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**Chemical and Pharmaceutical
sector, Industries and
Research**



**Modular System for
Reactor Lids**

page 2



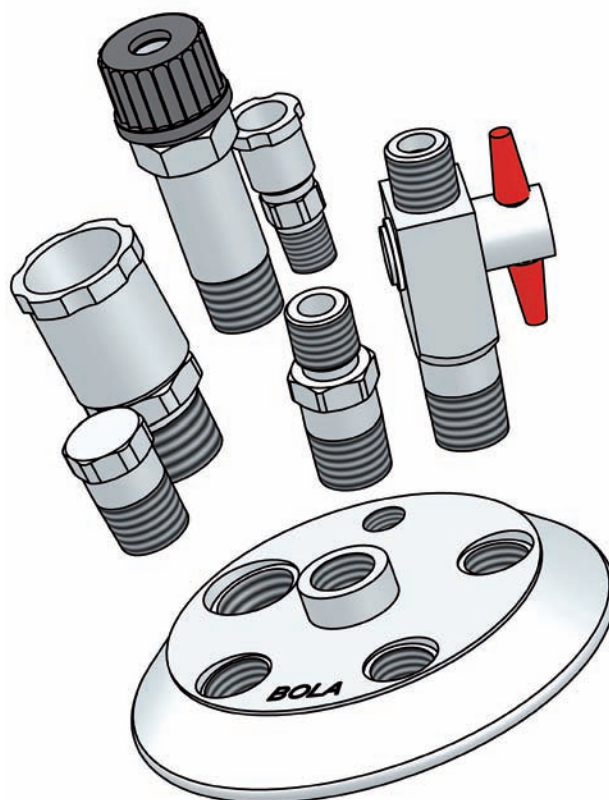
**Flat Flange Distillation Apparatus
PTFE and PFA**

page 10

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BOLA Modular System for Reactor Lids

2



Worth knowing on the BOLA Modular System for Reactor Lids

For a short-term realisation of projects in Mini plant installations or in the production of small quantities in chemical and pharmaceutical industry and research, special components are required that help to start up existing reactors flexibly. The components should have a very good chemical resistance, a permanent durability and should be easily cleanable at the same time.

All these requirements are met by the BOLA Modular System for Reactor Lid. Furthermore, the lids are fully compatible with standard glass reaction vessels with flat flange and clamps from SCHOTT for sizes DN 60, DN 100 and DN 150.

The Modular System consists of Reactor Lids with different screw-in threads as well as different connections for transition to ground joint components, as stirrer bearings, for connection of probes or tubes and tubing, and stoppers, all with NPT screw-in thread.

By means of the screw-in connections, the Reactor Lid can be arranged to the requirements of your application and project. Thus, a lid can be used most versatile and economic.

All Reactor Lids dispose of a centric screw-in thread NPT for connection of a stirrer bearing. The lateral necks, that even dispose of NPT screw-in threads, are arranged round the centric connector. The special clou is that the angles of lateral necks are made for an insertion of probes and tubes aside the centre in order to avoid collisions with the stirrer shaft and further inserted components.

The large choice of different inserts allows to connect existing equipment with ground joint such as Liebig condensers and dropping funnels as well as GL thread such as lead-in for sensors. The already existing equipment can be further used.



All features at a glance:

- » Easy assembly
- » Flexibly expandable
- » Compatible with glass reactors with SCHOTT®-flat flange
- » Completely made of PTFE, universal chemical resistance
- » With connectors for the use of existing equipment with ground joint or GL thread
- » Also as conductive version made of PTFE-EX

Selection and Assembly:

- » Choose a lid that fits onto the flange of your glass reactor, as well as the number of connectors needed.
- » Choose the necessary transition fittings according to NPT threads in the chosen lid.
- » Mount the transition fittings into the connectors of the reactor lid. The lid is now ready for service.
- » All fittings can be acquired separately and can be exchanged amongst each other depending on the NPT thread.

Custom Manufacture – Lid and Fitting

If we do not even have the correct reactor lid in our wide range, we are pleased to offer you a modified reactor lid or modified components accordingly. Just give us a call: +49 (0) 9346 9286-0 or send us a little sketch with the requested component by e-mail to info@bola.de.

z.B. **Reactor Lid DN 100**

A Moon-shaped Stirrer Shaft
Cat. No.: C 376-14

B Screw-in Stirrer Bearing
Cat. No.: B 155-08

C Screw-in Connector with
Ground Joint
Cat. No.: B 154-02

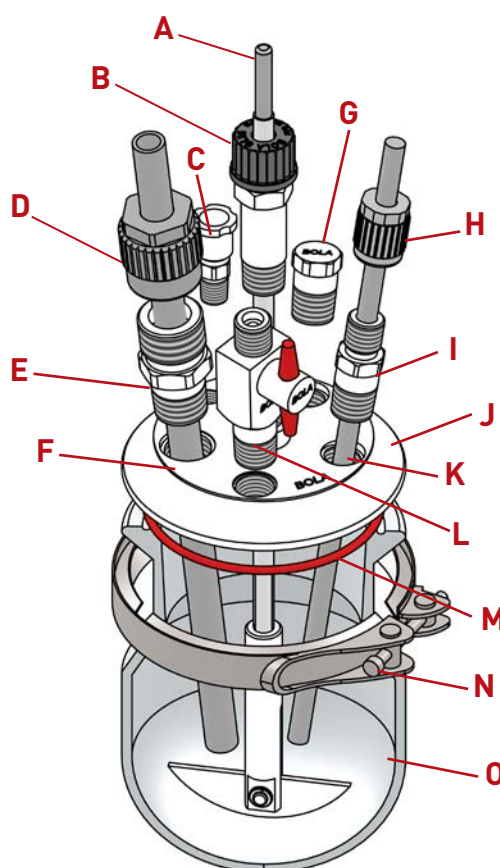
D Laboratory Screw Joint
Cat. No.: D 631-46

E Screw-in Fitting GL
Cat. No.: B 152-32

F PTFE Tubing
Cat. No.: S 1810-50

G Screw-in Stopper
Cat. No.: B 153-04

H Laboratory Screw Joint
Cat. No.: D 629-62



I Screw-in Fitting GL
Cat. No.: B 152-18

J Reactor Lid DN100
Cat. No.: B 150-14

K Temperature Probe Lemo
Cat. No.: P 1760-20

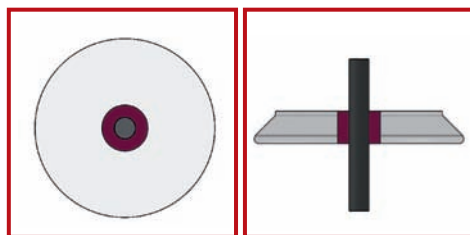
L Screw-in Stopcock
Cat. No.: B 156-02

M O-Ring for flat flange
Cat. No.: H 969-25

N Clamp
Cat. No.: B 277-03

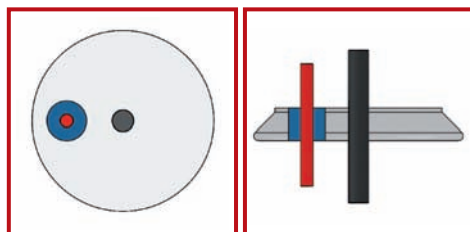
O Flat Flange Reaction Vessels
Cat. No.: B 271-09

Thread connections in detail:



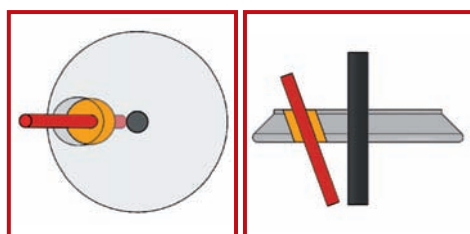
Centric thread connection (purple):

For insertion of the stirrer bearing (see page 6)



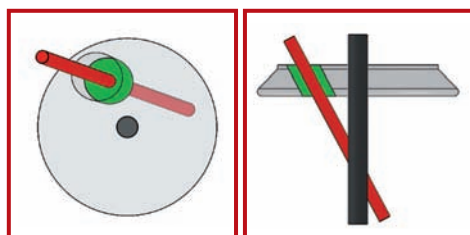
Vertical thread connection with parallel alignment to the stirrer shaft (blue):

Components such as probes can be led into the reactor parallel to the stirrer shaft.



Inclined thread connection with direction straight to the stirrer shaft (yellow):

Components such as tubes and tubing can be led directly to the stirrer shaft to achieve an optimal mixing of the medium.



Inclined thread connection with direction aside the shaft (green):

Collisions of long components such as temperature probes are avoided as they are led aside the stirrer shaft by means of this thread connection.

BOLA Reactor Lid DN 60

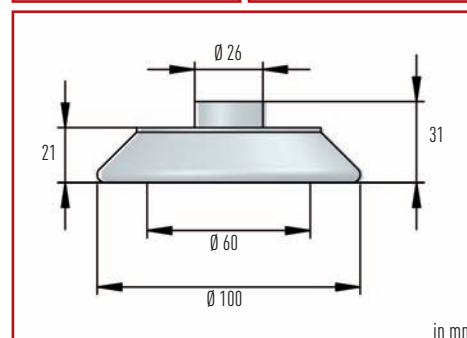
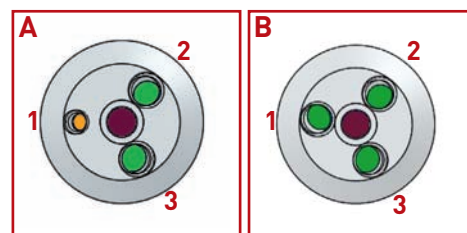
Material: PTFE
Temperature resistance: from -200°C to +250°C
Chemical resistance: +++ universal

Product description:

Suitable for glass reactors DN 60 with SCHOTT® flat flange. With screw-in threads for connection of transition fittings and a center neck NPT 1/2".

FDA conform

	1 Connection	2 Connection	3 Connection	Cat. No.:
A	NPT 1/4" connection directly to the shaft	NPT 1/2" connection aside the shaft	NPT 1/2" connection aside the shaft	B 150-02
B	NPT 1/2" connection aside the shaft	NPT 1/2" connection aside the shaft	NPT 1/2" connection aside the shaft	B 150-04



in mm

BOLA Reactor Lid DN 100

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

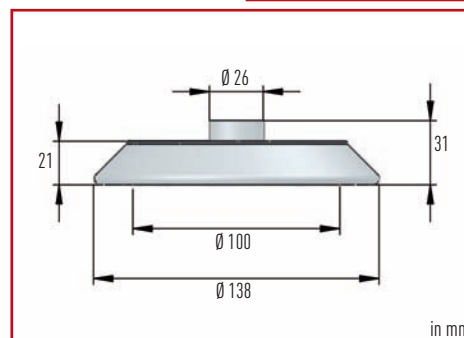
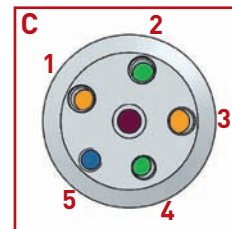
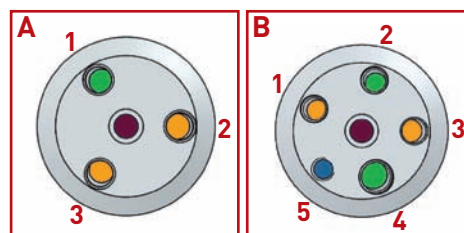
Product description:

Suitable for glass reactors DN 100 with SCHOTT® flat flange. With screw-in threads for connection of transition fittings and a center neck NPT 1/2".

FDA conform

	1 Connection	2 Connection	3 Connection	4 Connection	5 Connection	Cat. No.:
A	NPT 1/2" connection aside the shaft	NPT 1/2" connection directly to the shaft	NPT 1/2" connection directly to the shaft	—	—	B 150-12
B	NPT 1/2" connection directly to the shaft	NPT 1/2" connection aside the shaft	NPT 1/2" connection directly to the shaft	NPT 3/4" connection aside the shaft	NPT 1/4" vertical connection	B 150-14
C	NPT 1/2" connection directly to the shaft	NPT 1/2" connection aside the shaft	NPT 1/2" connection directly to the shaft	NPT 1/4" connection aside the shaft	NPT 1/4" vertical connection	B 150-16

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BOLA Reactor Lid DN 150

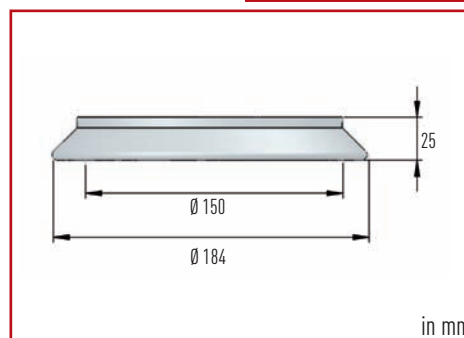
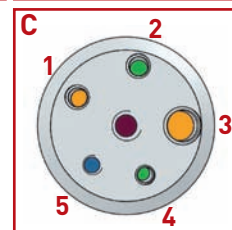
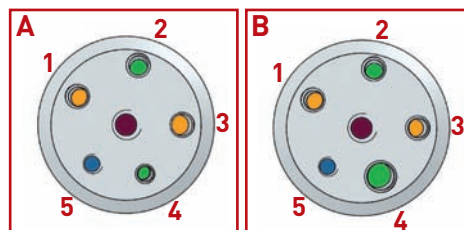
Material: PTFE
 Temperature resistance: from -200°C to +250°C
 Chemical resistance: +++ universal

Product description:

Suitable for glass reactors DN 150 with SCHOTT® flat flange. With screw-in threads for connection of transition fittings and a center neck NPT 1/2".

FDA conform

	1 Connection	2 Connection	3 Connection	4 Connection	5 Connection	Cat. No.:
A	NPT 1/2" connection directly to the shaft	NPT 1/2" connection aside the shaft	NPT 1/2" connection directly to the shaft	NPT 1/4" connection aside the shaft	NPT 1/4" vertical connection	B 150-22
B	NPT 1/2" connection directly to the shaft	NPT 1/2" connection aside the shaft	NPT 1/2" connection directly to the shaft	NPT 3/4" connection aside the shaft	NPT 1/4" vertical connection	B 150-24
C	NPT 1/2" connection directly to the shaft	NPT 1/2" connection aside the shaft	NPT 1" connection directly to the shaft	NPT 1/4" connection aside the shaft	NPT 1/4" vertical connection	B 150-26



BOLA Screw-in Stirrer Bearings

Material:	Temperature resistance:	Chemical resistance:
PTFE	from -15°C to +200°C	+++ universal

Product description:

For centric guidance of stirrer shafts in the center screw-in thread of BOLA Reactor Lids. A special gasket made of PTFE and a FKM o-ring which is compressed by a GL screw cap made of PPS provide a good sealing of the stirrer shaft. With hexagonal gripping surface in standard wrench size. Universal chemical resistance, the medium is only exposed to PTFE.

FDA conform

Screw-in thread NPT (male)	For stirrer shaft dia. mm	Thread of screw cap GL	Wrench size SW	Cat. No.:
1/2"	6	25	25	B 155-06
1/2"	8	25	25	B 155-08
1/2"	10	25	25	B 155-10

Applications:

For assembly on BOLA Reactor Lids, Cat. No. B 150-... from page 4. Perfect bearing for centric guidance of glass, stainless steel and PTFE-coated stirrer shafts. Suitable spare parts for the stirrer bearing see BOLA Special Gaskets and BOLA Replacement Screw Caps.



BOLA Screw-in Fittings GL

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

Product description:

For connection to BOLA Reactor Lids as GL necks. With hexagonal gripping surface in standard wrench size.

FDA conform

Screw-in thread NPT (male)	Neck GL (male)	Wrench Size SW	Cat. No.:
1/4"	14	15	B 152-14
1/4"	18	15	B 152-16
1/2"	18	22	B 152-18
1/2"	25	22	B 152-20
3/4"	32	32	B 152-32
1"	45	45	B 152-45

Applications:

For assembly on BOLA Reactor Lids, Cat. No. B 150-... from page 4. For connection of hard-walled tubes, tubing and probes by means of BOLA Laboratory Screw Joints.



BOLA Screw-in Stopcocks

Material: PTFE Temperature resistance: from 0°C to +110°C Chemical resistance: +++ universal

Product description:

For connection to screw-in threads on BOLA Reactor Lids to interrupt the flow of connected tubes. Available as two-way stopcock with straight bore and one GL-threaded connection or as three-way stopcock with L-bore and two GL-threaded connections. Cylindrical stopcock plug with grip made of PP for good tightness, stop valve with mark of flow direction. Universal chemical resistance, the flowing product is only exposed to PTFE.

FDA conform

	Screw-in Thread NPT (male)	Type	Bore shape stopcock	Connecting thread GL	Bore dia. mm	Cat. No.:
A	1/2"	2-Way	—	18	6	B 156-02
B	1/2"	3-Way	L	18	6	B 156-08

Applications:

For assembly on BOLA Reactor Lids, Cat. No. B 150-... from page 4. For inserting liquids and gases. Quick and easy disconnection of flow. Connection of tubing or tubes by means of BOLA Laboratory Screw Joints.



BOLA Screw-in Connector with Ground Joint

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

Product description:

For connection to BOLA Reactor Lids. Connector with ground socket. With hexagonal gripping surface in standard wrench size.

FDA conform

	Screw-in Thread NPT (male)	Ground Socket NS	Wrench Size SW	Cat. No.:
	1/4"	14/23	15	B 154-02
	1/2"	19/26	22	B 154-04
	1/2"	29/32	24	B 154-06
	3/4"	29/32	30	B 154-08
	1"	29/32	34	B 154-10
	1"	45/40	38	B 154-12

Applications:

For assembly on BOLA Reactor Lids, Cat. No. B 150-... from page 4. For connection to existing components with ground joint such as Liebig Condensers, Dropping Funnels etc.



BOLA Screw-in Stopper

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

Product description:

For connection to BOLA Reactor Lids. For closure of non-used connectors.
With hexagonal gripping surface in standard wrench size.

FDA conform

Screw-in thread NPT (male)	Wrench size SW	Cat. No.:
1/4"	15	B 153-02
1/2"	22	B 153-04
3/4"	32	B 153-06
1"	45	B 153-08

Applications:

For assembly on BOLA Reactor Lids, Cat. No. B 150-... from page 4.



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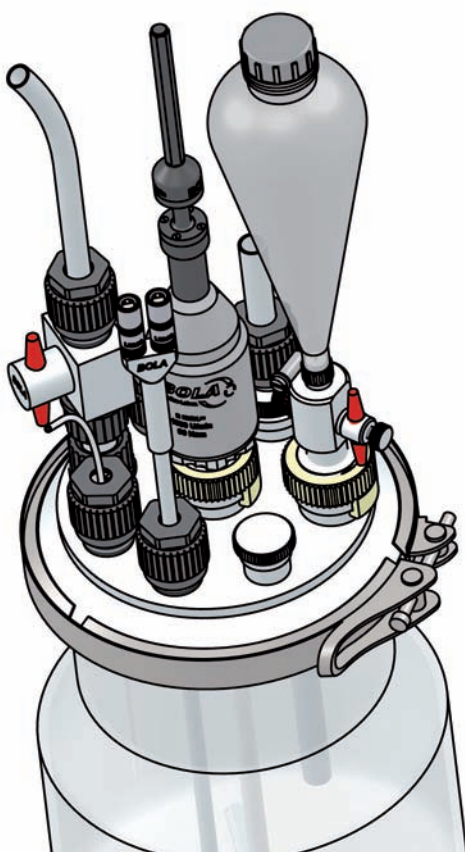


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BOLA Flat Flange Distillation Apparatus

10



Worth knowing on the BOLA Flat Flange Distillation Apparatus

For distillation of superalkaline or acid media and very aggressive solvents, reaction vessels made of PTFE are used because glass can corrode. All accessories for BOLA Flat Flange Distillation Apparatuses respectively their parts coming into contact with the medium are made of chemically highly resistant fluoroplastics PTFE or PFA and thus offer optimal chemical resistance and are suitable for long-term use and easily cleanable. The reaction vessel and lid are produced conform to standards and are compatible with SCHOTT® Flat Flange DN 60, DN 100 and DN 150 which allows to use existing fixing clamps.

All BOLA Flat Flange Lids have center neck with ground joint so that you can assemble any stirrer bearing or Magnetic Stirrer Head from BOLA. Depending on the model, the lateral necks are made with GL thread or ground joint socket. Any components such as Liebig Condensers, Dropping Funnels, tubes or probes can be easily inserted into the reactor and fixed at the requested height by means of suitable laboratory screw joints.

For heating the vessel, we recommend a thermostat or an electric heating jacket. Please consider that the vessel is not heated over 200 °C.

The special clou – the Safe-Lab-System:

All components for BOLA Flat Flange Distillation Apparatuses with ground joint socket are additionally equipped with the Safe-Lab-System. Safe-Lab consists of the Safe-Lab Nut and the suitable thread on the accessory. The nut is put on the ground joint socket. By turning the nut, the accessory is fixed on the ground joint.

The Safe-Lab Nut allows easy disassembly of even stuck connections. The special nut has to be turned clockwise. The power is enforced by the thread pitch and is transferred axially to the socket. The ground joint is released.



All features at a glance:

- Easy assembly
- Flexibly expandable – large choice of BOLA Accessories with ground joint or GL thread
- Dimensions as per flat flange connections from SCHOTT®
- Completely made of PTFE, universal chemical resistance

Selection and Assembly:

- Choose a vessel with flat flange in the requested size
- Choose a lid and a sealing suitable for the vessel and with the requested connectors
- If necessary, you will find further accessories in our catalogue: Stirrer Shafts, Magnetic Stirrer Heads, Laboratory Screw Joints, Swivelling Screw Fittings; Bellows and Ground Joint Fittings

Custom Manufacture – Lid and Vessel custom-made

Your Flat Flange Reaction Vessel needs a bottom outlet valve or you need other or further connectors? We are pleased to offer you a modified Lid or Vessel accordingly. Just give us a call: +49 (0) 9346 9286-0 or send us a little sketch with the requested component by e-mail to info@bola.de

Example: **Flat Flange Distillation Apparatus DN 150, 4.000 ml**

A Globe Stirrer Coupling
Cat.No.: C 399-12

B Replacement Screw Cap
Cat.No.: D 634-30

C PTFE Tubing
Cat.No.: S 1810-68

D Laboratory Screw Joint
Cat.No.: D 630-90

E GL-2 Way Stopcock
Cat.No.: E 684-25

F Threaded Coupling
Cat.No.: H 900-03

G PTFE Tubing
Cat.No.: S 1810-26

H Laboratory Screw Joint
Cat.No.: D 630-42

I Flat Flange Lid
Cat.No.: B 210-22

J Dropping Funnel
Cat.No.: B 285-02

K Magnetic Stirrer Head
Cat.No.: C 520-28

L Laboratory Screw Joint
Cat.No.: D 630-90

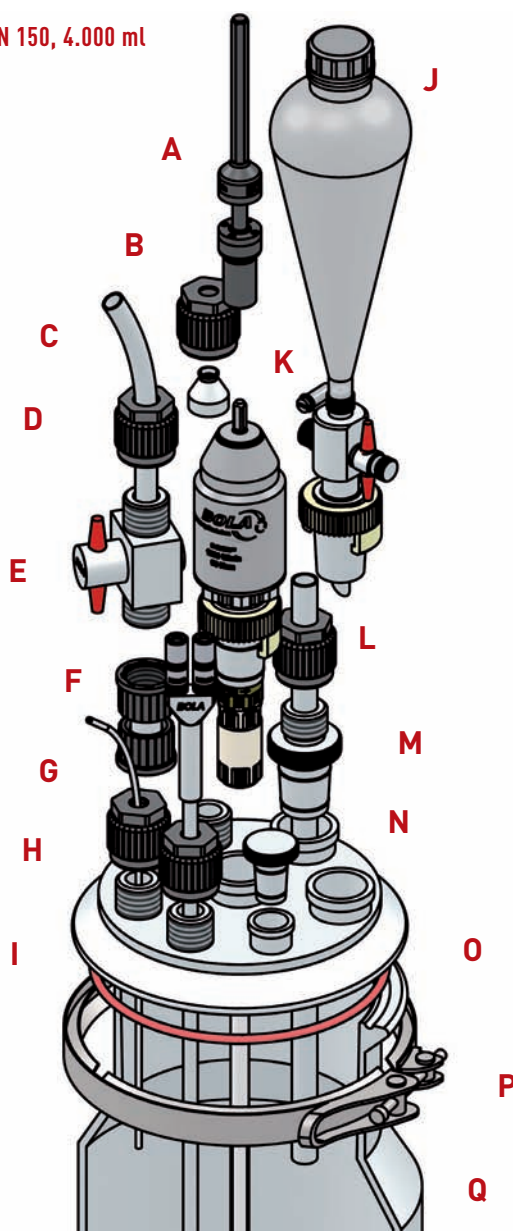
M Ground Joint-GL-Fitting
Cat.No.: D 570-32

N Stopper
Cat.No.: H 936-05

O O-Ring for flat flange
Cat.No.: H 969-55

P Clamp
Cat.No.: B 277-05

Q Flat Flange Reaction Vessel
Cat.No.: B 271-12



BOLA Flat Flange Distillation Apparatus PTFE

BOLA Flat Flange Reaction Vessels

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

Product description:

Made of PTFE, thick wall with round bottom and smooth interior surface. Flat flange with circular groove as per DIN 12 214. Can be heated by a thermostat or an electrical heating mantle.

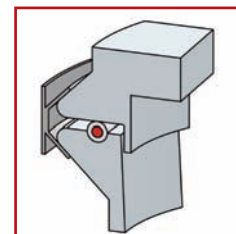
NEW

FDA conform

Flat flange DN	Capacity ml	O.D. of vessel mm	Total height mm	Cat. No.:
60	250	100	125	B 271-01
100	500	110	120	B 271-03
100	1000	110	205	B 271-06
100	2000	140	270	B 271-09
150	4000	200	290	B 271-12
150	6000	215	320	B 271-15

Applications:

Suitable O-ring seal with silicone core and seamless FEP-coating is separately available, Cat. No. H 969-...



BOLA Flat Flange Lids

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

Product description:

Suitable for reaction vessels with SCHOTT® flat flange, with center neck socket NS 29/32, lateral necks with ground joint socket or GL-thread. Bottom side with centring collar for non-slipping alignment on the vessel. All lateral connectors are made to insert tubing, tubes and probes either aside the center or vertical (parallel to the stirrer shaft) in order to avoid collisions.

NEW

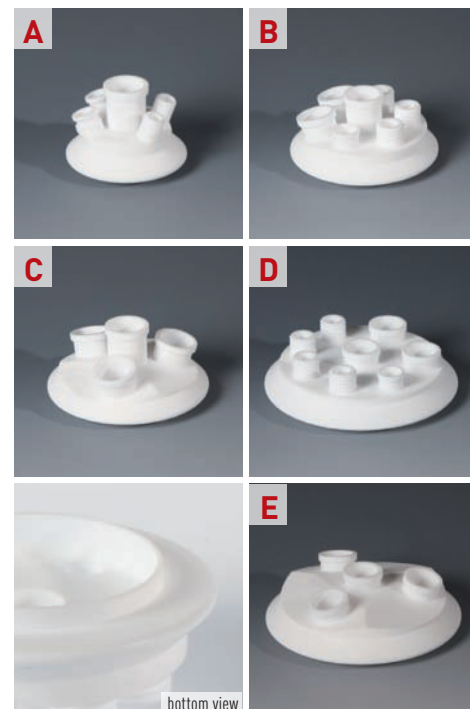
FDA conform

	Flat flange DN	Lateral necks NS	Lateral necks GL	Cat. No.:
A	60	2x 14/23 aside the shaft	2x 18 aside the shaft	B 210-02
B	100	2x 29/32 aside the shaft 1x 19/26 vertical	3x 25 vertical	B 210-12
C	100	3x 29/32 aside the shaft		B 210-14
D	150	2x 29/32 vertical 1x 19/26 vertical	4x 25 vertical	B 210-22
E	150	3x 29/32 aside the shaft		B 210-24

Applications:

Enlargement of our Distillation Apparatus with all necessary accessories. Tubing, tubes and probes can be fixed safely in the GL-threaded sockets by using BOLA Laboratory Screw Joints.

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



BOLA Quick Release Clamps for Flat Flange Vessels

Material:

Stainless steel

Product description:

Made of stainless steel, readjustable clamp with three retaining segments.

NEW

Flat Flange DN			Cat. No.:
60			B 277-01
100			B 277-03
150			B 277-05

Applications:

For safe connection of vessel and lid with flat flange.



BOLA O-Rings for Laboratory Flat Flanges

Material:

FEP

Temperature resistance:

from -60°C to +205°C

Chemical resistance:

++ very good

Product description:

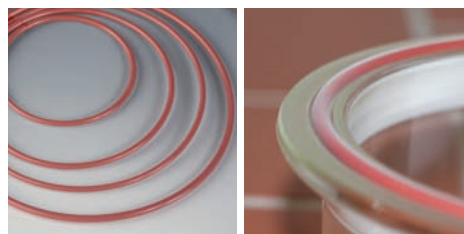
Silicone core with seamless FEP coating; manufactured according to DIN 12214:1996-12; flexible, almost universal chemical resistance.

FDA conform

For flat flange NW	Dimensions mm		Cat. No.:
60	75 x 4		H 969-18
100	110 x 4		H 969-25
120	132 x 4		H 969-45
150	155 x 5		H 969-55
200	214 x 5		H 969-75

Applications:

As sealing for flat flange with groove.



BOLA Flat Flange Joining Pieces

Material:

Stainless steel

Product description:

Made of stainless steel, connection between reaction vessel and lid. Locked by stainless steel screws with spring element and screw nuts.

For flange NW	Number of screws		Cat. No.:
100	6		B 284-02
150	6		B 284-04



BOLA Flat Flange Distillation Apparatus PFA

BOLA Flat Flange Vessels

Material:	Temperature resistance:	Chemical resistance:	Transparency:
PFA	from -200 °C to +250 °C	+++ universal	transparent

Product description:

Made of transparent PFA; model with flat bottom and pore-free surface. Flange with circular groove. Heatable with thermostats or in a heating hood.

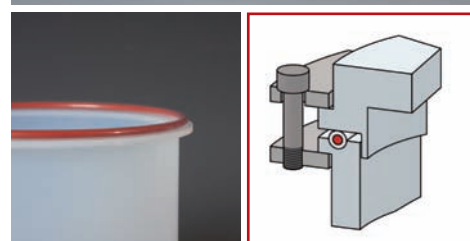
NEW

FDA conform

Flange NW	Volume ml	Vessel O.D. mm	Total height mm	Cat. No.:
170/146	2400	150	150	B 325-01

Applications:

Suitable FEP-coated silicone o-ring see Cat. No. H 969-55.



BOLA Flat Flange Lid

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

Product description:

Suitable for reactor made of PFA (Cat. No. B 325-01), with center neck socket NS 29/32 and three lateral necks with ground joint sockets. Bottom side with centring collar for non-slipping alignment on the reactor. All lateral connectors are made for an insertion of tubes and probes aside the centre in order to avoid collisions.

NEW

FDA conform

Flange NW	Lateral Necks NS	Cat. No.:
170/146	3x 29/32 aside the shaft	B 326-01

Applications:

Enlargement of our Distillation Apparatus with all necessary accessories.



BOLA Flat Flange Joining Pieces

Material:
Aluminium

Product description:

Made of aluminium, connection between reaction vessel and lid. Locked by zinc-plated steel screws.

For flange NW	Number of screws	Cat. No.:
170/146	8	B 323-01



BOLA Dropping Funnels

Material: PTFE, FEP	Temperature resistance: from 0°C to +110°C	Chemical resistance: +++ universal	Transparency: transparent
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Product description:

Dropping funnel made of transparent FEP, fine adjustment stopcock with cone NS 29/32 made of PTFE. Integrated special nut (Safe-Lab) for easy locking and unlocking of the ground joint.

FDA conform

Capacity ml			Cat. No.:
125			B 285-01
250			B 285-02
500			B 285-03



BOLA Liebig Condensers “Transparent”

Material: PTFE, PFA	Temperature resistance: from -20°C to +110°C	Chemical resistance: +++ universal	Transparency: transparent
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Product description:

Thin-walled cooling tube made of translucent and gastight PFA, cooling jacket made of borosilicate glass with hose connectors made of PP and nuts for connection of cooling water, ground joint cone and socket NS 29/32 made of PTFE. The distillate is only exposed to PFA/PTFE. Integrated special nut (Safe-Lab) for easy locking and unlocking of the ground joint.

FDA conform

Length mm			Cat. No.:
300			B 291-02
450			B 291-04
600			B 291-06



BOLA Liebig Condensers “Vacuum”

Material: PTFE	Temperature resistance: from -20°C to +250°C	Chemical resistance: +++ universal	Vacuum: suitable
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Product description:

One-piece cooling tube with ground joint socket and cone NS 29/32 made of PTFE, cooling jacket made of borosilicate glass with hose connectors made of PP and nuts for connection of cooling water. The distillate is only exposed to PFA/PTFE. Integrated special nut (Safe-Lab) for easy locking and unlocking of the ground joint.

FDA conform

Length mm			Cat. No.:
300			B 295-02
450			B 295-04
600			B 295-06



BOLA Liebig Condensers "Vertical"

Material: PFA	Temperature resistance: from -20°C to +250°C	Chemical resistance: +++ universal	Transparency: transparent
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Product description:

Thin-walled cooling tube made of translucent and gastight PFA, cooling jacket made of borosilicate glass with hose connectors made of PP and nuts for connection of cooling water, ground joint cone and socket NS 29/32 made of PTFE. The distillate is only exposed to PFA/PTFE. Suitable for vertical assembly. Integrated special nut (Safe-Lab) for easy locking and unlocking of the ground joint.

FDA conform

Length mm	Cat. No.:
300	B 301-02
450	B 301-04



BOLA Distillation Thermometers

Material: PTFE	Temperature resistance: from 0°C to +250°C	Chemical resistance: +++ universal
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Product description:

PTFE-jacketed glass thermometer, justified to an immersion depth of 50 mm. Length 300 mm, measuring range 0/+250: 1°C.

FDA conform

For reaction vessel mL	O.D. mm	Cat. No.:
500-6.000	7,5	B 290-03



BOLA Thermometers for Flasks

Material: PTFE	Temperature resistance: from 0°C to +250°C	Chemical resistance: +++ universal
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Product description:

PTFE-jacketed glass thermometer, measuring range 0/+250: 1°C

FDA conform

For reaction vessel mL	Measuring range C°	O.D. mm	Length mm	Cat. No.:
500	0 / +250:1	7	450	B 287-03
1.000	0 / +250:1	7	530	B 287-06
2.000-6.000	0 / +250:1	7	600	B 287-09



BOLA Temperature Probes

Material: PTFE	Temperature resistance: from -200°C to +250°C	Chemical resistance: +++ universal	Temperature range from -50°C to +250°C
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Product description:

One measuring sensor PT 100 in a PTFE-encapsulated stainless steel tube (1.4571). Temperature probe Ø 8mm, tip Ø 6mm, collar ring Ø 12mm. Connection is made either directly to the white PFA-coated cable (length: 1,5m, 4 strands) or alternatively to a coupling type Lemo® socket size 1, 4-wire-system.

FDA conform

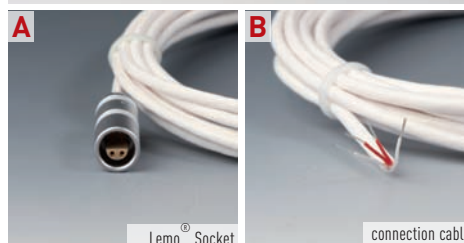
Typical response times:

- » T 50: 7 - 12 s
- » T 90: 14 - 16 s

	Usable length mm	Total length mm ca.	Connection type	Cat. No.:
A	200	260	Lemo® socket, 4-wire-system	P 1760-15
	300	360	Lemo® socket, 4-wire-system	P 1760-20
	500	560	Lemo® socket, 4-wire-system	P 1760-25
	600	660	Lemo® socket, 4-wire-system	P 1760-30
B	200	260	strands, 4-wire-system	P 1750-15
	300	360	strands, 4-wire-system	P 1750-20
	500	560	strands, 4-wire-system	P 1750-25
	600	660	strands, 4-wire-system	P 1750-30

Applications:

- » temperature measurement in aggressive liquids
- » cable provides flexible connection from measuring device to medium



Lemo® Socket

connection cable



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Every lab is different. By offering an extensive range of established and sophisticated standard solutions we take into account the varied requirements of the respective branches and sectors.

But maybe you are looking for something special? Something that is not included in our standard product range?

In that case we are able to offer an individual custom manufacture. This is easier and faster than you may expect. Discuss your idea with our professionals. They will give advise and support during design. Finally, your idea will become real: We produce as per your requirements and in compliance with the chosen raw materials – already from 1 piece.

We only need a drawing (a sketch is sufficient) and some further information.

» You have a special request?

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BOLA Thermometer Holders

Material: **PTFE** Temperature resistance: **from -20°C to +200°C** Chemical resistance: **+++ universal**

Product description:

A flexible gasket made of PTFE/silicone holds all thermometers with an O.D. of 7-8 mm. Integrated special nut (Safe-Lab) for easy locking and unlocking of the ground joint. The product is only exposed to PTFE.

FDA conform

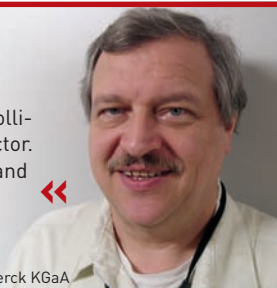
Ground joint NS	For diameter mm	Angle	Cat. No.:
29/32	7 - 8	7 °	B 286-03



Thermometer Holders

- » The inclined bore inside prevents collisions with the stirrer shaft in a reactor. The thermometer can be adjusted and fixed in the defined angle. Clever! «

Dieter Waldhaus » Merck KGaA



BOLA Stirrer Bearings

Material: **PTFE** Temperature resistance: **from -20°C to +250°C** Chemical resistance: **+++ universal**

Product description:

Guiding the stirrer shaft. With adjustable special gasket. Integrated special nut (Safe-Lab) for easy locking and unlocking of the ground joint.

FDA conform

Ground joint NS	For stirrer shaft dia. mm	Cat. No.:
29/32	10	B 288-02



BOLA Moon-Shaped Stirrer Shafts

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

Product description:

PTFE-jacketed stainless steel shaft, stirrer blade and access for the stirrer shaft completely made of PTFE. Stirrer blade tilts and fits through a ground joint.

FDA conform

For reaction vessel ml	For ground joint NS	Dia. of stirrer shaft mm	Length mm	Cat. No.:
500	29/32	10	350	C 376-12
1.000	29/32	10	450	C 376-14
2.000	29/32	10	510	C 376-16
4.000-6.000	29/32	10	600	C 376-18
4.000/6.000	45/40	16	600	C 376-20



BOLA Distillation Heads

Material: **PTFE** Temperature resistance: **from -20°C to +230°C** Chemical resistance: **+++ universal**

Product description:

Two ground joint cones NS 29/32 and one vertical connection with flexible PTFE/Silicone sealing and PPS screw cap to insert and fix thermometers of an O.D. of 7-8 mm. Integrated special nut (Safe-Lab) for easy locking and unlocking of the ground joint.

FDA conform

Ground joint NS	For dia. mm	Angle of vertical cone	Cat. No.:
29/32	7 - 8	90°	B 289-03



BOLA Receiver Adaptors

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

Product description:

Ground joint cone and socket NS 29/32, as well as socket NS 19/26 for example for vacuum stopcock (Cat. No. B 293-02). Integrated special nut (Safe-Lab) for easy locking and unlocking of the ground joint.

FDA conform

Ground joint NS	Socket NS	Lateral socket NS	Lateral angle	Cat. No.:
29/32	19/26	29/32	15°	B 292-02



BOLA Vacuum Stopcocks

Material:	Temperature resistance:	Chemical resistance:
PTFE	from 0°C to +110°C	+++ universal

Product description:

Ground joint cone size 19, bore diameter 2 mm, connections for tubing O.D. 8 mm. Integrated special nut (Safe-Lab) for easy locking and unlocking of the ground joint.

FDA conform

Ground joint NS	Bore dia. of stopcock mm	Cat. No.:
19/26	2	B 293-02



BOLA Links

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

Product description:

For vertical positioning of the Liebig condenser (e.g. in a lid of a reaction vessel). Integrated special nut (Safe-Lab) for easy locking and unlocking of the ground joint.

FDA conform

Ground joint NS	Socket NS	Angle	Cat. No.:
29/32	29/32	15°	B 303-02



BOLA Ground Joint Tube Fittings

Material:	Temperature resistance:	Chemical resistance:
PTFE	from -200°C to +205°C	+++ universal

Product description:

For connecting tubes, hard-walled tubing, thermometers. The sealing rings on the outside of the cone prevent sticking of the ground joints and improve the sealing. Integrated special nut (Safe-Lab) for easy locking and unlocking of the ground joint.

FDA conform

Ground joint NS	For tubing I.D. x O.D. mm	Bore dia. mm	Cat. No.:
19/26	4,0 x 6,0	5	B 304-10
29/32	1,6 x 3,2	2	B 304-16
29/32	4,0 x 6,0	8	B 304-20
29/32	6,0 x 8,0	8	B 304-22
29/32	8,0 x 10,0	8	B 304-24



BOLA Ground Joint Distributors

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

Product description:

With ground joint cone and socket size 29. All ground joints are connected with a bore dia. of 10 mm. The bore dia. of the cone is 16 mm. Integrated special nut (Safe-Lab) for easy locking and unlocking of the ground joint.

FDA conform

Socket NS	Cone NS	Length x Width x Total height mm	Cat. No.:
2 x 29/32	29/32	113 x 40 x 105	B 302-02
3 x 29/32	29/32	160 x 40 x 105	B 302-04

« »
Special Request?
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BOLA "SAFE LAB" Nuts

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

Product description:

Allows a tight and safe connection as well as an easy disconnection of cone and socket. The special nut which is held on an external thread above the cone holds and locks the socket. For disconnection, this special nut has to be turned clockwise. The power is enforced by the thread pitch and is transferred axially to the socket. The ground joint is released.

FDA conform

Suitable for ground joint NS	Cat. No.:
19/26	K 1349-06
29/32	K 1349-10
45/40	K 1349-16



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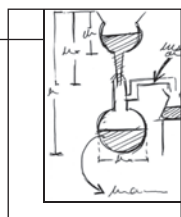
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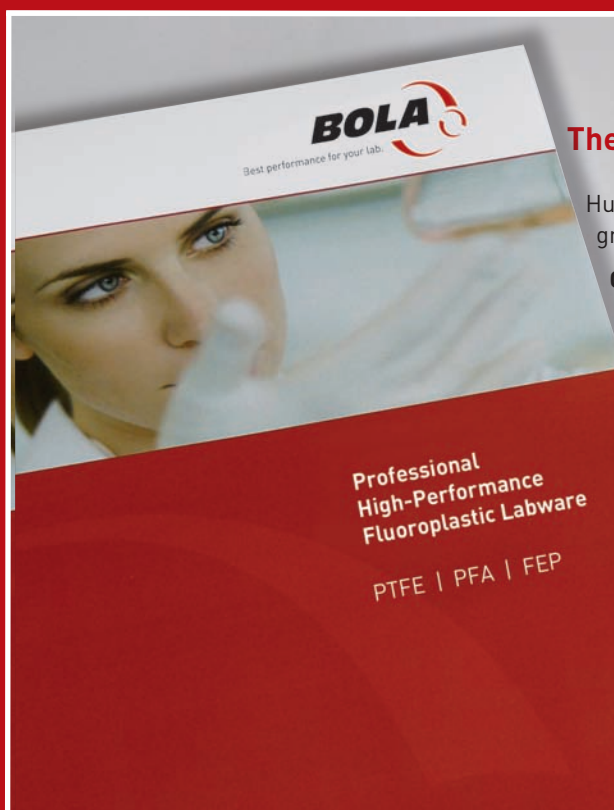




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