

SALES LITERATURE

Revision 1.1

SNAP[®] Laboratory Glass Columns

"Next Generation" technology for high-performance preparative chromatography



Proudly Made in America



03/14

Helping You Succeed!

essentialLife Solutions
for preparative chromatography

Table of Contents

Introducing the SNAP® Column.....	1
Advantages of SNAP® Column.....	2
Bed Length/Volume Selection Chart	3
Pressure/Material Specifications	4
Part Numbering System	5
SNAP® Series Glass Columns, AB-Version, Fixed/Short Plungers (F/S).....	6
SNAP® Series Glass Columns, AB-Version, Fixed/Long Plungers (F/L)	7
SNAP® Series Glass Columns, AB-Version, Short/Short Plungers (S/S).....	8
SNAP® Series Glass Columns, AB-Version, Short/Long Plungers (S/L)	9
SNAP® Series Glass Columns, AB-Version, Long/Long Plungers (L/L).....	10
SNAP® Series Glass Columns, SR-Version, Fixed/Short Plungers (F/S)	11
SNAP® Series Glass Columns, SR-Version, Fixed/Long Plungers (F/L).....	12
SNAP® Series Glass Columns, SR-Version, Short/Short Plungers (S/S)	13
SNAP® Series Glass Columns, SR-Version, Short/Long Plungers (S/L).....	14
SNAP® Series Glass Columns, SR-Version, Long/Long Plungers (L/L)	15
Packing Adapters	16
Supplied Accessories/Spare Parts	17-18
Cartridge Configurations/Customized Solutions.....	19

OUR MISSION STATEMENT

To be a "world class" provider of products and services to Life Sciences for the advancement of research, development and production of materials for the good of mankind.

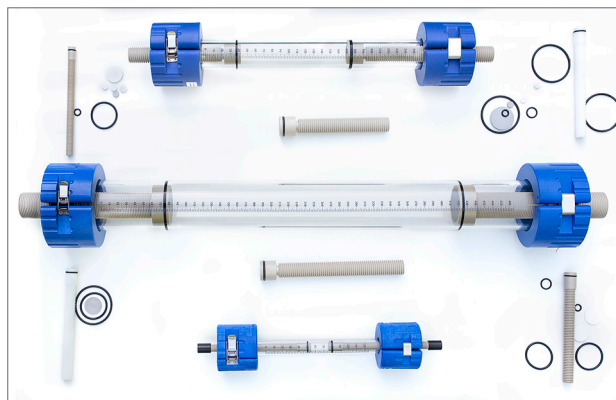
Introducing the SNAP® Glass Column

Liquid preparative chromatography is a widely used downstream purification technique that can be used on a wide range of compounds. The common targeted molecules include proteins, peptides and/or nucleic acids. With the emergence of smaller particle, higher performance chromatography media, there has been an identified need for higher pressure column hardware that can handle the increased back pressure loading in a safe column configuration. Traditionally, this has been addressed with stainless steel hardware, which does not allow the scientist visibility of the column contents.

Essential Life Solutions designed a "Next Generation" column line to address these evolving demands. Drawing on its many years of experience, Essential Life is pleased to announce the most effective and user friendly preparative column on the market.

SNAP® columns have been designed to exceed what is currently available to the scientist for laboratory use. Essential Life understands the value that the scientist places on his or her results, and we have strived to help them achieve those goals.

Careful choice in materials of construction, combined with customer feedback, has driven the design such that biocompatibility can be achieved in virtually any circumstance. Essential Life proudly offers this new SNAP® column hardware line and appreciates your interest. We at Essential Life Solutions value your business.



The patented SNAP® closure mechanism provides a safe and reliable means to access the column contents.

Advantages of SNAP® Glass Columns

1 HIGHER PRESSURE RATINGS INCORPORATING GLASS CONSTRUCTION

Pressures to 40 Bars (580 psig)
Full view of bed unlike stainless steel
Rugged construction for hard lab use

2 LINEAR MOTION OF PISTON

Due to the true linear motion of piston there is NO scraping of the bed surface or induced TORSIONAL load imposed on the packed bed assuring true linear compression.

3 CALIBRATED GLASS TUBING

Superior glass tolerance eliminates seal adjustment.
True bore tubing reduces wall effect

4 TRUE FRITS

Columns are supplied with true sintered material frits assuring good flow distribution and minimize dead volume.

5 ROBUST INLET AND OUTLET CONNECTIONS

Connections are made externally and are visible if any leakage should occur.

6 FINE THREAD ADJUSTMENT

Columns are provided with fine thread adjustment allowing better and more precise piston control.

7 DOUBLE PISTON ADJUSTMENT

Columns are provided with piston adjustment from both ends allowing greater flexibility of bed adjustments.

8 QUICK RELEASE ENDS

ELS (patented) column end closure design allows easy assembly and dis-assembly of columns even on large diameters. Inherently self locking design ensures user safety.

9 GRADUATED GLASS

All columns are supplied with column graduations on the glass exterior to make bed measurements quick and simple.

10 CONFIGURABLE

Columns can be custom configured based on mobile phase conditions and meet the exact needs of the chromatographer.

Bed Length/Volume Selection Chart

Column ID (mm)	Bed Length (mm)	Fixed/Short (FS) Piston Bed Length min-max (mm)	Fixed/Short (FS) Piston Volume min-max (ml)	Fixed/Long (FL) Piston Bed Length min-max (mm)	Fixed/Long (FL) Piston Volume min-max (ml)
10mm	125mm	62.9-125	4.9-9.8	20.4-125	1.6-9.8
	250mm	187.9-250	14.8-19.6	145.4-250	11.4-19.6
	500mm	437.9-500	34.4-39.3	395.4-500	31-39.3
	750mm	687.9-750	54-58.9	645.4-750	50.7-58.9
	1000mm	937.9-1000	73.6-78.5	895.3-1000	70.3-78.5
15mm	125mm	47.6-125	8.4-22.1	5.1-125	0.9-22.1
	250mm	172.6-250	30.5-44.2	130.1-250	23-44.12
	500mm	422.6-500	74.7-88.3	380.1-500	67.1-88.3
	750mm	672.6-750	118.8-132.5	630.1-750	111.3-132.5
	1000mm	922.6-1000	163-176.6	880.1-1000	155.5-176.6
25mm	125mm	54-125	26.5-61.3	11.5-125	5.6-61.3
	250mm	179-250	87.8-122.7	136.5-250	67-122.7
	500mm	429-500	210.5-245.3	386.5-500	189.6-245.3
	750mm	679-750	331.1-368	636.5-750	312.3-368
	1000mm	929-1000	455.8-490.6	886.5-1000	434.9-490.6
35mm	125mm	55.1-125	52.9-120.2	12.6-125	12.1-120.2
	250mm	180.1-250	173.1-240.4	137.6-250	132.3-240.4
	500mm	430.1-500	413.5-480.8	387.6-500	372.7-480.8
	750mm	680.1-750	654-721.2	637.6-750	613.1-721.2
	1000mm	930.1-1000	894.4-961.6	887.6-1000	853.5-961.6
50mm	125mm	52.6-125	103.1-245.3	10.1-125	19.7-245.3
	250mm	177.6-250	348.5-490.6	135.1-250	265.1-490.6
	500mm	427.6-500	839.1-981.3	385.1-500	755.7-981.3
	750mm	677.6-750	1330-1472	635.1-750	1246-1472
	1000mm	927.6-1000	1820-1963	885.1-1000	1737-1963

Column ID (mm)	Bed Length (mm)	Short/Short (SS) Piston Bed Length min-max (mm)	Short/Short (SS) Piston Volume min-max (ml)	Long/Short (LS) Piston Bed Length min-max (mm)	Long/Short (LS) Piston Volume min-max (ml)	Long/Long (LL) Piston Bed Length min-max (mm)	Long/Long (LL) Piston Volume min-max (ml)
10mm	125mm	0-125	0-9.8	0-125	0-9.8	0-125	0-9.8
	250mm	125.9-250	9.9-19.6	83.4-250	6.5-19.6	40.9-250	3.2-19.6
	500mm	375.9-500	29.5-39.3	333.4-500	26.2-39.3	290.9-500	22.8-39.3
	750mm	625.9-750	49.1-58.9	583.4-750	45.8-58.9	540.9-750	42.5-58.9
	1000mm	875.9-1000	68.8-78.5	833.4-1000	65.4-78.5	790.9-1000	62.1-78.5
15mm	125mm	0-125	0-22.1	0-125	0-22.1	0-125	0-22.1
	250mm	95.26-250	16.8-44.2	52.8-250	9.3-44.2	10.3-250	1.8-44.2
	500mm	345.3-500	61-88.3	302.8-500	53.5-88.3	260.3-500	46-88.3
	750mm	595.3-750	105.1-132.5	552.8-750	97.6-132.5	510.3-750	90.1-132.5
	1000mm	845.3-1000	149.3-176.6	802.8-1000	141.8-176.6	760.3-1000	134.3-176.6
25mm	125mm	0-125	0-61.3	0-125	0-61.3	0-125	0-61.3
	250mm	108-250	53-122.7	65.5-250	32.1-122.7	23-250	11.3-122.7
	500mm	358-500	175.6-245.3	315.5-500	154.8-245.3	273-500	133.9-245.3
	750mm	608-750	298.3-368	565.5-750	277.4-368	523-750	256.6-368
	1000mm	858-1000	420.9-490.6	815.5-1000	400.1-490.6	772-1000	379.2-490.6
35mm	125mm	0-125	0-120.2	0-125	0-120.2	0-125	0-120.2
	250mm	110.1-250	105.9-240.4	57.6-250	55.4-240.4	25.1-250	24.1-240.4
	500mm	360.1-500	346.3-480.8	307.6-500	295.8-480.8	275.1-500	264.5-480.8
	750mm	610.1-750	586.7-721.2	557.6-750	536.2-721.2	525.1-750	504.9-721.2
	1000mm	860.1-1000	827.1-961.6	807.6-1000	776.6-961.6	775.1-1000	745.4-961.6
50mm	125mm	0-125	0-245.3	0-125	0-245.3	0-125	0-245.3
	250mm	105.1-250	206.3-490.6	62.6-250	122.9-490.6	20.1-250	39.5-490.6
	500mm	355.1-500	696.9-981.3	312.6-500	613.7-981.3	270.1-500	530.1-981.3
	750mm	605.1-750	1246-1472	562.6-750	1104-1472	520.1-750	1021-1472
	1000mm	855.1-1000	1678-1963	812.6-1000	1595-1963	770.1-1000	1511-1963

Pressure and Material Specifications

Maximum Operating Pressure

Diameter (ID)	Pressure (BAR)	Pressure (PSIG)
10mm	40 BAR	580 PSIG
15mm	35 BAR	508 PSIG
25mm	24 BAR	348 PSIG
35mm	18 BAR	261 PSIG
50mm	13 BAR	188 PSIG



Aqueous Buffer (AB) - version

Temperature Range	4-40 °C
Plunger	Acetal
Sealing	O-ring, EPDM (ethylene propylene diene monomer rubber)
Frit	Polyethylene (PE)
Height Adjustment	Short, Short/Long, Long, Fixed/Short, and Fixed/Long plungers (see table)
Connections	1/4\"-28G female screw thread

Solvent Resistant (SR) - version

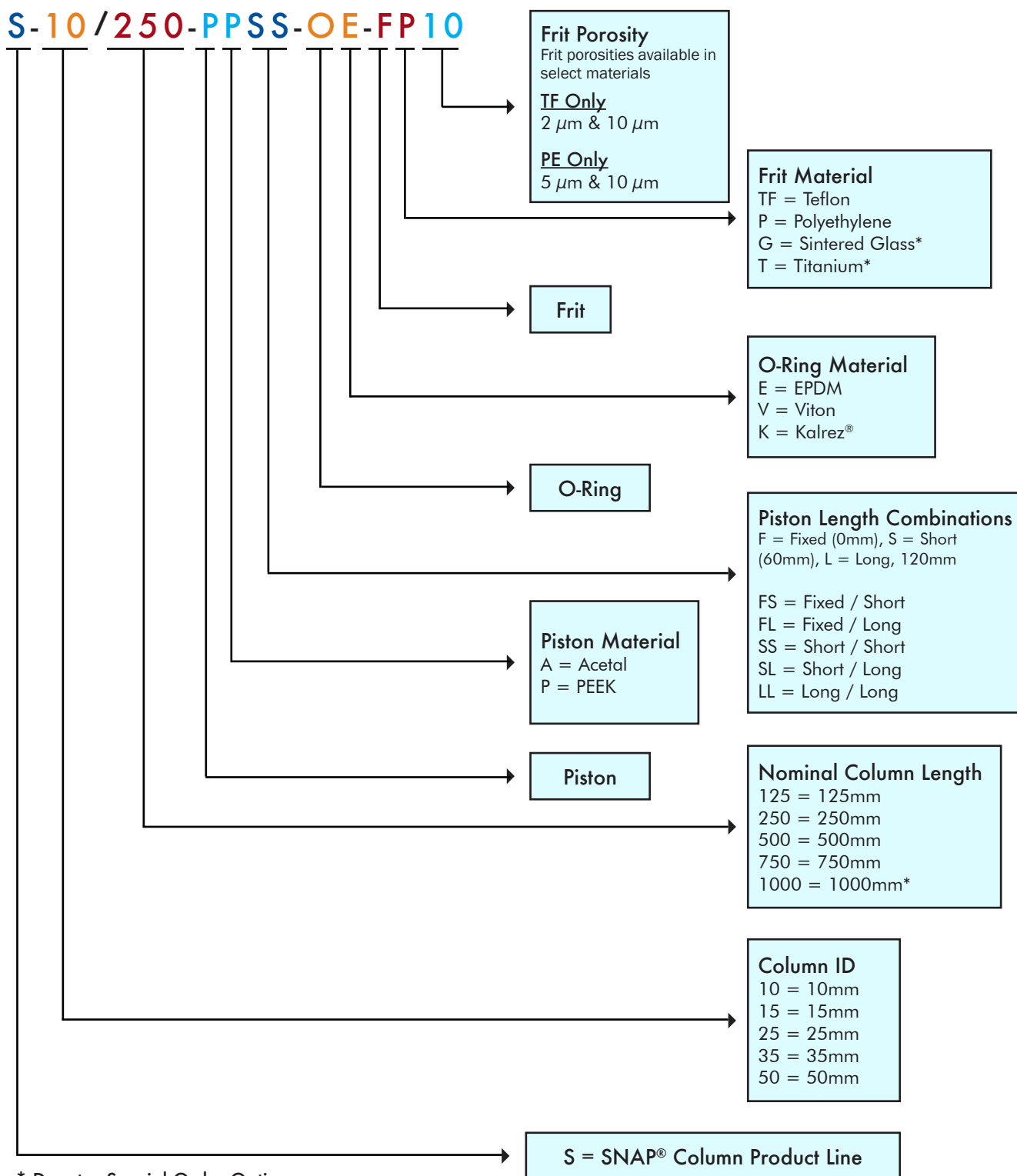
Temperature Range	4-40 °C
Plunger	PEEK (polyether ether ketone)
Sealing	O-ring, Viton or Kalrez®
Frit	Teflon (TF)
Height Adjustment	Short, Short/Long, Long, Fixed/Short, and Fixed/Long plungers (see table)
Connections	1/4\"-28G female screw thread

SNAP® Series Glass Columns Part Numbering System

S-10/250-PPSS-OE-FP10

This is an example of a typical part number description based on the following specifications:

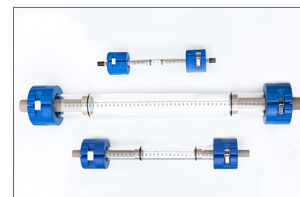
Snap Column, 10mm ID, 250mm Max Bed Length, Peek Piston, Short/Short Piston Combination, EPDM "O" Ring, Polyethylene Frit, 10 µm Frit Porosity



SNAP® Series Glass Columns, AB-Version, Fixed/Short Plungers

Length may vary slightly based on glass tolerance.

Temperature range	4 - 40 °C
Plunger	A (Acetal)
Sealing	O-ring, EPDM
Frit	ID 10 - 50 mm: Polyethylene (5 µm or 10 µm)
Piston Configuration	Fixed / Short plungers

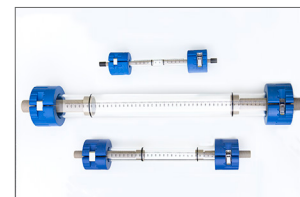


	Part No.	ID [mm]	Pressure limit [bar]	Bed length [mm]	Volume [ml]	Frit material	Frit porosity [µm]
10 mm ID	S-10/125-PAFS-OE-FP5	10	40	62.9 - 125	4.9 - 9.8	Polyethylene	5
	S-10/250-PAFS-OE-FP5	10	40	187.9 - 250	14.8 - 19.6	Polyethylene	5
	S-10/500-PAFS-OE-FP5	10	40	437.9 - 500	34.4 - 39.3	Polyethylene	5
	S-10/750-PAFS-OE-FP5	10	40	687.9 - 750	54 - 58.9	Polyethylene	5
	S-10/1000-PAFS-OE-FP5	10	40	937.9 - 1000	73.6 - 78.5	Polyethylene	5
	S-10/125-PAFS-OE-FP10	10	40	62.9 - 125	4.9 - 9.8	Polyethylene	10
	S-10/250-PAFS-OE-FP10	10	40	187.9 - 250	14.8 - 19.6	Polyethylene	10
	S-10/500-PAFS-OE-FP10	10	40	437.9 - 500	34.4 - 39.3	Polyethylene	10
	S-10/750-PAFS-OE-FP10	10	40	687.9 - 750	54 - 58.9	Polyethylene	10
	S-10/1000-PAFS-OE-FP10	10	40	937.9 - 1000	73.6 - 78.5	Polyethylene	10
15 mm ID	S-15/125-PAFS-OE-FP5	15	35	47.6 - 125	8.4 - 22.1	Polyethylene	5
	S-15/250-PAFS-OE-FP5	15	35	172.6 - 250	30.5 - 44.2	Polyethylene	5
	S-15/500-PAFS-OE-FP5	15	35	422.6 - 500	74.7 - 88.3	Polyethylene	5
	S-15/750-PAFS-OE-FP5	15	35	672.6 - 750	118.8 - 132.5	Polyethylene	5
	S-15/1000-PAFS-OE-FP5	15	35	922.6 - 1000	163 - 176.6	Polyethylene	5
	S-15/125-PAFS-OE-FP10	15	35	47.6 - 125	8.4 - 22.1	Polyethylene	10
	S-15/250-PAFS-OE-FP10	15	35	172.6 - 250	30.5 - 44.2	Polyethylene	10
	S-15/500-PAFS-OE-FP10	15	35	422.6 - 500	74.7 - 88.3	Polyethylene	10
	S-15/750-PAFS-OE-FP10	15	35	672.6 - 750	118.8 - 132.5	Polyethylene	10
	S-15/1000-PAFS-OE-FP10	15	35	922.6 - 1000	163 - 176.6	Polyethylene	10
25 mm ID	S-25/125-PAFS-OE-FP5	25	24	54 - 125	26.5 - 61.3	Polyethylene	5
	S-25/250-PAFS-OE-FP5	25	24	179 - 250	87.8 - 122.7	Polyethylene	5
	S-25/500-PAFS-OE-FP5	25	24	429 - 500	210.5 - 245.3	Polyethylene	5
	S-25/750-PAFS-OE-FP5	25	24	679 - 750	331.1 - 368	Polyethylene	5
	S-25/1000-PAFS-OE-FP5	25	24	929 - 1000	455.8 - 490.6	Polyethylene	5
	S-25/125-PAFS-OE-FP10	25	24	54 - 125	26.5 - 61.3	Polyethylene	10
	S-25/250-PAFS-OE-FP10	25	24	179 - 250	87.8 - 122.7	Polyethylene	10
	S-25/500-PAFS-OE-FP10	25	24	429 - 500	210.5 - 245.3	Polyethylene	10
	S-25/750-PAFS-OE-FP10	25	24	679 - 750	331.1 - 368	Polyethylene	10
	S-25/1000-PAFS-OE-FP10	25	24	929 - 1000	455.8 - 490.6	Polyethylene	10
35 mm ID	S-35/125-PAFS-OE-FP5	35	18	55.1 - 125	52.9 - 120.2	Polyethylene	5
	S-35/250-PAFS-OE-FP5	35	18	180.1 - 250	173.1 - 240.4	Polyethylene	5
	S-35/500-PAFS-OE-FP5	35	18	430.1 - 500	413.5 - 480.8	Polyethylene	5
	S-35/750-PAFS-OE-FP5	35	18	680.1 - 750	654 - 721.2	Polyethylene	5
	S-35/1000-PAFS-OE-FP5	35	18	930.1 - 1000	894.4 - 961.6	Polyethylene	5
	S-35/125-PAFS-OE-FP10	35	18	55.1 - 125	52.9 - 120.2	Polyethylene	10
	S-35/250-PAFS-OE-FP10	35	18	180.1 - 250	173.1 - 240.4	Polyethylene	10
	S-35/500-PAFS-OE-FP10	35	18	430.1 - 500	413.5 - 480.8	Polyethylene	10
	S-35/750-PAFS-OE-FP10	35	18	680.1 - 750	654 - 721.2	Polyethylene	10
	S-35/1000-PAFS-OE-FP10	35	18	930.1 - 1000	894.4 - 961.6	Polyethylene	10
50 mm ID	S-50/125-PAFS-OE-FP5	50	13	52.6 - 125	103.1 - 245.3	Polyethylene	5
	S-50/250-PAFS-OE-FP5	50	13	177.6 - 250	348.5 - 490.6	Polyethylene	5
	S-50/500-PAFS-OE-FP5	50	13	427.6 - 500	839.1 - 981.3	Polyethylene	5
	S-50/750-PAFS-OE-FP5	50	13	677.6 - 750	1330 - 1472	Polyethylene	5
	S-50/1000-PAFS-OE-FP5	50	13	927.6 - 1000	1820 - 1963	Polyethylene	5
	S-50/125-PAFS-OE-FP10	50	13	52.6 - 125	103.1 - 245.3	Polyethylene	10
	S-50/250-PAFS-OE-FP10	50	13	177.6 - 250	348.5 - 490.6	Polyethylene	10
	S-50/500-PAFS-OE-FP10	50	13	427.6 - 500	839.1 - 981.3	Polyethylene	10
	S-50/750-PAFS-OE-FP10	50	13	677.6 - 750	1330 - 1472	Polyethylene	10
	S-50/1000-PAFS-OE-FP10	50	13	927.6 - 1000	1820 - 1963	Polyethylene	10

SNAP® Series Glass Columns, AB-Version, Fixed/Long Plungers

Length may vary slightly based on glass tolerance.

Temperature range	4 - 40 °C
Plunger	A (Acetal)
Sealing	O-ring, EPDM
Frit	ID 10 - 50 mm: Polyethylene (5 µm or 10 µm)
Piston Configuration	Fixed / Long plungers

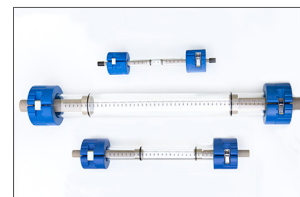


	Part No.	ID [mm]	Pressure limit [bar]	Bed length [mm]	Volume [ml]	Frit material	Frit porosity [µm]
10 mm ID	S-10/125-PAFL-OE-FP5	10	40	20.4 - 125	1.6 - 9.8	Polyethylene	5
	S-10/250-PAFL-OE-FP5	10	40	145.4 - 250	11.4 - 19.6	Polyethylene	5
	S-10/500-PAFL-OE-FP5	10	40	395.4 - 500	31 - 39.3	Polyethylene	5
	S-10/750-PAFL-OE-FP5	10	40	645.4 - 750	50.7 - 58.9	Polyethylene	5
	S-10/1000-PAFL-OE-FP5	10	40	895.3 - 1000	70.23 - 78.5	Polyethylene	5
	S-10/125-PAFL-OE-FP10	10	40	20.4 - 125	1.6 - 9.8	Polyethylene	10
	S-10/250-PAFL-OE-FP10	10	40	145.4 - 250	11.4 - 19.6	Polyethylene	10
	S-10/500-PAFL-OE-FP10	10	40	395.4 - 500	31 - 39.3	Polyethylene	10
	S-10/750-PAFL-OE-FP10	10	40	645.4 - 750	50.7 - 58.9	Polyethylene	10
	S-10/1000-PAFL-OE-FP10	10	40	895.3 - 1000	70.3 - 78.5	Polyethylene	10
15 mm ID	S-15/125-PAFL-OE-FP5	15	35	5.1 - 125	0.9 - 22.1	Polyethylene	5
	S-15/250-PAFL-OE-FP5	15	35	130.1 - 250	23 - 44.2	Polyethylene	5
	S-15/500-PAFL-OE-FP5	15	35	380.1 - 500	67.1 - 88.3	Polyethylene	5
	S-15/750-PAFL-OE-FP5	15	35	630.1 - 750	111.3 - 132.5	Polyethylene	5
	S-15/1000-PAFL-OE-FP5	15	35	880.1 - 1000	155.5 - 176.6	Polyethylene	5
	S-15/125-PAFL-OE-FP10	15	35	5.1 - 125	0.9 - 22.1	Polyethylene	10
	S-15/250-PAFL-OE-FP10	15	35	130.1 - 250	23 - 44.2	Polyethylene	10
	S-15/500-PAFL-OE-FP10	15	35	380.1 - 500	67.1 - 88.3	Polyethylene	10
	S-15/750-PAFL-OE-FP10	15	35	630.1 - 750	111.3 - 132.5	Polyethylene	10
	S-15/1000-PAFL-OE-FP10	15	35	880.1 - 1000	155.5 - 176.6	Polyethylene	10
25 mm ID	S-25/125-PAFL-OE-FP5	25	24	11.5 - 125	5.6 - 61.3	Polyethylene	5
	S-25/250-PAFL-OE-FP5	25	24	136.5 - 250	67 - 122.7	Polyethylene	5
	S-25/500-PAFL-OE-FP5	25	24	386.5 - 500	189.6 - 245.3	Polyethylene	5
	S-25/750-PAFL-OE-FP5	25	24	636.5 - 750	312.3 - 368	Polyethylene	5
	S-25/1000-PAFL-OE-FP5	25	24	886.5 - 1000	434.9 - 490.6	Polyethylene	5
	S-25/125-PAFL-OE-FP10	25	24	11.5 - 125	5.6 - 61.3	Polyethylene	10
	S-25/250-PAFL-OE-FP10	25	24	136.5 - 250	67 - 122.7	Polyethylene	10
	S-25/500-PAFL-OE-FP10	25	24	386.5 - 500	189.6 - 245.3	Polyethylene	10
	S-25/750-PAFL-OE-FP10	25	24	636.5 - 750	312.3 - 368	Polyethylene	10
	S-25/1000-PAFL-OE-FP10	25	24	886.5 - 1000	434.9 - 490.6	Polyethylene	10
35 mm ID	S-35/125-PAFL-OE-FP5	35	18	12.6 - 125	12.1 - 120.2	Polyethylene	5
	S-35/250-PAFL-OE-FP5	35	18	137.6 - 250	132.3 - 240.4	Polyethylene	5
	S-35/500-PAFL-OE-FP5	35	18	387.6 - 500	372.7 - 480.8	Polyethylene	5
	S-35/750-PAFL-OE-FP5	35	18	637.6 - 750	613.1 - 721.2	Polyethylene	5
	S-35/1000-PAFL-OE-FP5	35	18	887.6 - 1000	853.5 - 961.6	Polyethylene	5
	S-35/125-PAFL-OE-FP10	35	18	12.6 - 125	12.1 - 120.2	Polyethylene	10
	S-35/250-PAFL-OE-FP10	35	18	137.6 - 250	132.3 - 240.4	Polyethylene	10
	S-35/500-PAFL-OE-FP10	35	18	387.6 - 500	372.7 - 480.8	Polyethylene	10
	S-35/750-PAFL-OE-FP10	35	18	637.6 - 750	613.1 - 721.2	Polyethylene	10
	S-35/1000-PAFL-OE-FP10	35	18	887.6 - 1000	853.5 - 961.6	Polyethylene	10
50 mm ID	S-50/125-PAFL-OE-FP5	50	13	10.1 - 125	19.7 - 245.3	Polyethylene	5
	S-50/250-PAFL-OE-FP5	50	13	135.1 - 250	265.1 - 490.6	Polyethylene	5
	S-50/500-PAFL-OE-FP5	50	13	385.1 - 500	755.7 - 981.3	Polyethylene	5
	S-50/750-PAFL-OE-FP5	50	13	635.1 - 750	1246 - 1472	Polyethylene	5
	S-50/1000-PAFL-OE-FP5	50	13	885.1 - 1000	1737 - 1963	Polyethylene	5
	S-50/125-PAFL-OE-FP10	50	13	10.1 - 125	19.7 - 245.3	Polyethylene	10
	S-50/250-PAFL-OE-FP10	50	13	135.1 - 250	265.1 - 490.6	Polyethylene	10
	S-50/500-PAFL-OE-FP10	50	13	385.1 - 500	755.7 - 981.3	Polyethylene	10
	S-50/750-PAFL-OE-FP10	50	13	635.1 - 750	1246 - 1472	Polyethylene	10
	S-50/1000-PAFL-OE-FP10	50	13	885.1 - 1000	1737 - 1963	Polyethylene	10

SNAP® Series Glass Columns, AB-Version, Short/Short Plungers

Length may vary slightly based on glass tolerance.

Temperature range	4 - 40 °C
Plunger	A (Acetal)
Sealing	O-ring, EPDM
Frit	ID 10 - 50 mm: Polyethylene (5 µm or 10 µm)
Piston Configuration	Short plungers

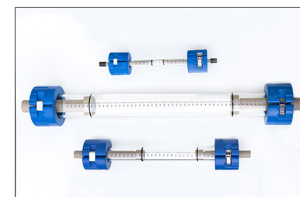


	Part No.	ID [mm]	Pressure limit [bar]	Bed length [mm]	Volume [ml]	Frit material	Frit porosity [µm]
10 mm ID	S-10/125-PASS-OE-FP5	10	40	0 - 125	0 - 9.8	Polyethylene	5
	S-10/250-PASS-OE-FP5	10	40	125.9 - 250	9.89 - 19.6	Polyethylene	5
	S-10/500-PASS-OE-FP5	10	40	375.9 - 500	29.5 - 39.3	Polyethylene	5
	S-10/750-PASS-OE-FP5	10	40	625.9 - 750	49.1 - 58.9	Polyethylene	5
	S-10/1000-PASS-OE-FP5	10	40	875.9 - 1000	68.8 - 78.5	Polyethylene	5
	S-10/125-PASS-OE-FP10	10	40	0 - 125	0 - 9.8	Polyethylene	10
	S-10/250-PASS-OE-FP10	10	40	125.9 - 250	9.9 - 19.6	Polyethylene	10
	S-10/500-PASS-OE-FP10	10	40	375.9 - 500	29.5 - 39.3	Polyethylene	10
	S-10/750-PASS-OE-FP10	10	40	625.9 - 750	49.1 - 58.9	Polyethylene	10
	S-10/1000-PASS-OE-FP10	10	40	875.9 - 1000	68.8 - 78.5	Polyethylene	10
15 mm ID	S-15/125-PASS-OE-FP5	15	35	0 - 125	0 - 22.1	Polyethylene	5
	S-15/250-PASS-OE-FP5	15	35	95.3 - 250	16.8 - 44.2	Polyethylene	5
	S-15/500-PASS-OE-FP5	15	35	345.3 - 500	61 - 88.3	Polyethylene	5
	S-15/750-PASS-OE-FP5	15	35	595.3 - 750	105.1 - 132.5	Polyethylene	5
	S-15/1000-PASS-OE-FP5	15	35	845.3 - 1000	149.3 - 176.6	Polyethylene	5
	S-15/125-PASS-OE-FP10	15	35	0 - 125	0 - 22.1	Polyethylene	10
	S-15/250-PASS-OE-FP10	15	35	95.3 - 250	16.8 - 44.2	Polyethylene	10
	S-15/500-PASS-OE-FP10	15	35	345.3 - 500	61 - 88.3	Polyethylene	10
	S-15/750-PASS-OE-FP10	15	35	595.3 - 750	105.1 - 132.5	Polyethylene	10
	S-15/1000-PASS-OE-FP10	15	35	845.3 - 1000	149.3 - 176.6	Polyethylene	10
25 mm ID	S-25/125-PASS-OE-FP5	25	24	0 - 125	0 - 61.3	Polyethylene	5
	S-25/250-PASS-OE-FP5	25	24	108 - 250	53 - 122.7	Polyethylene	5
	S-25/500-PASS-OE-FP5	25	24	358 - 500	175.6 - 245.3	Polyethylene	5
	S-25/750-PASS-OE-FP5	25	24	608 - 750	298.3 - 368	Polyethylene	5
	S-25/1000-PASS-OE-FP5	25	24	858 - 1000	420.9 - 490.6	Polyethylene	5
	S-25/125-PASS-OE-FP10	25	24	0 - 125	0 - 61.3	Polyethylene	10
	S-25/250-PASS-OE-FP10	25	24	108 - 250	53 - 122.7	Polyethylene	10
	S-25/500-PASS-OE-FP10	25	24	358 - 500	175.6 - 245.3	Polyethylene	10
	S-25/750-PASS-OE-FP10	25	24	608 - 750	298.3 - 368	Polyethylene	10
	S-25/1000-PASS-OE-FP10	25	24	858 - 1000	420.9 - 490.6	Polyethylene	10
35 mm ID	S-35/125-PASS-OE-FP5	35	18	0 - 125	0 - 120.2	Polyethylene	5
	S-35/250-PASS-OE-FP5	35	18	110.1 - 250	105.9 - 240.4	Polyethylene	5
	S-35/500-PASS-OE-FP5	35	18	360.1 - 500	346.3 - 480.8	Polyethylene	5
	S-35/750-PASS-OE-FP5	35	18	610.1 - 750	586.7 - 721.2	Polyethylene	5
	S-35/1000-PASS-OE-FP5	35	18	860.1 - 1000	827.1 - 961.6	Polyethylene	5
	S-35/125-PASS-OE-FP10	35	18	0 - 125	0 - 120.2	Polyethylene	10
	S-35/250-PASS-OE-FP10	35	18	110.1 - 250	105.9 - 240.4	Polyethylene	10
	S-35/500-PASS-OE-FP10	35	18	360.1 - 500	346.3 - 480.8	Polyethylene	10
	S-35/750-PASS-OE-FP10	35	18	610.1 - 750	586.7 - 721.2	Polyethylene	10
	S-35/1000-PASS-OE-FP10	35	18	860.1 - 1000	827.1 - 961.6	Polyethylene	10
50 mm ID	S-50/125-PASS-OE-FP5	50	13	0 - 125	0 - 245.3	Polyethylene	5
	S-50/250-PASS-OE-FP5	50	13	105.1 - 250	206.3 - 490.6	Polyethylene	5
	S-50/500-PASS-OE-FP5	50	13	355.1 - 500	696.9 - 981.3	Polyethylene	5
	S-50/750-PASS-OE-FP5	50	13	605.1 - 750	1246 - 1472	Polyethylene	5
	S-50/1000-PASS-OE-FP5	50	13	855.1 - 1000	1678 - 1963	Polyethylene	5
	S-50/125-PASS-OE-FP10	50	13	0 - 125	0 - 245.3	Polyethylene	10
	S-50/250-PASS-OE-FP10	50	13	105.1 - 250	206.3 - 490.6	Polyethylene	10
	S-50/500-PASS-OE-FP10	50	13	355.1 - 500	696.9 - 981.3	Polyethylene	10
	S-50/750-PASS-OE-FP10	50	13	605.1 - 750	1246 - 1472	Polyethylene	10
	S-50/1000-PASS-OE-FP10	50	13	855.1 - 1000	1678 - 1963	Polyethylene	10

SNAP® Series Glass Columns, AB-Version, Short/Long Plungers

Length may vary slightly based on glass tolerance.

Temperature range	4 - 40 °C
Plunger	A (Acetal)
Sealing	O-ring, EPDM
Frit	ID 10 - 50 mm: Polyethylene (5 µm or 10 µm)
Piston Configuration	Short / Long plungers

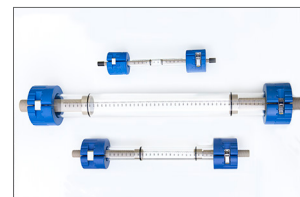


	Part No.	ID [mm]	Pressure limit [bar]	Bed length [mm]	Volume [ml]	Frit material	Frit porosity [µm]
10 mm ID	S-10/125-PASL-OE-FP5	10	40	0 - 125	0 - 9.8	Polyethylene	5
	S-10/250-PASL-OE-FP5	10	40	83.4 - 250	6.5 - 19.6	Polyethylene	5
	S-10/500-PASL-OE-FP5	10	40	333.4 - 500	26.2 - 39.3	Polyethylene	5
	S-10/750-PASL-OE-FP5	10	40	583.4 - 750	45.8 - 58.9	Polyethylene	5
	S-10/1000-PASL-OE-FP5	10	40	833.4 - 1000	65.4 - 78.5	Polyethylene	5
	S-10/125-PASL-OE-FP10	10	40	0 - 125	0 - 9.8	Polyethylene	10
	S-10/250-PASL-OE-FP10	10	40	83.4 - 250	6.5 - 19.6	Polyethylene	10
	S-10/500-PASL-OE-FP10	10	40	333.4 - 500	26.2 - 39.3	Polyethylene	10
	S-10/750-PASL-OE-FP10	10	40	583.4 - 750	45.8 - 58.9	Polyethylene	10
	S-10/1000-PASL-OE-FP10	10	40	833.4 - 1000	65.4 - 78.5	Polyethylene	10
15 mm ID	S-15/125-PASL-OE-FP5	15	35	0 - 125	0 - 22.1	Polyethylene	5
	S-15/250-PASL-OE-FP5	15	35	52.8 - 250	9.3 - 44.2	Polyethylene	5
	S-15/500-PASL-OE-FP5	15	35	302.8 - 500	53.5 - 88.3	Polyethylene	5
	S-15/750-PASL-OE-FP5	15	35	552.8 - 750	97.6 - 132.5	Polyethylene	5
	S-15/1000-PASL-OE-FP5	15	35	802.8 - 1000	141.8 - 176.6	Polyethylene	5
	S-15/125-PASL-OE-FP10	15	35	0 - 125	0 - 22.1	Polyethylene	10
	S-15/250-PASL-OE-FP10	15	35	52.8 - 250	9.3 - 44.1	Polyethylene	10
	S-15/500-PASL-OE-FP10	15	35	302.8 - 500	53.5 - 88.3	Polyethylene	10
	S-15/750-PASL-OE-FP10	15	35	552.8 - 750	97.6 - 132.5	Polyethylene	10
	S-15/1000-PASL-OE-FP10	15	35	802.8 - 1000	141.8 - 176.6	Polyethylene	10
25 mm ID	S-25/125-PASL-OE-FP5	25	24	0 - 125	0 - 61.3	Polyethylene	5
	S-25/250-PASL-OE-FP5	25	24	65.5 - 250	32.1 - 122.7	Polyethylene	5
	S-25/500-PASL-OE-FP5	25	24	315.5 - 500	154.8 - 245.3	Polyethylene	5
	S-25/750-PASL-OE-FP5	25	24	565.5 - 750	277.4 - 368	Polyethylene	5
	S-25/1000-PASL-OE-FP5	25	24	815.5 - 1000	400.1 - 490.6	Polyethylene	5
	S-25/125-PASL-OE-FP10	25	24	0 - 125	0 - 61.3	Polyethylene	10
	S-25/250-PASL-OE-FP10	25	24	65.5 - 250	32.1 - 122.7	Polyethylene	10
	S-25/500-PASL-OE-FP10	25	24	315.5 - 500	154.8 - 245.3	Polyethylene	10
	S-25/750-PASL-OE-FP10	25	24	565.5 - 750	277.4 - 368	Polyethylene	10
	S-25/1000-PASL-OE-FP10	25	24	815.5 - 1000	400.1 - 490.6	Polyethylene	10
35 mm ID	S-35/125-PASL-OE-FP5	35	18	0 - 125	0 - 120.2	Polyethylene	5
	S-35/250-PASL-OE-FP5	35	18	57.6 - 250	55.4 - 240.4	Polyethylene	5
	S-35/500-PASL-OE-FP5	35	18	307.6 - 500	295.8 - 480.8	Polyethylene	5
	S-35/750-PASL-OE-FP5	35	18	557.6 - 750	536.2 - 721.2	Polyethylene	5
	S-35/1000-PASL-OE-FP5	35	18	807.6 - 1000	776.6 - 961.6	Polyethylene	5
	S-35/125-PASL-OE-FP10	35	18	0 - 125	0 - 120.2	Polyethylene	10
	S-35/250-PASL-OE-FP10	35	18	57.6 - 250	55.39 - 240.4	Polyethylene	10
	S-35/500-PASL-OE-FP10	35	18	307.6 - 500	295.8 - 480.8	Polyethylene	10
	S-35/750-PASL-OE-FP10	35	18	557.6 - 750	536.2 - 721.2	Polyethylene	10
	S-35/1000-PASL-OE-FP10	35	18	807.6 - 1000	776.6 - 961.6	Polyethylene	10
50 mm ID	S-50/125-PASL-OE-FP5	50	13	0 - 125	0 - 245.3	Polyethylene	5
	S-50/250-PASL-OE-FP5	50	13	62.6 - 250	122.9 - 490.6	Polyethylene	5
	S-50/500-PASL-OE-FP5	50	13	312.6 - 500	613.7 - 981.3	Polyethylene	5
	S-50/750-PASL-OE-FP5	50	13	562.6 - 750	1104 - 1472	Polyethylene	5
	S-50/1000-PASL-OE-FP5	50	13	812.6 - 1000	1595 - 1963	Polyethylene	5
	S-50/125-PASL-OE-FP10	50	13	0 - 125	0 - 245.3	Polyethylene	10
	S-50/250-PASL-OE-FP10	50	13	62.6 - 250	122.9 - 490.6	Polyethylene	10
	S-50/500-PASL-OE-FP10	50	13	312.6 - 500	613.7 - 981.3	Polyethylene	10
	S-50/750-PASL-OE-FP10	50	13	562.6 - 750	1104 - 1472	Polyethylene	10
	S-50/1000-PASL-OE-FP10	50	13	812.6 - 1000	1595 - 1963	Polyethylene	10

SNAP® Series Glass Columns, AB-Version, Long/Long Plungers

Length may vary slightly based on glass tolerance.

Temperature range 4 - 40 °C
 Plunger A (Acetal)
 Sealing O-ring, EPDM
 Frit ID 10 - 50 mm: Polyethylene (5 µm or 10 µm)
 Piston Configuration Long plungers

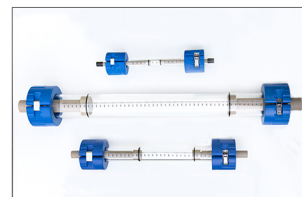


	Part No.	ID [mm]	Pressure limit [bar]	Bed length [mm]	Volume [ml]	Frit material	Frit porosity [µm]
10 mm ID	S-10/125-PALL-OE-FP5	10	40	0 - 125	0 - 9.8	Polyethylene	5
	S-10/250-PALL-OE-FP5	10	40	40.9 - 250	3.2 - 19.6	Polyethylene	5
	S-10/500-PALL-OE-FP5	10	40	290.9 - 500	222.8 - 39.3	Polyethylene	5
	S-10/750-PALL-OE-FP5	10	40	540.9 - 750	42.5 - 58.9	Polyethylene	5
	S-10/1000-PALL-OE-FP5	10	40	790.9 - 1000	62.1 - 78.5	Polyethylene	5
	S-10/125-PALL-OE-FP10	10	40	0 - 125	0 - 9.8	Polyethylene	10
	S-10/250-PALL-OE-FP10	10	40	40.9 - 250	3.2 - 19.6	Polyethylene	10
	S-10/500-PALL-OE-FP10	10	40	290.9 - 500	222.8 - 39.3	Polyethylene	10
	S-10/750-PALL-OE-FP10	10	40	540.9 - 750	42.5 - 58.9	Polyethylene	10
	S-10/1000-PALL-OE-FP10	10	40	790.9 - 1000	62.1 - 78.5	Polyethylene	10
15 mm ID	S-15/125-PALL-OE-FP5	15	35	0 - 125	0 - 22.1	Polyethylene	5
	S-15/250-PALL-OE-FP5	15	35	10.3 - 250	1.8 - 44.2	Polyethylene	5
	S-15/500-PALL-OE-FP5	15	35	260.3 - 500	46 - 88.3	Polyethylene	5
	S-15/750-PALL-OE-FP5	15	35	510.3 - 750	90.1 - 132.5	Polyethylene	5
	S-15/1000-PALL-OE-FP5	15	35	760.3 - 1000	134.3 - 176.6	Polyethylene	5
	S-15/125-PALL-OE-FP10	15	35	0 - 125	0 - 22.1	Polyethylene	10
	S-15/250-PALL-OE-FP10	15	35	10.3 - 250	1.8 - 44.2	Polyethylene	10
	S-15/500-PALL-OE-FP10	15	35	260.3 - 500	46 - 88.3	Polyethylene	10
	S-15/750-PALL-OE-FP10	15	35	510.3 - 750	90.1 - 132.5	Polyethylene	10
	S-15/1000-PALL-OE-FP10	15	35	760.3 - 1000	134.3 - 176.6	Polyethylene	10
25 mm ID	S-25/125-PALL-OE-FP5	25	24	0 - 125	0 - 61.3	Polyethylene	5
	S-25/250-PALL-OE-FP5	25	24	23 - 250	11.3 - 122.7	Polyethylene	5
	S-25/500-PALL-OE-FP5	25	24	273 - 500	133.9 - 245.3	Polyethylene	5
	S-25/750-PALL-OE-FP5	25	24	523 - 750	256.6 - 368	Polyethylene	5
	S-25/1000-PALL-OE-FP5	25	24	773 - 1000	379.2 - 490.6	Polyethylene	5
	S-25/125-PALL-OE-FP10	25	24	0 - 125	0 - 61.3	Polyethylene	10
	S-25/250-PALL-OE-FP10	25	24	23 - 250	11.3 - 122.7	Polyethylene	10
	S-25/500-PALL-OE-FP10	25	24	273 - 500	133.9 - 245.3	Polyethylene	10
	S-25/750-PALL-OE-FP10	25	24	523 - 750	256.6 - 368	Polyethylene	10
	S-25/1000-PALL-OE-FP10	25	24	773 - 1000	379.2 - 490.6	Polyethylene	10
35 mm ID	S-35/125-PALL-OE-FP5	35	18	0 - 125	0 - 120.2	Polyethylene	5
	S-35/250-PALL-OE-FP5	35	18	25.1 - 250	24.1 - 240.4	Polyethylene	5
	S-35/500-PALL-OE-FP5	35	18	275.1 - 500	264.5 - 480.8	Polyethylene	5
	S-35/750-PALL-OE-FP5	35	18	307.6 - 500	295.8 - 480.8	Polyethylene	5
	S-35/1000-PALL-OE-FP5	35	18	775.1 - 1000	745.4 - 961.6	Polyethylene	5
	S-35/125-PALL-OE-FP10	35	18	0 - 125	0 - 120.2	Polyethylene	10
	S-35/250-PALL-OE-FP10	35	18	25.1 - 250	24.1 - 240.4	Polyethylene	10
	S-35/500-PALL-OE-FP10	35	18	307.6 - 500	295.8 - 480.8	Polyethylene	10
	S-35/750-PALL-OE-FP10	35	18	307.6 - 500	295.8 - 480.8	Polyethylene	10
	S-35/1000-PALL-OE-FP10	35	18	775.1 - 1000	745.4 - 961.6	Polyethylene	10
50 mm ID	S-50/125-PALL-OE-FP5	50	13	0 - 125	0 - 245.3	Polyethylene	5
	S-50/250-PALL-OE-FP5	50	13	20.1 - 250	39.5 - 490.6	Polyethylene	5
	S-50/500-PALL-OE-FP5	50	13	270.1 - 500	530.1 - 981.3	Polyethylene	5
	S-50/750-PALL-OE-FP5	50	13	520.1 - 750	1021 - 1472	Polyethylene	5
	S-50/1000-PALL-OE-FP5	50	13	775.1 - 1000	1511 - 1963	Polyethylene	5
	S-50/125-PALL-OE-FP10	50	13	0 - 125	0 - 245.3	Polyethylene	10
	S-50/250-PALL-OE-FP10	50	13	20.1 - 250	39.5 - 490.6	Polyethylene	10
	S-50/500-PALL-OE-FP10	50	13	270.1 - 500	530.1 - 981.3	Polyethylene	10
	S-50/750-PALL-OE-FP10	50	13	520.1 - 750	1021 - 1472	Polyethylene	10
	S-50/1000-PALL-OE-FP10	50	13	775.1 - 1000	1511 - 1963	Polyethylene	10

SNAP® Series Glass Columns, SR-Version, Fixed/Short Plungers

Length may vary slightly based on glass tolerance.

Temperature range	4 - 40 °C
Plunger	PEEK
Sealing	Viton or Kalrez®
Frit	ID 10 - 50 mm: Teflon (2 µm or 10 µm)
Piston Configuration	Fixed / Short plungers



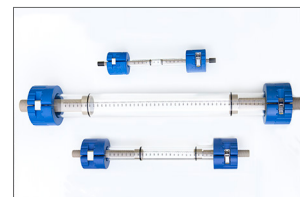
* Substitute V for Viton or K for Kalrez®

	Part No.	ID [mm]	Pressure limit [bar]	Bed length [mm]	Volume [ml]	Frit material	Frit porosity [µm]
10 mm ID	S-10/125-PPFS-O*-FT2	10	40	62.9 - 125	4.9 - 9.8	Teflon	2
	S-10/250-PPFS-O*-FT2	10	40	187.9 - 250	14.8 - 19.6	Teflon	2
	S-10/500-PPFS-O*-FT2	10	40	437.9 - 500	34.4 - 39.3	Teflon	2
	S-10/750-PPFS-O*-FT2	10	40	687.9 - 750	54 - 58.9	Teflon	2
	S-10/1000-PPFS-O*-FT2	10	40	937.9 - 1000	73.6 - 78.5	Teflon	2
	S-10/125-PPFS-O*-FT10	10	40	62.9 - 125	4.9 - 9.8	Teflon	10
	S-10/250-PPFS-O*-FT10	10	40	187.9 - 250	14.8 - 19.6	Teflon	10
	S-10/500-PPFS-O*-FT10	10	40	437.9 - 500	34.4 - 39.3	Teflon	10
	S-10/750-PPFS-O*-FT10	10	40	687.9 - 750	54 - 58.9	Teflon	10
	S-10/1000-PPFS-O*-FT10	10	40	937.9 - 1000	73.6 - 78.5	Teflon	10
15 mm ID	S-15/125-PPFS-O*-FT2	15	35	47.6 - 125	8.4 - 22.1	Teflon	2
	S-15/250-PPFS-O*-FT2	15	35	172.6 - 250	30.5 - 44.2	Teflon	2
	S-15/500-PPFS-O*-FT2	15	35	422.6 - 500	74.7 - 88.3	Teflon	2
	S-15/750-PPFS-O*-FT2	15	35	672.6 - 750	118.8 - 132.5	Teflon	2
	S-15/1000-PPFS-O*-FT2	15	35	922.6 - 1000	163 - 176.6	Teflon	2
	S-15/125-PPFS-O*-FT10	15	35	47.6 - 125	8.4 - 22.1	Teflon	10
	S-15/250-PPFS-O*-FT10	15	35	172.6 - 250	30.5 - 44.2	Teflon	10
	S-15/500-PPFS-O*-FT10	15	35	422.6 - 500	74.7 - 88.3	Teflon	10
	S-15/750-PPFS-O*-FT10	15	35	672.6 - 750	118.8 - 132.5	Teflon	10
	S-15/1000-PPFS-O*-FT10	15	35	922.6 - 1000	163 - 176.6	Teflon	10
25 mm ID	S-25/125-PPFS-O*-FT2	25	24	54 - 125	26.5 - 61.3	Teflon	2
	S-25/250-PPFS-O*-FT2	25	24	179 - 250	87.8 - 122.7	Teflon	2
	S-25/500-PPFS-O*-FT2	25	24	429 - 500	210.5 - 245.3	Teflon	2
	S-25/750-PPFS-O*-FT2	25	24	679 - 750	331.1 - 368	Teflon	2
	S-25/1000-PPFS-O*-FT2	25	24	929 - 1000	455.8 - 490.6	Teflon	2
	S-25/125-PPFS-O*-FT10	25	24	54 - 125	26.5 - 61.3	Teflon	10
	S-25/250-PPFS-O*-FT10	25	24	179 - 250	87.8 - 122.7	Teflon	10
	S-25/500-PPFS-O*-FT10	25	24	429 - 500	210.5 - 245.3	Teflon	10
	S-25/750-PPFS-O*-FT10	25	24	679 - 750	331.1 - 368	Teflon	10
	S-25/1000-PPFS-O*-FT10	25	24	929 - 1000	455.8 - 490.6	Teflon	10
35 mm ID	S-35/125-PPFS-O*-FT2	35	18	55.1 - 125	52.9 - 120.2	Teflon	2
	S-35/250-PPFS-O*-FT2	35	18	180.1 - 250	173.1 - 240.4	Teflon	2
	S-35/500-PPFS-O*-FT2	35	18	430.1 - 500	413.5 - 480.8	Teflon	2
	S-35/750-PPFS-O*-FT2	35	18	680.1 - 750	654 - 721.2	Teflon	2
	S-35/1000-PPFS-O*-FT2	35	18	930.1 - 1000	894.4 - 961.6	Teflon	2
	S-35/125-PPFS-O*-FT10	35	18	55.1 - 125	52.9 - 120.2	Teflon	10
	S-35/250-PPFS-O*-FT10	35	18	180.1 - 250	173.1 - 240.4	Teflon	10
	S-35/500-PPFS-O*-FT10	35	18	430.1 - 500	413.5 - 480.8	Teflon	10
	S-35/750-PPFS-O*-FT10	35	18	680.1 - 750	654 - 721.2	Teflon	10
	S-35/1000-PPFS-O*-FT10	35	18	930.1 - 1000	894.4 - 961.6	Teflon	10
50 mm ID	S-50/125-PPFS-O*-FT2	50	13	52.6 - 125	103.1 - 245.3	Teflon	2
	S-50/250-PPFS-O*-FT2	50	13	177.6 - 250	348.5 - 490.6	Teflon	2
	S-50/500-PPFS-O*-FT2	50	13	427.6 - 500	839.1 - 981.3	Teflon	2
	S-50/750-PPFS-O*-FT2	50	13	677.6 - 750	1330 - 1472	Teflon	2
	S-50/1000-PPFS-O*-FT2	50	13	927.6 - 1000	1820 - 1963	Teflon	2
	S-50/125-PPFS-O*-FT10	50	13	52.6 - 125	103.1 - 245.3	Teflon	10
	S-50/250-PPFS-O*-FT10	50	13	177.6 - 250	348.5 - 490.6	Teflon	10
	S-50/500-PPFS-O*-FT10	50	13	427.6 - 500	839.1 - 981.3	Teflon	10
	S-50/750-PPFS-O*-FT10	50	13	677.6 - 750	1330 - 1472	Teflon	10
	S-50/1000-PPFS-O*-FT10	50	13	927.6 - 1000	1820 - 1963	Teflon	10

SNAP® Series Glass Columns, SR-Version, Fixed/Long Plungers

Length may vary slightly based on glass tolerance.

Temperature range	4 - 40 °C
Plunger	PEEK
Sealing	Viton or Kalrez®
Frit	ID 10 - 50 mm: Teflon (2 µm or 10 µm)
Piston Configuration	Fixed / Long plungers



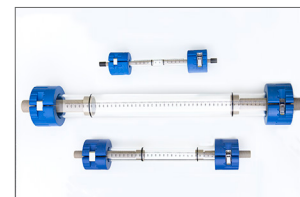
* Substitute V for Viton or K for Kalrez®

	Part No.	ID [mm]	Pressure limit [bar]	Bed length [mm]	Volume [ml]	Frit material	Frit porosity [µm]
10 mm ID	S-10/125-PPFL-O*-FT2	10	40	20.4 - 125	1.6 - 9.8	Teflon	2
	S-10/250-PPFL-O*-FT2	10	40	145.4 - 250	11.4 - 19.6	Teflon	2
	S-10/500-PPFL-O*-FT2	10	40	395.4 - 500	31 - 39.3	Teflon	2
	S-10/750-PPFL-O*-FT2	10	40	645.4 - 750	50.7 - 58.9	Teflon	2
	S-10/1000-PPFL-O*-FT2	10	40	895.3 - 1000	70.3 - 78.5	Teflon	2
	S-10/125-PPFL-O*-FT10	10	40	20.4 - 125	1.6 - 9.8	Teflon	10
	S-10/250-PPFL-O*-FT10	10	40	145.4 - 250	11.4 - 19.6	Teflon	10
	S-10/500-PPFL-O*-FT10	10	40	395.4 - 500	31 - 39.3	Teflon	10
	S-10/750-PPFL-O*-FT10	10	40	645.4 - 750	50.7 - 58.9	Teflon	10
	S-10/1000-PPFL-O*-FT10	10	40	895.3 - 1000	70.3 - 78.5	Teflon	10
15 mm ID	S-15/125-PPFL-O*-FT2	15	35	5.1 - 125	0.9 - 22.1	Teflon	2
	S-15/250-PPFL-O*-FT2	15	35	130.1 - 250	23 - 44.2	Teflon	2
	S-15/500-PPFL-O*-FT2	15	35	380.1 - 500	67.1 - 88.3	Teflon	2
	S-15/750-PPFL-O*-FT2	15	35	630.1 - 750	111.3 - 132.5	Teflon	2
	S-15/1000-PPFL-O*-FT2	15	35	880.1 - 1000	155.5 - 176.6	Teflon	2
	S-15/125-PPFL-O*-FT10	15	35	5.1 - 125	0.9 - 22.1	Teflon	10
	S-15/250-PPFL-O*-FT10	15	35	130.1 - 250	23 - 44.2	Teflon	10
	S-15/500-PPFL-O*-FT10	15	35	380.1 - 500	67.1 - 88.3	Teflon	10
	S-15/750-PPFL-O*-FT10	15	35	630.1 - 750	111.3 - 132.5	Teflon	10
	S-15/1000-PPFL-O*-FT10	15	35	880.1 - 1000	155.5 - 176.6	Teflon	10
25 mm ID	S-25/125-PPFL-O*-FT2	25	24	11.5 - 125	5.6 - 61.3	Teflon	2
	S-25/250-PPFL-O*-FT2	25	24	136.5 - 250	67 - 122.7	Teflon	2
	S-25/500-PPFL-O*-FT2	25	24	386.5 - 500	189.6 - 245.3	Teflon	2
	S-25/750-PPFL-O*-FT2	25	24	636.5 - 750	312.3 - 368	Teflon	2
	S-25/1000-PPFL-O*-FT2	25	24	886.5 - 1000	434.9 - 490.6	Teflon	2
	S-25/125-PPFL-O*-FT10	25	24	11.5 - 125	5.6 - 61.3	Teflon	10
	S-25/250-PPFL-O*-FT10	25	24	136.5 - 250	67 - 122.7	Teflon	10
	S-25/500-PPFL-O*-FT10	25	24	386.5 - 500	189.6 - 245.3	Teflon	10
	S-25/750-PPFL-O*-FT10	25	24	636.5 - 750	312.3 - 368	Teflon	10
	S-25/1000-PPFL-O*-FT10	25	24	886.5 - 1000	434.9 - 490.6	Teflon	10
35 mm ID	S-35/125-PPFL-O*-FT2	35	18	12.6 - 125	12.1 - 120.2	Teflon	2
	S-35/250-PPFL-O*-FT2	35	18	137.6 - 250	132.3 - 240.4	Teflon	2
	S-35/500-PPFL-O*-FT2	35	18	387.6 - 500	372.7 - 480.8	Teflon	2
	S-35/750-PPFL-O*-FT2	35	18	637.6 - 750	613.1 - 721.2	Teflon	2
	S-35/1000-PPFL-O*-FT2	35	18	887.6 - 1000	853.5 - 961.6	Teflon	2
	S-35/125-PPFL-O*-FT10	35	18	12.6 - 125	12.1 - 120.2	Teflon	10
	S-35/250-PPFL-O*-FT10	35	18	137.6 - 250	132.3 - 240.4	Teflon	10
	S-35/500-PPFL-O*-FT10	35	18	387.6 - 500	372.7 - 480.8	Teflon	10
	S-35/750-PPFL-O*-FT10	35	18	637.6 - 750	613.1 - 721.2	Teflon	10
	S-35/1000-PPFL-O*-FT10	35	18	887.6 - 1000	853.5 - 961.6	Teflon	10
50 mm ID	S-50/125-PPFL-O*-FT2	50	13	10.1 - 125	19.7 - 245.3	Teflon	2
	S-50/250-PPFL-O*-FT2	50	13	135.1 - 250	265.1 - 490.6	Teflon	2
	S-50/500-PPFL-O*-FT2	50	13	385.1 - 500	755.7 - 981.3	Teflon	2
	S-50/750-PPFL-O*-FT2	50	13	635.1 - 750	1246 - 1472	Teflon	2
	S-50/1000-PPFL-O*-FT2	50	13	885.1 - 1000	1737 - 1963	Teflon	2
	S-50/125-PPFL-O*-FT10	50	13	10.1 - 125	19.7 - 245.3	Teflon	10
	S-50/250-PPFL-O*-FT10	50	13	135.1 - 250	265.1 - 490.6	Teflon	10
	S-50/500-PPFL-O*-FT10	50	13	385.1 - 500	755.7 - 981.3	Teflon	10
	S-50/750-PPFL-O*-FT10	50	13	635.1 - 750	1246 - 1472	Teflon	10
	S-50/1000-PPFL-O*-FT10	50	13	885.1 - 1000	1737 - 1963	Teflon	10

SNAP® Series Glass Columns, SR-Version, Short/Short Plungers

Length may vary slightly based on glass tolerance.

Temperature range	4 - 40 °C
Plunger	PEEK
Sealing	Viton or Kalrez®
Frit	ID 10 - 50 mm: Teflon (2 µm or 10 µm)
Piston Configuration	Short plungers



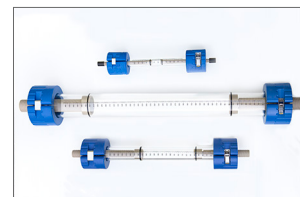
* Substitute V for Viton or K for Kalrez®

	Part No.	ID [mm]	Pressure limit [bar]	Bed length [mm]	Volume [ml]	Frit material	Frit porosity [µm]
10 mm ID	S-10/125-PPSS-O*-FT2	10	40	0 - 125	0 - 9.8	Teflon	2
	S-10/250-PPSS-O*-FT2	10	40	125.9 - 250	9.9 - 19.6	Teflon	2
	S-10/500-PPSS-O*-FT2	10	40	375.9 - 500	29.5 - 39.3	Teflon	2
	S-10/750-PPSS-O*-FT2	10	40	625.9 - 750	49.1 - 58.9	Teflon	2
	S-10/1000-PPSS-O*-FT2	10	40	875.9 - 1000	68.8 - 78.5	Teflon	2
	S-10/125-PPSS-O*-FT10	10	40	0 - 125	0 - 9.8	Teflon	10
	S-10/250-PPSS-O*-FT10	10	40	125.9 - 250	9.9 - 19.6	Teflon	10
	S-10/500-PPSS-O*-FT10	10	40	375.9 - 500	29.5 - 39.3	Teflon	10
15 mm ID	S-15/125-PPSS-O*-FT2	15	35	0 - 125	0 - 22.1	Teflon	2
	S-15/250-PPSS-O*-FT2	15	35	95.3 - 250	16.8 - 44.2	Teflon	2
	S-15/500-PPSS-O*-FT2	15	35	345.3 - 500	61 - 88.3	Teflon	2
	S-15/750-PPSS-O*-FT2	15	35	595.3 - 750	105.1 - 132.5	Teflon	2
	S-15/1000-PPSS-O*-FT2	15	35	845.3 - 1000	149.3 - 176.6	Teflon	2
	S-15/125-PPSS-O*-FT10	15	35	0 - 125	0 - 22.1	Teflon	10
	S-15/250-PPSS-O*-FT10	15	35	95.3 - 250	16.8 - 44.2	Teflon	10
	S-15/500-PPSS-O*-FT10	15	35	345.3 - 500	61 - 88.31	Teflon	10
25 mm ID	S-25/125-PPSS-O*-FT2	25	24	0 - 125	0 - 61.3	Teflon	2
	S-25/250-PPSS-O*-FT2	25	24	108 - 250	53 - 122.7	Teflon	2
	S-25/500-PPSS-O*-FT2	25	24	358 - 500	175.6 - 245.3	Teflon	2
	S-25/750-PPSS-O*-FT2	25	24	608 - 750	298.3 - 368	Teflon	2
	S-25/1000-PPSS-O*-FT2	25	24	858 - 1000	420.9 - 490.6	Teflon	2
	S-25/125-PPSS-O*-FT10	25	24	0 - 125	0 - 61.3	Teflon	10
	S-25/250-PPSS-O*-FT10	25	24	108 - 250	53 - 122.7	Teflon	10
	S-25/500-PPSS-O*-FT10	25	24	358 - 500	175.6 - 245.3	Teflon	10
35 mm ID	S-35/125-PPSS-O*-FT2	35	18	0 - 125	0 - 120.2	Teflon	2
	S-35/250-PPSS-O*-FT2	35	18	110.1 - 250	105.9 - 240.4	Teflon	2
	S-35/500-PPSS-O*-FT2	35	18	360.1 - 500	346.3 - 480.8	Teflon	2
	S-35/750-PPSS-O*-FT2	35	18	610.1 - 750	586.7 - 721.2	Teflon	2
	S-35/1000-PPSS-O*-FT2	35	18	860.1 - 1000	827.1 - 961.6	Teflon	2
	S-35/125-PPSS-O*-FT10	35	18	0 - 125	0 - 120.2	Teflon	10
	S-35/250-PPSS-O*-FT10	35	18	110.1 - 250	105.9 - 240.4	Teflon	10
	S-35/500-PPSS-O*-FT10	35	18	360.1 - 500	346.3 - 480.8	Teflon	10
50 mm ID	S-50/125-PPSS-O*-FT2	50	13	0 - 125	0 - 245.3	Teflon	2
	S-50/250-PPSS-O*-FT2	50	13	105.1 - 250	206.3 - 490.6	Teflon	2
	S-50/500-PPSS-O*-FT2	50	13	355.1 - 500	696.9 - 981.3	Teflon	2
	S-50/750-PPSS-O*-FT2	50	13	605.1 - 750	1246 - 1472	Teflon	2
	S-50/1000-PPSS-O*-FT2	50	13	855.1 - 1000	1678 - 1963	Teflon	2
	S-50/125-PPSS-O*-FT10	50	13	0 - 125	0 - 245.3	Teflon	10
	S-50/250-PPSS-O*-FT10	50	13	105.1 - 250	206.3 - 490.6	Teflon	10
	S-50/500-PPSS-O*-FT10	50	13	355.1 - 500	696.9 - 981.3	Teflon	10

SNAP® Series Glass Columns, SR-Version, Short/Long Plungers

Length may vary slightly based on glass tolerance.

Temperature range	4 - 40 °C
Plunger	PEEK
Sealing	Viton or Kalrez®
Frit	ID 10 - 50 mm: Teflon (2 µm or 10 µm)
Piston Configuration	Short / Long plungers



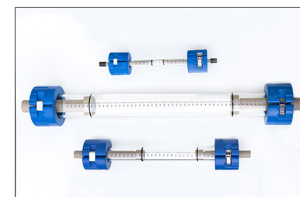
* Substitute V for Viton or K for Kalrez®

	Part No.	ID [mm]	Pressure limit [bar]	Bed length [mm]	Volume [ml]	Frit material	Frit porosity [µm]
10 mm ID	S-10/125-PPSL-O*-FT2	10	40	0 - 125	0 - 9.8	Teflon	2
	S-10/250-PPSL-O*-FT2	10	40	83.4 - 250	6.5 - 19.6	Teflon	2
	S-10/500-PPSL-O*-FT2	10	40	333.4 - 500	26.2 - 39.3	Teflon	2
	S-10/750-PPSL-O*-FT2	10	40	583.4 - 750	45.8 - 58.9	Teflon	2
	S-10/1000-PPSL-O*-FT2	10	40	833.4 - 1000	65.4 - 78.5	Teflon	2
	S-10/125-PPSL-O*-FT10	10	40	0 - 125	0 - 9.8	Teflon	10
	S-10/250-PPSL-O*-FT10	10	40	83.4 - 250	6.5 - 19.6	Teflon	10
	S-10/500-PPSL-O*-FT10	10	40	333.4 - 500	26.2 - 39.3	Teflon	10
	S-10/750-PPSL-O*-FT10	10	40	583.4 - 750	45.8 - 58.9	Teflon	10
	S-10/1000-PPSL-O*-FT10	10	40	833.4 - 1000	65.4 - 78.5	Teflon	10
15 mm ID	S-15/125-PPSL-O*-FT2	15	35	0 - 125	0 - 22.1	Teflon	2
	S-15/250-PPSL-O*-FT2	15	35	52.8 - 250	9.3 - 44.2	Teflon	2
	S-15/500-PPSL-O*-FT2	15	35	302.8 - 500	53.5 - 88.3	Teflon	2
	S-15/750-PPSL-O*-FT2	15	35	552.8 - 750	97.6 - 132.5	Teflon	2
	S-15/1000-PPSL-O*-FT2	15	35	802.8 - 1000	141.8 - 176.6	Teflon	2
	S-15/125-PPSL-O*-FT10	15	35	0 - 125	0 - 22.1	Teflon	10
	S-15/250-PPSL-O*-FT10	15	35	52.8 - 250	9.3 - 44.2	Teflon	10
	S-15/500-PPSL-O*-FT10	15	35	302.8 - 500	53.5 - 88.3	Teflon	10
	S-15/750-PPSL-O*-FT10	15	35	552.8 - 750	97.6 - 132.5	Teflon	10
	S-15/1000-PPSL-O*-FT10	15	35	802.8 - 1000	141.8 - 176.6	Teflon	10
25 mm ID	S-25/125-PPSL-O*-FT2	25	24	0 - 125	0 - 61.3	Teflon	2
	S-25/250-PPSL-O*-FT2	25	24	65.5 - 250	32.1 - 122.7	Teflon	2
	S-25/500-PPSL-O*-FT2	25	24	315.5 - 500	154.8 - 245.3	Teflon	2
	S-25/750-PPSL-O*-FT2	25	24	565.5 - 750	277.4 - 368	Teflon	2
	S-25/1000-PPSL-O*-FT2	25	24	815.5 - 1000	400.1 - 490.6	Teflon	2
	S-25/125-PPSL-O*-FT10	25	24	0 - 125	0 - 61.3	Teflon	10
	S-25/250-PPSL-O*-FT10	25	24	65.5 - 250	32.1 - 122.7	Teflon	10
	S-25/500-PPSL-O*-FT10	25	24	315.5 - 500	154.8 - 245.3	Teflon	10
	S-25/750-PPSL-O*-FT10	25	24	565.5 - 750	277.4 - 368	Teflon	10
	S-25/1000-PPSL-O*-FT10	25	24	815.5 - 1000	400.1 - 490.6	Teflon	10
35 mm ID	S-35/125-PPSL-O*-FT2	35	18	0 - 125	0 - 120.2	Teflon	2
	S-35/250-PPSL-O*-FT2	35	18	57.6 - 250	55.4 - 240.4	Teflon	2
	S-35/500-PPSL-O*-FT2	35	18	307.6 - 500	295.8 - 480.8	Teflon	2
	S-35/750-PPSL-O*-FT2	35	18	557.6 - 750	536.2 - 721.2	Teflon	2
	S-35/1000-PPSL-O*-FT2	35	18	807.6 - 1000	776.6 - 961.6	Teflon	2
	S-35/125-PPSL-O*-FT10	35	18	0 - 125	0 - 120.2	Teflon	10
	S-35/250-PPSL-O*-FT10	35	18	57.6 - 250	55.4 - 240.4	Teflon	10
	S-35/500-PPSL-O*-FT10	35	18	307.6 - 500	295.8 - 480.8	Teflon	10
	S-35/750-PPSL-O*-FT10	35	18	557.6 - 750	536.2 - 721.2	Teflon	10
	S-35/1000-PPSL-O*-FT10	35	18	807.6 - 1000	776.6 - 961.6	Teflon	10
50 mm ID	S-50/125-PPSL-O*-FT2	50	13	0 - 125	0 - 245.3	Teflon	2
	S-50/250-PPSL-O*-FT2	50	13	62.6 - 250	122.9 - 490.6	Teflon	2
	S-50/500-PPSL-O*-FT2	50	13	312.6 - 500	613.7 - 981.3	Teflon	2
	S-50/750-PPSL-O*-FT2	50	13	562.6 - 750	1104 - 1472	Teflon	2
	S-50/1000-PPSL-O*-FT2	50	13	812.6 - 1000	1595 - 1963	Teflon	2
	S-50/125-PPSL-O*-FT10	50	13	0 - 125	0 - 245.3	Teflon	10
	S-50/250-PPSL-O*-FT10	50	13	62.6 - 250	122.9 - 490.6	Teflon	10
	S-50/500-PPSL-O*-FT10	50	13	312.6 - 500	613.7 - 981.3	Teflon	10
	S-50/750-PPSL-O*-FT10	50	13	562.6 - 750	1104 - 1472	Teflon	10
	S-50/1000-PPSL-O*-FT10	50	13	812.6 - 1000	1595 - 1963	Teflon	10

SNAP® Series Glass Columns, SR-Version, Long/Long Plungers

Length may vary slightly based on glass tolerance.

Temperature range	4 - 40 °C
Plunger	PEEK
Sealing	Viton or Kalrez®
Frit	ID 10 - 50 mm: Teflon (2 µm or 10 µm)
Piston Configuration	Long plungers



* Substitute V for Viton or K for Kalrez®

	Part No.	ID [mm]	Pressure limit [bar]	Bed length [mm]	Volume [ml]	Frit material	Frit porosity [µm]
10 mm ID	S-10/125-PPLL-O*-FT2	10	40	0 - 125	0 - 9.8	Teflon	2
	S-10/250-PPLL-O*-FT2	10	40	40.9 - 250	3.2 - 19.6	Teflon	2
	S-10/500-PPLL-O*-FT2	10	40	290.9 - 500	222.8 - 39.3	Teflon	2
	S-10/750-PPLL-O*-FT2	10	40	540.9 - 750	42.5 - 58.9	Teflon	2
	S-10/1000-PPLL-O*-FT2	10	40	790.9 - 1000	62.08 - 78.5	Teflon	2
	S-10/125-PPLL-O*-FT10	10	40	0 - 125	0 - 9.8	Teflon	10
	S-10/250-PPLL-O*-FT10	10	40	40.9 - 250	3.2 - 19.6	Teflon	10
	S-10/500-PPLL-O*-FT10	10	40	290.9 - 500	222.8 - 39.3	Teflon	10
	S-10/750-PPLL-O*-FT10	10	40	540.9 - 750	42.5 - 58.9	Teflon	10
	S-10/1000-PPLL-O*-FT10	10	40	790.9 - 1000	62.1 - 78.5	Teflon	10
15 mm ID	S-15/125-PPLL-O*-FT2	15	35	0 - 125	0 - 22.1	Teflon	2
	S-15/250-PPLL-O*-FT2	15	35	10.3 - 250	1.8 - 44.2	Teflon	2
	S-15/500-PPLL-O*-FT2	15	35	260.3 - 500	46 - 88.3	Teflon	2
	S-15/750-PPLL-O*-FT2	15	35	510.3 - 750	90.1 - 132.5	Teflon	2
	S-15/1000-PPLL-O*-FT2	15	35	760.3 - 1000	134.3 - 176.6	Teflon	2
	S-15/125-PPLL-O*-FT10	15	35	0 - 125	0 - 22.08	Teflon	10
	S-15/250-PPLL-O*-FT10	15	35	10.3 - 250	1.8 - 44.2	Teflon	10
	S-15/500-PPLL-O*-FT10	15	35	260.3 - 500	46 - 88.3	Teflon	10
	S-15/750-PPLL-O*-FT10	15	35	510.3 - 750	90.1 - 132.5	Teflon	10
	S-15/1000-PPLL-O*-FT10	15	35	760.3 - 1000	134.3 - 176.6	Teflon	10
25 mm ID	S-25/125-PPLL-O*-FT2	25	24	0 - 125	0 - 61.3	Teflon	2
	S-25/250-PPLL-O*-FT2	25	24	23 - 250	11.3 - 122.7	Teflon	2
	S-25/500-PPLL-O*-FT2	25	24	273 - 500	133.9 - 245.3	Teflon	2
	S-25/750-PPLL-O*-FT2	25	24	523 - 750	256.6 - 368	Teflon	2
	S-25/1000-PPLL-O*-FT2	25	24	773 - 1000	379.2 - 490.6	Teflon	2
	S-25/125-PPLL-O*-FT10	25	24	0 - 125	0 - 61.3	Teflon	10
	S-25/250-PPLL-O*-FT10	25	24	23 - 250	11.3 - 122.7	Teflon	10
	S-25/500-PPLL-O*-FT10	25	24	273 - 500	133.9 - 245.3	Teflon	10
	S-25/750-PPLL-O*-FT10	25	24	523 - 750	256.6 - 368	Teflon	10
	S-25/1000-PPLL-O*-FT10	25	24	773 - 1000	379.2 - 490.6	Teflon	10
35 mm ID	S-35/125-PPLL-O*-FT2	35	18	0 - 125	0 - 120.2	Teflon	2
	S-35/250-PPLL-O*-FT2	35	18	25.1 - 250	24.1 - 240.4	Teflon	2
	S-35/500-PPLL-O*-FT2	35	18	275.1 - 500	264.5 - 480.8	Teflon	2
	S-35/750-PPLL-O*-FT2	35	18	307.6 - 500	295.8 - 480.8	Teflon	2
	S-35/1000-PPLL-O*-FT2	35	18	775.1 - 1000	745.4 - 961.6	Teflon	2
	S-35/125-PPLL-O*-FT10	35	18	0 - 125	0 - 120.2	Teflon	10
	S-35/250-PPLL-O*-FT10	35	18	25.1 - 250	24.1 - 240.4	Teflon	10
	S-35/500-PPLL-O*-FT10	35	18	307.6 - 500	295.8 - 480.8	Teflon	10
	S-35/750-PPLL-O*-FT10	35	18	307.6 - 500	295.8 - 480.8	Teflon	10
	S-35/1000-PPLL-O*-FT10	35	18	775.1 - 1000	745.4 - 961.6	Teflon	10
50 mm ID	S-50/125-PPLL-O*-FT2	50	13	0 - 125	0 - 245.3	Teflon	2
	S-50/250-PPLL-O*-FT2	50	13	20.1 - 250	39.5 - 490.6	Teflon	2
	S-50/500-PPLL-O*-FT2	50	13	270.1 - 500	530.1 - 981.3	Teflon	2
	S-50/750-PPLL-O*-FT2	50	13	520.1 - 750	1021 - 1472	Teflon	2
	S-50/1000-PPLL-O*-FT2	50	13	775.1 - 1000	1511 - 1963	Teflon	2
	S-50/125-PPLL-O*-FT10	50	13	0 - 125	0 - 245.3	Teflon	10
	S-50/250-PPLL-O*-FT10	50	13	20.1 - 250	39.5 - 490.6	Teflon	10
	S-50/500-PPLL-O*-FT10	50	13	270.1 - 500	530.1 - 981.3	Teflon	10
	S-50/750-PPLL-O*-FT10	50	13	520.1 - 750	1021 - 1472	Teflon	10
	S-50/1000-PPLL-O*-FT10	50	13	775.1 - 1000	1511 - 1963	Teflon	10

Packing Adaptors

Since most columns will be wet or slurry packed, a packing adaptor will be used. SNAP column packing adaptors have a number of advantages. The first is that they are easy to install and remove. Secondly, the packing adaptors have a sufficient pressure rating, appropriate for the columns they are mounted on, allowing for adequate flow conditions. Third, they are the same diameter as the column they are mounted on avoiding issues with turbulent flow at the interface or joining point. All this adds up to ease of use, safe operations and good results!

These consist of a coupling unit and glass body of same column ID as column to be packed.

Packing Adaptor consisting of:

- SNAP® coupling unit (cast resin) with seal ring insert (PTFE)
- AB-Version with two sets (4 pieces) Viton O-rings
- SR-Version with two Kalrez® or Viton O-rings



Packing Adaptors AB-Version

Part No.	Column ID (mm)	Pressure Rating (bars)
S-10/125-PAK-AB	10	20
S-10/250-PAK-AB	10	20
S-10/500-PAK-AB	10	20
S-10/750-PAK-AB	10	20
S-10/1000-PAK-AB	10	20
S-15/125-PAK-AB	15	17
S-15/250-PAK-AB	15	17
S-15/500-PAK-AB	15	17
S-15/750-PAK-AB	15	17
S-15/1000-PAK-AB	15	17
S-25/125-PAK-AB	25	12
S-25/250-PAK-AB	25	12
S-25/500-PAK-AB	25	12
S-25/750-PAK-AB	25	12
S-25/1000-PAK-AB	25	12
S-35/125-PAK-AB	35	9
S-35/250-PAK-AB	35	9
S-35/500-PAK-AB	35	9
S-35/750-PAK-AB	35	9
S-35/1000-PAK-AB	35	9
S-50/125-PAK-AB	50	6
S-50/250-PAK-AB	50	6
S-50/500-PAK-AB	50	6
S-50/750-PAK-AB	50	6
S-50/1000-PAK-AB	50	6

Packing Adaptors SR-Version

* Substitute V for Viton or K for Kalrez®

Part No.	Column ID (mm)	Pressure Rating (bars)
S-10/125-PAK-SR.*	10	20
S-10/250-PAK-SR.*	10	20
S-10/500-PAK-SR.*	10	20
S-10/750-PAK-SR.*	10	20
S-10/1000-PAK-SR.*	10	20
S-15/125-PAK-SR.*	15	17
S-15/250-PAK-SR.*	15	17
S-15/500-PAK-SR.*	15	17
S-15/750-PAK-SR.*	15	17
S-15/1000-PAK-SR.*	15	17
S-25/125-PAK-SR.*	25	12
S-25/250-PAK-SR.*	25	12
S-25/500-PAK-SR.*	25	12
S-25/750-PAK-SR.*	25	12
S-25/1000-PAK-SR.*	25	12
S-35/125-PAK-SR.*	35	9
S-35/250-PAK-SR.*	35	9
S-35/500-PAK-SR.*	35	9
S-35/750-PAK-SR.*	35	9
S-35/1000-PAK-SR.*	35	9
S-50/125-PAK-SR.*	50	6
S-50/250-PAK-SR.*	50	6
S-50/500-PAK-SR.*	50	6
S-50/750-PAK-SR.*	50	6
S-50/1000-PAK-SR.*	50	6

Supplied Accessories

Parts Kit (1/16")

PN: ELS-1/16-KIT

ELS-JR-CFL-CB1KF	[2]	Ferrules, 1/16"
ELS-JR-55050	[2]	Nuts, 1/16"
ELS-FRT	[1]	Frit Ejector
ELS-P621	[2]	M6 adaptors

Parts Kit (1/8")

PN: ELS-1/8-KIT

ELS-JR-CFL-CB2KF	[2]	Ferrules, 1/8"
ELS-JR-55051	[2]	Nuts, 1/8"
ELS-FRT	[1]	Frit Ejector
ELS-P621	[2]	M6 adaptors

Tubing should be connected to the SNAP Glass Columns with the following screws:

For tubing with 1/16" outer diameter:

ELS-JR-55050	Nut 1/4" - 28G
ELS-JR-CFL-CB1KF	Ferrule, collapsible 1/16"



For tubing with 1/8" outer diameter:

ELS-JR-55051	Nut 1/4" - 28G
ELS-JR-CFL-CB2K	Ferrule, collapsible 1/8"



Recommended to be purchased with column:

ELS-KP311	1/4" - 28 Column Plug
ELS-1522	1/16" 10' length
ELS-1523	1/8" 10' length

Spare Parts

Frits [Polyethylene (PE)] for AB Version

Part No.	Column ID (mm)	Porosity (µm)
ELS-10-FR-PE-05	10	5
ELS-10-FR-PE-10	10	10
ELS-15-FR-PE-05	15	5
ELS-15-FR-PE-10	15	10
ELS-25-FR-PE-05	25	5
ELS-25-FR-PE-10	25	10
ELS-35-FR-PE-05	35	5
ELS-35-FR-PE-10	35	10
ELS-50-FR-PE-05	50	5
ELS-50-FR-PE-10	50	10

Frits [Teflon (TF)] for SR Version

Part No.	Column ID (mm)	Porosity (µm)
ELS-10-FR-TF-02	10	2
ELS-10-FR-TF-10	10	10
ELS-15-FR-TF-02	15	2
ELS-15-FR-TF-10	15	10
ELS-25-FR-TF-02	25	2
ELS-25-FR-TF-10	25	10
ELS-35-FR-TF-02	35	2
ELS-35-FR-TF-10	35	10
ELS-50-FR-TF-02	50	2
ELS-50-FR-TF-10	50	10

O-Ring [EDPM] for Plungers AB Version

Part No.	Column ID (mm)
ELS-OR-010-E	10
ELS-OR-013-E	15
ELS-OR-117-E	25
ELS-OR-123-E	35
ELS-OR-132-E	50



Frit

O-Ring [Viton] for Plungers AB/SR Version

Part No.	Column ID (mm)
ELS-OR-010-V	10
ELS-OR-013-V	15
ELS-OR-117-V	25
ELS-OR-123-V	35
ELS-OR-132-V	50



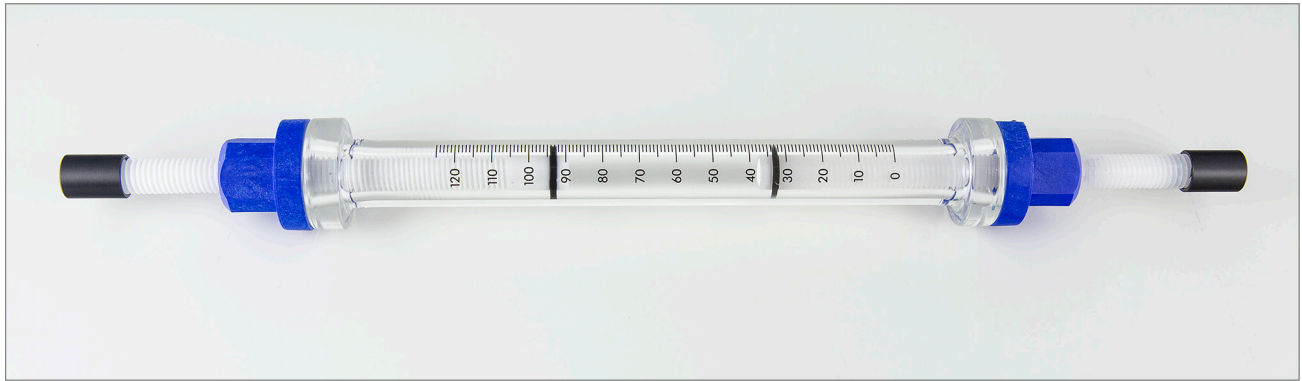
O-Ring

O-Ring [Kalrez®] for Plungers SR Version

Part No.	Column ID (mm)
ELS-OR-010-K	10
ELS-OR-013-K	15
ELS-OR-117-K	25
ELS-OR-123-K	35
ELS-OR-132-K	50

Cartridge Configuration

The column requires two clamps while in use but not for column storage. The advantage is that the scientist can buy many cartridges and a few clamps. This reduces the overall cost to equip the lab with multiple columns. The cartridges can be stored in the packed and plugged condition and the clamps can then be installed on another column and run immediately.



Customized Solutions

SNAP® columns can be provided with many customizations that the scientist may require including but not limited to:

- Custom column lengths
- Customized material configurations
- Heating and cooling jackets
- Custom end connections
- Any unique specifications upon request



SNAP® Laboratory Glass Columns
Available From:

essentialLife Solutions Ltd.

essentialLife Solutions
for preparative chromatography



03/14
Product

 CHROMalytic ECH nology Pty Ltd	+61(0)3 9762 2034	Australian Distributors Importers & Manufacturers www.chromtech.net.au	14/15
Website NEW : www.chromalytic.com.au E-mail : info@chromtech.net.au Tel: 03 9762 2034 . . . in AUSTRALIA			

Succeed!

TECHNICAL MANUAL

Revision 1.1

SNAP[®]

Laboratory Glass Columns

"Next Generation" technology for high-performance preparative chromatography



Helping You Succeed!

essentialLife Solutions

Chromatography

Proudly Made in A



03/14

 HROMalytic	+61(0)3 9762 2034	Australian Distributors Importers & Manufacturers www.chromtech.net.au	14/15
ECHnology Pty Ltd			
Website NEW : www.chromalytic.com.au E-mail : info@chromtech.net.au Tel: 03 9762 2034 . . . in AUSTRALIA			

Warnings / Advertencia

WARNING

Please read and fully understand the operating instructions for this equipment prior to use. Improper use of this equipment could result in serious injury or death!

Por favor, lea y entienda completamente las instrucciones de funcionamiento de este equipo antes de su uso. El uso inadecuado de este equipo puede provocar lesiones graves o la muerte!

WARNING

Glass SNAP® columns are intended for use in a liquid environment. NEVER use this column with compressed gas. Serious injury or death can result!

SNAP® columnas de vidrio están destinados para su uso en un entorno líquido. NUNCA utilice esta columna con gas comprimido. Lesiones graves o la muerte puede dar

WARNING

NEVER exceed the pressure limits stated on the label. Serious injury or death may occur!

NUNCA exceder de los límites de presión nominales indicados en la etiqueta. Lesión en grave o la muerte pueden ocurrir!

WARNING

Inspect components before each use and after any disassembly or cleaning for scratches, chips or defects, particularly on the glass surfaces. DO NOT use column if ANY defect is present. Please notify Essential Life Solutions if ANY defect or abnormality is detected.

Inspeccione los componentes antes de cada uso y después de cualquier desmontaje o la limpieza de arañazos, astillas o defectos, sobre todo en las superficies de vidrio. NO use columna si cualquier defecto está presente. Por favor notifique a Essential Life Solutions si se detecta cualquier defecto o anomalía

Maximum Pressure Rating

Column ID (mm)	Pressure (bars)	Pressure (PSI)
10	40	580
15	35	508
25	24	348
35	18	261
50	13	188

Table of Contents

Warnings.....	i
Maximum Pressure Ratings	i
Introduction and Intended Use.....	1
Mission Statement.....	1
Description of Components	2
Materials of Construction	3
Preparing the Column and Installation	4
Frit Replacement.....	5
Operating the Column with the Packing Adaptor	6
Tips for Successful Column Packing & Storage.....	7-8
Quality Control.....	9
Cleaning Instructions for Packed Column	9
Troubleshooting	11-12
Solving Column Leaks.....	12
Column Components.....	13-14

OUR MISSION STATEMENT

To be a "world class" provider of products and services to Life Sciences for the advancement of research, development and production of materials for the good of mankind.

Introduction and Intended Use

Liquid preparative chromatography is a widely used downstream purification technique that can be used on a wide range of compounds. The common targeted molecules include proteins, peptides and/or nucleic acids. With the emergence of smaller particle, higher performance chromatography media, there has been identified a need for higher pressure column hardware that can handle the increased back pressure loading in a safe column configuration. Traditionally, this has been addressed with stainless steel hardware, which does not allow the scientist visibility of the column contents.

Essential Life Solutions designed a "Next Generation" column line to address these evolving demands. Drawing on its many years of experience, Essential Life is pleased to announce the most effective and user friendly preparative column on the market.

SNAP® columns have been designed to exceed what is currently available to the scientist for laboratory use. Essential Life understands the value that the scientist places on his or her results, and we have strived to help them achieve those goals.

Careful choice in materials of construction, combined with customer feedback, has driven the design so that biocompatibility can be achieved in virtually any circumstance. Essential Life proudly offers this new SNAP® column hardware line and appreciates your interest. We at Essential Life Solutions value your business.



Description of Components

Carefully remove the SNAP® Column and/or adaptor from the packaging and check the contents against packing list supplied. Inspect for any missing components or damage (particularly the glass body) that may have occurred during transportation. If any parts are missing or damaged, contact Essential Life Customer Service department immediately at 781-341-7240.

1. GLASS BODY

- Type 1, Class A Borosilicate, 3.3 Expansion Conforming to Federal Specification DD-G-5416 and ASTM E-438, also meets the US Pharmacopoeia specifications for Type 1 borosilicate glass.
- Graduations in mm are fused onto glass surface and will not come off from exposure to organic solvents or autoclaving.
- Glass is redrawn precision bore tubing.

2. PISTONS

- SNAP® Columns are configured with various piston combinations which include:
 - Fixed / Short, Fixed / Long, Short / Short, Short / Long, Long / Long
- Piston material will vary according to order specifications and intended use.
- Piston Connections are 1/4-28 flat bottom HPLC, Adapters have been furnished with the column to convert to M6 Standard flat bottom HPLC.

3. O-RINGS

- Each Piston will be provided with an elastomeric O-Ring.
- O-Ring material will vary with order specifications.
- O-Rings are ALWAYS shipped loose as they will become stuck to the glass wall over long term storage. ELS recommends to install O-Rings just prior to use.
- If O-Rings have been stored for long periods of time they should be inspected prior to use for dryness and cracking.

4. FRITS

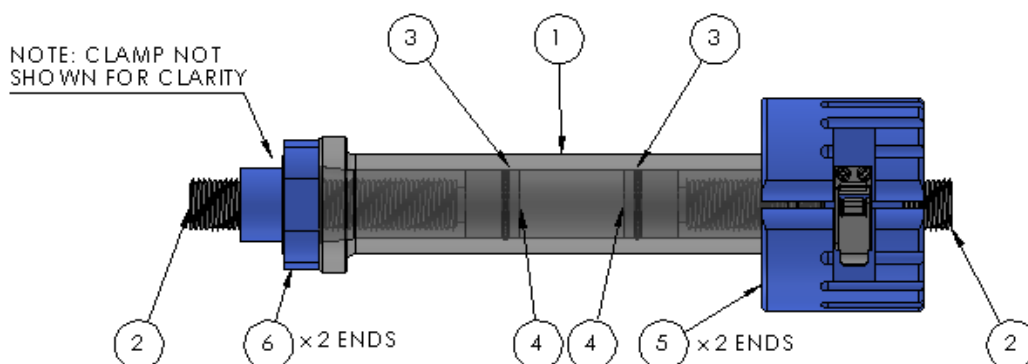
- Each Piston will be provided with a porous frit.
- Material and frit porosity will vary with order specifications.
- Frits can be removed for change out and cleaning. Please confirm that the appropriate frit has been installed in the column for use with mobile and stationary phase. (see pg. 5)

5. Clamp Assembly

- Each column will be provided with two clamp assemblies produced from cast resin.

6. Piston Adjustment Nut

- Each column will be provided with two piston adjustment nuts produced from cast resin.

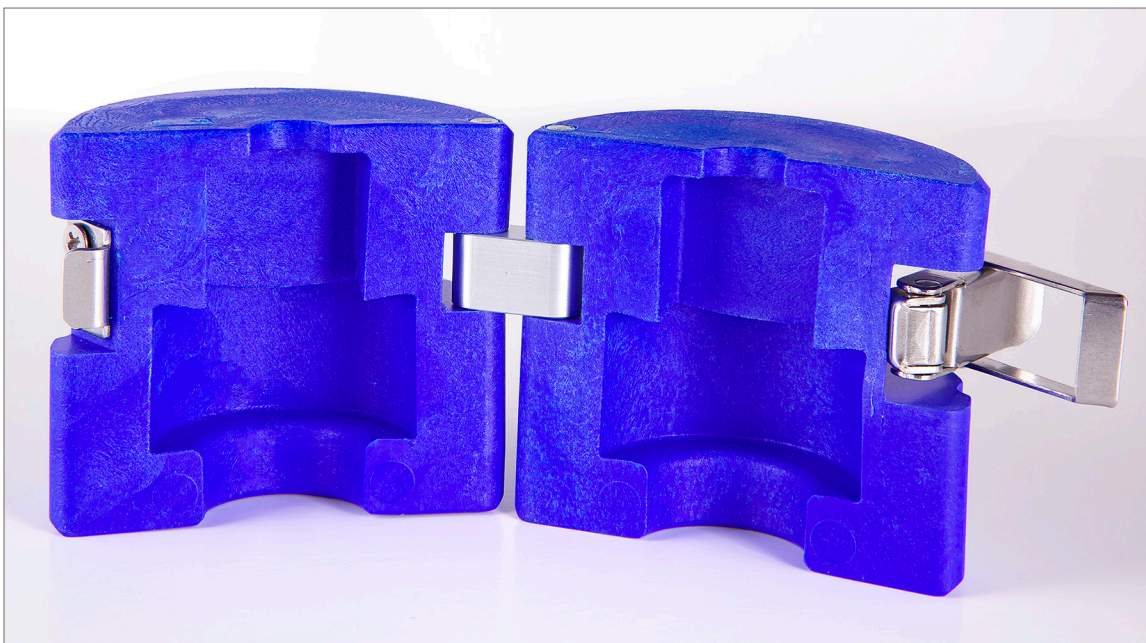


Materials of Construction

Under normal operating conditions, the following items should be considered in contact with the mobile phase. SNAP® Columns come in two standard configurations, which are aqueous buffer (AB) and solvent resistant (SR). Biocompatibility should be verified with material selection of column configuration. If there are any questions regarding the application and biocompatibility, the customer may contact Essential Life Solutions' Technical Support.

Version	Aqueous Buffer	Solvent Resistant
Body	Borosilicate Glass	Borosilicate Glass
Piston	Acetal	PEEK
Frit	Polyethylene	Teflon
O-Ring	EDPM	Viton or Kalrez®
Temperature Range	4°– 40° C	4°– 40° C

The above chart represents standard column configurations for aqueous buffer and solvent resistant. Essential Life Solutions can provide customized solutions upon request.



Patented SNAP® Column Clamp

Preparing the Column and Installation

Prior to first use of column, perform the following steps:

1. Disassemble column completely by first unlatching the SNAP®s on top and bottom clamps
2. Remove piston/nut assembly by pulling piston straight out
3. Clean all components with soapy water or laboratory detergent. Always finish cleaning by thoroughly rinsing with distilled water.
4. Install supplied O-Ring on piston end
5. Prior to reinserting pistons, frit must be "wetted out" with 20% ethanol to break surface tension and allow for unrestricted flow
6. When reinserting the piston(s), take care to insert straight into the glass body, otherwise the seal risks breakage
7. Rotate the nut block until it contacts the glass
8. For packing purposes, install the bottom clamp only, leaving top open for pouring media

Connecting the Column

Securely fasten the inlet and outlet connections to ensure that leakage does not occur during use.

Essential Life Solutions provides connections for either 1/16 or 1/8 inch tubing. The connection on the end of the piston is standard 1/4-28 FPLC flat bottom. Due to the fact that many systems standardize on M6, Essential Life Solutions has provided adaptors to accommodate this condition. ***Check your system's standard threads to properly connect the column and avoid cross threading.***

Tubing should be connected to the SNAP® Columns with the following screw:

For tubing with 1/16" outer diameter:

ELS-JR-55050	Nut 1/4"-28 G
ELS-JR-CFL-CB1KF-S	Ferrule, collapsible 1/16"



For tubing with 1/8" outer diameter:

ELS-JR-55051	Nut 1/4"-28 G
ELS-JR-CFL-CB2KF	Ferrule, collapsible 1/8"



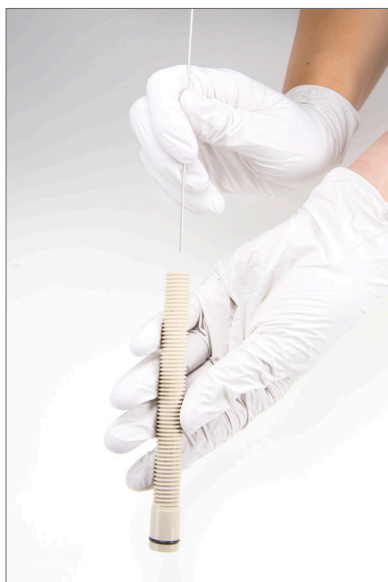
IMPORTANT!

Two adapters with metric threads (M6) (ELS-P621) are also supplied with the spare parts kit (ELS-1/16-KIT or ELS-1/8-KIT). These adapters are not suitable for connection to the glass columns as they will damage the thread in the pistons! They are to allow the columns to be connected to pumps, etc. fitted with metric threads.

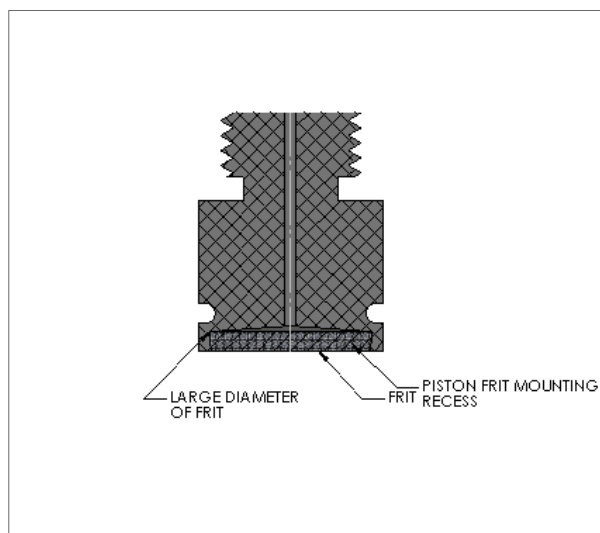
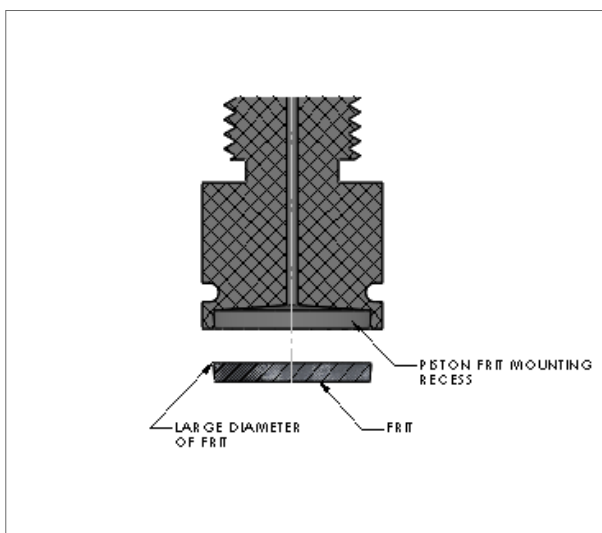
Frit Replacement

Each piston will be supplied with a porous frit, which can be removed for cleaning or change out. It is important to note that there is a specific orientation to the frit. See diagram below.

To remove existing frit, insert frit ejector into inlet end of piston and push frit out gently. If the frit does not dislodge easily, put piston assembly in hot water (maximum of 120°C) to expand plastic and allow for easier frit removal.



Frit Ejection Method



Frit Installation

Essential Life Solutions recommends the use of a packing adaptor when the desired bed length is greater than half of the maximum bed length allowed for in the column.

Operating the Column without the Packing Adaptor

Preparation:

The main column components in contact with the mobile phase must be cleaned thoroughly before the column is used for the first time. Essential Life Solutions recommends dismantling the column and washing the components in an appropriate laboratory cleaning solution prior to use. After cleaning, all components should be rinsed in double distilled water and reassembled.

Essential Life Solutions assumes that the column will be slurry packed. Slurry packing would involve mixing approximately equal parts mobile phase and stationary phase outside of the column prior to packing. *Consult with your supplier for media bulk density.* This will result in a volume approximately double the final packed volume.

$$V = \frac{(\pi R^2 H)}{1000}$$

V =volume (mL) R =radius of column (mm) H =desired height (mm)

$$m = V \times BD$$

m =mass (grams) BD =bulk density (grams/mL)

Column operation is initiated by attaching to an appropriate chromatographic system or pump using the supplied fittings. Tubing size should be selected to provide appropriate flow conditions. Tubing material should also be biocompatible with the mobile phase selected. Connect the inlet tubing to the end of the piston and the controller unit. To prevent back pressure, do not connect the outlet tubing to the controller unit and cap the end of the tubing during the packing process.

Packing the Column:

Position the column so that it is perfectly vertical. In an external beaker using proper ventilation, mix the buffer and stationary phase until suspended in solution. Slowly add the slurry to the inside wall of the glass column being careful not to trap air bubbles. Allow resin to sit until approximately one centimeter of buffer sits on top of the bed. Continue to add additional buffer until a meniscus forms on top of the column.

Wet the tip of the piston (Frit and O-Ring) in 20% ethanol to break the surface tension and allow for unrestricted flow. Insert the piston just inside the resin volume. Make sure air bubble are not present. Position the nut so that it contacts the glass. Attach the clamp and fasten SNAP® latch. Remove cap from outlet tubing and direct it to waste.

Turn on the pump to the appropriate flow rate and pressure. Slightly before the resin bed packs half of the desired length, pause the pump. Disconnect inlet tubing and direct to waste. Cap the outlet tubing. Slowly turn the clamp counterclockwise. As the piston submerges into the buffer, excess buffer will flow up the piston into the waste. Stop piston just above the resin bed. Uncap the outlet tubing directing it to waste and reconnect the inlet tubing to the controller unit. Allow to run for about two more minutes.

Once the bed compresses fully, stop the pump, cap the outlet tubing and unscrew the inlet tubing sending it to waste. Turn the clamp counterclockwise until the frit just contacts the surface of the bed. Reconnect the inlet and outlet tubing to the control unit. The column is ready to use.

Operating the Column with the Packing Adaptor

Preparation:

The main column components in contact with the mobile phase must be cleaned thoroughly before the column is used for the first time. Essential Life Solutions recommends dismantling the column and washing the components in an appropriate laboratory cleaning solution prior to use. After cleaning, all components should be rinsed in double distilled water and reassembled.

Essential Life Solutions assumes that the column will be slurry packed. Slurry packing would involve mixing approximately equal parts mobile phase and stationary phase outside of the column prior to packing. *Consult with your supplier for media's bulk density.* This will result in a volume approximately double the final packed volume.

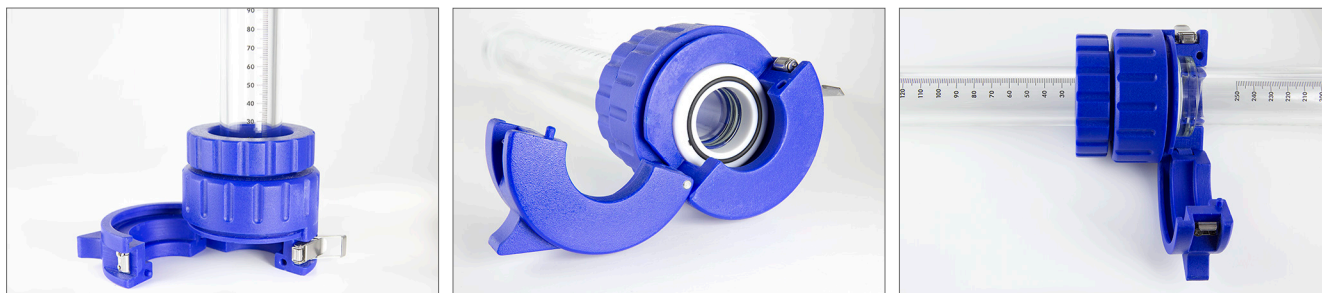
$$V = \frac{(\pi R^2 H)}{1000}$$

V =volume (mL) R =radius of column (mm) H =desired height (mm)

$$m = V \times BD$$

m =mass (grams) BD =bulk density (grams/mL)

Assemble the packing adaptor on top of the processing column. Clip split ring over glass column at 0 mm end. Install the compression nut so that the split ring is positioned partially inside. Insert seal ring with the small face down. Partially thread the glass column/compression nut assembly into the body of the packing adaptor. Open the jaw and place onto the column's bare glass tube. Fasten the latch and fully tighten the compression nut. See diagram below.



Column operation is initiated by attaching to an appropriate chromatographic system or pump using the supplied fittings. Tubing size should be selected to provide appropriate flow conditions. Tubing material should also be biocompatible with the mobile phase selected. Connect the inlet tubing to the end of the piston and the controller unit. To prevent back pressure, do not connect the outlet tubing to the controller unit and cap the end of the tubing.

Operating the Column with the Packing Adaptor (*continued*)

Packing the Column:

In an external beaker using proper ventilation, mix the buffer and stationary phase until suspended in solution. Slowly add the slurry to the inside wall of the glass column being careful not to trap air bubbles. Allow resin to sit until approximately a centimeter of buffer sits on top of the bed. Position the packing adaptor and column so that they are perfectly vertical.

Wet the tip of the piston (Frit and O-Ring) in 20% ethanol to break the surface tension and allow for unrestricted flow. Insert the piston just inside the resin volume. Make sure air bubble are not present. Position the nut so that it contacts the glass. Attach the clamp and fasten SNAP® latch. Remove cap from outlet tubing and direct it to waste.

Turn on the pump to the appropriate flow rate and pressure. Slightly before the resin bed packs half of the desired length, stop the pump. Disconnect inlet tubing and direct to waste. Cap the outlet tubing. Slowly turn the clamp counterclockwise. As the piston submerges into the buffer, excess buffer will flow up the piston into the waste. Stop piston just above the resin bed. If the bed has compressed to exist in only the column and not the packing adaptor, the packing adaptor can be removed by opening the jaw and dismounted from the column. Uncap the outlet tubing directing it to waste. Insert the piston like stated earlier and reconnect the inlet tubing to the controller unit

Once the bed compresses fully, stop the pump, cap the outlet tubing and unscrew the inlet tubing sending it to waste. Turn the clamp counterclockwise until the frit just contacts the surface of the bed. Reconnect the inlet and outlet tubing to the control unit. The column is ready to use.



Tips for Successful Column Packing and Storage

- Use only degassed and pre-filtered solvents as particulate in solvent may clog the frits or damage the column packing.
- Make sure that frits are properly sized for chromatographic media. Essential Life Solutions recommends that the frit porosity be at least one half of the average media particle diameter.
- Columns should always be sealed with appropriate stoppers when not in use to avoid bed degradation and drying out of media.
- Essential Life Solutions recommends eluting the column from bottom to top so that any air present can more readily be released. The result will be that the column will condition more quickly requiring less solvent.
- Before sample injection, ensure that no dead volume is present at the column inlet during the conditioning phase.
- Before attempting to pack the column, please consult with the media supplier and/or Essential Life Solutions for media-specific instructions.

Quality Control

Essential Life Solutions recommends determining plate count and peak symmetry with an appropriate (non-adsorbent) test substance after packing the column. Repeating this test frequently will ensure that the quality and durability of the packing material is recorded efficiently.

Calculating Amount of theoretical Plates (N):

$$N = 5.54 \times \left(\frac{t^1}{W_{1/2}} \right)^2$$

T1: retention time(s) $W_{1/2}$: peak width (s) at half peak height

$$\text{HETP} = \frac{L}{N}$$

L: column length (mm)

Peak Symmetry (S):

$$S = \frac{W_{1/2,r}}{W_{1/2,l}}$$

$W_{1/2,r}$: peak width to right of peak median

$W_{1/2,l}$: peak width to left of peak median

Cleaning Instructions for Packed Columns (CIP)

Cleaning a SNAP® Column involves three Stages:

1. Regeneration of the column packing
2. Sterilization
3. Depyrogenation

Regeneration removes chemical and organic contamination that binds to the chromatography material, which significantly reduces the capacity and resolution of the column. Contamination is usually caused by lipids and pyrogens, protein aggregates, pigments, polyphenols and metal complexes.

Sterilization removes and/or denatures microorganisms and spores with chemical treatment, otherwise they could contaminate the purified product. Ethanol solutions containing sodium hydroxide or acetic acid are the most common methods for sterilization.

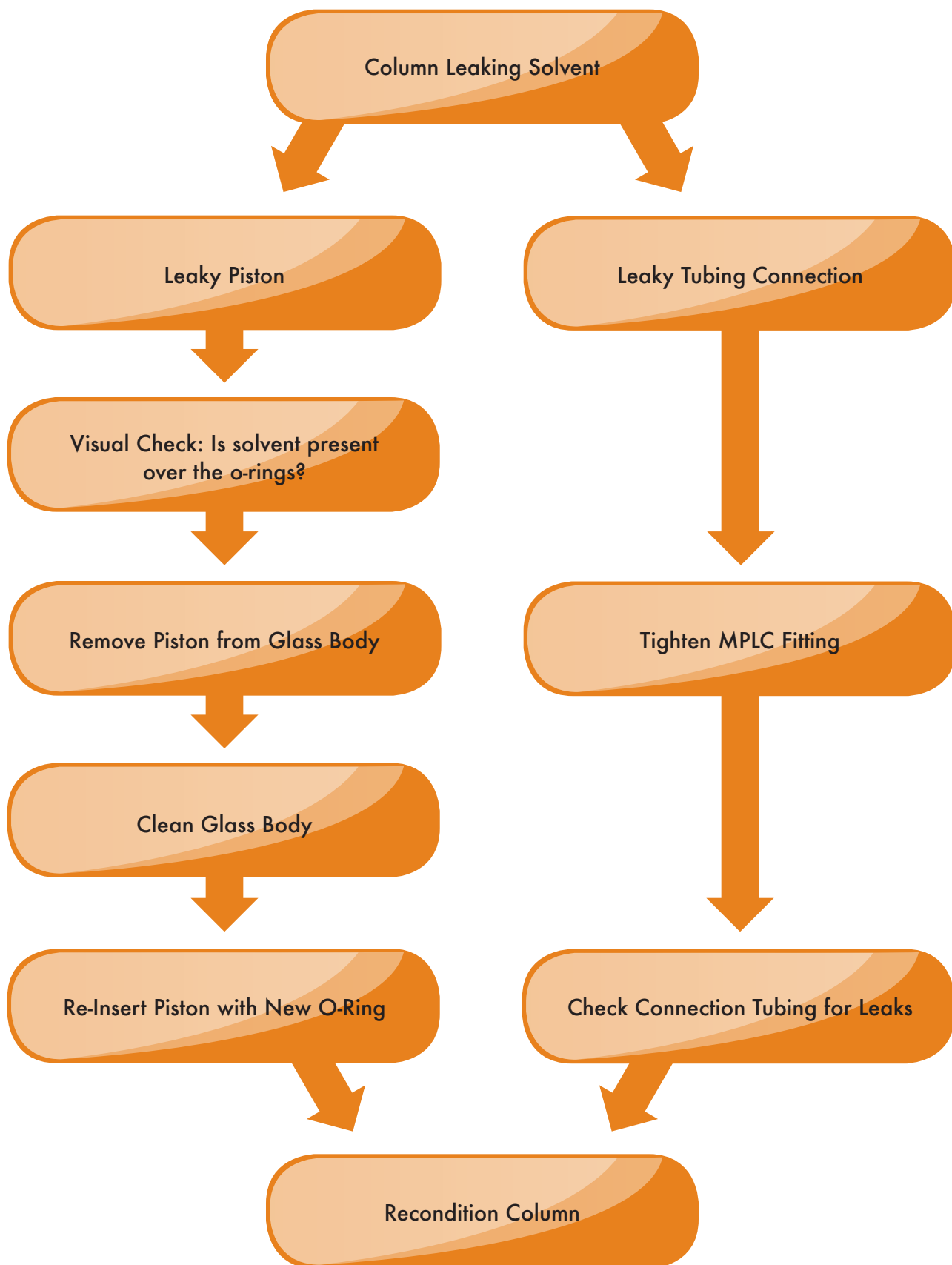
Depyrogenation involves the breaking-down of endotoxins that have become attached to the chromatography material or the column hardware. (frits, tubing, etc.) Endotoxins can soil the target compounds in question by being washed gradually through the column. Some methods used to sterilize equipment will break down pyrogens.

Sterilize and Purify the column with the following steps:

1. Disassemble the column into individual parts
2. Wash in a dilute solution of caustic soda or sodium hypochloride (leave frits in solution for 30-60 minutes)
3. Wash parts in a sterile, pyrogen-free solution and reassemble
4. Pack column in sterile environment
5. Solvents and solutions must also be sterile and pyrogen-free. Essential Life Solutions recommends in-line filtration through a 0.22 μm filter.

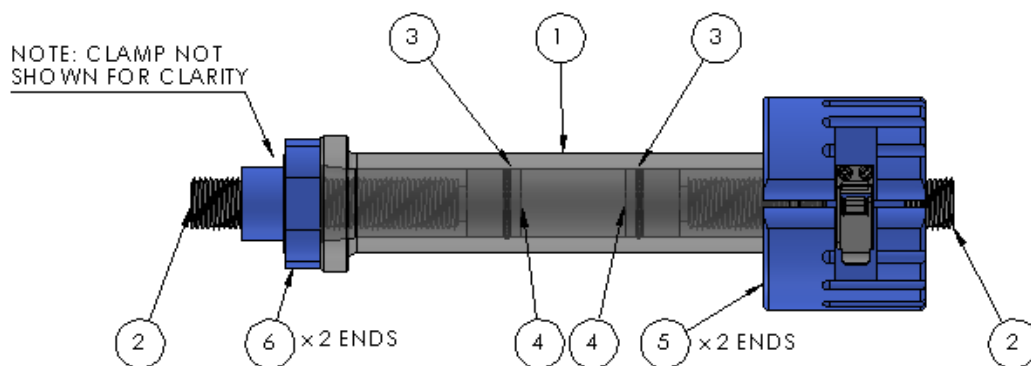
Troubleshooting

Problem	Cause	Solution
1. Air Pockets	Solvent Evaporation or gas evolution during storage	Recondition the column
2. Abnormal pressure fluctuations during operation	<ol style="list-style-type: none"> 1. Incorrect valve position 2. Blocked frit 3. Fitting tightened too much 	<ol style="list-style-type: none"> 1. Check valve position 2. Remove and dismantle piston, replace frit, reassemble and re-insert piston. 3. Recondition column. Replace fittings and ferrules, re-cut the end of the tubing
3. Column leaking solvents	See Diagram on Pg. 12	See Diagram on Pg. 12
4. Deteriorated Peak shape of eluted substance	<ol style="list-style-type: none"> 1. Bead bed mechanically damaged 2. Inlet frit partially blocked 3. Outlet frit partially blocked 4. Dead volume at column inlet 5. Contamination affecting separation efficiency of stationary phase 	<ol style="list-style-type: none"> 1. Repack column 2. See 2.2 above 3. See 2.2 above 4. Rotate the SNAP® clamp counter-clockwise until piston just contacts bed 5. Repack column in sterile environment
5. Pressure drop during operation	<ol style="list-style-type: none"> 1. Tubing or fitting leak between pump and column 2. Solvent supply is dry 	<ol style="list-style-type: none"> 1. Check tubing/connections 2. Refill Solvent



Column Components

When contacting Essential Life Solutions' Customer Service, please refer to the following part numbers:



1. Glass Column Body
2. Pistons
3. O-Rings
4. Frits
5. Clamp Assembly
6. Piston Adjustment Nut

The following are Standard Consumable Parts:

Frits

Column ID	AB		SR	
	Polyethylene		Teflon	
Porosity	5 μ m	10 μ m	2 μ m	10 μ m
10 mm	ELS-10-FR-PE-05	ELS-10-FR-PE-10	ELS-10-FR-TF-05	ELS-10-FR-TF-10
15 mm	ELS-15-FR-PE-05	ELS-15-FR-PE-10	ELS-15-FR-TF-05	ELS-15-FR-TF-10
25 mm	ELS-25-FR-PE-05	ELS-25-FR-PE-10	ELS-25-FR-TF-05	ELS-25-FR-TF-10
35 mm	ELS-35-FR-PE-05	ELS-35-FR-PE-10	ELS-35-FR-TF-05	ELS-35-FR-TF-10
50 mm	ELS-50-FR-PE-05	ELS-50-FR-PE-10	ELS-50-FR-TF-05	ELS-50-FR-TF-10



Column Components (*continued*)

Piston O-Rings

Column ID	AB	AB/SR	SR
	EPDM	Viton	Kalrez
10 mm	ELS-OR-010-E	ELS-OR-010-V	ELS-OR-010-K
15 mm	ELS-OR-013-E	ELS-OR-013-V	ELS-OR-013-K
25 mm	ELS-OR-117-E	ELS-OR-117-V	ELS-OR-117-K
35 mm	ELS-OR-123-E	ELS-OR-123-V	ELS-OR-123-K
50 mm	ELS-OR-132-E	ELS-OR-132-V	ELS-OR-132-K



Spare Parts Kit (Included with Column)

Included Spare Parts Kits

Part No.		Tubing ID
ELS-1/16-KIT		1/16"
ELS-1/8-KIT		1/8"

Spare 1/16" Parts Kit Includes:

ELS-JR-CFL-CB1KF	[2]	Ferrules
ELS-JR-55050	[2]	Nuts
ELS-FRT	[1]	Frit Ejector
ELS-P621	[2]	M6 Adaptors

Spare 1/8" Parts Kit Includes:

ELS-JR-CFL-CB2KF	[2]	Ferrules
ELS-JR-55051	[2]	Nuts
ELS-FRT	[1]	Frit Ejector
ELS-P621	[2]	M6 Adaptors

SNAP® Laboratory Glass Columns
Available From:

essentialLife Solutions Ltd.

Proudly Made in America



03/14

Helping You Succeed!

essentialLife Solutions

for preparative chromatography

 HROMalytic ECHnology Pty Ltd	+61(0)3 9762 2034	Australian Distributors Importers & Manufacturers www.chromtech.net.au	14/15
Website NEW : www.chromalytic.com.au E-mail : info@chromtech.net.au Tel: 03 9762 2034 . . . in AUSTRALIA			

18