

CHROMATOGRAPHY



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**Your source for
chromatography
glassware.**

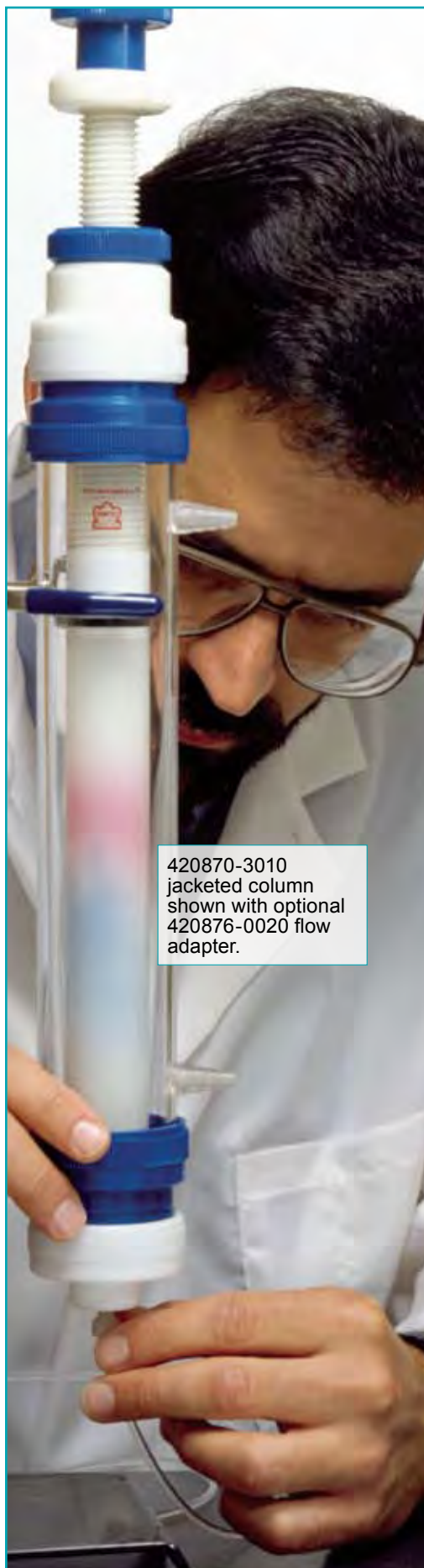
***Chromaflex[®], Flex-Column[®]
and Disposaflex[®]
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info@kimble-chase.com***



420870-3010
jacketed column
shown with optional
420876-0020 flow
adapter.

CHROMAFLEX Columns

CHROMAFLEX Chromatography Columns have a unique design feature: PTFE shielded o-rings. Each end fitting has a thin PTFE layer that is curled over the o-ring to form a solvent resistant, leak free seal. CHROMAFLEX Columns can be used with all aqueous buffers without modification and with organic solvents when the optional PTFE bed supports are installed in the end fittings and flow adapters. CHROMAFLEX Columns are available in both standard and water jacketed versions.

Standard CHROMAFLEX Columns

Standard CHROMAFLEX Columns are available in three IDs (1.0, 2.5 and 4.8 cm) in five standard lengths (15, 30, 60, 100 and 120 cm). Each column is supplied with two PTFE end fittings with 20 µm porosity polyethylene bed supports, 5 feet PTFE tubing (1/16" OD tubing with 1.0 cm, 1/8" OD tubing with 2.5 & 4.8 cm), 2 flangeless tubing nuts and 2 flangeless ferrules.

Jacketed CHROMAFLEX Columns

Jacketed CHROMAFLEX Columns are provided with an acrylic water jacket to provide thermal control of temperature sensitive chromatographic separations. The acrylic jacket also acts as a safety shield. Jacketed columns are available in all of the standard CHROMAFLEX Column sizes and supplied with the same tubing, nuts and ferrules.

Flow Adapters

CHROMAFLEX Flow Adapters allow easy adjustment of the column bed volume. They are ideal for concentration and pH gradients, reverse flow separations, and gravity flow separations that require a high level of resolution and reproducibility. Flow adapters are available for all three standard ID columns.

Packing Reservoirs

The CHROMAFLEX Glass Reservoirs are ideal for packing gel slurries into columns and as buffer reservoirs for simple gravity flow chromatography. Each reservoir has been designed for easy mounting on all CHROMAFLEX Columns. The reservoir capacities are matched by column ID to take the amount of slurry required to pack the longest standard column. The reservoir end fitting has 1/4-28 threads for simple flangeless connection to a pump.

Flangeless 1/4-28 Fittings

All tubing connections to CHROMAFLEX Columns can be made with easy-to-use 1/4-28 flangeless fittings and either 1/16" OD, 1/8" OD or 1.8 mm OD tubing. Our complete line of fittings and adapters allow simple connection to any chromatography system.

Custom Length Columns

Certain applications may require a column length not found in our standard product offering. Please contact customer service for pricing and delivery details for custom length CHROMAFLEX Columns.

Specifications

Materials

Column Barrels:	Type I, Class A Borosilicate Glass
End Fitting:	Polytetrafluoroethylene (PTFE)
Bed Support:	High Density Polyethylene (HDPE)
Water/Safety Jacket:	Acrylic (jacketed columns only)
Jacket Sealing Rings:	Polypropylene (jacketed columns only)
Bed Support Porosity:	20 micron nominal (for standard bed support)
Maximum Pressure*:	1.0 cm ID Columns - 100 psi (6.9 bar) 2.5 cm ID Columns 75 psi (5.2 bar) 4.8 cm ID Columns - 50 psi (3.4 bar)
Temperature Range:	0 to 50 °C
Tubing Connections:	1/4-28 flangeless fittings

Recommended Sterilization Method: Ethylene Oxide, 2N NaOH or 100% Ethanol (autoclaving is not recommended)

CHROMAFLEX® Standard Threaded Columns

Columns are supplied complete with glass barrel and 2 end fittings with 20 µm porosity HDPE bed supports. Each column is also supplied with 5 feet (1.5 m) of FEP tubing (1/16" OD with 1.0 cm; 1/8" OD with 2.5 and 4.8 cm), 2 flangeless tubing nuts and 2 flangeless ferrules.

Catalog Number	Column ID (cm)	Length (cm)	Volume (mL)	Max. Pressure* (psi/bar)	Case Qty.
420830-1500	1.0	15	12	100/6.9	1
420830-3000	1.0	30	24	100/6.9	1
420830-6000	1.0	60	47	100/6.9	1
420830-1000	1.0	100	79	100/6.9	1
420830-1200	1.0	120	95	100/6.9	1
420830-1510	2.5	15	74	75/5.2	1
420830-3010	2.5	30	147	75/5.2	1
420830-6010	2.5	60	295	75/5.2	1
420830-1010	2.5	100	491	75/5.2	1
420830-1210	2.5	120	589	75/5.2	1
420830-1520	4.8	15	271	50/3.4	1
420830-3020	4.8	30	543	50/3.4	1
420830-6020	4.8	60	1086	50/3.4	1
420830-1020	4.8	100	1810	50/3.4	1
420830-1220	4.8	120	2172	50/3.4	1

Replacement Parts

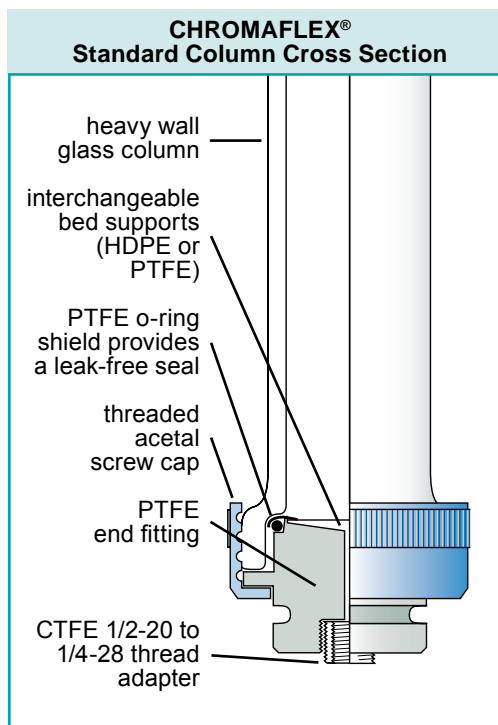
420831-1500	Glass Barrel Only, 1.0 x 15 cm	1
420831-3000	Glass Barrel Only, 1.0 x 30 cm	1
420831-6000	Glass Barrel Only, 1.0 x 60 cm	1
420831-1000	Glass Barrel Only, 1.0 x 100 cm	1
420831-1200	Glass Barrel Only, 1.0 x 120 cm	1
420831-1510	Glass Barrel Only, 2.5 x 15 cm	1
420831-3010	Glass Barrel Only, 2.5 x 30 cm	1
420831-6010	Glass Barrel Only, 2.5 x 60 cm	1
420831-1010	Glass Barrel Only, 2.5 x 100 cm	1
420831-1210	Glass Barrel Only, 2.5 x 120 cm	1
420831-1520	Glass Barrel Only, 4.8 x 15 cm	1
420831-3020	Glass Barrel Only, 4.8 x 30 cm	1
420831-6020	Glass Barrel Only, 4.8 x 60 cm	1
420831-1020	Glass Barrel Only, 4.8 x 100 cm	1
420831-1220	Glass Barrel Only, 4.8 x 120 cm	1
420832-2100	1.0 cm End Fitting w/ Bed Support	1
420832-2110	2.5 cm End Fitting w/ Bed Support	1
420832-2120	4.8 cm End Fitting w/ Bed Support	1
420811-2010	Bed Support, HDPE, 1.0 cm, 20 µm	10
420811-2020	Bed Support, HDPE, 2.5 cm, 20 µm	10
420811-2040	Bed Support, HDPE, 4.8 cm, 20 µm	10
420833-0000	Screw Cap, 1.0 cm	1
420833-0010	Screw Cap, 2.5 cm	1
420833-0020	Screw Cap, 4.8 cm	1

Accessories

420809-0510	Bed Support, PTFE, 1.0 cm, 5 µm	1
420809-0520	Bed Support, PTFE, 2.5 cm, 5 µm	1
420809-0540	Bed Support, PTFE, 4.8 cm, 5 µm	1
420809-1010	Bed Support, PTFE, 1.0 cm, 10 µm	1
420809-1020	Bed Support, PTFE, 2.5 cm, 10 µm	1
420809-1040	Bed Support, PTFE, 4.8 cm, 10 µm	1
420809-2010	Bed Support, PTFE, 1.0 cm, 20 µm	1
420809-2020	Bed Support, PTFE, 2.5 cm, 20 µm	1
420809-2040	Bed Support, PTFE, 4.8 cm, 20 µm	1

* CAUTION

Pressurized glassware should always be used with adequate safety shielding.



CHROMAFLEX® Jacketed Threaded Columns

Columns are supplied complete with glass barrel, water jacket and 2 end fittings with 20 µm porosity HDPE bed supports. Each column is also supplied with 5 feet (1.5 m) of FEP tubing (1/16" OD with 1.0 cm; 1/8" OD with 2.5 and 4.8 cm), 2 flangeless tubing nuts and 2 flangeless ferrules.



Catalog Number	Column ID (cm)	Length (cm)	Volume (mL)	Max. Pressure* (psi/bar)	Case Qty.
420870-1500	1.0	15	12	100/6.9	1
420870-3000	1.0	30	24	100/6.9	1
420870-6000	1.0	60	47	100/6.9	1
420870-1000	1.0	100	79	100/6.9	1
420870-1200	1.0	120	95	100/6.9	1
420870-1510	2.5	15	74	75/5.2	1
420870-3010	2.5	30	147	75/5.2	1
420870-6010	2.5	60	295	75/5.2	1
420870-1010	2.5	100	491	75/5.2	1
420870-1210	2.5	120	589	75/5.2	1
420870-1520	4.8	15	271	50/3.4	1
420870-3020	4.8	30	543	50/3.4	1
420870-6020	4.8	60	1086	50/3.4	1
420870-1020	4.8	100	1810	50/3.4	1
420870-1220	4.8	120	2172	50/3.4	1

Replacement Parts

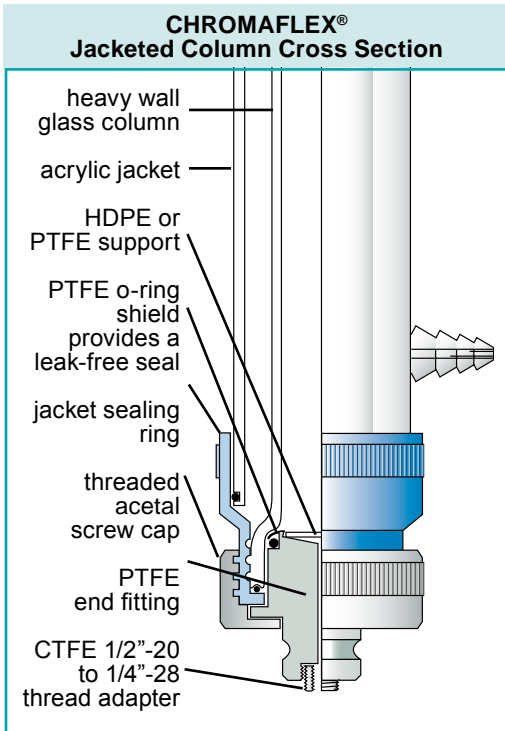
420831-1500	Glass Barrel Only, 1.0 x 15 cm	1
420831-3000	Glass Barrel Only, 1.0 x 30 cm	1
420831-6000	Glass Barrel Only, 1.0 x 60 cm	1
420831-1000	Glass Barrel Only, 1.0 x 100 cm	1
420831-1200	Glass Barrel Only, 1.0 x 120 cm	1
420831-1510	Glass Barrel Only, 2.5 x 15 cm	1
420831-3010	Glass Barrel Only, 2.5 x 30 cm	1
420831-6010	Glass Barrel Only, 2.5 x 60 cm	1
420831-1010	Glass Barrel Only, 2.5 x 100 cm	1
420831-1210	Glass Barrel Only, 2.5 x 120 cm	1
420831-1520	Glass Barrel Only, 4.8 x 15 cm	1
420831-3020	Glass Barrel Only, 4.8 x 30 cm	1
420831-6020	Glass Barrel Only, 4.8 x 60 cm	1
420831-1020	Glass Barrel Only, 4.8 x 100 cm	1
420831-1220	Glass Barrel Only, 4.8 x 120 cm	1
420832-4100	1.0 cm End Fitting w/ Bed Support	1
420832-4110	2.5 cm End Fitting w/ Bed Support	1
420832-4120	4.8 cm End Fitting w/ Bed Support	1
420811-2010	Bed Support, HDPE, 1.0 cm, 20 µm	10
420811-2020	Bed Support, HDPE, 2.5 cm, 20 µm	10
420811-2040	Bed Support, HDPE, 4.8 cm, 20 µm	10
420833-1000	Screw Cap, 1.0 cm	1
420833-1010	Screw Cap, 2.5 cm	1
420833-1020	Screw Cap, 4.8 cm	1

Accessories

420809-0510	Bed Support, PTFE, 1.0 cm, 5 µm	1
420809-0520	Bed Support, PTFE, 2.5 cm, 5 µm	1
420809-0540	Bed Support, PTFE, 4.8 cm, 5 µm	1
420809-1010	Bed Support, PTFE, 1.0 cm, 10 µm	1
420809-1020	Bed Support, PTFE, 2.5 cm, 10 µm	1
420809-1040	Bed Support, PTFE, 4.8 cm, 10 µm	1
420809-2010	Bed Support, PTFE, 1.0 cm, 20 µm	1
420809-2020	Bed Support, PTFE, 2.5 cm, 20 µm	1
420809-2040	Bed Support, PTFE, 4.8 cm, 20 µm	1

* CAUTION

Pressurized glassware should always be used with adequate safety shielding.



CHROMAFLEX® Flow Adapters

Flow Adapters improve chromatogram resolution by delivering the sample and buffer directly to the top of the gel bed. This protects the gel bed from disruption during sample loading and eliminates any dead volume above the gel bed. Flow adapters are recommended when using buffer gradients, during reverse flow applications, and for high resolution gravity flow separations. Each flow adapter is supplied with a 20 µm porosity HDPE bed support, TFE / propylene o-ring, stainless steel adjusting rod, PTFE body and 5 feet (1.5 meters) of FEP tubing. Use of aggressive organic solvents requires the accessory PTFE bed supports and FFKM o-rings listed below.

For Standard Columns

Catalog Number	Fits Column ID (cm)	Tubing OD	Case Qty.
420836-0000	1.0	1/16"	1
420836-1620	2.5	1/16"	1
420836-0020	2.5	1/8"	1
420836-0040	4.8	1/8"	1

For Jacketed Columns

Catalog Number	Fits Column ID (cm)	Tubing OD	Case Qty.
420876-0000	1.0	1/16"	1
420876-1620	2.5	1/16"	1
420876-0020	2.5	1/8"	1
420876-0040	4.8	1/8"	1

Flow Adapter Replacement Parts

Catalog Number	Description	Fits Column ID	Case Qty.
420811-2011	Bed Support, HDPE, 20 µm porosity	1.0 cm	10
420811-2020	Bed Support, HDPE, 20 µm porosity	2.5 cm	10
420811-2040	Bed Support, HDPE, 20 µm porosity	4.8 cm	10
758260-0010	O-ring, TFE/Propylene, Size 010	1.0 cm	1
758260-0116	O-ring, TFE/Propylene, Size 116	2.5 cm	1
758260-0222	O-ring, TFE/Propylene, Size 222	4.8 cm	1
420828-0116	Ferrule, Polypropylene, for 1/16" OD tubing	1.0 / 2.5	1
420828-0018	Ferrule, ETFE, for 1/8" OD tubing	2.5 / 4.8	1
420823-0116	Tubing, FEP, 1/16" OD x 10 feet	1.0 / 2.5	1
420823-0018	Tubing, FEP, 1/8" OD x 10 feet	2.5 / 4.8	1

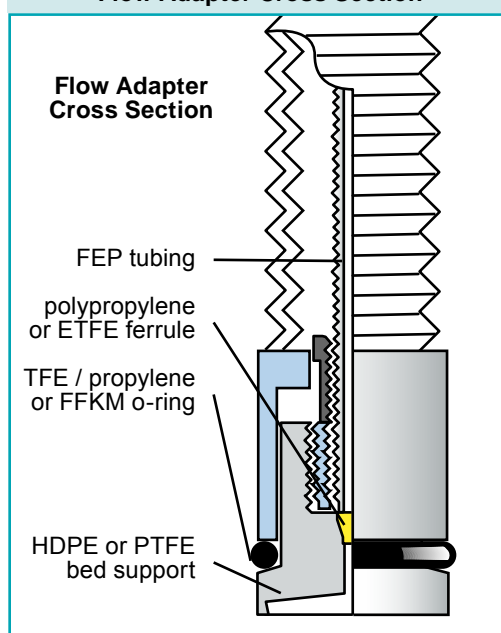
Flow Adapter Accessory Parts

Catalog Number	Description	Fits Column ID	Case Qty.
420809-0510	Bed Support, PTFE, 5 µm porosity	1.0 cm	1
420809-0520	Bed Support, PTFE, 5 µm porosity	2.5 cm	1
420809-0540	Bed Support, PTFE, 5 µm porosity	4.8 cm	1
420809-1011	Bed Support, PTFE, 10 µm porosity	1.0 cm	1
420809-1020	Bed Support, PTFE, 10 µm porosity	2.5 cm	1
420809-1040	Bed Support, PTFE, 10 µm porosity	4.8 cm	1
420809-2011	Bed Support, PTFE, 20 µm porosity	1.0 cm	1
420809-2020	Bed Support, PTFE, 20 µm porosity	2.5 cm	1
420809-2040	Bed Support, PTFE, 20 µm porosity	4.8 cm	1
758240-0010	O-ring, FFKM, Size 010	1.0 cm	1
758240-0116	O-ring, FFKM, Size 116	2.5 cm	1
758240-0222	O-ring, FFKM, Size 222	4.8 cm	1



420870-3010 shown with optional 420876-0020 flow adapter.

CHROMAFLEX® Flow Adapter Cross Section



CHROMAFLEX® Packing Reservoirs for Standard Columns

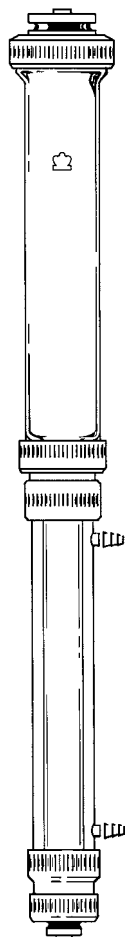
The CHROMAFLEX Packing Reservoirs are ideal for packing gel slurries into columns. Each packing reservoir is designed for easy mounting on CHROMAFLEX Standard Columns. The capacities are matched to take the amount of gel slurry required to pack the longest column. The packing reservoirs may also be used as a buffer reservoir for gravity flow chromatography.

For Standard Columns Only

Catalog Number	Fits Column ID (cm)	Nominal Volume	Case Qty.
420837-0000	1.0	150 mL	1
420837-0020	2.5	500 mL	1
420837-0040	4.8	2000 mL	1



420837








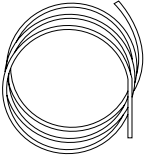
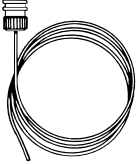
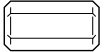

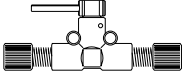


Jacketed Column with Packing Reservoir Attached

CHROMAFLEX Columns - Column bed height and approximate volume data.							
Without Adapters			With One Adapter		With Two Adapters		Maximum Pressure (psi) (must use with safety jacket)
ID (cm)	Length (cm)	Volume (mL)	Bed Height (cm)	Volume (mL)	Bed Height (cm)	Volume (mL)	
1	15	12	1-13	1-10	0-11	0-8	
1	30	24	16-28	12-22	2-26	2-20	
1	60	47	46-58	36-46	32-56	25-44	100
1	100	78	86-98	67-77	72-96	56-75	
1	120	94	106-118	83-93	92-116	72-91	
2.5	15	74	1-13	5-64	0-11	0-54	
2.5	30	147	16-28	78-137	2-26	10-128	
2.5	60	294	46-58	226-285	32-56	157-275	75
2.5	100	490	86-98	421-480	72-96	352-470	
2.5	120	589	106-118	520-579	92-116	451-569	
4.8	15	271	1-13	18-235	0-11	0-199	
4.8	30	543	16-28	289-506	2-26	36-470	
4.8	60	1085	46-58	832-1049	32-56	579-1013	50
4.8	100	1808	86-98	1555-1772	72-96	1302-1736	
4.8	120	2170	106-118	1917-2134	92-116	1664-2098	
10	15	1000					not rated (no safety jacket avail.)
10	30	2000					
10	60	5000					
10	100	7670					
10	120	9000					

CHROMAFLEX® FITTINGS

The following tubing nuts and ferrules are required to make the initial tubing connections to the end fittings of Chromaflex Columns.

Catalog Number		Description	Material	Case Qty.
420826-0116		Tubing Nut, for 1/16" OD tubing	PEEK	1
420826-0018		Tubing Nut, for 1/8" OD tubing	PEEK	1
420827-0116		Ferrule, for 1/16" OD tubing	PEEK	1
420828-0116		Ferrule, for 1/16" OD tubing	Polypropylene	1
420827-0018		Ferrule, for 1/8" OD tubing	PEEK	1
420828-0018		Ferrule, for 1/8" OD tubing	Polypropylene	1
953918-2306		Adapter, M1/4-28 Thread to 1/16" Barb	ETFE	1
953918-2313		Adapter, M1/4-28 Thread to 1/8" Barb	ETFE	1
953918-2319		Adapter, M1/4-28 Thread to 3/16" Barb	ETFE	1
420821-0116		Flangeless Nut, 1/4-28 Thread, for 1/16" tubing	ETFE	1
420821-0018		Flangeless Nut, 1/4-28 Thread, for 1/8" and 1.8mm OD tubing	ETFE	1
420821-6116		Flangeless Nut, M6 Thread, for 1/16" tubing	Acetal	1
420821-0618		Flangeless Nut, M6 Thread, for 1/8" and 1.8mm OD tubing	Acetal	1
420822-0116		Flangeless Ferrule, for 1/16" OD tubing	ETFE	1
420822-2007		Flangeless Ferrule, for 1.8 mm OD tubing	ETFE	1
420822-0018		Flangeless Ferrule, for 1/8" OD tubing	ETFE	1
420823-0014		Tubing, 1/4" OD x 0.030" ID x 10 feet	FEP	1
420823-0116		Tubing, 1/16" OD x 0.038" ID x 10 feet	FEP	1
420823-0018		Tubing, 1/8" OD x 0.062" ID x 10 feet	FEP	1
H90669-0005		Tubing, 1/16" OD x 5 feet, with integral F-Luer fitting	Tubing - PTFE Luer - CTFE	5
H88800-0000		Union, F1/4-28 to F1/4-28	CTFE	1
420818-0000		Union, F1/4-28 to F1/4-28	ETFE	1
420818-0600		Union, F1/4-28 to F-M6	ETFE	1
420818-0606		Union, F-M6 to F-M6	ETFE	1
953924-1300		Union, M1/4-28 to M1/4-28	CTFE	1
420817-2306		Valve, 1-way, 1/4-28 Threads, with 1/16" Flangeless Fittings	Valve - ETFE Fittings - ETFE	1
420817-2313		Valve, 1-way, 1/4-28 Threads, with 1/8" Flangeless Fittings	Valve - ETFE Fittings - ETFE	1
420817-3306		Valve, 1-way, 1/4-28 Threads, with 1/16" Flangeless Fittings	Valve - PEEK Fittings -PEEK/ ETFE	1
420817-3313		Valve, 1-way, 1/4-28 Threads, with 1/8" Flangeless Fittings	Valve - PEEK Fittings -PEEK/ ETFE	1

FLEX-COLUMNS are economical, easy-to-use chromatography columns that are ideal for use with gel filtration, ion exchange, affinity and adsorption media. The columns are constructed of polypropylene reservoirs and column outlets permanently connected to a borosilicate glass barrel. The 20 µm porosity polyethylene bed supports are fixed in the column outlets. Luer lock inlets and outlets on the columns, along with a wide variety of adapters, valves and fittings provide simple and versatile tubing connections.

Standard Columns

Standard FLEX-COLUMNS are available in 30 different sizes with standard inside diameters of 0.7, 1.0, 1.5 and 2.5 cm and lengths ranging from 4 to 120 cm. All columns are fitted with translucent polypropylene reservoir tops, and bed supports that are permanently mounted in the polypropylene column outlet. Short columns are typically used for ion exchange chromatography, sample desalting and semidisposable applications, while the long columns are ideally suited for gel filtration and adsorption chromatography.

Flow Adapters

FLEX-COLUMN Flow Adapters allow easy adjustment of the column bed volume. They are ideal for concentration and pH gradients, reverse flow separations, and gravity flow separations that require a high level of resolution and reproducibility. Flow adapters are available for 1.0, 1.5 and 2.5 cm ID columns.

Luer Lock Fittings

The male luer lock fittings on all FLEX-COLUMNS along with our complete line of fittings, valves and adapters allow easy connection to any low pressure chromatography system.

Custom Length Columns

Certain applications may require a column length not found in our standard product offering. Please contact Customer Service for pricing and delivery details for custom length FLEX-COLUMNS. Call 888-546-2531.

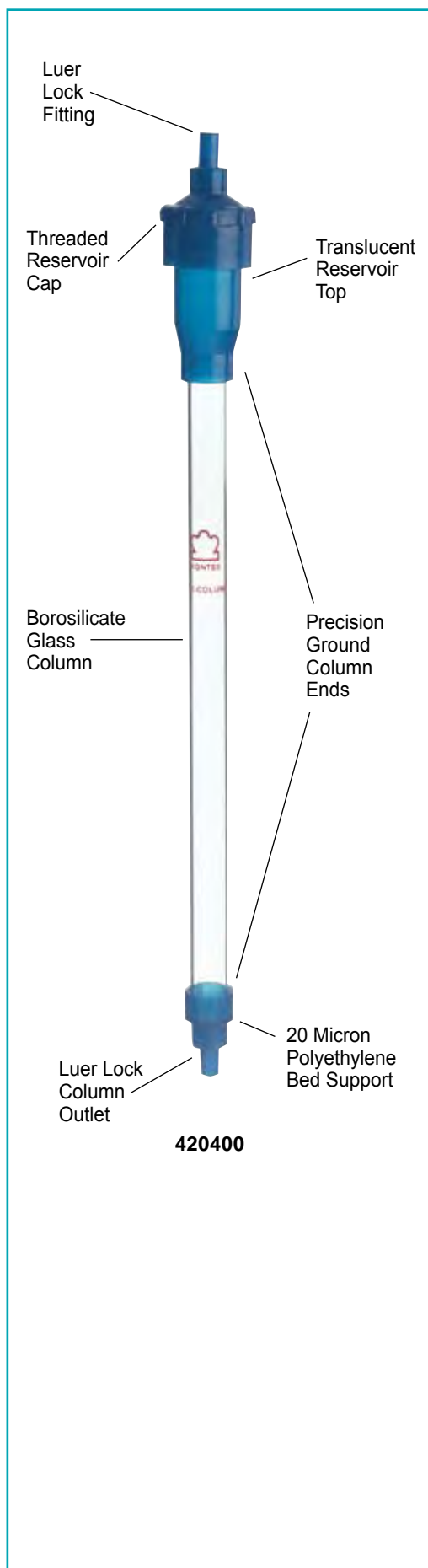
Specifications

Materials:	Column Barrels: Type I, Class A Borosilicate Glass
Cap, Reservoir & Column Outlet:	Polypropylene
	Bed Support: High Density Polyethylene (HDPE)
	Bed Support Porosity: 20 micron nominal
	Maximum Pressure: 1.0 bar (14.7 psi, 1.0 atm, 0.1 MPa)
	Temperature Range: 0 to 50 °C
	Tubing Connections: Male Luer Locks
	Recommended Sterilization Method: 2N NaOH or 100% Ethanol (Autoclaving is not recommended.)

Note: Polypropylene end fittings are NOT replaceable on FLEX-COLUMNS.

* CAUTION

Pressurized glassware should always be used with adequate safety shielding.



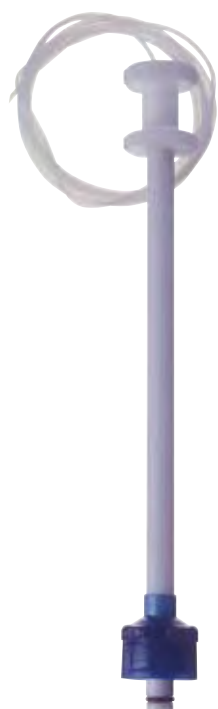
FLEX-COLUMN® Economy Columns

Catalog Number	ID (cm)	Length (cm)	Cross Sectional Area (cm ²)	Volume (mL)	Case Qty.	Catalog Number	ID (cm)	Length (cm)	Cross Sectional Area (cm ²)	Volume (mL)	Case Qty.
420400-0704	0.7	4	0.39	2	10	420400-1505	1.5	5	1.77	9	5
420401-0704	0.7	4	0.39	2	1	420401-1505	1.5	5	1.77	9	1
420400-0705	0.7	5	0.39	2	10	420400-1510	1.5	10	1.77	18	5
420401-0705	0.7	5	0.39	2	1	420401-1510	1.5	10	1.77	18	1
420400-0710	0.7	10	0.39	4	10	420400-1515	1.5	15	1.77	27	5
420401-0710	0.7	10	0.39	4	1	420401-1515	1.5	15	1.77	27	1
420400-0715	0.7	15	0.39	6	10	420400-1520	1.5	20	1.77	35	5
420401-0715	0.7	15	0.39	6	1	420401-1520	1.5	20	1.77	35	1
420400-0720	0.7	20	0.39	8	10	420400-1530	1.5	30	1.77	53	5
420401-0720	0.7	20	0.39	8	1	420401-1530	1.5	30	1.77	53	1
420400-0730	0.7	30	0.39	12	10	420400-1550	1.5	50	1.77	89	5
420401-0730	0.7	30	0.39	12	1	420401-1550	1.5	50	1.77	89	1
420400-0750	0.7	50	0.39	20	10	420400-1575	1.5	75	1.77	124	3
420401-0750	0.7	50	0.39	20	1	420401-1575	1.5	75	1.77	124	1
420400-1005	1.0	5	0.79	4	10	420400-1511	1.5	100	1.77	177	3
420401-1005	1.0	5	0.79	4	1	420401-1511	1.5	100	1.77	177	1
420400-1010	1.0	10	0.79	8	10	420400-1512	1.5	120	1.77	230	3
420401-1010	1.0	10	0.79	8	1	420401-1512	1.5	120	1.77	230	1
420400-1015	1.0	15	0.79	12	10	420400-1517	1.5	170	1.77	301	2
420401-1015	1.0	15	0.79	12	1	420401-1517	1.5	170	1.77	301	1
420400-1020	1.0	20	0.79	16	10	420400-2505	2.5	5	4.91	25	5
420401-1020	1.0	20	0.79	16	1	420401-2505	2.5	5	4.91	25	1
420400-1030	1.0	30	0.79	24	10	420400-2510	2.5	10	4.91	49	5
420401-1030	1.0	30	0.79	24	1	420401-2510	2.5	10	4.91	49	1
420400-1050	1.0	50	0.79	40	10	420400-2515	2.5	15	4.91	74	5
420401-1050	1.0	50	0.79	40	1	420401-2515	2.5	15	4.91	74	1
420401-1011	1.0	100	0.79	79	1	420400-2520	2.5	20	4.91	98	5
420400-1012	1.0	120	0.79	95	3	420401-2520	2.5	20	4.91	98	1
420401-1012	1.0	120	0.79	95	1	420400-2530	2.5	30	4.91	147	5
						420401-2530	2.5	30	4.91	147	1
						420400-2550	2.5	50	4.91	246	3
						420401-2550	2.5	50	4.91	246	1
						420400-2575	2.5	75	4.91	344	2
						420401-2575	2.5	75	4.91	344	1
						420400-2511	2.5	100	4.91	491	2
						420401-2511	2.5	100	4.91	491	1
						420401-2512	2.5	120	4.91	638	1
						420400-2512	2.5	120	4.91	638	2

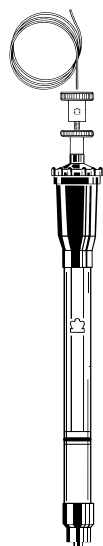
Replacement End Caps

Catalog Number	Case Qty.
420169-0000	100

Plastic Resin Codes		Temp °C (Max)	Temp °C (Min)	Autoclavable	Microwavable	Dry Heat	Gas	Gamma	Disinfectants
Abbreviation	Chemical Designation								
ABS	Acryl-Butadienestyrene Acetal	100	40	NO	YES	NO	YES	YES	YES
LDPE	Low Density Polyethylene	100	80	NO	YES	NO	YES	YES	YES
HDPE	High Density Polyethylene	120	100	NO	YES	NO	YES	YES	YES
NYL	Polyamide	90	0	NO	YES	NO	YES	YES	YES
PCTFE	Polychlorotrifluoroethylene	80	0	NO	YES	NO	YES	YES	YES
PC	Polycarbonate	135	0	YES	YES	NO	YES	YES	YES
PP	Polypropylene	135	0	YES	YES	NO	YES	NO	YES
PTFE	Polytetrafluoroethylene	250	267	YES	YES	YES	YES	YES	YES
PVC	Polyvinyl Chloride	70	30	NO	YES	NO	YES	NO	YES
PVDF	Kynar (polyvinylidene fluoride)	110	62	YES	YES	NO	YES	NO	YES
E-CTFE	Ethylene Chlorotrifluoroethylene	150	105	YES	YES	YES	YES	NO	YES
ETFE	EthyleneTetrafluoroethylene	150	105	YES	YES	YES	YES	NO	YES
PFA	Perfluoroalkoxy	260	270	YES	YES	YES	YES	NO	YES
San	Styrene	95	20	NO	YES	NO	YES	YES	YES
PMP	Polymethylpentene (TPX)	175	70	YES	YES	NO	YES	YES	YES
PMMA	Polymethylmethacrylate (PMMP)	50	0	NO	YES	NO	YES	YES	YES
PS	Polystyrene	90	20	NO	YES	NO	YES	YES	YES
PEEK	Polyetheretherketone	125	0	YES	YES	NO	YES	YES	YES
PVC	Polyvinylchloride	80	20	YES	YES	NO	YES	NO	YES
TFE	Tetrafluoroethylene	260	-267	YES	YES	YES	YES	YES	YES



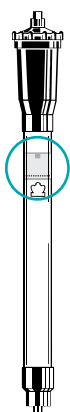
420415



Column
with
Flow Adapter



420404



Column
with
Diffusion Disc



420405

FLEX-COLUMN® Flow Adapters

Flow adapters can significantly improve FLEX-COLUMN performance by protecting the gel bed from disruption during sample loading and by eliminating any dead volume above the gel bed. Flow adapters improve chromatogram resolution by delivering the sample and buffer directly to the top of the gel bed. Flow adapters are also recommended when using buffer gradients or when the columns are connected to a low pressure pump system. Flow adapters consist of 1/16" OD FEP tubing, a polyacetal body, an FKM o-ring seal and a 20 µm porosity HDPE bed support. One replacement bed support is supplied with each flow adapter.

Catalog Number	Description	Fits Column ID (cm)	Functional Length (cm)	Case Qty.
420415-1000	Flow Adapter	1.0	14	1
420415-1500	Flow Adapter	1.5	14	1
420415-2500	Flow Adapter	2.5	14	1

Replacement Parts

420415-1001	Bed Support, 1.0 cm			10
420415-1501	Bed Support, 1.5 cm			10
420415-2501	Bed Support, 2.5 cm			10
758252-0010	O-ring, FKM, Size 010			10
758252-0110	O-ring, FKM, Size 110			10
758252-0116	O-ring, FKM, Size 116			10
420828-0116	Ferrule, Polypropylene, 1/16" OD			1
420823-0116	Tubing, FEP, 1/16" OD x 0.038" ID			10 feet

FLEX-COLUMN® Sample Diffusion Discs

Sample diffusion discs protect the gel bed from being disrupted during sample application whenever a flow adapter is not used. A transparent acrylic ring is sealed to a 20 µm porosity HDPE disc which protects the top of the gel bed when the sample is manually applied. A cross bar on the top of the acrylic ring permits easy removal of the sample diffusion disc from the column.

Catalog Number	Description	Case Qty.
420404-1000	Sample Diffusion Disc, 1.0 cm	1
420404-1500	Sample Diffusion Disc, 1.5 cm	1
420404-2500	Sample Diffusion Disc, 2.5 cm	1

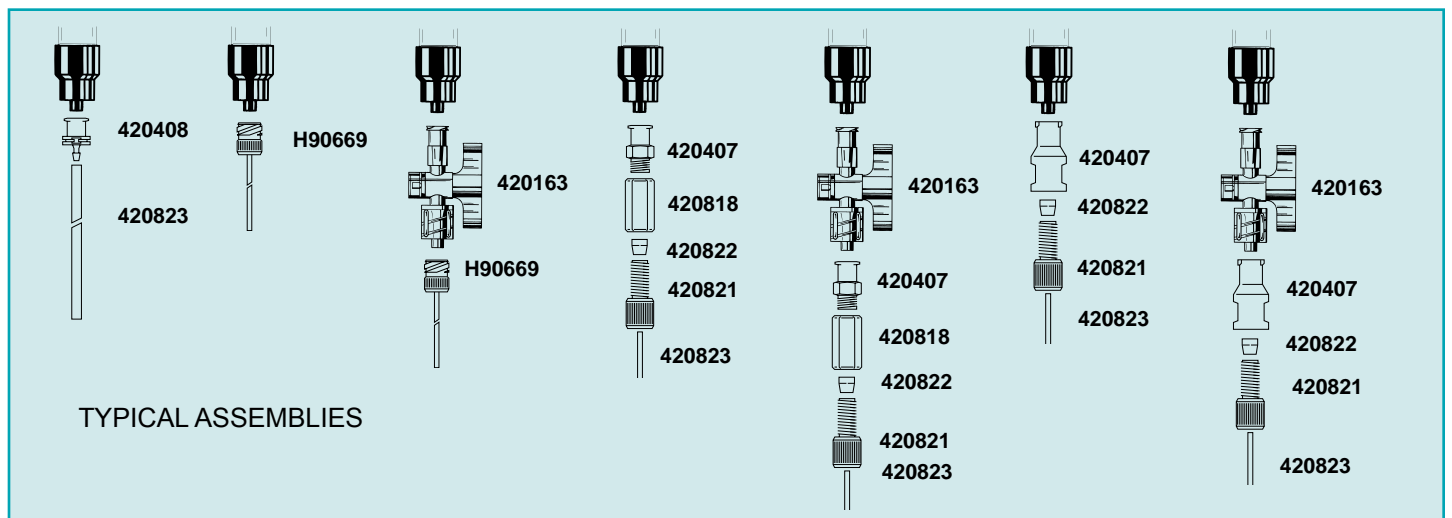
FLEX-COLUMN® Polypropylene Packing Reservoirs

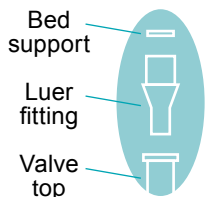
The funnels are manufactured from polypropylene and are available in two capacities: 100 mL for the 0.7, 1.0 and 1.5 cm ID columns and 700 mL for the 2.5 cm columns. The funnels are used for initial column packing and as a small buffer reservoir.

Catalog Number	Capacity (mL)	Case Qty.
420405-0100	100	12
420405-0700	700	5

FLEX-COLUMN® Fittings

Catalog Number		Description	Material	Case Qty.
420408-0000		Barb for 1/16" I.D. tubing to female luer	polypropylene	10
420412-0000		Barb for 1/16" I.D. tubing to male luer	polypropylene	10
420411-0000		Female luer to female luer	polypropylene	10
420407-0000		Female luer to 1/4-28 thread	polypropylene	10
420407-2003		Female luer to female 1/4-28 thread	ETFE	1
420407-2113		Male luer to male 1/4-28 thread	ETFE	1
H88800-0000		Union, 1/4-28 to 1/4-28	CTFE	1
420818-0000		Union, 1/4-28 to 1/4-28	ETFE	1
420818-0600		Union, 1/4-28 to M-6	ETFE	1
420818-0606		Union, M-6 metric to M-6	ETFE	1
420818-3305		Union, 1/4-28 to 5/16-24	PEEK	1
420163-0001		1-way stopcock female luer to male luer	body-nylon valve plug-polyethylene	10
420163-4503		3-way stopcock Two female luer to male luer	body-nylon valve plug-polyethylene	10
H90669-0005		5' PTFE tubing w/ integral luer lock	PTFE / CTFE	5
420823-0116		Tubing, 1/16" O.D. x 0.038" I.D. x 10'	FEP	1
420823-0018		Tubing, 1/8" O.D. x 0.062" I.D. x 10'	FEP	1
420823-0014		Tubing, 1/4" O.D. x 0.156" I.D. x 10'	FEP	1
420821-0116		1/4-28 tubing nut for 1/16" O.D. tubing	ETFE	1
420821-0018		1/4-28 tubing nut for 1/8" O.D. tubing	ETFE	1
420822-0116		Ferrule for 1/16" O.D. tubing	ETFE	1
420822-0018		Ferrule for 1/8" O.D. tubing	ETFE	1
420822-2007		Ferrule for 1.8 mm O.D. tubing	ETFE	1





420160
Shown with Optional
Three-Way Valve

DISPOSAFLEX® Polypropylene Disposable Columns

The DISPOSAFLEX column is an inexpensive, multi-purpose column designed to satisfy a wide range of analytical separations using **aqueous** buffers. The disposable feature eliminates the possibility of cross contamination when using labeled compounds. A typical application of the Disposaflex column is the extraction of the cyclic nucleotides cAMP and cGMP from sample preparations.

The 8 mm inner diameter of the polypropylene column is uniform, assuring reproducibility. The 200 mm length of the DISPOSAFLEX column can easily be cut to a shorter length. The polypropylene reservoir has a 9 mL capacity. The lower column fitting with a luer outlet is molded polypropylene with a specially designed recess to securely hold a porous polyethylene bed support or a glass wool plug.

Supplied unassembled with a column, polypropylene reservoir and lower column fitting. Polyethylene bed supports and on-off valves are available as accessories.

Specifications

Column I.D.: 8mm
Column Length: 200mm
Reservoir Capacity: 9mL
Column Capacity: 8mL
Overall Length: 265mm

Catalog Number	Description	Case Qty.
420160-0000	DISPOSAFLEX Column Set, Unassembled	100
Replacement Parts		
420164-0000	Reservoir Only	100
420168-0000	Luer Fitting Only	100
420168-1000	Luer Fitting Only	50
Accessory Parts		
420162-0000	Polyethylene Bed Support, 30-50 Microns	100
420162-0020	Polyethylene Bed Support, 20 Microns	100
420163-0000	1-Way On-Off Valve, Polycarbonate/Polyethylene	50
420163-0001	1-Way Valve, Polycarbonate/Polyethylene	10
420163-4500	1-Way Valve, Nylon/Polyethylene	50
420163-4503	3-Way Valve, Nylon/Polyethylene	10
420169-0000	Column Outlet Cap	100



420166

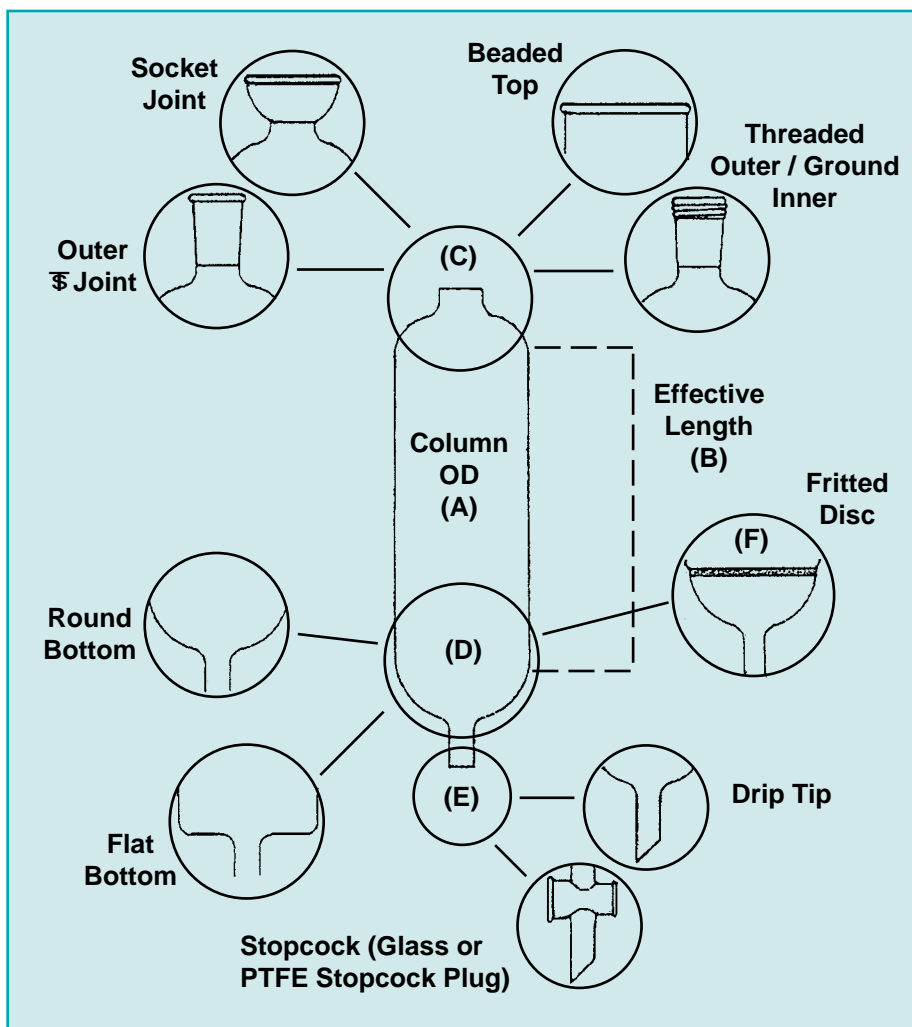
DISPOSAFLEX® Disposable Glass Columns

A multi-purpose glass column. Supplied assembled with a polypropylene reservoir, a lower column fitting with a luer outlet and a 20 micron polyethylene bed support.

Specifications

Column I.D.: 8mm
Column Length: 150mm
Reservoir Capacity: 9mL
Column Capacity: 6mL
Overall Length: 215mm

Catalog Number	Description	Case Qty.
420166-0001	DISPOSAFLEX Column Set, Assembled	50
420166-1001	DISPOSAFLEX Column Set, Assembled	5
Replacement Parts		
420162-0020	Polyethylene Bed Support, 20 Microns	100
Accessory Parts		
420162-0000	Polyethylene Bed Support, 30-50 Microns	100
420163-0000	On-Off Valve, Polycarbonate/Polyethylene	50
420163-0001	On-Off Valve, Polycarbonate/Polyethylene	10
420163-4500	On-Off Valve, Polyethylene/Nylon	50
420163-4503	On-Off Valve, Polyethylene/Nylon	10
420169-0000	Column Outlet Cap	100



Custom Column Specifications

The Custom Glass Shop has the ability to custom fabricate chromatography columns to your specifications. Columns are available with any standard taper, spherical or threaded joints. Consider the following issues when designing your columns.

A – Column OD: _____

Special columns will be constructed using medium wall tubing unless otherwise specified.

B – Column Effective Length: _____

Effective length is the length of the straight sides of the column prior to rounding off the tubing for sealing the top joint or the lower stopcock. On a fritted column, the effective length is measured to the fritted disk.

C – Top Joint Style and Size: _____

D– Lower Column Configuration: _____

Please specify round or flat bottom.

E – Stopcock Type and Size: _____

Please specify stopcock bore. PTFE, Glass or plain drip tip.

F – Fritted Disc Required: _____

Special columns will be constructed using a coarse porosity (40-60 micron) fritted disc unless otherwise specified.

G – Plastic Coated Column: _____

H – Volume: _____

I – Quantity: _____



420530

Custom sizes and plastic safety coating are available upon request. See page 13 for help specifying custom column options.



420570

Columns with PTFE Stopcock Plugs

A general purpose gravity column for analytical separations. A plug of glass wool can be used to support the column packing. PTFE stopcock plugs, 821001-0002 and 821001-0004, control the flow rate. **Custom sizes and plastic safety coating are available upon request.**

Catalog Number	Column I.D. x Length (mm)	Volume (mL)	Stopcock Bore (mm)	Case Qty.
420530-0211	11 x 150	10	2	1
420530-0212	11 x 200	15	2	1
420530-0213	11 x 250	20	2	1
420530-0214	11 x 300	25	2	1
420530-0125	13 x 250	28	2	1
420530-0130	13 x 300	34	2	1
420530-0150	13 x 500	66	2	1
420530-0221	15 x 200	30	2	1
420530-0222	15 x 250	40	2	1
420530-0225	15 x 500	80	2	1
420530-0220	19 x 200	51	2	1
420530-0226	19 x 250	56	2	1
420530-0232	19 x 300	80	2	1
420530-0233	19 x 400	113	2	1
420530-0234	19 x 500	140	2	1
420530-0241	22 x 300	110	2	1
420530-0242	22 x 350	130	2	1
420530-0244	22 x 500	190	2	1
420530-0320	25 x 200	90	2	1
420530-0325	25 x 250	100	2	1
420530-0330	25 x 300	136	2	1
420530-0350	25 x 500	245	2	1
420530-0251	30 x 350	220	2	1
420530-0252	30 x 400	250	2	1
420530-0253	30 x 500	300	2	1
420530-0255	30 x 700	440	2	1
420530-0265	34 x 700	630	2	1
420530-0420	38 x 200	227	2	1
420530-0425	38 x 250	280	2	1
420530-0430	38 x 300	340	2	1
420530-0450	38 x 500	567	2	1
420530-0273	41 x 500	650	2	1
420530-0275	41 x 700	900	2	1
420530-0414	49 x 600	1100	2	1
420530-0415	49 x 700	1300	2	1
420530-0520	50 x 200	360	2	1
420530-0525	50 x 250	470	2	1
420530-0530	50 x 300	589	2	1
420530-0550	50 x 500	981	2	1
420530-0560	50 x 600	1180	2	1
420530-0620	64 x 200	643	4	1
420530-0625	64 x 250	804	4	1
420530-0630	64 x 300	965	4	1
420530-0650	64 x 500	1608	4	1
420530-0660	64 x 600	1929	4	1
420530-0720	75 x 200	883	4	1
420530-0725	75 x 250	1004	4	1
420530-0730	75 x 300	1290	4	1
420530-0750	75 x 500	2149	4	1
420530-0760	75 x 600	2579	4	1

Replacement Parts

821001-0002	Stopcock Plug Only, 2mm	1
821001-0004	Stopcock Plug Only, 4mm	1

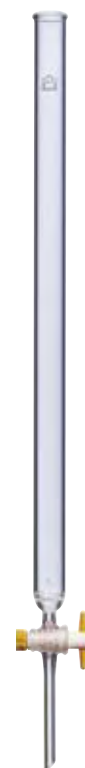
Packing Reservoirs with \mathcal{F} Joints

These heavy duty reservoirs are designed for use with 420510 and 420550 series chromatography columns with and without fritted glass supports or in combination with 420575 series flow control adapters. Reservoirs are available in a variety of sizes and joint configurations.

Catalog Number	Upper \mathcal{F} Joint	Lower \mathcal{F} Joint	Capacity (mL)	Case Qty.
420570-0124	100	24/40	24/40	1
420570-0224	250	24/40	24/40	1
420570-0524	500	24/40	24/40	1
420570-1024	1000	24/40	24/40	1
420570-2024	2000	24/40	24/40	1
420570-3045	3000	45/50	45/50	1

Columns with Fritted Discs and PTFE Stopcock Plugs

Catalog Number	Column I.D. x Length (mm)	Volume (mL)	Stopcock Bore (mm)	Case Qty.
420540-0213	11 x 300	20	2	1
420540-0120	13 x 200	23	2	1
420540-0125	13 x 250	28	2	1
420540-0130	13 x 300	34	2	1
420540-0150	13 x 500	66	2	1
420540-0220	19 x 200	51	2	1
420540-0225	19 x 250	56	2	1
420540-0230	19 x 300	76	2	1
420540-0224	19 x 400	110	2	1
420540-0250	19 x 500	142	2	1
420540-0233	22 x 300	110	2	1
420540-0234	22 x 400	150	2	1
420540-0320	25 x 200	90	2	1
420540-0325	25 x 250	100	2	1
420540-0243	25 x 300	140	2	1
420540-0245	25 x 500	240	2	1
420540-0420	38 x 200	227	2	1
420540-0425	38 x 250	280	2	1
420540-0430	38 x 300	340	2	1
420540-0450	38 x 500	567	2	1
420540-0256	41 x 600	775	4	1
420540-2610	49 x 1000	1875	4	1
420540-0520	50 x 200	360	2	1
420540-0525	50 x 250	470	2	1
420540-0530	50 x 300	589	2	1
420540-0550	50 x 500	981	2	1
420540-0560	50 x 600	1180	2	1
420540-0620	64 x 200	643	4	1
420540-0625	64 x 250	804	4	1
420540-0630	64 x 300	965	4	1
420540-0650	64 x 500	1608	4	1
420540-0660	64 x 600	1929	4	1
420540-0720	75 x 200	883	4	1
420540-0725	75 x 250	1004	4	1
420540-0730	75 x 300	1290	4	1
420540-0750	75 x 500	2149	4	1
420540-0760	75 x 600	2579	4	1



420540

Gravity column manufactured from medium wall tubing with 821000 PTFE stopcock similar in design to the 420530 series. These columns have a coarse porosity glass frit (40-60 micron pore size) at the lower end to act as a support for column packing material. PTFE stopcock plugs, 821001-0002 and 821001-0004, control the flow rate.

Custom sizes and plastic safety coating are available upon request. See page 13 for help specifying custom column options.

Columns with PTFE Stopcock Plugs and F Joints

Gravity chromatography columns feature PTFE stopcocks and standard taper joints and are manufactured from medium wall tubing. Glass wool (not supplied) may be used as a support for column packing material. These columns may be used alone or in combination with 420570 series reservoir and 420575 series flow control adapters. PTFE stopcock plugs, 821001-0002 and 821001-0004, control the flow rate.

Catalog Number	Column I.D. x Length (mm)	Volume (mL)	Upper F Joint	Stopcock Bore (mm)	Case Qty.
420510-0120	13 x 200	23	24/40	2	1
420510-0125	13 x 250	28	24/40	2	1
420510-0130	13 x 300	34	24/40	2	1
420510-0150	13 x 500	66	24/40	2	1
420510-0220	19 x 200	51	24/40	2	1
420510-0225	19 x 250	56	24/40	2	1
420510-0230	19 x 300	76	24/40	2	1
420510-0250	19 x 500	142	24/40	2	1
420510-0320	25 x 200	90	24/40	2	1
420510-0325	25 x 250	100	24/40	2	1
420510-0330	25 x 300	136	24/40	2	1
420510-0350	25 x 500	245	24/40	2	1
420510-0420	38 x 200	227	24/40	2	1
420510-0425	38 x 250	280	24/40	2	1
420510-0430	38 x 300	340	24/40	2	1
420510-0450	38 x 500	560	24/40	2	1
420510-0520	50 x 200	360	24/40	2	1
420510-0525	50 x 250	470	24/40	2	1
420510-0530	50 x 300	590	24/40	2	1
420510-0550	50 x 500	980	24/40	2	1
420510-0560	50 x 600	1180	24/40	2	1
420510-0620	64 x 200	643	45/50	4	1
420510-0625	64 x 250	804	45/50	4	1
420510-0630	64 x 300	965	45/50	4	1
420510-0650	64 x 500	1600	45/50	4	1
420510-0660	64 x 600	1920	45/50	4	1
420510-0720	75 x 200	883	45/50	4	1
420510-0725	75 x 250	1004	45/50	4	1
420510-0730	75 x 300	1290	45/50	4	1
420510-0750	75 x 500	2140	45/50	4	1
420510-0760	75 x 600	2580	45/50	4	1



420510



420550

Custom sizes and plastic safety coating are available upon request. See page 13 for help specifying custom column options.



420575

Columns with Fritted Discs, PTFE Stopcock Plugs and F Joints

Gravity column manufactured from medium wall tubing with PTFE stopcock similar in design to the 420510 series. These columns have a coarse porosity glass frit (40-60 micron pore size) at the lower end to act as a support for column packing material. These columns may be used alone or in combination with 420570 series reservoir and 420575 series flow control adapters. **Custom sizes and plastic safety coating are available upon request.**

Catalog Number	Column I.D. x Length (mm)	Volume (mL)	Upper F Joint	Stopcock Bore (mm)	Case Qty.
420550-0213	11 x 300	30	24/40	2	1
420550-0120	13 x 200	23	24/40	2	1
420550-0125	13 x 250	28	24/40	2	1
420550-0130	13 x 300	34	24/40	2	1
420550-0150	13 x 500	66	24/40	2	1
420550-0220	19 x 200	51	24/40	2	1
420550-0225	19 x 250	56	24/40	2	1
420550-0230	19 x 300	76	24/40	2	1
420550-0224	19 x 400	125	24/40	2	1
420550-0234	19 x 450	150	24/40	2	1
420550-0250	19 x 500	142	24/40	2	1
420550-0233	22 x 300	140	24/40	2	1
420550-0243	22 x 350	175	24/40	2	1
420550-0245	22 x 550	250	24/40	2	1
420550-0320	25 x 200	90	24/40	2	1
420550-0325	25 x 250	113	24/40	2	1
420550-0330	25 x 300	136	24/40	2	1
420550-0350	25 x 500	245	24/40	2	1
420550-0420	38 x 200	227	24/40	2	1
420550-0425	38 x 250	280	24/40	2	1
420550-0430	38 x 300	340	24/40	2	1
420550-0450	38 x 500	560	24/40	2	1
420550-0256	41 x 600	790	24/40	4	1
420550-0520	50 x 200	360	24/40	2	1
420550-0525	50 x 250	470	24/40	2	1
420550-0530	50 x 300	580	24/40	2	1
420550-0550	50 x 500	980	24/40	2	1
420550-0560	50 x 600	1175	24/40	2	1
420550-2610	50 x 1000	1875	24/40	4	1
420550-0620	64 x 200	643	45/50	4	1
420550-0625	64 x 250	804	45/50	4	1
420550-0630	64 x 300	960	45/50	4	1
420550-0650	64 x 500	1600	45/50	4	1
420550-0660	64 x 600	1920	45/50	4	1
420550-0720	75 x 200	883	45/50	4	1
420550-0725	75 x 250	1004	45/50	4	1
420550-0730	75 x 300	1280	45/50	4	1
420550-0750	75 x 500	2100	45/50	4	1
420550-0760	75 x 600	2550	45/50	4	1

Replacement Parts

821001-0002	Stopcock Plug only, 2 mm	1
821001-0004	Stopcock Plug only, 4 mm	1

Flow Control Adapters with F Joints

The flow control adapter features Kontes HI-VAC® PTFE plug designed with a precision external thread for fine control. The accurately controlled valve seat and the extended tip on the PTFE plug allow semi-needle valve control for liquids. The FKM o-ring is shielded from direct exposure to liquids within the system by PTFE ring seals.

Catalog Number	F Joint	Valve Plug Bore Range (mm)	Case Qty.
420575-2440	24/40	0-4	1
420575-4550	45/50	0-4	1

Replacement Plug

826411-0004	Valve Plug only, 4 mm	1
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Columns with Reservoirs, PTFE Stopcock Plugs and $\frac{3}{4}$ 24/40 Joints

Gravity chromatography column manufactured from medium wall tubing with PTFE stopcock and in-line reservoir for containing liquid buffer. Glass wool (not supplied) may be used as a support for the packing material. These columns may be used alone or in combination with 420575-2440 flow control adapter. **Custom sizes and plastic safety coating are available upon request.**

Catalog Number	Volume (mL)	Column ID x Length (mm)	Reservoir Cap (mL)	Stopcock Bore (mm)	Case Qty.
420610-0120	23	13 x 200	250	2	1
420610-0125	28	13 x 250	250	2	1
420610-0130	34	13 x 300	250	2	1
420610-0320	90	25 x 200	250	2	1
420610-0325	100	25 x 250	250	2	1
420610-0330	136	25 x 500	250	2	1
420610-0350	245	25 x 300	250	2	1
420610-0420	227	38 x 200	500	2	1
420610-0430	340	38 x 300	500	2	1
420610-0450	560	38 x 500	500	2	1
420610-0520	360	50 x 300	500	2	1
420610-0530	590	50 x 300	1000	2	1
420610-0550	980	50 x 500	1000	2	1
420610-0560	1180	50 x 600	1000	2	1
420610-0620	643	64 x 200	1000	4	1
420610-0630	965	64 x 300	1000	4	1
420610-0650	1600	64 x 500	2000	4	1
420610-0660	1920	64 x 600	2000	4	1
420610-0720	883	75 x 200	2000	4	1
420610-0730	1290	75 x 300	2000	4	1
420610-0750	2140	75 x 500	2000	4	1
420610-0760	2580	75 x 600	2000	4	1

Replacement Parts

821001-0002	Stopcock Plug only, 2 mm	1
821001-0004	Stopcock Plug only, 4 mm	1



420610

Columns with Fritted Discs, Reservoirs and $\frac{3}{4}$ 24/40 Joints

Chromatography columns manufactured from medium wall tubing with PTFE stopcock and in-line reservoir for containing liquid buffer. These columns have a coarse porosity glass frit (40-60 micron pore size) as a support for column packing material. These columns may be used alone or in combination with 420575-2440 flow control adapter. **Custom sizes and plastic coating are available upon request.**

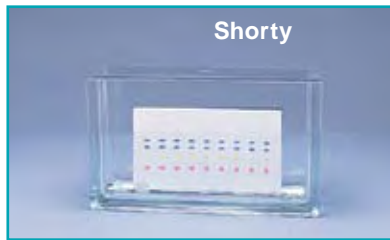
Catalog Number	Column I.D. x Length (mm)	Volume (mL)	Reservoir Cap (mL)	Stopcock Bore (mm)	Case Qty.
420620-0120	13 x 200	23	250	2	1
420620-0125	13 x 250	28	250	2	1
420620-0130	13 x 300	34	250	2	1
420620-0320	25 x 200	90	250	2	1
420620-0325	25 x 250	100	250	2	1
420620-0330	25 x 300	136	250	2	1
420620-0350	25 x 500	245	250	2	1
420620-0420	38 x 200	227	500	2	1
420620-0425	38 x 250	280	500	2	1
420620-0430	38 x 300	340	500	2	1
420620-0450	38 x 500	560	500	2	1
420620-0520	50 x 200	360	500	2	1
420620-0530	50 x 300	590	1000	2	1
420620-0550	50 x 500	980	1000	2	1
420620-0560	50 x 600	1180	1000	2	1
420620-0620	64 x 200	643	1000	4	1
420620-0630	64 x 300	965	1000	4	1
420620-0650	64 x 500	1600	2000	4	1
420620-0660	64 x 600	1920	2000	4	1
420620-0720	75 x 200	883	2000	4	1
420620-0730	75 x 300	1290	2000	4	1
420620-0750	75 x 500	2140	2000	4	1
420620-0760	75 x 600	2580	2000	4	1

Replacement Parts

821001-0002	Stopcock Plug only, 2 mm	1
821001-0004	Stopcock Plug only, 4 mm	1



420620



Shorty

416180-1020



Standard Lid

416180-0000



Nonslip Lid

416185-0000



Latch Lid

416190-0000



Latch Lid

416190-4900

Rectangular TLC Developing Tanks

TLC Developing Tanks are manufactured from sturdy molded glass bricks that will withstand regular use for many years. The clear sides allow unobstructed visual inspection of TLC plates up to 20 x 20 cm in size. The top of the tanks are ground flat to match the lids and the edges are beveled to remove any sharp edges. The bottoms are ground to provide a flat, level surface. A raised ridge along the inside bottom allows the simultaneous development of two 20 x 20 cm or four 5 x 20 cm plates. Inside dimensions of the tanks are approximately 27cm W x 7cm D x 25cm H (10 5/8 x 2 7/8 x 9 3/4 inches). Weight is approximately 5.4 kg (12 pounds).

The tank lids are available in three styles: standard, nonslip and latch. Nonslip lids have a knob for easy lifting and PTFE retainers inside to prevent the lid from accidentally sliding off the tank. Latch lids are designed to hold them firmly to the developing tank, greatly improving the stability of the saturated environment for developing TLC plates. Latch lids also have a knob for easy removal and PTFE retainers. Lids in all three styles are available with holes drilled for #0 stoppers to allow addition of reagents without disturbing the equilibrium of the saturated environment.

The multiplate aluminum rack allows the simultaneous development of up to six 20 x 20 cm TLC plates. The rack is hard anodized to prevent corrosion.

TLC Tanks with Standard Lids

“SHORTY” tank was developed for use with 10 cm x 10 cm plates but it will also accommodate 5 x 10 or 10 x 20 plates, turned long side down. Both tanks have a raised ridge to support plates during development and are supplied with lids.

Catalog Number	Description	Use with Plate Size W x H (mm)	Case Qty.
416180-0000	TLC Developing Tank with Standard Lid	20 x 20	1
416180-1020	TLC Developing Tank, “Shorty” with Standard Lid	10 x 20	1
Accessory Part			
416181-0000	TLC Standard Lid	10 x 20 or 20 x 20	1

TLC Tank with Nonslip Lid

Catalog Number	Description	Case Qty.
416185-0000	TLC Developing Tank with Nonslip Lid	1
Component Parts		
416186-0000	TLC Nonslip Lid	1
416182-0000	TLC Developing Tank Only	1

TLC Tank with Latch Lid

Catalog Number	Description	Case Qty.
416190-0000	TLC Developing Tank with Latch Lid	1
Component Parts		
416191-0000	TLC Latch Lid	1
416192-0000	TLC Developing Tank Only, Latch	1

TLC Tank with Latch Lid and Aluminum Rack

Catalog Number	Description	Case Qty.
416190-4900	TLC Developing Tank with Latch Lid and Aluminum Rack	1
Component Parts		
416191-0000	TLC Latch Lid	1
416192-0000	TLC Developing Tank Only, Latch	1
416175-0000	TLC Aluminum Rack, Holds Six 20x20 cm Plates	1

Cylindrical TLC Developing Tanks with Lids

Cylindrical glass tanks for the development of 1 x 3 in. to 10 x 20 cm plates. These tanks provide maximum vapor phase saturation with a minimum amount of solvent.

Catalog Number	For Plate Size	Lid	Case Qty.
416170-0510	5 x 10 cm	Glass	1
416170-0520	5 x 20 cm	Glass	1
416170-1020	10 x 20 cm	Glass	1
416170-1118	1 x 3 in	Polyethylene	1
416170-1119	1 x 3 in	Polyethylene	12
416170-1120	5 x 10 cm	Polyethylene	1
416170-1121	5 x 10 cm	Polyethylene	12
416170-1122	5 x 20 cm	Polyethylene	1
416170-1123	5 x 20 cm	Polyethylene	12

Component Parts

416170-1124	Polyethylene Cap For 1 x 3 in. Tanks	12
416170-1125	Polyethylene Cap For 5 x 10 cm and 5 x 20 cm Tanks	12
416171-0500	Glass Cap for 5 cm Tanks	1



416170

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416430



416450

TLC Plate Streaker

A simple device for uniformly streaking TLC plates. Unit consists of a stainless steel base with an adjustable holder for a glass reservoir. To operate, the streaker is placed over edge of the counter top and the plate to be streaked is positioned parallel to it. The bent capillary tip is then adjusted so that it lightly touches the plate. The reservoir is filled with the solution to be chromatographed and by moving the unit back and forth along the counter edge, a uniform streak is accomplished. Supplied complete with glass, stainless steel capillaries and instructions.

Reference: Journal of Chemical Education, Vol. 47, No. 5, May 1970, page 404, "A Simple Streaker for Preparative Layer Chromatography," L.J. Altman, James R. Trudell.

Catalog Number	Approx. Dimensions L x W x H (cm)	Case Qty.
416430-0000	25 x 15 x 16	1

Component Parts

416431-0000	Base Assembly	1
416432-0000	Reservoir	1
416433-0000	Glass Capillary Set, (2 Small, 2 Large)	1
416434-0000	Stainless Capillary Set, (1 Small, 1 Large)	1

TLC Labeling Template

A transparent labeling template designed to fit over TLC plates without disturbing the absorbent layer. The apparatus features spotting guide ruler, compound and solvent travel distance markers and circles for estimation of spot sizes. Origin and 10 cm bold reference lines are provided to enable fast calculation of R_f-values.

Catalog Number	Approx. Dimensions L x W x H (cm)	Case Qty.
416450-0000	22 x 20 x 1	1



764520



764500

TLC Spotting Capillaries, Borosilicate Glass, Microcaps®

Microcaps® are ingeniously simple in concept and in use. They are precision-bore glass capillary tubes, cut to predetermined lengths, so that each capillary tube will hold a known volume of fluid when filled. Microcaps are so inexpensive that it is not impractical to dispose of each tube after use.

Filling is simple. Capillary action - not externally applied suction - draws the fluid into the tube. To dispense the fluid, simply squeeze the bulb. No unusual skills or training required. Immediate, professional results. Ideal for spotting preadsorbent TLC plates. Supplied in packages containing one bulb assembly and one dispenser vial with 100 micropipets. Volumetric tolerance is $\pm 1\%$.

Catalog Number	Capacity (μL)	Length (mm)	Relative I.D. (in.)	Relative O.D. (in.)	Case Qty.
764500-0000	0.5	32	.0056	.022	100
764500-0001	1.0	32	.0078	.025	100
764500-0002	2.0	32	.0111	.030	100
764500-0005	5.0	32	.0174	.0355	100
764500-0010	10.0	41	.0219	.0314	100
764500-0020	20.0	64	.0249	.0355	100
764500-0025	25.0	65	.0272	.0382	100
764500-0050	50.0	100	.0314	.043	100
764500-0100	100.0	116	.0410	.0555	100

TLC Spotting Capillaries, 5 Pack, Borosilicate, Microcaps®

The Microcaps "5 Pack" is ideal for use in spotting TLC plates. Each kit has 5 dispenser vials containing 100 micropipets each of 0.5, 1, 2, 5 and 10 μL sizes. Also included are a bulb assembly and spotting holder.

Catalog Number	Case Qty.
764520-0000	1

TLC Reagent Sprayers with Screw Thread Ground Joints

The connection between the sprayer head and the flask is made with a special screw thread ground joint, connecting cap and loosening ring. If the joint ever “freezes” from reagent crystallization or residue formation, simply unscrew the connecting cap back onto the unique loosening ring and the joint will easily come apart. These sprayers will operate on as little as 1 psi (0.07 kg/cm²) air pressure with optimal results at 3-5 psi (0.21-0.35 kg/cm²). The connecting cap, loosening ring and o-ring should be removed before autoclaving.

Catalog Number	Flask Capacity (mL)	⌀ Joints	Approx. Height x OD (mm)	Case Qty.
422530-0010	10	19/22	155 x 22	1
422530-0025	25	19/22	147 x 40	1
422530-0050	50	19/22	174 x 50	1
422530-0125	125	24/40	204 x 65	1
422530-0250	250	24/40	229 x 85	1
422530-0500	500	24/40	273 x 105	1

Component Parts

422531-0010	TLC Sprayer Head for 10 and 25 mL flasks	1
422531-0050	TLC Sprayer Head for 50 mL flasks	1
422531-0125	TLC Sprayer Head for 125 mL flasks	1
422531-0250	TLC Sprayer Head for 250 mL flasks	1
422531-0500	TLC Sprayer Head for 500 mL flasks	1
422532-0010	TLC Sprayer Flask, 10 mL	1
422532-0025	TLC Sprayer Flask, 25 mL	1
422532-0050	TLC Sprayer Flask, 50 mL	1
422532-0125	TLC Sprayer Flask, 125 mL	1
422532-0250	TLC Sprayer Flask, 250 mL	1
422532-0500	TLC Sprayer Flask, 500 mL	1
422533-0019	Connecting Cap, Size 19, (1 supplied)	5
422534-0019	Loosening Ring, Size 19, (1 supplied)	5



The loosening ring and joint are easily separated for cleaning.

422530

TLC Reagent Sprayers with Standard Ground Joints



422550



422540



422500

These units operate from 3-5 psi (0.21-0.35 kg/cm²). Their all-glass construction makes them completely steam autoclavable.

Catalog Number	Working Capacity (mL)	⌀ Joints	Approx. Height x OD (mm)	Case Qty.
422550-0000	5	14/20	130 x 17	1
422540-0000	25	24/40	175 x 25	1
422500-0125	125	24/40	200 x 65	1
422500-0250	250	24/40	225 x 85	1

Component Parts

422551-0000	TLC Sprayer Only for 10 mL Tube	1
422501-0250	TLC Sprayer Only for 250 mL Flask	1
617000-0224	Flask, 125 mL, ⌀ 24/40 outer joint	1
617000-0424	Flask, 250 mL, ⌀ 24/40 outer joint	1



953930

ULTRA-WARE® HPLC Economy Cap Systems

The cap body is manufactured from PTFE and is supplied with a TFE/propylene o-ring and a polypropylene screw collar. The connecting threads on the top of the cap use standard 1/4-28 flangeless fittings. Two of the ports have 1/8" through holes, the third port has a 1/16" through hole. Assembly instructions are included.

The ULTRA-WARE Flat Bottom Reservoirs are manufactured from Type I, Class A borosilicate glass with a plastic safety coating. The plastic coating also blocks virtually all UV light up to 385 nm, preventing photodegradation of light sensitive mobile phases.

Economy Three Hole Cap Systems are supplied with:

953913-5000	1 ea.	Economy Three Hole Cap	420822-0018	2 ea.	Flangeless Ferrule, ETFE, 1/8"
953902-series	1 ea.	Ultra-Ware Flat Bottom Reservoir	953913-0001	1 ea.	Nut Plug, ETFE, 1/4-28
953916-3002	1 ea.	All PEEK Inlet/Spurge Filter, 2µm	420823-0018	1 ea.	FEP Tubing, 1/8" OD x 1/16" ID x 10 ft.
420821-0018	2 ea.	Flangeless Nut, ETFE, 1/4-28, 1/8"			

Catalog Number	Description	Case Qty.
953930-1002	Economy Three Hole Cap System with 1 Liter Reservoir	1
953930-2002	Economy Three Hole Cap System with 2 Liter Reservoir	1
953930-5002	Economy Three Hole Cap System with 5 Liter Reservoir	1
953930-1003	Economy Three Hole Cap System with 10 Liter Reservoir	1

Replacement Parts for Economy Three Hole Caps

953913-5000	Replacement Economy Three Hole Cap (Body and Screw Collar)	1
953913-5001	Body, PTFE	1

Fittings Kit

Kit consists of 20' of 1/8" OD FEP tubing, 20 CTFE ferrules and 20 (1/4-28) ETFE nuts. Not pictured.

Catalog Number	Description	Case Qty.
953882-0000		1



Bottle not included.

Safety System 3

Eliminates the safety hazards of aluminum foil-wrapped solvent containers.

- This unique Solvent Bottle Adapter is made from PBT and converts ULTRA-WARE® GL 45 mobile phase caps to standard 4L solvent bottles for direct connection to your HPLC pump.
- ULTRA-WARE® Economy Three Hole Cap is manufactured from PTFE with a TFE/propylene o-ring and a polypropylene screw collar. Three connecting threads on top of the cap use standard 1/4-28 flangeless fittings. Two ports have 1/8" through holes for connection to the inlet / spurge filter. The third port has a 1/16" through hole used as a vent port during sparging.

Each Safety System 3 consists of the following:

953913-5000	1 ea.	Economy Three Hole Cap, GL 45
953907-0000	1 ea.	Solvent Bottle Adapter, GL 45 (Systems available with or without adapter. See below.)
953916-3002	1 ea.	Combination Inlet / Spurge Filter, 2µm, PEEK
420821-0018	2 ea.	Flangeless Nut, ETFE, 1/4-28 x 1/8" (2 Req'd.)
420822-0018	2 ea.	Flangeless Ferrule, ETFE, 1/8" (Optional - 2 Req'd.)
953913-0001	1 ea.	Vent Port Plug, ETFE, 1/4-28 (1 Req'd.)
420823-0018	1 ea.	Tubing, FEP, 1/8" O.D. x 1/16" I.D. x 10 ft.

Catalog Number	Description
953930-0000	Safety System 3 with GL 45 Bottle Adapter
953930-0001	Safety System 3 without GL 45 Bottle Adapter

Unique Filter Combines Functions to Increase Efficiency

Included with your Safety System 3 is the unique Bottom-of-the-Bottle™ Inlet / Spurge Filter. This component combines the functions of an inlet filter with a sparger in a single, convenient device. Sparging bubbles are prevented from entering the mobile phase stream while allowing the pump to draw all but a few milliliters of solvent from the reservoir or bottle. All PEEK construction makes it ideal for virtually all mobile phases. Supplied with 2µm porosity frits and connections for 1/8" O.D. tubing.

Port for sparging line (optional use)

Port for solvent intake line

Filter Catalog No. 953916-3002

Draws solvent from bottom of solvent bottle

Filters incoming sparging gas (optional use)

Plastic-Coated ULTRA-WARE® Reservoirs

ULTRA-WARE Reservoirs have been specially designed for the preparation, storage and delivery of all liquid chromatography mobile phases. Each ULTRA-WARE Reservoir is manufactured from the most chemically inert glass available to prevent the leaching of any extractables into the mobile phase solvents. They are then externally coated with plastic containing an added ultraviolet (UV) blocking agent. In case of an accident, the plastic safety coating helps retain glass fragments and allows a reasonable amount of time for the safe disposal of the liquid contents. The plastic coating also blocks virtually all UV light up to 385 nm, preventing photodegradation of light sensitive reagents.

ULTRA-WARE Reservoirs are recommended for use under vacuum for filtration and vacuum degassing of mobile phase solvents. ULTRA-WARE Reservoirs can also be used at internal pressures up to 6 psig for helium sparging and blanketing of the mobile phase. The conical bottom reservoirs deliver virtually all of the mobile phase without dangerous reservoir tilting. All ULTRA-WARE Reservoirs are supplied with GL 45 screw thread. *Patent No. Des. 292,824

Conical Bottom HPLC Reservoirs without Graduations

Catalog Number	Capacity	Height x Dia.	Case Qty.
953901-0252	250 mL	203 x 85 mm	1
953901-0502	500 mL	230 x 105 mm	1
953901-1002	1 liter	275 x 130 mm	1
953901-2002	2 liter	319 x 150 mm	1
953901-5002	5 liter	373 x 205 mm	1
953901-1003	10 liter	433 x 255 mm	1
953901-2003	20 liter	578 x 315 mm	1

Conical Bottom HPLC Reservoirs with Graduations

Catalog Number	Capacity	Height x Dia.	Case Qty.
953922-0252	250 mL	203 x 85 mm	1
953922-0502	500 mL	230 x 105 mm	1
953922-1002	1 liter	275 x 130 mm	1
953922-2002	2 liter	319 x 150 mm	1
953922-5002	5 liter	373 x 205 mm	1
953922-1003	10 liter	433 x 255 mm	1
953922-2003	20 liter	578 x 315 mm	1

Conical Bottom HPLC Reservoirs with Side Necks and Graduations

Side neck allows addition of filtered solvent without removing delivery cap.

Catalog Number	Capacity	Height x Dia.	Case Qty.
953910-2002	2 liter	319 x 150 mm	1
953910-5002	5 liter	373 x 205 mm	1
953910-1003	10 liter	433 x 255 mm	1
953910-2003	20 liter	578 x 315 mm	1

Flat Bottom HPLC Reservoirs without Graduations

Catalog Number	Capacity	Height x Dia.	Case Qty.
953902-0252	250 mL	133 x 73 mm	1
953902-0502	500 mL	165 x 89 mm	1
953902-1002	1 liter	205 x 111 mm	1
953902-2002	2 liter	250 x 138 mm	1
953902-5002	5 liter	320 x 186 mm	1
953902-1003	10 liter	400 x 234 mm	1
953902-2003	20 liter	490 x 300 mm	1

Flat Bottom HPLC Reservoirs with Graduations

Catalog Number	Capacity	Height x Dia.	Case Qty.
953932-0252	250 mL	203 x 85 mm	1
953932-0502	500 mL	230 x 105 mm	1
953932-1002	1 liter	275 x 130 mm	1
953932-2002	2 liter	319 x 150 mm	1
953932-5002	5 liter	373 x 205 mm	1
953932-1003	10 liter	433 x 255 mm	1
953932-2003	20 liter	578 x 315 mm	1



953902

Specifications ULTRA-WARE HPLC Reservoirs

Materials:

Reservoir: Type I, Class A,
Borosilicate Glass

Plastic Coating: PVC with UV
blocking agent

Screw Thread: GL 45

Operating Pressure: -1.0 to 0.4 bar

UV Transmittance: <1% up to 385 nm



953906

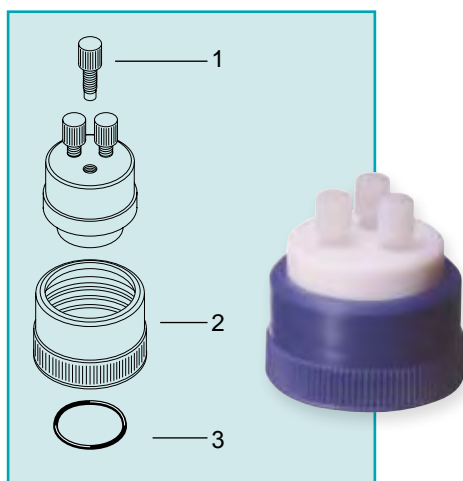
ULTRA-WARE® Solvent Pickup Adapter

Designed to be used with the Five Valve, Four Valve and Filtration caps to provide safe, in-line filtration that replaces the traditional pour-and-wait funnel filtration method. The unique BEVEL-SEAL® makes a vacuum tight o-ring connection to the PTFE tubing. The HI-VAC® valve is easier to open under vacuum than the standard stopcock. Closing the valve provides vacuum degassing after filtration. Each unit is supplied with 3 feet (91 cm) of 1/4" O.D. FEP tubing. Valve o-ring size is 010 and sidearm o-ring size is 108.

Catalog Number	Description	Case Qty.
953906-0047	Pickup Adapter, Standard, 47 mm	1
953906-6347	Pickup Adapter, THF-Resistant, 47 mm	1
953906-0090	Pickup Adapter, Standard, 90 mm	1
953906-6390	Pickup Adapter, THF-Resistant, 90 mm	1

Replacement Parts

953906-0001	(1) Valve Plug Assembly, Std.	1
953906-0002	(2) Glass Pickup Adapter Body, 47mm	1
953906-0092	(2) Glass Pickup Adapter Body, 90mm	1
410119-1508	(3) Cap, Nylon, 15-415, 8.5mm	12



953913-0000

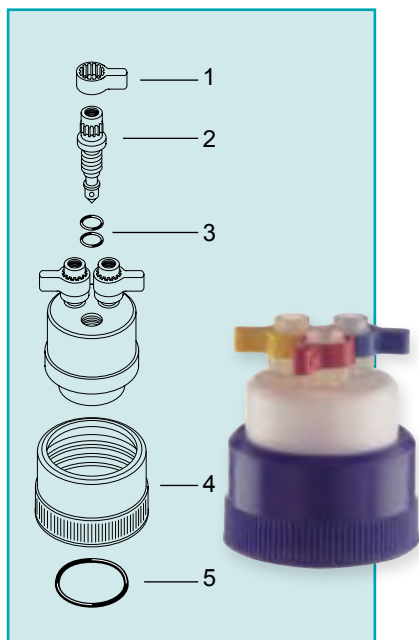
ULTRA-WARE® Three Hole Delivery Cap

Three holes have 1/4-28 threads top and bottom with 1/8" I.D. holes through to accept 1/8" O.D. PTFE tubing. Body is PTFE. Supplied complete with three 1/4-28 CTFE plugs and a TFE / propylene o-ring.

Catalog Number	Description	Cap Thread	Case Qty.
953913-0000	Three Hole Cap	GL 45	1

Replacement Parts

953913-0001	(1) Plug, ETFE, 1/4-28	1
953903-0005	(2) Screw Cap, GL 45	1
758260-0216	(3) O-Ring, TFE / Propylene, Size 216	1



953903-0000

ULTRA-WARE® Three Valve Delivery Cap

Three on-off CTFE valves have 1/4-28 threads top and bottom. Valve body is PTFE. Valve stem is CTFE. O-ring material for valve stem and lower seal is TFE / propylene.

Catalog Number	Description	Cap Thread	Case Qty.
953903-0000	Three Valve Cap	GL 45	1

Replacement Parts

953903-0002	(1) Valve Handle, Blue	1
953903-0003	(1) Valve Handle, Red	1
953903-0004	(1) Valve Handle, Yellow	1
953903-0042	(2) Valve Stem, CTFE, Short	1
758260-0008	(3) O-Ring, TFE / Propylene, Size 008 (2 required per CTFE Valve Stem)	1
953903-0005	(4) Screw Cap, GL 45	1
758260-0216	(5) O-Ring, TFE / Propylene, Size 216	1

THF-resistant versions of ULTRA-WARE® caps are also available. Please call 888-546-2531 for more information.



953915-0047

ULTRA-WARE® Filtration Cap

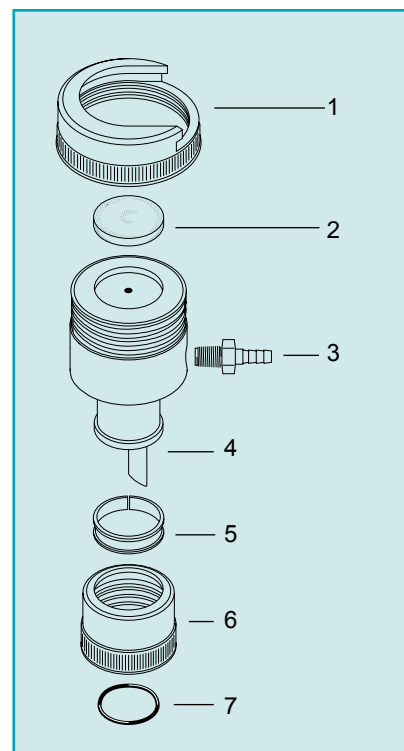
Body is constructed of glass-filled PTFE with a vacuum adapter for 1/4" I.D. tubing. Upper screw clamp holds a solvent pickup adapter or funnel. Coarse fritted glass filter support is removable. Supplied with a PTFE / propylene o-ring.

Catalog Number	Filter Diameter	Cap Thread	Case Qty.
953915-0047	47 mm	GL 45	1

Replacement Parts

953914-0002	(1) Upper Screw Clamp, 47 mm	1
953914-0001	(2) Coarse Porosity Glass Support Frit, 47 mm	1
953915-0001	(3) Hose Barb, PFA, 1/4"	1
953914-0006	(4) Drip Tip, PTFE	1
953981-0004	(5) Lower Cap Retainer Ring	1
953981-0005	(6) Lower Screw Cap, GL 45	1
758292-0122	(7) O-Ring, Ethylene Propylene, Size 122	10

Filtration cap, **953915-0047** shown with Solvent Pickup Adapter, **953906-0047**, and ULTRA-WARE, safety-coated reservoir, **953901-series**, available for purchase separately. The safety coating contains an ultraviolet (UV) blocking agent to help protect solvents from degradation.



953981-0047

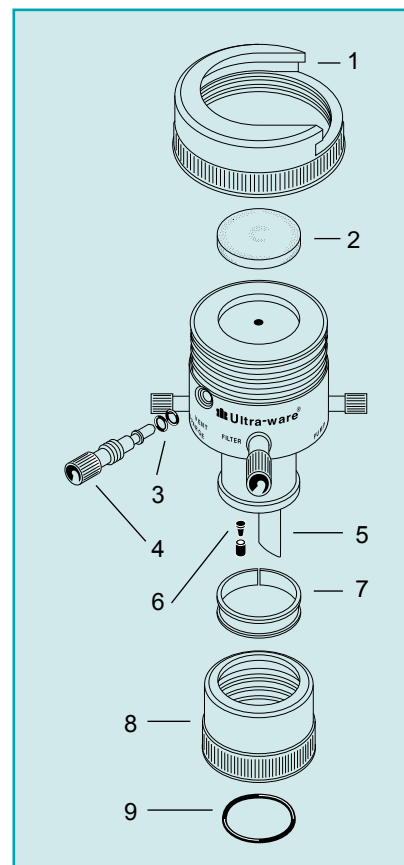
ULTRA-WARE® Four Valve Filtration / Delivery Cap

Cap combines the mobile phase filtration, sparging / degassing, storage and delivery functions. Tubing connections are made in the back of the cap, reducing the typical clutter of tubing at the reservoirs. An integral check valve in the sparge port prevents the mobile phase from backing up into the gas lines. A pressure release valve prevents the reservoir from being accidentally over-pressurized. The 1/4-28 fitting connections allow easy connection to any HPLC pump system. Cap body is manufactured from glass-filled PTFE. Cap will fit any reservoir or bottle with a GL 45 thread. Patent No. 5,397,467

Catalog Number	Filter Diameter	Cap Thread	Case Qty.
953981-0047	47 mm	GL 45	1

Replacement Parts

953914-0002	(1) Upper Screw Clamp, 47 mm	1
953914-0001	(2) Coarse Porosity Glass Support Frit, 47 mm	1
758260-0008	(3) O-Ring, TFE / Propylene, Size 008 (2 req'd. per CTFE Valve Stem)	1
953981-0001	(4) Valve Stem, CTFE, Short (for Sparge and Pump Ports)	1
953914-0006	(5) Drip Tip, PTFE	1
953981-0003	(6) Check Valve with Retainer	1
953981-0004	(7) Lower Cap Retainer Ring	1
953981-0005	(8) Lower Screw Cap, GL 45	1
758292-0122	(9) O-Ring, Ethylene Propylene, Size 122	10



THF-resistant versions of ULTRA-WARE® caps are also available. Please call 888-546-2531 for more information.

Five valve cap, **953983-0047** shown with Solvent Pickup Adapter, **953906-0047**, and ULTRA-WARE, safety-coated reservoir, **953901-series**, available for purchase separately. The safety coating contains an ultraviolet (UV) blocking agent to help protect solvents from degradation.

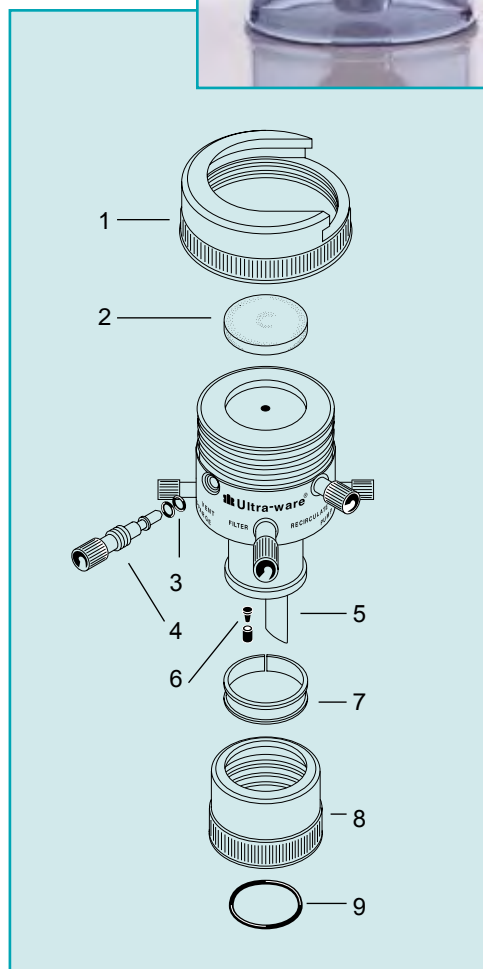


ULTRA-WARE® Five Valve Recirculation / Filtration Cap

Designed to permit the recirculation of mobile phase back into the reservoir while maintaining the helium sparged environment. Cap also performs stepwise filtration, sparging / degassing, storage and delivery to the HPLC pump. An integral check valve prevents mobile phase from backing up into the gas lines. A pressure release valve protects the reservoir from being accidentally over-pressurized. The 1/4-28 fitting connections allow easy connection to any HPLC pump system. Cap body is manufactured from glass-filled PTFE. Cap will fit any reservoir or bottle with a GL 45 thread. Patent No. 5,397,467

Catalog Number	Filter Diameter	Cap Thread	Case Qty.
953983-0047	47 mm	GL 45	1
Replacement Parts			
953914-0002	(1) Upper Screw Clamp, 47 mm		1
953914-0001	(2) Coarse Porosity Glass Support Frit, 47 mm		1
758260-0008	(3) O-Ring, TFE / Propylene, Size 008 (2 required per Valve Stem)		1
953981-0001	(4) Valve Stem, CTFE, Short (for Sparge and Pump Ports)		1
953914-0006	(5) Drip Tip, PTFE		1
953981-0003	(6) Check Valve with Retainer		1
953981-0004	(7) Lower Cap Retainer Ring		1
953981-0005	(8) Lower Screw Cap, GL 45		1
758292-0122	(9) O-Ring, Ethylene Propylene, Size 122		10

THF-resistant versions of ULTRA-WARE® caps are also available. Please call 888-546-2531 for more information.



1. Coarse Glass Frit



2. Screw Clamp

90 mm Conversion Base for ULTRA-WARE® Caps

Converts the Five Valve, Four Valve and Filtration caps to use 90 mm filter membranes, providing up to four times faster filtration. The conversion base is manufactured from glass-filled PTFE and is supplied with a coarse porosity glass support frit and an upper screw clamp. Requires a 90 mm Solvent Pickup Adapter, 953906-0090 or THF-resistant 953906-6390.

Catalog Number	Description	Case Qty.
953984-0090	90 mm Conversion Base	1
Replacement Parts		
953914-0092	(1) Upper Screw Clamp, 90 mm	1
953914-0091	(2) Glass Support Frit, Coarse, 90 mm	1

For a complete listing of chromatography columns and fittings, visit our website: www.kimble-chase.com

ULTRA-WARE® Fittings Kit, Standard Version

This kit contains all of the tube fittings, adapters and solvent inlet filters required to plumb any ULTRA-WARE cap to virtually all HPLC pumps. Not recommended for use with THF or chlorinated hydrocarbons.

Catalog Number	Description	Case Qty.
953882-1000	Fittings Kit, Standard Version	1

Component Parts	Description	Quantity in Kit	Case Qty.
420407-2003	Adapter, F 1/4-28 to F-Luer	2	1
420407-2113	Adapter, M 1/4-28 to M-Luer	1	1
420818-3305	Union, 5/16-24 to 1/4-28	1	1
420821-0018	Tubing Nut, 1/4-28, for 1/8" O.D.	10	1
420821-0618	Tubing Nut, M6, for 1/8" O.D.	1	1
420821-3519	Tubing Nut, 5/16-24, for 3/16" O.D.	1	1
420822-0018	Ferrule, for 1/8" O.D.	10	1
420822-1019	Ferrule, for 3/16" O.D.	1	1
420822-2007	Ferrule, for 1.8 mm O.D.	2	1
953916-0000	Inlet Filter, for 1/8" O.D. Tubing	1	1
953916-1002	Inlet Filter, Bottom-of-the-Bottle™, for 1/8" O.D. Tubing	1	1
953919-0014	Adapter, 1/4-28 to 1/4" Hose Barb	1	1



953882-1000

ULTRA-WARE® Fittings Kit, THF-Resistant

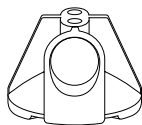
This kit contains all of the tube fittings, adapters and solvent inlet filters required to plumb any ULTRA-WARE cap to virtually all HPLC pumps. However, it is designed to be used specifically with THF or other very aggressive organic solutions.

Catalog Number	Description	Case Qty.
953882-2000	Fittings Kit, THF Version	1

Component Parts	Description	Quantity in Kit	Case Qty.
420407-2003	Adapter, F 1/4-28 to F-Luer	2	1
420407-2113	Adapter, M 1/4-28 to M-Luer	1	1
420818-3305	Union, 5/16-24 to 1/4-28	1	1
420821-0018	Tubing Nut, 1/4-28, for 1/8" O.D.	10	1
420821-0618	Tubing Nut, M6, for 1/8" O.D.	1	1
420821-3519	Tubing Nut, 5/16-24, for 3/16" O.D.	1	1
420821-6218	Tubing Nut, 1/4-28, for 1/8" O.D.	2	1
420822-0018	Ferrule, for 1/8" O.D.	10	1
420822-1019	Ferrule, for 3/16" O.D.	1	1
420822-2007	Ferrule, for 1.8 mm O.D.	2	1
953916-2002	Inlet Filter, BOTB, for 1/16" I.D.	1	1
953916-6210	Inlet Filter, for 1/16" I.D.	1	1
953919-0014	Adapter, 1/4-28 to 1/4" Hose Barb	1	1



953882-2000

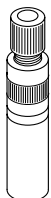


953916-3002

Inlet / Sparge Filter

The inlet/sparge filter combines an inlet filter with a sparger in a single, convenient device. The all PEEK construction is ideal for virtually all mobile phases. The special design prevents sparging bubbles from entering the mobile phase stream while allowing the pump to draw all but a few milliliters of solvent from the reservoir. The inlet/sparge filter is supplied with 2 µm porosity frits and connections for 1/8" O.D. tubing.

Catalog Number	O.D. x Length	Porosity	Fits Tubing Size	Case Qty.
953916-3002	1.1" x 0.8"	2 µm	1/8" O.D.	1



953916-1002

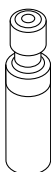


953916-2002

ULTRA-WARE® Inlet Filter, Bottom-of-the-Bottle™

A specially designed inlet filter that allows solvent to be drawn to within 2 mm of the bottom of the filter. Combined with the ULTRA-WARE conical bottom reservoir, this filter will utilize all but a few milliliters of mobile phase for more efficient use of your solvent.

Catalog Number	O.D. x Length	Fits Tubing Size	Case Qty.
953916-1002	1/2" x 1 3/4"	1/8" O.D.	1
953916-2002	1/2" x 1"	1/16" I.D.	1



953916-0000

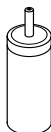
ULTRA-WARE® Stainless Steel Solvent Inlet Filter

Two micron porosity filter with a CTFE nut for connection to 1/8" O.D. PTFE tubing. Recommended for use with the 250 mL to 5 liter size reservoir systems.

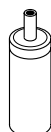
Catalog Number	O.D. x Length	Case Qty.
953916-0000	1/2" x 1"	1

Component Parts

953916-0001	SS Filter Only	1
953916-0002	CTFE Nut	1



953916-6210

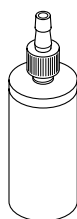


953916-6220

ULTRA-WARE® Stainless Steel Solvent Inlet Filter

Ten micron porosity all stainless steel filter with a stem for slip connection to PTFE tubing. Recommended for use with THF-resistant systems.

Catalog Number	O.D. x Length	Stem O.D.	Fits Tubing Size	Case Qty.
953916-6210	1/2" x 1"	1/16"	1/8" O.D.	1
953916-6220	1/2" x 1"	1/8"	3/16" O.D.	1



953917-0000

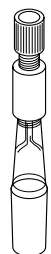
ULTRA-WARE® Stainless Steel Solvent Inlet Filter

Ten micron porosity filter with an ETFE nut and ferrule for connection to 1/8" O.D. PTFE tubing. A CTFE hose barb adapter for connection to 1/4" O.D. (5/32" I.D.) tubing is also included. Recommended for use with 10 and 20 liter size reservoir systems.

Catalog Number	O.D. x Length	Case Qty.
953917-0000	7/8" x 1 1/2"	1

Component Parts

953917-0001	Filter Only	1
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953916-2700

ULTRA-WARE® Glass Solvent Inlet Filter

Five micron porosity filter with a CTFE union, 1/4-28 nut and ferrule for connection to 1/8" O.D. tubing.

Catalog Number	O.D. x Length	Case Qty.
953916-2700	1/2" x 2"	1

Component Parts

H88800-0000	Union, 1/4-28, CTFE	1
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2mL and 4mL Autosampler Vials without Closures

- Choice of clear KG-33 or amber 203 borosilicate glass
- Available with or without marking spots
- Made in the USA

Made of the highest quality materials, Kimble Chase vials meet or exceed industry specifications and tolerances. These products are available in a variety of standard sizes and finishes. Vials are made from clear, Type 1 borosilicate, 33 expansion glass or amber, Type 1, borosilicate, 51 expansion glass for light sensitive applications. Vials are packed 100 per tray. Vials with large opening and/or marking spots are also available. Closures are not included.



12 x 32 mm Vials



15 x 45 mm Vials

Clear Vials

Catalog Number	Cap. (mL)	O.D. x Ht. (mm)	Finish	Pack Qty.	Case Qty.
331232C	2	12 x 32	crimp	100	2000
331232CW	2	12 x 32	crimp with marking spot, graduated	100	2000
331232CL	2	12 x 32	crimp large opening	100	2000
331232CLW	2	12 x 32	crimp large opening w/ marking spot	100	2000
331232S	2	12 x 32	screw thread, 8-425	100	2000
331232SN	2	12 x 32	screw thread, 9-425	100	2000
331232SW	2	12 x 32	screw thread, 9-425 w/ marking spot, grad.	100	2000
331545S	4	15 x 45	screw thread, 13-425	100	2000
331545SW	4	15 x 45	screw thread, 13-425 w/ marking spot	100	2000

Amber Vials

Catalog Number	Cap. (mL)	O.D. x Ht. (mm)	Finish	Pack Qty.	Case Qty.
511232CA	2	12 x 32	crimp	100	2000
511232CAW	2	12 x 32	crimp w/ marking spot	100	2000
511232CLA	2	12 x 32	crimp large opening	100	2000
511232CLAW	2	12 x 32	crimp large opening w/ marking spot	100	2000
511232SA	2	12 x 32	screw thread, 8-425	100	2000
511232DPA	2	12 x 32	screw thread, 9-425	100	2000
511232SAW	2	12 x 32	screw thread, 9-425 w/ marking spot, grad.	100	2000
511545SA	4	15 x 45	screw thread, 13-425	100	2000
511545SAW	4	15 x 45	screw thread, 13-425 w/ marking spot	100	2000

Aluminum Seals, with PTFE-Faced Silicone Rubber Liners

- Good for resealability, core resistance, multiple injections, and easy penetration

Catalog Number	Fits GPI Aluminum Seal Finish	Color	Thickness, Inches PTFE	Thickness, Inches Silicone Rubber	Case Qty.
N73824-11	11	natural	0.002	0.040	100



N73824 Series

Aluminum Seals, with PTFE-Faced Red Rubber Septa

- Most popular and economical choice for general GC applications
- Moderate resealability
- Not recommended for multiple injections or long-term storage

Catalog Number	Fits GPI Aluminum Seal Finish	Color	Thickness, Inches PTFE	Thickness, Inches Red Rubber	Case Qty.
N73826-11	11	red	0.002	0.040	1000



N73826 Series

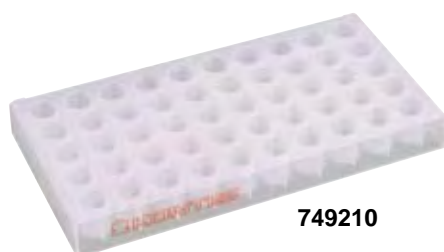
Kimble Chase caps are manufactured using the highest quality raw materials and designed for an ideal fit with our autosampler vials.



Pre-assembled caps and septa minimize contamination due to handling.



73814BK



749210

Open-Top Polypropylene Screw Thread Closures with Red PTFE-Faced Silicone Septa

- Convenient assembly of caps and liners
- Available with standard or pre-slit septa

Autoclavable and used for multiple injections.

Catalog Number	GPI Thread Finish	Septa	Color	Shelf-Pack Qty.	Case Qty.
73812BK-8425	8-425	standard	black	100	1000
73813BK-8425	8-425	pre-slit	black	100	1000
73812WH-8425	8-425	standard	white	100	1000
73813WH-8425	8-425	pre-slit	white	100	1000
73812BK-9425	9-425	standard	black	100	1000
73813BK-9425	9-425	pre-slit	black	100	1000
73812BL-9425	9-425	standard	blue	100	1000
73813BL-9425	9-425	pre-slit	blue	100	1000
73812BK-13425	13-425	standard	black	100	1000
73813BK-13425	13-425	pre-slit	black	100	1000
73812WH-13425	13-425	standard	white	100	1000
73813WH-13425	13-425	pre-slit	white	100	1000

Open-Top Polypropylene Screw Thread Closures with Bonded White PTFE Liners

- Intended for single-use injection

Catalog Number	GPI Thread Finish	Color	Case Qty.
73814WH-8425	8-425	white	1000
73814BL-9425	9-425	blue	1000
73814BK-13425	13-425	black	1000

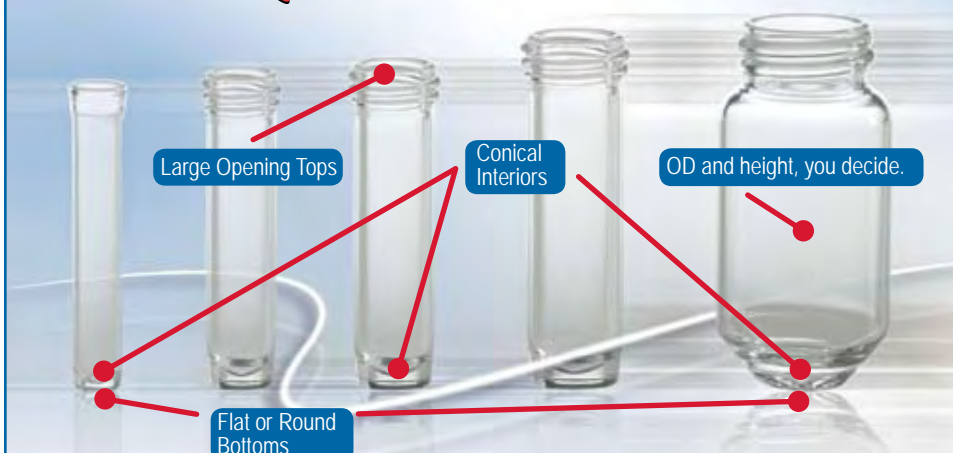
Polypropylene Rack for 12 mm OD Vials

Disposable polypropylene vial rack is lettered and numbered for indexing individual vials. Corners interlock for convenient stacking.

Catalog Number	Hole Diameter x Depth (mm)	Case Qty.
749210-0012	12 x 15	10



High Recovery Vials Made to Your Specifications



• Accuracy • Reliability • Quality • Affordability

We can manufacture any vial you can dream up.

Flat Exterior Bottoms

- Ideal for bar coding
- Sized to fit any tray design
- Inherently stable

Conical Interior Bottoms

- Maximize your sample recovery
- Minimizes the use of costly samples
- Designed based on your needle type

Finishes

- Aluminum seal
- Screw thread
- Plug style

Available Value Added Services

- Permanent sample ID (PSID)
- Fused on or laser etched labels
- All symbologies - 1D, 2D
- Universal readability
- Pre-labeled and pre-tared
- Pre-weighed with documentation

CONTACT INFORMATION



We're here to help.

If you don't find what you need, please call for assistance. To order, contact your local distributor or the office listed below.

Customer Service Hours: 8 am - 5 pm EST

TEL

888-546-2531 Ext. 1 (US, toll-free)
(+1) 856-692-8500 Ext. 1 (international)

FAX

856-794-9762
(+1) 856-691-0271 (international)



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info@kimble-chase.com

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Chase Brands**



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