

Vessels and Distillation Equipment



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VESSELS AND DISTILLATION EQUIPMENT

A suitable solution for practically every application in well-known BOLA-quality and optimally adapted to your needs.

PRODUCT TIPS



Page 168:
Scrubber Bottles



Page 183:
Digestion Vessels



Page 186:
Distillation Apparatus

BOLA Scrubber Columns

Material: FEP	Temperature resistance: from -200°C to +205°C	Chemical resistance: +++ universal	Pressure: no pressure	Transparency: transparent
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Product description:

Tall, slim scrubber column made of FEP. Inlet and outlet tube as well as riser tube are made of FEP (5,6 x 8 mm), bottom and top are made of pure PTFE. 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 218) which needs a lower primary pressure.

FDA conform

Capacity ml	Total height mm	Connection for tubing O.D. mm	O.D. of column mm	Cat. No.:
500	400	2 x 8	54	A 117-04
1.000	700	2 x 8	54	A 117-08

Product advantages:

- » transparent
- » unbreakable
- » intense mixing of gas due to tall riser tube
- » frit easily exchangeable



SUTABLE: page 197
Scrubber Adaptor for Bottles with
GL 45 and GLS 80



BOLA Scrubber Bottles

BESTSELLER

Material: PFA	Temperature resistance: from -200°C to +250°C	Chemical resistance: +++ universal	Pressure: no pressure	Transparency: transparent
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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 218) which needs a lower primary pressure.

FDA conform

Capacity ml	Total height mm	Connection for tubing O.D. mm	O.D. of bottle mm	Cat. No.:
250	175	2 x 6	60	A 118-01
500	200	2 x 6	75	A 118-02
1.000	240	2 x 8	95	A 118-03

Product advantages:

- » transparent
- » unbreakable
- » frit easily exchangeable



BOLA Micro Scrubber Bottles

Material: PFA	Temperature resistance: from -200°C to +250°C	Chemical resistance: +++ universal	Pressure: no pressure	Transparency: transparent
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Product description:

For use with volumes up to 50 ml. The gas inlet tube (not included, please choose a hard-walled tubing) is inserted through the fitting on the top and can be fixed safely. The side fitting is used as gas outlet.

FDA conform

Capacity ml	Total height mm	Connection for tubing O.D. mm	O.D. of bottle mm	Cat. No.:
50	180	6	31	A 119-24

Product advantages:

- » transparent
- » unbreakable
- » non-porous

Applications:

Can also be used as cold trap.



BOLA Wide-Mouth Bottles

Material: PTFE	Temperature resistance: from -200°C to +250°C	Chemical resistance: +++ universal	Pressure: no pressure
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Product description:

Thick-walled, smooth interior surface, screw cap.

FDA conform

Capacity ml	Total height mm	I.D. mm	O.D. mm	Thread of screw cap	Cat. No.:
1	22	9	12	M 12 x 1,0	A 100-01
5	35	15	20	M 20 x 1,5	A 100-03
10	44	18	28	GL 25 x 3,5	A 100-04
25	53	25	34	GL 32 x 4,0	A 100-05
50	72	31	45	GL 40 x 4,0	A 100-06
100	87	34	50	GL 45 x 4,0	A 100-07
250	122	34	63	GL 45 x 4,0	A 100-08
500	157	46	75	GL 56 x 4,0	A 100-09
1.000	194	58	100	GL 70 x 5,0	A 100-10



BOLA Practical Tipp

Gertrud Steinam » final examination

BOLA products can be cleaned in dishwasher.

Stubbornly dirty? Put in alcohol or wipe with a soft cloth soaked with ethyl alcohol, window cleaner or a detergent solution.

BOLA Wide-Mouth Bottles with Conical Neck

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

Product description:

Transparent, non-porous, conical neck, screw cap.

FDA conform

Capacity mL	Total height mm	I.D. mm	O.D. mm	Buttress thread S	Cat. No.:
50	94	20	38	28	A 103-03
100	117	20	45	28	A 103-06
250	153	32	61	40	A 103-09
500	181	32	76	40	A 103-12
1.000	221	32	94	40	A 103-15



SUITABLE: page 72
Distributors for different threads and tubing diameters



SUITABLE: page 77
Threaded adaptors for connecting different kinds of bottle threads

BOLA Wide-Mouth Bottles with Conical Neck

Material: **PTFE** Temperature resistance: **from -200°C to +250°C** Chemical resistance: **+++ universal** Pressure: **no pressure**

Product description:

Thick-walled, smooth interior surface, ergonomic grips on bottle and screw cap.

FDA conform

Capacity mL	Total height mm	I.D. of neck mm	O.D. mm	Thread M	Cat. No.:
25	62	19	33	25 x 2,0	A 111-16
50	77	25	43	30 x 2,0	A 111-24
100	87	33	52	42 x 2,5	A 111-32
250	112	42	67	48 x 2,5	A 111-40



BOLA Narrow-Mouth Bottles with Conical Neck

Material: **FEP** Temperature resistance: **from -200°C to +205°C** Chemical resistance: **++ very good** Pressure: **no pressure** Transparency: **transparent**

Product description:

Transparent, non-porous, conical neck, tall shape, screw cap.

FDA conform

Capacity mL	Total height mm	I.D. of neck mm	O.D. mm	Thread GL	Cat. No.:
50	93	10	38	18	A 105-03
100	122	10	45	18	A 105-06
250	163	17	61	25	A 105-09
1.000	235	22	96	32	A 105-15



BOLA Wash Bottles

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

Product description:

Transparent, non-porous, graduated, screw cap.

FDA conform

Capacity ml	Total height mm	O.D. mm	Cat. No.:
250	200	60	A 114-02
500	280	72	A 114-03
1.000	320	92	A 114-04



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VESSELS AND DISTILLATION EQUIPMENT

BOLA Round Bottom Flasks

BESTSELLER

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

Product description:

Transparent, non-porous, with ground joint neck size 29, conditionally suitable for vacuum, e.g. at 30 mbar and 50°C.

FDA conform

Capacity ml	Total height mm	O.D. of ball mm	Cat. No.:
100	117	67	A 158-06
250	149	88	A 158-08
500	177	107	A 158-09

Applications:

For example for rotary evaporators



SUITABLE: page 153
Different types of stoppers

BOLA Round Bottom Flasks with Two or Three Ground Joint Necks

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

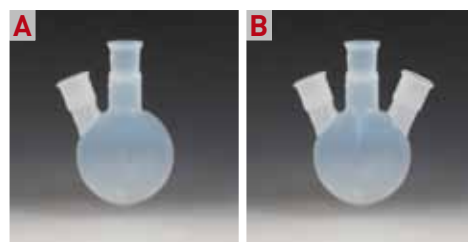
Product description:

Transparent, non-porous, central ground joint neck size 29 and lateral ground joint necks. Conditionally suitable for vacuum, e.g. at 30 mbar and 50°C.

FDA conform

A	Capacity	Total height	O.D. of ball	Lateral necks	Cat. No.:
	ml	mm	mm	NS	
	100	117	67	1 x 14/23	A 155-12
	250	149	88	1 x 29/32	A 155-20
	500	177	107	1 x 29/32	A 155-36
B	Capacity	Total height	O.D. of ball	Lateral necks	Cat. No.:
	ml	mm	mm	NS	
	100	117	67	2 x 14/23	A 156-12
	250	149	88	2 x 29/32	A 156-20
	500	177	107	2 x 29/32	A 156-36

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



BOLA Round Bottom Flasks with Threaded GL Necks

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

Product description:

Transparent, non-porous, central ground joint neck size 29 and 2 lateral GL 18 threaded necks (suitable laboratory screw joints with Cat. No. D 629-.. can be found on page 69). Conditionally suitable for vacuum, e.g. at 30 mbar and 50°C.

FDA conform

Capacity	Total height	O.D. of ball	Cat. No.:
ml	mm	mm	
100	117	67	A 149-12
250	149	88	A 149-20
500	177	107	A 149-36



BOLA INNOVATION

Round Bottom Flasks with Lateral Necks

A standard glass product, but made of PFA. BOLA is offering two versions: with central ground joint and two lateral necks or with ground joint or GL thread.

BOLA Jars

Material: PFA	Temperature resistance: from -200°C to +250°C	Chemical resistance: +++ universal	Pressure: no pressure	Transparency: transparent
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Product description:

Translucent, non-porous, sturdy design, screw cap.

FDA conform

Capacity ml	Total height mm	O.D. mm	I.D. mm	Thread S	Depth mm	Cat. No.:
7	37	22	18,5	24	32	A 130-01
60	47	50	45,5	52	40	A 130-05
90	67	50	45,5	52	58	A 130-06
120	53	66	60,0	69	45	A 130-07
240	95	66	60,0	69	86	A 130-09
500	120	85	80,0	88	109	A 130-11
1.000	151	107	100,0	110	139	A 130-12



BOLA Jars

Material: PFA	Temperature resistance: from -200°C to +250°C	Chemical resistance: +++ universal	Pressure: no pressure	Transparency: transparent
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Product description:

Translucent, non-porous, sturdy design, screw cap with 2 connections for tubing O.D. 6,35 mm (1/4"). Suitable PTFE, PFA and FEP tubing can be found on page 136.

FDA conform

Capacity ml	Total height mm	O.D. mm	I.D. mm	Cat. No.:
120	74	66	60	A 131-12
240	116	66	60	A 131-14
360	109	85	80	A 131-15



BOLA Practical Tipp

Gertrud Steinam » final examination

BOLA products can be cleaned in dishwasher.

Stubbornly dirty? Put in alcohol or wipe with a soft cloth soaked with ethyl alcohol, window cleaner or a detergent solution.

BOLA Micro Reaction Vessels

Material: PFA	Temperature resistance: from -200°C to +250°C	Chemical resistance: +++ universal	Pressure: low pressure	Vacuum: suitable	Transparency: transparent
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Product description:

Vessel made of translucent, non-porous PFA, screw cap made of PTFE with threaded necks for connection of e. g. thermometers, probes or sensors.

FDA conform

Capacity ml	Total height mm	O.D. mm	I.D. mm	for Tube O.D. max. mm	Threaded necks	Cat. No.:
90	96	50	45,5	2 x 8,5 / 1 x 10	2 x GL14 / 1 x GL18	B 318-40
240	130	66	60,0	2 x 10,0 / 1 x 16	2 x GL18 / 1 x GL25	B 318-64
500	158	85	80,0	3 x 16	3 x GL25	B 318-80



SUITABLE: page 69
Laboratory screw joints

BOLA Vials

Material: PFA	Temperature resistance: from -200°C to +250°C	Chemical resistance: +++ universal	Pressure: no pressure	Transparency: transparent
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Product description:

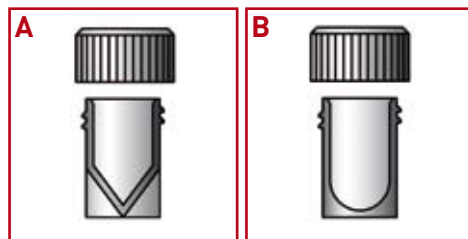
Translucent, non-porous, with round or conical bottom, screw cap.

FDA conform

	Capacity ml	Total height mm	O.D. mm	Bottom shape	Thread S	Cat. No.:
A	5	36	22	conical	25	A 194-04
B	7	36	22	round	25	A 195-04

Applications:

For centrifugal or evaporation work.



BOLA Beakers

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

Product description:

Thick-walled, smooth interior surface, reinforced upper rim, with spout. Optional PTFE lid with centering shoulder is available.



Capacity ml	Height mm	O.D. mm	I.D. mm	Cat. No.:
3	22	17	15	A 136-02
5	24	21	19	A 136-03
10	36	26	23	A 136-04
25	47	31	28	A 136-05
50	57	41	35	A 136-06
100	78	51	44	A 136-07
150	92	56	48	A 136-08
250	97	65	58	A 136-09
500	119	81	76	A 136-11
1.000	152	105	97	A 136-13
2.000	198	142	136	A 136-14
3.000	232	156	148	A 136-15



BOLA Lids

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

Product description:

Lid with centering shoulder.



O.D. mm	Suitable for Cat. No.:	Cat. No.:	O.D. mm	Suitable for Cat. No.:	Cat. No.:
27	A 136-03	H 927-03	82	A 136-09	H 927-09
35	A 136-04	H 927-04	94	A 136-11	H 927-11
40	A 136-05	H 927-05	125	A 136-13	H 927-13
50	A 136-06	H 927-06	166	A 136-14	H 927-14
60	A 136-07	H 927-07	185	A 136-15	H 927-15
66	A 136-08	H 927-08			



BOLA Jars with Ground Joint

Material: PFA	Temperature resistance: from -50°C to +250°C	Chemical resistance: +++ universal	Vacuum: suitable	Transparency: transparent
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Product description:

Jar made of translucent, non-porous PFA, screw cap made of PFA with integrated ground joint neck size 29 made of PTFE.

NEW

FDA conform

Capacity mL	Total height mm	O.D. mm	I.D. mm	Cat. No.:
1.000	193	107	100	A 159-24
2.000	310	107	100	A 159-36

Applications:

Evaporation vessel for rotary evaporators, reaction vessel



BOLA Beakers

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

Translucent, non-porous, graduated, with spout.

FDA conform

Capacity mL	Height mm	O.D. bottom mm	Cat. No.:
25	50	23	A 137-01
50	58	39	A 137-02
100	71	50	A 137-03
250	95	67	A 137-05
500	119	82	A 137-07
1.000	141	104	A 137-09



BOLA Measuring Cylinders

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

Translucent and non-porous. Design based on ISO 4788. With graduation (uncalibrated), spout and reinforcing ring. Universal chemical resistance, the product is only exposed to PTFE.

NEW

FDA conform

Capacity mL	Graduation divisions mL	Total height mm	I. D. mm	Cat. No.
50	1	172	24	A 164-12
100	2	202	30	A 164-16
250	2,5	268	40	A 164-20
500	5	308	53	A 164-30

Product advantages:

- » hexagonal base prevents the cylinder from rolling
- » permanent, recessed graduation

Application:

Volume measurement of aggressive or pure liquids



BOLA Watch Dishes

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

Product description:
Convex shape

FDA conform

O.D. mm	Height mm	Cat. No.:
50	8	A 200-01
75	8	A 200-02
100	11	A 200-03
125	12	A 200-04

Applications:
For blends or for covering vessels



BOLA Evaporating Dishes

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

Product description:
Cylindrical shape, without spout.

FDA conform

Capacity ml	Height mm	O.D. mm	I.D. mm	Cat. No.:
25	27	43	40	A 170-01
50	25	66	62	A 170-02
100	29	80	75	A 170-03
250	56	100	94	A 170-04



BOLA Evaporating Dishes, Conical Shape

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

Product description:
Conical shape, with spout.

FDA conform

Capacity ml	Height mm	O.D. top mm	O.D. bottom mm	Cat. No.:
25	37	38	34	A 169-01
50	41	49	46	A 169-02
100	54	64	60	A 169-03
250	62	97	90	A 169-04



BOLA Evaporating Dishes

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

Product description:
Cylindrical shape, with spout.

FDA conform

Capacity ml	Height mm	O.D. mm	I.D. mm	Cat. No.:
100	18	105	100	A 176-02
250	36	130	125	A 176-03

Special Request?
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SUITABLE: page 62
Spatula and tweezers



BOLA Evaporating Dishes

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

Product description:
Cylindrical shape, without spout, transparent, non-porous, stackable.

FDA conform

Capacity ml	Height mm	O.D. mm	I.D. mm	Cat. No.:
15	14,0	56	50	A 177-01
100	19,5	105	100	A 177-03



BOLA Evaporating Dishes

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

Product description:
Conical shape, with spout, transparent, non-porous.

FDA conform

Capacity ml	Height mm	O.D. top mm	O.D. bottom mm	Cat. No.:
100	30	90	60	A 171-01



BOLA Crucibles

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

Product description:
Conical, bellied shape, without spout.

FDA conform

Capacity ml	Height mm	O.D. top mm	O.D. bottom mm	Cat. No.:
25	26	49	33	A 197-03
50	35	62	33	A 197-04
100	48	78	45	A 197-05



BOLA Erlenmeyer Flasks

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

Product description:
Thick-walled, with ground joint.

FDA conform

Capacity ml	Height mm	O.D. bottom mm	Ground Joint NS	Cat. No.:
50	86	54	19/26	A 151-01
100	128	63	19/26	A 151-02
250	144	85	29/32	A 151-03
500	190	107	29/32	A 151-04



PASSEND: seite 153
ideal coordinated stoppers

BOLA Test Tubes

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

Product description:
Round bottom, wall thickness 1 mm.

FDA conform

Capacity ml	Height mm	O.D. mm	Cat. No.:
1,5	70	8	A 181-01
4,8	100	10	A 181-02
7,0	100	12	A 181-03
20,0	160	16	A 181-04
34,0	180	18	A 181-05



BOLA Test Tubes

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

Round bottom, transparent, non-porous, wall thickness 1 mm, with PTFE screw cap.

FDA conform

Capacity ml	Height mm	O.D. mm	Cat. No.:
10	140	12	A 185-01
15	110	16	A 185-02
20	160	16	A 185-03
50	220	22	A 185-05



BOLA Test Tubes

Material: PFA	Temperature resistance: from -200°C to +250°C	Chemical resistance: +++ universal	Transparency: transparent	autoclave: 121°
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Product description:

Round bottom, transparent, non-porous, wall thickness 1 mm.

FDA conform

Capacity ml	Height mm	O.D. mm	Cat. No.:
10	140	12	A 183-01
15	110	16	A 183-02
20	160	16	A 183-03
25	150	19	A 183-04



BOLA Centrifuge Tubes

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

Round bottom

FDA conform

Capacity ml	Height mm	O.D. mm	Wall thickness mm	Cat. No.:
12	100	16	1	A 193-02
28	107	24	2	A 193-03
50	100	34	2,5	A 193-04



BOLA Sampling Bags

Material: **PVF** Temperature resistance: **from -200°C to +250°C** Chemical resistance: **+ good** Transparency: **transparent**

Product description:

Transparent, non-porous, without plasticisers, with 2 exchangeable ports made of PTFE.

Capacity l	Length mm	Width mm	Cat. No.:
1,0	150	250	A 223-58
2,0	200	250	A 223-62
5,0	250	350	A 223-70
10,0	350	500	A 223-74

Applications:

For the storage of gases or liquids.



BOLA Connectors for Sampling Bags

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

Product description:

Connectors to be screwed in the ports of sampling bags.

FDA conform

	Type	O.D. mm	Bore dia. mm	Cat. No.:
A	Connector with tube	6	3	A 226-06
B	Stopcock with tube	6	3	A 226-12



BOLA Funnels

BESTSELLER

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

Product description:

Conical opening with long outlet.

FDA conform

I.D. inlet mm	O.D. inlet mm	I.D. outlet mm	O.D. outlet mm	Total height mm	Cat. No.:
30	33	4	7	50	H 920-02
50	52	6	10	84	H 920-04
74	78	6	11	116	H 920-06
99	104	10	15	150	H 920-08
152	158	11	18	200	H 920-10



BOLA Dipper Vessels

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

Product description:

With handle and holes in wall and bottom.

FDA conform

I.D. of vessel mm	O.D. of vessel mm	Depth of vessel mm	Dia. of bores mm	Total height mm	Cat. No.:
35	38	60	6	100	H 1138-08
57	60	100	8	175	H 1138-16
95	100	140	12	230	H 1138-24

Applications:

For washing, rinsing or dipping solids in aggressive or pure substances.



BOLA Dipper Baskets

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

Product description:

Non-porous basket with a mesh size of approx. 0,6 x 0,6 mm in the bottom, with fixed stem.

FDA conform

I.D. of vessel mm	O.D. of vessel mm	Depth of vessel mm	Total height mm	Cat. No.:
62	75	19	176	H 997-03

Applications:

For washing, rinsing or dipping solids in aggressive or pure substances.



BOLA Hydrolyzing and Digestion Vessels for Microwave Ovens

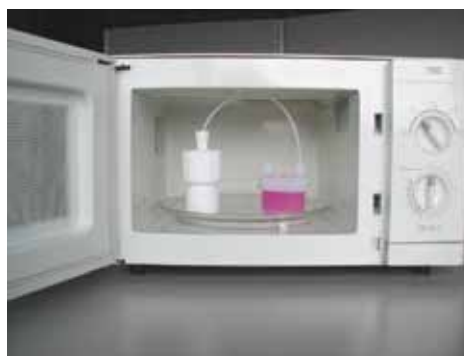
Microwave ovens are often used for making quick and easy digestions. The energy of a microwave oven penetrates the material of the vessel almost without any loss. It only heats the liquid within a few seconds over the boiling point.

BOLA Digestion Vessels are made of TFM, a modified PTFE with thermoplastic parts for a homogenous, non-porous surface which avoids contaminations and memory effects.

They are available in 2 versions:

- » Cat. No. A 240-...: consisting of basic vessel, screw cover and mounted sealing and rupture membrane.
- » Cat. No. A 250-...: consisting of basic vessel, screw cover, mounted sealing and rupture membrane and exchangeable liner which allows a more precise weighted sample and different digestions with only one basic vessel.

As soon as the pressure exceeds the maximum limit, the rupture membrane bursts and the released liquid will be drained through an optional tubing (O.D. 6,35 mm / 1/4") into a separately available collecting vessel (Cat. No. A 131-..., see page 184).



Material: PTFE	Material: TFM	Chemical resistance: +++ universal
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BOLA Digestion Vessels

Product description:

Dimensionally stable basic vessel and screw cover made of TFM, homogenous, non-porous surface. 1 piece of sealing and rupture membranes already mounted, 10 pieces of replacement membranes included in delivery. For samples of up to max. 0,5 g.

FDA conform

Capacity ml	Internal dimensions Ø x Height mm	O.D. of body mm	O.D. of cover mm	Pressure max. bar	Temperature max. C°	Cat. No.:
5	15 x 32	30	40	25	160	A 240-02
10	16 x 52	50	60	25	160	A 240-04
20	22 x 60	50	60	20	150	A 240-06
50	33 x 62	69	95	20	150	A 240-08
100	35 x 110	70	95	15	140	A 240-10



BOLA Digestion Vessels with Liners

Product description:

Dimensionally stable basic vessel with exchangeable liner and screw cover made of TFM, homogenous, non-porous surface. The liner allows a more precise weighted sample and different digestions with only one basic vessel. 1 piece of sealing and rupture membranes already mounted, 10 pieces of replacement membranes included in delivery. For samples of up to max. 0,5 g.

FDA conform

Capacity ml	Internal dimensions Ø x Height mm	O.D. of body mm	O.D. of cover mm	Pressure max. bar	Temperature max. C°	Cat. No.:
10	24 x 63	50	60	25	160	A 250-04
20	30 x 63	50	60	20	150	A 250-06
50	43 x 77	69	95	20	150	A 250-08



BOLA Liners

Product description:

Liners for digestion vessels (Cat. No. A 250-..., see page 183) made of TFM, homogenous, non-porous surface.

FDA conform

For capacity ml	Weight g	Suitable for Cat. No.:	Cat. No.:
10	48	A 250-04	A 252-04
20	55	A 250-06	A 252-06
50	112	A 250-08	A 252-08



BOLA Hydrolyzing and Digestion Vessels for Microwave Ovens

BOLA Sealing and Rupture Membranes

Product description:

1 set consisting of 10 sealing membranes made of PFA and 10 rupture membranes made of PTFE, for digestion vessels (Cat. No. A 240-.. and A 250-..., see Page 183)

FDA conform

For capacity ml		Cat. No.:
5		A 244-02
10 and 20		A 244-04
50 and 100		A 244-06



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

BOLA Jars with Tubing Connections

Product description:

Collecting vessel for liquids which are released after the burst of sealing and rupture membranes in the digestion vessels. Translucent, non-porous, sturdy design, screw cap with 2 connections for tubing O.D. 6,35 mm (1/4"). Suitable tubing made of PTFE, FEP or PFA can be found on page 136.

FDA conform

Capacity ml	Total height mm	O.D. mm	I.D. mm	Cat. No.:
120	74	66	60	A 131-12
240	116	66	60	A 131-14
360	109	85	80	A 131-15





BOLA Flat Flange Distillation Apparatus



Product description:

Suitable for the distillation of strong alkaline or acid products as well as very aggressive solvents when the resistance of other materials, e.g. glass, is not sufficient. All parts exposed to the medium are either made completely of PTFE/PFA or, like the thermometers, jacketed with PTFE. The distillate in the Liebig Condenser is conducted to the collecting vessel through a PFA pipe.

For heating, we recommend to either use a thermostat or an electric heating mantle. A temperature of +200°C should not be exceeded.

As alternative to the reaction vessel made of PTFE with round bottom, you can also use the reaction vessel made of PFA with flat bottom. It is translucent, non-porous and can be used with a hotplate magnetic stirrer and a PTFE-encapsulated magnetic stirring bar for stirring.

The Safe-Lab principle:

For security reasons, our distillation apparatus are equipped with the patented Safe-Lab system. This system allows a tight and safe connection as well as an easy disconnection of cone and socket. A 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.



BOLA Flat Flange Distillation Apparatus

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

FDA conform

Capacity Cat.No.:	500 ml B 280-03	1.000 ml B 280-06	2.000 ml B 280-09	4.000 ml B 280-12	6.000 ml B 280-15
Total dimensions H x L mm	450 x 600	550 x 700	700 x 750	750 x 980	790 x 1000
Flat Flange Reaction Vessels	NW 100 B 281-03	NW 100 B 281-06	NW 100 B 281-09	NW 150 B 281-12	NW 150 B 281-15
Flat Flange Gaskets	NW 100 B 282-02	NW 100 B 282-02	NW 100 B 282-02	NW 150 B 282-04	NW 150 B 282-04
Flat Flange Lids	NW 100 B 283-02	NW 100 B 283-02	NW 100 B 283-02	NW 150 B 283-04	NW 150 B 283-04
Flat Flange Joining Pieces	NW 100 B 284-02	NW 100 B 284-02	NW 100 B 284-02	NW 150 B 284-04	NW 150 B 284-04
Dropping Funnels with Cone NS 29/32	125 ml B 285-01	125 ml B 285-01	250 ml B 285-02	500 ml B 285-03	500 ml B 285-03
Liebig Condensers	300 mm B 291-02	450 mm B 291-04	450 mm B 291-04	600 mm B 291-06	600 mm B 291-06
Distillation Thermometers 0/+250:1C°	B 290-03	B 290-03	B 290-03	B 290-03	B 290-03
Moon-Shaped Stirrer Shafts	Ø 10 x 350 mm C 376-12	Ø 10 x 450 mm C 376-14	Ø 10 x 510 mm C 376-16	Ø 10 x 600 mm C 376-18	Ø 10 x 600 mm C 376-18
Thermometers for Flask 0/+250:1C°	Ø 7 x 450 mm B 287-03	Ø 7 x 450 mm B 287-03	Ø 7 x 530 mm B 287-06	Ø 7 x 600 mm B 287-09	Ø 7 x 600 mm B 287-09
Thermometer Holders NS 29/32	B 286-03	B 286-03	B 286-03	B 286-03	B 286-03
Stirrer Bearings NS 29/32	B 288-02	B 288-02	B 288-02	B 288-02	B 288-02
Distillation Heads 2x NS 29/32	B 289-03	B 289-03	B 289-03	B 289-03	B 289-03
Receiver Adaptors	B 292-02	B 292-02	B 292-02	B 292-02	B 292-02
Vacuum Stopcocks	B 293-02	B 293-02	B 293-02	B 293-02	B 293-02
Round Bottom Flasks with Ground Joint or Distillate Bottles	100 ml A 158-06	250 ml A 158-08	500 ml A 158-09	1.000 ml B 305-04	1.000 ml B 305-04



BOLA Flat Flange Reaction Vessels

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

Product description:

Round bottom, thick wall, smooth interior surface. Can be heated by a thermostat or an electric heating mantle.

FDA conform

Capacity ml	Flange NW	O.D. of vessel mm	Total height mm	Cat. No.:
500	100	110	120	B 281-03
1.000	100	110	205	B 281-06
2.000	100	140	270	B 281-09
4.000	150	200	290	B 281-12
6.000	150	215	320	B 281-15



BOLA Flat Flange Reaction Vessels

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

Product description:

Flat bottom, translucent, non-porous, big opening. Can be heated by thermostats or an electric heating mantle or can be used with a heatable magnetic stirrer and a PTFE-encapsulated magnetic stirring bar for stirring.

FDA conform

Capacity ml	Flange NW	O.D. of vessel mm	Total height mm	Cat. No.:
2.400	170/146	150	150	B 320-01



BOLA Flat Flange Gaskets

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

Product description:

Gasket with silicone inlet (thickness 0,5 mm). Universal chemical resistance, since the product is only exposed to PTFE.

FDA conform

For flange NW	Cat. No.:
100	B 282-02
150	B 282-04
170/146	B 321-01



BOLA Flat Flange Joining Pieces

Material: Silumin

Product description:

Joining piece made of silumin, connection between reaction vessel and lid. Locked by zinc-plated steel screws.

For flange NW	Number of screws	Cat. No.:
100	6	B 284-02
150	8	B 284-04
170/146	8	B 323-01



BOLA Flat Flange Lids

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

Product description:

One-piece, 3 declined lateral ground joint necks size 29 angled 15°.

FDA conform

For flange NW	Center neck NS	Cat. No.:
100	29/32	B 283-02
150	29/32	B 283-04
170/146	29/32	B 322-01



BOLA Practical Tipp

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 Dropping Funnels

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

Product description:

Dropping funnel made of transparent FEP, fine adjustment stopcock with cone size 29 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 Material: PFA Temperature resistance: from -200°C to +250°C Chemical resistance: +++ universal Transparency: transparent

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 size 29 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:	Temperature resistance:	Chemical resistance:	Vacuum:
PTFE	from -200°C to +250°C	+++ universal	suitable

Product description:

One-piece cooling tube with ground joint socket and cone size 29 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:	Temperature resistance:	Chemical resistance:	Transparency:
PFA	from -200°C to +250°C	+++ universal	transparent

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 size 29 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:	Temperature resistance:	Chemical resistance:
PTFE	from -0°C to +250°C	+++ universal

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

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

Product description:
 One thermocouple 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 PTFE-coated cable (length: 1,5m, 4 strands) or alternatively to a coupling type Lemo® socket size 1, 4-pole.

FDA conform

Typical response times:

» T 50: 7 - 12 s

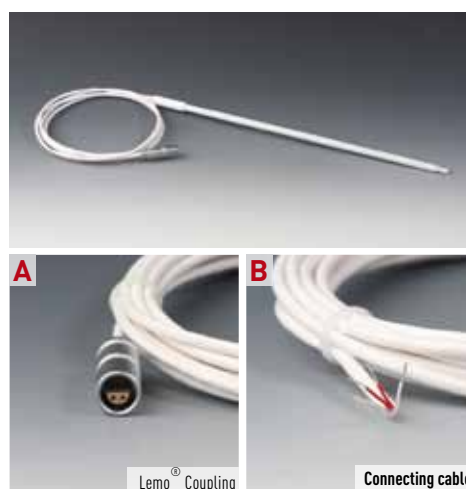
» T 90: 14 - 16 s

See page 244 for detailed explanation.

	Usable length mm	Total length mm ca.	Connection type	Cat. No.:
A	200	260	with Lemo® coupling	P 1760-15
	300	360	with Lemo® coupling	P 1760-20
	500	560	with Lemo® coupling	P 1760-25
	600	660	with Lemo® coupling	P 1760-30
B	200	260	without Lemo® coupling	P 1750-15
	300	360	without Lemo® coupling	P 1750-20
	500	560	without Lemo® coupling	P 1750-25
	600	660	without Lemo® coupling	P 1750-30

Applications:

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



Other Size: see page 160
 PT 100 temperature probes in
 different versions and sizes.

BOLA Thermometer Holders

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

Cone 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. Further stirrer shafts can be found on page 20.

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 -200°C to +250°C** Chemical resistance: **+++ universal**

Product description:

2 ground joint cones size 29 and 1 vertical connection for 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

Cone NS	For dia. mm	Angle of vertical cone	Cat. No.:
29/32	7 - 8	90°	B 289-02



BOLA Receiver Adaptors

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

Product description:

Ground joint cone and socket size 29, as well as socket size 19 for example for vacuum stopcock (Cat. No. B 293-02 see page 194). Integrated special nut (Safe-Lab) for easy locking and unlocking of the ground joint.

FDA conform

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



BOLA Vacuum Stopcocks

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

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



BOLA Links

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

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



BOLA Ground Joint Tube Fittings

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

Cone 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 +205°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



BOLA "Safe-Lab" Nuts

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



BOLA Distillate Bottles

Material: PTFE Material: FEP Temperature resistance: from -200°C to +205°C Chemical resistance: ++ very good Transparency: transparent

Product description:

Collecting vessel for distillate. Transparent bottle made of FEP, ground joint adaptor size 29 made of PTFE, bottle is not suitable for vacuum

FDA conform

Capacity ml	Dia. of bottle mm	Total height mm	Cat. No.:
250	59	160	B 305-02
500	72	190	B 305-03
1.000	92	235	B 305-04



BOLA Cold Traps

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

Product description:

Transparent, connecting nut made of PTFE reinforced with glassfibres, head made of PTFE with two threaded necks GL 14 for connection of hard-walled tubing by means of separately available laboratory screw joints (page 67). For soft, flexible tubing we recommend to use GL hose connectors (see page 108).

FDA conform

Collecting capacity	O.D. of column	Total height	Cat. No.:
ml	mm	mm	
320	60	400	B 317-60



BOLA Bottles Distillation Apparatus

Material:	Temperature resistance:	Chemical resistance:	Pressure:
PTFE	from -200°C to +250°C	+++ universal	no pressure

Product description:

Transparent, non-porous bottles, pressure compensation by means of 2,5µm PTFE filtering membrane. Possibility to connect temperature probes or tubing.

NEW

FDA conform

Capacity	Thread	Lateral thread	Cat. No.:
ml	S	GL	
250	40	18	B 328-16
500	40	18	B 328-24
1.000	40	18	B 328-32

Applications:

Quick and easy distillations of small quantities.



BOLA Threaded Adaptors

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

Product description:

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

NEW

FDA conform

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

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

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

Transition from GL 32 to GL 45

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

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

