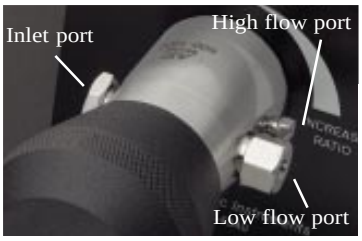
Installation Instructions

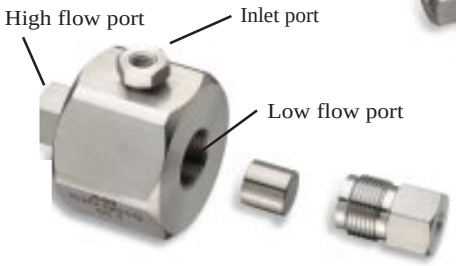
ASI Adjustable Flow Splitters, Series 600
ASI Fixed Flow Splitters, Series 620
ASI Multiport Flow Splitters, Series 6X0 (X=3-8)

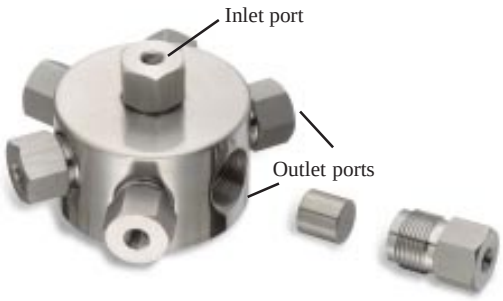
Analytical Scientific Instruments



Series 600

Series 620





Series 6X0

Connections

All inlet and outlet ports on ASI splitter valves are female 10/32 thread type. Connect all ports with Parker Hannifin or equivalent bushings and ferrules for 1/16" OD tubing. Connecting the splitter valves with tubing smaller than 1/16" OD may require special fittings.

Inlet Port

The inlet nut houses the inlet port for all splitter valves and contains a replaceable inlet frit. The frit volume varies with the type of splitter valve. Standard frit dimensions are provided in the Product bulletin shipped with each valve. 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 but may result in sufficient back pressure to affect the split ratio. 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 minimize peak dispersion and short enough to minimize additional back pressure at the splitter. Please refer to Table 1 as a guide to estimate pressure drop across various connecting tubing.

Multiport Splitters

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

Fluid Resistor Cartridge replacement

A resistor cartridge is located in the low flow outlet housing on the Series 600 and in both the low and high flow outlet housings on the Series 620, and all outlet housings on the 6X0. Unscrew the housing to replace the resistor cartridges. The cartridge flow is bidirectional.

Important Equations

$R = Q_1/Q_2$	R = Split ratio
$R = (Q-Q_2)/Q_2$	Q_1 = High flow rate
	Q_2 = Low flow rate
	Q = Input flow

Table 1: Presure Drop from Tubing

	Tubing I.D. (inches)		
Flow	0.0025	0.005	0.010
0.1 ml/min.	15.4 PSI	1.0 PSI	0.06 PSI
1.0 ml/min.	154 PSI	9.6 PSI	0.6 PSI
10 ml/min.	1,540 PSI	96 PSI	6.0 PSI
	PSI per inch of tube length, H_20		

Setting the Split Ratio on the Adjustable Flow Splitter

1 Adjust back pressure

Use pressure drop across the flow splitter and Ohm's Law.

$$P = R \times Q \times V$$

Q : Low flow channel, mL/min.
P : Pressure drop at splitter, PSI
R : Fluid resistor value PSI/mL/min.
V : Viscosity in centipoise

The metering valve acts like a back pressure restrictor with the resistor port plugged. The specified and range is 0-5,000 PSI with H_2O at 0.5mL/min. At 200µL/min with ACN, the range will be 0-760 PSI.

2 Use metering rod scale to determine split ratio

The Adjustable Flow Splitter will be shipped with chart of split ratio as a function of metering rod setting. These split ratios can be used to calculate the flow rate at the low flow channel.

$$Q = Qi \times SR$$

Q : Low flow channel

Qi : Inlet flow

SR : Split ratio (provided)

3 Measure the Capillary Output

Use a 0.050 or 0.100 mL syringe barrel attached to the splitter low flow channel and make a direct measurement of flow. For precolumn work measure the flow out of column.

Once set, the split ratio will remain constant regardless of changes to input flow rate or solvent viscosity.