

Medium Flow Diaphragm Regulators

RDGH Series

Introduction

RDGH Series Medium Flow Diaphragm Regulators feature a single-stage pressure reduction design with a combination of metal diaphragm and free poppet. This configuration ensures excellent sensitivity and stable outlet pressure, making these valves ideal for various gas media with medium to high flow.

Features

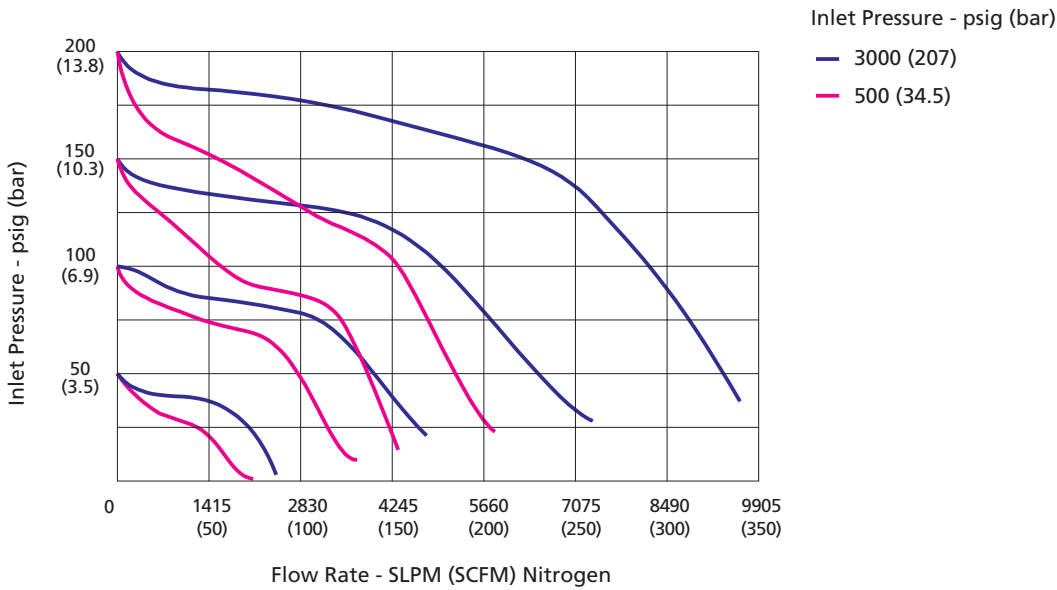
- Large diameter diaphragm offers enhanced pressure sensitivity
- Metal-to-metal seal between valve body and diaphragm provides ensured sealing performance
- Reinforced diaphragm design extends diaphragm service life
- The bonnet includes a captured vent port, allowing media to be vented to a designated location in the event of accidental diaphragm rupture



Technical Data

Port Size		3/8" to 3/4", 10 mm or 12 mm	
Max. Working Pressure		500 psig (34.5 bar)	
		3000 psig (207 bar)	
Outlet Pressure Range		0 ~ 25 psig (0 ~ 1.7 bar)	
		0 ~ 50 psig (0 ~ 3.4 bar)	
		0 ~ 100 psig (0 ~ 6.9 bar)	
		0 ~ 150 psig (0 ~ 10.3 bar)	
		0 ~ 200 psig (0 ~ 13.8 bar)	
Flow Coefficient (Cv)		1.0	
Working Temperature		PTFE, PCTFE: -40 ~ 165 °F (-40 ~ 74 °C) PEEK: -40 ~ 400 °F (-40 ~ 204 °C)	
SPE (Supply Pressure Effect)	Max. Inlet Pressure: 500 psig		2 psig per 100 psig source pressure change
	Max. Inlet Pressure: 3000 psig		0.5 psig per 100 psig source pressure change
Leak Rate	External	Inboard	≤2×10 ⁻¹⁰ std cm ³ /s (Helium)
		Outboard	≤1×10 ⁻⁹ std cm ³ /s (Helium)
	Internal		Max. Inlet Pressure 500 psig: ≤4×10 ⁻⁸ std cm ³ /s (Helium)
			Max. Inlet Pressure 3000 psig: Bubble tight

Flow Data

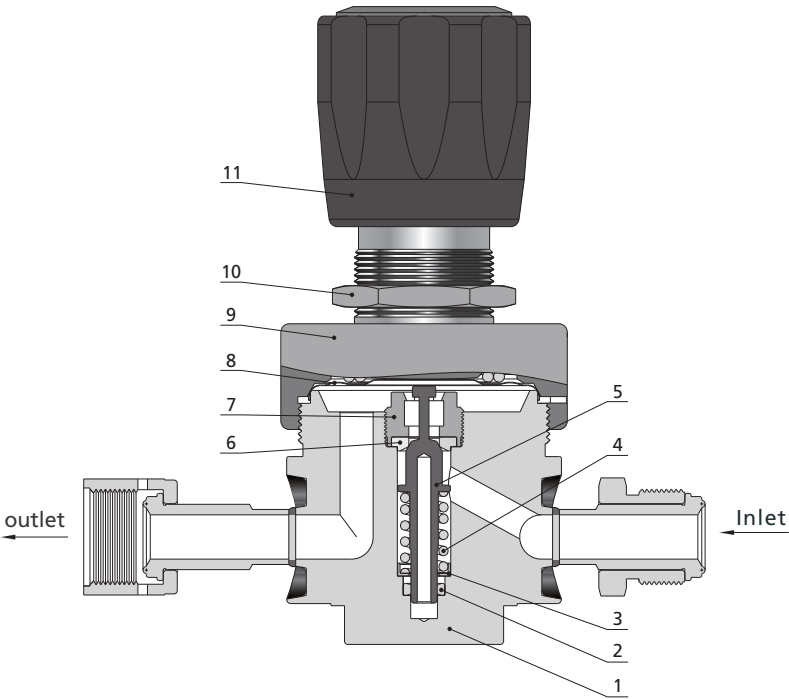


Process Specification

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Item	Special Cleaning and Packaging Process (FC-02)	Ultra High Purity Process (FC-03)
Material	316L SS, 316L SS VAR, Brass	316L SS, 316L SS VAR
Wetted Surface Roughness	Face Seal Connection or Butt Weld Connection: Ra 20 μin. (0.5 μm) Threaded Connection or Tube Fitting Connection: Ra 32 μin. (0.8 μm)	Face Seal Connection or Butt Weld Connection: Ra 10 μin. (0.25 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

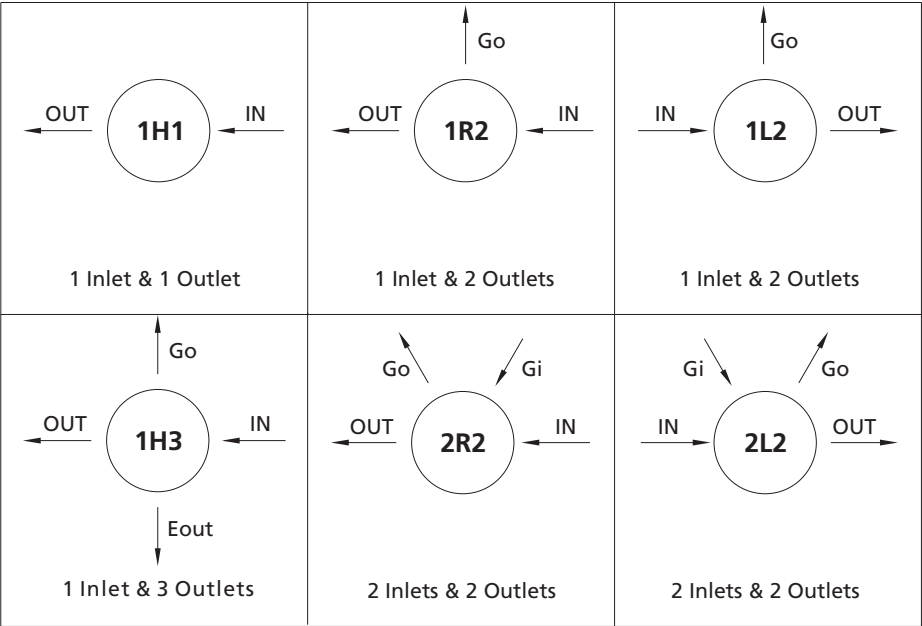
Note: For products with higher surface finish, please contact FITOK.

Major Materials of Construction



Item	Component	Material/Specification
1	Body	316L SS or 316L SS VAR or Brass
2	Guide Ring or Metal Spring Energized Seal	PTFE/ASTM D1710 or PTFE/ASTM D1710 and 316 SS/ASTM A479 or Elgiloy Alloy or PEEK
3	Spring Seat	316L SS or 316L SS VAR
4	Poppet Spring	316 SS/ASTM A313 or Alloy X-750
5	Lift Poppet	316L SS or 316L SS VAR
6	Seat	PCTFE/ASTM D1430 or PTFE/ASTM D1710 or PEEK
7	Seat Retainer	316L SS or 316L SS VAR
8	Diaphragm	316L SS/ASTM A240
9	Bonnet	304 SS/ASTM A479 or Brass
10	Panel Nut	304 SS/ASTM A479
11	Handle	ABS or Aluminium alloy

Porting Configurations



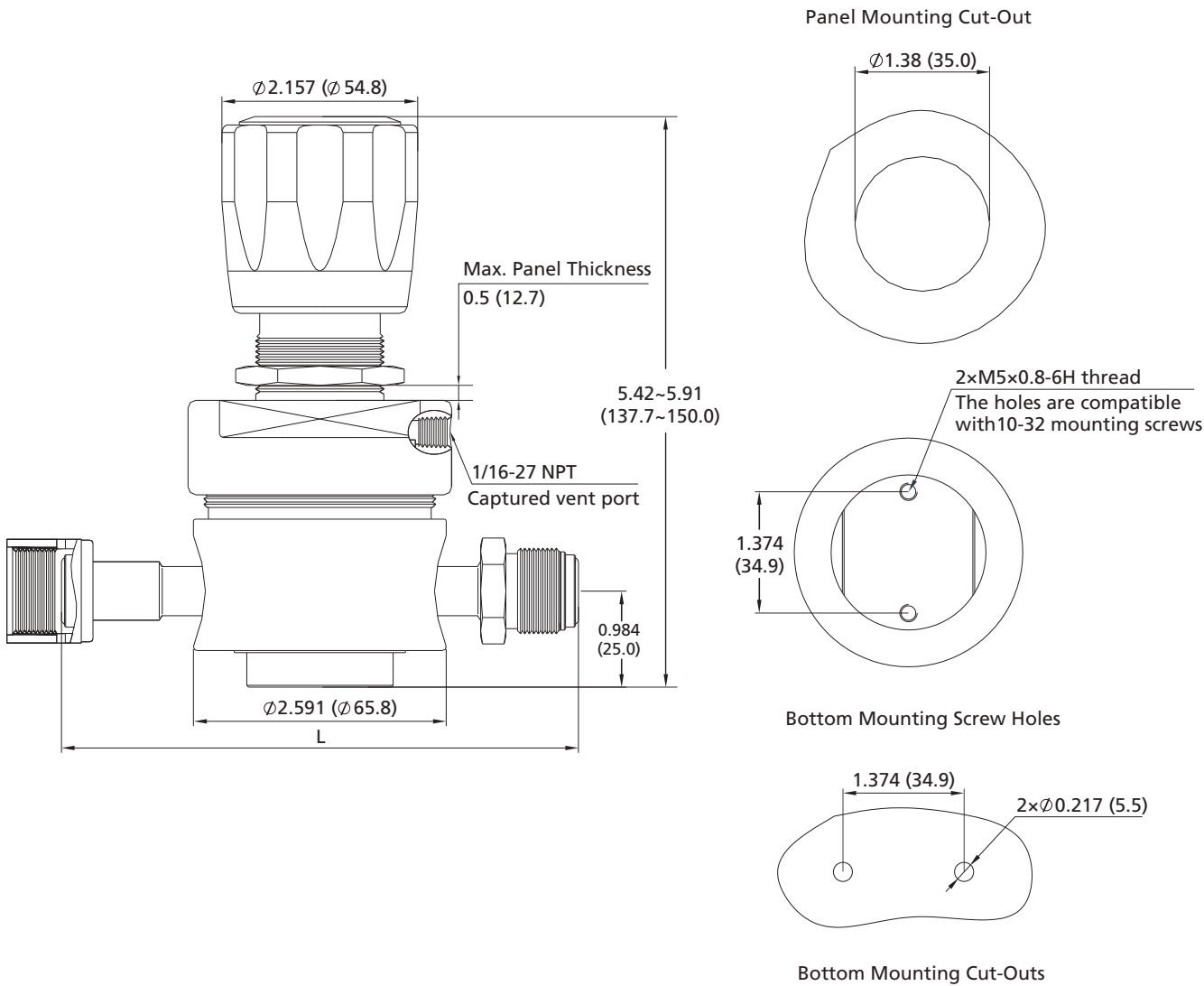
Porting Configuration Symbol

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.

Dimensions

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



Connection Designator	Connection Type and Size	Dimension, in.(mm)
		L
FL6	3/8" Tube Fitting	5.43 (138.0)
FL8	1/2" Tube Fitting	5.16 (131.0)
FNS8	1/2" Female NPT	2.59 (65.8)
TB8	1/2" x 0.035" Tube Butt Weld	4.34 (110.2)
FFR8	1/2" Rotatable Female FR Metal Gasket Face Seal Fitting	5.28 (134.0)
RFR8	1/2" Rotatable Male FR Metal Gasket Face Seal Fitting	
ML10	10 mm Tube Fitting	5.39 (137.0)
ML12	12 mm Tube Fitting	5.59 (142.0)
FFR12	3/4" Rotatable Female FR Metal Gasket Face Seal Fitting	5.99 (152.2)
RFR12	3/4" Rotatable Male FR Metal Gasket Face Seal Fitting	

