DURAN®
LABORATORY GLASSWARE CATALOG

MIKROLAB FRISENETTE

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

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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
500 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

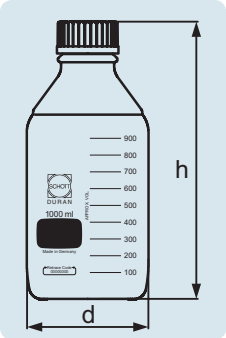
> Find your nearest **distributor** on our global network:
www.DWK-LifeSciences.com/DURAN/distributors

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.

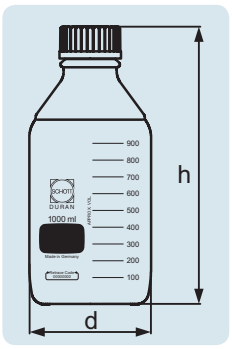


ISO 4796-1 | Retrace Code | A 121 °C | USP Standard

Cat. No.	Capacity (mL)	DIN Thread (GL)	d (OD) (mm)	h (mm)	Remark	Pack Unit
with screw cap and pouring ring from PP (blue)						
218010851	10	25	36	54	Acceptance within ISO 4796 standard has been requested. With specially shaped glass edge for improved pouring out (so that an additional plastic pouring ring is not required).	10
218011453	25	25	36	74	With specially shaped glass edge for improved pouring out (so that an additional plastic pouring ring is not required).	10
218011753	50	32	46	91		10
218012458	100	45	56	105		10
218012955	150	45	62	115		10
218013651	250	45	70	143		10
218014459	500	45	86	181		10
218015155	750	45	95	208		10
218015455	1 000	45	101	230		10
218016357	2 000	45	136	265		10
218016957	3 500	45	160	300		1
218017353	5 000	45	182	335		1
218018658	10 000	45	227	415		1
218018855	15 000	45	268	450		1
218019157	20 000	45	288	510		1
218019251	25 000	45	316	545		1
without screw cap and pouring ring						
218010802	10	25	36	50	Acceptance within ISO 4796 standard has been requested. With specially shaped glass edge for improved pouring out (so that an additional plastic pouring ring is not required).	10
218011404	25	25	36	70	With specially shaped glass edge for improved pouring out (so that an additional plastic pouring ring is not required).	10
218011704	50	32	46	87		10
218012409	100	45	56	100		10
218012906	150	45	62	110		10
218013602	250	45	70	138		10
218014401	500	45	86	176		10
218015106	750	45	95	203		10
218015406	1 000	45	101	225		10
218016308	2 000	45	136	260		10
218016908	3 500	45	160	295		1
218017304	5 000	45	182	330		1
218018609	10 000	45	227	410		1
218018806	15 000	45	268	445		1
218019108	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.

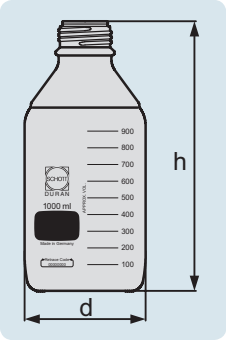
Cat. No.	Capacity (mL)	DIN Thread (GL)	d (OD) (mm)	h (mm)	Pack Unit
With high temperature screw cap and ETFE pouring ring					
218012417	100	45	56	105	10
218013619	250	45	70	143	10
218014418	500	45	86	181	10
218015414	1 000	45	101	230	10
218016316	2 000	45	136	265	10
218017312	5 000	45	182	335	1
218018617	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.

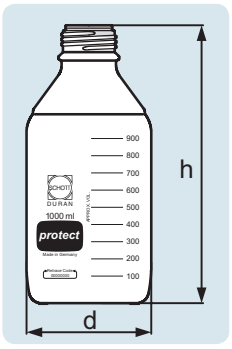


ISO 4796-1 | Retrace Code | A 121 °C | USP Standard

Cat. No.	Capacity (mL)	DIN Thread (GL)	d (OD) (mm)	h (mm)	Remark	Pack Unit
with screw cap and pouring ring from PP (blue)						
218060856	10	25	36	54	Acceptance within ISO 4796 standard has been requested. With specially shaped glass edge for improved pouring out (so that an additional plastic pouring ring is not required).	10
218061458	25	25	36	74	With specially shaped glass edge for improved pouring out (so that an additional plastic pouring ring is not required).	10
218061758	50	32	46	91		10
218062454	100	45	56	105		10
218062951	150	45	62	115		10
218063656	250	45	70	143		10
218064455	500	45	86	181		10
218065151	750	45	95	208		10
218065451	1 000	45	101	230		10
218066353	2 000	45	136	265		10
218066953	3 500	45	160	300		1
218067358	5 000	45	182	335		1
218068654	10 000	45	227	415		1
without screw cap and pouring ring						
218060807	10	25	36	50	Acceptance within ISO 4796 standard has been requested. With specially shaped glass edge for improved pouring out (so that an additional plastic pouring ring is not required).	10
218061409	25	25	36	70	With specially shaped glass edge for improved pouring out (so that an additional plastic pouring ring is not required).	10
218061709	50	32	46	87		10
218062405	100	45	56	100		10
218062902	150	45	62	110		10
218063607	250	45	70	138		10
218064406	500	45	86	176		10
218065102	750	45	95	203		10
218065402	1 000	45	101	225		10
218066304	2 000	45	136	260		10
218066904	3 500	45	160	295		1
218067309	5 000	45	182	330		1
218068605	10 000	45	227	410		1
218068802	15 000	45	268	445		1
218069104	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.

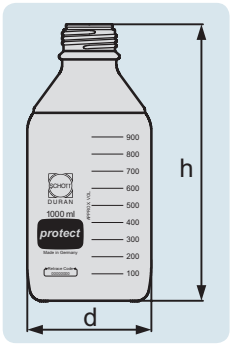
Cat. No.	Capacity (mL)	DIN Thread (GL)	d (OD) (mm)	h (mm)	Remark	Pack Unit
with screw cap and pouring ring						
218052453	100	45	56	100		10
218052959	150	45	62	110		10
218053655	250	45	70	138		10
218054454	500	45	86	176		10
218055159	750	45	95	203		10
218055459	1 000	45	101	225		10
218056352	2 000	45	136	260		10
218056952	3 500	45	160	295		1
218057357	5 000	45	182	330		1
without screw cap and pouring ring						
218050806	10	25	36	50	Acceptance within ISO 4796 standard has been requested. With specially shaped glass edge for improved pouring out (so that an additional plastic pouring ring is not required).	10
1092676	25	25	36	70	With specially shaped glass edge for improved pouring out (so that an additional plastic pouring ring is not required).	10
1092677	50	32	46	87		10
218052404	100	45	56	100		10
218052901	150	45	62	110		10
218053606	250	45	70	138		10
218054405	500	45	86	176		10
218055101	750	45	95	203		10
218055401	1 000	45	101	225		10
218056303	2 000	45	136	260		10
218056903	3 500	45	160	295		1
218057308	5 000	45	182	330		1
218058604	10 000	45	228	410		1
218058801	15 000	45	268	445		1
218059103	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

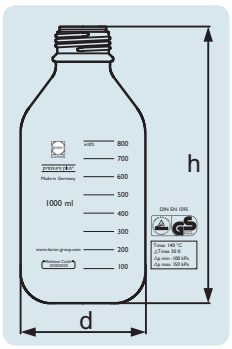
Cat. No.	Capacity (mL)	DIN Thread (GL)	d (OD) (mm)	h (mm)	Remark	Pack Unit
without screw cap and pouring ring						
218061433	25	25	36	70	With specially shaped glass edge for improved pouring out (so that an additional plastic pouring ring is not required).	10
218061733	50	32	46	87		10
218062438	100	45	56	110		10
218063631	250	45	70	138		10
218064439	500	45	86	176		10
218065435	1 000	45	101	225		10
218066337	2 000	45	136	260		10
218067333	5 000	45	182	330		1
1173548	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.

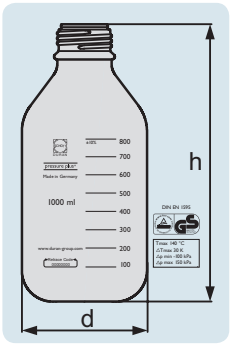


DIN EN 1595 | Retrace Code | A 121 °C | USP Standard

Cat. No.	Capacity (mL)	DIN Thread (GL)	d (OD) (mm)	h (mm)	Pack Unit
without screw cap and pouring ring					
218102406	100	45	56	100	10
1092234	250	45	70	138	10
1092235	500	45	86	176	10
218105403	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

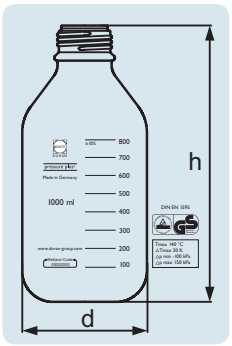
With easy-to-read scale and large labelling field for easy marking, in fired-on, highly durable ceramic. Pressure resistance conforms to DIN EN 1595, confirmed by GS marking (TÜV ID: 0000020716). Vacuum and/or pressure resistant from – 1 bar to + 1.5 bar due to modified geometry (based on ISO 4796-1). 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					
218162403	100	45	56	100	10
1094367	250	45	70	138	10
1094368	500	45	86	176	10
218165409	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.

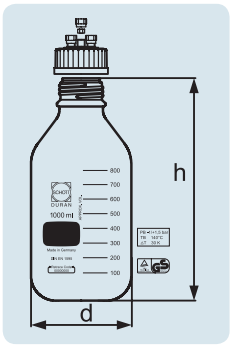
Cat. No.	Capacity (mL)	DIN Thread (GL)	d (OD) (mm)	h (mm)	Pack Unit
without screw cap and pouring ring					
218152402	100	45	56	100	10
1175925	250	45	70	138	10
1175926	500	45	86	176	10
218155408	1 000	45	101	225	10

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).



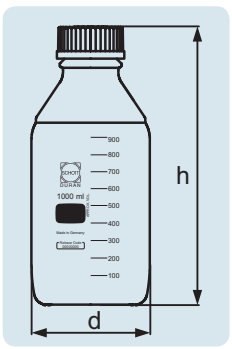
Cat. No.	Description	Capacity (mL)	DIN Thread (GL)	d (OD) (mm)	h (mm)	Pack Unit
1129821	HPLC Bottle complete	500	45	86	176	2
1129820	HPLC Bottle complete	1 000	45	101	225	2
Accessories						
1129812	Screw cap HPLC, GL 45, 4 ports, complete (GL 45 screw cap, 4 x M8 black screw caps, 12 x silicone seals for 1.6, 3.2 mm tubing or blanks)					2
1129813	Replacement parts for HPLC screw cap includes M8 caps and 1.6 , 3.2 mm and blind silicone seals					1
1137801	Pressure compensation set 4-port cap (incl. 0.2 µm syringe filter)					1
1129819	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.

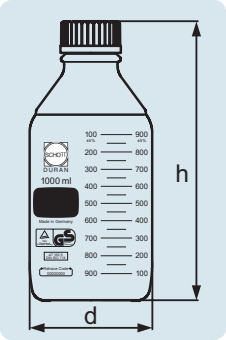
Typical applications: space-saving storage, space-saving transport.



Cat. No.	Capacity (mL)	DIN Thread (GL)	d (OD) (mm)	h (mm)	Pack Unit
with screw cap and pouring ring from PP (blue)					
218202453	100	32	50	109	10
218203655	250	45	64	143	10
218204454	500	45	78	181	10
218205459	1 000	45	94	222	10
without screw cap and pouring ring					
218202404	100	32	50	109	10
1008834	250	45	64	143	10
1008842	500	45	78	181	10
1008843	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

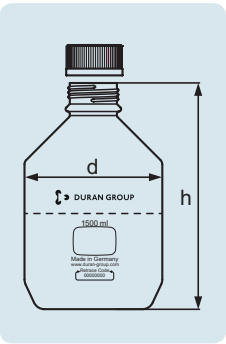
With easy-to-read scale and large labelling field for easy marking, in fired-on, highly durable white ceramic. Complete with pouring ring and cap from TpCh260 (similar to PFA). The premium cap with its PTFE coated silicone seal is colourless and temperature resistant from –196 °C to +200 °C. Together 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					
1127075	100	45	56	105	10
1127076	250	45	70	143	10
1127077	500	45	86	181	10
1127078	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.

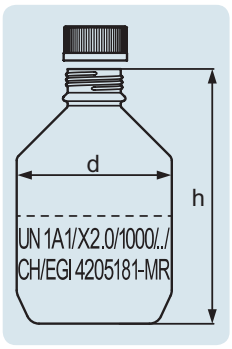
Typical applications: Hazardous materials laboratory container for storage of liquids, intermediates, or solid product. Storage of precious materials, such as high purity fine chemicals, pharmaceutical or cosmetic products. Storage of light sensitive materials.

Cat. No.	Description	Capacity (mL)	DIN Thread (GL)	d (OD) (mm)	h (mm)	Pack Unit
299016006	GL 45 Stainless Steel Laboratory Bottle	1 500	45	122.5	207	1
299112808	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.



Retrace Code | A 121 °C

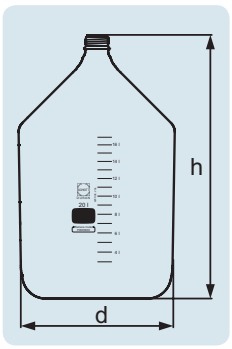
Typical applications: Container for the shipping of hazardous or non-hazardous liquids. Storage or shipping of precious liquids, such as high purity fine chemicals, pharmaceutical or cosmetic products. Storage of light sensitive liquids.

Cat. No.	Description	Capacity (mL)	DIN Thread (GL)	d (OD) (mm)	h (mm)	Pack Unit
299016055	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.



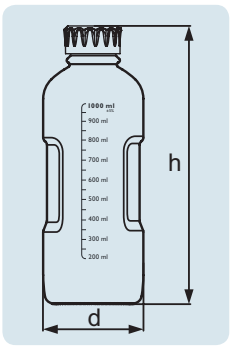
Retrace Code | A 121 °C | USP Standard

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					
1160100	20 000	45	289	505	1
1160200	10 000	45	228	410	1

DURAN® YOUTILITY Laboratory Bottle

GL 45



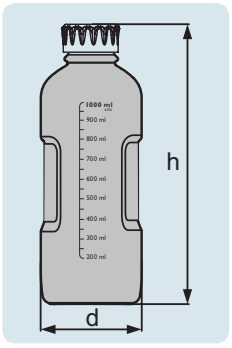
Retrace Code | A 121 °C | USP Standard

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					
218812854	125	45	55	124	4
218813653	250	45	66	158	4
218814452	500	45	78	193	4
218815457	1 000	45	93	253	4

DURAN® YOUTILITY Laboratory Bottle Amber

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



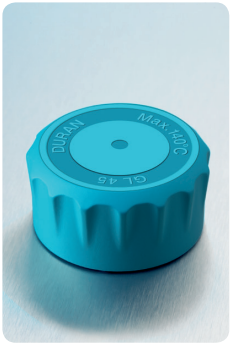
Retrace Code | A 121 °C | USP Standard

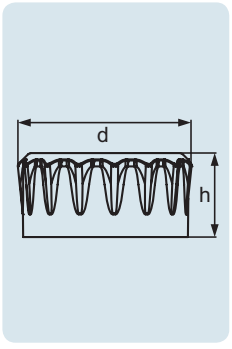
The specially shaped gripping zones on both sides of the bottle enable easier and safer handling. With the new DURAN® YOUTILITY bottle thread opening or closing the bottle is significantly faster. The thread is fully compatible with DIN GL 45 closures and other accessories. The slimmer DURAN® YOUTILITY 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					
218862859	125	45	55	124	4
218863658	250	45	66	158	4
218864457	500	45	78	193	4
218865453	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					
292292802	45	53	25	cyan	10
pouring ring					
292412808	45		4	cyan	16

DURAN® YOUTILITY

DESIGNED FOR YOU

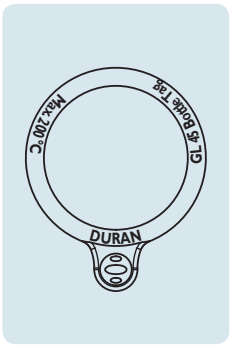
www.duran-youtility.com

DURAN WHEATON KIMBLE

Excellence in your hands

DURAN® YOUTILITY Bottle Tag

GL 45, from silicone



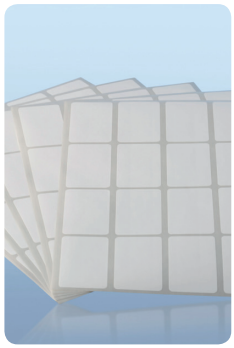
A 121 °C | Tmax. 200 °C

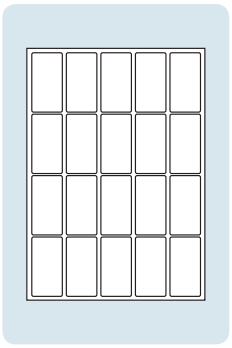
The silicone GL 45 Bottle Tags can be securely attached around the neck of the YOUTILITY bottle for easy customisation and unambiguous bottle identification. The elastic Bottle Tags will fit around any DIN GL 45 bottle neck.

Cat. No.	Thread	Colour	Pack Unit
292432904	45	eight colours, two pieces each	16
292432818	45	red	20
292432826	45	orange	20
292432834	45	yellow	20
292432842	45	green	20
292432859	45	blue	20
292432867	45	purple	20
292432875	45	black	20
292432883	45	white	20

DURAN® YOUTILITY LABELS

Printable self-adhesive



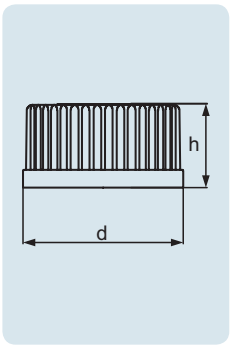


The robust DURAN® YOUTILITY identification labels are suitable for use with the YOUTILITY bottle, plus many other types of laboratory glassware, such as GL 45 bottles, beakers and conical flasks. The tear resistant, white polyester labels use a high performance, peelable adhesive. An easy-to-use label 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
294010203	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.

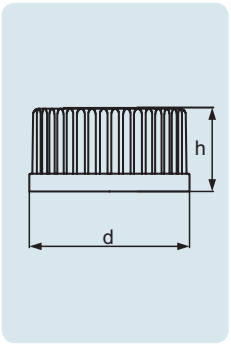
Cat. No.	DIN Thread (GL)	d (OD) (mm)	h (mm)	Colour	Pack Unit
screw cap					
292391307	25	33	19	blue	10
292391907	32	40	24	blue	10
292392809	45	54	25	blue	10
293382802	45	54	25	yellow	10
293382868	45	54	25	green	10
293382884	45	54	25	grey	10
Pouring ring					
292421907	32		4	blue	10
292422809	45		4	blue	10
1089911	45		4	green	10
1089914	45		4	grey	10
1089917	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.



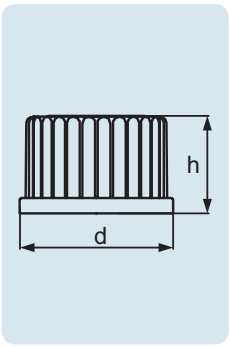
A 121 °C | Tmax. 140 °C

Cat. No.	DIN Thread (GL)	d (OD) (mm)	h (mm)	Pack Unit
291181307	25	33	19	5
291181907	32	41	24	5
291182809	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.



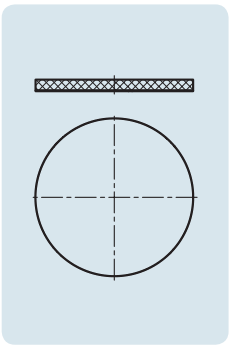
A 121 °C | Tmax. 180 °C

Cat. No.	DIN Thread (GL)	d (OD) (mm)	h (mm)	Pack Unit
screw cap				
292400806	14	20	17	10
292401108	18	23	20	10
292401305	25	33	23	10
292401905	32	41	26	10
292402807	45	54	28	10
Pouring ring				
292441909	32		4	10
292442802	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.

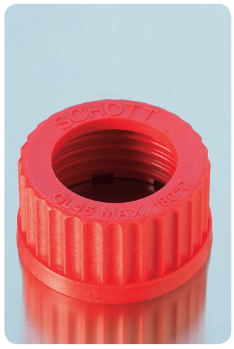


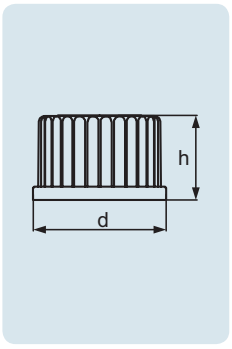
A 121 °C | Tmax. 200 °C

Cat. No.	For screw-caps, red (GL)	Pack Unit
292480805	14	10
292481107	18	10
292481304	25	10
292481904	32	10
292482806	45	10

DURAN® Screw Cap with aperture

from PBT, red





A 121 °C Tmax. 180 °C

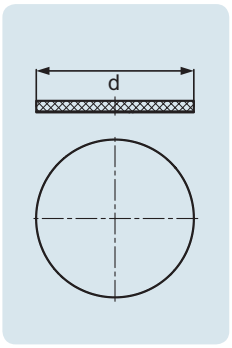
Suitable for silicone seal for piercing (Septa). More chemically resistant than PP cap.

Typical applications: Injection or removal of media.

Cat. No.	DIN Thread (GL)	Aperture bore d (OD) (mm)	d (OD) (mm)	h (mm)	Pack Unit
292270508	14	9.5	20	17	10
292270602	18	11	23	20	10
292270902	25	15	33	23	10
292270808	32	20	42	26	10
292271007	45	34	54	28	10

DURAN® Silicone Septum Seal

for piercing, VMQ



A 121 °C Tmax. 200 °C

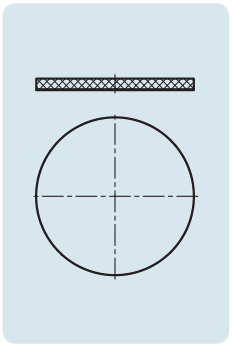
Suitable for PBT screw cap with aperture Heat resistance: 130 °C (vapour) and 200 °C (dry heat). Silicon is peroxide catalysed.

Typical applications: injection or removal of media.

Cat. No.	DIN Thread (GL)	d (OD) (mm)	Thickness (mm)	Pack Unit
292460503	14	12	2	100
292460606	18	16	2	100
292460906	25	22	2	100
292460803	32	29	2	100
292461002	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.

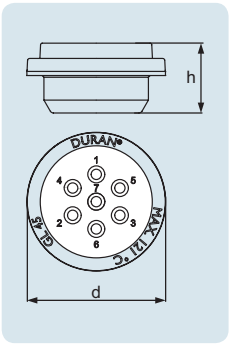
Cat. No.	Thread	d (OD) (mm)	Thickness (mm)	Pack Unit
292483005	GL 45	43	3	10

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
292062803	GL 45	41	21	10



A 121 °C

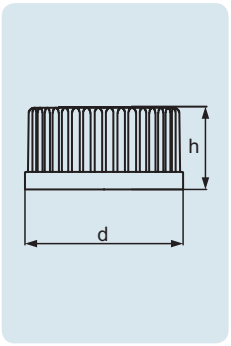
DURAN® Premium Cap

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.

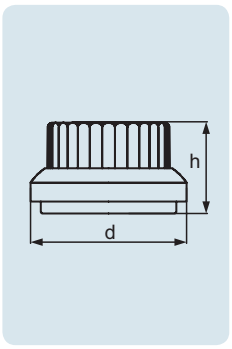
Cat. No.	DIN Thread (GL)	d (OD) (mm)	h (mm)	Colour	Pack Unit
Screw cap					
1088679	45	51	26	colourless	5
1129600	25	32	22	colourless	5
Pouring ring					
1088678	45		4	colourless	5
Replacement cap liners					
292481407	25	23.5	3.1		10
292482909	45	43.1	3.1		10



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

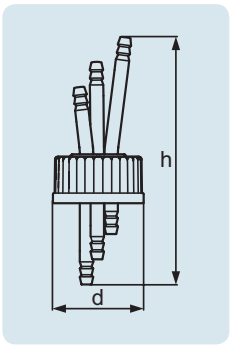
The tamper-evident screw caps are available with either a plug seal or a PTFE faced silicone cap liner (peroxide cured silicone). The integral coloured plastic ring tears when the cap is first opened, and is retained on the bottle neck. Therefore it can be clearly seen if the bottle has been opened after 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					
1017526	45	66	38	blue-red	10
PTFE faced silicone cap liner					
1155886	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.

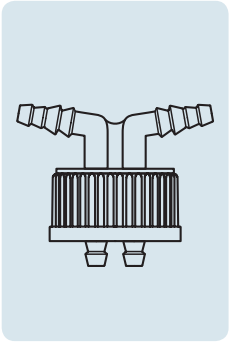
Cat. No.	Description	DIN Thread (GL)	d (OD) (mm)	h (mm)	Pack Unit
292612701	2-port connector	45	54	137	1
292612804	3-port connector	45	54	145	1
Replacement silicone gasket					
292232805	silicone gasket with aperture (diameter 27.5 mm)		40.5	3	10

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.

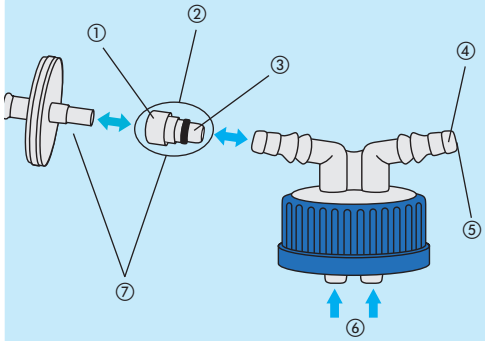
Cat. No.	Description	DIN Thread (GL)	Pack Unit
293102807	DURAN® Screw Cap GL 45 with 2 hose connections EDPM Gasket	45	2
1129825	Syringe Filter (0.2 µm) with connector, non-sterile 0.2 µm filter and female Luer Slip to 5.8 mm male connector, with o-ring seal		2
1129829	Syringe Filter Connector only (without syringe filter), female Luer Slip to 5.8 mm male connector, with o-ring seal		2
1152752	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

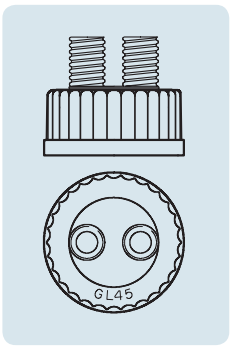


Screw cap GL 45 with 2 hose connections (293102807)

① Female Luer slip
② Syringe Filter Connector (1129829)
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 (1129825)

DURAN® GL 45 Connection System

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



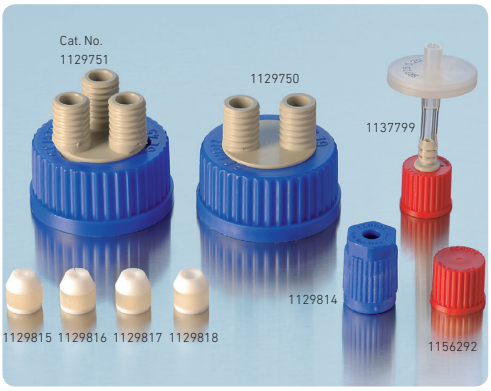
A 121 °C

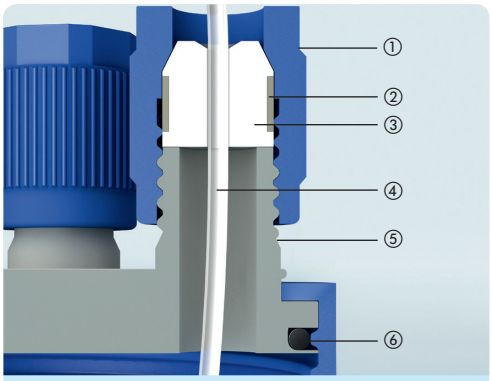
Tmax. 140 °C

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
1129750	Screw cap GL 45, PP, 2 ports GL 14	45	2
1129751	Screw cap GL 45, PP, 3 ports GL 14	45	2
1129814	Screw cap GL 14 PP, for tubing connection	14	2
1129815	Insert for screw cap GL 14, ID 1.6 mm (1/16 inch)		1
1129816	Insert for screw cap GL 14, ID 3.0 mm (~1/8 inch)		1
1129817	Insert for screw cap GL 14, ID 3.2 mm (1/8 inch)		1
1129818	Insert for screw cap GL 14, ID 6.0 mm (~1/4 inch)		1
1129819	Spare syringe filter for pressure compensation, 0.2 µm		2
1156292	Screw cap, PBT, with PTFE coated seal, red, GL 14	14	2
1137799	Set for pressure compensation 2- and 3-port screw cap (incl. 0.2 µm syringe filter), GL 14	14	1





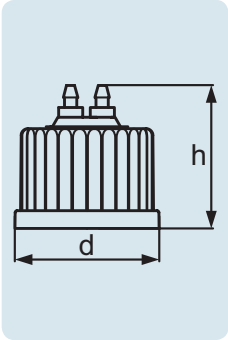
Schematic diagram of GL 45 connection system

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

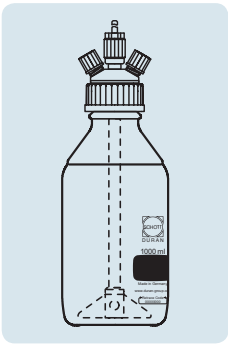
Cat. No.	DIN Thread (GL)	d (OD) (mm)	h (mm)	Pack Unit
2-ports				
292601301	25	33	32	1
3-ports				
292611302	25	33	32	1
4-ports				
292621303	25	33	32	1

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.

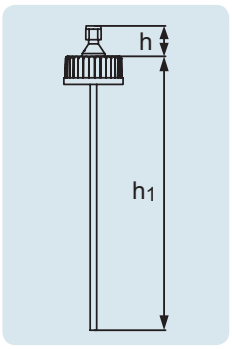


A 121 °C | Tmax. 140 °C

Cat. No.	Description	DIN Thread (GL)	Pack Unit
1200395	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
1200396	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
1200391	Folding magnetic stirrer for GL 45 stirred reactor, incl. shaft	45	1
1200390	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



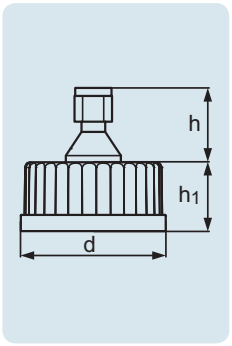
A 121 °C | Tmax. 140 °C | Retrace Code

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
299912801	45	54	21.3	25.7	1

DURAN® Screw Cap with Thermocouple Holder

GL 45



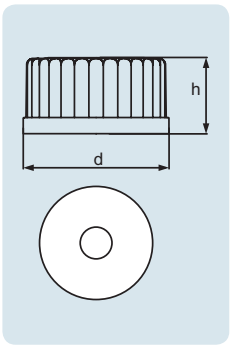
A 121 °C | Tmax. 140 °C | Retrace Code

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
299922802	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
1171395	45	54	28	1

DURAN® *TILT*

CHANGES EVERYTHING

GOOD DESIGN

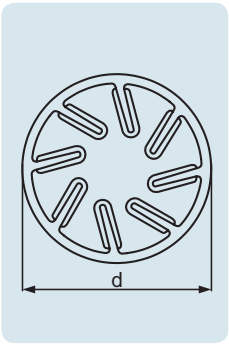
As awarded by The Chicago Athenaeum: Museum of Architecture and Design.

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

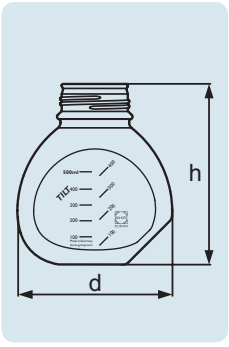


The holder helps stabilise bottles during activities such as liquid dispensing or pipetting. The flexible ribs accommodate both round and square bottles with diameters or base widths of between 75 mm and 120 mm. The solid silicone construction makes the holder autoclavable, durable, and chemically resistant.

Cat. No.	d (OD) (mm)	h (mm)	Colour	Pack Unit
292135401	165	40	grey	1

DURAN® *TILT* Media Bottle

GL 56



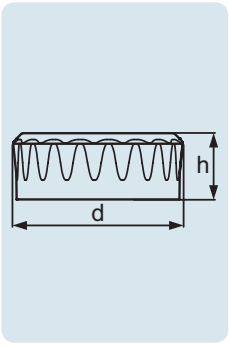
A 121 °C | USP Standard | Retrace Code

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)					
218914459	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.

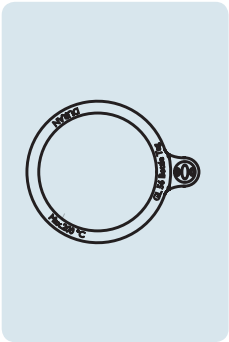
Cat. No.	DIN Thread (GL)	d (OD) (mm)	h (mm)	Colour	Pack Unit
292295602	56	62	27	white	10

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
292435626	56	orange	20
292435634	56	yellow	20
292435659	56	blue	20
292435667	56	purple	20



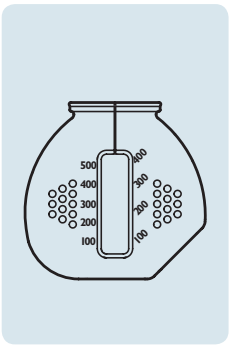
Tmax. 200 °C | A 121 °C

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
292435601	white	4



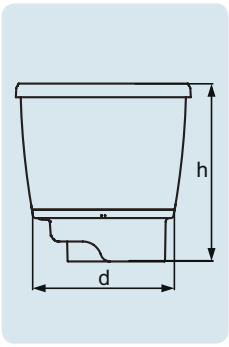
Tmax. 200 °C | A 121 °C

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.

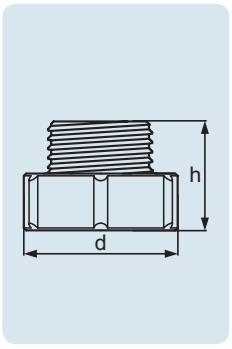
Cat. No.	Description	Capacity (mL)	DIN Thread (GL)	d (OD) (mm)	h (mm)	Pack Unit
292702818	PES 0.1 µm	500	45	92	103	12
292702826	PES 0.2 µm	500	45	92	103	12
292702842	PES 0.45 µm	500	45	92	103	12



Retrace Code

DURAN® *TILT* Adaptor

GL 45 / GL 56, from PTFE



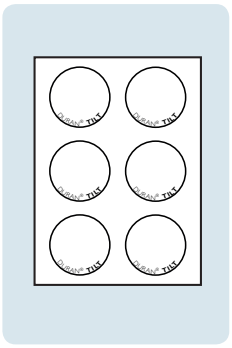
A
121 °C

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
291195601	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.

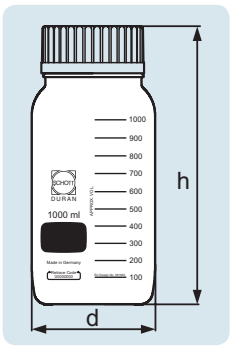
Cat. No.	Description	Pack Unit
294015604	White polyester	1

DURAN® GLS 80® Laboratory Bottle Wide Mouth

with GLS 80® thread

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.

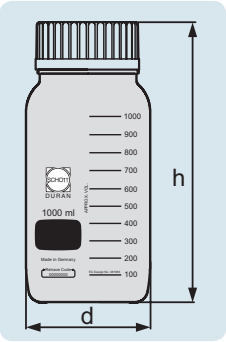


Retrace Code | A 121 °C | USP Standard

Cat. No.	Capacity (mL)	Thread	d (OD) (mm)	h (mm)	Pack Unit
with screw cap and pouring ring from PP (blue)					
218603656	250	80	95	110	10
1112627	500	80	101	153	10
1112713	1 000	80	101	223	10
1112715	2 000	80	136	253	10
218606953	3 500	80	160	276	1
1113949	5 000	80	182	315	1
1113950	10 000	80	227	390	1
1113951	20 000	80	288	485	1
1200265	30 000	80	340	548	1
1200154	50 000	80	400	590	1
without screw cap and pouring ring from PP (blue), clear					
218603607	250	80	95	105	10
1178392	500	80	101	148	10
1178424	1 000	80	101	218	10
1178425	2 000	80	136	248	10
218606904	3 500	80	160	271	1
1178426	5 000	80	182	310	1
1178427	10 000	80	227	385	1
1178428	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.

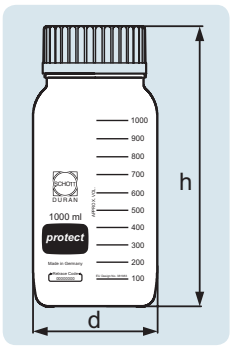
Cat. No.	Capacity (mL)	Thread	d (OD) (mm)	h (mm)	Pack Unit
with screw cap and pouring ring from PP (blue)					
218663653	250	80	95	110	10
1160146	500	80	101	153	10
1160147	1 000	80	101	223	10
1160148	2 000	80	136	253	10
218666959	3 500	80	160	276	1
1160149	5 000	80	182	315	1
1160150	10 000	80	227	390	1
1160151	20 000	80	288	485	1
without screw cap and pouring ring					
218663604	250	80	95	105	10
1178429	500	80	101	148	10
1178430	1 000	80	101	218	10
1178431	2 000	80	136	248	10
218666901	3 500	80	160	271	1
1178432	5 000	80	182	310	1
1178433	10 000	80	227	385	1
1178434	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.



Retrace Code | A 121 °C | USP Standard

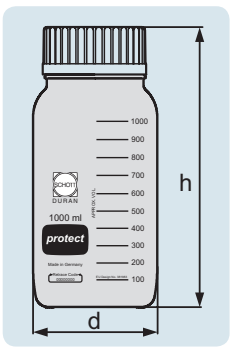
Cat. No.	Capacity (mL)	Thread	d (OD) (mm)	h (mm)	Pack Unit
with screw cap and pouring ring from PP (blue)					
218653652	250	80	95	110	10
1160152	500	80	101	153	10
1160163	1 000	80	101	223	10
1160164	2 000	80	136	253	10
218656953	3 500	80	160	276	1
1160165	5 000	80	182	315	1
without screw cap and pouring ring					
218653603	250	80	95	105	10
218656909	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.

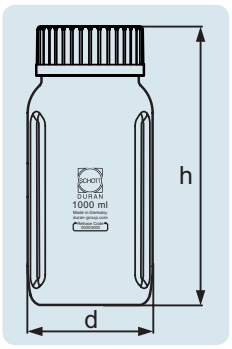


Retrace Code | A 121 °C | USP Standard

Cat. No.	Capacity (mL)	Thread	d (OD) (mm)	h (mm)	Pack Unit
with screw cap and pouring ring from PP (blue)					
1167308	500	80	101	153	10
1167309	1 000	80	101	223	10
without screw cap and pouring ring					
218664436	500	80	101	148	10
218665432	1 000	80	101	218	10
218666334	2 000	80	136	248	10
218667339	5 000	80	182	310	1

DURAN® GLS 80® Baffled Bottle Wide Mouth

with GLS 80® thread

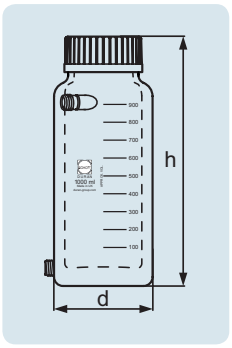


A 121 °C | USP Standard | Retrace Code

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)					
212863658	250	80	95	110	1
212864457	500	80	101	153	1
212865453	1 000	80	101	223	1

DURAN® GLS 80® Double Walled Bottle Wide Mouth



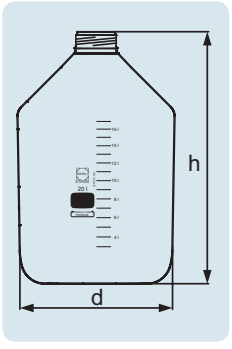
A 121 °C | USP Standard

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)					
242564451	500	80	110	175	1
242565456	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.

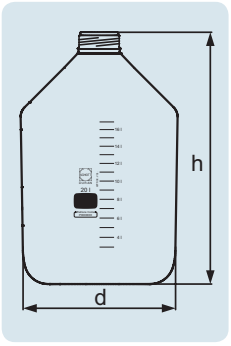
Cat. No.	Capacity (mL)	Thread	d (OD) (mm)	h (mm)	Pack Unit
without screw cap and pouring ring					
1160220	10 000	80	228	385	1
1160110	20 000	80	289	480	1

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.



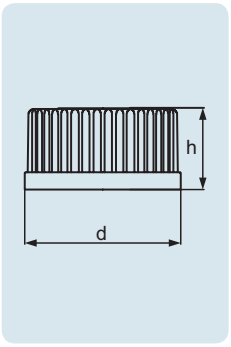
Retrace Code | A 121 °C | USP Standard

Cat. No.	Capacity (mL)	Thread	d (OD) (mm)	h (mm)	Pack Unit
without screw cap and pouring ring					
219918603	10 000	80	228	385	1
219919102	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.

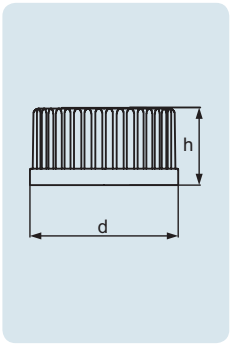


A 121 °C | Tmax. 140 °C

Cat. No.	Thread	d (OD) (mm)	h (mm)	Pack Unit
screw cap				
1112716	80	87	40	10
Pouring ring				
1160166	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

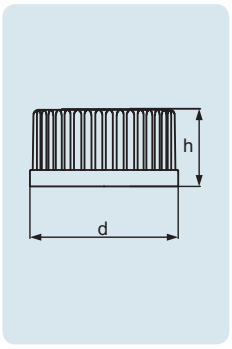
For GLS 80® thread. Ideal for autoclaving processes because the 0.2 micron ePTFE membrane permits pressure equalisation and screw tight sealing. Hence the risk of contamination is greatly reduced. Ingress of liquids or solids is prevented and the bottle contents remain sterile.

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

Cat. No.	Thread	d (OD) (mm)	h (mm)	Pack Unit
291189105	80	87	40	2

DURAN® GLS 80® High Temperature Screw Cap

with cap liner, PSU material

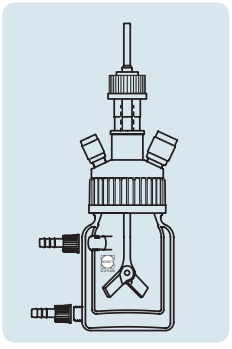


A 121 °C | Tmax. 180 °C

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				
1165888	80	88.5	40	5
pouring ring				
1167307	80		6.85	5
replacement cap liner				
1152921	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. 1160175), KPG® Stirrer Shaft WS 10 (Cat. no. 245838404), KPG® Stirrer Bearing HB 10 (Cat. no. 247500906), Screw Cap GL 14 (Cat. no. 292400814, 2 pieces) and Screw Cap GL 18 (Cat. no. 292401116, 2 pieces). Not supplied with GLS 80® bottle.

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

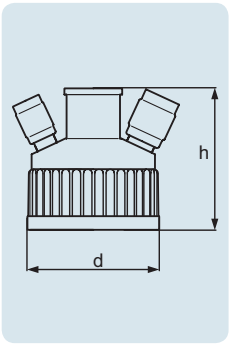
Cat. No.	Pack Unit
291209104	1

DURAN® GLS 80® Connection System

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

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).



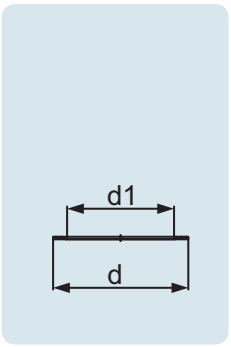
A 121 °C

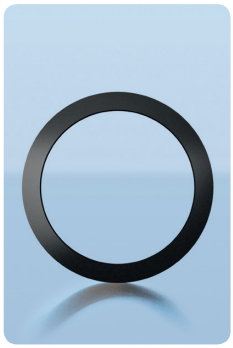
Tmax. 140 °C

Cat. No.	Thread	d (OD) (mm)	h (mm)	Pack Unit
1160175	80	87	94	2

DURAN® O-Ring Gasket Seal from EPDM

for GLS 80® bottles

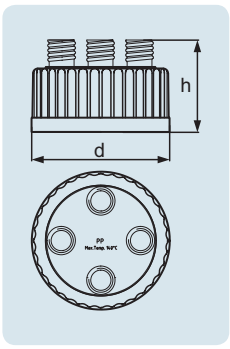




Cat. No.	d (OD) (mm)	d_1 (OD) (mm)	Pack Unit
1152913	78	63.5	5

DURAN® GLS 80® Connection Cap System

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



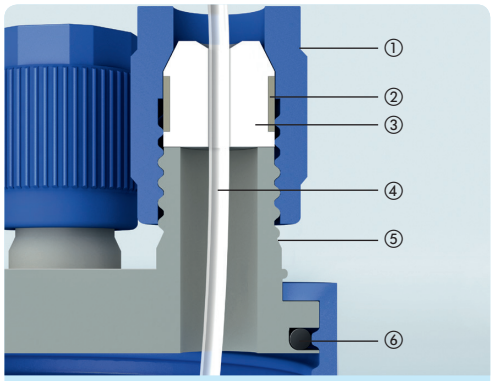
A 121 °C

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
293109103	GLS 80® 4-port EPDM seal	80	87	59	2
Accessories					
1160169	Insert for screw cap GL 18, ID 3.2 mm				1
1160170	Insert for screw cap GL 18, ID 6.0 mm				1
1160171	Insert for screw cap GL 18, ID 8.0 mm				1
1160172	Insert for screw cap GL 18, ID 10.0 mm				1
1160173	Insert for screw cap GL 18, ID 12.0 mm				1
1160174	Screw cap for tube connection, blue, GL 18				2
1160167	Pressure equalisation cap set for 4-port, GL 18				1
1170682	Blanking screw cap, red, PBT, GL 18				2

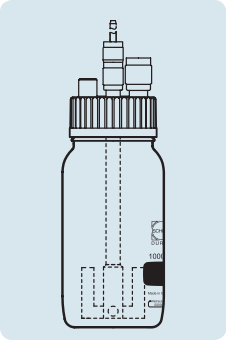


Schematic diagram of GLS 80® connection system

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

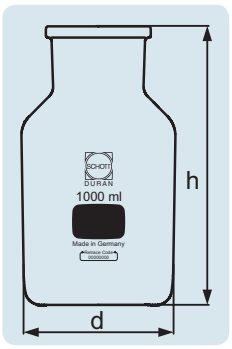
Tmax. 140 °C

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
1200379	Stirred reactor cap, stirrer anchor type, magnetic, complete with shaft, connection and screw cap	80	62		1
212639107	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		
1200380	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
1200381	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					
1200382	Stirrer impeller type, magnetic, for GLS 80® stirred reactor			62	1
1200383	Stirrer anchor type, magnetic, for GLS 80® stirred reactor		62		1
1200385	Spare screw cap for GLS 80® stirred reactor, PP, blue/grey	80			1
1200386	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

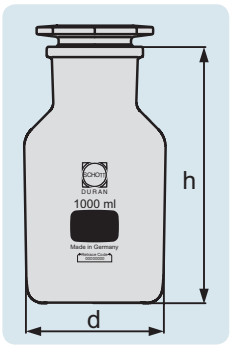
With precision ground neck. All glass components, therefore also suitable for storage of aggressive media, which could attack plastic parts.

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						
211851707	50	24/20	44	79		10
211852403	100	29/22	52	97		10
211853605	250	34/35	70	133		10
211854404	500	45/40	86	163		10
211855409	1 000	60/46	107	201		10
211856302	2 000	60/46	133	247		10
211857307	5 000	85/55	182	358	No norm available.	1
211858603	10 000	85/55	229	443	No norm available.	1
211859102	20 000	85/55	290	570	No norm available.	1
Neck with standard ground joint						
211841706	50	24/20	44	79		10
211842402	100	29/22	52	97		10
211843604	250	34/35	70	133		10
211844403	500	45/40	86	163		10
211845408	1 000	60/46	107	201		10
211846301	2 000	60/46	133	247		10
211847306	5 000	85/55	182	358	No norm available.	1
211848602	10 000	85/55	229	443	No norm available.	1
211849101	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.

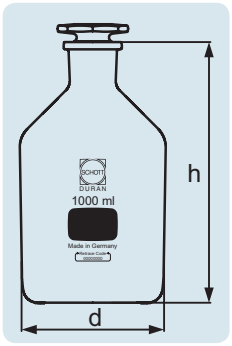
Typical application: storage of powders.

Cat. No.	Capacity (mL)	Neck	d (OD) (mm)	h (mm)	Remark	Pack Unit
Neck with standard ground joint and glass flat-head stopper						
211881701	50	24/20	44	79		10
211882406	100	29/22	52	97		10
211883608	250	34/35	70	133		10
211884407	500	45/40	86	163		10
211885403	1 000	60/46	107	201		10
211886305	2 000	60/46	133	247		10
211887301	5 000	85/55	182	358	No norm available.	1
211888606	10 000	85/55	229	443	No norm available.	1
211889105	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

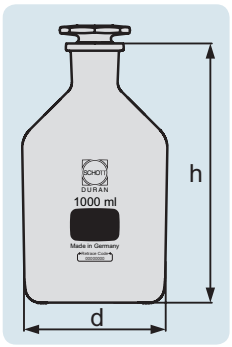
Cat. No.	Capacity (mL)	Neck	d (OD) (mm)	h (mm)	Remark	Pack Unit
Neck with standard ground joint and glass flat-head stopper						
211650809	10	10/19	28	52	Non ISO size.	10
211651402	25	12/21	36	64		10
211651702	50	14/15	42	80		10
211652407	100	14/15	52	96		10
211653609	250	19/26	70	130		10
211654408	500	24/29	86	164		10
211655404	1 000	29/32	107	200		10
211656306	2 000	29/32	134	248		10
211657302	5 000	45/40	182	323		1
211658607	10 000	60/46	227	398		1
211659106	20 000	60/46	288	492		1
Neck with standard ground joint						
211640808	10	10/19	28	52		10
211641401	25	12/21	36	64		10
211641701	50	14/15	42	80		10
211642406	100	14/15	52	96		10
211643608	250	19/26	70	130		10
211644407	500	24/29	86	164		10
211645403	1 000	29/32	107	200		10
211646305	2 000	29/32	134	248		10
211647301	5 000	45/40	182	323		1
211648606	10 000	60/46	227	398		1
211649105	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.

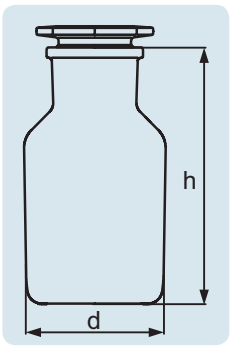


ISO 4796-2 | Retrace Code | A 121 °C | USP Standard

Cat. No.	Capacity (mL)	Neck	d (OD) (mm)	h (mm)	Pack Unit
Neck with standard ground joint and glass flat-head stopper					
211681405	25	12/21	36	64	10
211681705	50	14/15	42	80	10
211682401	100	14/15	52	96	10
211683603	250	19/26	70	130	10
211684402	500	24/29	86	164	10
211685407	1 000	29/32	107	200	10
211686309	2 000	29/32	134	248	10
211687305	5 000	45/40	182	323	1
211688601	10 000	60/46	227	398	1
211689109	20 000	60/46	288	492	1

Reagent Bottle Wide Neck from Soda-lime Glass

neck with standard ground joint



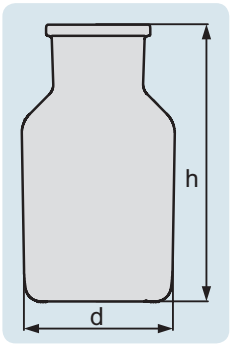
ISO 4796-2

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					
231851708	50	24/20	44	79	10
231852404	100	29/22	52	97	10
231853606	250	34/24	71	129	10
231854405	500	45/40	86	164	10
231855401	1 000	60/46	107	200	10
without stoppers					
231841707	50	24/20	44	79	10
231842403	100	29/22	52	97	10
231843605	250	34/24	71	129	10
231844404	500	45/40	86	164	10
231845409	1 000	60/46	107	200	10

Reagent Bottle Wide Neck, Amber from Soda-lime Glass

neck with standard ground joint



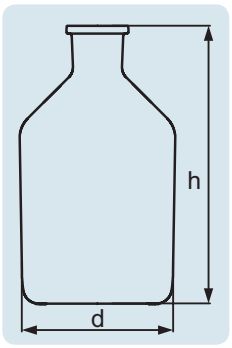
ISO 4796-2

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					
231882407	100	29/22	52	97	10
231883609	250	34/24	71	129	10
231884408	500	45/27	86	164	10
231885404	1 000	60/46	107	200	10
without stoppers					
231872406	100	29/22	52	97	10
231873608	250	34/24	71	129	10
231874407	500	45/27	86	164	10
231875403	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!

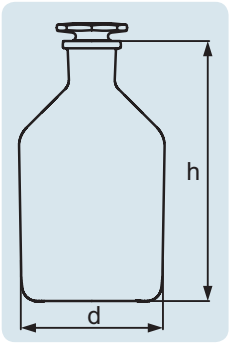
Cat. No.	Capacity (mL)	Neck	d (OD) (mm)	h (mm)	Pack Unit
with standard ground glass flat-head stopper					
231652408	100	14/15	52	96	10
231653601	250	19/26	72	130	10
231654409	500	24/29	89	165	10
231655405	1 000	29/32	110	200	10
without stoppers					
231642407	100	14/15	52	96	10
231643609	250	19/26	72	130	10
231644408	500	24/29	89	165	10
231645404	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					
231681706	50	14/15	42	80	10
231682402	100	14/15	52	96	10
231683604	250	19/26	72	130	10
231684403	500	24/29	89	165	10
231685408	1 000	29/32	110	200	10
without stoppers					
231671705	50	14/15	42	80	10
231672401	100	14/15	52	96	10
231673603	250	19/26	72	130	10
231674402	500	24/29	89	165	10
231675407	1 000	29/32	110	200	10



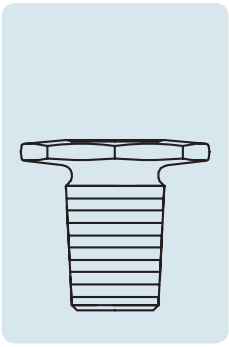
ISO 4796-2

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		
216240307	10/19	10
216240401	12/21	10
216240701	19/26	10
216240804	24/29	10
semi-hollow		
216240907	29/32	10
216241106	34/35	1
216241209	45/40	1
216241303	60/46	1
216241603	85/55	1



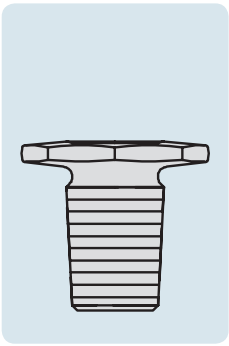
DIN 12252

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!

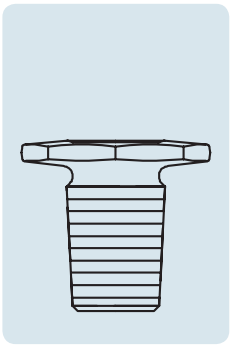
Cat. No.	Neck	Pack Unit
solid		
216270301	10/19	10
216270404	12/21	10
216270807	24/29	10
semi-hollow		
216270901	29/32	10
216271109	34/35	1
216271203	45/40	1
216271306	60/46	1
216271606	85/55	1



DIN 12252

Glass Stopper from SBW glass

with standard ground joint, octagonal

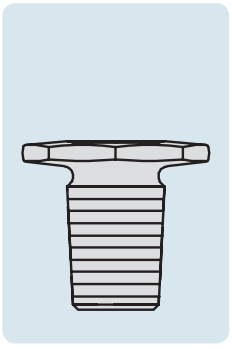


DIN 12252

Cat. No.	Neck	Pack Unit
solid		
246240604	14/23	10

Glass Stopper Amber from SBW glass

with standard ground joint, octagonal

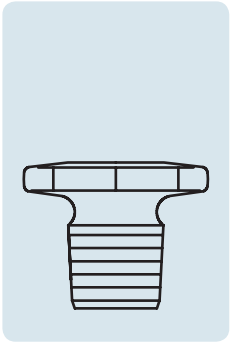


DIN 12252

Cat. No.	Neck	Pack Unit
solid		
246270607	14/23	10
246270701	19/26	10

DURAN® Glass Stopper

with short ground joint, octagonal



DIN 12252

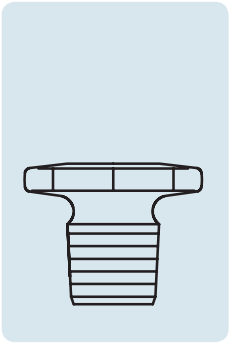
From borosilicate 3.3 glass. Note on using DURAN® glass stoppers with soda-lime glass bottles: If the bottle and the stopper have a temperature difference greater than 30 °C, the glass stoppers can become stuck!

Cat. No.	Neck	Pack Unit
semi-hollow		
216250908	29/22	10

Cat. No.	Neck	Pack Unit
solid		
246250605	14/15	10
246250802	24/20	10
semi-hollow		
246250905	29/22	10
246251104	34/24	1
246251207	45/27	1

Glass Stopper from SBW glass

with short ground joint, octagonal



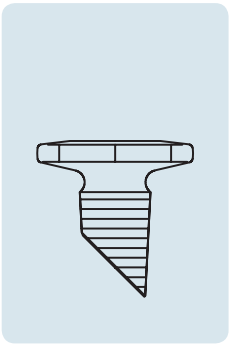
DIN 12252

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		
246220602	14/23	10
216220708	19/26	10

DURAN® Glass Stopper

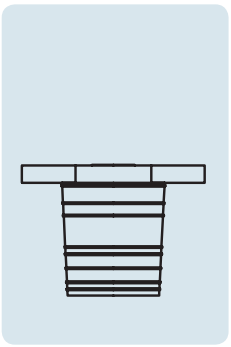
ground conical, for reagent bottles, oxygen bottles according to Winkler

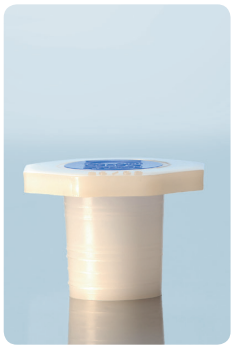


Cat. No.	Neck	Remark	Pack Unit
292040209	7/16		10
292040303	10/19		10
292040406	12/21		10
292040603	14/23		10
292040706	19/26		10
292040809	24/29		10
292040903	29/32		10
292041102	34/35	Non-DIN size.	1
292041205	45/40	Non-DIN size.	1
292041308	60/46	Non-DIN size.	1
292041608	85/55	Non-DIN size.	1

DURAN® Plastic Stopper

from polyethylene, octagonal



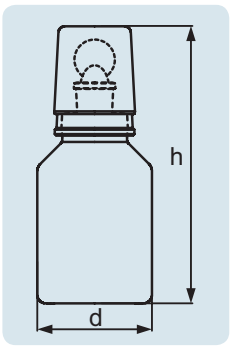


DIN 12254

Tmax. 80 °C

DURAN® Acid Bottle

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



A 121 °C

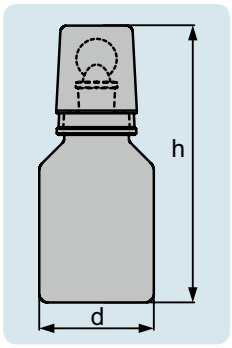
USP Standard

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
212752408		100	19/17	55	145	10
212753601		250	19/17	75	180	10
212754409		500	24/20	82	220	10
212755405		1 000	29/32	109	260	10
Components						
212732406	Bottle	100	19/17	55	104	10
212733608	Bottle	250	19/17	75	133	10
212734407	Bottle	500	24/20	87	166	10
212735403	Bottle	1 000	29/32	108	208	10
212742407	Cap for Bottle 100 mL			48	73	10
212743609	Cap for bottle 250 mL			55	75	10
212744408	Cap for Bottle 500 mL			66	87	10
212745404	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.

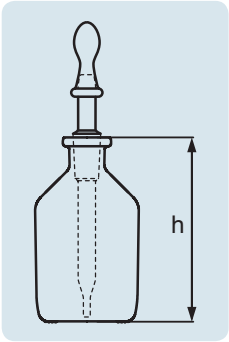
Cat. No.	Description	Capacity (mL)	Neck	d (OD) (mm)	h (mm)	Pack Unit
212752465		100	19/17	55	145	10
212753667		250	19/17	75	180	10
212754466		500	24/20	82	220	10
212755462		1 000	29/32	109	260	10
Components						
212732463	Bottle	100	19/17	55	104	10
212733665	Bottle	250	19/17	76	133	10
212734464	Bottle	500	24/20	87	166	10
212735469	Bottle	1 000	29/32	108	208	10
212742464	Cap for Bottle 100 mL			48	73	10
212743666	Cap for Bottle 250 mL			55	75	10
212744465	Cap for Bottle 500 mL			66	87	10
212745461	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. 232711709 and 232712405 (Quantity 10); Rubber teats, transparent, Cat. No. 292000102 (Quantity 100).

Cat. No.	Capacity (mL)	Neck	h (mm)	Pack Unit
232701708	50	14/15	79	10
232702404	100	14/15	105	10

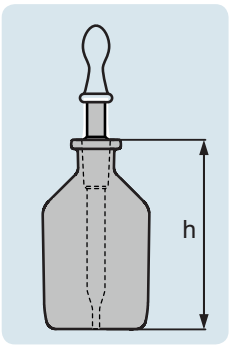


Dropping Bottle Amber from Soda-lime Glass

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

For dosing use the dropping pipette. Spare pipettes, clear glass, Cat. No. 232711709 and 232712405 (Quantity 10): rubber teats, transparent, Cat. No. 292000102 (Quantity 100).

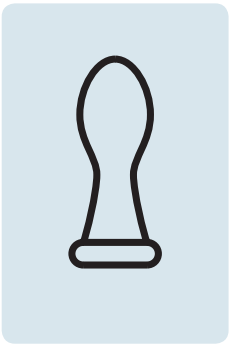
Cat. No.	Capacity (mL)	Neck	h (mm)	Remark	Pack Unit
232701765	50	14/15	79		10
232702461	100	14/15	105	from borosilicate 3.3	10



Rubber Teat transparent

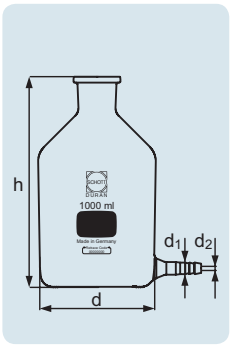
from natural rubber

Cat. No.	d_1 (OD) (mm)	h (mm)	Pack Unit
292000102	15	35	100



DURAN® Aspirator (levelling) Bottle

with plain neck and bottom sidearm



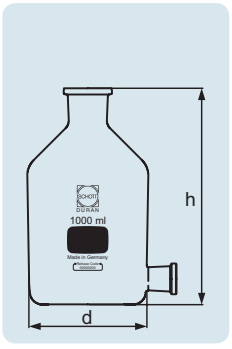
Retrace Code | A 121 °C | USP Standard

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
247083603	250	73	11	5	130	10
247084402	500	89	11	5	164	10
247085407	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.

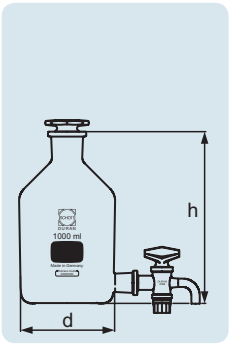
Cat. No.	Capacity (mL)	Tubulature (NS)	d (OD) (mm)	h (mm)	Pack Unit
247014404	500	19/26	86	164	10
247015409	1 000	19/26	107	200	10
247016302	2 000	19/26	134	249	1
247017307	5 000	29/32	182	320	1
247018603	10 000	29/32	228	398	1
247019102	20 000	29/32	289	492	1

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
247024405	500	24/29	19/26	86	164	10
247025401	1 000	29/32	19/26	107	200	10
247026303	2 000	29/32	19/26	134	249	1
247027308	5 000	45/40	29/32	182	320	1
247028604	10 000	60/46	29/32	228	398	1
247029103	20 000	60/46	29/32	289	492	1



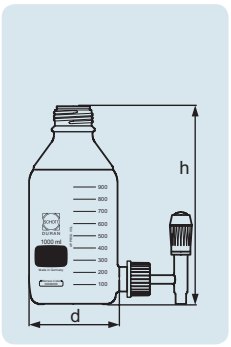
ISO 4796-3 | Retrace Code | A 121 °C

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.

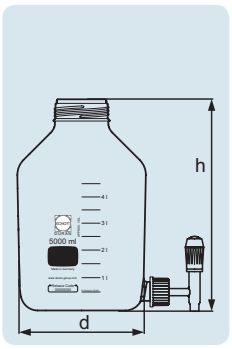
Cat. No.	Capacity (mL)	DIN Thread (GL)	d (OD) (mm)	h (mm)	Pack Unit
247035402	1 000	45	101	225	1
247036304	2 000	45	136	260	1
247037309	5 000	45	182	330	1
247038605	10 000	45	230	410	1



ISO 4796-3 | Retrace Code | A 121 °C

DURAN® Aspirator (levelling) Bottle

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

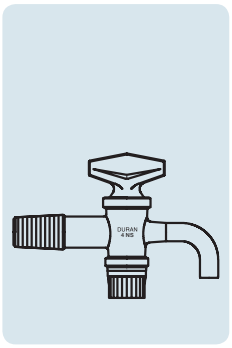


ISO 4796-3 | Retrace Code | A 121 °C

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
247047301	5 000	80	182	330	1

Stopcock with Standard Ground Joint for Aspirator Bottle

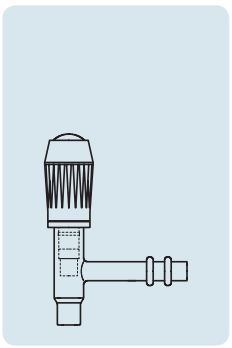


Spare part for aspirator bottle.

Cat. No.	Capacity (mL)	Neck	Pack Unit
241480307	500 – 2 000	19/26	1
241480401	5 000 – 20 000	29/32	1

Stopcock for Aspirator Bottle

with PTFE spindle, for GL 32 screw thread



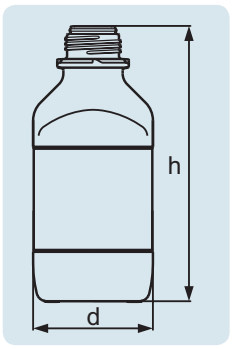
Cat. No.	Capacity (mL)	Hole (mm)	Remark	Pack Unit
241470306	1 000 + 2 000	6	suitable silicone sealing ring: cat.no. 292361004	1
241470409	5 000 + 10 000	8	suitable silicone sealing ring: cat. no. 292361201	1

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
238102456	100	32	49	119	10
238103658	250	32	64	155	10
238104457	500	32	77	186	10
238105453	1 000	45	97	223	10

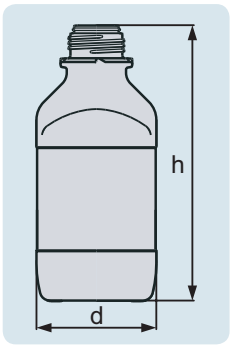


Screw Cap Bottle Square, Amber from Soda-lime Glass

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
238162453	100	32	49	119	10
238163655	250	32	64	155	10
238164454	500	32	77	186	10
238165459	1 000	45	97	223	10

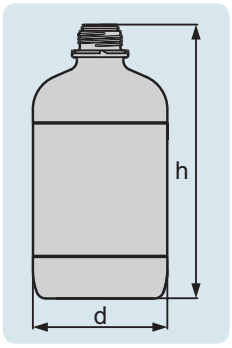


Screw Cap Bottle Round, Amber from Soda-lime Glass

with thread, high form

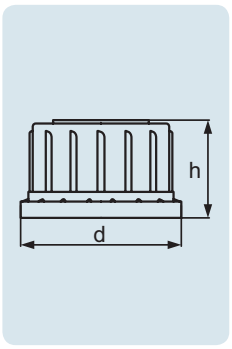
High form glass thread. A maximum usage temperature of + 100 °C is recommended. Thermal shock resistance 30 K. Hydrolytic class 3.

Cat. No.	Capacity (mL)	Thread	d (OD) (mm)	h (mm)	Pack Unit
238356656	2 500	45	139	283	1



Vented Screw Cap Narrow Neck

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



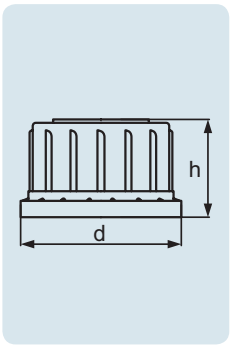
A 121 °C Tmax. 140 °C

High form thread

Cat. No.	Thread	d (OD) (mm)	h (mm)	Pack Unit
293021909	32	45	32	10
293022802	45	60	35	10

Tamper-Evident Screw Cap Narrow Neck

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



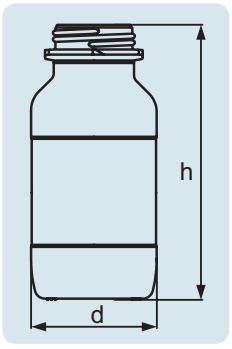
A 121 °C Tmax. 140 °C

High form thread.

Cat. No.	Thread	d (OD) (mm)	h (mm)	Pack Unit
Temper evident screw cap				
293011908	32	45	32	10
293012801	45	60	35	10
Pouring ring				
292511904	32	45	32	10
292512806	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.

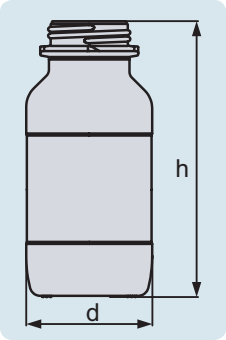
Cat. No.	Capacity (mL)	Thread	d (OD) (mm)	h (mm)	Pack Unit
238201709	50	32	48	70	10
238202405	100	32	49	111	10
238203607	250	45	64	146	10
238204406	500	54	76	173	10
238205402	1 000	60	97	213	10

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
238262402	100	32	49	111	10
238263604	250	45	64	146	10
238264403	500	54	76	173	10
238265408	1 000	54	97	213	10

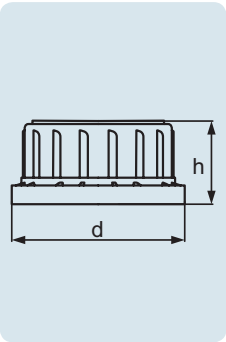


Tamper Evident Screw Cap Wide Neck

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

Short form thread.

Cat. No.	Thread	d (OD) (mm)	h (mm)	Pack Unit
293031901	32	44	23	10
293032803	45	58	27	10
293033208	54	69	29	10
293033508	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 to +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)

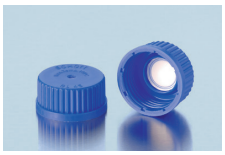
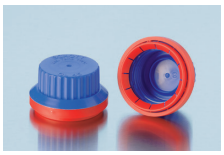
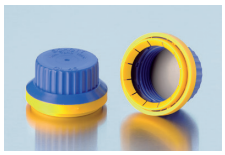
Color of bottle		clear			amber		clear		amber	
mL	GL thread	With blue screw cap (PP)	With red screw cap (PBT)	Without screw cap	With screw cap (PP)	Without screw cap	With screw cap (PP)	Without screw cap	With screw cap (PP)	Without screw cap
10[1,2]	25	218010851	–	218010802	218060856	218060807	–	218050806	–	–
25[1]	25	218011453	–	218011404	218061458	218061409	–	1092676	–	218061433
50	32	218011753	–	218011704	218061758	218061709	–	1092677	–	218061733
100	45	218012458	218012417	218012409	218062454	218062405	218052453	218052404	–	218062438
150	45	218012955	–	218012906	218062951	218062902	218052959	218052901	–	–
250	45	218013651	218013619	218013602	218063656	218063607	218053655	218053606	–	218063631
500	45	218014459	218014418	218014401	218064455	218064406	218054454	218054405	–	218064439
750	45	218015155	–	218015106	218065151	218065102	218055159	218055101	–	–
1 000	45	218015455	218015414	218015406	218065451	218065402	218055459	218055401	–	218065435
2 000	45	218016357	218016316	218016308	218066353	218066304	218056352	218056303	–	218066337
3 500	45	218016957	–	218016908	218066953	218066904	218056952	218056903	–	–
5 000	45	218017353	218017312	218017304	218067358	218067309	218057357	218057308	–	218067333
10 000	45	218018658	218018617	218018609	218068654	218068605	–	218058604	–	–
15 000	45	218018855	–	218018806	–	218068802	–	218058801	–	–
20 000	45	218019157	–	218019108	–	218069104	–	218059103	–	–
25 000	45	218019251	–	–	–	–	–	–	–	–

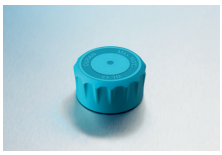
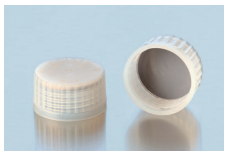
[1] With specially shaped glass lip for improved pouring out, so a seperate pouring ring from PP is not required.
[2] Acceptance within ISO 4796-I:2013 standard has been requested.
[3] Bottle with plastic coating available on request.
[4] Only applies to bottles 5 000 mL and less.
[5] All these bottles 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
	–	–	–	–	–	–	–
	–	–	–	–	–	–	–
	–	–	–	–	–	–	–
	218102406	218152402	218162403	1127075	1127079	218202453[6]	218202404[6]
	–	–	–	–	–	–	–
	1092234	1175925	1094367[3]	1127076	–	218203655	1008834
	1092235	1175926	1094368[3]	1127077	–	218204454	1008842
	–	–	–	–		–	–
	218105403	218155408	218165409[3]	1127078	1127976	218205459	1008843
	–	–	–	–	–	–	–
	–	–	–	–	–	–	–
	–	–	–	–	–	–	–
	–	–	–	–	–	–	–
	–	–	–	–	–	–	–
	–	–	–	–	–	–	–
	–	–	–	–	–	–	–

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	● 292391307		● 291181307		–		–	
GL 32	Cap	Pouring ring	Cap	Pouring ring	–		–	
	● 292391907	● 292421907	● 291181907	● 292421907				
GL 45	Cap	Pouring ring	Cap	Pouring ring	Cap	Pouring ring	Cap	Pouring ring
	● 292392809 ● 293382802 ● 293382868 ● 293382884	● 292422809 ● 1089917 ● 1089911 ● 1089914	● 291182809	● 292422809	◐ 1017526	● 292422809	◐ 1155886	● 292422809
GL 56	–		○ 291185609		–		–	

	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
	–	–	● 292400806	● 292270508	–
	–	–	● 292401108	● 292270602	–
	–	–	● 292401305	● 292270902	● 1129600
	–	–	Cap: ● 292401905 / Pouring ring: ● 292441909	● 292270808	–
	Cap: ● 292292802 / Pouring ring: ● 292412808	–	Cap: ● 292402807 / Pouring ring: ● 292442802	● 292271007	Cap: ● 1088679 / Pouring ring: ● 1088678
	–	○ 292295602	–	–	–

DURAN WHEATON KIMBLE
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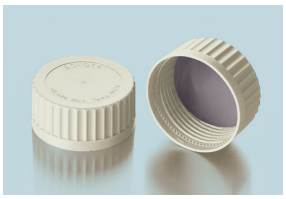
DURAN® RANGE OF GLS 80® BOTTLES AND CAPS

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	218603656	218603607	218663653	218663604	218653652	218653603	–	–
500	80	1112627	1178392	1160146	1178429	1160152	–	1167308	218664436
1 000	80	1112713	1178424	1160147	1178430	1160163	–	1167309	218665432
2 000	80	1112715	1178425	1160148	1178431	1160164	–	–	218666334
3 500	80	218606953	218606904	218666959	218666901	218656953	218656909	–	–
5 000	80	1113949	1178426	1160149	1178432	1160165	–	–	218667339
10 000	80	1113950	1178427	1160150	1178433	–	–	–	–
20 000	80	1113951	1178428	1160151	1178434	–	–	–	–

[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
	1112716	1160166	1165888	1167307	1152921	291189105

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.

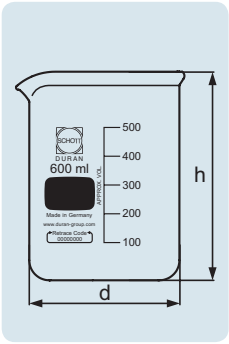
DURAN® SUPER DUTY Beaker

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
211072909	150	60	80	10
211073605	250	70	95	10
211074104	400	80	110	10
211074807	600	90	125	10
211075409	1 000	105	145	10
211076302	2 000	132	185	10
211077307	5 000	170	270	1



Retrace Code | A 121 °C | USP Standard

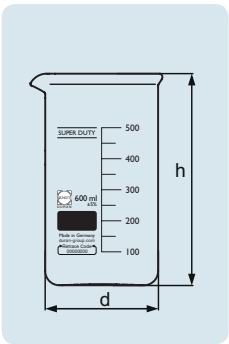
DURAN® SUPER DUTY Beaker

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.

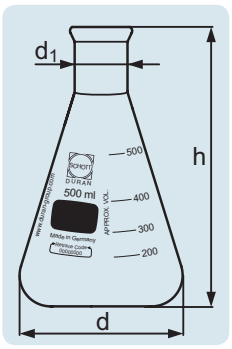
Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Pack Unit
211182908	150	54	95	10
211183604	250	60	120	10
211184806	600	80	150	10



Retrace Code | A 121 °C | USP Standard

DURAN® SUPER DUTY Erlenmeyer Flask

narrow neck, with reinforced rim



Retrace Code | A 121 °C | USP Standard

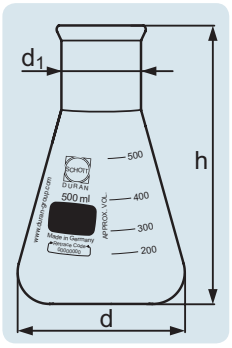
The DURAN® SUPER DUTY products are characterized by a higher mechanical strength achieved by reinforcing the rim. As a result of this modification, the impact strength is improved, and the risk of accidental breakage is significantly reduced.

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
212171408	25	42	22	75	10
212171708	50	51	22	90	10
212172404	100	64	22	105	10
212173606	250	85	34	145	10
212174405	500	105	34	180	10
212175401	1 000	131	42	220	10
212176303	2 000	166	50	280	10
212177308	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.

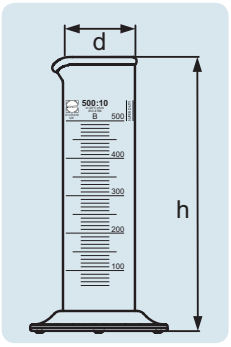
Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Pack Unit
212272402	100	64	34	105	10
212273604	250	85	50	140	10
212274403	500	105	50	175	10
212275408	1 000	131	50	220	10

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.



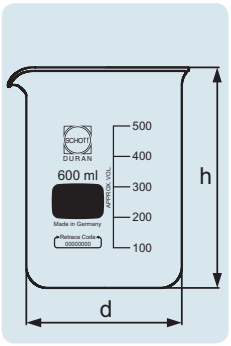
ISO 4788 | A 121 °C

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Accuracy limits (mL)	Graduation (mL)	Pack Unit
213942406	100	39	168	1	2	2
213943608	250	54	205	2	5	2
213944407	500	66	253	5	10	2
213945403	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.

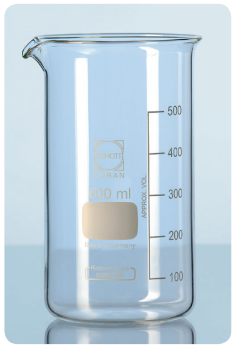


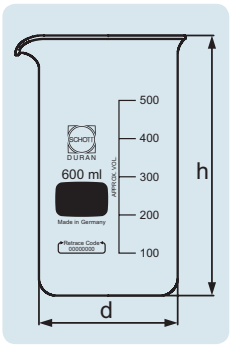
ISO 3819 | Retrace Code | A 121 °C

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Remark	Pack Unit
211060701	5	22	30	Without graduation.Without Retrace Code.	10
211060804	10	26	35	Without graduation.Without Retrace Code.	10
211061406	25	34	50		10
211061706	50	42	60		10
211062402	100	50	70		10
211062908	150	60	80		10
211063604	250	70	95		10
211064103	400	80	110		10
211064806	600	90	125		10
211065305	800	100	135		10
211065408	1 000	105	145		10
211066301	2 000	132	185		10
211066807	3 000	152	210		4
211067306	5 000	170	270		1
211068602	10 000	217	350	Non-DIN/ISO size.	1

DURAN® Beaker

high form, with spout





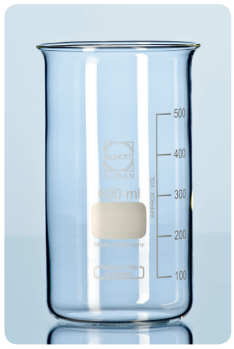
With easy-to-read scale and large labelling field for easy marking in fired-on, highly durable, white ceramic. With spout for clean pouring. Uniform wall thickness distribution makes these beakers ideal for heating applications.

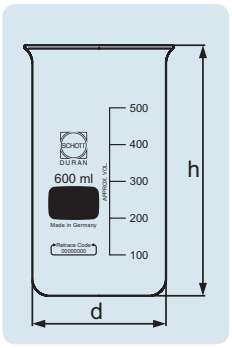
Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Pack Unit
211161704	50	38	70	10
211162409	100	48	80	10
211162906	150	54	95	10
211163602	250	60	120	10
211164101	400	70	130	10
211164804	600	80	150	10
211165303	800	90	175	10
211165406	1 000	95	180	10
211166308	2 000	120	240	10
211166805	3 000	135	280	2

ISO 3819 · Retrace Code · A 121 °C

DURAN® Beaker

high form, without spout





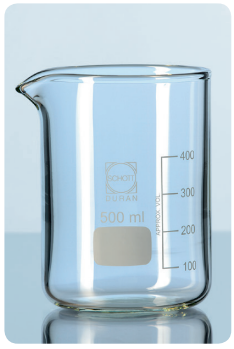
With easy-to-read scale and large labelling field for easy marking in fired-on, highly durable, white ceramic. Uniform wall thickness distribution makes these beakers ideal for heating applications.

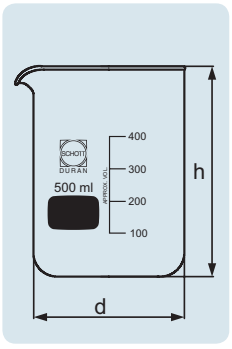
Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Pack Unit
211171705	50	38	70	10
211172401	100	48	80	10
211172907	150	54	95	10
211173603	250	60	120	10
211174102	400	70	130	10
211174805	600	80	150	10
211175407	1 000	95	180	10

Retrace Code · A 121 °C · USP Standard

DURAN® Beaker

heavy-wall (filtering beaker)





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
211312409	100	52	85		10
211312906	150	54	93		10
211313602	250	70	94		10
211314401	500	89	124		10
211315406	1 000	105	160		10
211316308	2 000	135	195		10
211316805	3 000	157	205		4
211317304	5 000	182	256		1
211318609	10 000	225	340	Without graduation.	1
211318806	15 000	260	390	Without graduation.	1
211319108	20 000	285	430	Without graduation.	1

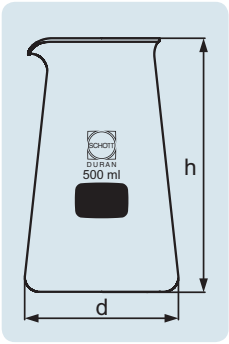
A 121 °C · USP Standard

DURAN® Philips Beaker

with spout

Spout for clean pouring.

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Pack Unit
211412904	150	59	87	10
211413609	250	68	105	10
211414408	500	86	142	10

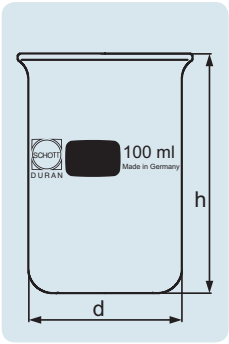


A
121 °C

DURAN® Berzelius Beaker

without spout

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Pack Unit
211260106	100	50	78	10

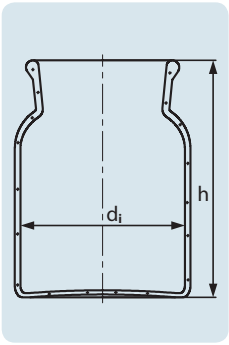


A
121 °C

DURAN® Bloom Test Vessel

Manufactured according to DIN ISO 9665.

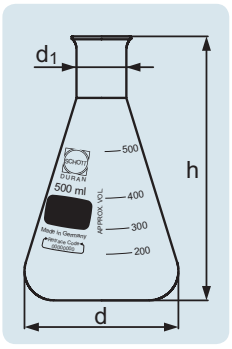
Cat. No.	d_i (ID) (mm)	h (mm)	Pack Unit
211250105	59	85	10



A
121 °C

DURAN® Erlenmeyer Flask

narrow neck



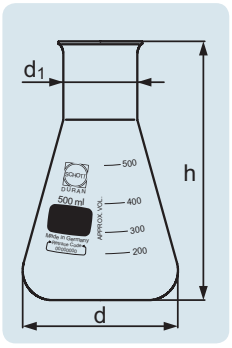
DIN ISO 1773 | A 121 °C | Retrace Code | USP Standard

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
212161407	25	42	22	75	Without Retrace Code.	10
212161707	50	51	22	90		10
212162403	100	64	22	105		10
212162806	125	67	28	112		10
219902702	150	74	28	118	Non-DIN ISO size.	10
212163202	200	79	34	131	Non-DIN ISO size.	10
212163605	250	85	34	145		10
212163905	300	87	34	156	Non-DIN ISO size.	10
212164404	500	105	34	180		10
212165306	800	120	42	200		10
212165409	1 000	131	42	220		10
212166302	2 000	166	50	280		10
212166808	3 000	187	52	310		2
212167307	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.

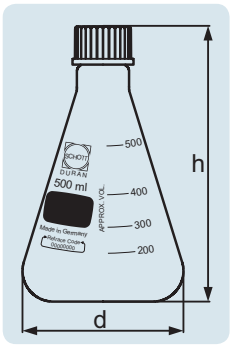
Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Remark	Pack Unit
212261405	25	43	31	70	Non-DIN EN ISO size.	10
212261705	50	51	34	85		10
212262401	100	64	34	105		10
212263209	200	79	50	131	Non-DIN EN ISO size.	10
212263603	250	85	50	140		10
212263903	300	87	50	156	Non-DIN EN ISO size.	10
212264402	500	105	50	175		10
212265407	1 000	131	50	220		10
212266309	2 000	153	72	276	Non-DIN EN ISO size.	10

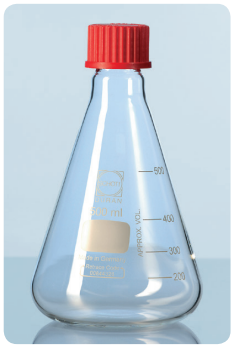
DURAN® Erlenmeyer Flask

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.





Retrace Code | A 121 °C | USP Standard

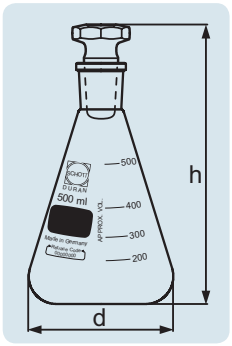
Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	DIN Thread (GL)	Pack Unit
with PBT cap					
218032451	100	64	109	25	10
218033653	250	85	149	32	10
218034452	500	105	180	32	10
218035457	1 000	131	225	32	10
without screw cap					
218032402	100	64	105	25	10
218033604	250	85	145	32	10
218034403	500	105	175	32	10
218035408	1 000	131	220	32	10

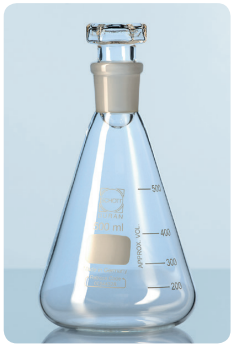
DURAN® Iodine Flask

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.



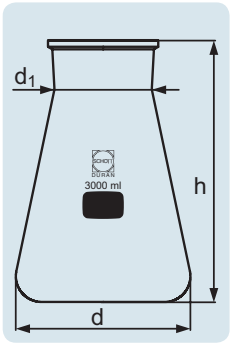


Retrace Code | A 121 °C | USP Standard

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Neck	Pack Unit
241922704	100	64	120	29/32	10
241923709	250	85	160	29/32	10
241924602	500	105	195	29/32	10
241925607	1 000	131	235	29/32	10

DURAN® Conical Flask

Erlenmeyer shape, wide neck

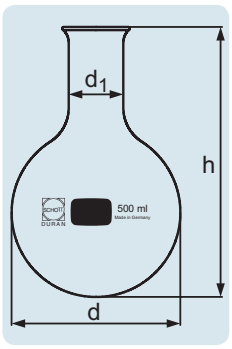


A 121 °C | USP Standard

Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Remark	Pack Unit
212276807	3 000	190	106	285	Without graduation.	1
212277306	5 000	220	108	322	Without graduation.	1
212278602	10 000	285	147	420	Without graduation.	1

DURAN® Round Bottom Flask Narrow Neck

with beaded rim



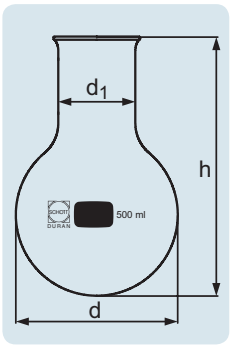
DIN ISO 1773 | A 121 °C | USP Standard

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
217211706	50	51	26	95		10
217212402	100	64	26	110		10
217213604	250	85	34	144		10
217214403	500	105	34	168		10
217215408	1 000	131	42	200		10
217216404	2 000	166	42	250	Non-DIN ISO size.	10
217216807	3 000	185	50	260	Non-DIN ISO size.	1
217217109	4 000	207	52	290		1
217217306	5 000	223	50	305	Non-DIN ISO size.	1
217217709	6 000	236	51	355	Non-DIN ISO size.	1
217218602	10 000	279	65	380		1
217218705	12 000	295	65	380	Non-DIN ISO size. Conforms to ASTM E 1403.	1
217219101	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.

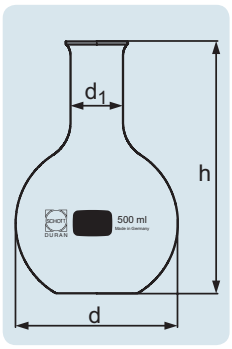
Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Remark	Pack Unit
217411702	50	51	34	105	Non-DIN EN ISO size.	10
217412407	100	64	35	110		10
217413609	250	85	51	143		10
217414408	500	105	50	168		10
217415404	1 000	131	50	200		10
217415507	1 000	131	65	200	Non-DIN EN ISO size.	10
217416306	2 000	165	76	240		10
217416409	2 000	166	50	240	Non-DIN EN ISO size.	10
217416803	3 000	185	65	260	Non-DIN EN ISO size.	1
217417105	4 000	206	76	290		1
217417302	5 000	223	65	310	Non-DIN EN ISO size.	1
217417602	6 000	236	89	330		1
217417705	6 000	236	65	330	Non-DIN EN ISO size.	1
217418607	10 000	279	89	420	Non-DIN EN ISO size.	1
217419106	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
217111708	50	51	26	90		10
217112404	100	64	26	105		10
217113606	250	85	34	138		10
217114405	500	105	34	163		10
217115401	1 000	131	42	190		10
217116406	2 000	166	42	250	Non-DIN ISO size.	10
217116809	3 000	185	50	250	Non-DIN ISO size.	1
217117102	4 000	207	50	275		1
217117308	5 000	223	50	290	Non-DIN ISO size.	1
217117608	6 000	237	65	315		1
217118604	10 000	280	65	360		1



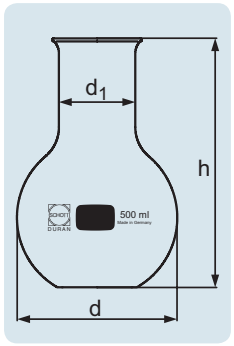
DIN ISO 1773 | A 121 °C | USP Standard

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
217311704	50	51	34	90		10
217312409	100	64	34	105		10
217313602	250	85	50	138		10
217314401	500	105	50	163		10
217315406	1 000	131	50	190		10
217316308	2 000	166	76	230	Non-DIN EN ISO size.	10
217316402	2 000	166	50	230		10



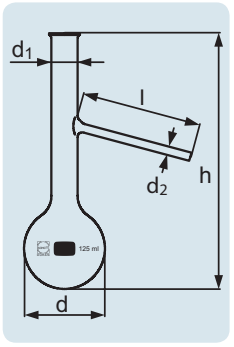
DIN ISO 24450 | A 121 °C | USP Standard

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.

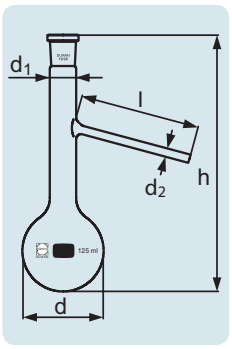
Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	Side arm d_2 (OD) (mm)	Side arm l (mm)	h (mm)	Pack Unit
216532404	100	66	20	6	100	215	10
216532807	125	69	22	7	100	215	10
216532901	150	73	20	6	100	223	10
according to ASTM D86 and DIN EN ISO 3405							
216542808	125	69	22	7	100	215	2



A 121 °C | USP Standard

DURAN® Engler Flask

with standard ground joint 19/26, side outlet



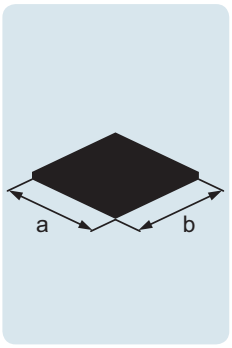
A 121 °C

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							
246542805	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
238215309	135 x 135	10
238215703	155 x 155	10
238215806	175 x 175	10

Square Quadrupod

for glass ceramic laboratory protection plate

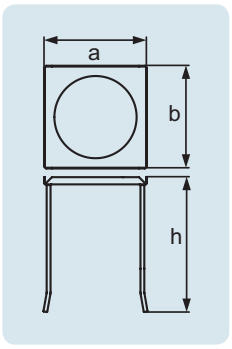


Plate holder for glass ceramic plates. Made from heat-resistant chrome-nickel steel with four legs for extra stability.

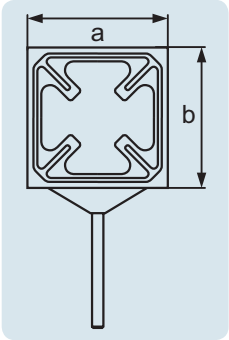
Cat. No.	h (mm)	Plate dimensions (a x b mm)	Pack Unit
290775302	210	135 x 135	5
290775705	210	155 x 155	5
290775808	220	175 x 175	5

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
290785303	135 x 135	5
290785706	155 x 155	5
290785809	175 x 175	5

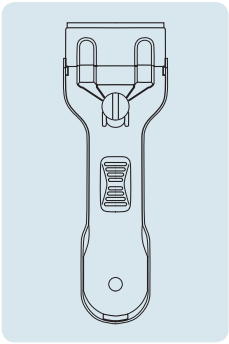


Cleaning Scraper

for glass ceramic laboratory protection plate

Ideal for cleaning glass ceramic plates.

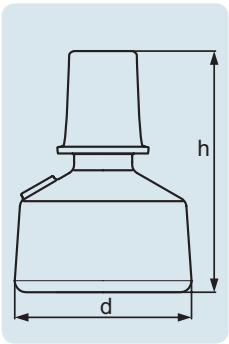
Cat. No.	Pack Unit
290790109	10



Spirit Lamp from Soda-lime Glass

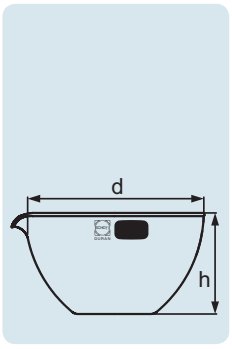
without filling tubulature, with ground over-cap

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Pack Unit
without socket and wick				
234002406	100	75	103	10
with socket and wick				
234002455	100	75	103	10
Accessories for spirit lamp: wicks for spirit lamps				
294020007				50
Accessories for spirit lamp: sockets for spirit lamps (of aluminium)				
294030008				50



DURAN® Evaporating Dish

with spout

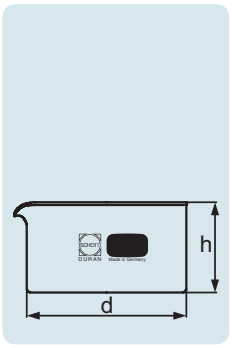


DIN 12336 | A 121 °C

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Remark	Pack Unit
213013202	15	50	25	Without labelling field.	10
213013408	45	60	30	Without labelling field.	10
213013802	60	70	35	Without labelling field.	10
213014104	90	80	45	Without labelling field.	10
213014404	170	95	55		10
213014901	320	115	65		10
213015409	600	140	80		10
213015906	1 500	190	100		10
213016302	2 500	230	130		10

DURAN® Crystallizing Dish

with and without spout



DIN 12337 | DIN 12338 | A 121 °C

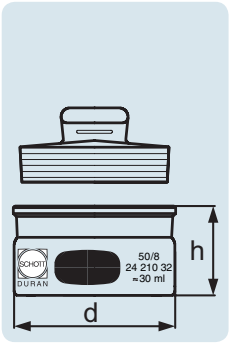
Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Pack Unit
with spout, DIN 12 338				
213112401	20	40	25	10
213113209	40	50	30	10
213113406	60	60	35	10
213113809	100	70	40	10
213114102	150	80	45	10
213114402	300	95	55	10
213114908	500	115	65	10
213115407	900	140	75	10
213115904	2 000	190	90	10
213116309	3 500	230	100	10
without spout, DIN 12 337				
213132403	20	40	25	10
213133202	40	50	30	10
213133408	60	60	35	10
213133802	100	70	40	10
213134104	150	80	45	10
213134404	300	95	55	10
213134901	500	115	65	10
213135409	900	140	75	10
213135906	2 000	190	90	10
213136302	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				
242101304	5	28	25	10
242102309	15	38	30	10
242103202	30	54	30	10
242104104	80	85	30	10
High form				
242111305	10	28	40	10
242111802	20	32	50	10
242112301	45	38	70	10
242112404	70	44	80	10



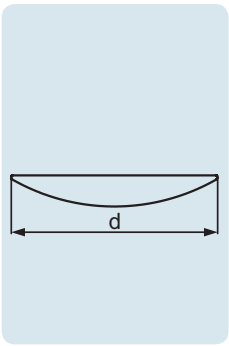
A
121 °C

DURAN® Watch Glass Dish

fused rim

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

Cat. No.	d (OD) (mm)	Pack Unit
DURAN®		
213212408	40	10
213213207	50	10
213213404	60	10
213214109	80	10
213214606	100	10
213215208	125	10
213215705	150	10
213216101	200	10
213216607	250	1
Soda-lime glass		
233212409	40	10
233213208	50	10
233213405	60	10
233213808	70	10
233214101	80	10
233214307	90	10
233214607	100	10
233215106	120	10
233215209	125	10
233215706	150	10
233216102	200	10
233216608	250	10



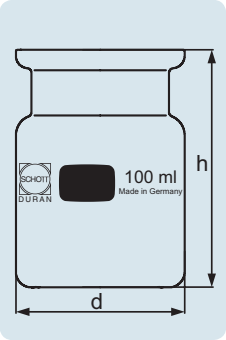
DIN
12341

A
121 °C

DURAN® Organ Storage Jar

without stopper

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Pack Unit
242042306	75	50	70	10
242042409	100	54	75	10

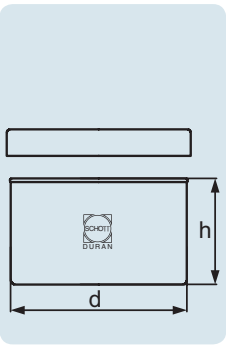


A 121 °C

DURAN® Jar

with lid

Cat. No.	d (OD) (mm)	h (mm)	Volume approx. (mL)	Pack Unit
242083409	60	40	75	10
242084105	80	50	175	10
242084508	100	60	325	10
242085701	150	80	1000	10

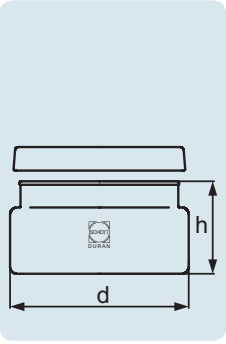


A 121 °C

DURAN® Jar

with shoulder and lid

Cat. No.	d (OD) (mm)	h (mm)	Volume approx. (mL)	Pack Unit
242073408	60	35	70	10
242074507	103	55	250	10
242075109	121	64	500	10

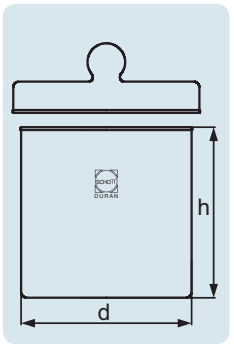


DIN 12340 A 121 °C

Cat. No.	d (OD) (mm)	h (mm)	Volume approx. (mL)	Pack Unit
242050109	80	80	250	10
242050306	100	100	500	10
242050503	120	120	1000	1
242051002	150	150	2000	1
242052101	210	210	6000	1
242053209	260	260	12000	1

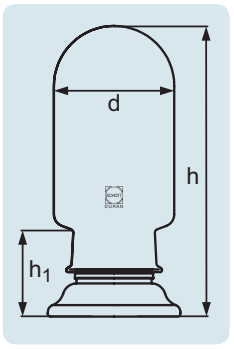
DURAN® Cylinder

with knobbed lid, polished rim



Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	h_1 (mm)	Neck	Pack Unit
215802401	100	52	135	39	NS 34.5	10
215803903	300	69	163	48	NS 45	10
215804805	600	81	214	50	NS 50	10
215805107	750	90	240	57	NS 60	10
215805801	1 200	100	253	57	NS 60	10

DURAN® Specimen Jar

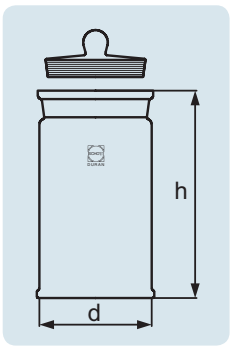


The precise grinding of the knobbed lid and base vessel enables a very tight seal.

Cat. No.	d (OD) (mm)	h (mm)	Volume approx. (mL)	Pack Unit
242090207	65	63	80	10
242090901	65	103	175	10
242091109	115	103	460	10
242091606	90	123	395	10
242091709	132	123	875	1
242092405	90	153	530	1
242092602	115	153	890	1
242092808	162	153	1875	1
242093804	115	203	1150	1
242093907	162	203	2675	1
242094903	115	253	1575	1
242095008	162	253	3475	1
242095702	132	303	2400	1
242095908	268	303	11250	1

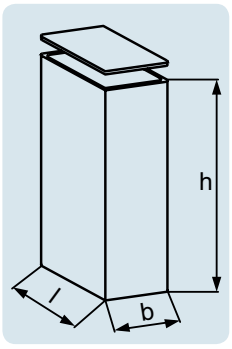
DURAN® Specimen Jar

with ground, knobbed lid



DURAN® Museum Jar

with ground glass plate

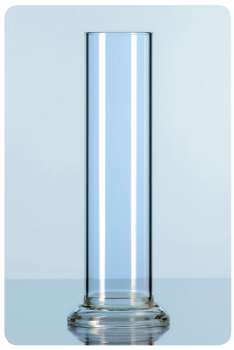


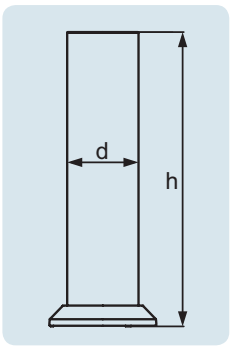
The precise grinding of the glass plate and base vessel enables a very tight seal.

Cat. No.	h (mm)	l (mm)	b (mm)	Pack Unit
213630504	100	60	50	10
213631106	120	100	50	1
213631303	130	130	50	1
213631903	150	150	50	1
213632805	180	120	60	1
213634703	210	210	100	1
213635802	250	250	140	1

DURAN® Multi-purpose Cylinder

with round base, without graduation





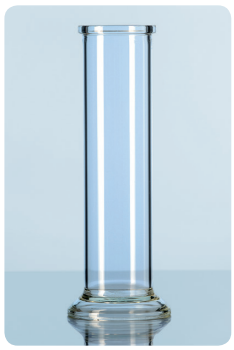
A
121 °C

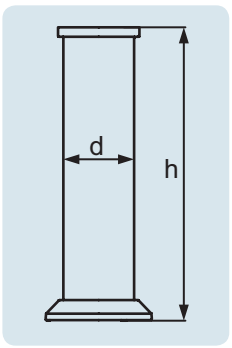
Rough ground rim.

Cat. No.	d (OD) (mm)	h (mm)	Volume approx. (mL)	Pack Unit
213982101	50	150	220	10
213983406	40	200	180	10
213983603	60	200	420	10
213984608	60	250	530	10
213985201	40	300	280	10
213985304	50	300	450	10
213986806	40	400	380	10
213987408	80	400	1650	10
213987708	65	450	1250	10
213988001	50	500	770	10

DURAN® Standing Cylinder

with round base, without graduation





A
121 °C

Plane ground rim.

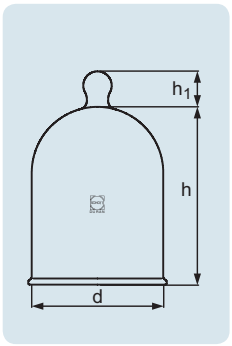
Cat. No.	d (OD) (mm)	h (mm)	Volume approx. (mL)	Pack Unit
213990701	40	100	80	10
213993407	40	200	190	10
213993604	60	200	440	10
213994609	60	250	550	10
213996807	40	400	390	10

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
244605902	185	250	50	1
244606607	260	255	50	1
244606907	315	300	50	1

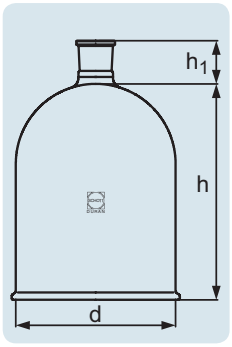


DURAN® Bell Jar

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
244655907	185	250	50	34/35	1
244656106	215	300	50	34/35	1
244656903	315	500	50	34/35	1



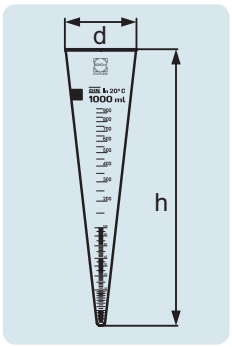
DURAN® Sedimentation Cone

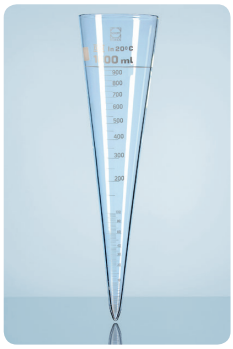
Imhoff type, graduated

For scale divisions and accuracy limits, see table.

Cat. No.	Capacity (mL)	h (mm)	d (OD) (mm)	Pack Unit
214015403	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

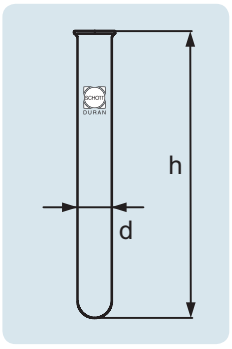




DIN 12672

DURAN® Test Tube

with beaded rim or straight rim



A 121 °C

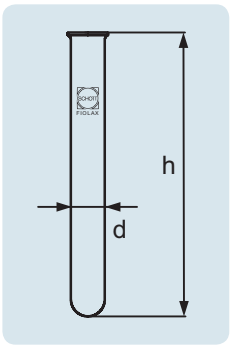
USP Standard

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					
261300105	8	70	2	0.8 – 1.0	100
261300302	10	75	4	0.8 – 1.0	100
261300602	10	100	5	0.8 – 1.0	100
261300808	12	75	6	0.8 – 1.0	100
261301101	12	100	8	0.8 – 1.0	100
261301204	13	100	9	0.8 – 1.0	100
261301307	14	130	16	0.8 – 1.0	100
261301607	16	130	17	1.0 – 1.2	100
261302106	16	160	21	1.0 – 1.2	100
261302303	18	180	32	1.0 – 1.2	100
261302603	20	150	34	1.0 – 1.2	100
261302809	20	180	40	1.0 – 1.2	100
261303308	25	150	55	1.0 – 1.2	50
261303608	25	200	70	1.0 – 1.2	50
261303805	30	200	100	1.0 – 1.4	50
straight rim					
261310106	8	70	2	0.8 – 1.0	100
261310303	10	75	4	0.8 – 1.0	100
261310603	10	100	5	0.8 – 1.0	100
261310809	12	75	6	0.8 – 1.0	100
261311102	12	100	8	0.8 – 1.0	100
261311205	13	100	9	0.8 – 1.0	100
261311308	14	130	16	0.8 – 1.0	100
261311608	16	130	17	1.0 – 1.2	100
261312107	16	160	21	1.0 – 1.2	100
261312304	18	180	32	1.0 – 1.2	100
261312604	20	150	34	1.0 – 1.2	100
261312801	20	180	40	1.0 – 1.2	100
261313309	25	150	55	1.0 – 1.2	50
261313609	25	200	70	1.0 – 1.2	50
261313806	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.

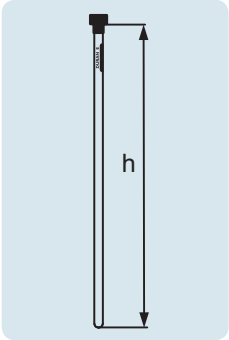
Cat. No.	d (OD) (mm)	h (mm)	Volume approx. (mL)	Wall thickness (mm)	Pack Unit
261100109	8	70	2	0.4 – 0.5	100
261100306	10	75	4	0.4 – 0.5	100
261100606	10	100	6	0.4 – 0.5	100
261100803	12	75	6,5	0.4 – 0.5	100
261101105	12	100	9	0.4 – 0.5	100
261101302	14	130	16	0.4 – 0.5	100
261101602	16	130	20	0.5 – 0.6	100
261102101	16	160	25	0.5 – 0.6	100
261102307	18	180	35	0.5 – 0.6	100
261102607	20	150	39	0.5 – 0.6	100
261102804	20	180	45	0.5 – 0.6	100
261103303	25	150	60	0.6 – 0.7	50
261103603	25	200	80	0.6 – 0.7	50
261103809	30	200	110	0.7 – 0.8	50

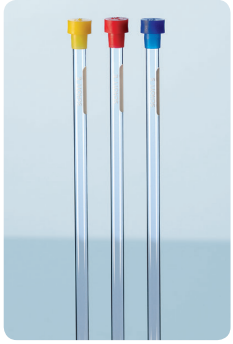
DURAN® NMR Tubes

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						
231700117	178	4.95 ± 0.05	4.20 ± 0.05	0.07	300	250
Professional with Retrace Code						
231700211	178	4.97 ± 0.025	4.20 ± 0.025	0.03	400	250
Scientific with Retrace Code						
231700314	178	4.97 ± 0.013	4.20 ± 0.025	0,013	500	5

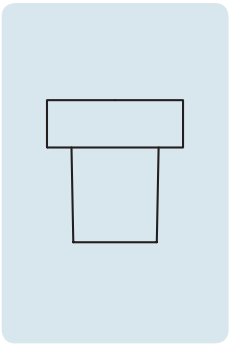




Spare Caps for NMR Tubes

from EVA

Cat. No.	Colour	Pack Unit
299170101	blue	250
299170204	red	250
299170307	yellow	250
299170401	black	250
299170504	green	250




SCHOTT
DURAN
500 ml
Made in Germany
20°C

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.

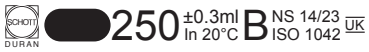
03

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

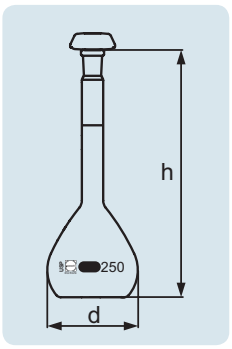
Full pipette

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

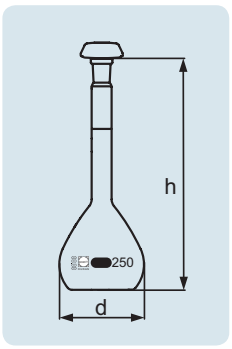
Calibration is based on the poured in volume ("In") at a + 20 °C reference temperature. The volume content tolerances conform to accuracy class A, the accuracy limits of the German weights and measures regulations and DIN and ISO specifications.

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
246710958	5 W	22	70	9 ± 1	10/19	0.02	wide neck	2
246711054	10 W	27	90	9 ± 1	10/19	0.02	wide neck	2
246711457	25	40	110	9 ± 1	10/19	0.03		2
246711757	50	50	140	11 ± 1	12/21	0.05		2
246712556	100	60	170	13 ± 1	14/23	0.08		2
246713252	200	75	210	15.5 ± 1.5	14/23	0.1		2
246713655	250	80	220	15.5 ± 1.5	14/23	0.12		2
246714454	500	100	260	19 ± 2	19/26	0.2		2
246715459	1 000	125	300	23 ± 2	24/29	0.3		2
246716352	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.

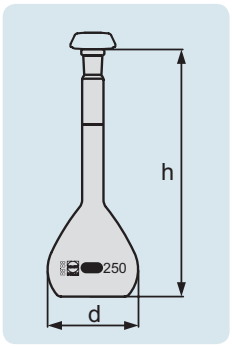
Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Neck	Stopper size	Accuracy limits (mL)	Remark	Pack Unit
246790151	1	13	65	7 ± 1	7/16	0.025		2
246790254	2	17	70	7 ± 1	7/16	0.025		2
246790957	5 W	22	70	9 ± 1	10/19	0.04	wide neck	2
246791053	10 W	27	90	9 ± 1	10/19	0.04	wide neck	2
246791259	20	39	110	9 ± 1	10/19	0.04		2
246791456	25	40	110	9 ± 1	10/19	0.04		2
246791756	50	50	140	11 ± 1	12/21	0.06		2
246792452	100	60	170	13 ± 1	12/21	0.1		2
246792555	100	60	170	13 ± 1	14/23	0.1		2
246793251	200	75	210	15.5 ± 1.5	14/23	0.15		2
246793654	250	80	220	15.5 ± 1.5	14/23	0.15		2
246794453	500	100	260	19 ± 2	19/26	0.25		2
246795458	1 000	125	300	23 ± 2	24/29	0.4		2
246795552	1 000 W	125	300	27.5 ± 2.5	29/32	0.6	wide neck	2
246796351	2 000	160	370	27.5 ± 2.5	29/32	0.6		2
246797356	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.



ISO 1042 | A 121 °C

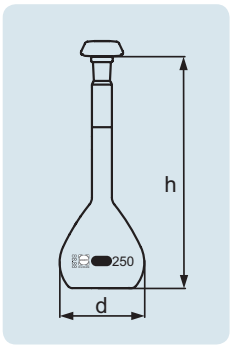
Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Neck	Stopper size	Accuracy limits (mL)	Remark	Pack Unit
246770955	5 W	22	70	9 ± 1	10/19	0.04	wide neck	2
246771051	10 W	27	90	9 ± 1	10/19	0.04	wide neck	2
246771257	20	39	110	9 ± 1	10/19	0.04		2
246771454	25	40	110	9 ± 1	10/19	0.04		2
246771754	50	50	140	11 ± 1	12/21	0.06		2
246772459	100	60	170	13 ± 1	12/21	0.1		2
246772553	100	60	170	13 ± 1	14/23	0.1		2
246773258	200	75	210	15.5 ± 1.5	14/23	0.15		2
246773652	250	80	220	15.5 ± 1.5	14/23	0.15		2
246774451	500	100	260	19 ± 2	19/26	0.25		2
246775456	1 000	125	300	23 ± 2	24/29	0.4		2
246776358	2 000	160	370	27.5 ± 2.5	29/32	0.6		2

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.

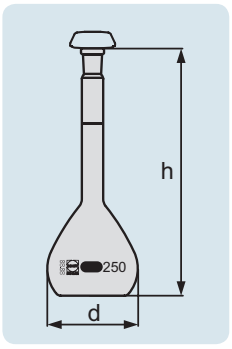


ISO 1042 | A 121 °C

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Neck	Stopper size	Accuracy limits (mL)	Remark	Pack Unit
246780159	1	13	65	7 ± 1	7/16	0.025		2
246780253	2	17	70	7 ± 1	7/16	0.025		2
246780956	5 W	22	70	9 ± 1	10/19	0.04	wide neck	2
246781052	10 W	27	90	9 ± 1	10/19	0.04	wide neck	2
246781258	20	39	110	9 ± 1	10/19	0.04		2
246781455	25	40	110	9 ± 1	10/19	0.04		2
246781755	50	50	140	11 ± 1	12/21	0.06		2
246782451	100	60	170	13 ± 1	12/21	0.1		2
246782554	100	60	170	13 ± 1	14/23	0.1		2
246783259	200	75	210	15.5 ± 1.5	14/23	0.15		2
246783653	250	80	220	15.5 ± 1.5	14/23	0.15		2
246784452	500	100	260	19 ± 2	19/26	0.25		2
246785457	1 000	125	300	23 ± 2	24/29	0.4		2
246785551	1 000 W	125	300	27.5 ± 2.5	29/32	0.6	wide neck	2
246786359	2 000	160	370	27.5 ± 2.5	29/32	0.6		2
246787355	5 000	215	475	38 ± 3	34/35	1.2		1

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

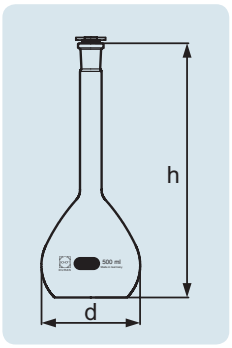
Calibration is based on the poured in volume ("In") at a + 20 °C reference temperature. The volume content tolerances conform to accuracy class A, the accuracy limits of the German weights and measures regulations and DIN and ISO specifications.

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
246760954	5 W	22	70	9 ± 1	10/19	0.04	wide neck	2
246761059	10 W	27	90	9 ± 1	10/19	0.04	wide neck	2
246761256	20	39	110	9 ± 1	10/19	0.04		2
246761453	25	40	110	9 ± 1	10/19	0.04		2
246761753	50	50	140	11 ± 1	12/21	0.06		2
246762458	100	60	170	13 ± 1	12/21	0.1		2
246762552	100	60	170	13 ± 1	14/23	0.1		2
246763257	200	75	210	15.5 ± 1.5	14/23	0.15		2
246763651	250	80	220	15.5 ± 1.5	14/23	0.15		2
246764459	500	100	260	19 ± 2	19/26	0.25		2
246765455	1 000	125	300	23 ± 2	24/29	0.4		2
246766357	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.

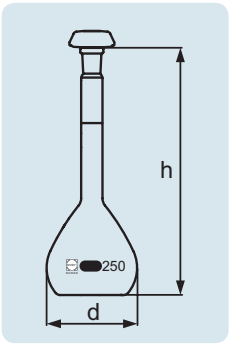
Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Neck	Stopper size	Accuracy limits (mL)	Pack Unit
216780704	5	22	70	7 ± 1	7/16	0.025	2
216780807	10	27	90	7 ± 1	7/16	0.025	2
216781203	20	39	110	9 ± 1	10/19	0.04	2
216781409	25	40	110	9 ± 1	10/19	0.04	2
216781709	50	50	140	11 ± 1	12/21	0.06	2
216782405	100	60	170	13 ± 1	12/21	0.1	2
216782508	100	60	170	13 ± 1	14/23	0.1	2
216783204	200	75	210	15.5 ± 1.5	14/23	0.15	2
216783607	250	80	220	15.5 ± 1.5	14/23	0.15	2
216784406	500	100	260	19 ± 2	19/26	0.25	2
216785402	1 000	125	300	23 ± 2	24/29	0.4	2
216786304	2 000	160	370	27.5 ± 2.5	29/32	0.6	2
216787309	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.

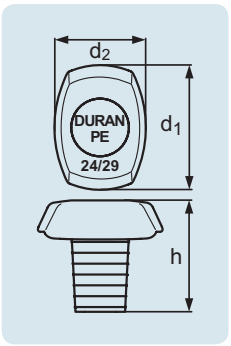


ISO 1042 | A 121 °C

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Neck	Stopper size	Accuracy limits (mL)	Remark	Pack Unit
246700957	5 W	22	70	9 ± 1	10/19	0.08	wide neck	2
246701053	10 W	27	90	9 ± 1	10/19	0.08	wide neck	2
246701259	20	39	110	9 ± 1	10/19	0.08		2
246701456	25	40	110	9 ± 1	10/19	0.08		2
246701756	50	50	140	11 ± 1	12/21	0.12		2
246702555	100	60	170	13 ± 1	14/23	0.2		2
246703251	200	75	210	15.5 ± 1.5	14/23	0.3		2
246703654	250	80	220	15.5 ± 1.5	14/23	0.3		2
246704453	500	100	260	19 ± 2	19/26	0.5		2
246705458	1 000	125	300	23 ± 2	24/29	0.8		2
246706351	2 000	160	370	27.5 ± 2.5	29/32	1.2		2
246707356	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

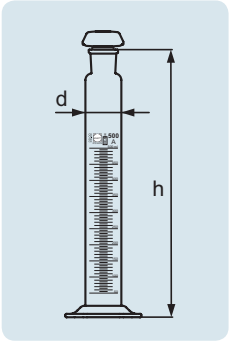
Cat. No.	d_1 (OD) (mm)	d_2 (OD) (mm)	h (mm)	Colour	Stopper size	Pack Unit
292050201	29.5	17.5	28	blue	7/16	10
292050304	32.5	20	32	green	10/19	10
292050407	36.5	22	35	violet	12/21	10
292050604	40	25	38	yellow	14/23	10
292050707	44.5	31	42	blue	19/26	10
292050801	51.5	38	46	green	24/29	10
292050904	61	45.5	50	red	29/32	10
292051103	71	54.5	54	orange	34/45	1
292051206	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.

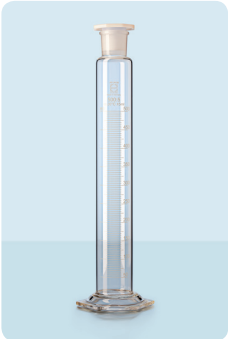


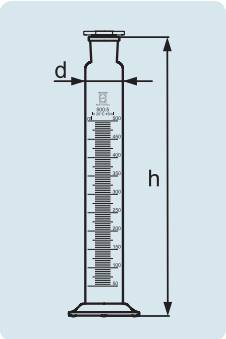
ISO 4788 | A 121 °C

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Stopper size	Accuracy limits (mL)	Graduation (mL)	Pack Unit
246180856	10	14	156	10/19	0.1	0.2	2
246181458	25	21	190	14/23	0.25	0.5	2
246181758	50	25	222	19/26	0.5	1	2
246182454	100	29	287	24/29	0.5	1	2
246183656	250	39	363	29/32	1	2	2
246184455	500	53	395	34/35	2.5	5	2
246185451	1 000	65	500	45/40	5	10	1
246186353	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

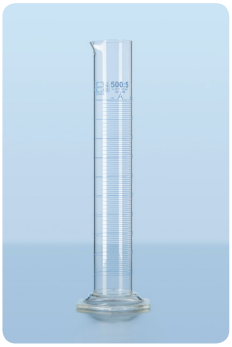
The large hexagonal base prevents the cylinder from rolling. The base is equipped with three knobs which increase its stability. The cylinders have uniform wall thickness over the entire measurement range, so wedge errors are avoided. Calibration is based on the poured in volume ("In") at a + 20 °C reference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

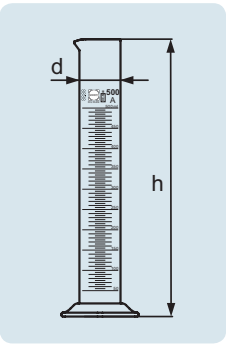
Typical applications: diluting solutions, mixing several components with specified proportions.

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Stopper size	Accuracy limits (mL)	Graduation (mL)	Pack Unit
216180801	10	14	156	10/19	0.2	0.2	2
216181403	25	21	190	14/23	0.5	0.5	2
216181703	50	25	222	19/26	1	1	2
216182408	100	29	287	24/29	1	1	2
216183601	250	39	363	29/32	2	2	2
216184409	500	53	395	34/35	5	5	2
216185405	1 000	65	500	45/40	10	10	1
216186307	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.

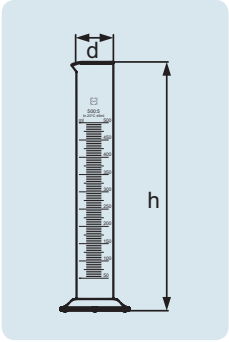
Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Accuracy limits (mL)	Graduation (mL)	Pack Unit
213900701	5	12	112	0.05	0.1	2
213900804	10	14	137	0.1	0.2	2
213901406	25	21	167	0.25	0.5	2
213901706	50	25	196	0.5	1	2
213902402	100	29	256	0.5	1	2
213903604	250	39	331	1	2	2
213904403	500	53	360	2.5	5	2
213905408	1 000	65	460	5	10	1
213906301	2 000	85	500	10	20	1

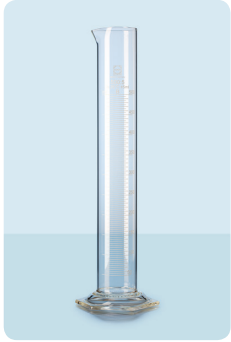
DURAN® Measuring Cylinder with hexagonal base, class B

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

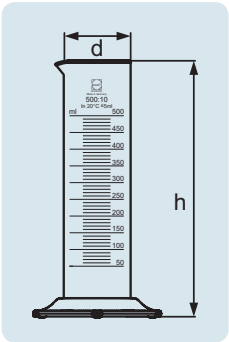
Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Accuracy limits (mL)	Graduation (mL)	Pack Unit
213960707	5	12	112	0.1	0.1	2
213960801	10	14	137	0.2	0.2	2
213961403	25	21	167	0.5	0.5	2
213961703	50	25	196	1	1	2
213962408	100	29	256	1	1	2
213963601	250	39	331	2	2	2
213964409	500	53	360	5	5	2
213965405	1 000	65	460	10	10	1
213966307	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.

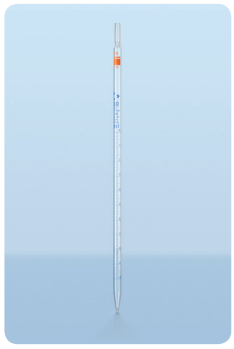


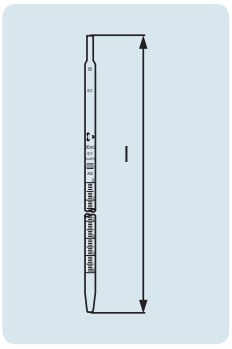
ISO 4788 | A | 121 °C | USP Standard

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Accuracy limits (mL)	Graduation (mL)	Pack Unit
213950809	10	21	90	0.2	1	2
213951402	25	25	115	0.5	1	2
213951702	50	29	145	1	2	2
213952407	100	39	165	1	2	2
213953609	250	54	195	2	5	2
213954408	500	65	250	5	10	2
213955404	1 000	85	285	10	20	1
213956306	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

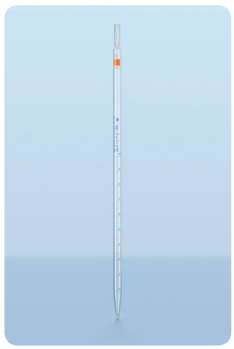
Numbering from the top down. Calibration is based on the poured out volume ("Ex") at a + 20 °C reference temperature. Due to the scale, variable volumes can be held and then dispensed in the same or differing increments.

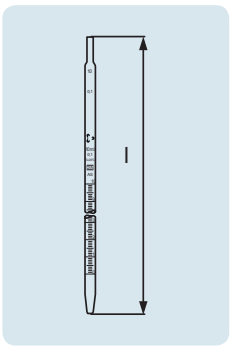
Typical applications: accurate measurement and decanting of liquids.

Cat. No.	Capacity (mL)	l (mm)	Accuracy limits (mL)	Graduation (mL)	Colour code DIN 12621	Pack Unit
233460606	0.5	360	0.006	0.01	3 x yellow	12
233461105	1	360	0.007	0.01	2 x yellow	12
233461602	2	360	0.01	0.02	2 x black	12
233462307	5	360	0.03	0.05	2 x red	12
233462907	10	360	0.05	0.1	2 x orange	12
233463209	20	360	0.1	0.1	3 x yellow	6
233463406	25	450	0.1	0.1	2 x white	6
233463603	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
233480608	0.5	360	0.006	0.01	2 x yellow	12
233481107	1	360	0.007	0.01	1 x yellow	12
233481604	2	360	0.01	0.02	1 x black	12
233482309	5	360	0.03	0.05	1 x red	12
233482909	10	360	0.05	0.1	1 x orange	12
233483202	20	360	0.1	0.1	2 x yellow	6
233483408	25	450	0.1	0.1	1 x white	6
233483605	50	450	0.2	0.2	1 x black	6

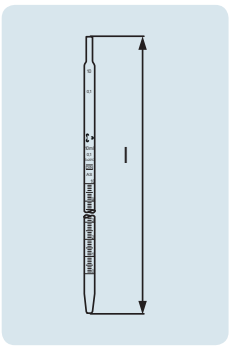
Measuring Pipette from Soda-lime Glass, class AS, type 2

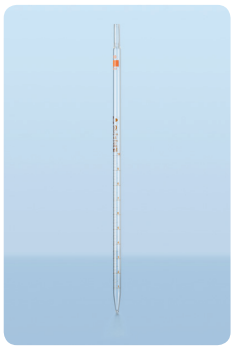
brown inscription, Blow-out, zero at bottom, graduated to tip (total delivery), with main graduations as circular divisions and cotton plug, with certificate of conformity and batch certificate

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
233470607	0.5	360	0.006	0.01	2 x yellow	12
233471106	1	360	0.007	0.01	1 x yellow	12
233471603	2	360	0.01	0.02	1 x black	12
233472308	5	360	0.03	0.05	1 x red	12
233472908	10	360	0.05	0.1	1 x orange	12
233473201	20	360	0.1	0.1	2 x yellow	6
233473407	25	450	0.1	0.1	1 x white	6
233473604	50	450	0.2	0.2	1 x black	6





ISO 835

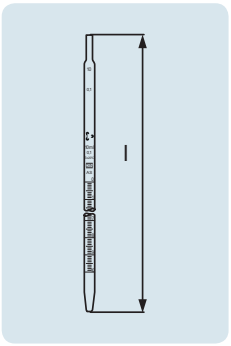
Measuring Pipette from Soda-lime Glass, class AS, type 3

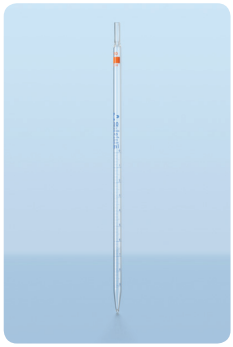
blue inscription, Blow-out, zero at top, graduated to tip (total delivery), with main graduations as circular divisions and cotton plug, with certificate of conformity and batch certificate

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
233490609	0.5	360	0.006	0.01	2 x yellow	12
233491108	1	360	0.007	0.01	1 x yellow	12
233491605	2	360	0.01	0.02	1 x black	12
233492301	5	360	0.03	0.05	1 x red	12
233492901	10	360	0.05	0.1	1 x orange	12
233493203	20	360	0.1	0.1	2 x yellow	6
233493409	25	450	0.1	0.1	1 x white	6
233493606	50	450	0.2	0.2	1 x black	6

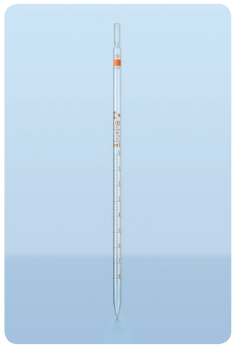


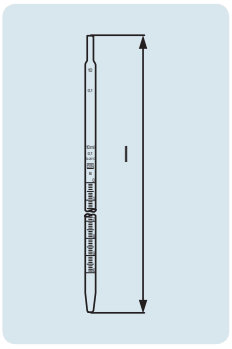


ISO 835

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

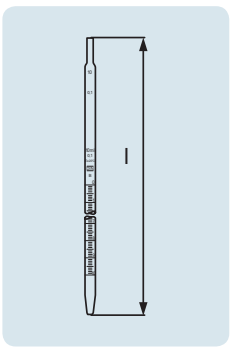
Numbering from the top down. Due to the scale, variable volumes can be held and then dispensed in the same or differing increments.

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
243451109	1	360	0.007	0.01	1 x yellow	12
243451709	2	360	0.01	0.02	1 x black	12
243452302	5	360	0.03	0.05	1 x red	12
243452902	10	360	0.05	0.1	1 x orange	12
243453401	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.

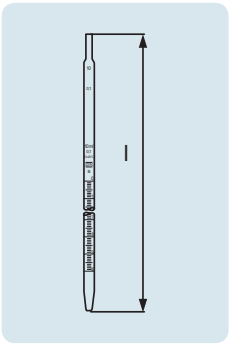
Cat. No.	Capacity (mL)	l (mm)	Accuracy limits (mL)	Graduation (mL)	Colour code DIN 12621	Remark	Pack Unit
243430102	0.1	360	0.01	0.001	3 x green	Non-ISO size, calibrated to contain ("Ex").	12
243430308	0.2	360	0.01	0.001	3 x blue	Non-ISO size, calibrated to contain ("Ex").	12
243430608	0.5	360	0.008	0.01	3 x yellow		12
243431107	1	360	0.008	0.01	2 x yellow		12
243431604	2	360	0.015	0.02	2 x black		12
243432309	5	360	0.04	0.05	2 x red		12
243432909	10	360	0.08	0.1	2 x orange		12
243433408	25	450	0.15	0.1	2 x white		12

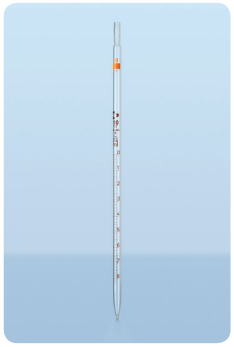
Measuring Pipette from soda-lime glass, class B, type 3

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

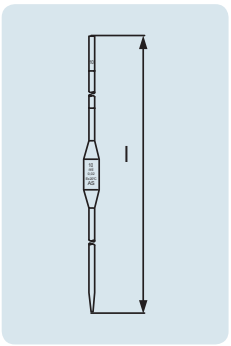
Cat. No.	Capacity (mL)	l (mm)	Accuracy limits (mL)	Graduation (mL)	Colour code DIN 12621	Remark	Pack Unit
243440103	0.1	360	0.01	0.001	2 x green	Calibrated to contain ("Ex") .	12
243440309	0.2	360	0.01	0.001	2 x blue	Calibrated to contain ("Ex") .	12
243440609	0.5	360	0.008	0.01	2 x yellow		12
243441108	1	360	0.008	0.01	1 x yellow		12
243441605	2	360	0.015	0.02	1 x black		12
243442301	5	360	0.04	0.05	1 x red		12
243442901	10	360	0.08	0.1	1 x orange		12
243443409	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.

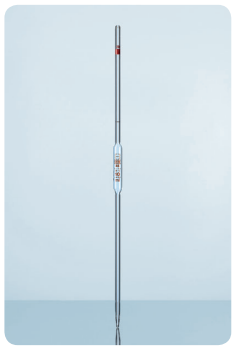


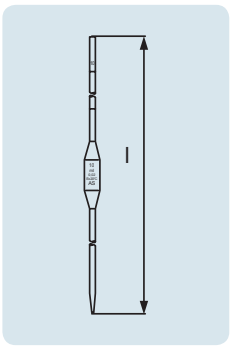
ISO 648

Cat. No.	Capacity (mL)	l (mm)	Accuracy limits (mL)	Colour code DIN 12621	Remark	Pack Unit
233390051	0.5	300	0.005	2 x black	No bulb.	12
233390105	1	325	0.008	1 x blue	No bulb.	12
233390208	2	350	0.01	1 x orange		12
233390302	3	350	0.01	1 x black		6
233390405	4	410	0.015	2 x red		6
233390508	5	410	0.015	1 x white		6
233390602	6	410	0.015	2 x orange		6
233390705	7	410	0.015	2 x green		6
233390808	8	450	0.02	1 x blue		6
233390902	9	450	0.02	1 x black		6
233391007	10	450	0.02	1 x red		6
233391504	15	520	0.03	1 x green		6
233392003	20	520	0.03	1 x yellow		6
233392509	25	530	0.03	1 x blue		6
233393008	30	530	0.03	1 x black		6
233394004	40	550	0.05	1 x white		6
233395009	50	550	0.05	1 x red		6
233390002	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

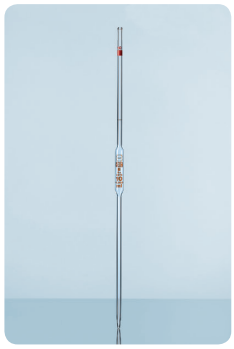
Calibrated to measure and discharge a single volume ("Ex") at a +20 °C reference temperature. Calibrated to measure and discharge a single volume.

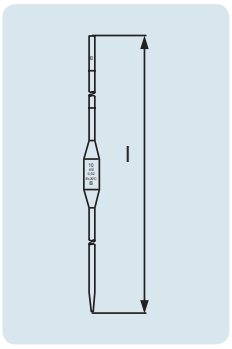
Typical applications: accurate measurement and decanting of liquids.

Cat. No.	Capacity (mL)	l (mm)	Accuracy limits (mL)	Colour code DIN 12621	Remark	Pack Unit
243380109	1	325	0.008	1 x blue	No bulb.	12
243380203	2	350	0.01	1 x orange		12
243380709	5	410	0.015	1 x white		12
243380803	10	450	0.02	1 x red		12
243381208	20	520	0.03	1 x yellow		6
243381405	25	530	0.03	1 x blue		6
243381705	50	550	0.05	1 x red		6
243382401	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
243370108	1	325	0.01	1 x blue	No bulb.	12
243370202	2	350	0.015	1 x orange		12
243370708	5	410	0.02	1 x white		12
243370802	10	450	0.03	1 x red		12
243371207	20	520	0.05	1 x yellow		6
243371404	25	530	0.05	1 x blue		6
243371704	50	550	0.08	1 x red		6
243372409	100	600	0.12	1 x yellow		6

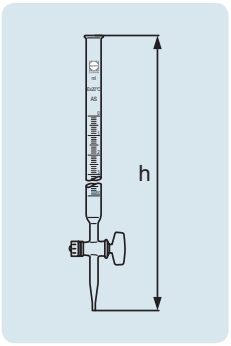
DURAN® Burette with Schellbach stripe and glass key, class AS

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
243292704	10	820	0.02	0.02	2
243293306	25	820	0.03	0.05	2
243293606	50	820	0.05	0.1	2
243293906	100	870	0.1	0.2	2



ISO 385 | A 121 °C

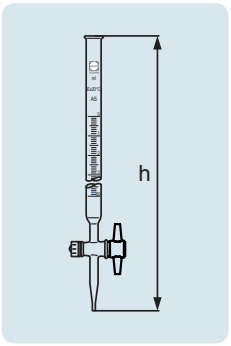
DURAN® Burette with Schellbach stripe and PTFE key, class AS

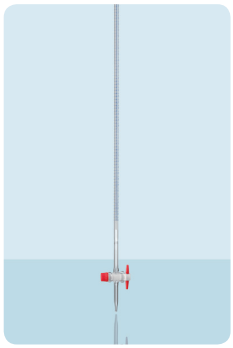
with straight standard ground stopcock, 30 seconds waiting time, with batch certificate and certificate of conformity

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
243302702	10	820	0.02	0.02	2
243303304	25	820	0.03	0.05	2
243303604	50	820	0.05	0.1	2
243303904	100	870	0.1	0.2	2

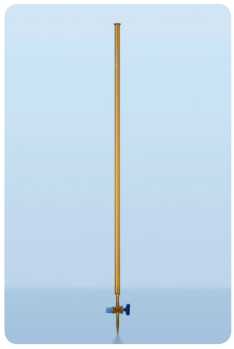


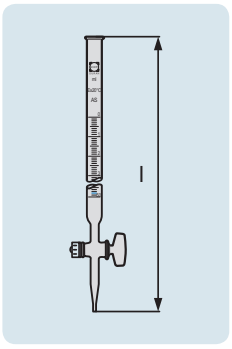


ISO 385 | A 121 °C

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

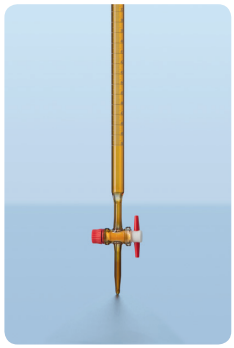
With main graduations as circular divisions. Calibration is based on the poured out volume ("Ex") at a + 20 °C reference temperature. Volume content tolerances conform to DIN.

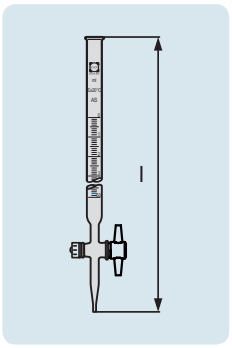
Typical application: titrations.

Cat. No.	Capacity (mL)	l (mm)	Accuracy limits (mL)	Graduation (mL)	Pack Unit
243262701	10	820	0.02	0.02	2
243263303	25	820	0.03	0.05	2
243263603	50	820	0.05	0.1	2
243263903	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.

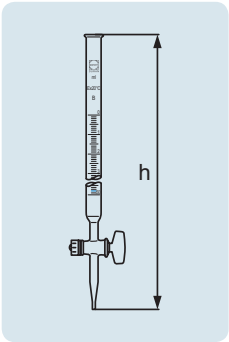
Cat. No.	Capacity (mL)	l (mm)	Accuracy limits (mL)	Graduation (mL)	Pack Unit
243362708	10	820	0.02	0.02	2
243363301	25	820	0.03	0.05	2
243363601	50	820	0.05	0.1	2
243363901	100	870	0.1	0.2	2

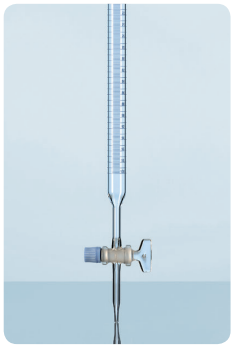
DURAN® Burette, class B

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

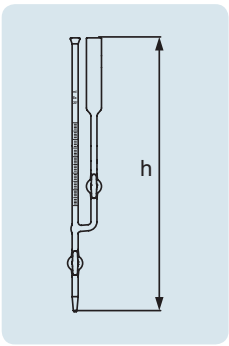
Cat. No.	Capacity (mL)	h (mm)	Accuracy limits (mL)	Graduation (mL)	Remark	Pack Unit
243282703	10	820	0.03	0.02		2
243283305	25	820	0.04	0.05		2
243283605	50	820	0.08	0.1		2
243283905	100	870	0.15	0.2	Non-DIN/ISO size.	2

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.

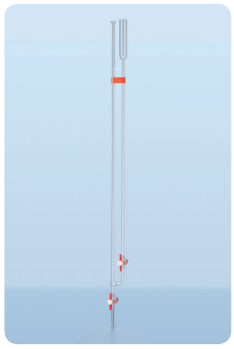


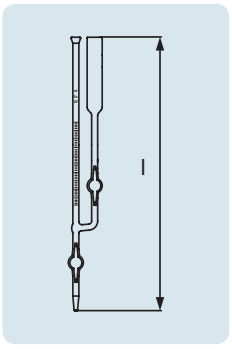
ISO 385 | A 121 °C

Cat. No.	Capacity (mL)	h (mm)	Accuracy limits (mL)	Graduation (mL)	Pack Unit
243201108	1	475	0.01	0.01	1
243201605	2	550	0.01	0.01	1
243202207	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

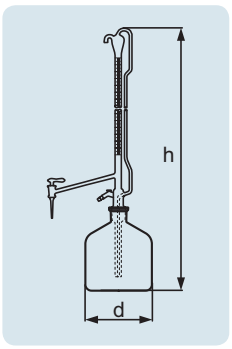
With Schellbach stripe and main graduations as circular divisions. Calibration is based on the poured out volume („Ex") at a + 20 °C reference temperature. Volume content tolerances conform to DIN.

Typical application: titrations.

Cat. No.	Capacity (mL)	l (mm)	Accuracy limits (mL)	Graduation (mL)	Pack Unit
243211109	1	475	0.01	0.01	2
243211606	2	550	0.01	0.01	2
243212208	5	700	0.01	0.02	2
243212705	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
243182754	10	930	0.02	0.02	1
243183356	25	930	0.03	0.05	1
243183656	50	930	0.05	0.1	1

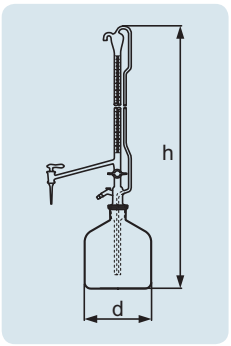
With Schellbach stripe and main graduations as circular divisions, reservoir bottle (2 000 mL) and rubber air pump.

Typical application: titrations.

Cat. No.	Capacity (mL)	h (mm)	Accuracy limits (mL)	Graduation (mL)	Pack Unit
243172753	10	930	0.02	0.02	1
243173355	25	930	0.03	0.05	1
243173655	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

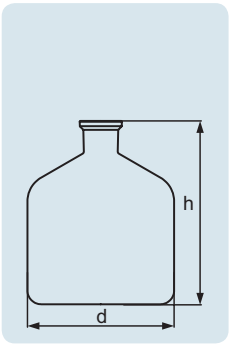


ISO 385 | A 121 °C

Replacement bottle for automatic burettes.

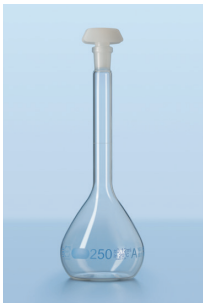
Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Remark	Pack Unit
Neck unground, clear					
211506303	2 000	160	200	Non-DIN/ISO size.	1
with standard ground NS 29/32, clear					
211596303	2 000	160	200		1
with standard ground NS 29/32, amber					
211596369	2 000	160	200		1

DURAN® Reservoir Bottle



A 121 °C

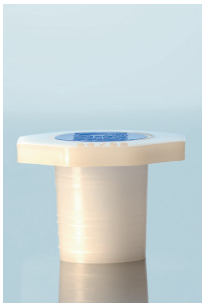
DURAN® RANGE OF VOLUMETRIC FLASKS

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		180 °C	180 °C	180 °C	180 °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	246780159	–	246790151	–	
2	7 / 16	246780253	–	246790254	–	
5	7 / 16	–	216780704	–	–	
5 W[1]	10 / 19	246780956	–	246790957	246710958	
10	7 / 16	–	216780807	–	–	
10 W[1]	10 / 19	246781052	–	246791053	246711054	
20	10 / 19	246781258	216781203	246791259	–	
25	10 / 19	246781455	216781409	246791456	246711457	
50	12 / 21	246781755	216781709	246791756	246711757	
100	12 / 21	246782451	216782405	246792452	–	
100	14 / 23	246782554	216782508	246792555	246712556	
200	14 / 23	246783259	216783204	246793251	246713252	
250	14 / 23	246783653	216783607	246793654	246713655	
500	19 / 26	246784452	216784406	246794453	246714454	
1 000	24 / 29	246785457	216785402	246795458	246715459	
1 000 W[1]	29 / 32	246785551	–	246795552	–	
2 000	29 / 32	246786359	216786304	246796351	246716352	
5 000	34 / 35	246787355	216787309	246797356	–	

* 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	–	–
	180 °C	180 °C	180 °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**
	–	–	–	292050201	292040209
	–	–	–		
	–	–	–		
	246700957	246760954	246770955	292050304	292040303
	–	–	–	292050201	292040209
	246701053	246761059	246771051	292050304	292040303
	246701259	246761256	246771257		
	246701456	246761453	246771454		
	246701756	246761753	246771754	292050407	292040406
	–	246762458	246772459		
	246702555	246762552	246772553	292050604	292040603
	246703251	246763257	246773258		
	246703654	246763651	246773652		
	246704453	246764459	246774451	292050707	292040706
	246705458	246765455	246775456	292050801	292040809
	–	–	–	292050904	292040903
	246706351	246766357	246776358		
	246707356	–	–	292051103	292041102

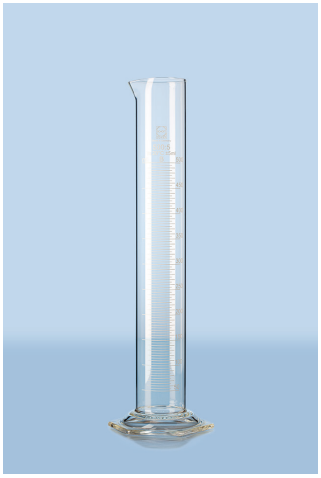
DURAN WHEATON KIMBLE
Excellence in your hands

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.		180 °C	180 °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	246180856	216180801	
25	14 / 23	246181458	216181403	
50	19 / 26	246181758	216181703	
100	24 / 29	246182454	216182408	
250	29 / 32	246183656	216183601	
500	34 / 35	246184455	216184409	
1 000	45 / 40	246185451	216185405	
2 000	45 / 40	246186353	216186307	

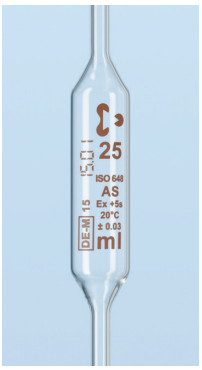
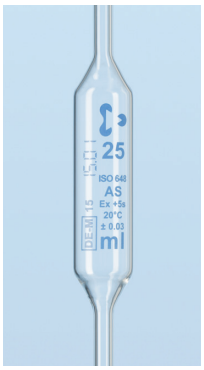
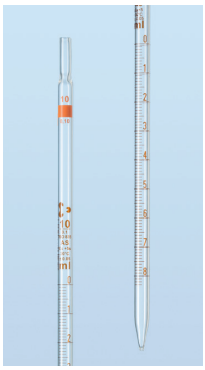
*Batch certificates also available online

[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	–	–	–
	180 °C	180 °C	180 °C	180 °C
	–	–	–	–
	Blue	White	White	White
	213900701	213960707	–	–
	213900804	213960801	213950809	–
	213901406	213961403	213951402	–
	213901706	213961703	213951702	–
	213902402	213962408	213952407	213942406
	213903604	213963601	213953609	213943608
	213904403	213964409	213954408	213944407
	213905408	213965405	213955404	213945403
	213906301	213966307	213956306	–

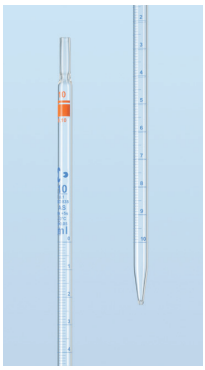
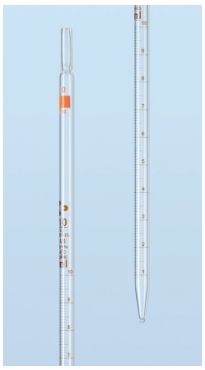
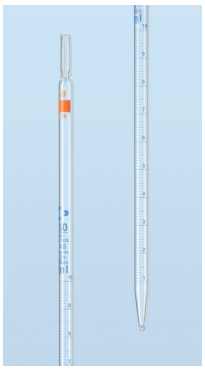
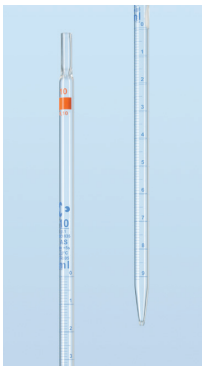
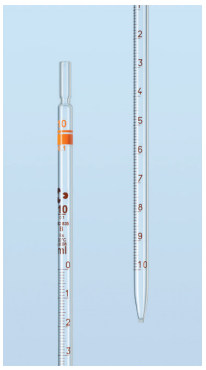
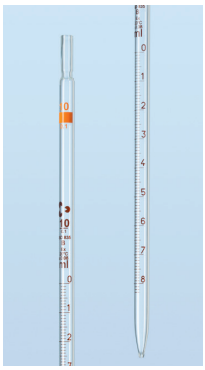
DURAN WHEATON KIMBLE
Excellence in your hands

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	121 °C	121 °C	121 °C	121 °C	
Print colour	Amber stain graduation	Blue	Amber stain graduation	Amber stain graduation	
mL				TYPE 3	
0.1	–	–	–	–	
0.2	–	–	–	–	
0.5	–	233390051	–	–	
1	243380109	233390105	243370108	243451109	
2	243380203	233390208	243370202	243451709	
3	–	233390302	–	–	
4	–	233390405	–	–	
5	243380709	233390508	243370708	243452302	
6	–	233390602	–	–	
7	–	233390705	–	–	
8	–	233390808	–	–	
9	–	233390902	–	–	
10	243380803	233391007	243370802	243452902	
15	–	233391504	–	–	
20	243381208	233392003	243371207	–	
25	243381405	233392509	243371404	243453401	
30	–	233393008	–	–	
40	–	233394004	–	–	
50	243381705	233395009	243371704	–	
100	243382401	233390002	243372409	–	

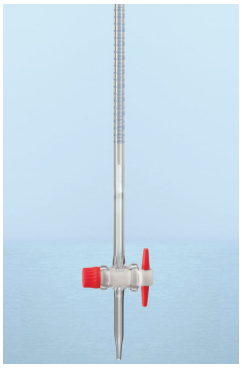
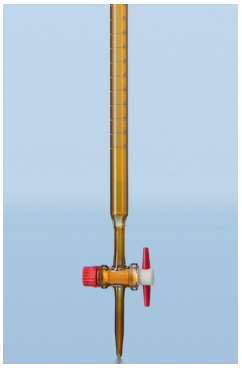
TYPE 1 – partial delivery, zero point at the top
TYPE 2 – total delivery, nominal volume at the top
TYPE 3 – total delivery, zero point at the top

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

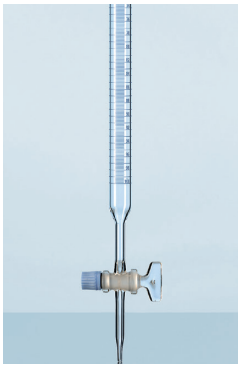
MEASURING PIPETTES						
	Class AS				Class B	
						
	Batch certificate	Batch certificate	Batch certificate	Batch certificate	–	–
	121 °C	121 °C	121 °C	121 °C	121 °C	121 °C
	Blue	Amber stain graduation	Blue	Blue	Amber stain graduation	Amber stain graduation
	TYPE 1	**TYPE 2**	**TYPE 2**	**TYPE 3**	**TYPE 1**	**TYPE 3**
	–	–	–	–	243430102	243440103
	–	–	–	–	243430308	243440309
	233460606	233470607	233480608	233490609	243430608	243440609
	233461105	233471106	233481107	233491108	243431107	243441108
	233461602	233471603	233481604	233491605	243431604	243441605
	–	–	–	–	–	–
	–	–	–	–	–	–
	233462307	233472308	233482309	233492301	243432309	243442301
	–	–	–	–	–	–
	–	–	–	–	–	–
	–	–	–	–	–	–
	–	–	–	–	–	–
	233462907	233472908	233482909	233492901	243432909	243442901
	–	–	–	–	–	–
	233463209	233473201	233483202	233493203	–	–
	233463406	233473407	233483408	233493409	243433408	243443409
	–	–	–	–	–	–
	–	–	–	–	–	–
	233463603	233473604	233483605	233493606	–	–
	–	–	–	–	–	–

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	180 °C	180 °C	180 °C	180 °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	243292704	243262701	243302702	243362708	
25	243293306	243263303	243303304	243363301	
50	243293606	243263603	243303604	243363601	
100	243293906	243263903	243303904	243363901	

* 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
	180 °C	180 °C	180 °C	180 °C	180 °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**
	–	–	–	243201108	243211109
	–	–	–	243201605	243211606
	–	–	–	243202207	243212208
	243282703	243182754	243172753	–	243212705
	243283305	243183356	243173355	–	–
	243283605	243183656	243173655	–	–
	243283905	–	–	–	–

DURAN WHEATON KIMBLE
Excellence in your hands


SCHOTT
DURAN
500 ml
Made in Germany

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.

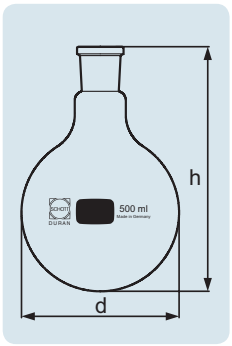
04

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.



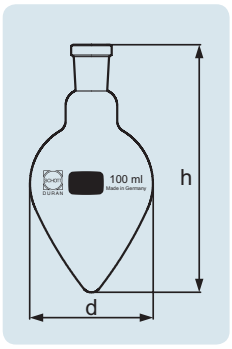
DIN ISO 4797 | A 121 °C | USP Standard

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Neck	Remark	Pack Unit
241701307	25	41	85	14/23		10
241701401	25	41	85	19/26	Non-DIN ISO size.	10
241702003	50	51	90	14/23		10
241701701	50	51	90	19/26		10
241701804	50	51	105	24/29	Non-DIN ISO size.	10
241701907	50	51	105	29/32	Non-DIN ISO size.	10
241702509	100	64	105	14/23		10
241702406	100	64	105	19/26		10
241702603	100	64	105	24/29		10
241702706	100	64	105	29/32		10
241703608	250	85	140	24/29		10
241703702	250	85	140	29/32		10
241704407	500	105	163	24/29		10
241704604	500	105	163	29/32		10
241704707	500	105	163	45/40	Non-DIN ISO size.	10
241705403	1 000	131	200	24/29		10
241705609	1 000	131	200	29/32		10
241705703	1 000	131	200	45/40	Non-DIN ISO size.	10
241706305	2 000	166	240	29/32		10
241706408	2 000	166	240	45/40	Non-DIN ISO size.	10
241707207	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.

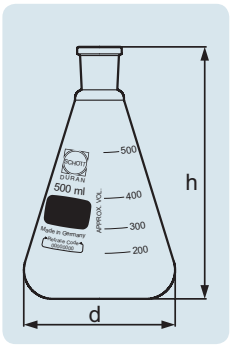


A 121 °C | USP Standard

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Neck	Pack Unit
241950809	10	30	75	14/23	10
241951402	25	40	90	14/23	10
241952004	50	50	110	14/23	10
241952501	100	62	125	14/23	10

DURAN® Erlenmeyer Flask

with standard ground joint



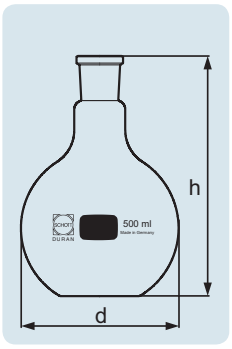
DIN ISO 4797 | Retrace Code | A 121 °C | USP Standard

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
241931306	25	42	75	14/23		10
241932002	50	51	85	14/23		10
241931709	50	51	85	19/26		10
241931803	50	51	85	24/29	Non-DIN ISO size.	10
241931906	50	51	85	29/32		10
241932405	100	64	105	19/26		10
241932602	100	64	105	24/29	Non-DIN ISO size.	10
241932705	100	64	105	29/32		10
241933204	200	79	131	29/32	Non-DIN ISO size.	10
241933607	250	85	140	24/29		10
241933701	250	85	140	29/32		10
241933804	250	85	140	45/40	Non-DIN ISO size.	10
241933907	300	87	155	29/32	Non-DIN ISO size.	10
241934406	500	105	175	24/29		10
241934603	500	105	175	29/32		10
241934706	500	105	175	45/40	Non-DIN ISO size.	10
241935402	1 000	131	220	24/29		10
241935608	1 000	131	220	29/32		10
241935702	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

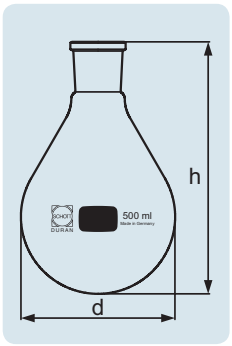
Due to the flat bottom the flask can be set upon a bench without a support ring.

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Neck	Remark	Pack Unit
241711908	50	51	85	29/32		10
241712407	100	64	103	19/26		10
241712604	100	64	103	24/29		10
241712707	100	64	103	29/32		10
241713609	250	85	130	24/29	Non-DIN ISO size.	10
241713703	250	85	130	29/32		10
241714408	500	105	160	24/29	Non-DIN ISO size.	10
241714605	500	105	160	29/32		10
241715404	1 000	131	187	24/29	Non-DIN ISO size.	10
241715601	1 000	131	187	29/32		10
241716306	2 000	166	230	29/32	Non-DIN ISO size.	10

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Neck	Pack Unit
241202707	100	60	110	29/32	10
241203703	250	81	140	29/32	10
241204605	500	101	170	29/32	10
241205601	1 000	126	210	29/32	10

DURAN® Evaporating Flask

with standard ground joint, pear shape



A 121 °C

USP Standard

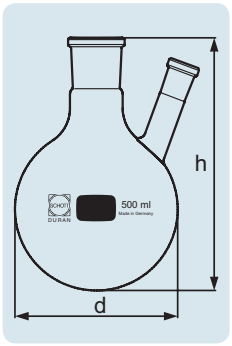
Thanks to the uniform wall thickness, round bottom flasks are ideal as heating vessels. The geometry permits very uniform heating. Depending upon the application, accessories, columns, thermometers, dropping funnels, boiling capillaries, etc. can be fitted.

Typical applications: distillation, extraction.

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Center neck (NS)	Side neck (NS)	Remark	Pack Unit
241832604	100	64	105	24/29	14/23	Non-DIN ISO size.	1
241832707	100	64	105	29/32	14/23	Non-DIN ISO size.	1
241833609	250	85	140	24/29	14/23	Non-DIN ISO size.	1
241833703	250	85	140	29/32	14/23		1
241834408	500	105	163	24/29	14/23	Non-DIN ISO size.	1
241834605	500	105	163	29/32	14/23		1
241835404	1 000	131	200	24/29	14/23	Non-DIN ISO size.	1
241835601	1 000	131	200	29/32	14/23		1
241836306	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

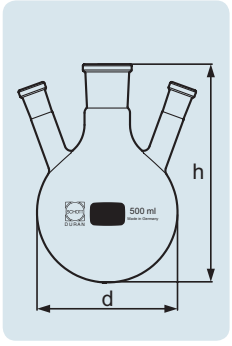
Thanks to the uniform wall thickness, round bottom flasks are ideal as heating vessels. The geometry permits very uniform heating. Depending upon the application, accessories, columns, thermometers, dropping funnels, boiling capillaries, etc. can be fitted.

Typical applications: distillation, extraction.

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Center neck (NS)	Side neck (NS)	Pack Unit
241882703	100	64	105	29/32	14/23	1
241883605	250	85	140	24/29	14/23	1
241883708	250	85	140	29/32	14/23	1
241884301	500	105	163	24/29	14/23	1
241884601	500	105	163	29/32	14/23	1
241885306	1 000	131	200	24/29	14/23	1
241885503	1 000	131	200	29/32	14/23	1

DURAN® Triple-Neck Round Bottom Flask

with standard ground joint, inclined side necks

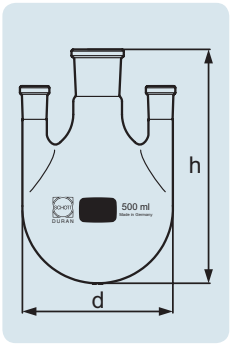


A 121 °C

USP Standard

DURAN® Triple-Neck Round Bottom Flask

with standard ground joint, parallel side necks



DIN ISO 12392 | A 121 °C | USP Standard

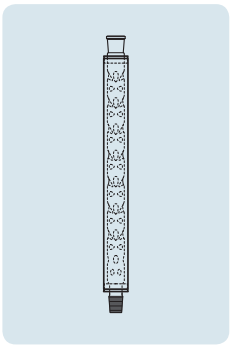
Thanks to the uniform wall thickness, round bottom flasks are ideal as heating vessels. The geometry permits very uniform heating. Depending upon the application, accessories, columns, thermometers, dropping funnels, boiling capillaries, etc. can be fitted.

Typical applications: distillation, extraction.

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Center neck (NS)	Side neck (NS)	Remark	Pack Unit
241853602	250	85	105	24/29	19/26	Non-DIN ISO size.	1
241853705	250	85	140	29/32	14/23	Non-DIN ISO size.	1
241854401	500	105	140	24/29	19/26	Non-DIN ISO size.	1
241854607	500	105	163	29/32	14/23	Non-DIN ISO size.	1
241854504	500	105	163	29/32	29/32		1
241855603	1 000	131	163	29/32	14/23	Non-DIN ISO size.	1
241855509	1 000	131	200	29/32	29/32		1
241856308	2 000	166	240	29/32	14/23	Non-DIN ISO size.	1
241856505	2 000	166	240	29/32	29/32		1

DURAN® Vigreux Column

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

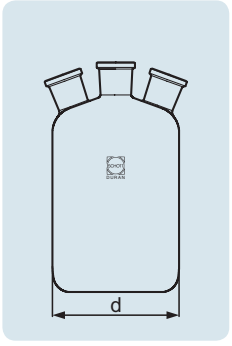


Typical application: distillation.

Cat. No.	Overall length (mm)	Socket size (NS)	Cone (NS)	Effective length (mm)	Pack Unit
242407104	450	24/29	24/29	300	1
242407207	450	29/32	29/32	300	1
242408709	650	24/29	24/29	500	1
242408803	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.

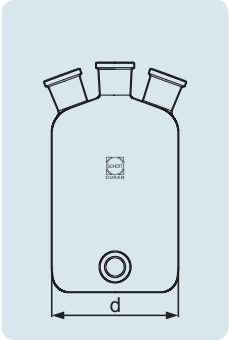
Cat. No.	Capacity (mL)	d (OD) (mm)	Neck	Pack Unit
247094403	500	87	19/26	1
247095408	1 000	113	24/29	1
247096301	2 000	135	29/32	1
247097306	5 000	185	34/35	1

Vacuum resistant due to the wall thickness and geometry.

Cat. No.	Capacity (mL)	d (OD) (mm)	Neck	Remark	Pack Unit
247104401	500	87	19/26	Bottom NS 19/26	1
247105406	1 000	113	24/29	Bottom NS 19/26	1
247106308	2 000	135	29/32	Bottom NS 19/26	1
247107304	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

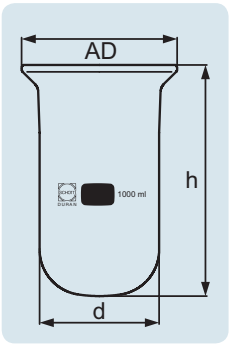
Pressure and vacuum resistant due to the wall thickness and geometry. Groove for O-ring seal.

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								
243902408	100	195	100	70	85	2.5 bar	cylindrical	1
243903601	250	315	100	70	125	2.5 bar	cylindrical	1
DN 100								
243904409	500	740	138	106	120	1.5 bar	cylindrical	1
243905405	1 000	1 395	138	106	205	1.5 bar	cylindrical	1
243906307	2 000	2 620	138	140	270	1.5 bar	flask shaped	1
DN 150								
243907106	4 000	5 765	184	200	290	1.0 bar	flask shaped	1
243907603	6 000	7 320	184	215	320	1.0 bar	flask shaped	1
243908608	10 000	11 935	184	240	410	0.5 bar	flask shaped	1

DURAN® Flat Flange Reaction Vessel

flange with groove

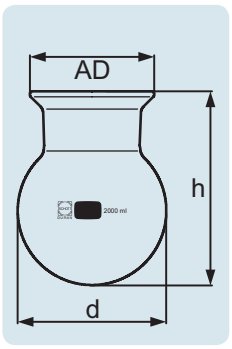


A 121 °C

USP Standard

DURAN® Flat Flange Round Bottomed Flask

flange with groove, for vacuum use



A 121 °C

USP Standard

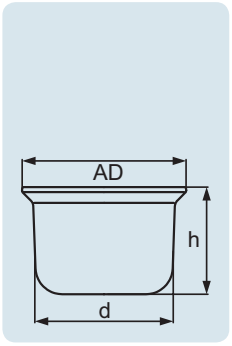
Pressure and vacuum resistant due to the wall thickness and geometry. Groove for O-ring seal. Note: At the maximum usage temperature of 250 °C and the maximum operating pressure, the temperature difference in the glass wall of the flat flange reaction vessels must not exceed 30 °C.

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							
243956303	2 000	215	138	2 610	165	1.0 bar	1
243957102	4 000	265	138	4 660	206	1.0 bar	1
243957608	6 000	295	138	6 675	236	1.0 bar	1
243958604	10 000	340	138	11 720	280	0.5 bar	1
243959103	20 000	410	138	21 415	350	0.5 bar	1
DN 120							
243977301	5 000	270	158		223		1
DN 150							
243998608	10 000	340	184		280		1
343999107	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.

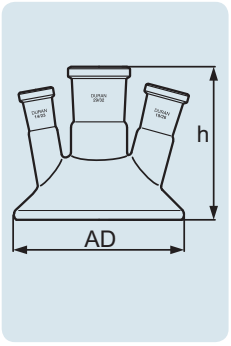
Cat. No.	Capacity (mL)	h (mm)	Outer diameter (AD) Flange (mm)	Full capacity (mL)	Max. operating pressure at 250 °C	Beaker d (OD) (mm)	Pack Unit
DN 120							
243945409	1 000	125	158	1 360	0.5 bar	130	1
243946302	2 000	200	158	2 200	0.5 bar	130	1
243946808	3 000	290	158	3 220	0.5 bar	130	1
DN 150							
243915406	1 000	120	184	1 915	0.5 bar	159	1
243916308	2 000	200	184	3 070	0.5 bar	153	1
243916805	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
243923406	90	60	100	29/32	2 bar	1

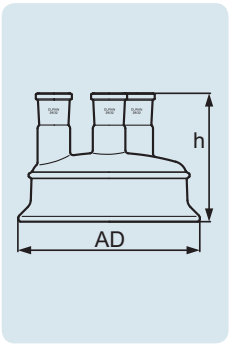
A 121 °C USP Standard

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.

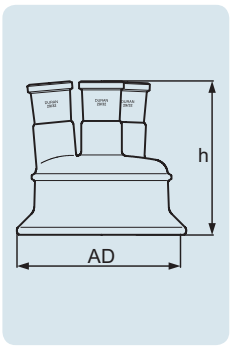


Cat. No.	h (mm)	DN	Outer diameter (AD) Flange (mm)	Center neck (NS)	Max. operating pressure at 250 °C	Pack Unit
243925707	130	150	184	29/32	1 bar	1

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

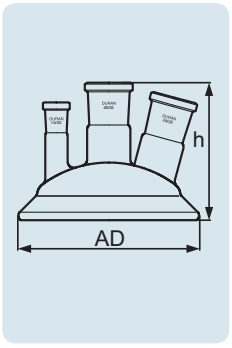
Pressure and vacuum resistant due to the wall thickness and geometry.

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
243924608	125	100	138	29/32	1 bar	1
243925801	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
243964603	105	100	138	29/32	1 bar	1

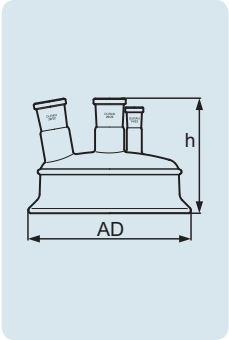
Pressure and vacuum resistant due to the wall thickness and geometry.

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
243924702	125	100	138	29/32	1 bar	1
243925107	130	120	158	29/32	1 bar	1
243925904	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

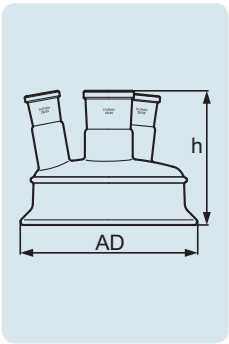
Pressure and vacuum resistant due to the wall thickness and geometry.

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
243926009	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

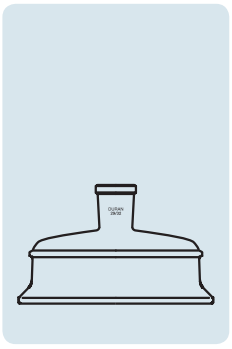


A 121 °C

USP Standard

DURAN® Flat Flange Lid

with centre neck



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

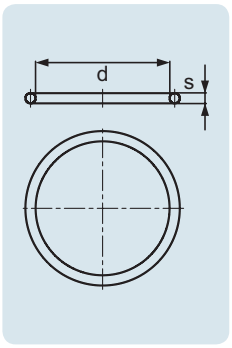
Typical applications: reactions under pressure and/or high temperature.

Cat. No.	h (mm)	Neck	DN	Outer diameter (OD) Flange (mm)	Max. operating pressure at 250 °C	Pack Unit
NS 29/32						
243984605	76	29/32	100	138	1 bar	1
243985704	102	29/32	150	184	1 bar	1
243986109	126	29/32	200	242	1 bar	1
243985104	105	29/32	120	158	1 bar	1
NS 45/40						
244504608	84	45/40	100	138	1 bar	1
244505707	112	45/40	150	184	1 bar	1

A 121 °C | USP Standard

O-Ring Red

FEP coated, not suitable for desiccators



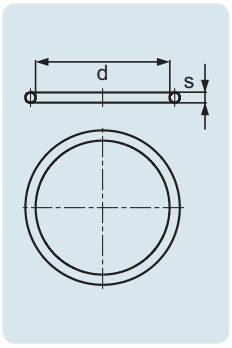
Accessories for flat flange vessels, comprising an elastic, silicone core with seamless FEP coating that encloses the ring. The combination of these high-quality materials achieves good elasticity in conjunction with outstanding chemical resistance.

Cat. No.	d (OD) (mm)	DN	s (mm)	Pack Unit
292223406	75	60	4	1
292224608	110	100	4	1
292225107	133	120	4	1
292225707	157	150	5	1
292226103	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
292253409	75	60	4	5
292254602	110	100	4	5
292255101	133	120	4	5
292255701	157	150	5	5
292256106	215	200	5	5

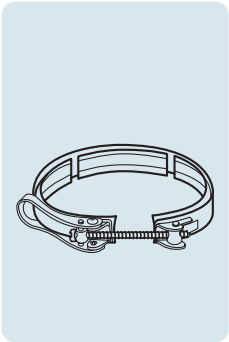
A 121 °C | Tmax. 200 °C

Quick Release Clamp

Accessories for flat flange vessels.

from stainless steel, with retaining clip

Cat. No.	DN	Pack Unit
290713407	60	1
290714609	100	1
290715108	120	1
290715708	150	1
290716104	200	1

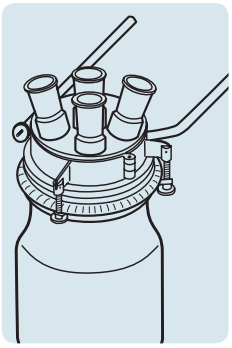


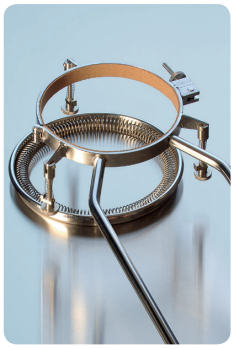
Holding Device for Reaction Vessels

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

from chrome-nickel steel

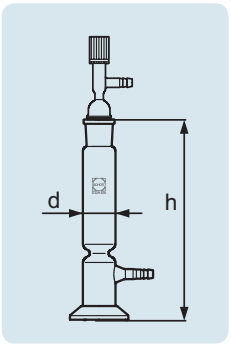
Cat. No.	DN	Pack Unit
290734602	100	1
290735701	150	1





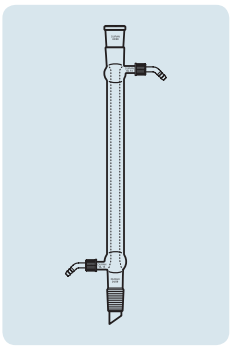
DURAN® Calcium Chloride Cylinder

Cat. No.	d (OD) (mm)	h (mm)	Cone (NS)	Pack Unit
215704207	40	240	29/32	1
215704807	54	315	34/35	1



DURAN® Liebig Condenser (West Condenser)

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



DIN 12576

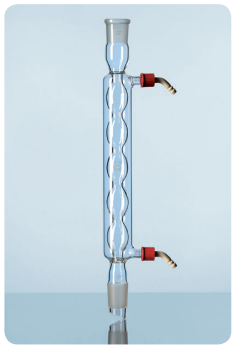
Relatively small heat exchange surface and thus relatively low cooling capacity.

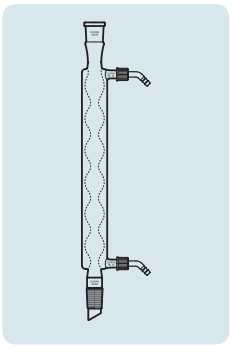
Typical application: product condenser for distillate separations.

Cat. No.	Thread	Socket size (NS)	Cone (NS)	Jacket length (mm)	Remark	Pack Unit
242516107	14	14/23	14/23	160		1
242517009	14	14/23	14/23	250	Special size, non-DIN size.	1
242517103	14	24/29	24/29	250	Special size, non-DIN size.	1
242517206	14	29/32	29/32	250	Special size, non-DIN size.	1
242518108	14	24/29	24/29	400	Special size, non-DIN size.	1
242518202	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

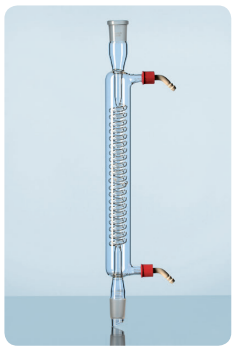
The bulb condenser has a greater cooling surface than the liebig condenser and thus higher cooling capacity.

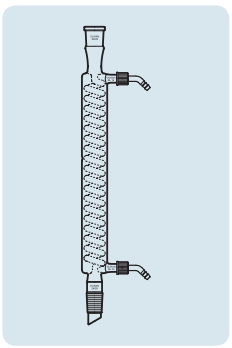
Typical application: reflux condenser for condensation and feedback of the (solvent) vapour to the reaction mixture.

Cat. No.	Thread	Socket size (NS)	Cone (NS)	Jacket length (mm)	Remark	Pack Unit
242527104	14	24/29	24/29	250	Special size, non-DIN size.	1
242527207	14	29/32	29/32	250	Special size, non-DIN size.	1
242528109	14	24/29	24/29	400	Special size, non-DIN size.	1
242528203	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.

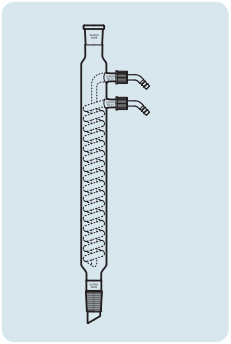
Cat. No.	Thread	Socket size (NS)	Cone (NS)	Jacket length (mm)	Pack Unit
242537105	14	24/29	24/29	300	1
242537208	14	29/32	29/32	300	1

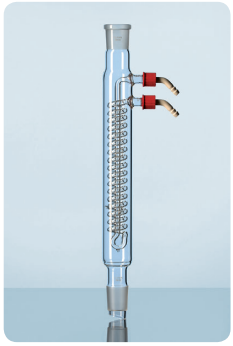
DURAN® Dimroth Condenser

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

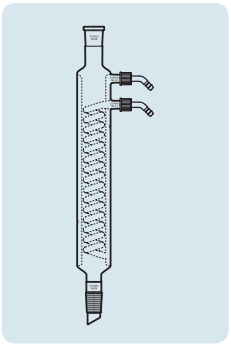
Cat. No.	Thread	Socket size (NS)	Cone (NS)	Jacket length (mm)	Remark	Pack Unit
242546101	14	14/23	14/23	160	Special size, non-DIN size.	1
242547106	14	24/29	24/29	250	Special size, non-DIN size.	1
242547209	14	29/32	29/32	250	Special size, non-DIN size.	1
242548205	14	29/32	29/32	400		1

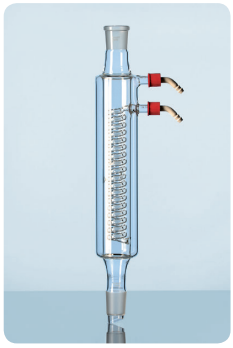
DURAN® Jacketed Coil Condenser

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

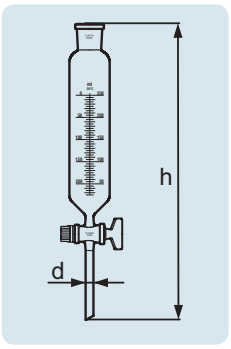
Cat. No.	Thread	Socket size (NS)	Cone (NS)	Jacket length (mm)	Remark	Pack Unit
242557107	14	24/29	24/29	250	Special size, non-DIN size.	1
242557201	14	29/32	29/32	250	Special size, non-DIN size.	1
242558103	14	24/29	24/29	400	Special size, non-DIN size.	1
242558206	14	29/32	29/32	400	Special size, non-DIN size.	1

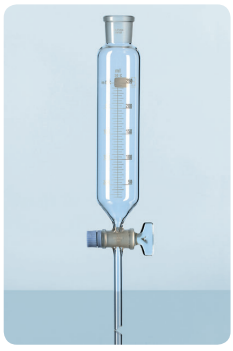
DURAN® Dropping Funnel

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.



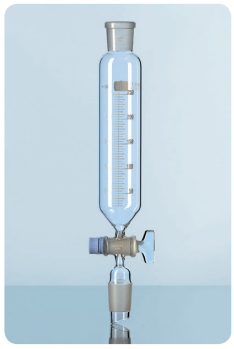


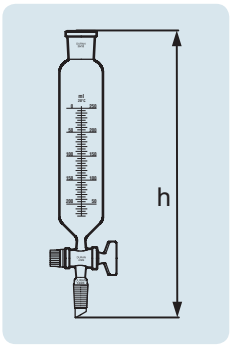
DIN ISO 4800

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Socket size (NS)	Scale (mL)	Standard solid key nominal size (DIN 12541)	Pack Unit
241221704	50	9	279	19/26	1	3 NS	1
241222409	100	9	299	19/26	2	3 NS	1
241223602	250	10	381	29/32	5	4 NS	1
241224401	500	10	431	29/32	10	4 NS	1
241225406	1 000	13	506	29/32	20	6 NS	1

DURAN® Dropping Funnel

cylindrical, with scale, and ground joint





DIN ISO 4800

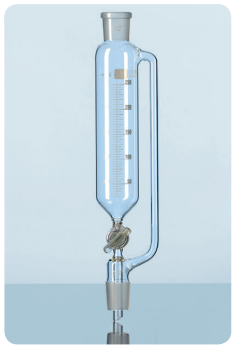
With standard ground joint, standard ground stopcock and retaining device.

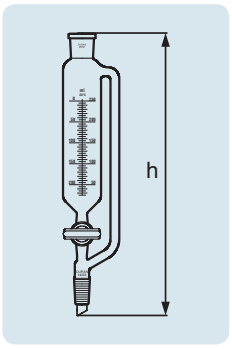
Typical application: uniform and metered liquid supply to a reaction mixture. The rate of supply can be adjusted.

Cat. No.	Capacity (mL)	h (mm)	Socket size (NS)	Cone (NS)	Scale (mL)	Standard solid key nominal size (DIN 12541)	Remark	Pack Unit
241242008	50	220	19/26	14/23	1	3 NS		1
241242505	100	240	19/26	14/23	2	3 NS		1
241242402	100	240	19/26	19/26	2	3 NS		1
241243604	250	320	29/32	24/29	5	4 NS	Special size, non-DIN ISO size.	1
241243707	250	320	29/32	29/32	5	4 NS		1
241244403	500	400	29/32	24/29	10	4 NS	Special size, non-DIN ISO size.	1
241244609	500	400	29/32	29/32	10	4 NS		1
241245605	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.

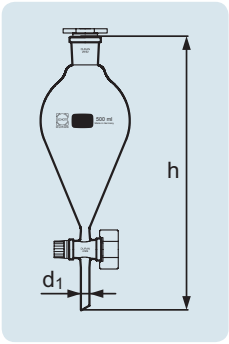
Cat. No.	Capacity (mL)	h (mm)	Socket size (NS)	Cone (NS)	Scale (mL)	Standard solid key nominal size (DIN 12541)	Remark	Pack Unit
241252009	50	240	19/26	14/23	1	3 NS		1
241252506	100	270	19/26	14/23	2	3 NS		1
241252403	100	270	19/26	19/26	2	3 NS		1
241253605	250	350	29/32	24/29	5	4 NS	Special size, non-DIN ISO size.	1
241253708	250	380	29/32	29/32	5	4 NS		1
241254404	500	430	29/32	24/29	10	4 NS	Special size, non-DIN ISO size.	1
241254601	500	430	29/32	29/32	10	4 NS		1

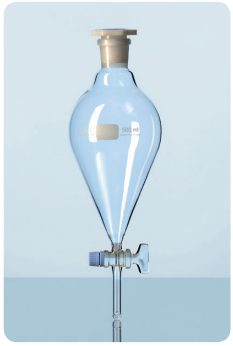
DURAN® Separating Funnel

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
242941704	50	190	19/26	3 NS	9	1
242942409	100	230	19/26	3 NS	9	1
242943602	250	280	29/32	4 NS	10	1
242944401	500	320	29/32	4 NS	10	1
242945406	1 000	380	29/32	6 NS	13	1
242946308	2 000	430	29/32	6 NS	13	1



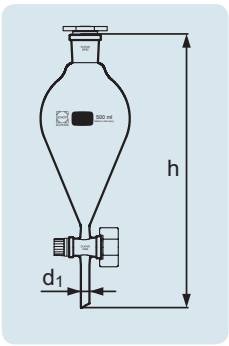


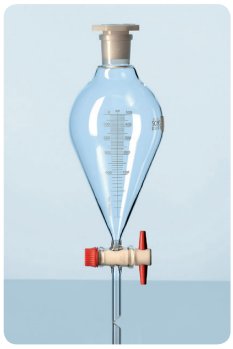
DIN ISO 4800

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
1064805	100	230	19/26	3 NS	9	1
1064806	250	280	29/32	4 NS	10	1
1064807	500	320	29/32	4 NS	10	1
1064809	1 000	380	29/32	6 NS	13	1





DIN ISO 4800

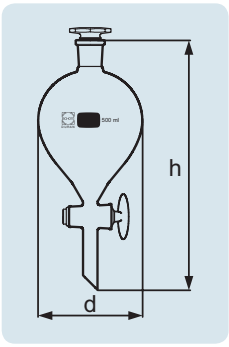
DURAN® Separating Funnel

spherical, heavy-duty version

With standard ground stopcock and standard ground stopper.

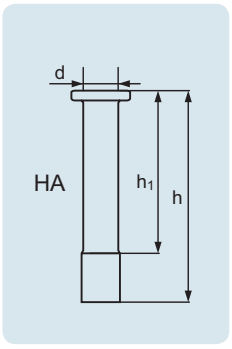
Typical application: Phase separation.

Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Stopper size	Pack Unit
242913608	250	90	235	24/20	1
242914407	500	115	276	24/29	1
242915403	1 000	132	295	29/32	1
242916605	2 500	182	370	45/40	1
242917301	5 000	222	425	45/40	1
242918606	10 000	286	490	45/40	1



DURAN® KPG® Stirrer Bearing

interchangeable

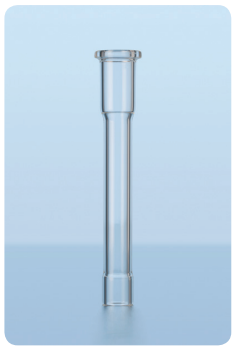


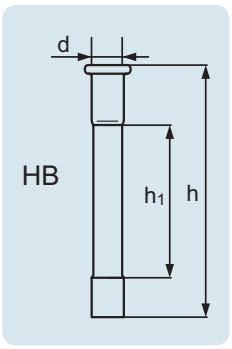
Ground and polished bearing surface.

Cat. No.	Designation	d (OD) (mm)	h (mm)	h_1 (mm)	Pack Unit
245004209	HA 10	10	80	65	1

DURAN® KPG® Stirrer Bearing

interchangeable



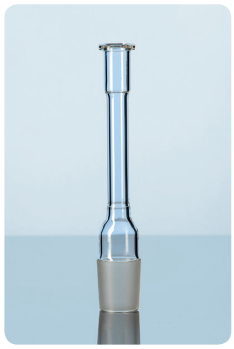


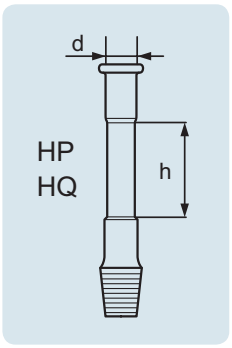
Ground and polished bearing surface.

Cat. No.	Designation	d (OD) (mm)	h (mm)	h_1 (mm)	Pack Unit
245055107	HB 10	10	120	75	1
245065708	HB 16	16	150	90	1

DURAN® KPG® Stirrer Bearing

interchangeable, with standard ground cone





Ground and polished bearing surface, with standard ground cone.

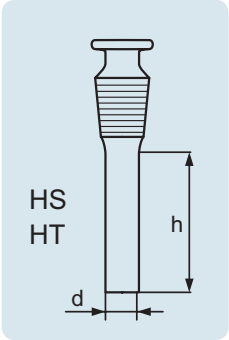
Cat. No.	Designation	d (OD) (mm)	h (mm)	Cone (NS)	Pack Unit
245285603	HQ 10	10	75	29/32	1
245235504	HP 10	10	75	24/29	1

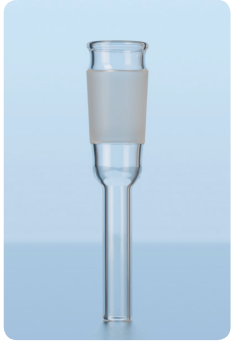
DURAN® KPG® Stirrer Bearing

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
245405103	HT 10	10	65	29/32	1
245415401	HT 16	16	85	29/32	1



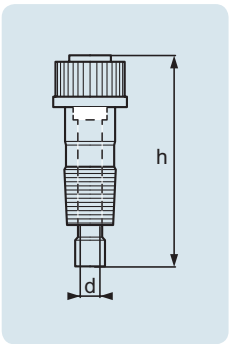


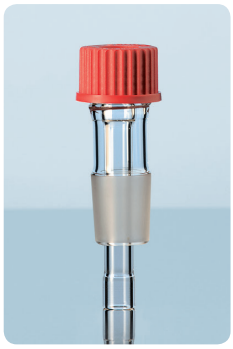
DURAN® KPG® Stirrer Bearing

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
247500803	10	75	32	24/29	HB 10	1
247500906	10	75	32	29/32	HB 10	1



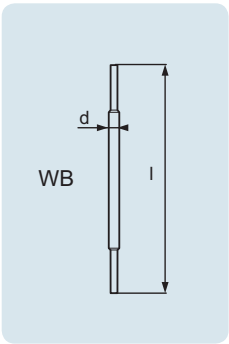


DURAN® KPG® Stirrer Shaft

interchangeable

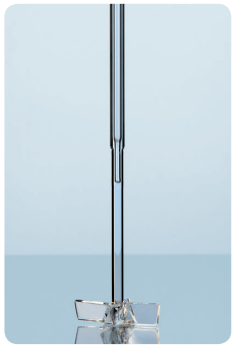
Bearing surface ground and polished.

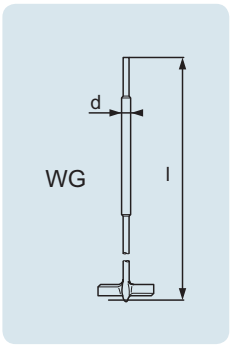
Cat. No.	Overall length (mm)	Designation	Shaft d (OD) (mm)	Wave l (mm)	Pack Unit
245656409	240	WB 10	10	160	1
245666701	260	WB 16	16	160	1



DURAN® KPG® Stirrer Shaft

Ø 10 mm, interchangeable



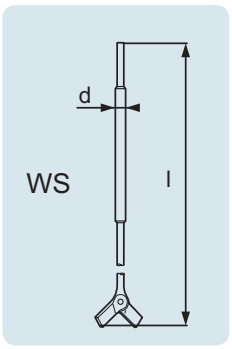


Bearing surface ground and polished.

11,206 mm	Designation	Neck	Overall length (mm)	Shaft d (OD) (mm)	Shaft l (mm)	Pack Unit
245737401	WG 10	60	320	10	160	1
245737701	WG 10	60	370	10	160	1
245738406	WG 10	60	410	10	160	1
245738603	WG 10	60	440	10	160	1

DURAN® KPG® Stirrer Shaft

Ø 10 mm, interchangeable

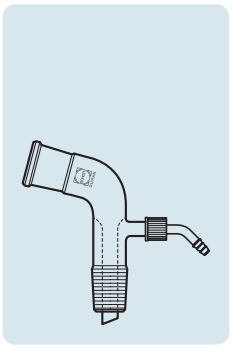


Bearing surface ground and polished.

Cat. No.	Designation	Neck	Overall length (mm)	Shaft d (OD) (mm)	Shaft l (mm)	Pack Unit
245837408	WS 10	25	320	10	160	1
245837708	WS 10	25	370	10	160	1
245838404	WS 10	25	410	10	160	1
245838601	WS 10	25	440	10	160	1

DURAN® Vacuum Receiver Adapter

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

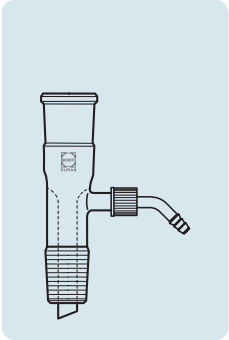


Cat. No.	DIN Thread (GL)	Hose connection d (OD) (mm)	Socket size (NS)	Cone (NS)	Pack Unit
241302105	14	8.6	14/23	14/23	1
241303401	14	8.6	24/29	24/29	1
241304603	14	8.6	29/32	29/32	1

Cat. No.	DIN Thread (GL)	Hose connection d (OD) (mm)	Socket size (NS)	Cone (NS)	Pack Unit
241312106	14	8.6	14/23	14/23	1
241313402	14	8.6	24/29	24/29	1
241314604	14	8.6	29/32	29/32	1

DURAN® Vacuum Receiver Adapter

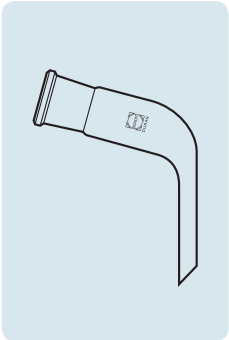
straight, with 2 standard ground joints, and screw-on plastic hose connection



Cat. No.	Socket size (NS)	Pack Unit
243100602	14/23	1
243100808	24/29	1
243100902	29/32	1

DURAN® Receiver Adapter

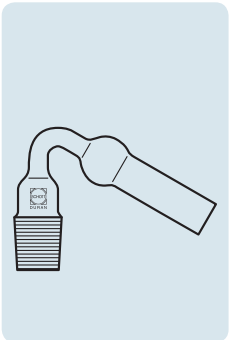
bent, with ground socket



Cat. No.	Cone (NS)	Pack Unit
242620609	14/23	1
242620703	19/26	1
242620806	24/29	1
242620909	29/32	1

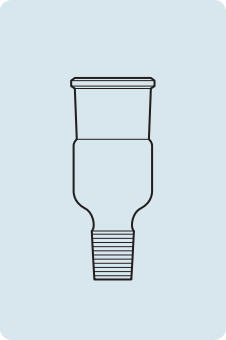
DURAN® Drying Tube

bent, with standard ground cone



DURAN® Adapter

with standard ground joint

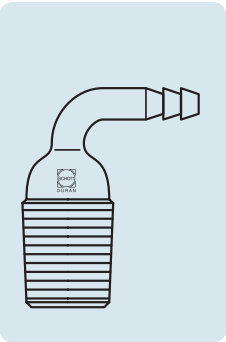


DIN 12257

Cat. No.	Socket size (NS)	Cone (NS)	Remark	Pack Unit
241142207	14/23	19/26		1
241142301	14/23	24/29	Non-DIN size.	1
241142404	14/23	29/32		1
241142601	19/26	14/23		1
241142807	19/26	24/29	Non-DIN size.	1
241142901	19/26	29/32		1
241143203	24/29	14/23	Non-DIN size.	1
241143306	24/29	19/26	Non-DIN size.	1
241143606	24/29	29/32	Non-DIN size.	1
241144208	29/32	14/23		1
241144302	29/32	19/26		1
241144405	29/32	24/29	Non-DIN size.	1

DURAN® Connection Piece

with standard ground cone, 90° angle

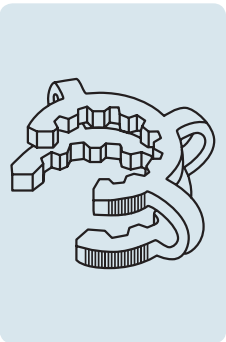


Cat. No.	Cone (NS)	Pack Unit
243000604	14/23	1
243000801	24/29	1
243000904	29/32	1

KECK™ Clip

for conical joints, from POM

To secure glass-to-glass joints.



Tmax. 90 °C

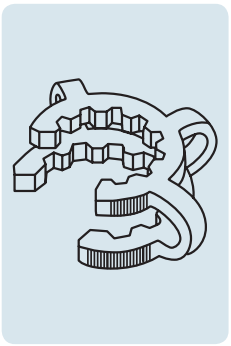
Cat. No.	Colour	Neck	Pack Unit
1091143	green	10	10
1091144	violet	12	10
1090978	yellow	14	10
1090979	blue	19	10
1091140	green	24	10
1091142	red	29	10
1091148	orange	34	10
1091149	yellow	40	10
1091151	brown	45	10

KECK™ Clip Assortment

for conical joints, from POM

To secure glass-to-glass joints.

Cat. No.	Capacity (mL)	Pack Unit
290310006	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



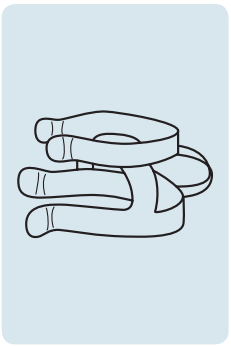
Tmax. 90 °C

KECK™ Clip Assortment

for conical joints, from metal

To secure glass-to-glass joints.

Cat. No.	Capacity (mL)	Pack Unit
290330008	2 x KCM 14, 2 x KCM 19, 1 x KCM 29, 1 x KCM 24	1



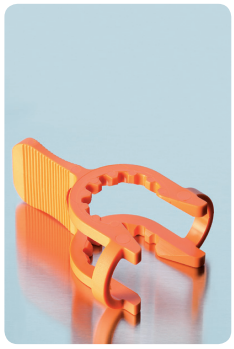
KECK™ Clip Assortment

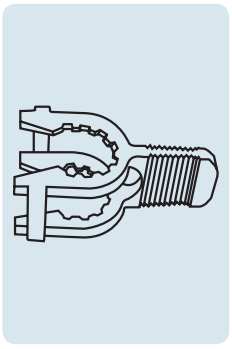
for conical joints, from stainless steel (1.4310, blank)

Cat. No.	For nominal size	Pack Unit
290300202	NS 7	10
290300305	NS 10	10
290300408	NS 12	10
290300605	NS 14	10
290300708	NS 19	10
290300802	NS 24	10
290300905	NS 29	10
290301104	NS 34	10

KECK™ Clip Assortment

for spherical joints, from POM





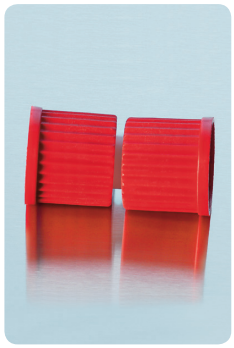
Tmax. 90 °C

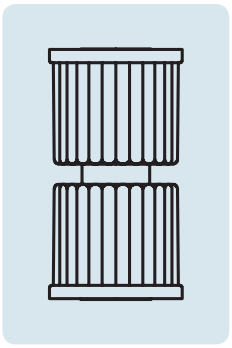
To secure glass-to-glass joints.

Cat. No.	Capacity (mL)	Pack Unit
290320007	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).

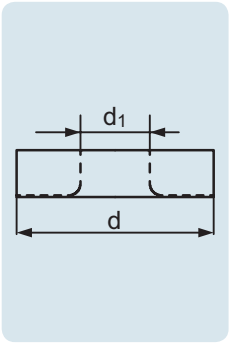
Cat. No.	DIN Thread (GL)	Pack Unit
292260556	14	1
292260659	18	1
292260959	25	1
292260856	32	1
292261055	45	1

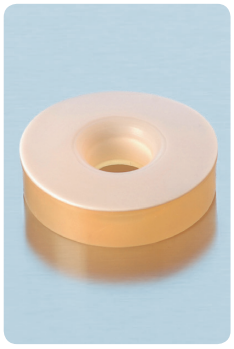
Silicone Sealing Ring VMQ

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.





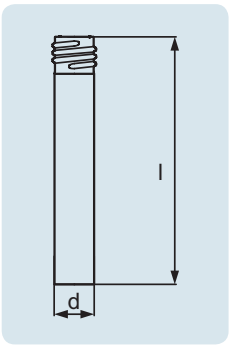
A 121 °C

Tmax. 180 °C

Cat. No.	d (OD) (mm)	d_1 (OD) (mm)	DIN Thread (GL)	for tube d (OD) (mm)	Pack Unit
292340606	12	6	14	5.5 – 6.5	10
292350607	16	6	18	5.5 – 6.5	10
292350804	16	8	18	7.5 – 9.0	10
292351003	16	10	18	9.0 – 11.0	10
292370806	22	8	25	7.5 – 9.0	10
292371005	22	10	25	9.0 – 11.0	10
292371202	22	12	25	11.0 – 13.0	10
292361004	29	10	32	9.0 – 11.0	10
292361201	29	12	32	11.0 – 13.0	10
292361407	29	14	32	13.0 – 15.0	10
292361604	29	16	32	15.0 – 17.0	10
292361801	29	18	32	17.0 – 19.0	10
292382602	42	26	45	25.0 – 27.0	10
292383204	42	32	45	31.0 – 33.0	10

DURAN® Tube with Screw Thread

with DIN thread



DIN 12216

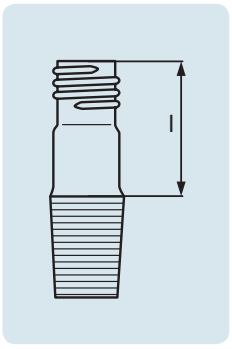
A 121 °C

USP Standard

Cat. No.	d (OD) (mm)	l (mm)	DIN Thread (GL)	Wall thickness (mm)	Pack Unit
248360207	12	100	14	1.5	10
248370105	16	100	18	1.8	10
248380209	22	100	25	1.8	10
248390107	28	140	32	2	10
248350103	40	170	45	2.3	1

DURAN® Tube with Screw Thread

with DIN thread, and standard ground cone



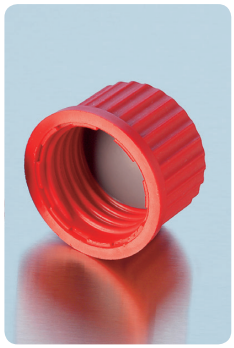
DIN 12257 | A 121 °C | USP Standard

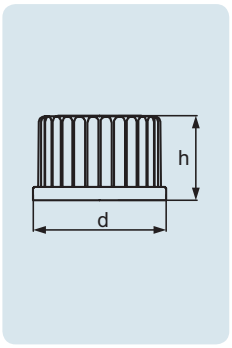
Cat. No.	l (mm)	DIN Thread (GL)	Cone (NS)	Remark	Pack Unit
248406202	30	14	14/23		10
248407207	35	14	19/26		10
248408203	40	14	24/29	Non-DIN size.	10
248409208	40	14	29/32	Non-DIN size.	10
248416109	35	18	14/23	Non-DIN size.	10
248417105	35	18	19/26		10
248418101	40	18	24/29	Non-DIN size.	10
248419106	40	18	29/32		10
248427209	40	25	19/26	Non-DIN size.	10
248428205	40	25	24/29	Non-DIN size.	10
248429201	40	25	29/32		10
248448104	50	32	24/29	Non-DIN size.	10
248449109	50	32	29/32		10

DURAN® Screw Cap

from PBT, red

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





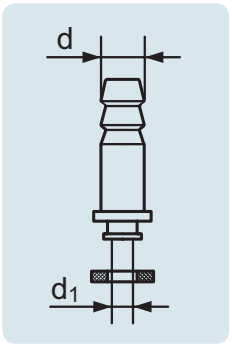
A 121 °C | Tmax. 180 °C

Cat. No.	DIN Thread (GL)	d (OD) (mm)	h (mm)	Pack Unit
292400806	14	20	17	10
292401108	18	23	20	10

Plastic Hose Connection

straight, from PP

With silicone seal (VMQ). Suitable for GL 14 screw cap (Cat. No. 292270508).



A 121 °C | Tmax. 140 °C

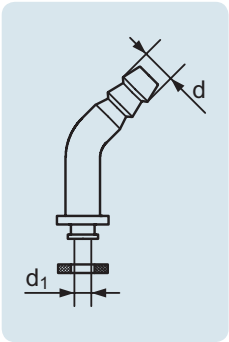
Cat. No.	d (OD) (mm)	d_1 (OD) (mm)	Pack Unit
292550603	8.6	5	10

With silicone seal (VMQ). Suitable for GL 14 screw cap (Cat. No. 292270508).

Cat. No.	d (OD) (mm)	d_1 (OD) (mm)	Pack Unit
292470504	8.6	4	10

Plastic Hose Connection

bent, from PP

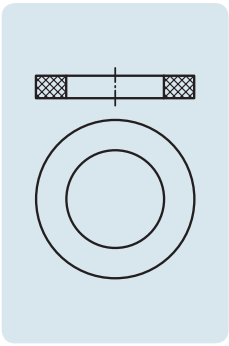


A 121 °C | Tmax. 140 °C

For plastic hose connections (Cat. No. 292550603 and 292470504). From silicone (VMQ).

Cat. No.	Material	Pack Unit
292200904	Silicone (VMQ)	10

Replacement Seal



A 121 °C | Tmax. 140 °C


SCHOTT
DURAN
400 ml
Made in Germany
DURAN 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

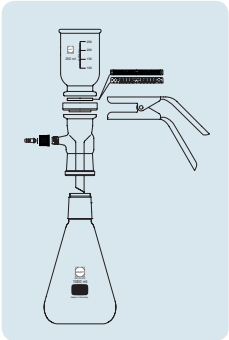
Usage tips:

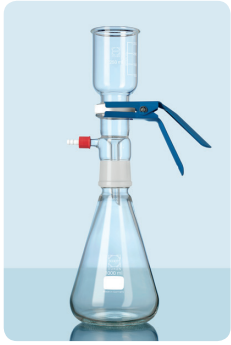
- The maximum permissible operating temperature is + 450 °C.
- Uniform heating is recommended to avoid thermal stresses and resultant breakages.
- Heat glass filtration apparatus with disk diameters of more than 20 mm in initially cold ovens or sterilisers only.
- The heating or cooling rate should not 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.

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.

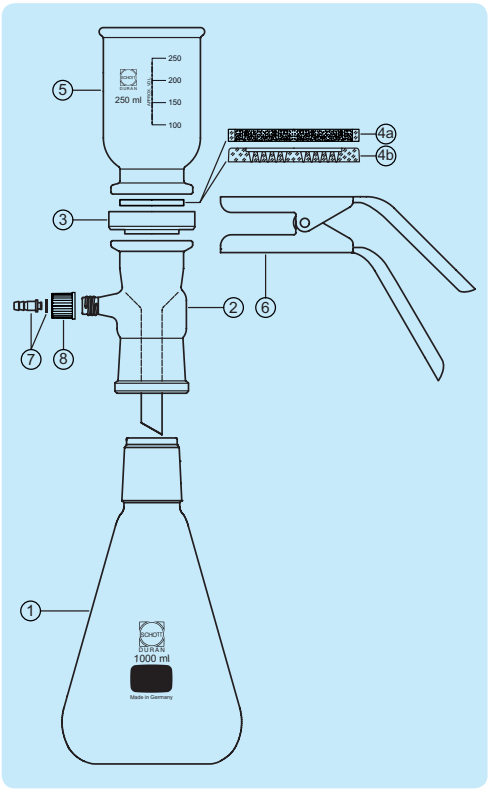
Typical applications: Coarse and fine filtration, filtration of HPLC media, residue analysis.





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

Cat. No.	Description	Pack Unit
257105451	DURAN® filtration apparatus complete with PTFE insert and clamp (funnel 250 mL, filtering flask 1 000 mL)	1
257106304	DURAN® filtration apparatus complete with PTFE insert and clamp (funnel 500 mL, filtering flask 2 000 mL)	1
Components		
243173203	Head standard ground joint 45/40	1
294002803	PTFE adapter disc	1
290763609	Clamp (anodised aluminium)	1
247223602	Funnel with 250 mL scale	1
247224401	Funnel with 500 mL scale	1
242025404	Filtering flask with standard ground joint 45/40, 1 000 mL	1
242026306	Filtering flask with standard ground joint 45/40, 2 000 mL	1
292550603	Plastic hose connection with silicone seal, straight, GL 14	10
292270508	Screw connection caps, red, made from PBT, GL 14, 9.5 mm bore	10
252050208	DURAN® fliter disc with 50 mm glass rim, por. 2	1
213403108	DURAN® slit sieve disc, diameter 48 mm	10

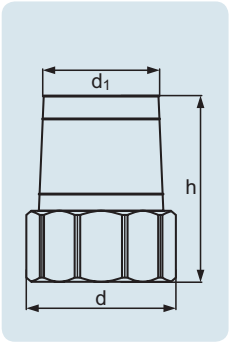


① DURAN® Filtering flask, 1 000 mL with NS 45/40
② Head NS 45/40 with hose connection GL 14
③ PTFE adapter disc
④ a) DURAN® Glass filter disc, 50 mm in diameter
④ b) DURAN® Slit-sieve disc, 48 mm in diameter
⑤ Funnel with 250 mL scale
⑥ Clamp (anodised aluminium)
⑦ Plastic hose connection with silicone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

DURAN® PTFE Adapter

NS 45/40 - GL 45, with EPDM Seal

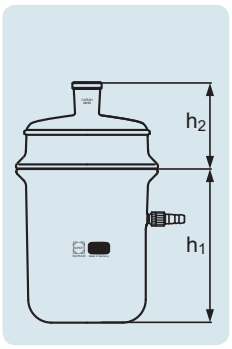
The DURAN® PTFE Adapter combines the ground joint NS 45/40 of the filtering apparatus with the GL 45 screw thread of the DURAN® laboratory bottles. Product benefits: The adapter allows the filtrate to be directly collected in a DURAN® GL 45 laboratory bottle which reduces the risk of contamination. Note: 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
294001207	53	40	67	1

DURAN® Filter Apparatus Witt Type

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



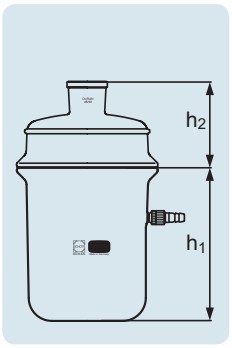
A
121 °C

Suitable for use under vacuum.

Cat. No.	h (mm)	h_1 (mm)	DN	Socket size (NS)	Remark	Pack Unit
247304603	160	76	100	29/32	suitable lid for filter apparatus: cat. no 243984605	1
247305702	200	102	150	29/32	suitable lid for filter apparatus: cat. no 243985704	1
247306107	300	126	200	29/32	suitable lid for filter apparatus: cat. no 243986109	1

DURAN® Filter Apparatus Witt Type

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



A
121 °C

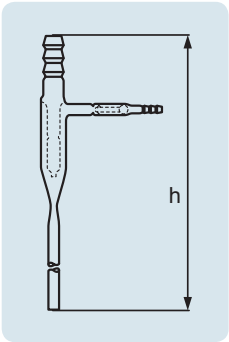
Suitable for use under vacuum. Wide rough-ground tubulature.

Cat. No.	h (mm)	h_1 (mm)	DN	Socket size (NS)	Remark	Pack Unit
247314604	160	84	100	45/40	suitable lid for filter apparatus: cat. no 244504608	1
247315703	200	112	150	45/40	suitable lid for filter apparatus: cat. no 244505707	1

Cat. No.	h (mm)	Water flow rate min. (L/h)	Water pressure min. (bar)	Pack Unit
243629903	275	300	1.2	1

DURAN® Water Jet Pump

with non-return valve

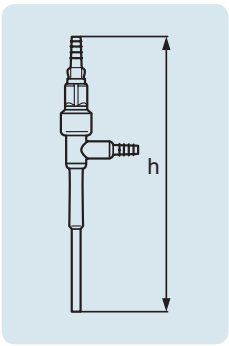


Throughput: 400 l/h at 3.5 bar water pressure und 12 °C water temperature.

Cat. No.	h (mm)	Connection suitable for hose ID (mm)	Water flow rate min. (L/h)	Water pressure min. (bar)	Pack Unit
292500101	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"



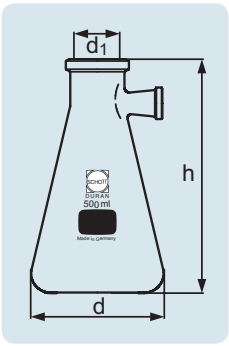
Heavy walled for vacuum use. These filtering flasks fulfil the regulations of the "equipment and product safety regulations".

Typical applications: separations by vacuum filtration.

Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Pack Unit
211833603	250	85	34	155	10
211834402	500	105	34	185	10
211835407	1 000	135	45	230	10
211836309	2 000	166	60	255	1

DURAN® Filtering Flask with Side-Arm Socket

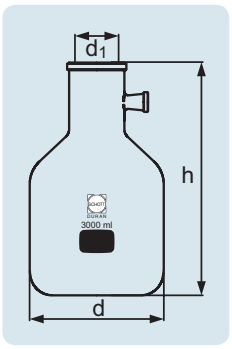
Erlenmeyer shape



ISO 6556 | A 121 °C | USP Standard

DURAN® Filtering Flask with Side-Arm Socket

bottle shape



ISO 6556 | A 121 °C | USP Standard

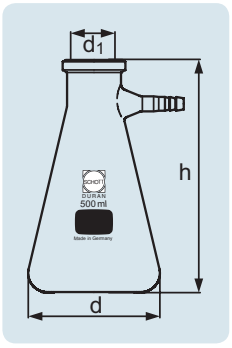
Heavy walled for vacuum use. These filtering flasks fulfil the regulations of the "equipment and product safety regulations". Provision of filtration flasks with a socket has not only made work in preparation and analytical laboratories easier and simpler, but has also reduced the risk of accidents. 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
211936804	3 000	170	58	295	1
211937303	5 000	185	68	360	1
211938608	10 000	240	70	420	1
211938805	15 000	255	70	500	1
211939107	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
212012409	100	64	24	105	11	10
212013602	250	85	34	155	11	10
212014401	500	105	34	185	11	10
212015406	1 000	135	45	230	11	10
212016308	2 000	166	60	255	11	1

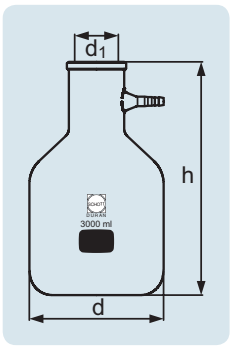
DURAN® Filtering Flask with glass hose connection

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
211916802	3 000	170	58	295	11	1
211917301	5 000	185	68	360	11	1
211918606	10 000	240	70	420	11	1
211918803	15 000	255	70	500	11	1
211919105	20 000	290	70	535	11	1



ISO 6556 | A 121 °C | USP Standard

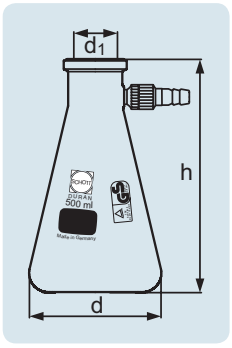
DURAN® Filtering Flask with KECK™ Assembly Set

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.

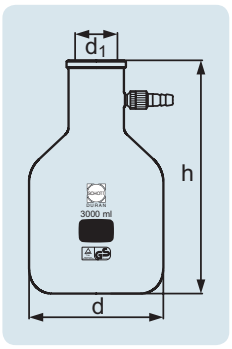
Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Hose connection d (OD) (mm)	Pack Unit
212042452	100	64	24	105	9	10
212043654	250	85	34	155	9	10
212044453	500	105	34	185	9	10
212045458	1 000	135	45	230	9	10
212046351	2 000	166	60	255	9	1



ISO 6556 | A 121 °C | USP Standard

DURAN® Filtering Flask with KECK™ Assembly Set

bottle shape



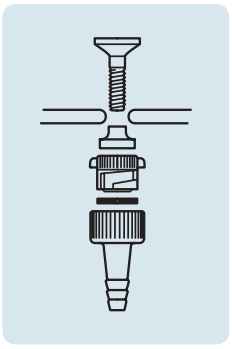
ISO 6556 | A 121 °C | USP Standard

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
211946854	3 000	170	58	295	9	1
211947353	5 000	185	68	360	9	1
211948658	10 000	240	70	420	9	1
211948855	15 000	257	70	500	9	1
211949157	20 000	290	70	535	9	1

KECK™ Assembly Set



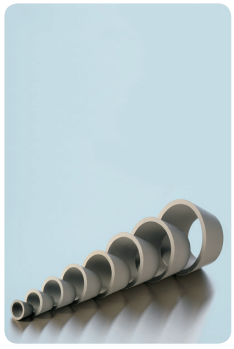
A 121 °C | Tmax. 140 °C

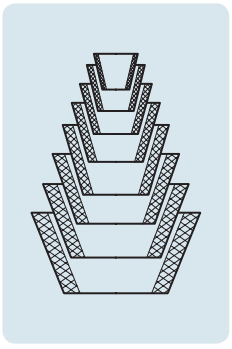
With removable plastic hose connection (PBT), short and long screw (PP), seals (VMQ, EPDM). Suitable for filtering flasks 100 – 20 000 mL.

Cat. No.	Hose connection d (OD) (mm)	Pack Unit
292585407	9	10

Rubber Conical Gasket Set Guko from EPDM

conical rubber gaskets, for filtering flasks





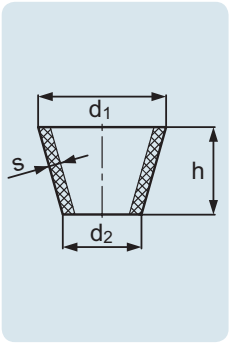
A 121 °C | Tmax. 150 °C

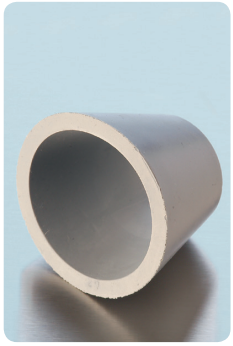
Cat. No.	Description	Pack Unit
292020001	8 Guko gaskets, size 22 to 84	1

Rubber Conical Gaskets Guko

from EPDM, for filtering flasks

Cat. No.	d_1 (OD) (mm)	d_2 (OD) (mm)	h (mm)	s (mm)	Pack Unit
292021203	22	12	18	2.5	10
292021709	29	16	23	3.5	10
292022302	36	22	25	3.5	10
292022705	44	27	30	4	10
292023204	53	33	35	4.5	10
292023607	63	43	35	5	10
292023907	73	52	37	5	10
292024303	84	61	40	5.5	10





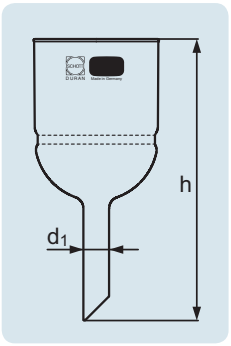
A 121 °C

Tmax. 150 °C

DURAN® Filter Funnel

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.

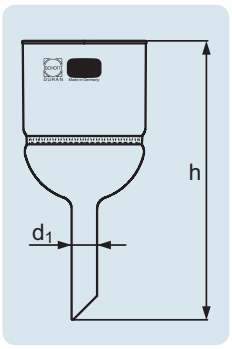


A 121 °C

USP Standard

Cat. No.	Porosity	d_1 (OD) (mm)	h (mm)	OD (mm)	Disc Ø (mm)	Pack Unit
Capacity: 50 mL						
258520101	1	10	130	40	35	1
258520204	2	10	130	40	35	1
258520307	3	10	130	40	35	1
258520401	4	10	130	40	35	1
258520504	5	10	130	40	35	1
Capacity: 75 mL						
258521106	1	10	132	56	45	1
258521209	2	10	132	56	45	1
258521303	3	10	132	56	45	1
258521406	4	10	132	56	45	1
258521509	5	10	132	56	45	1
Capacity: 125 mL						
258522102	1	10	140	72	60	1
258522205	2	10	140	72	60	1
258522308	3	10	140	72	60	1
258522402	4	10	140	72	60	1
258522505	5	10	140	72	60	1
Capacity: 500 mL						
258523107	1	22	240	107	95	1
258523201	2	22	240	107	95	1
258523304	3	22	240	107	95	1
258523407	4	22	240	107	95	1
258523501	5	22	240	107	95	1
Capacity: 1000 mL						
258524103	1	22	270	136	120	1
258524206	2	22	270	136	120	1
258524309	3	22	270	136	120	1
258524403	4	22	270	136	120	1
258524506	5	22	270	136	120	1
Capacity: 4 000 mL						
258526104	1	30	425	202	175	1
258526207	2	30	425	202	175	1
258526301	3	30	425	202	175	1
258526404	4	30	425	202	175	1

DURAN® Buechner Funnel



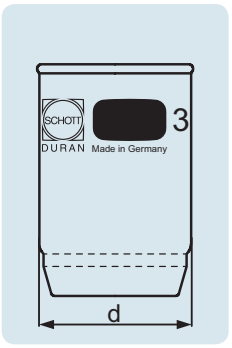
A 121 °C

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
213412207	70	10	132	57	45	48	1
213412807	125	10	140	72	55	60	1
213413409	220	18	190	90	70	73	1
213414405	500	22	240	106	90	95	1
213415401	1 000	22	270	136	110	120	1

DURAN® Filter Crucible



A 121 °C

USP Standard

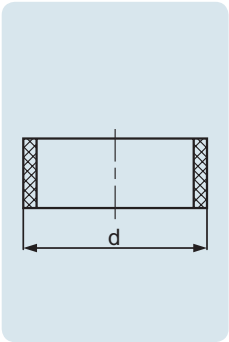
From DURAN® glass with its good thermal shock and chemical resistance.

Cat. No.	Porosity	d (OD) (mm)	Remark	Pack Unit
Capacity: 8 mL				
258510203	2	24	suitable rubber sleve cat. no. 292011408; suitable filter adapter cat. no. 243161604	10
258510306	3	24	suitable rubber sleve cat. no. 292011408; suitable filter adapter cat. no. 243161604	10
258510409	4	24	suitable rubber sleve cat. no. 292011408; suitable filter adapter cat. no. 243161604	10
Capacity: 15 mL				
258511105	1	28	suitable rubber sleve cat. no. 292012104; suitable filter adapter cat. no. 243162206	10
258511208	2	28	suitable rubber sleve cat. no. 292012104; suitable filter adapter cat. no. 243162206	10
258511302	3	28	suitable rubber sleve cat. no. 292012104; suitable filter adapter cat. no. 243162206	10
258511405	4	28	suitable rubber sleve cat. no. 292012104; suitable filter adapter cat. no. 243162206	10
Capacity: 30 mL				
258512101	1	36	suitable rubber sleve cat. no. 292012601; suitable filter adapter cat. no. 243162609	10
258512204	2	36	suitable rubber sleve cat. no. 292012601; suitable filter adapter cat. no. 243162609	10
258512307	3	36	suitable rubber sleve cat. no. 292012601; suitable filter adapter cat. no. 243162609	10
258512401	4	36	suitable rubber sleve cat. no. 292012601; suitable filter adapter cat. no. 243162609	10
258512504	5	36	suitable rubber sleve cat. no. 292012601; suitable filter adapter cat. no. 243162609	10
Capacity: 50 mL				
258513106	1	46	suitable rubber sleve cat. no. 292013109; suitable filter adapter cat. no. 243163202	10
258513209	2	46	suitable rubber sleve cat. no. 292013109; suitable filter adapter cat. no. 243163202	10
258513303	3	46	suitable rubber sleve cat. no. 292013109; suitable filter adapter cat. no. 243163202	10
258513406	4	46	suitable rubber sleve cat. no. 292013109; suitable filter adapter cat. no. 243163202	10
258513509	5	46	suitable rubber sleve cat. no. 292013109; suitable filter adapter cat. no. 243163202	10

Cat. No.	d (OD) (mm)	Remark	Pack Unit
292011408	26	suitable filter adapter cat. no. 243161604	10
292012104	33	suitable filter adapter cat. no. 243162206	10
292012601	41	suitable filter adapter cat. no. 243162609	10
292013109	49	suitable filter adapter cat. no. 243163202	10

Rubber Adaptor

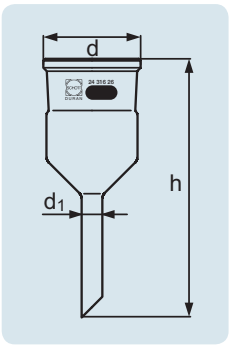
from EPDM, for filter crucibles



A 121 °C | Tmax. 150 °C

Cat. No.	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Remark	Pack Unit
243161604	27	10	108	suitable rubber sleve cat. no. 292011408	10
243162206	34	10	110	suitable rubber sleve cat. no. 292012104	10
243162609	41	10	125	suitable rubber sleve cat. no. 292012601	10
243163202	50	10	132	suitable rubber sleve cat. no. 292013109	10

DURAN® Filter Crucible / Funnel Adapter



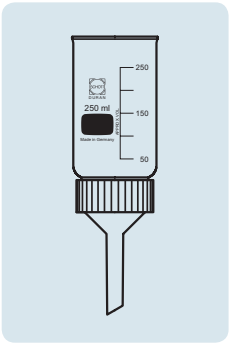
A 121 °C | USP Standard

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
247202407		30	28	24	1
247205001		250	54	50	1
247209003		1 000	95	90	1
Suitable slit sieves as support for membrane and paper filters for Cat. No. 247205001					
213403108	DURAN® slit sieve disc, diameter 48 mm				10

DURAN® Filter Funnel Head

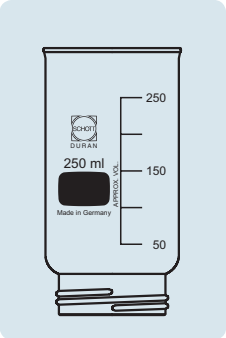
with PP funnel, and two FKM seals



A 121 °C | Tmax. 140 °C

DURAN® Filter Head

threaded

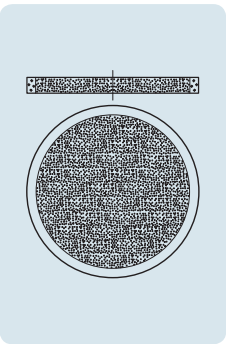


Cat. No.	Capacity (mL)	Thread	Pack Unit
247212408	30	28	1
247215002	250	54	1
247219004	1 000	95	1

A 121 °C | USP Standard

DURAN® Filter Disk

with fused glass rim

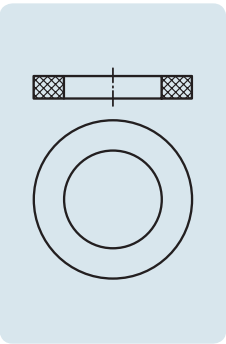


From DURAN® glass with its good thermal shock and chemical resistance. Fused glass rim.

Cat. No.	Porosity	Pack Unit
Plate: Ø = 24 mm		
252024104	1	1
252024207	2	1
252024301	3	1
252024404	4	1
Plate: Ø = 50 mm		
252050105	1	1
252050208	2	1
252050302	3	1
252050405	4	1
Plate: Ø = 90 mm		
252090109	1	1
252090203	2	1
252090306	3	1
252090409	4	1

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

FKM Seals for Filter Disks



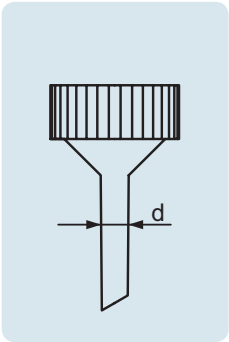
Cat. No.	Disc Ø (mm)	Pack Unit
292202408	24	10
292205002	50	10
292209004	90	10

A 121 °C | Tmax. 200 °C

Cat. No.	Thread	d (OD) (mm)	Pack Unit
292212409	28	10	1
292215003	54	12	1
292219005	95	18	1

Funnel for Filter Funnel Head

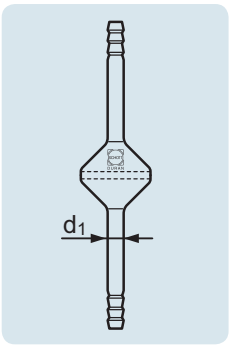
from PP



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			
258550104	10	1	1
258550207	10	2	1
258550301	10	3	1
258550404	10	4	1
Plate: Ø = 60 mm			
258551109	16	1	1
258551203	16	2	1
258551306	16	3	1
258551409	16	4	1
Plate: Ø = 90 mm			
258552105	16	1	1
258552208	16	2	1
258552302	16	3	1
258552405	16	4	1



A 121 °C

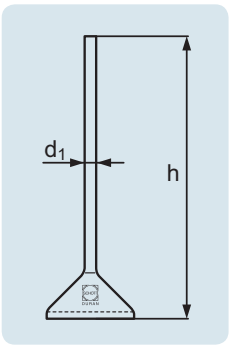
USP Standard

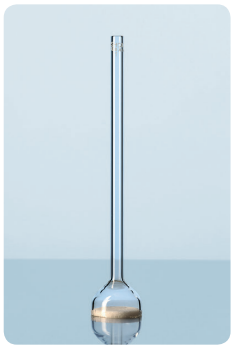
Typical application: extraction of clear filtrate (not the filtrand).

DURAN® Immersion Filter

for reverse filtration

Cat. No.	d_1 (OD) (mm)	h (mm)	Porosity	Disc Ø (mm)	Pack Unit
258556107	10	210	1	35	1
258556201	10	210	2	35	1
258556304	10	210	3	35	1
258556407	10	210	4	35	1

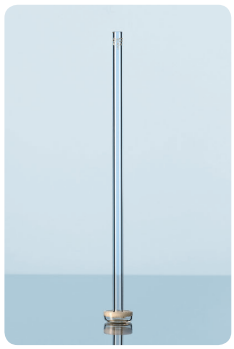


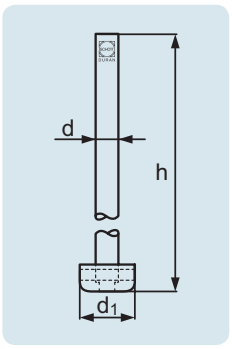


A 121 °C

USP Standard

DURAN® Gas Distribution Tube





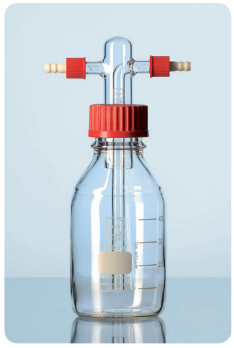
A 121 °C USP Standard

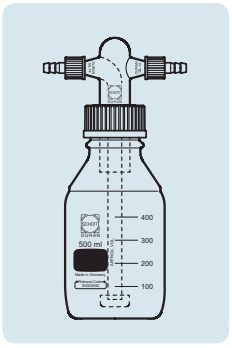
Typical application: reactions between gases and liquids.

Cat. No.	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Porosity	Pack Unit
side mounted filter cup					
258560002	6	22	250	0	5
258560105	6	22	250	1	5
258560208	6	22	250	2	5
centrally mounted filter cup					
258561007	11	34	250	1	5
258561101	9	25	250	1	5
258561204	9	25	250	2	5
258562106	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.

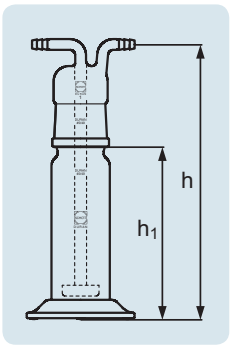
Typical applications: cleaning ("washing") of gases with solvents.

Cat. No.	Capacity (mL)	DIN Thread (GL)	Porosity	Hose connection d (OD) (mm)	Bowl (mm)	Pack Unit
without filter disk						
247130008	500	45		9		1
with filter disk						
257040101	500	45	1	9	25	1

Cat. No.	Description	Pack Unit
Individual parts		
247130205	Drechsel-head, without filter disc	1
257540109	Drechsel-head, with filter disc (Por. 1)	1
218014401	DURAN® Laboratory bottle 500 mL, with DIN thread GL 45	10
292550603	Plastic hose connection, straight	10
292270508	Screw-caps with aperture, PBT, GL 14	10
292271007	Screw-caps with aperture, PBT, GL 45	10
292282501	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.

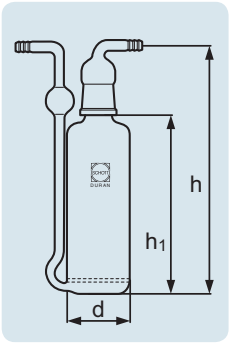
Cat. No.	Description	Capacity (mL)	h (mm)	h_1 (mm)	Neck	Porosity	Hose connection d (OD) (mm)	Bowl (mm)	Pack Unit
257010107		100	250	180	34/35	1	10	25	1
257020108		250	250	160	45/40	1	10	34	1
Individual parts									
257520107	Gas washing bottle, head with fritted disc (100 mL)					1			1
257520108	Gas 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
257030109	350	60	250	180	29/32	1	10	1



A 121 °C

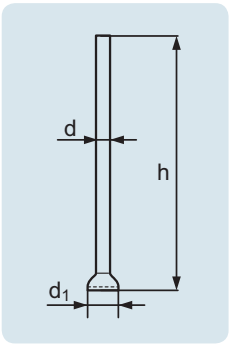
USP Standard

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
258571102	6	10	100	1	10
258571205	6	10	100	2	10
258571308	6	10	100	3	10
258571402	6	10	100	4	10



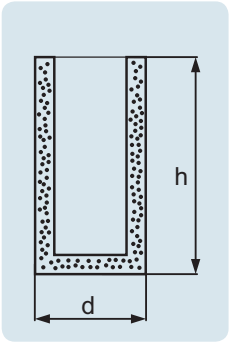
A 121 °C

USP Standard

DURAN® Micro Filter Candle

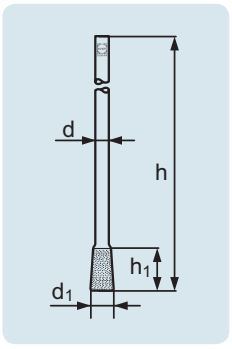
without tube

Cat. No.	d (OD) (mm)	h (mm)	Porosity	Pack Unit
258572004	13	25	0	10
258572107	13	25	1	10
258572201	13	25	2	10
258572304	13	25	3	10
258572407	13	25	4	10



DURAN® Micro Filter Candle

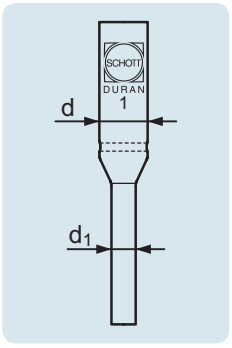
with narrow tube



A
121 °C

Cat. No.	d (OD) (mm)	h (mm)	Porosity	Cartridge d_1 (OD) (mm)	Cartridge h_1 (mm)	Pack Unit
258573009	8	200	0	13	25	10
258573103	8	200	1	13	25	10
258573206	8	200	2	13	25	10
258573309	8	200	3	13	25	10
258573403	8	200	4	13	25	10

DURAN® Micro Filter Funnel

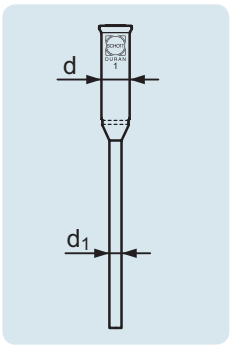


A
121 °C

Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	Porosity	Pack Unit
258575104	2	10	6	1	10
258575207	2	10	6	2	10
258575301	2	10	6	3	10
258575404	2	10	6	4	10

DURAN® Micro Filter Funnel

Pregl type



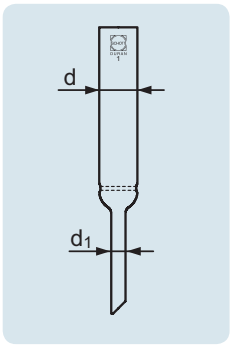
A
121 °C

Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	Porosity	Pack Unit
258576109	4	10	6	1	10

Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	Porosity	Pack Unit
258532103	30	20	9	1	10
258532206	30	20	9	2	10
258532309	30	20	9	3	10
258532403	30	20	9	4	10

DURAN® Filter Tube

Allihn type



A 121 °C

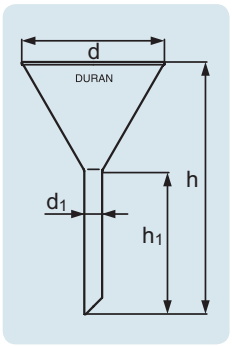
Particular suited for use with hot or aggressive chemicals thanks to the excellent thermal shock and chemical resistance of DURAN®.

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
213512308	35	6	60	35	45 – 55		10
213512805	45	6	80	45	55 – 70	Non-DIN ISO size.	10
213513304	55	8	95	55	70 – 90		10
213513801	70	8	125	70	110 – 125	Non-DIN ISO size.	10
213514103	80	10	140	80	125 – 150	Non-DIN ISO size.	10
213514609	100	10	180	100	150 – 185		10
213515108	120	16	210	120	185 – 240	Non-DIN ISO size.	10
213515708	150	16	265	150	240 – 270		10
213515905	180	20	290	150	270 – 320	Non-DIN ISO size.	1
213516104	200	26	325	175	320 – 385	Non-DIN ISO size.	1
213516601	250	30	370	175	385 – 400	Non-DIN ISO size.	1
213516901	300	30	409	175	500	Non-DIN ISO size.	1



DIN ISO 4798 | A 121 °C | USP Standard

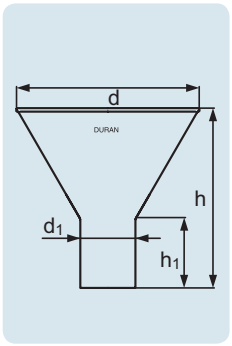
From DURAN® glass with its good thermal shock and chemical resistance.

Typical applications: decanting of powdered substances and granulated material.

DURAN® Powder Funnel

with short, wide stem

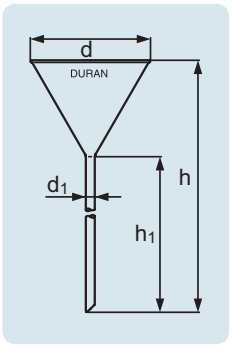
Cat. No.	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	h_1 (mm)	Pack Unit
DURAN®					
213543307	55	20	60	30	10
213543804	70	22	72	30	10
213544106	80	24	79	30	10
213544603	100	26	94	30	10
213545102	120	34	105	30	10
213545505	160	35	140	30	1
213546107	200	40	170	30	1



A 121 °C | USP Standard

DURAN® Funnel

with long stem, Bunsen funnel



DIN ISO 4798 | A 121 °C | USP Standard

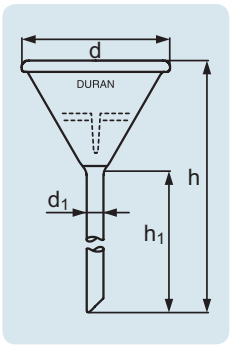
From DURAN® glass with its good thermal shock and chemical resistance.

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
213533306	55	6	190	150	70 – 90		10
213533803	70	6	200	150	110 – 125	Non-DIN ISO size.	10
213534105	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
213313702	65	9	200	150	70 – 90	10
213314107	80	9	210	150	110 – 125	10
213314801	110	9	265	180	150 – 185	10

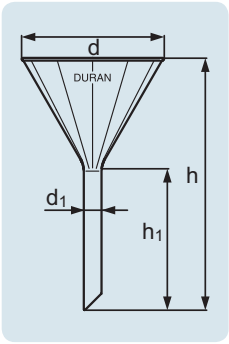
DURAN® Funnel

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
213523802	70	8	125	70	110 – 125	10
213524104	80	10	140	80	125 – 150	10
213524601	100	10	180	100	150 – 185	10
213525709	150	16	266	150	240 – 270	10
213526105	200	26	326	175	320 – 385	1



A 121 °C

USP Standard

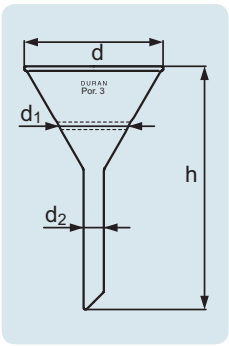
DURAN® Filter Funnel

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
258540309	25	55	25	8	100	3	1
258540403	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).

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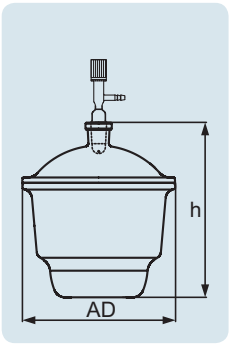
DURAN® Vacuum Desiccator

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

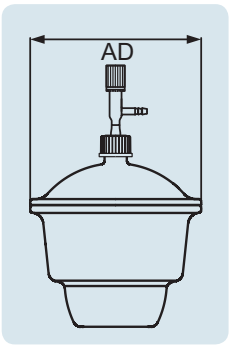
Cat. No.	DN	ID Flange (mm)	Outer diameter (AD) Flange (mm)	h (mm)	Tubulature (NS)	Volume approx. (mL)	Pack Unit
with porcelain plate							
247825752	150	172	215 ± 2	239	24/29	2 400	1
247826157	200	224	270 ± 2	296	24/29	5 800	1
247826654	250	274	320 ± 2	344	24/29	10 500	1
247826954	300	332	380 ± 2	420	24/29	18 500	1
without porcelain plate							
247824604	100	119	153 ± 2	174	24/29	700	1
247825703	150	172	215 ± 2	239	24/29	2 400	1
247826108	200	224	270 ± 2	296	24/29	5 800	1
247826605	250	274	320 ± 2	344	24/29	10 500	1
247826905	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.

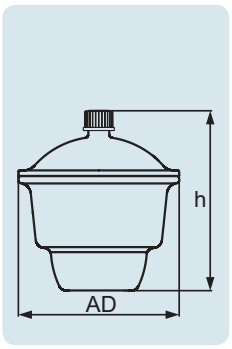


DIN ISO 13130 USP Standard

Cat. No.	DN	ID Flange (mm)	Outer diameter (AD) Flange (mm)	Thread	h (mm)	Volume approx. (mL)	Pack Unit
with porcelain plate							
247835753	150	172	215 ± 2	32	239	2 400	1
247836158	200	224	270 ± 2	32	296	5 800	1
247836655	250	274	320 ± 2	32	344	10 500	1
247836955	300	332	380 ± 2	32	420	18 500	1
without porcelain plate							
247855706	150	172	215 ± 2	32	239	2 400	1
247856102	200	224	270 ± 2	32	296	5 800	1
247856608	250	274	320 ± 2	32	344	10 500	1
247856908	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

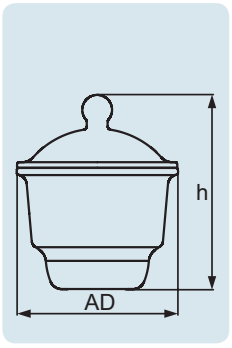
DURAN® desiccators completed with a desiccator lid and a screw cap.

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							
247865707	150	172	215 ± 2	32	239	2 400	1
247866103	200	224	270 ± 2	32	296	5 800	1
247866609	250	274	320 ± 2	32	344	10 500	1
247866909	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).

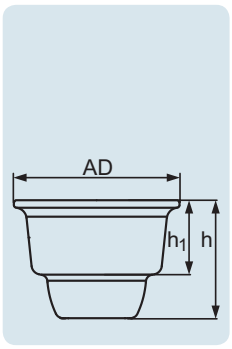
Typical applications: drying of moist products and storage of moisture-sensitive substances.

Cat. No.	DN	ID Flange (mm)	Outer diameter (AD) Flange (mm)	h (mm)	Volume approx. (mL)	Pack Unit
247814603	100	119	153 ± 2	187	700	1
247815702	150	172	215 ± 2	252	2 400	1
247816107	200	224	270 ± 2	309	5 800	1
247816604	250	274	320 ± 2	357	10 500	1
247816904	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
247704604	100	119	153 ± 2	112	58	700	1
247705703	150	172	215 ± 2	154	81	2 400	1
247706108	200	224	270 ± 2	202	115	5 800	1
247706605	250	274	320 ± 2	235	120	10 500	1
247706905	300	332	332 ± 2	283	150	18 500	1

DURAN® Desiccator Base

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

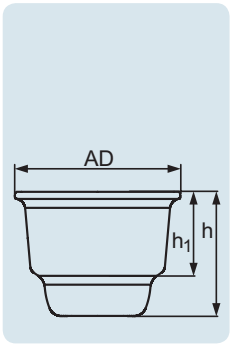


DIN ISO 13130

Cat. No.	DN	ID Flange (mm)	Outer diameter (AD) Flange (mm)	h (mm)	h_1 (mm)	Volume approx. (mL)	Pack Unit
247736102	200	224	270 ± 2	202	115	5 800	1

DURAN® Desiccator Base

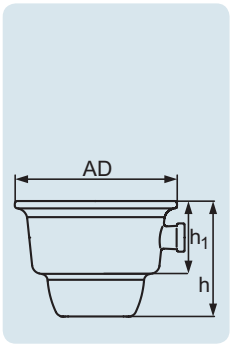
with ring-grooved flange, suitable for all types of lids



Cat. No.	DN	ID Flange (mm)	Outer diameter (AD) Flange (mm)	h (mm)	h_1 (mm)	Volume approx. (mL)	Pack Unit
247714605	100	119	153 ± 2	112	58	700	1
247715704	150	172	215 ± 2	154	81	2 400	1
247716109	200	224	270 ± 2	202	118	5 800	1
247716606	250	274	320 ± 2	235	122	10 500	1
247716906	300	332	380 ± 2	283	154	18 500	1

DURAN® Desiccator Base

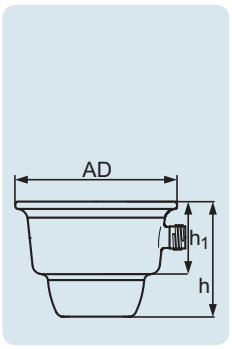
with flat flange, standard ground outlet (24/29), type NOVUS, suitable for all types of lids



DIN ISO 13130

DURAN® Desiccator Base

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

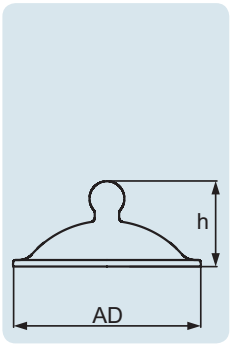


DIN ISO 13130

Cat. No.	DN	ID Flange (mm)	Outer diameter (AD) Flange (mm)	h (mm)	h_1 (mm)	Volume approx. (mL)	Pack Unit
247725705	150	172	215 ± 2	154	81	2 400	1
247726101	200	224	270 ± 2	202	118	5 800	1
247726607	250	274	320 ± 2	235	122	10 500	1
247726907	300	332	380 ± 2	283	154	18 500	1

DURAN® Desiccator Lid

with knob, suitable for all types of bases

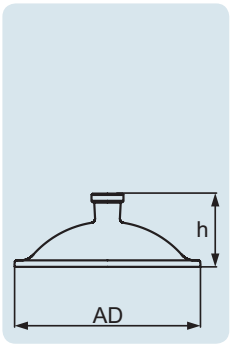


DIN ISO 13130

Cat. No.	DN	ID Flange (mm)	Outer diameter (AD) Flange (mm)	h (mm)	Pack Unit
244104607	100	119	153 ± 2	75	1
244105706	150	172	215 ± 2	98	1
244106102	200	224	270 ± 2	107	1
244106608	250	274	320 ± 2	122	1
244106908	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

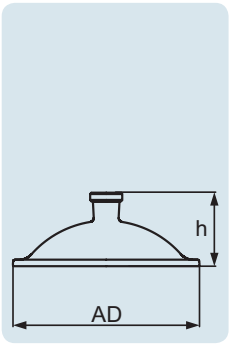


Cat. No.	DN	ID Flange (mm)	Outer diameter (AD) Flange (mm)	h (mm)	Neck	Pack Unit
244305702	150	172	215 ± 2	85	24/29	1
244306604	250	274	320 ± 2	109	24/29	1

Cat. No.	DN	ID Flange (mm)	Outer diameter (AD) Flange (mm)	h (mm)	Neck	Pack Unit
244204605	100	119	153 ± 2	62	24/29	1
244205704	150	172	215 ± 2	85	24/29	1
244206109	200	224	270 ± 2	94	24/29	1
244206606	250	274	320 ± 2	109	24/29	1
244206906	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

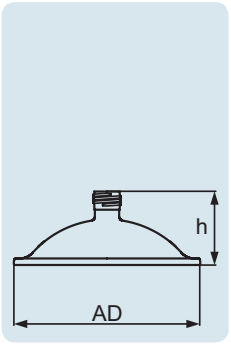


DIN ISO 13130

Cat. No.	DN	ID Flange (mm)	Outer diameter (AD) Flange (mm)	DIN Thread (GL)	h (mm)	Pack Unit
244405709	150	172	215 ± 2	32	85	1
244406105	200	224	270 ± 2	32	94	1
244406602	250	274	320 ± 2	32	109	1
244406902	300	332	380 ± 2	32	137	1

DURAN® Desiccator Lid

with threaded outlet, type MOBILEX (GL 32), suitable for all bases



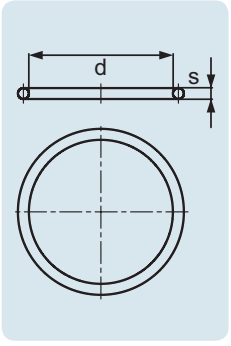
DIN ISO 13130

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				
292156108	200	236	5.3	1

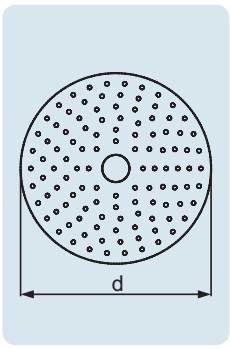
O-Ring

suitable only for desiccator Base with ring-grooved flange, from silicone (VMQ)



Tmax. 200 °C

Porcelain Desiccator Plate

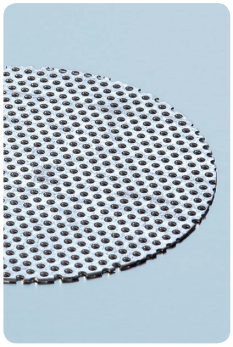


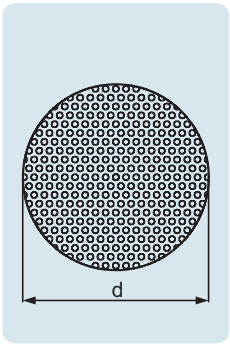
DIN 12911

Cat. No.	DN	d (OD) (mm)	Pack Unit
Porcelain			
297254608	100	90	1
297255707	150	140	1
297256103	200	190	1
297256609	250	235	1
297256909	300	280	1

Stainless Steel Desiccator Plate

Material: 1.4301, Type 304, rust-free



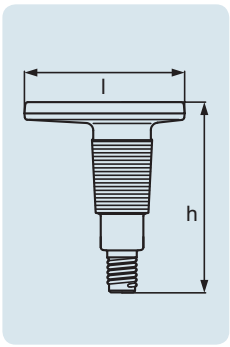


DIN EN 10143

Cat. No.	DN	d (OD) (mm)	Pack Unit
Stainless Steel			
290804606	100	90	1
290805705	150	140	1
290806101	200	190	1
290806607	250	235	1
290806907	300	285	1

Safety Stopcock NS 24/29

for safety outlets type Wertex

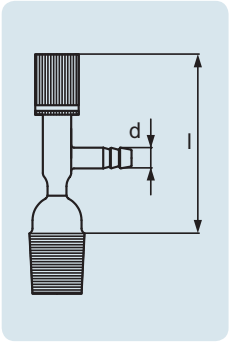


Cat. No.	h (mm)	l (mm)	Pack Unit
247960304	76	70	1

Cat. No.	d (OD) (mm)	l (mm)	Neck	Pack Unit
247980306	8	85	24/29	1

DURAN® Stopcock with PTFE Spindle

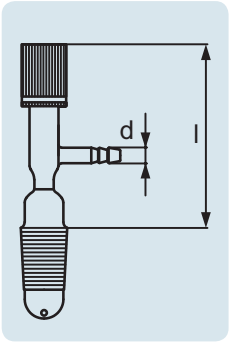
for desiccator base side outlets, type NOVUS (NS 24/29)



Cat. No.	d (OD) (mm)	l (mm)	Neck	Pack Unit
247990401	8	85	24/29	1

DURAN® Stopcock with PTFE Spindle

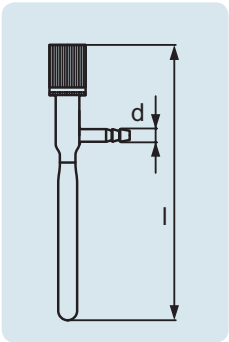
for desiccator lid outlets, type NOVUS (NS 24/29)

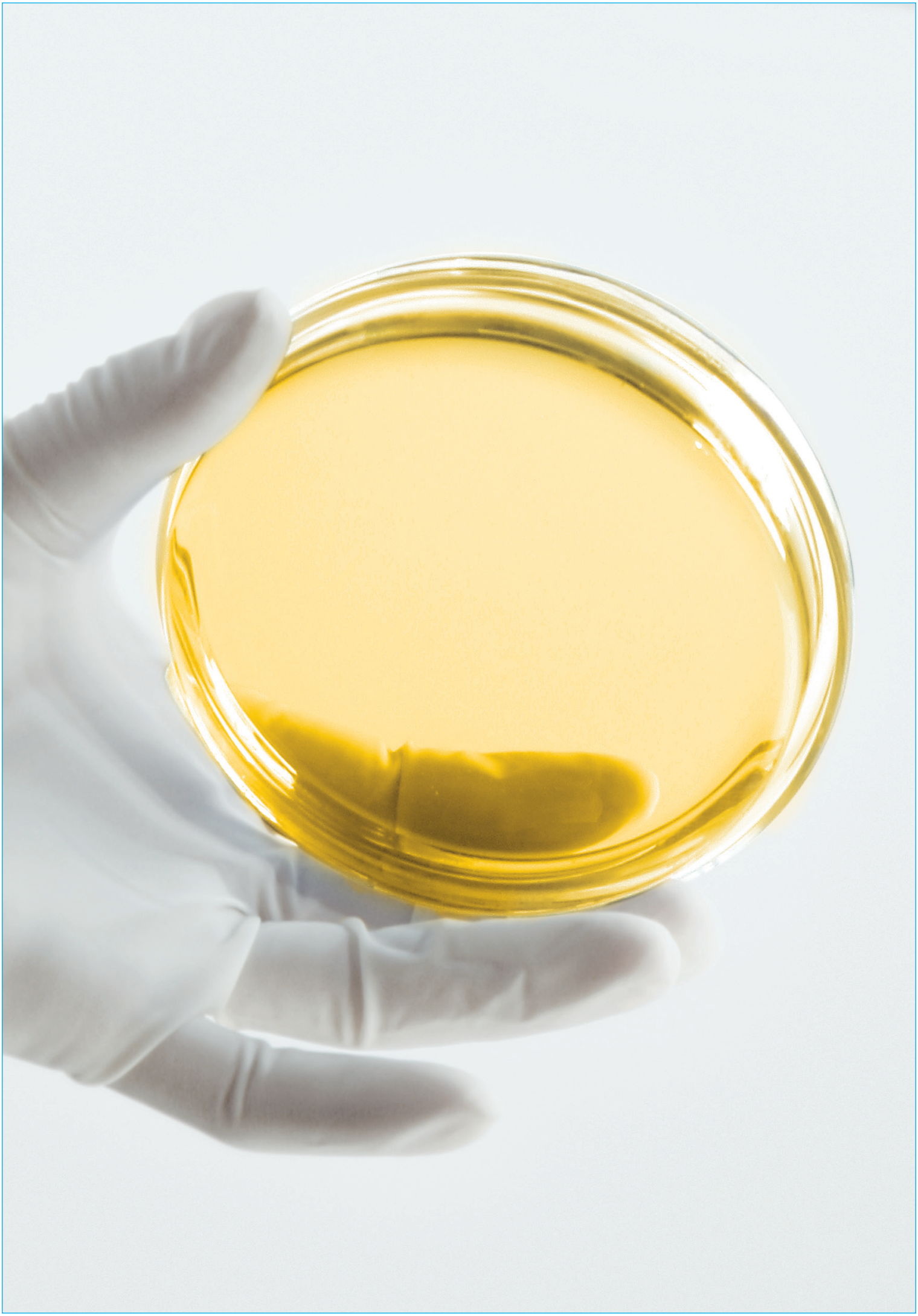


Cat. No.	d (OD) (mm)	l (mm)	Pack Unit
247970305	8	160	1

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.

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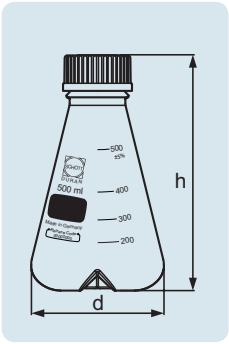
DURAN® Baffled Flask

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					
212833655	250	85	145	45	4
212834454	500	105	180	45	4
212835459	1000	135	221	45	1
without membrane screw cap and pouring ring					
212835401	1000	135	221	45	1
212833606	250	85	145	45	4
212834405	500	105	180	45	4



Retrace Code | A 121 °C | USP Standard

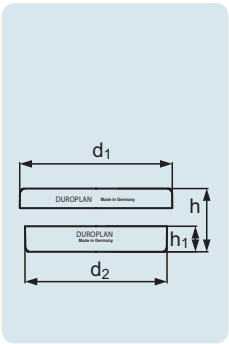
DUROPLAN® Petri Dish

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
217554101	60	54	22	20	10
217554307	80	74	22	20	10
217554607	100	94	17	15	10
217554804	100	94	22	20	10
217555106	120	114	22	20	10
217555303	150	143	32	30	10

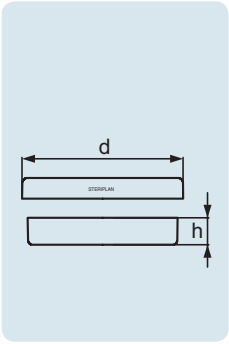


A 121 °C | USP Standard | DIN 13132

STERIPLAN® Petri Dish

from Soda-lime Glass

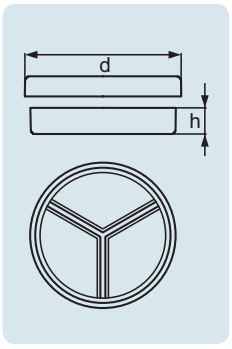
Cat. No.	d (OD) (mm)	h (mm)	Pack Unit
237553903	40	12	10
237554008	60	15	10
237554205	80	15	10
1184071	90	15	10
237554505	100	10	10
237554608	100	15	10
237554805	100	20	10
237555107	120	20	10
237555201	150	25	10
237555604	180	30	10
237555904	200	30	10
237556103	200	45	10



A 121 °C

DURAN® Petri Dish

pressed



DIN 13132 | A 121 °C | USP Standard

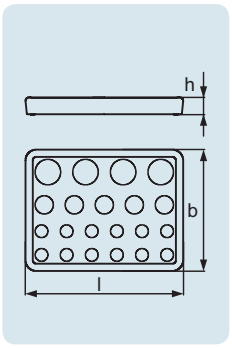
Bottom of the base has three knobs for stability.

Typical applications: biological and clinical work, preparation of agars, microscopy.

Cat. No.	d (OD) (mm)	h (mm)	Pack Unit
without sections			
217544606	100	15	10
217544803	100	20	10
Half-sectional			
217504808	100	20	10
Three-sectional			
217534802	100	20	10
Four-sectional			
217524801	100	20	10

Spot Plate Type Feigl

from Soda-lime Glass

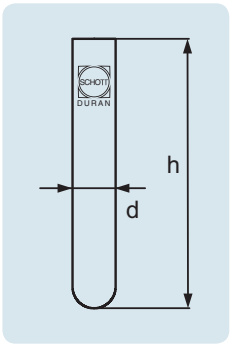


Typical application: observation of reactions and colour changes.

Cat. No.	h (mm)	l (mm)	b (mm)	Pack Unit
236715208	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.

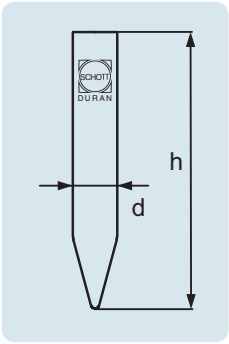
Cat. No.	d (OD) (mm)	h (mm)	Nominal capacity (mL)	Remark	Pack Unit
216011004	12	100	6		50
216011107	16	100	12		50
216011407	24	100	25		10
216011707	34	100	50		10
216012403	40	115	80	Non-DIN size.	10
216012609	44	100	80		10
216013605	56	147	250	Non-DIN size.	10

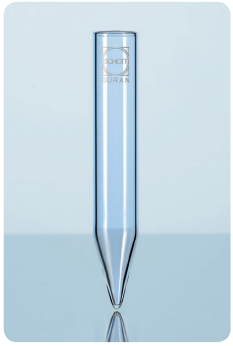
DURAN® Centrifuge Tube

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
242630901	16	100	12	50





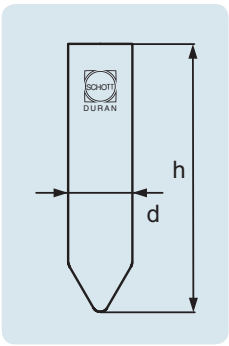
A 121 °C | USP Standard

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
216111405	24	100	25	10
216111705	34	100	50	10



A 121 °C | USP Standard

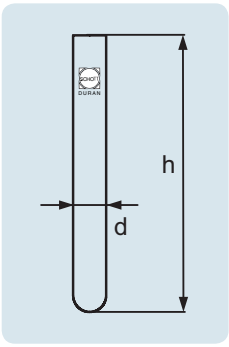
DURAN® Culture Tube

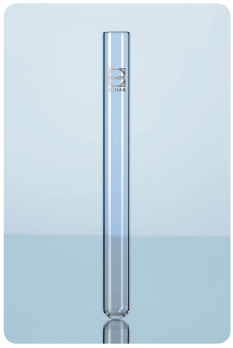
straight rim, for Kapsenberg caps

The straight rim permits the use of Kapsenberg caps; tubes are therefore well suited to the culture of micro-organisms (Kapsenberg caps article no. 290100909 and 290101108).

Typical applications: growth and storage of sterile cultures.

Cat. No.	d (OD) (mm)	h (mm)	Volume approx. (mL)	Wall thickness (mm)	Pack Unit
261322108	16	160	20	1.0 – 1.2	100
261322305	18	180	30	1.0 – 1.2	100

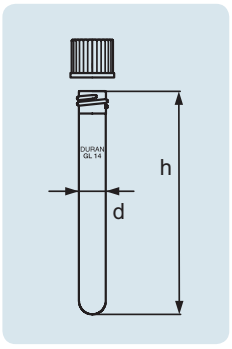




DIN 38411 | A 121 °C | USP Standard

DURAN® Culture Tube

with DIN thread, and screw cap from PBT



A 121 °C

USP Standard

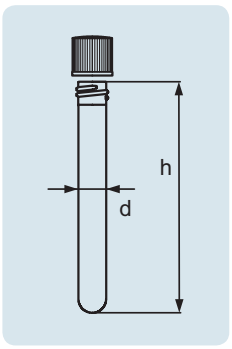
The DIN thread permits the use of PBT screw caps; tubes are therefore well suited to the culture of micro-organisms. The contents only come into contact with the glass and PTFE coating of the cap liner.

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					
261351155	12	100	14	6	50
261351258	13	100	14	9	50
261352151	16	160	18	20	50
261352254	16	150	18	20	50
261352451	20	150	18	34	50
261352357	18	180	18	30	50
without screw cap					
261351106	12	100	14	6	50
261351209	13	100	14	9	50
261352102	16	160	18	20	50
261352205	16	150	18	20	50
261352402	20	150	18	34	50
261352308	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.

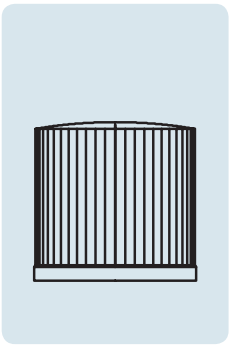
Cat. No.	d (OD) (mm)	h (mm)	DIN Thread (GL)	Volume approx. (mL)	Wall thickness (mm)	Pack Unit
with TPE seal						
231751159	12	100	14	6	1	100
231751459	16	100	18	12	1	100
231752155	16	160	18	22	1	100
231752352	18	180	18	32	1	100

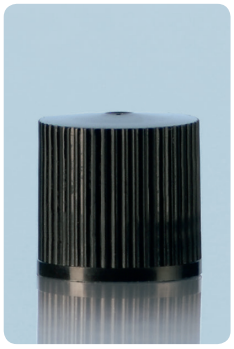
Screw Cap for Culture Tubes

with seal

With seal from TPE.

Cat. No.	DIN Thread (GL)	Pack Unit
299901204	14	100
299901307	18	100





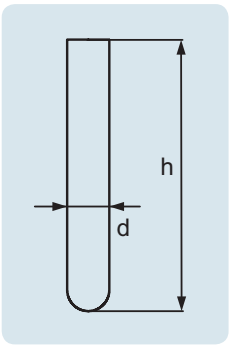
A 121 °C

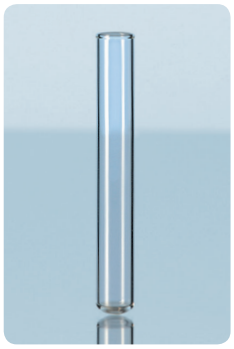
Tmax. 140 °C

Disposable Culture Tube

from Soda-lime Glass, straight rim

Cat. No.	d (OD) (mm)	h (mm)	Volume approx. (mL)	Wall thickness (mm)	Pack Unit
231720184	9.75	75	4	0.8	814
231720365	10.00	75	4	0.6	766
231720587	11.75	75	5	0.8	550
231720862	11.75	75	6	0.55	550
231720965	12.25	75	7	0.55	500
231720998	12.25	75	6	0.8	500
231720784	11.75	100	8	0.8	550
231721197	12.25	100	9	0.8	500
231721489	15.50	100	14	0.8	310
231721094	15.75	100	15	0.9	310
231721283	12.25	120	18	0.8	500
231721883	10.00	150	8	0.8	766
231721986	15.50	150	19	0.8	310
231722193	15.50	160	22	0.8	310





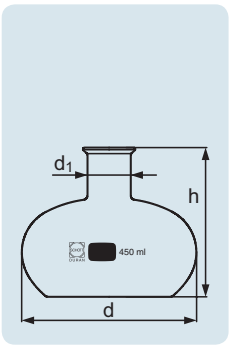
DURAN® Culture Flask Fernbach Type

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_i (OD) (mm)	h (mm)	Pack Unit
215014307	450	117	29	100	10

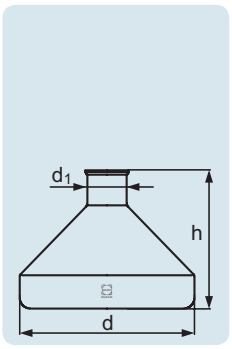


A 121 °C

USP Standard

DURAN® Culture Flask Fernbach Type

conical shape



A 121 °C

USP Standard

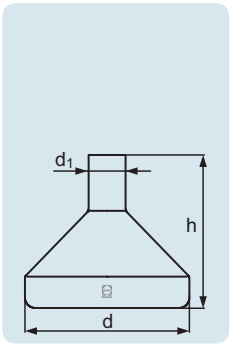
Large, flat, bottom surface allows uniform culture thickness.

Typical application: preparation of cultures in nutrient media.

Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Pack Unit
215116203	1800	200	45	158	2

DURAN® Culture Flask Fernbach Type

conical shape, straight neck for metal caps



A 121 °C

USP Standard

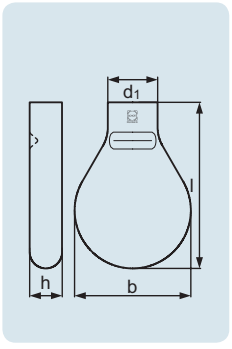
Large, flat, bottom surface allow uniform culture thickness. Compatible metal cap made from either stainless steel (Cat. no. 290122406) or anodised aluminium (Cat. no. 290132407) are available.

Typical application: preparation of cultures in nutrient media.

Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Pack Unit
217746209	1800	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
215214106	400	60	39	200	140	10

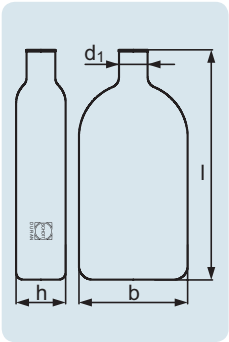
DURAN® Culture Flask Roux Type

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
215415801	1200	33	56	260	123	10



A 121 °C

USP Standard

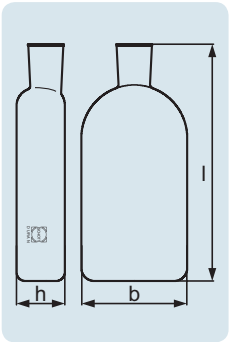
DURAN® Culture Flask Roux Type

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
215715804	1200	56	275	123	10



A 121 °C

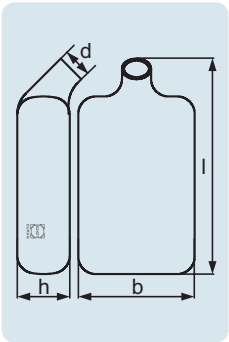
USP Standard

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
215517106	4000	50	90	370	200	1

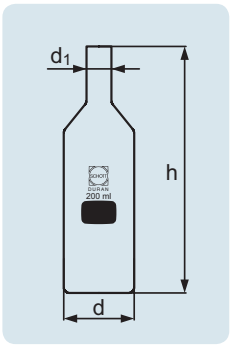


A 121 °C

USP Standard

DURAN® Culture Bottle

straight rim, for Kapsenberg caps



A 121 °C

USP Standard

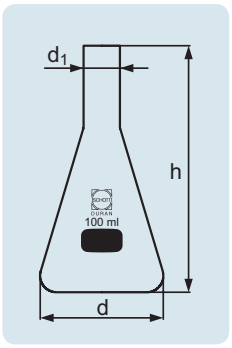
A suitable Kapsenberg cap (cat. no. 290101108) is available.

Typical application: preparation of cultures in nutrient media.

Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Remark	Pack Unit
214211706	50	40	18	107		10
214212402	100	40	18	150		10
214213201	200	50	18	175	DIN 38 411, part 6	10

DURAN® Erlenmeyer Flask

straight rim, for Kapsenberg caps



A 121 °C

USP Standard

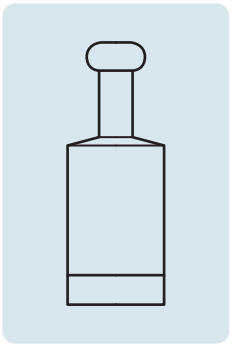
Conical geometry makes the flasks particularly suited for shaking experiments (e.g. media optimisation). A suitable Kapsenberg cap (Cat. no. 290101108) is available.

Typical application: preparation of cultures in nutrient media.

Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Pack Unit
214912406	100	60	18	120	10

Kapsenberg Cap

from aluminium



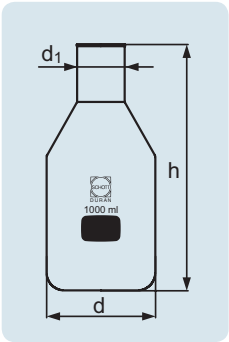
Cat. No.	Description	For neck (mm)	Pack Unit
290100909	suitable for Culture tubes cat. no. 261322108	16	10
290101108	suitable for Culture tubes cat. no. 261322305, Culture bottle cat. no. 214211706, 214212402, 214213201 and Erlenmeyer tubes cat. no. 214912406	18	10

Typical application: preparation of cultures in nutrient media.

DURAN® Culture Media Bottle

straight rim, for use with glass caps

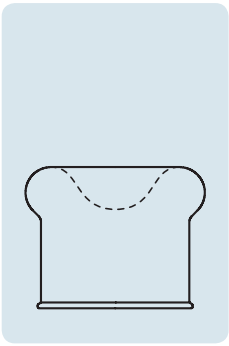
Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Pack Unit
214313902	300	70	31	168	10
214314401	500	83	46	204	10
214315406	1000	105	46	238	10



A 121 °C USP Standard

DURAN® Glass Cap

Cat. No.	Description	For neck (mm)	Pack Unit
214411805	suitable clture media bottle: cat. no. 214313902	31	10
214412904	suitable clture media bottle: cat. no. 214314401 and cat. no. 214315406	46	10



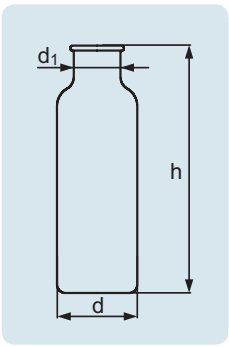
A 121 °C USP Standard

Typical application: preparation of cultures in nutrient media.

DURAN® Square Bottle

after Breed-Demeter

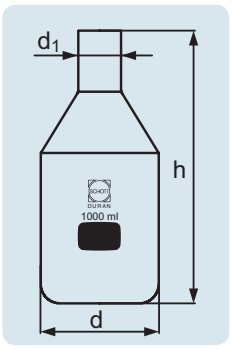
Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Pack Unit
214813104	180	48	28	148	10



A 121 °C USP Standard

DURAN® Culture Media Bottle

Typical application: preparation of cultures in nutrient media.



A 121 °C

USP Standard

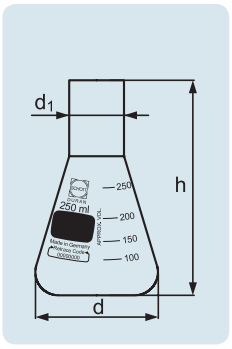
Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Pack Unit
with beaded rim					
214512405	100	50	29	115	10
214513907	300	70	42	168	10
214514406	500	83	42	207	10
214515402	1000	105	46	237	10
214516604	2500	150	50	315	1
214517309	5000	185	54	390	1
straight neck for metal caps					
217732403	100	50	38	125	10
217733905	300	70	38	170	10
217734404	500	83	38	208	10
217735409	1000	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

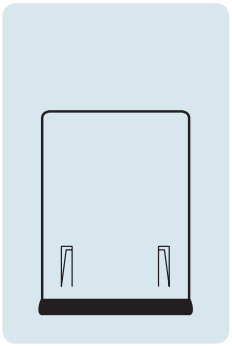
A 121 °C

USP Standard

Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Pack Unit
217712401	100	64	38	114	10
217713209	200	79	38	138	10
217713603	250	85	38	149	10
217713903	300	87	38	161	10
217714402	500	105	38	183	10
217715407	1000	131	38	229	10
217716309	2000	166	38	302	10

Metal Cap

Suitable for: culture flask Cat. No. 21771XXXX, Cat. No. 217746209 and culture media bottle Cat. No. 21773XXXX.



A 121 °C

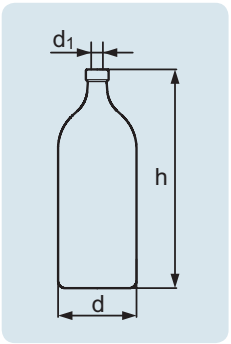
Cat. No.	Material	For neck (mm)	Pack Unit
290122406	Stainless steel	38	10
290132407	Aluminium, anodised blue	38	10

DURAN® Rolled Flange Bottle

In addition, the following individual parts are available: porcelain clamp closure (Cat. No. 297010803), replacement rubber seal (Cat. No. 299903102) and replacement silicone seal, autoclavable (Cat. No. 299901007).

Typical applications: sampling and cultivation.

Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Pack Unit
without closure					
214612403	100	45	17	135	10
214613605	250	57	17	182	10
214614404	500	74	17	218	10
214615409	1000	95	17	265	10



A 121 °C

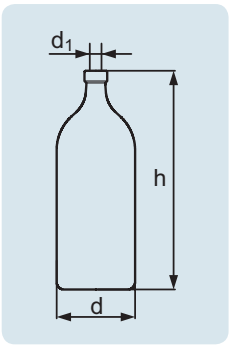
USP Standard

DURAN® Rolled Flange Bottle

In addition, the following individual parts are available: porcelain clamp closure (Cat. No. 297010803), replacement rubber seal (Cat. No. 299903102) and replacement silicone seal, autoclavable (Cat. No. 299901007).

Typical applications: sampling and cultivation.

Cat. No.	Capacity (mL)	d (OD) (mm)	d_1 (OD) (mm)	h (mm)	Pack Unit
with clamp closure					
214652407	100	45	17	135	10
214653609	250	57	17	182	10
214654408	500	74	17	218	10
214655404	1000	95	17	265	10



A 121 °C

USP Standard

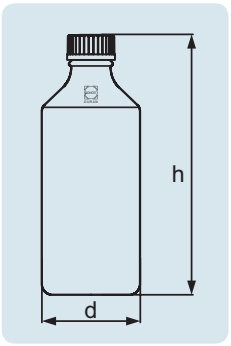
DURAN® Roller Bottle for Cell Cultures

with DIN thread, GL 45

With screw cap and pouring ring (blue, PP).

Typical application: preparation of cultures in nutrient media.

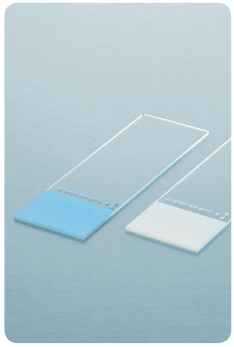
Cat. No.	Capacity (mL)	d (OD) (mm)	h (mm)	Pack Unit
217726856	2000	110	285	2
217728651	3500	110	450	1

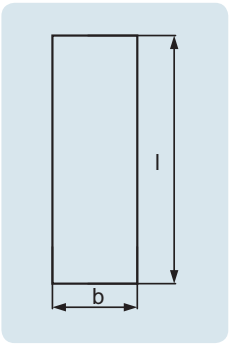


A 121 °C

USP Standard

Microscope Slides from Soda-lime Glass



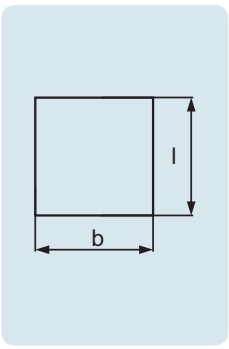


DIN ISO 8037-1

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				
235501103	76		26	30 x 50
235501206	76	frosted end	26	30 x 50
ground edges 45°				
235501309	76		26	30 x 50
235501403	76	frosted end	26	30 x 50
ground edges 90°				
235502202	76	blue	26	30 x 50
235502108	76	white	26	30 x 50
235502305	76	yellow	26	30 x 50
235502408	76	white PRINT	26	30 x 50
235502502	76	white, adhesive with standard coating	26	30 x 50
235502605	76	white, adhesive ++	26	30 x 50

Cover Slips from D 263® M



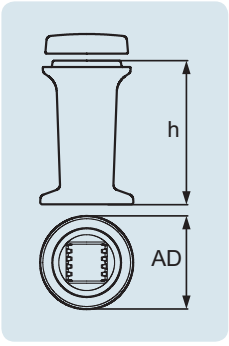
ISO 8255-1

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
235503104	18	#1	18	10 x 100
235503207	22	#1	22	10 x 100
235503301	40	#1	24	10 x 100
235503404	50	#1	24	10 x 100
235503507	50	#1.5 Automatic machine	24	10 x 100
235503601	60	#1	24	10 x 100
235503704	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).

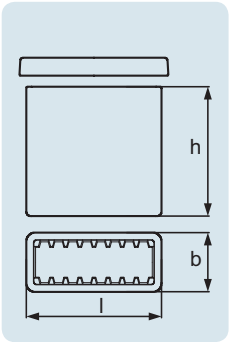
Cat. No.	h (mm)	Outer diameter (AD) (mm)	Pack Unit
233190006	108	66	10

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
233140001	90	90	40	10

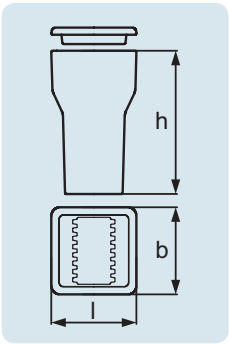


Staining Dish Hellendahl Type

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
233150002	100	60	60	10

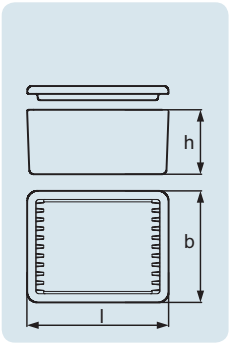


Staining Dish Schiefferdecker Type

from Soda-lime Glass

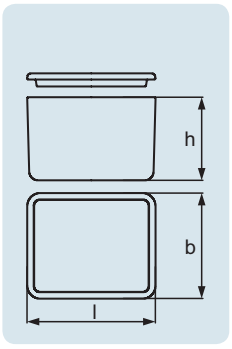
For 10 microscope slides 76 x 26 mm. Note: Do not clean staining dishes and staining jars at temperatures above 60 °C (glass corrosion is possible).

Cat. No.	h (mm)	l (mm)	b (mm)	Pack Unit
233160003	40	90	70	10



Glass Box from Soda-lime Glass

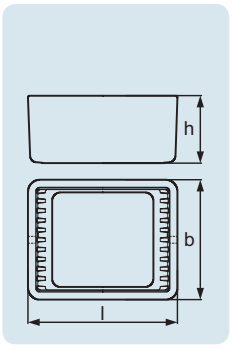
for staining tray 213170003



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
233180005	70	108	90	10

DURAN® Staining Tray



A 121 °C

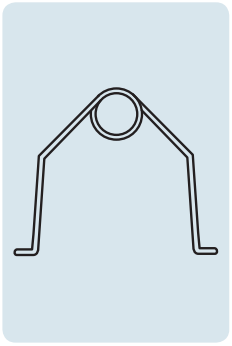
USP Standard

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
213170003	70	88	40	10

Stainless Steel Handle

for staining tray



Cat. No.	Pack Unit
290750002	10

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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

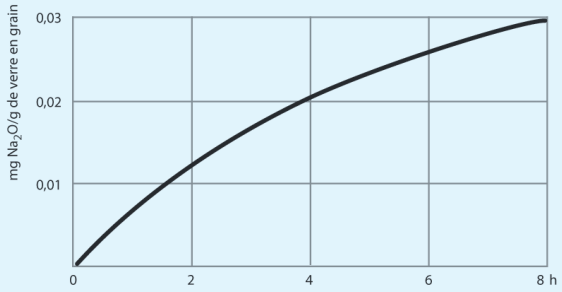
DURAN® properties are specified in DIN ISO 3585.In contrast to other borosilicate 3.3 glasses, DURAN® is notable for its highly consistent, technically reproducible quality.

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

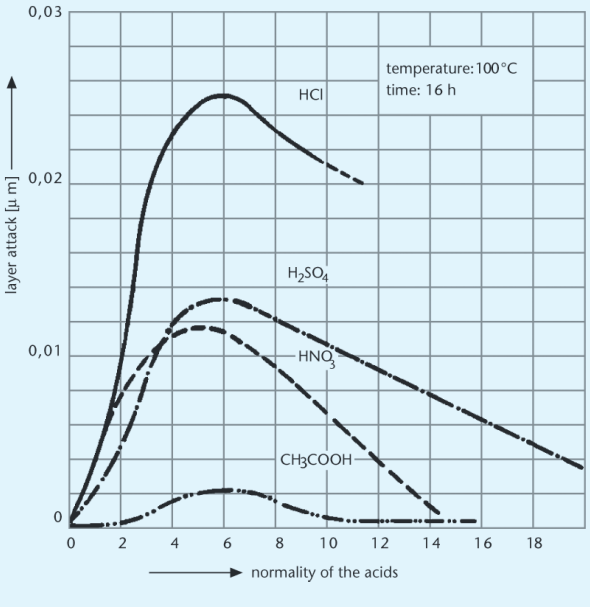
DURAN® corresponds to Class 1 of the glasses that are divided into a total of 5 hydrolytic resistance classes in accordance with ISO 719 (98 °C). The amount of Na_2O/g glass grain leached out after 1 hour in water at 98 °C is measured. For DURAN® the quantity of Na_2O leached out is less than 31 µg/g 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

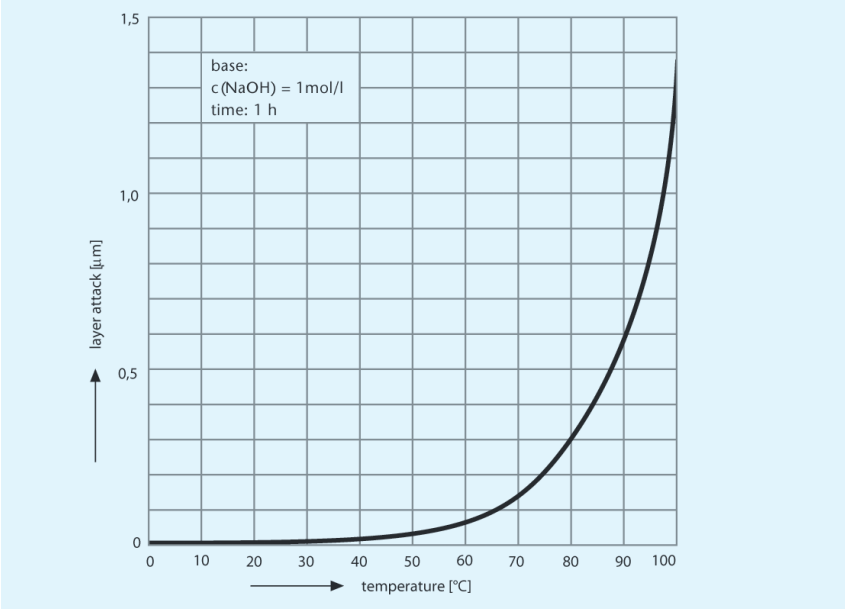
DURAN® corresponds to Class 1 of the glasses divided into 4 acid classes in accordance with DIN 12116. As the surface removal after boiling for 6 hours in normal HCl is less than 0.7 mg/100 cm², DURAN® is classed as acid-resistant borosilicate glass. The quantity of alkaline metal oxides leached out 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

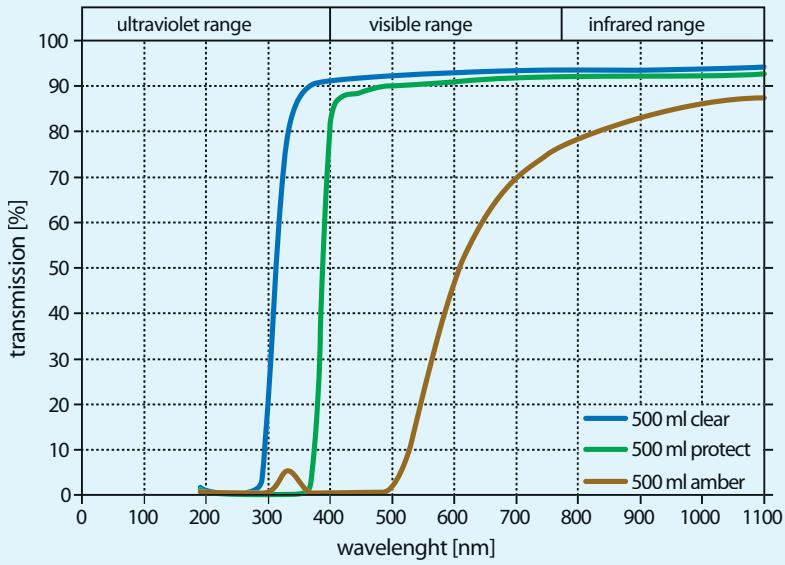
Optical properties

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.

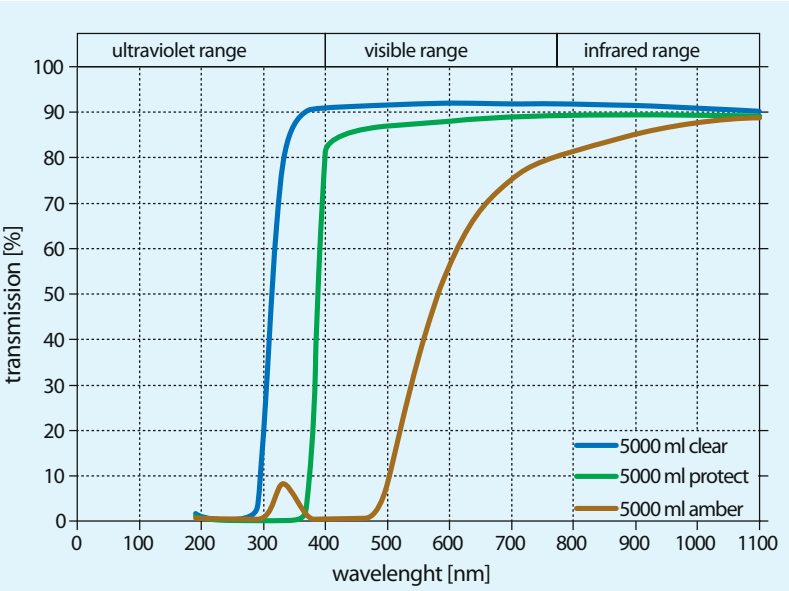
Amber colouring of DURAN® laboratory glassware

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.

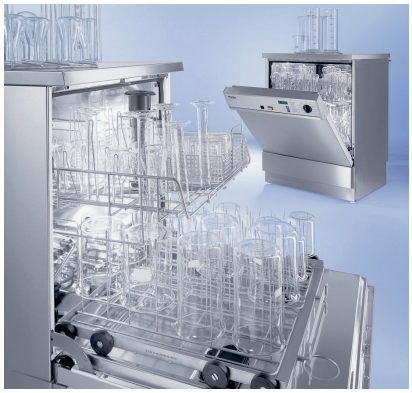
Manual cleaning

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

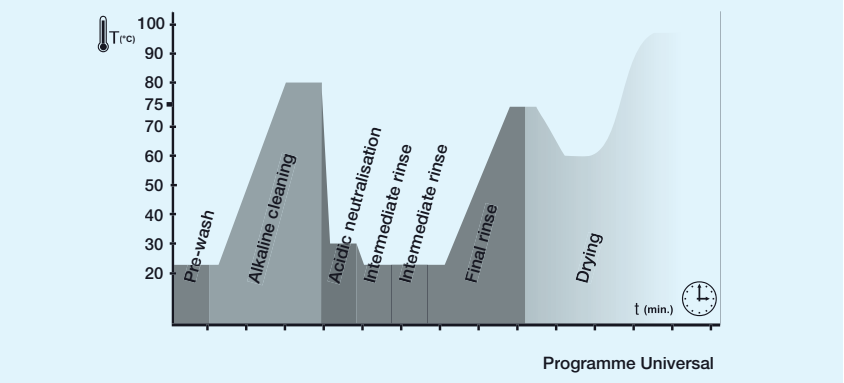


115 cm wide large capacity machine Performance/load: e.g. 232 narrow neck glasses, 232 pipettes

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).

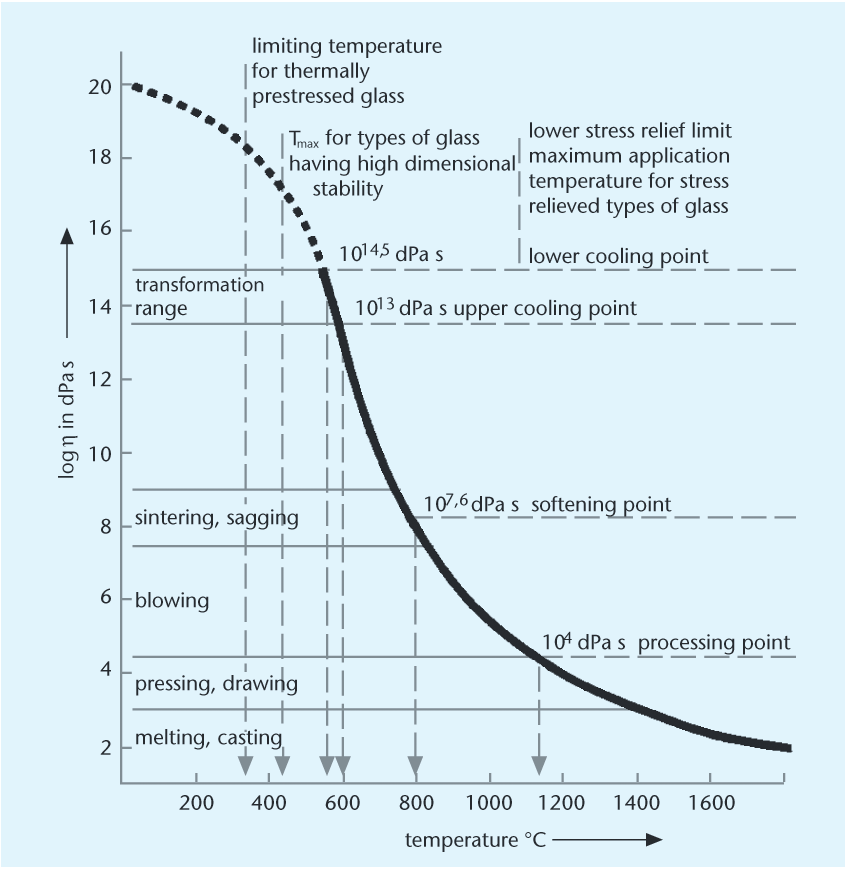
DURAN® LABORATORY GLASS IS ECO-FRIENDLY

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:

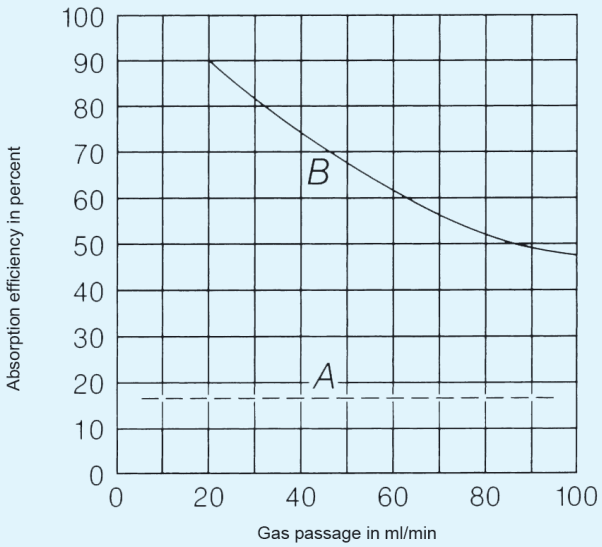
- Steam sterilisation at + 121 °C or + 134 °C
- The cycle duration should not exceed 20 minutes.

(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.

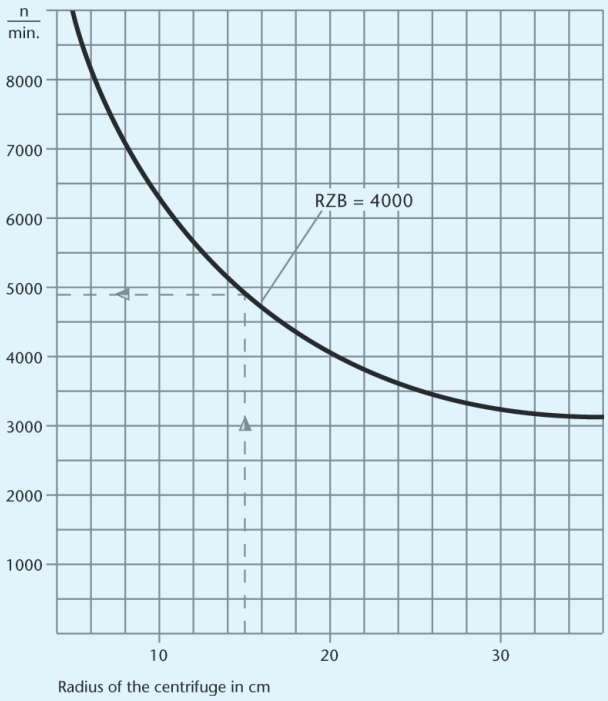
Recommendations

- 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:

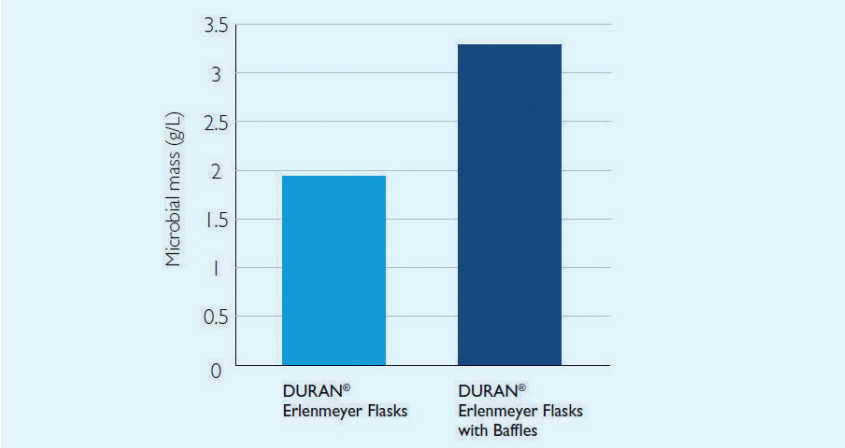
Physical data	
Linear expansion coefficient $\alpha_{20/300}$ to DIN 52 328:	$9.1 \times 10^{-6}\ K^{-1}$
Transformation temperature Tg:	525 °C
Temperature fixed points at viscosity η in dPa x s:	
10^{13} upper annealing temperature	530 °C
$10^{7,6}$ softing temperature	720 °C
10^{4} working temperature	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

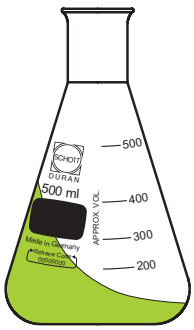
Oxygen intake is often the limiting factor for cell growth in the cultivation of microorganisms in Erlenmeyer flasks on a vibrating board. The movement causes a liquid sickle to form when using DURAN® Erlenmeyer flasks on a vibrator. The size of the sickle depends on the speed of the board and the vibration 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.



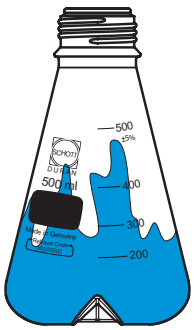
The Erlenmeyer flasks with baffles from the DWK Life Sciences can be geometrically reproduced due to completely automated and mechanical production. The wall thickness of the flasks was increased to achieve an excellent mechanical stability and to guarantee a long service life of the products. The special 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.

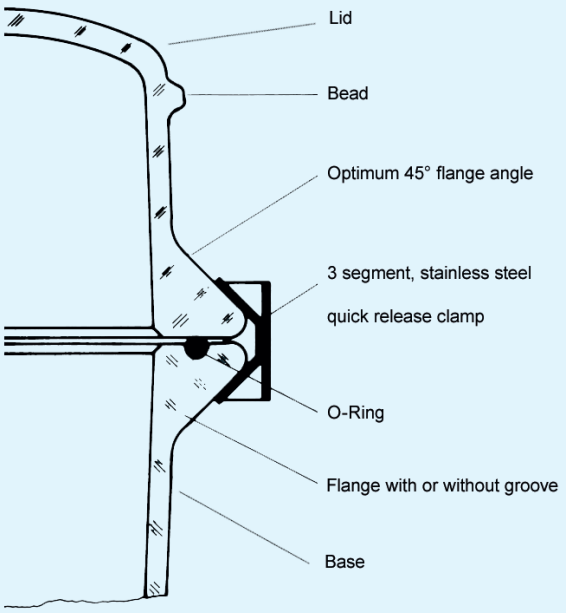
FLAT FLANGE RANGE

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:

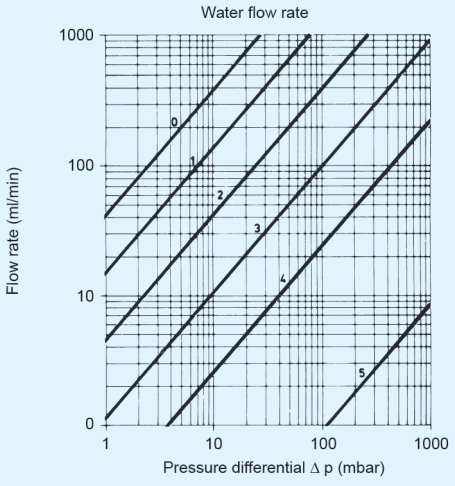
Filter disk diam. mm	Conversion factor
10	0.13
20	0.55
30	1
40	1.5
60	2.5
90	4.3
120	6.8
150	9.7
175	15

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].

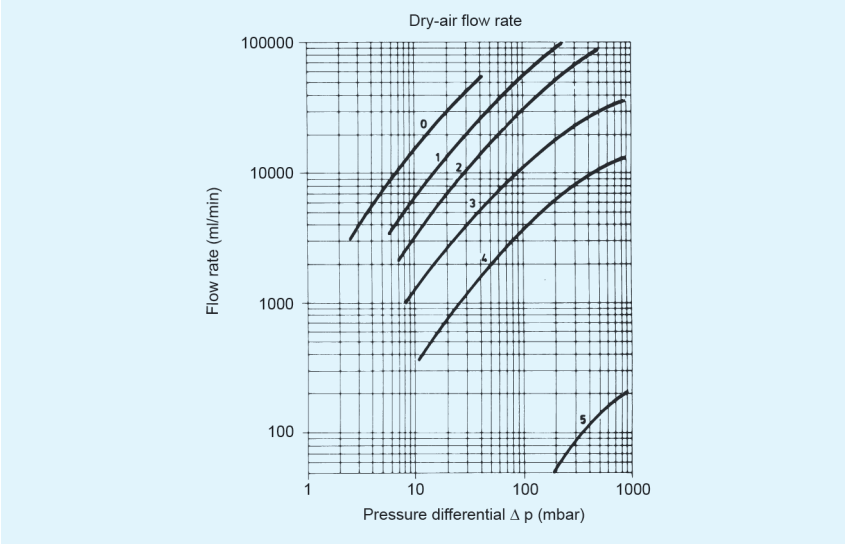
[1] Frank, W.: GIT (1967) Iss. 7 pp. 683 – 688

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. 213403108) 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

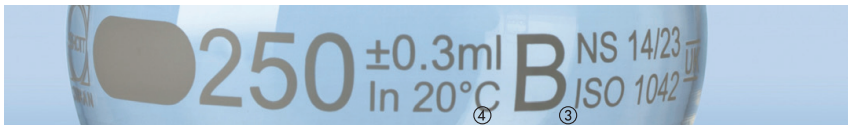
The volumetric instruments are essentially available in the accuracy classes A, AS and B.

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 + 180 °C (soda-lime glass + 121 °C).
- 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

- 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

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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.

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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

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