

FS Series

Excess Flow, Diaphragm Seal, Shut-Off Valves

FS Series Excess Flow Shut-Off Valves are designed to automatically shut-off the delivery of gas in a line if the flow exceeds a preset limit. They are commonly used as a safety device to protect a system from excess flow in the event of equipment failure or to protect personnel and property in the event of a line rupture. The capability of operating from 10 to 3500 psi allows them to be used either in high or low pressure applications.

The Excess Flow Limit Valve is a two-position valve. In the "Open (Reset)" position, the valve provides a direct passage from inlet to outlet. In the other position, "Auto Shut-Off", the valve is set to sense the flow and automatically shuts off the passage if the flow exceeds a preset value (flow limit). The valve will stay shut-off until it has been reset.

Six flow ranges are offered: A, B, C, D, E & F. The actual flow shut-off value for each range is dependent upon the operating pressure. The graph below indicates, for each range, the relationship between operating pressure and the actual flow limit. It is suggested that the range selected provide shut-off at 2–6 times the anticipated flow rate to allow for short term flow surges not connected with equipment failure.

Note: Piping systems, cylinders and other equipment can contribute rust or other particulate contamination that could foul the device and cause imprecise shut-off. Therefore it is highly recommended that all gases be filtered before they enter the FS Series Valve. See Optional Equipment for additional information.



FS Series Valve

Standard Features

- Type 316L Stainless Steel Construction provides maximum corrosion resistance.
- Elgiloy® Diaphragm minimizes diffusion of air into valve and maintains gas purity.
- High Pressure Design allows for use between a gas cylinder and the inlet to a pressure regulator.
- Threaded Holes on Bottom of Valve permit front panel mounting.

Optional Features

- High Purity Inlet Filter provides protection from particulate contamination.

Specifications

Maximum Inlet Pressure: 3500 psig
 Minimum Inlet Pressure: 10 psig
 Differential Pressure at Flow Limit:
 Ranges A, B, C and D: 5 psig
 Ranges E and F: 12 psig
 Flow Limit Value: See Table I
 Operating Temp. Range: -10°F to 150°F
 Inlet and Outlet Connections:
 ¼" NPT female
 Approximate Weight: 10 oz.
 Surface Finish:
 15–20 Ra micro inch or less

Materials of Construction

Body: Type 316L Stainless Steel
 Bar Stock
 Bonnet: Type 316L Stainless Steel
 Seat: PCTFE
 Diaphragm: Elgiloy® (or equivalent)
 Spring: Hastelloy C-22®
 Other Metal Parts Exposed to Gas:
 Type 316L Stainless Steel

Flow range selection Graph

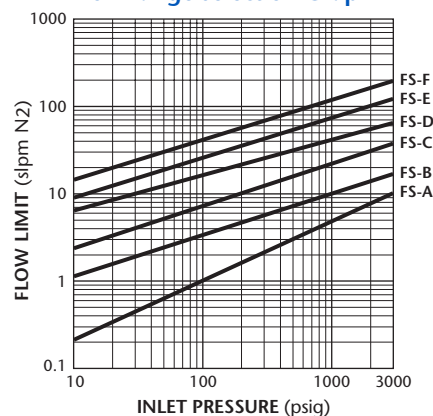


Table I

Part No.	Nominal Flow Limit Value for Nitrogen at 1000 psig Inlet	Nominal Flow Limit Value for Nitrogen at 30 psig Inlet
FS-A	4.8 SLPM	0.4 SLPM
FS-B	9.1 SLPM	1.7 SLPM
FS-C	21.8 SLPM	3.9 SLPM
FS-D	39.5 SLPM	9.0 SLPM
FS-E	72.3 SLPM	14.4 SLPM
FS-F	120.6 SLPM	22.5 SLPM

Optional Equipment

Equipment	Part No.
High Purity Stn. Stl. Inlet Filter (installed) 2 micron (see page 143)	SG6113i