

General Tied Diaphragm Regulators

RTGC Series

Introduction

RTGC Series General Tied Diaphragm Regulators feature a single-stage pressure reduction design. Their tied diaphragm construction provides positive shutoff. With no threads or springs in wetted areas, these regulators are ideal for high purity and ultra high purity applications ranging from low to medium flow.

Features

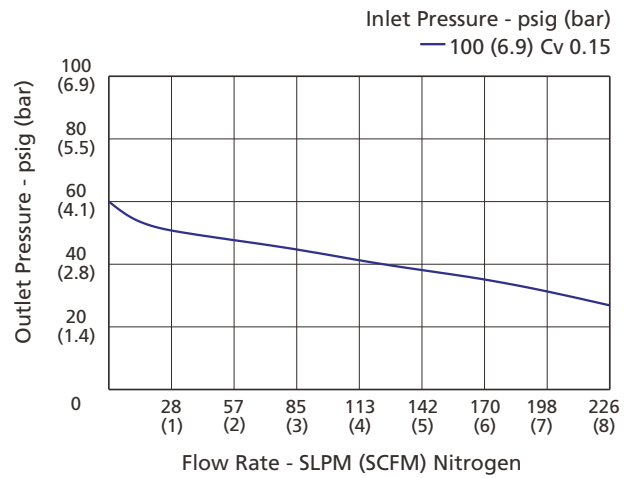
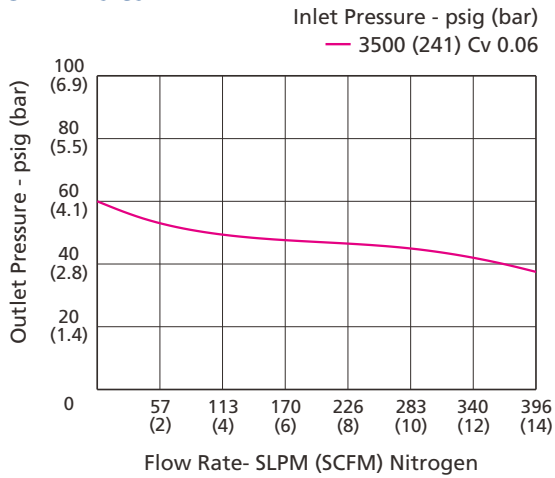
- ⦿ Compact design and lightweight
- ⦿ Lift poppet and diaphragm are made of Alloy C-22, offering excellent corrosion resistance
- ⦿ Metal-to-metal seal between valve body and diaphragm provides ensured sealing performance
- ⦿ Reinforced diaphragm improves sealing performance and extends service life
- ⦿ Tied diaphragm construction offers positive shutoff for added safety
- ⦿ 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	1/4", 3/8" or 1/2"		
Max. Working Pressure	3500 psig (241 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)		
	0 ~ 150 psig (0 ~ 10.3 bar)		
Flow Coefficient (Cv)	3500 psig Inlet: 0.06 (241 bar Inlet: 0.06)		
	600, 1000 psig Inlet: 0.15 (41.4, 69.0 bar Inlet: 0.15)		
Working Temperature	PCTFE: -40 ~ 149 °F (-40 ~ 65 °C) Polyimide: -15 ~ 302 °F (-26 ~ 150 °C)		
SPE (Supply Pressure Effect)	0.6 psig per 100 psig source pressure change		
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	$\leq 2 \times 10^{-9}$ std cm ³ /s	

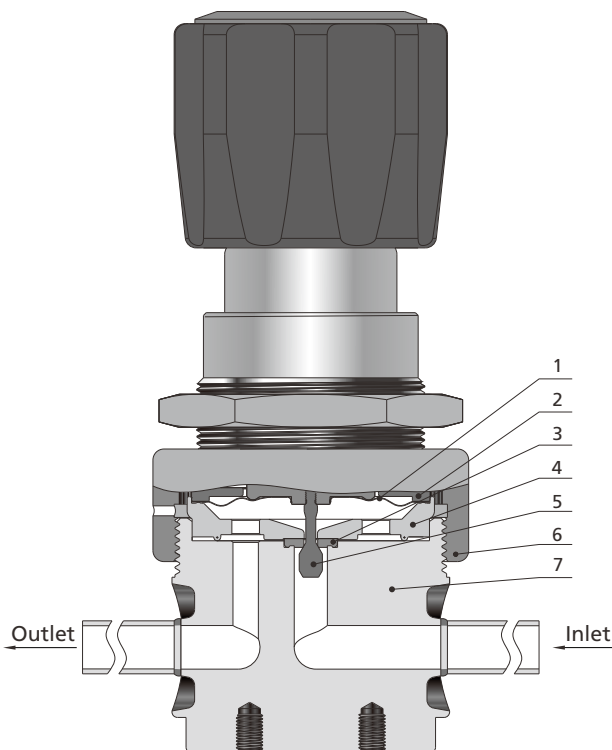
Flow Data



Process Specification

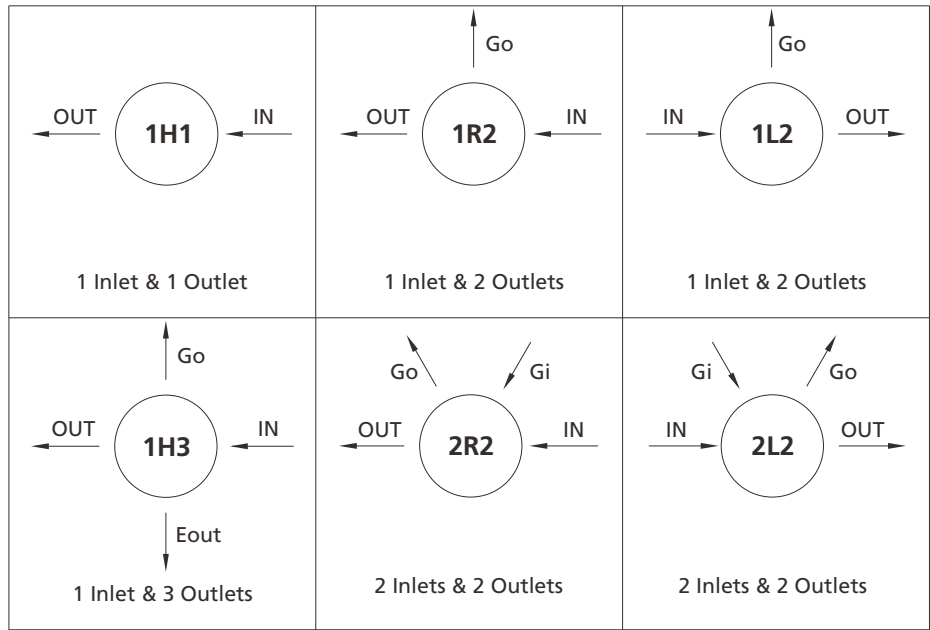
Process Specification Item	Special Cleaning and Packaging Process (FC-02)	Ultra High Purity Process (FC-03)
Material	316L SS	316L SS, 316L SS VAR
Wetted Surface Roughness	Ra 10 µin. (0.25 µm)	Ra 5 µin. (0.13 µm)
Polishing Process	Machine Finished	Electropolished
Assembly Environment	In specially cleaned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

Major Materials of Construction



Item	Component	Material/Specification
1	Diaphragm	Alloy C-22/ASTM B575
2	Gland	630/ASTM A564
3	Seat	PCTFE/ASTM D1430 or Polyimide
4	Support	316L SS or 316L SS VAR
5	Lift Poppet	Alloy C-22/ASTM B574
6	Bonnet Nut	304 SS/ASTM A479
7	Body	316L SS or 316L SS VAR

Porting Configurations



Porting Configuration Symbol

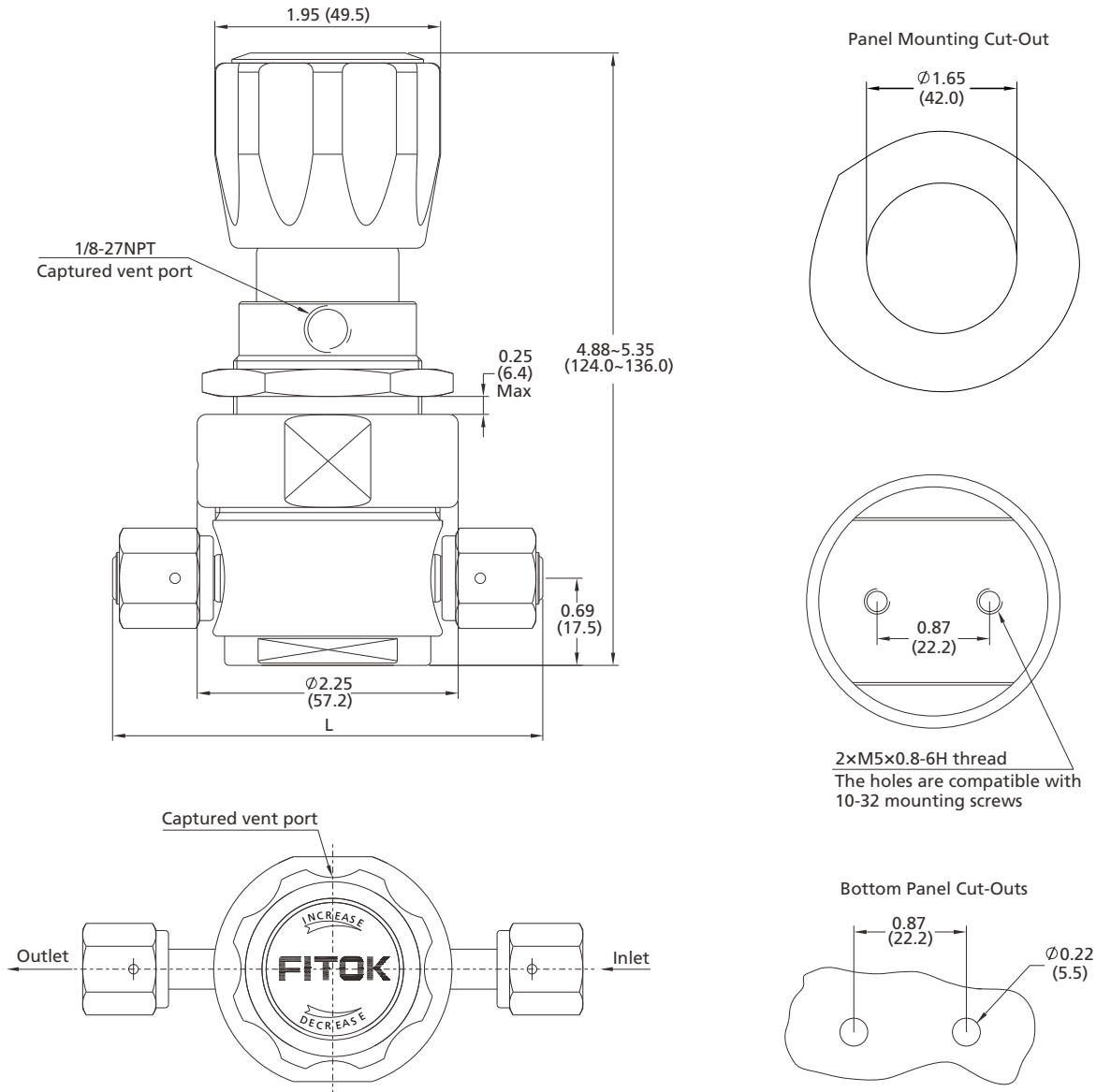
IN	OUT	Gi	Go	Eout
Inlet	Outlet	Inlet Pressure Gauge Port	Outlet Pressure Gauge Port	Auxiliary Outlet

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.

Dimensions

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

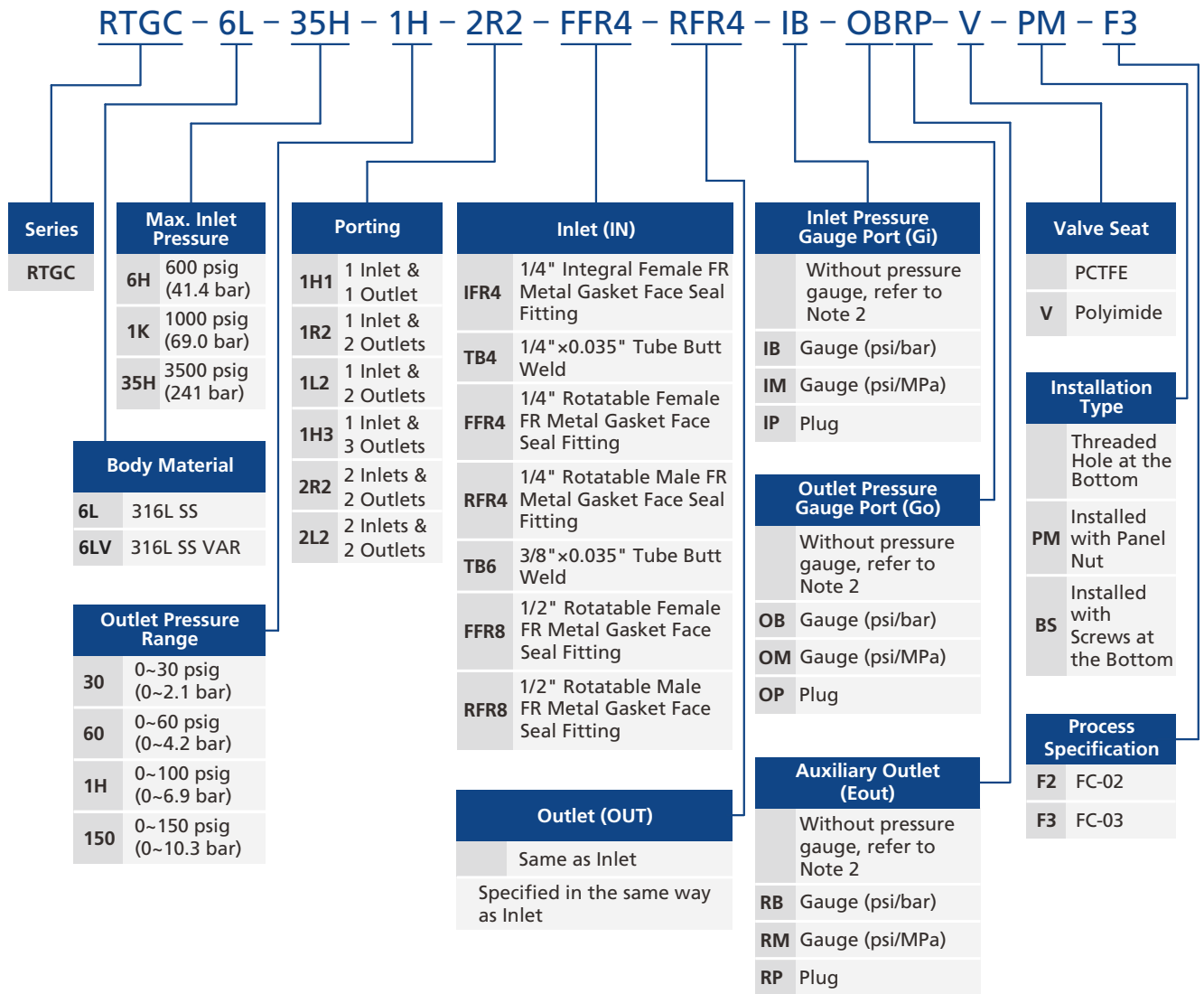


Note: Standard captured vent hole position is shown as above. For other positions, please contact FITOK or our authorized distributors.

Connection Designator	Connection Type and Size	Dimension, in. (mm)
		L
IFR4	1/4" Integral Female FR Metal Gasket Face Seal Fitting	1.06 (26.8)
FFR4	1/4" Rotatable Female FR Metal Gasket Face Seal Fitting	3.70 (94.0)
RFR4	1/4" Rotatable Male FR Metal Gasket Face Seal Fitting	
TB4	1/4" x 0.035" Tube Butt Weld	
TB6	3/8" x 0.035" Tube Butt Weld	4.75 (120.6)
FFR8	1/2" Rotatable Female FR Metal Gasket Face Seal Fitting	
RFR8	1/2" Rotatable Male FR Metal Gasket Face Seal Fitting	

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Ordering Number Description



Notes:

1. "Ordering Number Description" is a reference to understanding the combination rules of FITOK product part numbers. Not all combinations are available. Should you have any questions, please contact FITOK Group or our authorized distributors.
2. Without Gauge. Gauge Connection is 1/4" Rotatable Male FR Metal Gasket Face Seal Fitting.

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