Sensitive Diaphragm Regulators

RDSC Series

Introduction

RDSC Series Sensitive Diaphragm Regulators feature a single-stage pressure reduction design and a large-diameter diaphragm to enhance sensitivity to pressure fluctuations, making them ideal for low-flow, high-sensitivity applications.

Features

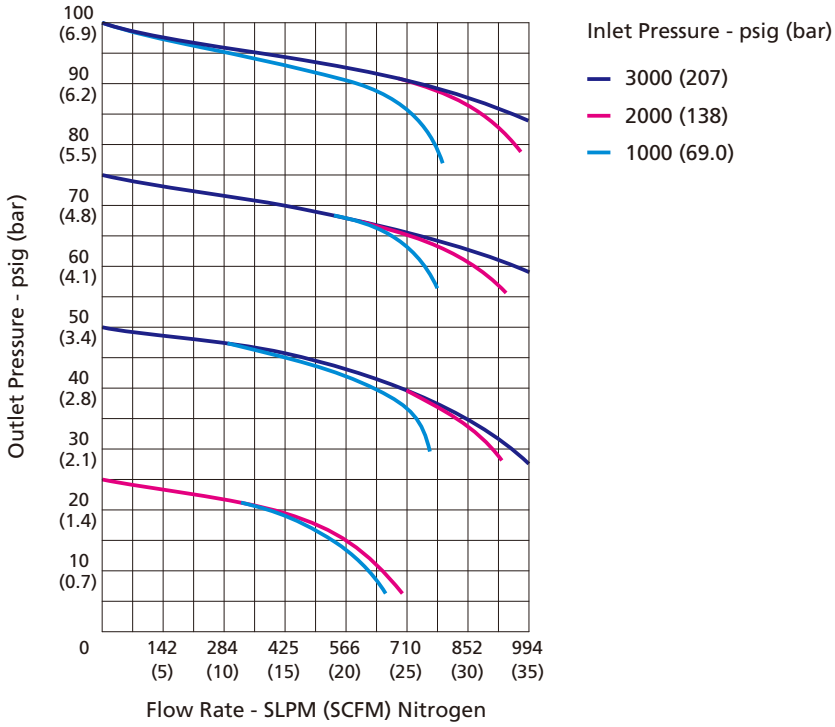
◎ Lift poppet is made of Alloy C-276, offering excellent corrosion resistance.
◎ Metal-to-metal seal between valve body and diaphragm provides ensured sealing performance.
◎ Reinforced diaphragm design extends diaphragm service life.
◎ The bonnet includes a captured vent port, allowing media to be vented to a designated location in the event of an accidental diaphragm rupture.

Technical Data

Port Size			1/4", 3/8", 6 mm or 8 mm
Max. Working Pressure			4500 psig (310 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)			0.06
Working Temperature ①			PCTFE: -40 ~ 165 °F (-40 ~ 74 °C)
			Polyimide: -40 ~ 500 °F (-40 ~ 260 °C)
			PEEK: -40 ~ 400 °F (-40 ~ 204 °C)
SPE (Supply Pressure Effect)			0.5 psig per 100 psig source pressure change
Leak Rate (Helium)	**External**	**Inboard**	$\leqslant 2\times10^{-10}$ std·cm³/s
		Outboard	$\leqslant 1\times10^{-9}$ std·cm³/s
	Internal		$\leqslant 4\times10^{-8}$ std·cm³/s

① For the working temperature of products equipped with a pressure gauge, a relief valve, or both, please refer to the **catalog for Pressure Gauges** or **Relief Valves**.

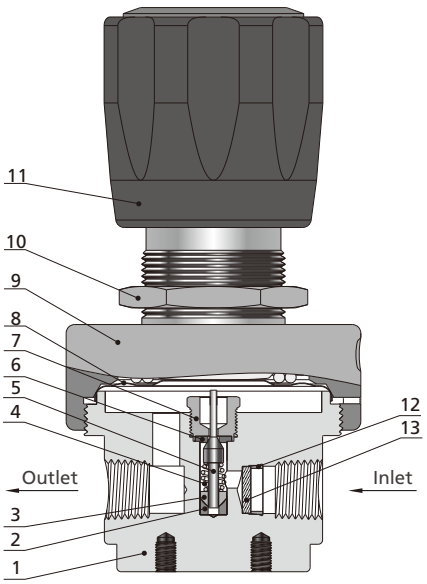
Flow Data



Process Specification

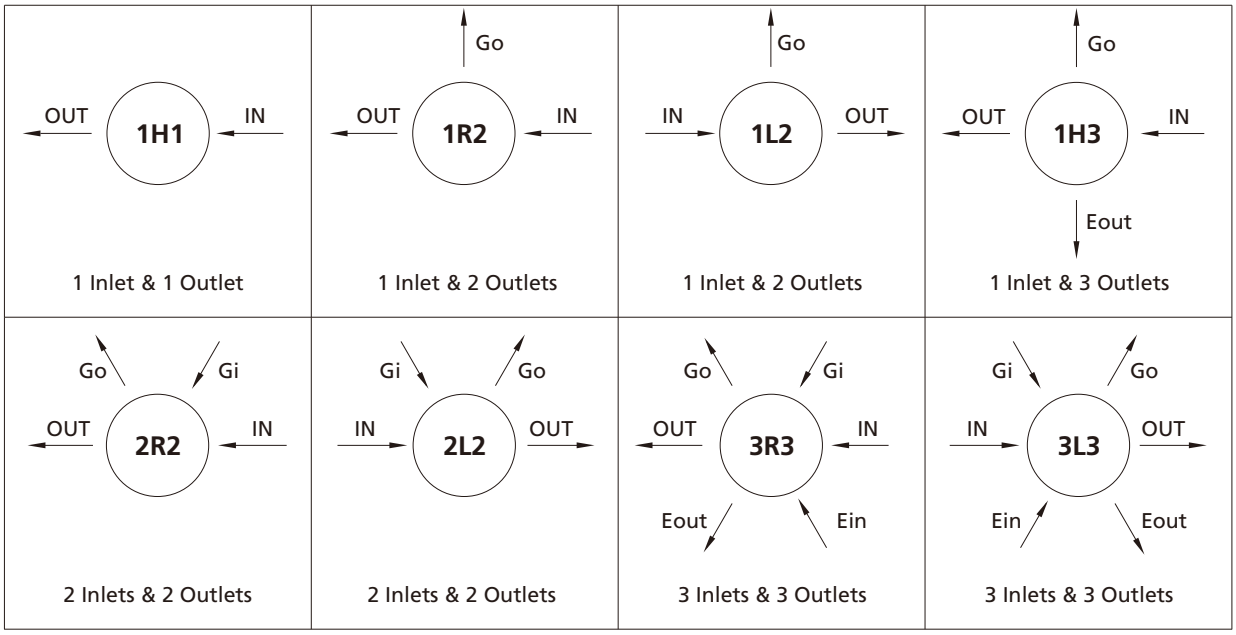
Process Specification / Item	Special Cleaning and Packaging Process (FC-02)
Material	316L SS, 316L SS VAR, Brass
Wetted Surface Roughness	Ra 32 µin. (0.8 µm)
Polishing Process	Machine finished
Assembly Environment	In specially cleaned areas
Packaging	Double bagged

Major Materials of Construction



Item	Component	Material/Specification		
		6L	6LV	B
1	Body	316L SS	316L SS VAR	Brass
2	Friction Sleeve	316L SS	316L SS VAR	316L SS
3	Poppet Damper	PTFE/ASTM D1710 or Polyimide (use only with Polyimide seat)		
4	Poppet Spring	Alloy X-750		
5	Lift Poppet	Alloy C-276/ASTM B574		
6	Seat	PCTFE/ASTM D1430 or Polyimide or PEEK		
7	Seat Retainer	316L SS	316L SS VAR	316L SS
8	Diaphragm	316L SS/ASTM A240	Alloy C2	316L SS/ASTM A240
9	Bonnet	304 SS/ASTM A479	304 SS/ASTM A479	Brass
10	Panel Nut	304 SS/ASTM A479		
11	Handle	ABS or Aluminum Alloy (use only with Polyimide or PEEK seat)		
12	Retaining Ring	PTFE/ASTM D1710		
13	Filter	316L SS		

Porting Configurations



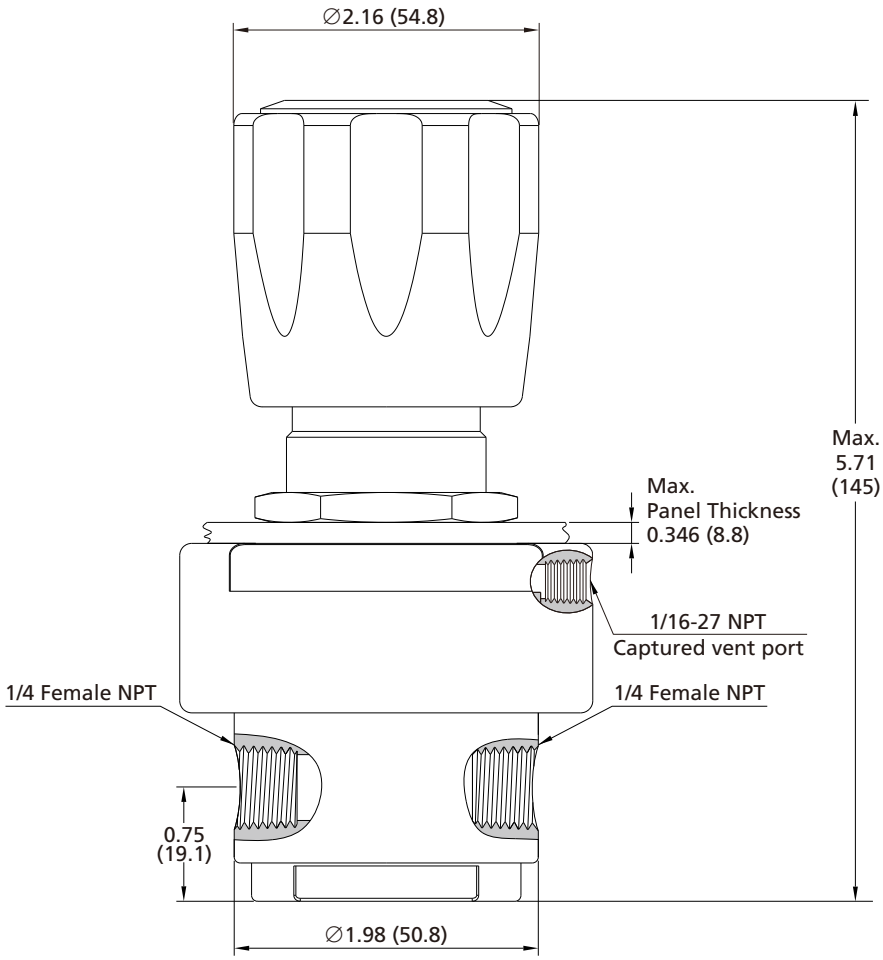
Porting Configuration Symbol

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

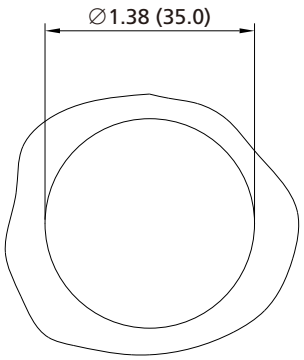
Notes:
1. IN and OUT are the inlet and outlet ports for connecting the valve to the system. Ports other than IN and OUT should not be used for system connections.
2. Porting configuration is viewed from the top.

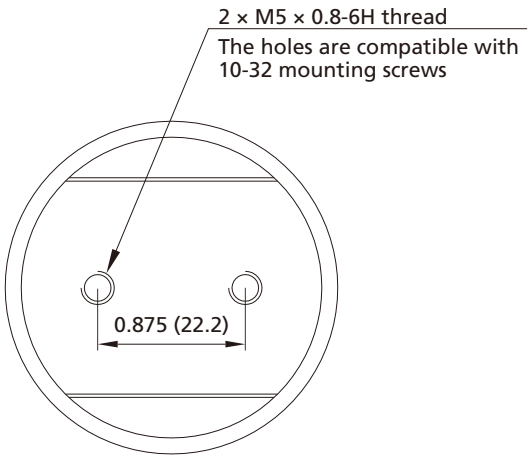
Dimensions

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

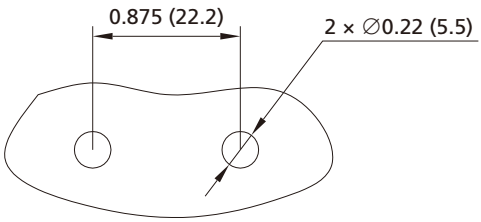


Panel Mounting Cut-Out





Bottom Mounting Screw Holes



Bottom Mounting Cut-Outs

Ordering Number Description

RDSC - 6L - 35H - 1H - 3R3 - FNS4 - FL4 - IBAP - OBRP - P - ATPM - F2

Series
RDSC

Max. Inlet Pressure	
35H	3500 psig (241 bar)
45H	4500 psig (310 bar)

Body Material	
6L	316L SS
6LV	316L SS VAR
B	Brass

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)
2H	0~200 psig (0~13.8 bar)

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
3R3	3 Inlets & 3 Outlets
3L3	3 Inlets & 3 Outlets

Inlet (IN)	
C_	CGA Cylinder Connection (For Inlet Only)
DIN_	DIN Cylinder Connection (For Inlet Only)
FNS4	1/4 Female NPT
FL4	1/4" Tube Fitting
FL6	3/8" Tube Fitting
ML6	6 mm Tube Fitting
ML8	8 mm Tube Fitting

Outlet (OUT)	
	Same as Inlet
Specified in the same way as Inlet	

Inlet Pressure Gauge Port (Gi)	
	No pressure gauge, refer to Note 2
IB	Gauge (psi/bar)
IM	Gauge (psi/MPa)
IP	Plug

Auxiliary Inlet (Ein)	
	Without plug, refer to Note 2
AP	Plug

Outlet Pressure Gauge Port (Go)	
	No pressure gauge, refer to Note 2
OB	Gauge (psi/bar)
OM	Gauge (psi/MPa)
OP	Plug

Auxiliary Outlet (Eout)	
	No plug, refer to Note 2
RP	Plug
R	With relief valve, refer to Note 3

Seat Material	
	PCTFE
P	PEEK
V	Polyimide

Handle	
	Round Handle
AT	For lock nut, see Note 4

Mounting Type	
	Threaded Hole at the Bottom
PM	Installed with Panel Nut
BS	Installed with Screws at the Bottom

Process Specification	
F2	FC-02

Notes:

1. "Ordering Number Description" is a reference to understand the combination rules of FITOK product part number. Not all combinations are available.
2. The body connection is 1/4 Female NPT by default. Other options are adapted from Male NPT.
3. 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.
4. 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 thisinformation in the remarks when placing an order. If the outlet pressure is not specified, customers will need to adjust and fix it themselves.
5. When selecting accessories such as pressure gauges or relief valves, ensure that the media working temperature does not exceed the allowable temperature range of the accessories.
6. For the default pressure gauge configurations, please refer to the pressure gauge ordering information on page A-12.