

# PSX2 Slam Shut Device



Helping critical protection of downstream operations, the BelGAS PSX2 Over/Underslam shut device is now available for the P200 and P300 series regulators. Operating on preset values, the PSX2 automatically stops downstream flow should pressure exceed the upper or lower set limits. Should the PSX2 be tripped, due to an over/under pressure condition, a manual reset is required.

Over/Under closure devices protect downstream operations and equipment should the outlet pressure of the main regulator exceed the set point. It also assures that when gas pressure drops below the set point for maintaining pilot light or critical flow, gas flow is shut down until a manual reset and inspection takes place.

## Applications

- Industrial/Commercial
- Gas Engines
- Service Regulators

## Features

- Internal or External registration
- Over/Under Pressure protection
- Manual Reset

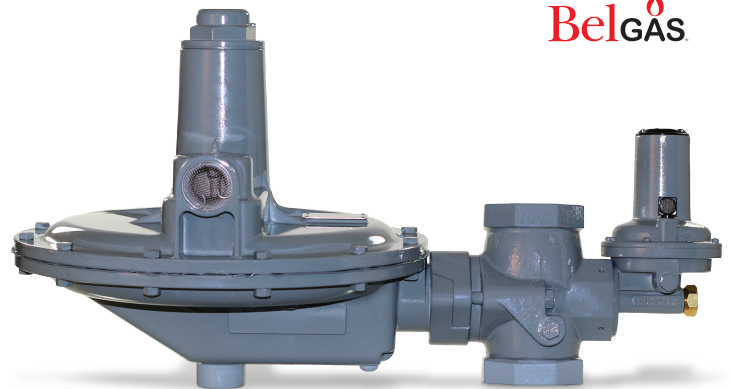
## Materials of Construction

Body	Ductile Cast Iron
Bonnet	Aluminum
Housing	Aluminum
Diaphragm	Nitrile
Molded Seat Assembly	Nitrile and Aluminum
Orifice	Aluminum
Adjusting Nuts	Brass

**For all applicable flow rates for the P200 or P300 series regulators with the PSX2 device, refer to the flow charts in the P201/P202 or the P301/P302 standard regulator literature.**

## PSX2 Ranges

Under Pressure Range	Over Pressure Range
2 - 12" WC / 4.9 - 29.9 mBAR	12 - 25" WC / 29.9 - 62.3 mBAR
4 - 30" WC / 9.9 - 74.7 mBAR	20 - 52" WC / 49.8 - 129.5 mBAR
10" WC - 2.3 PSIG / 24.9 - 159.4 mBAR	1.4 - 3.9 PSIG / 96.5 - 268.9 mBAR
1.5 - 10.8 PSIG / 103.4 - 744.6 mBAR	3.8 - 8.7 PSIG / 262.0 - 600.0 mBAR
	5.8 - 16 PSIG / 399.9 - 1,103.0 mBAR



## Specifications

Maximum Inlet	See Table 1
Maximum Emergency Outlet	15 PSIG
Pressures Ranges	See Table 2
Port Sizes	1.25 NPT
	1.5 NPT
	1.5 X 2 NPT
	2 NPT
Orifice Sizes	1/4"
	3/8"
	1/2"
	3/4"
	1"
	1-3/16"
End Connections	150 RF Flange
	125 FF Flange
	NPT
Temperature Range	-20 °F to 180 °F
	-29 °C to 82 °C
Approx. Weight	30 LBS / 14 KG

**Table 1: Maximum Operational Inlet Pressure**

Orifice Size	Range	Maximum Inlet Pressure
Inches		
1/4"	Any	125 PSIG
3/8"	Any	125 PSIG
1/2"	Any	100 PSIG
3/4"	Any	60 PSIG
1"	2 - 4.5" thru 14-30" WC	25 PSIG
	1-2 thru 4-10 PSIG	30 PSIG
1-3/16"	2 - 4.5" thru 14-30" WC	13 PSIG
	1-2 thru 1.5 - 3.25 PSIG	14 PSIG
	2-5 thru 2 - 5.5 PSIG	20 PSIG
	4 - 10 PSIG	25 PSIG

**Table 2: P200 Series Range Springs**

Spring Range		Spring Color	Part Number
"WC or PSIG	BAR		
2 - 4.5" WC	0.005 - 0.011	Brown	655-697-002
3.5 - 6.5" WC	0.009 - 0.016	Red	655-697-003
5 - 9" WC	0.012 - 0.022	Black	655-697-004
8.5 - 18" WC	0.021 - 0.045	White	655-697-005
14 - 30" WC	0.035 - 0.075	Dark Green	655-697-006
1 - 2 PSIG	0.069 - 0.138	Dark Blue	655-697-007
1.5 - 3.25 PSIG	0.103 - 0.224	Orange	655-697-008
2 - 5 PSIG	0.138 - 0.345	Yellow	655-697-009
2 - 5.5 PSIG	0.138 - 0.379	Green	655-659-003
4 - 10 PSIG	0.276 - 0.689	Grey	655-697-010

## Slam Shut Valve

### How It Works

The slam shut valve type PSX2 provides downstream protection by immediately shutting off the gas flow in case of an over or under pressure situation. The PSX2 is available with either internal or external registration. For external registration, a downstream sensing line will be required.

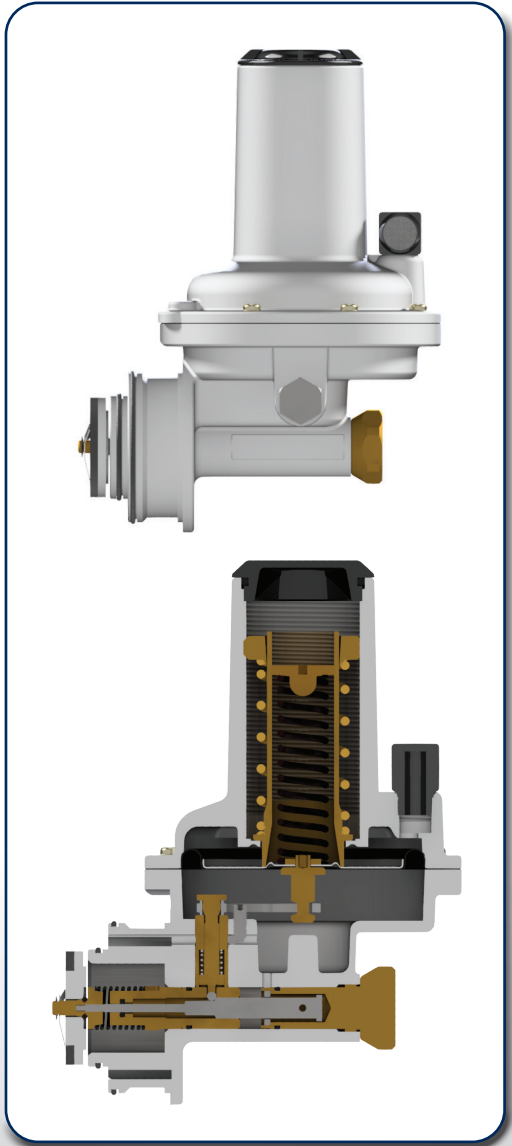
The slam shut valve disk is held in the open position by a ball pressing against the closing shaft. If the pressure underneath the diaphragm reaches the over/under pressure setpoints, the diaphragm will move up or down and cause the ball to be released. The spring force on the stem causes the valve to shut and stop the flow of gas. Once tripped the PSX2 requires a manual reset to reintroduce the flow downstream.

### Over Pressure

The larger spring controls the over-pressure setpoint of the slamshut device. The spring adjustment tool is used to set the spring to the desired tripping pressure. No matter how strong the over pressure spring is it will not conflict with under pressure tripping due to the spring only being able to travel in the upward direction. When the pressure under the diaphragm overcomes the spring force, the diaphragm will lift upwards causing the lever mechanism to release the ball, closing the valve.

### Under Pressure

The smaller spring controls the under-pressure setpoint of the slam shut device. The spring adjustment tool is used to set the spring to the desired tripping pressure. The under pressure spring always needs to be set at a lower tripping pressure than the over pressure spring, or the slam shut will not function properly. Normally, the under pressure spring pushes down on the diaphragm. When the pressure under the diaphragm can no longer balance out the spring force the diaphragm will move downward causing the tripping mechanism to release the ball, closing the valve.



### PSX2 Dimensions

Fig. 1

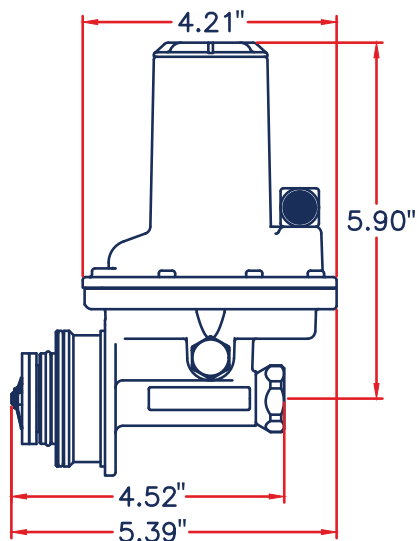


Fig. 2

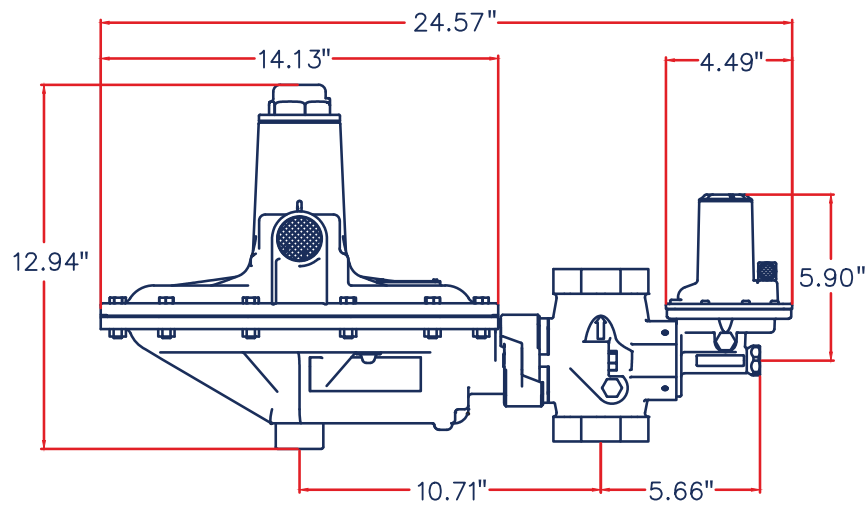
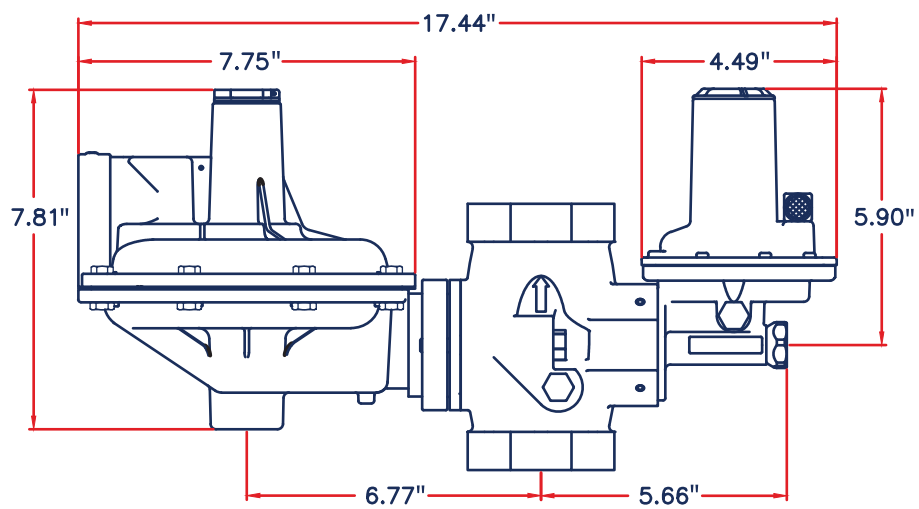


Fig. 3



## P208/P209 Part Matrix

P20													
	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	↑	Version	
8												Non-Relieving	
9												Relieving	
												Regulator Registration	
0												Internal	
P												External	
												Port Size	
12												1.25" NPT	
14												1.5" NPT	
15												1.5" x 2" NPT	
16												2" NPT	
17												2" 150RF (Steel Only)	
18												2" 125FF (Iron Only)	
04												Normal	2 - 4.5" WC / 4.98 - 11.20
06													3.5 - 6.5" WC / 8.71 - 16.19
09													5-9" WC / 12.45 - 22.41
18													8.5 - 18" WC / 21.17 - 44.83
30													14 - 30" WC / 34.87 - 74.72
02												High	1-2 PSIG / 68.94 -137.89
03													1.5 - 3.25 PSIG / 103.42 - 224.07
05													2 - 5 PSIG / 137.89 - 344.73
10												Heavy	4 - 10 PSIG / 275.79 - 689.47
												Orifice	
4												1/4"	
6												3/8"	
8												1/2"	
B												3/4"	
D												1"	
F												1-3/16"	
												Port Orientation	
1												Up (Standard)	
2												Down	
3												Right	
4												Left	
												Bonnet Orientation	
C												12 O'clock	
D												3 O'clock (Standard)	
E												6 O'clock	
F												9 O'clock	
												Body Material	
0												Iron	
2												Steel	
												Slam Shut Registration	
0												Internal	
1												External	
												Under Range - WC or PSIG / mBAR	
0												None	
1												2 - 12" WC / 4.9 - 29.9	
2												4 - 30" WC / 9.9 - 74.7	
3												10" WC - 2.3 PSIG / 24.9 - 159.4	
4												1.5 - 10.8 PSIG / 103.4 - 744.6	
												Over Range - WC or PSIG / mBAR	
5												12 - 25" WC / 29.9 - 62.3	
6												20 - 52" WC / 49.8 - 129.5	
7												1.4 - 3.9 PSIG / 96.5 - 268.9	
8												3.8 - 8.7 PSIG / 262.0 - 599.8	
9												5.8 - 16 PSIG / 399.9 - 1,103.0	



**belgas.net**

PSX2 Replacement Assembly Matrix

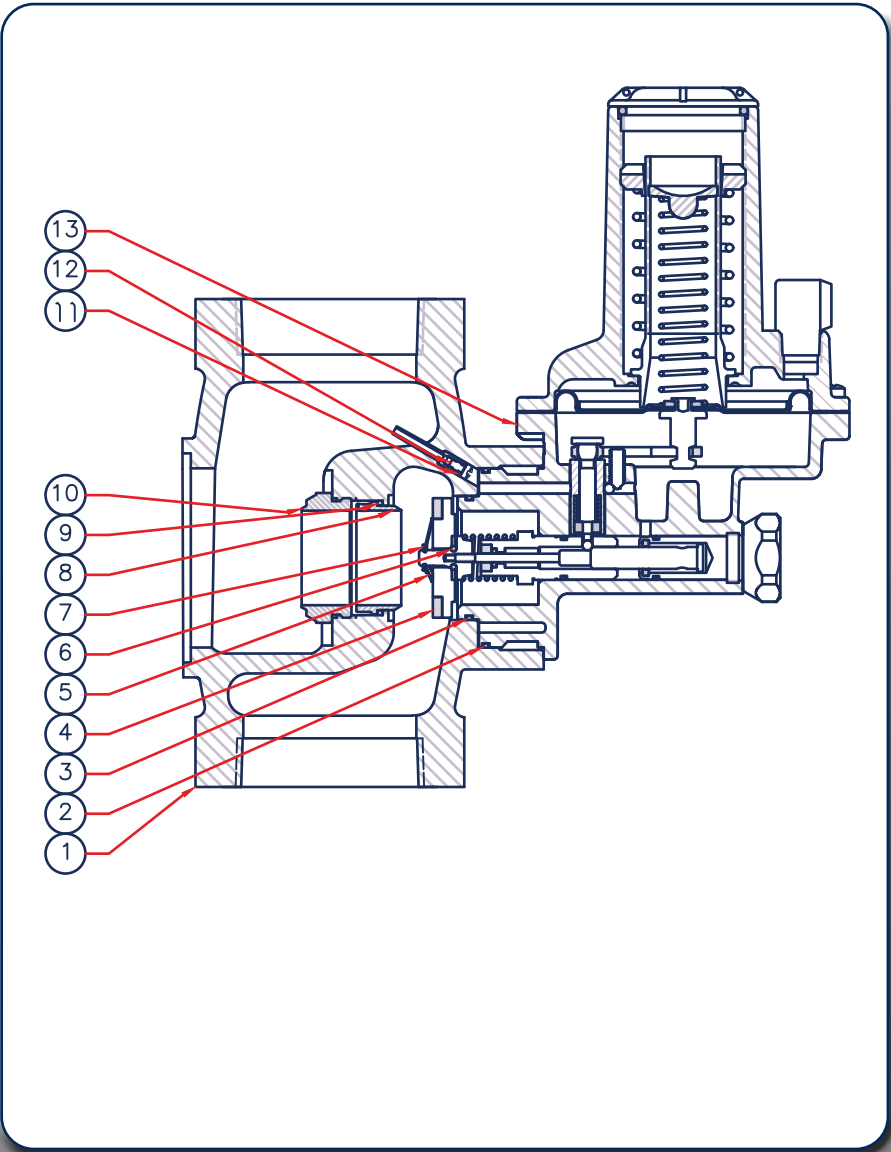
971 PSX	10	
	↑	Under Range - WC or PSIG / mBAR
1		2 - 12" WC / 4.9 - 29.9
2		4 - 30" WC / 9.9 - 74.7
3		10" WC - 2.3 PSIG / 24.9 - 159.4
4		1.5 - 10.8 PSIG / 103.4 - 744.6
		Over Range - WC or PSIG / mBAR
5		12 - 25" WC / 29.9 - 62.3
6		20 - 52" WC / 49.8 - 129.5
7		1.4 - 3.9 PSIG / 96.5 - 268.9
8		3.8 - 8.7 PSIG / 262.0-599.8
9		5.8 - 16 PSIG / 399.9 - 1,103.0

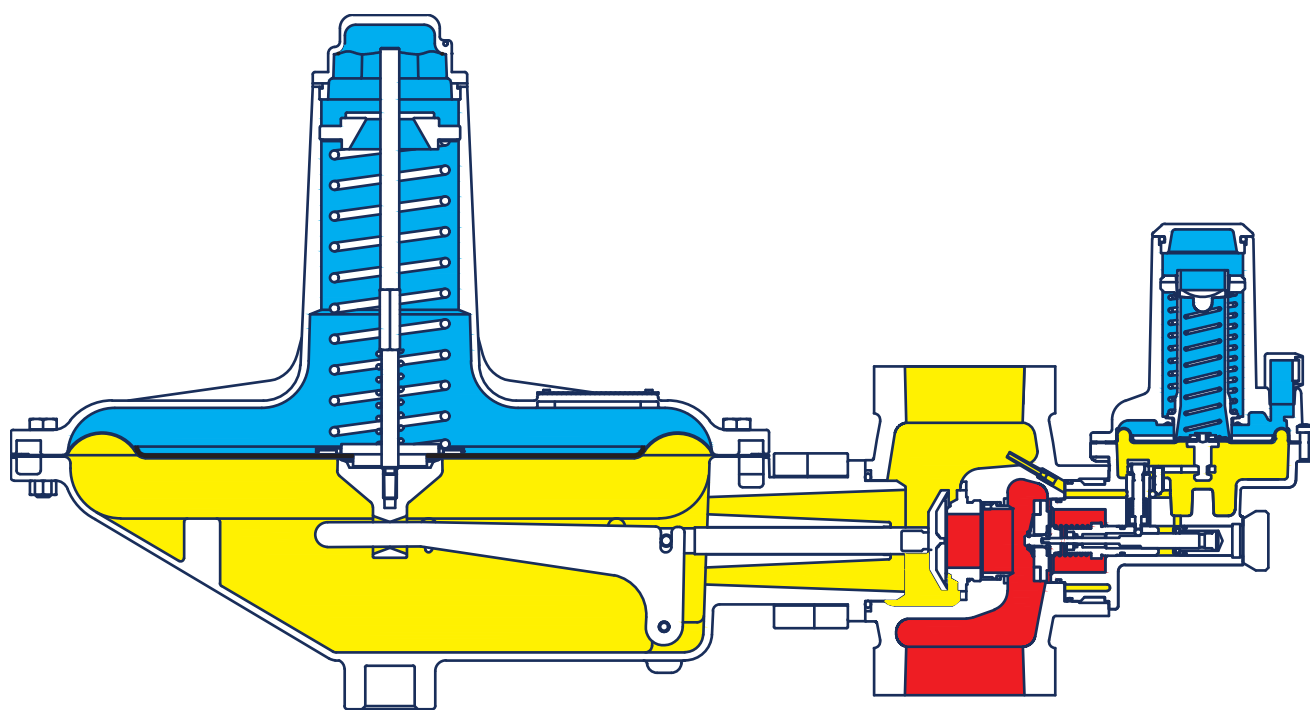
PSX2 Springs

Under Pressure Spring Code	Over Pressure Spring Code	Main Spring Ranges
0	5	2 - 4.5" WC
0	5 or 6	3.5 - 6.5" WC
1	5 or 6	5 - 9" WC
1 or 2	6 or 7	8.5 - 18" WC
2	6 or 7	14 - 30" WC
2 or 3	7 or 8	1 - 2 PSIG
2 or 3	7 or 8	1.5 - 3.25 PSIG
3 or 4	8	2 - 5 PSIG
3 or 4	8	2 - 5.5 PSIG
4	9	4 - 10 PSIG

PSX2 Parts - Bodies - P208/P308

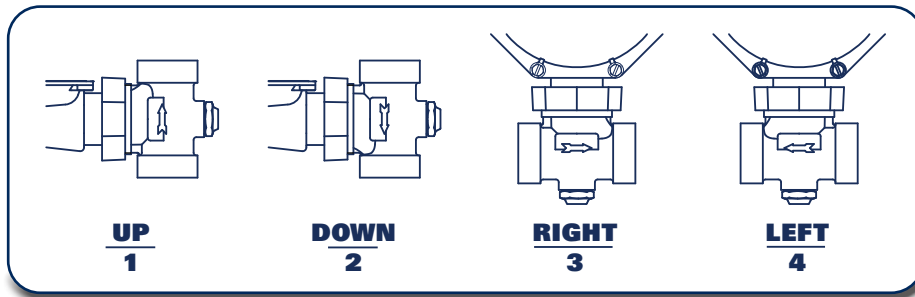
Item		Qty.	Part Number
1	1 - 1/4" NPT - Iron	1	664-671-000
	1-1/2" NPT - Iron		664-628-000
	2" NPT - Iron		664-628-001
	2" X 1-1/2" - Iron		664-628-002
	1-1/2" NPT - Steel		664-656-000
	2" NPT - Steel		664-656-001
	2" X 1-1/2" - Steel		664-656-002
	125 FF Iron		664-657-000
	150 RF - Iron		664-671-000
2	Housing O-Ring	1	649-269-000
3	Housing O-Ring	1	649-000-201
4	Disk Assembly	1	810-061-000
5	Retaining Spring	1	655-824-000
6	O-Ring	1	649-000-206
7	Retaining Ring	1	693-041-000
8	Slam Shut Seat	1	650-224-000
9	Seat O-Ring	1	649-396-002
10	Main Seat Orifice	1	
	1/4" Aluminum		688-016-000
	3/8" Aluminum		688-016-001
	1/2" Aluminum		688-016-002
	3/4" Aluminum		688-016-003
	1" Aluminum		688-016-004
	1-3/16" Aluminum		688-016-005
11	Port Gasket	1	624-133-000
12	Port Screw	1	648-622-000
13	PSX2	1	See Table



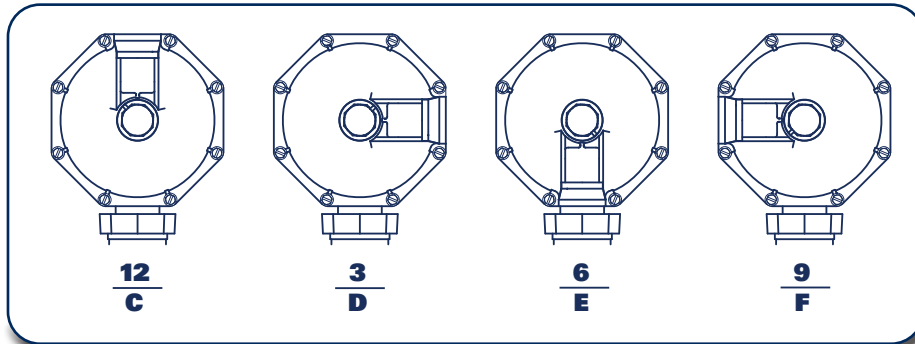


- Inlet Pressure
- Outlet Pressure
- Atmospheric Pressure

## P208 / P308 Body Position



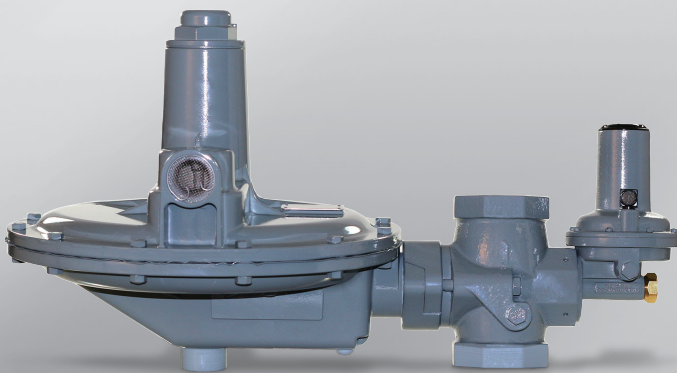
## P208 / P308 Bonnet Position



BelGAS the leader in pressure regulator design, offers the Oil, Gas and Pipeline Industry the same precision and reliability in flow control and pressure control that the control valve market has enjoyed for over 40 years. At BelGAS, we have raised the industry standard for quality, accuracy, and dependability. Even more important is that we provide this value to our customers at an economical price.

The BelGAS product offering includes pressure regulators for gas, air and propane service; explosion-proof I/P transducers for electro-pneumatic applications; process and test gauges for pressure measurement in general and severe service and a wide assortment of bimetal thermometers and thermowells for both high and low temperature indication.

Whether the requirements call for a high pressure flow condition, a low pressure relief application or the regulation of fuel or process gas in a system, BelGAS can provide a dependable and cost effective solution.



# BelGAS

A Division of the Marsh Bellofram Group of Companies

8019 Ohio River Blvd.  
Newell, WV 26050  
(304) 387-1200 | [www.belgas.net](http://www.belgas.net)



## BelGAS Website

With decades of proven market experience, the BelGAS division of Marsh Bellofram is a global leader in the design and manufacturing of high pressure regulators, low pressure regulators, and other flow control products. Scan the QR or visit our website at <https://bit.ly/BelGAS>



## BelGAS Regulator Sizing Wizard

Need help finding the right regulator for your application? Check out the BelGAS Regulator Sizing Wizard - an interactive online tool that makes it easier than ever to precisely match a regulator with your specifications. Scan the QR code or visit our website at <https://bit.ly/BelGAS-Wizard>



## BelGAS Videos

Interested in learning more about what BelGAS has to offer? Visit our YouTube channel and check out the BelGAS playlist for How-Tos, product overviews, and more! Scan the QR code or watch the videos on our YouTube channel at <https://bit.ly/BelGAS-YouTube-List>



The contents of this publication are presented for informational purposes only. Although we have made reasonable efforts to give information that we believe is up-to-date and accurate, we make no representations or warranties regarding its adequacy, accuracy, completeness, or correctness. We do not warrant or represent that the information is complete in every respect. Our terms and conditions, which are available upon request, govern all sales. We reserve the right to modify or improve the designs and specifications of our products, and the information contained in this document is subject to change without notice.

We reserve the right to modify or improve the designs or specifications of our products and the information contained in this document is subject to change without notice. The user is solely responsible for making the final selection of the product and assuring that all installation, performance, endurance, maintenance, safety, and warning requirements of the product are met. Final product recommendations should be verified by a gas professional.

BelGAS does not assume responsibility for its products' selection, use, or maintenance. Neither BelGAS nor its suppliers shall be liable for any loss or damage to the user or third parties caused by the product, the confidential information of BelGAS, or BelGAS's performance of these terms.