

Pressure Regulators

General Diaphragm Regulators RDGC Series

Introduction

RDGC Series General Diaphragm Valves 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 a variety of applications ranging from low to medium flow.



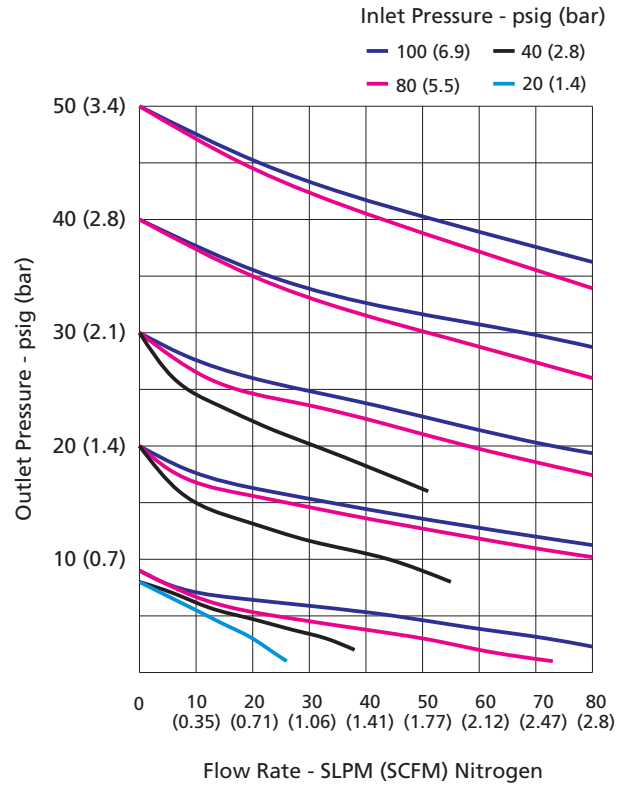
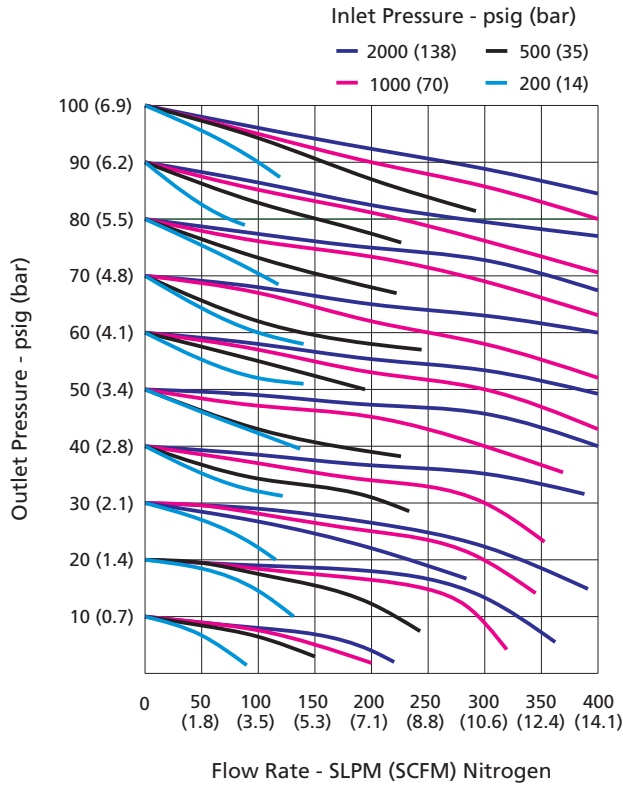
Features

- ⦿ Compact design and lightweight
- ⦿ Hastelloy lift poppet offers excellent corrosion resistance
- ⦿ Metal-to-metal seal between valve body and diaphragm provides ensured sealing performance
- ⦿ Reinforced diaphragm improves sealing performance and extends service life

Technical Data

Port Size		1/4", 3/8" or 1/2"	
Max. Working Pressure		4500 psig (310 bar)	
Outlet Pressure Range	25	0 ~ 25 psig (0 ~ 1.7 bar)	
	50	0 ~ 50 psig (0 ~ 3.4 bar)	
	1H	0 ~ 100 psig (0 ~ 6.9 bar)	
	150	0 ~ 150 psig (0 ~ 10.3 bar)	
	250	0 ~ 250 psig (0 ~ 17.2 bar)	
	5H	0 ~ 500 psig (0 ~ 34.5 bar)	
Flow Coefficient (Cv)		500, 1500 psig Inlet: 0.2 3500, 4500 psig Inlet: 0.09	
Working Temperature		PCTFE: -40 ~ 165 °F (-40 ~ 74 °C) Polyimide: 14 ~ 194 °F (-10 ~ 90 °C)	
Leak Rate (Helium)	External	Inboard	$\leq 2 \times 10^{-10}$ std cm ³ /s
		Outboard	$\leq 2 \times 10^{-9}$ std cm ³ /s
	Internal	$\leq 4 \times 10^{-8}$ std cm ³ /s	

Flow Data

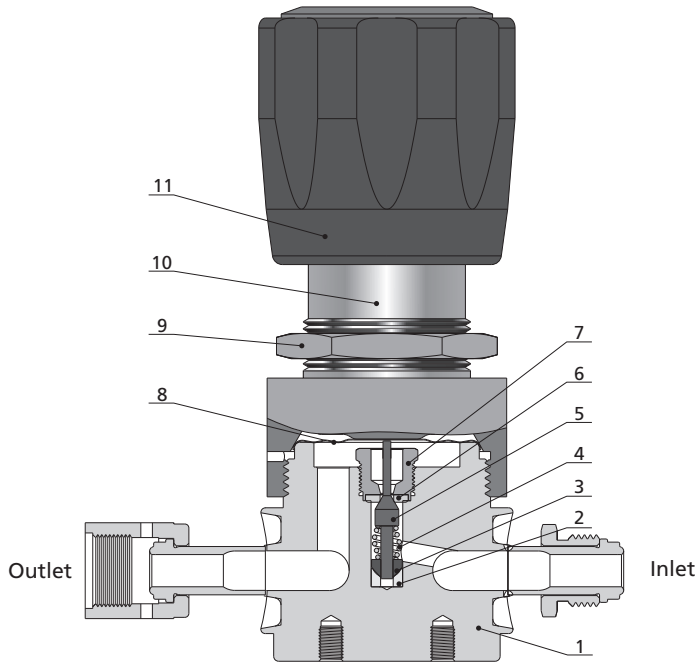


Process Specification

Material	316L SS, 316L VAR Brass (Nickel Plated), Hastelloy C-276	316L SS, 316L VAR
Process	Special Cleaning and Packaging (FC-02)	Ultra High Purity (FC-03)
Process Specification	Special Cleaning and Packaging (FC-02)	Ultra High Purity (FC-03)
Wetted Surface Roughness	Ra 20 μin. (0.5 μm) ^① Ra 32 μin. (0.8 μm) ^②	Ra 10 μin. (0.25 μm) ^③
Polishing Process	Machine Finished	Electropolished

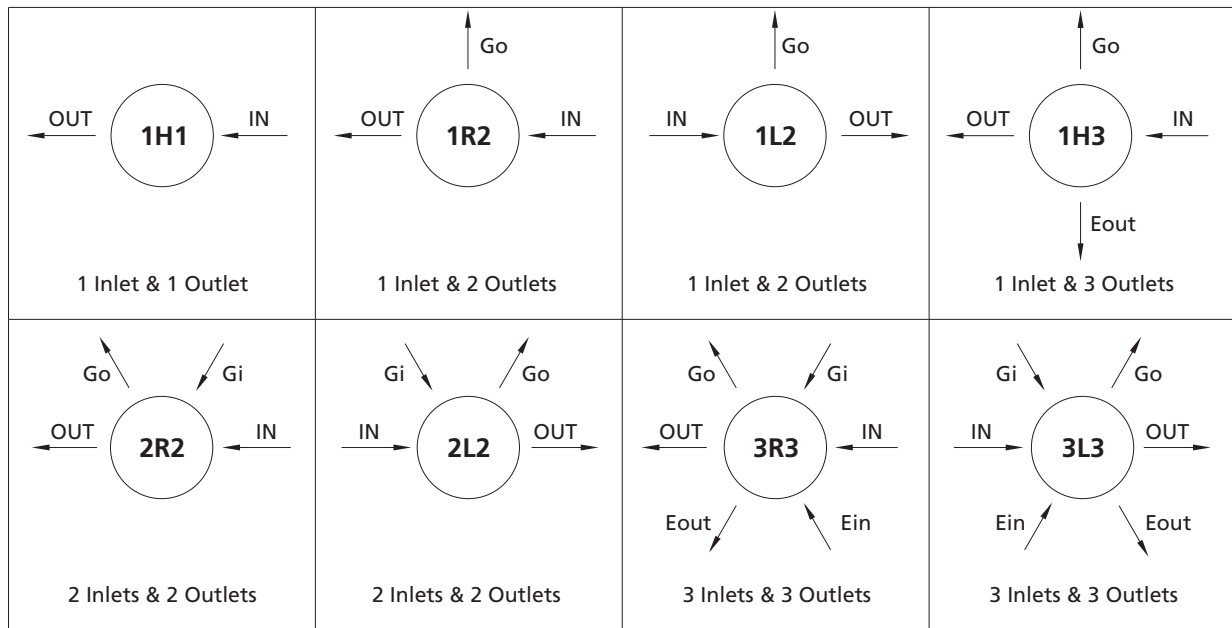
- ① For valves with FR connections and butt weld connections, the internal surface finish is 20 μin. (0.5 μm) Ra.
- ② For NPT connections or tube fitting and other options adapted from male NPT, the internal surface finish is 32 μin. (0.8 μm) Ra.
- ③ For standard ultra high purity products, the surface finish is 10 in. (0.25 μm) by default. For products with higher surface finish, please contact FITOK.

Major Materials of Construction



Item	Component	Material/Specification
1	Body	316L SS or 316L VAR
2	Friction Sleeve	316L SS or 316L VAR
3	Poppet Damper	PTFE/ASTM D1710
4	Poppet Spring	Alloy
5	Lift Poppet	Alloy C-276/ASTM B574
6	Seat	PCTFE/ASTM D1430 or Polyimide
7	Seat Retainer	316L SS or 316L VAR
8	Diaphragm	316L SS/ASTM A240
9	Panel Nut	304 SS/ASTM A479
10	Bonnet	304 SS/ASTM A479
11	Handle	ABS

Porting Configurations



Porting Configuration Symbol

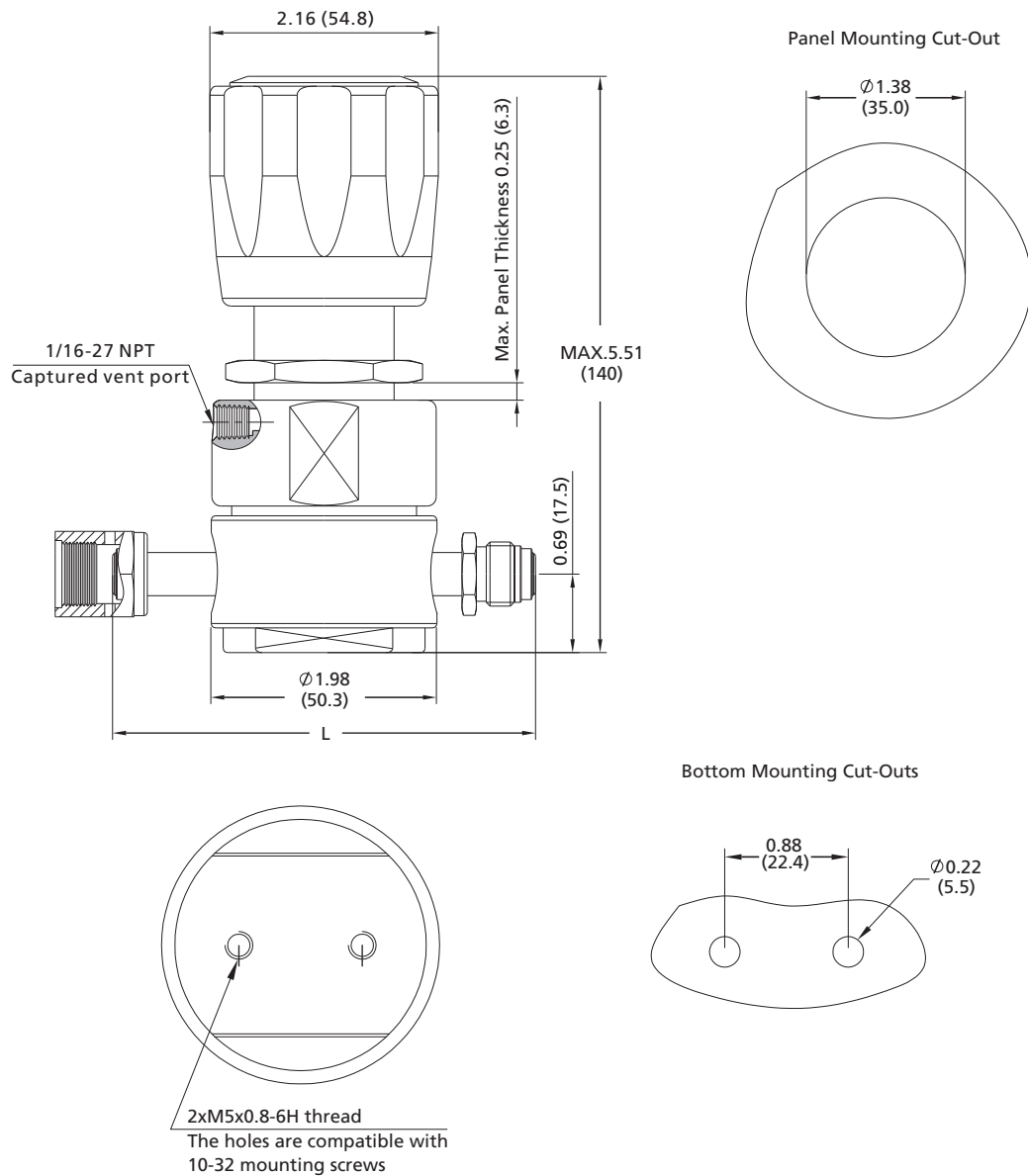
IN	OUT	Gi	Go	Eout	Ein
Inlet	Outlet	Inlet Pressure Gauge	Outlet Pressure Gauge	Auxiliary Outlet	Auxiliary Inlet

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 and Ordering Information

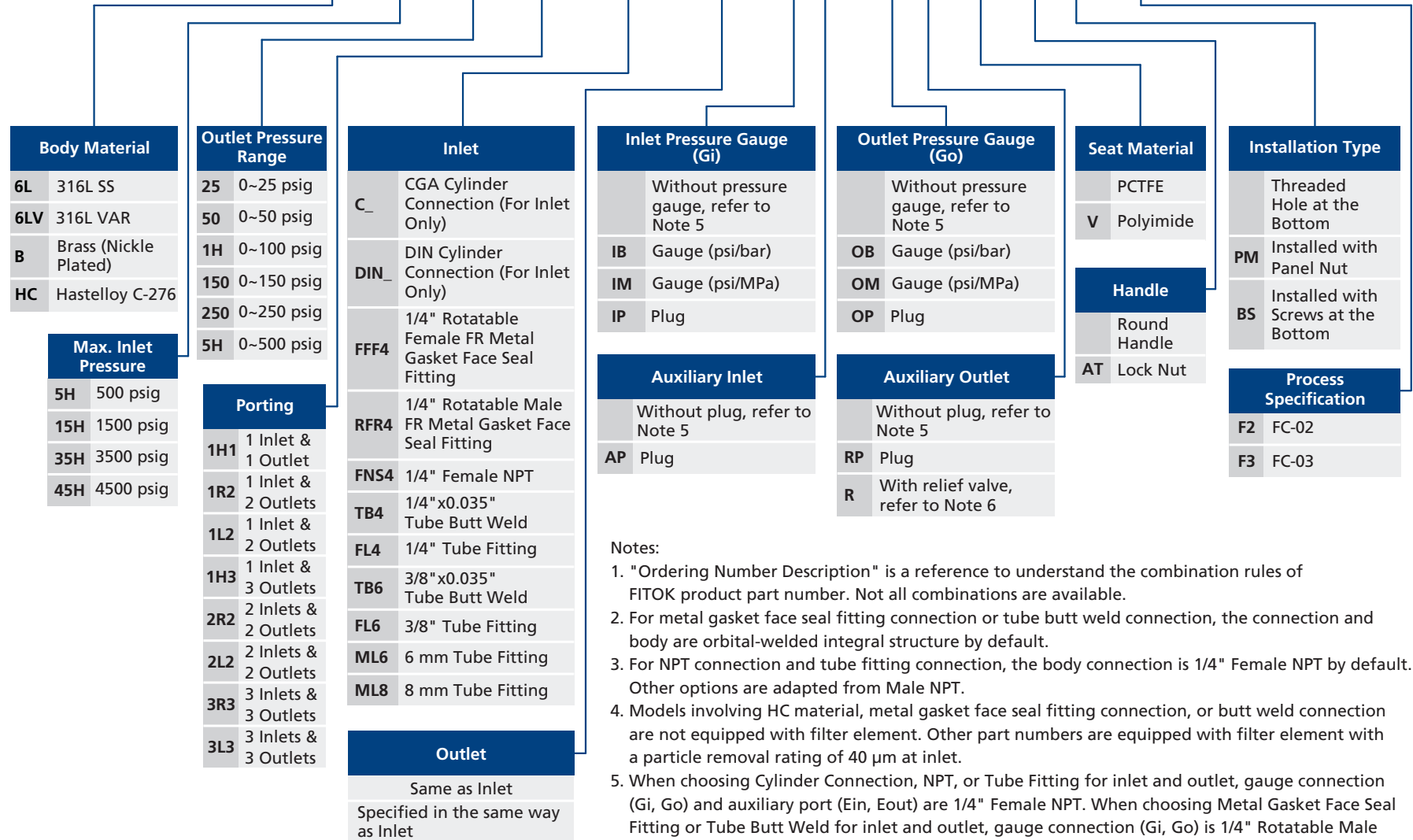
Dimensions, in inches (millimeters), are for reference only.



Connection Designator	Connection Type and Size	Dimension, in.(mm)
		L
FFR4	1/4" Rotatable Female FR Metal Gasket Face Seal Fitting	3.7 (94.0)
RFR4	1/4" Rotatable Male FR Metal Gasket Face Seal Fitting	3.7 (94.0)
FNS4	1/4" Female NPT	1.98 (50.3)
TB4	1/4"x0.035" Tube Butt Weld	2.96 (75.2)
FL4	1/4" Tube Fitting	3.91 (99.4)
TB6	3/8"x0.035" Tube Butt Weld	2.96 (75.2)
FL6	3/8" Tube Fitting	4.19 (106.4)
ML6	6 mm Tube Fitting	3.98 (101.0)
ML8	8 mm Tube Fitting	4.04 (102.5)

Ordering Number Description

RDGC - 6L - 35H - 1H - 3R3 - C580 - FNS4 - IBAP - OBRP - V - ATPM - F2



Notes:

- "Ordering Number Description" is a reference to understand the combination rules of FITOK product part number. Not all combinations are available.
- For metal gasket face seal fitting connection or tube butt weld connection, the connection and body are orbital-welded integral structure by default.
- For NPT connection and tube fitting connection, the body connection is 1/4" Female NPT by default. Other options are adapted from Male NPT.
- Models involving HC material, metal gasket face seal fitting connection, or butt weld connection are not equipped with filter element. Other part numbers are equipped with filter element with a particle removal rating of 40 µm at inlet.
- When choosing Cylinder Connection, NPT, or Tube Fitting for inlet and outlet, gauge connection (Gi, Go) and auxiliary port (Ein, Eout) are 1/4" Female NPT. When choosing Metal Gasket Face Seal Fitting or Tube Butt Weld for inlet and outlet, gauge connection (Gi, Go) is 1/4" Rotatable Male FR Metal Gasket Face Seal Fitting, without auxiliary connection (Ein, Eout) options.
- For outlet relief valve, the set pressure is established at 1.05-1.1 times the maximum outlet pressure upon shipping.
- Refer to Cylinder Connections catalog for connection details.