Medium Flow Tied Diaphragm Regulators
RSGG Series

Introduction

RSGG Series Medium Flow Tied Diaphragm Regulators feature a single-stage pressure reduction design. The tied diaphragm construction provides positive shutoff. The poppet spring design improves flow characteristics, making these regulators suitable for medium- to high-flow gas applications.

Features

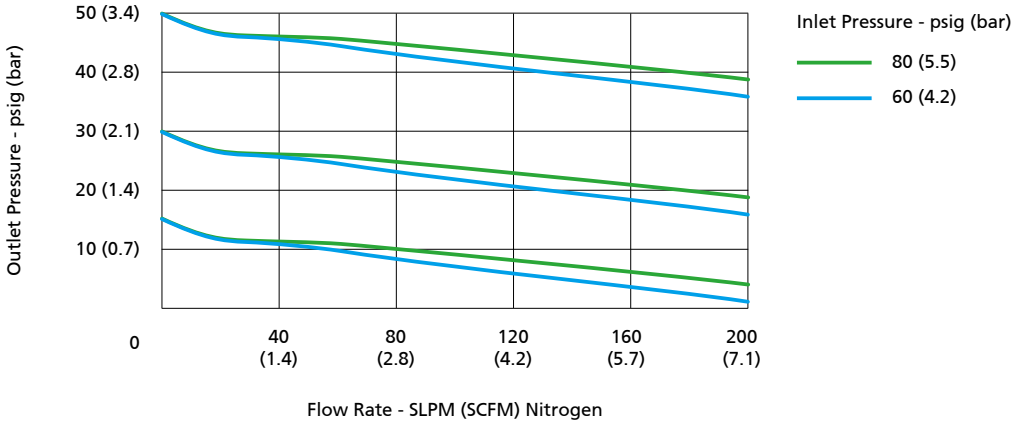
- ◎ Large-diameter diaphragm enhances pressure sensitivity
- ◎ Lift poppet and diaphragm are made of Alloy 22, offering excellent corrosion resistance
- ◎ Metal-to-metal seal between valve body and diaphragm ensures reliable sealing performance
- ◎ Tied diaphragm construction offers positive shutoff for added safety

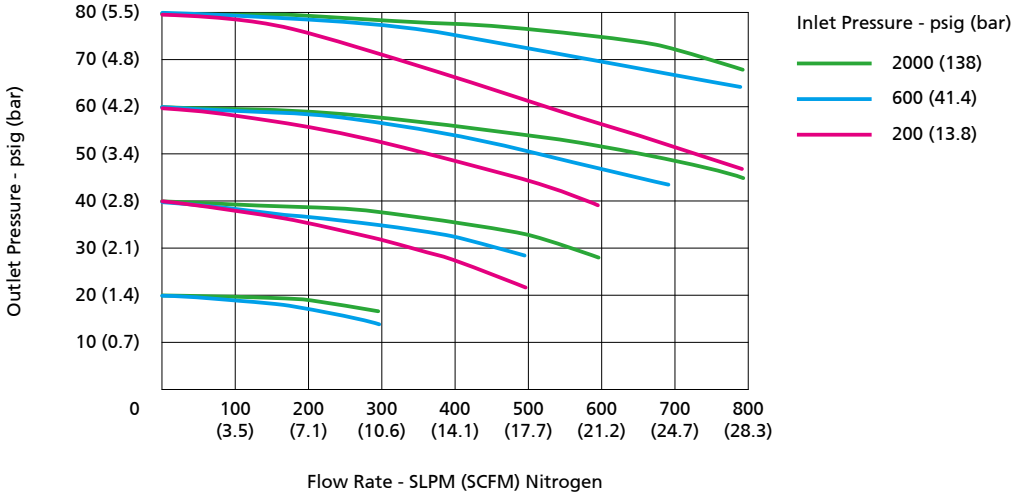
Technical Data

Port Size			1/4", 3/8" or 1/2"
Max. Working Pressure			2300 psig (159 bar)
Outlet Pressure Range			0 ~ 30 psig (0 ~ 2.1 bar)
			0 ~ 60 psig (0 ~ 4.2 bar)
			0 ~ 100 psig (0 ~ 6.9 bar)
Flow Coefficient (Cv)			0.5
Working Temperature①			PCTFE：-40 ~ 160 °F (-40 ~ 71 °C)
			Polyimide：14 ~ 194 °F (-10 ~ 90 °C)
SPE (Supply Pressure Effect)			3.0 psig per 100 psig source pressure change
Leak Rate (Helium)	**External**	**Inboard**	≤2×10^{-10} std·cm^3/s
		Outboard	≤2×10^{-9} std·cm^3/s
	Internal		≤4×10^{-8} std·cm^3/s

① For the working temperature of products equipped with a pressure gauge, please refer to the catalog for Pressure Gauges.

Flow Data





Process Specification

Item \ Process Specification	Special Cleaning and Packaging Process (FC-02)	Ultra High Purity Process (FC-03)
Material	316L SS	316L SS, 316L SS VAR
Wetted Surface Roughness	Ra 10 µin. (0.25 µm)	Ra 5 µin. (0.13 µm)
Polishing Process	Machine Finished	Electropolished
Assembly Environment	In specially cleaned areas	ISO Class 4 (FS 209E Class 10 equivalent) cleanroom
Packaging	Double bagged	Double bagged in cleanroom

Note: For products with higher surface finish, please contact FITOK.

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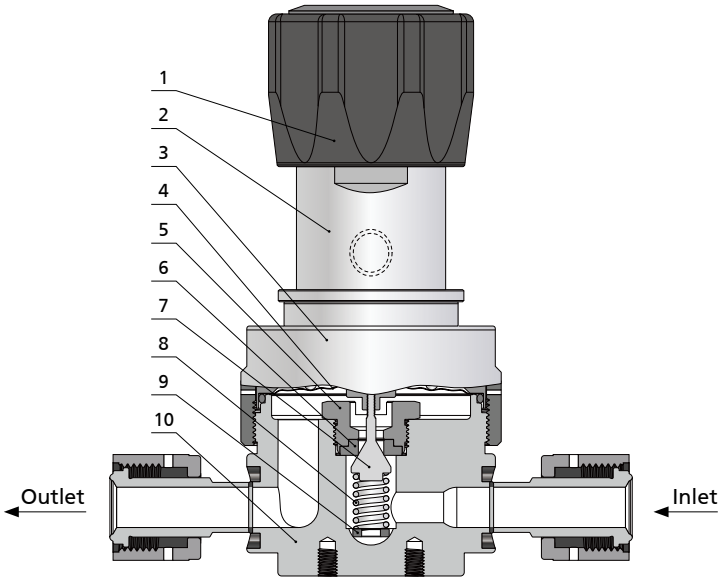
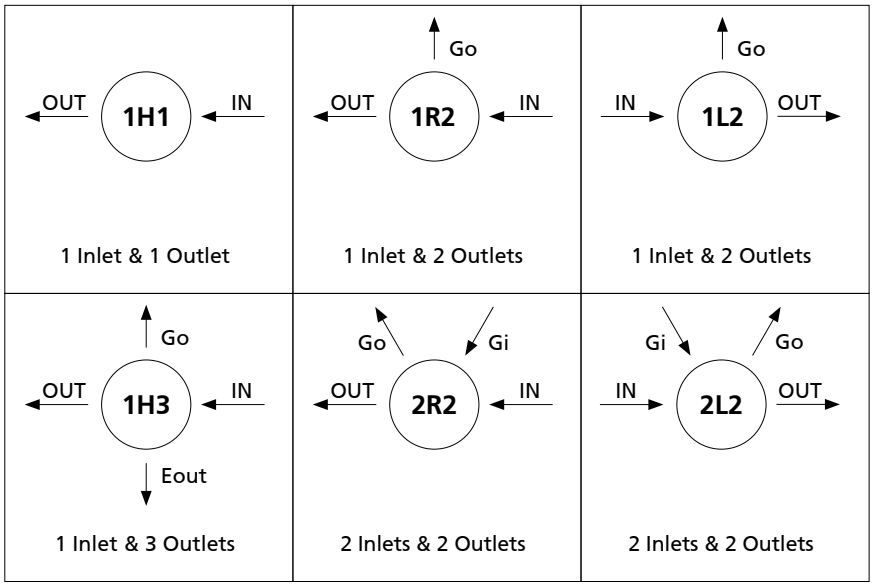
Major Materials of Construction



Item	Component	Material/Specification	
		6L	6LV
1	Knob Handle	ABS	
2	Bonnet	304 SS	
3	Bonnet Nut	304 SS	
4	Diaphragm	Alloy 22/ASTM B575	
5	Seat Retainer	Alloy 22/ASTM B574	
6	Seat	PCTFE/ASTM D1430 or Polyimide	
7	Lift Poppet	Alloy 22/ASTM B574	
8	Poppet Spring	Alloy X-750	
9	Gasket	Alloy 22/ASTM B574	
10	Body	316L SS	316L SS VAR

Porting Configurations



Porting Configuration Symbol

IN	OUT	Gi	Go	Eout
Inlet	Outlet	Inlet Pressure Gauge Port	Outlet Pressure Gauge Port	Auxiliary Outlet

Notes:
1. IN and OUT are the inlet and outlet ports for connecting the valve to the system. Ports other than IN and OUT should not be used for system connections.
2. Porting configuration is viewed from the top.

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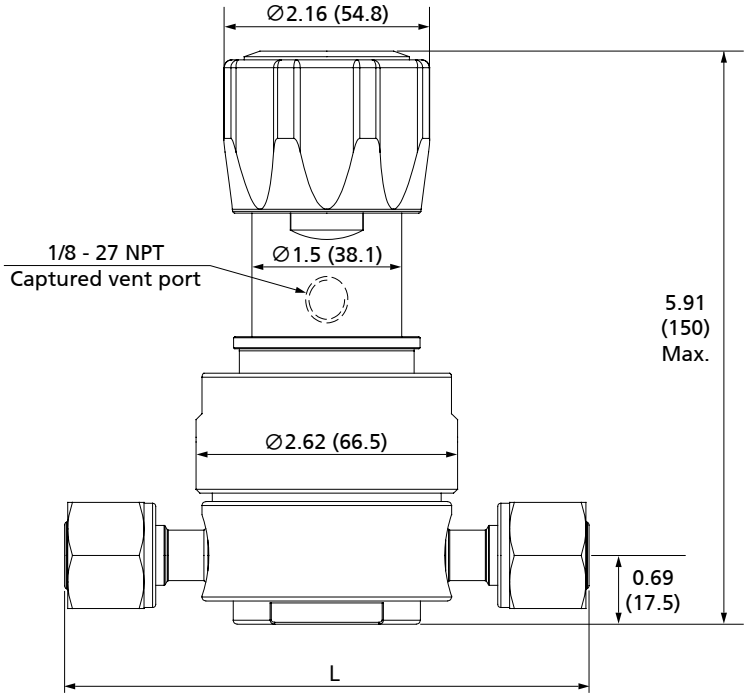
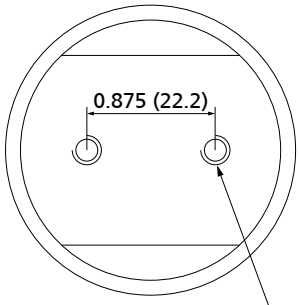
Dimensions

Dimensions, in inches (millimeters), are for reference only.

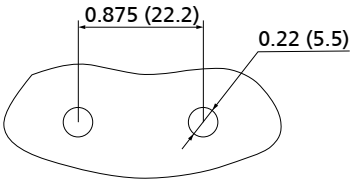


Bottom View

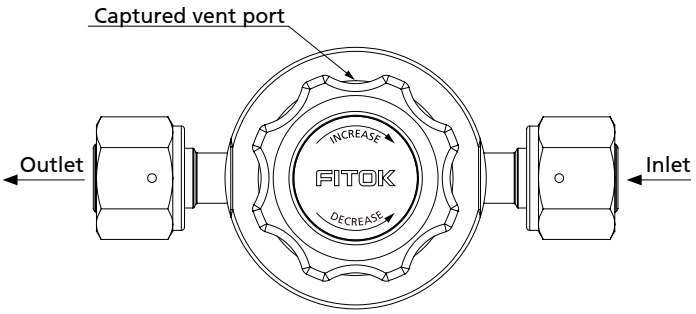


2 × M5 × 0.8-6H Thread
The holes are compatible
with 10-32 mounting screws

Bottom Panel Cut-Outs



Top View



Note: Standard captured vent port position is shown as above.
For other positions, please contact FITOK or an authorized distributor.

Connection Designator	Connection Type and Size	Dimension, in.(mm)
		L
FFR4	1/4" Rotatable Female FR Fitting	3.70 (94.0)
RFR4	1/4" Rotatable Male FR Fitting	4.00 (101.6)
TB4	1/4"×0.035" Tube Butt Weld	3.46 (87.9)
TB6	3/8"×0.035" Tube Butt Weld	4.00 (101.6)
FFR8	1/2" Rotatable Female FR Fitting	5.22 (132.6)
RFR8	1/2" Rotatable Male FR Fitting	
TB8	1/2"×0.049" Tube Butt Weld	4.34 (110.2)

Ordering Number Description

RSGG - 6L - 23H - 1H - 2R2 - FFR8 - RFR8 - IB - OB - V - BS - F3

Body Material

6L	316L SS
6LV	316L SS VAR

Max. Inlet Pressure

23H	159 bar (2300 psig)

Outlet Pressure Range

30	0~2.1 bar (0~30 psig)
60	0~4.2 bar (0~60 psig)
1H	0~6.9 bar (0~100 psig)

Porting

1H1	1 Inlet & 1 Outlet
1R2	1 Inlet & 2 Outlets
1L2	1 Inlet & 2 Outlets
1H3	1 Inlet & 3 Outlets
2R2	2 Inlets & 2 Outlets
2L2	2 Inlets & 2 Outlets

Inlet (IN)

FFR4	1/4" Rotatable Female FR Fitting
RFR4	1/4" Rotatable Male FR Fitting
TB4	1/4"× 0.035" Tube Butt Weld
TB6	3/8"× 0.035" Tube Butt Weld
FFR8	1/2" Rotatable Female FR Fitting
RFR8	1/2" Rotatable Male FR Fitting
TB8	1/2"× 0.049" Tube Butt Weld

Outlet (OUT)

	Same as Inlet
	Specified in the same way as Inlet

Inlet Pressure Gauge Port (Gi)

	Without pressure gauge, refer to Note 2
IB	Gauge psi/bar
IM	Gauge psi/MPa
IP	Plug

Outlet Pressure Gauge Port (Go)

	Without pressure gauge, refer to Note 2
OB	Gauge psi/bar
OM	Gauge psi/MPa
OP	Plug

Seat Material

	PCTFE
V	Polyimide

Installation Type

	Threaded Hole at the Bottom
BS	Installed with Screws at the Bottom

Process Specification

F2	FC-02
F3	FC-03

Notes:
1. "Ordering Number Description" is a reference to understand the combination rules of FITOK product part number. Not all combinations are available. Should you have any questions, please contact FITOK Group or our authorized distributors.
2. Without gauge: the gauge port is 1/4 in. rotatable male FR fitting.
3. For the default pressure gauge configurations, please refer to the pressure gauge ordering information on page A-12 of FITOK Full Technical Catalog For Specialty Gas Application.