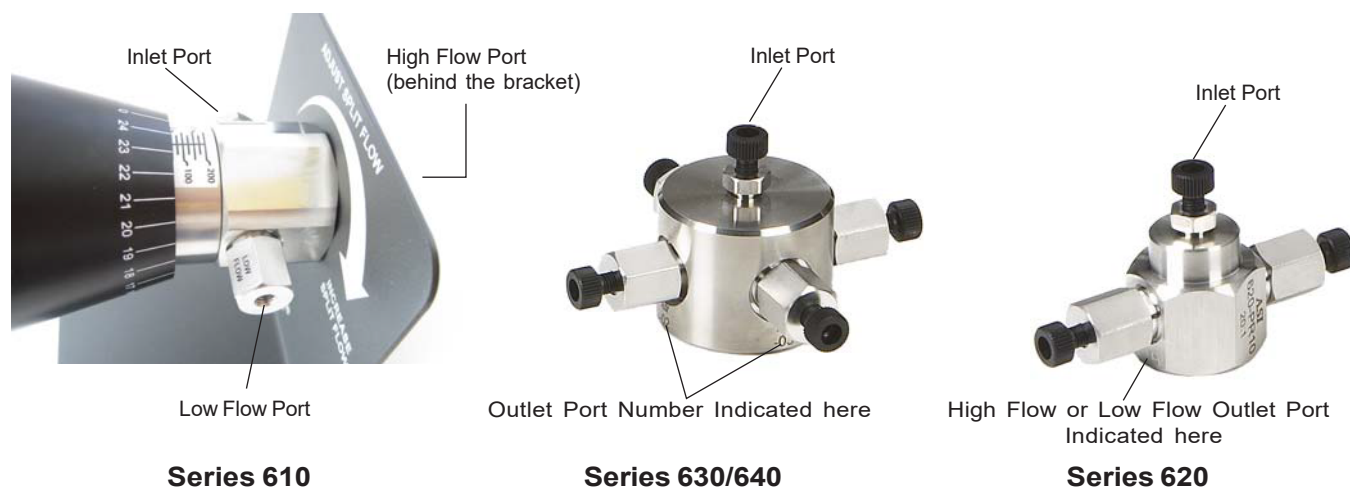


Installation Instructions



Connections

All inlet and outlet ports on splitters accommodate male 10-32 thread type fittings made from stainless steel or PEEK. Connect all ports with fingertight or equivalent bushings and ferrules for 1/16" OD tubing. Connecting the splitters with tubing smaller than 1/16" OD may require special fittings.

Inlet Port/Inlet Frit

The inlet port is machined into the inlet nut for all splitters. The inlet nut houses a replaceable inlet frit. The frit volume varies with the type of splitter. The inlet frit can be accessed and changed by removing the inlet nut.

High Flow Port

The tubing connected to this port should be 0.01" ID or larger. Smaller ID tubing can be used as long as it does not generate any back pressure. If this flow is routed to a chromatography detector or fraction collector, choice of tubing ID may affect peak dispersion.

Low Flow Port

The tubing ID connected to this port should be small enough to minimize peak dispersion and large enough to eliminate additional back pressure downstream from the splitter. Please refer to Table 1 as a guide to estimate pressure drop across various connecting tubing. Install the HPLC column prior to testing all precolumn flow splitters.

Multiport Splitters

Multiport splitters are generally configured for custom applications and may contain both high and low flow rate ports. The principles outlined above also apply to these port connections.

Fluid Resistor Cartridge Replacement

A resistor cartridge is located in the low flow outlet housing on the Series 610 (except Nano Adjustable Splitters) and in both the low and high flow outlet housings on the Series 620 (except High Split Ratio Fixed Splitters), and all outlet housings on the 630 and 640. Unscrew the housing to replace the resistor cartridges. The cartridge flow is bidirectional.

Table 1: Pressure drop, PSI per inch of tubing with water

Flow mL/min.	Tubing I.D. (microns)									
	10	15	20	30	40	50	75	100	127	254
0.0001	413 psi	82 psi	26 psi	5 psi	2 psi	1 psi	0	0	0	0
0.001	4,130 psi	816 psi	258 psi	51 psi	16 psi	7 psi	1 psi	0	0	0
0.01		8,158 psi	2,581 psi	510 psi	161 psi	66 psi	13 psi	4 psi	2 psi	0
0.1				5,099 psi	1,613 psi	661 psi	131 psi	41 psi	16 psi	1 psi
0.5					8,065 psi	3,304 psi	653 psi	206 psi	79 psi	5 psi
1.0						6,608 psi	1,305 psi	413 psi	159 psi	10 psi

Important Equations

$$R = Q1 / Q2$$

$$R = (Q - Q2) / Q2$$

R = Split ratio

Q1 = High flow rate

Q2 = Low flow rate

Q = Input flow

Maintenance and Trouble Shooting Guide

General considerations

Cleaning:

All wetted surfaces are 316 Stainless Steel, PEEK and Teflon in the Adjustable Splitters and 316 Stainless Steel and PEEK in the Fixed Splitters. All materials can be sonicated in a variety of solvents and back flushed without a problem. Remove the inlet filter prior to back flushing. Replace with new filter prior to operation.

Routine Maintenance:

Replace inlet filter every six months or if the pressure drop across the splitter increases more than 200PSI. Never store the splitter with pure water, as biological growth may cause clogging. Please refer to the product bulletin for inlet filter ordering information.

Loss of MS Sensitivity:

In some cases Flow Splitters can build up a static charge resulting in a loss of sensitivity at the MS. This behavior is typically limited to MS systems using an electrospray source. The problem is solved by grounding the flow splitter to a suitable ground.

Connecting Tubing:

Post-column flow splitters are manufactured assuming there is no pressure drop down stream from the splitter. Any pressure drop created by the connecting tubing will affect the accuracy of the split ratio. If the splitter is exhibiting high pressure (>40 bar) as delivered remove all down stream connecting tubing and test with water at the calibration flow rate. Precolumn flow splitters must have the HPLC column installed prior to testing.

Fixed and Multiport Flow Splitters

Leaks:

Make sure all threaded connections are secure and tight. Inlet filter must be seated properly in the inlet nut to insure leak free operation. If leak persists call *Analytical Sales & Services* technical support.

High Pressure or Blockage:

If the high pressure is due to a blockage, isolate the blockage to the low or high flow resistor cartridge by plugging one of the resistor ports while checking the flow at the other. If both high and low flow channels appear plugged, check the splitter body by removing both resistors, and inlet filter; sonicate and flush. If the blockage can be localized to a specific resistor cartridge, sonicate the cartridge and reverse the flow to dislodge any contaminants. If the restrictor cartridge function cannot be restored you will need to purchase a new resistor(s).

Adjustable Flow Splitters

High Pressure or Blockage:

Isolate the blockage to the low flow (fixed resistor cartridge) or high flow (adjustable resistor) by plugging one of the resistor ports while checking the flow at the other. If the blockage is isolated to the low flow resistor cartridge, follow the recommendations above for Fixed Splitters.

If the blockage is localized to the adjustable portion of the splitter, remove the low flow resistor housing and cartridge and flush the splitter with water (1ml/min) while adjusting the valve from the highest split ratio (max clockwise) to the lowest split (max counterclockwise) a couple of times. If this procedure does not solve the problem, the splitter will need to be repaired at *Analytical Sales & Services*.

Leaks:

Make sure all threaded connections are secure and tight. Inlet filter must be seated properly in the inlet nut to insure leak free operation. If the leak appears to be coming from the main body of the splitter, call *Analytical Sales & Services* technical support.