

Screw Joints / Components with GL Thread



63

SCREW JOINTS / COMPONENTS WITH GL THREAD

Tailored equipment in a few quick and incomplex steps:
with easily combinable screw joint elements from
BOLA you can flexibly react to all current requirements.

PRODUCT TIPS



Page 72
Distributors for Bottles



Page 67
Laboratory Screw Joints



Page 112
GL Tube Fittings T EX

The Modular Construction System

What you should know about the GL screw joint system.

A universal screw joint system, developed for connecting tubes or tubing (PTFE, PFA, FEP) with glass or metal tubes. The system provides a pressure resistance of up to 10 bar at room temperature.

The universal chemical resistance of the fluoroplastic materials allows the application of the GL screw joint components with almost every liquid and gas.

The fittings and stopcocks are made of pure PTFE. Assembled with the BOLA HT Laboratory Screw Joints, they are resistant to temperatures up to +250°C.

You can combine different components with GL thread to create a complete equipment:

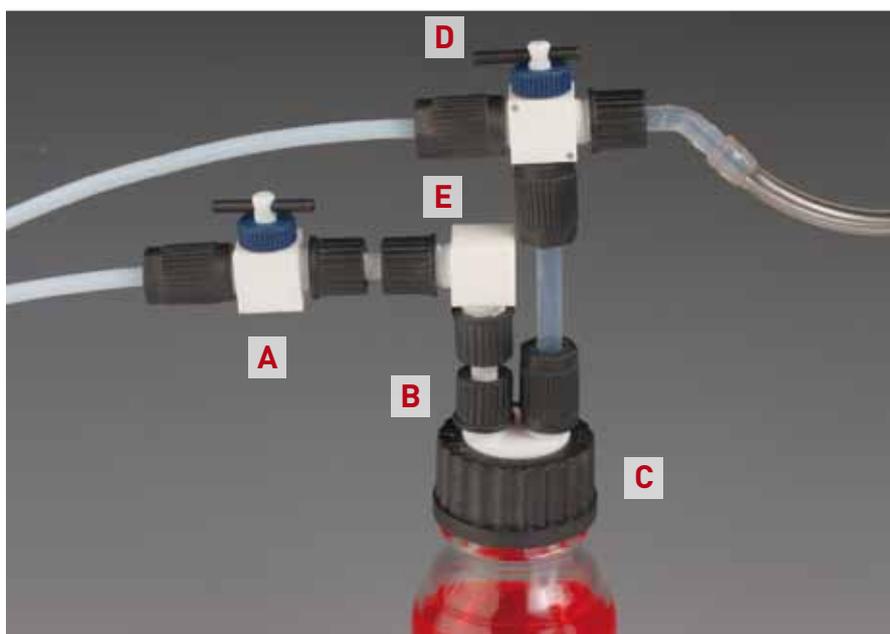
e.g. Basic Scrubber Bottle

- A** GL Bellow
Cat. No.: H 902-05
see page 95
- B** GL Tube Fitting Elbow
Artikel-Nr.: D 539-25
see page 99
- C** GL Stopcock
Cat. No.: E 684-14
see page 103
- D** GL Tube Fitting T
Cat. No.: D 540-14
see page 99
- E** Reducing Screw Thread
Adaptor Coupling
Cat. No.: H 904-03
see page 95



e.g. Sampling Unit

- A** GL Ball Valve
Cat. No.: E 664-10
see page 105
- B** Threaded Coupling
Cat. No.: H 900-01
see page 94
- C** Multiple Distributor for Bottles
Cat. No.: D 614-08
see page 72
- D** GL Ball Valve
Cat. No.: E 667-10
see page 105
- E** GL Tube Fitting Elbow
Cat. No.: D 539-14
See page 99

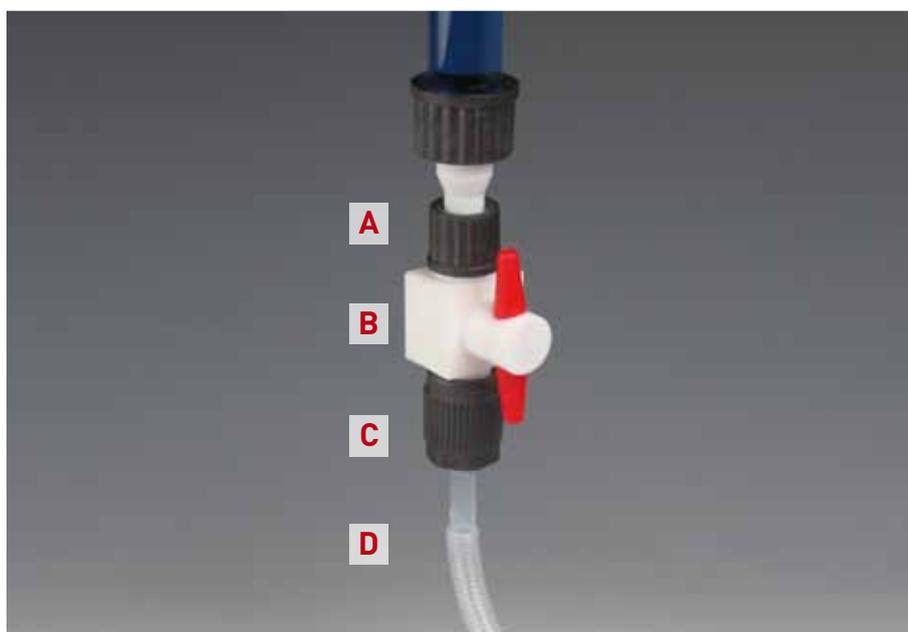


All advantages at a glance:

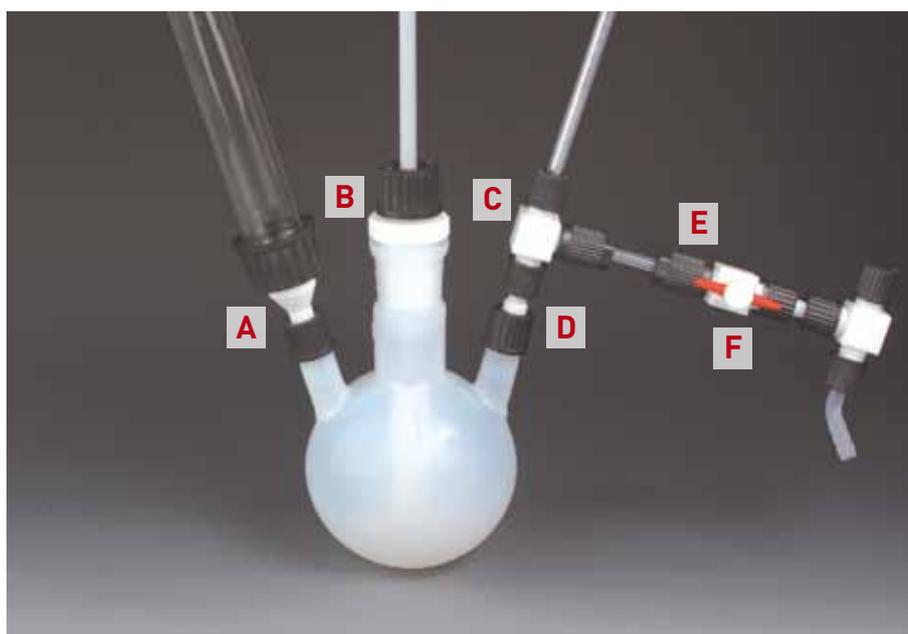
- » easily screwable without any tooling
- » optionally extensible
- » independent from tubing diameters
- » compatible with glass equipment with GL thread
- » many creative possibilities
- » no determination at the beginning of assembly

e.g. **Dosing Column**

- A** Reducing Screw Thread
Adaptor Coupling
Cat. No.: H 904-03
see page 95
- B** GL Stopcock
Cat. No.: E 684-14
see page 103
- C** HT Laboratory Screw Joint
Cat. No.: D 628-82
see page 69
- D** Flexible Tubing
Cat. No.: S 1822-20
see page 132

e.g. **Basic Distillation**

- A** Reducing Screw Thread
Adaptor Coupling
Cat. No.: H 904-05
see page 95
- B** Ground Joint Stirrer Bearings
Cat. No.: C 424-13
see page 36
- C** GL Tube Fitting T
Cat. No.: D 540-14
see page 99
- D** Reducing Screw Thread Adaptor Couplings
Cat. No.: H 904-02
see page 95
- E** HT Laboratory Screw Joint
Cat. No.: D 628-74
see page 69
- F** GL Stopcock
Cat. No.: E 684-14
see page 103

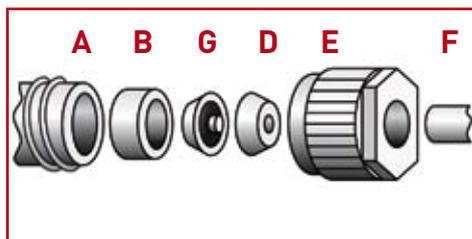
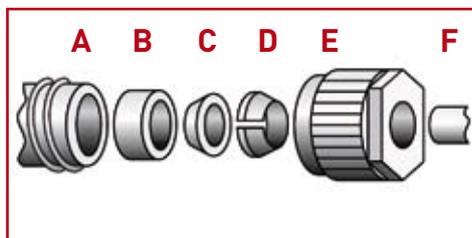


The GL Screw Joint System



Component parts:

- A** GL-threaded neck
- B** Sealing ring
- C** Tapered ring
- D** V-ring
- E** Screw cap with internal cone
- F** Tubing or tube
- G** Tapered ring with O-Ring behind PTFE sealing lip (only for screw joints for tubing dia. under 3 mm)



Assembly:

1. Push the screw cap on the tubing/tube
2. Push V-ring, tapered ring and then sealing ring on the tubing/tube
3. Tighten the screw cap on the GL-threaded neck – ready

How to make your order:

A screw joint always consists of two elements

1. Fitting (straight, elbow, T-shape or a GL thread of a glass device)
2. Laboratory screw joint as connection between fitting and tubing/tube

Example 1:



If you want to connect three tubes/ tubings with O.D. 6 mm you will need:

- A** 1 piece of GL tube fitting T GL 14 – Cat. No. D 540-14, see page 99
- B** 3 pieces of HT laboratory screw joints GL 14 for tubing O.D. 6 mm, Cat. No. D 628-74, see page 69

Example 2:



If you want to connect tubing with different O.D. (2 mm and 6 mm) in an angle of 90°, you will need:

- A** 1 piece of GL tube fitting elbow GL 14 – Cat. No. D 539-14, see page 99
- B** 1 piece of HT laboratory screw joints GL 14 for tubing O.D. 6 mm, Cat. No. D 628-74, see page 69
- C** 1 piece of HT laboratory screw joints GL 14 for tubing O.D. 2 mm, Cat. No. D 628-34, see page 69

BOLA Laboratory Screw Joints

In practice, there are many applications where it is necessary to connect hard-walled tubing (e.g. made of PTFE, PFA, FEP) or tubes (e.g. made of glass, metal, plastic) with devices with GL thread (glass thread). BOLA Laboratory Screw Joints are ideal for making these connections.

Components

Each laboratory screw joint consists of a screw cap with a female GL thread and bore as well as three inner parts: v-ring, tapered ring and sealing ring

Assembly and function

Assembly can easily be made by hand:

First, the inner parts are pushed on the tubing. After that, the tubing has to be put into the counterpiece and the screw cap has to be tightened. The screw cap presses the sealing ring and tapered ring tightly on the counterpiece. At the same time, the v-ring is compressed and the tubing is fixed tightly. The connection is absolutely tight and even suitable for vacuum. The laboratory screw joints for GL 14, GL 18 and GL 25 resist pressures of max. 10 bar at room temperature.

Choice

It is easy to choose the suitable laboratory screw joint:

First of all, the outer diameter of the tubing or tube and the size of the GL thread to which the laboratory screw joint shall be connected have to be determined. The size of the GL thread corresponds to the outer diameter of the thread, i.e. a GL 25 thread has an outer diameter of 25 mm. Further assistance for the determination of threads can be found in our technical appendix (page 254).

Also the application is decisive: Will there be temperatures of more than +150°C? If so, the BOLA HT Laboratory Screw Joints (page 69), which also provide a good chemical resistance, are the right choice. Or is it more important to have a very high chemical resistance? Then you have to choose BOLA Laboratory Screw Joints (page 67) made of ETFE (red). These can be used up to temperatures of +150°C.

For big flexibility, all screw caps and inner parts are available separately.

You will find suitable tubing on page 128.

BOLA Laboratory Screw Joints

Material:	Material:	Temperature resistance	Chemical resistance:	Pressure:	Vacuum:
PTFE	ETFE	from -50°C to +150°C	+++ universal	10 bar	suitable

Product description:

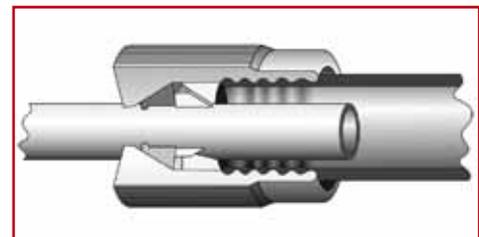
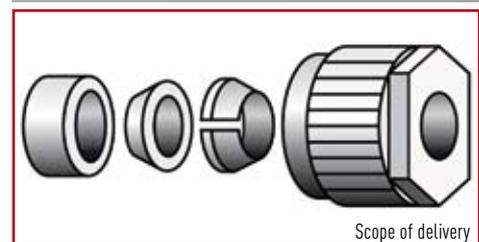
Red screw cap made of glass-fibre reinforced ETFE, inner parts consisting of a v-ring (ETFE), a tapered ring and a sealing ring (both PTFE) as well as an o-ring (for tubing diameters under 3 mm, not exposed to the medium). Very good chemical resistance, suitable for temperatures from -50°C to +150°C.

FDA conform

For tubing O.D. mm	Thread GL 14 Cat. No.:	Thread GL 18 Cat. No.:	Thread GL 25 Cat. No.:
(1/32") 0,8	D 593-02		
1,0	D 593-04		
(1/16") 1,6	D 593-06	D 593-26	
2,0	D 593-10	D 593-30	
2,4	D 593-12		
3,0	D 590-02	D 590-10	D 590-22
(1/8") 3,2	D 590-08	D 590-20	D 590-24
4,0	D 590-04	D 590-12	D 590-26
6,0	D 590-06	D 590-14	D 590-28
(1/4") 6,35	D 590-62		
8,0		D 590-16	D 590-30
10,0		D 590-18	D 590-32
12,0			D 590-34
14,0			D 590-36

Applications:

Connecting equipment and fittings with GL threads with hard-walled tubing or tubes made of glass, plastic or metal. Fixing probes, thermometers, dip tubes or cables in reaction vessels. Ideal for use in aggressive ambience (e.g. with aggressive vapours or evaporation)



BOLA Replacement Inner Parts

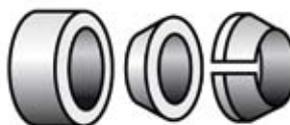
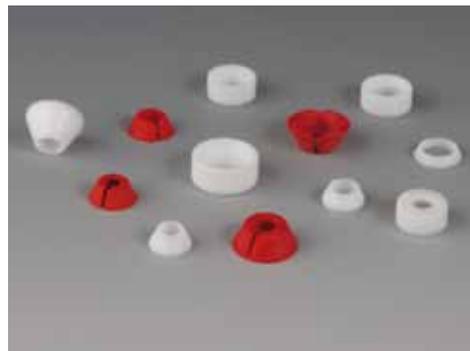
Material: PTFE	Material: ETFE	Temperature resistance from -50°C to +150°C	Chemical resistance: +++ universal	Pressure: 10 bar	Vacuum: suitable
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Product description:

Consisting of a v-ring (ETFE), a tapered ring and a sealing ring (both PTFE) as well as an o-ring for tubing diameters under 3 mm (not exposed to the medium). Very good chemical resistance, suitable for temperatures from -50°C to +150°C.

FDA conform

For tubing O.D. mm	Thread GL 14 Cat. No.:	Thread GL 18 Cat. No.:	Thread GL 25 Cat. No.:
(1/32") 0,8	D 598-02		
1,0	D 598-04		
(1/16") 1,6	D 598-06	D 598-26	
2,0	D 598-10	D 598-30	
2,4	D 598-12		
3,0	D 597-02	D 597-10	D 597-22
(1/8") 3,2	D 597-08	D 597-20	D 597-24
4,0	D 597-04	D 597-12	D 597-26
6,0	D 597-06	D 597-14	D 597-28
(1/4") 6,35	D 597-62		
8,0		D 597-16	D 597-30
10,0		D 597-18	D 597-32
12,0			D 597-34
14,0			D 597-36



Scope of delivery

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SCREW JOINTS / COMPONENTS WITH GL THREAD



BOLA
Practical Tipp

Victor Muschanowski » assembly

For an easier assembly of laboratory screw joints:
Either sharpen the tubing with a simple sharpener or cut it diagonally with a knife.



SUITABLE: page 128
Tubing for all screw joints.

BOLA Replacement Caps

Material: ETFE	Temperature resistance from -50°C to +150°C	Chemical resistance: +++ universal
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Product description:

Red screw cap made of glass-fibre reinforced ETFE, with handy knurl and hexagon. Very good chemical resistance, suitable for temperatures from -50°C to +150°C.

Thread GL	Tubing/tube O.D. mm	Cat. No.:
14	up to 6,35	D 600-04
18	up to 10,0	D 600-08
25	up to 10,0	D 600-12
25	bigger than 10,1	D 600-16



BOLA Laboratory Screw Joints HT (High Temp)

Material: PTFE Material: PPS Temperature resistance: from -50°C to +250°C Chemical resistance: +++ universal Pressure: 10 bar Vacuum: suitable

Product description:

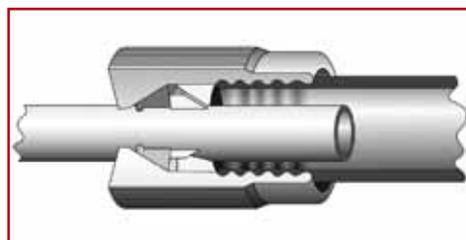
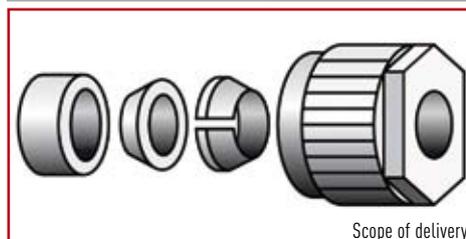
Black screw cap made of PPS, inner parts consisting of a v-ring (PPS), a tapered ring and a sealing ring (both PTFE) as well as an o-ring for tubing diameters under 3 mm (not exposed to the medium). Good chemical resistance, suitable for temperatures from -50°C to +250°C.

FDA conform

For tubing O.D. mm	Thread GL 14 Cat. No.:	Thread GL 18 Cat. No.:	Thread GL 25 Cat. No.:	Thread GL 32 Cat. No.:	Thread GL 45 Cat. No.:
(1/32") 0,8	D 628-10				
1,0	D 628-18				
(1/16") 1,6	D 628-26	D 629-18	D 630-18		
2,0	D 628-34	D 629-22	D 630-22		
3,0	D 628-50	D 629-34	D 630-34		
(1/8") 3,2	D 628-58	D 629-42	D 630-42		D 632-18
4,0	D 628-66	D 629-46	D 630-46		
5,0	D 628-70				
6,0	D 628-74	D 629-54	D 630-54	D 631-38	D 632-26
(1/4") 6,35	D 628-78	D 629-56	D 630-58	D 631-42	
8,0	D 628-82	D 629-62	D 630-62	D 631-46	D 632-32
(3/8") 9,52		D 629-68	D 630-68	D 631-52	
10,0		D 629-74	D 630-74	D 631-56	D 632-40
12,0			D 630-80	D 631-60	D 632-44
(1/2") 12,7			D 630-84	D 631-66	
14,0			D 630-90	D 631-72	D 632-48
16,0				D 631-78	D 632-54
18,0				D 631-82	D 632-56
(3/4") 19,05				D 631-84	
20,0				D 631-88	D 632-60
22,0					D 632-68
(1") 25,4					D 632-74
26,0					D 632-76
30,0					D 632-84
32,0					D 632-90

Applications:

Connecting equipment and fittings with GL threads with hard-walled tubing or tubes made of glass, plastic or metal. Fixing probes, thermometers, dip tubes or cables in reaction vessels.



BOLA INNOVATION

One for many

Many common screw joints can only be used for one specific tubing diameter. BOLA Laboratory Screw Joints with exchangeable inner parts can be assembled with many different tubing diameters.



Laboratory Screw Joints

» A quick assembly without any tools is important for us, also for connecting tubes. BOLA Screw Joints offer a high chemical resistance and are absolutely tight if assembled with BOLA tubing. «

Hans Kneuss » Glass Technology

BOLA Replacement Inner Parts HT (High Temp)

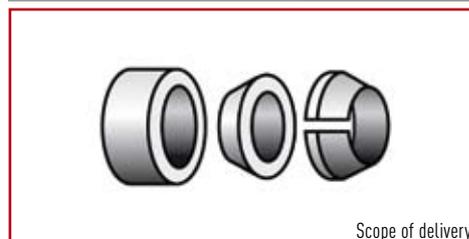
Material: PTFE	Material: PPS	Temperature resistance from -50°C to +250°C	Chemical resistance: +++ universal	Pressure: 10 bar	Vacuum: suitable
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Product description:

Consisting of a v-ring (PPS), a tapered ring and a seating ring (both PTFE) as well as an o-ring for tubing diameters under 3 mm (not exposed to the medium). Good chemical resistance, suitable for temperatures from -50°C to + 250°C.

FDA conform

For tubing O.D. mm	Thread GL 14 Cat. No.:	Thread GL 18 Cat. No.:	Thread GL 25 Cat. No.:	Thread GL 32 Cat. No.:	Thread GL 45 Cat. No.:
(1/32") 0,8	D 638-10				
1,0	D 638-18				
(1/16") 1,6	D 638-26	D 639-18	D 640-18		
2,0	D 638-34	D 639-22	D 640-22		
3,0	D 638-50	D 639-34	D 640-34		
(1/8") 3,2	D 638-58	D 639-42	D 640-42		D 642-18
4,0	D 638-66	D 639-46	D 640-46		
5,0	D 638-70				
6,0	D 638-74	D 639-54	D 640-54	D 641-38	D 642-26
(1/4") 6,35	D 638-78	D 639-56	D 640-58	D 641-42	
8,0	D 638-82	D 639-62	D 640-62	D 641-46	D 642-32
(3/8") 9,52		D 639-68	D 640-68	D 641-52	
10,0		D 639-74	D 640-74	D 641-56	D 642-40
12,0			D 640-80	D 641-60	D 642-44
(1/2") 12,7			D 640-84	D 641-66	
14,0			D 640-90	D 641-72	D 642-48
16,0				D 641-78	D 642-54
18,0				D 641-82	D 642-56
(3/4") 19,05				D 641-84	
20,0				D 641-88	D 642-60
22,0					D 642-68
(1") 25,4					D 642-74
26,0					D 642-76
30,0					D 642-84
32,0					D 642-90



Scope of delivery

BOLA Fork Wrenches

Material: PA	Temperature resistance from -10°C to +140°C	Chemical resistance: + good
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Product description:

Made of glass-fibre reinforced polyamide, black, low weight

For thread GL	Wrench size mm	Cat. No.:
14/ 18/ 25	17/ 22/ 27	D 647-08
32/ 45	32/ 42	D 647-24

Applications:

For tightening or opening BOLA Laboratory Screw Joints also at high working temperatures. Low weight reduces risk of injury or damage.



BOLA Replacement Caps HT (High Temp)

Material: **PPS** Temperature resistance: **from -50°C to +250°C** Chemical resistance: **+++ universal**

Product description:

Black screw cap made of glass-fibre reinforced PPS, with handy knurl and hexagon. Good chemical resistance, suitable for temperatures from -50°C to + 250°C.

FDA conform

Thread GL	From tubing O.D. to tubing O.D. mm	Cat. No.:
14	0,8 - 6,0	D 634-10
14	6,1 - 8,0	D 634-14
18	0,8 - 10,0	D 634-20
25	0,8 - 10,0	D 634-30
25	10,1 - 14,0	D 634-34
32	0,8 - 10,0	D 634-40
32	10,0 - 16,0	D 634-44
32	18,0 - 20,0	D 634-48
45	1,6 - 10,0	D 634-50
45	11,0 - 16,0	D 634-54
45	17,0 - 22,0	D 634-58
45	23,0 - 32,0	D 634-62



BOLA Plugs for Screw Caps

Material: **PTFE** Temperature resistance: **from -200°C to +250°C** Chemical resistance: **+++ universal**

Product description:

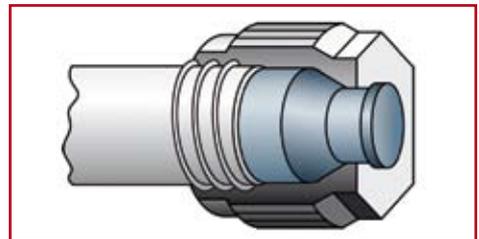
Plugs completely made of PTFE, suitable for replacement caps made of ETFE and PPS. The plug is inserted into the cap and snaps in as soon as the cap is tightened. It can easily be removed for cleaning.

FDA conform

Thread GL	Bore dia. mm	Suitable for cap Cat. No.:	Suitable for cap Cat. No.:	Cat. No.:
14	6	D 600-04	D 634-10	D 549-14
18	10	D 600-08	D 634-20	D 549-18
25	10	D 600-12	D 634-30	D 549-25
32	16		D 634-44	D 549-32
45	22		D 634-58	D 549-45

Applications:

Safe plugging of unused ports of glass devices or GL connecting parts.



BOLA Multiple Distributors for Bottles

How can liquids be taken out of a bottle or reaction vessel and simultaneously be distributed to several recipients without spillage? How can I pour different liquids into my vessel without loss? These questions were the beginning of BOLA Multiple Distributors for Bottles.

They consist of a screw cap with GL thread and a movable body with GL-threaded necks. These necks allow the connection and insertion of hard-walled tubing (e.g. PTFE, PFA, FEP see page 128) or tubes made of different materials (glass, metal, plastic) by means of BOLA Laboratory Screw Joints (see page 67).

The distributors are not only the basis of a distribution system which can be operated under pressure and vacuum. It is also possible to insert probes or electrodes into the GL-threaded necks and to fix them by means of laboratory screw joints. A possible unevenness of the bottle neck is adjusted by an o-ring behind an elastic sealing lip, and the bottle is closed tightly. The product is only exposed to the body of the distributor. The special feature: the body of the distributor can be turned independently from the screw cap. This means, that the completely assembled distributor can be removed and fixed on another bottle without the risk of disarranging the tubing.



BOLA Multiple Distributors for Bottles

BESTSELLER

Material:	Material:	Temperature resistance	Chemical resistance:	Vacuum:	autoclave:
PFA	PTFE	from -200°C to +250°C	+++ universal	suitable	121°

Product description:

Black screw cap made of PPS for bottle thread GL 45, body made of PTFE or PFA. Insertion of tubing with a max. O.D. of 8,5 mm. Very good chemical resistance, for working temperatures up to +250°C

FDA conform

NEW

Material	Necks GL	Cat. No.:
PFA	2 x 14	D 614-08
PTFE	3 x 14	D 615-08

Applications:

Drawing or inserting aggressive or pure liquids. Inserting tubing, tubes and probes into vessels.



Multiple Distributors for Bottles

»» The tight and safe assembly with suitable screw joints has convinced. And finally no disarranged tubing or tubes anymore.

««

Krzysztof Kucias » Hitec Zang GmbH



BOLA INNOVATION

Multiple Distributors for Bottles

The distributor body can be turned independently from the screw cap. This means that the completely assembled distributor can be removed and fixed on another vessel without the risk of disarranging the tubing.

BOLA Multiple Distributors for Bottles

Material:	Temperature resistance	Chemical resistance:	Vacuum:	autoclave:
PP	from -20°C to +110°C	++ very good	suitable	121°

Product description:

Green screw cap made of PP for bottle thread GL 45 and body made of PP. Insertion of tubing with a max. O.D. of 8,5 mm. Restricted chemical resistance, for working temperatures up to +110°C.

FDA conform

Necks GL	Cat. No.:
2 x 14	D 612-08
3 x 14	D 613-08

Applications:

Drawing or inserting liquids. Inserting tubing, tubes and probes into vessels.



BOLA Multiple Distributors with Stopcocks

Material:	Temperature resistance	Chemical resistance:	Vacuum:	autoclave:
PTFE	from -20°C to +110°C	+++ universal	suitable	121°

Product description:

Black screw cap made of PPS for bottle thread GL 45, body made of PTFE. Each neck with stopcock. Tubing can not be inserted through the stopcocks. Bores with press fit on the lower side allow the connection of tubing with O.D. 6 mm so that a connection to the bottom can be made. Very good chemical resistance, for working temperatures up to +250°C.

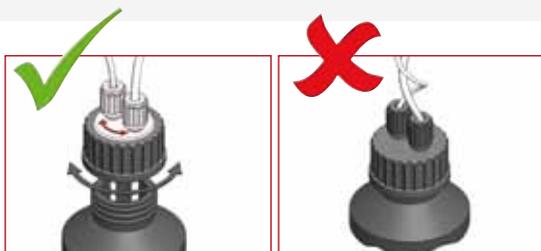
NEW

FDA conform

For tubing O.D. max. mm	Stopcocks	Stopcock bore dia. mm	Necks GL	Cat. No.:
8	2	4	2 x 14	D 616-08
8	3	4	3 x 14	D 616-16

Applications:

Drawing or inserting aggressive or pure liquids. Inserting tubing, tubes and probes into vessels.





BOLA Multiple Distributors for Bottles

Material:	Temperature resistance	Chemical resistance:	Vacuum:	autoclave:
PTFE	from -200°C to +250°C	+++ universal	suitable	121°

Product description:

Blue screw cap made of PPS for bottle thread 38/430, body made of PTFE. One GL 18 neck for inserting tubing with a max. O.D. of 10 mm, additional opening for aeration with PTFE-membrane (2,5µm). Very good chemical resistance, for working temperatures up to max. +250°C.

NEW

FDA conform

For thread	For tubing O.D. max. mm	Necks	Cat. No.:
38/430	10	1 x GL 18 and aeration	D 650-08

Applications:

Drawing or inserting of aggressive or pure liquids. Inserting tubing, tubes and probes into vessels.



BOLA Multiple Distributors for Bottles

Material:	Temperature resistance	Chemical resistance:	Vacuum:	autoclave:
PP	from -20°C to +110°C	++ very good	suitable	121°

Product description:

Blue screw cap for thread according to chart below. Body made of PP.

NEW

FDA conform

For thread	For tubing O.D. max. mm	Necks	Cat. No.:
38/430	2 x 6	2 x GL 14	D 652-08
For thread GLS	For tubing O.D. max. mm	Necks	Cat. No.:
80	4 x 12,7	4 x GL 18	D 750-16
80	3 x 12,7 / 1 x 14	3 x GL 18 / 1 x GL 25	D 750-24



BOLA Multiple Distributors for Bottles

Material: PTFE Temperature resistance: from -200°C to +250°C Chemical resistance: +++ universal Vacuum: suitable autoclave: 121°

Product description:
Black/blue screw cap for thread according to chart below.
Body made of PTFE

FDA conform

	For thread	For tubing O.D. max. mm	Necks	Cat. No.:
A	GL 25	2 x 6	2 x GL 14	D 619-04
	GL 25	3 x 6	3 x GL 14	D 619-08

	For thread	For tubing O.D. max. mm	Necks	Cat. No.:
A	GL 32	2 x 8	2 x GL 14	D 621-04
	GL 32	3 x 8	3 x GL 14	D 621-08

	For thread	For tubing O.D. max. mm	Necks	Cat. No.:
A	S 40	2 x 8	2 x GL 14	D 624-04
	S 40	3 x 8	3 x GL 14	D 624-08

	For thread	For tubing O.D. max. mm	Necks	Cat. No.:
B	GL 45	3 x 10	3 x GL 18	D 618-16
	GL 45	2 x 6 / 1 x 14	2 x GL 14 / 1 x GL 25	D 618-24
	GL 45	2 x 14	2 x GL 25	D 618-44
	GL 45	3 x 14	3 x GL 25	D 618-46
	GL 45	4 x 14	4 x GL 25	D 618-48

	For thread	For tubing O.D. max. mm	Necks	Cat. No.:
NEW C	GLS 80	4 x 12,7	4 x GL 18	D 754-16
	GLS 80	3 x 12,7 / 1 x 14	3 x GL 18 / 1 x GL 25	D 754-24

	For thread	For tubing O.D. max. mm	Necks	Cat. No.:
NEW D	38/430	2 x 6	2 x GL 14	D 651-08

Special Request?
+49 (0) 93 46-92 86-0



BOLA Flexible Distributors

BOLA BENEFITS

- » with 2 or 3 hose connectors especially for the connection of elastic tubing (e.g. Tygon, Viton, Silicone)
- » hose connectors on the lower side of the distributor for connecting tubing to reach the bottom of the bottle
- » bent hose connectors prevent bends in the tubing
- » distributor suitable for operation under pressure and vacuum
- » the body of the distributor can be turned independently from the screw cap, this means tubing will not be disarranged when the distributor is fixed on another bottle



BESTSELLER

BOLA Flexible Distributors

Material:	Temperature resistance	Chemical resistance:	Vacuum:	autoclave:
PP	from -20°C to +110°C	++ very good	suitable	121°

Product description:

Green screw cap made of PP for bottle thread GL 45 and body with hose connectors made of PP. Bent hose connectors on upper side, straight hose connectors on lower side. Restricted chemical resistance, for working temperatures up to max. +110°C.

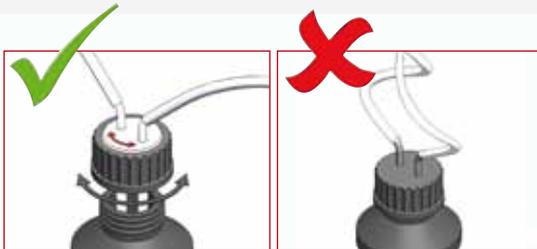
NEW

FDA conform

Number of hose connectors	For tubing I.D. mm	Bore of hose connectors mm	Cat. No.:
2	6 - 9	6	D 800-24
3	6 - 9	6	D 800-36
2	7 - 11	7	D 800-48

Applications:

Drawing or inserting liquids. For elastic tubing (e.g. Vitron®, Tygon®, silicone).



BOLA Distributors for Bottles

Material: PTFE Temperature resistance: from -50°C to +200°C Chemical resistance: +++ universal

Product description:

Black screw cap made of PPS for bottle thread GL 45. Without stopcocks: body made of PTFE with 2 or 4 ports with female thread UNF 1/4" 28G on upper and lower sides. With stopcocks: body made of PTFE with 2 or 3 ports with female thread UNF 1/4" 28G on upper and lower sides and stopcock made of FEP for each port. A possible unevenness of the bottle neck is adjusted by an o-ring behind an elastic sealing lip and the bottle is closed tightly.

The body of the distributor can be turned independently from the screw cap. This means, that the completely assembled distributor can be removed and fixed on another bottle without the risk of disarranging the tubing. Very good chemical resistance, for working temperatures up to +200°C. See page 202 for suitable flanged tubing.

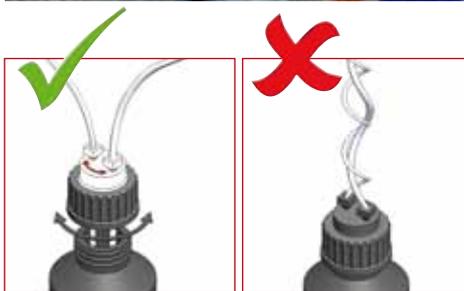
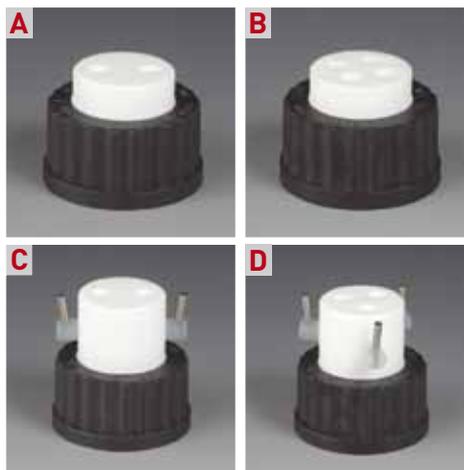
FDA conform

	For tubing I.D. x O.D. mm	Bore dia. mm	Connectors	Cat. No.:
A	0,8 x 1,6	0,8	2 x UNF 1/4" 28G	F 745-02
B	0,8 x 1,6	0,8	4 x UNF 1/4" 28G	F 745-10

	For tubing I.D. x O.D. mm	Bore dia. mm	Connectors	Cat. No.:
A	1,6 x 3,2	1,6	2 x UNF 1/4" 28G	F 745-04
B	1,6 x 3,2	1,6	4 x UNF 1/4" 28G	F 745-12

	For tubing I.D. x O.D. mm	Number of stopcocks	Bore dia. mm	Connectors	Cat. No.:
C	0,8 x 1,6	2	0,8	2 x UNF 1/4" 28G	F 746-02
D	0,8 x 1,6	3	0,8	3 x UNF 1/4" 28G	F 746-10

	For tubing I.D. x O.D. mm	Number of stopcocks	Bore dia. mm	Connectors	Cat. No.:
C	1,6 x 3,2	2	1,6	2 x UNF 1/4" 28G	F 746-04
D	1,6 x 3,2	3	1,6	3 x UNF 1/4" 28G	F 746-12



BOLA Threaded Adaptors

Material: PTFE Temperature resistance: from -200°C to +200°C Chemical resistance: +++ universal

Product description:

Allow the use of BOLA Multiple Distributors for Bottles (see page 72) with female thread GL 45 also on bottles with GL 32, GL 40 and S 40 threads.

FDA conform

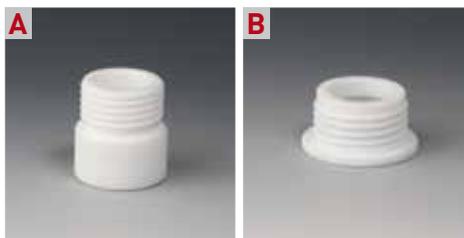
Example 1 for Cat. No. H 978-30:

Transition from GL 32 to GL 45
Suitable for bottles with GL 32 thread, e.g. from company Duran Group (formerly Schott AG)

Example 2 for Cat. No. H 978-40:

Transition from GL40/S40 to GL 45
Suitable for Merck® bottles with GL 40 thread or for all PFA-, PTFE bottles and jars with thread GL 40 and S 40

	Bottle thread GL / S	Top thread GL	Cat. No.:
NEW A	GL 32	45	H 978-30
B	GL/S 40	45	H 978-40



BOLA Chromatography Adaptors

Material: PTFE	Temperature resistance from -50°C to +200°C	Chemical resistance: +++ universal
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Product description:

Black screw cap made of PPS with GL thread. Body made of PTFE with one port with female thread UNF 1/4"28G for connection of mini fittings. A possible unevenness of the bottle neck is adjusted by an o-ring behind an elastic sealing lip, and the bottle is closed tightly. The product is only exposed to the body of the adaptor. Very good chemical resistance, for working temperatures up to max. +200°C. Suitable flanged tubing see page 202.

FDA conform

Thread of screw cap GL	For tubing I.D. x O.D. mm	Bore dia. mm	Cat. No.:
14	0,8 x 1,6	0,8	F 755-03
18	0,8 x 1,6	0,8	F 755-06
25	0,8 x 1,6	0,8	F 755-09
32	0,8 x 1,6	0,8	F 755-12
45	0,8 x 1,6	0,8	F 755-15
Thread of screw cap GL	For tubing I.D. x O.D. mm	Bore dia. mm	Cat. No.:
14	1,6 x 3,2	1,6	F 757-03
18	1,6 x 3,2	1,6	F 757-06
25	1,6 x 3,2	1,6	F 757-09
32	1,6 x 3,2	1,6	F 757-12
45	1,6 x 3,2	1,6	F 757-15

Applications:

HPLC (see page 197)



BOLA Screw Caps High Chem

Material: PTFE	Material: PP	Temperature resistance from -20°C to +140°C	Chemical resistance: +++ universal	Vacuum: suitable	autoclave: 121°
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Product description:

Knurled blue screw cap made of PP with GLS 80 thread. Sealing insert made of PTFE with elastic sealing lip and an o-ring for balancing unevenness on the bottle neck. Very good chemical resistance, the product is only exposed to PTFE.

NEW

FDA conform

Thread GLS	Cat. No.:
80	H 998-18

Applications:

- » suitable for glass bottles with GLS 80 thread
- » for the storage of highly aggressive or pure chemicals
- » tight sealing even at high thermal fluctuations



BOLA Multiple Distributors with Ground Joint

Material: PTFE	Temperature resistance from -200°C to +250°C	Chemical resistance: +++ universal	Vacuum: suitable	autoclave: 121°
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Product description:

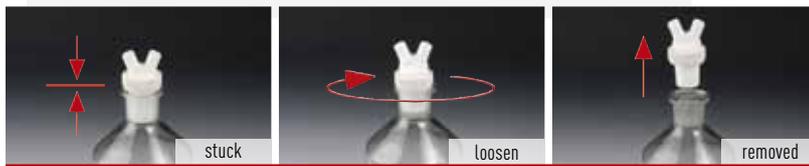
Completely made of PTFE. With ground joint size 29/32 and two GL-threaded necks. Integrated special nut for easy unlocking of the ground joint. For the connection of tubing or tube made of glass, plastic or metal by means of laboratory screw joints.

FDA conform

For ground joint NS	For tubing O.D. max. mm	Necks GL	Cat. No.:
29/32	2 x 8	2 x 14	D 620-08

Applications:

For bottles or reaction vessels with ground joint. For transferring liquids without contamination. For connection to a liquid source or a pressure or vacuum system.



BOLA Practical Tip

Christian Stöhr » engineering

You have a ground joint, but you don't know exactly its size?

Take our ground joint reducing set which allows bridging different cone and socket sizes.

see page 154

BOLA Ground Joint-GL-Adaptors

Material: PTFE	Material: PPS	Temperature resistance from -50°C to +250°C	Chemical resistance: +++ universal	Vacuum: suitable
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Product description:

Black screw cap made of PPS with GL 45 thread or blue screw cap made of PP with GLS 80 thread, movable insert with ground joint made of PTFE. Transition from a ground joint to a glass thread. The body can be turned independently from the screw cap. The completely assembled adaptor can be removed and fixed on another bottle without the risk of disarranging the tubing. Very good chemical resistance, for working temperatures up to max. +250°C.

FDA conform

	For bottle thread GL	Ground joint NS	Cat. No.:
A	45	29/32	D 734-40
	45	45/40	D 734-44

Material: PTFE	Material: PP	Temperature resistance from -50°C to +250°C	Chemical resistance: +++ universal	Vacuum: suitable
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NEW

	For bottle thread GLS	Ground joint NS	Cat. No.:
B	80	29/32	D 734-50
	80	45/40	D 734-54

Applications:

Assembly of components with ground joint (condensers, stirrer bearings etc.) on glass bottles or GL-threaded necks.





BOLA Distributors for Reaction Vessels

Suitable for bottles with GLS 80 thread from Duran Group (formerly Schott AG).

Consisting of a screw cap with GLS 80 thread and a movable body with several lateral necks and one central neck.

The GL-threaded necks allow the connection of hard-walled tubing (PTFE, PFA, FEP) or tubes (glass, metal, plastic) by means of BOLA Laboratory Screw Joints (see page 67). It is also possible to insert and fix probes or electrodes. In addition, the connection of elastic tubing can be made by means of BOLA Hose Connectors (see page 108).

The type "Center Neck with Ground Joint" allows the use of a stirrer bearing which assures a central position of a stirrer shaft in the vessel. Other components with ground joint (e.g. condensers, funnels etc.) can also be connected easily.

The type "Center Neck with GL Thread" is supplied with an exchangeable stirrer bearing for the center neck.

A possible unevenness of the bottle neck is adjusted by an o-ring behind an elastic sealing lip, and the bottle is closed tightly. The product is only exposed to the body of the distributor. The special clou: the body of the distributor can be turned independently from the screw cap. This means, that the completely assembled distributor can be removed and fixed on another bottle without the risk of disarranging the tubing.

BOLA Distributors for Reaction Vessels (S)

Material:	Material:	Temperature resistance	Chemical resistance:	Vacuum:	autoclave:
PTFE	PP	from -20°C to +140°C	+++ universal	suitable	121°

Product description:

Blue screw cap made of PP with GLS 80 thread, body made of PTFE with center ground joint and lateral GL-threaded or ground joint necks. Very good chemical resistance, for working temperatures up to max. +250°C (PP screw cap max. +140°C)

NEW

FDA conform

GL	Lateral necks NS	Center neck NS	For tubing O.D. max. mm	Cat. No.:
4 x 18		1 x 29/32	4 x 10	D 748-16
2 x 18	2 x 29/32	1 x 29/32	2 x 14	D 748-40
	2 x 29/32 2 x 14/23	1 x 29/32		D 748-60

Applications:

Drawing or inserting aggressive or pure liquids. Inserting tubing, tubes and probes into vessels. Use of a stirrer bearing in center neck for central position of a stirrer shaft.



BOLA Distributors for Reaction Vessels (R)

Material: PTFE	Material: PP	Temperature resistance from -20°C to +140°C	Chemical resistance: +++ universal	Vacuum: suitable	autoclave: 121°
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Product description:

Blue screw cap made of PP with GLS 80 thread, body made of PTFE. Center neck with GL 25 thread for connecting tubing or tube up to a max. O.D. of 15 mm, four lateral necks with GL 18 thread. Exchangeable shaft guide (PTFE page 39) with screw cap (PPS page 39) for inserting and fixing a stirrer shaft in the center neck included. Very good chemical resistance, for working temperatures up to max. +250°C (PP screw cap max. +140°C)

NEW

FDA conform

Lateral necks GL	Center neck GL	For tubing O.D. max. mm	Dia. of stirrer shaft mm	Cat. No.:
4 x 18	1 x 25	4 x 10	8	D 744-16
4 x 18	1 x 25	4 x 10	10	D 744-24

Applications:

Drawing or inserting aggressive or pure liquids. Inserting tubing, tubes and probes into vessels. Use of a stirrer bearing in center neck for central position of a stirrer shaft.

Special Request?
+49 (0) 93 46-92 86-0



BOLA INNOVATION

Multiple Distributors for Bottles

The distributor body can be turned independently from the screw cap. This means that the completely assembled distributor can be removed and fixed on another vessel without the risk of disarranging the tubing.

BOLA Distributors for Reaction Vessels (S)

Material: PP	Temperature resistance from -20°C to +110°C	Chemical resistance: ++ very good	Vacuum: suitable	autoclave: 121°
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Product description:

Blue screw cap made of PP with GLS 80 thread, body made of PP with center ground joint and lateral GL-threaded necks. Restricted chemical resistance, for working temperatures up to max. +110°C

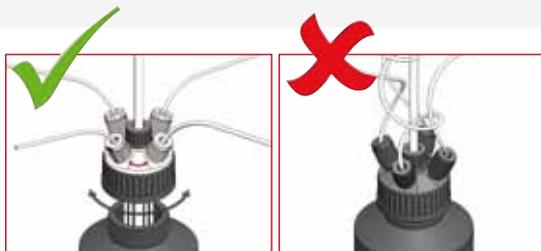
NEW

FDA conform

Lateral necks GL	Center neck NS	For tubing O.D. max. mm	Cat. No.:
4 x 18	29/32	4 x 10	D 746-16

Applications:

Drawing or inserting aggressive or pure liquids. Inserting tubing, tubes and probes into vessels. Use of a stirrer bearing (see page 36) in center neck for central position of a stirrer shaft.



SUITABLE: page 128
Tubing for all screw joints



BOLA Distributors for Canisters

These distributors are ideal for drawing liquids from canisters and for distributing these liquids to several vessels.

They consist of a screw cap for canister threads (see page 256) and a movable body with three GL-threaded necks. The threaded necks allow the connection of tubing or tubes made of glass, metal, or plastic by means of BOLA Laboratory Screw Joints (see page 67). The distributor can also be integrated into a pressure or vacuum system.

A possible unevenness of the canister thread is adjusted by an o-ring behind an elastic sealing lip, and the canister is closed tightly. The product is only exposed to the body of the distributor.

The special clou: the body of the distributor can be turned independently from the screw cap. This means, that the completely assembled distributor can be removed and fixed on another canister without the risk of disarranging the tubing.

BOLA Distributors for Canisters

Material:	Temperature resistance	Chemical resistance:	autoclave:
PTFE	from -200°C to +250°C	+++ universal	121°

Product description:
Distributors for canisters with movable body and GL- threaded necks.

NEW

» Type with screw cap made of glass-fibre reinforced PTFE and body made of PTFE.

FDA conform **A**

Canister thread	Necks	Cat. No.:
S	GL	
55	2 x 14 / 1 x 18	D 760-16
60	3 x 18	D 760-24



BOLA Distributors for Canisters

Material: PE Temperature resistance: from -20°C to +100°C Chemical resistance: ++ very good autoclave: 121°

Special Request?
+49 (0) 93 46-92 86-0

» Type with screw cap made of PE and body made of PTFE.

	Canister thread S	Necks GL	Cat. No.:
B	55	2 x 14 / 1 x 18	D 762-08
C	60	2 x 18	D 762-14
D	60	3 x 18	D 762-20
E	65	2 x 18	D 762-26
F	65	3 x 18	D 762-32
G	71	2 x 18 / 1 x 25	D 762-38
H	90	3 x 18 / 1 x 25	D 762-44
I	Nalge B53	2 x 14	D 766-16
J	Nalge B83	3 x 18 / 1 x 25	D 766-22

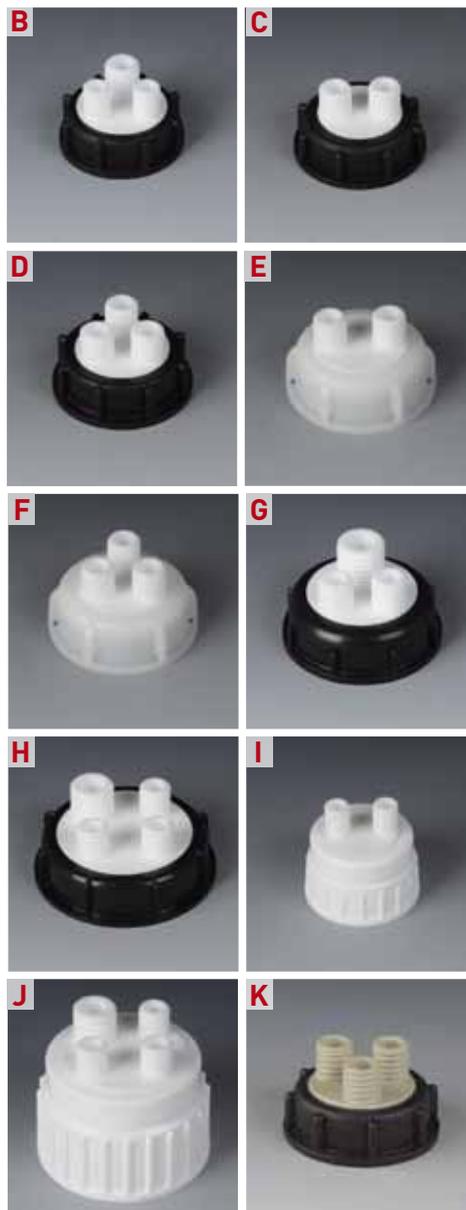
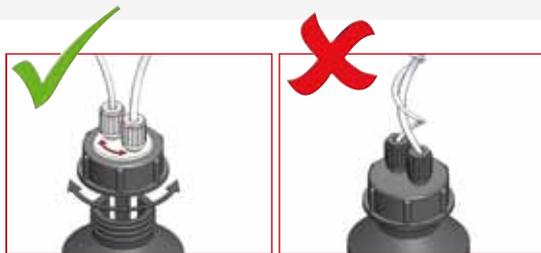
Material: PP Temperature resistance: from -20°C to +110°C Chemical resistance: ++ very good autoclave: 121°

» Type with screw cap made of PP and body made of PP.

	Canister thread S	Necks GL	Cat. No.:
K	55	2 x 14 / 1 x 18	D 764-16
	60	3 x 18	D 764-24

Applications:

Drawing or inserting aggressive or pure liquids. Inserting tubing, tubes and probes into canisters.





BOLA Multiple Distributors for Barrels

These distributors are ideal for drawing liquids from barrels and for distributing these liquids to several vessels. They consist of a screw cap for barrels with female thread and a movable body with GL-threaded necks. The threaded necks allow the connection of tubing or tubes made of glass, metal, or plastic by means of BOLA Laboratory Screw Joints (see page 67). Liquids can be drawn from the barrel without contamination of the ambient air by leaking vapours. In addition, the distributor can be integrated in a pressure or vacuum system.

The special clou: the body of the distributor can be turned independently from the screw cap. This means, that the completely assembled distributor can be removed and fixed on another barrel without the risk of disarranging the tubing.

For easy determination of the suitable distributor, you can find the dimensions of the barrel threads on page 257.

BOLA Multiple Distributors for Barrels

Material:	Temperature resistance	Chemical resistance:	Pressure:	Vacuum:	autoclave:
PTFE	from -200°C to +250°C	+++ universal	1 bar	suitable	121°

Product description:

Screw cap made of glass-fibre reinforced PTFE for barrels with female thread, body with GL-threaded necks made of PTFE. Very good chemical resistance, for working temperatures up to max. + 250°C. The product is only exposed to PTFE.

NEW

FDA conform

For female barrel thread	Necks GL	For tubing O.D. max. mm	Cat. No.:
R2" / G2" / BSP 2"	4 x 18	10	D 696-08
R2" / G2" / BSP 2"	2 x 18 / 1 x 25	2 x 10 / 1 x 14	D 696-14
Mauser 2"	4 x 18	10	D 697-08
Mauser 2"	2 x 18 / 1 x 25	2 x 10 / 1 x 14	D 697-14
Tri-Sure 2"	4 x 18	10	D 698-08
Tri-Sure 2"	2 x 18 / 1 x 25	2 x 10 / 1 x 14	D 698-14

Applications:

Drawing or inserting aggressive or pure liquids. Inserting tubing, tubes and probes into barrels.



BOLA Ring Wrench

Material:	Temperature resistance	Chemical resistance:
PP	from -20°C to +110°C	+++ universal

Product description:
Ring wrench made of PP.

	I.D. mm	Total length mm		Cat. No.:
	78	200		D 701-24

Applications:
For opening and closing BOLA Multiple Distributors for Barrels.



BOLA Barrel Aeration

Material:	Temperature resistance	Chemical resistance:	Vacuum:	autoclave:
PTFE	from -200°C to +250°C	+++ universal	suitable	121°

Product description:
Consisting of a body made of PTFE for female thread R 3/4" with a GL 32 thread, a PTFE/silicone gasket, an exchangeable filtering membrane (2,5µm) made of PTFE and a screw cap made of PPS. Very good chemical resistance, the product is only exposed to PTFE.

Pressure compensation at 0,1 bar differential pressure.
Max. flow rate:
» at 0,5 bar differential pressure: 80 l/h
» at 1,0 bar differential pressure: 320 l/h

FDA conform

For female barrel thread	O.D. of membrane mm	Thickness of membrane mm	Thread of screw cap GL	Cat. No.:
R3/4"	29	0,2	32	N 1696-32

Applications:
For pressure compensation during filling or drawing of liquids. Integrated membrane prevents contamination of the product. Membranes are available separately (see Cat. No. N 1699-32 on page 86).



BOLA Practical Tipp

Christian Stöhr » engineering

Protecting your pump

To avoid a damage of your pump due to loose particles or dirt, simply include a dirt filter in your system.

see page 106

BOLA Sets for Pressure Compensation

Material:	Temperature resistance	Chemical resistance:	Vacuum:	autoclave:
PTFE	from -200°C to +250°C	+++ universal	suitable	121°

Product description:

Consisting of screw cap made of PPS for GL thread, PTFE/silicone gasket and exchangeable filtering membrane made of PTFE (pore size 2,5 µm). High chemical resistance, the product is only exposed to PTFE. Pressure compensation already at 0,1 bar differential pressure.

FDA conform

For thread GL	Dia. of membrane mm	Flow rate at 0,5 bar /l/h	Flow rate at 1 bar /l/h	Cat. No.:
14	12	16	25	N 1698-14
18	16	25	85	N 1698-18
25	23	50	180	N 1698-25
32	29	80	320	N 1698-32
45	42	210	800	N 1698-45

Applications:

For pressure compensation during filling or drawing of liquids. Prevention of unintentional overpressure or vacuum in the vessel. Integrated membrane prevents contamination of the product. Membranes are available separately (see Cat. No. N 1699-32 on page 86).



BOLA Membranes for Pressure Compensation

Material:	Temperature resistance	Chemical resistance:	Vacuum:	autoclave:
PTFE	from -200°C to +250°C	+++ universal	suitable	121°

Product description:

Filtering membrane made of PTFE, thickness 0,2, pore size 2,5 µm.

FDA conform

For thread GL	Dia. of membrane mm	Flow rate at 0,5 bar /l/h	Flow rate at 1 bar /l/h	Cat. No.:
14	12	16	25	N 1699-14
18	16	25	85	N 1699-18
25	23	50	180	N 1699-25
32	29	80	320	N 1699-32
45	42	210	800	N 1699-45

Applications:

Replacement membrane for BOLA Set for Pressure Compensation (see Cat. No. N 1698-.. on page 86)



BOLA GL-Aeration

Material: PTFE	Material: PPS	Temperature resistance from -40°C to +70°C	Chemical resistance: ++ very good	autoclave: 121°
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Product description:

Filter with PTFE membrane and flexible tubing, screw cap made of PPS for GL threads.

NEW

For thread GL	Filter material	Pore size µm	Filter O.D. mm	Cat. No.:
14	PTFE	0,20	33	N 1697-14
18	PTFE	0,20	33	N 1697-18

Applications:

For sterile pressure compensation on multiple distributors for bottles. Overpressure or vacuum in the vessel are prevented. A contamination of the product with dust or any other particles is avoided. It is recommended to exchange the filter every 6 months.



BOLA Barrel-GL-Adaptors

Material: PTFE	Temperature resistance from -200°C to +250°C	Chemical resistance: +++ universal	Vacuum: suitable	autoclave: 121°
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Product description:

Adaptors made of PTFE/PP, for transition from female barrel thread R2 Inch or Tri-Sure 2 Inch to a GL 45 thread. See page 257 for dimensions of the barrel threads.

NEW

» Made of PTFE, very good chemical resistance, working temperatures up to max. +250°C

FDA conform

Material	For barrel thread	Thread of head GL	Bore dia. max. mm	Dia. of grip ca. mm	Cat. No.:
PTFE	R2" / G2" /BSP 2"	45	32	78	D 736-12
PTFE	Tri-Sure 2"	45	32	67	D 736-24



Material: PP	Temperature resistance from -20°C to +250°C	Chemical resistance: ++ very good	Vacuum: suitable	autoclave: 121°
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» Made of PP, restricted chemical resistance, working temperatures up to max. +110°C

NEW

FDA conform

Material	For barrel thread	Thread of head GL	Bore dia. max. mm	Dia. of grip ca. mm	Cat. No.:
PP	R2" / G2" /BSP 2"	45	32	78	D 737-12
PP	Tri-Sure 2"	45	32	67	D 737-24

Applications:

For the connection of e. g. BOLA Multiple Distributors for Bottles with a GL 45 thread for inserting tubing, tubes or probes.



BOLA Screw Caps

BOLA Screw Caps are available as closed caps for closing bottles and vessels with GL thread or as caps with aperture which can for example hold tubes or – in connection with a gasket - be used as septum for sampling. All caps have a handy knurl for easy opening and closing.

They are available for bottle threads GL 14 to GL 45 and are either made of glass-fibre reinforced PTFE, PPS or PBTP. The closed caps are either supplied with an integrated PTFE/silicone gasket or with an integrated PTFE membrane.

The caps which are made of glass-fibre reinforced PTFE have a high chemical resistance and can be used with aggressive products.

PPS offers a high mechanical strength; even caps with small diameters can be closed safely. At the same time, these caps can be used at high temperatures due to a good chemical and thermal resistance.

PBTP caps are an ideal and cheap choice for all applications which do not need high chemical and thermal resistance.

BOLA Screw Caps with Aperture

Product description:

Screw cap with handy knurl, suitable for GL threads, with aperture, made of glass-fibre reinforced PTFE, PPS or PBTP

Material: PTFE/Glass-fibre Temperature resistance: from -50°C to +250°C Chemical resistance: +++ universal

FDA conform	For thread	Dia. of aperture	Cat. No.:
	GL	mm	
	14	9,2	H 983-01
	18	11,0	H 983-02
	25	15,0	H 983-03
	32	20,0	H 983-04
	45	34,0	H 983-05

Material: PPS Temperature resistance: from -50°C to +250°C Chemical resistance: +++ universal

	For thread	Dia. of aperture	Cat. No.:
	GL	mm	
	14	9,2	H 995-14
	18	11,0	H 995-18
	25	15,0	H 995-25
	32	20,0	H 995-32
	45	34,0	H 995-45

Material: PBTP Temperature resistance: from -45°C to +180°C Chemical resistance: + good

	For thread	Dia. of aperture	Cat. No.:
	GL	mm	
	14	9,2	H 984-01
	18	11,0	H 984-02
	25	15,0	H 984-03
	32	20,0	H 984-04
	45	34,0	H 984-05

Applications:

As joining piece between tubes with flange and tubes with GL thread, suitable gasket rings are available separately (Cat. No. H 975 / H 977 / on page 91, 92). As septum by inserting a separately available gasket (Cat. No. H 973 on page 92)



BOLA Screw Caps with Aperture

Material: PPS
 Temperature resistance: from -200°C to +250°C
 Chemical resistance: +++ universal

Product description:

Screw cap made of PPS with handy knurl, with aperture. The cap provides a heighmechanical and thermal resistance (up to max. +250°C).

NEW

For thread	Bore dia.	Cat. No.:
S	mm	
40	28	H 989-40

Applications:

As joining piece between tubes with flange and tubes with GL thread, suitable gasket rings are available separately. As septum by inserting a separately available gasket (see Cat. No. H 973-... on page 92) - e. g. bottles of company Merck KGaA.



BOLA Screw Caps

Product description:

Screw cap with handy knurl, with integrated PTFE/silicone gasket, suitable for GL threads, made of glass-fibre reinforced PTFE without gasket, PPS or PBTP. After assembly, the product is only exposed to PTFE.

Material: PTFE
 Temperature resistance: from -50°C to +250°C
 Chemical resistance: +++ universal

FDA conform	For thread	Cat. No.:
	GL	
	14	H 986-01
	18	H 986-02
	25	H 986-03
	32	H 986-04
	45	H 986-05

Material: PPS
 Temperature resistance: from -50°C to +250°C
 Chemical resistance: +++ universal

BESTSELLER

FDA conform	For thread	Cat. No.:
	GL	
	14	H 993-14
	18	H 993-18
	25	H 993-25
	32	H 993-32
	45	H 993-45

Material: PBTP
 Temperature resistance: from -45°C to +180°C
 Chemical resistance: + good

FDA conform	For thread	Cat. No.:
	GL	
	14	H 987-01
	18	H 987-02
	25	H 987-03
	32	H 987-04
	45	H 987-05

Applications:

For closing bottles and vessels with GL threads.



BOLA Screw Caps

Material:	Temperature resistance	Chemical resistance:
PPS	from -200°C to +250°C	+++ universal

Product description:

Screw cap made of PPS with handy knurl, with integrated PTFE/silicone gasket for compensation of unevenness on the sealing surface. After assembly, the product is only exposed to PTFE. The cap provides a heighmechanical and thermal resistance (up to max. +250°C).

NEW

For thread		Cat. No.:
S		
40		H 988-40

FDA conform

Applications:

For closing bottles and vessels with S40 threads - e.g. bottles of company Merck KGaA



BOLA Screw Caps with Aperture

Material:	Temperature resistance	Chemical resistance:
PP	from -20°C to +140°C	++ very good

Product description:

Screw cap made of PP with handy knurl. The cap provides a good chemical and thermal resistance (up to max +140°C).

NEW

For thread	Bore dia.	Cat. No.:
GL	mm	
45	45	H 999-45

FDA conform



BOLA Screw Caps HT (High Temp)

Material:	Temperature resistance	Chemical resistance:	Vacuum:
PPS	from -200°C to +250°C	+++ universal	suitable

Product description:

Screw cap with handy knurl made of PPS with elastic and highly chemical resistant integrated PTFE-membrane gasket. After assembly, the product is only exposed to PTFE. The cap provides a high mechanical and thermal resistance (up to max. +250°C).

FDA conform

For thread		Cat. No.:
GL		
14		H 994-14
18		H 994-18
25		H 994-25
32		H 994-32
45		H 994-45

Applications:

For all applications which need high chemical resistance and sealing. Usable under vacuum, e.g. cold traps. The gasket is physiologically safe according to VDI/VDE guideline 2480 and fulfils FDA 21 CFR 177-1550 requirements.



BOLA One-Sided Gaskets

Material: **PTFE** Temperature resistance: **from -200°C to +250°C** Chemical resistance: **+++ universal**

Product description:

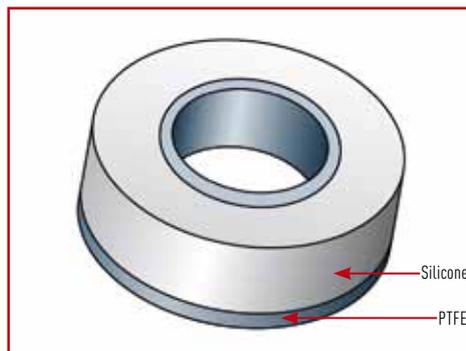
Silicone ring with PTFE washer. After assembly, the product is only exposed to PTFE. Packing unit: 10 pieces, differing ordering quantities are rounded up to factor 10.



For thread GL	O.D. x I.D. x Height mm	For tube dia. mm	Cat. No.:
14	12 x 6,0 x 3,5	5,5 x 6,5	H 975-02
18	16 x 6,0 x 4,5	5,5 x 6,5	H 975-04
18	16 x 8,0 x 4,5	7,5 x 9,0	H 975-06
18	16 x 10,0 x 4,5	9,0 x 11,0	H 975-10
25	22 x 8,0 x 6,5	7,5 x 9,0	H 975-12
25	22 x 10,0 x 6,5	9,0 x 11,0	H 975-14
25	22 x 12,0 x 6,5	11,0 x 13,0	H 975-18
32	29 x 10,0 x 9,0	9,0 x 11,0	H 975-20
32	29 x 12,0 x 9,0	11,0 x 13,0	H 975-22
32	29 x 14,0 x 9,0	13,0 x 15,0	H 975-26
32	29 x 16,0 x 9,0	15,0 x 17,0	H 975-28
32	29 x 18,0 x 9,0	17,0 x 19,0	H 975-30
45	42 x 26,0 x 9,0	25,0 x 27,0	H 975-34
45	42 x 32,0 x 9,0	31,0 x 33,0	H 975-36

Applications:

As gasket for BOLA Screw Caps with Aperture (Cat. No. H 983/ H 984/ H 995 on page 88). Also suitable for GL caps of company Duran Group (formerly Schott AG).




One-Sided Gaskets

» The soft silicone core provides flexibility and perfect sealing. The detachable PTFE sleeve makes this gasket versatile. Very convenient!

«

Dieter Verhees » Glastechnische Werkstatt Dieter Verhees

BOLA SVL Gaskets

Material: **PTFE** Temperature resistance: **from -200°C to +250°C** Chemical resistance: **+++ universal**

Product description:

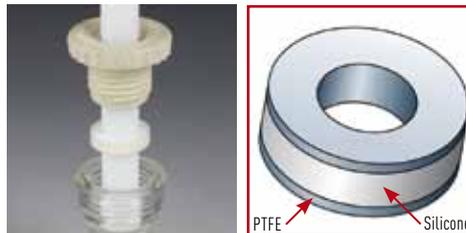
Silicone ring with double-sided washer made of PTFE. Suitable for Torion-/SVL threads. Universal chemical resistance, the product is only exposed to PTFE.



For SVL thread I.D. mm	O.D. of gasket mm	For tube dia. mm	Height mm	Cat. No.:
15	15	5,6 x 6,4	5	H 979-14
15	15	7,6 x 8,4	5	H 979-24
22	22	13,6 x 14,4	5	H 979-32

Applications:

As gasket for tubing, tubes or probes inserted through Torion threads.



BOLA Gaskets for Screw Caps

Material: **PTFE** Temperature resistance: **from -200°C to +250°C** Chemical resistance: **+++ universal**

Product description:

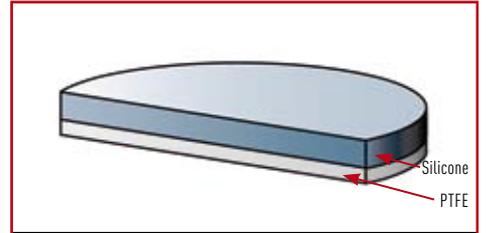
Upper side made of PTFE, lower side made of silicone-elastomer for balancing unevennesses on sealing surfaces. After assembly, the product is only exposed to PTFE



For thread	Dia. of gasket mm	Thickness of gasket mm	Cat. No.:
GL 14	13,0	3,3	H 973-14
GL 18	16,8	3,3	H 973-18
GL 25	23,5	3,3	H 973-25
GL 32	30,2	3,3	H 973-32
S 40	38,0	3,3	H 973-41
GL 45	43,2	3,3	H 973-45

Applications:

As gasket for BOLA Screw Caps with Aperture (Cat. No. H 986/ H 987/ H 988/ H 993 on page 89, 90). As septum in combination with BOLA-Screw-Caps with Aperture (Cat. No. H 983/ H 984/ H 995/ H 989/ H 999 on page 88, 89, 90).



BOLA Double-Sided Gaskets

Material: **PTFE** Temperature resistance: **from -200°C to +250°C** Chemical resistance: **+++ universal**

Product description:

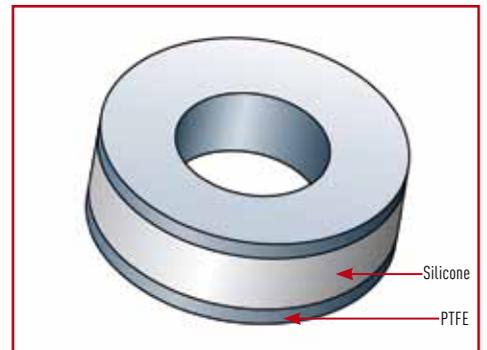
Silicone ring with double-sided PTFE washer. After assembly, the product is only exposed to PTFE.



For thread GL	O.D. x I.D. x Height mm	For tube dia. mm	Cat. No.:
14	12 x 6,0 x 3,6	5,5 x 6,5	H 977-08
18	16 x 6,0 x 4,6	5,5 x 6,5	H 977-16
18	16 x 8,0 x 4,6	7,5 x 9,0	H 977-18
18	16 x 10,0 x 4,6	9,0 x 11,0	H 977-20
25	22 x 8,0 x 6,6	7,5 x 9,0	H 977-28
25	22 x 10,0 x 6,6	9,0 x 11,0	H 977-32
25	22 x 12,0 x 6,6	11,0 x 13,0	H 977-36

Applications:

As gasket for BOLA Screw Caps with Aperture (Cat. No. H 983/ H 984/ H 995 on page 88). Also suitable for GL caps of company Duran Group (formerly Schott AG).



BOLA BENEFITS

- » suitable for all kinds of probes, tubes or hard-walled tubing
- » can be used with GL threads or ground joints
- » angle and height can be fixed tightly
- » a damage of tube or probe due to collision with the stirrer shaft can be avoided

BOLA Swivelling Screw Fittings with Ground Joint

BESTSELLER

Material: PTFE	Material: PPS	Temperature resistance from -50°C to +250°C	Chemical resistance: +++ universal	Vacuum: suitable
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Product description:

Ground joint body made of PTFE, screw cap made of PPS. Probes, tubes or tubing are firstly inserted through the fitting, then the fitting is put into the ground joint and the inserted element can be fixed in the requested position.

NEW

FDA conform

Ground joint size NS	For probe/tube O.D. mm	Max. angle A mm	Thread of screw cap GL	Cat. No.:
19/26	6	4°	18	D 692-24
29/26	6	8°	25	D 692-34
29/32	8	7°	25	D 692-44
29/32	10	6°	25	D 692-54
29/32	12	5°	25	D 692-64

Applications:

Insertion of probes, tubes or tubing into vessels with ground joints for avoiding collision with the stirrer shaft.



BOLA INNOVATION

Swivelling Screw Fittings

Many products only allow to fix for example a thermometer in straight direction. BOLA Swivelling Screw Fittings with spherical inner parts allow a deflection of up to 12°.

BOLA Swivelling Screw Fittings

Material: PTFE	Material: PPS	Temperature resistance from -50°C to +250°C	Chemical resistance: +++ universal	Pressure: 5 bar	Vacuum: suitable
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Product description:

Screw cap made of PPS with inner parts made of PTFE. Probes, tubes or tubing are firstly inserted through the fitting, then the fitting is screwed on the GL neck and the inserted element can be fixed in the requested position.

FDA conform

For probe/tube O.D. mm	For thread GL	Max. angle A mm	Cat. No.:
2,0	18	10°	D 690-14
(1/8") 3,2	18	9°	D 690-18
6,0	18	5°	D 690-24
6,0	25	12°	D 690-34
8,0	25	10°	D 690-38
(3/8") 9,52	25	9°	D 690-42
10,0	25	8°	D 690-46
12,0	25	6°	D 690-50
19,0	32	3°	D 690-68

Applications:

Insertion of probes, tubes or tubing into vessels with GL necks for avoiding collision with the stirrer shaft.



BOLA Threaded Couplings

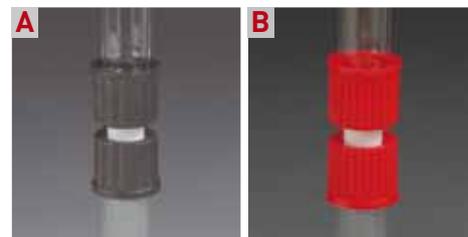
Material: PTFE	Temperature resistance from -200°C to +250°C	Chemical resistance: +++ universal
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Product description:

Two screw caps made of PPS (up to +250°C) or PBTP (up to +180°C) with GL thread and a PTFE/FPM gasket. Connection piece made of PTFE. The product is only exposed to PTFE. For connecting two GL threads of the same size.

FDA conform

For thread GL	Length from sealing lip to sealing lip mm	A	Cat. No.: PPS cap	B	Cat. No.: PBTP cap
14	15		H 900-01		H 901-01
18	17		H 900-02		H 901-02
25	22		H 900-03		H 901-03
32	22		H 900-04		H 901-04
45	23		H 900-05		H 901-05



BOLA GL Bellows

Material:	Temperature resistance	Chemical resistance:	Vacuum:
PTFE	from -200°C to +250°C	+++ universal	suitable

Product description:

Two screw caps made of PPS with GL thread and a PTFE/FPM gasket. Bellow with sharp folds made of PTFE. Bellow can be bent up to an angle of 120°, flexible and strainless connection.

FDA conform

For thread GL	Min. length of bellow mm	Max. length of bellow mm	Cat. No.:
25	58	104	H 902-05
32	58	90	H 902-10
45	67	115	H 902-15



BOLA Reducing Screw Thread Adaptor Couplings

Material:	Temperature resistance	Chemical resistance:
PTFE	from -200°C to +250°C	+++ universal

Product description:

Two screw caps made of PPS with GL thread and a PTFE/FPM gasket. Connection piece made of PTFE. The product is only exposed to PTFE. For connecting two GL threads of different sizes.

FDA conform

From thread GL	To thread GL	Length from sealing lip to sealing lip mm	Cat. No.:
18	14	20,0	H 904-02
25	14	27,5	H 904-03
25	18	28,3	H 904-04
32	18	32,5	H 904-05
32	25	28,0	H 904-06
45	25	38,0	H 904-07
45	32	33,0	H 904-08



BOLA GL Reductions

Material:	Material:	Temperature resistance	Chemical resistance:
PTFE	PPS	from -200°C to +250°C	+++ universal

Product description:

Black screw cap made of PPS with GL 45 thread, movable reduction body made of PTFE for transition to GL threads. The body can be moved independently from the screw cap so that the completely assembled reduction can be removed and fixed on another vessel without the risk of disarranging the tubing or cable. The product is only exposed to PTFE.

FDA conform

Reducing thread GL	Max. tubing O.D. mm	Cat. No.:
14	0,8 - 8	D 784-08
18	0,8 - 10	D 784-16
25	0,8 - 14	D 784-24

Applications:

For connecting or inserting tubing, tubes or probes.



BOLA GLS-Reductions

Material: PTFE	Material: PP	Temperature resistance from -20°C to +140°C	Chemical resistance: +++ universal	Vacuum: suitable	autoclave: 121°
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NEW

FDA conform

Product description:

Blue screw cap made of PP with GLS 80 thread, movable insert with GL 45 thread made of PTFE. Transition from GLS 80 bottles to a GL 45 thread. The body can be moved independently from the screw cap so that the completely assembled reduction can be removed and fixed on another vessel without the risk of disarranging the tubing or cable. The product is only exposed to PTFE.

For thread GLS	Reducing thread GL	Cat. No.:
80	45	D 785-24



BOLA GL Dispenser

Material: PTFE	Temperature resistance from -200°C to +250°C	Chemical resistance: +++ universal
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FDA conform

Product description:

Black screw cap made of PPS with GL 45 thread, movable dispenser with stopcock made of PTFE, integrated ventilation. With PTFE cap for sealing the discharge tube.

Thread GL	Stopcock bore dia. mm	Dia. of discharge tube mm	Cat. No.:
45	4	4	H 918-10

Applications:

For controlled and safe pouring of liquids. A bottle with mounted dispenser can be headfirst fixed in a holder.



BOLA GL Funnels

Funnels with a capacity of approx. 100 ml made of borosilicate glass. Inlet tube made of PTFE, connection with GL screw caps made of PPS or with ground joint. The outlet tube has a length of approx. 64 mm on the lower side. The glass funnel can be fixed in each position.

Material: PTFE	Material: PPS	Temperature resistance from -200°C to +250°C	Chemical resistance: +++ universal	Vacuum: suitable
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Product description:

Insertion for reaction vessels with GL-threaded necks

NEW

FDA conform

	Thread of funnel GL	Connecting thread on lower side GL	Inlet tube (O.D. x I.D.) mm	Cat. No.:
A	25	25	15 x 12	D 738-12
	32	32	20 x 17	D 738-22
	25	32	20 x 17	D 738-42
	32	25	15 x 12	D 738-52

Product description:

Insertion for reaction vessels with ground joint sockets.

NEW

FDA conform

	Thread of funnel GL	Ground joint NS	Inlet tube (I.D. x O.D.) mm	Cat. No.:
B	32	29/32	20 x 17	D 739-22

Applications:

Positionable insertion for reaction vessels. Adhering or agglutinating of powders is prevented. Liquids can be inserted directly without cooling or adhering at the wall of the vessel. Instead of the glass funnel, a condenser can be mounted at the upper screw cap and provide a direct return into the vessel.



BOLA INNOVATION

GL-Funnel

Helps to insert products into reaction vessels. Available in two versions:

- a) for GL threads
- b) for ground joints

Liquids are inserted directly into the reactor and do not adhere and cool down at the wall.

BOLA Leading-in for Sensors

Material: PTFE	Material: PPS	Temperature resistance from -200°C to +250°C	Chemical resistance: +++ universal
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Product description:

Black screw cap made of PPS with GL 45 thread, movable body made of PTFE with adjusting screw for fixing and sealing sensors. The product is only exposed to PTFE.

FDA conform

	For thread GL	For sensor dia. mm	Cat. No.:
	45	12 (+/-0,5)	D 780-14

Applications:

For contamination-free insertion of sensors into bottles with GL 45 thread.



BOLA GL Tube Fittings

A distribution system consists of tubes or tubing and connection pieces, so-called tube fittings. The BOLA-GL-Fitting-System is a modular system which consists of tube fittings, screw-in fittings, different stopcocks and valves.

All fittings have GL threads so that they can be connected to hard-walled tubing (PTFE, PFA, FEP) or tubes (e.g. glass, metal, plastic) by means of BOLA Laboratory Screw Joints (see page 67).

Together with these BOLA Laboratory Screw Joints (see page 67), the connection is absolutely tight and even suitable for vacuum; the screw joints for GL 14, GL 18 and GL 25 even resist pressures up to max. 10 bar at room temperature.

The system is completed by accessories like quick connectors, dirt traps and GL hose connectors.

BOLA GL Tube Fittings

Material:	Temperature resistance	Chemical resistance:	Pressure:	Vacuum:
PTFE	from -200°C to +250°C	+++ universal	10 bar	suitable

Product description:

Straight tube fitting made of PTFE, two connections with GL thread. Universal chemical resistance, the product is only exposed to PTFE.

FDA conform

Thread GL	Bore dia. mm	Length without screw joint mm	Wrench size hexagon mm	Cat. No.:
14	6,5	50	15	D 538-14
18	10,5	50	19	D 538-18
25	14,5	56	27	D 538-25
32	21,0	75	32	D 538-32
45	32,5	75	46	D 538-45

Application:

For distributing liquids or gases. As reduction for connecting different diameters of tubes or tubing.





BOLA
Practical Tipp

Marion Stoppel » construction

Don't fear blocked passage bores:

The special construction of our fittings does not allow tubing to be pushed in too far.

BOLA GL Tube Fittings T

Material: PTFE	Temperature resistance from -200°C to +250°C	Chemical resistance: +++ universal	Pressure: 10 bar	Vacuum: suitable
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Product description:

Tube fitting T-shaped made of PTFE, three connections with GL thread.
Universal chemical resistance, the product is only exposed to PTFE.

FDA conform

Thread GL	Bore dia. mm	Length without screw joint mm	Height mm	Wrench size square mm	Cat. No.:
14	6,5	54	37	20	D 540-14
18	10,5	56	39	20	D 540-18
25	14,5	70	51	27	D 540-25
32	21,0	83	58	33	D 540-32
45	32,5	98	73	48	D 540-45

Application:

For distributing liquids or gases. As reduction for connecting different diameters of tubes or tubing.



BOLA GL Tube Fittings Elbow

Material: PTFE	Temperature resistance from -200°C to +250°C	Chemical resistance: +++ universal	Pressure: 10 bar	Vacuum: suitable
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Product description:

Tube fitting elbow-shaped made of PTFE, two connections with GL thread.
Universal chemical resistance, the product is only exposed to PTFE.

FDA conform

Thread GL	Bore dia. mm	Length without screw joint mm	Wrench size square mm	Cat. No.:
14	6,5	37	20	D 539-14
18	10,5	39	20	D 539-18
25	14,5	51	27	D 539-25
32	21,0	58	33	D 539-32
45	32,5	73	48	D 539-45

Application:

For distributing liquids or gases. As reduction for connecting different diameters of tubes or tubing.





BOLA
Practical Tipp

Uwe Hossfeld » application engineering

Protection from buckling

If you want to avoid buckling of your tubing, simply cut it and add an elbow fitting for connection.

BOLA GL Tube Fittings Cross

Material:	Temperature resistance	Chemical resistance:	Pressure:	Vacuum:
PTFE	from -200°C to +250°C	+++ universal	10 bar	suitable

Product description:

Tube fitting cross-shaped made of PTFE, four connections with GL thread. Universal chemical resistance, the product is only exposed to PTFE.

FDA conform

Thread GL	Bore dia. mm	Length without screw joint mm	Wrench size square mm	Cat. No.:
14	6,5	54	20	D 541-14
18	10,5	56	20	D 541-18
25	14,5	70	27	D 541-25
32	21,0	83	33	D 541-32
45	32,5	98	48	D 541-45

Application:

For distributing liquids or gases. As reduction for connecting different diameters of tubes or tubing.



BOLA INNOVATION

GL-Fittings

They are mainly used to fix the same diameters on both sides. Together with BOLA Laboratory Screw Joints, they can also be used as reductions.



SUITABLE: page 67
Laboratory screw joints



BOLA GL Quick Connectors

Material:	Temperature resistance	Chemical resistance:	Pressure:	Vacuum:
PFA	from -50°C to +200°C	+++ universal	10 bar	suitable

Product description:

Two-part quick connector completely made of PFA, with two GL threads for connecting tubing or tubes with BOLA Laboratory Screw Joints. Quick and easy disconnection of flow. When disconnected, the flow is interrupted by means of built-in non-return valves and only continues after a safe locking. Suitable for pressure up to max. 6 bar, for vacuum of 700 mm Hg and working temperatures up to max. +200°C. Universal chemical resistance, the product is only exposed to PFA.

FDA conform

Connecting thread GL	Length without screw joint	Flow at 4 bar (water) l/min.	Cat. No.:
14	75	3,2	D 625-20
18	75	4,0	D 625-40
25	79	10,5	D 625-60

Applications:

Ideal for conducting highly pure or aggressive products.



BOLA GL-Screw-in Tube Fittings

Material: PTFE	Temperature resistance from -200°C to +250°C	Chemical resistance: +++ universal	Pressure: 10 bar	Vacuum: suitable
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Product description:

Straight tube fitting made of PTFE, with one screw-in thread (either NPT or G thread). Universal chemical resistance, the product is only exposed to PTFE.

FDA conform

Screw-in thread NPT	Thread GL	Bore dia. mm	Wrench size hexagon mm	Cat. No.:
1/8"	14	4,0	15	D 516-08
1/4"	14	5,0	15	D 516-14
3/8"	14	6,5	19	D 516-20
1/8"	18	4,0	19	D 516-26
1/4"	18	6,5	19	D 516-32
3/8"	18	8,0	19	D 516-38
3/8"	25	8,0	27	D 516-44
1/2"	25	12,0	27	D 516-50

Screw-in thread G	Thread GL	Bore dia. mm	Wrench size hexagon mm	Cat. No.:
1/8"	14	4,0	15	D 517-08
1/4"	14	5,0	15	D 517-14
3/8"	14	6,5	19	D 517-20
1/8"	18	4,0	19	D 517-26
1/4"	18	6,5	19	D 517-32
3/8"	18	8,0	19	D 517-38
1/2"	25	12,0	27	D 517-50
1"	32	18,0	34	D 517-74

« »
Special Request?
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BOLA
Practical Tipp
Marion Stoppel » construction

You don't know which thread type and size you have in your hands?

Our scale thread illustrations help to make an optical comparison.

see page 254

BOLA Socket-GL Tube Fittings

Material: PTFE	Temperature resistance from -200°C to +250°C	Chemical resistance: +++ universal	Vacuum: suitable
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Product description:

Fitting made of PTFE, with socket for tubes with ground joint and GL thread for connection of hard-walled tubing (e.g. PTFE, PFA, FEP) with BOLA Laboratory Screw Joints (see page 67). The product is only exposed to PTFE.

FDA conform

Socket size NS	Bore dia. mm	Thread GL	Cat. No.:
14/23	6,5	14	D 571-08
19/26	10,5	18	D 571-16
29/32	12,5	25	D 571-32
45/40	20,5	32	D 571-40



BOLA Ground Joint-GL Tube Fittings

Material: PTFE	Temperature resistance from -200°C to +250°C	Chemical resistance: +++ universal	Vacuum: suitable
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Product description:

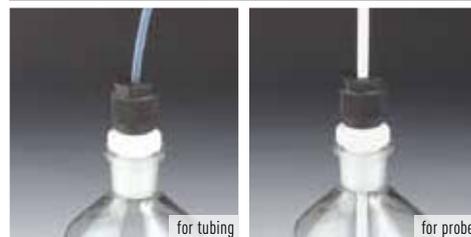
Fitting made of PTFE, for transition from ground joints to GL threads. For connection of hard-walled tubing (e.g. PTFE, PFA, FEP) with BOLA Laboratory Screw Joints (see page 67). Ground joint body with turned rings and knurled grip for opening. The product is only exposed to PTFE.

FDA conform

Cone size NS	Bore dia. mm	Thread GL	Cat. No.:
14/23	6,5	14	D 570-08
19/26	10,5	18	D 570-16
29/32	12,5	25	D 570-32

Applications:

For connecting tubes or tubing to vessels with ground joint. For inserting and fixing probes, thermometers, dip tubes or cables.



BOLA Spherical Ground Joint-GL Tube Fittings

Material: PTFE	Temperature resistance from -200°C to +250°C	Chemical resistance: +++ universal	Vacuum: suitable
--------------------------	--	--	----------------------------

Product description:

Fitting made of PTFE, for transition from spherical ground joints to GL threads. For connection of hard-walled tubing (e.g. PTFE, PFA, FEP) with BOLA Laboratory Screw Joints (see page 67). The product is only exposed to PTFE.

NEW

FDA conform

Spherical ground joint size S	Thread GL	Bore dia. mm	Angle A max.	Cat. No.:
19	18	10,5	25°	D 790-24
29	25	14,5	20°	D 790-36
35	25	14,5	10°	D 790-48

Applications:

For connecting tubes or tubing to vessels with ground joint. For inserting and fixing probes, thermometers, dip tubes or cables.



BOLA GL Stopcocks

Material: PTFE	Temperature resistance from -30°C to +150°C	Chemical resistance: +++ universal	Pressure: 6 bar	Vacuum: suitable
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Product description:

Two-way stopcock with straight bore and two connections with GL thread or three-way stopcock with L-shaped or T-shaped bore and three connections with GL thread. Cylindrical stopcock plug for good tightness, stop valve with mark of flow direction. Suitable for pressure up to max. 6 bar, or for vacuum. Universal chemical resistance, the flowing product is only exposed to PTFE.

FDA conform

	Type	Bore shape	Bore dia. mm	Connecting thread GL	External dimensions L / D / H mm	Cat. No.:
A	2-Way	—	4	14	54 x 20 x 38	E 684-14
	2-Way	—	6	18	64 x 30 x 45	E 684-18
	2-Way	—	8	25	78 x 40 x 57	E 684-25
B	3-Way	L	4	14	64 x 47 x 43	E 686-14
	3-Way	L	6	18	74 x 57 c 57	E 686-18
	3-Way	L	6	25	78 x 59 x 57	E 686-25
C	3-Way	T	4	14	74 x 57 x 57	E 688-14
	3-Way	T	4	18	74 x 57 x 57	E 688-18
	3-Way	T	6	25	88 x 69 x 57	E 688-25

Applications:

For distributing liquids or gases. Quick and easy disconnection of flow. Connection of tubing or tubes by means of BOLA Laboratory Screw Joints.





GL Stopcocks

» GL Stopcocks allow to work with pressure of up to max. 6 bar. Assembled with BOLA Screw Joints, they are absolutely tight and therefore also appropriate for aggressive products. «

Krzysztof Kucias » Hitec Zang GmbH

BOLA Ground Joint-GL 2-Way Stopcocks

Material: PTFE	Temperature resistance from -30°C to +150°C	Chemical resistance: +++ universal	Pressure: 6 bar	Vacuum: suitable
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Product description:

Ground joint 2-way-stopcock with straight bore and one connection with GL thread or ground joint 3-way-stopcock with T-shaped bore and two connections with GL thread. Cylindrical stopcock plug for good tightness, stop valve with mark of flow direction. Suitable for pressures up to max. 6 bar, or for vacuum. Universal chemical resistance, the flowing product is only exposed to PTFE.

NEW

FDA conform

	Type	Bore shape	Bore dia. mm	Connecting thread GL	for ground joint NS	External dimensions L / D / H mm	Cat. No.:
A	2-Wege	—	6	18	29/32	100 x 40 x 57	E 689-18
B	3-Wege	L	6	18	29/32	116 x 57 x 57	E 690-18

Applications:

For evacuation of ground joint flasks or distributing liquids or gases. Quick and easy disconnection of flow. Connection of tubing or tubes by means of BOLA Laboratory Screw Joints.





BOLA Pressure-Relief Valves with Manual Ventilation

BESTSELLER

Material: PTFE	Temperature resistance from -20°C to +150°C	Chemical resistance: +++ universal	Pressure: 10 bar	Vacuum: suitable
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Product description:

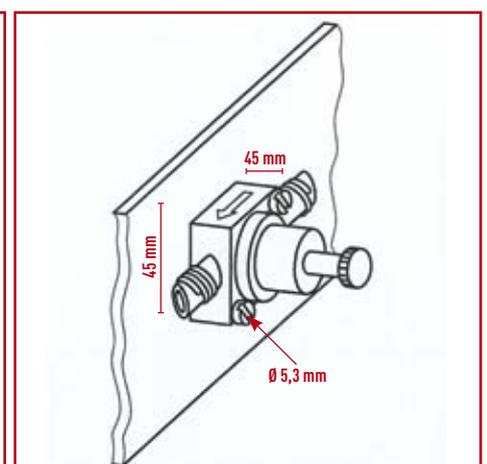
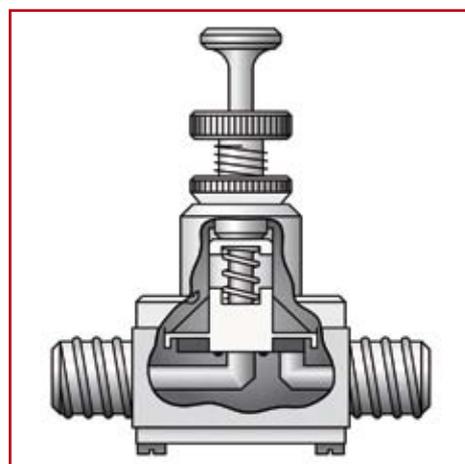
Body made of PTFE with two connections with GL 18 thread, valve made of PPS with toggle for manual ventilation by pulling and adjusting screw with counternut for adjusting and fixing of requested pressure in a range between 0,1 and 10 bar (factory setting 1,5 bar). Universal chemical resistance, the flowing product is only exposed to PTFE.

FDA conform

Connecting thread GL	Bore dia. mm	External dimensions L x D x H mm	Cat. No.:
18	6	88 x 54 x 116	E 683-18

Applications:

Pressure control valve with adjustable opening pressure. For preventing pressure drop during filling.



BOLA GL Control Valves

Material: PTFE	Temperature resistance from -200°C to +250°C	Chemical resistance: +++ universal	Pressure: 6 bar	Vacuum: suitable
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Product description:

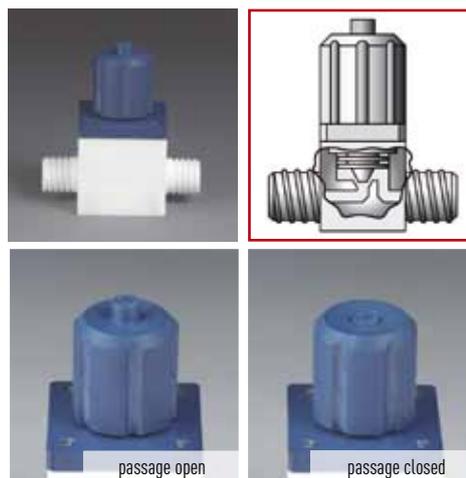
Two-way valve with straight bore and two connections with GL thread completely made of PTFE. Motionless sealing without wearing parts due to integrated bellow. For best possible tightness even with considerable thermal fluctuations, the conical nipple of the bellow is prestressed by means of a spring. The valve can be opened and closed by turning the adjusting nut; a nipple on the top indicates the angle of opening. Suitable for pressure up to max. 6 bar, suitable for vacuum. Universal chemical resistance, the flowing product is only exposed to PTFE.

FDA conform

Connecting thread GL	Bore dia. mm	External dimensions L x D x H mm	Cat. No.:
14	4	62 x 30 x 73	E 694-14
18	6	80 x 44 x 83	E 694-18

Applications:

For distributing liquids or gases. Manual regulation for constant flow. Connection of tubing or tubes by means of BOLA Laboratory Screw Joints.



BOLA GL Ball Valves

Material: PTFE	Temperature resistance from -20°C to +220°C	Chemical resistance: +++ universal	Pressure: 12 bar	Vacuum: suitable
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Product description:

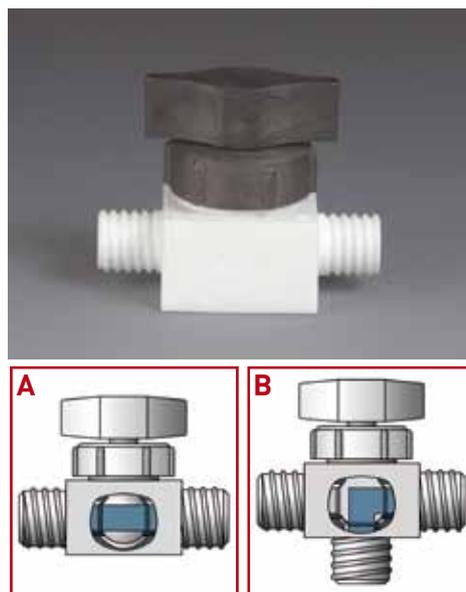
Two-way valve with straight bore and two connections with GL thread or three-way valve with L-shaped bore and three connections with GL thread. Ball-shaped stopcock plug for excellent tightness, free-moving stop valve. Suitable for pressure up to max. 12 bar, or for vacuum. Universal chemical resistance, the flowing product is only exposed to PTFE.

FDA conform

	Type	Bore shape	Bore dia. mm	Connecting thread GL	External dimensions L / D / H mm	Cat. No.:
A	2-Way	—	3	14	50 x 20 x 36	E 664-10
	2-Way	—	4	18	80 x 44 x 65	E 664-20
	2-Way	—	8	25	90 x 50 x 68	E 664-30
	2-Way	—	12	32	100 x 50 x 74	E 664-40
B	3-Way	L	3	14	50 x 20 x 52	E 667-10
	3-Way	L	4	18	80 x 40 x 90	E 667-20
	3-Way	L	8	25	90 x 50 x 98	E 667-30
	3-Way	L	12	32	100 x 50 x 106	E 667-40

Applications:

For distributing liquids or gases. Quick and easy disconnection of flow. Connection of tubing or tubes by means of BOLA Laboratory Screw Joints.



BOLA Vario Couplings

Material: PVDF	Temperature resistance from -40°C to +170°C	Chemical resistance: ++ very good	Pressure: 3 bar	Vacuum: suitable
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Product description:

Two-part coupling made of PVDF for connecting elastic tubing (e.g. Viton®, Tygon®, silicone) to hard-walled tubing made of PTFE, glass or other plastics. Easy and ingenious functioning: the elastic tubing is pushed on a cone and fixed on the coupling by means of a connecting nut. On the other side, the hard-walled tubing is connected as follows:

Flanged PTFE tubing with miniature connectors (e.g. Cat. No. F 740 page 202) is connected to a female thread UNF 1/4" 28 G

Hard-walled tubing up to a maximum O.D. of 10 mm is connected to a GL thread by means of laboratory screw joints (see page 67). Restricted chemical resistance, working temperatures up to max. +170°C.

FDA conform

	For tubing I.D. mm	For tubing wall thickness mm	Bore dia. mm	Connecting thread UNF	Cat. No.:
A	0,8	0,8 and 1,6	0,8	1/4" 28G	F 778-08
	1,6	0,8 and 1,6	1,6	1/4" 28G	F 778-16

	For tubing I.D. mm	For tubing wall thickness mm	Bore dia. mm	Connecting thread GL	Cat. No.:
B	0,8	0,8 and 1,6	0,8	14	D 681-08
	1,6	0,8 and 1,6	1,6	14	D 681-16
	3,2	1,6	3,2	14	D 681-24
	4,0 and 4,8	1,6	4,0	14	D 681-32
	6,4	1,6	6,4	18	D 681-40
	8,0 and 9,5	1,6 and 2,4	8,0	18	D 681-48

Applications:

Peristaltic pumps



Example



Example

BOLA Dirt Traps

Material: PTFE	Temperature resistance from -200°C to +250°C	Chemical resistance: +++ universal	Pressure: 10 bar	Vacuum: suitable
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Product description:

With two GL 18 threads for connecting hard-walled tubing (PTFE, PFA, FEP) or tubes with BOLA Laboratory Screw Joints. Lateral connection with plug for easy exchange of filtering membrane (thickness 0,2-3,0 mm) and for cleaning. The flow direction is marked with an arrow. Completely made of PTFE, the flowing product is only exposed to PTFE.

NEW

FDA conform

Connecting thread GL	Dia. of filtering membrane mm	Bore dia. mm	Total height mm	Cat. No.:
18	25	8	88	N 1674-18

Applications:

Protection of aggregates (pumps, valves, stopcocks, nozzles etc.) against particle contamination and damage. Metal-free, can be used under clean-room conditions. BOLA Filtering Membranes available separately (Cat. No. N 1690-28, page 224).



BOLA Adaptors for Prominent® Pumps

Material: **PTFE** Temperature resistance: **from -200°C to +250°C** Chemical resistance: **+++ universal** Pressure: **10 bar**

Product description:

Adaptor made of glass-fibre reinforced PTFE, transition from pump thread M20x1,5 to GL thread. Pressure resistant connection (max. 10 bar) of hard-walled tubing with Prominent® pumps by using BOLA Laboratory Screw Joints. Universal chemical resistance, the product is only exposed to PTFE.

FDA conform

Connecting thread GL	Bore dia. mm	Cat. No.:
14	3,0	D 730-12
18	10,5	D 730-24



BOLA GL Transition Fittings

Material: **PTFE** Temperature resistance: **from -20°C to +120°C** Chemical resistance: **+++ universal**

Product description:

Fitting made of PTFE. One side with thread GL 14 for connecting hard-walled tubing and tubes by means of BOLA Laboratory Screw Joints. Other side with female thread UNF 1/4" 28G for connecting flanged tubing with O. D. 1,6 and 3,2 mm by means of tube end fittings.

NEW

FDA conform

For tubing I.D. x O.D. mm	Bore dia. mm	Fitting Thread GL	Female Thread UNF	Total length mm	Cat.No.:
0,8 x 1,6	0,8	14	1/4" 28G	39	F 761-08
1,6 x 3,2	1,6	14	1/4" 28G	39	F 761-16



BOLA UNF Screw-in Tube Fittings

Material: **PTFE** Temperature resistance: **from -20°C to +120°C** Chemical resistance: **+++ universal**

Product description:

Straight tube fitting made of PTFE. One side with fitting thread GL 14 for connecting hard-walled tubes and tubing by means of BOLA Laboratory Screw Joints. Other side with male screw-in thread UNF 1/4" 28G for connection to units and fittings with female thread UNF 1/4" 28G.

NEW

FDA conform

For tubing I.D. x O.D. mm	Bore dia. mm	Fitting thread GL	Male thread UNF	Total length mm	Cat.-No.
0,8 x 1,6	0,8	14	1/4" 28G	39	F 763-08
1,6 x 3,2	1,6	14	1/4" 28G	39	F 763-16



BOLA Hose Connectors (with Nut)

BESTSELLER

Material:	Temperature resistance	Chemical resistance:	Vacuum:
PFA	from -200°C to +250°C	+++ universal	suitable

Product description:

GL 14 and GL 18 hose connectors made of PFA, GL 25 and GL 32 hose connectors made of PTFE. With elastic sealing lip, FPM o-ring and nut made of PPS. Available as straight or bent type. Universal chemical resistance, for working temperatures up to max. +250°C. The flowing product is only exposed to PFA or PTFE.

FDA conform

Straight type

	Thread GL	O.D. of hose connector mm	I.D. of hose connector mm	Length with nut mm	Cat. No.:
A	14	8,7	6,0	45	D 581-02
	18	10,4	7,0	51	D 581-04
	25	16,0	10,0	68	D 581-06
	32	21,0	16,0	80	D 581-08

Bent type

	Thread GL	O.D. of hose connector mm	I.D. of hose connector mm	Length with nut mm	Cat. No.:
B	14	8,7	6,0	49	D 582-02
	18	10,4	7,0	65	D 582-04

Applications:

For connecting elastic tubing to GL-threaded equipment.



BOLA INNOVATION

Hose Connectors with Sealing Lip

BOLA Hose Connectors are provided with an o-ring which is protected by a sealing lip. This o-ring can compensate unevenness on the top of the thread. The liquid is only in contact with the sealing lip.

BOLA Hose Connectors (without Nut)

Material:	Temperature resistance	Chemical resistance:	Vacuum:
PFA	from -200°C to +250°C	+++ universal	suitable

Product description:

GL 14 and GL 18 hose connectors made of PFA, GL 25 and GL 32 hose connectors made of PTFE. With elastic sealing lip and FPM o-ring. Available as straight or bent type. Universal chemical resistance, for working temperatures up to max. +250°C. The flowing product is only exposed to PFA or PTFE.

FDA conform

Straight type

	Thread GL	O.D. of hose connector mm	I.D. of hose connector mm	Length without nut mm	Cat. No.:
A	14	8,7	6,0	34	D 568-14
	18	10,4	7,0	39	D 568-18
	25	16,0	10,0	55	D 568-25
	32	21,0	16,0	65	D 568-32

Bent type

	Thread GL	O.D. of hose connector mm	I.D. of hose connector mm	Length without nut mm	Cat. No.:
B	14	8,7	6,0	40	D 569-14
	18	10,4	7,0	54	D 569-18



BOLA Hose Connectors (with Nut)

Material: PP	Temperature resistance from -20°C to +110°C	Chemical resistance: ++ very good	Vacuum: suitable
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Product description:

Hose connectors made of PP, with elastic sealing lip, FPM o-ring and nut made of PBTP. Available as straight or bent type. Restricted chemical resistance, for working temperatures up to max. +110°C. The flowing product is only exposed to PP.

FDA conform

Straight type

	Thread GL	O.D. of hose connector mm	I.D. of hose connector mm	Length with nut mm	Cat. No.:
A	14	8,8	6,0	46	D 585-14
	18	10,8	7,0	52	D 585-18
	25	16,0	10,0	68	D 585-25

Bent type

	Thread GL	O.D. of hose connector mm	I.D. of hose connector mm	Length with nut mm	Cat. No.:
B	14	8,8	6,0	51	D 586-14
	18	10,8	7,0	66	D 586-18

Applications:

For connecting elastic tubing to GL-threaded equipment.



BOLA Hose Connectors (without Nut)

Material: PP	Temperature resistance from -20°C to +110°C	Chemical resistance: ++ very good	Vacuum: suitable
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Product description:

Hose connectors made of PP, with elastic sealing lip and FPM o-ring. Available as straight or bent type. Restricted chemical resistance, for working temperatures up to max. +110°C. The flowing product is only exposed to PP.

FDA conform

Straight type

	Thread GL	O.D. of hose connector mm	I.D. of hose connector mm	Length without nut mm	Cat. No.:
A	14	8,8	6,0	36	D 583-14
	18	10,8	7,0	40	D 583-18
	25	16,0	10,0	55	D 583-25

Bent type

	Thread GL	O.D. of hose connector mm	I.D. of hose connector mm	Length without nut mm	Cat. No.:
B	14	8,8	6,0	41	D 584-14
	18	10,8	7,0	56	D 584-18



The BOLA GL Screw Joint System "EX" – A safe protection against electrostatic charging



By adding conductive particles, these components become electroconductive and can be used for explosive applications.

The flowing products can for example be aggressive or combustible liquids or gases.

For function and assembly, please look at the GL Screw Joint System on page 64 which is constructed in the same way.

Electric conductivity

The surface resistance of these components is:
PTFE-EX and PPS-EX: approx. 10^4 Ohm

Flammability

PTFE-EX and PPS-EX are inherently flame-retardant and self-extinguishing. The oxygen index (LOI-value) stands for the oxygen content in the ambient atmosphere in which a material continues burning after inflaming without additional energy source. The oxygen index of PTFE-EX is approx. 95%, the oxygen index of PPS-EX is approx. 50%. Both materials do not burn under normal conditions since the oxygen content of air is 21%.

UV protection

The materials are black and therefore UV-resistant. They can be used for products which react to UV rays.

Chemical resistance

Due to the addition of conductive pigments (e.g. electrographic carbon), the components may be attacked by strongly oxidizing products such as acids, caustic solutions or halogens.

Earthing

The complete system must be earthed professionally. It is advantageous to roughen the surface around the earthing clip to improve the contact (see page 118).

Identification of EX Screw Joints

BOLA components with conductive particles can be identified by their black colour. The caps can be identified by the "EX" mark.

An attrition test on paper can also help. The component is rubbed slightly on a white piece of paper. A colouration indicates that the component has conductive particles.

BOLA Laboratory Screw Joints EX

Material: PTFE EX	Material: PPS EX	Temperature resistance from -200°C to +200°C	Chemical resistance: ++ very good	Pressure: 10 bar	Vacuum: suitable	Conductivity: 10^4 Ohm
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Product description:

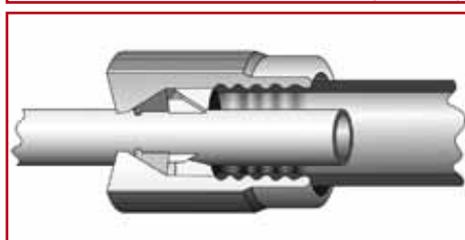
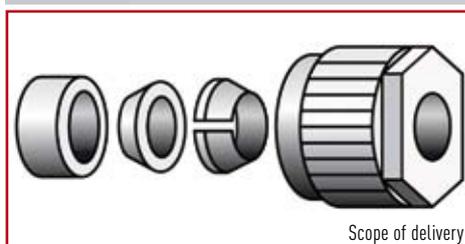
Screw cap made of conductive black PPS-EX reinforced with glass fibres, inner parts made of conductive PTFE-EX

NEW

For tubing O.D. mm	Thread GL	Cat. No.:
4	14	D 840-66
6	14	D 840-74
4	18	D 841-46
6	18	D 841-54
8	18	D 841-62
10	18	D 841-74
8	25	D 842-62
10	25	D 842-74
12	25	D 842-80
14	25	D 842-90

Applications:

Connecting equipment and fittings with GL threads with hard-walled tubing or tubes made of glass, plastic or metal. Fixing probes, thermometers, dip tubes or cables in reaction vessels.



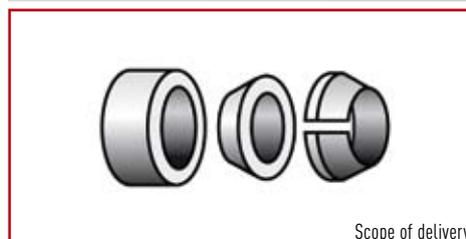
BOLA Replacement Inner Parts EX

Material: PTFE EX	Material: PPS EX	Temperature resistance from -200°C to +200°C	Chemical resistance: ++ very good	Pressure: 10 bar	Vacuum: suitable	Conductivity: 10⁴ Ohm
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Product description:
Made of conductive PTFE-EX.

NEW

For tubing O.D. mm	Thread GL	Cat. No.:
4	14	D 848-66
6	14	D 848-74
4	18	D 849-46
6	18	D 849-54
8	18	D 849-62
10	18	D 849-74
8	25	D 850-62
10	25	D 850-74
12	25	D 850-80
14	25	D 850-90



Scope of delivery

BOLA Replacement Caps EX

Material: PPS EX	Temperature resistance from -200°C to +200°C	Chemical resistance: ++ very good	Conductivity: 10⁴ Ohm
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Product description:
Black screw cap made of glass-fibre PPS-EX, with handy knurl and hexagon.

NEW

Thread GL	From tubing O.D. to tubing O.D. mm	Cat. No.:
14	0,8 - 6,0	D 846-10
18	0,8 - 10,0	D 846-20
25	0,8 - 10,0	D 846-30
25	10,1 - 14,0	D 846-34



BOLA BOLA GL Tube Fittings EX

Material: PTFE EX	Temperature resistance from -200°C to +200°C	Chemical resistance: ++ very good	Pressure: 10 bar	Vacuum: suitable	Conductivity: 10⁴ Ohm
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Product description:

Straight tube fitting made of PTFE-EX, two connections with GL thread.
Connection of tubing or tube with BOLA Laboratory Screw Joints EX.

NEW

Thread GL	Bore dia. mm	Length without screw joint mm	Wrench size hexagon mm	Cat. No.:
14	6,5	50	15	D 856-14
18	10,5	50	19	D 856-18
25	14,5	56	27	D 856-25

Applications:

For distributing liquids or gases. As reduction for connecting different diameters of tubes or tubing.



Tube Fittings EX

» BOLA Tube Fittings EX are electro conductive and chemically inert at the same time. They can be used with inflammable liquids or gas in explosive areas. «

Hans Kneuss » Glass Technology

BOLA GL Tube Fittings T EX

Material: PTFE EX	Temperature resistance from -200°C to +200°C	Chemical resistance: ++ very good	Pressure: 10 bar	Vacuum: suitable	Conductivity: 10⁴ Ohm
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Product description:

Tube fitting T-shaped made of PTFE-EX, three connections with GL thread.
Connection of tubing or tube with BOLA Laboratory Screw Joints EX.

NEW

Thread GL	Bore dia. mm	Length without screw joint mm	Wrench size square mm	Cat. No.:
14	6,5	50	20	D 857-14
18	10,5	56	20	D 857-18
25	14,5	70	27	D 857-25

Applications:

For distributing liquids or gases. As reduction for connecting different diameters of tubes or tubing.



BOLA GL Tube Fittings Elbow EX

Material: PTFE EX	Temperature resistance from -200°C to +200°C	Chemical resistance: ++ very good	Pressure: 10 bar	Vacuum: suitable	Conductivity: 10⁴ Ohm
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Product description:

Tube fitting elbow-shaped made of PTFE-EX, two connections with GL thread. Connection of tubing or tube with BOLA Laboratory Screw Joints EX.

NEW

Thread GL	Bore dia. mm	Length without screw joint mm	Wrench size square mm	Cat. No.:
14	6,5	37	20	D 858-14
18	10,5	39	20	D 858-18
25	14,5	51	27	D 858-25

Applications:

For distributing liquids or gases. As reduction for connecting different diameters of tubes or tubing.



BOLA
Practical Tipp

Marion Stoppel » construction

Don't fear blocked passage bores:

The special construction of our fittings does not allow tubing to be pushed in too far.

BOLA GL Tube Fittings Cross EX

Material: PTFE EX	Temperature resistance from -200°C to +200°C	Chemical resistance: ++ very good	Pressure: 10 bar	Vacuum: suitable	Conductivity: 10⁴ Ohm
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Product description:

Tube fitting cross-shaped made of PTFE-EX, four connections with GL thread. Connection of tubing or tube with BOLA Laboratory Screw Joints EX.

NEW

Thread GL	Bore dia. mm	Length without screw joint mm	Wrench size square mm	Cat. No.:
14	6,5	54	20	D 859-14
18	10,5	56	20	D 859-18
25	14,5	70	27	D 859-25

Applications:

For distributing liquids or gases. As reduction for connecting different diameters of tubes or tubing.



BOLA Multiple Distributors for Bottles EX

Material: PTFE EX	Material: PPS EX	Temperature resistance from -200°C to +200°C	Chemical resistance: ++ very good	Pressure: 10 bar	Vacuum: suitable	Conductivity: 10⁴ Ohm
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Product description:

Black screw cap made of conductive PPS-EX for bottle thread GL 45, body made of conductive PTFE-EX. Insertion of tubing with a max. O.D. of 8 mm. Connection of tubing or tube with BOLA Laboratory Screw Joints EX.

Detailed information about distributors which are identical in construction can be found on page 72.

NEW

Necks GL	Cat. No.:
2 x 14	D 864-08
3 x 14	D 865-08

Applications:

Drawing or inserting aggressive or pure liquids. Inserting tubing, tubes and probes into vessels.



BOLA GL-Stopcocks EX

Material: PTFE EX	Material: PPS EX	Temperature resistance from -200°C to +200°C	Chemical resistance: ++ very good	Pressure: 6 bar	Vacuum: suitable	Conductivity: 10⁴ Ohm
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Product description:

Two-way stopcock made of conductive PTFE-EX with straight bore and two connections with GL thread or three-way stopcock with L-shaped or T-shaped bore and three connections with GL thread. Cylindrical stopcock plug made of conductive PTFE-EX for good tightness, stop valve with mark of flow direction. Grip made of red PP. Suitable for pressure up to max. 6 bar, suitable for vacuum. Connection of tubing or tube with BOLA Laboratory Screw Joints EX.

NEW

Type	Bore shape	Bore dia. mm	Connecting thread GL	External dimensions L / D / H mm	Cat. No.:
A	—	4	14	54 x 20 x 38	E 712-14
2-Way		6	18	64 x 30 x 45	E 712-18
2-Way		8	25	78 x 40 x 57	E 712-25
B	L	4	14	64 x 47 x 43	E 714-14
3-Way		6	18	74 x 57 c 57	E 714-18
3-Way		6	25	78 x 59 x 57	E 714-25
C	T	4	14	74 x 57 x 57	E 716-14
3-Way		4	18	74 x 57 x 57	E 716-18
3-Way		6	25	88 x 69 x 57	E 716-25

Applications:

For distributing liquids or gases. Quick and easy disconnection of flow.

