Back Pressure Regulators

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General Diaphragm Back Pressure Regulators

BDGC Series

Introduction

BDGC Series General Diaphragm Back Pressure Regulators feature a metal diaphragm design, ensuring excellent sensitivity and set point pressure stability. These regulators are ideal for handling various gas and low viscosity liquid media with small to medium flow.

Features

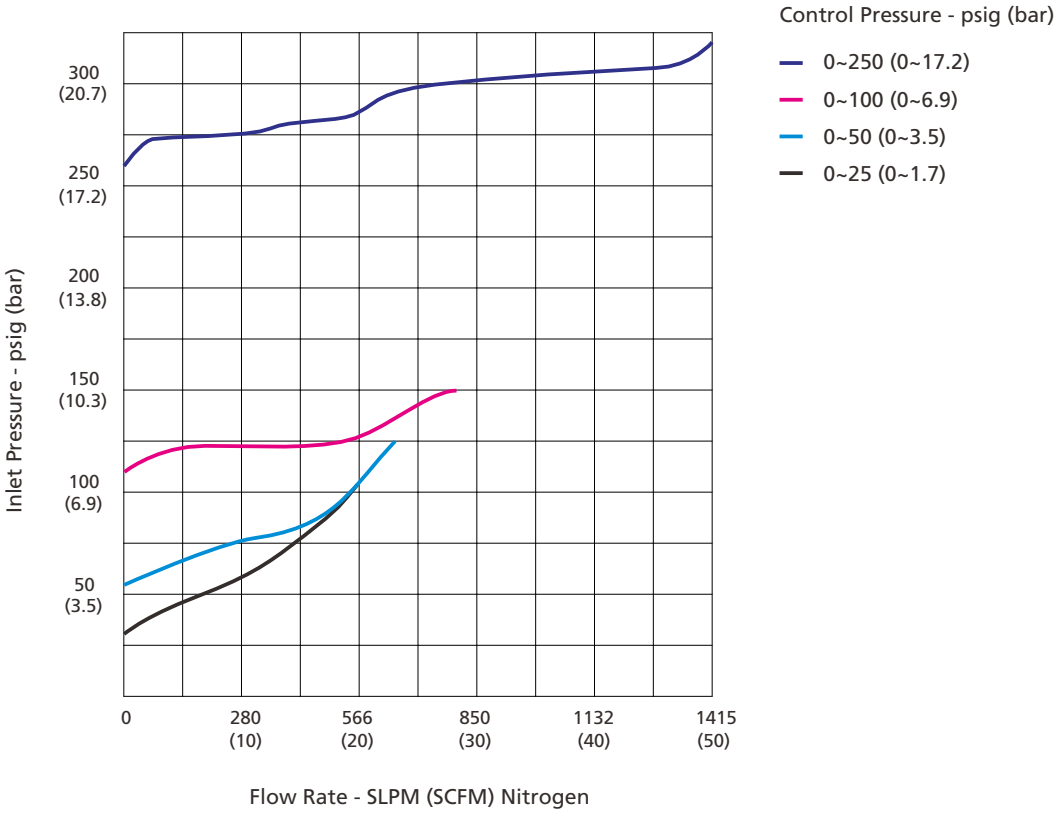
◎ Lightweight, compact design.
◎ Metal-to-metal seal between valve body and diaphragm provides ensured sealing performance.

Technical Data

Port Size		1/4", 3/8", 6 mm or 8 mm
Max. Control Pressure		250 psig (17.2 bar)
Pressure Control 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)
Flow Coefficient (Cv)		0.3
Working Temperature		PCTFE: -40 ~ 165 °F (-40 ~ 74 °C)
		PEEK: -40 ~ 400 °F (-40 ~ 204 °C)
Leak Rate	**External**	$\leqslant 1\times10^{-9}$ std·cm^3/s (helium)
	Internal	Bubble tight

① For the working temperature of products equipped with a pressure gauge, please refer to the **catalog for Pressure Gauges.**

Flow Data

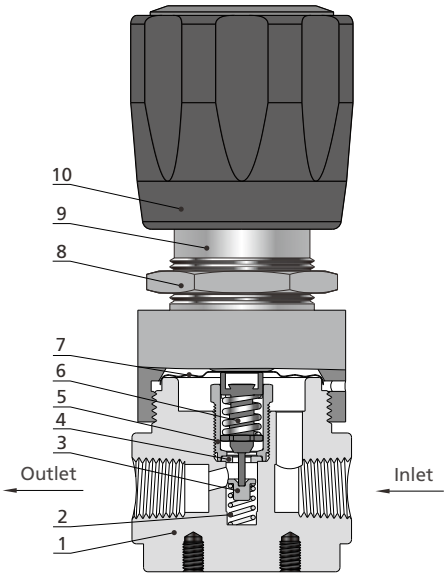


Process Specification

Item \ Process Specification	Special Cleaning and Packaging Process (FC-02)	
Material	316L SS	Brass (Nickle-Plated)
Wetted Surface Roughness	Face Seal Connection or Butt Weld Connection: Ra 20 µin. (0.5 µm) Threaded Connection or Tube Fitting Connection: Ra 32 µin. (0.8 µm)	Threaded Connection or Tube Fitting Connection: Ra 32 µin. (0.8 µm)
Polishing Process	Machine Finished	
Assembly Environment	In specially cleaned areas	
Packaging	Double bagged	

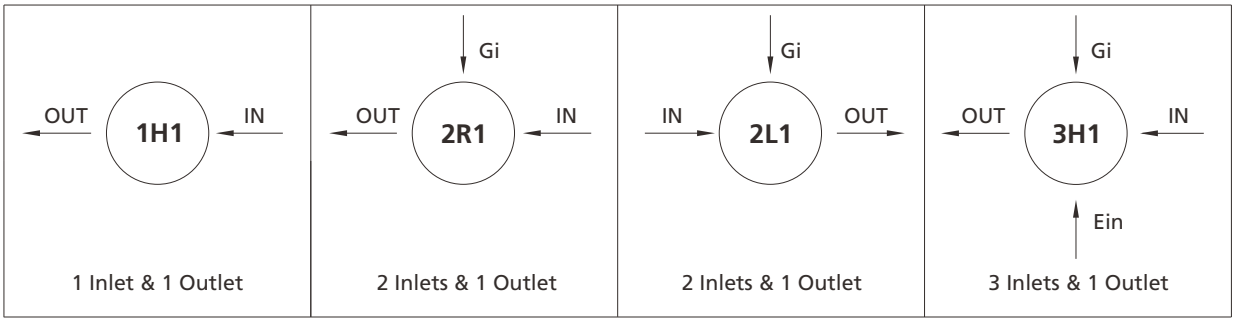
Note: For products with higher surface finish, please contact FITOK.

Major Materials of Construction



Item	Component	Material/Specification	
		6L	B
1	Body	316L SS	Brass (Nickle-Plated)
2	Poppet Spring	316 SS/ASTM A313	
3	Friction Sleeve	316L SS/ASTM A479	
4	Seat	PCTFE/ASTM D1430 or PEEK	
5	Seat Retainer	316L SS/ASTM A479	
6	Lift Poppet Assembly	316L SS and 316 SS	
7	Diaphragm	316L SS/ASTM A240	
8	Panel Nut	304 SS/ASTM A479	
9	Bonnet	304 SS/ASTM A479	Brass (Nickle-Plated)
10	Handle	ABS or Aluminium alloy (PEEK Seat optional)	

Porting Configurations



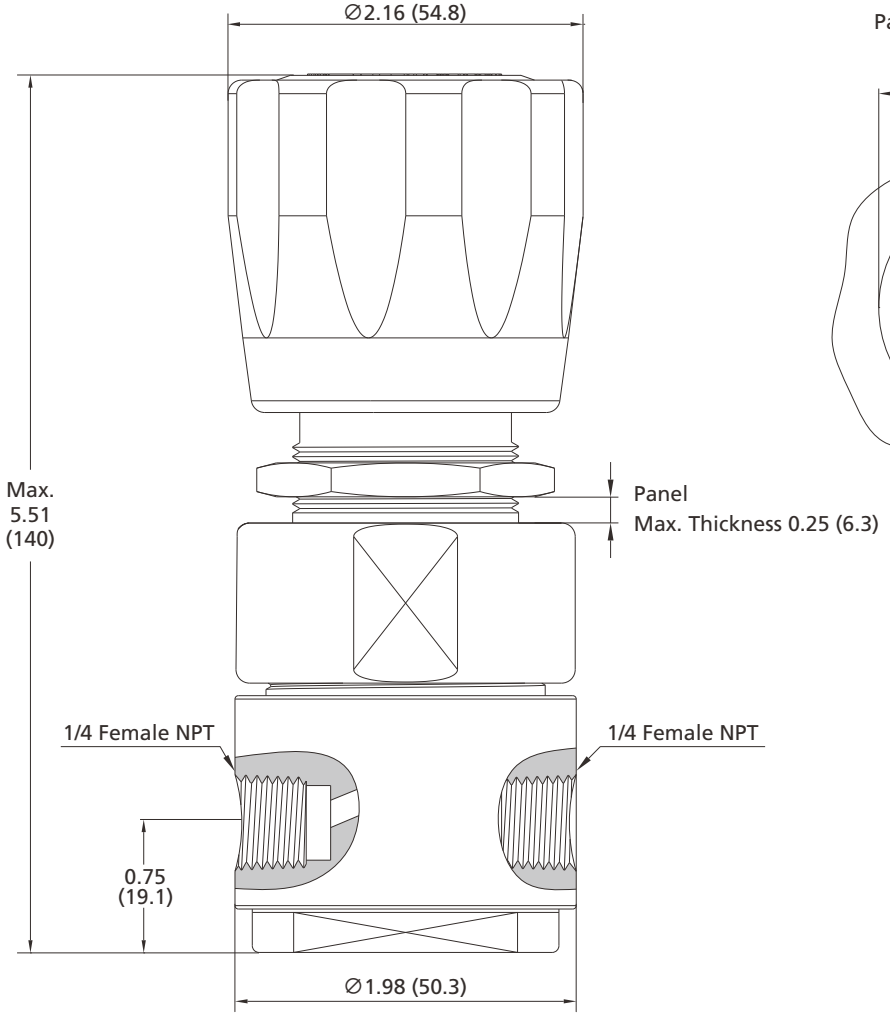
Porting Configuration Symbol

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

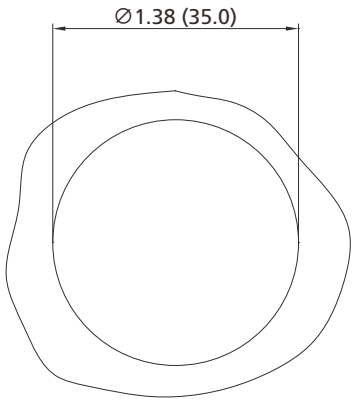
Notes:
1. IN and OUT are the inlet and outlet ports for connecting the valve to the system. Ports other than IN and OUT should not be used for system connections.
2. Porting configuration is viewed from the top.

Dimensions

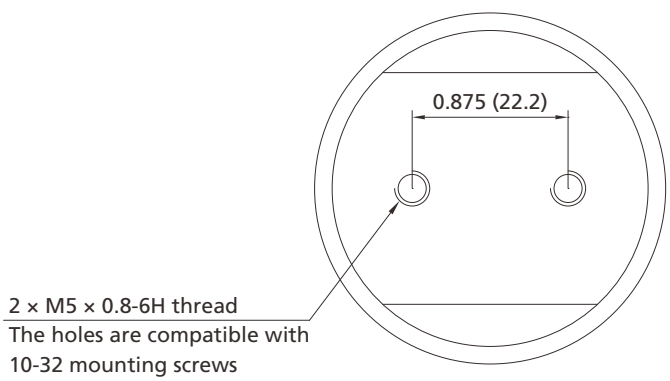
Dimensions, in inches (millimeters), are for reference only.



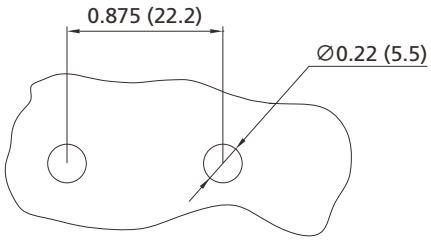
Panel Mounting Cut-Out



Bottom View



Bottom Mounting Cut-Outs



Ordering Number Description

BDGC - 6L - 1H - 2R1 - FL4 - FL6 - IBAP - P - ATPM - F2

Series	
BDGC	

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

Pressure Control 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)

Porting	
1H1	1 Inlet & 1 Outlet
2R1	2 Inlets & 1 Outlet
2L1	2 Inlets & 1 Outlet
3H1	3 Inlets & 1 Outlet

Inlet (IN)	
FFR4	1/4" Rotatable Female FR Fitting
RFR4	1/4" Rotatable Male FR 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 4
IB	Gauge (psi/bar)
IM	Gauge (psi/MPa)
IP	Plug

Auxiliary Inlet (Ein)	
	Without plug, refer to Note 4
AP	Plug

Seat Material	
	PCTFE
P	PEEK

Handle	
	Round Handle
AT	For lock nut, see Note 5

Installation 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. 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. When choosing NPT or Metric/Fractional Tube Fitting for inlet and outlet, gauge connection (Gi) and auxiliary inlet (Ein) are 1/4 Female NPT. When choosing Metal Gasket Face Seal Fitting or Tube Butt Weld for inlet and outlet, gauge connection (Gi) and auxiliary inlet (Ein) are 1/4" Rotatable Male FR Fitting.
5. 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.
6. For the default pressure gauge configurations, please refer to the pressure gauge ordering information on page A-12.

General Piston Back Pressure Regulators

BPGC Series

Introduction

BPGC Series General Piston Back Pressure Regulators feature a piston sensing mechanism, offering robust resistance to damage caused by pressure spikes. These regulators are ideal for regulating medium to high pressure settings.

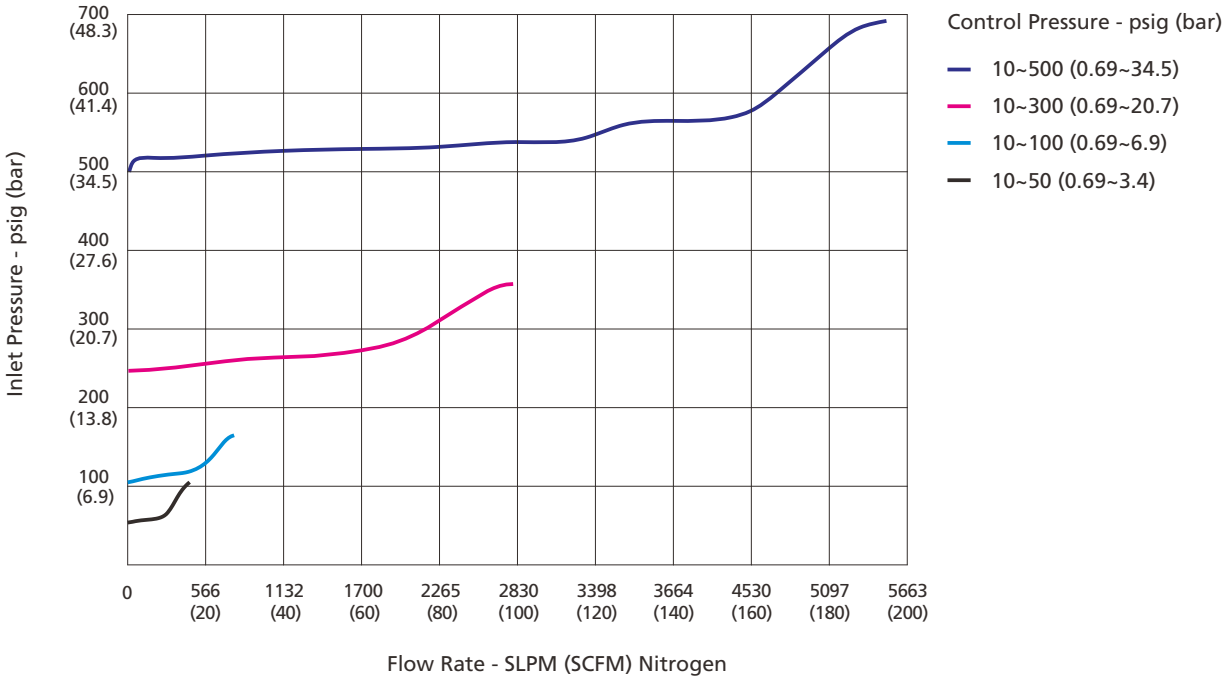
Features

- Piston sensing mechanism offers a wider pressure control range.
- 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. Control Pressure		1000 psig (68.9 bar)
Pressure Control Range		10 ~ 300 psig (0.69 ~ 20.7 bar)
		10 ~ 500 psig (0.69 ~ 34.5 bar)
		10 ~ 1000 psig (0.69 ~ 68.9 bar)
Flow Coefficient (Cv)		0.3
Working Temperature	**FKM**	-4 ~ 165 °F (-20 ~ 74 °C)
	FFKM	1.4 ~ 165 °F (-17 ~ 74 °C)
	NBR	-20 ~ 165 °F (-29 ~ 74 °C)
Leak Rate	**External**	Bubble tight
	Internal	Bubble tight

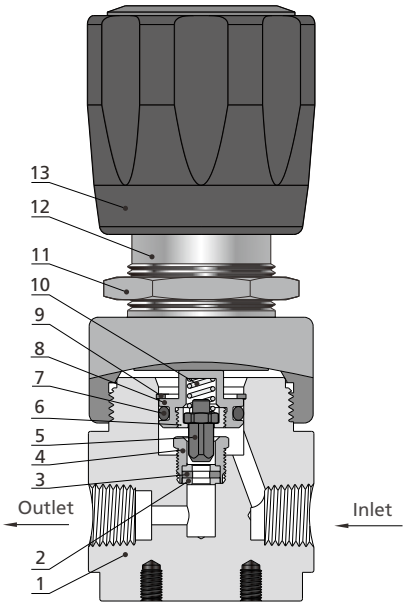
Flow Data



Process Specification

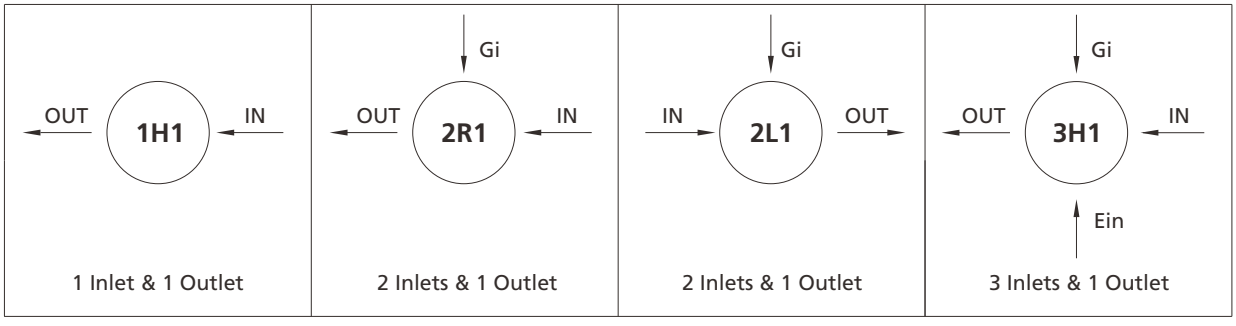
Item \ Process Specification	Special Cleaning and Packaging Process (FC-02)
Material	316L SS, Brass (Nickle-Plated)
Wetted Surface Roughness	Ra 32 µin. (0.8 µm)
Polishing Process	Machine Finished
Assembly Environment	In specially cleaned areas
Packaging	Double bagged

Major Materials of Construction



Item	Component	Material/Specification
1	Body	316L SS or Brass (Nickle-Plated)
2	Seat	PCTFE/ASTM D1430
3	Seat Gasket	316L SS/ASTM A479
4	Seat Retainer	316L SS/ASTM A479
5	Lift Poppet	316L SS/ASTM A479
6	Piston Nut	316L SS/ASTM A479
7	O-Ring	FKM or FFKM or NBR
8	Piston	316L SS/ASTM A479
9	Circlip	304 SS
10	Poppet Spring	316 SS/ASTM A313
11	Panel Nut	304 SS/ASTM A479
12	Bonnet	304 SS/ASTM A479 or Brass (Nickle-Plated)
13	Handle	ABS

Porting Configurations



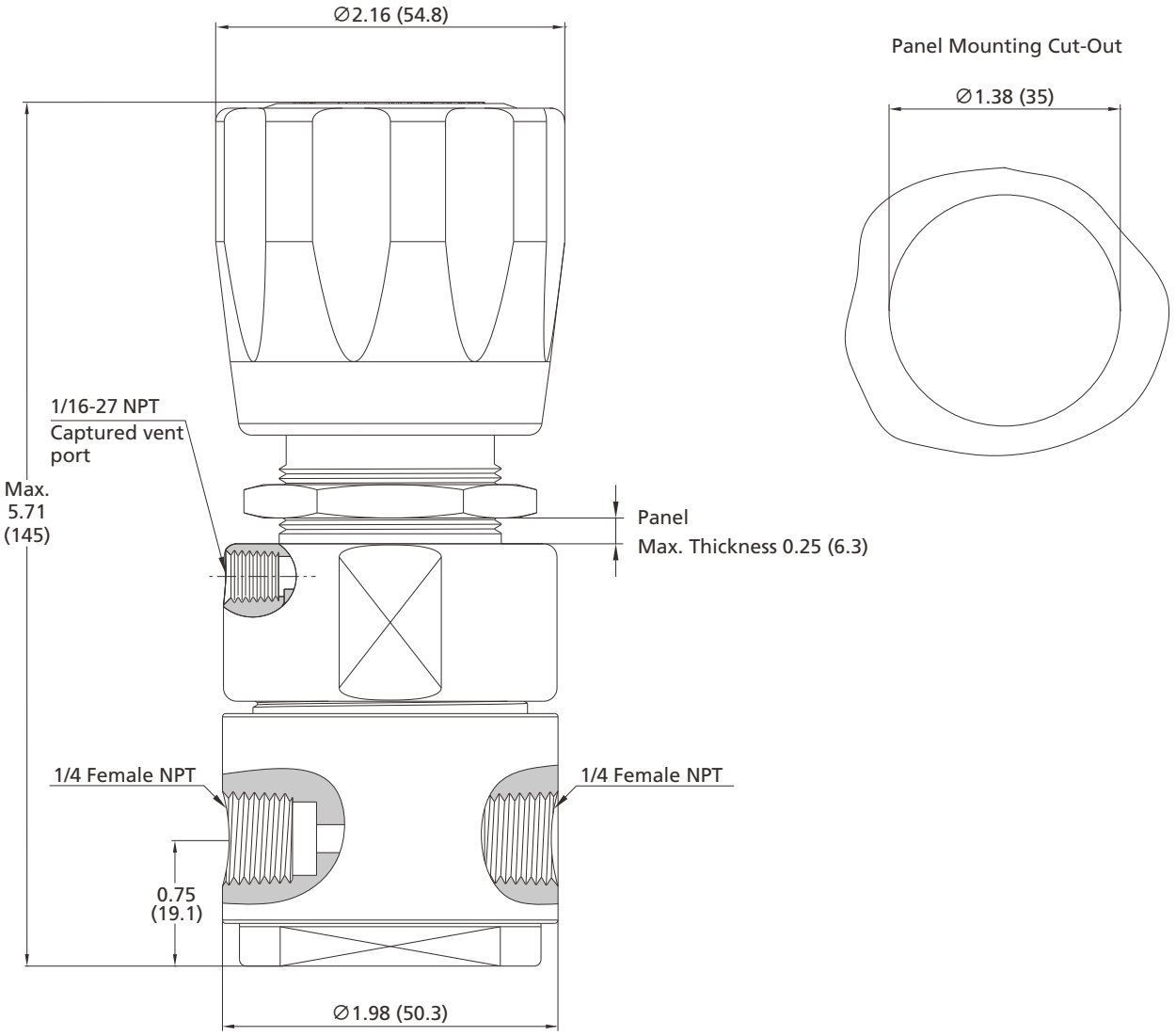
Porting Configuration Symbol

IN	OUT	Gi	Ein
Inlet	Outlet	Inlet Pressure Gauge Port	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.

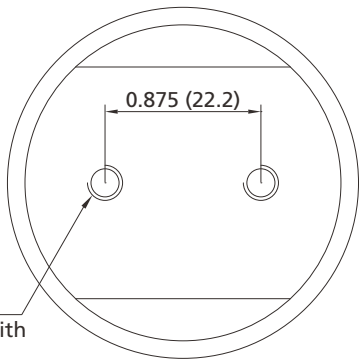
Dimensions

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



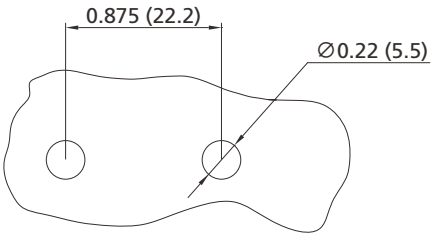
Panel Mounting Cut-Out

Bottom View



2 × M5 × 0.8-6H thread
The holes are compatible with 10-32 mounting screws

Bottom Mounting Cut-Outs



Ordering Number Description

BPGC - 6L - 3H - 3H1 - FL4 - FL6 - IBAP - Z - ATPM - F2

Series
BPGC

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

Pressure Control Range	
3H	10~300 psig (0.69~20.7 bar)
5H	10~500 psig (0.69~34.5 bar)
1K	10~1000 psig (0.69~68.9 bar)

Porting	
1H1	1 Inlet & 1 Outlet
2R1	2 Inlets & 1 Outlet
2L1	2 Inlets & 1 Outlet
3H1	3 Inlets & 1 Outlet

Inlet (IN)	
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 3
IB	Gauge (psi/bar)
IM	Gauge (psi/MPa)
IP	Plug

Auxiliary Inlet (Ein)	
	Without plug, refer to Note 3
AP	Plug

O-Ring Material	
	FKM
Z	FFKM
N	NBR

Handle	
	Round Handle
AT	For lock nut, see Note 4

Installation 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. 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. Gauge connection (Gi) and auxiliary inlet (Ein) are 1/4 Female NPT.
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.

High Pressure Piston Back Pressure Regulators

BPGX Series

Introduction

BPGX Series High Pressure Piston Back Pressure Regulators feature a piston sensing mechanism and a handle using thrust roller bearing. These regulators are ideal for regulating medium to ultra high pressure settings.

Features

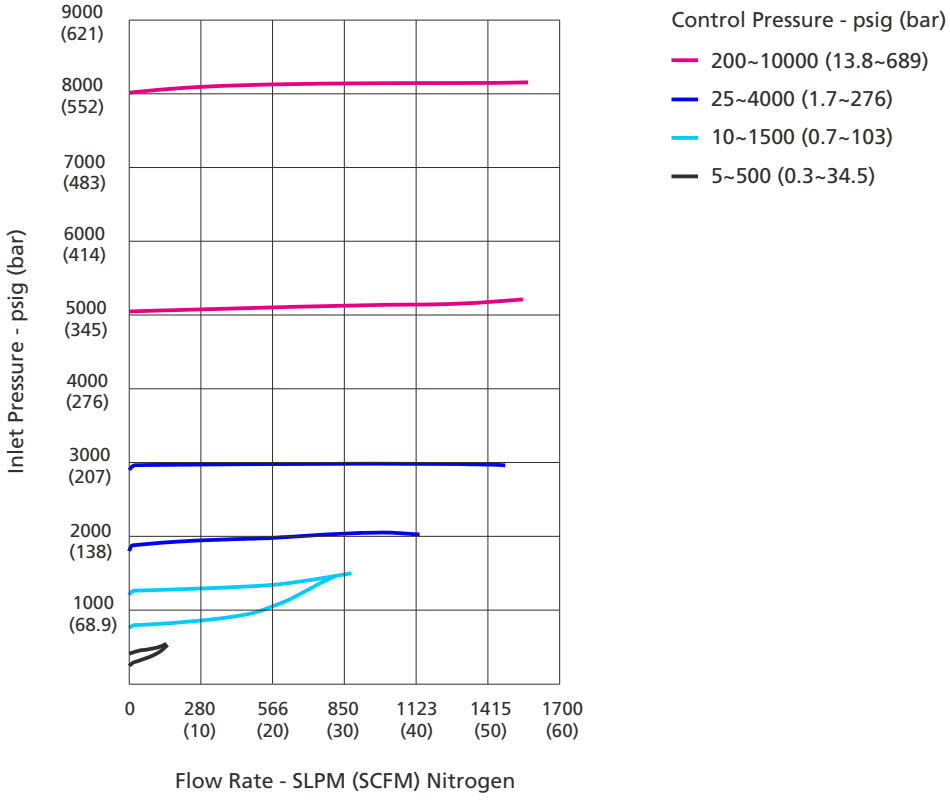
- Piston sensing mechanism offers a wider pressure control range.
- Thrust roller bearing eases operation.
- Panel mounting clamp available.

Technical Data

Port Size		1/4", 3/8", 6 mm or 8 mm
Max. Control Pressure	**316 SS, 316L SS**	10000 psig (689 bar)
	Brass	6000 psig (414 bar)
Pressure Control Range		5 ~ 500 psig (0.35 ~ 34.5 bar)
		5 ~ 800 psig (0.35 ~ 55.2 bar)
		10 ~ 1500 psig (0.69 ~ 103 bar)
		15 ~ 2500 psig (1.0 ~ 172 bar)
		25 ~ 4000 psig (1.7 ~ 276 bar)
		50 ~ 6000 psig (3.5 ~ 414 bar)
		200 ~ 10000 psig (13.8 ~ 689 bar)①
Flow Coefficient (Cv)		0.25
Working Temperature	**FKM**	-4 ~ 165 °F (-20 ~ 74 °C)
	FFKM	1.4 ~ 165 °F (-17 ~ 74 °C)
	NBR	-20 ~ 165 °F (-29 ~ 74 °C)
Leak Rate	**External**	Bubble tight
	Internal	Bubble tight

① Apples to valves made of 316 SS and 316L SS only.

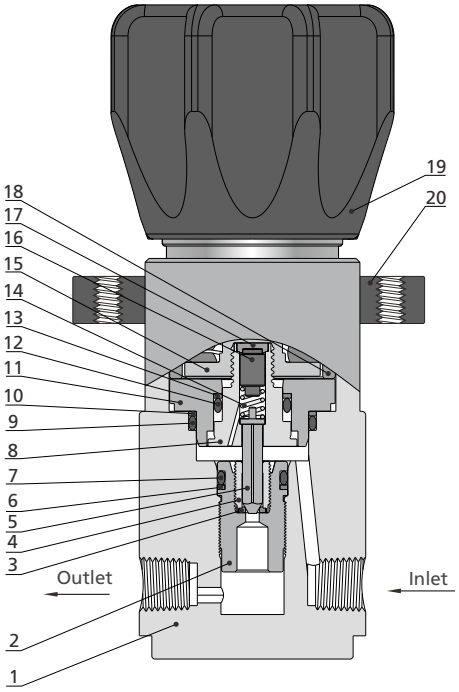
Flow Data



Process Specification

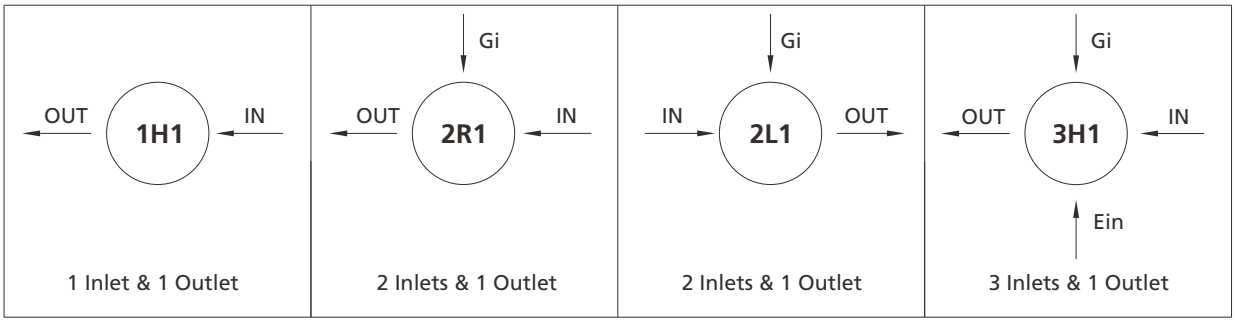
Item \ Process Specification	Standard cleaning and Packaging Process (FC-01)	Special Cleaning and Packaging Process (FC-02)
Material	316 SS, 316L SS, Brass	
Wetted Surface Roughness	Ra 32 µin. (0.8 µm)	
Polishing Process	Machine Finished	
Assembly Environment	At atmosphere	In specially cleaned areas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

Major Materials of Construction



Item	Component	Material/Specification
1	Body	316 SS or 316L SS or Brass
2	Poppet	316 SS/ASTM A479
3	Seat	PEEK
4	Seat Retainer	316 SS/ASTM A479
5	Lift Poppet	S17400/A564
6	Circlip	PTFE+25%Carbon Fiber
7	O-Ring	FKM or FFKM or NBR
8	Piston	316 SS/ASTM A479
9	O-Ring	FKM or FFKM or NBR
10	Circlip	PTFE+25%Carbon Fiber
11	Piston Ring	316 SS/ASTM A479
12	O-Ring	FKM or FFKM or NBR
13	Circlip	PTFE+25%Carbon Fiber
14	Poppet Spring	316 SS/ASTM A313
15	Spring Seat	304 SS/ASTM A479
16	Spring Button	316 SS/ASTM A479
17	Seat	PEEK
18	Bonnet	304 SS/ASTM A479 or Brass
19	Handle	Aluminium Alloy
20	Clamp	Aluminium Alloy

Porting Configurations



Porting Configuration Symbol

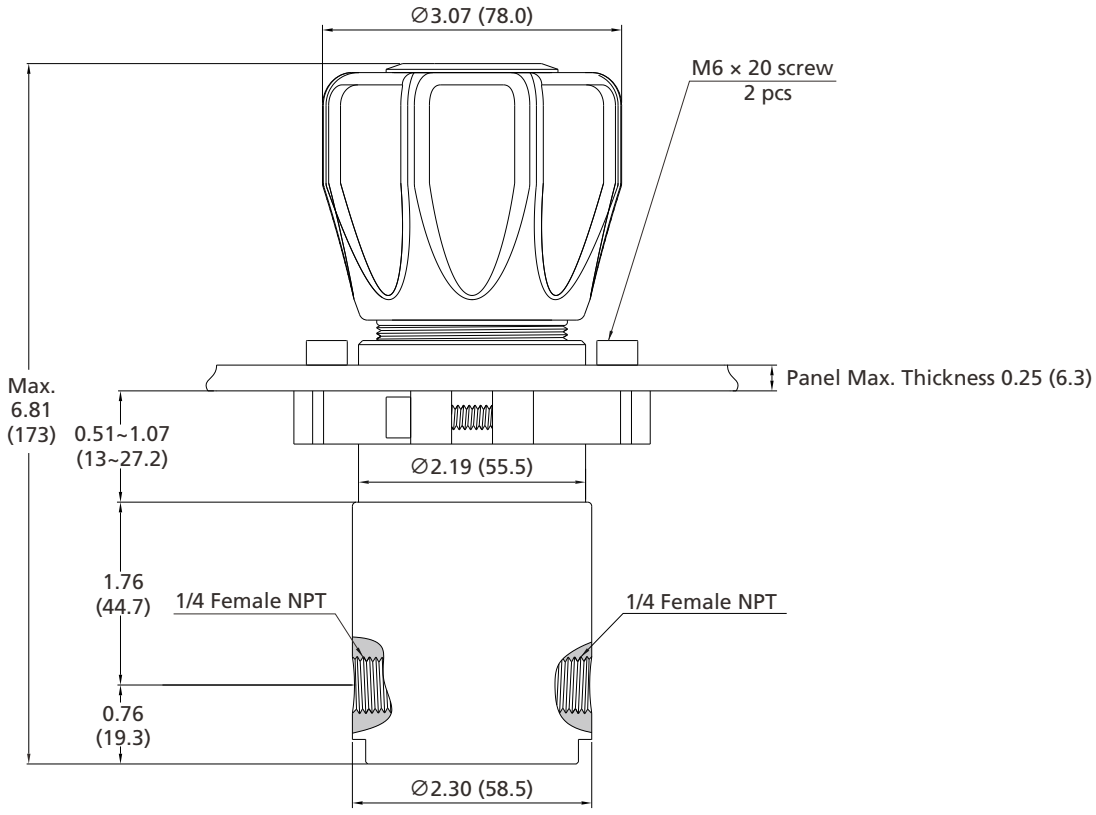
IN	OUT	Gi	Ein
Inlet	Outlet	Inlet Pressure Gauge Port	Auxiliary Inlet

Notes:

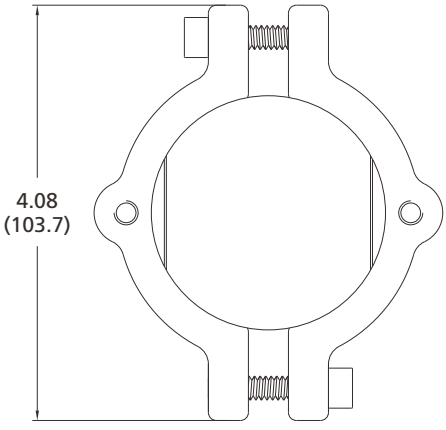
1. IN and OUT are the inlet and outlet ports for connecting the valve to the system. Ports other than IN and OUT should not be used for system connections.
2. Porting configuration is viewed from the top.

Dimensions

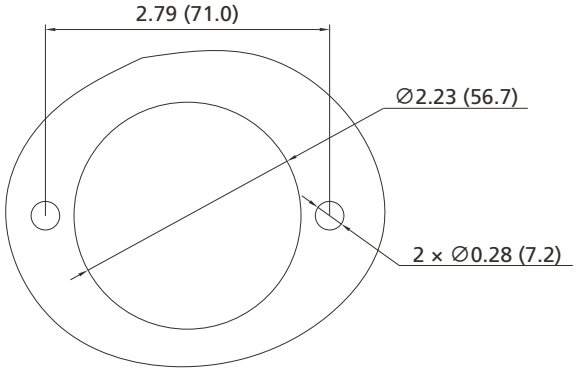
Dimensions, in inches (millimeters), are for reference only.



Bottom View



Panel Mounting Cut-Out



Ordering Number Description

BPGX - 6L - 5H - 3H1 - FL4 - FL6 - IBAP - Z - ATPM - F1

Series
BPGX

Body Material	
SS	316 SS
6L	316L SS
B	Brass (Max. control pressure: 6000 psig)

Pressure Control Range	
5H	5~500 psig (0.35~34.5 bar)
8H	5~800 psig (0.35~55.2 bar)
15H	10~1500 psig (0.69~103 bar)
25H	15~2500 psig (1.0~172 bar)
4K	25~4000 psig (1.7~276 bar)
6K	50~6000 psig (3.5~414 bar)
10K	200~10000 psig (13.8~689 bar)

Porting	
1H1	1 Inlet & 1 Outlet
2R1	2 Inlets & 1 Outlet
2L1	2 Inlets & 1 Outlet
3H1	3 Inlets & 1 Outlet

Inlet (IN)	
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 3
IB	Gauge (psi/bar)
IM	Gauge (psi/MPa)
IP	Plug

Auxiliary Inlet (Ein)	
	Without plug, refer to Note 3
AP	Plug

O-Ring Material	
	FKM
Z	FFKM
N	NBR

Handle	
	Round Handle
AT	For lock nut, see Note 4

Installation Type	
	Fixedly Mounted at Pipe Inlet or Outlet
PM	Panel Mounting Clamp

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. 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. Gauge connection (Gi) and auxiliary inlet (Ein) are 1/4 Female NPT.
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.