



PRODUCT CATALOG

Micro Valve Fluid Uptake Accessories

**Syringes, Cartridges, Bottles
Fittings, Connectors, Tubes**

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1 Terminology

Abbreviation	Description
Delrin®	Polyoxymethylene/polyformaldehyde
DMSO	Dimethylsulfoxid
ETFE	Ethylene tetrafluorethylene
FFKM	Perfluoroelastomer (FFKM)
FFPM	Perfluoroelastomer (FFPM)
FPM	Fluoropolymerelastomer (FKM/FPM)
FEP	Fluorethylenpropylen
ml	Milliliter = cubic centimeters
MVQ	Silicon
NBR	Nitrile
PA	Polyamide
PE	Polyethylene
PEEK	Polyether ether ketone
PFA	Perfluoroalkoxy alkane
POM / Acetal	Polyoxymethylen
PP	Polypropylene
PS	Polystyrene
PTFE	Polytetrafluoroethylene
Tefzel®	ETFE fluoropolymer resin
UNF	Unified Fine Thread Series - American fine thread

2 Purpose of this catalog

This catalog provides a description of the available accessories for use with our SMLD micro valves and valve holders. It is not intended to provide instructions for the correct and safe usage of your instrument and its components. Please refer to the user manual or contact your authorised distributor for operation instructions. In the case of doubt or technical questions, please contact your distributor.

3 Technical progress

Fritz Gyger AG reserves the right to implement technical modifications within the course of technical progress and as a result of an effort towards continuous improvement.

4 Warranty and disclaimers

All accessories subject to wear. Therefore there is no warranty for deficiencies and damage caused by wear.

5 Industrial Syringe Barrel System 5 – 55 ml

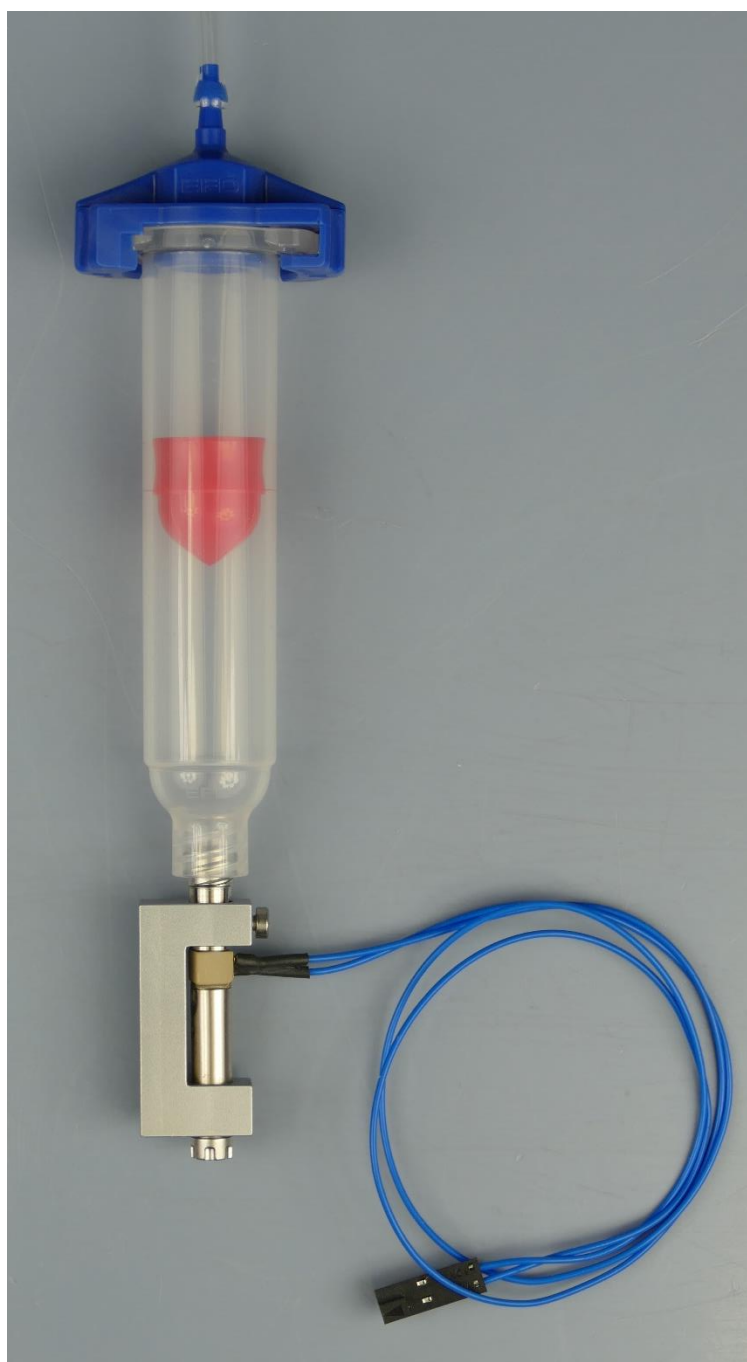
A very simple possibility to build a fluid vessel is the use of our industrial style syringe barrels and cartridges. This system offers a wide size range from 5 ml up to 960 ml and a pressure rating up to 7 bar.

5.1 Overview

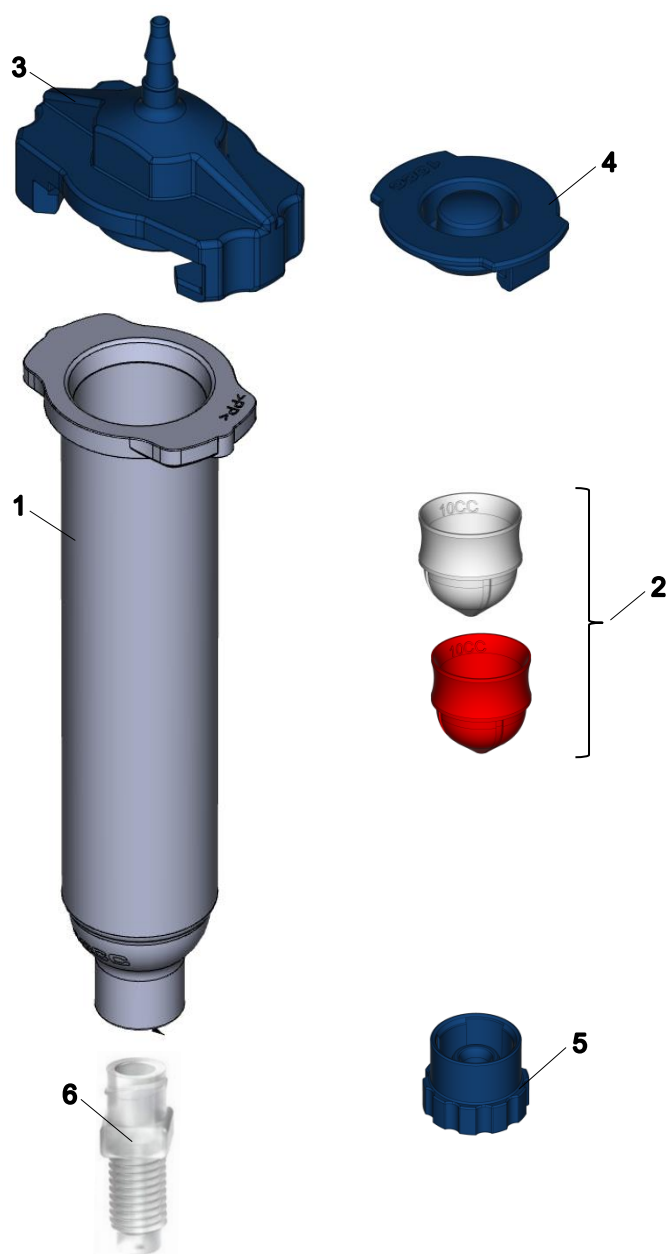
A very simple possibility to build a fluid reservoir (5- 55 ml) is the use of our industrial style syringe barrels. If you need more fluid stored, have a look at our cartridge system (180-960 ml).

The high precision syringe barrels and components offer an accurate fluid deposit.

Shown here one configuration sample how a syringe barrel (here 10 ml) can be directly connected to SMLD 300G valve holder system via Adapter (Luer-Lock to ¼-28 UNF)



Assembling and components of syringe kits 5 ml to 55 ml



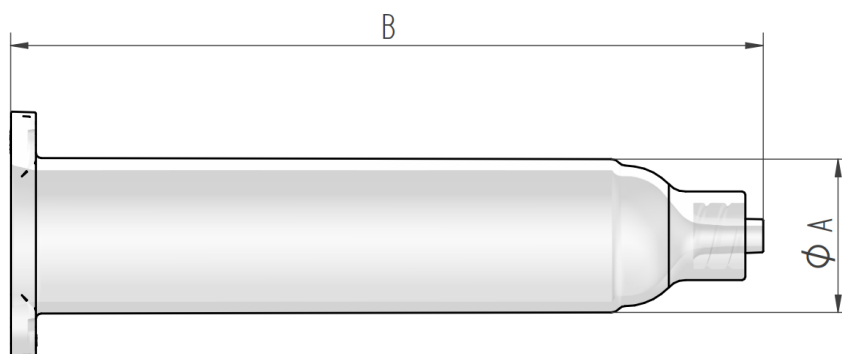
Description	See chapter
1) Syringe Barrel	5.2
2) Piston	5.3
3) Adapter Head	5.4
4) End Cap (for use when syringe is stored)	5.5
5) Tip cap (for use when syringe is stored)	5.5
6) Luer-Lock outlet adapters	10.8

5.2 Syringe Barrels

The unique internal profile ensures smooth, unimpeded laminar flow, without fluid turbulence or dead zones that could trap air. A tapered internal luer minimizes fluid shear during dispensing and filling operations.

Usable with pressures up to 7 bar, made out of silicon free PP. Male Luer-Lock outlet

Our syringe barrels are available in general-purpose clear, and light-proof black configurations in 5, 10, 30 and 55 ml capacities.



Capacity (ml, cc)	A (mm)*	B (mm)*	Color	Part-#
5	14.3	68.3	Clear	17956
10	19.1	88.9	Clear	17955
30	25.4	115.9	Clear	17954
55	25.4	173	Clear	17953
5	14.3	68.3	Black	17952
10	19.1	88.9	Black	17951
30	25.4	115.9	Black	17950
55	25.4	173	Black	17949

*typical values, do not take as a specification

5.3 Pistons

Our pistons mate perfectly with syringe barrels to provide accurate, consistent fluid deposits and smooth, unobstructed travel.

Unique features include precision molded channels that prevent air entrapment, a smooth profile radius that reduces fluid shear, and precision wiping edges that eliminate waste as fluid is dispensed.



The pistons allow to orient the syringe barrel in horizontal way or upwards (fluid does not rinse out).

RED Pistons with double wiping edges for dispensing fluid with higher pressure (above 1 bar). Normal tightness.

WHITE Pistons with double wiping edges for dispensing fluid with low pressure (below 1 bar). Reduced tightness.



Size (ml, cc)	Tightness	Color	Part-#
5	Normal	Red	17938
10	Normal	Red	17937
30 / 55 *	Normal	Red	17936
5	Reduced	White	17941
10	Reduced	White	17940
30 / 55 *	Reduced	White	17939

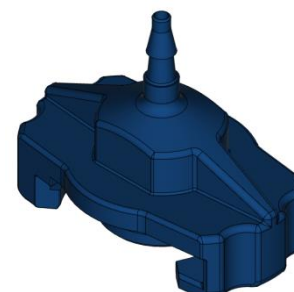
*can be used in both syringe barrel sizes

5.4 Adapter Heads

The adapter heads are designed for fast attachment and feature slots that lock securely onto matching tabs on the syringe barrel.

The barb with 3.6 mm diameter allows easy coupling of tubes with inner diameter 2.5 – 3.2 mm for supplying pressured air (max. 7 bar)

Material: POM (Acetal), o-ring NBR



Size (ml, cc)			Part-#
5			17948
10			17947
30 / 55 *			17946

*can be used for both syringe barrel sizes

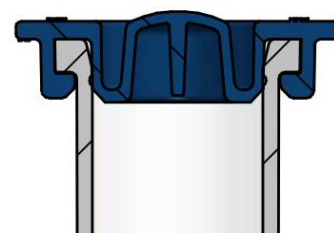
5.5 End Caps / Tip Cap

Tip and End caps are used when storing the syringe barrel for another use with the rest of the fluid in it.



End Caps

End caps feature a precision fit and use a convenient pushbutton to produce a snug, air-tight seal when storing the syringe barrel for another use



Size (ml, cc)			Part-#
5			17945
10			17944
30 / 55 *			17943

*can be used for both syringe barrel sizes

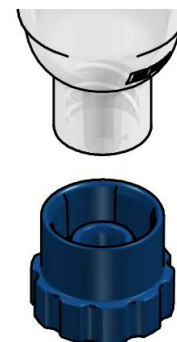
Tip Cap

Part-# 17942

Tip caps have a large knurled gripping surface that simplifies attachment, and a vent that prevents air from being introduced into the syringe barrel during installation.

They fit to all Luer-Lock syringe barrels from 5 – 55 ml size.

Material: PP



Please find corresponding Luer-Lock outlet-adapters in Section 10.8

6 Industrial Cartridge System 180 – 960 ml

6.1 Overview

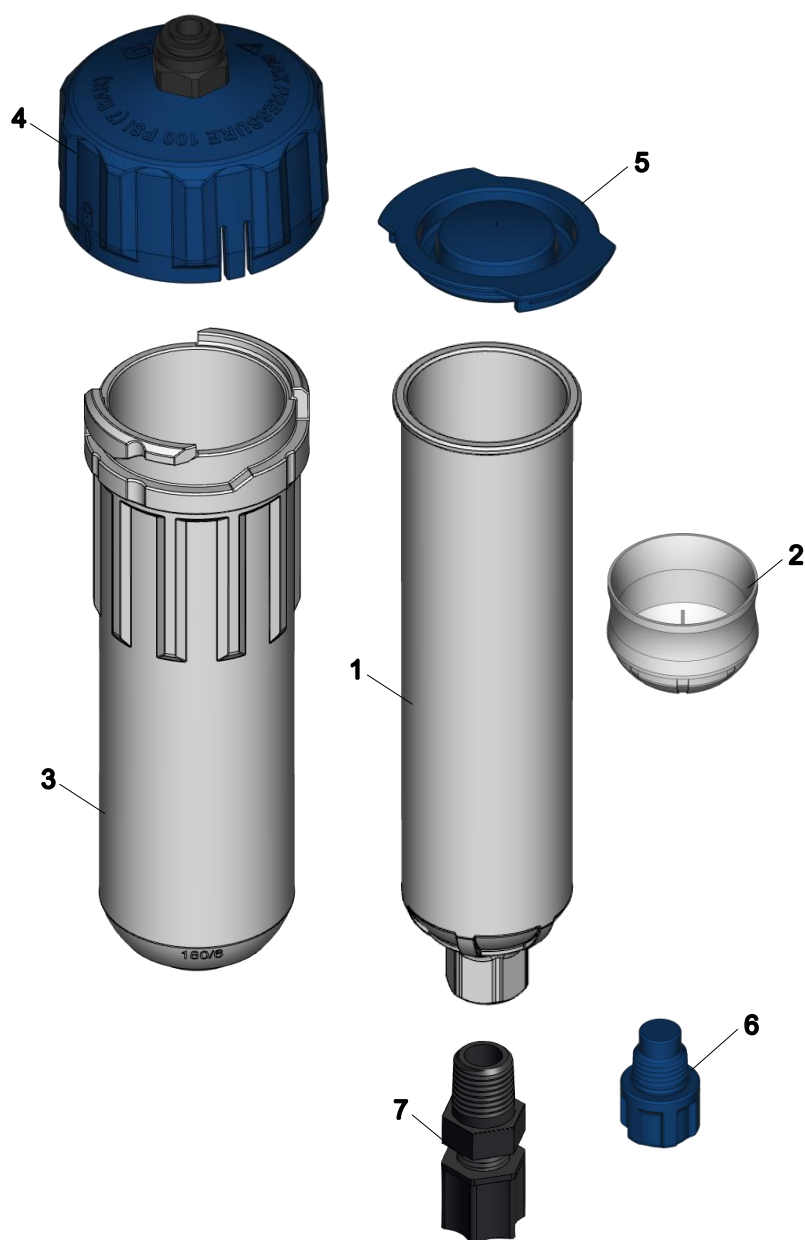
The cartridge system offers a simple way to build a fluid reservoir with higher volumes (180- 960 ml).

The concept is made with a cartridge which is inserted into a robust retainer with end cap. On top there is a push-in connector for common air tubes, which allows to pressurize the cartridges up to 7 bar.

To dispense pasty fluids or to run the system in horizontal orientation you can put in precise pistons.



Assembling and components of cartridge kits 180 – 960 ml



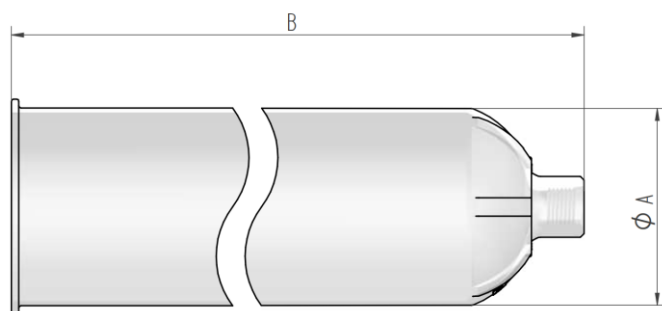
Description	See chapter
1) Cartridge	6.2
2) Piston	6.3
3) Cartridge Retainer	6.4
4) Cartridge Head	6.5
5) End Cap (for use when syringe is stored)	6.6
6) Tip cap (for use when syringe is stored)	6.6
7) Outlet adapters	10.7

6.2 Cartridges

The unique internal profile ensures smooth, unimpeded laminar flow, without fluid turbulence or dead zones that could trap air.

Usable with pressures up to 7 bar, made out of silicon free PP.
Outlet thread 1/4" NPT

Our cartridges are available in 180, 360, 600 and 960 ml capacities.



Note: You always need a retainer (with same capacity) to hold the cartridge!

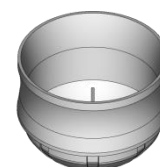
Capacity (ml, cc)	A (mm)*	B (mm)*	Color	Part-#
180	43.2	181.5	Clear	17884
360	43.2	314.3	Clear	17896
600	68.3	249.7	Clear	17890
960	68.3	346.4	Clear	20902

*typical values, do not take as a specification

6.3 Pistons

Our pistons mate perfectly with syringe barrels to provide accurate, consistent fluid deposits and smooth, unobstructed travel.

Unique features include precision molded channels that prevent air entrapment, a smooth profile radius that reduces fluid shear, and precision wiping edges that eliminate waste as fluid is dispensed.



The pistons allow to orient the syringe barrel in horizontal way or upwards (fluid does not rinse out).

Size (ml, cc)	Color	Part-#
180 / 360 *	White	17893
600 / 960 *	White	17886

*can be used in both cartridge sizes

6.4 Cartridge Retainers

The cartridge retainers are used as a pressure proof container, to hold the cartridges.

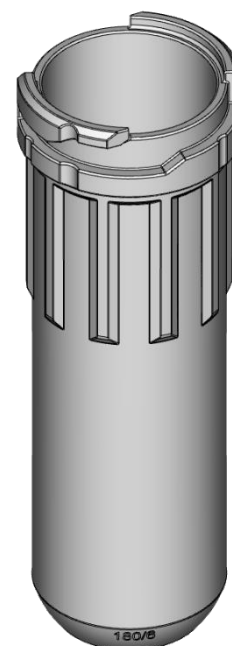
They are molded from high-tensile, clarified nylon that permits easy visual monitoring of fluid levels. Large textured ribs provide an ergonomic grip for cap installation.

Usable with pressures up to 7 bar

Material: Nylon

Available in 180, 360, 600 and 960 ml capacities.

Note: Select always the same capacity as the inserted cartridge!



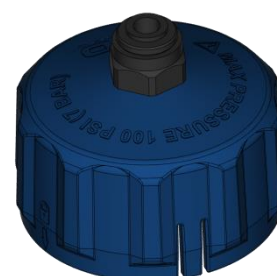
Capacity (ml, cc)			Color	Part-#
180			Clear	17889
360			Clear	17895
600			Clear	17888
960			Clear	20903

6.5 Cartridge Heads

Cartridge heads feature locking tabs that snap into detents on the retainer body with an audible click. Only ¼ turn is required to lock the cap securely in place.

A push-in air line connector on top of the cap allows easy coupling of tubes with outer diameter 6 mm for supplying pressured air (max. 7 bar)

Material: Nylon, O-ring NBR



Size (ml, cc)			Part-#
180 / 360 *			17894
600 / 960 *			17887

*can be used for both retainer sizes

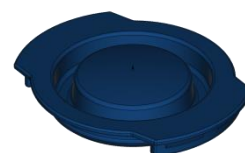
6.6 End Caps / Tip Cap

Tip and End caps are used when storing the cartridges for another use with the rest of the fluid in it.



End Caps

End caps feature a precision fit and use a convenient pushbutton to produce a snug, air-tight seal when storing the cartridge for another use



Size (ml, cc)		Part-#
180 / 360		17891
600 / 960		17885

*can be used for both cartridge sizes

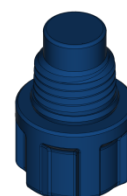
Tip Cap

Part-# 17892

Tip caps have a large knurled gripping surface that simplifies attachment.

They fit to all cartridges (1/4" NPT thread from 180 – 960 ml size.

Material: PP



Please find corresponding outlet adapters for tubes in Section 10.7

7 Pharma Style Syringe System

7.1 Overview

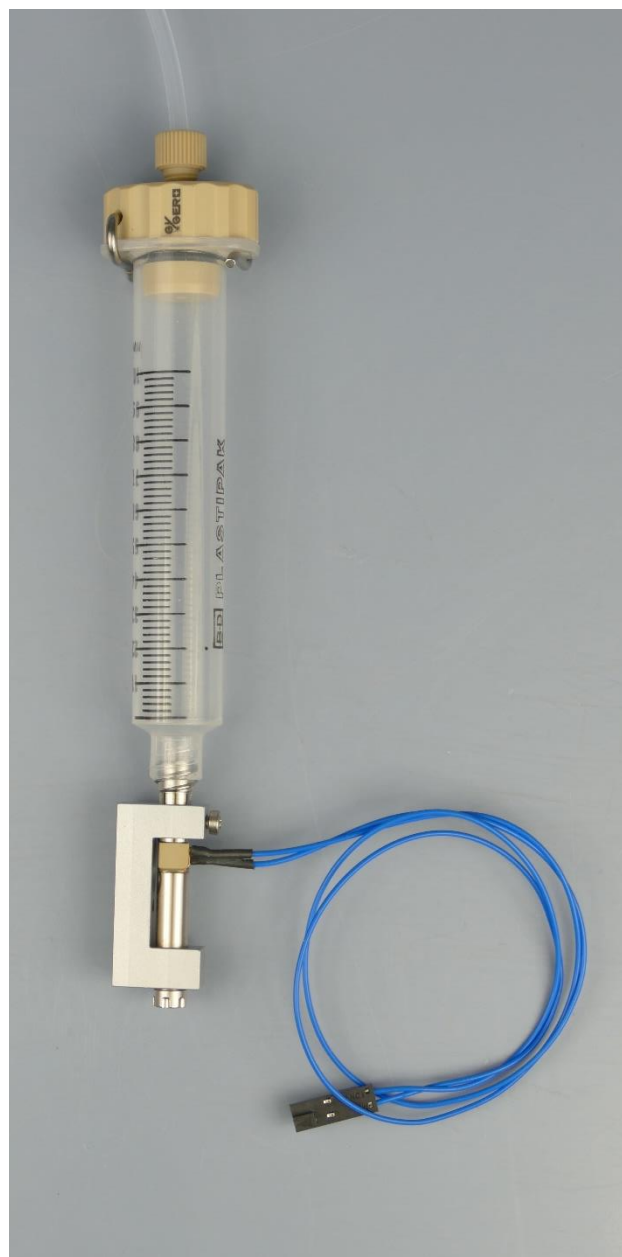
This Fluid reservoir System is optimized for use in pharmaceutical companies.

Sterilized Syringes made of latex- and pvc free polypropylene with easy visible graduation printed on the syringe bodys.

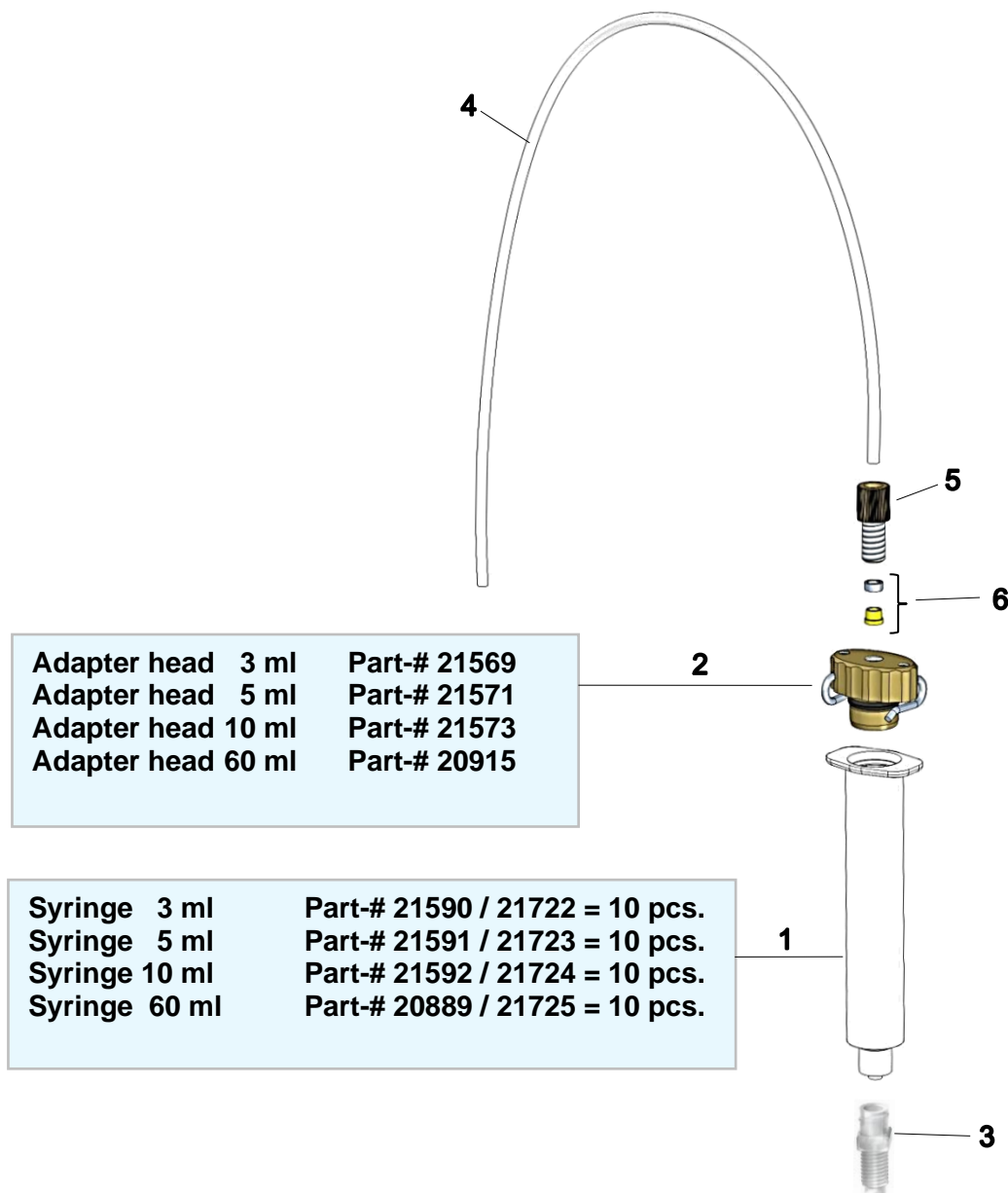
Sterilizable adapter heads made of PEEK, with O-Rings in FPM and tube connectors for easy air supplying with 1/8" PFA tubes complete this serie.

A max. pressure of 3 bar is allowed


The use of pistons is not possible here.




Assembling and components of syringe kits 3 ml to 60 ml

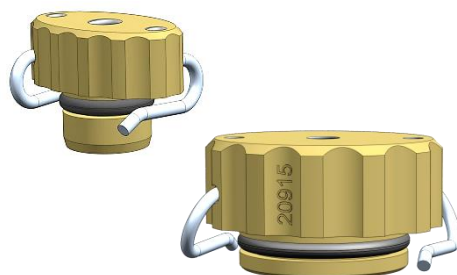


Description	Part-#	Order Part-#
1) Disposable syringe (volumes from 3 to 60 ml)	see above	see above
2) Adapter head, PEEK with FPM O-Ring	see above	see above
3) Luer Lock adapters		See chapter 10.8
4) Tube Ø 3.17; Ø 1.58; FEP		21911 = 10 m
5) Male nut 1/4-28 UNF; Ø 2-3.2, PEEK	21593	21816 = 10 pcs.
6) Ferrule 1/4-28 UNF; Ø 3.2, Tefzel/Steel	21608	21817 = 10 pcs.

7.2 Syringes		
Disposable syringes		
BD Plastipak disposable syringes		
<ul style="list-style-type: none"> · BD Plastipak disposable syringes with centric Luer-Lock · Barrel and plunger made of polypropylene (PP) · Latex and PVC free <p>1 shipping unit = 10 pieces Not recommended for the storage of substrates over longer periods!</p>		
Disposable syringe	Part-#	Order Part-#
BD Plastipak disposable syringe 3 ml; 10 pcs.	21590	21722 = 10 pcs.
Disposable syringe	Part-#	Order Part-#
BD Plastipak disposable syringe 5 ml; 10 pcs.	21591	21723 = 10 pcs.
Disposable syringe	Part-#	Order Part-#
BD Plastipak disposable syringe 10 ml; 10 pcs.	21592	21724 = 10 pcs.

Disposable syringe	Part-#	Order Part-#
BB Omnifix disposable syringe 60 ml	20889	21725 = 10 pcs.
<ul style="list-style-type: none"> · BBraun disposable syringe 60 ml with centric Luer-Lock · Barrel and plunger made of polypropylene (PP) · Latex and PVC free <p>Part-# 21725 -> 1 shipping unit = 10 pieces Not recommended for the storage of substrates over longer periods!</p>		

Please find corresponding Luer-Lock outlet-adapters in Section 10.8

7.3 Adapter Heads	
Adapter heads	
<ul style="list-style-type: none"> • Adapter heads for the supply of compressed air into disposable syringes • Made of PEEK, with O-ring made of FPM • Adjustable mounting brackets made of stainless steel • The adapter head can be autoclaved <p>A specific adapter head is required for each syringe type!</p>	
Adapter head Series 2	
Adapter head for disposable syringe BD Plastipak 3 ml	Part-# 21569
Spare O-ring FPM 10 pcs. Set	Part-# 22137
Adapter head for disposable syringe BD Plastipak 5 ml	Part-# 21571
Spare O-ring FPM 10 pcs. Set	Part-# 22138
Adapter head for disposable syringe BD Plastipak 10 ml	Part-# 21573
Adapter head for disposable syringe BB Omnifix 60 ml	Part-# 20915

8 Pharma Style Bottle System

8.1 Overview

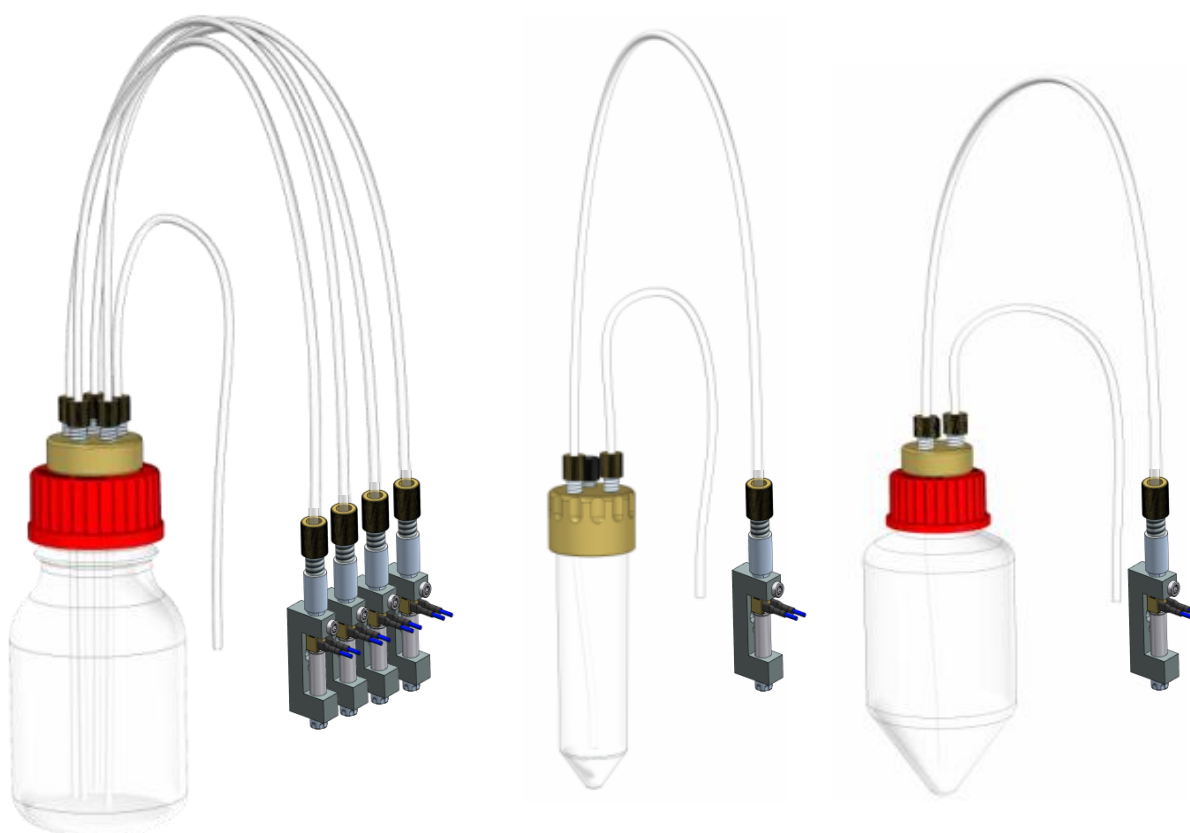
With our bottle System you can easily configure a fluid supply system that matches pharmaceutical criterias.

Bottles made of glass or PP.

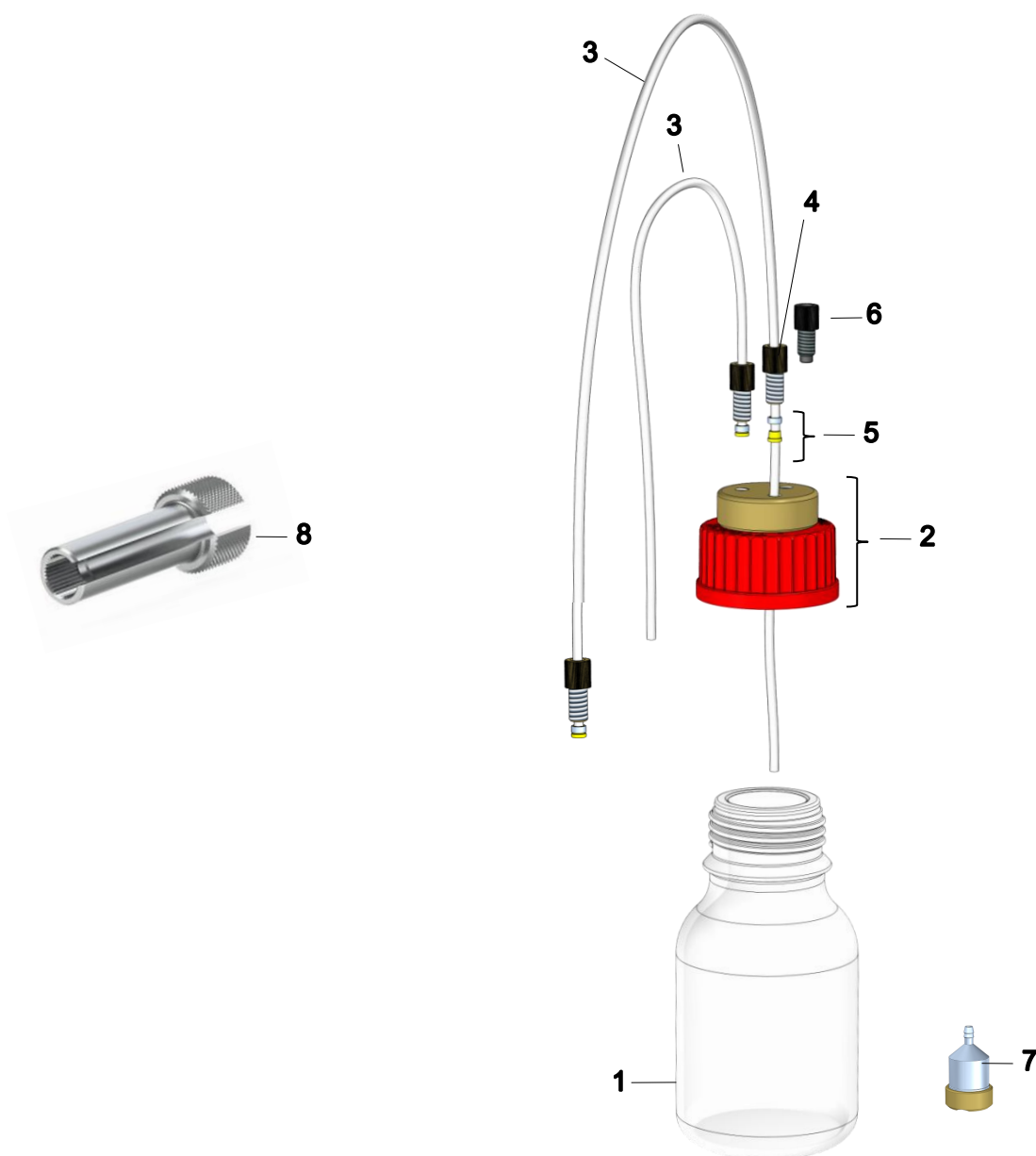
The heads are made of PEEK, PTFE, FKM and PBTP and can be autoclaved.

The system is made for use of 1/8" FEP tubing

Tubes can be easily connected to SMLD 300G valve holders with 1/4-28 UNF thread



Assembling and components of bottle kits 50 – 1000 ml



Description	Order Part-#
1) Bottle	See chapter 8.2
2) Bottle head	See chapter 8.3
3) Tube Ø 3.17; Ø 1.58; FEP	21911 = 10m
4) Male nut 1/4-28 UNF; Ø 2-3.2; PEEK	21816 = 10 pcs.
5) Ferrule 1/4-28 UNF; Ø 3.2, Tefzel/Steel	21817 = 10 pcs.
6) Blind Plug 1/4-28 UNF, Delrin	21909 = 10 pcs.
7) Filter	21464
8) Extender Tool	21920

8.2 Bottles

Glass bottle "Pressure Plus"; GL 45

"Pressure Plus" glass bottle with GL 45 thread certified for use with pressure up to 1,5 bar or vacuum up to – 1 bar

1 shipping unit = 1 piece



Size (ml)		Part-#
250		17859
500		17986
1000		17985

Plastic bottle 250 ml with conical base; with cap

Part-# 18730

Order Part-# 21812 = 4 pcs.

- 250 ml plastic bottle (centrifuge tube) with conical base
- made of translucent polypropylene (PP)
- with polyethylene (PE) screw cap

Part-# 21812 -> 1 shipping unit = 4 pieces

Not certified for use under pressure or vacuum!



Plastic bottle 500 ml with conical base; with cap

Part-# 22179

Order Part-# 23508 = 4 pcs.

- 500 ml plastic bottle (centrifuge tube) with conical base
- made of translucent polypropylene (PP)
- with polyethylene (PE) screw cap

Part-# 23508 -> 1 shipping unit = 4 pieces

Not certified for use under pressure or vacuum!



Plastic bottle 50 ml with conical base; with cap

Part-# 20568





Order Part-# 21814 = 20 pcs.

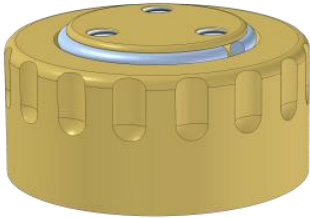

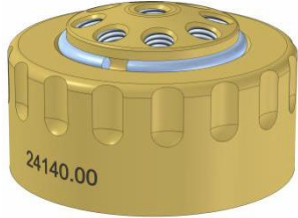
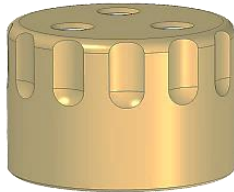
- 50 ml plastic bottle (centrifuge tube) with conical base
- made of translucent polypropylene (PP)
- with polyethylene (PE) screw cap

Part-# 21814-> 1 shipping unit = 20 pieces

Not certified for use under pressure or vacuum!



8.3 Bottle Heads	
Bottle head GL 45, 1 air inlet / 8 fluid outlets	Part-# 24134* / 25550
<ul style="list-style-type: none"> · Distributor head for GL 45 laboratory bottles with 1 compressed air inlet / 8 fluid outlets · for male nuts or blind plugs 1/4-28 UNF · Screw cap made of PBT · Body made of PTFE, PEEK, FKM and stainless steel · The heads can be autoclaved <p>Part-# 24134* with silicon (MVQ) O-Ring Part-# 25550 with FEP O-Ring * discontinued</p>	
	
Bottle head GL 45, 1 air inlet / 4 fluid outlets	Part-# 21793
<ul style="list-style-type: none"> · Distributor head for GL 45 laboratory bottles with 1 compressed air inlet / 4 fluid outlets · for male nuts or blind plugs 1/4-28 UNF · Screw cap made of PBT · Body made of PTFE, PEEK, FKM and stainless steel · The heads can be autoclaved <p>Part-# 21793 with silicon (MVQ) O-Ring</p>	
	
Bottle head GL 45, 1 air inlet / 2 fluid outlets	Part-# 25546
<ul style="list-style-type: none"> · Distributor head for GL 45 laboratory bottles with 1 compressed air inlet / 2 fluid outlets · for male nuts or blind plugs 1/4-28 UNF · Screw cap made of PBT · Body made of PTFE, PEEK, FKM and stainless steel · The heads can be autoclaved <p>Part-# 25546 with FEP O-Ring</p>	
	
Bottle head GL 32, 1 air inlet / 2 fluid outlets	Part-# 21540
<ul style="list-style-type: none"> · Distributor head for GL 32 laboratory bottles with 1 compressed air inlet / 2 fluid outlets · for male nuts or blind plugs 1/4-28 UNF · Screw cap made of PBT · Body made of PTFE, PEEK, FKM and stainless steel · The heads can be autoclaved <p>Part-# 21540 with silicon (MVQ) O-Ring</p>	
	

Bottle head, 1 air inlet / 2 fluid outlets	Part-# 22104
<ul style="list-style-type: none"> · Distributor head for 500 ml conical laboratory bottles with 1 compressed air inlet / 2 fluid outlets · for male nuts or blind plugs 1/4-28 UNF · made of PEEK, FEP and stainless steel · The heads can be autoclaved 	
Bottle head, 1 air inlet / 4 fluid outlets	Part-# 22220
<ul style="list-style-type: none"> · Distributor head for 500 ml conical laboratory bottles with 1 compressed air inlet / 4 fluid outlets · for male nuts or blind plugs 1/4-28 UNF · made of PEEK, FEP and stainless steel · The heads can be autoclaved 	
Bottle head, 1 air inlet / 8 fluid outlets	Part-# 24140
<ul style="list-style-type: none"> · Distributor head for 500 ml conical laboratory bottles with 1 compressed air inlet / 8 fluid outlets · for male nuts or blind plugs 1/4-28 UNF · made of PEEK, FEP and stainless steel · The heads can be autoclaved 	
Bottle head 50 ml, 1 air inlet / 2 fluid outlets	Part-# 25500
<ul style="list-style-type: none"> · Distributor head for 50 ml plastic bottles (centrifuge tubes) with 1 compressed air inlet / 2 fluid outlets · for male nuts or blind plugs 1/4-28 UNF · made of PEEK and FEP · The heads can be autoclaved 	

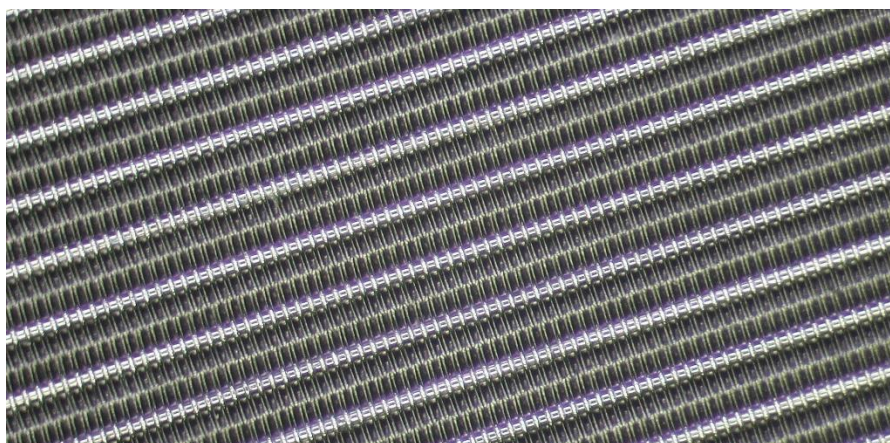
9 Filters

9.1 Introduction

A proper pre-filtering of the dispensed medium is important to get a trouble-free operation with the SMLD Valves. Of course there are applications which don't allow a prefiltering (e.g. dispensing big bio-cells, or some greases), but basically a prefilter should always be considered to prevent the valves from clogging and leaking and improve the valve lifetime.

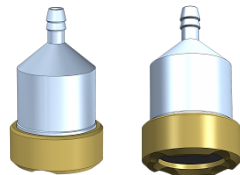
Our stainless-steel-metal-mesh based filters offer several benefits:

- precise and defined filtering
- practically no to very low restriction
- easy cleanable



Note: The integrated small filter in some valve types is not intended to prefilter the medium!
The valve-filter is only a last barrier for single particles. When choosing a SMLD valve type with integrated filter, prefiltering is always strongly recommended!

The prefilter should be always same or smaller filter fineness than the integrated valve filter.

9.2 Suction filter	
Suction filter	Part-# 21464
<p>Immersion suction filter for fluid uptake for tubing with inner diameter 1.6 mm (1/16") Filter made of stainless steel 1.4401 with mesh 40 µm (absolute) Body made of stainless steel 1.4404, sealing cap made of PEEK the filter can be autoclaved</p> <p>Dimensions: Ø 9.6 x 16.2 Filter area: 33 mm² (0.33 cm²)</p>	

9.3 Inline Filter

This inline filters come with a robust housing made in anodised aluminium with a changeable mesh filter element in stainless steel and sealing elements in FKM (Viton)

On both ends there is a femal G 1/8" thread for easy connection with standard fittings.

The filter can be easily opened for maintenance and cleaning. Filter elements and sealing parts are available as spare parts.

Max. pressure: 30 bar

Max. temperature 150°C

Dimensions: Ø 31 x 96 mm

Filter area: 2200 mm² (22 cm²)



Filter fineness (µm absolute)	Input / output thread	Description	Part-#
10	G 1/8" female	Filter	20416
20	G 1/8" female	Filter	18780
40	G 1/8" female	Filter	17960

Filter element

Spare filter element made of stainless steel mesh containing:

1 filter element Ø 12 x 54 mm

1 sealing ring Ø 18 / ø 12 x 2 mm

1 sealing ring Ø 18 / ø 10 x 2 mm



Filter fineness (absolute)			Part-#
10			20415
20			17904
40			17905

Sealing ring kit

Part-# 20350

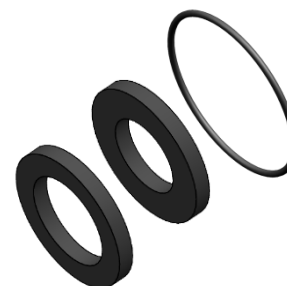
Spare sealing ring kit, containing:

1 sealing ring Ø 18 / ø 12 x 2 mm

1 sealing ring Ø 18 / ø 10 x 2 mm

1 O-ring ø 28 x 1 mm

Material: FKM (Viton)



10 Fittings

10.1 Overview

10.2 Fittings for M3 metric thread

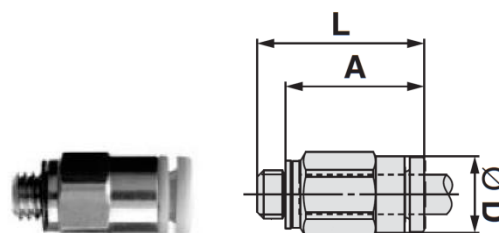
Plug Connector

Plug in connectors with M3 male thread for plastic tubes

Material: Stainless steel, POM, NBR

Max. pressure: 10 bar

Max. temperature 60°C



Tube outer-Ø (mm; inch)	Ø D (mm)	Hex size (mm)	A (mm)	L (mm)	Part-#
2	5.5	5.5	13	15.6	17978
3.2; 1/8"	6.7	7	14.4	17	17977
4	7.7	8	14.5	17.1	17976

10.3 Fittings for M5 metric thread

Tube Fitting

M5

Robust Hose Screw Connection with M5 male thread for metric plastic tubes. Union nut for proper fixation of the tube

Material: Stainless Steel with sealing ring in PVC / Nylon

Max. pressure: 15 bar

Max. temperature 100°C



Tube outer-Ø (mm)	Tube inner-Ø (mm)	Form	Hex size (mm)	Thru hole (mm)	Part-#
4	2.5	straight	7	1.8	18784
6	4	straight	8	2.5	18785
4	2.5	elbow	7	1.8	17981
6	4	elbow	8	2.5	17982

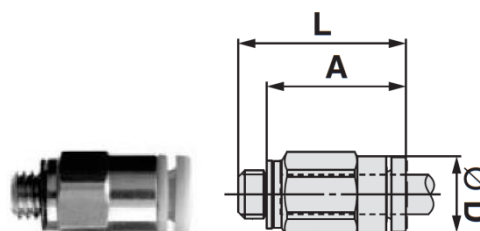
Plug Connector

Plug in connectors with M5 male thread for plastic tubes

Material: Nickered brass, POM, NBR

Max. pressure: 10 bar

Max. temperature 60°C



Tube outer-Ø (mm; inch)	Ø D (mm)	Hex size (mm)	A (mm)	L (mm)	Part-#
3.2; 1/8"	6.7	7	14.3	17.3	20097
4	7.7	8	14.7	17.7	17462

10.4 Fittings for 6-32 UNC flat bottom thread

Male nut

6-32 UNC flat bottom; Ø 1.6

Part-# 20086

Male nut 6-32 UNC flat bottom thread; Ø 1.6 mm (1/16")

for the fixing of tubes with outer Ø 1.6 mm (1/16")

Made of PEEK

Max. Temperature: 150 °C

Note: Use always in combination with Part-# 20087

Dimensions: Knurl size Ø 3.7 mm



Ferrule

6-32 UNC flat bottom; ø 1.6

Part-# 20087

Ferrule 6-32 UNC flat bottom ø 1.6 mm (1/16")

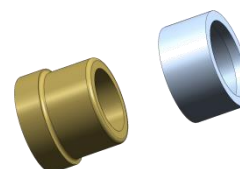
For the fixing / sealing of tubes with outer Ø 1.6 mm (1/16")

Made of PEEK and stainless steel

Max. Pressure @ 20°C: 207 bar (depending on tube)

Max. Temperature: 150 °C

Note: Use always in combination with Part-# 20086



10.5 Fittings for 10-32 UNF conical thread

Tube Fitting

10-32 UNF conical; Ø 1.6

Part-# 18747

Male nut 10-32 UNF and conical ferrule Ø 1.6 mm (1/16")
for the fixing / sealing of tubes with outer Ø 1.6 mm (1/16")

Made of PEEK

Max. Pressure @ 20°C: 483 bar (depending on tube)
Max. Temperature: 150 °C

Hex. Size 6.3 mm



Note: If you need to connect tubes with outer diameter 0.8 mm, please use the sleeve part-# 17875 shown in chapter 11.5 in combination with the fitting shown here.

10.6 Fittings for 1/4-28 UNF threads

Male nut	Part-#
1/4-28 UNF; Ø 1.6	21701

Male nut 1/4-28 UNF; Ø 1.6 mm (1/16")
 Made of PPS (polyphenylene sulfide)
 For the fixing / sealing of tubes with outer Ø 1.6 mm (1/16")

Max. Temperature: 100 °C
 Knurl size 9 mm

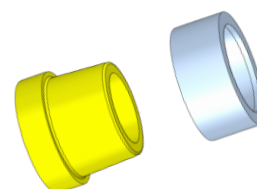


Note: Use always in combination with Part-# 21702

Ferrule	Part-#
1/4-28 UNF; Ø 1.6	21702

Ferrule 1/4-28 UNF; Ø 1.6 mm (1/16"), Tefzel/steel; 2 parts
 Made of ETFE (Tefzel) and stainless steel
 For the fixing / sealing of tubes with outer Ø 1.6 mm (1/16")

Max. Pressure @ 20°C: 93 bar (depending on tube)
 Max. Temperature: 150 °C

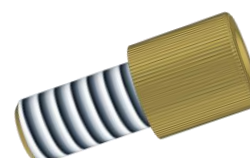


Note: Use always in combination with Part-# 21701

Male nut	Part-#	Order Part-#
1/4-28 UNF; Ø 2 - 3.2	21593	21816 = 10 pcs

Male nut 1/4-28 UNF; Ø 2 - 3.2
 Made of PEEK
 For the fixing / sealing of tubes with outer Ø 2 - 3.2 mm
Order Part-# 21816 = 1 shipping unit = 10 pieces

Max. Temperature: 150 °C
 Knurl size 9 mm

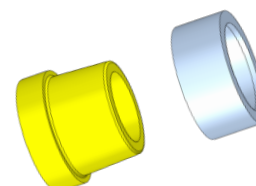


Note: Use always in combination with Part-# 21608 / 21817

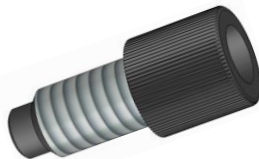

Ferrule	Part-#	Order Part-#
1/4-28 UNF; Ø 3.2, Tefzel/steel; 2 parts	21608	21817 = 10 pcs


Ferrule 1/4-28 UNF; Ø 3.2 mm (1/8"), Tefzel/steel; 2 parts
 Made of ETFE (Tefzel) and stainless steel
 For the fixing / sealing of tubes with outer Ø 3.2 mm (1/8")
Order Part-# 21817 = 1 shipping unit = 10 pieces

Max. Pressure @ 20°C: 69 bar (depending on tube)
 Max. Temperature: 150 °C



Note: Use always in combination with Part-# 21593 / 21816

Blind plug	Part-#	Order Part-#
1/4-28 UNF, Delrin	21554	21909 = 10 pcs
<p>Blind plug 1/4-28 UNF Made of POM (Delrin) For the closing of unutilised outlet ports Order Part-# 21909 = 1 shipping unit = 10 pieces</p> <p>Max. Temperature: 100 °C Knurl size 9 mm</p>		
		
Blind plug	Part-#	Order Part-#
1/4-28 UNF, ETFE (Tefzel)	25695	25696 = 10 pcs.
<p>Blind plug 1/4-28 UNF Made of ETFE (Tefzel) For the closing of unutilised outlet ports in the bottle heads Order Part-# 25696 = 1 shipping unit = 10 pieces</p> <p>Max. Temperature: 100 °C Knurl size 9 mm</p>		
		

Extender Tool		
Tool for tighten nut	Part-# 21920	
<p>for Blind plug 1/4-28 UNF Part-# 21554 / 21909 for Blind plug 1/4-28 UNF Part-# 25695 / 25696 for Male nut 1/4-28 UNF Part-# 21593 / 21816 for Male nut 1/4-28 UNF Part-# 21701 Made of Aluminium</p>		
		

10.7 Fittings for G 1/8, G 1/4, 1/4 NPT thread

Tube Fitting

Robust Hose Screw Connection for metric plastic tubes
Union nut for proper fixation of the tube

Material: Anodised aluminium with sealing ring in Nylon / PU

Max. pressure: 10 bar

Max. temperature 60°C



Thread	Tube outer-Ø (mm)	Tube inner-Ø (mm)	Hex size (mm)	Thru hole (mm)	Part-#
G 1/8	6	4	13	2.8	18469
G 1/8	8	6	13	4.9	18468
G 1/4	6	4	17	2.8	18467
G 1/4	8	6	17	4.9	18482

Tube Fitting

Can be used to connect tubes to any female G 1/8" thread

Material: PP (beige)

Max. Pressure @ 20°C: 10 bar

Max. Pressure @ 90 °C: 2 bar

Max. Temperature: 90°C



Thread	Tube outer-Ø (mm)	Tube inner-Ø (mm)	Hex size (mm)	Thru hole (mm)	Part-#
G 1/8	4	any	14	4	17965
G 1/8	6	4	14	3.3	17966
G 1/4	8	6	17	5.2	25386

Tube Fitting

1/4" NPT; Ø 6

Part-# 21170

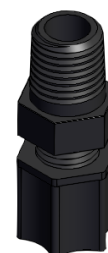
Can be used to connect the cartridges (with 1/4" NPT outlet thread) to tubes with 6mm or 1/4" outer diameter.

Material: PP

Thru hole: 4.5 mm

Max. pressure @ 20°C: 7 bar

Max. temperature 60°C



10.8 Luer-Lock adapters

Threaded Fitting

Luer-Lock; 1/4-28 UNF flat

Part-# 17967

Can be used to connect a syringe barrel directly at the inlet of our SMLD valve holder SMLD 300G PN 19318 (1/4-28 UNF)

Material: PP (transparent)

Thru hole: 1.3 mm

Max. Pressure @ 20°C: 10 bar

Max. Pressure @ 100°C: 2 bar

Max. Temperature: 100°C



Threaded Fitting

Luer-Lock; 10-32 UNF conical

Part-# 18746

Can be used to connect a syringe barrel directly at the inlet of our SMLD valve holder SMLD 300 PN 19321 (10-32 UNF)

Material: Tefzel (ETFE) (transparent)

Thru hole: 1.3 mm

Max. Pressure @ 20°C: 3.1 bar

Max. Pressure @ 150°C: 0.3 bar

Max. Temperature: 150°C



Threaded Fitting

Luer-Lock; G 1/8"

Part-# 17968

Can be used to connect a syringe barrel to any female G 1/8" thread

Material: PP (beige)

Thru hole: 3.2 mm


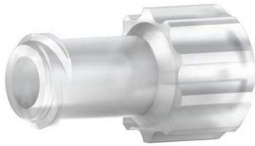
Max. Pressure @ 20°C: 10 bar

Max. Pressure @ 90 °C: 2 bar

Max. Temperature: 90°C

Hex size: 14 mm



Tube Fitting				
Luer-Lock				
<p>Can be used to connect a syringe barrel to tubes Material: PP (beige) Thru hole: 2.9 mm Max. Pressure @ 20°C: 10 bar Max. Pressure @ 90°C: 2 bar Max. Temperature: 90°C</p>				
				
Tube outer-Ø (mm)	Tube inner-Ø (mm)	Hex size (mm)	Thru hole (mm)	Part-#
4	any	12	3	17969
6	4	12	3.3	17927
Tube Fitting				
Luer-Lock				
<p>Can be used to connect a syringe barrel to tubes Material: Material: PP/Tefzel (ETFE) (transparent) Thru hole: Inner diameter of used tube Max. Pressure @ 20°C: 3 bar Max. Pressure @ 100°C: 1 bar Max. Temperature: 100°C</p>				
				
Tube outer-Ø (mm; inch)	Tube inner-Ø (mm)			Part-#
1.6; 1/16"	any			17877
3.2; 1/8"	any			23890

11 Tubes

11.1 Polyurethane tubes

Polyurethane tubes are a good solution in use with non aggressive mediums like air and water in low temperature, low pressure use.

This tubes are in transparent color and offer a very good bendability.

Material: Polyurethane

Max. Pressure @ 20°C: 8 bar

Max. Pressure @ 60°C: 5 bar

Max. Temperature: 60°C

Available by the meter



Tube outer-Ø (mm; inch)	Tube inner-Ø (mm)	Color	Min. bending radius	Part-#
2	1.2	Transparent	4	17935
3.2; 1/8"	2	Transparent	10	24000
4	2.5	Transparent	10	17933
6	4	Transparent	15	18485
8	5	Transparent	20	20277

11.2 Polyamid (Nylon) tubes

Polyamide tubes offer a robust solution and are chemical resistant against a wide range of mediums like oils, greases, alcohols and solvents.

This tubes are in black color and are UV tight.

Material: Polyamide 12

Max. Pressure @ 20°C: 30 bar (8/6 20bar)

Max. Pressure @ 100°C: 11 bar (8/6 7.5 bar)

Max. Temperature: 100°C

Available by the meter



Tube outer-Ø (mm)	Tube inner-Ø (mm)	Color	Min. bending radius	Part-#
4	2.5	Black	13	18806
6	4	Black	24	18779
8	6	Black	40	18470

11.3 FEP / PFA Tubes

FEP / PFA Tubes offer highest chemical resistance and are well suited for applications in chemical and pharmaceutical industries.

This tubes are in transparent color and poreless.

Material: FEP / PFA

Max. Temperature: 200°C

Available by the meter (except 21911 = 10 m)



Tube outer-Ø (mm; inch)	Tube inner-Ø (mm; inch)	Color	Max. pressure @ 20° C	Part-#
1.6; 1/16"	0.75; 1/32"	Transparent	69	18847
1.6; 1/16"	1.00	Transparent	34	17998 *
2	1.00	Transparent	69	17997 *
3.2; 1/8"	1.6; 1/16"	Transparent	34	21438
3.2; 1/8"	1.6; 1/16"	Transparent	34	21911 (10m)
*not common				

11.4 PEEK Tubes

PEEK Tubes offer highest chemical resistance and highest pressure and temperature resistance.

Material: PEEK


Max. Pressure @ 20° C: 207 bar

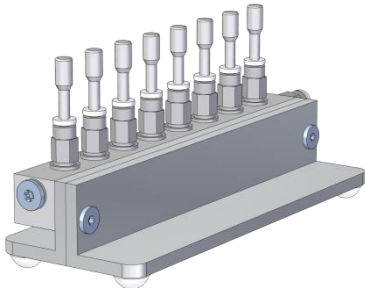
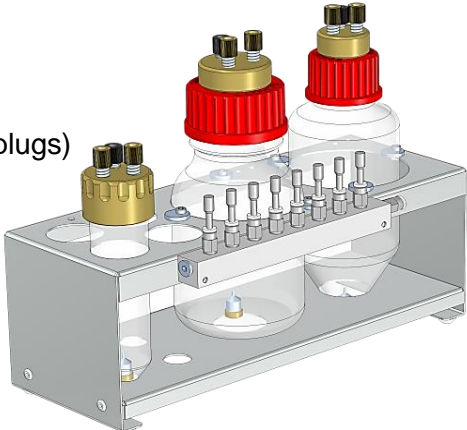
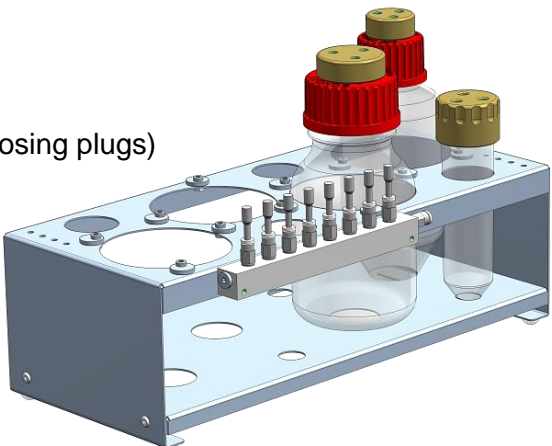
Max. Temperature: 200°C

Available by the meter



Tube outer-Ø (mm; inch)	Tube inner-Ø (mm)	Color	Part-#
0.8; 1/32"	0.13	Red	24520 *
0.8; 1/32"	0.5	Red	17922
1.6; 1/16"	1.00	Nature	17932
*not common			

11.5 Sleeve	
Ø 1.6 mm; Ø 785-825µm	Part-# 17875
<p>Can be used to mount 0.8 mm (1/32") outer diameter tubes in regular Fittings for 1.6 mm (1/16") tubes</p> <p>Through hole: 0.83 mm</p> <p>Material: FEP</p> <p>Colour: green</p> <p>Length: 40 mm</p> <p>Max. Pressure @ 20° C: 276 bar</p> <p>Max. Temperature: 200°C</p>	
	

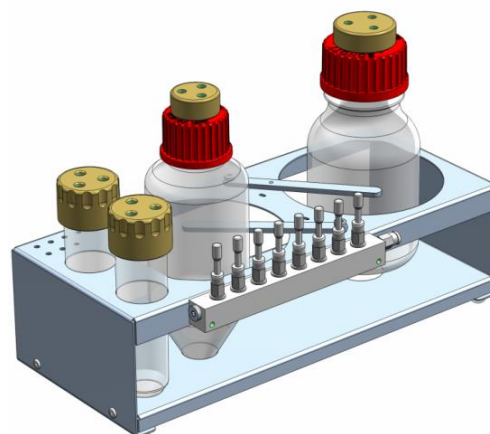
12 Supply Accessories	
12.1 Compressed air manifold	
1 x 8 outlet connections	Part-# 21268
<ul style="list-style-type: none"> • Supply of compressed air to eight channels • To be used when syringe kits or large bottles are used for fluid uptake which do not require a bottle holder. • anodised Aluminium • Dimensions L 135 x W 50 x H 62 mm (height of closing plugs) <p>Air input connector size: 1x \varnothing 4 mm Air output connector size: 8x \varnothing 3.2 mm</p>	
12.2 Bottle holders	
Type 2-4-0; 2 x \varnothing 71/61 mm; 4 x \varnothing 30 mm	Part-# 21614
<ul style="list-style-type: none"> • Holds 2 x 250ml bottles and 4 x 50ml tubes • Compressed air supply for up to 8 channels • Made from stainless steel • Dimensions L 248 x W 107 x H 131 mm (height of closing plugs) • H 188 mm with 250 ml bottle (without tubing) <p>(bottle kits shown in the picture are not included !)</p>	
Type 4-4-0; 4 x \varnothing 71/61 mm; 4 x \varnothing 30 mm	Part-# 21712
<ul style="list-style-type: none"> • Holds 4 x 250ml bottles and 4 x 50ml tubes • Compressed air supply for up to 8 channels • Made from stainless steel • Dimensions L 298 x W 145 x H 131 mm (height of closing plugs) • H 188 mm with 250 ml bottle (without tubing) <p>(bottle kits shown in the picture are not included !)</p>	

Type Universal

Part-# 23491

- Holds multiple bottle kits
- Compressed air supply for up to 8 channels
- 2 x 50 ml, 2 x 250 ml conical or glass
- or 2 x 500 ml conical
- or 2 x 1000 ml glass
- or any combination of two bottles
- Made from stainless steel
- Dimensions L 282 x W 135 x H 114 mm (height of closing plugs)
- H 166 mm with 500 ml conical bottle (without tubing)

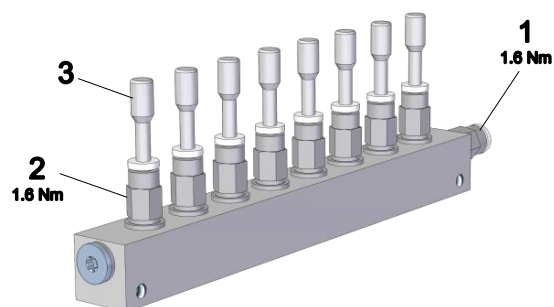
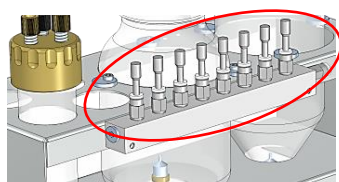
(bottle kits shown in the picture are not included !)



Plug

Plug Connector for compressed air manifolds

- Plug Connector for the compressed air manifolds
- for Part-# 21268; 21614; 21712



Description	Part-#	Qty.	Order Part-#
1) Plug Connector, inlet; Ø 4 mm	17462	1	17462
2) Plug Connector, outlet; Ø 3.2 mm Including sealing gasket	23888	8	23888 = 1 pc.
3) Plug for closing of unutilised outlet ports of compressed air manifolds	18442	8	21913 = 10 pcs.

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www.fgyger.ch**

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as efforts towards continuous improvement.

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