# High Flow Diaphragm Regulators

## RDGN Series

### Introduction

RDGN Series High Flow Diaphragm Regulators feature a single-stage pressure reduction design with a combination of metal diaphragm and free poppet for excellent sensitivity and stable outlet pressure. The reset spring configuration maintains stable and low outlet pressure, even under high flow conditions, making these regulators ideal for various gas media with high flow.

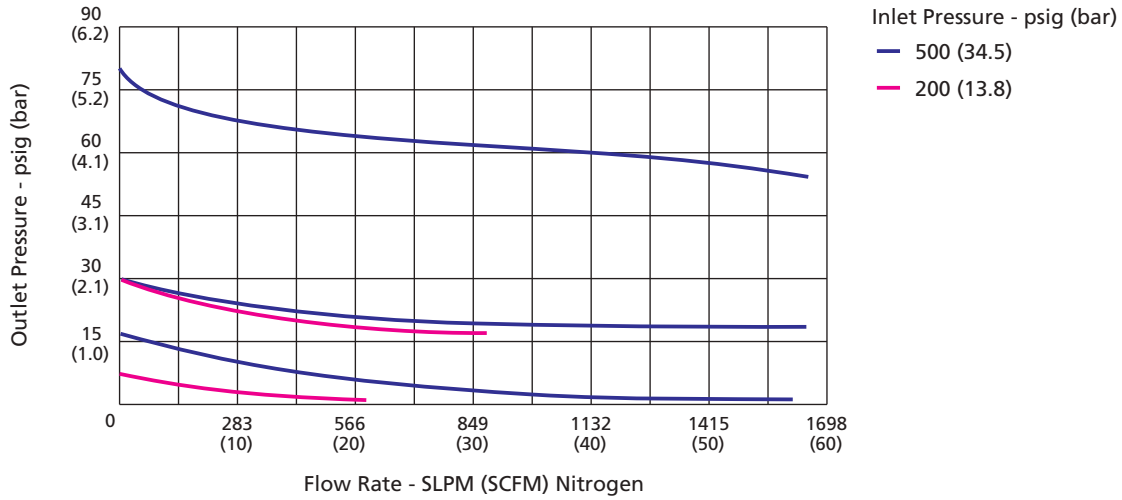
### Features

- ◎ 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** | | | 3/4" or 1" |
| **Max. Working Pressure** | | | 500 psig (34.5 bar) |
| **Outlet Pressure Range** | | | 0 ~ 15 psig (0 ~ 1.0 bar) |
| | | | 0 ~ 30 psig (0 ~ 2.1 bar) |
| | | | 0 ~ 75 psig (0 ~ 5.2 bar) |
| | | | 0 ~150 psig (0 ~ 10.3 bar) |
| **Flow Coefficient (Cv)** | | | 1.8 |
| **Working Temperature** | | | -40 ~ 165 °F (-40 ~ 74 °C) |
| **SPE (Supply Pressure Effect)** | | | 4.5 psig per 100 psig source pressure change |
| **Leak Rate** | **External** | **Inboard** | $\leqslant 2\times10^{-10}$ std $cm^3/s$ (Helium) |
| | | **Outboard** | $\leqslant 1\times10^{-9}$ std $cm^3/s$ (Helium) |
| | **Internal** | | No visible air bubble |

## Flow Data

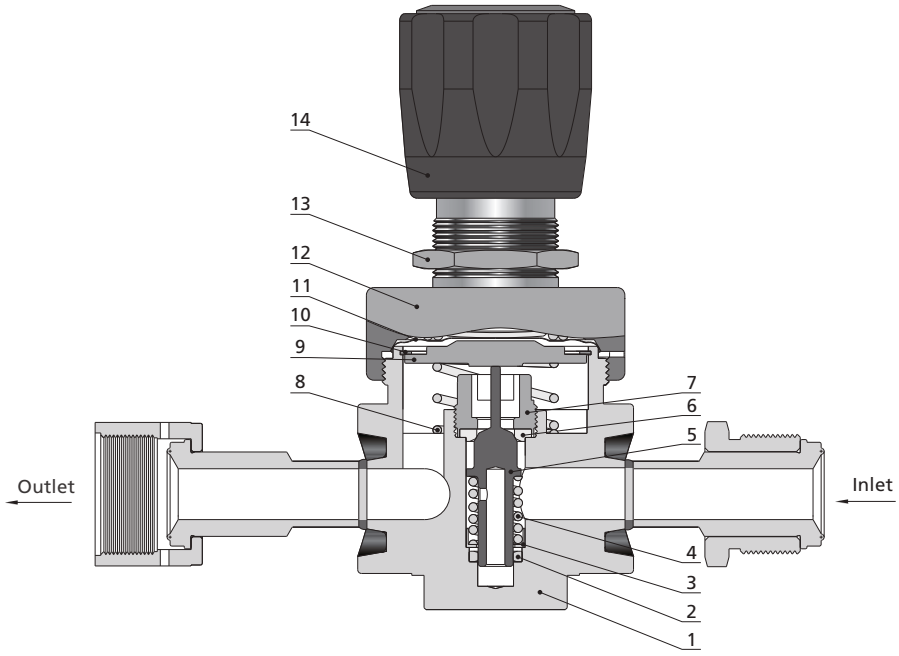



## Process Specification

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

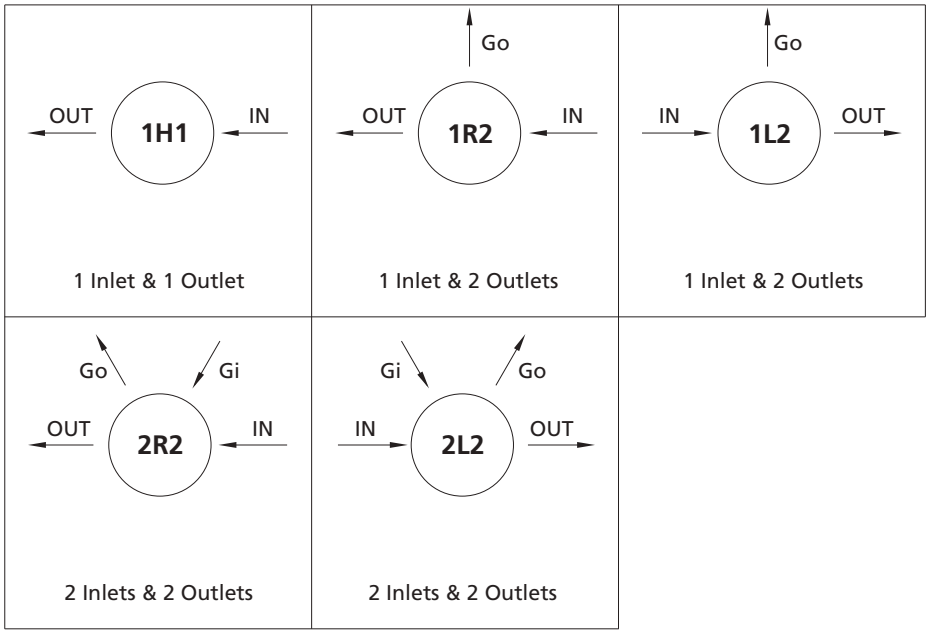
Note: For products with higher surface finish, please contact FITOK.

# Major Materials of Construction




| Item | Component | Material/Specification |
|---|---|---|
| 1 | Body | 316L SS or Brass |
| 2 | Guide Ring | PTFE/ASTM D1710 |
| 3 | Spring Seat | 316L SS |
| 4 | Poppet Spring | 316L SS or Alloy X-750 |
| 5 | Lift Poppet | 316L SS |
| 6 | Seat | PCTFE/ASTM D1430 or PTFE/ASTM D1710 |
| 7 | Seat Retainer | 316L SS |
| 8 | Reset Spring | 316 SS |
| 9 | Buffer Plate | 316L SS |
| 10 | Light-Duty Retainer | 316L SS |
| 11 | Diaphragm | 316L SS/ASTM A240 |
| 12 | Bonnet | 304 SS/ASTM A479 or Brass |
| 13 | Panel Nut | 304 SS/ASTM A479 |
| 14 | Handle | ABS |

# Porting Configurations




## Porting Configuration Symbol

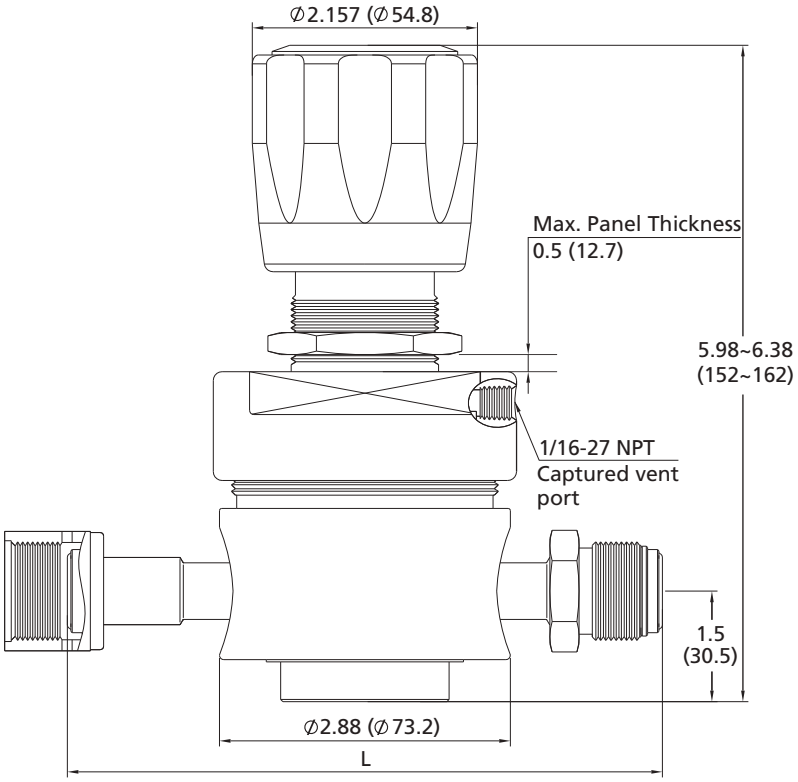
| IN | OUT | Gi | Go |
|---|---|---|---|
| Inlet | Outlet | Inlet Pressure Gauge Port | Outlet Pressure Gauge Port |

Notes:

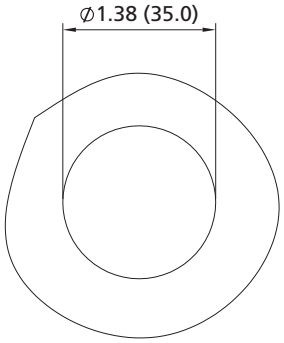
1. IN and OUT are the inlet and outlet ports for connecting the valve to the system. Ports other than IN and OUT should not be used for system connections.
2. Porting configuration is viewed from the top.

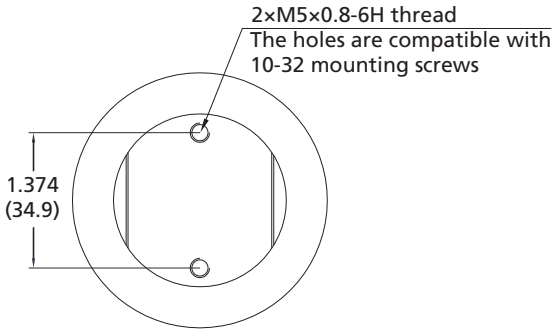
# Dimensions

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

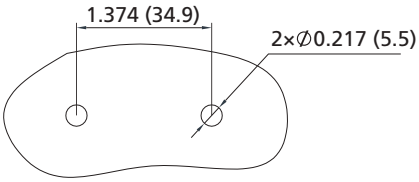



Panel Mounting Cut-Out




Bottom Mounting Screw Holes




Bottom Mounting Cut-Outs

| Connection Designator | Connection Type and Size | Dimension, in.(mm) |
|---|---|---|
| | | L |
| FL12 | 3/4" Tube Fitting | 5.98 (152) |
| FNS12 | 3/4" Female NPT | 2.88 (73.2) |
| FFR12 | 3/4" Rotatable Female FR Metal Gasket Face Seal Fitting | 6.81 (173) |
| RFR12 | 3/4" Rotatable Male FR Metal Gasket Face Seal Fitting | |
| FL16 | 1" Tube Fitting | 6.42 (163) |
| FFR16 | 1" Rotatable Female FR Metal Gasket Face Seal Fitting | 7.21 (183) |
| RFR16 | 1" Rotatable Male FR Metal Gasket Face Seal Fitting | |

# Ordering Number Description

RDGN – 6L – 5H – 30 – 2R2 – FNS12 – FL16 – IB – OB – T – ATPM – F2

| Series |
|---|
| RDGN |

| Max. Inlet Pressure | |
|---|---|
| 5H | 500 psig (34.5 bar) |

| Body Material | |
|---|---|
| 6L | 316L SS |
| B | Brass |

| Outlet Pressure Range | |
|---|---|
| 15 | 0~15 psig (0~1.0 bar) |
| 30 | 0~30 psig (0~2.1 bar) |
| 75 | 0~75 psig (0~5.2 bar ) |
| 150 | 0~150 psig (0~10.3 bar ) |

| Porting | |
|---|---|
| 1H1 | 1 Inlet & 1 Outlet |
| 1R2 | 1 Inlet & 2 Outlets |
| 1L2 | 1 Inlet & 2 Outlets |
| 2R2 | 2 Inlets & 2 Outlets |
| 2L2 | 2 Inlets & 2 Outlets |

| Inlet (IN) | |
|---|---|
| FL12 | 3/4" Tube Fitting |
| FNS12 | 3/4" Female NPT |
| FFR12 | 3/4" Rotatable Female FR Metal Gasket Face Seal Fitting |
| RFR12 | 3/4" Rotatable Male FR Metal Gasket Face Seal Fitting |
| FL16 | 1" Tube Fitting |
| FFR16 | 1" Rotatable Female FR Metal Gasket Face Seal Fitting |
| RFR16 | 1" Rotatable Male FR Metal Gasket Face Seal Fitting |

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

| Inlet Pressure Gauge Port (Gi) | |
|---|---|
| | Without pressure gauge, refer to Note 4 |
| IB | Gauge (psi/bar) |
| IM | Gauge (psi/MPa) |
| IP | Plug |

| Outlet Pressure Gauge Port (Go) | |
|---|---|
| | Without pressure gauge, refer to Note 4 |
| OB | Gauge (psi/bar) |
| OM | Gauge (psi/MPa) |
| OP | Plug |

| Seat Material | |
|---|---|
| | PCTFE |
| T | PTFE |

| Handle | |
|---|---|
| | Round Handle |
| AT | For lock nut, see Note 6 |

| Installation Type | |
|---|---|
| | Threaded Hole at the Bottom |
| PM | Installed with Panel Nut |
| BS | Installed with Screws at the Bottom |

| Process Specification | |
|---|---|
| F2 | FC-02 |
| F3 | FC-03 |

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 ports, the port and body are orbital-welded integral structure by default.
3. For NPT or Fractional Tube Fitting ports, the body port is 3/4" Female NPT by default. Other options are adapted from Male NPT.
4. When choosing NPT or Fractional Tube Fitting for inlet and outlet, gauge ports (Gi, Go) are 1/4" Female NPT. When choosing Metal Gasket Face Seal Fitting for inlet and outlet, gauge ports (Gi, Go) are 1/4" Rotatable Male FR Metal Gasket Face Seal Fitting.
5. For the outlet relief valve, the set pressure is factory-set to 1.05-1.1 times the maximum outlet pressure by default.
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.

# Regulators

## General Piston Regulators

## RPGC Series


### Introduction

RPGC Series General Piston Regulators feature a single-stage pressure reduction design with a piston sensing mechanism that is more resistant to damage caused by pressure spikes and offers a broad outlet pressure range. With eight port configuration options, these regulators accommodate a variety of gas and liquid applications.

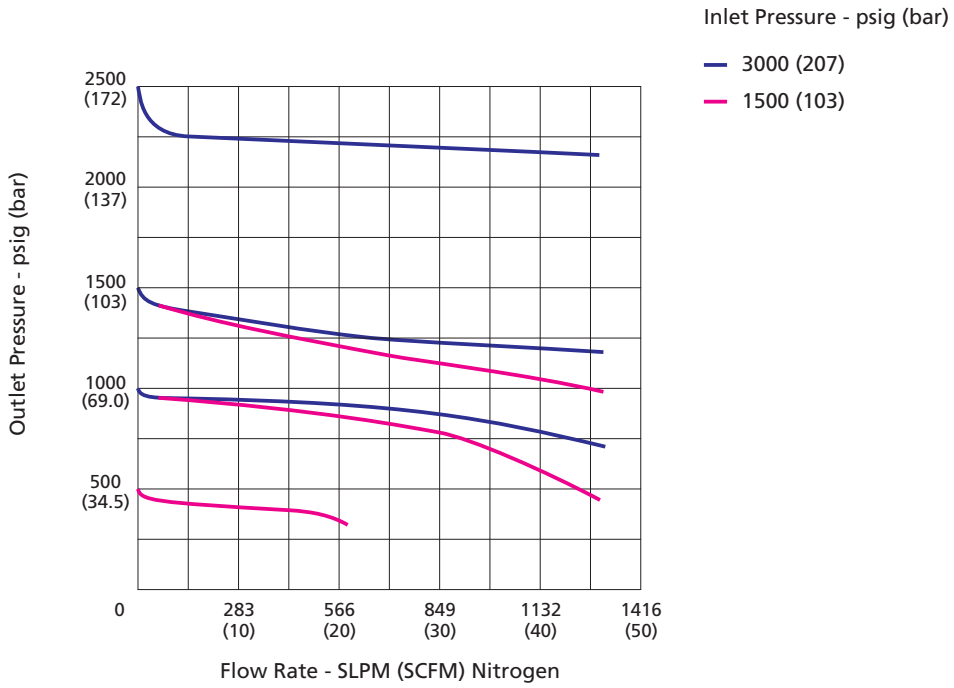
### Features

- Built-in 40 μm inlet filter for cleanliness and extended service life
- Optional self-venting feature
- The bonnet includes a captured vent port, allowing media to be vented to a designated location in the event of accidental O-ring failure

### Technical Data

| | | | |
|---|---|---|---|
| **Port Size** | | | 1/4", 3/8", 6 mm or 8 mm |
| **Max. Working Pressure** | | | 6000 psig (414 bar) |
| **Outlet Pressure Range** | | | 0 ~ 250 psig (0 ~ 17.2 bar) |
| | | | 0 ~ 500 psig (0 ~ 34.5 bar) |
| | | | 0 ~ 750 psig (0 ~ 51.7 bar) |
| | | | 0 ~ 1000 psig (0 ~ 69.0 bar) |
| | | | 0 ~ 1500 psig (0 ~ 103 bar) |
| | | | 0 ~ 2500 psig (0 ~ 172 bar) |
| **Flow Coefficient (Cv)** | **Non-self-venting** | | 0.06 |
| | **Self-venting** | | 0.1 |
| **Working Temperature** | | **FKM** | -4 ~ 165 °F (-20 ~ 74 °C) |
| | | **FFKM** | -1.4 ~ 165 °F (-17 ~ 74 °C) |
| **SPE (Supply Pressure Effect)** | **Outlet Pressure: 250, 500 psig** | | 1.3 psig per 100 psig source pressure change |
| | **Outlet Pressure: 750, 1000 psig** | | 1.9 psig per 100 psig source pressure change |
| | **Outlet Pressure: 1500, 2000 psig** | | 4.5 psig per 100 psig source pressure change |
| **Leak Rate** | | **External** | Bubble tight |
| | | **Internal** | Bubble tight |

## Flow Data

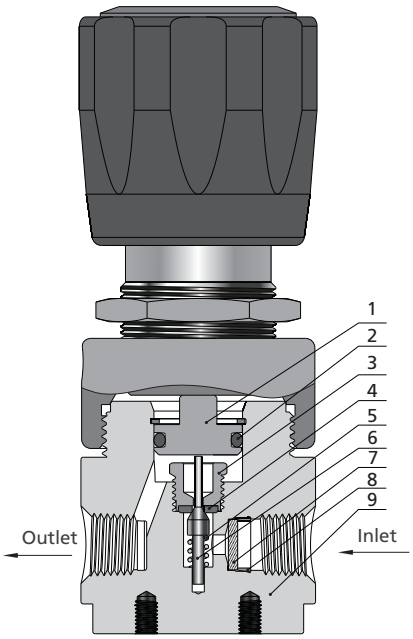



## Process Specification

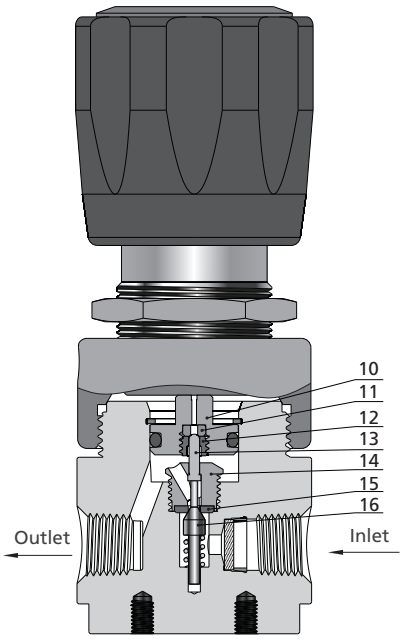
| Item \ Process Specification | Special Cleaning and Packaging Process (FC-02) |
|---|---|
| **Material** | 316 SS, 316L SS, Brass (Nickle-Plated) |
| **Wetted Surface Roughness** | Ra 32 µin. (0.8 µm) |
| **Polishing Process** | Machine Finished |
| **Assembly Environment** | In specially cleaned areas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

# Major Materials of Construction

Non-Self-Venting



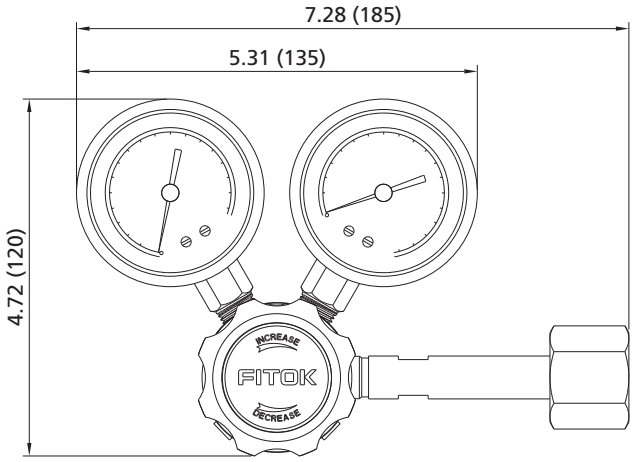

Self-Venting

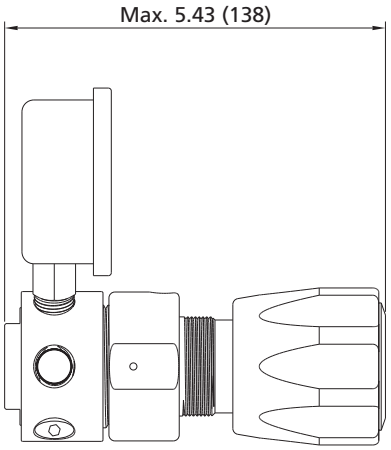


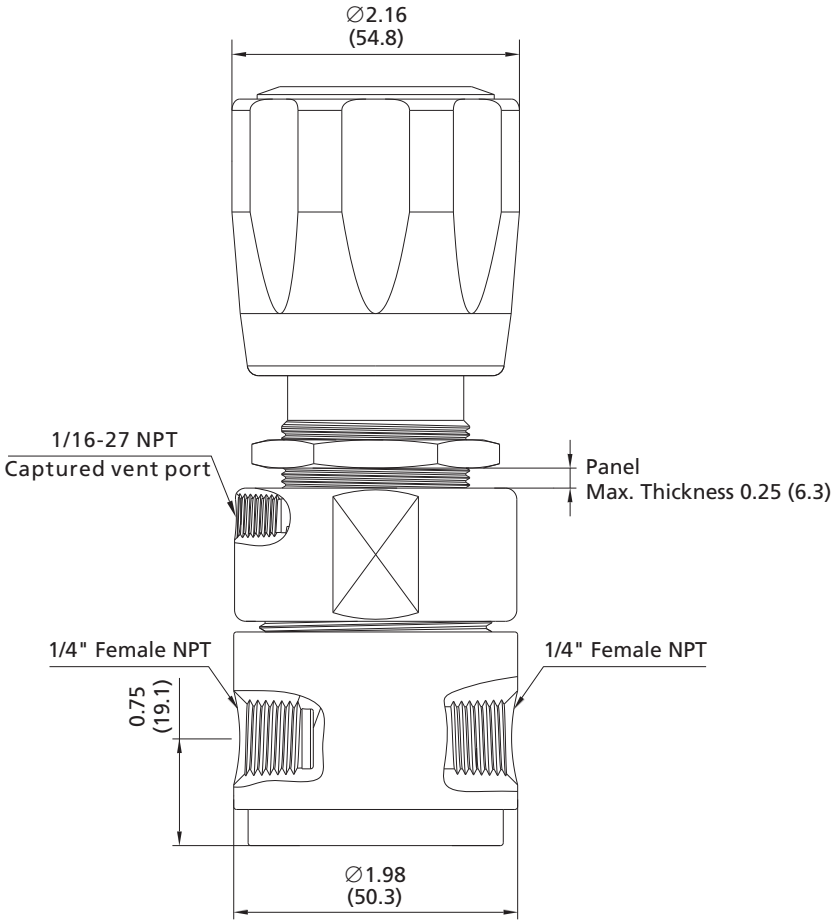

| Item | Component | Material/Specification |
|---|---|---|
| 1 | Piston | 316L SS/ASTM A276 |
| 2 | O-Ring | FKM or FFKM |
| 3 | Seat Retainer | 316L SS/ASTM A479 |
| 4 | Seat | PCTFE/ASTM D1430 |
| 5 | Poppet Spring | Alloy |
| 6 | Lift Poppet | Alloy C-276/ASTM B574 |
| 7 | Filter | 316L SS |
| 8 | Retaining Ring | PTFE/ASTM D1710 |
| 9 | Body | 316L SS/ASTM A479 or 316 SS/ASTM A479 or Brass (Nickle-Plated) |
| 10 | Vent Piston | 316L SS/ASTM A479 |
| 11 | Vent Seat | PEEK |
| 12 | Vent Bushing | 316L SS/ASTM A479 |
| 13 | Vent Rod | Alloy C-276/ASTM B574 |
| 14 | Vent Seat Retainer | 316L SS/ASTM A479 |
| 15 | Seat | PEEK |
| 16 | Vent Poppet | Alloy C-276/ASTM B574 |

## Dimensions

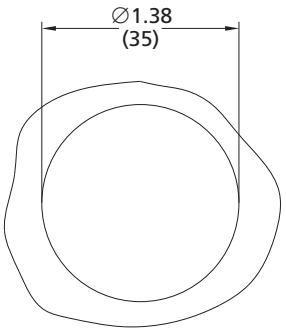
Dimensions, in inches (millimeters), are for reference only.

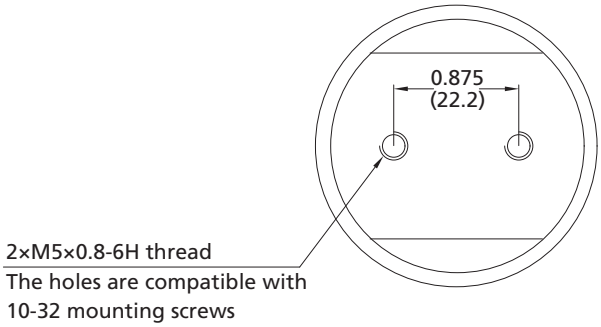


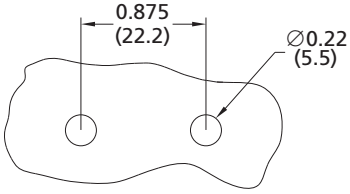




Panel Mounting Cut-Out

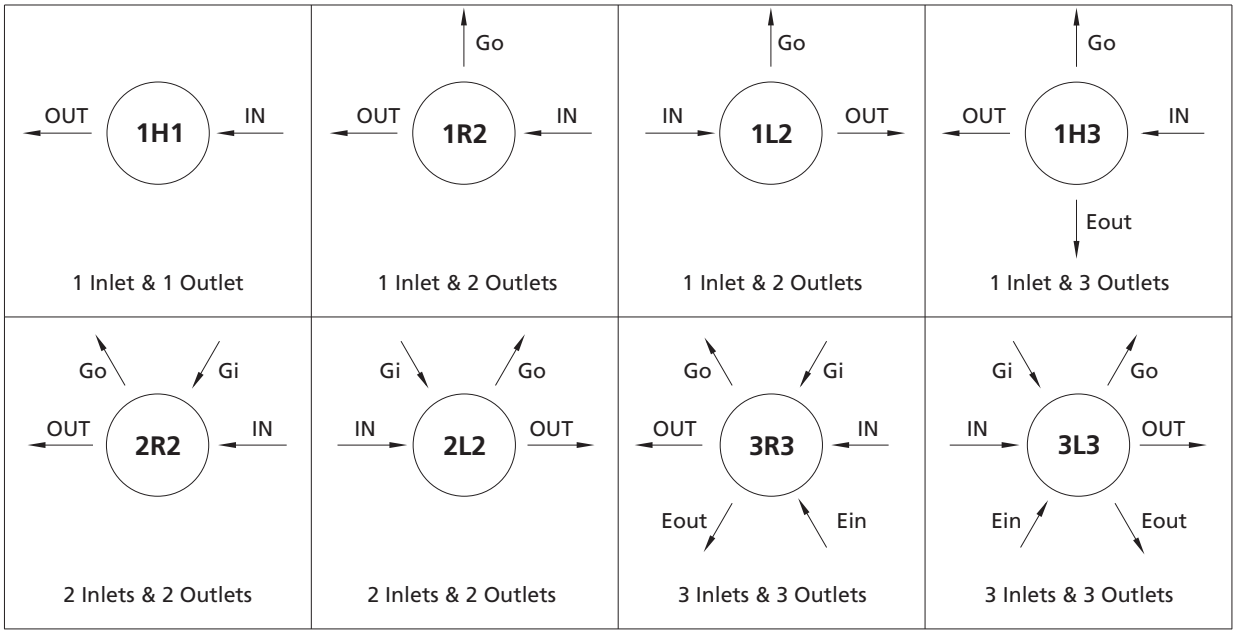



Bottom Mounting Cut-Outs



# 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.

# Ordering Number Description

RPGC - 6L - 45H - 5H - 3R3 - FNS4 - C580 - IBAP - OBR - Z - SVPM - F2

| Series |
|---|
| RPGC |

| Body Material | |
|---|---|
| SS | 316 SS |
| 6L | 316L SS |
| B | Brass (Nickle-Plated) |

| Max. Inlet Pressure | |
|---|---|
| 3K | 3000 psig (207 bar) |
| 45H | 4500 psig (310 bar) |
| 6K | 6000 psig (414 bar) |

| Outlet Pressure Range | |
|---|---|
| 250 | 0~250 psig (0~17.2 bar) |
| 5H | 0~500 psig (0~34.5 bar) |
| 750 | 0~750 psig (0~51.7 bar) |
| 1K | 0~1000 psig (0~69.0 bar) |
| 15H | 0~1500 psig (0~103 bar) |
| 25H | 0~2500 psig (0~172 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 |
| NS4 | 1/4" Male 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) | |
|---|---|
| | No 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 |

| Vent Option | |
|---|---|
| | None |
| SV | Self-Venting |

| O-Ring Material | |
|---|---|
| | FKM |
| Z | FFKM |

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

| Process Specification | |
|---|---|
| F2 | FC-02 |

| Installation Type | |
|---|---|
| | Threaded Hole at the Bottom |
| PM | Installed with Panel Nut |
| BS | Installed with Screws at the Bottom |

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. When selecting Cylinder Connection, NPT, or Fractional/Metric Tube Fitting for the inlet and outlet, the valve body comes with 1/4" Female NPT inlet and outlet ports by default. The gauge ports (Go, Gi), auxiliary inlet (Ein), and auxiliary outlet (Eout) are also 1/4" Female 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.

# 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.

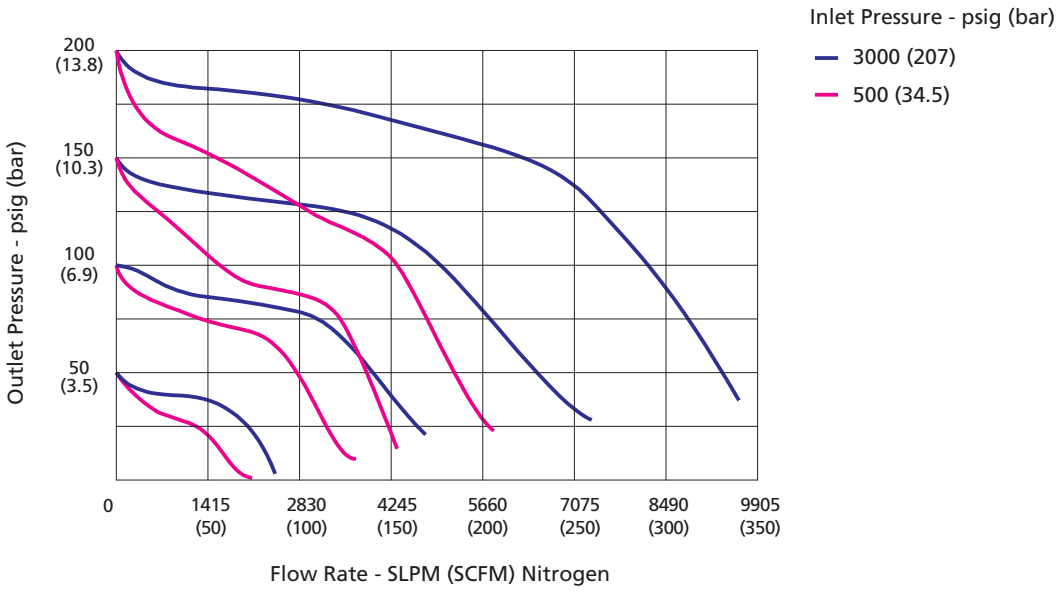
### Features

- ◎ 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)<br>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** | $\leqslant 2\times10^{-10}$ std $cm^3/s$ (Helium) |
| | | **Outboard** | $\leqslant 1\times10^{-9}$ std $cm^3/s$ (Helium) |
| | **Internal** | | Max. Inlet Pressure 500 psig: $\leqslant 4\times10^{-8}$ std $cm^3/s$ (Helium) |
| | | | Max. Inlet Pressure 3000 psig: Bubble tight |

## Flow Data

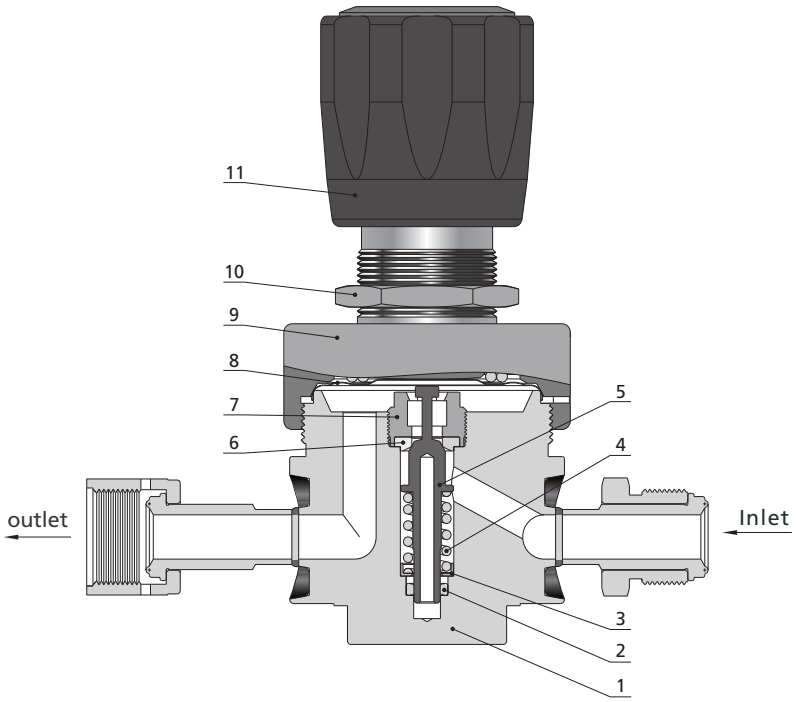



## Process Specification

| Process Specification / Item | Special Cleaning and Packaging Process (FC-02) | Ultra High Purity Process (FC-03) |
|---|---|---|
| **Material** | 316L SS, 316L SS VAR, Brass | 316L SS, 316L SS VAR |
| **Wetted Surface Roughness** | Face Seal Connection or Butt Weld Connection: Ra 20 µin. (0.5 µm)<br>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 |

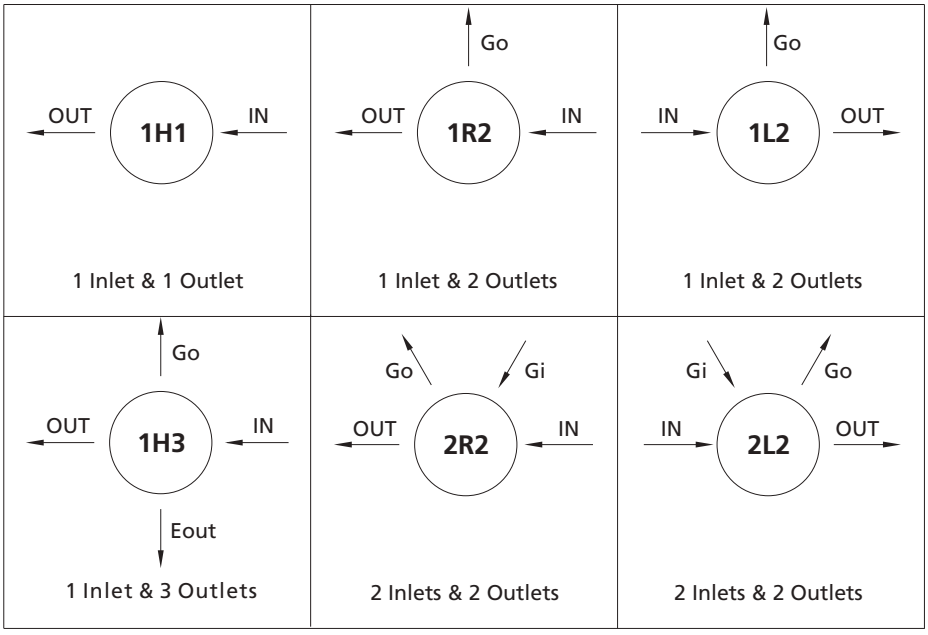
Note: For products with higher surface finish, please contact FITOK.

# 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

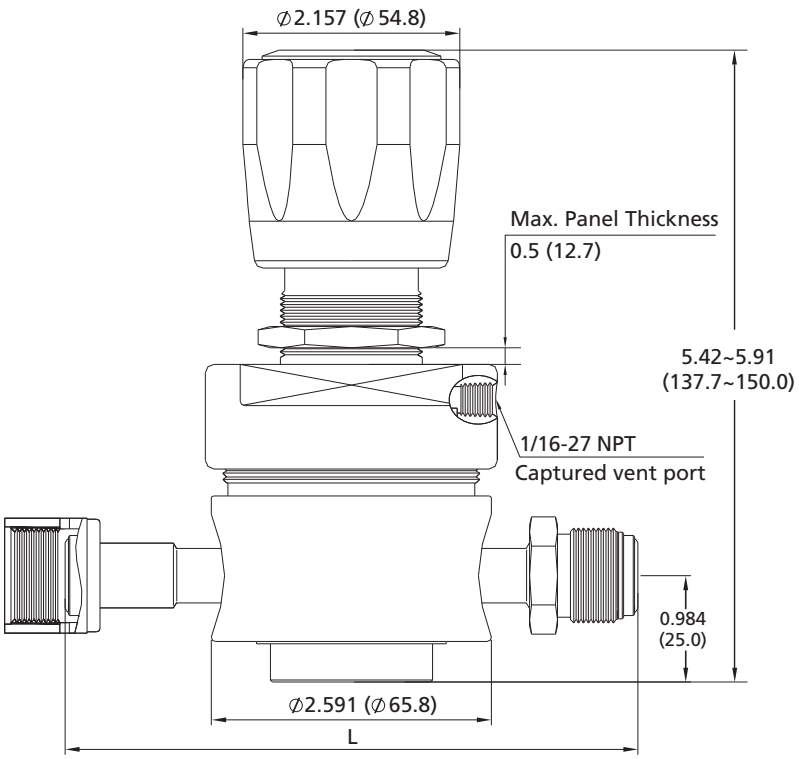
| IN | OUT | Gi | Go | Eout |
|---|---|---|---|---|
| Inlet | Outlet | Inlet Pressure Gauge Port | Outlet Pressure Gauge Port | Auxiliary Outlet |

Notes:

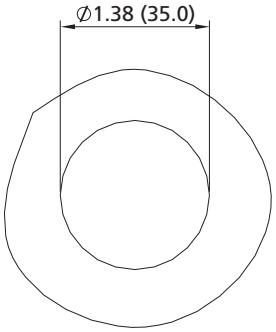
1. IN and OUT are the inlet and outlet ports for connecting the valve to the system. Ports other than IN and OUT should not be used for system connections.
2. Porting configuration is viewed from the top.

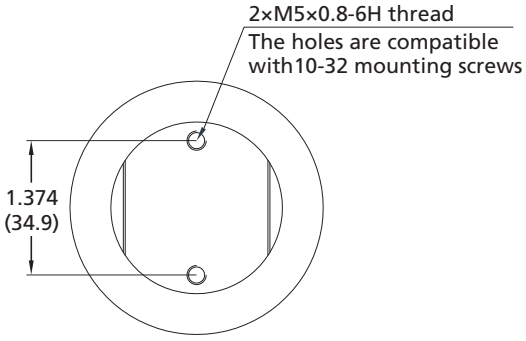
# Dimensions

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

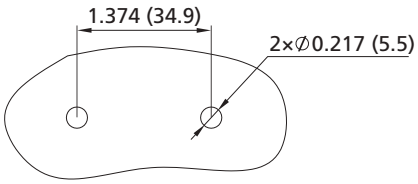



Panel Mounting Cut-Out




Bottom Mounting Screw Holes




Bottom Mounting Cut-Outs

| 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

RDGH – 6L – 3K – 1H – 2R2 – FNS8 – FL8 – IB – OB – T – ATPM – F2

| Series | |
|---|---|
| RDGH | |

| Max. Inlet Pressure | |
|---|---|
| 5H | 500 psig (34.5 bar) |
| 3K | 3000 psig (207 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 |

| Inlet (IN) | |
|---|---|
| FL6 | 3/8" Tube Fitting |
| FL8 | 1/2" Tube Fitting |
| FNS8 | 1/2" Female NPT |
| TB8 | 1/2"×0.035"Tube Butt Weld |
| FFR8 | 1/2" Rotatable Female FR Metal Gasket Face Seal Fitting |
| RFR8 | 1/2" Rotatable Male FR Metal Gasket Face Seal Fitting |
| ML10 | 10 mm Tube Fitting |
| ML12 | 12 mm Tube Fitting |
| FFR12 | 3/4" Rotatable Female FR Metal Gasket Face Seal Fitting |
| RFR12 | 3/4" Rotatable Male FR Metal Gasket Face Seal Fitting |

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

| Inlet Pressure Gauge Port (Gi) | |
|---|---|
| | Without pressure gauge, refer to Note 4 |
| IB | Gauge psi/bar |
| IM | Gauge psi/MPa |
| IP | Plug |

| Outlet Pressure Gauge Port (Go) | |
|---|---|
| | Without pressure gauge, refer to Note 4 |
| OB | Gauge psi/bar |
| OM | Gauge psi/MPa |
| OP | Plug |

| Auxiliary Outlet (Eout) | |
|---|---|
| | Without plug, refer to Note 4 |
| RP | Plug |
| R | With relief valve, refer to Note 5 |

| Seat Material | |
|---|---|
| | PCTFE |
| T | PTFE |
| P | PEEK |

| Handle | |
|---|---|
| | Round Handle |
| AT | For lock nut, see Note 6 |

| Installation Type | |
|---|---|
| | Threaded Hole at the Bottom |
| PM | Installed with Panel Nut |
| BS | Installed with Screws at the Bottom |

| Process Specification | |
|---|---|
| F2 | FC-02 |
| F3 | FC-03 |

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.
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.

# Compact Piston Regulators

## RPCC Series

### Introduction

RPCC Series Compact Piston Regulators feature a single-stage pressure reduction design with a piston sensing mechanism that is more resistant to damage caused by pressure spikes and offers a broad outlet pressure range. These regulators are ideal for high-pressure, low-flow applications.

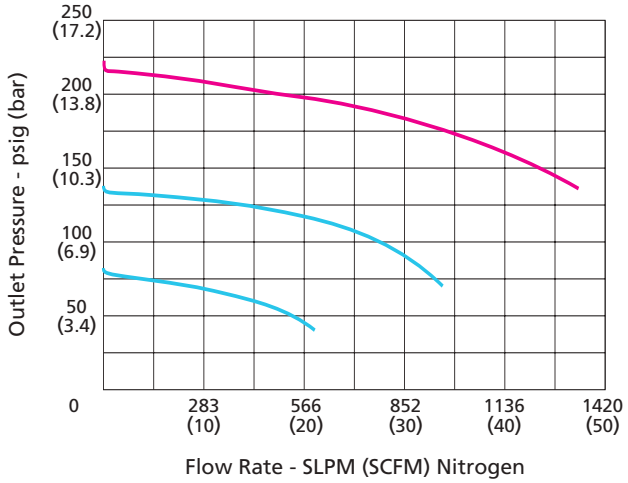
### Features

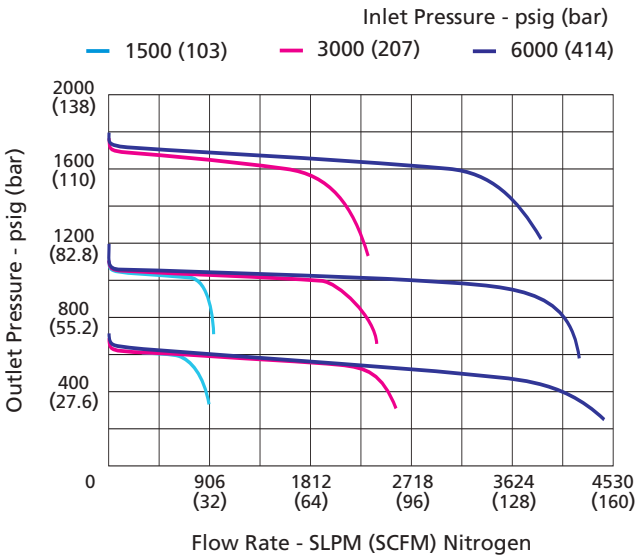
- ◎ Compact and small size design
- ◎ Integrated 40 µm inlet filter for cleanliness and extended service life
- ◎ A variety of O-ring material options for broad media compatibility and temperature ranges

### Technical Data

| | | | |
|---|---|---|---|
| **Port Size** | | | 1/4", 3/8", 6 mm or 8 mm |
| **Max. Working Pressure** | | | 6000 psig (414 bar) |
| **Outlet Pressure Range** | | | 0 ~ 80 psig (0 ~ 5.5 bar) |
| | | | 0 ~ 140 psig (0 ~ 9.7 bar) |
| | | | 0 ~ 220 psig (0 ~ 15.2 bar) |
| | | | 0 ~ 700 psig (0 ~ 48.3 bar) |
| | | | 0 ~ 1200 psig (0 ~ 82.8 bar) |
| | | | 0 ~ 1800 psig (0 ~ 124 bar) |
| **Flow Coefficient (Cv)** | | | 0.06 |
| **Working Temperature** | | **O-Ring** | NBR: -30 ~ 165°F (-34 ~ 74°C) |
| | | | FKM: -4 ~ 165°F (-20 ~ 74°C) |
| | | | FFKM: 1.4 ~ 400°F (-17 ~ 204°C) |
| | | | EPDM: -30 ~ 300°F (-34 ~ 149°C) |
| | | **Seat** | PCTFE: -30 ~ 165°F (-34 ~ 74°C) |
| | | | PEEK: -30 ~ 400°F (-34 ~ 204°C) |
| **SPE (Supply Pressure Effect)** | **Outlet Pressure ≤220 psig** | | 0.6 psig per 100 psig source pressure change |
| | **Outlet Pressure >220 psig** | | 4 psig per 100 psig source pressure change |
| **Leak Rate** | **External** | | Bubble tight |
| | **Internal** | | Bubble tight |

## Flow Data



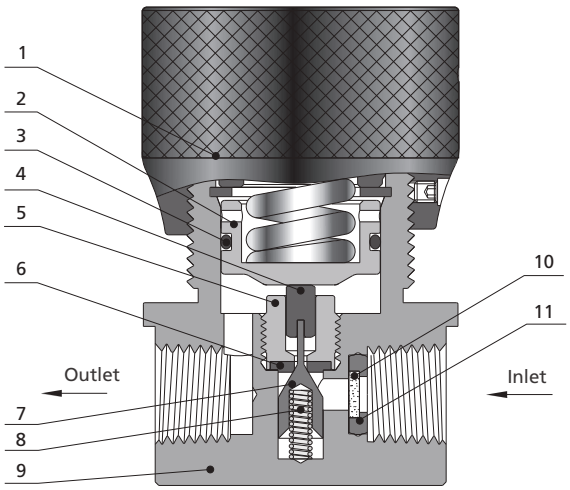

## Process Specification

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

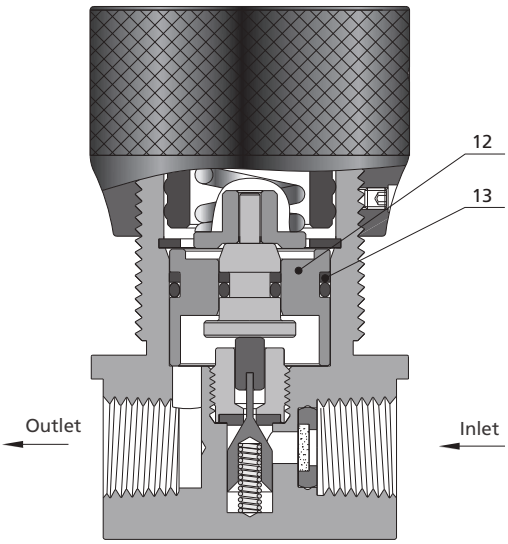
# Major Materials of Construction

Large piston configuration: Max. outlet pressure ⩽ 220 psig
Small piston configuration: Max. outlet pressure > 220 psig

**Large Piston**

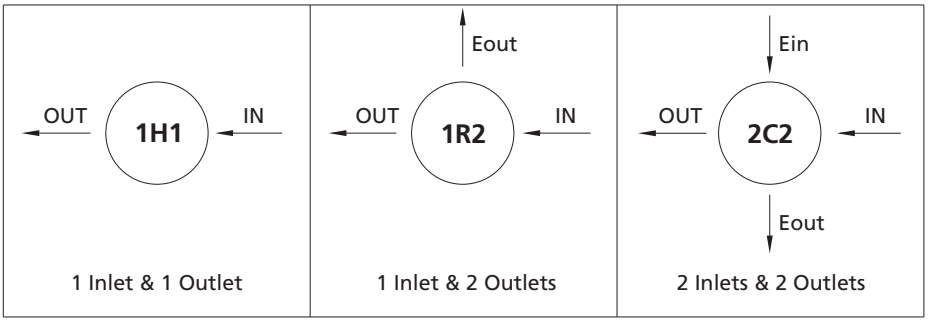



**Small Piston**




| Item | Component | Material/Specification |
|---|---|---|
| 1 | Knob Handle | Aluminium Alloy |
| 2 | Piston | 316L SS |
| 3 | O-Ring | NBR or FKM or FFKM or EPDM |
| 4 | Poppet Button | 316L SS |
| 5 | Seat Retainer | 316L SS |
| 6 | Seat | PCTFE/ASTM D1430 or PEEK |
| 7 | Lift Poppet | 316L SS |
| 8 | Poppet Spring | 316 SS |
| 9 | Body | 316L SS or Brass (Nickle-Plated) |
| 10 | Filter | 316L SS |
| 11 | Retaining Ring | PTFE/ASTM D1710 |
| 12 | Piston Ring | 316L SS |
| 13 | Retaining Ring | PTFE/ASTM D1710 or PEEK |

# Porting Configurations



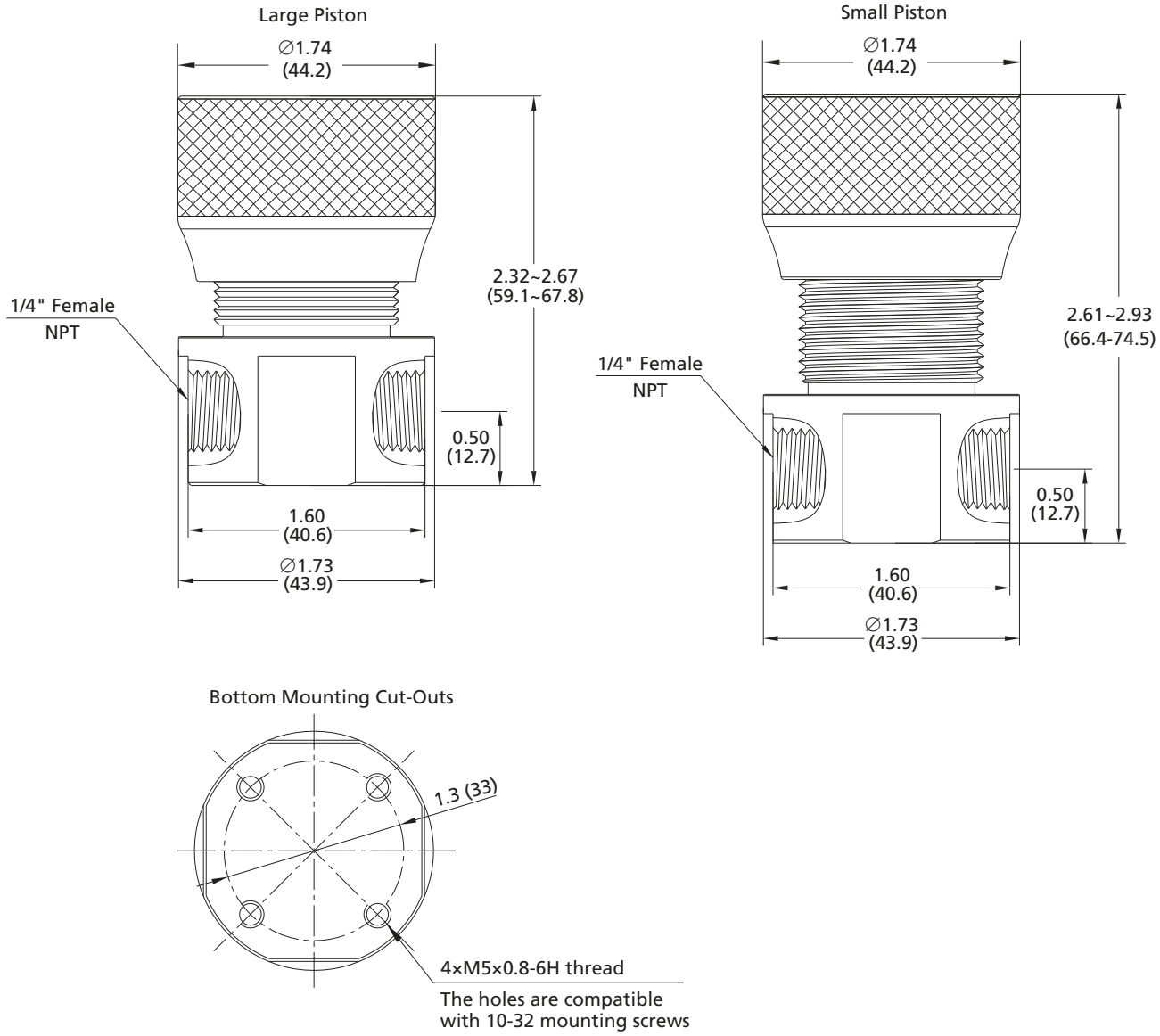

## Porting Configuration Symbols

| IN | OUT | Ein | Eout |
|---|---|---|---|
| Inlet | Outlet | 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.



## Ordering Number Description

RPCC – 6L – 6K – 7H – 2C2 – FNS4 – FL4 – PV – BS – F2

| Series |
|---|
| RPCC |

| Body Material | |
|---|---|
| 6L | 316L SS |
| B | Brass (Nickle-Plated) |

| Max. Inlet Pressure | |
|---|---|
| 6K | 6000 psig (414 bar) |

| Outlet Pressure Range | |
|---|---|
| 80 | 0~80 psig (0~5.5 bar) |
| 140 | 0~140 psig (0~9.7 bar) |
| 220 | 0~220 psig (0~15.2 bar) |
| 7H | 0~700 psig (0~48.3 bar) |
| 12H | 0~1200 psig (0~82.8 bar) |
| 18H | 0~1800 psig (0~124 bar) |

| Porting | |
|---|---|
| 1H1 | 1 Inlet & 1 Outlet |
| 1R2 | 1 Inlet & 2 Outlets |
| 2C2 | 2 Inlets & 2 Outlets |

| Inlet (IN) | |
|---|---|
| FNS4 | 1/4" Female NPT |
| NS4 | 1/4" Male 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 |

| Seat | |
|---|---|
| | PCTFE |
| P | PEEK |

| O-Ring Material | |
|---|---|
| | NBR |
| V | FKM |
| Z | FFKM |
| E | EPDM |

| Installation Type | |
|---|---|
| | Threaded Hole at the Bottom |
| 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. For NPT connection and Metric/Fractional Tube Fitting connection, the body connection is 1/4" Female NPT by default. Other options are adapted from Male NPT.
3. Auxiliary inlet (Ein) and auxiliary outlet (Eout) are 1/4" Female NPT by default.

# 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.

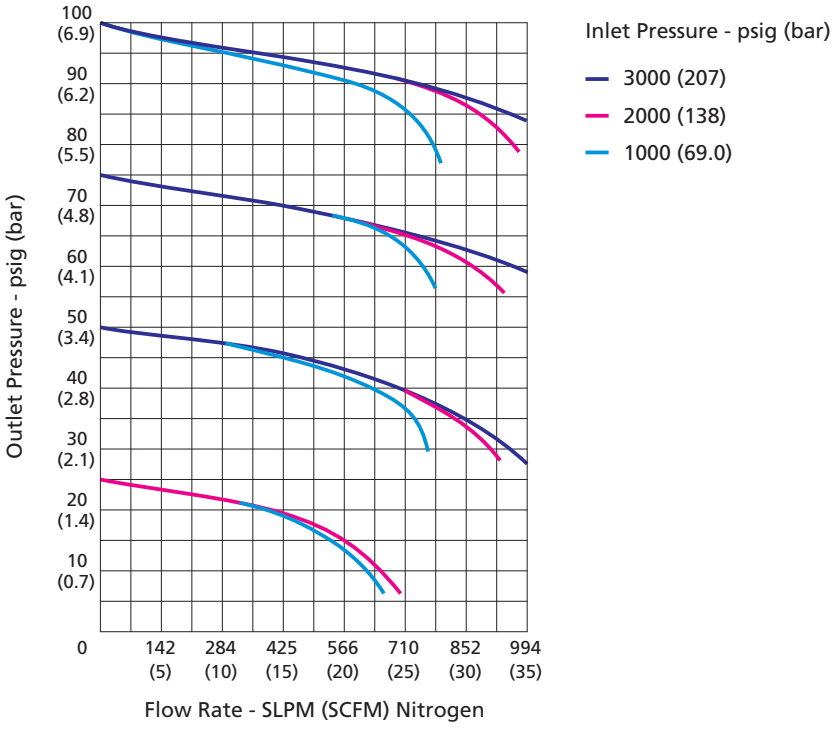
### Features

- ◎ Lift poppet and diaphragm are 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

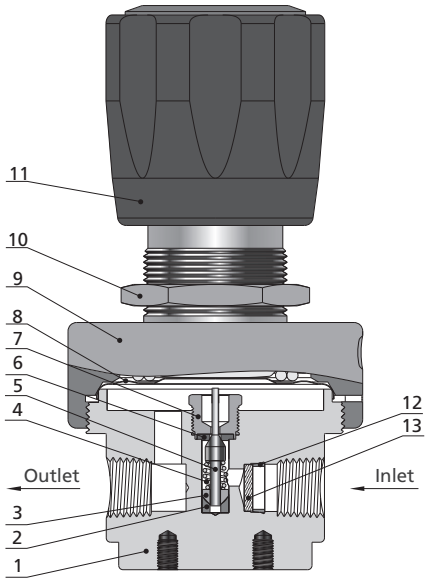
| | | | |
|---|---|---|---|
| **Port Size** | | | 1/4", 3/8", 6 mm or 8 mm |
| **Max. Working Pressure** | | | 4500 psig (310 bar) |
| **Outlet Pressure Range** | | | 0 ~ 25 psig (0 ~ 1.7 bar) |
| | | | 0 ~ 50 psig (0 ~ 3.4 bar) |
| | | | 0 ~ 100 psig (0 ~ 6.9 bar) |
| | | | 0 ~ 150 psig (0 ~ 10.3 bar) |
| | | | 0 ~ 200 psig (0 ~ 13.8 bar) |
| **Flow Coefficient (Cv)** | | | 0.06 |
| **Working Temperature** | | | -40 ~ 165 °F (-40 ~ 74 °C) |
| **SPE (Supply Pressure Effect)** | | | 0.5 psig per 100 psig source pressure change |
| **Leak Rate (Helium)** | **External** | **Inboard** | $\leqslant 2\times10^{-10}$ std $cm^3/s$ |
| | | **Outboard** | $\leqslant 1\times10^{-9}$ std $cm^3/s$ |
| | **Internal** | | $\leqslant 4\times10^{-8}$ std $cm^3/s$ |

## Flow Data



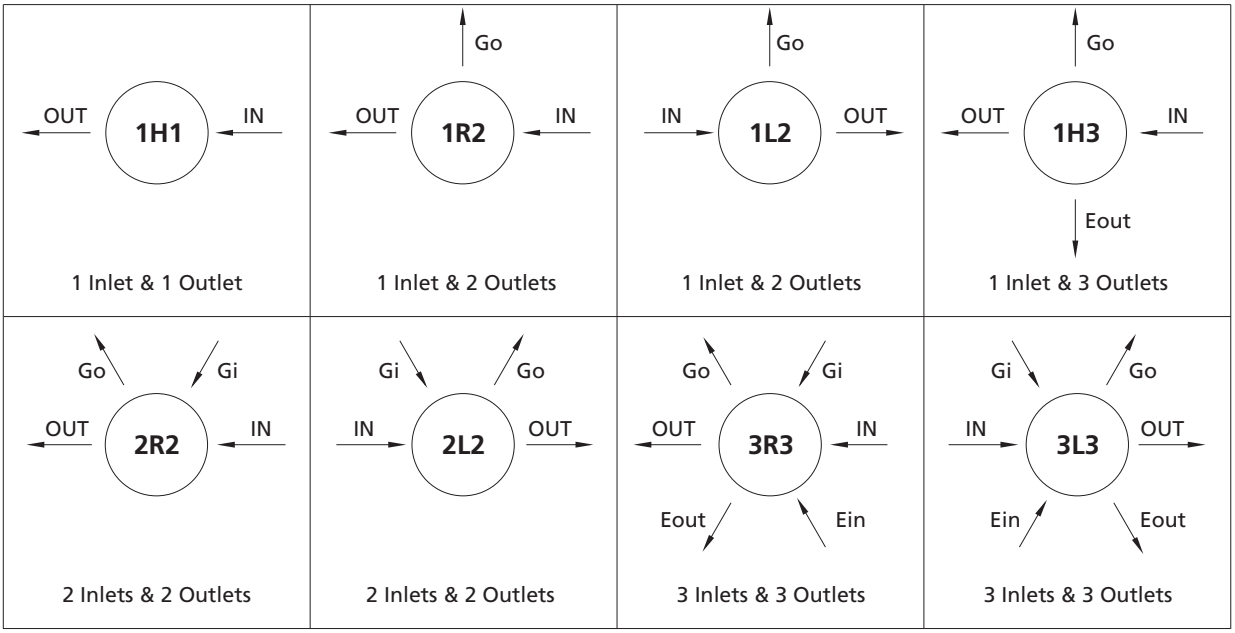

| Item \ Process Specification | Special Cleaning and Packaging Process (FC-02) |
|---|---|
| **Material** | 316L SS, 316L SS VAR, Brass |
| **Wetted Surface Roughness** | Ra 32 µin. (0.8 µm) |
| **Polishing Process** | Machine finished |
| **Assembly Environment** | In specially cleaned areas |
| **Packaging**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

# Major Materials of Construction




| Item | Component | Material/Specification |
|---|---|---|
| 1 | Body | 316L SS or 316L SS VAR or Brass |
| 2 | Friction Sleeve | 316L SS or 316L SS VAR |
| 3 | Poppet Damper | PTFE/ASTM D1710 |
| 4 | Poppet Spring | Alloy X-750 |
| 5 | Lift Poppet | Alloy C-276/ASTM B574 |
| 6 | Seat | PCTFE/ASTM D1430 or PTFE/ASTM D1710 |
| 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 |
| 12 | Retaining Ring | PTFE/ASTM D1710 |
| 13 | Filter | 316L SS |

# Porting Configurations




### Porting Configuration Symbol

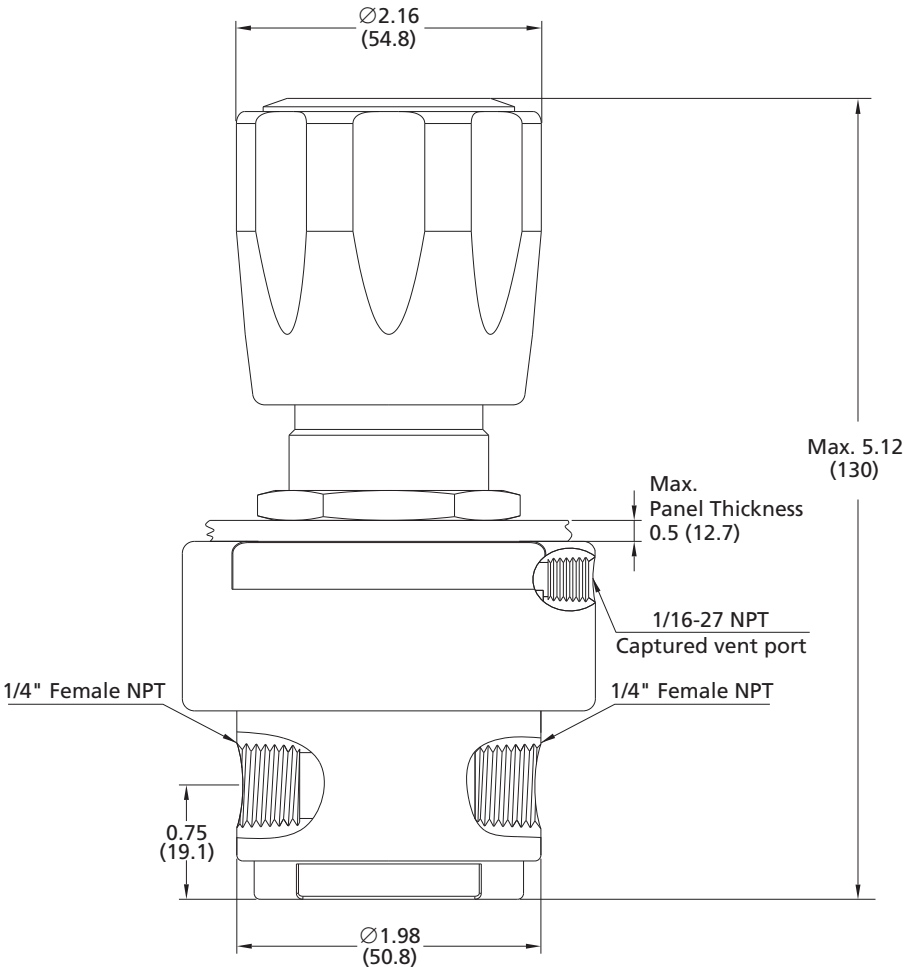
| IN | OUT | Gi | Go | Ein | Eout |
|---|---|---|---|---|---|
| Inlet | Outlet | Inlet Pressure Gauge Port | Outlet Pressure Gauge Port | Auxiliary Inlet | Auxiliary Outlet |

Notes:

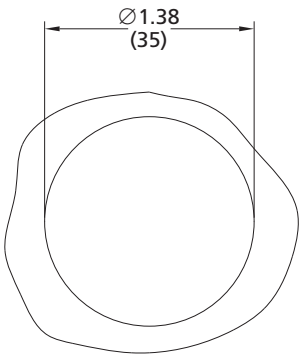
1. IN and OUT are the inlet and outlet ports for connecting the valve to the system. Ports other than IN and OUT should not be used for system connections.
2. Porting configuration is viewed from the top.

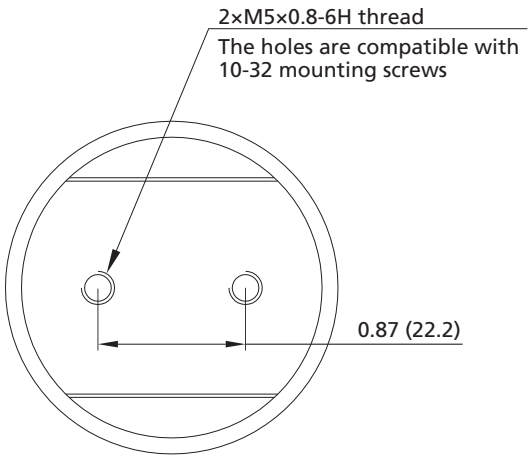
# Dimensions

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

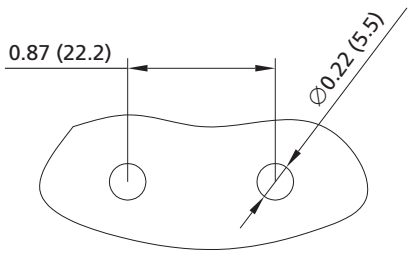



Panel Mounting Cut-Out




Bottom Mounting Screw Holes




Bottom Mounting Cut-Outs

# Ordering Number Description

RDSC - 6L - 35H - 1H - 3R3 - FNS4 - FL4 - IBAP - OBRP - T - 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 |
| T | PTFE |

| 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.
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 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.

# Regulators

## High Pressure Piston Regulators

## RPGX Series

### Introduction

RPGX Series High Pressure Piston Regulators feature a single-stage pressure reduction design with a piston sensing mechanism that is more resistant to damage caused by pressure spikes. These regulators offer a wide outlet pressure range, with a maximum inlet and outlet pressure of up to 10,000 psig. With eight port configuration options, these regulators are ideal for high pressure, low flow applications.

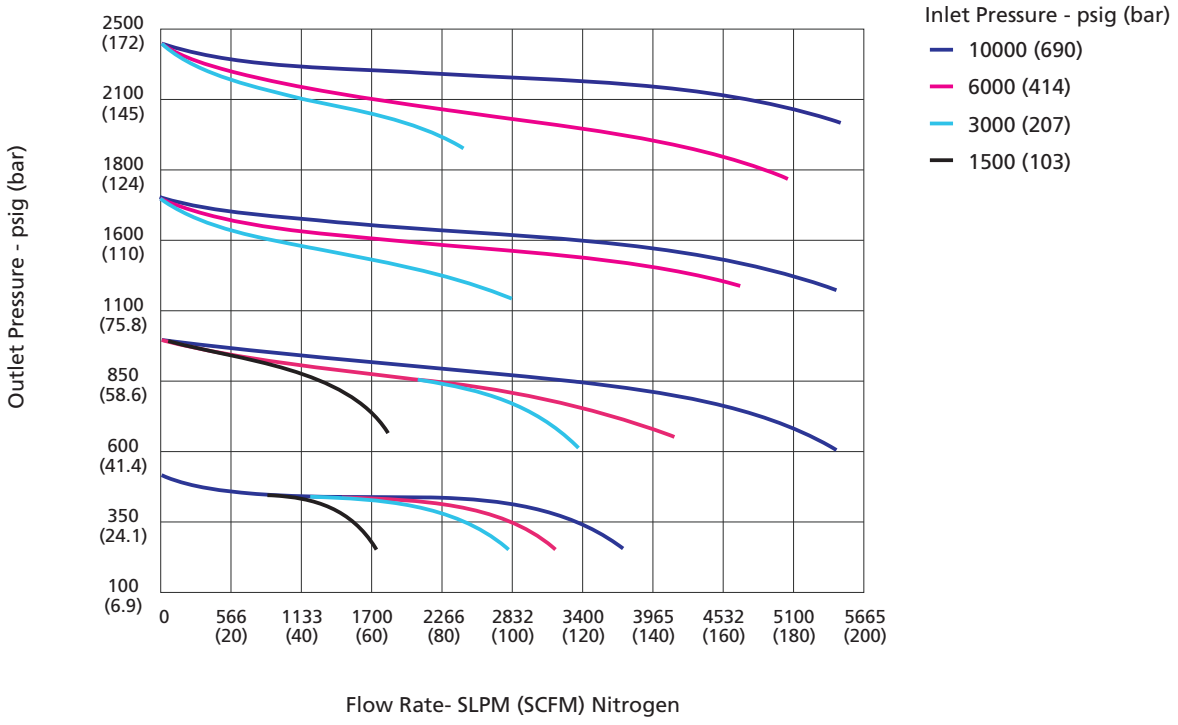
### Features

- Built-in 40 μm inlet filter for cleanliness and extended service life
- Optional self-venting feature
- Drain port design allows residual liquid media in the downstream pipeline to be vented to a designated location

### Technical Data

| | | |
|---|---|---|
| **Port Size** | | 1/4", 3/8", 6 mm or 8 mm |
| **Max. Working Pressure** | **316 SS** | 10000 psig (690 bar) |
| | **Brass** | 6000 psig (414 bar) |
| **Outlet Pressure Range** | | 10 ~ 500 psig (0.69 ~ 34.4 bar) |
| | | 15 ~ 800 psig (1.03 ~ 55.2 bar) |
| | | 15 ~ 1500 psig (1.03 ~ 103 bar) |
| | | 30 ~ 2500 psig (2.1 ~ 172 bar) |
| | | 50 ~ 4000 psig (3.4 ~ 276 bar) |
| | | 60 ~ 6000 psig (4.1 ~ 414 bar) |
| | | 200 ~ 10000 psig (13.8 ~ 690 bar) |
| **Flow Coefficient (Cv)** | | 0.06 |
| **Working Temperature** | **FKM** | -4 ~ 165 °F (-20 ~ 74 °C) |
| | **NBR** | -20 ~ 165 °F (-29 ~ 74 °C) |
| **SPE (Supply Pressure Effect)** | **Outlet Pressure: 500, 800 psig** | 1.1 psig per 100 psig source pressure change |
| | **Outlet Pressure: 1500, 2500 psig** | 3 psig per 100 psig source pressure change |
| | **Outlet Pressure: 4000, 6000 psig** | 9 psig per 100 psig source pressure change |
| | **Outlet Pressure: 10000 psig** | 13 psig per 100 psig source pressure change |
| **Leak Rate** | **External** | Bubble tight |
| | **Internal** | Bubble tight |

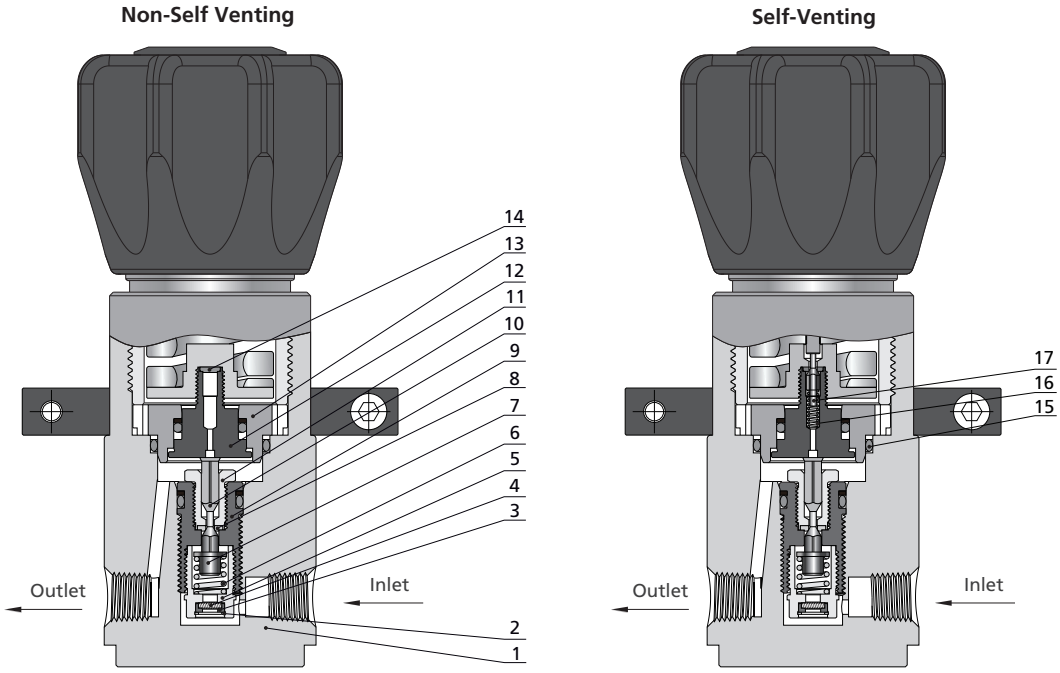
## Flow Data




## Process Specification

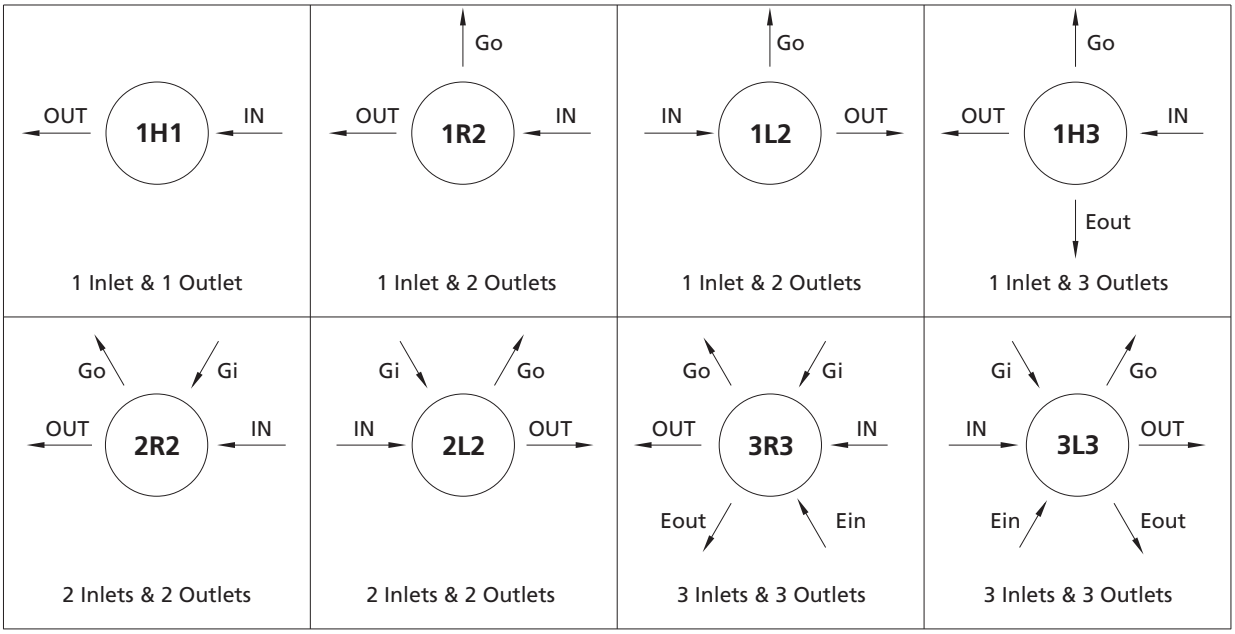
| Item \ Process Specification | Standard Cleaning and Packaging Process (FC-01) | Special Cleaning and Packaging Process (FC-02) |
|---|---|---|
| Material | 316 SS, Brass | |
| Wetted Surface Roughness | Ra 32 µin. (0.8 µm) | |
| Polishing Process | Machine Finished | |
| Assembly Environment | At atmosphere | In specially cleaned areas |
| Packaging | Single bagged | Double bagged |

# Major Materials of Construction




| Item | Component | Material/Specification |
|---|---|---|
| 1 | Body | 316 SS/A479 or Brass |
| 2 | Circlips for Bores | 304 SS |
| 3 | Retaining Ring | PTFE/ASTM D1710 |
| 4 | Filter | 316L SS |
| 5 | Main Poppet Cap | 316 SS/ASTM A479 |
| 6 | Poppet Spring | 316 SS/ASTM A313 |
| 7 | Lift Poppet | S17400/ASTM A564 |
| 8 | Seat | PEEK |
| 9 | Main Poppet | S17400/ASTM A564 |
| 10 | Poppet Button | S17400/ASTM A564 |
| 11 | Seat Retainer | S17400/ASTM A564 |
| 12 | Piston | 316 SS/ASTM A479 |
| 13 | Piston Ring | 316 SS/ASTM A479 |
| 14 | Auxiliary Seat | PEEK |
| 15 | O-Ring | FKM or NBR |
| 16 | Poppet Spring | 316L SS/ASTM A313 |
| 17 | Auxiliary Poppet | S17400/ASTM A564 |

# Porting Configurations



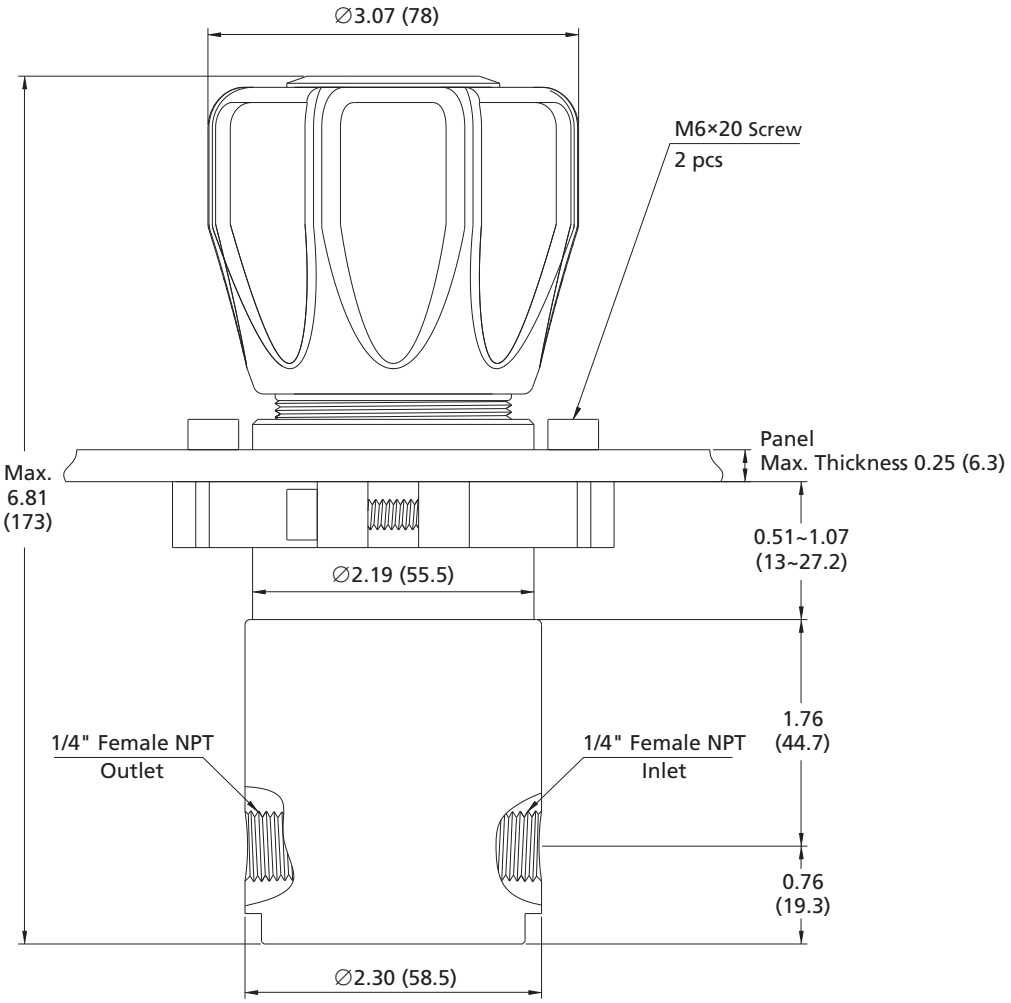

### Porting Configuration Symbol

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

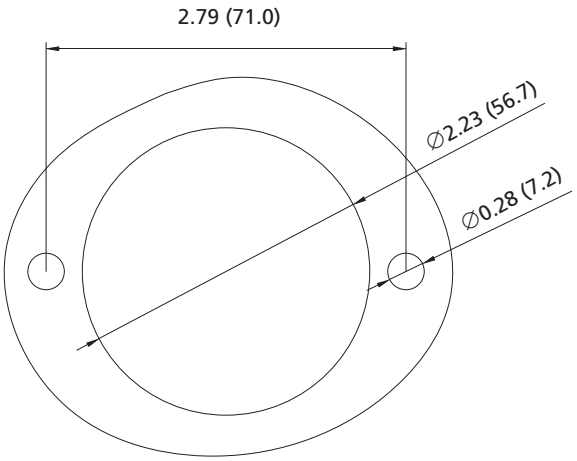
Notes:
1. IN and OUT are the inlet and outlet ports for connecting the valve to the system. Ports other than IN and OUT should not be used for system connections.
2. Porting configuration is viewed from the top.

## Dimensions

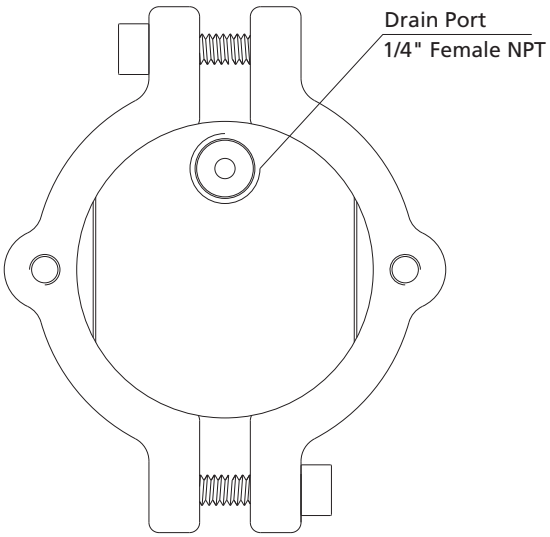
Dimensions, in inches (millimeters), are for reference only.




Panel Mounting Cut-Out




Bottom View



# Ordering Number Description

RPGX - SS - 10K - 6K - 3R3 - FNS4 - NS4 - IBAP - OBR - N - SV - PM - F2

| Series |
|---|
| RPGX |

| Body Material | |
|---|---|
| SS | 316 SS |
| B | Brass |

| Max. Inlet Pressure | |
|---|---|
| 6K | 6000 psig (414 bar) |
| 10K | 10000 psig (690 bar) |

| Outlet Pressure Range | |
|---|---|
| 5H | 10~500 psig (0.69~34.4 bar) |
| 8H | 15~800 psig (1.03~55.2 bar) |
| 15H | 15~1500 psig (1.03~103 bar) |
| 25H | 30~2500 psig (2.1~172 bar) |
| 4K | 50~4000 psig (3.4~276 bar) |
| 6K | 60~6000 psig (4.1~414 bar) |
| 10K | 200~10000 psig (13.8~690 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) | |
|---|---|
| FNS4 | 1/4" Female NPT |
| NS4 | 1/4" Male 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) | |
|---|---|
| | Without pressure gauge, refer to Note 5 |
| IB | Gauge (psi/bar) |
| IM | Gauge (psi/MPa) |
| IP | Plug |

| Auxiliary Inlet (Ein) | |
|---|---|
| | Without plug, refer to Note 5 |
| AP | Plug |

| Outlet Pressure Gauge Port (Go) | |
|---|---|
| | Without pressure gauge, refer to Note 5 |
| OB | Gauge (psi/bar) |
| OM | Gauge (psi/MPa) |
| OP | Plug |

| Auxiliary Outlet (Eout) | |
|---|---|
| | Without plug, refer to Note 5 |
| RP | Plug |
| R | With relief valve, refer to Note 6 |

| Panel Mounting | |
|---|---|
| | Fixedly Mounted at Pipe Inlet or Outlet |
| PM | Panel Mounting Clamp |

| Vent Option | |
|---|---|
| | None |
| SV | Self-Venting |

| O-Ring Material | |
|---|---|
| | FKM |
| N | NBR |

| Process Specification | |
|---|---|
| F1 | FC-01 |
| 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. Drain port at the bottom of the regulator can not be blocked.
3. Differentiating media status when selecting the vent option:
   (1) Liquid Services: For downstream pipelines with minimal residual media, install the regulator with the drain port facing vertically downward. This configuration allows liquid to drain effectively from the bottom port when the self-venting feature is selected.
   (2) Gas Services: With the self-venting feature, gas can be vented directly to the atmosphere from below the handle.
   (3) Fully captured-vent option is available upon request. Contact FITOK Group or our authorized distributors for more information.
4. When choosing NPT or Metric/Fractional Tube Fitting ports, the regulator body comes with 1/4" Female NPT inlet and outlet by default. Other options are adapted from 1/4" Male NPT.
5. When choosing NPT or Metric/Fractional Tube Fitting for inlet and outlet, gauge ports (Gi, Go) and auxiliary ports (Ein, Eout) are 1/4" Female NPT.
6. For the outlet relief valve, the set pressure is factory-set to 1.05-1.1 times the maximum outlet pressure by default.

# Regulators

## High Flow Piston Regulators

## RPGN Series

### Introduction

RPGN Series High Flow Piston Regulators feature a single-stage pressure reduction design with a piston sensing mechanism that is more resistant to damage caused by pressure spikes and offers a broad outlet pressure range, making them ideal for high flow applications.

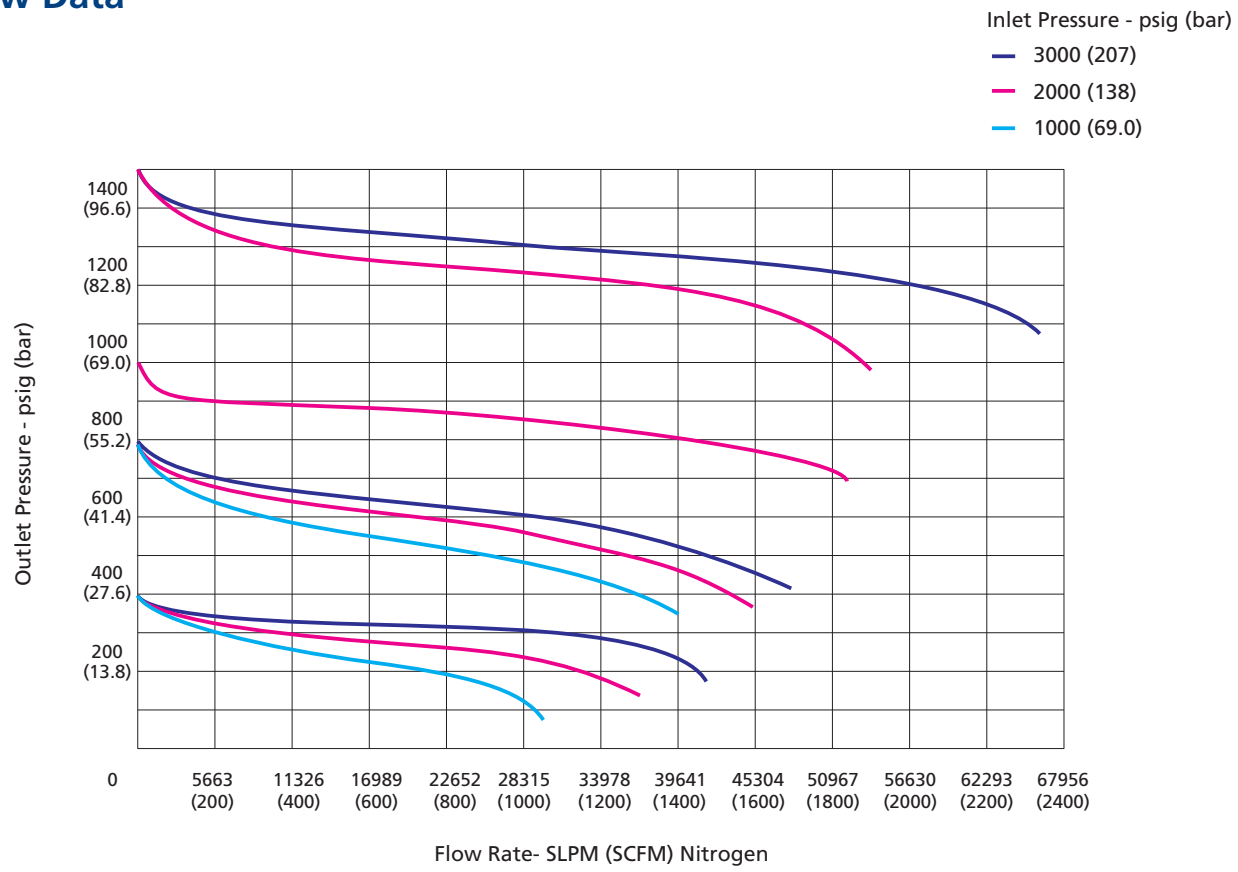
### Features

- Large diameter piston improves pressure sensitivity
- Optional self-venting feature

### Technical Data

| | | |
|---|---|---|
| **Port Size** | | 1/2", 3/4", 16 mm or 18 mm |
| **Max. Working Pressure** | **F316 SS, F316L SS** | 4500 psig (310 bar) |
| | **Brass** | 3800 psig (262 bar) |
| **Outlet Pressure Range** | | 0 ~ 300 psig (0 ~ 20.7 bar) |
| | | 0 ~ 600 psig (0 ~ 41.4 bar) |
| | | 0 ~ 1000 psig (0 ~ 69.0 bar) |
| | | 0 ~ 1500 psig (0 ~ 103 bar) |
| **Flow Coefficient (Cv)** | | 2.0 |
| **Working Temperature** | **FKM** | -4 ~ 165 °F (-20 ~ 74 °C) |
| | **FFKM** | -1.4 ~ 165 °F (-17 ~ 74 °C) |
| **SPE (Supply Pressure Effect)** | **Outlet Pressure: 300, 600 psig** | 1.5 psig per 100 psig source pressure change |
| | **Outlet Pressure: 1000, 1500 psig** | 4 psig per 100 psig source pressure change |
| **Leak Rate** | **External** | Bubble tight |
| | **Internal** | Bubble tight |

## Flow Data

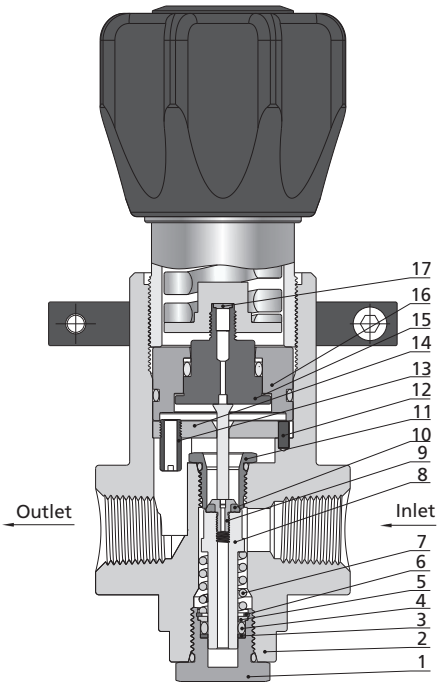



## Process Specification

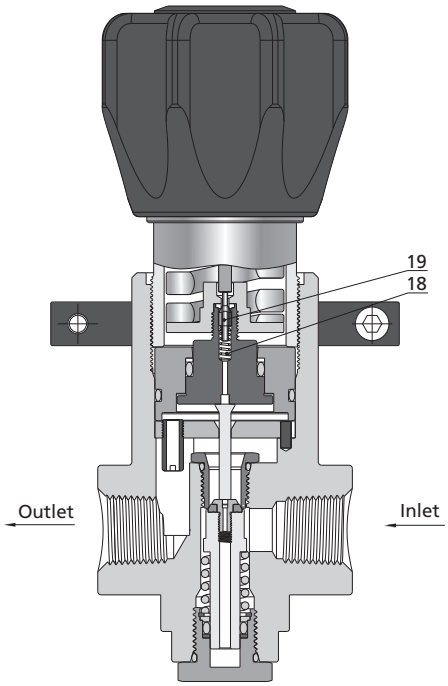
| Item / Process Specification | Special Cleaning and Packaging Process (FC-02) |
|---|---|
| Material | F316 SS, F316L SS, Brass |
| Wetted Surface Roughness | Ra 32 µin. (0.8 µm) |
| Polishing Process | Machine Finished |
| Assembly Environment | In specially cleaned areas |
| Packaging | Double bagged |

# Major Materials of Construction

Non-Self-Venting

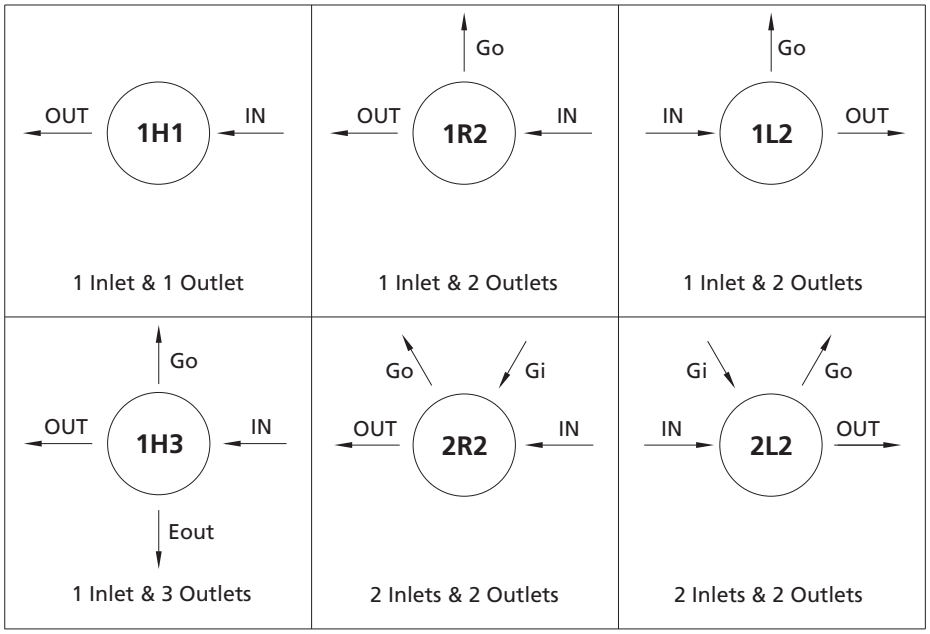



Self-Venting




| Item | Component | Material/Specification |
|---|---|---|
| 1 | Plug | 316 SS/ASTM A479 or Brass |
| 2 | Body | F316 SS/ASTM A182 or F316L SS/ASTM A182 or Brass |
| 3 | Circlip | PEEK |
| 4 | O-Ring | FKM or FFKM |
| 5 | Gland | 316 SS/ASTM A479 |
| 6 | Circlip for Bores | 304 SS |
| 7 | Poppet Spring | 316 SS/ASTM A313 |
| 8 | Lift Poppet | 316 SS/ASTM A479 |
| 9 | Screw | S17400/ASTM A564 |
| 10 | Seat | PCTFE/ASTM D1430 |
| 11 | Seat Retainer | 316 SS/ASTM A479 |
| 12 | Pin | 316 SS/ASTM A479 |
| 13 | Cylinder | 316 SS/ASTM A479 |
| 14 | Guide Block | 316 SS/ASTM A479 |
| 15 | Piston | 316 SS/ASTM A479 |
| 16 | Piston Ring | 316 SS/ASTM A479 |
| 17 | Auxiliary Seat | PCTFE/ASTM D1430 |
| 18 | Poppet Spring | 316L SS/ASTM A313 |
| 19 | Auxiliary Poppet | S17400/ASTM A564 |

# Porting Configurations




### Porting Configuration Symbol

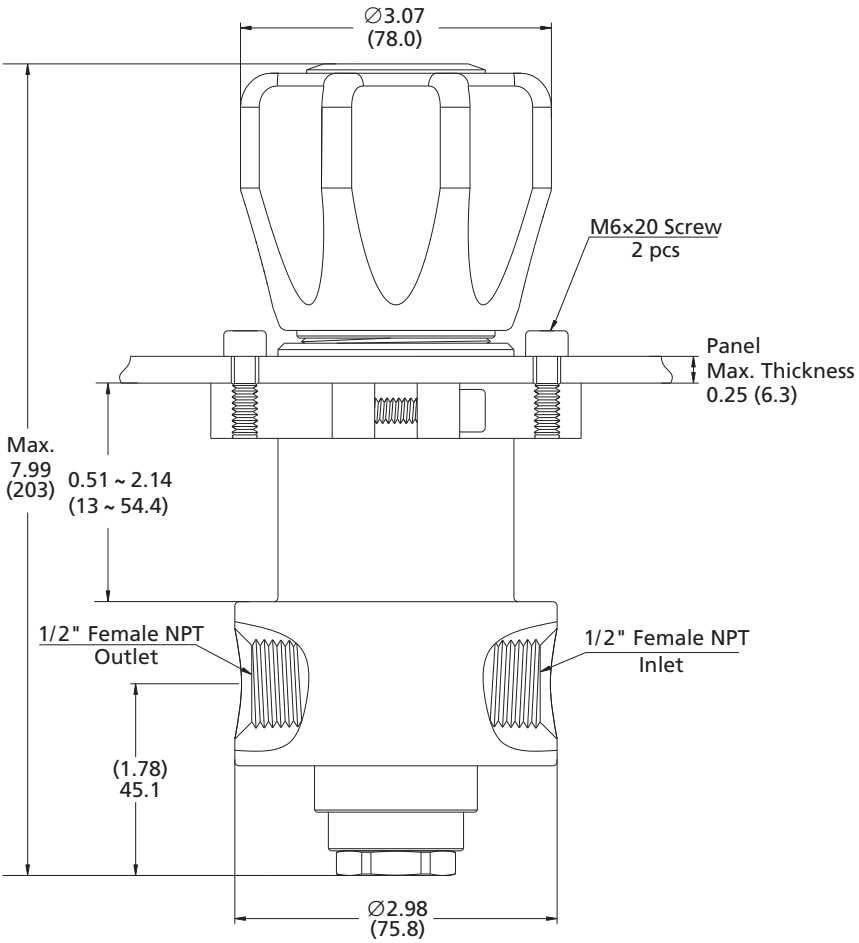
| IN | OUT | Gi | Go | Eout |
|---|---|---|---|---|
| Inlet | Outlet | Inlet Pressure Gauge Port | Outlet Pressure Gauge Port | Auxiliary Outlet |

Notes:

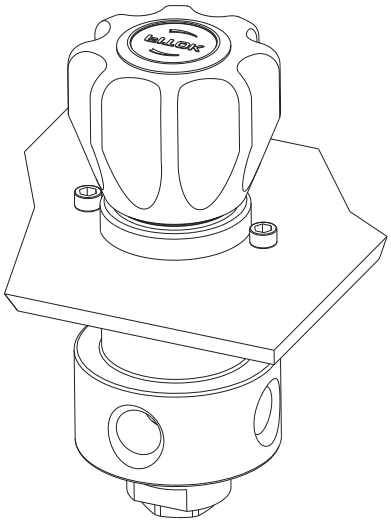
1. IN and OUT are the inlet and outlet ports for connecting the valve to the system. Ports other than IN and OUT should not be used for system connections.
2. Porting configuration is viewed from the top.

## Dimensions

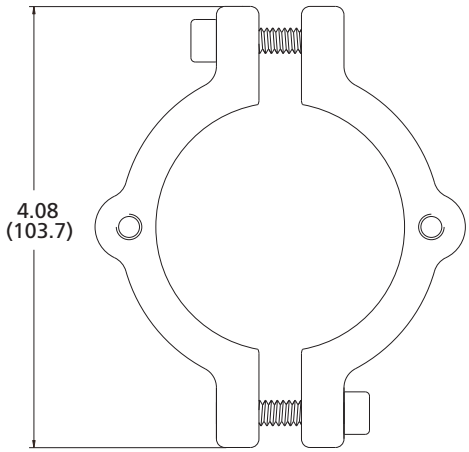
Dimensions, in inches (millimeters), are for reference only.



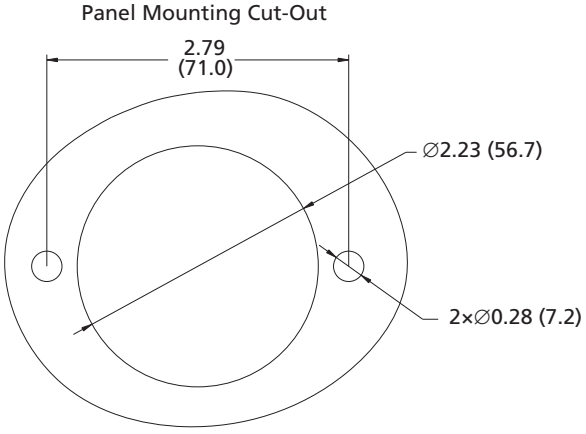

Panel Mounting



Bottom View




Panel Mounting Cut-Out



# Ordering Number Description

RPGN - 6L - 45H - 1K - 2R2 - FNS8 - FL12 - IB - OB - Z - SV - PM - F2

| Series |
|---|
| RPGN |

| Body Material | |
|---|---|
| SS | F316 SS |
| 6L | F316L SS |
| B | Brass |

| Max. Inlet Pressure | |
|---|---|
| 38H | 3800 psig (262 bar) |
| 45H | 4500 psig (310 bar) |

| Outlet Pressure Range | |
|---|---|
| 3H | 0~300 psig (0~20.7 bar) |
| 6H | 0~600 psig (0~41.4 bar) |
| 1K | 0~1000 psig (0~69.0 bar) |
| 15H | 0~1500 psig (0~103 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 |

| Inlet (IN) | |
|---|---|
| FNS8 | 1/2" Female NPT |
| FNS12 | 3/4" Female NPT |
| FL12 | 3/4" Tube Fitting |
| ML16 | 16 mm Tube Fitting |
| ML18 | 18 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 |

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

| O-Ring Material | |
|---|---|
| | FKM |
| Z | FFKM |

| Vent Option | |
|---|---|
| | None |
| SV | Self-Venting |

| Panel Mounting | |
|---|---|
| | Fixedly Mounted at Pipe Inlet or Outlet |
| PM | Panel Mounting Clamp |

| Process Specification | |
|---|---|
| F2 | FC-02 |

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. When choosing Cylinder Connections, NPT, or Metric/Fractional Tube Fittings for inlet and outlet, the regulator body comes with 1/2" Female NPT inlet and outlet by default. The gauge port (Go) and auxiliary outlet (Eout) are 1/4" Female NPT.
3. When using the vent function, media will be discharged into the atmosphere from beneath the handle.

# Regulators

## Two-Stage Diaphragm Regulators

## RDDC Series


### Introduction

RDDC Series Two-Stage Diaphragm Regulators feature a two-stage pressure reduction design. The combination of a metal diaphragm and a free poppet ensures excellent sensitivity and stable outlet pressure. This configuration makes these regulators ideal for low to medium flow applications that require steady outlet pressure.

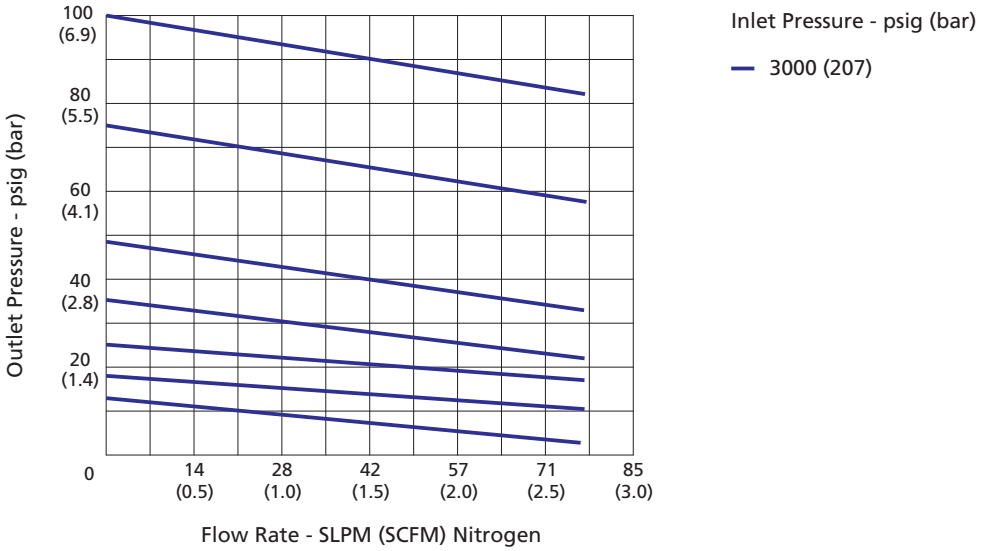
### Features

◎ 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
◎ Two-stage pressure reduction design ensures precise and stable outlet pressure
◎ 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", 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 ~ 250 psig (0 ~ 17.2 bar) |
| **Flow Coefficient (Cv)** | | | 0.06 |
| **Working Temperature** | | | PCTFE：-40 ~ 165°F (-40 ~ 74°C)<br>Polyimide：14 ~ 194°F (-10 ~ 90°C) |
| **SPE (Supply Pressure Effect)** | | | 0.01 psig per 100 psig source pressure change |
| **Leak Rate (Helium)** | **External** | **Inboard** | $\leqslant 2\times10^{-10}$ std $cm^3/s$ |
| | | **Outboard** | $\leqslant 2\times10^{-9}$ std $cm^3/s$ |
| | **Internal** | | $\leqslant 4\times10^{-8}$ std $cm^3/s$ |

## Flow Data

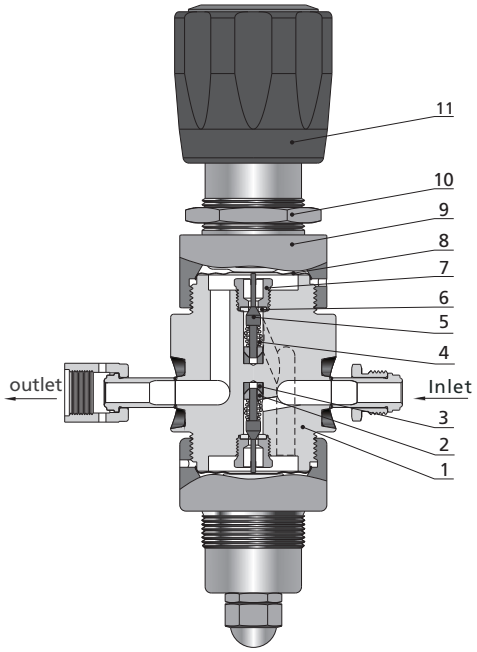



## Process Specification

| Process Specification / Item | Special Cleaning and Packaging Process (FC-02) | Ultra High Purity Process (FC-03) |
|---|---|---|
| **Material** | 316L SS, 316L SS VAR, Brass (Nickle-Plated), Alloy C-276 | 316L SS, 316L SS VAR |
| **Wetted Surface Roughness** | Face Seal Connection or Butt Weld Connection: Ra 20 µin. (0.5 µm)<br>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 |

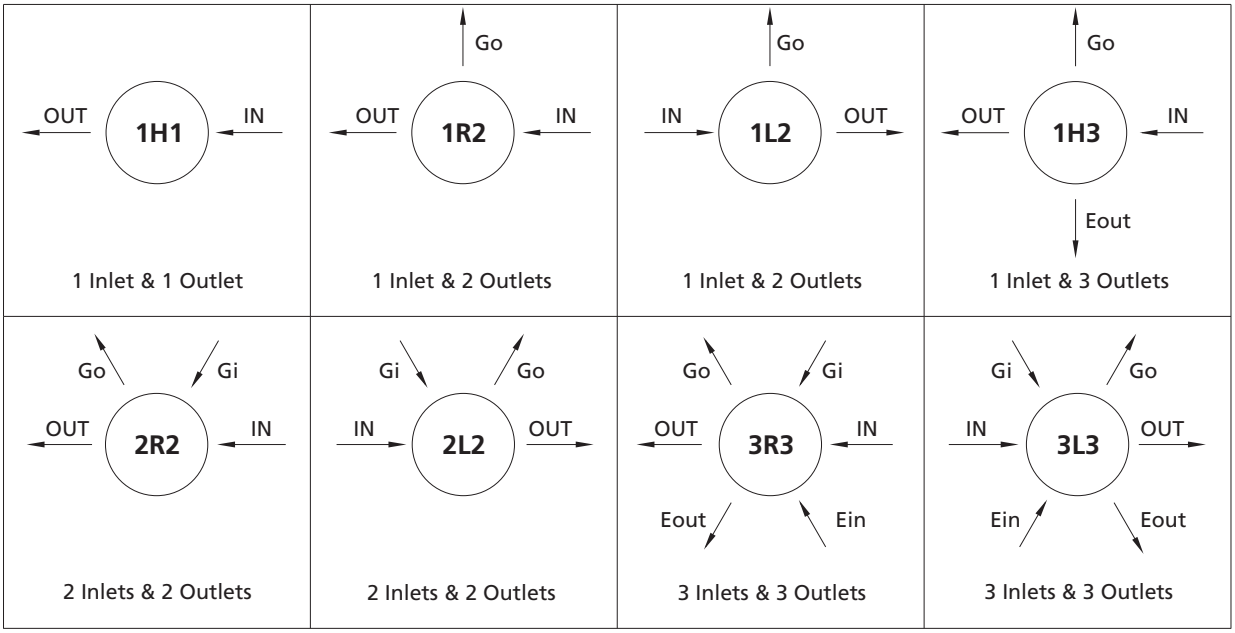
Note: For products with higher surface finish, please contact FITOK.

## Major Materials of Construction




| Item | Component | Material/Specification |
|---|---|---|
| 1 | Body | 316L SS, 316L SS VAR, Brass (Nickle-Plated) or Alloy C-276 |
| 2 | Poppet Damper | PTFE/ASTM D1710 |
| 3 | Friction Sleeve | 316L SS, 316L SS VAR or Alloy C-276 |
| 4 | Poppet Spring | Alloy X-750 |
| 5 | Lift Poppet | Alloy C-276 |
| 6 | Seat | PCTFE/ASTM D1430 or Polyimide |
| 7 | Seat Retainer | 316L SS, 316L SS VAR or Alloy C-276 |
| 8 | Diaphragm | 316L SS/ASTM A240 |
| 9 | Bonnet | 304 SS/ASTM A479 or Brass (Nickle-Plated) |
| 10 | Panel Nut | 304 SS/ASTM A479 |
| 11 | Handle | ABS |

# Porting Configurations



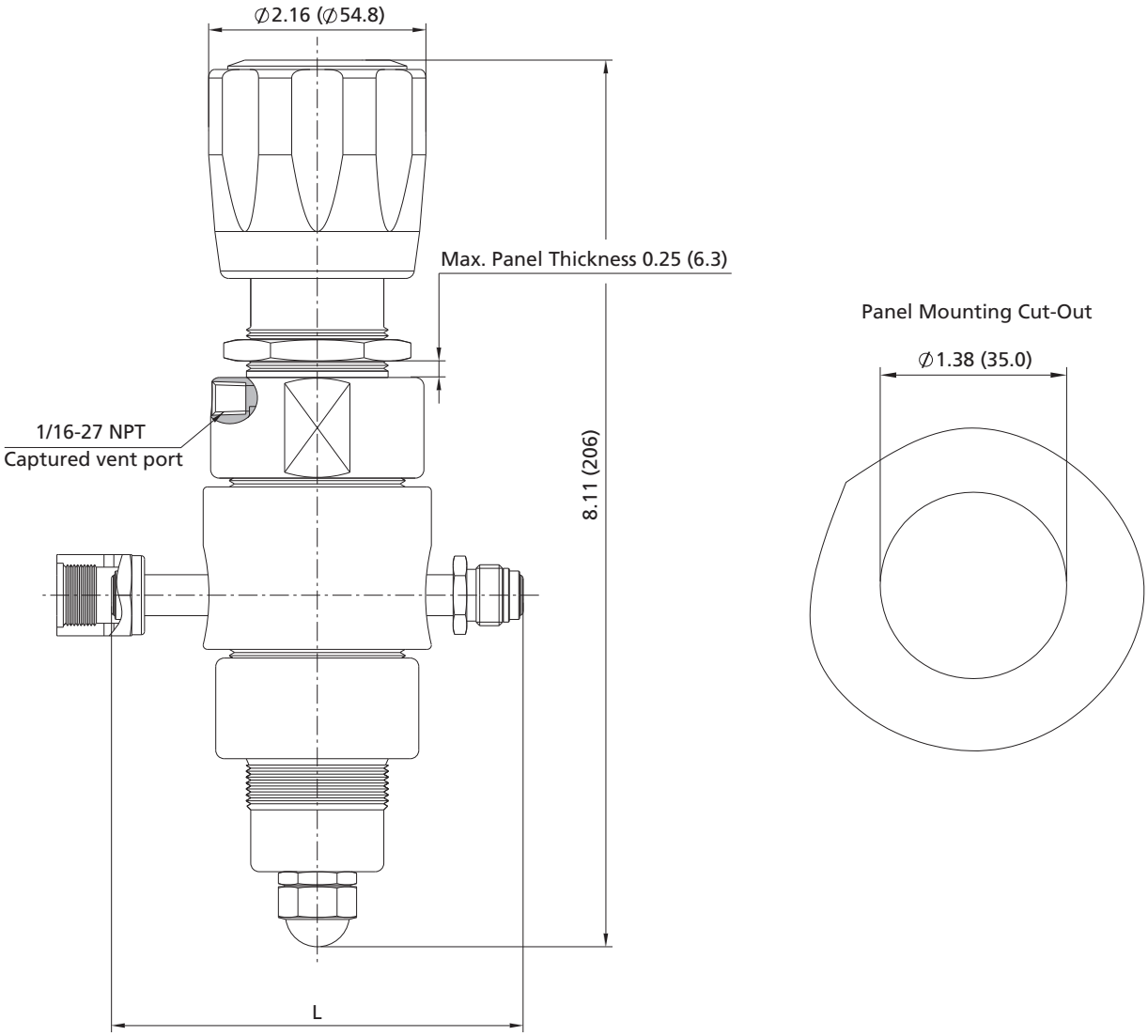

### Porting Configuration Symbol

| 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.




| 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 | 2.11 (53.5) |
| TB4 | 1/4"×0.035" Tube Butt Weld | 2.96 (75.2) |
| TB6 | 3/8"×0.035" Tube Butt Weld | 2.96 (75.2) |
| FL4 | 1/4" Tube Fitting | 4.07 (103.5) |
| FL6 | 3/8" Tube Fitting | 4.31 (109.6) |
| ML6 | 6 mm Tube Fitting | 4.10 (104.2) |
| ML8 | 8 mm Tube Fitting | 4.16 (105.7) |

# Ordering Number Description

RDDC – 6L – 35H – 1H – 3R3 – C580 – FNS4 – IBAP – OBRP – V – ATPM – F2

| Series |
|---|
| RDDC |

| Body Material | |
|---|---|
| 6L | 316L SS |
| 6LV | 316L SS VAR |
| B | Brass (Nickle Plated) |
| HC | Alloy C-276 |

| Max. Inlet Pressure | |
|---|---|
| 35H | 3500 psig (241 bar) |
| 45H | 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) |

| 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) |
| FFR4 | 1/4" Rotatable Female FR Metal Gasket Face Seal Fitting |
| RFR4 | 1/4" Rotatable Male FR Metal Gasket Face Seal Fitting |
| TB4 | 1/4"×0.035" Tube Butt Weld |
| TB6 | 3/8"×0.035" Tube Butt Weld |
| 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) | |
|---|---|
| | Without pressure gauge, refer to Note 6 |
| IB | Gauge (psi/bar) |
| IM | Gauge (psi/MPa) |
| IP | Plug |

| Auxiliary Inlet (Ein) | |
|---|---|
| | Without plug, refer to Note 6 |
| AP | Plug |

| Outlet Pressure Gauge Port (Go) | |
|---|---|
| | Without pressure gauge, refer to Note 6 |
| OB | Gauge (psi/bar) |
| OM | Gauge (psi/MPa) |
| OP | Plug |

| Auxiliary Outlet (Eout) | |
|---|---|
| | Without plug, refer to Note 6 |
| RP | Plug |
| R | With relief valve, refer to Note 7 |

| Seat Material | |
|---|---|
| | PCTFE |
| V | Polyimide |

| Handle | |
|---|---|
| | Round Handle |
| AT | Lock Nut, refer to Note 8 |

| Installation Type | |
|---|---|
| | Fixedly Mounted at Pipe Inlet or Outlet |
| PM | Installed with Panel Nut |

| Process Specification | |
|---|---|
| F2 | FC-02 |
| F3 | FC-03 |

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 connection or tube butt weld connection, the connection and body are orbital-welded integral structure by default.
3. For NPT connection and Metric/Fractional Tube Fitting connection, the body connection is 1/4" Female NPT by default. Other options are adapted from Male NPT.
4. 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.
5. Refer to Cylinder Connections catalog for connection details.
6. When choosing Cylinder Connection, NPT, or Metric/Fractional 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.
7. For outlet relief valve, the set pressure is established at 1.05-1.1 times the maximum outlet pressure upon shipping.
8. 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.

# 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.

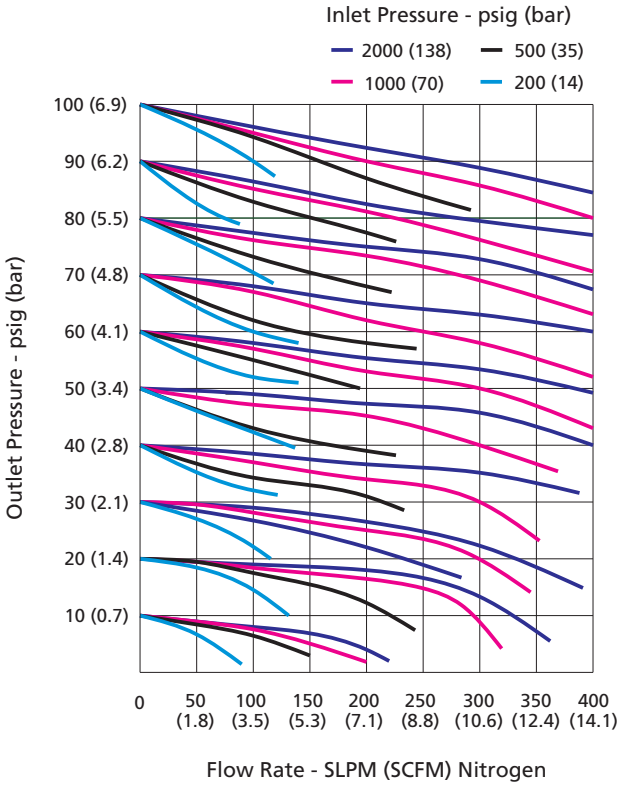
### Features

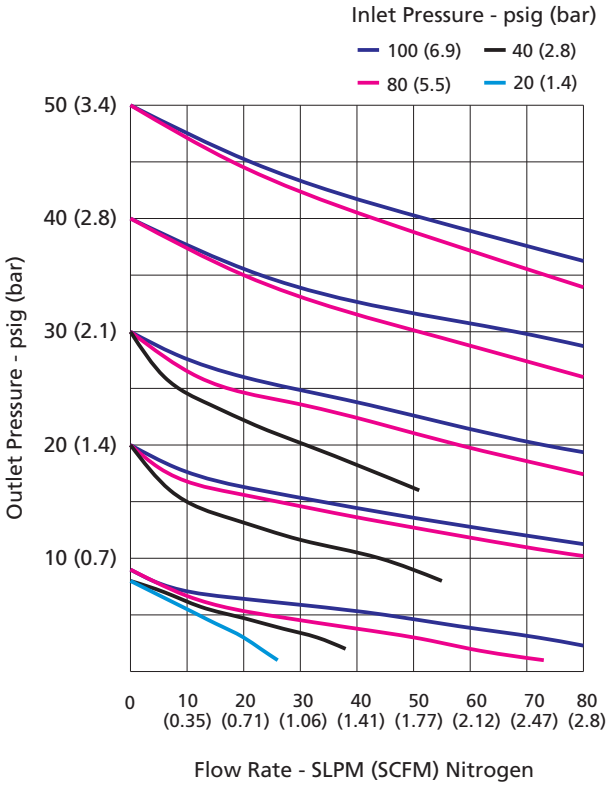
◎ Compact design and lightweight
◎ Hastelloy lift poppet offers excellent corrosion resistance
◎ Metal-to-metal seal between valve body and diaphragm provides ensured sealing performance
◎ Reinforced diaphragm improves sealing performance and extends service life

### 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<br>3500, 4500 psig Inlet: 0.09 |
| **Working Temperature** | | | PCTFE：-40 ~ 165 °F (-40 ~ 74 °C)<br>Polyimide：14 ~ 194 °F (-10 ~ 90 °C) |
| **Leak Rate (Helium)** | **External** | **Inboard** | ≤$2x10^{-10}$ std $cm^3/s$ |
| | | **Outboard** | ≤$2x10^{-9}$ std $cm^3/s$ |
| | **Internal** | | ≤$4x10^{-8}$ std $cm^3/s$ |

## Flow Data



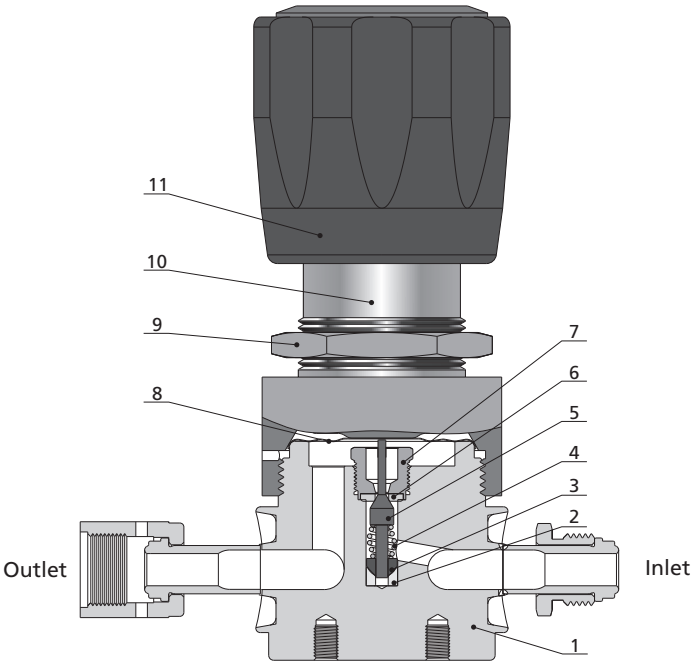




## Process Specification

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

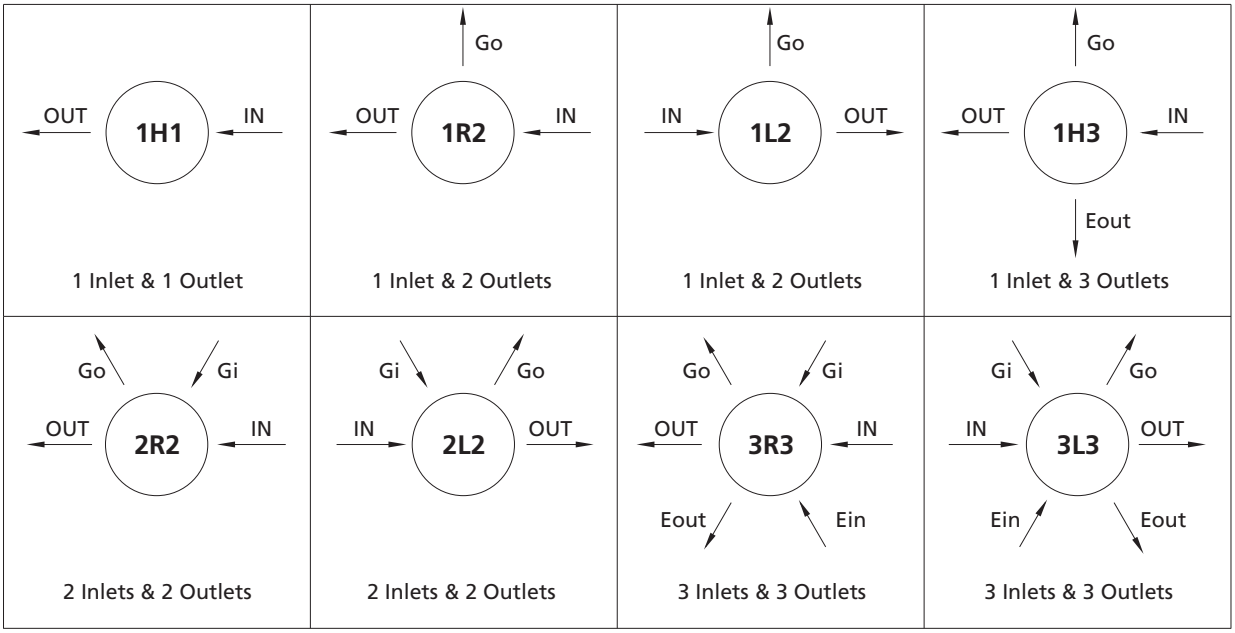
① For valves with FR connections and butt weld connections, the internal surface finish is 20 µin. (0.5 µm) Ra.
② For NPT connections or tube fitting and other options adapted from male NPT, the internal surface finish is 32 µin. (0.8 µm) Ra.
③ For standard ultra high purity products, the surface finish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



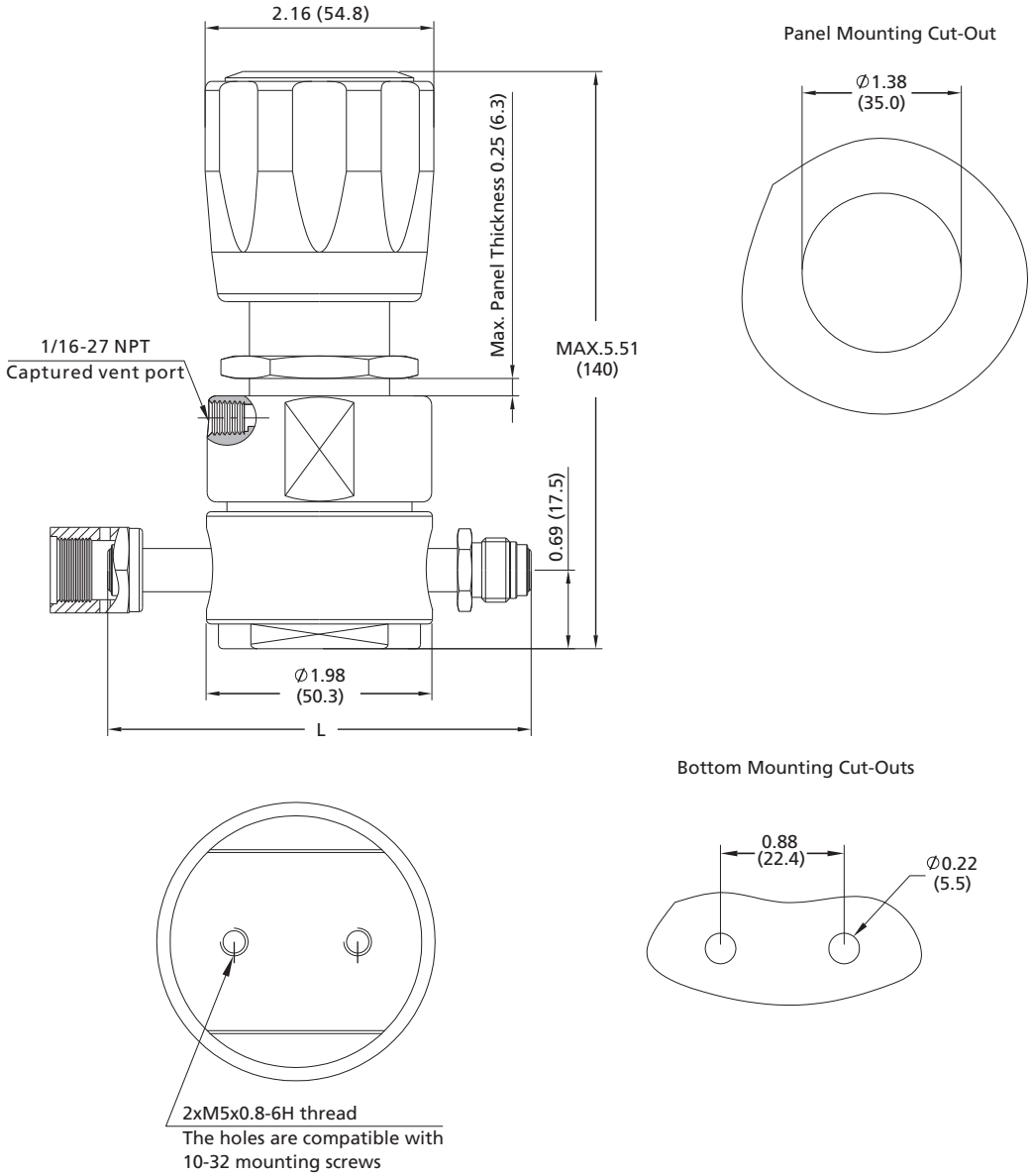

### Porting Configuration Symbol

| 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

| Body Material | |
|---|---|
| 6L | 316L SS |
| 6LV | 316L VAR |
| B | Brass (Nickle Plated) |
| HC | Hastelloy C-276 |

| Max. Inlet Pressure | |
|---|---|
| 5H | 500 psig |
| 15H | 1500 psig |
| 35H | 3500 psig |
| 45H | 4500 psig |

| Outlet Pressure Range | |
|---|---|
| 25 | 0~25 psig |
| 50 | 0~50 psig |
| 1H | 0~100 psig |
| 150 | 0~150 psig |
| 250 | 0~250 psig |
| 5H | 0~500 psig |

| 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 | |
|---|---|
| C_ | CGA Cylinder Connection (For Inlet Only) |
| DIN_ | DIN Cylinder Connection (For Inlet Only) |
| FFF4 | 1/4" Rotatable Female FR Metal Gasket Face Seal Fitting |
| RFR4 | 1/4" Rotatable Male FR Metal Gasket Face Seal Fitting |
| FNS4 | 1/4" Female NPT |
| TB4 | 1/4"x0.035" Tube Butt Weld |
| FL4 | 1/4" Tube Fitting |
| TB6 | 3/8"x0.035" Tube Butt Weld |
| FL6 | 3/8" Tube Fitting |
| ML6 | 6 mm Tube Fitting |
| ML8 | 8 mm Tube Fitting |

| Outlet |
|---|
| Same as Inlet |
| Specified in the same way as Inlet |

| Inlet Pressure Gauge (Gi) | |
|---|---|
| | Without pressure gauge, refer to Note 5 |
| IB | Gauge (psi/bar) |
| IM | Gauge (psi/MPa) |
| IP | Plug |

| Auxiliary Inlet | |
|---|---|
| | Without plug, refer to Note 5 |
| AP | Plug |

| Outlet Pressure Gauge (Go) | |
|---|---|
| | Without pressure gauge, refer to Note 5 |
| OB | Gauge (psi/bar) |
| OM | Gauge (psi/MPa) |
| OP | Plug |

| Auxiliary Outlet | |
|---|---|
| | Without plug, refer to Note 5 |
| RP | Plug |
| R | With relief valve, refer to Note 6 |

| Seat Material | |
|---|---|
| | PCTFE |
| V | Polyimide |

| Handle | |
|---|---|
| | Round Handle |
| AT | Lock Nut |

| Installation Type | |
|---|---|
| | Threaded Hole at the Bottom |
| PM | Installed with Panel Nut |
| BS | Installed with Screws at the Bottom |

| Process Specification | |
|---|---|
| F2 | FC-02 |
| F3 | FC-03 |

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 connection or tube butt weld connection, the connection and body are orbital-welded integral structure by default.
3. For NPT connection and tube fitting connection, the body connection is 1/4" Female NPT by default. Other options are adapted from Male NPT.
4. 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.
5. 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.
6. For outlet relief valve, the set pressure is established at 1.05-1.1 times the maximum outlet pressure upon shipping.
7. Refer to Cylinder Connections catalog for connection details.

# Regulators

## Steam Heated Regulators

## RDVC Series

### Introduction

RDVC Series Steam Heated Regulators are designed to heat fluids for analyzer systems, primarily to preheat fluids and prevent gas condensation or liquid evaporation. The unique design allows for easy disassembly, cleaning, and replacement of heat transfer components, reducing maintenance time and costs.

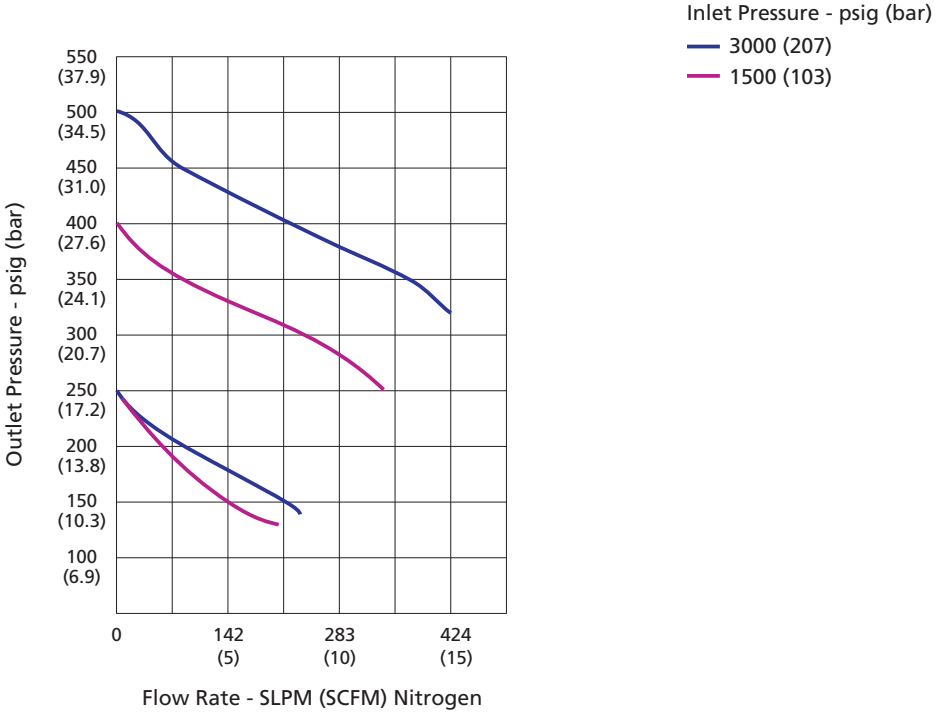
### Features

- ◎ Low internal volume and high flow rate
- ◎ Convoluted diaphragm for improved regulation precision and extended service life
- ◎ Reinforced diaphragm improves sealing performance and extends service life
- ◎ Wetted metal components comply with NACE MR0175

### Technical Data

| | | | |
|---|---|---|---|
| **Port Size** | **Media Inlet and Outlet** | | 1/8" to 3/8", 6 mm or 8 mm |
| | **Steam Supply Port** | | 3/8" |
| **Max. Working Pressure** | | **Media** | 3600 psig (248 bar) |
| | | **Steam** | 600 psig (41.4 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 ~ 250 psig (0 ~ 17.2 bar) |
| | | | 0 ~ 500 psig (0 ~ 34.4 bar) |
| **Flow Coefficient (Cv)** | | | 0.06 |
| **Working Temperature** | | **Media** | -40 ~ 500 °F (-40 ~ 260 °C) |
| | | **Steam** | Max. 500 °F (260 °C) |
| **Leak Rate (Helium)** | | **Internal** | $\leqslant 1\times10^{-7}$ std $cm^3/s$ |
| | | **External** | $\leqslant 1\times10^{-7}$ std $cm^3/s$ |

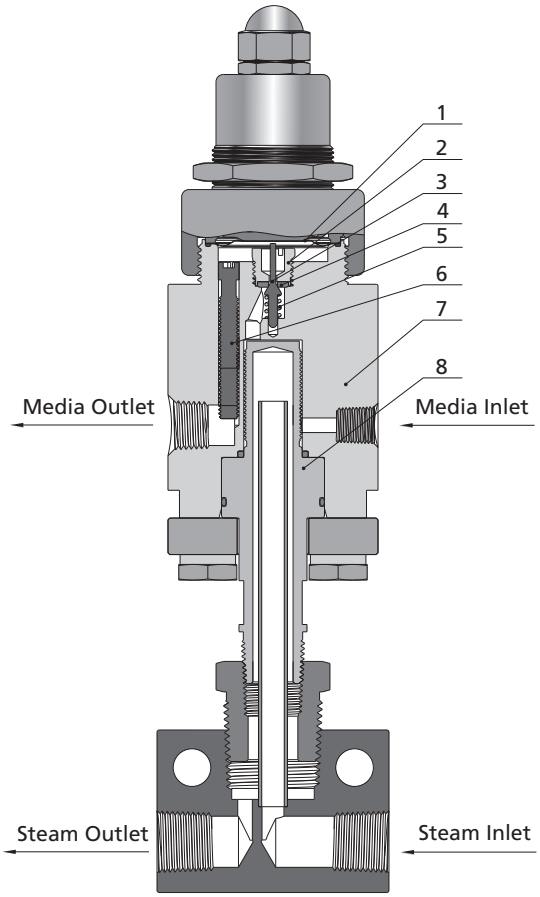
## Flow Data




## Process Specification

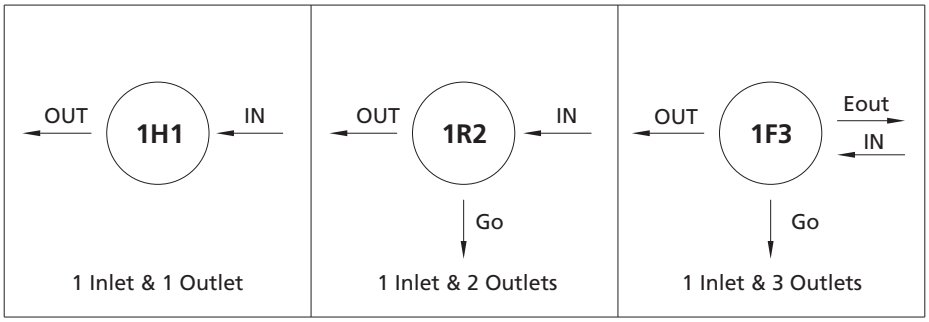
| Item \ Process Specification | Special Cleaning and Packaging Process (FC-02) |
|---|---|
| **Material** | 316L SS, Alloy 400 |
| **Wetted Surface Roughness** | Ra 32 µin. (0.8 µm) |
| **Polishing Process** | Machine Finished |
| **Assembly Environment** | In specially cleaned areas |
| **Packaging** | Double bagged |

## Major Materials of Construction




| Item | Component | Material/Specification |
|---|---|---|
| 1 | Diaphragm | Alloy C-22 |
| 2 | Seat Retainer | 316L SS or 316L SS VAR |
| 3 | Lift Poppet | Alloy C-276/ASTM B574 |
| 4 | Seat | PCTFE/ASTM D1430 |
| 5 | Poppet Spring | Alloy X-750 |
| 6 | Shutoff Bolt | 316L SS/ASTM A479 |
| 7 | Body | 316L SS/ASTM A479 or Alloy 400 |
| 8 | Stream Heater | 316L SS/ASTM A479 |

## Porting Configurations




### Porting Configuration Symbol

| IN | OUT | Go | Eout |
|---|---|---|---|
| Inlet | Outlet | Outlet Pressure Gauge Port | Auxiliary Outlet |

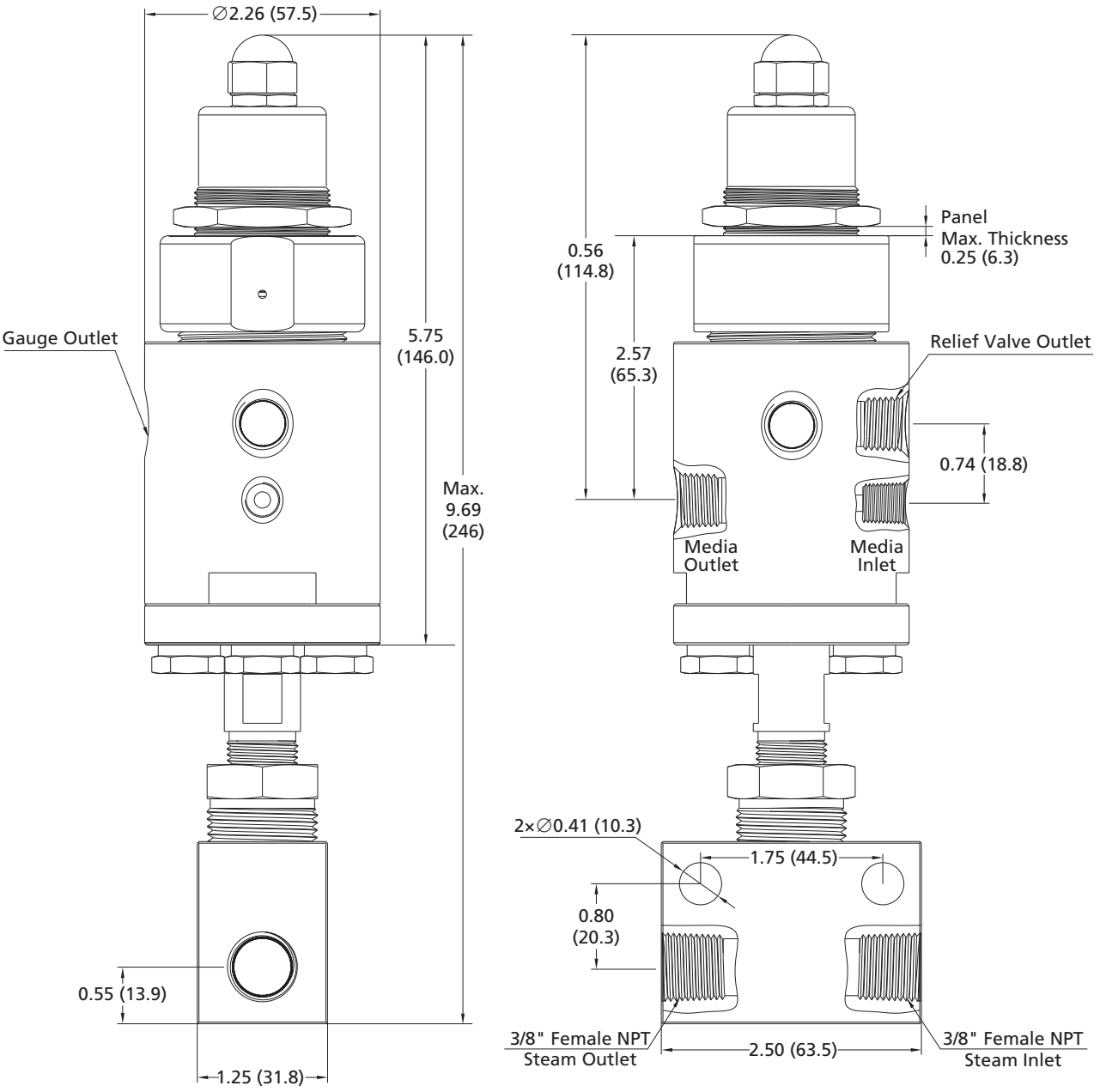
Notes:

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.

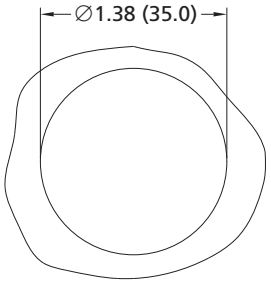
## Dimensions

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

Pressure Regulator with 1 Inlet & 3 Outlets (1F3)




Panel Cut-out



# Ordering Number Description

RDVC - 6L - 36H - 1H - 1F3 - FNS4 - FL4 - OB - R - F2

| Series |
|---|
| RDVC |

| Body Material | |
|---|---|
| 6L | 316L SS |
| M | Alloy 400 |

| Max. Inlet Pressure | |
|---|---|
| 36H | 3600 psig (248 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) |
| 250 | 0~250 psig (0~17.2 bar) |
| 5H | 0~500 psig (0~34.4 bar) |

| Porting | |
|---|---|
| 1H1 | 1 Inlet & 1 Outlet |
| 1R2 | 1 Inlet & 2 Outlets |
| 1F3 | 1 Inlet & 3 Outlets |

| Inlet (IN) | |
|---|---|
| FNS2 | 1/8" Female NPT |
| FNS4 | 1/4" Female NPT |
| NS4 | 1/4" Male 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 |

| 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 |

| Process Specification | |
|---|---|
| F2 | FC-02 |

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. When choosing NPT or Metric/Fractional Tube Fitting connection for the inlet and outlet, the body inlet port is 1/8" Female NPT by default, the body outlet port is 1/4" Female NPT by default, and the gauge port (Go) and auxiliary outlet (Eout) are also 1/4" Female NPT. 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.