

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

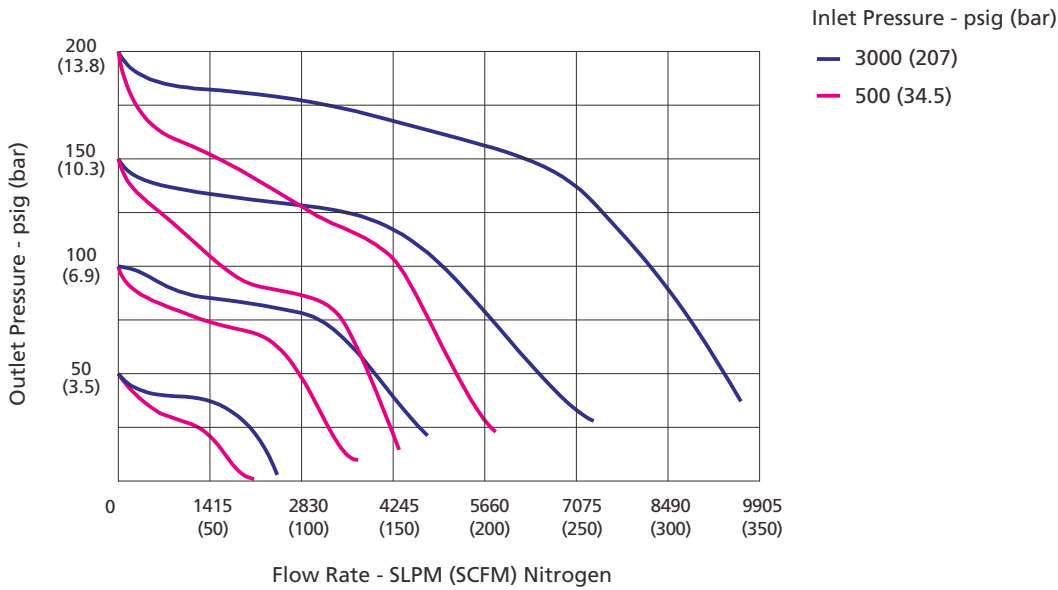
- Large diameter diaphragm offers enhanced pressure sensitivity.
- Metal-to-metal seal between valve body and diaphragm provides ensured sealing performance.
- Reinforced diaphragm design extends diaphragm service life.
- The bonnet includes a captured vent port, allowing media to be vented to a designated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

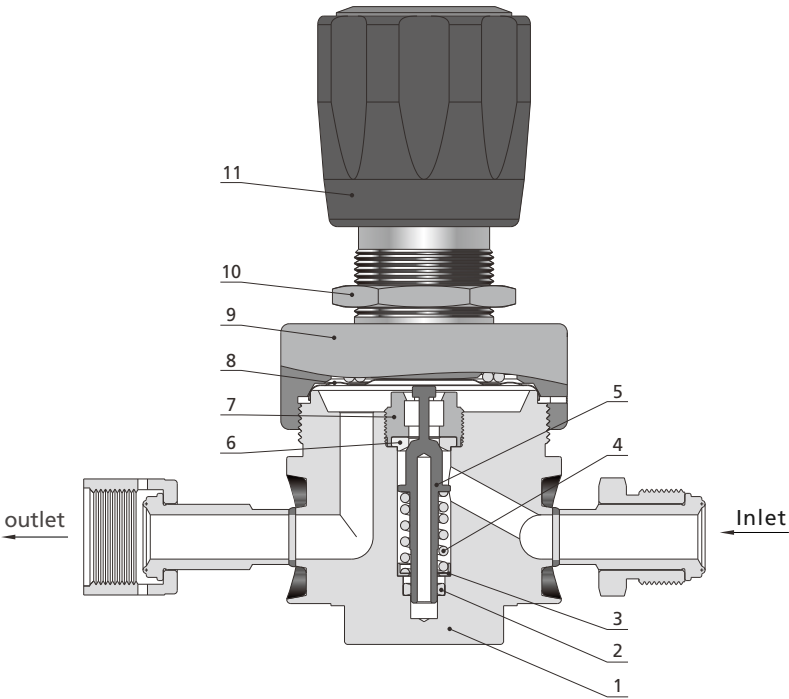


Process Specification

Item	Process Specification	
	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

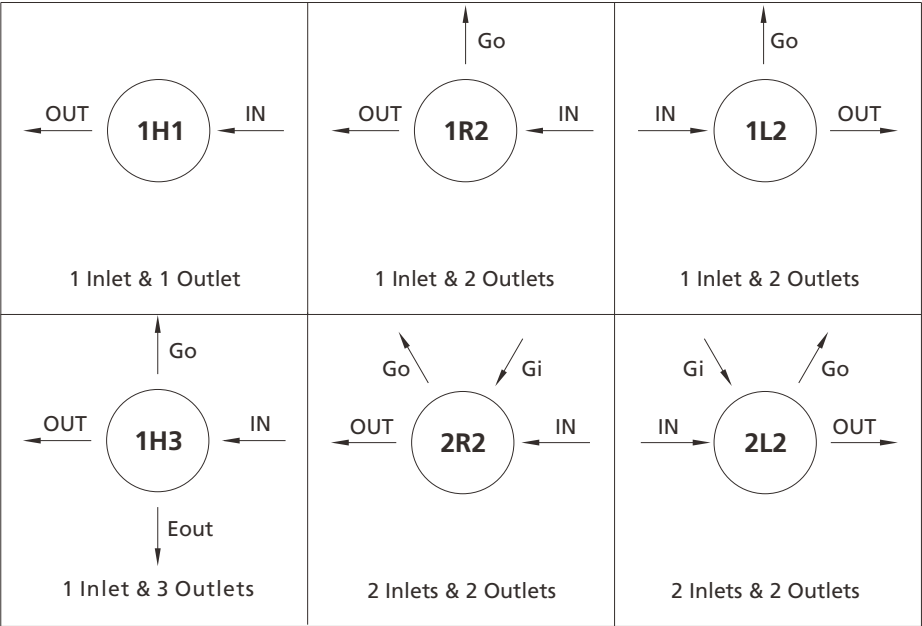
Note: For products with higher surface finish, please contact FITOK.

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 Cobalt Alloy/AMS 5876 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



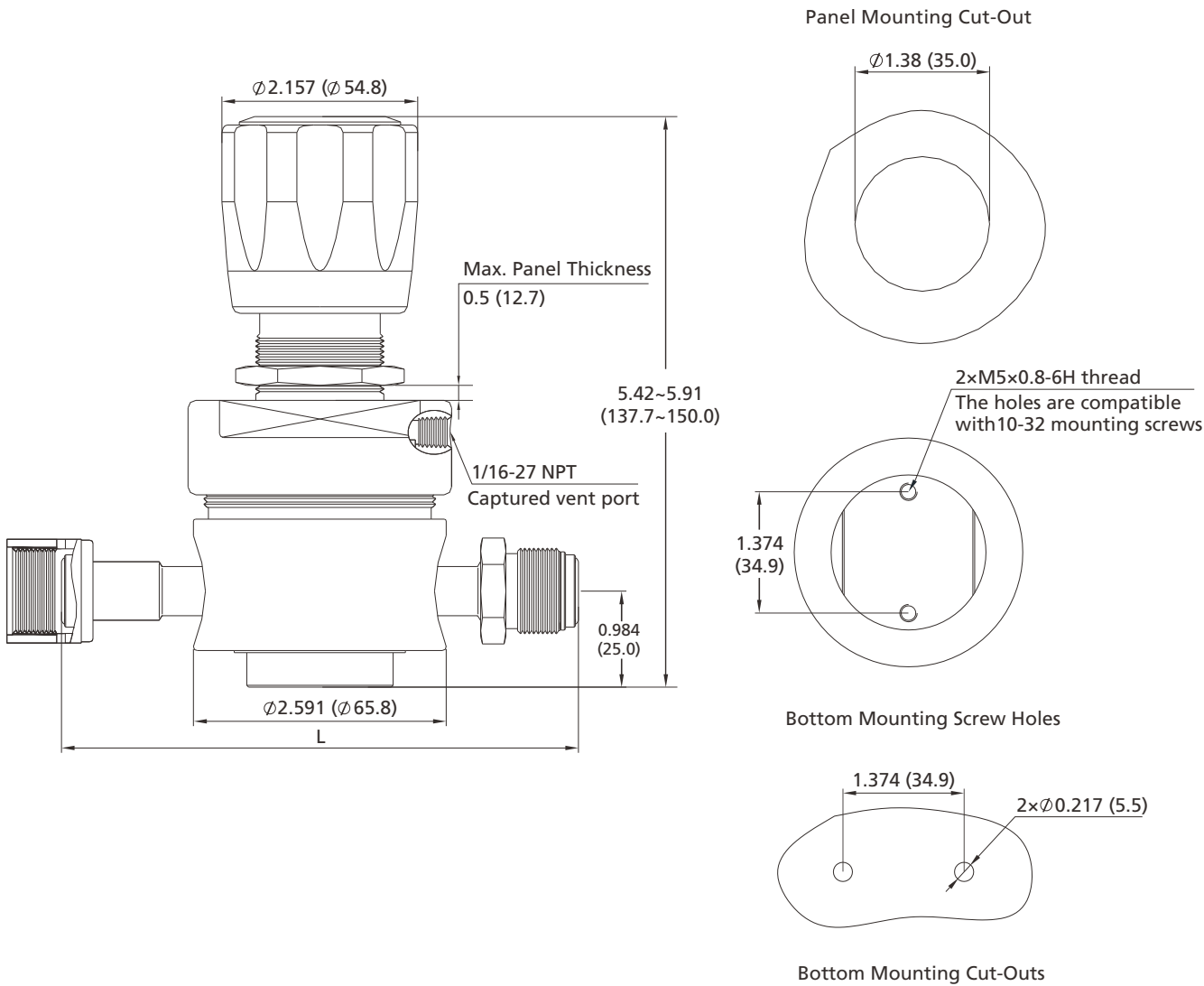
Porting Configuration Symbol

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.

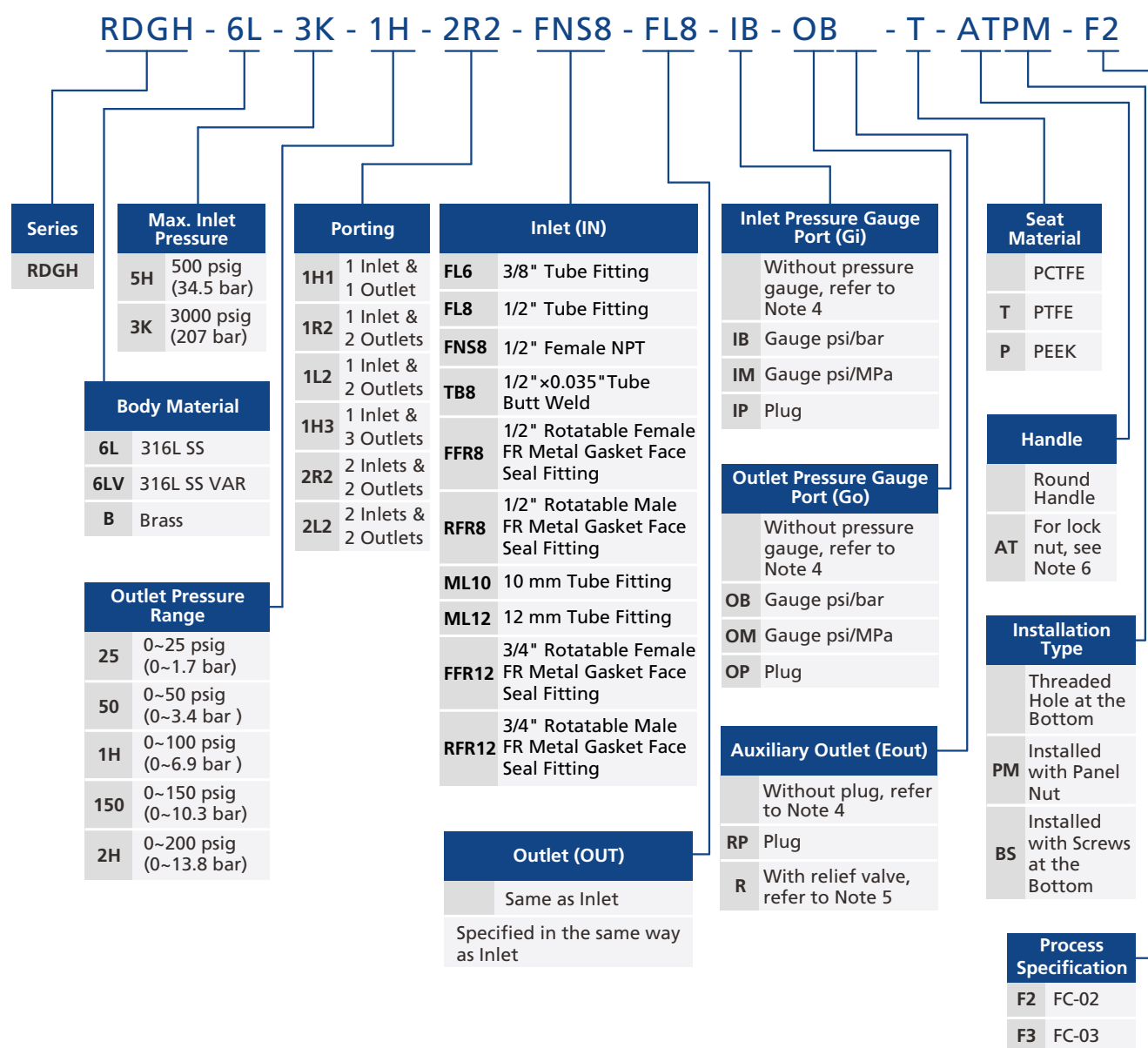
Dimensions

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"×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	

Ordering Number Description



Notes:

1. "Ordering Number Description" is a reference to understand the combination rules of FITOK product part number.
Not all combinations are available.
2. For Metal Gasket Face Seal Fitting or Tube Butt Weld ports, the port and body are orbital-welded integral structure by default.
3. For NPT or Metric/Fractional Tube Fitting ports, the body port is 1/2" Female NPT by default. Other options are adapted from Male NPT.
4. When choosing NPT or Metric/Fractional Tube Fitting for inlet and outlet, gauge ports (Gi, Go) and auxiliary outlet (Eout) are 1/4" Female NPT. When choosing Metal Gasket Face Seal Fitting or Tube Butt Weld for inlet and outlet, gauge ports (Gi, Go) are 1/4" Rotatable Male FR Metal Gasket Face Seal Fitting, without auxiliary outlet (Eout) options.
5. For the outlet relief valve, the set pressure is factory-set to 1.05-1.1 times the maximum outlet pressure by default, FITOK can preset the specified set pressure according to customer requirements. Please specify the desired set pressure when placing your order.
6. Lock nut (AT): The metal lock nut construction is designed to prevent accidental pressure adjustments. FITOK can set the specified outlet pressure based on customer requirements; simply include this information in the remarks when placing an order. If the outlet pressure is not specified, customers will need to adjust and fix it themselves.