) Flange (mm)	Full capacity (mL)	Max. operating pressure at 250 °C	Beaker d (OD) (mm)	Pack Unit
DN 120							
24 394 54 09	1 000	125	158	1 360	0.5 bar	130	1
24 394 63 02	2 000	200	158	2 200	0.5 bar	130	1
24 394 68 08	3 000	290	158	3 220	0.5 bar	130	1
DN 150							
24 391 54 06	1 000	120	184	1 915	0.5 bar	159	1
24 391 63 08	2 000	200	184	3 070	0.5 bar	153	1
24 391 68 05	3 000	265	184	4 090	0.5 bar	153	1

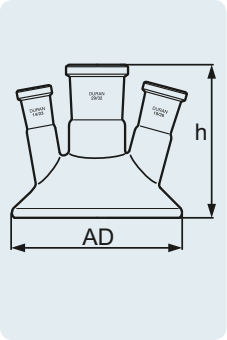
DURAN® Flat Flange Lid

4 standard ground necks, with side neck (NS): 2 x 19/26 angled; 1 x 14/23 angled

Pressure and vacuum resistant due to the wall thickness and geometry. Note: At the maximum usage temperature of 250 °C and the maximum operating pressure, the temperature difference in the glass wall of the flat flange reaction vessels must not exceed 30 °C.

Typical applications: reactions under pressure and/or high temperatue.

Cat. No.	h (mm)	DN	Outer diameter (AD) Flange (mm)	Center neck (NS)	Max. operating pressure at 250 °C	Pack Unit
24 392 34 06	90	60	100	29/32	2 bar	1



A 121 °C

USP Standard

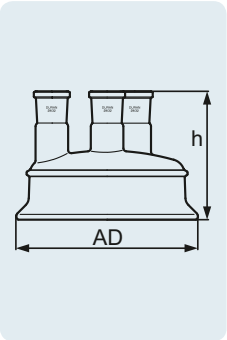
DURAN® Flat Flange Lid

4 standard ground necks, with side neck (NS): 3 x 29/32 parallel

Pressure and vacuum resistant due to the wall thickness and geometry.

Typical applications: reactions under pressure and/or high temperature.

Cat. No.	h (mm)	DN	Outer diameter (AD) Flange (mm)	Center neck (NS)	Max. operating pressure at 250 °C	Pack Unit
24 392 57 07	130	150	184	29/32	1 bar	1

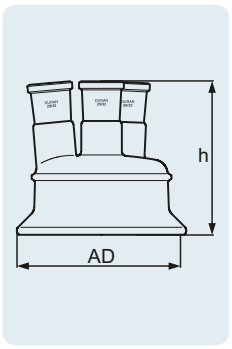


A 121 °C

USP Standard

DURAN® Flat Flange Lid

4 standard ground necks, with side neck (NS): 3 x 29/32 angled



USP Standard | A 121 °C

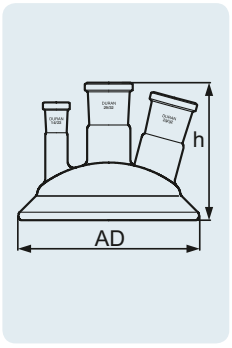
Pressure and vacuum resistant due to the wall thickness and geometry.

Typical applications: reactions under pressure and/or high temperature.

Cat. No.	h (mm)	DN	Outer diameter (AD) Flange (mm)	Center neck (NS)	Max. operating pressure at 250 °C	Pack Unit
24 392 46 08	125	100	138	29/32	1 bar	1
24 392 58 01	130	150	184	29/32	1 bar	1

DURAN® Flat Flange Lid

4 standard ground necks, with side neck (NS): 2 x 29/32 angled; 1 x 14/23 angled



A 121 °C | USP Standard

Flat form. Pressure and vacuum resistant due to the wall thickness and geometry.

Typical applications: reactions under pressure and/or high temperature.

Cat. No.	h (mm)	DN	Outer diameter (AD) Flange (mm)	Center neck (NS)	Max. operating pressure at 250 °C	Pack Unit
24 396 46 03	105	100	138	29/32	1 bar	1

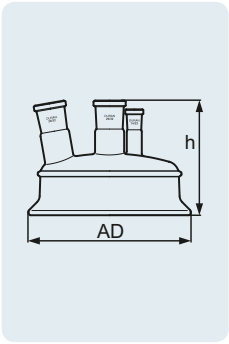
Pressure and vacuum resistant due to the wall thickness and geometry.

Typical applications: reactions under pressure and/or high temperature.

Cat. No.	h (mm)	DN	Outer diameter (AD) Flange (mm)	Center neck (NS)	Max. operating pressure at 250 °C	Pack Unit
24 392 47 02	125	100	138	29/32	1 bar	1
24 392 51 07	130	120	158	29/32	1 bar	1
24 392 59 04	120	150	184	29/32	1 bar	1

DURAN® Flat Flange Lid

4 standard ground necks, with side neck (NS): 2 x 29/32 angled; 1 x 14/23 parallel



A 121 °C

USP Standard

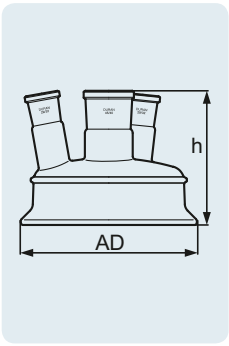
Pressure and vacuum resistant due to the wall thickness and geometry.

Typical applications: reactions under pressure and/or high temperature.

Cat. No.	h (mm)	DN	Outer diameter (AD) Flange (mm)	Center neck (NS)	Max. operating pressure at 250 °C	Pack Unit
24 392 60 09	140	150	184	45/40	1 bar	1

DURAN® Flat Flange Lid

4 standard ground necks, with side neck (NS): 3 x 29/32 angled

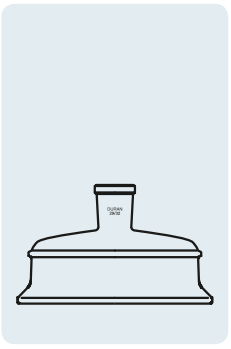


A 121 °C

USP Standard

DURAN® Flat Flange Lid

with centre neck



Pressure and vacuum resistant due to the wall thickness and geometry.

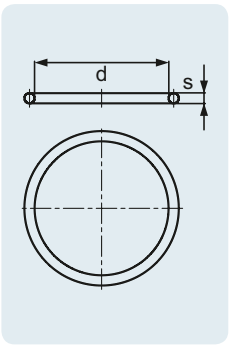
Typical applications: reactions under pressure and/or high temperature.

Cat. No.	h (mm)	Neck	DN	Outer diameter (OD) Flange (mm)	Max. operating pressure at 250 °C	Pack Unit
NS 29/32						
24 398 46 05	76	29/32	100	138	1 bar	1
24 398 57 04	102	29/32	150	184	1 bar	1
24 398 61 09	126	29/32	200	242	1 bar	1
24 398 51 04	105	29/32	120	158	1 bar	1
NS 45/40						
24 450 46 08	84	45/40	100	138	1 bar	1
24 450 57 07	112	45/40	150	184	1 bar	1

A 121 °C | USP Standard

O-Ring Red

FEP coated, not suitable for desiccators



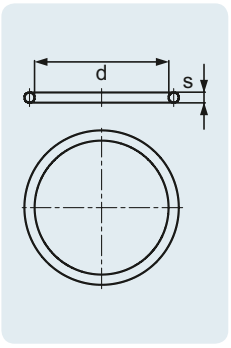
Accessories for flat flange vessels, comprising an elastic, silicone core with seamless FEP coating that encloses the ring. The combination of these high-quality materials achieves good elasticity in conjunction with outstanding chemical resistance.

Cat. No.	d (OD) (mm)	DN	s (mm)	Pack Unit
29 222 34 06	75	60	4	1
29 222 46 08	110	100	4	1
29 222 51 07	133	120	4	1
29 222 57 07	157	150	5	1
29 222 61 03	215	200	5	1

A 121 °C | Tmax. 200 °C

O-Ring Transparent

from silicone (VMQ), not suitable for desiccators



Accessories for flat flange vessels. From silicone (VMQ), so is highly elastic. The chemical resistance of silicone is lower than FEP coated O-rings.

Cat. No.	d (OD) (mm)	DN	s (mm)	Pack Unit
29 225 34 09	75	60	4	5
29 225 46 02	110	100	4	5
29 225 51 01	133	120	4	5
29 225 57 01	157	150	5	5
29 225 61 06	215	200	5	5

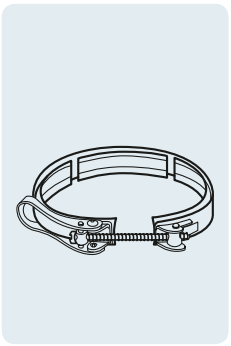
A 121 °C | Tmax. 200 °C

Quick Release Clamp

Accessories for flat flange vessels.

from stainless steel, with retaining clip

Cat. No.	DN	Pack Unit
29 071 34 07	60	1
29 071 46 09	100	1
29 071 51 08	120	1
29 071 57 08	150	1
29 071 61 04	200	1

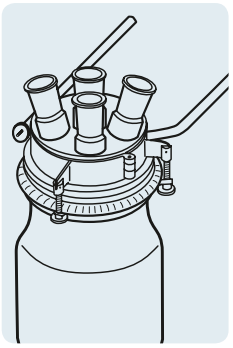


Holding Device for Reaction Vessels

For secure fitting of the lid or the reaction vessel using two clamping rods.

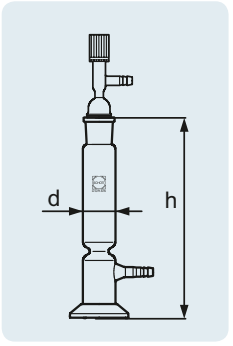
from chrome-nickel steel

Cat. No.	DN	Pack Unit
29 073 46 02	100	1
29 073 57 01	150	1



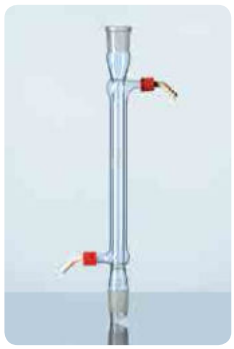
DURAN® Calcium Chloride Cylinder

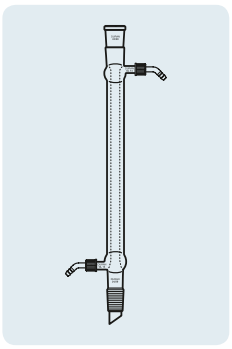
Cat. No.	d (OD) (mm)	h (mm)	Cone (NS)	Pack Unit
21 570 42 07	40	240	29/32	1
21 570 48 07	54	315	34/35	1



DURAN® Liebig Condenser (West Condenser)

with 2 standard ground joints, and
2 screw-on plastic hose connections





DIN 12576

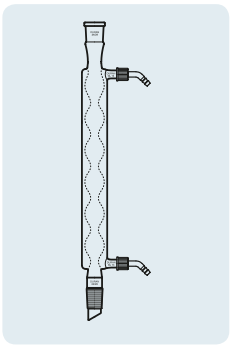
Relatively small heat exchange surface and thus relatively low cooling capacity.

Typical application: product condenser for distillate separations.

Cat. No.	Thread	Socket size (NS)	Cone (NS)	Jacket length (mm)	Remark	Pack Unit
24 251 61 07	14	14/23	14/23	160		1
24 251 70 09	14	14/23	14/23	250	Special size, non-DIN size.	1
24 251 71 03	14	24/29	24/29	250	Special size, non-DIN size.	1
24 251 72 06	14	29/32	29/32	250	Special size, non-DIN size.	1
24 251 81 08	14	24/29	24/29	400	Special size, non-DIN size.	1
24 251 82 02	14	29/32	29/32	400		1

DURAN® Bulb Condenser (Allihn Condenser)

with 2 standard ground joints, and
2 screw-on plastic hose connections



DIN 12576

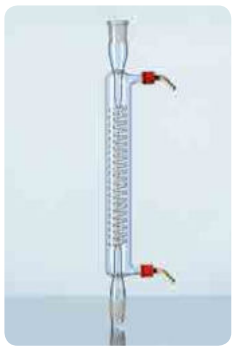
The bulb condenser has a greater cooling surface than the liebig condenser and thus higher cooling capacity.

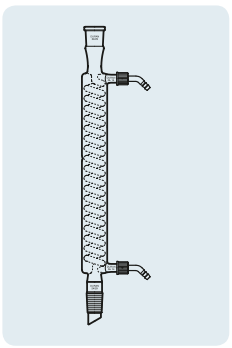
Typical application: reflux condenser for condensation and feedback of the (solvent) vapour to the reaction mixture.

Cat. No.	Thread	Socket size (NS)	Cone (NS)	Jacket length (mm)	Remark	Pack Unit
24 252 71 04	14	24/29	24/29	250	Special size, non-DIN size.	1
24 252 72 07	14	29/32	29/32	250	Special size, non-DIN size.	1
24 252 81 09	14	24/29	24/29	400	Special size, non-DIN size.	1
24 252 82 03	14	29/32	29/32	400		1

DURAN® Coil Distillate Condenser

with 2 standard ground joints, and
2 screw-on plastic hose connections





Typical application: product condenser for distillate separations.

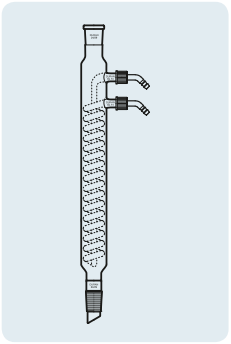
Cat. No.	Thread	Socket size (NS)	Cone (NS)	Jacket length (mm)	Pack Unit
24 253 71 05	14	24/29	24/29	300	1
24 253 72 08	14	29/32	29/32	300	1

DURAN® Dimroth Condenser

with 2 standard ground joints, and
2 screw-on plastic hose connections

The dimroth condenser comprises a coil condenser located within a tube. This condenser type has a larger heat exchange surface and thus a better cooling effect than the Liebig or Allihn condenser.

Typical applications: product and reflux condenser.



DIN 12591

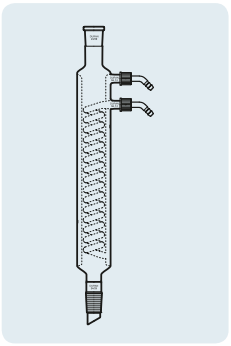
Cat. No.	Thread	Socket size (NS)	Cone (NS)	Jacket length (mm)	Remark	Pack Unit
24 254 61 01	14	14/23	14/23	160	Special size, non-DIN size.	1
24 254 71 06	14	24/29	24/29	250	Special size, non-DIN size.	1
24 254 72 09	14	29/32	29/32	250	Special size, non-DIN size.	1
24 254 82 05	14	29/32	29/32	400		1

DURAN® Jacketed Coil Condenser

with 2 standard ground joints, and
2 screw-on plastic hose connections

This type of condenser has a very large heat exchange surface due to its coil condenser and double jacket and is thus especially suited to working with low boiling point media.

Typical application: use as a reflux condenser for condensation and feedback of the (solvent) vapour to the reaction mixture.



DIN 12593

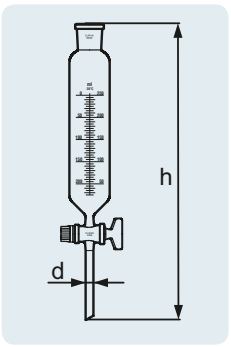
Cat. No.	Thread	Socket size (NS)	Cone (NS)	Jacket length (mm)	Remark	Pack Unit
24 255 71 07	14	24/29	24/29	250	Special size, non-DIN size.	1
24 255 72 01	14	29/32	29/32	250	Special size, non-DIN size.	1
24 255 81 03	14	24/29	24/29	400	Special size, non-DIN size.	1
24 255 82 06	14	29/32	29/32	400	Special size, non-DIN size.	1

DURAN® Dropping Funnel

cylindrical, with scale

With standard ground stopcock and retaining device.

Typical applications: uniform and metered liquid supply to a reaction mixture. The rate of supply can be adjusted.

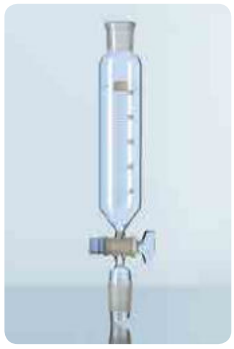


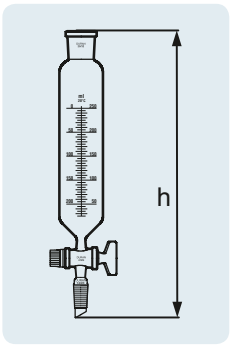
DIN ISO 4800

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Socket size (NS)	Scale (mL)	Standard solid key nominal size (DIN 12541)	Pack Unit
24 122 17 04	50	9	279	19/26	1	3 NS	1
24 122 24 09	100	9	299	19/26	2	3 NS	1
24 122 36 02	250	10	381	29/32	5	4 NS	1
24 122 44 01	500	10	431	29/32	10	4 NS	1
24 122 54 06	1 000	13	506	29/32	20	6 NS	1

DURAN® Dropping Funnel

cylindrical, with scale, and ground joint





DIN ISO 4800

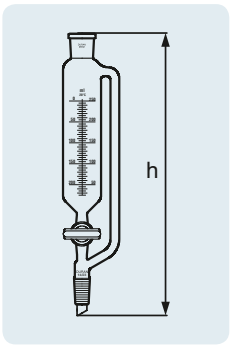
With standard ground joint, standard ground stopcock and retaining device.

Typical application: uniform and metered liquid supply to a reaction mixture. The rate of supply can be adjusted.

Cat. No.	Capacity (mL)	h (mm)	Socket size (NS)	Cone (NS)	Scale (mL)	Standard solid key nominal size (DIN 12541)	Remark	Pack Unit
24 124 20 08	50	220	19/26	14/23	1	3 NS		1
24 124 25 05	100	240	19/26	14/23	2	3 NS		1
24 124 24 02	100	240	19/26	19/26	2	3 NS		1
24 124 36 04	250	320	29/32	24/29	5	4 NS	Special size, non-DIN ISO size.	1
24 124 37 07	250	320	29/32	29/32	5	4 NS		1
24 124 44 03	500	400	29/32	24/29	10	4 NS	Special size, non-DIN ISO size.	1
24 124 46 09	500	400	29/32	29/32	10	4 NS		1
24 124 56 05	1 000	480	29/32	29/32	20	6 NS		1

DURAN® Dropping Funnel

cylindrical, with scale, ground joint and pressure equalisation tube



DIN ISO 4800

With pressure equalisation tube, standard ground cone, standard ground stopcock and retaining device.

Typical application: uniform and metered liquid supply to a reaction mixture. The rate of supply can be adjusted.

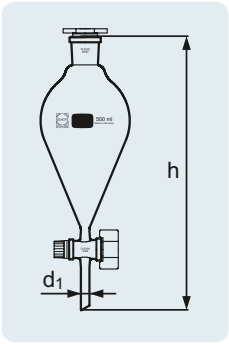
Cat. No.	Capacity (mL)	h (mm)	Socket size (NS)	Cone (NS)	Scale (mL)	Standard solid key nominal size (DIN 12541)	Remark	Pack Unit
24 125 20 09	50	240	19/26	14/23	1	3 NS		1
24 125 25 06	100	270	19/26	14/23	2	3 NS		1
24 125 24 03	100	270	19/26	19/26	2	3 NS		1
24 125 36 05	250	350	29/32	24/29	5	4 NS	Special size, non-DIN ISO size.	1
24 125 37 08	250	380	29/32	29/32	5	4 NS		1
24 125 44 04	500	430	29/32	24/29	10	4 NS	Special size, non-DIN ISO size.	1
24 125 46 01	500	430	29/32	29/32	10	4 NS		1

DURAN® Separating Funnel

conical shape, with solid key

With standard ground stopcock, retaining device and plastic stopper. The conical shape makes it highly suited for phase separation.

Cat. No.	Capacity (mL)	h (mm)	Socket size (NS)	Standard solid key nominal size (DIN 12541)	Stem d_1 (OD) (mm)	Pack Unit
24 294 17 04	50	190	19/26	3 NS	9	1
24 294 24 09	100	230	19/26	3 NS	9	1
24 294 36 02	250	280	29/32	4 NS	10	1
24 294 44 01	500	320	29/32	4 NS	10	1
24 294 54 06	1 000	380	29/32	6 NS	13	1
24 294 63 08	2 000	430	29/32	6 NS	13	1

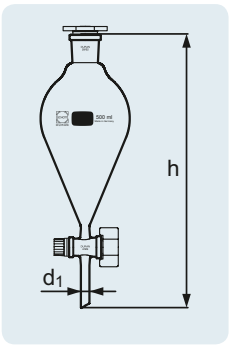


DIN ISO 4800

DURAN® Separating Funnel

conical shape, with PTFE key

Cat. No.	Capacity (mL)	h (mm)	Socket size (NS)	Standard solid key nominal size (DIN 12541)	Stem d_1 (OD) (mm)	Pack Unit
10 648 05	100	230	19/26	3 NS	9	1
10 648 06	250	280	29/32	4 NS	10	1
10 648 07	500	320	29/32	4 NS	10	1
10 648 09	1 000	380	29/32	6 NS	13	1



DIN ISO 4800

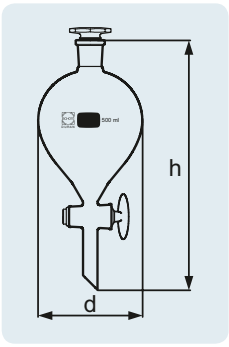
DURAN® Separating Funnel

spherical, heavy-duty version

With standard ground stopcock and standard ground stopper.

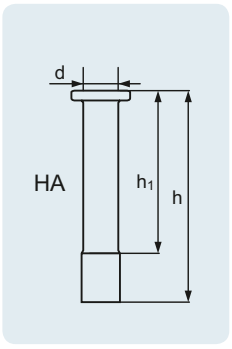
Typical application: Phase separation.

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Stopper size	Pack Unit
24 291 36 08	250	90	235	24/20	1
24 291 44 07	500	115	276	24/29	1
24 291 54 03	1 000	132	295	29/32	1
24 291 66 05	2 500	182	370	45/40	1
24 291 73 01	5 000	222	425	45/40	1
24 291 86 06	10 000	286	490	45/40	1



DURAN® KPG® Stirrer Bearing

interchangeable

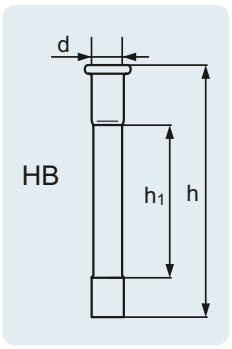


Ground and polished bearing surface.

Cat. No.	Designation	d (OD) (mm)	h (mm)	h_1 (mm)	Pack Unit
24 500 42 09	HA 10	10	80	65	1

DURAN® KPG® Stirrer Bearing

interchangeable

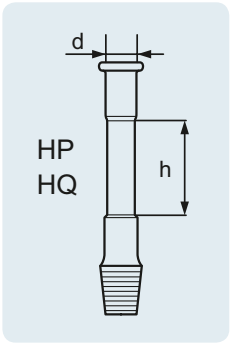


Ground and polished bearing surface.

Cat. No.	Designation	d (OD) (mm)	h (mm)	h_1 (mm)	Pack Unit
24 505 51 07	HB 10	10	120	75	1
24 506 57 08	HB 16	16	150	90	1

DURAN® KPG® Stirrer Bearing

interchangeable, with standard ground cone



Ground and polished bearing surface, with standard ground cone.

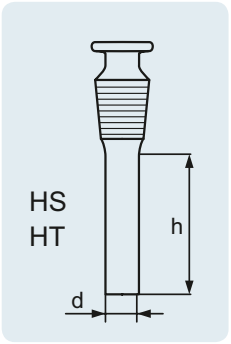
Cat. No.	Designation	d (OD) (mm)	h (mm)	Cone (NS)	Pack Unit
24 528 56 03	HQ 10	10	75	29/32	1
24 523 55 04	HP 10	10	75	24/29	1

DURAN® KPG® Stirrer Bearing

interchangeable, with standard ground cone

Ground and polished bearing surface, with standard ground cone.

Cat. No.	Designation	d (OD) (mm)	h (mm)	Cone (NS)	Pack Unit
24 540 51 03	HT 10	10	65	29/32	1
24 541 54 01	HT 16	16	85	29/32	1

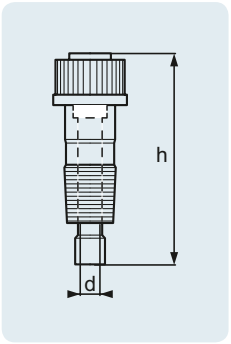


DURAN® KPG® Stirrer Bearing

interchangeable, with standard ground cone and GL screw thread tube

Ground and polished bearing surface, with GL screw thread tube and standard ground cone.

Cat. No.	d (OD) (mm)	h (mm)	DIN Thread (GL)	Cone (NS)	Designation	Pack Unit
24 750 08 03	10	75	32	24/29	HB 10	1
24 750 09 06	10	75	32	29/32	HB 10	1

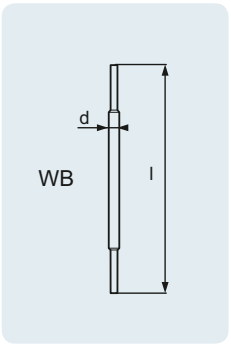


DURAN® KPG® Stirrer Shaft

interchangeable

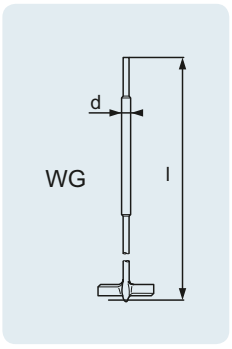
Bearing surface ground and polished.

Cat. No.	Overall length (mm)	Designation	Shaft d (OD) (mm)	Wave l (mm)	Pack Unit
24 565 64 09	240	WB 10	10	160	1
24 566 67 01	260	WB 16	16	160	1



DURAN® KPG® Stirrer Shaft

Ø 10 mm, interchangeable

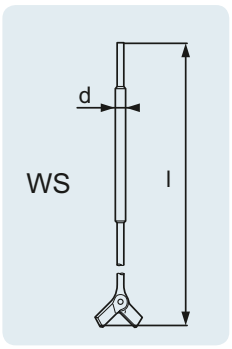


Bearing surface ground and polished.

11,206 mm	Designation	Neck	Overall length (mm)	Shaft d (OD) (mm)	Shaft l (mm)	Pack Unit
24 573 74 01	WG 10	60	320	10	160	1
24 573 77 01	WG 10	60	370	10	160	1
24 573 84 06	WG 10	60	410	10	160	1
24 573 86 03	WG 10	60	440	10	160	1

DURAN® KPG® Stirrer Shaft

Ø 10 mm, interchangeable

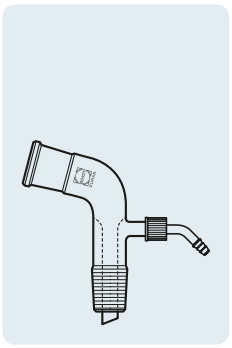


Bearing surface ground and polished.

Cat. No.	Designation	Neck	Overall length (mm)	Shaft d (OD) (mm)	Shaft l (mm)	Pack Unit
24 583 74 08	WS 10	25	320	10	160	1
24 583 77 08	WS 10	25	370	10	160	1
24 583 84 04	WS 10	25	410	10	160	1
24 583 86 01	WS 10	25	440	10	160	1

DURAN® Vacuum Receiver Adapter

bent, with 2 standard ground joints, and screw-on plastic hose connection

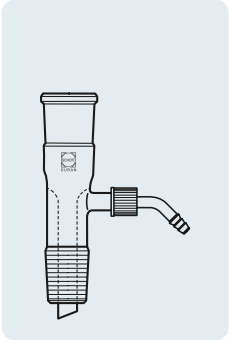


Cat. No.	DIN Thread (GL)	Hose connection d (OD) (mm)	Socket size (NS)	Cone (NS)	Pack Unit
24 130 21 05	14	8.6	14/23	14/23	1
24 130 34 01	14	8.6	24/29	24/29	1
24 130 46 03	14	8.6	29/32	29/32	1

Cat. No.	DIN Thread (GL)	Hose connection d (OD) (mm)	Socket size (NS)	Cone (NS)	Pack Unit
24 131 21 06	14	8.6	14/23	14/23	1
24 131 34 02	14	8.6	24/29	24/29	1
24 131 46 04	14	8.6	29/32	29/32	1

DURAN® Vacuum Receiver Adapter

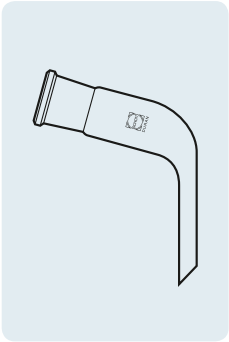
straight, with 2 standard ground joints, and screw-on plastic hose connection



Cat. No.	Socket size (NS)	Pack Unit
24 310 06 02	14/23	1
24 310 08 08	24/29	1
24 310 09 02	29/32	1

DURAN® Receiver Adapter

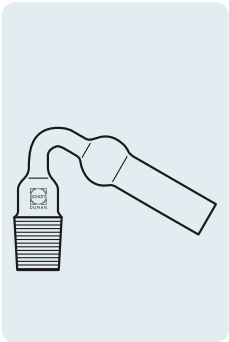
bent, with ground socket



Cat. No.	Cone (NS)	Pack Unit
24 262 06 09	14/23	1
24 262 07 03	19/26	1
24 262 08 06	24/29	1
24 262 09 09	29/32	1

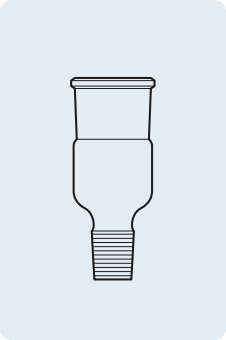
DURAN® Drying Tube

bent, with standard ground cone



DURAN® Adapter

with standard ground joint

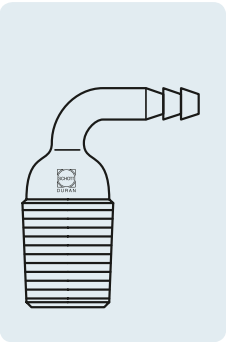


DIN 12257

Cat. No.	Socket size (NS)	Cone (NS)	Remark	Pack Unit
24 114 22 07	14/23	19/26		1
24 114 23 01	14/23	24/29	Non-DIN size.	1
24 114 24 04	14/23	29/32		1
24 114 26 01	19/26	14/23		1
24 114 28 07	19/26	24/29	Non-DIN size.	1
24 114 29 01	19/26	29/32		1
24 114 32 03	24/29	14/23	Non-DIN size.	1
24 114 33 06	24/29	19/26	Non-DIN size.	1
24 114 36 06	24/29	29/32	Non-DIN size.	1
24 114 42 08	29/32	14/23		1
24 114 43 02	29/32	19/26		1
24 114 44 05	29/32	24/29	Non-DIN size.	1

DURAN® Connection Piece

with standard ground cone, 90° angle

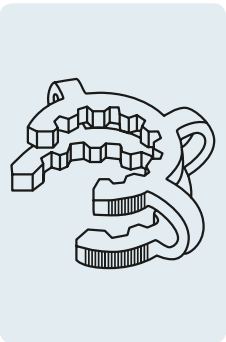


Cat. No.	Cone (NS)	Pack Unit
24 300 06 04	14/23	1
24 300 08 01	24/29	1
24 300 09 04	29/32	1

KECK™ Clip

for conical joints, from POM

To secure glass-to-glass joints.



Tmax. 90 °C

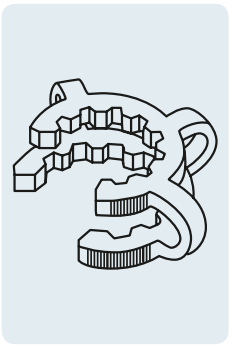
Cat. No.	Colour	Neck	Pack Unit
10 911 43	green	10	10
10 911 44	violet	12	10
10 909 78	yellow	14	10
10 909 79	blue	19	10
10 911 40	green	24	10
10 911 42	red	29	10
10 911 48	orange	34	10
10 911 49	yellow	40	10
10 911 51	brown	45	10

KECK™ Clip Assortment

for conical joints, from POM

To secure glass-to-glass joints.

Cat. No.	Capacity (mL)	Pack Unit
29 031 00 06	2 x KC 14, 2 x KC 19, 1 x KC 29, 1 x KC 10, 1 x KC 24, 1 x KC 34, 1 x KC 45	1



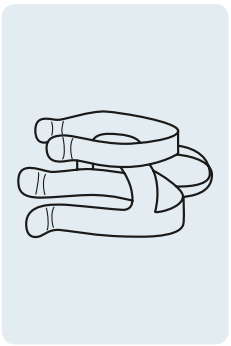
Tmax. 90 °C

KECK™ Clip Assortment

for conical joints, from metal

To secure glass-to-glass joints.

Cat. No.	Capacity (mL)	Pack Unit
29 033 00 08	2 x KCM 14, 2 x KCM 19, 1 x KCM 29, 1 x KCM 24	1



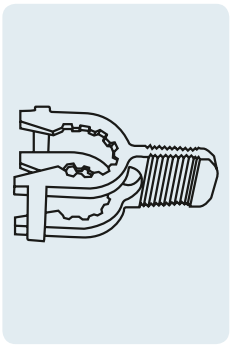
KECK™ Clip Assortment

for conical joints, from stainless steel (1.4310, blank)

Cat. No.	For nominal size	Pack Unit
29 030 02 02	NS 7	10
29 030 03 05	NS 10	10
29 030 04 08	NS 12	10
29 030 06 05	NS 14	10
29 030 07 08	NS 19	10
29 030 08 02	NS 24	10
29 030 09 05	NS 29	10
29 030 11 04	NS 34	10

KECK™ Clip Assortment

for spherical joints, from POM



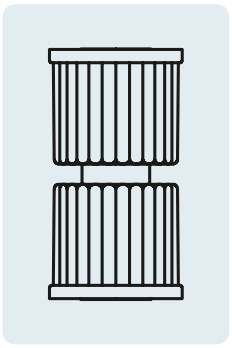
Tmax. 90 °C

To secure glass-to-glass joints.

Cat. No.	Capacity (mL)	Pack Unit
29 032 00 07	2 x KS 13, 2 x KS 19, 1 x KS 29, 1 x KS 35	1

DURAN® Screw Thread Coupling

from PBT



A 121 °C

Tmax. 180 °C

For flexible connection of two glass screw-thread connections. With integral silicone seal (VQM).

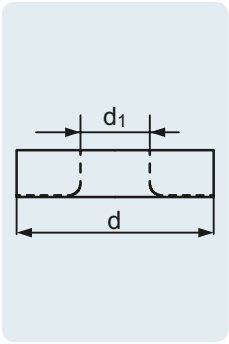
Cat. No.	DIN Thread (GL)	Pack Unit
29 226 05 56	14	1
29 226 06 59	18	1
29 226 09 59	25	1
29 226 08 56	32	1
29 226 10 55	45	1

Silicone Sealing Ring VMQ

with bonded PTFE face

Suitable for PBT screw cap with aperture. Heat resistance: 130 °C (vapour) and 200 °C (dry heat).

Typical application: connecting glass tubes.



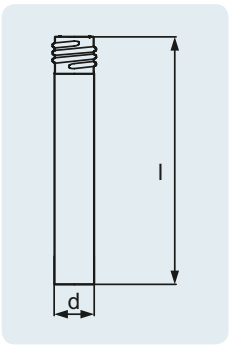
A 121 °C

Tmax. 180 °C

Cat. No.	d (OD) (mm)	d_1 (OD) (mm)	DIN Thread (GL)	for tube d (OD) (mm)	Pack Unit
29 234 06 06	12	6	14	5.5 – 6.5	10
29 235 06 07	16	6	18	5.5 – 6.5	10
29 235 08 04	16	8	18	7.5 – 9.0	10
29 235 10 03	16	10	18	9.0 – 11.0	10
29 237 08 06	22	8	25	7.5 – 9.0	10
29 237 10 05	22	10	25	9.0 – 11.0	10
29 237 12 02	22	12	25	11.0 – 13.0	10
29 236 10 04	29	10	32	9.0 – 11.0	10
29 236 12 01	29	12	32	11.0 – 13.0	10
29 236 14 07	29	14	32	13.0 – 15.0	10
29 236 16 04	29	16	32	15.0 – 17.0	10
29 236 18 01	29	18	32	17.0 – 19.0	10
29 238 26 02	42	26	45	25.0 – 27.0	10
29 238 32 04	42	32	45	31.0 – 33.0	10

DURAN® Tube with Screw Thread

with DIN thread



DIN 12216

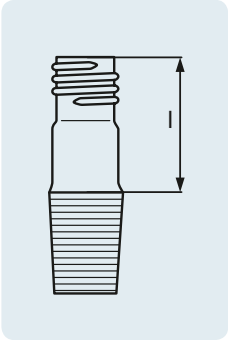
A 121 °C

USP Standard

Cat. No.	d (OD) (mm)	l (mm)	DIN Thread (GL)	Wall thickness (mm)	Pack Unit
24 836 02 07	12	100	14	1.5	10
24 837 01 05	16	100	18	1.8	10
24 838 02 09	22	100	25	1.8	10
24 839 01 07	28	140	32	2	10
24 835 01 03	40	170	45	2.3	1

DURAN® Tube with Screw Thread

with DIN thread, and standard ground cone

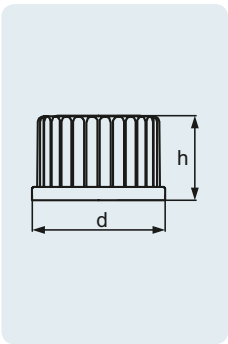


DIN 12257 | A 121 °C | USP Standard

Cat. No.	l (mm)	DIN Thread (GL)	Cone (NS)	Remark	Pack Unit
24 840 62 02	30	14	14/23		10
24 840 72 07	35	14	19/26		10
24 840 82 03	40	14	24/29	Non-DIN size.	10
24 840 92 08	40	14	29/32	Non-DIN size.	10
24 841 61 09	35	18	14/23	Non-DIN size.	10
24 841 71 05	35	18	19/26		10
24 841 81 01	40	18	24/29	Non-DIN size.	10
24 841 91 06	40	18	29/32		10
24 842 72 09	40	25	19/26	Non-DIN size.	10
24 842 82 05	40	25	24/29	Non-DIN size.	10
24 842 92 01	40	25	29/32		10
24 844 81 04	50	32	24/29	Non-DIN size.	10
24 844 91 09	50	32	29/32		10

DURAN® Screw Cap

from PBT, red



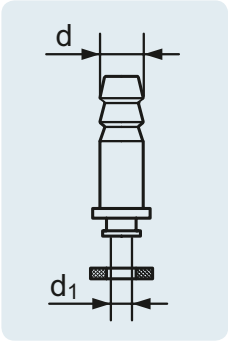
A 121 °C | Tmax. 180 °C

High leak tightness through use of PTFE coated silicone cap liner (peroxide-cured silicone). More chemically resistant than PP cap.

Cat. No.	DIN Thread (GL)	d (OD) (mm)	h (mm)	Pack Unit
29 240 08 06	14	20	17	10
29 240 11 08	18	23	20	10

Plastic Hose Connection

straight, from PP



A 121 °C | Tmax. 140 °C

With silicone seal (VMQ). Suitable for GL 14 screw cap (Cat. No. 29 227 05 08).

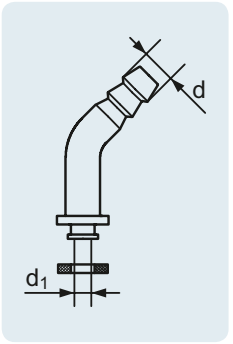
Cat. No.	d (OD) (mm)	d_1 (OD) (mm)	Pack Unit
29 255 06 03	8.6	5	10

With silicone seal (VMQ). Suitable for GL 14 screw cap (Cat. No. 29 227 05 08).

Cat. No.	d (OD) (mm)	d_1 (OD) (mm)	Pack Unit
29 247 05 04	8.6	4	10

Plastic Hose Connection

bent, from PP



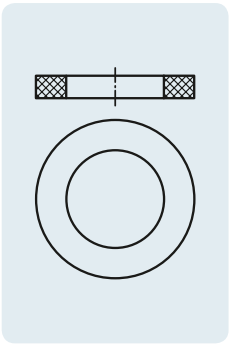
A 121 °C

Tmax. 140 °C

For plastic hose connections (Cat. No. 29 25506 03 and 29 247 05 04). From silicone (VMQ).

Cat. No.	Material	Pack Unit
29 220 09 04	Silicone (VMQ)	10

Replacement Seal



A 121 °C

Tmax. 140 °C


SCHOTT
DURAN
400 ml
Made in Germany
SCHOTT
DURAN
500 ml

05

GLASS FILTRATION APPARATUS AND ACCESSORIES

GLASS FILTRATION APPARATUS AND ACCESSORIES

Due to their high chemical and thermal shock resistance DURAN® filters and the corresponding filter plates are ideal for separations, e. g. with strong acids or alkalis. Thus they offer advantages in comparison with other materials such as plastic or paper. DURAN® filter products have a maximum operating temperature of +450 °C and are therefore far superior to other materials.

The corresponding filtration vessels are specially optimised to the matching filtration apparatus and are vacuum-tight due to their special geometry and high wall thickness. This characteristic has been approved by the German TÜV and marked with the "GS"-indication.

The glass filters are classified as being in porosity classes 0 to 5 according to their nominal maximum pore size. The following table shows the corresponding porosity range. The specified pore sizes always relate to the largest pore in the plate. This specification also characterises the minimum nominal size of particles which may be retained by the filtration.

Porosity table:

ISO 4793			
Porosity		Nominal max. pore size µm	Areas of application
0	P 250	160 – 250	Gas distribution
1	P 160	100 – 160	Dispersion of gas in liquids
2	P 100	40 – 100	Preparative fine filtration
3	P 40	16 – 40	Analytical filtration
4	P 16	10 – 16	Analytical fine filtration
5	P 1.6	1.0 – 1.6	Ultrafine filtration

ASTM E128-99			
Porosity		Nominal max. pore size µm	Areas of application
EC	Extra Coarse	170 – 220	Gas distribution
C	Coarse	40 – 60	Dispersion of gas in liquids
M	Medium	10 – 16	Preparative fine filtration
F	Fine	4.0 – 5.5	Analytical filtration
VF	Very Fine	2.0 – 2.5	Analytical fine filtration
UF	Ultra Fine	0.9 – 1.4	Ultrafine filtration

Usage tips:

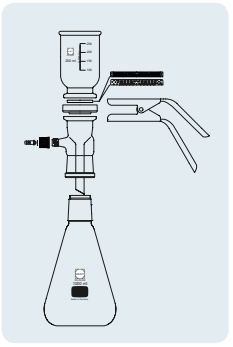
- The maximum permissible operating temperature is + 450 °C.
- Uniform heating is recommended to avoid thermal stresses and resultant breakages.
- Heat glass filtration apparatus with disk diameters of more than 20 mm in initially cold ovens or sterilisers only.
- The heating or cooling rate should not exceed 8 °C/min.
- When filtering hot substances observe the thermal shock resistance and, if necessary, preheat the filtration apparatus in a drying cabinet.
- Wet filtration apparatus should be heated slowly up to + 80 °C and dried for one hour before increasing the temperature further.

> Find your nearest **distributor** on our global network:
www.DWK-LifeSciences.com/DURAN/distributors

DURAN® Filtering Apparatus

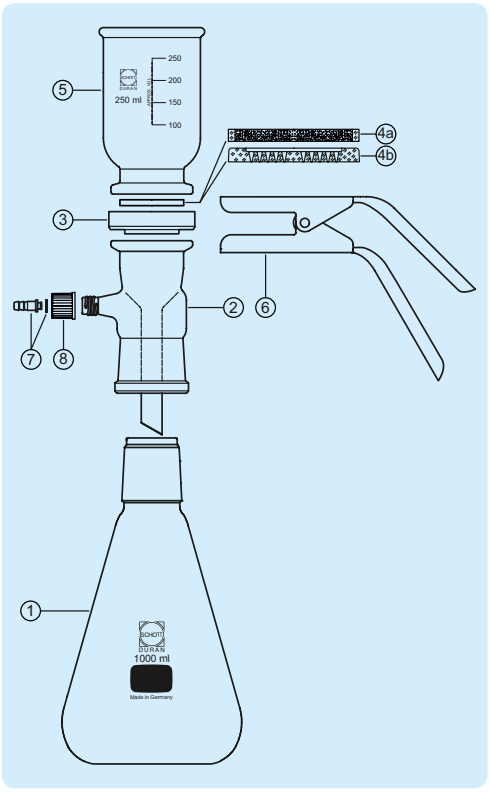
Virtually universal applications, as the medium only comes into contact with glass and PTFE. The scaled funnel simplifies dosing and analysis. With PTFE plate holder. Filter paper, membrane filters (47 mm) or glass filters can be used for filtration. Plates and PTFE adapters are replaceable. Easy and fast cleaning. All components are available as spare parts.

Typical applications: Coarse and fine filtration, filtration of HPLC media, residue analysis.



A 121 °C | Tmax. 260 °C | USP Standard

Cat. No.	Description	Pack Unit
25 710 54 51	DURAN® filtration apparatus complete with PTFE insert and clamp (funnel 250 mL, filtering flask 1 000 mL)	1
25 710 63 04	DURAN® filtration apparatus complete with PTFE insert and clamp (funnel 500 mL, filtering flask 2 000 mL)	1
Components		
24 317 32 03	Head standard ground joint 45/40	1
29 400 28 03	PTFE adapter disc	1
29 076 36 09	Clamp (anodised aluminium)	1
24 722 36 02	Funnel with 250 mL scale	1
24 722 44 01	Funnel with 500 mL scale	1
24 202 54 04	Filtering flask with standard ground joint 45/40, 1 000 mL	1
24 202 63 06	Filtering flask with standard ground joint 45/40, 2 000 mL	1
29 255 06 03	Plastic hose connection with silicone seal, straight, GL 14	10
29 227 05 08	Screw connection caps, red, made from PBT, GL 14, 9.5 mm bore	10
25 205 02 08	DURAN® fliter disc with 50 mm glass rim, por. 2	1
21 340 31 08	DURAN® slit sieve disc, diameter 48 mm	10

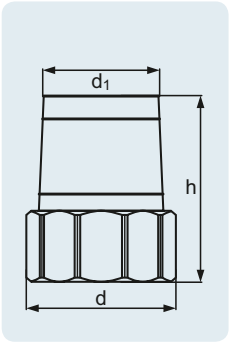


① DURAN® Filtering flask, 1 000 mL with NS 45/40
② Head NS 45/40 with hose connection GL 14
③ PTFE adapter disc
④ a) DURAN® Glass filter disc, 50 mm in diameter
④ b) DURAN® Slit-sieve disc, 48 mm in diameter
⑤ Funnel with 250 mL scale
⑥ Clamp (anodised aluminium)
⑦ Plastic hose connection with silicone seal, straight
⑧ Screw connection cap made of PBT, red, GL 14

DURAN® PTFE Adapter

NS 45/40 - GL 45, with EPDM Seal

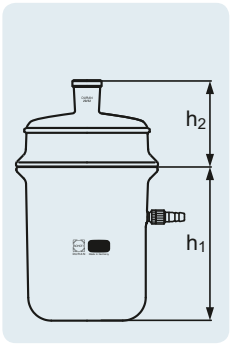
The DURAN® PTFE Adapter combines the ground joint NS 45/40 of the filtering apparatus with the GL 45 screw thread of the DURAN® laboratory bottles. Product benefits: The adapter allows the filtrate to be directly collected in a DURAN® GL 45 laboratory bottle which reduces the risk of contamination. Note: As a vacuum is generated within the bottle during filtration, the use of DURAN® pressure plus+ bottles is highly recommended.



Cat. No.	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Pack Unit
29 400 12 07	53	40	67	1

DURAN® Filter Apparatus Witt Type

complete, with interchangeable lid, and KECK™ assembly set, standard ground joint 29/32



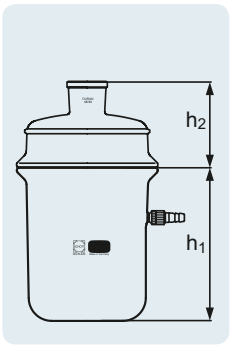
A
121 °C

Suitable for use under vacuum.

Cat. No.	h (mm)	h_1 (mm)	DN	Socket size (NS)	Remark	Pack Unit
24 730 46 03	160	76	100	29/32	suitable lid for filter apparatus: cat. no 24 398 46 05	1
24 730 57 02	200	102	150	29/32	suitable lid for filter apparatus: cat. no 24 398 57 04	1
24 730 61 07	300	126	200	29/32	suitable lid for filter apparatus: cat. no 24 398 61 09	1

DURAN® Filter Apparatus Witt Type

complete, with interchangeable lid, and KECK™ assembly set, standard ground joint 45/40



A
121 °C

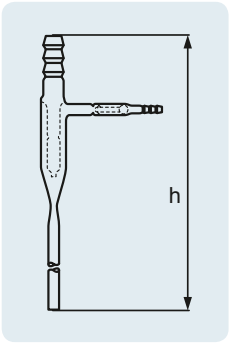
Suitable for use under vacuum. Wide rough-ground tubulature.

Cat. No.	h (mm)	h_1 (mm)	DN	Socket size (NS)	Remark	Pack Unit
24 731 46 04	160	84	100	45/40	suitable lid for filter apparatus: cat. no 24 450 46 08	1
24 731 57 03	200	112	150	45/40	suitable lid for filter apparatus: cat. no 24 450 57 07	1

Cat. No.	h (mm)	Water flow rate min. (L/h)	Water pressure min. (bar)	Pack Unit
24 362 99 03	275	300	1.2	1

DURAN® Water Jet Pump

with non-return valve

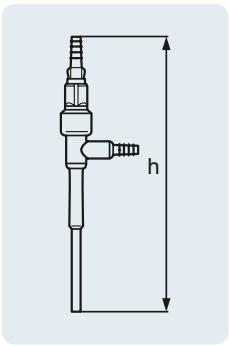


Throughput: 400 l/h at 3.5 bar water pressure und 12 °C water temperature.

Cat. No.	h (mm)	Connection suitable for hose ID (mm)	Water flow rate min. (L/h)	Water pressure min. (bar)	Pack Unit
29 250 01 01	235	9 – 12	170	1	1

Water Jet Pump

from plastic (PP), with non-return valve, hose connection and adapters for 1/2" and 3/4"



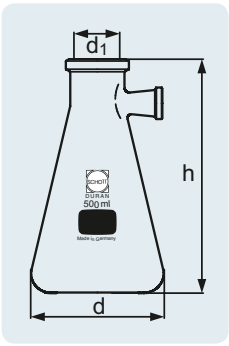
Heavy walled for vacuum use. These filtering flasks fulfil the regulations of the "equipment and product safety regulations".

Typical applications: separations by vacuum filtration.

Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Pack Unit
21 183 36 03	250	85	34	155	10
21 183 44 02	500	105	34	185	10
21 183 54 07	1 000	135	45	230	10
21 183 63 09	2 000	166	60	255	1

DURAN® Filtering Flask with Side-Arm Socket

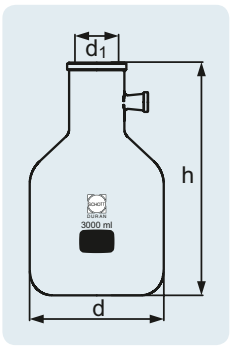
Erlenmeyer shape



ISO 6556 | A 121 °C | USP Standard

DURAN® Filtering Flask with Side-Arm Socket

bottle shape



ISO 6556 | A 121 °C | USP Standard

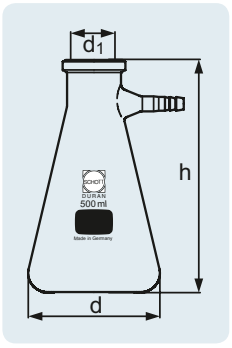
Heavy walled for vacuum use. These filtering flasks fulfil the regulations of the "equipment and product safety regulations". Provision of filtration flasks with a socket has not only made work in preparation and analytical laboratories easier and simpler, but has also reduced the risk of accidents. Note: These filtering flasks have a ground socket 17.5/26 for vacuum tube of 15 to 18 mm OD (e.g. 6 x 5 mm or 8 x 5 mm, DIN 12 865).

Typical application: separations by vacuum filtration.

Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Pack Unit
21 193 68 04	3 000	170	58	295	1
21 193 73 03	5 000	185	68	360	1
21 193 86 08	10 000	240	70	420	1
21 193 88 05	15 000	255	70	500	1
21 193 91 07	20 000	290	70	535	1

DURAN® Filtering Flask with glass hose connection

Erlenmeyer shape



ISO 6556 | A 121 °C | USP Standard

Due to the heavy wall thickness the apparatus is vacuum-tight. Does not conform to the "equipment and product safety regulations".

Typical application: separations by vacuum filtration.

Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Hose connection d (OD) (mm)	Pack Unit
21 201 24 09	100	64	24	105	11	10
21 201 36 02	250	85	34	155	11	10
21 201 44 01	500	105	34	185	11	10
21 201 54 06	1 000	135	45	230	11	10
21 201 63 08	2 000	166	60	255	11	1

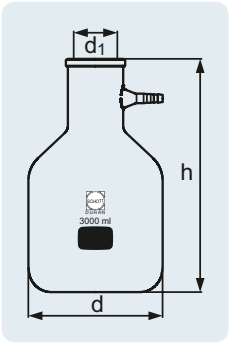
DURAN® Filtering Flask with glass hose connection

bottle shape

Heavy walled for vacuum use. Does not conform to the "equipment and product safety regulations".

Typical application: separations by vacuum filtration.

Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Hose connection d (OD) (mm)	Pack Unit
21 191 68 02	3 000	170	58	295	11	1
21 191 73 01	5 000	185	68	360	11	1
21 191 86 06	10 000	240	70	420	11	1
21 191 88 03	15 000	255	70	500	11	1
21 191 91 05	20 000	290	70	535	11	1



ISO 6556 | A 121 °C | USP Standard

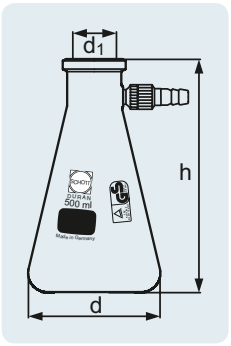
DURAN® Filtering Flask with KECK™ Assembly Set

Erlenmeyer shape

Heavy walled for vacuum use. These filtering flasks fulfil the regulations of the "equipment and product safety regulations". The plastic hose connection is replaceable.

Typical application: Separations by vacuum filtration.

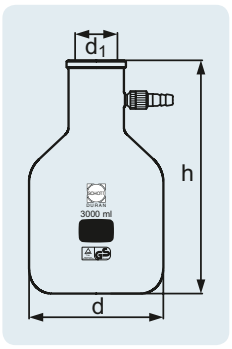
Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Hose connection d (OD) (mm)	Pack Unit
21 204 24 52	100	64	24	105	9	10
21 204 36 54	250	85	34	155	9	10
21 204 44 53	500	105	34	185	9	10
21 204 54 58	1 000	135	45	230	9	10
21 204 63 51	2 000	166	60	255	9	1



ISO 6556 | A 121 °C | USP Standard

DURAN® Filtering Flask with KECK™ Assembly Set

bottle shape



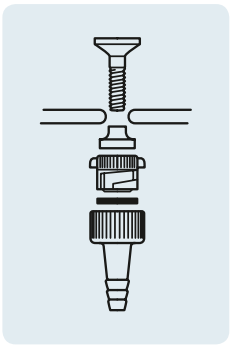
ISO 6556 | A 121 °C | USP Standard

Due to the heavy wall thickness the apparatus is for vacuum use. These filtering flasks fulfil the regulations of the "equipment and product safety regulations". The plastic hose connections can be replaced.

Typical application: separations by vacuum filtration.

Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Hose connection d (OD) (mm)	Pack Unit
21 194 68 54	3 000	170	58	295	9	1
21 194 73 53	5 000	185	68	360	9	1
21 194 86 58	10 000	240	70	420	9	1
21 194 88 55	15 000	257	70	500	9	1
21 194 91 57	20 000	290	70	535	9	1

KECK™ Assembly Set



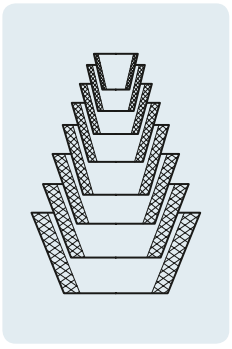
A 121 °C | Tmax. 140 °C

With removable plastic hose connection (PBT), short and long screw (PP), seals (VMQ, EPDM). Suitable for filtering flasks 100 – 20 000 mL.

Cat. No.	Hose connection d (OD) (mm)	Pack Unit
29 258 54 07	9	10

Rubber Conical Gasket Set Guko from EPDM

conical rubber gaskets, for filtering flasks



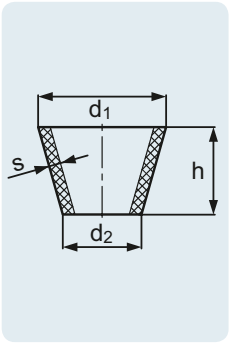
A 121 °C | Tmax. 150 °C

Cat. No.	Description	Pack Unit
29 202 00 01	8 Guko gaskets, size 22 to 84	1

Cat. No.	d_1 (OD) (mm)	d_2 (OD) (mm)	h (mm)	s (mm)	Pack Unit
29 202 12 03	22	12	18	2.5	10
29 202 17 09	29	16	23	3.5	10
29 202 23 02	36	22	25	3.5	10
29 202 27 05	44	27	30	4	10
29 202 32 04	53	33	35	4.5	10
29 202 36 07	63	43	35	5	10
29 202 39 07	73	52	37	5	10
29 202 43 03	84	61	40	5.5	10

Rubber Conical Gaskets Guko

from EPDM, for filtering flasks



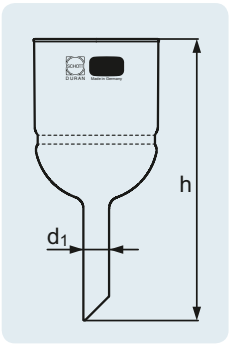
A 121 °C

Tmax. 150 °C

From DURAN® glass with its good thermal shock and chemical resistance. Filter funnels mate to the filtering flask via a conical rubber seal (GUKO).

Typical applications: qualitative inorganic analysis and preparative chemistry.

DURAN® Filter Funnel

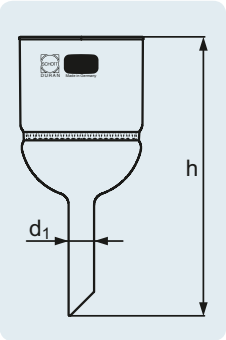


A 121 °C

USP Standard

Cat. No.	Porosity	d_1 (OD) (mm)	h (mm)	OD (mm)	Disc Ø (mm)	Pack Unit
Capacity: 50 mL						
25 852 01 01	1	10	130	40	35	1
25 852 02 04	2	10	130	40	35	1
25 852 03 07	3	10	130	40	35	1
25 852 04 01	4	10	130	40	35	1
25 852 05 04	5	10	130	40	35	1
Capacity: 75 mL						
25 852 11 06	1	10	132	56	45	1
25 852 12 09	2	10	132	56	45	1
25 852 13 03	3	10	132	56	45	1
25 852 14 06	4	10	132	56	45	1
25 852 15 09	5	10	132	56	45	1
Capacity: 125 mL						
25 852 21 02	1	10	140	72	60	1
25 852 22 05	2	10	140	72	60	1
25 852 23 08	3	10	140	72	60	1
25 852 24 02	4	10	140	72	60	1
25 852 25 05	5	10	140	72	60	1
Capacity: 500 mL						
25 852 31 07	1	22	240	107	95	1
25 852 32 01	2	22	240	107	95	1
25 852 33 04	3	22	240	107	95	1
25 852 34 07	4	22	240	107	95	1
25 852 35 01	5	22	240	107	95	1
Capacity: 1000 mL						
25 852 41 03	1	22	270	136	120	1
25 852 42 06	2	22	270	136	120	1
25 852 43 09	3	22	270	136	120	1
25 852 44 03	4	22	270	136	120	1
25 852 45 06	5	22	270	136	120	1
Capacity: 4 000 mL						
25 852 61 04	1	30	425	202	175	1
25 852 62 07	2	30	425	202	175	1
25 852 63 01	3	30	425	202	175	1
25 852 64 04	4	30	425	202	175	1

DURAN® Buechner Funnel



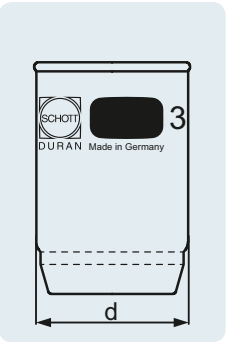
A 121 °C

USP Standard

From DURAN® glass with its good thermal shock and chemical resistance. The Buechner funnel features a glass support for membrane and paper filters.

Cat. No.	Capacity (mL)	d_1 (OD) (mm)	h (mm)	OD (mm)	Matching filter paper Ø (mm)	Disc Ø (mm)	Pack Unit
21 341 22 07	70	10	132	57	45	48	1
21 341 28 07	125	10	140	72	55	60	1
21 341 34 09	220	18	190	90	70	73	1
21 341 44 05	500	22	240	106	90	95	1
21 341 54 01	1 000	22	270	136	110	120	1

DURAN® Filter Crucible



A 121 °C

USP Standard

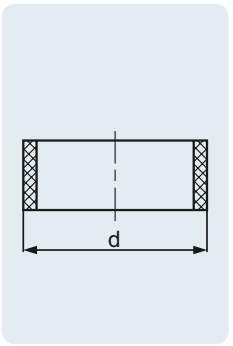
From DURAN® glass with its good thermal shock and chemical resistance.

Cat. No.	Porosity	d (OD) (mm)	Remark	Pack Unit
Capacity: 8 mL				
25 851 02 03	2	24	suitable rubber sleve cat. no. 29 201 14 08; suitable filter adapter cat. no. 24 316 16 04	10
25 851 03 06	3	24	suitable rubber sleve cat. no. 29 201 14 08; suitable filter adapter cat. no. 24 316 16 04	10
25 851 04 09	4	24	suitable rubber sleve cat. no. 29 201 14 08; suitable filter adapter cat. no. 24 316 16 04	10
Capacity: 15 mL				
25 851 11 05	1	28	suitable rubber sleve cat. no. 29 201 21 04; suitable filter adapter cat. no. 24 316 22 06	10
25 851 12 08	2	28	suitable rubber sleve cat. no. 29 201 21 04; suitable filter adapter cat. no. 24 316 22 06	10
25 851 13 02	3	28	suitable rubber sleve cat. no. 29 201 21 04; suitable filter adapter cat. no. 24 316 22 06	10
25 851 14 05	4	28	suitable rubber sleve cat. no. 29 201 21 04; suitable filter adapter cat. no. 24 316 22 06	10
Capacity: 30 mL				
25 851 21 01	1	36	suitable rubber sleve cat. no. 29 201 26 01; suitable filter adapter cat. no. 24 316 26 09	10
25 851 22 04	2	36	suitable rubber sleve cat. no. 29 201 26 01; suitable filter adapter cat. no. 24 316 26 09	10
25 851 23 07	3	36	suitable rubber sleve cat. no. 29 201 26 01; suitable filter adapter cat. no. 24 316 26 09	10
25 851 24 01	4	36	suitable rubber sleve cat. no. 29 201 26 01; suitable filter adapter cat. no. 24 316 26 09	10
25 851 25 04	5	36	suitable rubber sleve cat. no. 29 201 26 01; suitable filter adapter cat. no. 24 316 26 09	10
Capacity: 50 mL				
25 851 31 06	1	46	suitable rubber sleve cat. no. 29 201 31 09; suitable filter adapter cat. no. 24 316 32 02	10
25 851 32 09	2	46	suitable rubber sleve cat. no. 29 201 31 09; suitable filter adapter cat. no. 24 316 32 02	10
25 851 33 03	3	46	suitable rubber sleve cat. no. 29 201 31 09; suitable filter adapter cat. no. 24 316 32 02	10
25 851 34 06	4	46	suitable rubber sleve cat. no. 29 201 31 09; suitable filter adapter cat. no. 24 316 32 02	10
25 851 35 09	5	46	suitable rubber sleve cat. no. 29 201 31 09; suitable filter adapter cat. no. 24 316 32 02	10

Cat. No.	d (OD) (mm)	Remark	Pack Unit
29 201 14 08	26	suitable filter adapter cat. no. 24 316 16 04	10
29 201 21 04	33	suitable filter adapter cat. no. 24 316 22 06	10
29 201 26 01	41	suitable filter adapter cat. no. 24 316 26 09	10
29 201 31 09	49	suitable filter adapter cat. no. 24 316 32 02	10

Rubber Adaptor

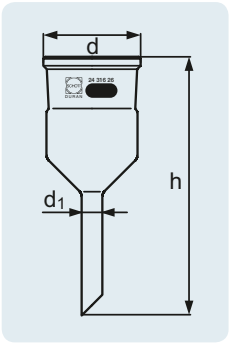
from EPDM, for filter crucibles



A 121 °C | Tmax. 150 °C

Cat. No.	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Remark	Pack Unit
24 316 16 04	27	10	108	suitable rubber sleve cat. no. 29 201 14 08	10
24 316 22 06	34	10	110	suitable rubber sleve cat. no. 29 201 21 04	10
24 316 26 09	41	10	125	suitable rubber sleve cat. no. 29 201 26 01	10
24 316 32 02	50	10	132	suitable rubber sleve cat. no. 29 201 31 09	10

DURAN® Filter Crucible / Funnel Adapter



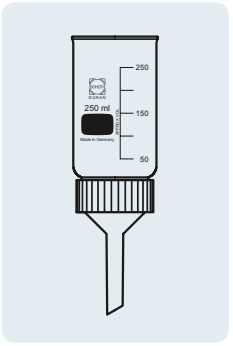
A 121 °C | USP Standard

Interchangeable filter disks. Available in three filter diameters, each of which are available in four different porosities. Important: Seal the filter disk between two FKM seals. After filtration, disk can be removed to allow simple and safe removal of the filtrand. Long filter disk service life, as disks are not damaged when the filtrand is scraped off. Easy cleaning of both sides is possible. Cost-effective as components and disks can be ordered seperately as required.

Cat. No.	Description	Capacity (mL)	Thread	Disc Ø (mm)	Pack Unit
24 720 24 07		30	28	24	1
24 720 50 01		250	54	50	1
24 720 90 03		1 000	95	90	1
Suitable slit sieves as support for membrane and paper filters for Cat. No. 24 720 50 01					
21 340 31 08	DURAN® slit sieve disc, diameter 48 mm				10

DURAN® Filter Funnel Head

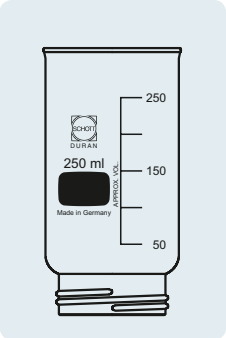
with PP funnel, and two FKM seals



A 121 °C | Tmax. 140 °C

DURAN® Filter Head

threaded

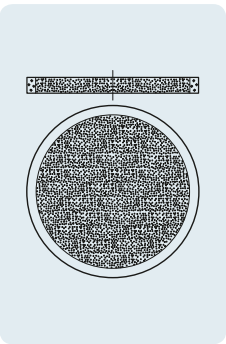


A 121 °C | USP Standard

Cat. No.	Capacity (mL)	Thread	Pack Unit
24 721 24 08	30	28	1
24 721 50 02	250	54	1
24 721 90 04	1 000	95	1

DURAN® Filter Disk

with fused glass rim

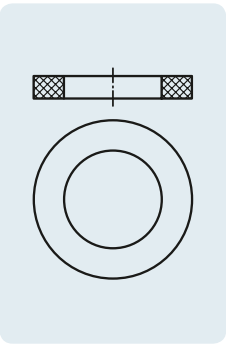


A 121 °C | USP Standard | Tmax. 450 °C

From DURAN® glass with its good thermal shock and chemical resistance. Fused glass rim.

Cat. No.	Porosity	Pack Unit
Plate: Ø = 24 mm		
25 202 41 04	1	1
25 202 42 07	2	1
25 202 43 01	3	1
25 202 44 04	4	1
Plate: Ø = 50 mm		
25 205 01 05	1	1
25 205 02 08	2	1
25 205 03 02	3	1
25 205 04 05	4	1
Plate: Ø = 90 mm		
25 209 01 09	1	1
25 209 02 03	2	1
25 209 03 06	3	1
25 209 04 09	4	1

FKM Seals for Filter Disks



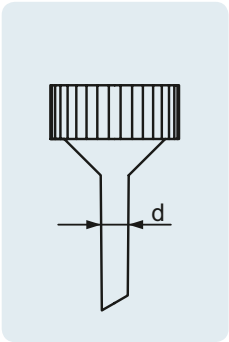
A 121 °C | Tmax. 200 °C

Cat. No.	Disc Ø (mm)	Pack Unit
29 220 24 08	24	10
29 220 50 02	50	10
29 220 90 04	90	10

Cat. No.	Thread	d (OD) (mm)	Pack Unit
29 221 24 09	28	10	1
29 221 50 03	54	12	1
29 221 90 05	95	18	1

Funnel for Filter Funnel Head

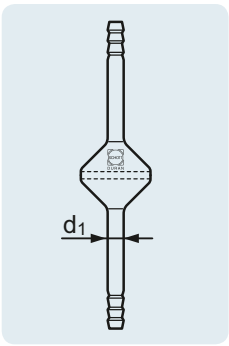
from PP



Typical application: in-line filtration of gas lines to remove solid impurities (e.g. dust).

DURAN® Pipeline Filter

Cat. No.	d_1 (OD) (mm)	Porosity	Pack Unit
Plate: Ø = 30 mm			
25 855 01 04	10	1	1
25 855 02 07	10	2	1
25 855 03 01	10	3	1
25 855 04 04	10	4	1
Plate: Ø = 60 mm			
25 855 11 09	16	1	1
25 855 12 03	16	2	1
25 855 13 06	16	3	1
25 855 14 09	16	4	1
Plate: Ø = 90 mm			
25 855 21 05	16	1	1
25 855 22 08	16	2	1
25 855 23 02	16	3	1
25 855 24 05	16	4	1



A 121 °C

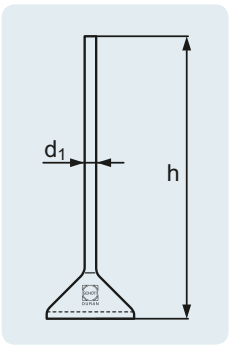
USP Standard

Typical application: extraction of clear filtrate (not the filtrand).

DURAN® Immersion Filter

for reverse filtration

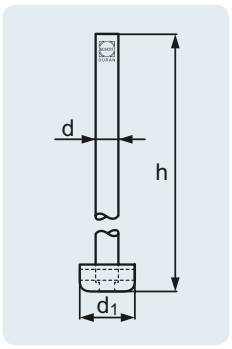
Cat. No.	d_1 (OD) (mm)	h (mm)	Porosity	Disc Ø (mm)	Pack Unit
25 855 61 07	10	210	1	35	1
25 855 62 01	10	210	2	35	1
25 855 63 04	10	210	3	35	1
25 855 64 07	10	210	4	35	1



A 121 °C

USP Standard

DURAN® Gas Distribution Tube



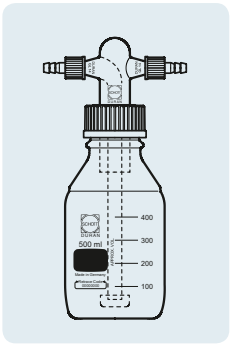
A 121 °C USP Standard

Typical application: reactions between gases and liquids.

Cat. No.	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Porosity	Pack Unit
side mounted filter cup					
25 856 00 02	6	22	250	0	5
25 856 01 05	6	22	250	1	5
25 856 02 08	6	22	250	2	5
centrally mounted filter cup					
25 856 10 07	11	34	250	1	5
25 856 11 01	9	25	250	1	5
25 856 12 04	9	25	250	2	5
25 856 21 06	11	34	250	1	5

DURAN® Gas Washing Bottle

Drechsel type head



A 121 °C Tmax. 140 °C USP Standard

With screw-connection system. The insertion height of the head is adjustable. Individual parts can also be ordered separately.

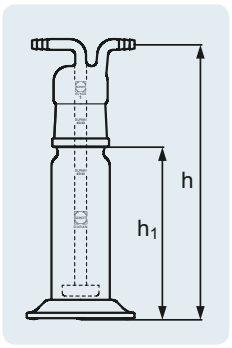
Typical applications: cleaning ("washing") of gases with solvents.

Cat. No.	Capacity (mL)	DIN Thread (GL)	Porosity	Hose connection d (OD) (mm)	Bowl (mm)	Pack Unit
without filter disk						
24 713 00 08	500	45		9		1
with filter disk						
25 704 01 01	500	45	1	9	25	1

Cat. No.	Description	Pack Unit
Individual parts		
24 713 02 05	Drechsel-head, without filter disc	1
25 754 01 09	Drechsel-head, with filter disc (Por. 1)	1
21 801 44 01	DURAN® Laboratory bottle 500 mL, with DIN thread GL 45	10
29 255 06 03	Plastic hose connection, straight	10
29 227 05 08	Screw-caps with aperture, PBT, GL 14	10
29 227 10 07	Screw-caps with aperture, PBT, GL 45	10
29 228 25 01	VQM rubber ring (26 x 42 x 5 mm)	10

DURAN® Gas Washing Bottle

head with filter disk, with standard ground joint



A 121 °C USP Standard

Typical applications: cleaning ("washing") of gases with solvents.

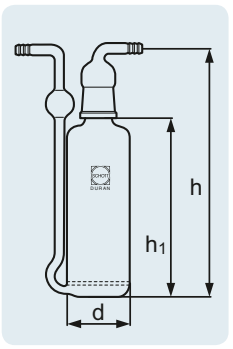
Cat. No.	Description	Capacity (mL)	h (mm)	h_1 (mm)	Neck	Porosity	Hose connection d (OD) (mm)	Bowl (mm)	Pack Unit
25 701 01 07		100	250	180	34/35	1	10	25	1
25 702 01 08		250	250	160	45/40	1	10	34	1
Individual parts									
25 752 01 07	Gas washing bottle, head with fritted disc (100 mL)					1			1
25 752 01 08	Gas washing bottle, head with fritted disc (250 mL)					1			1

DURAN® Gas Washing Bottle

with fused-in filter disk, with standard ground joint and cap

Typical application: cleaning ("washing") of gases with solvents.

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	h_1 (mm)	Neck	Porosity	Hose connection d (OD) (mm)	Pack Unit
25 703 01 09	350	60	250	180	29/32	1	10	1



A 121 °C

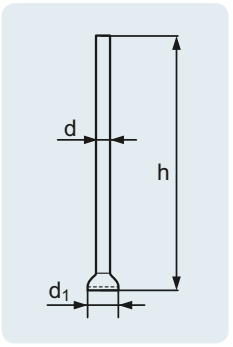
USP Standard

DURAN® Micro Immersion Filter

for reverse filtration

Typical application: extraction of clear filtrate (not the filtrand).

Cat. No.	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Porosity	Pack Unit
25 857 11 02	6	10	100	1	10
25 857 12 05	6	10	100	2	10
25 857 13 08	6	10	100	3	10
25 857 14 02	6	10	100	4	10



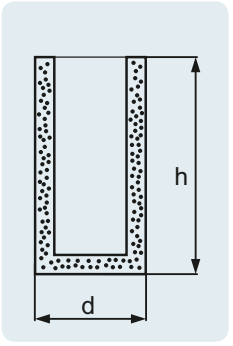
A 121 °C

USP Standard

DURAN® Micro Filter Candle

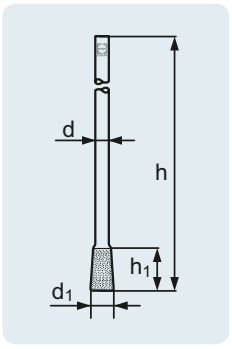
without tube

Cat. No.	d (OD) (mm)	h (mm)	Porosity	Pack Unit
25 857 20 04	13	25	0	10
25 857 21 07	13	25	1	10
25 857 22 01	13	25	2	10
25 857 23 04	13	25	3	10
25 857 24 07	13	25	4	10



DURAN® Micro Filter Candle

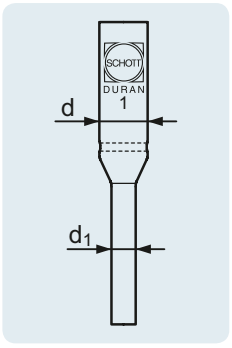
with narrow tube



A 121 °C

Cat. No.	d (OD) (mm)	h (mm)	Porosity	Cartridge d_1 (OD) (mm)	Cartridge h_1 (mm)	Pack Unit
25 857 30 09	8	200	0	13	25	10
25 857 31 03	8	200	1	13	25	10
25 857 32 06	8	200	2	13	25	10
25 857 33 09	8	200	3	13	25	10
25 857 34 03	8	200	4	13	25	10

DURAN® Micro Filter Funnel

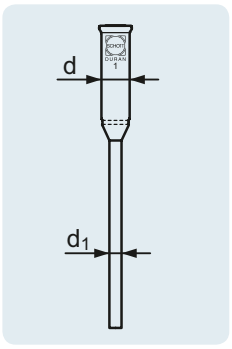


A 121 °C

Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	Porosity	Pack Unit
25 857 51 04	2	10	6	1	10
25 857 52 07	2	10	6	2	10
25 857 53 01	2	10	6	3	10
25 857 54 04	2	10	6	4	10

DURAN® Micro Filter Funnel

Pregl type



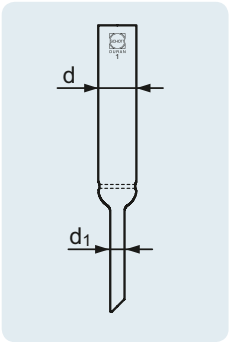
A 121 °C

Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	Porosity	Pack Unit
25 857 61 09	4	10	6	1	10

Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	Porosity	Pack Unit
25 853 21 03	30	20	9	1	10
25 853 22 06	30	20	9	2	10
25 853 23 09	30	20	9	3	10
25 853 24 03	30	20	9	4	10

DURAN® Filter Tube

Allihn type



A 121 °C

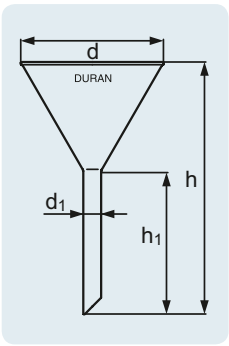
Particular suited for use with hot or aggressive chemicals thanks to the excellent thermal shock and chemical resistance of DURAN®.

Typical apllications: decanting and filtration of liquids.

DURAN® Funnel

with short stem

Cat. No.	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	h_1 (mm)	Matching filter paper Ø (mm)	Remark	Pack Unit
21 351 23 08	35	6	60	35	45 – 55		10
21 351 28 05	45	6	80	45	55 – 70	Non-DIN ISO size.	10
21 351 33 04	55	8	95	55	70 – 90		10
21 351 38 01	70	8	125	70	110 – 125	Non-DIN ISO size.	10
21 351 41 03	80	10	140	80	125 – 150	Non-DIN ISO size.	10
21 351 46 09	100	10	180	100	150 – 185		10
21 351 51 08	120	16	210	120	185 – 240	Non-DIN ISO size.	10
21 351 57 08	150	16	265	150	240 – 270		10
21 351 59 05	180	20	290	150	270 – 320	Non-DIN ISO size.	1
21 351 61 04	200	26	325	175	320 – 385	Non-DIN ISO size.	1
21 351 66 01	250	30	370	175	385 – 400	Non-DIN ISO size.	1
21 351 69 01	300	30	409	175	500	Non-DIN ISO size.	1



DIN ISO 4798 | A 121 °C | USP Standard

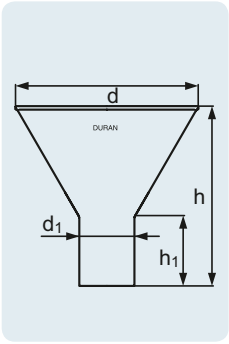
From DURAN® glass with its good thermal shock and chemical resistance.

Typical applications: decanting of powdered substances and granulated material.

DURAN® Powder Funnel

with short, wide stem

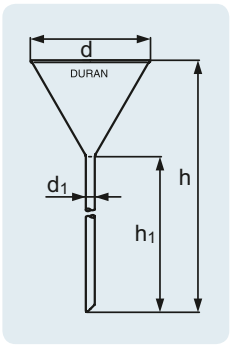
Cat. No.	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	h_1 (mm)	Pack Unit
DURAN®					
21 354 33 07	55	20	60	30	10
21 354 38 04	70	22	72	30	10
21 354 41 06	80	24	79	30	10
21 354 46 03	100	26	94	30	10
21 354 51 02	120	34	105	30	10
21 354 55 05	160	35	140	30	1
21 354 61 07	200	40	170	30	1



A 121 °C | USP Standard

DURAN® Funnel

with long stem, Bunsen funnel



DIN ISO 4798 | A 121 °C | USP Standard

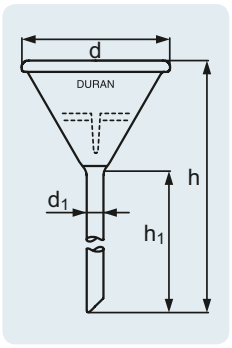
From DURAN® glass with its good thermal shock and chemical resistance.

Typical applications: filtering and decanting of liquids of different densities.

Cat. No.	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	h_1 (mm)	Matching filter paper Ø (mm)	Remark	Pack Unit
21 353 33 06	55	6	190	150	70 – 90		10
21 353 38 03	70	6	200	150	110 – 125	Non-DIN ISO size.	10
21 353 41 05	80	6	210	150	125 – 150	Non-DIN ISO size.	10

DURAN® Analytical Funnel

for quick filtration



A 121 °C | USP Standard

From DURAN® glass with its good thermal shock and chemical resistance.

Typical application: for rapid liquid filtration.

Cat. No.	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	h_1 (mm)	Matching filter paper Ø (mm)	Pack Unit
21 331 37 02	65	9	200	150	70 – 90	10
21 331 41 07	80	9	210	150	110 – 125	10
21 331 48 01	110	9	265	180	150 – 185	10

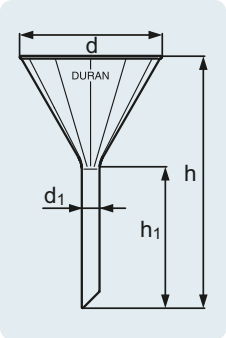
DURAN® Funnel

ribbed

From DURAN® glass with its good thermal shock and chemical resistance. The ribbed form is ideal for filtering with round-paper.

Typical application: filtering of liquids.

Cat. No.	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	h_1 (mm)	Matching filter paper Ø (mm)	Pack Unit
21 352 38 02	70	8	125	70	110 – 125	10
21 352 41 04	80	10	140	80	125 – 150	10
21 352 46 01	100	10	180	100	150 – 185	10
21 352 57 09	150	16	266	150	240 – 270	10
21 352 61 05	200	26	326	175	320 – 385	1



A 121 °C

USP Standard

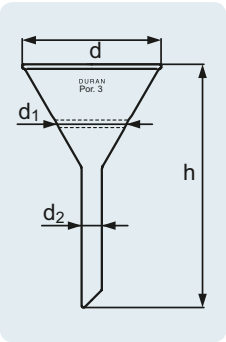
DURAN® Filter Funnel

conical shape

Made from DURAN® glass with its good thermal shock and chemical resistance. Filter funnels mate to the filtering flask via a conical rubber seal (GUKO).

Typical application: filtering of liquids.

Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	d_2 (OD) (mm)	h (mm)	Porosity	Pack Unit
25 854 03 09	25	55	25	8	100	3	1
25 854 04 03	25	55	25	8	100	4	1



A 121 °C

USP Standard


DURAN

06

DESICCATORS

DESICCATORS

DURAN® desiccators are used for drying moist substances or as storage vessels for moisture-sensitive products. To accelerate the drying process, the desiccators can be used under vacuum. Due to the high wall-thickness of the vessels and the exact machining of the vacuum-tight ground joints on the lid and base, storage under vacuum is possible – even over extremely long periods.

All individual parts and a wide range of accessories such as lids, stopcocks, bases, etc. are compatible and can be interchanged as required. Always ensure the individual parts have the same DN (nominal diameter).

For desiccators, the DN is based on the diameter of the sieve plate; this can be measured directly. For lids, measure the outside diameter of the flange and cross-reference with the tables on the product pages.

Usage tips:

- Designed for use under absolute vacuum.
- Due to the high wall thickness and the reduced thermal shock resistance under pressure loading, the desiccators must not be heated on one side only or heated using a naked flame.
- Before evacuation, it is recommended that the glass surfaces of the desiccator be checked for damage such as scratches, cracks or nicks. Damaged desiccators must not be used for safety reasons.
- Never expose desiccators to abrupt pressure changes (do not suddenly ventilate evacuated vessels).

06

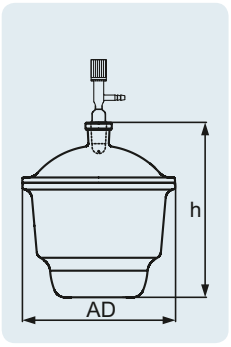
> Find your nearest **distributor** on our global network:
www.DWK-LifeSciences.com/DURAN/distributors

DURAN® Vacuum Desiccator

with NOVUS standard ground joint (NS 24/29) junction tube in the lid, stopcock, and flat flange

Vacuum-tight, made from DURAN® borosilicate glass 3.3. To accelerate drying, a vacuum can be applied via the stopcock. Spare parts such as lids, bases, stopcocks and caps can be interchanged (observe DN).

Typical applications: drying of moist samples and storage of moisture-sensitive substances.



DIN ISO 13130

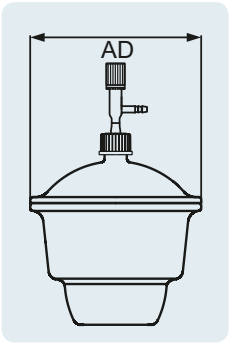
Cat. No.	DN	ID Flange (mm)	Outer diameter (AD) Flange (mm)	h (mm)	Tubulature (NS)	Volume approx. (mL)	Pack Unit
with porcelain plate							
24 782 57 52	150	172	215 ± 2	239	24/29	2 400	1
24 782 61 57	200	224	270 ± 2	296	24/29	5 800	1
24 782 66 54	250	274	320 ± 2	344	24/29	10 500	1
24 782 69 54	300	332	380 ± 2	420	24/29	18 500	1
without porcelain plate							
24 782 46 04	100	119	153 ± 2	174	24/29	700	1
24 782 57 03	150	172	215 ± 2	239	24/29	2 400	1
24 782 61 08	200	224	270 ± 2	296	24/29	5 800	1
24 782 66 05	250	274	320 ± 2	344	24/29	10 500	1
24 782 69 05	300	332	380 ± 2	420	24/29	18 500	1

DURAN® Vacuum Dessicator Set

with threaded outlet, type MOBILEX (GL 32), stopcock with PTFE spindle

DURAN® desiccators completed with a porcelain plate and a vacuum connection. Porcelain plate and the lid diameter correspond to the diameter of the base and vacuum connection remains air tight.

Typical applications: drying of moist samples and storage of moisture-sensitive substances.

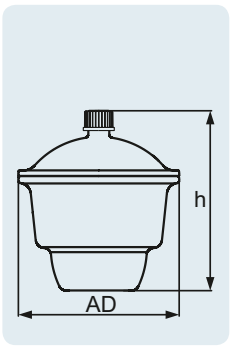


DIN ISO 13130 USP Standard

Cat. No.	DN	ID Flange (mm)	Outer diameter (AD) Flange (mm)	Thread	h (mm)	Volume approx. (mL)	Pack Unit
with porcelain plate							
24 783 57 53	150	172	215 ± 2	32	239	2 400	1
24 783 61 58	200	224	270 ± 2	32	296	5 800	1
24 783 66 55	250	274	320 ± 2	32	344	10 500	1
24 783 69 55	300	332	380 ± 2	32	420	18 500	1
without porcelain plate							
24 785 57 06	150	172	215 ± 2	32	239	2 400	1
24 785 61 02	200	224	270 ± 2	32	296	5 800	1
24 785 66 08	250	274	320 ± 2	32	344	10 500	1
24 785 69 08	300	332	380 ± 2	32	420	18 500	1

DURAN® Vacuum Desiccator

with screw thread outlet, type MOBILEX (GL 32), with screw cap from PBT



DIN ISO 13130 USP Standard

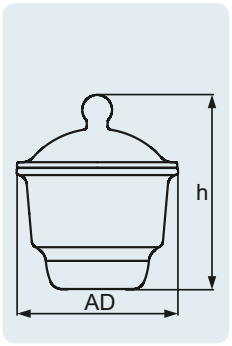
DURAN® desiccators completed with a desiccator lid and a screw cap.

Typical applications: drying of moist samples and storage of moisture-sensitive substances.

Cat. No.	DN	ID Flange (mm)	Outer diameter (AD) Flange (mm)	Thread	h (mm)	Volume approx. (mL)	Pack Unit
without porcelain plate							
24 786 57 07	150	172	215 ± 2	32	239	2 400	1
24 786 61 03	200	224	270 ± 2	32	296	5 800	1
24 786 66 09	250	274	320 ± 2	32	344	10 500	1
24 786 69 09	300	332	380 ± 2	32	420	18 500	1

DURAN® Desiccator

with flat flange, and knobbed lid, no connection



DIN ISO 13130 USP Standard

Made from DURAN® borosilicate glass 3.3. Components are vacuum tight. Spare parts such as lids and bases can be interchanged (observe DN).

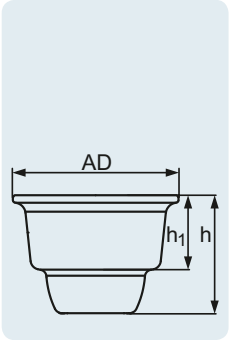
Typical applications: drying of moist products and storage of moisture-sensitive substances.

Cat. No.	DN	ID Flange (mm)	Outer diameter (AD) Flange (mm)	h (mm)	Volume approx. (mL)	Pack Unit
24 781 46 03	100	119	153 ± 2	187	700	1
24 781 57 02	150	172	215 ± 2	252	2 400	1
24 781 61 07	200	224	270 ± 2	309	5 800	1
24 781 66 04	250	274	320 ± 2	357	10 500	1
24 781 69 04	300	332	380 ± 2	433	18 500	1

Cat. No.	DN	ID Flange (mm)	Outer diameter (AD) Flange (mm)	h (mm)	h_1 (mm)	Volume approx. (mL)	Pack Unit
24 770 46 04	100	119	153 ± 2	112	58	700	1
24 770 57 03	150	172	215 ± 2	154	81	2 400	1
24 770 61 08	200	224	270 ± 2	202	115	5 800	1
24 770 66 05	250	274	320 ± 2	235	120	10 500	1
24 770 69 05	300	332	332 ± 2	283	150	18 500	1

DURAN® Desiccator Base

with flat flange, no outlet, suitable for all types of lids

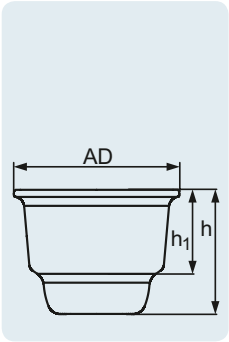


DIN ISO 13130

Cat. No.	DN	ID Flange (mm)	Outer diameter (AD) Flange (mm)	h (mm)	h_1 (mm)	Volume approx. (mL)	Pack Unit
24 773 61 02	200	224	270 ± 2	202	115	5 800	1

DURAN® Desiccator Base

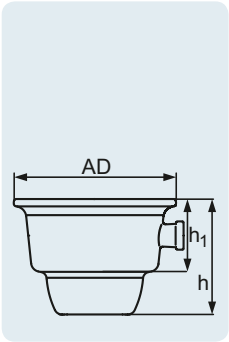
with ring-grooved flange, suitable for all types of lids



Cat. No.	DN	ID Flange (mm)	Outer diameter (AD) Flange (mm)	h (mm)	h_1 (mm)	Volume approx. (mL)	Pack Unit
24 771 46 05	100	119	153 ± 2	112	58	700	1
24 771 57 04	150	172	215 ± 2	154	81	2 400	1
24 771 61 09	200	224	270 ± 2	202	118	5 800	1
24 771 66 06	250	274	320 ± 2	235	122	10 500	1
24 771 69 06	300	332	380 ± 2	283	154	18 500	1

DURAN® Desiccator Base

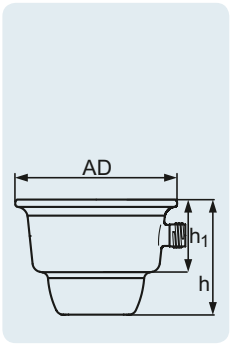
with flat flange, standard ground outlet (24/29), type NOVUS, suitable for all types of lids



DIN ISO 13130

DURAN® Desiccator Base

with flat flange, screw thread outlet, type MOBILEX (GL 32), suitable for all types of lids

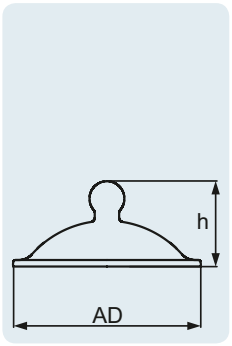


DIN ISO 13130

Cat. No.	DN	ID Flange (mm)	Outer diameter (AD) Flange (mm)	h (mm)	h_1 (mm)	Volume approx. (mL)	Pack Unit
24 772 57 05	150	172	215 ± 2	154	81	2 400	1
24 772 61 01	200	224	270 ± 2	202	118	5 800	1
24 772 66 07	250	274	320 ± 2	235	122	10 500	1
24 772 69 07	300	332	380 ± 2	283	154	18 500	1

DURAN® Desiccator Lid

with knob, suitable for all types of bases

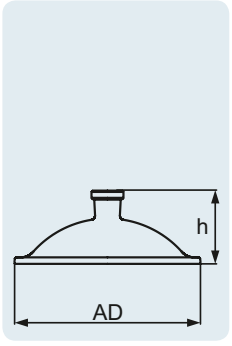


DIN ISO 13130

Cat. No.	DN	ID Flange (mm)	Outer diameter (AD) Flange (mm)	h (mm)	Pack Unit
24 410 46 07	100	119	153 ± 2	75	1
24 410 57 06	150	172	215 ± 2	98	1
24 410 61 02	200	224	270 ± 2	107	1
24 410 66 08	250	274	320 ± 2	122	1
24 410 69 08	300	332	380 ± 2	150	1

DURAN® Desiccator Lid

with special tube (NS 24/29 type WERTEX), with ring grooved flange, suitable for all types of bases

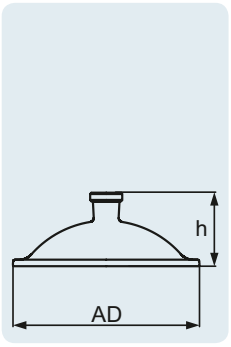


Cat. No.	DN	ID Flange (mm)	Outer diameter (AD) Flange (mm)	h (mm)	Neck	Pack Unit
24 430 57 02	150	172	215 ± 2	85	24/29	1
24 430 66 04	250	274	320 ± 2	109	24/29	1

Cat. No.	DN	ID Flange (mm)	Outer diameter (AD) Flange (mm)	h (mm)	Neck	Pack Unit
24 420 46 05	100	119	153 ± 2	62	24/29	1
24 420 57 04	150	172	215 ± 2	85	24/29	1
24 420 61 09	200	224	270 ± 2	94	24/29	1
24 420 66 06	250	274	320 ± 2	109	24/29	1
24 420 69 06	300	332	380 ± 2	137	24/29	1

DURAN® Desiccator Lid

for standard ground joint stopcocks (NS 24/29), type NOVUS, suitable for all types of bases

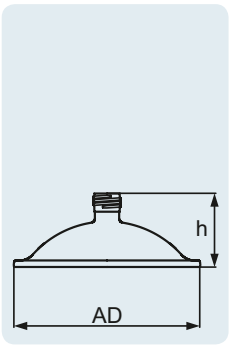


DIN ISO 13130

Cat. No.	DN	ID Flange (mm)	Outer diameter (AD) Flange (mm)	DIN Thread (GL)	h (mm)	Pack Unit
24 440 57 09	150	172	215 ± 2	32	85	1
24 440 61 05	200	224	270 ± 2	32	94	1
24 440 66 02	250	274	320 ± 2	32	109	1
24 440 69 02	300	332	380 ± 2	32	137	1

DURAN® Desiccator Lid

with threaded outlet, type MOBILEX (GL 32), suitable for all bases



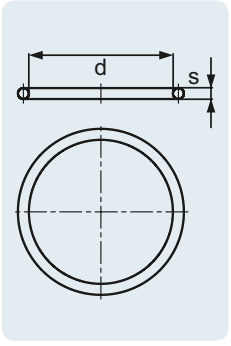
DIN ISO 13130

Ordering advice: the O-ring is dimensioned according to the nominal diameter (DN)

Cat. No.	DN	d (OD) (mm)	s (mm)	Pack Unit
for articles since 1996				
29 215 61 08	200	236	5.3	1

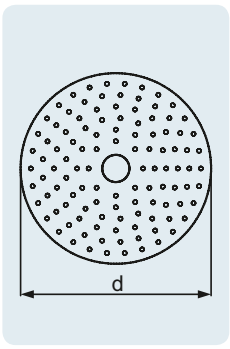
O-Ring

suitable only for desiccator Base with ring-grooved flange, from silicone (VMQ)



Tmax. 200 °C

Porcelain Desiccator Plate

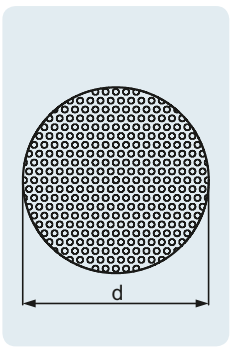


DIN 12911

Cat. No.	DN	d (OD) (mm)	Pack Unit
Porcelain			
29 725 46 08	100	90	1
29 725 57 07	150	140	1
29 725 61 03	200	190	1
29 725 66 09	250	235	1
29 725 69 09	300	280	1

Stainless Steel Desiccator Plate

Material: 1.4301, Type 304, rust-free

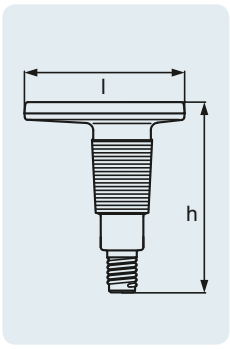


DIN EN 10143

Cat. No.	DN	d (OD) (mm)	Pack Unit
Stainless Steel			
29 080 46 06	100	90	1
29 080 57 05	150	140	1
29 080 61 01	200	190	1
29 080 66 07	250	235	1
29 080 69 07	300	285	1

Safety Stopcock NS 24/29

for safety outlets type Wertex

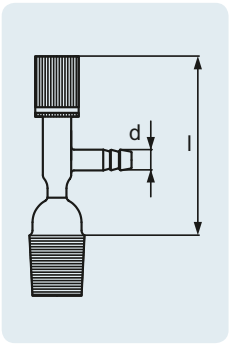


Cat. No.	h (mm)	l (mm)	Pack Unit
24 796 03 04	76	70	1

Cat. No.	d (OD) (mm)	l (mm)	Neck	Pack Unit
24 798 03 06	8	85	24/29	1

DURAN® Stopcock with PTFE Spindle

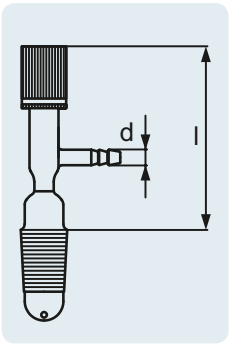
for desiccator base side outlets, type NOVUS (NS 24/29)



Cat. No.	d (OD) (mm)	l (mm)	Neck	Pack Unit
24 799 04 01	8	85	24/29	1

DURAN® Stopcock with PTFE Spindle

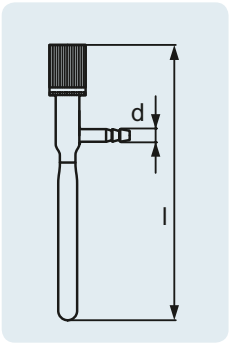
for desiccator lid outlets, type NOVUS (NS 24/29)



Cat. No.	d (OD) (mm)	l (mm)	Pack Unit
24 797 03 05	8	160	1

DURAN® Stopcock with PTFE Spindle

for threaded outlets, type MOBILEX (GL 32)



07

GLASSWARE FOR MICROBIOLOGY

GLASSWARE FOR MICROBIOLOGY

Due to its high thermal-shock resistance, DURAN® microbiology glassware is ideal for auto-claving and sterilisation processes and shows, even after multiple use no signs of wear. Unlike plastic items, it is very resistant to mechanical wear even after repeated use and sterilisation cycles.

Due to the nearly inert behaviour, there are no interactions (e.g. ion exchange) between medium and glass and any spurious influence on experiments is thereby effectively excluded.

DURAN® products are completely transparent in visible light and unlike many plastic products are ideal for use under the microscope.

DUROPLAN® Petri dishes offer outstanding performance due to their distortion-free transparency and high planarity (flatness). These excellent geometrical properties enable uniform agar distribution and reproducible culture growth.

Alongside the Petri dishes, the DURAN® range includes a wide range of culture bottles, culture flasks, roller bottles and spot plates.

In addition, there are various types of staining dishes.

Usage tips:

- Only autoclave products that are free from damage such as scratches, cracks or nicks.
- The outstanding thermal properties (max. operating temperature of +500 °C, thermal shock resistance ΔT =100 K) enable high temperature processes, such as hot air sterilisation.

07

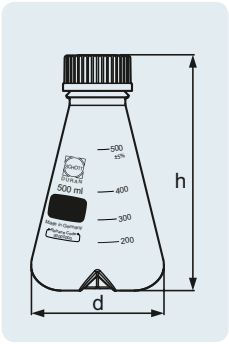
> Find your nearest **distributor** on our global network:
www.DWK-LifeSciences.com/DURAN/distributors

DURAN® Baffled Flask

with GL 45 thread

Baffled flasks disrupt the circular laminar flow and cause additional turbulence. The baffles increase the gas exchange surface area of the liquid, and the oxygen uptake.

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	DIN Thread (GL)	Pack Unit
with membrane screw cap and pouring ring					
21 283 36 55	250	85	145	45	4
21 283 44 54	500	105	180	45	4
21 283 54 59	1 000	135	221	45	1
without membrane screw cap and pouring ring					
21 283 54 01	1 000	135	221	45	1
21 283 36 06	250	85	145	45	4
21 283 44 05	500	105	180	45	4



Retrace Code | A 121 °C | USP Standard

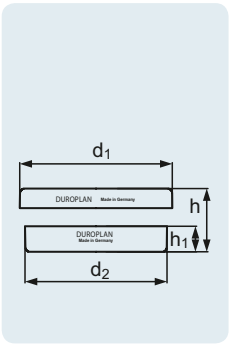
DUROPLAN® Petri Dish

lid and base have planar surfaces, and free from bubbles and streaks

These Petri dishes are made from DURAN® borosilicate 3.3 glass using a special manufacturing process that permits the uniform distribution of agar and guarantees distortion-free observation.

Typical applications: biological and clinical research, cultivation of microorganism, microscopy.

Cat. No.	d_1 (OD) (mm)	d_2 (OD) (mm)	h (mm)	h_1 (mm)	Pack Unit
21 755 41 01	60	54	22	20	10
21 755 43 07	80	74	22	20	10
21 755 46 07	100	94	17	15	10
21 755 48 04	100	94	22	20	10
21 755 51 06	120	114	22	20	10
21 755 53 03	150	143	32	30	10

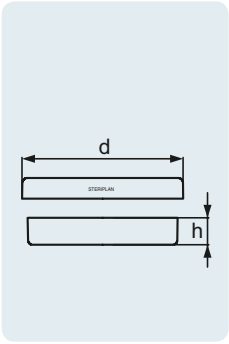


A 121 °C | USP Standard | DIN 13132

STERIPLAN® Petri Dish

from Soda-lime Glass

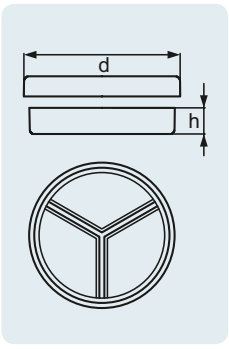
Cat. No.	d (OD) (mm)	h (mm)	Pack Unit
23 755 39 03	40	12	10
23 755 40 08	60	15	10
23 755 42 05	80	15	10
11 840 71	90	15	10
23 755 45 05	100	10	10
23 755 46 08	100	15	10
23 755 48 05	100	20	10
23 755 51 07	120	20	10
23 755 52 01	150	25	10
23 755 56 04	180	30	10
23 755 59 04	200	30	10
23 755 61 03	200	45	10



A 121 °C

DURAN® Petri Dish

pressed



DIN 13132 | A 121 °C | USP Standard

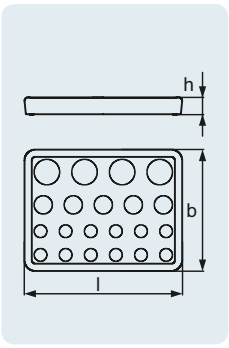
Bottom of the base has three knobs for stability.

Typical applications: biological and clinical work, preparation of agars, microscopy.

Cat. No.	d (OD) (mm)	h (mm)	Pack Unit
without sections			
21 754 46 06	100	15	10
21 754 48 03	100	20	10
Half-sectional			
21 750 48 08	100	20	10
Three-sectional			
21 753 48 02	100	20	10
Four-sectional			
21 752 48 01	100	20	10

Spot Plate Type Feigl

from Soda-lime Glass

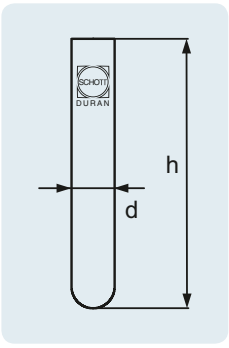


Typical application: observation of reactions and colour changes.

Cat. No.	h (mm)	l (mm)	b (mm)	Pack Unit
23 671 52 08	14	130	100	10

DURAN® Centrifuge Tube

with round bottom



DIN 58970-2 | A 121 °C

Centrifuge tubes are very resistant to mechanical loading. The higher density fraction collects in the bottom. Consequently solids can be collected and separated.

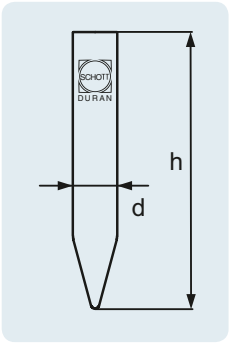
Cat. No.	d (OD) (mm)	h (mm)	Nominal capacity (mL)	Remark	Pack Unit
21 601 10 04	12	100	6		50
21 601 11 07	16	100	12		50
21 601 14 07	24	100	25		10
21 601 17 07	34	100	50		10
21 601 24 03	40	115	80	Non-DIN size.	10
21 601 26 09	44	100	80		10
21 601 36 05	56	147	250	Non-DIN size.	10

DURAN® Centrifuge Tube

conical bottom, angle 30 °

Centrifuge tubes are very resistant to mechanical loading. The higher density fraction collects in the pointed centre of the bottom. Consequently even small amounts of solids can be collected and separated.

Cat. No.	d (OD) (mm)	h (mm)	Nominal capacity (mL)	Pack Unit
24 263 09 01	16	100	12	50



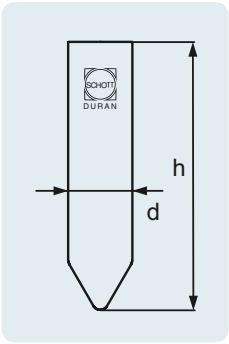
A 121 °C | USP Standard

DURAN® Centrifuge Tube

conical bottom, angle 60 °

Centrifuge tubes are very resistant to mechanical loading. The higher density fraction collects in the pointed centre of the bottom. Consequently even small amounts of solids can be collected and separated.

Cat. No.	d (OD) (mm)	h (mm)	Nominal capacity (mL)	Pack Unit
21 611 14 05	24	100	25	10
21 611 17 05	34	100	50	10



A 121 °C | USP Standard

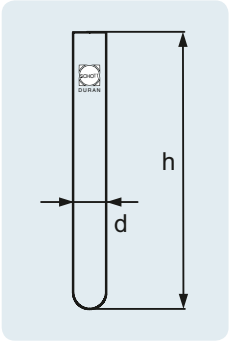
DURAN® Culture Tube

straight rim, for Kapsenberg caps

The straight rim permits the use of Kapsenberg caps; tubes are therefore well suited to the culture of micro-organisms (Kapsenberg caps article no. 29 010 09 09 and 29 010 11 08).

Typical applications: growth and storage of sterile cultures.

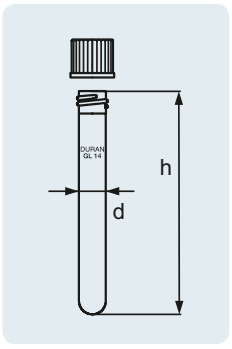
Cat. No.	d (OD) (mm)	h (mm)	Volume approx. (mL)	Wall thickness (mm)	Pack Unit
26 132 21 08	16	160	20	1.0 – 1.2	100
26 132 23 05	18	180	30	1.0 – 1.2	100



DIN 38411 | A 121 °C | USP Standard

DURAN® Culture Tube

with DIN thread, and screw cap from PBT



A 121 °C

USP Standard

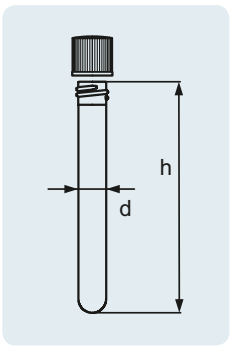
The DIN thread permits the use of PBT screw caps; tubes are therefore well suited to the culture of micro-organisms. The contents only come into contact with the glass and PTFE coating of the cap liner.

Typical applications: growing and storage of sterile cultures.

Cat. No.	d (OD) (mm)	h (mm)	DIN Thread (GL)	Volume approx. (mL)	Pack Unit
with screw cap					
26 135 11 55	12	100	14	6	50
26 135 12 58	13	100	14	9	50
26 135 21 51	16	160	18	20	50
26 135 22 54	16	150	18	20	50
26 135 24 51	20	150	18	34	50
26 135 23 57	18	180	18	30	50
without screw cap					
26 135 11 06	12	100	14	6	50
26 135 12 09	13	100	14	9	50
26 135 21 02	16	160	18	20	50
26 135 22 05	16	150	18	20	50
26 135 24 02	20	150	18	34	50
26 135 23 08	18	180	18	30	50

Disposable Culture Tube

from Soda-lime Glass, with DIN thread, and PP screw cap



Tmax. 140 °C

Screw cap from PP with cap liner.

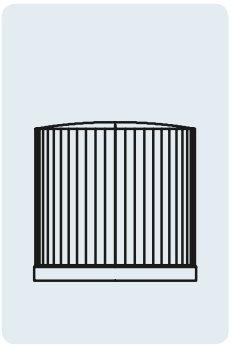
Cat. No.	d (OD) (mm)	h (mm)	DIN Thread (GL)	Volume approx. (mL)	Wall thickness (mm)	Pack Unit
with TPE seal						
23 175 11 59	12	100	14	6	1	100
23 175 14 59	16	100	18	12	1	100
23 175 21 55	16	160	18	22	1	100
23 175 23 52	18	180	18	32	1	100

Screw Cap for Culture Tubes

with seal

With seal from TPE.

Cat. No.	DIN Thread (GL)	Pack Unit
29 990 12 04	14	100
29 990 13 07	18	100



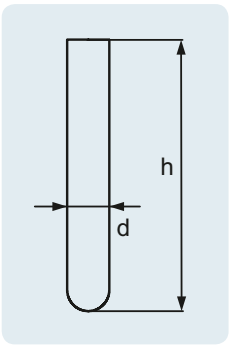
A 121 °C

Tmax. 140 °C

Disposable Culture Tube

from Soda-lime Glass, straight rim

Cat. No.	d (OD) (mm)	h (mm)	Volume approx. (mL)	Wall thickness (mm)	Pack Unit
23 172 01 84	9.75	75	4	0.8	814
23 172 03 65	10.00	75	4	0.6	766
23 172 05 87	11.75	75	5	0.8	550
23 172 08 62	11.75	75	6	0.55	550
23 172 09 65	12.25	75	7	0.55	500
23 172 09 98	12.25	75	6	0.8	500
23 172 07 84	11.75	100	8	0.8	550
23 172 11 97	12.25	100	9	0.8	500
23 172 14 89	15.50	100	14	0.8	310
23 172 10 94	15.75	100	15	0.9	310
23 172 12 83	12.25	120	18	0.8	500
23 172 18 83	10.00	150	8	0.8	766
23 172 19 86	15.50	150	19	0.8	310
23 172 21 93	15.50	160	22	0.8	310



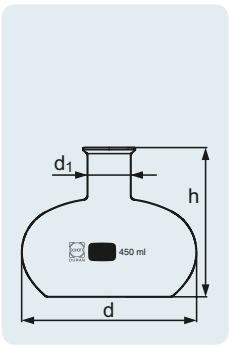
DURAN® Culture Flask Fernbach Type

bulbous shape

Large, flat, bottom surface allows uniform culture thickness.

Typical application: preparation of cultures in nutrient media.

Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Pack Unit
21 501 43 07	450	117	29	100	10

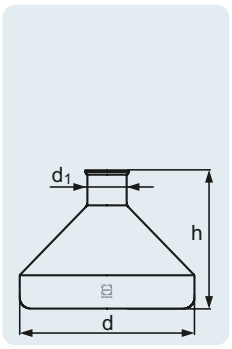


A 121 °C

USP Standard

DURAN® Culture Flask Fernbach Type

conical shape



A 121 °C USP Standard

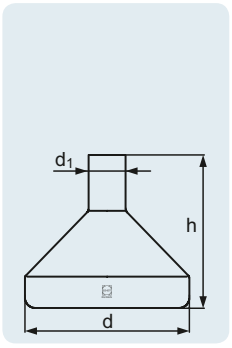
Large, flat, bottom surface allows uniform culture thickness.

Typical application: preparation of cultures in nutrient media.

Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Pack Unit
21 511 62 03	1 800	200	45	158	2

DURAN® Culture Flask Fernbach Type

conical shape, straight neck for metal caps



A 121 °C USP Standard

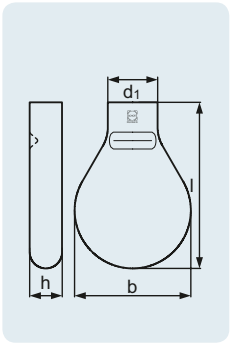
Large, flat, bottom surface allow uniform culture thickness. Compatible metal cap made from either stainless steel (Cat. no. 29 012 24 06) or anodised aluminium (Cat. no. 29 013 24 07) are available.

Typical application: preparation of cultures in nutrient media.

Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Pack Unit
21 774 62 09	1 800	200	38	175	2

DURAN® Culture Flask Kolle Type

oval neck



A 121 °C USP Standard

Large, flat, bottom surface allows uniform culture thickness.

Typical application: preparation of cultures in nutrient media.

Cat. No.	Capacity (mL)	d_1 (OD) (mm)	h (mm)	l (mm)	b (mm)	Pack Unit
21 521 41 06	400	60	39	200	140	10

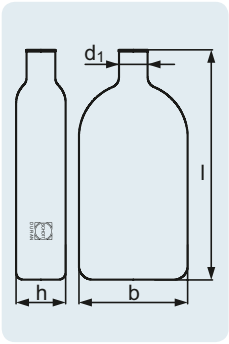
DURAN® Culture Flask Roux Type

round neck

Large, flat, bottom surface allows uniform culture thickness.

Typical application: preparation of cultures in nutrient media.

Cat. No.	Capacity (mL)	d_1 (OD) (mm)	h (mm)	l (mm)	b (mm)	Pack Unit
21 541 58 01	1 200	33	56	260	123	10



A 121 °C

USP Standard

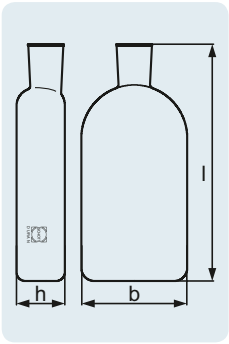
DURAN® Culture Flask Roux Type

conical neck, eccentric

Large, flat, bottom surface allows uniform culture thickness.

Typical application: preparation of cultures in nutrient media.

Cat. No.	Capacity (mL)	h (mm)	l (mm)	b (mm)	Pack Unit
21 571 58 04	1 200	56	275	123	10



A 121 °C

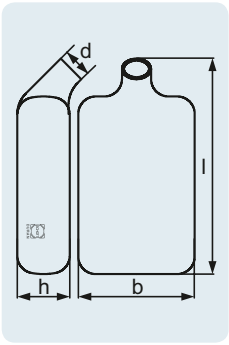
USP Standard

DURAN® Penicillin Flask

Large, flat bottom surface allows uniform culture thickness.

Typical application: preparation of cultures in nutrient media.

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	l (mm)	b (mm)	Pack Unit
21 551 71 06	4 000	50	90	370	200	1

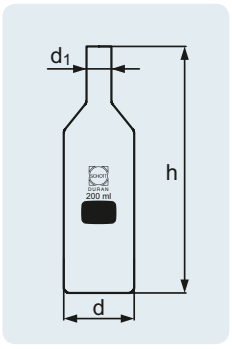


A 121 °C

USP Standard

DURAN® Culture Bottle

straight rim, for Kapsenberg caps



A 121 °C

USP Standard

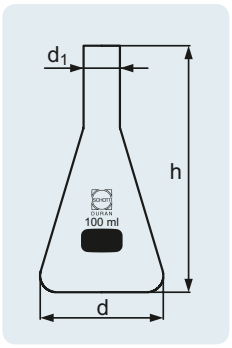
A suitable Kapsenberg cap (cat. no. 29 010 11 08) is available.

Typical application: preparation of cultures in nutrient media.

Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Remark	Pack Unit
21 421 17 06	50	40	18	107		10
21 421 24 02	100	40	18	150		10
21 421 32 01	200	50	18	175	DIN 38 411, part 6	10

DURAN® Erlenmeyer Flask

straight rim, for Kapsenberg caps



A 121 °C

USP Standard

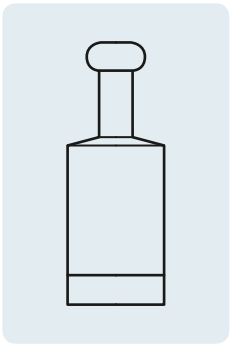
Conical geometry makes the flasks particularly suited for shaking experiments (e.g. media optimisation). A suitable Kapsenberg cap (Cat. no. 29 010 11 08) is available.

Typical application: preparation of cultures in nutrient media.

Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Pack Unit
21 491 24 06	100	60	18	120	10

Kapsenberg Cap

from aluminium



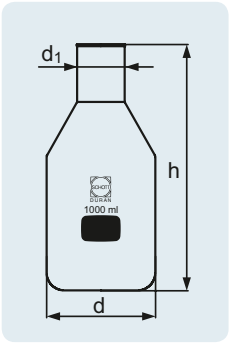
Cat. No.	Description	For neck (mm)	Pack Unit
29 010 09 09	suitable for Culture tubes cat. no. 26 132 21 08	16	10
29 010 11 08	suitable for Culture tubes cat. no. 26 132 23 05, Culture bottle cat. no. 21 421 17 06, 21 421 24 02, 21 421 32 01 and Erlenmeyer tubes cat. no. 21 491 24 06	18	10

DURAN® Culture Media Bottle

straight rim, for use with glass caps

Typical application: preparation of cultures in nutrient media.

Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Pack Unit
21 431 39 02	300	70	31	168	10
21 431 44 01	500	83	46	204	10
21 431 54 06	1 000	105	46	238	10

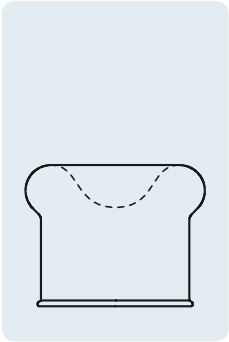


A 121 °C

USP Standard

DURAN® Glass Cap

Cat. No.	Description	For neck (mm)	Pack Unit
21 441 18 05	suitable clture media bottle: cat. no. 21 431 39 02	31	10
21 441 29 04	suitable clture media bottle: cat. no. 21 431 44 01 and cat. no. 21 431 54 06	46	10



A 121 °C

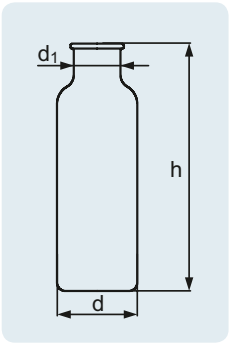
USP Standard

DURAN® Square Bottle

after Breed-Demeter

Typical application: preparation of cultures in nutrient media.

Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Pack Unit
21 481 31 04	180	48	28	148	10

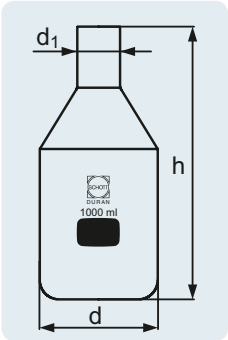


A 121 °C

USP Standard

DURAN® Culture Media Bottle

Typical application: preparation of cultures in nutrient media.



A 121 °C | USP Standard

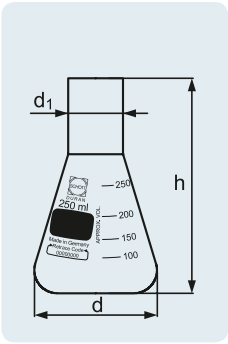
Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Pack Unit
with beaded rim					
21 451 24 05	100	50	29	115	10
21 451 39 07	300	70	42	168	10
21 451 44 06	500	83	42	207	10
21 451 54 02	1 000	105	46	237	10
21 451 66 04	2 500	150	50	315	1
21 451 73 09	5 000	185	54	390	1
straight neck for metal caps					
21 773 24 03	100	50	38	125	10
21 773 39 05	300	70	38	170	10
21 773 44 04	500	83	38	208	10
21 773 54 09	1 000	105	38	243	10

DURAN® Culture Flask Erlenmeyer Shape

straight neck for metal caps

Conical geometry makes the flasks particularly suitable for shaking experiments (e.g. media optimisation). Erlenmeyer flasks with GL screw threads are also available

Typical application: Preparation of cultures in nutrient media.

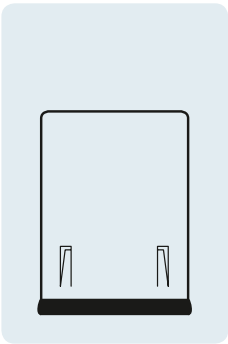


Retrace Code | A 121 °C | USP Standard

Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Pack Unit
21 771 24 01	100	64	38	114	10
21 771 32 09	200	79	38	138	10
21 771 36 03	250	85	38	149	10
21 771 39 03	300	87	38	161	10
21 771 44 02	500	105	38	183	10
21 771 54 07	1 000	131	38	229	10
21 771 63 09	2 000	166	38	302	10

Metal Cap

Suitable for: culture flask Cat. No. 21 771 XX XX, Cat. No. 21 774 62 09 and culture media bottle Cat. No. 21 773 XX XX.



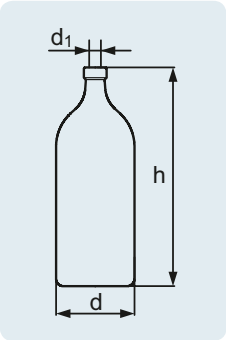
A 121 °C

Cat. No.	Material	For neck (mm)	Pack Unit
29 012 24 06	Stainless steel	38	10
29 013 24 07	Aluminium, anodised blue	38	10

DURAN® Rolled Flange Bottle

In addition, the following individual parts are available: porcelain clamp closure (Cat. No. 29 701 08 03), replacement rubber seal (Cat. No. 29 990 31 02) and replacement silicone seal, autoclavable (Cat. No. 29 990 10 07).

Typical applications: sampling and cultivation.



Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Pack Unit
without closure					
21 461 24 03	100	45	17	135	10
21 461 36 05	250	57	17	182	10
21 461 44 04	500	74	17	218	10
21 461 54 09	1 000	95	17	265	10

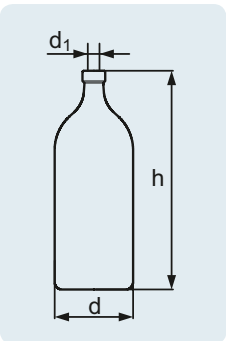
A 121 °C

USP Standard

DURAN® Rolled Flange Bottle

In addition, the following individual parts are available: porcelain clamp closure (Cat. No. 29 701 08 03), replacement rubber seal (Cat. No. 29 990 31 02) and replacement silicone seal, autoclavable (Cat. No. 29 990 10 07).

Typical applications: sampling and cultivation.



Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Pack Unit
with clamp closure					
21 465 24 07	100	45	17	135	10
21 465 36 09	250	57	17	182	10
21 465 44 08	500	74	17	218	10
21 465 54 04	1 000	95	17	265	10

A 121 °C

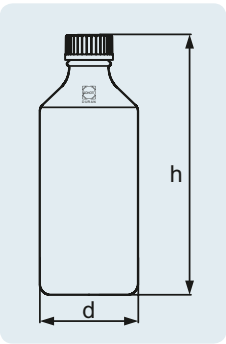
USP Standard

DURAN® Roller Bottle for Cell Cultures

with DIN thread, GL 45

With screw cap and pouring ring (blue, PP).

Typical application: preparation of cultures in nutrient media.

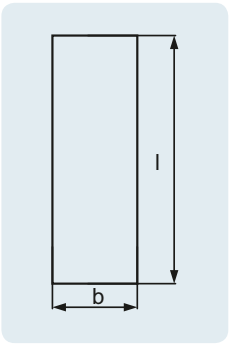


Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Pack Unit
21 772 68 56	2 000	110	285	2
21 772 86 51	3 500	110	450	1

A 121 °C

USP Standard

Microscope Slides from Soda-lime Glass

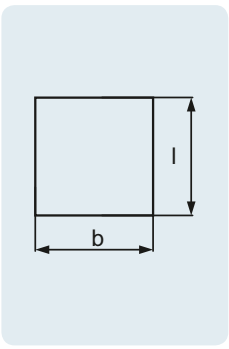


DIN ISO 8037-1

The microscope slides are made from high quality float glass (soda-lime glass) of hydrolytic class 3. Particularly suitable for microscopic examinations. Designed for single use only. Uniform wettability due to flawless surface. It is not necessary to re-adjust the microscope.

Cat. No.	l (mm)	Colour	b (mm)	Pack Unit
with cut edges				
23 550 11 03	76		26	30 x 50
23 550 12 06	76	frosted end	26	30 x 50
ground edges 45°				
23 550 13 09	76		26	30 x 50
23 550 14 03	76	frosted end	26	30 x 50
ground edges 90°				
23 550 22 02	76	blue	26	30 x 50
23 550 21 08	76	white	26	30 x 50
23 550 23 05	76	yellow	26	30 x 50
23 550 24 08	76	white PRINT	26	30 x 50
23 550 25 02	76	white, adhesive with standard coating	26	30 x 50
23 550 26 05	76	white, adhesive ++	26	30 x 50

Cover Slips from D 263® M



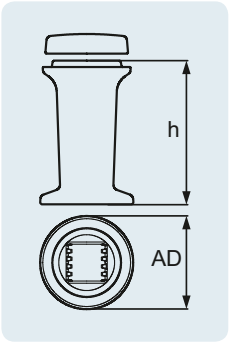
ISO 8255-1

The cover slips are made from pure white borosilicate glass (D 263® M) i.e. absorption-free in the visible spectral range. Cover slips are used as covering material and for fixing preparations during microscopic examinations. They also ensure the distribution of droplets on the microscope slide.

Cat. No.	l (mm)	Wall thickness (mm)	b (mm)	Pack Unit
23 550 31 04	18	#1	18	10 x 100
23 550 32 07	22	#1	22	10 x 100
23 550 33 01	40	#1	24	10 x 100
23 550 34 04	50	#1	24	10 x 100
23 550 35 07	50	#1.5 Automatic machine	24	10 x 100
23 550 36 01	60	#1	24	10 x 100
23 550 37 04	60	#1.5 Automatic machine	24	10 x 100

Staining Jar Coplin Type

from Soda-lime Glass



For 10 microscope slides 76 x 26 mm. Note: Do not clean staining dishes and staining jars at temperatures above 60 °C (glass corrosion is possible).

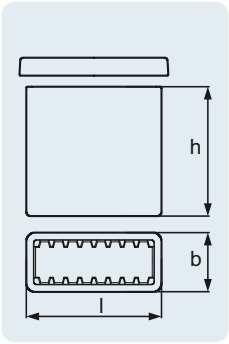
Cat. No.	h (mm)	Outer diameter (AD) (mm)	Pack Unit
23 319 00 06	108	66	10

Staining Dish Hellendahl Type

from Soda-lime Glass, straight sided

For 10 microscope slides 76 x 26 mm. Note: Do not clean staining dishes and staining jars at temperatures above 60 °C (glass corrosion is possible).

Cat. No.	h (mm)	l (mm)	b (mm)	Pack Unit
23 314 00 01	90	90	40	10

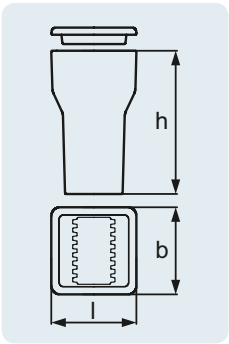


Staining Dish Hellendahl Type

from Soda-lime Glass

For 16 microscope slides 76 x 26 mm, with widening towards the top. Note: Do not clean staining dishes and staining jars at temperatures above 60 °C (glass corrosion is possible).

Cat. No.	h (mm)	l (mm)	b (mm)	Pack Unit
23 315 00 02	100	60	60	10

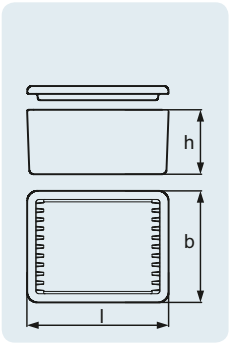


Staining Dish Schiefferdecker Type

from Soda-lime Glass

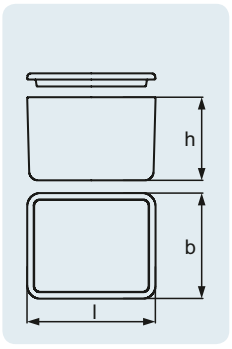
For 10 microscope slides 76 x 26 mm. Note: Do not clean staining dishes and staining jars at temperatures above 60 °C (glass corrosion is possible).

Cat. No.	h (mm)	l (mm)	b (mm)	Pack Unit
23 316 00 03	40	90	70	10



Glass Box from Soda-lime Glass

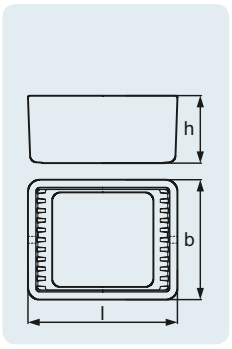
for staining tray 21 317 00 03



Note: Do not clean staining dishes and staining jars at temperatures above 60 °C (glass corrosion is possible).

Cat. No.	h (mm)	l (mm)	b (mm)	Pack Unit
23 318 00 05	70	108	90	10

DURAN® Staining Tray



A 121 °C

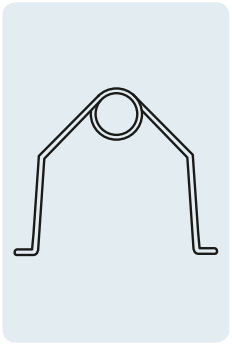
USP Standard

For 10 microscope slides 76 x 26 mm or each width up to 52 mm.

Cat. No.	h (mm)	l (mm)	b (mm)	Pack Unit
21 317 00 03	70	88	40	10

Stainless Steel Handle

for staining tray



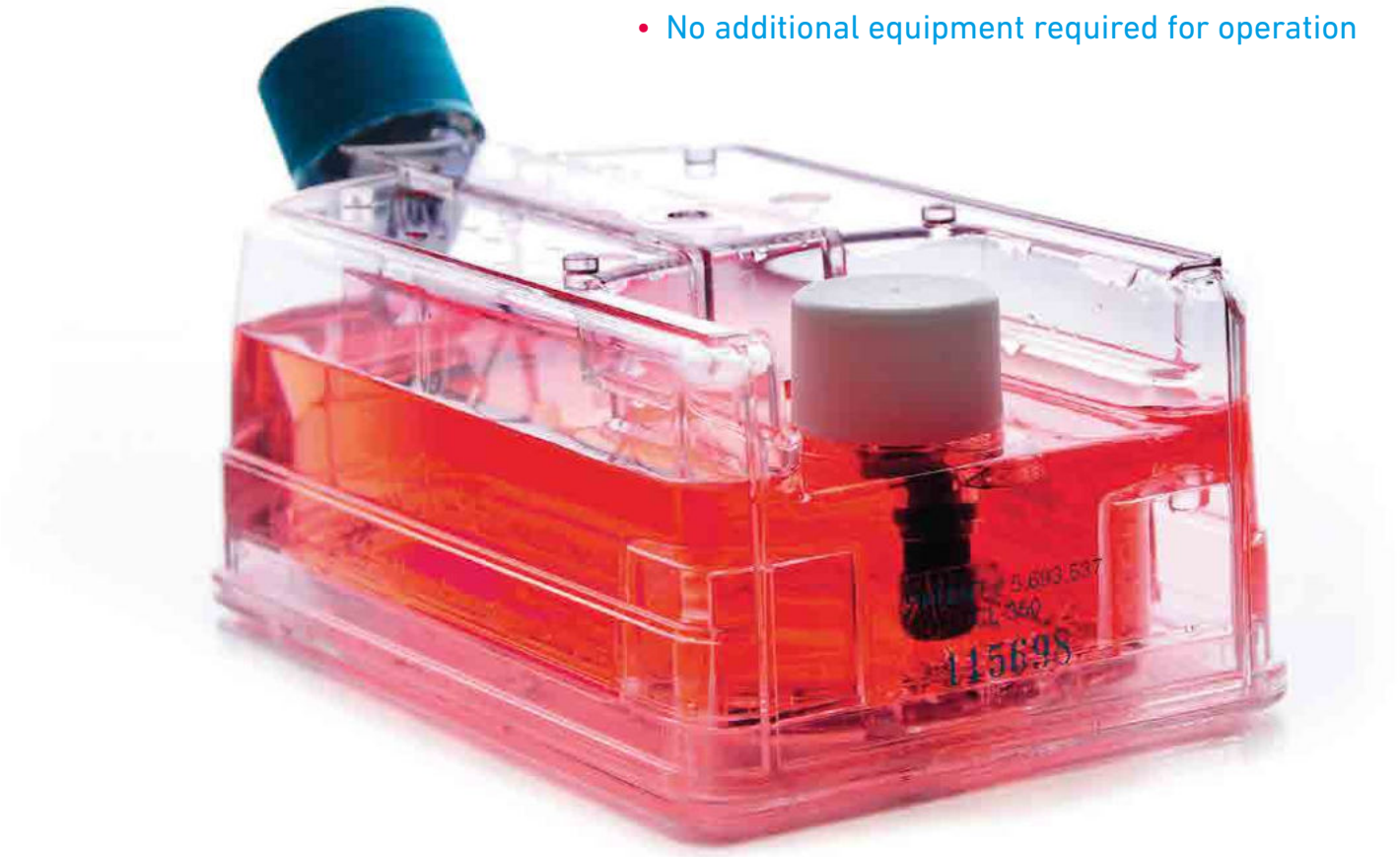
Cat. No.	Pack Unit
29 075 00 02	10

WHEATON® CELLine™

MULTIUSE MEMBRANE CULTURE FLASKS FOR ANTIBODY AND PROTEIN PRODUCTION

CELLine™ BIOREACTOR FLASKS

- Multi-harvest device
- Decreases use of consumables
- High cell density and high product concentration
- No additional equipment required for operation



www.wheaton-celline.com

DURAN
WHEATON
KIMBLE
Excellence in your hands


SCHOTT
DURAN
400 ml
Made in Germany

08

TECHNICAL INFORMATION

WHAT IS GLASS?

Glass is an inorganic mixture fused at high temperature which solidifies on cooling but does not crystallize. Its basic components, network formers and modifiers, are present in the common glasses in the form of oxides.

Typical glass formers (network formers) are silicon dioxide (SiO_2), boron trioxide (B_2O_3), phosphorus pentoxide (P_2O_5) and aluminium oxide (Al_2O_3). These substances are capable of absorbing (dissolving) metal oxides up to a certain proportion without losing their glassy character. This means that the incorporated oxides are not involved in the formation of the glass but modify certain physical properties of the structure of the glass as "network modifiers".

A large number of chemical substances have the property that they solidify from the molten state into a glassy state. The formation of glass depends on its cooling rate and a necessary prerequisite is the existence of mixed types of bond (covalent bonds and ionic bonds) between the atoms or groups of atoms.

As a result, glass-forming products show a strong tendency whilst still in the molten state towards amorphous three-dimensional networking though polymerisation. Crystals are formed when the individual atoms form a regular three-dimensional arrangement in what is known as a "crystal lattice" as soon as the particular substance changes from the liquid to the solid state. Glass, however, forms a largely amorphous "network" when it cools down from the molten state. The components mainly involved in the formation of the glass are therefore described as "network formers". The glass-forming molecules in this network can incorporate ions that open up the network at certain points, changing its structure and thus the properties of the glass. They are therefore called "network modifiers".

WHAT IS DURAN®?

The special features of DURAN®

Very high chemical resistance, nearly inert behaviour, a high usage temperature, minimal thermal expansion and the resultant high resistance to thermal shock are its most significant properties. This optimum physical and chemical performance makes DURAN® the ideal material for use in the laboratory and for the manufacture of chemical apparatus used in large-scale industrial plant. It is also widely used on an industrial scale in all other application areas in which extreme heat resistance, resistance to thermal shock, mechanical strength and exceptional chemical resistance are required.

Chemical composition of DURAN®

DURAN® has the following approximate composition:

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

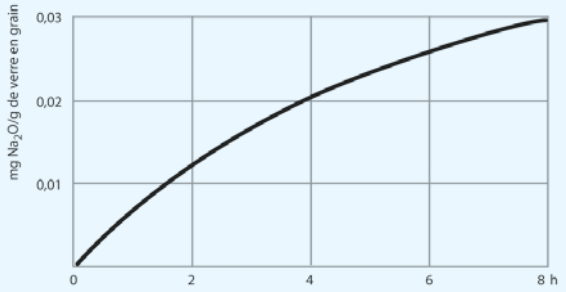
DURAN® properties are specified in DIN ISO 3585.In contrast to other borosilicate 3.3 glasses, DURAN® is notable for its highly consistent, technically reproducible quality.

Chemical properties

The chemical resistance especially of DURAN® glass is more comprehensive than that of all other known materials. DURAN® borosilicate glass is highly resistant to water, acids, saline solutions, organic substances and also halogens such as chlorine and bromine. Its resistance to alkali is also relatively good. Only hydrofluoric acid, boiling phosphoric acid and strong alkalis cause appreciable surface removal of the glass (glass corrosion) at elevated temperatures (> 100 °C). Due to the nearly inert behaviour, there are no interactions (e.g. ion exchange) between medium and glass and any spurious influence on experiments is thereby effectively excluded.

Hydrolytic resistance

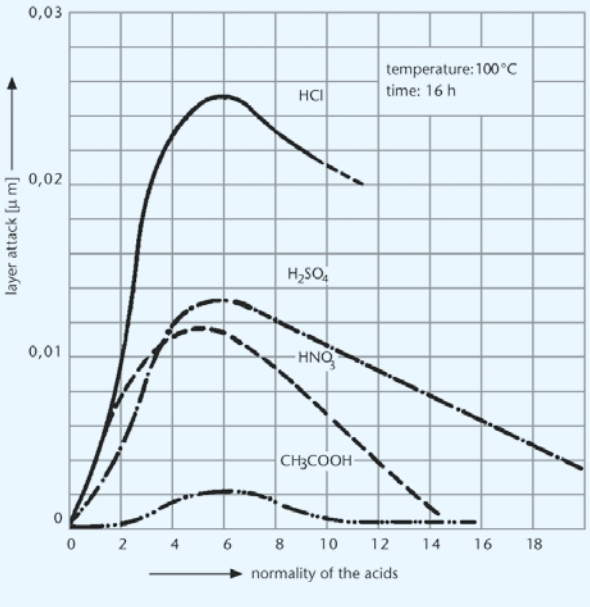
DURAN® corresponds to Class 1 of the glasses that are divided into a total of 5 hydrolytic resistance classes in accordance with ISO 719 (98 °C). The amount of Na_2O/g glass grain leached out after 1 hour in water at 98 °C is measured. For DURAN® the quantity of Na_2O leached out is less than 31 µg/g of glass grain. DURAN® also corresponds to Class 1 of the glasses divided into a total of 3 hydrolytic resistance classes in accordance with ISO 720: (121 °C). The quantity of Na_2O leached out after 1 hour in water at 121 °C is less than 62 µg/g of glass grain. Due to its good hydrolytic resistance, DURAN® meets the requirements of the USP, JP and EP for a neutral glass that corresponds to glass type 1. It can therefore be used in an almost unrestricted way in pharmaceutical applications and in contact with foodstuffs.



Hydrolytic attack on DURAN® as a function of time (h)

Acid resistance

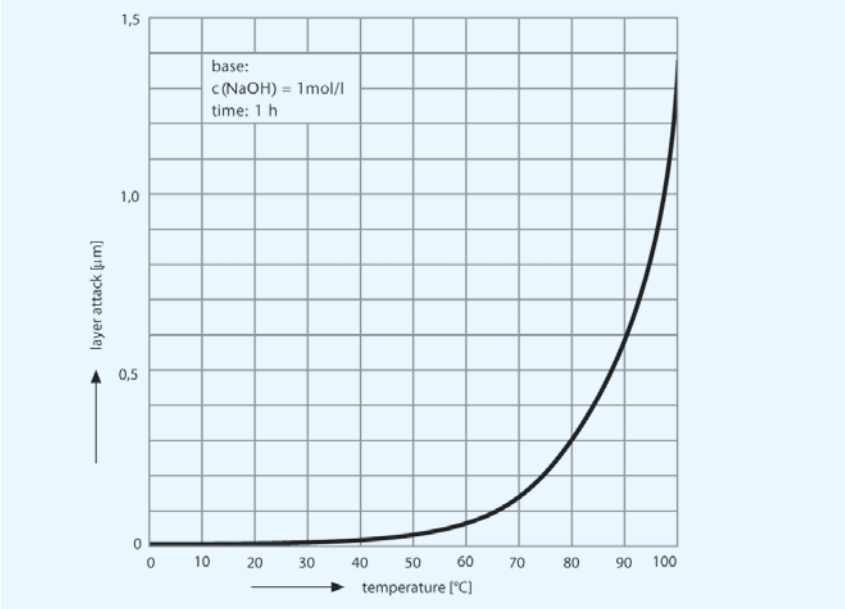
DURAN® corresponds to Class 1 of the glasses divided into 4 acid classes in accordance with DIN 12116. As the surface removal after boiling for 6 hours in normal HCl is less than 0.7 mg/100 cm², DURAN® is classed as acid-resistant borosilicate glass. The quantity of alkaline metal oxides leached out in accordance with ISO 1776 is less than 100 µg Na_2O/100 cm².



Acid attack on DURAN® as a function of acid concentration

Alkali resistance

DURAN® corresponds to Class 2 of the glasses divided into 3 alkali classes in accordance with DIN ISO 695. The surface erosion after 3 hours boiling in a mixture of equal volume fractions of sodium hydroxide solution (concentration 1 mol/l) and sodium carbonate solution (concentration 0.5 mol/l) is only 134 mg/100 cm².



Alkali attack on DURAN®
as a function of temperature (°C)

Overview of the chemical properties of technical glasses

Description	Chemical resistance class		
	Hydrolytic resistance DIN ISO 719	Acid resistance DIN 12 116	Alkali resistance ISO 695
DURAN®	1	1	2
FIOLAX®	1	1	2
Soda-lime glass	3	1	2
SBW	1	1	1

Physical properties

Temperature resistance when heated and thermal shock resistance

The maximum temperature for short-term use for DURAN® is 500 °C. Above a temperature of 525 °C the glass begins to soften and above a temperature of 860 °C it changes to the liquid state. As it has a very low coefficient of linear expansion (α = 3.3 x 10^{-6} K^{-1}), a feature of DURAN® is its high thermal shock resistance up to ΔT = 100 K. For a temperature change of 1 K, the glass changes by only 3.3 x 10^{-6} relative length units, resulting in low levels of mechanical strain were a thermal gradient exists. The thermal shock resistance is influenced wall thickness and product geometry.

Temperature resistance at low temperatures

DURAN® can be cooled down to the maximum possible negative temperature and is therefore suitable for use with liquid nitrogen (approx. – 196 °C). During use / freezing special attention should be given to the expansion of the content. In general DURAN® products are recommended for use down to – 70 °C.

When working at low temperatures, the effect of any expansion of a DURAN® vessel's content must be borne in mind. During cooling and thawing ensure that the temperature difference does not exceed 100 K. In practice, therefore, stepwise cooling and heating are recommended. When freezing substances in such items as DURAN® bottles or DURAN® test tubes, the container should only be filled to a maximum of ¾ of its capacity. Moreover, it should be frozen slanted at an angle of 45 ° (to enlarge the surface area). The minimum service temperature is dependant upon the properties of any screw caps or other components used. For the blue PP screw cap the minimum temperature is – 40 °C.

Use in the microwave

DURAN® laboratory glassware is suitable for use in microwaves. This also applies to plastic coated DURAN® products.

Overview of the physical properties of technical glasses

Description	Linear expansion coefficient α (20 °C / 300 °C) [$10^{-6}K^{-1}$]	Transformation temperature [°C]	Density [g/cm^3]
DURAN®	3.3	525	2.23
FIOLAX®	4.9	565	2.34
Soda-lime glass	9.1	525	2.50
SBW	6.5	555	2.45

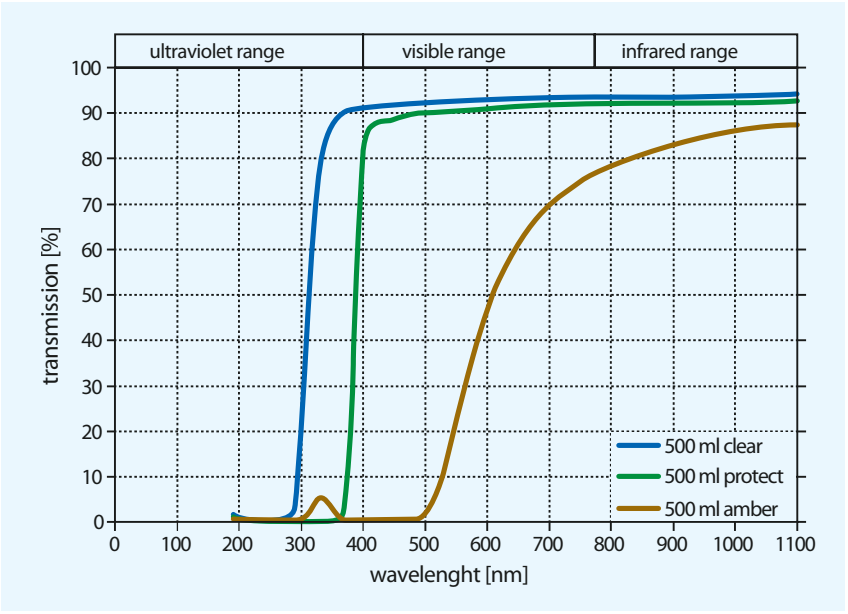
Optical properties

In the spectral range from about 310 to 2 200 nm the absorption of DURAN® is negligibly low. It is clear and colourless. Fairly large layer thicknesses (axial view through pipes) appear slightly yellow/greenish. Amber-coloured DURAN® products are suited to use with light-sensitive substances (see amber colouring of DURAN®). This results in strong absorption in the short-wave region up to approx. 500 nm. In photochemical processes the light transmission of DURAN® in the ultraviolet range is of particular importance. The degree of light transmission in the UV range indicates the ease with which photochemical reactions can be carried out, for example chlorinations and sulfochlorination. The chlorine molecule absorbs light in the range from 280 to 400 nm and thus serves as a transmitter of the radiation energy.

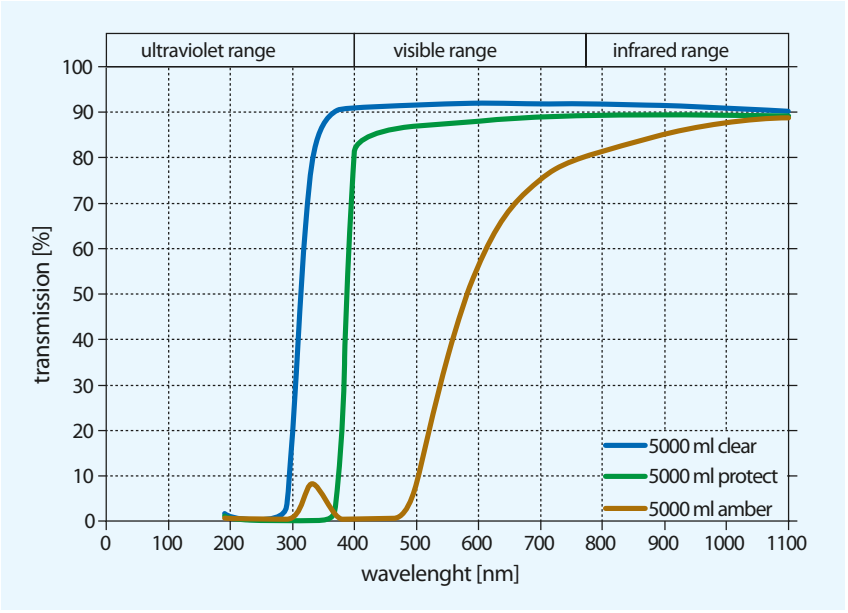
Amber colouring of DURAN® laboratory glassware

Amber colouring enables storage of light sensitive substances in DURAN® products. Light transmission in the wavelength range between 300 and 500 nm is, in comparison with DURAN® clear glass, < 10 %. Accordingly amber DURAN® glass corresponds to USP/EP specifications.

To colour the products, a special diffusion colour is sprayed solely on the outer surface of the clear glass articles with an innovative spraying method. This technology results in high uniform amber coloring. Afterwards, the coating is burned-in and is therefore resistant to chemicals and cleaning in a dishwasher. The proven DURAN® properties on the inner surface remain unaffected; there is no contact or interaction between contents and amber coating. The uniformity of the amber colouring process ensures the quality of the amber colour which is assured by continuous monitoring.



Light transmission curves for DURAN® glass (500 ml bottle)



Light transmission curves for DURAN® glass (5 000 ml bottle)

CONFORMITY WITH STANDARDS AND GUIDELINES

Alongside the international standard DIN ISO 3585, in which the properties of borosilicate glass 3.3 are defined, DURAN® laboratory glassware corresponds to the current standards for glass laboratory apparatus. The relevant DIN/ISO standards are given on the product pages of this catalogue. If the standard is changed, e.g. in case of harmonisation to ISO, our dimensions are adjusted accordingly within an appropriate time interval.

DURAN® is a neutral glass of high hydrolytic resistance and thus belongs to glass type 1 in accordance with the European pharmacopeia, the Japanese pharmacopeia and the United States pharmacopeia.

LABORATORY GLASSWARE AND PLASTICS

Plastics used with laboratory glass

To complement DURAN® laboratory glassware products, various plastic products such as screw caps are available. Their properties are listed in the following table.

Abbreviation		Temperature resistance range °C
EPDM	Ethylene/propylene-diene-rubber	– 45 to + 150
ETFE	Partially crystalline ethylene/tetraflouro-ethylene copolymer	– 100 to + 150
EVA	Ethylene-vinyl acetate	– 80 to + 70
FEP	Tetra-Fluor-Ethylen/Hexafluor-Propylene	– 200 to + 200
FKM	Fluorinated rubber	– 20 to + 200
PBT	Polybutylenterephthalat	– 45 to + 180
PE	Polyethylene	– 40 to + 80
POM	Polyoxymethylene	– 40 to + 90
PP	Polypropylene	– 40 to + 140
PTFE	Polytetrafluorethylene	– 200 to + 260
PU	Polyurethane	– 30 to + 135
PFA	Thermoplastic/duroplastic	– 196 to + 260
TPE	Thermoplastic/duroplastic	to + 140
VMQ	Silicone rubber	– 50 to + 200
PSU Compound	Compound polyarylsulfone based	– 45 to + 180

Chemical resistance of plastics

Classes of substances + 20 °C	PE	PP	PBT	PTFE/ FEP	PFA	ETFE	VMQ	EPDM	PU	FKM	POM	PSU Compound
Alcohols, aliphatic	+	+	+ +	+ +	+ +	+ +	+	+	+ +	–	+	+ +
Aldehydes	+	+	+ +	+ +	+ +	+ +	+		+ +		+	+
Alkaline solutions	+ +	+	+	+ +	+ +	+ +	–	+ +	+ +	–	+	+ +
Esters	+	+	+	+ +	+ +	+ +	–	+ +	+	–	–	+
Ethers	–	–	+	+ +	+ +	+ +	–	–	+	–	+	+
Hydrocarbons, aliphatic	–	+	+	+ +	++	+ +	–	+ +	+ +	+ +	+	+
Hydrocarbons, aromatic	–	+	+	+ +	+ +	+ +	–	+	+ +	+ +	+	–
Hydrocarbons, halogenated	–	+		+ +	+ +	+ +	–	+	–	+ +	+	–
Ketones	+	+	+	+ +	+ +	+	–	+ +	+	–	+	–
Acids, dilute or weak	+	+ +	+ +	+ +	+ +	+ +	–	+ +	+ +	+ +	–	+ +
Acids, conc. or strong	+	+	+	+ +	+ +	+ +	–	+ +	+	+ +	–	+ +
Acids, oxidising	–	+	–	+ +	+ +	+	–	–	+	+	–	+

+ + = very good resistance
+ = good to limited resistance
– = low resistance

CLEANING LABORATORY GLASSWARE

Special glass laboratory apparatus can be washed by hand in a soaking bath or by machine in a lab washer. Laboratory dealers can supply a wide range of detergents and cleaner-disinfectants for both methods. As contamination during the delivery of our laboratory glassware cannot be totally ruled out, we recommend washing laboratory glassware before it is used for the first time. To care properly for laboratory glassware, it should be washed immediately after use at low temperature, on a short cycle and with low alkalinity. Laboratory apparatus that has come into contact with infectious substances or microorganisms should be treated in accordance with the current guidelines. Dependent on the substance, autoclaving (e.g. to kill microorganisms) may be necessary prior to cleaning, but it is generally recommended that cleaning or washing of glass products be carried out prior to autoclaving or hot-air sterilisation. This prevents dirt or impurities from adhering to the glassware surfaces and prevent damage caused by any possibly adhering chemicals.

Manual cleaning

The generally recognized method is to wipe and rub the glass with a cloth or sponge soaked in cleaning solution. Abrasive cleaners and abrasive sponges should not be used on laboratory glassware as these can damage the surface of the glass. Surface damage can affect the glass properties and limit further use of the product. When soaking glassware it should generally be left in the cleaning solution for 20 to 30 minutes at room temperature, then rinsed with tap water followed by distilled water. To clean the glass as gently as possible, and thus extend its service life, a prolonged soaking time and higher temperature should only be used for stubborn soiling. Laboratory glassware should not be soaked for long periods in strongly alkaline media at more than 70 °C since this can have an adverse effect on the ceramic printing and may cause glass corrosion. Also to be avoided is severe mechanical action, e.g. scraping using a metal spoon.

Washer-disinfectors for automatic laboratory glassware reprocessing

Washer-disinfectors for automatic laboratory glassware preparation are available in various sizes and performance classes. The product range extends from compact machines of 60 to 90 cm width up to powerful, large capacity machines. The large capacity machines are specially intended for central reprocessing of large quantities of laboratory glassware and are available as both 1-door and 2-door barrier machines for installation in a diaphragm wall.

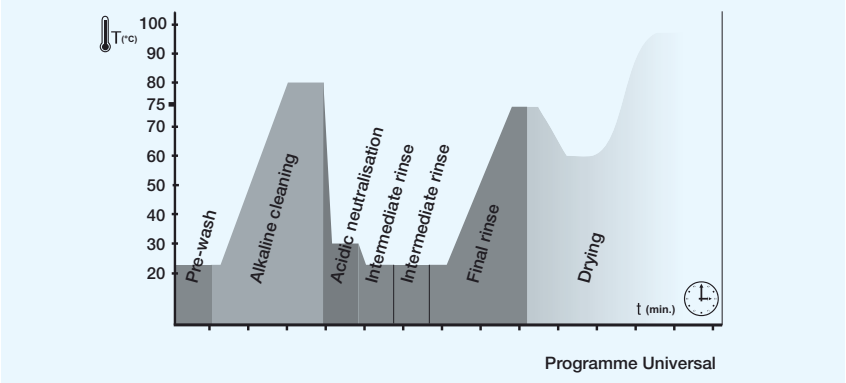
60 cm wide compact machine Performance/load: e.g. 39 narrow neck glasses, 116 pipettes

115 cm wide large capacity machine Performance/load: e.g. 232 narrow neck glasses, 232 pipettes

Before purchasing a washer-disinfector, you must first be clear which laboratory glassware, and how much of it, requires reprocessing on a day-to-day basis within the laboratory. Once the machine size is specified, the appropriate accessories can be individually selected. The accessories include trolleys and inserts for secure support of the laboratory glassware. Inserts are primarily for holding wide-necked laboratory glassware. Special injector trolleys are offered to thoroughly clean laboratory glassware with a narrow internal diameter. These couple directly to the water supply of the machine and thus ensure that even internal cleaning of the laboratory glassware is correctly carried out. This system ensures that even difficult-to-access points are cleaned, which would be very difficult, or even impossible, to clean manually.

Phases of machine-based reprocessing

Machined-based reprocessing comprises cleaning, rinsing, disinfection (if necessary) and drying of the laboratory apparatus. The following figure shows a typical programme cycle for laboratory glassware reprocessing.



Cleaning

Cleaning removes dirt from the surfaces. At this stage, process chemicals (e.g. cleaning agents, surfactants, emulsifiers, neutralizers) are used. Cleaning may comprise several programme blocks, such as pre-rinse, cleaning, neutralisation.

Example
Pre-rinse: cold water without process chemicals
Cleaning: cold or hot water with alkaline cleaning agent
Neutralisation: cold or hot water with acidic neutralisation

Rinsing

During rinsing the dissolved dirt and the process chemicals used are rinsed off. Rinsing can comprise a number of individual programme blocks. The choice of water quality (e.g. tap water, deionised water, ultrapure water) depends on the application (e.g. organic/inorganic analysis, microbiology).

Example
Rinse I: cold water
Rinse II: deionised or ultrapure water
Flushing: deionised or ultrapure water at 75 °C

Disinfection

During disinfection, infectious contamination is killed/inactivated to such a degree that the laboratory glassware no longer represents an infection risk. On the one hand, disinfection serves to protect personnel within laboratories who work with infectious contamination. On the other hand disinfection prevents transfer of germs from samples and preparations in medical laboratories, hygiene institutes, pharmaceutical laboratories and the food and cosmetic industries. Thus hygienic, problem-free working is guaranteed.

Drying

The washer-disinfectors have, dependent on model and construction, an active hot-air dryer which permits not only drying of the external surfaces, but also drying of narrow diameter laboratory glassware. Also laboratory glassware of complex shape is reliably dried using hot-air drying. To effectively protect the laboratory glassware against dust particles and microorganisms, the drying air is passed through a HEPA filter.

Typical programme using a Miele washer-disinfector for reprocessing of laboratory glassware:

Miele washer-disinfectors for laboratory glassware reprocessing have up to 10 standard programmes. Numerous programme parameters can be adjusted to adapt the standard programmes for particular customer applications. Moreover, customer-specific programmes can be created for special applications.

Inorganic	To remove acid-soluble inorganic residues
Organic	To remove heavy organic residues such as oil, grease, wax, agar
Standard	Simple standard programme for slightly soiled glassware with a low final-rinse requirement
Universal	To remove organic residues (e.g. proteins, oils), for medium-level dirt and a medium final-rinse requirement
Intensive	To remove organic residues (e.g. proteins, cell and tissue cultures, oil), for heavy levels of dirt and a high final-rinse requirement
Plastic	For temperature-sensitive laboratory equipment (e.g. plastic bottles) with a low to medium level of dirt and a medium final-rinse requirement
Vario TD	For cleaning and heat disinfection at 93 °C with 5 minutes temperature-holding time, in accordance with EN ISO 15 883-1, disinfection in the last rinse block
Special 93 °C -10	For cleaning and heat disinfection at 93 °C with 10 minutes temperature-holding time, disinfection in the first rinse block, used in the case of an out-break of a notifiable disease.

Analysis purity through conductivity measurement in the final rinse

The requirements for analysis purity depend largely on the application of the laboratory glassware. To ensure analysis purity, washer-disinfectors for laboratory glassware reprocessing can optionally be provided with a conductivity measurement module. An integrated conductivity measurement offers the following advantages:

- Detection of undesirable contents in the rinse water (dissolved salts of alkaline or acidic process chemicals)
- Definition of a customer-specific permissible conductivity level

Process reliability for reproducible results

Automatic preparation is a validatable preparation process that delivers reproducible results. This is one reason why automatic preparation should be favoured over manual processes. To guarantee the reproducibility of the results, the machines have the following safety installations:

- Temperature monitoring using two redundant temperature sensors
- Automatic liquid dosing including dosing volume control
- Spray arm rotation speed monitoring

Process documentation

In applications which require high standardisation and reproducibility, process documentation contributes significantly to quality control. Process documentation can take place via documentation software or a printer.

Economy

Nowadays, laboratory glassware preparation must constantly meet ever higher requirements in respect of performance and economy. Machine-based reprocessing is by comparison with manual cleaning, much more efficient: for example, the economy arises from lower time / personnel expenses, shorter process cycles as well as lower power and water consumption. In particular, the short process cycles mean the laboratory glassware is quickly ready for its next use. Minimal handling of contaminated laboratory glassware simultaneously reduces the potential risk to personnel (injury, chemical burns and risk of infection).

Value retention through gentle preparation

Automatic laboratory glassware preparation is gentler than manual cleaning. The glass surfaces only comes into contact with the alkalinity of the detergent for a short, defined time interval, so that glass corrosion is minimized. The accessories include special holders and locks so that the laboratory glassware is securely fastened and protected against breakage.

DWK Life Sciences recommends Miele

To guarantee thorough, gentle and safe laboratory glassware preparation, DWK Life Sciences recommends Miele washer disinfectors. Miele "Made in Germany" quality is notable for its high reliability and efficiency in day-to-day use in the laboratory. Short operating times and reliable results ensure that high-value laboratory glassware is once again ready for use after only a short period. In addition, the gentle preparation also ensures a long service life for DURAN® laboratory glassware.

DURAN® empfiehlt recommends Miele PROFESSIONAL

More detailed information about laboratory glassware cleaning and reprocessing is provided in the AK Lab guide available from **http://www.DWK-LifeSciences.com**

STERILISATION

When preparing laboratory glass for sterile applications or as part of the cleaning process, sterilisation is a well-established process. DURAN® laboratory glassware is suitable both for autoclaving as well as for hot air and plasma sterilisation (H_2O_2). Laboratory apparatus that has come into contact with infectious substances or microorganisms must be cleaned in accordance with the appropriate guidelines for handling these materials. As the case may be, this may include sterilisation.

When carrying out sterilisation, especially of laboratory glassware, the following instructions should be observed: To avoid overpressure, all vessels should always be kept open. When sterilising media, the use of a membrane cap is recommended. Such a cap permits pressure equalisation through a PTFE membrane and hence the cap can be tightly closed. Consequently, the risk of contamination is greatly reduced.

Alongside the standardised procedures described above, individually modified methods are also applicable to all DURAN® products, for example using higher temperatures. However, you must ensure, especially with bottles (due to the screw caps) that the permissible highest temperatures for the plastic used in the accessories is not exceeded.

WORKING UNDER PRESSURE

Only products whose design includes the appropriate geometry and wall thickness, and which are explicitly designated as such, are suitable for working under pressure and / or vacuum (e.g. filtering flasks, desiccators or flat flange vessels).

When used under positive or negative pressure, and especially when also working with differential temperatures, additional care measures must be taken. Glass apparatus that is under pressure or vacuum should only be subject to further stress (e.g. significant temperature change) with extreme caution, as the individual resulting strains are additive and could readily result in failure.

To guarantee optimum user safety, the following points should be borne in mind:

- To avoid stresses in the glass, evacuated vessels or vessels under pressure should not be heated on one side or heated with an open flame.
- When working under pressure the maximum figures indicated in the catalogue should not be exceeded.
- Before using glass equipment under vacuum or pressure it must always be visually inspected to check that it is in perfect condition (no serious scratches, micro-cracks, abrasions, etc.). Damaged glassware should not be used for work under pressure or vacuum for safety reasons.
- Never subject glassware to sudden pressure changes, e.g. always re-pressurise evacuated glass apparatus slowly.
- Laboratory glassware with a flat bottom (e.g. Erlenmeyer and flat bottom flasks) should not be used under pressure or vacuum.
- The plastic coating of laboratory bottles (DURAN® protect) has no influence on pressure resistance. These products are not designed for use under pressure. For pressure applications using laboratory bottles, the DURAN® pressure plus bottle should be used. The DURAN® pressure plus bottle is pressure resistant from –1 to +1.5 bar due to a modified geometry and increased wall thickness.

SAFETY INSTRUCTIONS

When used according to our specifications, DURAN® glassware is very safe to use. The appropriate guidelines applicable for the use of special glass in laboratories in the country in question should always be complied with. The following points should, however, be observed in every case:

- For safety reasons, before DURAN® laboratory glassware is used it should be checked to ensure that it is suitable for the intended purpose and that it can be used without problem.

- Defective laboratory glassware represents a risk (e. g. risk of cuts, burns, infection) that should not be underestimated. If appropriate repairs to any item cannot be carried out or cannot be justified for economic reasons, it must be disposed of in the proper manner.

- Only subject DURAN® glassware to sudden temperature changes within the recommended limit for thermal shock resistance (ΔT = 100 K). This means that hot laboratory glassware should not be taken out of a drying cabinet and placed on a cold or even wet laboratory bench. This applies in particular to thick-walled glassware such as filtration flasks and desiccators.

- When assembling apparatus make sure that it stands firmly and is not subjected to stress by using appropriate stands.

DISPOSAL

DURAN® laboratory glass should under no circumstances be disposed of in the domestic glass recycling stream (e. g bottle banks), since its high melting point and different chemistry make it incompatible with other glass cullet (soda-lime glass) for recycling. The correct way to dispose of it is, in principle, to include it with general household waste (residual waste) in accordance with the relevant guidelines, provided that the glass is quite free of any harmful contamination (Waste code no: 17 02 04).

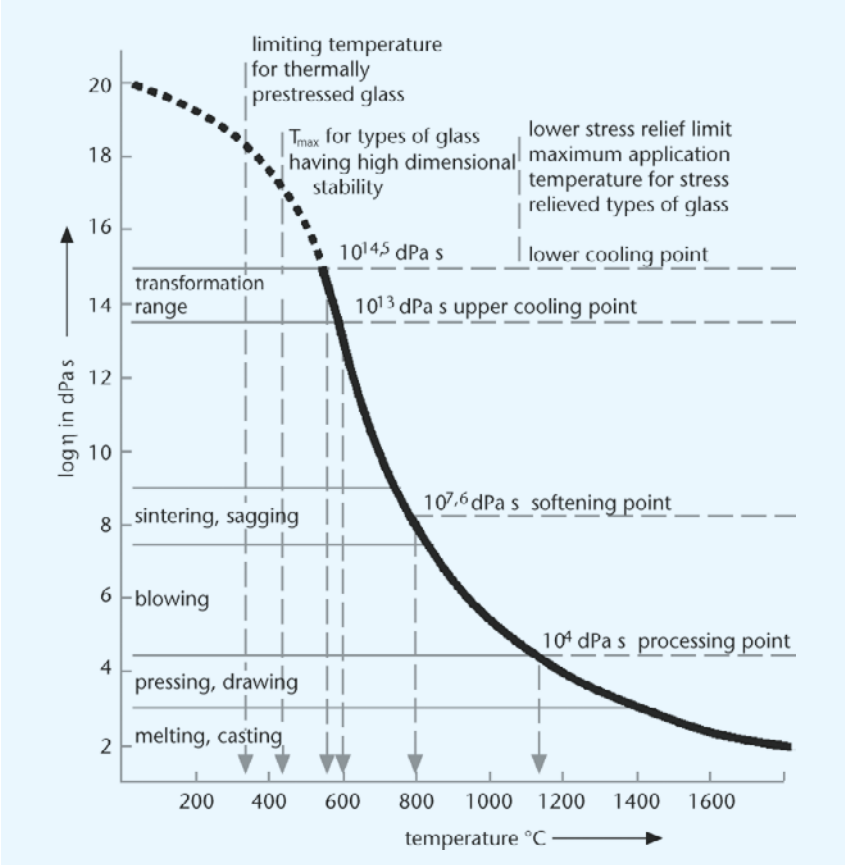
DURAN® LABORATORY GLASS IS ECO-FRIENDLY

DURAN® laboratory glass is made from natural, mineral raw materials. Unlike other materials, laboratory glass, when used properly, will give years of service and this means that it is vastly superior to other materials from an ecological viewpoint too. Depending on its use, DURAN® can be disposed of as household waste and does not need to be dealt with as special waste which may be environmentally harmful. Toxic substances cannot leach out because of the raw materials used.

Production processes in our factories have been consistently optimized over recent years to ensure that they are environmentally friendly during the actual manufacturing stage through the minimum usage of valuable resources. Electrical heating and advanced technology in our melting units ensure that no pollutants are released during manufacture in our ultramodern factories which could harm our workers or people living nearby. In addition energy demand is kept as low as possible. The latest waste gas purification equipment is used to avoid emissions which could pollute the environment. A significant investment has been made in an enclosed cooling water recirculation system to cut the amount of fresh water required to a minimum thus helping to conserve vital water resources. We use packaging made from environmentally harmless, recycled paper which can be returned after use to the resource cycle.

FURTHER PROCESSING

DURAN® items made of borosilicate glass 3.3 are suitable for further processing such as the addition of screw thread tubes, olives, tubulatures, necks and ground glass joints. Preferred for further processing are round, flat bottom and Erlenmeyer flasks. Certain sections of the temperature / viscosity range are of particular importance for glassworking. In the transformation range the elastic-brittle behaviour of the glass changes with increasing temperature into a markedly viscous one, so that consequently all its physical and chemical properties change significantly with temperature. The transformation temperature range thus plays an important part in stress relief during heating up and the introduction of stress when the glass is cooled. The position of the transformation range is identified by the transformation temperature "Tg" DIN 52 324.



Normal temperature dependence/viscosity curve of, for example, DURAN®; viscosity ranges of important processing techniques, position of fixed points of viscosity and various limiting temperatures.

Note

DWK Life Sciences cannot accept any product liability where items are subjected to further processing. In this case the entire responsibility for quality lies with the glassworker. The latter is therefore responsible for ensuring that the further processed item conforms to current directives and safety requirements.

DURAN® WITH INDIVIDUAL LABELLING

Individual and permanent labelling of glass articles is now possible due to innovative laser marking. This system enables flexible labelling depending on the customer's requirements in the form of texts, consecutive serial numbers, barcodes, logos, names or trade name of the laboratory, etc. This information is processed with the aid of the common file format .tif. The contents are clearly identified by the labelling. Mix-ups in the laboratory can be ruled out, which is very important for sensitive areas such as the pharmaceutical industry or biotechnology. Laser marking is an ideal solution for labelling products. It enables the labelling of glass containers in

different variants depending on requirements and complies with DURAN® quality requirements, as there isno restriction of the product properties. New, innovative technology also enables the labelling of small batches.

Laser marking

The laser marking is burnt into the label field and does not interact with the glass due to the wavelength used. Only the screen-printing ink is removed so that the glass surface remains undamaged. The tried-and-tested DURAN® glass properties such as high continuous usage temperature, resistance to temperature change and chemical resistance remain unchanged. The use of the latest laser technology produces good print quality and therefore good legibility. The lasered DURAN® glass articles are still autoclavable/sterilisable and also microwave and dishwasher-safe.

BOTTLES

Laboratory bottles

DURAN® laboratory bottles are chemically resistant and stable. The extensive range of original accessories includes screw caps for the widest possible range of applications. Alongside the standard PP screw cap for everyday laboratory use, further caps made from various plastics and having special properties are available. DURAN® laboratory bottles are completed by suitable pouring rings from different plastics, which enable drip-free working. As almost all GL 45 bottles of 100 ml capacity and above use the same thread size, screw caps and pouring rings are fully interchangeable. The bottles, pouring rings and caps are autoclavable/ sterilisable.

Properties

Light protection

- Amber bottles are opaque up to 500 nm
- Plastic coated bottles are opaque up to 380 nm
- Application: storage of light sensitive substances

High thermal shock resistance

Due to their temperature properties, the bottles are suitable for autoclaving and sterilising (see general section). Because of the bottom geometry and the wall thickness, direct heating with an unshielded flame is not recommended. When using an electronic heating plate or water bath laboratory bottles should be heated gradually.

Recommendations

Pressure resistance

DURAN® laboratory bottles are, with the exception of the pressure-resistant DURAN® pressure plus+ bottles, in general not suitable for use under pressure or in a vacuum. DURAN® pressure plus+ bottles are pressure resistant from – 1 to + 1.5 bar (overpressure) due to a modified geometry and increased wall thickness.

Sterilisation

When sterilising or autoclaving contents, the screw cap must only be loosely fitted (max. one turn). The contents may expand or boil causing a large pressure difference in a closed vessel, which may well result in explosive failure. Alternatively, a DURAN® membrane cap may be used. Pressure equalisation takes place through the PTFE membrane, while at the same time the membrane cap can remain tightly closed, greatly reducing the risk of contamination. See also general section.

Cleaning

Cleaning should be carried out manually in a soaking bath or automatically in a dishwasher (see general section). When cleaning in a dishwasher, load so that there is no glass-to-glass contact (especially the threads) to avoid chips or abrasions.

Freezing substances

Recommendation: The bottle should be frozen slanted at an angle of 45 °, filled to a maximum ¾ (to enlarge the surface area) and dependent on the properties of any screw caps or other components used. For the blue PP screw cap the minimum temperature is –40 °C. Alternatively the Premium screw cap can be used (min. working temperature: – 196 °C). See general part.

Thawing frozen substances

Frozen contents can be thawed by immersing the bottle in a liquid bath while taking care that the temperature difference between the contents and the bath does not exceed ΔT = 100 K. This will ensure that the frozen material is warmed uniformly from every side without damaging the bottle. The contents can, however, also be thawed slowly from above, so that the surface melts first, allowing the material to expand.

Laboratory bottles with plastic coating

The coating of DURAN® Protect bottles is a resistant and transparent plastic coating based on a cross-linked copolymer.

The coating adheres securely to the glass surface and fulfils the following functions:

- Protects the glass surface against mechanical damage (scratch protection)
- Holds the fragments together in the event of the glass breaking (splinter protection)
- Minimises liquid loss if the glass breaks (protects against contents escaping and splash)
- Absorbs UV rays up to a light wavelength of 380 nm (light protection)

Recommendations

- The plastic coating does not increase the pressure resistance. These bottles are not designed for pressure or vacuum applications.
- If the plastic coated bottle breaks during use, the contents and the plastic coating are likely to come into contact. A test for any interaction between plastic and contents should be carried out to ensure that the contents remain unchanged and can be further used.

Temperature resistance

Do not expose DURAN® protect bottles to open flames or direct heat, e.g. on a laboratory hotplate. The maximum operating temperature is + 135 °C and thus the bottle is suitable for use in an autoclave. Long-term exposure to temperature (> 30 minutes) should be avoided. DURAN® protect bottles can be used for freezing to – 30 °C and used in microwaves. Thermal and chemical stresses can result in coating discolouration.

Autoclaving

The following procedure, bearing in mind the maximum temperature resistance, is recommended:

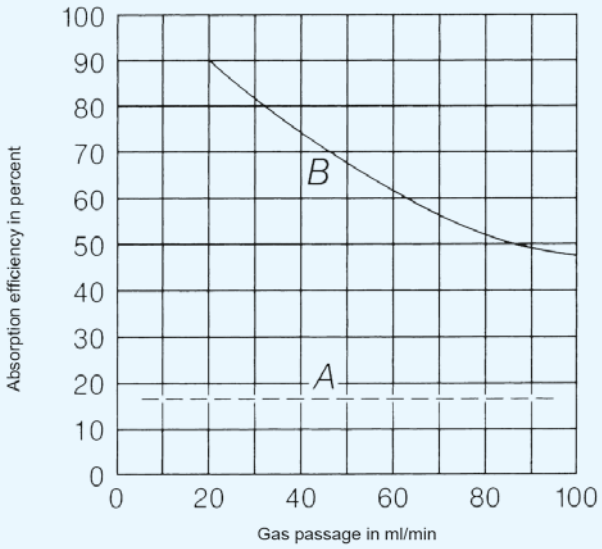
- Steam sterilisation at + 121 °C or + 134 °C
- The cycle duration should not exceed 20 minutes.

(See also general section)

When sterilising, the screw cap should only be loosely applied (max. one turn – do not tighten), or use a membrane cap that allows pressure equalisation.

Gas washing bottles

By distributing the gas through the liquid by use of a filter disk, the gas surface is significantly increased and the interchange between gas and medium is improved. DURAN® gas washing bottles also work reliably at high flow velocities. The graph illustrates the effectiveness of gas washing bottles with and without a gas filter disk.



Absorption efficiency of two gas wash bottles: A without gas filter and B with gas filter plate

Filtering flasks with side-arm socket or plastic hose connection

DURAN® filtering flasks are vacuum tight in accordance with DIN EN ISO 6556. Alongside the filtering flasks with glass hose connections, versions are also available with a side-arm socket or plastic hose connection. The ground side-arm socket with dimensions 17.5/26 is suitable for vacuum hoses from 15 to 18 mm OD (e.g. 6 x 5 mm or 8 x 5 mm, DIN 12 865). The plastic hose connections are suitable for hoses of approx. 9 mm internal diameter. The versions with side-arm socket or plastic hose connection offer improved safety for the user.

DURAN® SUPER DUTY

The new DURAN® SUPER DUTY articles have greater mechanical stability compared to standard DURAN® articles due to increased glass content. The reinforced rim also increases shock resistance and considerably reduces the risk of breakage. They provide maximum possible safety for users when working under mechanical load e.g. frequent cleaning.

Uniform wall-thickness distribution, tried-and-tested DURAN® properties and increased shock resistance extend their service life and make DURAN® SUPER DUTY glass containers more economical.

Recommendations

Uniform and slow heating is recommended for the SUPER DUTY products to avoid thermal stresses in the glass. The standard DURAN® beakers and Erlenmeyer flasks should be used when working at very high temperatures or if rapid temperature changes are expected, as they are characterised by excellent resistance to temperature changes. However, the mechanical stability of these DURAN® products is limited compared to the SUPER DUTY product range.

DESICCATORS

DURAN® desiccators are used for drying moist substances or as storage vessels for moisture-sensitive products. To accelerate the drying process, the desiccators can be used under vacuum. Due to the high wall-thickness of the vessels and the exact machining of the vacuum-tight ground joints on the lid and base, storage under vacuum is possible – even over extremely long periods.

All individual parts and a wide range of accessories such as lids, stopcocks, bases, etc. are compatible and can be interchanged as required. Always ensure the individual parts have the same DN (nominal diameter in millimetres).

For desiccators, the DN is based on the diameter of the sieve plate; this, or the lip it rests upon in the desiccator base, can be measured directly. For lids, measure the outside diameter of the flange and cross-reference with the tables on the product pages.

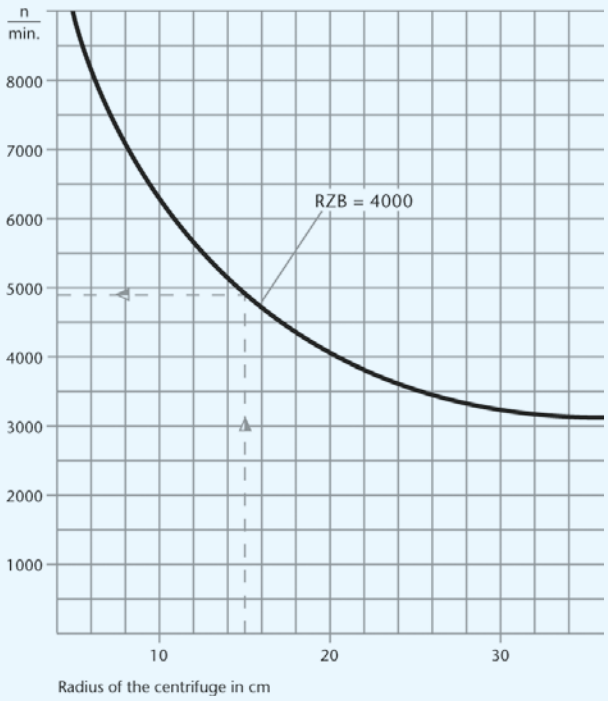
Recommendations

- Designed for use under an absolute vacuum (– 1 bar)
- Due to the high wall thickness and the reduced thermal shock resistance under pressure loading, the desiccators must not be heated on one side only or heated using a naked flame.
- Before evacuation, it is recommended that the glass surfaces of the desiccator be checked for damage such as scratches, cracks or nicks. Damaged desiccators must not be used for safety reasons.
- Never expose desiccators to abrupt pressure changes (do not suddenly ventilate evacuated vessels).

CENTRIFUGE TUBES AND CULTURE TUBES

Centrifuge tubes

DURAN® centrifuge tubes are approved in accordance with DIN 58 970 (Part 2) up to a maximum relative centrifugal force (RCF = 4 000) and for filling up to their capacity with contents having a maximum density of 1.2 g/ml.



Calculation:

$RCF = 1.118 \times 10^{-5} \times r \times n^2$

$$n = \sqrt{\frac{4000}{1.118 \times 10^{-5} \times r}}$$

Example: r = 15 cm
Example in the diagram:
number of revolutions (n) = 4900 min^{-1}

Culture tubes

In addition to DURAN® culture tubes, our product range also includes soda-lime culture tubes. This is a glass belonging to the third water resistance class and is one of the soda-lime glasses with a high fraction of alkaline and alkaline earth oxides.

Properties of soda-lime glass:

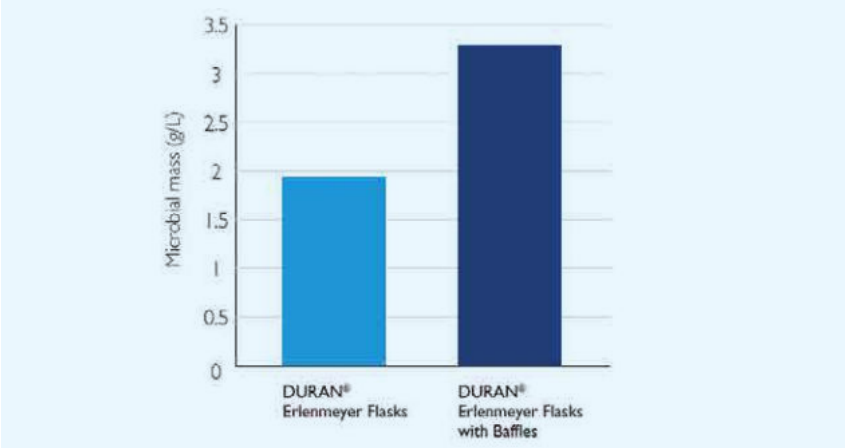
Physical data	
Linear expansion coefficient $\alpha_{20/300}$ to DIN 52 328:	$9.1 \times 10^{-6}\ K^{-1}$
Transformation temperature Tg:	525 °C
Temperature fixed points at viscosity η in dPa x s:	
10^{13} upper annealing temperature	530 °C
$10^{7,6}$ softing temperature	720 °C
10^{4} working temperature	1040 °C
Density ρ:	2.50 g/cm^3

Chemical data		
Hydrolytic class	(ISO 719)	3
Acid class	(DIN 12 116)	1
Alkali class	(ISO 695)	2

Chemical composition (main components in approx. weight %)							
SiO_2	B_2O_3	K_2O	Al_2O_3	Na_2O	BaO	CaO	MgO
69	1	3	4	13	2	5	3

DURAN® baffled flask with GL 45 thread

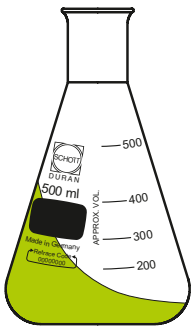
Oxygen intake is often the limiting factor for cell growth in the cultivation of microorganisms in Erlenmeyer flasks on a vibrating board. The movement causes a liquid sickle to form when using DURAN® Erlenmeyer flasks on a vibrator. The size of the sickle depends on the speed of the board and the vibration diameter. The greater the surface area of the contents, the greater the gas-exchange area and therefore the potential oxygen intake. The speed and the associated oxygen intake can, however, only be increased to a limited extent. The new DURAN® baffled flask with four baffles on the bottom disrupts the laminar flow and produces a turbulent flow. The surface area of the liquid and the gas-exchange area are increased, thereby increasing the oxygen intake. Laboratory trials have demonstrated that the oxygen intake is doubled by the baffles compared to a standard DURAN® Erlenmeyer flask.



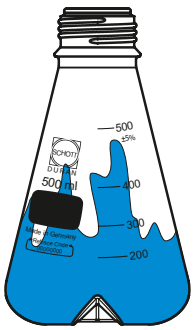
The Erlenmeyer flasks with baffles from the DWK Life Sciences can be geometrically reproduced due to completely automated and mechanical production. The wall thickness of the flasks was increased to achieve an excellent mechanical stability and to guarantee a long service life of the products. The special production process enables the manufacture of the product complete with thread in a two-stage process. The flasks can therefore be sealed with the tried-and-tested membrane screw cap from the DWK Life Sciences. This enables a reproducible gas exchange compared to other sealing mechanisms e.g. sealing with cotton wool.

Liquid movement on a vibrating board:

DURAN® Erlenmeyer flask



DURAN® baffled flask



The movement causes a liquid sickle to form when using DURAN® Erlenmeyer flasks on a vibrator. The DURAN® baffled flask with four baffles on the bottom disrupts the laminar flow and produces a turbulent flow. The surface area of the liquid and the gas-exchange area are increased, thereby increasing the oxygen intake.

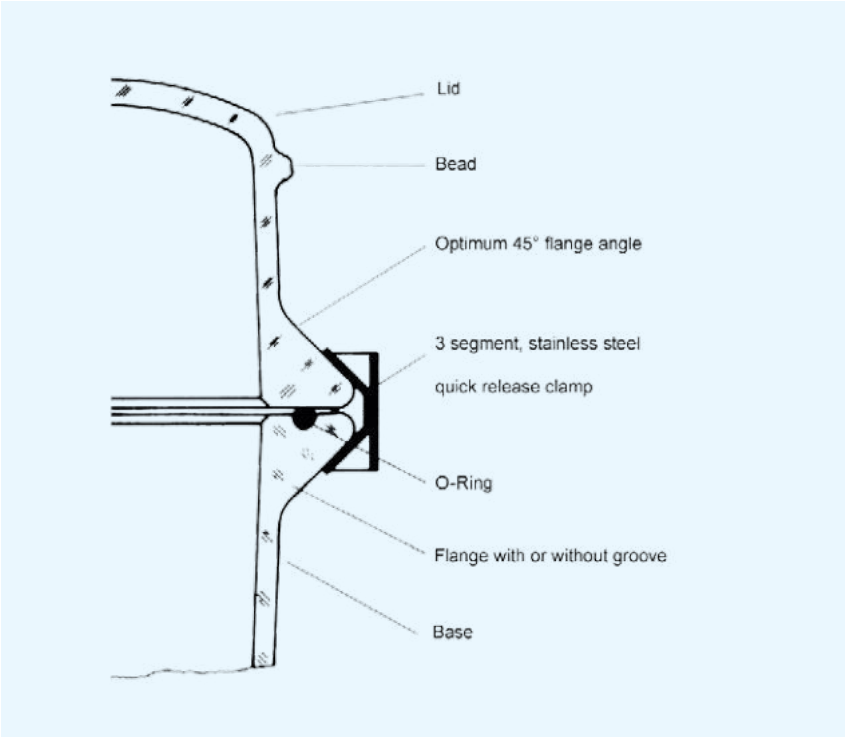
FLAT FLANGE RANGE

The DURAN® flat flange reaction vessels are valued for their universal suitability for use in the laboratories of a wide range of specialisations. Whether for reaction, distillation, evaporation or desiccation, DWK Life Sciences offers a wide range of unfinished and finished parts which always provide the optimum solution for the particular application. Due to the pure glass-glass connections, reactions with highly corrosive or highly chemically reactive substances can be carried out without problem.

The vessels are notable due to a robust glass flange design with an optimum flange angle of 45°. The proven flange design (flat ground) is available with groove, consequently O-rings can be used. The corresponding stainless-steel quick release clamps with three flexible retaining clips ensure easy and safe handling. All individual parts and a wide range of accessories such as lids, O-rings and quick-release clamps etc. are compatible and can be interchanged as required. In so doing however, you must always ensure the same DN (nominal diameter) of the individual parts applies.

Recommendations

- All components are suitable for use under an absolute vacuum (- 1 bar). Many are rated for positive pressure operation (see product descriptions for details)
- Before use, it is recommended that the glass surfaces be checked for damage such as scratches, cracks or nicks.
- Damaged glassware should not be used for safety reasons.
- Due to the high wall thickness and reduced thermal shock resistance under pressure loading, the flat flange vessels should be heated uniformly and gradually.



Beaded lid for safer handling of the reaction vessel

Accessories

Flat flange reactions vessels can be sealed by O-rings (see below) for use at positive and negative pressures up to max. 230 °C (O-ring dependent).

Advantages:

- Easy to open
- The lid does not stick, even after operation for long periods under vacuum and at high temperatures
- Reduced need to grease contact surfaces

The stainless steel quick release clamps with three holding segments are optimally designed to provide even distribution of contact pressure. The chromium nickel steel support comprising two clamping rods is designed for secure fitting of the reaction vessels or the lids in support bar. For example, if there is a need to change the lid or the vessel, this can be done without dismantling the entire apparatus.

Shape retentive O-rings

FEP seamlessly coated elastomer O-rings with silicone core

Comprising an elastic, silicone core with a seamless FEP coating that encloses the ring. The combination of these high-quality materials ensures good elasticity in conjunction with outstanding chemical resistance. The chemical resistance of FEP (tetrafluoroethylene hexafluor-propylene copolymer) is equal to that of PTFE. Hence the material is resistant to almost all chemicals and is suitable for temperature from – 200 °C to + 200 °C.

Silicone (VMQ) O-rings

These O-rings are made solely from silicone (VMQ) and therefore are highly elastic. Their chemical resistance, however, is reduced in comparison with FEP coated O-rings. Temperature resistance extends from – 50 °C to + 230 °C.

	O-rings, red FEP coated	O-rings, transparent made of silicone (VMQ)
Elasticity/recovery	+	+ +
Temperature resistance	+ +	+ +
Chemical resistance	+ +	+
Solvent resistance	+ +	+
Physiologically harmless	+ +	+ +

+ = good resistance
+ + = very good resistance

FILTERS AND FILTRATION APPARATUS

DURAN® filters and the corresponding filter plates are precision manufactured from DURAN® borosilicate glass 3.3 with its high chemical and thermal-shock resistance. They are entirely inorganic and inert in most circumstances. There are therefore no leachable organic or ionic species present that could otherwise contaminate the filtrates. They are ideal for separations, e.g. with strong acids or alkalis and can likewise be readily cleaned and reused. DURAN® filter products have a maximum operating temperature of + 450 °C.

DURAN® filtration vessels are specially optimised to the matching filtration apparatus (eg funnels with guko adapters) and are vacuum-tight due to their special geometry and high wall thickness. Their designs have been approved by the TÜV accreditation body and marked with the "GS" indication were appropriate; see specific products for details.

DURAN® filtering apparatus

The filter apparatus has virtually universal applications with regard to the chemicals to be filtered because the medium only comes into contact with glass and PTFE. The graduated funnel simplifies dosing and analysis. The tried-and-tested DURAN® filtering flask and PTFE hose connection enable safe working in the laboratory. Thanks to the PTFE plate holder, porous glass plates with different porosities can also be used in addition to the split sieve. Filter paper, membrane filters (47 mm) or just glass filters can be used for filtration. The replaceable plates and the PTFE adapter in conjunction with the clamp enable rapid changing of porosities or replacement of filters. Cleaning has been significantly simplified compared to a traditional filter funnel as the filter plate can be cleaned quickly and easily from both sides.

Recommendations

Coarse and fine and also analytical filtration can be carried out thanks to the available porosities of 10 µm – 160 µm. Furthermore, the filtration appliance is also suitable for the filtration of HPLC media, testing for bacterial contamination, residue analysis and the filtration of other media.

Porosity

Porosity measurement is by the Bechhold bubble pressure method, which is widely described in the literature[1]. In the interests of rapid filtration every effort is made to produce filter disks with as many open pores as possible without blockages or closed cavities. This is one of the areas where DURAN® glass filters stand out.

[1] Frank, W.: GIT (1967) Iss.7 pp. 683 – 688

Prerequisite for the successful use of glass filters is selection of the correct porosity. In this respect, the following table lists details of six porosity ranges with indications of their main areas of application. A point to be borne in mind is that the filtration equipment should ideally be selected to ensure that the nominal size of the largest pore is somewhat smaller than the smallest particles to be filtered out. This will prevent infiltration of particles into of the pores.

For quantitative analysis applications, porosity 3 or porosity 4 glass filtration apparatus is used almost exclusively. Different working methods often contain different porosity indications here for the same materials. This is because different processes used in the production of precipitations for gravimetric analysis often result in different grain sizes.

Porosity classes:

ISO 4793			
Porosity		Nominal max. pore size µm	Areas of application
0	P 250	160 – 250	Gas distribution
1	P 160	100 – 160	Dispersion of gas in liquids
2	P 100	40 – 100	Preparative fine filtration
3	P 40	16 – 40	Analytical filtration
4	P 16	10 – 16	Analytical fine filtration
5	P 1,6	1.0 – 1.6	Feinstfiltration

ASTM E128-99			
Porosity		Nominal max. pore size µm	Areas of application
EC	Extra Coarse	170 – 220	Gas distribution
C	Coarse	40 – 60	Dispersion of gas in liquids
M	Medium	10 – 16	Preparative fine filtration
F	Fine	4.0 – 5.5	Analytical filtration
VF	Very Fine	2.0 – 2.5	Analytical fine filtration
UF	Ultra Fine	0.9 – 1.4	Ultrafine filtration

Flow rate

To determine the possible applications of glass filter disks and filtration apparatus, it is necessary to know not only the porosity, but also the flow rates of liquids and gases. These are given in Figures 9 and 10 for water and air. The data applies to 30 mm diameter filter disks.

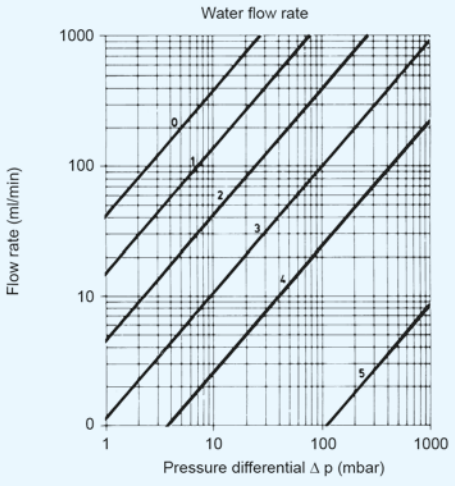
The flow rates for other disk diameters can be calculated by multiplying the value read off by the conversion factor given in Table the following table:

Filter disk diam. mm	Conversion factor
10	0.13
20	0.55
30	1
40	1.5
60	2.5
90	4.3
120	6.8
150	9.7
175	15

Example
Suction filtration of an aqueous solution under vacuum using a suction filter with a 60 mm disk diameter and porosity 4. Figure 9 gives a flow rate of 200 ml/min for a pressure differential of about 900 mbar. Table 8 gives a flow volume of 200 x 2.5 = 500 ml/min for a 60 mm disk diameter. As the flow rate is heavily dependent on the pore diameter (pore radius to the power of 4), deviations from the values indicated may occur. Flow can also be obstructed by the formation of a filter cake over the surface of the filter disk. Further changes to the flow rate occur if liquids are used whose viscosity differs from that of water. The resultant flow rate is then inversely proportional to the viscosity. Differences for gases result when using filter disks that are coated with water or other liquids (gas flow in washing processes). More detailed information can be found in the literature[1].

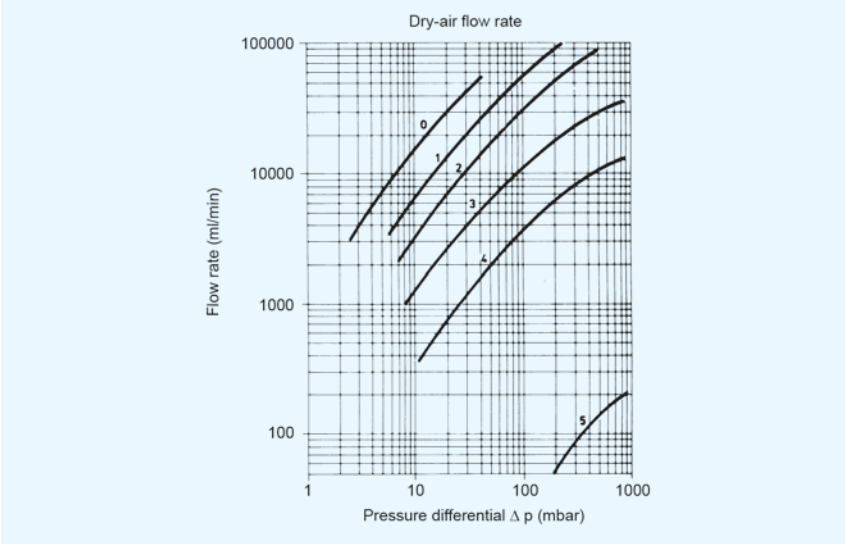
[1] Frank, W.: GIT (1967) Iss. 7 pp. 683 – 688

Water flow rate



Water flow rate through filter discs of various porosities as a function of pressure differential. For filter discs with Ø 30 mm

Dry-air flow rate



Air flow rate through filter discs of various porosities as a function of pressure differential. For filter discs with Ø 30 mm

Care and cleaning of filtration apparatus

In addition to the information in the general section, please also note the following guidelines relating to thermal stresses, which apply specifically to filtration apparatus, in order to avoid glass breakage.

Temperature changes (thermal shock), drying and sterilisation

- The maximum permissible operating temperature is + 450 °C.
- Uniform heating is recommended to avoid thermal stresses and resultant breakages.
- Heat glass filtration apparatus with disk diameters of more than 20 mm in initially cold ovens or sterilisers only.
- The heating or cooling rate should not exceed 8 °C/min.
- When filtering hot substances avoid temperatures differences of more than 100 K; if necessary, preheat the filtration apparatus in a drying cabinet.
- Wet filtration apparatus should be heated slowly up to 80 °C and dried for one hour before increasing the temperature further.

Whenever possible, filtration apparatus should be stood on its rim (stem upwards) to allow air convection between the inside of the vessel and the oven chamber. If placing the filtration apparatus in the oven at an angle cannot be avoided (as in the case of pipeline filters), any support point close to the position of the filter weld must be protected against heating up prematurely by placing heat-insulating material under it.

Cleaning new glass filtration apparatus

Before using glass filtration apparatus for the first time, it should be rinsed with water (if applicable, acid), to remove any minor contamination that may be present.

Mechanical cleaning

In many cases, if no precipitate has infiltrated the pores, simple spraying of the surface (e.g. with a spray bottle) will suffice. Brushes or rubber wipers can also be used to clean the surface of the filter disk. If some precipitate has infiltrated into the pores, then back-flushing of the disk is required.

Recommendations

- Glass filters should always be cleaned immediately after use.
- Do not use sharp objects to remove the filtrate to prevent damage to the filter surface.

Chemical cleaning

If some of the pores on the filter disk still remain clogged after mechanical cleaning or if it is desirable to make sure that no residue from previous work remains before filtering a new substance, then thorough chemical cleaning is necessary. The choice of solvent used depends on the nature of the contamination (see example in the following overview).

Barium sulfate	hot conc. sulfuric acid
Silver chloride	hot ammonia liquor
Red copper oxide	hot hydrochloric acid and potassium chlorate
Mercury residue	hot conc. nitric acid
Mercury sulfide	hot aqua regia
Albumen	hot ammonia liquor or hydrochloric acid
Grease, oil	acetone, isopropanol
Other organic substances	hot conc. sulfuric acid with addition of nitric acid, sodium nitrate or potassium dichromate

When chemical cleaning is completed, it should be followed by thorough rinsing with copious amounts of water. Use of hot concentrated phosphoric acid and hot alkali solutions is not recommended, as these may attack the glass surface.

Screwfilters with interchangeable filter disks

With 3 filter sizes, each having 4 filter disks of varying porosity, 12 different filter rates are available. DURAN® screwfilters have a range of benefits compared with conventional filter apparatus:

- Interchangeable filter disks
- Safe and simple removal of the filtered material
- Disks have longer service life, as no damage is caused by scraping off the filtered material
- Filter disks are easy to clean from both sides
- Slit sieve (Cat. No. 21 340 31 08) can be used in the medium sized screwfilter to support membrane and paper filters
- Space saving
- Cost-effective; filter disks and apparatus can be ordered individually, as required.

Recommendations

The filter disk should be located between 2 FKM gaskets.

VOLUMETRIC PRODUCTS

DURAN® volumetric products have closely calibrated scales that permit very accurate determination and measurement of volumes. They are available in two accuracy classes: class A/AS and class B. The two classes differ in the accuracy of measurement with class A being the highest accuracy, and class B is approximately half that of class A. Class AS has the same tolerances as class A, but is designed to permit more rapid outflow; it is applicable to burettes and pipettes.

Precise differentiation

The volumetric instruments are essentially available in the accuracy classes A, AS and B.

Accuracy class A:

Denotes the accuracy limit in accordance with DIN and ISO and is therefore the most accurate class. A conformity mark is printed on volumetric instruments in class A to indicate they satisfy the requirements of the German weights and measures regulation and the applicable standards.

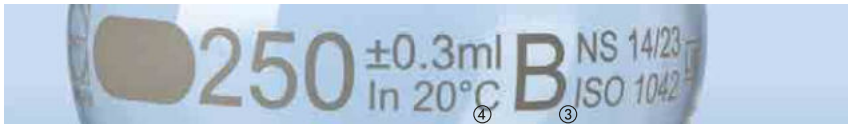
Tolerance indication with a volumetric flask in accuracy class A (①) with a tolerance of ± 0.15 ml (②)

Accuracy class AS:

Denotes pipettes and burettes in accuracy class A with a rapid discharge (S). The waiting time is significantly less than with class A.

Accuracy class B:

Denotes an accuracy limit which is twice as large as class A.



Tolerance indication with a volumetric flask in accuracy class B (③) with a tolerance of ± 0.3 ml (④)

Certificates

Conformity mark DE-M – Volumetric instruments that comply with the requirements of applicable standards (e.g. the German weights and measures regulation) are labelled accordingly with "DE-M". The "DE-M 15" mark is made up of the elements DE (which stands for "Deutschland"), M (which stands for "Metrologie" (metrology), and the year number 15 (2015, the year in which the measuring instrument was labelled).

Batch certificate – Volumetric flasks and measuring and mixing cylinders with a batch number and accuracy class A are supplied with a batch certificate. This certificate documents the mean value obtained from measuring the batch in question, the standard deviation and the day of issue. The batch certificates can also be retrieved online. The batch number consists of four digits, e.g.: 1501. The first two numbers specify the production year, and the following two numbers specify the batch.

Individual certificate – Volumetric flasks which, in addition to the batch number, are numbered individually, are supplied with an individual certificate. The individual number is permanently laser-etched onto the base of the volumetric flask and is entered on the corresponding certificate. The volume measured for the corresponding volumetric flask, the measurement uncertainty and the day of issue are documented on this certificate. It is also possible to retrieve a batch certificate online. The individual number is a consecutive number and comprises three letters and a four digit number, for example: AAA-0001.

USP individual certificate – The volumetric flasks are labelled with an individual number. This is permanently laser-etched onto the base of the volumetric flask and is entered on the corresponding certificate. The accuracy limits for USP <31> compliant volumetric flasks are stricter than flasks conforming to ISO 1042 and therefore satisfy the requirements of the United States Pharmacopoeia (USP). The volume measured for the corresponding volumetric flask, the measurement uncertainty and the day of issue are documented on this certificate.

Volumetric flasks

DURAN® volumetric flasks are manufactured from the chemically highly resistant borosilicate glass 3.3. Used for the accurate measurement of specific quantities of liquid they are, like virtually all volumetric glassware, volumetric analysis aids. They are mainly used for preparation and storage of standard solutions. Calibration is based on the amount of fluid contained ("In") at a +20 °C reference temperature, which means that when the circular graduation mark is reached, exactly the specified liquid amount is contained in the vessel. Thus the desired concentration can be precisely set. The volume content tolerances for volumetric flasks conform to accuracy class A, the accuracy limits of the German weights and measures regulation and to DIN and ISO guidelines.

Measuring and mixing cylinders

DURAN® measuring and mixing cylinders are manufactured from borosilicate glass 3.3 and therefore are very resistant to mechanical and thermal stresses. Measuring cylinders are for holding and simultaneously measuring different liquid amounts. Mixing cylinders are for diluting solutions and mixing several components in a given quantity ratio. Their large hexagonal base prevents the cylinder from rolling. The base is equipped with three knobs that increase its stability. The cylinders have uniform wall thickness over the entire measurement range, so wedge errors are avoided. Calibration is based on contained fluid ("In") at a +20 °C reference temperature, which means that when the circular graduation mark is reached, exactly the specified liquid amount is contained in the vessel. Thus the desired concentration can be precisely set. Volume content tolerances for measuring and mixing cylinders conform to DIN and ISO accuracy limits.

Burettes

DURAN® burettes are manufactured from chemically highly resistant borosilicate glass 3.3. They are primarily used for titration. The precise scale permits exact reading of the liquid quantity required for the titration. Calibration is based on the released volume ("Ex") at a +20 °C reference temperature. The fluid quantity released can be taken exactly from the scale, as the liquid adhesion to the glass is taken into account in the calibration. This only applies, however, if the specified waiting times for reading the scale are adhered to. Volume content tolerances for burettes conform to DIN and ISO accuracy limits. The DURAN® Class B burettes' accuracy limits are roughly one and a half times the Class AS accuracy limit. The tolerances are thus stricter than specified by DIN.

The tried-and-tested DURAN® burettes are also available with PTFE keys. Work in the laboratory is simplified by the fact that unlike glass keys, these do not have to be lubricated.

By the specification of a class "AS", the German weights and measures regulations have, within the scope of the 15th Amendment Regulations, acknowledged that the great majority of volumetric measurements, especially in clinical laboratories, are carried out with water or dilute aqueous solutions; thus apparatus with considerably shorter draining times than previously required but with the same accuracy limits is now admitted by the calibration regulations.

Capacity ml	Accuracy limits class AS suitable for official calibration DIN 12 700 ± ml	Accuracy limits class B	
		DIN 12 700 ± ml	DURAN® ± ml
1	0.01	–	–
2	0.01	–	–
5	0.01	–	–
10	0.02	0.05	0.03
25	0.03	0.05	0.04
50	0.05	0.1	0.08
100[1]	0.08	0.2	0.15

[1] Non-DIN size.

Pipettes

Measurement and bulb pipettes are made from soda-lime glass. Pipettes are for precise measurement and filling of liquids. Measurement pipettes are graduated to permit the taking up of varying liquid quantities and then dispensing of the same or different amounts. Bulb pipettes are designed to repeatedly take up and discharge a fixed volume for each pipette size. Calibration is based on the released volume ("Ex") at a +20 °C reference temperature. The fluid quantity released can be taken exactly from the scale, as the liquid adhesion to the glass is taken into account in the calibration. This only applies, however, if the specified waiting times for reading the scale are adhered to. Volume content tolerances for calibrated pipettes conform to DIN and ISO accuracy limits. DURAN® Class B pipettes' accuracy limits are roughly one and a half times the Class AS accuracy limit. The tolerances are thus stricter than specified by DIN.

By the specification of a class "AS", the German weights and measures regulations have, within the scope of the 15th Amendment Regulations, acknowledged that the great majority of volumetric measurements, especially in clinical laboratories, are carried out with water or dilute aqueous solutions; thus apparatus with considerably shorter draining times than previously required but with the same accuracy limits is now admitted by the calibration regulations.

Capacity ml	Accuracy limits class AS suitable for official calibration ISO 385 ± ml	Accuracy limits class B	
		ISO 385 ± ml	DURAN® ± ml
0.1[1]	–	–	0.01
0.2[1]	–	–	0.01
0.5	–	0.01	0.008
1	0.007	0.01	0.008
2	0.010	0.02	0.015
5	0.030	0.05	0.040
10	0.050	0.10	0.080
25	0.100	0.20	0.150

[1] Non-ISO size.

Recommendations

- To ensure a long service life for your volumetric glassware and to exclude possible volume changes, these products should not be heated above +250 °C in drying cabinets or sterilisers.
- Never heat volumetric glassware on a hot plate.
- Always heat up and cool down volumetric glassware gradually, to avoid thermal stresses and thus any possible breakage of the glass.

GLASS-CERAMIC LABORATORY PROTECTION PLATES

Due to low thermal expansion stresses, these glass ceramic plates are well suited to heating glassware with a Bunsen burner.

Energy and time savings

The high transparency to infrared radiation means heat energy is transferred to the material being heated with low losses that shortens heating time and results in energy savings of 20 % or more. In addition, several vessels can be placed on the plate's square, stable surface.

Chemically resistant

When working in the laboratory it is impossible in practice to avoid aggressive media boiling over or spilling. The glass-ceramic laboratory protection plate is resistant even against highly corrosive media.

Trouble-free cleaning

The pore-free smooth surface of the glass-ceramic laboratory protection plate can be cleaned easily either manually or mechanically.

High temperature resistance

Service temperature from – 200 °C to + 700 °C. The glass-ceramic laboratory protection plate is may be used continuously at high temperatures. Durability at 700 °C: 6 000 h; at 750 °C: 750 h. Even when a hot plate is quenched with cold water, there is no risk of breakage, since it is resistant to thermal shock even with a ΔT >650 K. To avoid overheating, care must be taken not to exceed the above-mentioned limits when working with a Bunsen burner. The glass-ceramic laboratory protection plate retains its shape, remains flat and does not age.

Note: Further information about DURAN® laboratory glassware is available upon request.

DURAN® PURE

DEVELOPED FOR PHARMA

25 ml - 20 l

- Protective cap to prevent contamination
- Documentation according to pharmaceutical requirements
- Change control management

www.duran-pure.com

DURAN
WHEATON
KIMBLE
Excellence in your hands

INDEX BY CATALOGUE NUMBERS

Cat. No.	Page
10	
10088	17, 59
10175	26
10648	131
10886	25
10899	22
10909	136
10911	136
10922	15
10926	14
10943	16
11	
11126	35
11127	35, 39
11139	35
11270	18
11296	25
11297	28
11298	17, 27 – 28
11377	28
11378	17
11527	27
11529	40 – 41
11558	26
11562	28
11601	19, 36 – 39, 41 – 42
11602	19, 38
11658	40
11673	37, 40
11706	42
11713	30
11735	15
11759	16
11783	35
11784	35 – 36
11840	175
12	
12001	35
12002	35
12003	29, 43
21	
21106	69
21107	67
21116	70
21117	70
21118	67
21125	71
21126	71
21131	70
21141	71
21150	105
21159	105
21164	45
21165	45
21168	45
21183	147
21184	44
21185	44
21188	44
21191	149
21193	148
21194	150
21201	148
21204	149
21216	72
21217	68
21226	72
21227	68, 73
21263	43
21273	50
21274	50
21275	50
21283	175
21286	38
21301	78
21311	78
21313	78
21317	188
21321	79
21331	160
21340	145, 153
21341	152
21351	159
21352	161
21353	160
21354	159
21363	82
21390	94
21394	69
21395	95
21396	95
21398	82
21399	82
21401	83
21421	182
21431	183
21441	183
21451	184
21461	185
21465	185
21481	183
21491	182
21501	179
21511	180
21521	180
21541	181
21551	181
21570	127
21571	181
21580	81
21601	176
21611	177
21618	94
21622	49
21624	47
21625	48
21627	47
21653	75
21654	75
21678	92
21711	75
21721	74
21731	75
21741	74
21750	176
21752	176
21753	176
21754	176
21755	175
21771	184
21772	185
21773	184
21774	180
21801	11 – 12, 156
21803	73
21805	14
21806	13, 15
21810	15
21815	16
21816	16
21820	17
21860	35
21865	37
21866	36 – 37
21881	20
21886	20
21891	32
21990	72
21991	39
23	
23164	46
23165	46
23167	47
23168	47
23170	85
23172	179
23175	178
23184	46
23185	46
23187	46
23188	46
23270	51
23314	187
23315	187
23316	187
23318	188
23319	186
23321	79
23339	99
23346	96
23347	97
23348	96
23349	97

Cat. No.	Page
23400	77
23550	186
23671	176
23755	175
23810	55
23816	55
23820	56
23821	76
23826	57
23835	55
24	
24114	136
24120	119
24122	129
24124	130
24125	130
24130	134
24131	135
24147	54
24148	54
24170	117
24171	118
24183	119
24185	120
24188	119
24192	73
24193	118
24195	117
24202	145
24204	80
24205	81
24207	80
24208	80
24209	81
24210	79
24211	79
24240	120
24251	128
24252	128
24253	128
24254	129
24255	129
24256	38
24262	135
24263	177
24291	131
24294	131
24300	136
24310	135
24316	153
24317	105, 145
24318	104
24320	103
24321	104
24326	102
24328	103
24329	101
24330	101
24336	102
24337	100
24338	100
24343	98
24344	99
24345	98
24362	147
24390	121
24391	122
24392	123 – 125
24394	122
24395	122
24396	124
24397	122
24398	126
24399	122
24410	168
24420	169
24430	168
24440	169
24450	126
24460	83
24465	83
24500	132
24505	132
24506	132
24523	132
24528	132
24540	133
24541	133
24565	133
24566	133
24573	134
24583	134
24618	93
24622	49
24624	48
24625	49
24627	48
24654	76
24670	93
24671	90
24676	92
24677	91
24678	91
24679	90
24701	52
24702	53
24703	53
24704	54
24708	52
24709	120
24710	121
24713	156
24720	153
24721	154
24722	145
24730	146
24731	146
24750	133
24770	167
24771	167
24772	168
24773	167
24781	166
24782	165
24783	165
24785	165
24786	166
24796	170
24797	171
24798	171
24799	171
24835	139
24836	139
24837	139
24838	139
24839	139
24840	140
24841	140
24842	140
24844	140
25	
25202	154
25205	145, 154
25209	154
25701	156
25702	156
25703	157
25704	156
25710	145
25752	156
25754	156
25851	152
25852	151
25853	159
25854	161
25855	155
25856	156
25857	157 – 158
26	
26110	84
26130	84
26131	84
26132	177
26135	178
29	
29010	182
29012	184
29013	184
29030	137
29031	137
29032	138
29033	137
29071	127

INDEX BY CATALOGUE NUMBERS

Cat. No.	Page
29073	127
29075	188
29076	145
29077	76
29078	77
29079	77
29080	170
29118	23, 40
29119	34
29120	40
29200	51
29201	153
29202	150 – 151
29204	49
29205	93
29206	25
29213	32
29215	169
29220	141, 154
29221	155
29222	126
29223	26
29225	126
29226	138
29227	24, 145, 156
29228	156
29229	20, 32
29234	139
29235	139
29236	139
29237	139
29238	139
29239	22
29240	23, 140
29241	20
29242	22
29243	22, 33
29244	23
29246	24
29247	141
29248	23 – 25
29250	147
29251	56
29255	140, 145, 156
29258	150
29260	29
29261	26, 29
29262	29
29270	33
29277	156
29301	56
29302	56
29303	57
29310	27, 42
29338	22
29400	145
29401	22, 34
29402	77
29403	77
29725	170
29901	18 – 19
29911	18
29917	85
29990	179
29991	30
29992	30
34	
34399	122

A

Acid bottle 50
Adapter* 136
  Adaptor *TILT* 34
  Filter crucible 153
  PTFE 145
  Receiver 135
  Vacuum Receiver 134 – 135
Allihn condenser 128
Analytical funnel 160
Aspirator bottle 52 – 54
Assembly set, for filtering flask KECK™ 150
Automatic burette 104 – 105

B

Baffled Bottle, GLS 80® 38
Baffled Flask 175
Beaker
  Berzelius 71
  Flat Flange 122
  Heavy-wall (filtering beaker) 70
  High form 70
  Low form 69
  Philips 71
  SUPER DUTY 67
Bearing, KPG® stirrer 132 – 133
Berzelius beaker 71
Blind flange (for reaction vessel)*
Bloom test vessel 71
Bottles
  Acid 50
  Aspirator 52 – 54
  Baffled GLS 80® 38
  Culture 182
  Culture media 183 – 184
  Double walled, GLS 80® 38
  Dropping 51
  Filtering 147 – 150
  GL 25, GL 32, GL 45 11 – 20, 29, 43, 53, 55 – 59
  GL 56 (*TILT*) 32
  GLS 80® 35 – 39, 54, 62
  with High Temperature Screw Cap 12
  HPLC 17
  Premium 18, 59
  pressure plus+ GL 45 15 – 16, 59
  pressure plus+ Protect 16
  Protect GL 25, GL 32, GL 45 14 – 15, 58
  Protect GLS 80® 37
  Reagent 44 – 47
  Reservoir 105
  Rolled flange 185
  Roller 185
  Screw Cap 55 – 57
  Soda-lime 46 – 47, 51, 55 – 57
  Stainless steel 18 – 19
  Square 17, 55 – 57, 59, 183
  TILT 32
  Woulff 120 – 121
  YOUTILITY 20
Bottle Tags
  TILT 33
  YOUTILITY 22
Bottle top filter unit *TILT* 33
Bromobutyl Rubber Stopper 25
Buechner funnel 152
Bulb condenser, Allihn 128
Bulb pipette 100, 110
Bunsen funnel 160
Burette
  Automatic 104 – 105, 113
  with Glass stopcock 102 – 104, 112 – 113
  Micro 103 – 104, 113
  with PTFE stopcock 101 – 102, 104 – 105, 112 – 113
Burette bottle 105

C

Calcium chloride cylinder 127
Caps
  Glass 183
  Kapsenberg 182
  Metal 184
Cap Labels, *TILT* 34
Centrifuge tube 176 – 177
Cleaning Scraper 77
Clips 136 – 138
Coil distillation condenser 128
Column, Vigreux 120
Condenser
  Allihn 128
  Bulb 128
  Coil distillation 128
  Dimroth 129
  Jacketed coil 129
  Liebig 128
  West 128
Cone*
Conical flask 73
Connection piece 136
Connection system
  GL 25 29
  GL 45 26, 28
  GLS 80® 40 – 42
Coplin type staining jar 186
Cover slips 186
Crystallizing dish 78
Culture bottle 182
Culture flask
  Erlenmeyer shape 184
  Fernbach type 179 – 180
  Kolle type 180
  Penicilin type 181
  Roux type 181
Culture media bottle 183 – 184
Culture tube
  DURAN® screw cap 178
  DURAN® straight rim 177
  Soda-lime 178 – 179
Cylinder
  Calcium chloride 127
  with knob lid 81
  Measuring 69, 94 – 95, 109
  Mixing 93 – 94, 108
  Multi-purpose 82
  Standing 82

D

Desiccator
  Base 167 – 168
  Complete 165 – 166
  Lid 168 – 169
  O-ring 169
  Plate 170
  Stopcock 171
  Vacuum 165 – 166
Dimroth condenser 129
Dish
  Crystallizing 78
  Evaporating 78
  Petri 175 – 176
  Watch glass 79
Disposable culture tube
  Soda-lime screw cap 178
  Soda-lime straight rim 179
Double walled bottle, GLS 80® 38
Dropping Bottle, Amber 51
Dropping funnel 129 – 130
Drying tube, bent 135
DUROPLAN® Petri dish 175

E

Engler flask
  with beaded rim 75
  with standard ground joint 19/26 76
Erlenmeyer flask
  with DIN thread 73
  Narrow neck 72
  with standard ground joint 118
  Straight rim 182
  SUPER DUTY 68
  Wide neck 72
Evaporating dish 78
Evaporating flask 119

F

Filter
  Immersion 155
  Pipeline 155
Filter apparatus universal 145
Filter apparatus, Witt type 146
Filter candle, micro 157 – 158
Filter crucible 152
Filter crucible / funnel adapter 153
Filter disk with glass rim* 154
Filter funnel 151, 158, 161
Filter head
  with PP-Funnel 153
  Threaded 154
Filtering flask 147 – 150
Filter tube, Allihn type 159
Fiolax® test tube 84

*This article you will find in the DURAN® laboratory glassware for manipulators catalogue.

FKM seals 154
Flask
Baffled 175
Culture 179–181, 184
Engler 75–76
Erlenmeyer 68, 72–73, 118, 182
Evaporating 119
Flat bottom 75, 118
Iodine determination 73
Pear shape 117
Penicillin 181
Round bottom 74, 117, 119–120, 122
Triple-Neck Round Bottom 119–120
Twin-Neck Round Bottom 119
Volumetric 90–93, 106–107
Flat bottom flask
Ground joint neck 118
Narrow neck 75
Wide neck 75
Flat flange
Beaker 122
Bell 83
Lid 123–126
O-Ring 126
Quick release clamp 127
Reaction vessel 121
Round bottomed flask 122
Full pipette 99
Funnel
Analytical 160
Buechner 152
Bunsen 160
Dropping 129–130
Filter 161
for filter funnel head 155
Long stem 160
Powder 159
Ribbed 161
Separating 131
Short stem 159

G
Gas distribution tube 156
Gas washing bottle
Drechsel type 156
Drechsel with filter disk 156–157
GL 25, GL 32, GL 45, see bottles
GL 56 *TILT* 32
Glass box 188
Glass cap 183
Glass ceramic laboratory protection plate 76
Glass stopper
ground conical 49
with short ground joint 48–49
with standard ground joint 47–48
GLS 80®
Aspirator Bottle 54
Baffled bottle 38
Caps 39–42, 63
Double walled 38
Laboratory Bottle 35–39, 54, 62
Laboratory Bottle, Protect 37, 62
O-ring gasket 41
Production Bottle 38–39
Production Bottle, Protect 39
GUKO for filtering flask 151
GUKO set 150

H
Hexagonal base 93–95
High Temperature Screw Cap 23, 40
Holding device for reaction vessel 127
Hose connection, plastic 140–141
HPLC bottle 17

I
Immersion filter 155, 157
Iodine flask 73

J
Jacketed coil condenser 129
Jar
with lid 80
with shoulder and lid 80

K
KECK™
Clip 136
Tubing clamps*
KECK™ Assembly set 150
KECK™ Clip Assortment
conical joints* 137
spherical joints* 138
KPG® stirrer bearing* 132–133
KPG® stirrer shaft* 133–134

L
Labels
TILT 34
YOUTILITY 22
Laboratory bottle, see bottles
Laboratory Protection Plate 76
Lid
for desiccator 168–169
for flat flange vessel 123–126
Liebig Condenser, West Condenser 128
Light Shield, *TILT* 33

M
Measuring cylinder 94–95, 109
SUPER DUTY 69, 109
Measuring pipette 96–99, 110–111
Membrane screw cap
GL 25, GL 32, GL 45 23, 60
GLS 80® 40, 63
Metal cap 184
Micro burette 103–104, 113
Micro filter candle 157–158
Micro filter funnel 158
Micro immersion filter 157
Microscope slides 186
Mixing cylinder 93–94, 108
Multiport connection system
GL 25 29
GL 45 26, 28
GLS 80® 40–42
Multi-purpose Cylinder 82
Museum jar 82

N
NMR tubes 85

O
Organ storage jar 80
O-ring
for desiccator 169
for flat flange vessel 126
GLS 80® 41

P
Pear shape flask 117
Penicillin flask 181
Petri dish
DUROLPLAN® 175
Sectioned 176
STERIPLAN® 175
Philips beaker 71
Pipeline filter 155
Pipette
Bulb 99–100, 110
Measuring 96–99, 110–111
Plastic hose connection 140–141
Plastic stopper 49
Plate holder 77
Polyethylene stopper 93, 107
Pouring ring
GL 32, GL 45 20, 22–23, 25, 56, 60–61
GLS 80® 39–40, 63
Powder funnel 159
Premium bottle 18, 59
Premium screw cap 25, 61
pressure plus+ bottle 15–16, 59
pressure plus+ bottle Protect 16
Production bottle
GL 45 19
GLS 80® 38
Production bottle Protect, GLS 80® 39
Protect bottle
GL 25, GL 32, GL 45 14–15, 58
GLS 80® 37, 62
PTFE adapter 145
Pump, water jet 147

Q
Quick release clamp 127

*This article you will find in the DURAN® laboratory glassware for manipulators catalogue.

R
Reagent bottle
DURAN® 44 – 45
Soda-lime 46 – 47
Receiver adapter, bent 134 – 135
Replacement seal
for plastic hose connections 141
RODAVISS®*
Rolled flange bottle 185
Roller bottle 185
Round bottom flask
Flat Flange 122
with ground joint 117
Narrow neck 74
Triple-neck 119 – 120
Twin-neck 119
Wide neck 74
Rubber adaptor 153
Rubber Conical Gaskets 150 – 151
Rubber teat 51

S
Safety stopcock 170
Screw cap
with aperture 24
Culture tubes 179
GL 25, GL 32,
GL 45 22 – 28, 30, 56 – 57, 60 – 61
GL 56 (*TILT*) 32, 61
GLS 80® 39 – 42, 63
High Temperature 23, 40
Membrane 23, 40, 60
PBT 23 – 24, 29 – 30, 61, 140
pH electrode 30
PP 20, 22, 26, 32, 39, 56 – 57, 60 – 61
Premium 25, 61
Tamper-evident 26, 56 – 57, 60
Temperature probe 30
Thermocouple 30
with two hose connections 27
Vented 56
YOUTILITY 20, 61
Screw Cap Bottle from Soda-lime 55 – 57
Screw Thread Coupling 138
Seals
FKM seal 154
GUKO 151
GUKO set 150
for plastic hose connection 141
Silicone Septum, PTFE coated 23
Silicone Septum seal, for piercing 24
Sedimentation cone 83
Separating funnel 131
Shipping Bottle, Stainless Steel 19
Silicone Bottle Holder 32
Silicone Sealing
with bonded PTFE face 139
for piercing 24
for plastic hose connections 141
PTFE coated 23
Soda-lime
Culture tubes 178 – 179
Dropping Bottle, Amber 51
Glass Box 188
Microscope Slides 186
Pipette 96 – 100, 110 – 111
Reagant bottle, Narrow neck 46 – 47
Reagant bottle, Wide neck 46
Screw Cap Bottle Round, Amber 55
Screw Cap Bottle Square, Amber 55 – 57
Spirit Lamp 77
Spot Plate 176
Staining dish 187
Spare caps for NMR Tubes 85
Specimen jar 81
Spirit lamp 77
Spot plate, Feigl 176
Square bottle
Breed-Demeter 183
DURAN® 17, 59
Soda-lime 55-57
Square quadrupod 76
Staining dish
Hellendahl type 187
Hellendahl type straight 187
Schiefferdecker type 187
Staining jar, Coplin type 186
Staining tray 188
Stainless steel handle 188
Stainless steel lab bottle 18
Stainless steel UN shipping bottle 19
Standing cylinder 82
STERIPLAN® Petri dish 175
Stirred Reactor
GL 45 29
GLS 80® 43
Stirrer Bearing, KPG® 132 – 133
Stirrer Shaft, KPG® 133 – 134
Stopcock
for Aspirator bottle 54
joint for aspirator bottle 54
with PTFE-spindle for desiccator 171
Single way*
with standard ground 54
Three way*
Two way*
Stopper
Bromobutyl Rubber 25
for desiccator type WERTEX 170
Glass 47 – 49
Hexagonal*
Plastic 49, 107
Polyethylene 93, 107
Safety Stopcock 170
SUPER DUTY
Beaker 67
Erlenmeyer flask 68
Measuring cylinder 69, 109

T
Tamper-evident screw cap
Laboratory bottle 26, 60
Soda-lime Square Bottle 56 – 57
Test tube
DURAN® 84
Fiolax® 84
TILT
Adaptor 34
Bottle Tag 33
Bottle Top filter 33
Cap Labels 34
Light Shield 33
Media Bottle 32
Screw cap 32, 61
Triple-neck round bottomed flask
Inclined side necks 119
Parallel side necks 120
Tube
Centrifuge 176 – 177
Culture 177 – 179
NMR 85
Screw Thread* 139
Screw Thread
with standard ground cone 140
Twin-neck round bottomed flask 119

V
Vacuum Desiccator 165 – 166
Vacuum Receiver adapter, bent 134 – 135
Valves
GU*
PRODURAN®*
Vented Screw Cap 56
Vigreux column 120
Volumetric Flask 90 – 93, 106 – 107
Volumetric Pipette 96 – 99, 110 – 111

W
Watch glass dish 79
Water jet pump 147
Weighing bottle 79
West Condenser 128
Witt, filtration apparatus 146
Woulff bottle 120 – 121

Y
YOUTILITY
Bottle 20
Bottle Tag 22
Labels 22
Screw cap 20, 61

*This article you will find in the DURAN® laboratory glassware for manipulators catalogue.

GENERAL NOTE

The DURAN® laboratory glassware catalogue provides a basic information source for ordering our products. It does not represent a proposal for concluding a concrete agreement and will only serve as the basis for a contract upon explicit inclusion in a contractual relationship. We reserve the right to make changes to technical specifications, article numbers, packaging and design (e.g. due to changes of directives such as DIN standards). The contents of the catalogue have been created with the greatest possible care. However, we can accept no liability for the correctness, completeness and actuality of the contents. The presented replicated images provide an illustration of the article, details may however differ from the actual article.

REGISTERED TRADEMARKS

DURAN®, DUROPLAN®, GLS 80®, KPG®, PRODURAN®, STERIPLAN® and KECK™ are registered trademarks.
FIOLAX®, D263®M and AR® glass are registered trademarks of SCHOTT AG.
RODAVISS® is a trademark owned by Societe De Soufflage Artisanal Du Verre.

TERMS AND CONDITIONS FOR DELIVERY AND PAYMENT

The following general terms and conditions for delivery and payment shall be applicable in respect of any and all deliveries and services by the DWK Life Sciences GmbH ("us") to customers provided that the customer receives these deliveries or services as part of its commercial or entrepreneurial activity (the "Customer"). Any conflicting general purchasing terms and conditions of the Customer are hereby expressly rejected. Any such general purchasing terms and conditions shall apply only if we expressly confirm them in writing.

1. Prices/Terms and Conditions of Payment

1.1 Unless otherwise agreed, the applicable prices are calculated in EURO (EUR), plus an additional amount for VAT as applicable from time to time. Unless special terms are agreed, the prices should be understood to be prices ex works, with no deduction or discount being granted for immediate payment.

1.2 If payment deadlines or dates specified in our order confirmation or otherwise agreed are not met, this will automatically give rise to all of the statutory consequences of default, without any special reminder being required. In particular, we reserve the right to charge interest at the applicable rate charged by our bank for utilised credit if such interest exceeds the interest rate prescribed by statute (9 percentage points above the base lending rate). Furthermore, the entire balance shall become due and payable immediately, irrespective of any payment targets.

2. Delivery Dates and delivery amounts

2.1 We will endeavour to adhere to stipulated delivery deadlines. However, due to the hazards and peculiar features of glass processing, delivery deadlines will not be binding unless expressly agreed otherwise. Our delivery times are subject to our suppliers delivering the correct products to us on time. We undertake to inform the Customer of any unavailability of any of our products without undue delay and will reimburse the Customer any amounts paid in respect of the unavailable products.

2.2 In the case of any custom-made products, we reserve the right to deviate to a reasonable extent from the agreed quantity. The Customer must take delivery of surplus quantities. A variation of ±10 % in relation to the ordered quantity shall be deemed as the agreed tolerance.

3. Place of Performance and Passing of Risk

3.1 The place of performance for the delivery is the principal place of business of our respective supplying factory. The place of performance for payment is our principal place of business.

3.2 When goods are transported, the risk (of accidental loss, destruction or deterioration) (the "Risk") shall pass to the Customer as soon as we have delivered the goods to the carrier chosen by us.

4. Packaging

Unless otherwise agreed, we will accept the return of packaging only to the extent that we are obliged to do so under the German Packaging Regulation (Verpackungsverordnung) or other mandatorily applicable legal regulations.

5. Payment

5.1 Unless agreed otherwise, our claim for payment of the purchase price becomes due immediately following receipt of the relevant invoice.

5.2 We reserve the right to assign any claim we may have against the Customer in whole or in part to a third party.

5.3 Any right for set-off or any right of retention may only be asserted by the Customer in respect of undisputed or finally determined and legally binding claims.

5.4 The Customer shall, irrespective of any other claims for reimbursement of costs we might have, be obliged to assume any fees, costs and expenses that accrue due to a legally successful enforcement of rights against the Customer outside of the Federal Republic of Germany provided these fees, costs and expenses were required for the enforcement action.

6. Warranties in Respect of Defects and Notification of Defects

6.1 If, despite the greatest of care being taken, the goods give rise to complaints, then, in accordance with § 377 of the German Commercial Code (Handelsgesetzbuch, or "HGB"), obvious defects must be notified without delay, and in any case no later than 14 calendar days after receipt of the goods, and hidden defects must be notified without delay after their discovery, otherwise the goods shall be deemed accepted.

We shall not be liable for damage to deliveries through the breakage of glass during transit ("Break-ages") where the cause of the damage arises after the transfer of risk. In such cases any claim for Break-ages must be made against the carrier or under the policy of transit insurance. We shall not pay compensation for Breakages where the value of the relevant item is EUR 20.00 or less unless the Breakage is due to intentional conduct or gross negligence on the part of ourselves or our servants or agents. We warrant that the goods delivered by us are free of defects at time of risk transfer. The contractually required quality of our delivered goods is based, unless otherwise agreed, on the specifications, drawings or other product descriptions applicable in each case to the ordered articles, which we will provide to the Customer upon its request, possible at any time.

6.2 Claims on the basis of defects as to quality shall become time-barred 12 months after

delivery of our goods to our Customer. The foregoing provisions shall not apply to the extent that longer limitation periods are mandatorily prescribed by statute pursuant to § 438(1) No. 2 of the German Civil Code (Bürgerliches Gesetzbuch, or "BGB" –Physical Structures and Physical Objects used for Physical Structures), § 479 (1) BGB (Recourse Claim), and § 634a (1) BGB (Construction Defects).

6.3 Delivered goods which are returned to us because the wrong goods were delivered or due to a defect ("Returned Goods") shall only be accepted if we are notified of the Returned Goods before their dispatch and the following conditions are satisfied:

a) Upon notification of any Returned Goods, the Customer shall be issued a processing number relating to the Returned Goods; such processing number must be entered on the documentation for the returned items;

b) Any Returned Goods must be reported to our freight centre by delivering appropriate carriage documents with a reference to the processing number relating to the Returned Goods attached.

6.4 If, despite all care being taken, the delivered goods contain a defect that already existed at the time that the Risk passed, then we will, in our sole discretion and subject to receiving notification of the defect within the required time period, repair the goods or deliver substitute goods. We must always be given the opportunity to render supplementary performance (Nacherfüllung) within a reasonable time period.

6.5 If the supplementary performance fails to rectify the defect, the Customer may – notwithstanding any claims for compensatory damages – rescind the agreement or reduce the amount of the purchase price.

6.6 The following shall not give rise to any claims based on defects: merely immaterial deviations from the agreed condition of the goods, merely immaterial impairments to their utility, natural wear and tear, or loss or damage that arises after the Risk has passed as a result of incorrect or careless treatment, overuse, unsuitable operating resources, defective building work, unsuitable building foundations or special external influences that are not included or catered for in the contract. In addition, if the Customer or a third party improperly (in a non-workmanlike manner) carries out maintenance work on or makes modifications to the goods, then no further claims based on defects may be made in respect of such works or modifications or the consequences resulting therefrom.

6.7 Claims on the part of the Customer for expenses necessary to enable supplementary performance, particularly transport, tolls and other road and transport charges, labour costs and the cost of materials, are excluded to the extent that such expenses are increased because the goods delivered by us were subsequently taken to a location other than the Customer's business premises, unless such displacement is consistent with the authorised use of the goods.

6.8 Any recourse claims on the part of the Customer against us shall exist only to the extent that the Customer has not entered into any agreements with its customers going beyond the mandatory statutory claims regarding defects. Clause 6.6 shall apply accordingly in respect of any such recourse claim by the Customer against us.

7. Industrial Property Rights and Copyright; Title Defects

7.1 Unless otherwise agreed, we have an obligation (although such obligation exists only in the country in which the place of delivery is located) to deliver the goods free from the industrial property rights and intellectual property rights of third parties (hereinafter referred to as "Proprietary Rights"). In the event that a third party makes legitimate claims against the Customer for infringement of Proprietary Rights based on the goods delivered by the supplier and used in accordance with the contract, we shall be liable to the Customer within the period specified in clause 6.1 above as follows:

a) In our sole discretion and at our own expense, we will either secure a licence for the goods concerned, modify them so that the Proprietary Right is not infringed, or exchange them. If we are unable to do any of the above on reasonable terms, then the Customer shall be entitled to the statutory rights of rescission and reduction of the purchase price.

b) The provisions of clause 8 shall apply to any claims for compensatory damages or claims for the reimbursement of expenses.

c) Our obligations as described above shall exist only on the condition that the Customer notifies us in writing without delay of the claims asserted by the third party, the Customer does not admit to the infringement and leaves in our hands any defence of the claims and settlement negotiations. If the Customer discontinues using the delivered goods in order to mitigate loss or for any other good reason, then the Customer shall notify the third party of the fact that discontinuing use of the goods in no way constitutes an admission of an infringement of Proprietary Rights.

7.2 Claims on the part of the Customer are excluded if the Customer is responsible for the infringement of the Proprietary Rights.

7.3 Claims on the part of the Customer shall be further excluded if the infringement of the Proprietary Rights is a result of special instructions issued by the Customer, an application or use of the goods that was not foreseeable by us, or as a result of the Customer modifying the goods or using them together with goods not delivered by us.

7.4 In the event of an infringement of a Proprietary Right and regarding claims by the Customer arising according to clause 7.1 a), the provisions set forth under clauses 6.3 and 6.7 shall otherwise apply accordingly to the Customer's claims.

7.5 If other title defects exist, then the provisions of clause 6 shall apply mutatis mutandis.

8. Claims for Compensatory Damages; Limitation of Liability

8.1 In the event of a breach of a pre-contractual, contractual and/or other obligation, including unsatisfactory delivery, tortious conduct and manufacturer's liability, we shall be liable for compensatory damages and the reimbursement of costs – subject to further contractual or statutory liability requirements – only in the case of wilful conduct or gross negligence and in the event of a breach of a material contractual duty only (i.e. being a contractual duty, the infringement of which jeopardises the ultimate purpose of the contract and whose fulfillment the Customer can under regular circumstances expect) also due to ordinary negligence. However, our liability for simple and gross negligence as well as in the event of liability that arises regardless of negligence or fault, shall be limited to typical contractual loss or damage that was foreseeable at the time the contract was entered into.

8.2 The exclusions and limitations of liability set forth under clause 8.1 shall not apply in the event that a guarantee is given within the meaning of § 443 BGB with respect to the condition of the goods at the time the Risk passes to the Customer or the durability of the goods (i.e. a declaration by the seller that the object of the purchase as of the time the Risk passes possesses a certain quality or will maintain a certain quality and that the seller is willing to assume responsibility for any consequences arising from the fact that such quality does not exist regardless of negligence or fault),or a defect is fraudulently concealed, in the event of injury to life, physical injury or injury to health, or mandatory liability under the German Product Liability Act (Produkthaftungsgesetz). In the event of fraudulently concealing a defect or in respect of any guarantee pursuant to § 443 BGB, the Customer´s rights shall solely be determined according to the statutory law or the content of the guarantee.

8.3 Irrespective of the Customer´s claims regarding compensatory damages and the reimbursement of costs set out in clause 8.1, any further claims or other claims than the rights set out in clauses 6 and 7 regarding any defect or title defects by us or against any of our agents shall be excluded.

9. Non-binding Nature of Drawings, Diagrams, Measurements and Weights

Drawings, diagrams, measurements and weights are approximate only, unless they are expressly stipulated to be binding. The Customer must guarantee that working drawings (construction diagrams) supplied by it do not infringe the Proprietary Rights of third parties. The Customer must hold us harmless in the event that rights of recourse are asserted by third parties.

10. Documents

Documents supplied by us may not be copied or made available to third parties, or used for any purpose other than the agreed purpose.

11. Reservation of Title

11.1 We shall retain title to the goods until all of our claims, including claims arising in the future, are fully paid. The Customer may process and sell the goods in accordance with the following conditions: If the goods are further processed or remodelled by the Customer, then we shall be deemed the manufacturer within the meaning of § 950 BGB and shall acquire direct title to the intermediate or final products. As a precaution, the Customer hereby assigns and transfers the ownership of any new goods created by further processing or remodeling any goods delivered by us to us subject in each case only to the execution of the relevant purchase contract. In respect of such goods assigned and transferred to us, the Customer shall be merely the custodian or bailee of such goods. If the goods subject to the reservation of title ("Reserved Goods") are mixed or processed with other property not belonging to us, then we shall acquire a co-ownership interest in the new item proportionate to the value of the Reserved Goods to the other property.

11.2 The goods may be sold only in the normal and ordinary course of business and only if claims deriving from their resale are not assigned to third parties beforehand. The Customer's claims deriving from a resale of the Reserved Goods are hereby assigned to us subject only to the execution of the purchase agreement between us and the Customer, this assignment shall also include any right arising from the fact and to the extent that these goods are mixed or combined with other property. In such a case, the assigned claims shall serve as our security only up to the value of the Reserved Goods sold in each case. We will not collect on the assigned claims for as long as the Customer complies with its payment obligations. However, the Customer has an obligation to disclose to us the identity of the third party debtor at our request and to notify such debtor of the assignment. The Customer may collect on the claims resulting from sale of the Reserved Goods unless and until it receives instructions from us to the contrary. The Customer must immediately transfer any amounts collected by it to us if, to the extent that and as soon as our claims are due.

11.3 Pledges or the granting of security interests or any assignment of the Reserved Goods or the assigned claims are not permitted. The Customer must inform us immediately of any action by third parties affecting the Reserved Goods or the assigned claims. We agree to release the assigned claims in our sole discretion if they exceed the value of our claims to be secured by more than 20% and are derived from fully paid deliveries.

11.4 In the event of a breach of duty by the Customer, particularly in the case of default on payment, we are entitled to rescind the agreement in whole or in part and recover the Reserved Goods. The Customer has an obligation to deliver up the Reserved Goods. The declaration of recovery or the enforcement of the reservation of title or any seizure of the goods by us constitute a declaration of rescission from the agreement with respect to the Reserved Goods.

11.5 If, in the case of non-domestic sales, the reservation of title agreed under clause 11 is not permitted with the same effect as under German law, then we shall retain title to the goods until payment of all of our claims arising out of the contractual relationship formed through the sale of the goods. If the foregoing reservation of title is not permitted with the same effect as under German law either, but it is permissible to reserve other rights in respect of the goods, then we are authorised to exercise all of these rights. The Customer shall cooperate in all actions we may wish to take in order to protect our ownership interest or alternative right in the goods.

12. Return of Goods

Any acceptance of a return of goods and any repayment of the purchase price relating to such goods shall be in our sole discretion and under the proviso that we are not legally obliged to do so. The following rules shall apply to any goods that are returned to us unless the goods are Returned Goods within the meaning of clause 6.3:

a) Any goods that are returned must have been purchased within 4 weeks in the case of deliveries within the Federal Republic of Germany or within 8 weeks in the case of deliveries to customers situated in Europe or within 12 weeks in the case of deliveries to customers situated outside of Europe. The time limits commence running on the date that the goods have been delivered at the Customer and expire on the date of receipt of the returned goods.

b) The provisions of clause 6.3 shall apply accordingly to the acceptance, notification and labeling of goods that are returned to us.

c) Only unopened and undamaged goods without additional stickers or labeling attached to them shall be accepted. We must be able to resell the goods.

d) Any return of goods shall be at the Customer's sole cost and risk.

e) We shall also charge a handling fee equivalent to 20% of the value of the item returned subject to a minimum charge of EUR 20.00 per return. Such sums shall be deducted from an amount that is being reimbursed to the Customer.

f) Custom-made products may not be returned.

13. Applicable Law and Judicial Forum

13.1 With the exception of conflict of law rules under private international law and the provisions of the UN Convention on Contracts for the International Sale of Goods ("UN-CISG"), the substantive law of the Federal Republic of Germany shall apply to all legal relationships with the Customer.

13.2 Sole place of jurisdiction for both parties regarding all legal disputes arising out of the relevant purchase contracts or in connection with the supply relationship, including bill of exchange matters, is our head offices. If we appear as the plaintiff, we are also entitled to bring an action before the court responsible for the Customer's head office.

14. Moulds and tools

Moulds and tools produced on behalf of the Customer, whether by us or sourced from third parties shall remain in our ownership and possession. At the start of the contract, the Customer shall pay the agreed mould and tool contribution which grants the right to exclusively be supplied from these moulds. At the end of the contract, or any other discontinuation of the project, no assignment or transfer of the moulds and tools will take place; they will remain our property of, and in our possession. In these cases, however, the Customer shall be entitled to demand that we scrap the moulds and tools at our own expense and provide evidence of the scrapping to the Customer. An obligation by us to store project-related moulds and tools shall end automatically at the end of the contract or project. If there is no written agreement to the contrary, a project shall be deemed to have ended after the expiry of a two-year period after our confirmation of the Customer's last order.

We shall ensure proper storage, handling and maintenance of the moulds and tools within the usual scope, during the term of the project. If the moulds or tools are destroyed or damaged due to improper storage, handling or maintenance by us then they shall be repaired or newly acquired at our expense. The same applies to loss, destruction or damage as a result of force

majeure. In the case that moulds and tools are used beyond their limit of wear and tear, the Customer shall bear the costs of the new moulds and tools to be acquired by us, up to the amount of the originally agreed cost contribution for the worn part. Should the limit of wear and tear be reached prior to reaching an output quantity individually guaranteed, or if the Customer proves that the wear and tear is due to a fault of the mould or tool, or an operating error by us, then we will bear the full cost of replacement. The above provisions shall apply accordingly to the moulds and tools acquired as replacement.

DWK Life Sciences
October 2017

NOTES

NOTES

- A 121 °C — autoclavable at 121 °C
- Retrace Code — product with batch identifier
- Made in Germany — Made in Germany
- USP Standard — glass type corresponds to USP, EP and JP guidelines (JP does not apply to amber colour)
- DE-M — product with conformity sign
- Tmax. 80 °C — maximum usage temperature 80 °C
- Tmax. 90 °C — maximum usage temperature 90 °C
- Tmax. 140 °C — maximum usage temperature 140 °C
- Tmax. 150 °C — maximum usage temperature 150 °C
- Tmax. 160 °C — maximum usage temperature 160 °C
- Tmax. 180 °C — maximum usage temperature 180 °C
- Tmax. 200 °C — maximum usage temperature 200 °C
- Tmax. 260 °C — maximum usage temperature 260 °C
- Tmax. 450 °C — maximum usage temperature 450 °C
- Tmax. 500 °C — maximum usage temperature 500 °C
- ISO 385 — product corresponds to the standard ISO 385
- ISO 648 — product corresponds to the standard ISO 648
- DIN ISO 718 — product corresponds to the standard DIN ISO 718
- ISO 835 — product corresponds to the standard ISO 835
- ISO 1042 — product corresponds to the standard ISO 1042
- DIN EN 1595 — product corresponds to the standard DIN EN 1595
- DIN ISO 1773 — product corresponds to the standard DIN ISO 1773
- ISO 3819 — product corresponds to the standard ISO 3819
- ISO 4788 — product corresponds to the standard ISO 4788
- ISO 4796-1 — product corresponds to the standard ISO 4796-1
- ISO 4796-2 — product corresponds to the standard ISO 4796-2
- ISO 4796-3 — product corresponds to the standard ISO 4796-3
- DIN ISO 4797 — product corresponds to the standard DIN ISO 4797
- DIN ISO 4798 — product corresponds to the standard DIN ISO 4798
- DIN ISO 4800 — product corresponds to the standard DIN ISO 4800
- ISO 6556 — product corresponds to the standard ISO 6556
- DIN ISO 8037-1 — product corresponds to the standard DIN ISO 8037-1
- ISO 8255-1 — product corresponds to the standard ISO 8255-1
- DIN ISO 8655 — product corresponds to the standard DIN ISO 8655
- DIN EN 10143 — product corresponds to the standard DIN EN 10143
- DIN 12216 — product corresponds to the standard DIN 12216
- DIN 12252 — product corresponds to the standard DIN 12252
- DIN 12254 — product corresponds to the standard DIN 12254
- DIN 12257 — product corresponds to the standard DIN 12257
- DIN 12336 — product corresponds to the standard DIN 12336
- DIN 12337 — product corresponds to the standard DIN 12337
- DIN 12338 — product corresponds to the standard DIN 12338
- DIN 12340 — product corresponds to the standard DIN 12340
- DIN 12341 — product corresponds to the standard DIN 12341
- DIN ISO 12392 — product corresponds to the standard DIN ISO 12392
- DIN ISO 12394 — product corresponds to the standard DIN ISO 12394
- DIN 12480 — product corresponds to the standard DIN 12480
- DIN 12576 — product corresponds to the standard DIN 12576
- DIN 12591 — product corresponds to the standard DIN 12591
- DIN 12593 — product corresponds to the standard DIN 12593
- DIN 12672 — product corresponds to the standard DIN 12672
- DIN 12911 — product corresponds to the standard DIN 12911
- DIN ISO 13130 — product corresponds to the standard DIN ISO 13130
- DIN 13132 — product corresponds to the standard DIN 13132
- DIN ISO 24450 — product corresponds to the standard DIN ISO 24450
- DIN 38411 — product corresponds to the standard DIN 38411
- DIN 53260 — product corresponds to the standard DIN 53260
- DIN 58970-2 — product corresponds to the standard DIN 58970-2

DWK Life Sciences GmbH
Otto-Schott-Str. 21
97877 Wertheim / Main
Germany

Phone: +49 (0) 6131 - 1445 4131
Fax: +49 (0) 6131 - 1445 4016
sales@DWK-LifeSciences.com
www.DWK-LifeSciences.com

6038185 EN 12.0 1217 kn/lauck Printed in Germany