



Professional High- Performance Fluoroplastic Labware

PTFE | PFA | FEP



Stirrer Shafts

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Filters and filtering devices

from page 10





BOLA Stirrer Shafts – what you should know about.

BOLA Stirrer Shafts consist of stainless-steel shafts coated with PTFE and a solid PTFE stirrer unit. The stainless-steel stirrer ensures the required stability of the stirrer and enables a safe fixing in the stirrer.



Unbreakable – stirrer consisting of stainless-steel and solid PTFE stirrer unit



Non-sticky surface, therefore no attachment of diverse media



High temperature resistance up to 250°C



Safe fixing in the chuck due to stainless steel holder



Universal chemical resistance



Glass stirrer shafts can be exchanged against stirrer shafts made of PTFE so that stirrer shafts/drive units, couplings and guides can still be used



BOLA Stirrer Shafts

Material:	Temperature resistance:	Chemical resistance:	Stirring effect:
PTFE	-200 °C to +250 °C	+++ universal	bottom-up

A Type: BOLA Stirrer Shafts with One Paddle

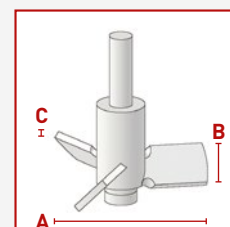
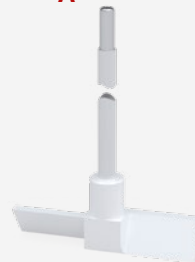
FDA conform

Length mm	Shaft dia. mm	Chuckling dia. mm	Dimensions according to drawing mm			Cat. No.:	*recomm. price EUR
			A	B	C		
450	8	6,5	80	18	4,0	C 379-02	215,61
600	8	6,5	80	18	4,0	C 379-04	240,32
800	8	6,5	80	18	4,0	C 379-06	259,09
600	10	8,0	110	20	5,0	C 379-08	238,88
800	10	8,0	110	20	5,0	C 379-10	265,27

Applications:

The product is sucked bottom-up, very good axial flow with low shear force.

A



B Type: BOLA Impeller Stirrer Shafts

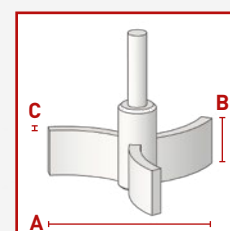
FDA conform

Length mm	Shaft dia. mm	Chuckling dia. mm	Angle	Dimensions according to drawing mm			Cat. No.:	*recomm. price EUR
				A	B	C		
450	10	8,0	0°	100	25	5	C 389-28	327,13
600	10	8,0	0°	100	25	5	C 389-32	327,23
800	10	8,0	0°	100	25	5	C 389-36	416,07

Applications:

Very good and gentle stirring due to blades which are bent backwards, low shear force. The 15° angled impellers are ideal for stirring in vessels with round bottom.

B



C Type: BOLA Propeller-Stirrer Shafts with Blades

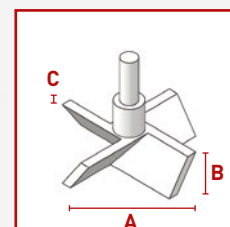
FDA conform

Length mm	Shaft dia. mm	Chuckling dia. mm	Dimensions according to drawing mm			Cat. No.:	*recomm. price EUR
			A	B	C		
350	8	6,5	50	18	4,0	C 484-18	253,80
600	8	6,5	100	20	5,0	C 484-22	339,02
450	10	8,0	75	20	5,0	C 484-32	278,79
600	10	8,0	75	20	5,0	C 484-34	329,55
600	10	8,0	100	20	5,0	C 484-36	463,45

Applications:

The product is sucked bottom-up, good axial flow with low shear force.

C



BOLA Globe Stirrer Couplings

Material: POM
Temperature resistance: -30 °C to +100 °C
Chemical resistance: ++ very good



NEW

Product description:

Made of POM, a plastic material with good mechanical strength. For compensation of a misalignment of axes between stirrer shaft and stirring drive of up to 10 mm. Powerful transmission of max. 300 Ncm and suitable for a speed of up to 1200 rounds per minute and for both left- and right-handed rotation

Opening for stirrer shaft mm	Chuck adaptor die mm	Total length mm	Artikel-Nr.:	*recomm. price EUR
Ø 6,5 and 10,0	8	190	C 394-02	140,71
Ø 6,5 and 10,0	10	190	C 398-08	127,57
Ø 8,0 and 10,0	8	190	C 394-03	130,49
Ø 8,0 and 10,0	10	190	C 398-12	130,53

Product advantages:

- » very low centrifugal forces due to low weight
- » suitable for both left- and right-handed rotation (except for GL 10 thread: no left-handed rotation possible)
- » no resonance
- » simple assembly by means of screw joints with clamp rings
- » chuck adaptor (length 90 mm) can be shortened by the user

Applications:

Ideal for balancing misalignment of axes between stirring drive and stirrer shaft, suitable for glass, metal or BOLA stirrer shafts.



BOLA Stirrer Bearings

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



FDA conform

Product description:

Ground joint cone made of PTFE with sealing rings on the outside to prevent sticking of the connection and to reduce danger of breaking glass. A special gasket made of PTFE and an FPM o-ring which is compressed by a GL screw cap provide a good sealing of the stirrer shaft. This gasket can be exchanged after wearing.

Cone NS European standard	For stirrer shaft dia. mm	Total length mm	Thread of screw cap GL	Cat.No.:	*recomm. price EUR
NS 19/26	8	65	25	C 424-05	40,35
NS 24/29	8	69	25	C 424-08	48,00
NS 24/29	10	70	25	C 424-09	56,26
NS 29/32	8	74	25	C 424-13	45,53
NS 29/32	10	72	25	C 424-14	43,26
NS 45/40	10	80	25	C 424-16	57,97

Applications:

Suitable for vacuum, perfect bearing for stainless steel, glass and BOLA Stirrer Shafts.



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BOLA Stirrer Blades – good to know.



Clamp screw ensures torsion-proof fastening on the stirrer shaft



Suitable for stirrer shafts made of glass, stainless steel or jacketed with PTFE



Blades can be fixed at requested individual height and independent from the direction of rotation



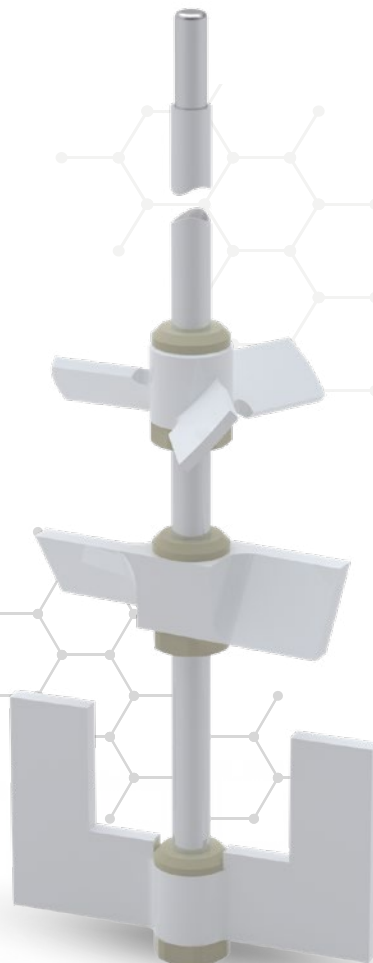
Stirrer blade made of PTFE and clamp screws made of PEEK-Compound offer an excellent chemical and thermal resistance



Stirrer shafts can be enlarged for several stages by means of our stirrer blades for a better mixing in high and slim vessels



Individual blade shapes for optimized mixing can be manufactured on request



BOLA Stirrer Blades

Material:

PTFE

Temperature resistance:

-100 °C to +240 °C

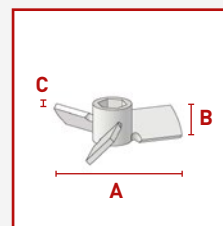
Chemical resistance:

+++ universal

A Type: BOLA Propeller Blades

FDA conform

Shaft dia. mm	Wrench size	Dimensions according to drawing			Cat. No.:	*recomm. price EUR
		mm	A	B		
8	15	75	18	3	C 440-08	88,14
10	19	75	18	3	C 440-10	87,55



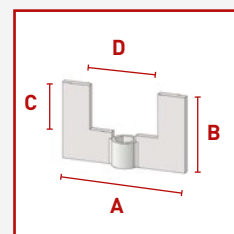
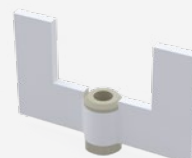
Applications:

The product is sucked bottom-up, good axial flow with low shear force.

B Type: BOLA U-Shaped Blades

FDA conform

Shaft dia. mm	Wrench size	Dimensions according to drawing				Cat. No.:	*recomm. price EUR
		mm	A	B	C		
8	15	60	40	22	30	C 445-08	90,51
8	15	100	60	35	56	C 445-12	122,81
10	19	80	50	30	44	C 445-16	89,94
10	19	100	60	35	56	C 445-20	118,46
10	19	130	80	55	80	C 445-30	152,93
10	19	150	120	90	90	C 445-34	189,31
16	32	130	80	55	80	C 445-40	234,53
16	32	150	120	90	90	C 445-44	284,42



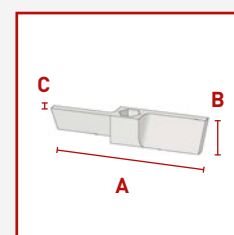
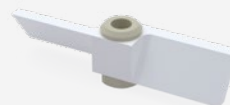
Applications:

Strong, tangential flow with high shear rate in the margin area, little sediments on the wall of the vessel. Ideal for mixing viscous liquids.

C Type: BOLA Paddle Blades

FDA conform

Shaft dia. mm	Wrench size	Dimensions according to drawing			Cat. No.:	*recomm. price EUR
		mm	A	B		
8	15	80	18	4	C 446-08	78,06
10	19	80	20	5	C 446-10	75,49
10	19	110	20	5	C 446-12	76,12
10	19	140	20	5	C 446-14	100,34
16	32	140	25	12	C 446-16	138,13



Applications:

The product is sucked bottom-up, very good axial flow with shear force.



BOLA Sleeves – what you should know about.



BOLA sleeves with gripping ring are available for all current ground joint sizes from NS 10 to NS 100



The solid and robust design in PTFE allows permanent use at high temperatures and aggressive media.



Sleeves can be cleaned easily and reused



Sealing rings take care for selective sealing and improve solvability at the same time.



The small contact surface minimizes the risk of sticking in the ground joint sleeve and thus glass breakage while maintaining the same level of tightness.



BOLA sleeves make grinding grease superfluous. Grease residues and contamination in the medium are avoided.

BOLA **Ground Joint sleeves**

Material:	Temperature resistance:	Chem. resistance:	Vacuum:	Feature:
PTFE	-200 °C to +250 °C	+++ universal	suitable	reusable



Product description:

Made of PTFE, with sealing rings ("ribs") on the outside, solid construction for continued use; sealing rings are easily accessible and therefore easy to clean.

Stirrer Size NS	Version Cat.No. Sleeves with Ribs	A	*recomm. price EUR
10/19	H 930-02		4,78
12/21	H 930-03		4,23
14/23	H 930-04		1,56
19/26	H 930-05		2,24
24/29	H 930-06		2,67
29/32	H 930-07		2,92
34/35	H 930-08		7,51
50/42	H 930-11		31,56
60/46	H 930-13		37,19
71/51	H 930-14		70,62
85/55	H 930-15		76,01

Version Cat.No. Sleeves with Gripping Ring	B	*recomm. price EUR
H 933-01		11,56
H 933-02		10,45
H 933-03		6,30
H 933-04		6,70
H 933-05		8,02
H 933-06		7,27
H 933-07		23,36
H 933-09		22,49
H 933-10		61,25
H 933-12		28,79
H 933-13		55,18
H 933-15		111,93

A



B





BOLA Filters and filtering devices – what you should know about.

Filters and filtering devices made of fluoroplastics characterize with extraordinary resistance against chemical substances. They are resistant against acids, caustic solutions and many other chemicals which makes them ideal for use in various laboratory applications. Beside this, PTFE filters are heat resistant and can withstand temperatures up to 250°C. BOLA filters and filtering devices have excellent non-stick

properties whereby particles slip off easily and make cleaning easier. The high mechanical stability ensures that they keep their form also under pressure.



Applicable for different bottle sizes



Riser tube easily adjustable to bottle height



Universally chemical resistant



Universal connecting options owing to GL connectors



No twirling thanks to 360° free movement of the distributor bodies



Integrated gasket ensures perfect sealing

BOLA Scrubber Bottles

Material:	Temperature resistance:	Chemical resistance:	Pressure:	Transparency:
PFA, PTFE	-200 °C to +250 °C	+++ universal	no pressure	transparent



Product description:

Bottle made of PFA. PTFE top with two threaded connections. The standard PTFE frit has a pore size of approx. 3 µm and is screwed on the riser tube with an M8x1 thread. It can be exchanged with the PTFE gas distributor with fine bores (Cat. No. N 1501-16 – page 327 Bola catalogue) which needs a lower primary pressure.

Capacity ml	Total height mm	Connection for tubing O.D. Ø mm	Cat.No.:	*recomm. price EUR
250	175	2 x 6	A 118-01	364,27
500	200	2 x 6	A 118-02	473,43
100	240	2 x 6	A 118-03	539,21

Flow rate:

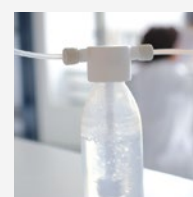
Using the standard gas distributor and at the stated system pressure.

Product advantages:

- » transparent
- » unbreakable
- » frit easily exchangeable

System pressure

	0,1 bar	0,3 bar	0,6 bar
Cat.No.:			
A 118-01	12,5 l/h	62,5 l/h	140 l/h
A 118-02	7,5 l/h	30,0 l/h	80 l/h
A 118-03	7,5 l/h	37,5 l/h	80 l/h



BOLA Scrubber Bottles Vitrum

Material:	Chemical resistance:	autoclave:
PTFE, PP	+++ universal	121°

FDA conform

Product description:

Consisting of PTFE body with screw cap and two lateral GL 18 threaded necks, suitable bottle made of borosilicate glass as well as a FEP inlet tube and a gas distributor with finest bores. Easy in- and outlet of gas by means of hard-walled tubing (e. g. PTFE) which can be connected to the threaded necks with BOLA Laboratory Screw Joints. Elastic tubing can be connected by means of hose connectors. 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.

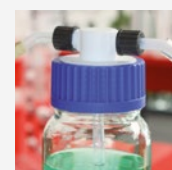
	Capacity ml	For bottle thread	Necks GL	Totak height ca. mm	Artikel-Nr.:	*recomm. price EUR
A	500	GL 45	2 x 18	207	N 1662-14	134,25
	1000	GL 45	2 x 18	256	N 1662-24	139,92
B	500	GLS 80	2 x 18	186	N 1662-34	179,99
	1000	GLS 80	2 x 18	256	N 1662-44	185,00

Flow rate:

Using the standard gas distributor and at the stated system pressure.

System pressure

	0,1 bar	0,3 bar	0,6 bar
Cat.No.:			
N 1662-14	150 l/h	325 l/h	425 l/h
N 1662-24	150 l/h	325 l/h	425 l/h
N 1662-34	500 l/h	1000 l/h	1500 l/h
N 1662-44	500 l/h	1000 l/h	1500 l/h



BOLA Scrubber Adaptors for Bottles

Material: PTFE, PP
 Chemical resistance: +++ universal
 autoclave: 121°

FDA conform

Product description:

Consisting of PTFE body with connecting nut and two lateral GL 18 threaded necks, a FEP inlet tube with a length of 300 mm and a gas distributor with finest bores. Easy in- and outlet of gas by means of hard-walled tubing (e.g. PTFE) which can be connected to the threaded necks by means of BOLA Laboratory Screw Joints (page 90 BOLA catalogue). Elastic tubing can be connected by means of hose connectors (page 139 BOLA catalogue). Inlet tube can be shortened individually. The special feature: the body of the adaptor can be turned independently from the connecting nut. This means that the completely assembled adaptor can be removed and fixed on another bottle without the risk of disarranging the tubing. Suitable for bottles of Duran Group (formerly Schott AG) with GL 45 and GLS 80 thread and a volume between 100 and 5000 mL.

	For bottle thread	Gas inlet tube mm	Width incl. threaded necks mm	Cat.No.:	*recomm. price EUR
A	GL 45	300	76	N 1660-14	140,60
B	GLS 80	300	76	N 1660-14	190,00

Flow rate:

Using the standard gas distributor and at the stated system pressure

Cat.No.:	System pressure		
	0,1 bar	0,3 bar	0,6 bar
N 1660-14	150 l/h	325 l/h	425 l/h
N 1660-24	500 l/h	1000 l/h	1500 l/h



BOLA Vacuum Traps

Material: PP, PBTP
 Temperature resistance: -0 °C to +110 °C
 Chemical resistance: ++ very good
 autoclave: 121°
 Vacuum: suitable

FDA conform

Product description:

Consisting of a screw cap red made of PBTP for thread GL 45, distributor body made of PP with 2-step hose connectors for connection of elastic tubing (such as silicone, Viton® or Tygon®) as well as a gas inlet tube made of FEP. With arrow on the top side of the distributor body to display the flow direction. The gas inlet tube can be cut to length on request. Limited chemical resistance, for working temperatures up to max. +110 °C.

2-Step hose connector		Length gas	Width including	Cat.No.:	*recomm.
O.D. a	O.D. b mm	inlet tube mm	necks mm		price EUR
A	9	12	150	80	D 810-05
					97,35

Applications:

Protection of pumps or vacuum systems from damages through vapour or condensate.

Material: PTFE, PPS
 Temperature resistance: -20 °C to +200 °C
 Chemical resistance: +++ universal
 autoclave: 121°
 Vacuum: suitable

Product description:

Consisting of a screw cap black made of PPS for thread GL 45, distributor body made of PTFE with 2-step hose connectors for connection of elastic tubing (such as silicone, Viton® or Tygon®) as well as a gas inlet tube made of FEP. With arrow on the top side of the distributor body to display the flow direction. The gas inlet tube can be cut to length on request. Universal chemical resistance, for working temperatures up to max. +200 °C.

2-Step hose connector		Length gas	Width including	Cat.No.:	*recomm.
O.D. a	O.D. b mm	inlet tube mm	necks mm		price EUR
B	9	12	150	80	D 810-10
					132,10

Applications:

Protection of pumps or vacuum systems from damages through vapour or condensate.



BOLA Laboratory Flasks

Material: Glass, PP
Temperature resistance: 0 to +110 °C
Chemical resistance: +++ universal

Product description:
Flask made of borosilicate glass 3.3, thread GL45 with screw cap and pouring ring made of PP, outside with volume scale in 100 ml steps to estimate the volume. Using separately available BOLA Multiple Distributors GL45 and suitable tubing, you can simply fill or empty the flask.

	Capacity ml	Thread mm	Cat.No.:	*recomm. price EUR
A	500	45	D 300-43	20,18
B	1000	45	D 300-45	24,43



BOLA Laboratory Flasks

Material: Glass, PP
Temperature resistance: 0 to +110 °C
Chemical resistance: +++ universal

Product description:
Flask made of borosilicate glass 3.3, thread GLS80 with screw cap and pouring ring made of PP, outside with volume scale in 100 ml steps to estimate the volume. Using separately available BOLA Multiple Distributors GLS80 and suitable tubing, you can simply fill or empty the flask.

	Capacity ml	Thread mm	Cat.No.:	*recomm. price EUR
A	500	GLS80	D 300-79	29,31
B	1000	GLS80	D 300-80	31,41



BOLA Tubing Rolls

Product description:

Fluoroplastic tubing made of PTFE, FEP and PFA. Cut to rolls with 5 m and 10 m length, individual packed in PE-bag.

FDA conform

BOLA Tubing Rolls:

Translucent to milky-white appearance.



			Material					
Roll length m	I.D. mm	O.D. mm	PTFE		FEP		PFA	
			Cat.No.:	*recomm. price EUR	Cat.No.:	*recomm. price EUR	Cat.No.:	*recomm. price EUR
5	(5/32") 3,96	(1/4") 6,35	S 2010-41	134,42	S 2020-24	129,01	S 2030-12	166,73
5	(11/64") 4,35	(1/4") 6,35	S 2010-42	84,80	S 2020-28	114,46	S 2030-14	179,66
5	6,0	8,00	S 2010-50	94,46	S 2020-36	129,67	S 2030-18	197,54
5	8,00	10,00	S 2010-60	134,38	S 2020-48	210,82	S 2030-24	186,32
5	(3/8") 9,52	(1/2") 12,7	S 2010-65	224,43	S 2020-56	349,42	S 2030-28	397,82
5	10,00	12,00	S 2010-64	165,35	S 2020-60	220,63	S 2030-30	284,32
10	(1/32") 0,8	(1/16") 1,6	S 2012-10	27,04	S 2022-04	41,56	S 2032-02	100,90
10	(1/16") 1,6	(1/8") 13,2	S 2012-26	66,88	S 2022-08	88,10	S 2032-04	161,09
10	2,00	3,00	S 2012-30	55,23	S 2022-07	80,95	S 2032-05	130,55
10	2,00	4,00	S 2012-32	102,38	S 2022-12	134,24	S 2032-06	165,12
10	4,00	6,00	S 2012-40	86,65	S 2022-20	120,34	S 2032-10	158,68

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discuss further details and establish an offer
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BOLA

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