

Capillary Connectors

Universal Capillary Connectors

- One size fits tubing from 0.25mm i.d. to 0.53mm i.d.
- Available in straight or Y configurations

Capillary connectors form a gas-tight seal when heated to typical GC temperatures. The angled connectors conform to the curvature of a fused silica capillary column. To create a permanent seal, add a small amount of polyimide resin to the outside of the capillary tube before inserting. Order under "Accessories" below.



Universal Straight Connector

Connectors

Description	Qty.	Part No.
<i>Straight Connectors</i>		
<i>Fused Silica</i>		
Angled Universal Connector	5	20694
<i>Borosilicate</i>		
Universal Straight Connector	5	20490
<i>Y-Connectors</i>		
<i>Borosilicate</i>		
Universal Y-Connector	1	20480
<i>Accessories</i>		
Polyimide Sealing Resin	5g	5825

Featherweight Capillary Union

- Lightweight
- High temperature Vespel® construction
- Accommodates all tubing sizes



Featherweight Capillary Union

Description	Part No.
<i>Featherweight Union with 2 Nuts*</i>	28990
<i>Vespel® Ferrules for Use with Featherweight Union</i>	
Vespel® Ferrule, 0.5mm i.d.	28993
Vespel® Ferrule, 0.4mm i.d.	28994

*Order ferrules separately.

Fused Silica Outlet Splitters

- Accommodates capillaries from 0.22 to 0.32mm i.d. and provides a 1:1 ratio
- Includes a glass-lined SS bulkhead union, a 0.4mm i.d. two-hole Vespel® graphite ferrule and two lengths of deactivated fused silica tubing



Use this inert outlet splitter with two detectors or one detector and a sample collection device.

Outlet Splitter

Description	Part No.
Outlet Splitter	14898

Valco® Zero-Dead Volume Union

Use these stainless steel unions to make connections with fused silica capillaries. Unions feature specially designed Vespel®/graphite ferrules and are bored through. **Table 1** shows the parts needed for different connections.

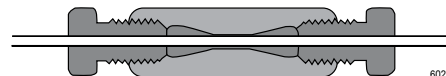


Table 1	to 0.25mm i.d. Fused Silica	to 0.32mm i.d. Fused Silica	to 0.53mm i.d. Fused Silica	to 1/16" SS Tubing
Connect From:				
0.25mm i.d. Fused Silica	9068	9068 + 907110	45849 + 907010 + 903410	45849 + 907010
0.32mm i.d. Fused Silica	9069 + 907010	9069	45849 + 907110 + 903410	45849 + 907110
0.53mm i.d. Fused Silica	45849 + 907010 + 903410	45849 + 907110 + 903410	9031	45835 + 903410
1/16" SS Tubing	45849 + 907010	45849 + 907110	45835 + 903410	45835

Valco® Zero-Dead Volume Unions

Description and Valco® No.	Part No.
<i>Zero Dead-Volume Unions</i>	
1/32", 0.4mm (Valco® ZU.5TFS.4)	9068
1/32", 0.5mm (Valco® ZU.5TFS.5)	9069
1/16", 0.8mm (Valco® ZU1TFS.8)	9031
1/16"–1/32", 1/32" Bore (Valco® ZRU1.5T)	45849*
1/16", 1/16" Bore (Valco® ZU1T)	45835*

Valco® Reducing Ferrules

Description and Valco® No.	Part No.
<i>Valco® Reducing Ferrules*</i>	
1/32" to 0.4mm (Valco® FS.4), 10/pk	907010
1/32" to 0.5mm (Valco® FS.5), 10/pk	907110
1/16" to 0.8mm (Valco® FS1.8), 10/pk	903410

*Includes 2 stainless steel ferrules.

Capillary Guards and Tubing

Universal Guard Column Kits

- Universal kits connect to any capillary column
- Guard columns are deactivated



6630

Universal guard column kits contain three 5m deactivated capillaries, three-universal fused silica connectors, ceramic cutter, and instructions. Order sealing resin separately under "Accessories" to reinforce connections. Replacement kit parts are available below.

Universal Guard Column kits

Description	Part No.
<i>Universal Guard Column Kits</i>	
0.53mm Universal Guard Column Kit	13992
0.32mm Universal Guard Column Kit	13998
0.25mm Universal Guard Column Kit	14005
<i>Replacement Parts</i>	
Angled Universal Connector, 5/pk	20694
5m x 0.53mm i.d. Capillaries, 5/pk	13990
5m x 0.32mm i.d. Capillaries, 5/pk	13999
5m x 0.25mm i.d. Capillaries, 5/pk	14007
<i>Accessories</i>	
Polyimide Sealing Resin, 5g	5825
20X Magnifier	3163

Deactivated Guard Columns

- Three different deactivation polarities
- Chemically inert



6624

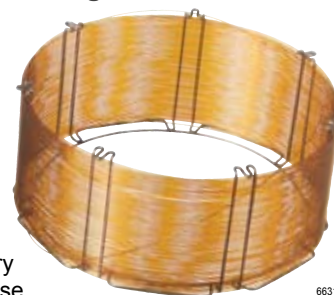
These guard columns protect your analytical column by collecting non-volatile, pyrolyzable, or particulate contamination.

Deactivated Guard Columns

Description	Part No.
<i>Non-Polar</i>	
0.25mm x 5m	19063
0.32mm x 5m	19064
0.53mm x 5m	19065
<i>Intermediate Polar</i>	
0.25mm x 5m	19054
0.53mm x 5m	19056
<i>Polar</i>	
0.25mm x 5m	19057
0.32mm x 5m	19058
0.53mm x 5m	19059

Fused Silica Capillary Tubing

- Deactivated and undeactivated tubing available
- Available mounted on a cage



6631

Alltech provides the finest quality fused silica capillary tubing either untreated or deactivated by our proprietary high temperature process. Use tubing to prepare your own capillaries or guard columns.

Fused Silica Capillary Tubing

i.d.	Qty.	Length	Part No.
<i>Deactivated Tubing with Cage</i>			
0.18mm	—	20m	602028
0.25mm	—	60m	602960
0.53mm	—	15m	605915
0.53mm	—	60m	605960
<i>Deactivated Tubing, Without Cage</i>			
0.05mm	—	per meter	602038
0.10mm	—	per meter	602037
0.18mm	—	per meter	602010
0.25mm	—	per meter	602640
0.32mm	—	per meter	603640
0.53mm	—	per meter	605640
<i>Undeactivated Tubing, Without Cage</i>			
0.05mm	—	per meter	602035
0.10mm	—	per meter	602036
0.18mm	—	per meter	19603
0.25mm	—	per meter	602600

Capillary Accessories

Capillary Cages

These cages are made of a heavy gauge stainless steel and are electropolished to prevent abrasion. All are 7 inches in diameter.



Capillary Cages

Description	Part No.
7" x 3/4" Cage	75200
7" x 1-1/4" Cage	75201
7" x 1-3/4" Cage	75202

Capillary Column Washer

This easy to use column washer is designed for solvent flushing of bonded or cross-linked fused silica capillaries. It is made of heavy-duty glass and will hold up to 20mL of solvent. Maximum pressure is 125psig. Order appropriate sized ferrules separately below.



Capillary Column Washer

Description	Qty.	Part No.
Capillary Column Washer	ea	5819
<i>Ferrules</i>		
1/8" to 0.4mm VG1	10	200/0.4-VG1
1/8" to 0.5mm VG1	10	200/0.5-VG1
1/8" to 0.8mm VG1	10	200/0.8-VG1

tech tip

How much solvent is needed to wash your column?
Refer to the table below.

Approximate Column Volume Required			
Length	0.25mm i.d.	0.32mm i.d.	0.53mm i.d.
10m	0.5mL	0.8mL	2.2mL
15m	0.7mL	1.2mL	3.3mL
25m	1.2mL	2.0mL	5.5mL
30m	1.5mL	2.4mL	6.6mL
50m	2.5mL	4.0mL	11.0mL
60m	2.9mL	4.8mL	13.2mL

Capillary Endcaps

Increase column life by preventing contaminants from entering column during storage.



Capillary Endcaps

Description	Qty.	Part No.
Fused Silica	2	20699
Fused Silica	20	20701
Silicone	10	4018

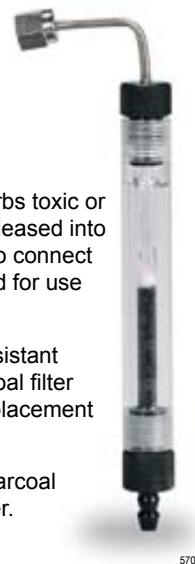
Split-Vent Trap Kit

- Charcoal filter cartridges are economical and easy to replace
- Adsorbs toxic vapors
- Connects directly to Agilent GCs

Alltech's split-vent trap kit effectively adsorbs toxic or noxious vapors that might otherwise be released into the workplace. The trap has a 1/8" fitting to connect directly to Agilent GCs and can be adapted for use with most other GCs.

The split-vent trap features a corrosion-resistant base and a disposable NIOSH-type charcoal filter cartridge that is easy to replace. Order replacement cartridges below.

What's included: split-vent trap, three charcoal cartridges, cartridge scorer, and tip breaker.



Split-Vent Trap Kit

Description	Part No.
Split-Vent Trap Kit	5870
Replacement Charcoal Cartridge, 10/pk	5872
1/8" Stainless Steel Union	14165

Packing Accessories

Delrin® Plugs

- Use these plugs to seal the ends of columns

Simply slip plug into your ferrule and nut, and attach to your fittings. Ferrules will not lock in place. Plugs are reusable.



Delrin® Plugs		
Size	Qty.	Part No.
1/16"	25	2898
1/8"	25	2900
1/4"	25	2902

Premium Glass Wool

Untreated—A soft fine denier Pyrex® wool, primarily used for non-chromatographic applications.



Silane Treated—Fine wool treated with di-methyldichlorosilane (DMDCS) to yield an inert material that won't decompose sensitive compounds. This material is ideal for most chromatographic applications.

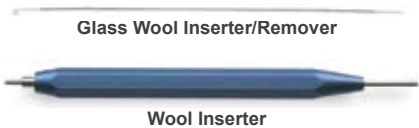
Phosphoric Acid (H₃PO₄), Treated—For analysis of acidic compounds such as free acids, phenols, and glycols.

Quartz Wool—Made from high-purity quartz, extremely low in metallic oxide impurities.

PTFE Wool—Commonly used as a plug for packed columns when analyzing for low levels of sulfur.

Pesticide Grade Glass Wool—A superbly inert glass wool ideal for use with electron capture, nitrogen-phosphorous, flame photometric, alkali-bead flame, and all electrolytic detectors.

Glass Wool Tools



Premium Glass Wool		
Description	Qty.	Part No.
<i>Glass Wool</i>		
Untreated Glass Wool	50g	4035
Silane-Treated Glass Wool	50g	4037
Silane-Treated Glass Wool	250g	4038
Phosphoric Acid-Treated Glass Wool	25g	4039
Quartz Wool	10g	4033
Silane-Treated Quartz Wool	10g	4233
PTFE Wool	10g	4736
Pesticide-Grade Glass Wool	10g	4034
<i>Glass Wool Tools</i>		
Glass Wool Inserter/Remover	2	6292
Wool Inserter	ea	6285

Packing Accessories

GC End Caps

These end caps are non-shredding, flexible, and easily applied and removed. They provide a positive barrier to moisture and air. The 5/16" size fits over 1/4" columns that have ferrules swaged on the ends. The 3/16" size fits 1/8" columns with ferrules in place.



5085

GC End Caps

Tube o.d.	Qty.	Part No.
1/16"	100	4020
1/8"	100	4021
3/16"	100	4022
1/4"	100	4023
5/16"	100	4025
3/8"	100	4024

Column Tags

Use these aluminum tags to create a permanent heat resistant record of pertinent column information. Writing surface of tag is 1" x 2" (25.4 x 50.8mm).



5074

Column Tags

Description	Qty.	Part No.
Embossed GC Tags	100	8011
Embossed LC Tags	25	8005
Plain Tags	100	8009

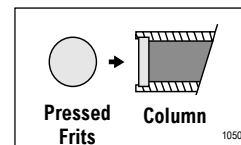
Pressed Frits

These frits are precision-fabricated from Type 316 stainless steel and are ideal for sealing the ends of GC columns.



5086

Pressed frits are easy to install. Drill the column ends to the proper diameter and depth using the drill bits sold below. Rest the frit on top of the tubing and gently tap it into place.



1050

Stainless Steel Pressed Frits

Pore Diameter	Qty.	For Use With 1/8" o.d. Tubing	For Use with 1/4" o.d. Tubing
5.0µm	25	702825	702925
10.0µm	25	703025	703125
20.0µm	25	703225	703325

gas chromatography

Cylinder Accessories

Cylinder Status Tags

Cylinder status tags help to organize and positively identify cylinders.



5250

Cylinder Status Tags

Description	Part No.
Cylinder Status Tags, 25/pk	8004

Cylinder Tools

Conveniently open valves, tighten gauges, connections, regulators, etc.



6777

Cylinder Valve & Cap Wrench



5178

9-way Cylinder Wrench

Cylinder Tools

Description	Part No.
Cylinder Valve & Cap Wrench	37135
9-Way Cylinder Wrench	412933

Cylinder Holders

Prevent toppling of cylinders with these cast aluminum cylinder holders. Holders feature a nylon web strap with a sturdy buckle. Cylinder holders handle cylinders from 4 to 15 inches in diameter. Choose from benchtop or wall mount styles.



6098

Wall mount cylinder holder with safety strap

Cylinder Holders

Description	Part No.
Bench Top Model with Cylinder Strap	37132
Wall Mount Model with Cylinder Strap	37133

Matheson Switchover Systems

- Automatically change cylinders
- Compact design minimizes wall space consumption



6094

Matheson Switchover Systems

Description	Part No.
Model 5234 Brass	37139
Model 5244 SS	37143
Model 5230 Brass with Regulator	37138
Model 5240 SS with Regulator	37141

Flow Controllers

Adjustable Flow Controller

- Control flow rates from 0.5mL/min up to 1.6L/min

This adjustable flow controller features a user variable span adjustment permitting it to be used for a variety of flow ranges. Use the ten-turn knob to easily adjust flow rates from zero to maximum. Pipe adapters for 1/8" o.d. tubing are included.



5227

Flow Controller Specifications

Flow Rate:	Adjustable from 1.6mL/min to 0.5L/min
Body:	Aluminum
Diaphragm:	Stainless Steel
Max Pressure:	250psig
Max Temp:	120°C
Ports:	1/8" MPT

Flow Controller

Description	Part No.
Adjustable Flow Controller	8149

Eco-Mizer™

- Conserve expensive gases during standby periods
- Decrease laboratory operating expenses
- Directly connects to 1/8" o.d. tubing

The Eco-Mizer™ is a compact standby valve designed to conserve gases overnight and during other non-use periods. The adjustable fine metering valve sets the standby flow rate and a concentric, independent valve allows selection of either standby flow rate or straight-through flow.



5251

Eco-Mizer™

Description	Part No.
Eco-Mizer™	7070

Flowmeters

Aalborg Single-Tube Variable Area Flowmeters

- Built-in needle valve controls flow
- Magnifier lens enhances reading resolution
- Ideal for panel mounting

Equipped with easy to change flowtubes and a control valve. Order a bench stand and fittings separately under "Accessories" below.



Single-Tube Flowmeter Specifications	
Accuracy:	±5% full scale
Repeatability:	±0.25%
Max Pressure:	200psig
Max Temperature:	121°C
Connections:	1/8" FPT inlet and outlet

Single-Tube Flowmeters			
Flowtube	Range	Div.	Part No.
65mm Flowtubes, Direct Reading Scale			
Helium	0–120cc/min	5mL	7900
Hydrogen	0–100cc/min	5mL	7902
Nitrogen	0–120cc/min	5mL	7904
Air	0–1.15L/min	0.05L	7906
General Purpose	0–2L/min (air)	1mm	7908
Accessories			
Bench Mount for Above Flowmeters			7920
1/8" to 1/8" MPT Brass Connector			60038
1/4" to 1/8" MPT Brass Connector			60042

Soapfilm Flowmeter

Economical Flow Measurement

This soapfilm flowmeter is easy to use. Simply time the movement of a soap bubble between two calibration marks. Alltech's soapfilm flowmeters have a unique bubble burster at the top to eliminate the overflow of the soap solution. A rubber bulb is included with each soapfilm flowmeter. The 100µL and 500µL flowmeters are complete with stand and tubing. Order soapfilm solution and tubing under "Accessories" below.



Soapfilm Flowmeters	
Description	Part No.
Flowmeters	
1cc	4041
10cc	4042
25cc	4043
100cc	4045
1000cc	4047
Accessories	
5/16" o.d. Tygon® Tubing, 10ft	4333



related products
Need a leak detector?
Ensure leak-free installation of your gas purifiers. See page 267 for gas leak detectors.

gas chromatography

Alltech® Regulators

A) Dual-Stage Economy Regulators

These regulators are suitable for pressure control of general purpose laboratory gases with applications requiring constant pressure control and delivery regardless of supply pressure variations. Typical applications include purging, pressure testing, blanketing, and chamber pressurization.



5244

Dual-Stage Economy

Description	CGA No.	Part No.
H ₂ , Ar/Methane	350	8101
O ₂	540	8102
He, N ₂ , Ar, Ne	580	8103
Air	590	8104
Air, Breathing Quality	346	8105

B) Dual-Stage High-Purity Regulators

These regulators are suitable for secondary pressure control of non-corrosive or high purity gases for applications requiring constant pressure control and delivery regardless of supply pressure variations. Typical applications include gas supply purging, gas system charging, fuel gas supply control, and calibrations gas control.



5245

Dual-Stage High-Purity

Description	CGA No.	Part No.
H ₂ , Ar/Methane	350	8109
He, N ₂ , Ar, Ne	580	8111

related products

Need cylinder accessories?

See page 264 for more information.



C) Single-Stage Regulators

These regulators are suitable for secondary pressure control of non-corrosive, high-purity gases or as point of use pressure control in high-purity gas distribution systems. Typical applications include point of use laboratory systems, gas supply purging, and bulk gas distribution systems.



5246

Single Stage

Description	CGA No.	Part No.
0–40psig (delivery pressure)	—	81890
0–120psig (delivery pressure)	—	81891
0–200psig (delivery pressure)	—	81892

D) Panel Mount Regulators

These regulators can also be used in-line. Order gauges and mounting nut separately.



5248

Panel Mount

Description	CGA No.	Part No.
Panel Mount Regulator	—	81896
Panel Mounting Nut	—	81895

Pressure Gauges for Panel Mount Regulators

0–30psig	—	86800
0–60psig	—	86802
0–100psig	—	86804
0–200psig	—	86808

Alltech® Regulators Specifications

	A) Dual-Stage Economy	B) Dual-Stage High-Purity	C) Single Stage	D) Panel Mount
Body:	Forged Brass	Chrome-plated forged brass	Chrome-plated forged brass	Brass
Bonnet:	Brass-plated die cast zinc	Chrome-plated die cast zinc	Chrome-plated die cast zinc	Acetal Resin
Diaphragm:	PTFE-lined neoprene	316L Stainless Steel	316L Stainless Steel	Nitrile
Seat and Internal Seal:	PTFE	PTFE	PTFE	Acetal Resin
Max. Inlet Pressure:	3000psig (210 bar)	3000psig (210 bar)	3000psig (210 bar)	400psig
Delivery Pres. Range:	0–120psig	0–120psig	0–40, 0–120, or 0–200psig	—
Delivery Pres. Gauge:	0–20psig	0–200psig	0–60, 0–200, or 0–400psig	Order Separately
Cylinder Pres. Gauge:	0–4000 psig	0–4000psig	0–4000psig	0–4000psig
Temperature Range:	–40 to 60°C	–40 to 60°C	–40 to 60°C	–34 to 65°C
Gauges:	2-1/2" diameter brass	2-1/2" diameter brass	2-1/2" diameter brass	Order Separately
Ports:	1/4" FPT	1/4" FPT	1/4" FPT	1/8" FPT

Flow Control Valves

Parker™ Toggle Valves

These forged-body valves are positive, soft-seat shut-off valves designed for quick opening and closing. Shut-off force is constant because of the spring load. The handle locks in the open or closed position. A TFE stem tip provides a leak-tight seal. The maximum working pressure is 250psig; maximum temperature is 93°C. They are made of brass with TFE seat, fluoroelastomer polymer packing and nylon handle. All other parts are 316 stainless steel.



Parker™ Toggle Valves

Description	Part No.
1/8", Brass	2328
1/4", Brass	2332

Nupro® and Whitey® Plug and Ball Valves

The plug valves are constructed of brass or stainless steel and TFE. The compact plug valves can be used up to 3000psig and the temperature limit is 200°C. They have a plug orifice of 0.172" for high flow capacity.

The 2-way and 3-way ball valves can be used up to 65°C and are pressure-rated to 2500psig. Both can be panel-mounted in a 19/32" hole. The 1/8" valves have a 0.093" orifice while the 1/4" valves have a 0.125" orifice.



Part No. 14320



Part No. 14318



Part No. 14316

Nupro® and Whitey® Plug and Ball Valves

Description	Plug Valve Part No.	2-Way Ball Valve Part No.	3-Way Ball Valve Part No.
1/8", Brass	14320	14318	14316
1/4", Brass	14319	14317	14315
1/8", Stainless Steel	16013	16017	16022
1/4", Stainless Steel	16015	16019	16024

Nupro® and Whitey® Fine Metering Valves

These valves give extremely fine control in the 0–400cc/min gas flow range. The maximum pressure rating is 1000psig at 70°C. The maximum temperature limit for brass valves is 150°C; 200°C for stainless steel. They can be panel mounted in a 37/64" hole.

Nupro® and Whitey® Fine Metering Valves

Description	Straight Pattern Part No.
1/8", Brass	8600
1/4", Brass	8602
1/8", Stainless Steel	8604
1/4", Stainless Steel	8606

Hoke® Fine Metering Valves with Vernier Knob

These valves allow reproducibility of precise flows. All valves use a TFE seat seal and packing. Brass valves are rated at 3000psig; stainless steel at 5000psig. Temperatures up to 230°C can be used but at lower pressures.

Hoke® Fine Metering Valves

Description	Straight Pattern Part No.
1/8", Brass	86001
1/4", Brass	86021
1/8", Stainless Steel	86041
1/4", Stainless Steel	86061

Valco® Sampling/
Switching Valves

Zero-Volume Fittings Allow for Direct
Valve Connections

- Easily adapt to any type of tubing
- Eliminate pressure surges during sample injections
- Carefully leak tested

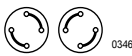




4678

What's included: zero-volume fittings, mounting
bracket, and handle.

Valco® Sampling/Switching Valve Specifications	
Valve Body:	Type 316 Stainless Steel
Valve Seal:	Carbon-filled PTFE (Medium-Temp.) or Carbon-filled Polyimide (High-Temp.)
Outlet Fitting:	1/16" zero-volume fittings or 1/8" zero-volume fittings (included)
Max. Pressure:	400psig
Max. Temp:	175°C for medium-temperature valves 300°C for high-temperature valves*
Active Ports:	3, 4, 6, 8, or 10 Ports (Note: a 10-port valve can be used as a 6- or 8-port valve)
Mounting:	Valves supplied with angle mounting brackets for mounting on the side of the instruments or they can be flush mounted. Valves are tapped with 8-32TPI holes. Most GCs are designed to accept these valves.

*Cannot be used below 200°C.

Valco® Sampling/Switching Valves*				
Diagram	Ports	Fittings	Medium-Temp. Valve Part No.	High-Temp. Valve Part No.
	4-Port	1/16" Zero-Volume	9103	39103
		1/8" Zero-Volume	9104	39104
	6-Port	1/16" Zero-Volume	9105	—
		1/8" Zero-Volume	9110	—
	10-Port	1/16" Zero-Volume	9119	—

*By special order, valves can be fabricated from Hastalloy™ C. Call for pricing information.

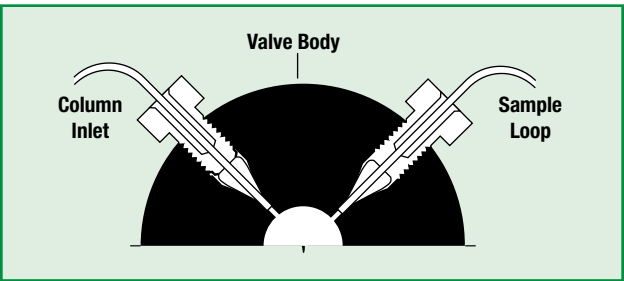
Accessories for Valco®
Sampling/Switching Valves

Stainless Steel Sample Loops

Valco® Stainless Steel Sample Loops*	
Loop Size	Use with 1/16" Valves Part No.
15µL	91056
25µL	91057
50µL	91058
100µL	91059
250µL	91050
500µL	91051
1.0mL	91052
2.0mL	91053
5.0mL	91054
10.0mL	91055

*One pair of nuts and ferrules are included.

Zero-Volume Fittings



1577

Zero-Volume Fittings		
Description	Use with 1/16" Valves Part No.	Use with 1/8" Valves Part No.
Nuts, 5/pk	458015	458025
Ferrules, 5/pk	458125	458155

technical assistance

Contact Tech Support: Phone: 1.800.255.8324 (North America)
Email: contact.alltech@grace.com
Online: www.discoverysciences.com

more info

For more detailed list of Valco® Accessories, visit our website at
www.discoverysciences.com.