

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

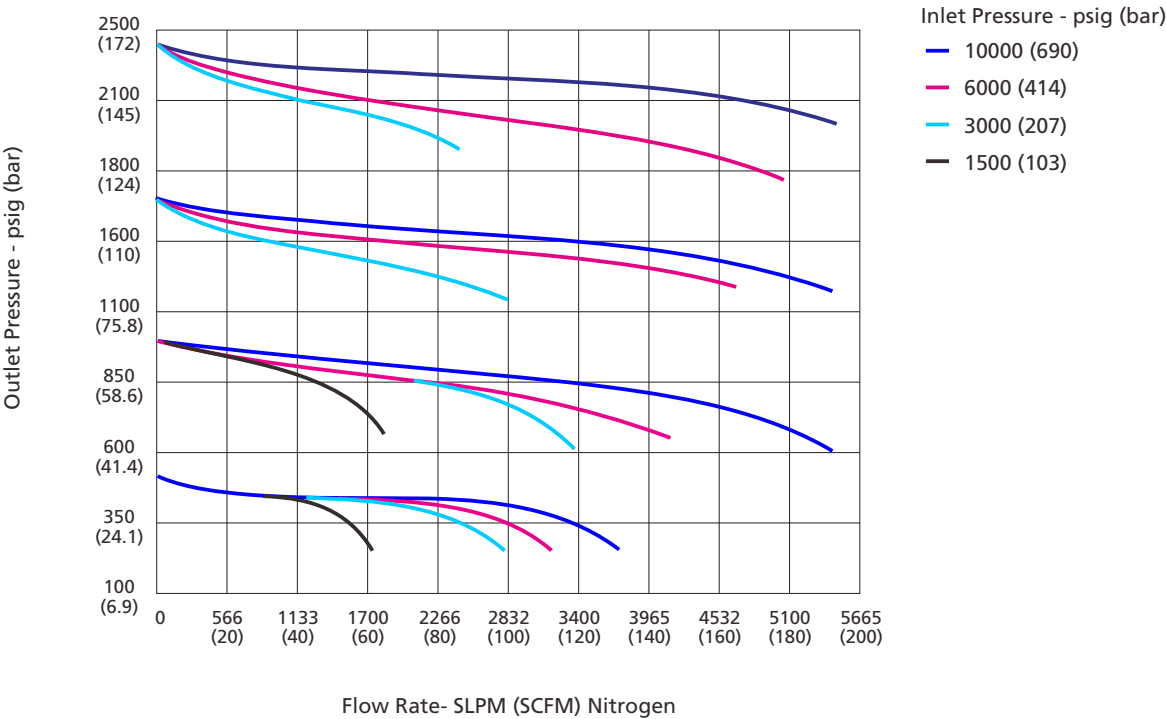
- Built-in 40 µm inlet filter for cleanliness and extended service life.
- Optional self-venting feature.
- Drain port design allows residual liquid media in the downstream pipeline to be vented to a designated location.

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)	Max. Outlet Pressure: 500, 800 psig	1.1 psig per 100 psig source pressure change	
	Max. Outlet Pressure: 1500, 2500 psig	3 psig per 100 psig source pressure change	
	Max. Outlet Pressure: 4000, 6000 psig	9 psig per 100 psig source pressure change	
	Max. Outlet Pressure: 10000 psig	13 psig per 100 psig source pressure change	
Leak Rate		External	Bubble tight
		Internal	Bubble tight



Flow Data



Process Specification

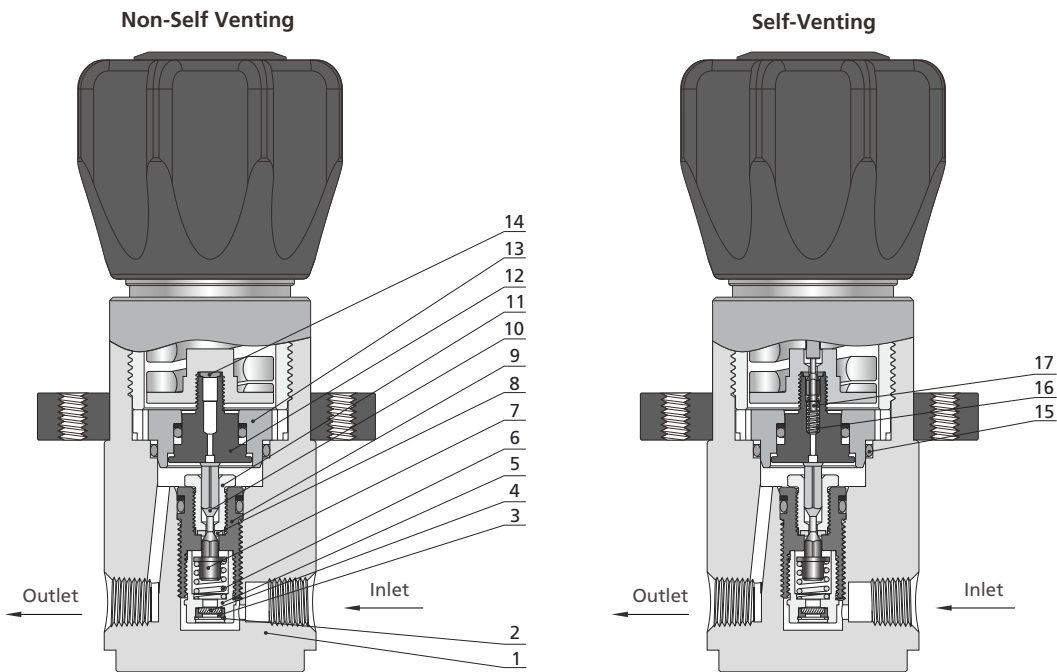
Item	Process Specification	Standard Cleaning and Packaging Process (FC-01)	Special Cleaning and Packaging Process (FC-02)
Material		316 SS, Brass	
Wetted Surface Roughness		Ra 32 μin. (0.8 μm)	
Polishing Process		Machine Finished	
Assembly Environment		At atmosphere	In specially cleaned areas
Packaging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

Major Materials of Construction

Gas Control Equipment

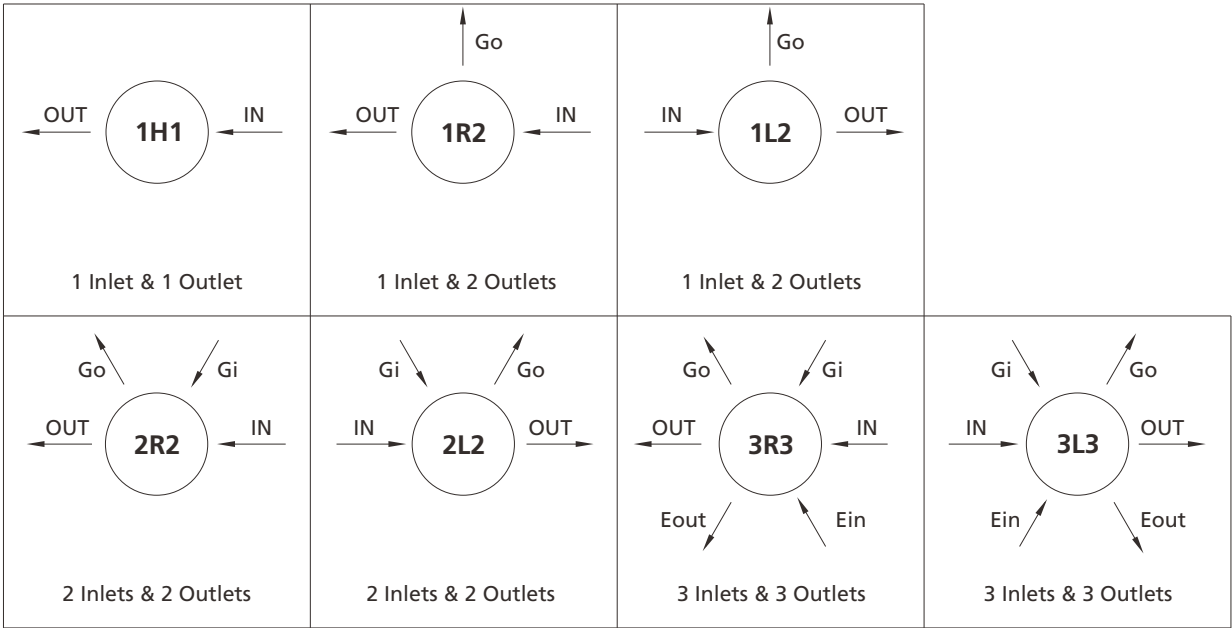
Related Products

Technical References



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



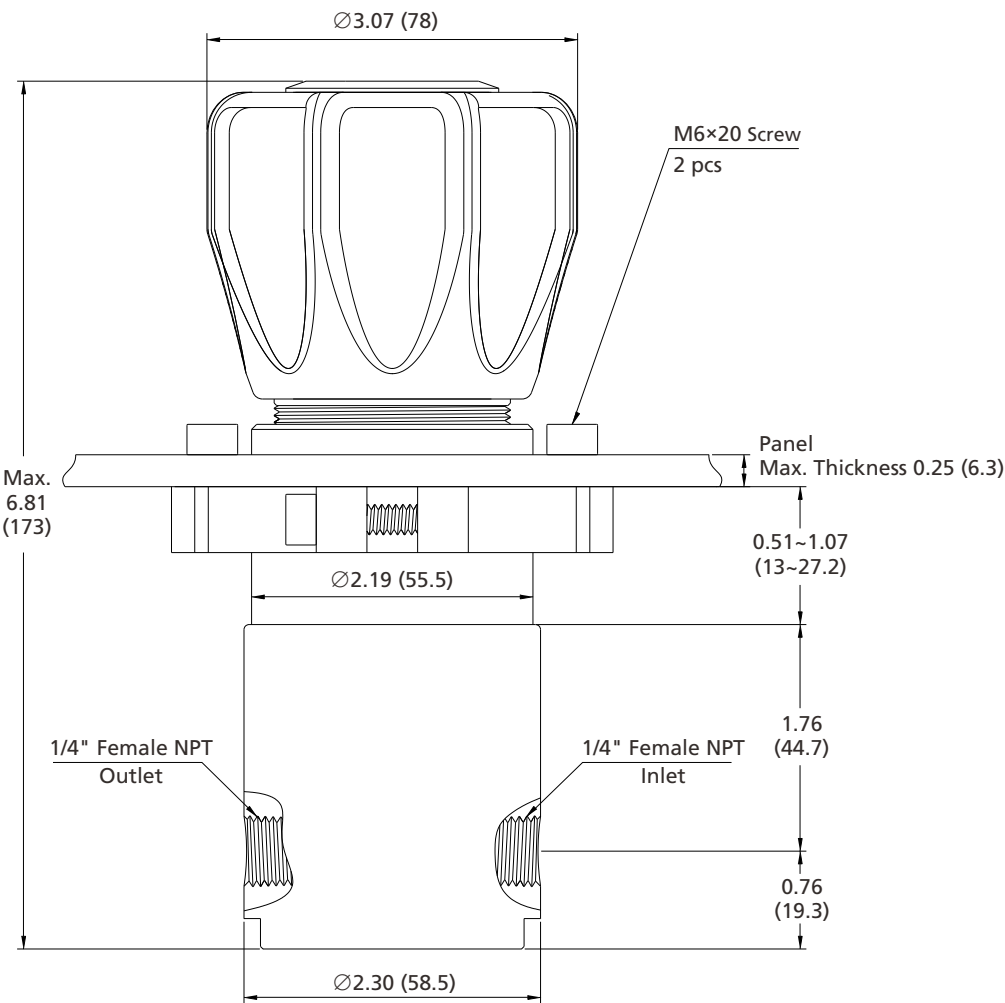
Porting Configuration Symbol

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

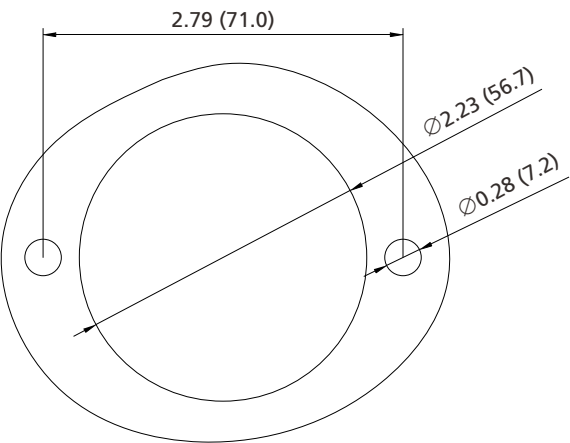
- Notes:
- 1. IN and OUT are the inlet and outlet ports for connecting the valve to the system. Ports other than IN and OUT should not be used for system connections.
 - 2. Porting configuration is viewed from the top.

Dimensions

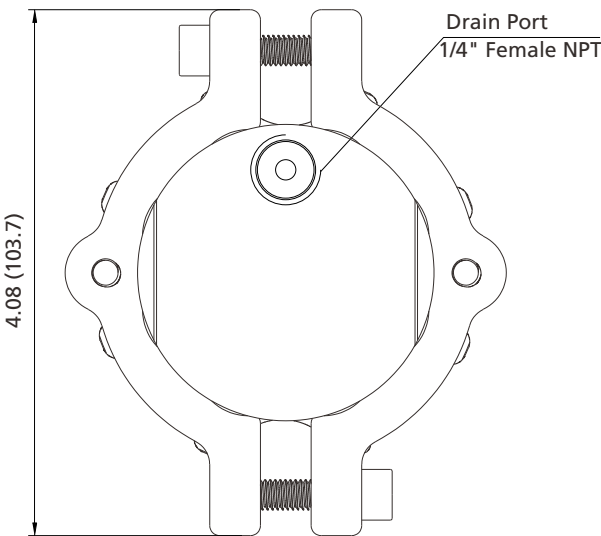
Dimensions, in inches (millimeters), are for reference only.



Panel Mounting Cut-Out



Bottom View



Ordering Number Description

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

<table><tr><th colspan="2">Body Material</th></tr><tr><td>SS</td><td>316 SS</td></tr><tr><td>B</td><td>Brass</td></tr></table>	Body Material		SS	316 SS	B	Brass	<table><tr><th colspan="2">Porting</th></tr><tr><td>1H1</td><td>1 Inlet & 1 Outlet</td></tr><tr><td>1R2</td><td>1 Inlet & 2 Outlets</td></tr><tr><td>1L2</td><td>1 Inlet & 2 Outlets</td></tr><tr><td>2R2</td><td>2 Inlets & 2 Outlets</td></tr><tr><td>2L2</td><td>2 Inlets & 2 Outlets</td></tr><tr><td>3R3</td><td>3 Inlets & 3 Outlets</td></tr><tr><td>3L3</td><td>3 Inlets & 3 Outlets</td></tr></table>	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	3R3	3 Inlets & 3 Outlets	3L3	3 Inlets & 3 Outlets	<table><tr><th colspan="2">Inlet Pressure Gauge Port (Gi)</th></tr><tr><td></td><td>Without pressure gauge, refer to Note 5</td></tr><tr><td>IB</td><td>Gauge (psi/bar)</td></tr><tr><td>IM</td><td>Gauge (psi/MPa)</td></tr><tr><td>IP</td><td>Plug</td></tr></table>	Inlet Pressure Gauge Port (Gi)			Without pressure gauge, refer to Note 5	IB	Gauge (psi/bar)	IM	Gauge (psi/MPa)	IP	Plug	<table><tr><th colspan="2">O-Ring Material</th></tr><tr><td></td><td>FKM</td></tr><tr><td>N</td><td>NBR</td></tr></table>	O-Ring Material			FKM	N	NBR	<table><tr><th colspan="2">Process Specification</th></tr><tr><td>F1</td><td>FC-01</td></tr><tr><td>F2</td><td>FC-02</td></tr></table>	Process Specification		F1	FC-01	F2	FC-02
Body Material																																																
SS	316 SS																																															
B	Brass																																															
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																																															
3R3	3 Inlets & 3 Outlets																																															
3L3	3 Inlets & 3 Outlets																																															
Inlet Pressure Gauge Port (Gi)																																																
	Without pressure gauge, refer to Note 5																																															
IB	Gauge (psi/bar)																																															
IM	Gauge (psi/MPa)																																															
IP	Plug																																															
O-Ring Material																																																
	FKM																																															
N	NBR																																															
Process Specification																																																
F1	FC-01																																															
F2	FC-02																																															
<table><tr><th colspan="2">Max. Inlet Pressure</th></tr><tr><td>6K</td><td>6000 psig (414 bar)</td></tr><tr><td>10K</td><td>10000 psig (690 bar)</td></tr></table>	Max. Inlet Pressure		6K	6000 psig (414 bar)	10K	10000 psig (690 bar)	<table><tr><th colspan="2">Inlet (IN)</th></tr><tr><td>FNS4</td><td>1/4" Female NPT</td></tr><tr><td>NS4</td><td>1/4" Male NPT</td></tr><tr><td>FL4</td><td>1/4" Tube Fitting</td></tr><tr><td>FL6</td><td>3/8" Tube Fitting</td></tr><tr><td>ML6</td><td>6 mm Tube Fitting</td></tr><tr><td>ML8</td><td>8 mm Tube Fitting</td></tr></table>	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	<table><tr><th colspan="2">Auxiliary Inlet (Ein)</th></tr><tr><td></td><td>Without plug, refer to Note 5</td></tr><tr><td>AP</td><td>Plug</td></tr></table>	Auxiliary Inlet (Ein)			Without plug, refer to Note 5	AP	Plug	<table><tr><th colspan="2">Vent Option</th></tr><tr><td></td><td>None</td></tr><tr><td>SV</td><td>Self-Venting</td></tr></table>	Vent Option			None	SV	Self-Venting	<table><tr><th colspan="2">Panel Mounting</th></tr><tr><td></td><td>Fixedly Mounted at Pipe Inlet or Outlet</td></tr><tr><td>PM</td><td>Panel Mounting Clamp</td></tr></table>	Panel Mounting			Fixedly Mounted at Pipe Inlet or Outlet	PM	Panel Mounting Clamp						
Max. Inlet Pressure																																																
6K	6000 psig (414 bar)																																															
10K	10000 psig (690 bar)																																															
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																																															
Auxiliary Inlet (Ein)																																																
	Without plug, refer to Note 5																																															
AP	Plug																																															
Vent Option																																																
	None																																															
SV	Self-Venting																																															
Panel Mounting																																																
	Fixedly Mounted at Pipe Inlet or Outlet																																															
PM	Panel Mounting Clamp																																															
<table><tr><th colspan="2">Outlet Pressure Range</th></tr><tr><td>5H</td><td>10~500 psig (0.69~34.4 bar)</td></tr><tr><td>8H</td><td>15~800 psig (1.03~55.2 bar)</td></tr><tr><td>15H</td><td>15~1500 psig (1.03~103 bar)</td></tr><tr><td>25H</td><td>30~2500 psig (2.1~172 bar)</td></tr><tr><td>4K</td><td>50~4000 psig (3.4~276 bar)</td></tr><tr><td>6K</td><td>60~6000 psig (4.1~414 bar)</td></tr><tr><td>10K</td><td>200~10000 psig (13.8~690 bar)</td></tr></table>	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)	<table><tr><th colspan="2">Outlet (OUT)</th></tr><tr><td></td><td>Same as Inlet</td></tr><tr><td colspan="2">Specified in the same way as Inlet</td></tr></table>	Outlet (OUT)			Same as Inlet	Specified in the same way as Inlet		<table><tr><th colspan="2">Outlet Pressure Gauge Port (Go)</th></tr><tr><td></td><td>Without pressure gauge, refer to Note 5</td></tr><tr><td>OB</td><td>Gauge (psi/bar)</td></tr><tr><td>OM</td><td>Gauge (psi/MPa)</td></tr><tr><td>OP</td><td>Plug</td></tr></table>	Outlet Pressure Gauge Port (Go)			Without pressure gauge, refer to Note 5	OB	Gauge (psi/bar)	OM	Gauge (psi/MPa)	OP	Plug	<table><tr><th colspan="2">Handle</th></tr><tr><td></td><td>Round Handle</td></tr><tr><td>AT</td><td>For lock nut, see Note 7</td></tr></table>	Handle			Round Handle	AT	For lock nut, see Note 7							
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)																																															
Outlet (OUT)																																																
	Same as Inlet																																															
Specified in the same way as Inlet																																																
Outlet Pressure Gauge Port (Go)																																																
	Without pressure gauge, refer to Note 5																																															
OB	Gauge (psi/bar)																																															
OM	Gauge (psi/MPa)																																															
OP	Plug																																															
Handle																																																
	Round Handle																																															
AT	For lock nut, see Note 7																																															
		<table><tr><th colspan="2">Auxiliary Outlet (Eout)</th></tr><tr><td></td><td>Without plug, refer to Note 5</td></tr><tr><td>RP</td><td>Plug</td></tr><tr><td>R</td><td>With relief valve, refer to Note 6</td></tr></table>	Auxiliary Outlet (Eout)			Without plug, refer to Note 5	RP	Plug	R	With relief valve, refer to Note 6																																						
Auxiliary Outlet (Eout)																																																
	Without plug, refer to Note 5																																															
RP	Plug																																															
R	With relief valve, refer to Note 6																																															

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, FITOK can preset the specified set pressure according to customer requirements. Please specify the desired set pressure when placing your order.
7. 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.