BelGAS™

A DIVISION OF MARSH BELLOFRAM

PRODUCT CATALOG

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 bimetals thermometers and thermowells for both high and low temperature indication.

Whether the requirements calls 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.

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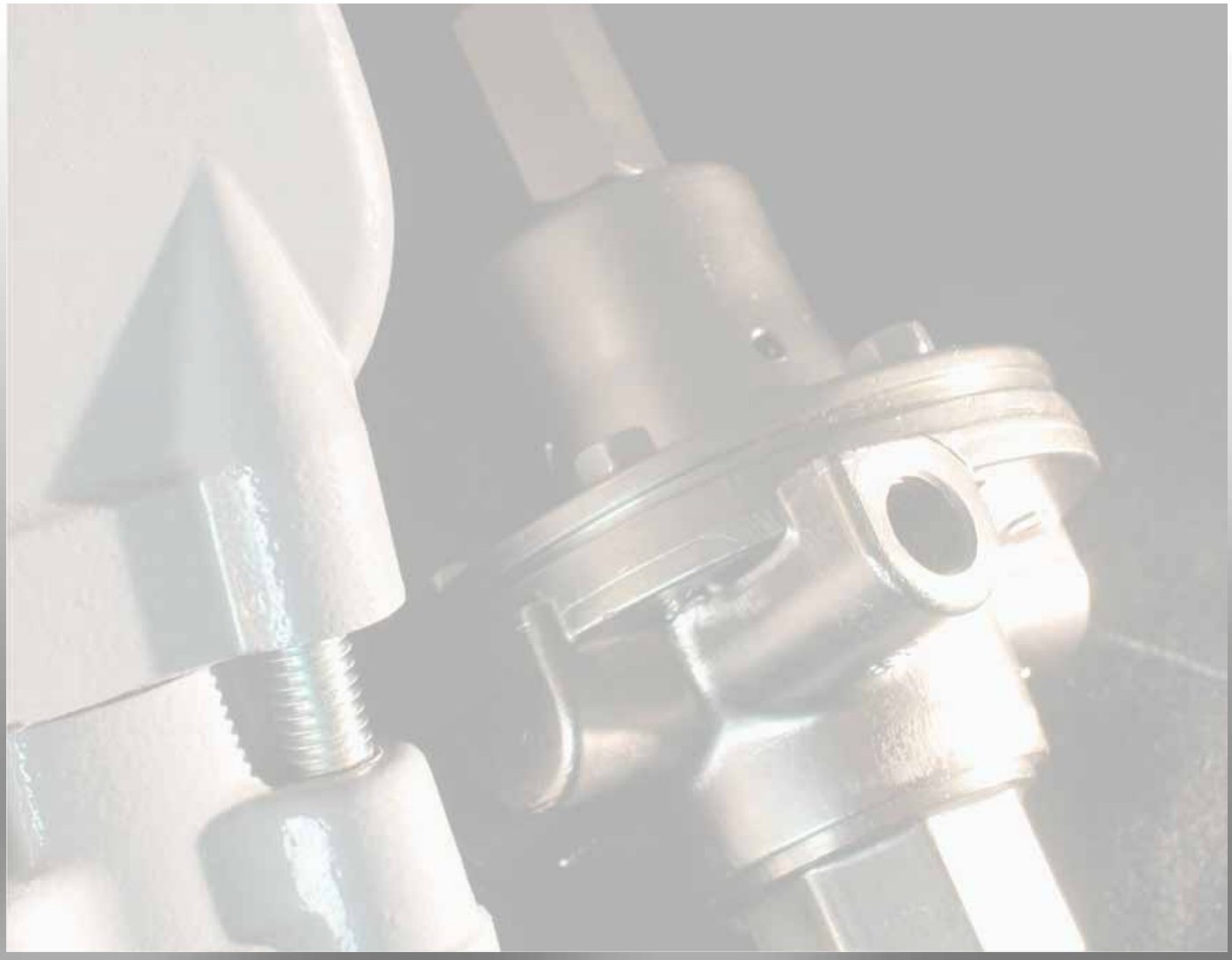

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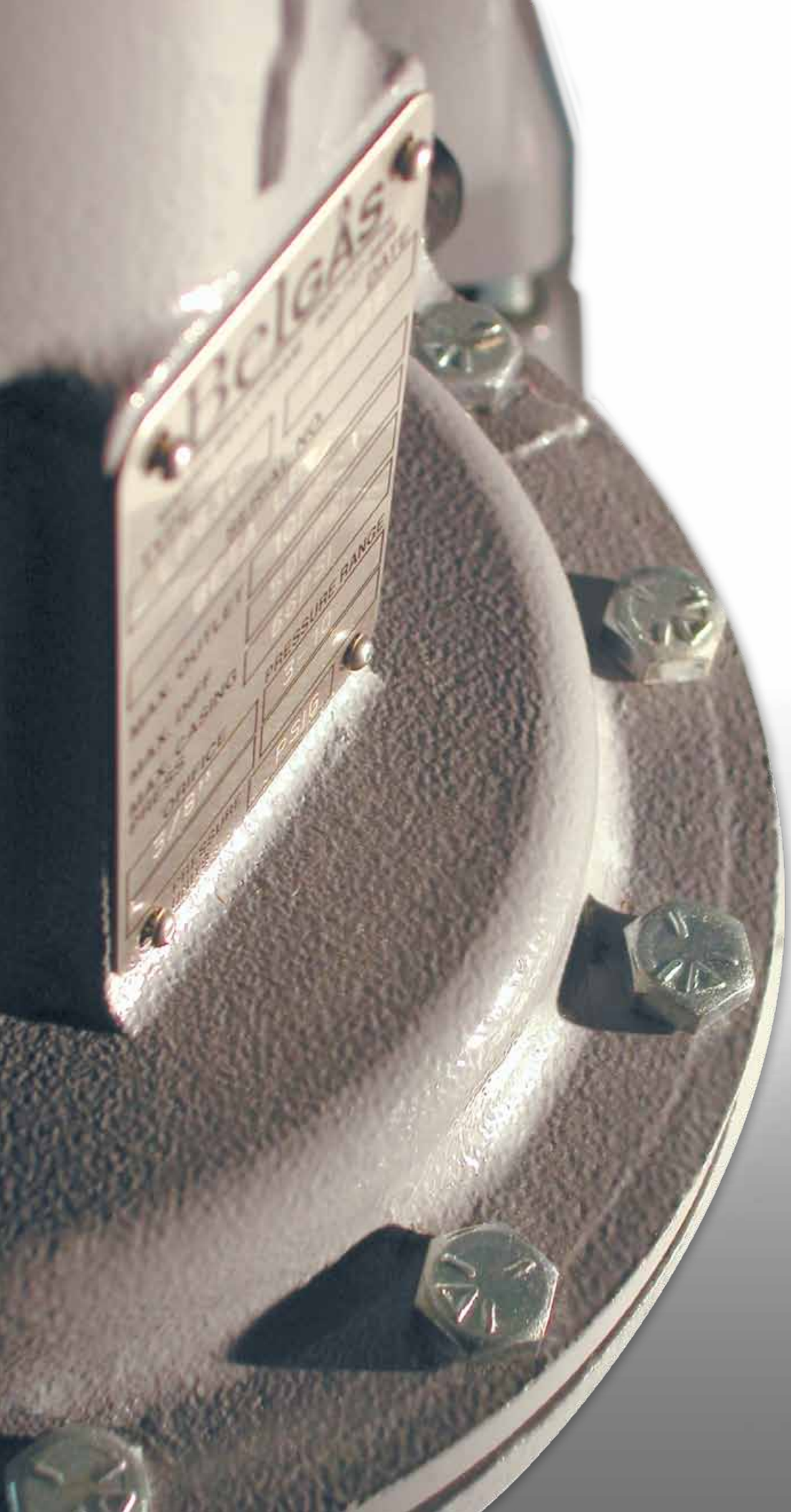

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P627 High Flow Gas Regulator

- Wide Range of Flow Capacities
- Durable Powder Coated Exterior
- Installation Versatility
- NACE Construction Available

The P627 is a spring loaded, direct-operated regulator for both low and high pressure applications in the oil and gas industries. These regulators provide durability, from the powder-coated epoxy exterior finish, as well as installation versatility, from the multi-position body and spring case configurations. These regulators are also available in an external pressure registration model (P627M), and NACE construction.

Applications

- Farm Tap Regulation
- Monitoring Regulators
- Gate Regulators
- Fuel Gas
- Gas Gathering
- Pressure Reduction

Materials of Construction

Body, Bonnet, Diaphragm Case	
Options	Steel Body, Bonnet & Diaphragm Case
	Cast Ductile Iron Body / Aluminum Bonnet & Diaphragm Case
	Steel Body / Aluminum Bonnet & Diaphragm Case (NACE only)
	Steel Casing / LCC Body
	Aluminum / LCC Body
Diaphragm	
Option	Nitrile (low pressure) or Neoprene (high pressure)
Seat	
Options	Nitrile
	Nylon
Orifice	
Options	Aluminum
	Stainless Steel (NACE only)

Specifications

Maximum Inlet Body Pressure		
Nylon Seat	2000 PSIG	Steel
	1000 PSIG	Ductile Iron
	1485 PSIG	Flanged Steel
Nitrile Seat	1000 PSIG	All Units
Outlet	5–500 PSIG	
Body Sizes	3/4 NPT	
	1 NPT	
	2 NPT	
Orifice Sizes	3/32"	
	1/8"	
	3/16"	
	1/4"	
	3/8"	
	1/2"	
	Outlet Range	Flow Range*
Output	5–20 PSIG	300–43,000
	15–40 PSIG	1,000–71,000
	35–80 PSIG	1,200–142,000
	10–95 PSIG	1,000–150,000
	70–150 PSIG	2,500–172,000
	140–250 PSIG	3,200–95,000
	240–500 PSIG	4,500–140,000
	* (SCFH of 0.6 S.G. Natural Gas)	
Temperature Range	–20˚ to 180˚F	(–18˚ to 82˚C)
Weight Approximate		
1"	5.3 lbs	2.39 kg
2"	8.8 lbs	3.96 kg

Maximum Bonnet and Diaphragm Casing Pressure	Spring & Diaphragm Casing Style	P627		P627M		P627H & P627HM	
		PSIG	BAR	PSIG	BAR	PSIG	BAR
Maximum pressure to spring and diaphragm casing to prevent leak to atmosphere (internal parts damage may occur).	Die Cast Aluminum	250	17.2	N/A	N/A	N/A	N/A
	Steel	250	17.2	250	17.2	800	55.2
Maximum pressure to spring and diaphragm casings to prevent burst of casings during abnormal operation (leak to atmosphere and internal parts may occur).	Die Cast Aluminum	375	25.9	N/A	N/A	N/A	N/A
	Steel	1200	82.7	1200	82.7	1200	82.7
Maximum diaphragm casing overpressure to prevent damage to internal parts.	All	60	4.1	60	4.1	120	8.3

P627 Regulator Rebuild Kits

	Kit Includes	Part Number
P627 Low Pressure	Nitrile diaphragms (2), Nitrile valve disk, O'rings, back-up rings, and retaining pin	971-627-000
	Nitrile diaphragms (2), Nylon valve disk, O'rings, back-up rings, and retaining pin.	971-627-001
P627 High Pressure	Neoprene diaphragm, Nitrile valve disk, O'rings, back-up rings, and retaining pin	971-627-002
	Neoprene diaphragm, Nylon valve disk, O'rings, back-up rings, and retaining pin	971-627-003

	Kit Includes	Part Number
P627 Low Pressure NACE	Nitrile diaphragms (2), SS Nitrile valve disk, O'rings, back-up rings, and retaining pin	971-627-N00
	Nitrile diaphragms (2), SS Nylon valve disk, O'rings, back-up rings, and retaining pin	971-627-N01
P627 High Pressure NACE	Neoprene diaphragm, SS Nitrile valve disk, O'rings, back-up rings, and retaining pin	971-627-N02
	Neoprene diaphragm, SS Nylon valve disk, O'rings, back-up rings, and retaining pin	971-627-N03

P627 Part Matrix

P627 1

Port Size

06	3/4"
08	1"
16	2"

Spring Range

	PSIG	BAR
020	5 - 20	0.34 - 1.4
040	15 - 40	1 - 2.8
080	35 - 80	2.4 - 5.5
095	10 - 95	5.7 - 6.6
150	70 - 150	4.8 - 10.3
250**	140 - 250*	9.7 - 17.2
500**	240 - 500*	16.5 - 34.5

* Steel Casing/Steel Body Only

NOTE: Nitrile Seat is required for 5-20 psi, 15-40 and 10-95 psi ranges. Nylon Seat is recommended for psi above 140. Consult factory for questions

** P627H or High Pressure Units.

Special Construction

0	None
2	Monitor*
A	150 #RF*
B	300 #RF*
C	600 #RF*
D	Socket Weld*

*Steel Casing/Steel Body Only

Versions

0	Standard
N	NACE*

*Available as Steel/Steel or Aluminum/Steel Only

Orifice

0	3/32"
2	1/8"
3	3/16"
4	1/4"
6	3/8"
8	1/2"

Seat Material

0	Nitrile (Buna-N)
1	Nylon

NOTE: Nitrile Seat is required for 5-20 psi, 15-40 and 10-95 psi ranges. Nylon Seat is recommended for psi above 140. Consult factory for questions.

Casing Material

0	Aluminum Casing / Iron Body
1	Steel Casing / Steel Body
2	Aluminum Casing / Steel Body*
6	Aluminum Casing / LCC Steel Body
7	Steel Casing / LCC Body
8	Steel Casing / Iron Body

* Supplied only with NACE components, specify 'N' in part number.

Output Pressure	Maximum Inlet Pressures: (10-95 psi supply pressure limits)				
	1/8"	3/16"	1/4"	3/8"	1/2"
10 psi	500 psi	500 psi	500 psi	300 psi	100 psi
25 psi	1,000 psi	1,000 psi	500 psi	300 psi	100 psi
75 psi	1,000 psi	1,000 psi	500 psi	300 psi	100 psi
95 psi	1,000 psi	1,000 psi	500 psi	300 psi	100 psi

For 10-95 flow information, refer to 35-80 PSIG flow capacity tables.

P627 Flow Capacities of Natural Gas (0.6 S.G.) in SCFH[1]

BelGAS

Outlet Pressure Range	Outlet Pressure Setting		Inlet Pressure		3/4" Body Size Port Diameter, inches						1" Body Size Port Diameter, inches					
	PSIG	BAR	PSIG	BAR	3/32	1/8	3/16	1/4	3/8	1/2	3/32	1/8	3/16	1/4	3/8	1/2
5 to 20 psig[2] (0.34 to 1.4 BAR)	5[3]	0.34	10	0.69	170	320	700	1060	1540	1900	170	330	710	1100	1900	2500
			15	1.0	240	330	810	1300	2150	3350	240	390	890	1600	2500	3350
			20	1.4	290	460	1140	1800	3050	4350	290	500	1160	2060	3400	4450
			30	2.1	380	610	1530	2490	3880	6850	380	670	1560	2800	4750	6900
			60	4.1	640	1170	2550	4240	6270	7370	640	1170	2600	4710	8140	13,700
			75	5.2	770	1410	3020	5100	6620	7700	770	1410	3150	5710	9790	14,500
			100	6.9	990	1800	3800	5980	7440	7900	990	1800	4070	7310	12,500	16,000
	10	0.69	15	1.03	210	320	800	1290	2100	3300	210	375	880	1590	2480	3300
			20	1.4	280	455	1130	1790	3000	4300	280	490	1150	2050	3380	4410
			30	2.1	380	610	1530	2480	3860	6830	380	670	1560	2800	4720	6840
			60	4.1	640	1170	2550	4240	6270	7370	640	1170	2600	4710	8140	13,700
			75	5.2	770	1410	3020	5100	6620	7700	770	1410	3150	5710	9790	14,500
			100	6.9	990	1800	3800	5980	7440	7900	990	1800	4070	7310	12,500	16,000
			150	10.3	1420	2580	5700	7130	8180	8200	1420	2580	5850	10,500	17,000	18,000
			200	13.8	1850	3370	6970	7250	8200	8300	1850	3370	7630	13,700	18,000	18,500
			300	20.7	2700	4910	8000	8050	8250		2700	4910	11,200	19,800	20,000	
			500	34.5	4010	8090	8060	8100			4400	8090	15,700	20,000		
			750	51.7	4400	8930	8950				5400	12,000	18,000			
			1000	69.0	4450	10,300					5800	14,000				
			1250	86.2	4540						6300					
			1500	103	4880						6600					
			1750	121	5230						6800					
			2000	138	5900						7600					
	20	1.4	30	2.1	350	620	1400	2490	4360	6290	350	620	1450	2580	4360	6290
			50	3.4	550	1000	2280	4010	7870	8500	550	1000	2280	4090	7870	14,100
			60	4.1	640	1170	2640	4680	8340	8940	640	1170	2640	4750	9690	14,500
			100	6.9	990	1800	3980	7220	11,500	12,600	990	1800	4070	7310	13,900	23,300
			150	10.3	1420	2580	5850	10,400	12,100	13,100	1420	2580	5850	10,500	17,700	34,200
			200	13.8	1850	3370	7340	12,000	13,200	13,700	1850	3370	7630	13,700	26,600	39,100
			300	20.7	2700	4910	11,200	13,000	15,600		2700	4910	11,200	20,100	37,000	
			500	34.5	4400	8090	18,300	15,100			4400	8090	18,300	32,900		
			750	51.7	6600	12,000	14,200				6600	12,000	23,600			
			1000	69.0	7300	14,600					8900	16,000				
			1250	86.2	7500						10,000					
			1500	103	7800						10,400					
			1750	121	8400						12,000					
			2000	138	8600						14,000					
15 to 40 PSIG (1.0 to 2.8 BAR)	40	2.8	60	4.1	610	1090	2530	4350	8140	9420	610	1090	2530	4510	9290	9420
			75	5.2	760	1370	3080	5510	10,300	13,600	760	1370	3080	5640	10,800	16,500
			100	6.9	990	1790	4070	7220	13,200	15,300	990	1790	4070	7310	14,700	21,900
			150	10.3	1420	2580	5850	10,400	17,400	18,200	1420	2580	5850	10,500	20,500	34,500
			200	13.8	1850	3370	7630	13,500	18,000	18,500	1850	3370	7630	13,700	27,100	46,400
			300	20.7	2700	4910	11,200	18,500	20,000	20,700	2700	4910	11,200	20,100	40,100	67,100
			500	34.5	4400	8090	18,300	24,000	27,000		4400	8090	18,300	32,900	63,900	
			750	51.7	6600	12,000	23,000	24,200			6600	12,000	27,200	39,400		
			1000	69.0	8700	16,000	24,400				8700	16,000	36,100			
			1250	86.2	11,000	18,000					11,000	19,000				
			1500	103	12,000	21,000					13,000	22,000				
			1750	121	13,000						15,000					
			2000	138	14,000						17,000					
35 to 80 PSIG (2.4 to 5.5 BAR)	60	4.1	75	5.2	700	1230	2760	4750	8620	15,200	700	1230	2760	4880	8630	16,100
			100	6.9	970	1740	4010	6990	12,800	17,300	970	1740	4010	7000	13,000	19,300
			150	10.3	1420	2580	5850	10,300	18,600	23,000	1420	2580	5850	10,500	18.900	32,800
			200	13.8	1850	3370	7630	13,500	21,600	27,400	1850	3370	7630	13,700	24.000	42,200
			300	20.7	2700	4910	11,200	19,800	26,100	30,100	2700	4910	11,200	20,100	32,500	69,100
			500	34.5	4400	8090	18,300	28,100	28,900	33,400	4400	8090	18,300	32,900	64,000	94,300
			750	51.8	6600	12,000	26,300	30,000	37,000	45,000	6600	12,000	27,200	43,380	66,000	130,000
			1000	69.0	8700	16,000	30,000	31,200	37,400		8700	16,000	36,100	50,300	67,700	
			1250	86.2	11,000	19,000	31,600	34,000			11,000	19,000	45,000	57,000		
			1500	103	13,000	22,000	30,400	36,000			13,000	22,000	54,000	63,000		
			1750	121	15,000	25,000	34,000				15,000	25,000	63,000			
			2000	138	17,000	28,000					17,000	28,000				
	80	5.5	100	5.2	900	1600	3750	6490	12,200	17,300	900	1600	3750	6650	12,200	18,600
			150	10.3	1410	2580	5850	10,200	19,600	25,700	1410	2580	5850	10,500	21,100	33,600
			200	13.8	1850	3370	7630	13,500	25,400	29,300	1850	3370	7630	13,700	28,400	44,100
			300	20.7	2700	4910	11,200	19,800	32,700	33,500	2700	4910	11,200	20,100	43,300	75,400
			500	34.5	4400	8090	18,300	31,900	36,000	36,700	4400	8090	18,300	32,900	71,600	110,000
			750	51.8	6600	12,000	27,200	35,000	44,000	46,000	6600	12,000	27,200	48,900	105,500	135,000
			1000	69.0	8700	16,000	36,100	38,000	56,200		8700	16,000	36,100	64,900	118,000	
			1250	86.2	11,000	19,000	37,000	40,000			11,000	19,000	45,000	80,000		
			1500	103	13,000	22,000	38,000	44,000			13,000	22,000	54,000	96,000		
			1750	121	15,000	25,000	42,000				15,000	25,000	63,000			
			2000	138	17,000	28,000					17,000	28,000				

1. Capacity is based on 20 percent droop unless otherwise noted below.
2. For pressure setting under 10 PSIG (0.69 BAR) limit the input pressure to 100 PSIG (6.9 BAR) to obtain the setpoint.
3. For 5 PSIG (0.34 BAR) pressure set point, the droop is 2 PSIG (0.14 BAR)

P627 Flow Capacities of Natural Gas (0.6 S.G.) in SCFH[1]

Outlet Pressure Range	Outlet Pressure Setting		Inlet Pressure		3/4" Body Size						1" Body Size					
					Port Diameter, inches						Port Diameter, inches					
	PSIG	BAR	PSIG	BAR	3/32	1/8	3/16	1/4	3/8	1/2	3/32	1/8	3/16	1/4	3/8	1/2
70 to 150 PSIG (4.8 to 10.3 BAR)	100	6.9	150	10.3	1170	2510	5540	8710	16,000	20,300	1170	2510	5540	8710	16,000	24,000
			200	13.8	1850	3370	7630	12,000	21,300	25,700	1850	3370	7630	12,000	21,300	34,100
			300	20.7	2700	4910	11,200	19,400	30,000	31,700	2700	4910	11,200	19,400	30,100	53,200
			500	34.5	4400	8090	18,300	31,800	39,000	39,200	4400	8090	18,300	31,800	66,500	83,900
			750	51.8	6600	12,000	27,200	39,000	39,200	45,900	6600	12,000	27,200	47,300	95,300	117,000
			1000	69.0	8700	16,000	36,100	40,000	40,500	47,000	8700	16,000	36,100	59,700	100,000	120,000
			1250	86.2	11,000	19,000	39,000	40,500	41,000		11,000	19,000	45,000	72,000	114,000	
			1500	103	13,000	22,000	43,000	44,000			13,000	22,000	54,000	86,000		
			1750	121	15,000	25,000	45,000	47,000			15,000	25,000	63,000	95,000		
			2000	138	17,000	28,000	46,000				17,000	28,000	71,000			
	125	8.6	150	10.3	1250	2340	5340	9130	15,700	20,800	1250	2340	5340	9470	15,700	20,800
			200	13.8	1830	3320	7550	13,160	22,500	28,600	1830	3320	7550	13,400	28,100	32,800
			300	20.7	2700	4910	11,200	19,800	32,700	38,000	2700	4910	11,200	20,100	36,300	52,600
			500	34.5	4400	8090	18,300	32,500	43,800	51,700	4400	8090	18,300	32,900	70,800	109,000
			750	51.8	6600	12,000	27,200	48,300	49,900	71,400	6600	12,000	27,200	48,900	104,000	158,000
			1000	69.0	8700	16,000	36,100	50,000	52,900	72,000	8700	16,000	36,100	64,800	138,000	160,000
			1250	86.2	11,000	19,000	45,000	53,000	58,000		11,000	19,000	45,000	80,000	145,000	
			1500	10.	13,000	22,000	51,000	56,000			13,000	22,000	54,000	96,000		
			1750	121	15,000	25,000	52,000	60,000			15,000	25,000	63,000	112,000		
			2000	138	17,000	28,000	53,000				17,000	28,000	71,000			
	150	10.3	200	13.8	1760	3200	7290	12,500	21,400	30,600	1760	3200	7290	12,900	21,400	33,600
			300	20.7	2700	4910	11,200	17,200	34,700	46,000	2700	4910	11,200	17,200	40,100	55,900
			500	34.5	4400	8090	18,300	32,500	48,900	59,700	4400	8090	18,300	32,900	70,300	111,000
			750	51.8	6600	12,000	27,200	48,300	59,000	72,000	6600	12,000	27,200	48,900	104,000	160,000
			1000	69.0	8700	16,000	36,100	64,100	81,100	85,000	8700	16,000	36,100	64,800	138,000	162,000
			1250	86.2	11,000	19,000	45,000	68,000	90,000		11,000	19,000	45,000	80,000	150,000	
			1500	103	13,000	22,000	54,000	72,000			13,000	22,000	54,000	96,000		
			1750	121	15,000	25,000	63,000	77,000			15,000	25,000	63,000	112,000		
			2000	138	17,000	28,000	71,000				17,000	28,000	71,000			

Outlet Pressure Range	Outlet Pressure Setting		Inlet Pressure		627 – 2" Body Size						627M – 2" Body Size					
					Port Diameter, inches						Port Diameter, inches					
	PSIG	BAR	PSIG	BAR	3/32	1/8	3/16	1/4	3/8	1/2	3/32	1/8	3/16	1/4	3/8	1/2
5 to 20 psig[2] (0.34 to 1.4 BAR)	5[3]	0.34	10	0.69	170	330	710	1080	1700	2400	170	330	710	1080	1700	2400
			15	1.0	240	390	890	1250	1900	2700	240	390	890	1250	1900	2700
			20	1.4	290	500	1160	1900	2650	3900	290	500	1160	1900	2650	3900
			30	2.1	380	670	1560	2800	3680	6500	380	670	1560	2800	3680	6500
			60	4.1	640	1170	2600	4750	7250	17,800	640	1170	2600	4750	7250	15,000
			75	5.2	770	1410	3150	5700	8060	22,400	770	1410	3150	5700	8060	17,900
			100	6.9	990	1790	4070	7310	16,200	28,700	990	1790	4070	7310	14,600	23,000
	10	0.69	15	1.03	210	375	880	1220	1860	2670	210	375	880	1220	1860	2670
			20	1.4	280	490	1150	1880	2610	3830	280	490	1150	1880	2610	3830
			30	2.1	380	670	1560	2760	3640	6460	380	670	1560	2760	3640	6460
			60	4.1	640	1170	2600	4750	7250	17,800	640	1170	2600	4750	7250	15,000
			75	5.2	770	1410	3150	5700	8060	22,400	770	1410	3150	5700	8060	17,900
			100	6.9	990	1790	4070	7310	16,200	28,700	990	1790	4070	7310	14,600	23,000
			150	10.3	1420	2580	5850	10,500	23,300	25,900[5]	1420	2580	5850	10,500	21,000	33,000
			200	13.8	1850	3370	7630	13,700	22,700[5]	24,000[5]	1850	3370	7630	13,700	27,300	43,000
			300	20.7	2700	4910	11,200	10,300[5]	12,800[5]		2700	4910	11,200	20,100	40,100	
			500	34.5	4400	8090	18,300	21,000[5]			4400	8090	18,300	32,900		
			750	51.7	6600	12,000	27,200				6600	12,000	27,200			
			1000	69.0	8700	16,000					8700	16,000				
			1250	86.2	11.000						11,000					
			1500	103	13,000						13,000					
			1750	121	15,000						15,000					
			2000	138	17,000						17,000					
	20	1.4	30	2.1	350	620	1450	2350	4300	6110	350	620	1450	2480	4300	6110
			50	3.4	550	1000	2280	4040	7100	12,800	550	1000	2280	4040	7100	12,800
			60	4.1	640	1170	2640	4750	8400	15,700	640	1170	2640	4750	8400	15,000
			100	6.9	990	1800	4070	7310	16,200	28,700	990	1800	4070	7310	14,600	23,000
			150	10.3	1420	2580	5850	10,500	23,300	29,000[5]	1420	2580	5850	10,500	21,000	33,000
			200	13.8	1850	3370	7630	13,700	24,000[5]	33,000[5]	1850	3370	7630	13,700	27,300	43,000
			300	20.7	2700	4910	11,200	20,100	19,600[5]		2700	4910	11,200	20,100	40,100	
			500	34.5	4400	8090	18,300	32,900			4400	8090	18,300	32,900		
			750	51.7	6600	12,000	27,200				6600	12,000	27,200			
			1000	69.0	8700	16,000					8700	16,000				
			1250	86.2	11,000						11,000					
			1500	103	13,000						13,000					
			1750	121	15,000						15,000					
			2000	138	17,000						17,000					

1. Capacity is based on 20 percent droop unless otherwise noted below.
2. For pressure setting under 10 PSIG (0.69 BAR) limit the input pressure to 100 PSIG (6.9 BAR) to obtain the setpoint.
3. For 5 PSIG (0.34 BAR) pressure set point, the droop is 2 PSIG (0.14 BAR)
5. Capacities are based on 25 percent boost if setting is less than 12 PSIG (0.8 BAR), 3 PSIG (0.2 BAR) boost if setting is from 12 to 60 PSIG (0.2 to 4 BAR), and 5 percent boost if setting is greater than 60 PSIG (4 BAR).

P627 Flow Capacities of Natural Gas (0.6 S.G.) in SCFH[1]

BelGAS

Outlet Pressure Range	Outlet Pressure Setting		Inlet Pressure		627 – 2" Body Size						627M – 2" Body Size					
					Port Diameter, inches						Port Diameter, inches					
	PSIG	BAR	PSIG	BAR	3/32	1/8	3/16	1/4	3/8	1/2	3/32	1/8	3/16	1/4	3/8	1/2
15 to 40 PSIG (1.0 to 2.8 BAR)	40	2.8	60	4.1	610	1090	2530	4370	8680	13,300	610	1090	2530	4370	8680	13,300
			75	5.2	760	1370	3080	5540	11,900	19,300	760	1370	3080	5540	10,700	19,300
			100	6.9	990	1800	4070	7310	16,200	25,400	990	1800	4070	7310	14,600	25,400
			150	10.3	1420	2580	5850	10,500	23,300	41,300	1420	2580	5850	10,500	21,000	37,000
			200	13.8	1850	3370	7630	13,700	30,400	53,900	1850	3370	7630	13,700	27,300	48,000
			300	20.7	2700	4910	11,200	20,100	44,600	46,000[5]	2700	4910	11,200	20,100	40,100	71,000
			500	34.5	4400	8090	18,300	32,900	22,000[5]		4400	8090	18,300	32,900	65,000	
			750	51.7	6600	12,000	27,200	28,000[5]			6600	12,000	27,200	48,900		
			1000	69.0	8700	16,000	36,100				8700	16,000	36,100			
			1250	86.2	11,000	19,000					11,000	19,000				
			1500	103	13,000	22,000					13,000	22,000				
			1750		15,000						15,000					
			2000		17,000						17,000					
35 to 80 PSIG (2.4 to 5.5 BAR)	60	4.1	75	5.2	700	1260	2760	4900	9000	12,300	700	1230	2760	4900	9000	12,300
			100	6.9	970	1740	4010	7000	15,000	20,400	970	1740	4010	7000	15,000	20,400
			150	10.3	1420	2580	5850	10,500	23,300	35,200	1420	2580	5850	10,500	23,300	35,200
			200	13.8	1850	3370	7630	13,700	30,400	53,900	1850	3370	7630	13,700	30,400	48,500
			300	20.7	2700	4910	11,200	20,100	44,600	79,000[5]	2700	4910	11,200	20,100	44,600	71,000
			500	34.5	4400	8090	18,300	32,900	73,000[5]	38,800[5]	4400	8090	18,300	32,900	73,000	116,000
			750	51.8	6600	12,000	27,200	48,900[5]	53,000[5]	32,000	6600	12,000	27,200	48,900	108,000	172,000
			1000	69.0	8700	16,000	36,100	43,000[5]	52,000		8700	16,000	36,100	65,000	144,000	
			1250	86.2	11,000	19,000	45,000	70,000[5]			11,000	19,000	45,000	81,000		
			1500	103	13,000	22,000	54,000[5]	43,000			13,000	22,000	54,000	97,000		
			1750	121	15,000	25,000	26,000				15,000	25,000	63,000			
			2000	138	17,000	28,000					17,000	28,000				
	80	5.5	100	5.2	900	1630	3750	6400	12,000	20,400	900	1630	3750	6400	12,800	20,400
			150	10.3	1410	2580	5850	10,500	23,300	41,300	1410	2580	5850	10,500	23,300	37,200
			200	13.8	1850	3370	7630	13,700	30,400	53,900	1850	3370	7630	13,700	30,400	48,500
			300	20.7	2700	4910	11,200	20,100	44,600	79,000[5]	2700	4910	11,200	20,100	44,600	71,000
			500	34.5	4400	8090	18,300	32,900	73,000[5]	48,000[5]	4400	8090	18,300	32,900	73,000	116,000
			750	51.8	6600	12,000	27,200	48,900	87,000[5]	44,000	6600	12,000	27,200	48,900	108,000	172,000
			1000	69.0	8700	16,000	36,100	65,000[5]	63,000		8700	16,000	36,100	65,000	144,000	
			1250	86.2	11,000	19,000	45,000	63,000[5]			11,000	19,000	45,000	81,000		
			1500	103	13,000	22,000	54,000	86,000			13,000	22,000	54,000	97,000		
			1750	121	15,000	25,000	63,000				15,000	25,000	63,000			
			2000	138	17,000	28,000					17,000	28,000				
70 to 150 PSIG (4.8 to 10.3 BAR)	100	6.9	150	10.3	1170	2510	5540	8600	16,000	22,000	1170	2510	5540	8600	16,000	22,000
			200	13.8	1850	3370	7630	13,700	22,000	33,000	1850	3370	7630	13,700	22,000	33,000
			300	20.7	2700	4910	11,200	20,100	35,000	65,300	2700	4910	11,200	20,100	35,000	59,000
			500	34.5	4400	8090	18,300	32,900	73,000	129,000	4400	8090	18,300	32,900	73,000	116,000
			750	51.8	6600	12,000	27,200	48,900	108,000	54,000[5]	6600	12,000	27,200	48,900	108,000	172,000
			1000	69.0	8700	16,000	36,100	64,800	82,000[5]		8700	16,000	36,100	64,800	144,000	
			1250	86.2	11,000	19,000	45,000	80,000	110,000[5]		11,000	19,000	45,000	80,000	179,000	
			1500	103	13,000	22,000	54,000	96,000			13,000	22,000	54,000	96,000		
			1750	121	15,000	25,000	63,000	112,000			15,000	25,000	63,000	112,000		
			2000	138	17,000	28,000	71,000				17,000	28,000	71,000			
	125	8.6	150	10.3	1250	2340	5340	8600	16,000	24,000	1250	2340	5340	8600	16,000	24,000
			200	13.8	1830	3320	7550	13,000	24,000	36,000	1830	3320	7550	13,000	24,000	36,000
			300	20.7	2700	4910	11,200	20,100	39,000	65,300	2700	4910	11,200	20,100	39,000	59,000
			500	34.5	4400	8090	18,300	32,900	73,000	129,000	4400	8090	18,300	32,900	73,000	116,000
			750	51.8	6600	12,000	27,200	48,900	108,000	59,000[5]	6600	12,000	27,200	48,900	108,000	172,000
			1000	69.0	8700	16,000	36,100	64,800	58,000[5]		8700	16,000	36,100	64,800	144,000	
			1250	86.2	11,000	19,000	45,000	80,000	75,000[5]		11,000	19,000	45,000	80,000	179,000	
			1500	103	13,000	22,000	54,000	96,000			13,000	22,000	54,000	96,000		
			1750	121	15,000	25,000	63,000	112,000			15,000	25,000	63,000	112,000		
			2000	138	17,000	28,000	71,000				17,000	28,000	71,000			
	150	10.3	200	13.8	1760	3200	7290	13,000	24,000	38,000	1760	3200	7290	13,000	24,000	38,000
			300	20.7	2700	4910	11,200	20,100	44,600	64,200	2700	4910	11,200	20,100	44,600	58,000
			500	34.5	4400	8090	18,300	32,900	73,000	129,000	4400	8090	18,300	32,900	73,000	116,000
			750	51.8	6600	12,000	27,200	48,900	108,000	62,000[5]	6600	12,000	27,200	48,900	108,000	172,000
			1000	69.0	8700	16,000	36,100	64,800	144,000		8700	16,000	36,100	64,800	144,000	
			1250	86.2	11,000	19,000	45,000	80,000	81,000[5]		11,000	19,000	45,000	80,000	179,000	
			1500	103	13,000	22,000	54,000	96,000			13,000	22,000	54,000	96,000		
			1750	121	15,000	25,000	63,000	112,000			15,000	25,000	63,000	112,000		
			2000	138	17,000	28,000	71,000				17,000	28,000	71,000			

1. Capacity is based on 20 percent droop unless otherwise noted below.
5. Capacities are based on 25 percent boost if setting is less than 12 PSIG (0.8 BAR), 3 PSIG (0.2 BAR) boost if setting is from 12 to 60 PSIG (0.2 to 4 BAR), and 5 percent boost if setting is greater than 60 PSIG (4 BAR).

P627 Flow Capacities of Natural Gas (0.6 S.G.) in SCFH[1]

Outlet Pressure Range	Outlet Pressure Setting		Inlet Pressure		627H or HM – 3/4" Body Size						627H or HM – 1" Body Size					
					Port Diameter, inches						Port Diameter, inches					
	PSIG	BAR	PSIG	BAR	3/32	1/8	3/16	1/4	3/8	1/2	3/32	1/8	3/16	1/4	3/8	1/2
140 to 250 PSIG (9.7 to 17.2 BAR)	150	10.3	200	13.8	1760[6]	3200[4]	7290	11,500	21,600	31,000	1760[6]	3200[4]	7290	11,500	21,600	31,000
			250	17.2	2260[6]	4100[4]	9200	15,400	28,600	40,000	2260[6]	4100[4]	9200	15,400	28,600	40,000
			300	20.7	2700	4910	11,200	19,300	31,000	46,000	2700	4910	11,200	19,300	31,000	46,000
			400	27.6	3600	6500	14,800	24,700	40,000	50,000	3600	6500	14,800	25,000	40,000	50,000
			500	34.5	4400	8090	18,300	29,700	51,000		4400	8090	18,300	32,000	51,000	
			750	51.7	6600	12,000	27,200	43,000			6600	12,000	27,200	46,000		
			1000	69.0	8700	16,000	36,100	57,000			8700	16,000	36,100	60,000		
			1250	86.2	11,000	19,000	45,000				11,000	19,000	45,000			
			1500	103	13,000	22,000	54,000				13,000	22,000	54,000			
			1750	121	15,000	25,000	63,000				15,000	25,000	63,000			
			2000	138	17,000	28,000					17,000	28,000				
	200	13.8	250	17.2	2160[6]	3850[4]	8400	15,000	31,000	41,000	2160[6]	3850[4]	8400	15,000	31,000	41,000
			300	20.7	2700[6]	4910[4]	11,200	19,500	36,000	52,000	2700[6]	4910[4]	11,200	19,500	36,000	52,000
			400	27.6	3600	6500	14,800	25,500	52,000	68,000	3600	6500	14,800	26,500	52,000	68,000
			500	34.5	4400	8090	18,300	31,000	61,000		4400	8090	18,300	33,000	61,000	
			750	51.7	6600	12,000	27,200	45,500			6600	12,000	27,200	49,000		
			1000	69.0	8700	16,000	36,100	60,000			8700	16,000	36,100	65,000		
			1250	86.2	11,000	19,000	45,000				11,000	19,000	45,000			
			1500	103	13,000	22,000	54,000				13,000	22,000	54,000			
			1750	121	15,000	25,000	63,000				15,000	25,000	63,000			
			2000	138	17,000	28,000					17,000	28,000				
	250	17.2	300	20.7	2500[6]	4500[4]	9900	18,500	37,000	52,000	2500[6]	4500[4]	9900	18,500	37,000	75,000
			400	27.6	3600[6]	6400[4]	14,300	26,000	55,000	74,000	3600[6]	6400[4]	14,300	26,000	55,000	81,000
			500	34.5	4400	8090	18,300	33,000	64,000	87,000	4400	8090	18,300	33,000	64,000	95,000
			750	21.7	6600	12,000	27,200	49,000	93,000		6600	12,000	27,200	49,000	102,000	
			1000	69.0	8700	16,000	36,100	65,000			8700	16,000	36,100	65,000		
			1250	86.2	11,000	19,000	45,000	81,000			11,000	19,000	45,000	81,000		
			1500	103	13,000	22,000	54,000				13,000	22,000	54,000			
			1750	121	15,000	25,000	63,000				15,000	25,000	63,000			
			2000	138	17,000	28,000	71,000				17,000	28,000	71,000			
240 to 500 PSIG (16.5 to 34.5 BAR)	250	17.2	300	20.7	2500[6]	4500[4]	9300	14,000	25,000	37,000	2500[6]	4500[4]	9300	14,000	25,000	37,000
			400	27.6	3600[6]	6400[4]	14,300	21,400	36,000	49,000	3600[6]	6400[4]	14,300	21,400	36,000	49,000
			500	34.6	4400	8090	18,300	26,300	42,000	62,000	4400	8090	18,300	26,300	42,000	62,000
			750	51.7	6600	12,000	27,200	37,100	57,000		6600	12,000	27,200	37,100	57,000	
			1000	69.0	8700	16,000	36,100	47,400			8700	16,000	36,100	47,400		
			1250	86.2	11,000	19,000	45,000	57,000			11,000	19,000	45,000	57,000		
			1500	103	13,000	22,000	54,000				13,000	22,000	54,000			
			1750	121	15,000	25,000	63,000				15,000	25,000	63,000			
			2000	138	17,000	28,000	71,000				17,000	28,000	71,000			
	300	20.7	350	24.1	2900[6]	5150[4]	11,300	18,400	31,000	45,000	2900[6]	5150[4]	11,300	18,400	31,000	45,000
			400	27.6	3500[6]	6200[4]	13,700	23,400	40,000	52,000	3500[6]	6200[4]	13,700	23,400	40,000	52,000
			500	34.5	4400	8090	18,300	32,000	53,000	67,000	4400	8090	18,300	32,000	53,000	67,000
			750	51.7	6600	12,000	27,200	48,000	80,000		6600	12,000	27,200	48,000	80,000	
			1000	69.0	8700	16,000	36,100	62,000			8700	16,000	36,100	62,000		
			1250	86.2	11,000	19,000	45,000	79,000			11,000	19,000	45,000	79,000		
			1500	103	13,000	22,000	54,000				13,000	22,000	54,000			
			1750	121	15,000	25,000	63,000				15,000	25,000	63,000			
			2000	138	17,000	28,000	71,000				17,000	28,000	71,000			
240 to 500 PSIG (16.5 to 34.5 BAR)	400	27.6	450	31.0	3600[6]	6400[4]	14,000	25,000	47,000	67,000	3600[6]	6400[4]	14,000	25,000	47,000	67,000
			500	34.6	4400[6]	8090[4]	18,300	32,000	54,000	77,000	4400[6]	8090[4]	18,300	32,000	54,000	77,000
			750	51.7	6600	12,000	27,200	49,000	91,000		6600	12,000	27,200	49,000	91,000	
			1000	69.0	8700	16,000	36,100	65,000			8700	16,000	36,100	65,000		
			1250	86.2	11,000	19,000	45,000	81,000			11,000	19,000	45,000	81,000		
			1500	103	13,000	22,000	54,000				13,000	22,000	54,000			
			1750	121	15,000	25,000	63,000				15,000	25,000	63,000			
			2000	138	17,000	28,000	71,000				17,000	28,000	71,000			
	500	34.5	550	37.9	4300[6]	7700[4]	16,800	33,000	62,000	90,000	4300[6]	7700[4]	16,800	33,000	62,000	90,000
			600	47.4	4900[6]	8800[4]	19,400	37,000	70,000	104,000	4900[6]	8800[4]	19,400	37,000	70,000	104,000
			750	51.7	6600	12,000	27,200	49,000	88,000	137,000	6600	12,000	27,200	49,000	88,000	140,000
			1000	69.0	8700	16,000	36,100	65,000	130,000		8700	16,000	36,100	65,000	130,000	
			1250	86.2	11,000	19,000	45,000	81,000			11,000	19,000	45,000	81,000		
			1500	103	13,000	22,000	54,000	97,000			13,000	22,000	54,000	97,000		
			1750	121	15,000	25,000	63,000				15,000	25,000	63,000			
			2000	138	17,000	28,000	71,000				17,000	28,000	71,000			

1. Capacity is based on 20 percent droop unless otherwise noted below.
4. Outlet pressure setting may shift ±15 PSIG.
6. Small orifices and low pressure drops may cause the set point to shift +15 psig (1.3 BAR).

P627 Flow Capacities of Natural Gas (0.6 S.G.) in SCFH[1]

Outlet Pressure Range	Outlet Pressure Setting		Inlet Pressure		627H or HM – 2" Body Size					
					Port Diameter, inches					
	PSIG	BAR	PSIG	BAR	3/32	1/8	3/16	1/4	3/8	1/2
140 to 250 PSIG (9.7 to 17.2 BAR)	150	10.3	200	13.8	1760[6]	3200[4]	7290	13,700	24,100	31,000
			250	17.2	2260[6]	4100[4]	9200	16,100	28,600	40,000
			300	20.7	2700	4910	11,200	19,300	31,000	46,000
			400	27.6	3600	6500	14,800	25,000	40,000	50,000
			500	34.5	4400	8090	18,300	32,000		
			750	51.7	6600	12,000	27,200	48,000		
			1000	69.0	8700	16,000	36,100	65,000		
			1250	86.2	11,000	19,000	45,000			
			1500	103	13,000	22,000	54,000			
			1750	121	15,000	25,000	63,000			
			2000	138	17,000	28,000				
	200	13.8	250	17.2	2160[6]	3850[4]	8400	16,100	33,000	41,000
			300	20.7	2700[6]	4910[4]	11,200	20,100	36,000	52,000
			400	27.6	3600	6500	14,800	26,500	52,000	68,000
			500	34.5	4400	8090	18,300	33,000	61,000	
			750	51.7	6600	12,000	27,200	49,000		
			1000	69.0	8700	16,000	36,100	65,000		
			1250	86.2	11,000	19,000	45,000			
			1500	103	13,000	22,000	54,000			
			1750	121	15,000	25,000	63,000			
			2000	138	17,000	28,000				
	250	17.2	300	20.7	2500[6]	4500[4]	9900	18,500	37,000	75,000
			400	27.6	3600[6]	6400[4]	14,300	26,000	55,000	81,000
			500	34.5	4400	8090	18,300	33,000	64,000	95,000
			750	21.7	6600	12,000	27,200	49,000	102,000	
			1000	69.0	8700	16,000	36,100	65,000		
			1250	86.2	11,000	19,000	45,000	81,000		
			1500	103	13,000	22,000	54,000			
			1750	121	15,000	25,000	63,000			
			2000	138	17,000	28,000	71,000			
240 to 500 PSIG (16.5 to 34.5 BAR)	250	17.2	300	20.7	2500[6]	4500[4]	9300	14,000	25,000	37,000
			400	27.6	3600[6]	6400[4]	14,300	21,400	36,000	49,000
			500	34.6	4400	8090	18,300	26,300	42,000	62,000
			750	51.7	6600	12,000	27,200	37,100	57,000	
			1000	69.0	8700	16,000	36,100	47,400		
			1250	86.2	11,000	19,000	45,000	57,000		
			1500	103	13,000	22,000	54,000			
			1750	121	15,000	25,000	63,000			
			2000	138	17,000	28,000	71,000			
	300	20.7	350	24.1	2900[6]	5150[4]	11,300	18,400	31,000	45,000
			400	27.6	3500[6]	6200[4]	13,700	23,400	40,000	52,000
			500	34.5	4400	8090	18,300	32,000	53,000	67,000
			750	51.7	6600	12,000	27,200	48,000	80,000	
			1000	69.0	8700	16,000	36,100	62,000		
			1250	86.2	11,000	19,000	45,000	79,000		
			1500	103	13,000	22,000	54,000			
			1750	121	15,000	25,000	63,000			
			2000	138	17,000	28,000	71,000			
240 to 500 PSIG (16.5 to 34.5 BAR)	400	27.6	450	31.0	3600[6]	6400[4]	14,000	25,000	47,000	67,000
			500	34.6	4400[6]	8090[4]	18,300	32,000	54,000	77,000
			750	51.7	6600	12,000	27,200	49,000	91,000	
			1000	69.0	8700	16,000	36,100	65,000		
			1250	86.2	11,000	19,000	45,000	81,000		
			1500	103	13,000	22,000	54,000			
			1750	121	15,000	25,000	63,000			
			2000	138	17,000	28,000	71,000			
	500	34.5	550	37.9	4300[6]	7700[4]	16,800	33,000	62,000	90,000
			600	47.4	4900[6]	8800[4]	19,400	37,000	70,000	104,000
			750	51.7	6600	12,000	27,200	49,000	88,000	140,000
			1000	69.0	8700	16,000	36,100	65,000	130,000	
			1250	86.2	11,000	19,000	45,000	81,000		
			1500	103	13,000	22,000	54,000	97,000		
			1750	121	15,000	25,000	63,000			
			2000	138	17,000	28,000	71,000			

1. Capacity is based on 20 percent droop unless otherwise noted below.
4. Outlet pressure setting may shift ±15 PSIG.
6. Small orifices and low pressure drops may cause the set point to shift +15 psig (1.3 BAR).

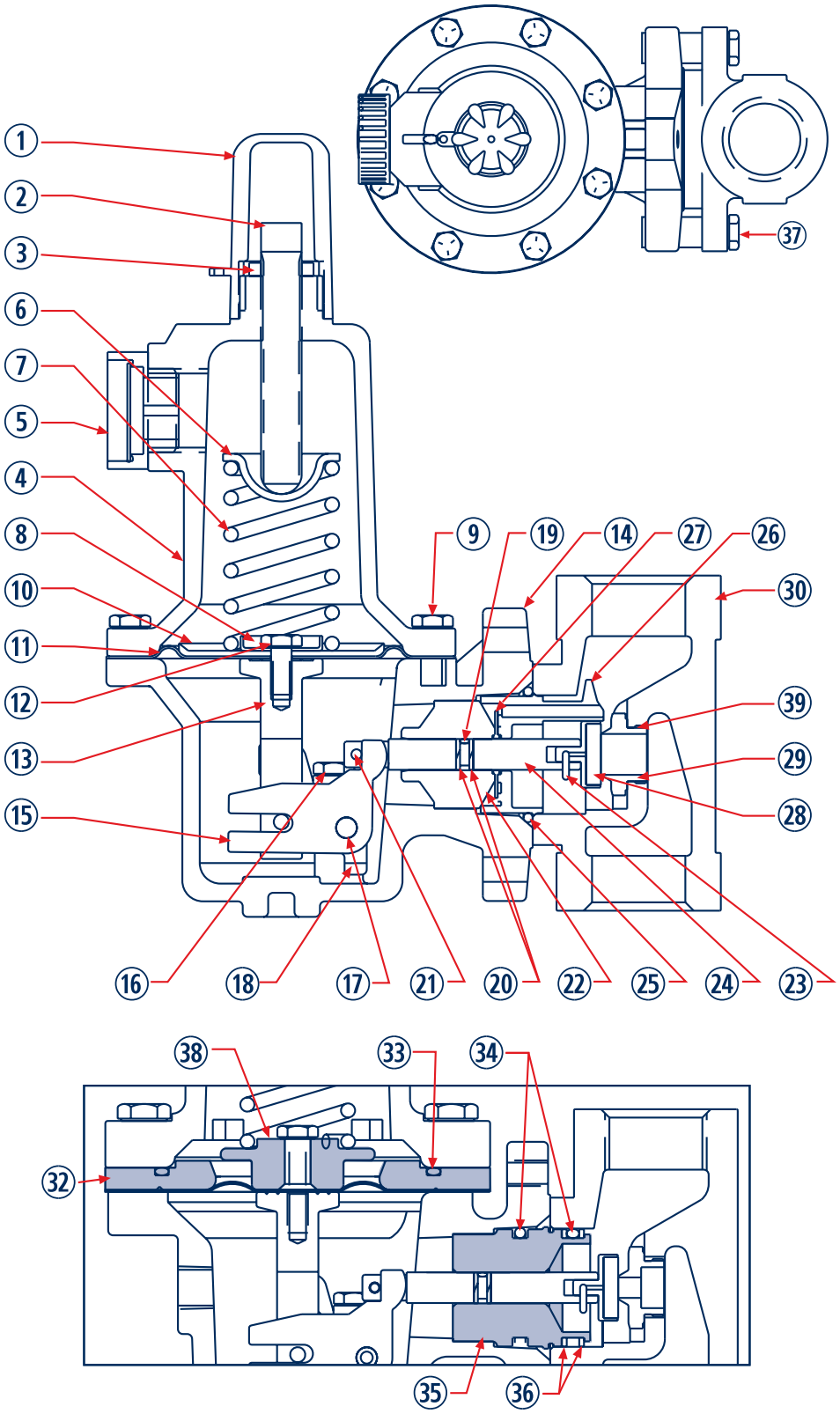
P627 Flow Coefficients

Orifice Size		3/4 Inch Body			1 Inch (DIN 25) Body			2 Inch (DIN 50) Body			K
Inches	mm	Wide-Open C_g for External Relief Sizing	Wide-Open C_v for External Relief Sizing	C_1	Wide-Open C_g for External Relief Sizing	Wide-Open C_v for External Relief Sizing	C_1	Wide-Open C_g for External Relief Sizing	Wide-Open C_v for External Relief Sizing	C_1	
3/32	2.4	6.9	0.24	29.2	6.9	0.24	28.5	6.9	0.23	29.7	0.72
1/8	3.2	12.5	0.43	29.1	12.5	0.43	29.4	12.5	0.42	29.5	0.62
3/16	4.8	29	1.01	28.6	29	0.93	31.2	29	1.02	28.5	0.72
1/4	6.4	50	1.63	30.5	50	1.71	29.3	52	1.66	31.3	0.76
3/8	9.5	108	2.99	36.1	108	3.42	31.6	115	3.39	33.9	0.79
1/2	12.7	190	4.87	39.0	190	5.29	35.9	200	5.01	39.9	.074

P627 Parts

Item	Description	Part Number
1	Cover Adj. Screw, plastic	610-053-000
2	Adjustment Screw	648-465-000
3	Locknut	634-154-000
4	Bonnet, P627 - Aluminum	604-210-000
	Bonnet, P627M, P627H & P627HM - Steel	604-211-000
5	Vent Screw Assembly	836-005-000
6	Spring Guide, Upper	626-079-000
7	Range Spring	
	5-20 PSIG–Yellow	655-661-000
	15-40 PSIG–Green	655-661-001
	35-80 PSIG & 10-95–PSIG Blue	655-661-002
	70-150 PSIG–Red	655-661-003
	140-250 PSIG–Blue	655-661-002
	240-500 PSIG–Red	655-661-003
8	Spring Guide, Lower (P627 or P627M only)	643-191-000
9	Build Screw, Spring Case (8 required)	
	P627 - Aluminum	648-466-000
	P627 or P627M - Steel	648-467-003
	P627H or P627HM	648-467-002
10	Diaphragm Piston (P627 or P627M only)	637-306-000
11	Diaphragm P627 & P627M	
	Aluminum/Iron Case (Nitrile)	618-069-000
	Steel Case (Nitrile)	618-070-000
	Diaphragm P627H & P627HM	
	Steel Case (Neophene)	618-070-001
12	Screw, Diaphragm P627 & P627M	648-466-002
	Screw, Diaphragm P627H & P627HM	648-467-000
13	Post, Pusher P627 & P627M Assy	827-005-000
	Post, Pusher P627H & P627HM Assy	827-005-001
	Post, Pusher P627 & P627M, NACE	827-008-000
	Post, Pusher P627H & P627HM, NACE	827-008-001
14	Diaphragm Case P627 - Aluminum	629-202-000
	Diaphragm Case P627 & P627H - Steel	629-203-000
	Diaphragm Case P627M & P627HM- Steel	629-204-000
	Diaphragm Case, Aluminum/Steel	629-215-000
15	Lever	703-004-000
	Lever, NACE	703-005-000
16	Lever Screw (2 required)	648-466-002
	Lever Screw, NACE (2 required)	648-474-000
17	Pin, Lever	635-053-000
	Pin, Lever, NACE	635-057-000
18	Lever Retainer	643-192-000
	Lever Retainer, NACE	643-194-000
19	Stem O-ring, Nitrile	649-000-003
20	Stem Backup Ring, TFE (2 required)	644-047-000
21	Pin, Groove	635-054-000
	Pin, Groove NACE	635-058-000
22	Stem Guide	626-083-000
23	Pin Clip	635-055-000
	Pin Clip NACE	635-056-000
24	Stem, 316SS	689-005-000
25	Diaphragm Case O-ring, Nitrile (P627 & P627H)	649-280-000
26	Boost Body P627 or P627H	686-003-000
27	Stabilizer, Nitrile P627 or P627H	649-278-000

Item	Description	Part Number
28	Seat assembly - Aluminum holder/nitrile disk	822-019-000
	Seat assembly - Aluminum/nylon	822-019-001
	Seat assembly - 316SS Holder/Nitrile (NACE only)	822-020-000
	Seat assembly - 316SS/Nylon (NACE only)	822-020-001
29	Orifice - Aluminum	
	3/32"	688-013-005
	1/8"	688-013-004
	3/16"	688-013-003
	1/4"	688-013-002
	3/8"	688-013-001
	1/2"	688-013-000
	Orifice - 316SS (NACE units)	
	3/32"	688-014-005
	1/8"	688-014-004
	3/16"	688-014-003
	1/4"	688-014-002
	3/8"	688-014-001
	1/2"	688-014-000
30	Body - Ductile Iron	
	3/4 NPT	664-280-000
	1 NPT	664-280-001
	2 NPT	664-282-000
	Body - Steel	
	3/4 NPT	664-281-000
	1 NPT	664-281-001
	2 NPT	664-283-000
	3/4 NPT LCC	664-325-000
	1 NPT LCC	664-325-001
	2 NPT LCC	664-326-000
	3/4 NPT Socket Weld	664-356-000
	1 NPT Socket Weld	664-358-000
	2 NPT Socket Weld	664-359-000
31	Nameplate (not shown)	632-474-000
32	Diaphragm Spacer (P627H or P627HM only)	654-167-000
33	O-ring, Spacer (P627H or P627HM only)	649-279-000
34	O-ring, Throat Block (2 required)	649-281-000
35	Throat Block (P627M or P627HM only)	626-081-000
36	Backup Ring, Throat Block (2 required)	644-048-000
37	Build Screw, 3/4" & 1" Aluminum unit	648-466-001
	Build Screw, All Steel Bodies	648-467-001
	Build Screw 2" Aluminum Unit (2 required)*	648-466-003
	*For 648-466-003 only, order 662-000-023 Lock Washer.	
38	Spring Guide, Lower (P627H & P627HM only)	637-307-000
39	Thread Locker	Consult factory
40	Name Plate Drive Screw (2 required) (not shown)	648-464-000
41	NACE Tag (not shown)	632-503-000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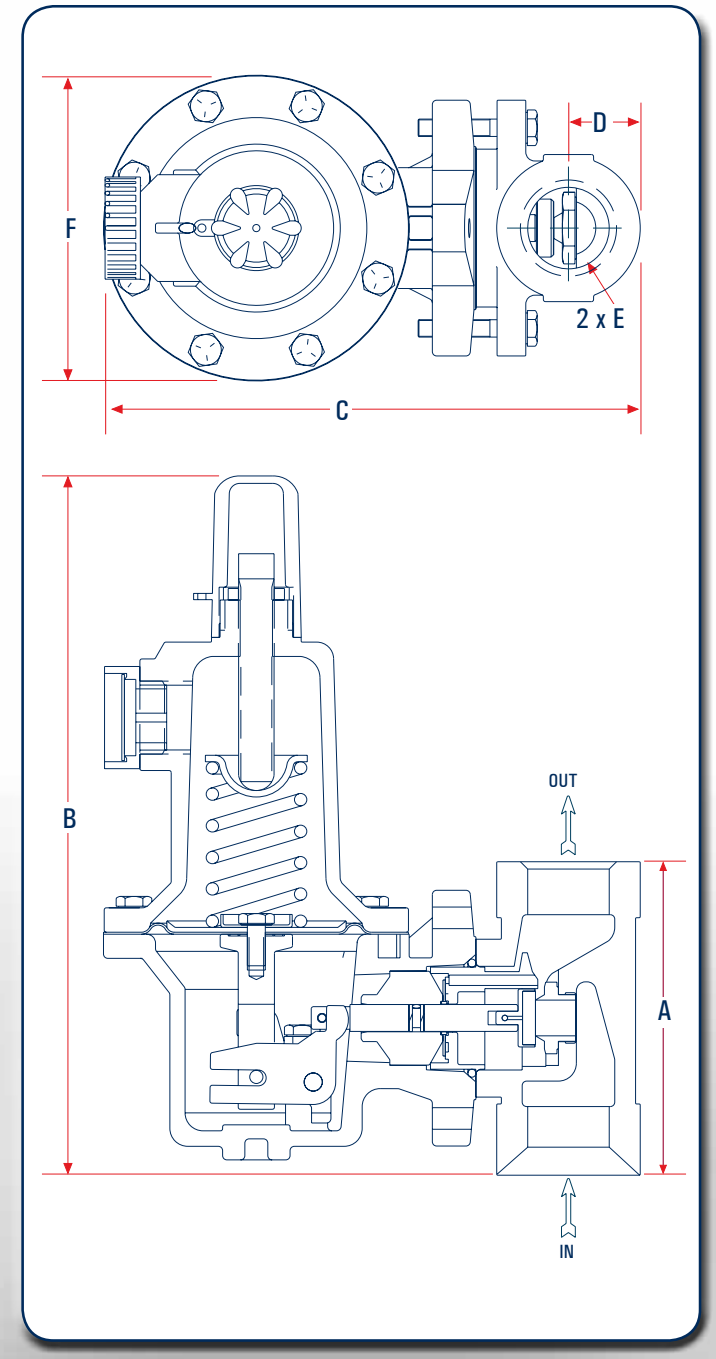
P627 / R627 Dimensions

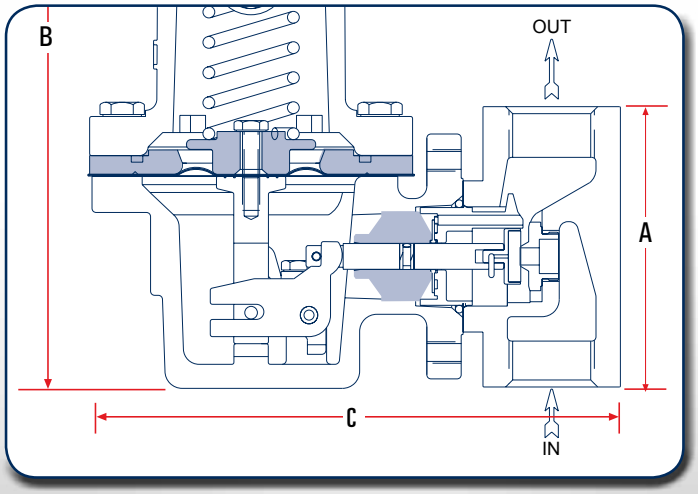
Aluminum/Cast Ductile Iron Units



Type	Body Size		A	B	C	D	E	F*
627 & 627M	3/4"	mm	104	243	190	26	3/4"	108
		inches	4.08	9.54	7.46	1.0		4.25
	1"	mm	104	243	190	26	1"	108
		inches	4.08	9.54	7.46	1.0		4.25
	2"	mm	127	256	218	43	2"	108
		inches	5.0	10.06	8.56	1.69		4.25
627H & 627HM	3/4"	mm	104	250	194	26	3/4"	120
		inches	4.08	9.82	7.62	1.0		4.70
	1"	mm	104	250	194	26	1"	120
		inches	4.08	9.82	7.62	1.0		4.70
	2"	mm	127	265	224	43	2"	120
		inches	5.0	10.44	8.80	1.69		4.70

*F Dimensions for steel P627 and P627M - 120mm/4.7 inches

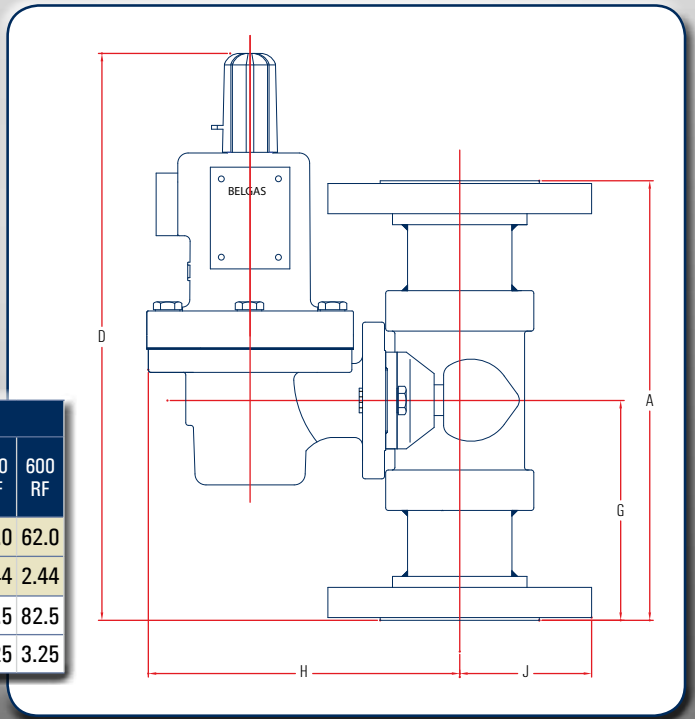
P627H



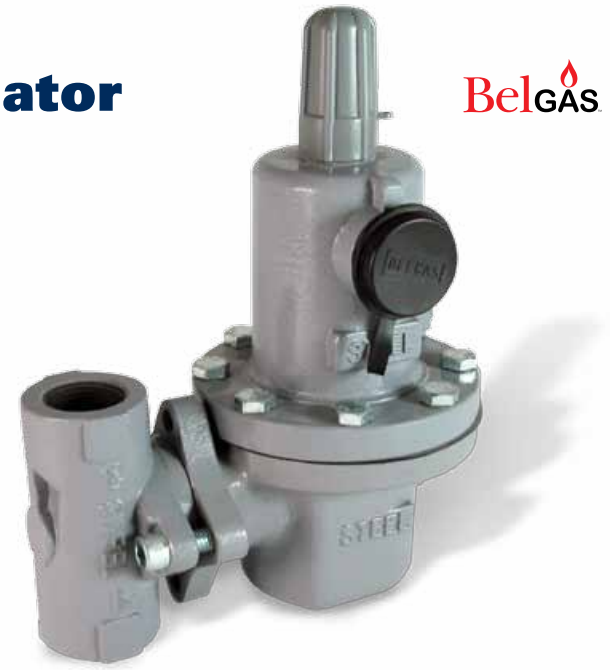
P627 / R627 Dimensions

Flange Units

Type	Body Size		A			D			G			H	J		
			150 RF	300 RF	600 RF	150 RF	300 RF	600 RF	150 RF	300 RF	600 RF	Steel	150 RF	300 RF	600 RF
P627 & R627 Flanged Units	1"	mm	184	197	210	11.24	11.5	11.75	91.9	98.6	105	172	53.8	62.0	62.0
		in.	7.25	7.75	8.25	286	292	298	3.62	3.88	4.12	6.75	2.12	2.44	2.44
	2"	mm	254	267	286	12.63	12.88	13.25	127	133	143	181	76.2	82.5	82.5
		in.	10	10.5	11.25	321	327	337	5	5.25	5.62	7.12	3	3.25	3.25



R627 High Flow Gas Regulator with Internal Relief



The R627 Relieving Regulator has an internal relief valve that provides protection against over pressurization. As output pressure builds up above the start-to-discharge point the relief seat disengages from the diaphragm and the excess pressure is relieved through the bonnet vent port. As a result of the relieving action of the internal relief valve, the output pressure reduces and returns to the initial setpoint. The relief seat then reseats against the diaphragm. The action of the R627 internal relief valve in many cases eliminates the need for an external relief valve. The R627 is available in spring ranges from 5-20 PSIG up to 70-150 PSIG.

The R627 contains a relief indicator that is attached to the R627 vent assembly. The indicator paps off the vent when the relief valve opens and serves as a visual indicator that the relief valve has operated.

Applications

- Form Tap
- Gas Gathering
- City Gates
- District Gates

Materials of Construction

Body, Bonnet, Diaphragm Case	
Options	Steel Body, Bonnet & Diaphragm Case
	Cast Ductile Iron Body / Aluminum Bonnet & Diaphragm Case
	Steel Body / Aluminum Bonnet & Diaphragm Case (NACE only)
	Steel Casing / LCC Body
	Aluminum / LCC Body
Diaphragm	
Option	Nitrile
Seat	
Options	Nitrile
	Nylon
Orifice	
Options	Aluminum
	Stainless Steel (NACE only)

Specifications

Maximum Inlet Body Pressure		
Nylon Seat	2000 PSIG	Steel
	1000 PSIG	Ductile Iron
	1485 PSIG	Flanged Steel
Nitrile Seat	1000 PSIG	All Units
Outlet	5–150 PSIG	
Body Sizes	3/4 NPT	
	1 NPT	
	2 NPT	
Orifice Sizes	3/32"	
	1/8"	
	3/16"	
	1/4"	
	3/8"	
	1/2"	
	Outlet Range	Flow Range*
Output	5–20 PSIG	300–43,000
	15–40 PSIG	1,000–71,000
	35–80 PSIG	1,200–142,000
	10–95 PSIG	1,000–150,000
	70–150 PSIG	2,500–172,000
	* (SCFH of 0.6 S.G. Natural Gas)	
Temperature Range	–20˚ to 180˚F	(–18˚ to 82˚C)
Weight Approximate		
1"	5.3 lbs	2.39 kg
2"	8.8 lbs	3.96 kg

Maximum Bonnet and Diaphragm Casing Pressure	Spring & Diaphragm Casing Style	R627		R627M	
		PSIG	BAR	PSIG	BAR
Maximum pressure to spring and diaphragm casing to prevent leak to atmosphere (internal parts damage may occur).	Die Cast Aluminum	250	17.2	N/A	N/A
	Steel	250	17.2	250	17.2
Maximum pressure to spring and diaphragm casings to prevent burst of casings during abnormal operation (leak to atmosphere and internal parts may occur).	Die Cast Aluminum	375	25.9	N/A	N/A
	Steel	1200	82.7	1200	82.7
Maximum diaphragm casing overpressure to prevent damage to internal parts.	All	60	4.1	60	4.1

R627 Regulator Rebuild Kits

	Kit Includes	Part Number
R627 Nitrile	Nitrile diaphragms (2), Nitrile valve disk, O'rings, back-up rings, and retaining pin	971-R62-700
R627 Nylon	Nitrile diaphragms (2), Nylon valve disk, O'rings, back-up rings, and retaining pin.	971-R62-701

	Kit Includes	Part Number
R627 Nitrile NACE	Nitrile diaphragms (2), SS Nitrile valve disk, O'rings, back-up rings, and retaining pin	971-R62-7N0
R627 Nylon NACE	Nitrile diaphragms (2), SS Nylon valve disk, O'rings, back-up rings, and retaining pin	971-R62-7N1

R627 Part Matrix

R627 _ _ _ _ _ 1 _

Port Size

Code	Port Size
06	3/4 NPT
08	1 NPT
16	2 NPT

Spring Range

Code	PSIG	BAR
020	5 - 20	0.34 - 1.4
040	15 - 40	1 - 2.8
080	35 - 80	2.4 - 5.5
095	10 - 95	5.7 - 6.6
150	70 - 150	4.8 - 10.3

NOTE: Nitrile Seat is required for 5-20 psi, 15-40 and 10-95 psi ranges. Nylon Seat is recommended for psi above 140. Consult factory for questions

Special Construction

Code	Special Construction
0	None
2	Monitor*
A	150 #RF*
B	300 #RF*
C	600 #RF*
D	Socket Weld*

*Steel Casing/Steel Body Only

Versions

Code	Versions
0	Standard
N	NACE*

*Available as Steel/Steel or Aluminum/Steel Only

Orifice

Code	Orifice
0	3/32"
2	1/8"
3	3/16"
4	1/4"
6	3/8"
8	1/2"

Seat Material

Code	Seat Material
0	Nitrile (Buna-N)
1	Nylon

NOTE: Nitrile Seat is required for 5-20 psi, 15-40 and 10-95 psi ranges. Nylon Seat is recommended for psi above 140. Consult factory for questions.

Casing Material

Code	Casing Material
0	Aluminum Casing / Iron Body
1	Steel Casing / Steel Body
2	Aluminum Casing / Steel Body*
6	Aluminum Casing / LCC Steel Body
7	Steel Casing / LCC Body
8	Steel Casing / Iron Body

* Supplied only with NACE components, specify 'N' in part number.

Output Pressure	Maximum Inlet Pressures: (10-95 psi supply pressure limits)				
	1/8"	3/16"	1/4"	3/8"	1/2"
10 psi	500 psi	500 psi	500 psi	300 psi	100 psi
25 psi	1,000 psi	1,000 psi	500 psi	300 psi	100 psi
75 psi	1,000 psi	1,000 psi	500 psi	300 psi	100 psi
95 psi	1,000 psi	1,000 psi	500 psi	300 psi	100 psi

For 10-95 flow information, refer to 35-80 PSIG flow capacity tables.

R627 Internal Relief Performance[1]

Outlet Pressure Spring Range	Outlet Pressure Setting		Maximum Allowable Downstream Pressure		Maximum Inlet Pressure to Keep Maximum Allowable Downstream Pressure from Being Exceeded[2] R627 Port Diameter, inches					
	PSIG	BAR	PSIG	BAR	3/32	1/8	3/16	1/4	3/8	1/2
5 to 20 PSIG[3] (.03 to 1.4 BAR)	10	0.7	60	4.1	1250	740	320	190	95	75
			100	6.9	2000	1500	620	390	180	130
			125	8.6	2000	1900	830	480	220	160
			175	12.1	2000	2000	1100	670	320	220
			200	13.8	2000	2000	1300	770	360	260
			250	17.2	2000	2000	1600	960	450	320
	15	1.0	60	4.1	1000	620	260	170	90	70
			100	6.9	2000	1400	610	370	170	130
			125	8.6	2000	1900	810	480	220	160
			175	12.1	2000	2000	1100	670	320	220
			200	13.8	2000	2000	1300	770	360	260
			250	17.2	2000	2000	1600	960	450	320
	20	1.4	60	4.1	850	490	210	130	80	65
			100	6.9	2000	1300	600	360	170	120
			125	8.6	2000	1800	800	480	220	160
			175	12.1	2000	2000	1100	670	320	220
			200	13.8	2000	2000	1300	770	360	260
			250	17.2	2000	2000	1600	960	450	320
15 to 40 PSIG (1.0 to 2.8 BAR)	15	1.0	60	4.1	1000	380	210	130	80	65
			100	6.9	2000	1300	590	350	170	120
			125	8.6	2000	1800	800	470	220	160
			175	12.1	2000	2000	1100	640	320	220
			200	13.8	2000	2000	1300	780	370	260
			250	17.2	2000	2000	1600	960	450	320
	20	1.4	60	4.1	630	200	150	100	70	65
			100	6.9	2000	1200	550	330	160	120
			125	8.6	2000	1700	760	450	210	160
			175	12.1	2000	2000	1100	630	320	220
			200	13.8	2000	2000	1300	770	360	260
			250	17.2	2000	2000	1600	960	450	320
	30	2.1	100	6.9	2000	950	450	260	140	110
			125	8.6	2000	1500	670	400	190	150
			175	12.1	2000	2000	1000	610	300	220
			200	13.8	2000	2000	1200	760	360	260
			250	17.2	2000	2000	1600	970	450	320
	40	2.8	100	6.9	1500	700	330	200	120	108
			125	8.62	2000	1300	560	340	180	140
			175	12.1	2000	1800	1000	550	290	220
			200	13.8	2000	2000	1200	730	350	250
			250	17.2	2000	2000	1600	970	460	320

Outlet Pressure Spring Range	Outlet Pressure Setting		Maximum Allowable Downstream Pressure		Maximum Inlet Pressure to Keep Maximum Allowable Downstream Pressure from Being Exceeded[2] R627 Port Diameter, inches					
	PSIG	BAR	PSIG	BAR	3/32	1/8	3/16	1/4	3/8	1/2
35 to 80 PSIG (2.4 to 5.5 BAR)	40	2.8	125	8.6	2000	1100	500	300	170	140
			150	10.3	2000	1600	750	440	230	180
			175	12.1	2000	2000	980	580	290	220
			200	13.8	2000	2000	1200	720	340	250
			250	17.2	2000	2000	1600	940	450	320
	50	3.4	125	8.6	1400	820	400	230	150	140
			150	10.3	2000	1400	650	370	210	170
			175	12.1	2000	1900	700	530	270	210
			200	13.8	2000	2000	1100	670	330	240
			250	17.2	2000	2000	1500	920	430	320
	60	4.1	125	8.6	900	450	270	190	140	130
			150	10.3	1700	1100	540	300	190	160
			175	12.1	2000	1700	780	470	250	200
			200	13.8	2000	2000	1000	610	310	230
			250	17.2	2000	2000	1400	880	420	310
	70	4.8	150	10.3	1200	850	430	250	170	160
			175	12.1	2000	1400	670	400	230	190
			200	13.8	2000	2000	920	550	280	230
			250	17.2	2000	2000	1300	830	400	310
	80	5.5	150	10.3	800	500	300	200	160	150
			175	12.1	1500	1200	550	330	210	190
			200	13.8	2000	1700	800	480	270	220
			250	17.2	2000	2000	1200	770	390	300
70 to 150 PSIG (4.8 to 10.3 BAR)	70	4.8	175	12.1	1900	600	400	260	200	175
			200	13.8	2000	1200	630	380	250	210
			250	17.2	2000	2000	1100	680	360	290
	80	5.5	175	12.1	1400	250	240	200	190	175
			200	13.8	2000	960	250	330	240	210
			250	17.2	2000	2000	1000	620	350	280
	100	6.9	200	13.8	1500	250	240	230	210	210
			250	17.2	2000	1600	770	520	320	270
	125	8.6	250	17.2	2000	1000	500	390	290	260
	150	10.3	250	17.2	1200	260	260	260	260	260

1. The internal relief performance values are obtained by removing the disk assembly.
2. For inlet pressure in excess of 1000 PSIG (69.0 BAR) refer to the maximum body and disk pressure ratings in the specifications section.
3. For pressure settings under 10 PSIG (0.69 BAR) inlet pressure should be limited to approximately 100 PSIG (6.90 BAR) so the set point adjustment can be obtained.
4. - Shaded areas indicate maximum inlet pressures allowed during system failure only.

R627 Capacities for 3/4-inch Body Size[1]

Outlet Pressure Spring Range	Outlet Pressure Setting		Inlet Pressure		Capacities in SCFH (Nm³/h) of 0.6 Specific Gravity Natural Gas **3/4" Body Size**					
					Orifice Size, Inches					
	PSIG	BAR	PSIG	BAR	3/32	1/8	3/16	1/4	3/8	1/2
5 to 20 PSIG[2] (.03 to 1.4 BAR)	5	0.3	10	0.7	170	320	710	1050	1500	1850
			15	1.0	240	330	810	1290	2100	2850
			20	1.4	290	460	1090	1750	2750	3850
			30	2.1	380	610	1470	2490	3600	4800
			60	4.1	640	1170	2460	3690	5270	6120
			75	5.2	770	1410	2880	4150	5760	6900
			100	6.9	990	1690	3540	4790	6200	7600
	10	0.7	15	1.0	210	320	800	1290	2100	2820
			20	1.4	280	450	1070	1740	2700	3800
			30	2.1	380	610	1470	2430	3550	4780
			60	4.1	640	1170	2460	3690	5270	6120
			75	5.2	770	1410	2880	4150	5760	6900
			100	6.9	990	1690	3540	4790	6200	7600
			150	10.3	1420	2430	4000	5680	6250	7630
			200	13.8	1850	3070	4200	6200	6380	7680
			300	20.7	2700	3970	4270	6250	6500	
			500	34.5	4010	4240	5640	6520		
			750	51.7	4400	5120	6400			
			1000	69.0	4450	6220				
			1250	86.2	4540					
			1500	103	4880					
			1750	121	5230					
			2000	138	5900					
	20	1.4	30	2.1	350	590	1390	2480	4350	4970
			50	3.5	550	980	2240	4000	7450	8000
			60	4.1	640	1170	2610	4680	7800	8900
			100	6.9	990	1800	3980	6700	9750	10400
			150	10.3	1420	2580	5600	8790	10000	10800
			200	13.8	1850	3370	7050	9000	10200	10800
			300	20.7	2700	4910	7300	9500	10500	
			500	34.5	4400	5200	7400	9760		
			750	51.7	6600	5360	8870			
			1000	69.0	7300	6500				
			1250	86.2	7500					
			1500	130	7800					
			1750	121	8400					
			2000	138	8600					
15 to 40 PSIG (1.0 to 2.8 BAR)	40	2.8	60	4.1	610	1090	2270	4230	8100	9100
			75	5.2	760	1370	3080	5330	10300	11600
			100	6.9	990	1790	4070	6840	11900	13400
			150	10.3	1420	2580	5850	9320	13500	13800
			200	13.8	1850	3370	7630	11000	16300	17100
			300	20.7	2700	4910	11200	14700	17800	
			500	34.5	4400	8090	14500	14800		
			750	51.7	6600	10800	14800	14900		
			1000	69.0	8700	13100	16300			
			1250	86.2	11000	13800				
			1500	130	12000	14000				
			1750	121	13000					
			2000	138	14000					
35 to 80 PSIG (2.4 to 5.5 BAR)	60	4.1	75	5.2	700	1230	2760	4700	8170	12600
			100	6.9	970	1740	3910	6690	11900	14400
			150	10.3	1420	2580	5850	9740	15700	18700
			200	13.8	1850	3370	7630	12400	18400	21200
			300	20.7	2700	4910	11200	17700	20200	
			500	34.5	4400	8090	18300	20000		
			750	51.7	6600	12000	18900	21400		
			1000	69.0	8700	16000	19000			
			1250	86.2	11000	18700				
			1500	130	13000	19000				
			1750	121	15000	20000				
			2000	138	17000					

Table Continued

1. Capacity is based on 20% droop unless otherwise noted below.
2. For pressure setting under 10 PSIG (06.9 BAR) inlet pressure should be limited to approximately 100 PSIG (6.90 BAR) so that setpoint adjustment can be obtained.
3. ▭ - Blank areas indicate where maximum operating inlet pressure for a given orifice is exceeded.

Outlet Pressure Spring Range	Outlet Pressure Setting		Inlet Pressure		Capacities in SCFH (Nm³/h) of 0.6 Specific Gravity Natural Gas **3/4" Body Size**					
					Orifice Size, Inches					
	PSIG	BAR	PSIG	BAR	3/32	1/8	3/16	1/4	3/8	1/2
35 to 80 PSIG (2.4 to 5.5 BAR)	80	5.5	100	6.90	900	1630	3570	6490	12000	17200
			150	10.3	1410	2580	5780	10500	18900	25000
			200	13.8	1850	3370	7630	13700	23000	29000
			300	20.7	2700	4910	11200	20100	26000	
			500	34.5	4400	8090	18300	29000		
			750	51.7	6600	12000	23100	30900		
			1000	69.0	8700	16000	27400			
			1250	86.2	11000	19000				
			1500	130	13000	22000				
			1750	121	15000	25000				
			2000	138	17000					
70 to 150 PSIG (4.8 to 10.3 BAR)	100	6.9	150	10.3	1170	2510	5540	8310	15500	20300
			200	13.8	1850	3370	7630	12000	20100	25700
			300	20.7	2700	4910	11200	18200		
			500	34.5	4400	8090	18300			
			750	51.7	6600	12000				
			1000	69.0	8700	16000				
			1250	86.2	11000					
			1500	130	13000					
			1750	121	15000					
			2000	138	17000					
	125	8.6	150	10.3	1250	2330	5090	9130	15700	20800
			200	13.8	1830	3320	7360	13160	22400	28600
			300	20.7	2700	4910	11200	19700		
			500	34.5	4400	8090	18300			
			750	51.7	6600	12000				
			1000	69.0	8700	16000				
			1250	86.2	11000					
			1500	130	13000					
			1750	121	15000					
			2000	138	17000					
	150	10.3	200	13.8	1760	3200	7020	12500	21400	30600
			300	20.7	2700	4910	11200	17200		
			500	34.5	4400	8090	18300			
			750	51.7	6600	12000				
			1000	69.0	8700	16000				
			1250	86.2	11000					
			1500	130	13000					
			1750	121	15000					
			2000	138	17000					

1. Capacity is based on 20% droop unless otherwise noted below.
2. For pressure setting under 10 PSIG (06.9 BAR) inlet pressure should be limited to approximately 100 PSIG (6.90 BAR) so that setpoint adjustment can be obtained.
3. ▭ - Blank areas indicate where maximum operating inlet pressure for a given orifice is exceeded.

R627 Capacities for 1 and 2 Inch Body Sizes[1]

Outlet Pressure Spring Range	Outlet Pressure Setting		Inlet Pressure		Capacities in SCFH (Nm³/h) of 0.6 Specific Gravity Natural Gas **1 & 2" Body Size**					
					Orifice Size, Inches					
	PSIG	BAR	PSIG	BAR	3/32	1/8	3/16	1/4	3/8	1/2
5 to 20 PSIG[2] (.03 to 1.4 BAR)	5	0.3	10	0.7	170	330	710	1080	2000	2150
			15	1.0	240	390	890	1500	2350	3000
			20	1.4	290	500	1160	1900	2750	3900
			30	2.0	380	690	1500	2500	3600	4900
			60	4.1	640	1170	2460	3690	5650	6900
			75	5.2	770	1410	2880	4150	6450	7490
			100	6.9	990	1800	3540	5790	7520	8150
	10	0.7	15	1.0	210	390	840	1480	2300	2930
			20	1.4	280	500	1100	1880	2700	3830
			30	2.0	380	690	1500	2460	3550	4840
			60	4.1	640	1170	2460	3690	5650	6900
			75	5.2	770	1410	2880	4150	6450	7490
			100	6.9	990	1800	3540	4790	7520	8150
			150	10.3	1420	2580	4660	5680	9980	10800
			200	13.8	1850	3370	5620	6360	11000	12900
			300	20.7	2700	4880	6890	7780	13600	
			500	34.5	4400	6720	8570	11600		
			750	51.7	5400	8850	9000			
			1000	69.0	5800	9500				
			1250	86.2	6300					
			1500	103	6600					
			1750	121	6800					
			2000	138	7600					
	20	1.4	30	2.07	350	600	1390	2580	4350	6290
			50	3.45	550	1000	2250	4090	7600	8000
			60	4.14	640	1170	2630	4750	7800	10600
			100	6.90	990	1800	4070	7310	10800	13400
			150	10.3	1420	2580	5720	10300	13500	14000
			200	13.8	1850	3370	7050	10500	14000	14000
			300	20.7	2700	4910	9250	10800	14900	
			500	34.5	4400	7830	11800	13000		
			750	51.7	6600	9000	12000			
			1000	69.0	8700	9660				
			1250	86.2	10000					
			1500	103	10400					
			1750	121	12000					
			2000	138	14000					
15 to 40 PSIG (1.0 to 2.8 BAR)	40	2.8	60	4.1	610	1090	2430	4510	9200	9400
			75	5.2	760	1370	3080	5640	10800	16300
			100	6.9	990	1790	4070	7310	13500	17600
			150	10.3	1420	2580	5850	10500	18000	22200
			200	13.8	1850	3370	7630	11000	21400	24600
			300	20.7	2700	4910	11200	14900	24400	
			500	34.5	4400	8090	16300	21800		
			750	51.7	6600	12000	20200	23600		
			1000	69.0	8700	16000	23200			
			1250	86.2	11000	19000				
			1500	103	13000	21000				
			1750	121	15000					
			2000	138	17000					
35 to 80 PSIG (2.4 to 5.5 BAR)	60	4.1	75	5.2	700	1230	2760	4860	8600	12800
			100	6.9	970	1740	3910	7000	12500	16700
			150	10.3	1420	2580	5850	10500	16800	2300
			200	13.8	1850	3370	7630	13700	20900	27700
			300	20.7	2700	4910	11200	20100	28100	
			500	34.5	4400	8090	18300	28500		
			750	51.7	6600	12000	22800	29500		
			1000	69.0	8700	16000	26800			
			1250	86.2	11000	19000				
			1500	103	13000	22000				
			1750	121	15000	25000				
			2000	138	17000					

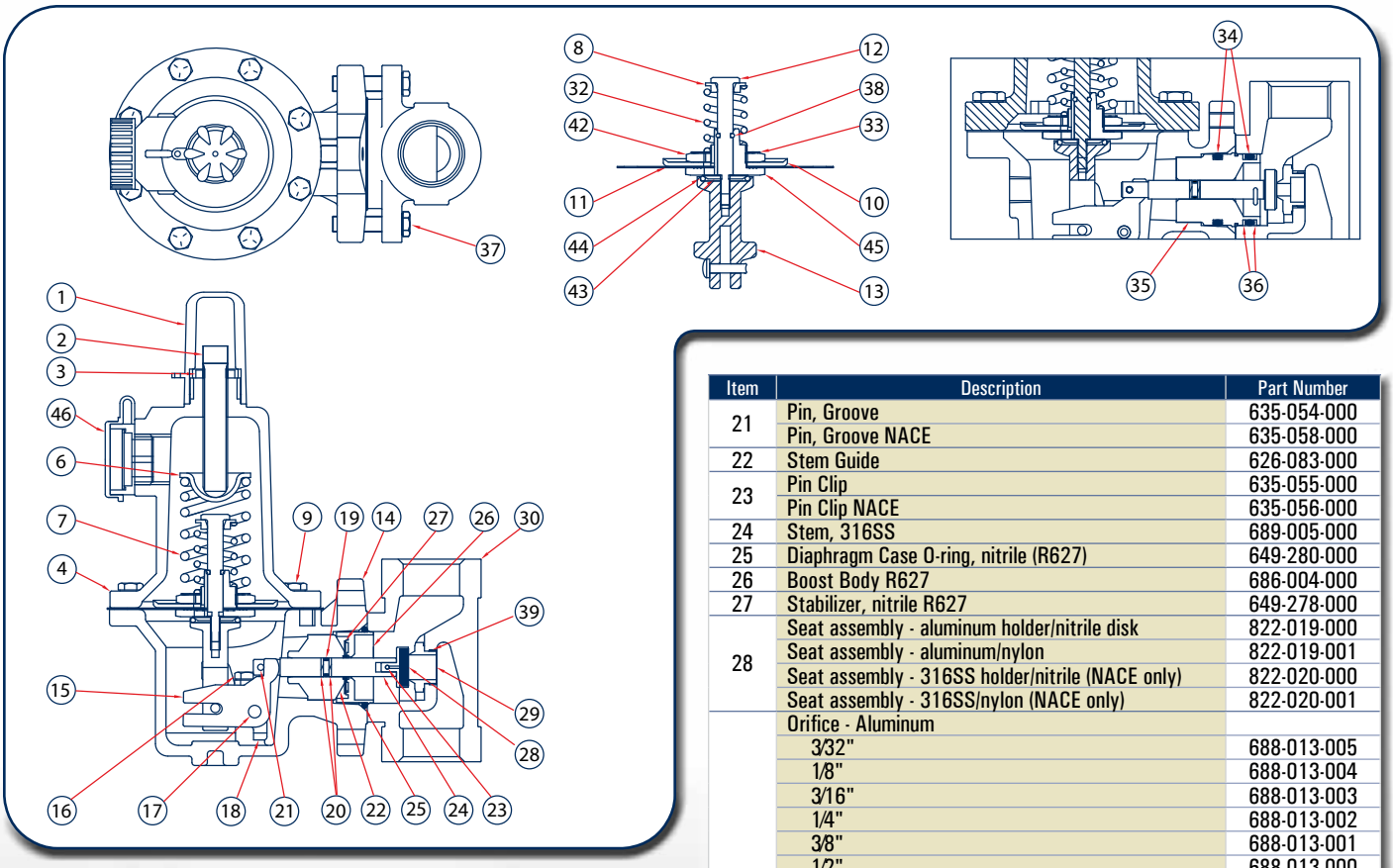
Table Continued

1. Capacity is based on 20% droop unless otherwise noted below.
2. For pressure setting under 10 PSIG (06.9 BAR) inlet pressure should be limited to approximately 100 PSIF (6.90 BAR) so that setpoint adjustment can be obtained.
3. ▭ - Blank areas indicate where maximum operating inlet pressure for a given orifice is exceeded.

Outlet Pressure Spring Range	Outlet Pressure Setting		Inlet Pressure		Capacities in SCFH (Nm³/h) of 0.6 Specific Gravity Natural Gas **1 & 2" Body Size**					
					Orifice Size, Inches					
	PSIG	BAR	PSIG	BAR	3/32	1/8	3/16	1/4	3/8	1/2
35 to 80 PSIG (2.4 to 5.5 BAR)	80	5.5	100	6.9	900	1630	3570	6650	12000	17400
			150	10.3	1410	2580	5750	10500	20100	26000
			200	13.8	1850	3370	7630	13700	25100	31800
			300	20.7	2700	4910	11200	20100	32600	
			500	34.5	4400	8090	18300	30300		
			750	51.7	6600	12000	27200	37400		
			1000	69.0	8700	16000	33300			
			1250	86.2	11000	19000				
			1500	103	13000	22000				
			1750	121	15000	25000				
			2000	138	17000					
70 to 150 PSIG (4.8 to 10.3 BAR)	100	6.9	150	10.3	1170	2510	5540	8310	15500	20300
			200	13.8	1850	3370	7630	12000	20100	26700
			300	20.7	2700	4910	11200	18200		
			500	34.5	4400	8090	18300			
			750	51.7	6600	12000				
			1000	69.0	8700	16000				
			1250	86.2	11000					
			1500	103	13000					
			1750	121	15000					
			2000	138	17000					
	125	8.6	150	10.3	1250	2330	5090	9470	15700	20800
			200	13.8	1830	3320	7360	13400	23600	31300
			300	20.7	2700	4910	11200	19700		
			500	34.5	4400	8090	18300			
			750	51.7	6600	12000				
			1000	69.0	8700	16000				
			1250	86.2	11000					
			1500	103	13000					
			1750	121	15000					
			2000	138	17000					
	150	10.3	200	13.8	1760	3200	7020	12900	21400	33300
			300	20.7	2700	4910	11200	17200		
			500	34.5	4400	8090	18300			
			750	51.7	6600	12000				
			1000	69.0	8700	16000				
			1250	86.2	11000					
			1500	103	13000					
			1750	121	15000					
			2000	138	17000					

1. Capacity is based on 20% droop unless otherwise noted below.
▭ - Blank areas indicate where maximum operating inlet pressure for a given orifice is exceeded.

R627 Parts



Item	Description	Part Number
1	Cover Adj. Screw, plastic	610-053-000
2	Adjustment Screw	648-465-000
3	Locknut	634-154-000
4	Bonnet, R627 - aluminum	604-210-000
	Bonnet, R627, R627M - Steel	604-211-000
5	Vent Screw Assembly	836-005-000
6	Spring Guide, Upper	626-079-000
7	Range Spring	
	5-20 PSIG–Yellow	655-661-000
	15-40 PSIG–Green	655-661-001
	35-80 PSIG & 10-95–PSIG Blue	655-661-002
	70-150 PSIG–Red	655-661-003
8	Spring Guide, Lower (P627 or P627M only)	626-101-000
9	Build Screw, Spring Case (8 required)	
	R627 - Aluminum	648-466-000
	R627 or P627M - Steel	648-467-003
10	Diaphragm Piston (R627 or R627M only)	637-322-000
11	Diaphragm R627 & R627M	
	Aluminum/Iron Case (Nitrile)	618-079-000
	Steel Case (Nitrile)	618-080-000
12	Diaphragm Retainer P627 & P627M	648-521-000
13	Post, Pusher R627 & P627M Assy	827-011-000
14	Diaphragm Case R627 - aluminum	629-202-000
	Diaphragm Case R627 - steel	629-203-000
	Diaphragm Case R627M - steel	629-204-000
	Diaphragm Case, aluminum/steel	629-215-000
15	Lever	703-004-000
	Lever, NACE	703-005-000
16	Lever Screw (2 required)	648-466-002
	Lever Screw, NACE (2 required)	648-474-000
17	Pin, Lever	635-053-000
	Pin, Lever, NACE	635-057-000
18	Lever Retainer	643-192-000
	Lever Retainer, NACE	643-194-000
19	Stem O-ring, nitrile	649-000-003
20	Stem Backup Ring, TFE (2 required)	644-047-000

Item	Description	Part Number
21	Pin, Groove	635-054-000
	Pin, Groove NACE	635-058-000
22	Stem Guide	626-083-000
23	Pin Clip	635-055-000
	Pin Clip NACE	635-056-000
24	Stem, 316SS	689-005-000
25	Diaphragm Case O-ring, nitrile (R627)	649-280-000
26	Boost Body R627	686-004-000
27	Stabilizer, nitrile R627	649-278-000
28	Seat assembly - aluminum holder/nitrile disk	822-019-000
	Seat assembly - aluminum/nylon	822-019-001
	Seat assembly - 316SS holder/nitrile (NACE only)	822-020-000
	Seat assembly - 316SS/nylon (NACE only)	822-020-001
29	Orifice - Aluminum	
	3/32"	688-013-005
	1/8"	688-013-004
	3/16"	688-013-003
	1/4"	688-013-002
	3/8"	688-013-001
	1/2"	688-013-000
	Orifice - 316SS (NACE units)	
	3/32"	688-014-005
	1/8"	688-014-004
	3/16"	688-014-003
	1/4"	688-014-002
	3/8"	688-014-001
	1/2"	688-014-000
30	Body - Ductile Iron	
	3/4 NPT	664-280-000
	1 NPT	664-280-001
	2 NPT	664-282-000
	Body - Steel	
	3/4 NPT	664-281-000
	1 NPT	664-281-001
	2 NPT	664-283-000
	3/4 NPT LCC	664-325-000
	1 NPT LCC	664-325-001
	2 NPT LCC	664-326-000
	3/4 NPT Socket Weld	664-356-000
	1 NPT Socket Weld	664-358-000
	2 NPT Socket Weld	664-359-000
31	Nameplate (not shown)	632-474-000
32	Relief Spring	655-709-000
33	Lower Spring Seat	626-102-000
34	O-ring, Throat Block (2 required)	649-281-000
35	Throat Block (R627M)	626-081-000
36	Backup Ring, Throat Block (2 required)	644-048-000
37	Build Screw, 3/4" & 1" aluminum unit	648-466-001
	Build Screw, all steel bodies	648-467-001
	Build Screw 2" aluminum unit (2 required)*	648-466-003
38	O-ring	649-000-001
39	Thread Locker	consult factory
40	Name Plate Drive Screw (2 required) (not shown)	648-464-000
41	NACE Tag (not shown)	632-503-000
42	Diaphragm Connecting Unit	634-182-000
43	Relief Seal Retainer	643-198-000
44	Relief Seal O-ring	649-308-000
45	Diaphragm Connector	650-150-000

P630 High Flow Gas Regulator

- Stainless Steel Internals are Standard
- Steel Units comply with NACE MR0175
- Durable Powder Coated Exterior
- Wide Range of Flow Capacities

The P630 is a spring loaded, direct-operated regulator for high pressure, and high flow applications. The heavy duty construction, made possible by the addition of stainless steel internal components and a powder-coated epoxy exterior finish, makes it ideally suited for the oil and gas industries. All P630 steel units meet NACE MR0175 material requirements for corrosive (sour gas) environments.

Materials of Construction

Body, Bonnet	Cast Iron
	Steel (1030 WCB)
Diaphragm	Neoprene
	Fluorocarbon
Seat	Nylon
	TFE
Orifice	316 Stainless Steel

Applications

- First Cut or Second Stage Regulator
- Farm Taps
- Transmission to Distribution Bridge
- High Pressure Process
- Fuel Gas

P630 Part Matrix

P630			0							
									Body Size	
	08								1"	
	16								2"	
									Spring Range	
									PSIG / BAR	
		010							3 - 10 / 0.2 - .7	Low Pressure Spring Ranges
		020							8 - 20 / 0.6 - 1.4	
		030							17 - 30 / 1.2 - 2.1	
		040							27 - 40 / 1.9 - 2.8	
		050							27 - 50 / 1.9 - 3.5	High Pressure Spring Ranges
		095							46 - 95 / 3.2-6.6	
		150							90 - 150 / 6.2-10.3	
		200							150 - 200 / 10.3-13.8	
		275							200 - 275 / 13.8-18.9	
		500							275 - 500 / 18.9-34.5	
			0						Standard NPT Units	
									Flanged Connections	*Steel Units Only
			A						150 # RF*	
			B						300 # RF*	
			C						600 # RF*	
									Orifice	
				2					1/8"	
				3					3/16"	
				4					1/4"	
				6					3/8"	
				8					1/2"	
									Seat Material	
					1				Nylon	
					2				CTFE	
									Diaphragm	
						2			Fluorocarbon	
						3			Neoprene	
									Casing Material	
							0		Iron	
							1		Steel (standard NACE)	

Specifications

Maximum Inlet	1500 PSIG	
Outlet	3–500 PSIG	
Body Sizes	1 NPT	
	2 NPT	
Orifice Sizes	1/8"	
	3/16"	
	1/4"	
	3/8"	
	1/2"	
Outlet Ranges		Flow Range*
Low Pressure	3–10 PSIG	200 – 79,000
	8 – 20 PSIG	500 – 82,000
	17 – 30 PSIG	600 – 85,000
	27 – 40 PSIG	800 – 85,000
Regular	27 – 50 PSIG	800 – 85,000
	46 – 95 PSIG	900 – 92,000
	90 – 150 PSIG	2,000 – 88,000
	150 – 200 PSIG	3,400 – 90,000
	200 – 275 PSIG	4,200 – 112,000
	275–500 PSIG	6,600 – 141,000
		* (SCFH of 0.6 S.G. Natural Gas)
Temp. Range	–20° to 150°F	–29° to 66°C
Weight Approximate		
1"	20 lbs	9 kg
2"	25 lbs	11.25 kg

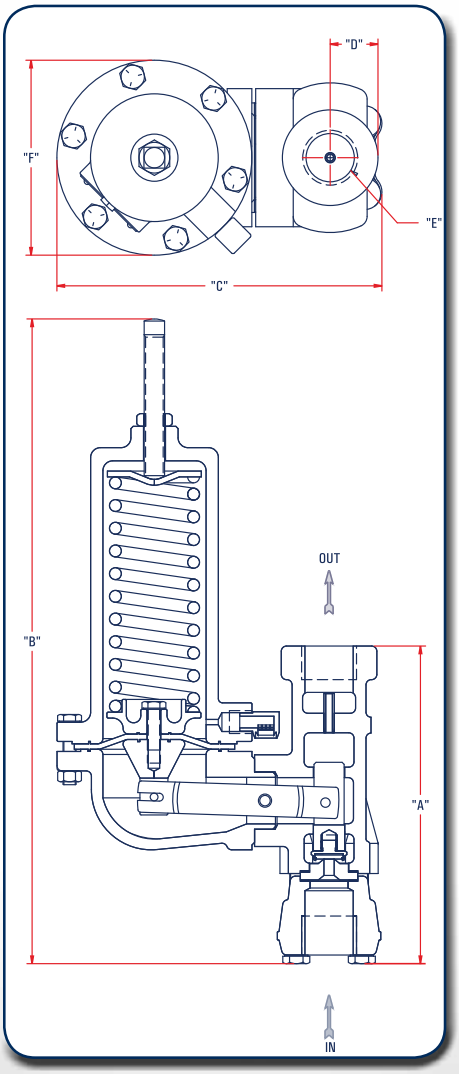
Wide Open Flow Coefficient for Relief Valve Sizing

Orifice Size (Inches)	C_v
1/8"	0.48
3/16"	1.11
1/4"	2.04
3/8"	4.60
1/2"	8.20

The P630 comes standard with durable stainless steel components for added corrosion protection and long life. All P630 steel units are manufactured to NACE MR0175 standards.

P630 Dimensions

	Body Size		A	B	C	D	E	F
High Pressure P630	1"	mm	193	392	198	29	1" NPT	119
		inches	7.61	15.45	7.79	1.15		4.67
	2"	mm	207	398	215	45	2" NPT	119
		inches	8.13	15.68	8.45	1.90		4.67
Low Pressure P630	1"	mm	193	392	231	29	1" NPT	184
		inches	7.61	15.45	9.09	1.15		7.25
	2"	mm	207	398	398	45	2" NPT	184
		inches	8.13	15.68	9.75	1.90		7.25



P630 Regulator Rebuild Kits

	Kit Includes	Part Number
P630 High Pressure, Ranges 27 - 50 PSIG and above	Neoprene diaphragms, Nylon valve disk, O-rings, back-up rings, and retaining pin	971-630-000
	Neoprene diaphragm, CTFE valve disk, one body gasket, and 2 orifice gaskets	971-630-100
	Fluorocarbon diaphragms (2), Nylon valve disk, one body gasket, and 2 orifice gaskets	971-630-200
	Fluorocarbon diaphragms (2), CTFE valve disk, one body gasket, and 2 orifice gaskets	971-630-300
P630 Low Pressure, Ranges 3 - 10 PSIG Thru 27 - 40 PSIG	Neoprene diaphragm, Nylon valve disk, one body gasket, and 2 orifice gaskets	971-630-400
	Neoprene diaphragm, CTFE valve disk, one body gasket, and 2 orifice gaskets	971-630-500
	Fluorocarbon diaphragms (2), Nylon valve disk, one body gasket, and 2 orifice gaskets	971-630-600
	Fluorocarbon diaphragms (2), CTFE valve disk, one body gasket, and 2 orifice gaskets	971-630-700

P630 Flow Capacities in SCFH of 0.6 S.G. Natural Gas at 20% Droop

Outlet Pressure Range	Outlet Pressure Setting		Inlet Pressure		1" Body Size Port Diameter, inches					2" Body Size Port Diameter, inches				
	PSIG	BAR	PSIG	BAR	1/8	3/16	1/4	3/8	1/2	1/8	3/16	1/4	3/8	1/2
3 to 10 PSIG (0.21 to 0.69 BAR)	5	0.34	10	0.69	200	510	990	1700	2200	290	830	1300	3300	5900
			20	1.4	400	770	1200	2000	2700	500	1200	2100	4800	9100
			30	2.1	600	1100	1500	2200	3300	760	1600	2700	7000	11,000
			50	3.5	950	1500	2100	2800	4200	1100	2200	3900	9800	17,000
			60	4.1	1100	1750	2400	3000	4100	1250	2700	4500	11,100	19,500
			75	5.2	1300	2100	2700	3400	4400	1500	3300	5400	13,000	23,000
			100	6.9	1700	2400	2900	4000	4900	1900	4300	7000	17,000	30,000
			150	10.3	2200	3000	3500	4600	5800	2800	6200	10,000	25,000	43,000
			200	13.8	3000	3400	4200	5100	6100	3700	8200	13,000	32,000	57,000
			250	17.2	3500	3800	4300	5900	6800	4500	10,200	17,000	38,000	70,000
			400	27.5	3700	3900	4500	6400		7200	16,000	28,000	64,000	
			500	34.5	4100	4300	4700	7400		9100	19,000	35,000	79,000	
			600	41.4	4300	4600	5000			10,000	24,000	42,000		
			1000	69	4600	4900	5600			18,000	39,000	69,000		
			1500	103	5000	5400				22,000	60,000			
	10	0.69	20	1.4	500	1200	1800	4200	4900	560	1300	2200	5100	9000
			30	2.1	700	1400	2800	4100	5300	770	1500	3000	7000	11,000
			50	3.5	1000	2300	4100	5100	6200	1100	2400	4300	9800	17,000
			60	4.1	1150	2700	4200	5500	6500	1250	2800	5000	11,100	19,500
			75	5.2	1400	3200	4400	6000	6800	1500	3400	5900	13,000	23,000
			100	6.9	1600	3800	5000	6400	7300	1900	4400	7600	17,000	30,000
			150	10.3	2400	4800	6200	7300	7900	2800	6200	11,000	25,000	43,000
			200	13.8	3300	5800	6900	7700	8200	3700	8100	14,000	33,000	57,000
			250	17.2	4000	5900	7300	8600	8700	4400	10,000	17,000	41,000	70,000
			400	27.6	5400	6900	7600	9000		7200	16,000	28,000	62,000	
			500	34.5	6000	7100	7900	9700		8900	19,000	35,000	76,000	
			600	41.4	6500	7300	8200			10,000	23,000	42,000		
			1000	69	7200	7700	8400			18,000	40,000	72,000		
			1500	103	7400	8400				27,000	60,000			

P630 Flow Capacities in SCFH of 0.6 S.G. Natural Gas at 20% Droop

BelGAS

Outlet Pressure Range	Outlet Pressure Setting		Inlet Pressure		1" Body Size					2" Body Size				
					Port Diameter, inches					Port Diameter, inches				
	PSIG	BAR	PSIG	BAR	1/8	3/16	1/4	3/8	1/2	1/8	3/16	1/4	3/8	1/2
8 to 20 PSIG (0.55 to 1.4 BAR)	10	0.69	20	1.4	500	700	1400	2200	3600	550	1200	1700	2500	4900
			30	2.1	700	1300	2100	3100	4300	760	1500	2500	4600	8800
			50	3.5	900	1900	3200	4300	5400	1000	2300	3800	7800	16,000
			60	4.1	1050	2300	3500	4700	5800	1200	2700	4500	9900	18,500
			75	5.2	1300	2800	4000	5200	6400	1500	3300	5600	13,000	23,000
			100	6.9	1600	3500	4600	5700	6900	1900	4300	7400	17,000	30,000
			150	10.3	2400	4400	5700	6800	7800	2800	6100	11,000	25,000	44,000
			200	13.8	3300	4800	6200	7500	8200	3600	8000	14,000	32,000	57,000
			250	17.2	4000	5800	7000	8000	8700	4400	9500	17,000	37,000	70,000
			400	27.6	5400	6500	7600	8900		7200	15,000	28,000	60,000	
			500	34.5	6000	6900	7900	9400		8800	19,000	35,000	74,000	
			600	41.4	6500	7000	8200			10,000	23,000	42,000		
			1000	69	7200	7700	8400			18,000	39,000	72,000		
			1500	103	7400	8100				27,000	60,000			
	15	1.0	20	1.4	470	1000	1700	3300	4900	520	1100	1800	3500	5700
			30	2.1	600	1500	2500	4600	5200	740	1600	2800	5900	10,000
			50	3.5	1000	2300	3800	5500	5700	1100	2400	4300	9800	16,000
			60	4.1	1150	2700	4300	6100	6800	1250	2800	5000	11,100	18,500
			75	5.2	1400	3300	5100	7000	8500	1500	3400	6000	13,000	23,000
			100	6.9	1900	4300	6200	7600	9600	1900	4400	7800	17,000	30,000
			150	10.3	2700	6100	7400	8000	9900	2800	6400	11,000	25,000	43,000
			200	13.8	3600	7500	8500	9600	10,000	3700	8300	14,000	31,000	57,000
			250	17.2	4700	8400	9100	10,000	11,000	4800	10,000	19,000	39,000	74,000
			400	27.6	7100	8700	10,000	11,000		7200	16,000	29,000	64,000	
			500	34.5	8300	8800	10,500	12,000		9200	20,000	37,000	82,000	
			600	41.4	8600	9600	10,800			11,000	23,000	42,000		
			1000	69	9600	10,000	11,000			18,000	40,000	71,000		
			1500	103	10,000	11,000				27,000	60,000			
	20	1.4	30	2.4	600	1500	2500	4600	6800	700	1600	2600	5200	9200
			40	2.8	800	2000	3400	5700	8100	900	2100	3500	7500	12,000
			50	3.5	1000	2300	4200	6800	9000	1100	2400	4300	9400	15,000
			60	4.1	1150	2700	4900	7500	9800	1250	2800	5100	11,000	18,000
			75	5.2	1400	3300	5900	8500	10,000	1500	3400	6100	13,000	23,000
			100	6.9	1800	4100	7400	9500	11,000	1900	4300	7800	17,000	29,000
			150	10.3	2700	6100	9200	11,000	12,000	2800	6300	11,000	23,000	42,000
			200	13.8	3600	8000	10,000	12,000	13,000	3700	8200	14,000	32,000	59,000
			270	18.6	4500	9800	11,000	13,000	14,000	4900	10,000	19,000	39,000	75,000
			400	27.6	7200	10,000	13,000	14,000		7300	16,000	28,000	63,000	
			520	35.0	8800	11,000	13,500	15,000		9500	20,000	37,000	82,000	
			600	41.4	10,000	12,000	13,800			11,000	24,000	43,000		
			1020	70.3	11,000	12,300	15,000			18,000	40,000	73,000		
			1500	103	12,000	13,000				27,000	60,000			
17 to 30 PSIG (1.17 to 2.1 BAR)	20	1.4	30	2.4	590	900	1700	3300	4700	680	1300	2100	3500	6000
			40	2.8	790	1700	2400	4000	6100	890	1800	2800	5100	8200
			50	3.5	900	2200	3600	4900	6900	1000	2300	3700	6200	10,000
			60	4.1	1050	2500	4000	5500	7400	1200	2700	4300	7400	12,500
			75	5.2	1300	3000	4500	6400	8100	1500	3300	5300	9200	16,000
			100	6.9	1700	4000	5500	7600	9700	1900	4200	6900	12,000	24,000
			150	10.3	2100	5500	7000	9600	11,000	2200	6100	10,000	21,000	40,000
			200	13.8	3400	6400	9100	11,000	12,000	3500	8000	13,000	32,000	56,000
			270	18.6	4400	8400	10,000	12,000	13,000	4800	10,000	19,000	39,000	75,000
			400	27.6	7000	8700	11,000	13,000		7100	15,000	28,000	63,000	
			520	35.9	8200	10,000	12,000	13,800		9300	20,000	37,000	82,000	
			600	41.4	9600	11,000	13,000			10,000	24,000	42,000		
			1020	70.3	10,000	12,000	14,000			18,000	40,000	72,000		
			1500	103	12,000	13,000				27,000	60,000			
	30	2.1	40	2.8	820	1700	2700	5100	7600	860	1800	2900	5300	8500
			50	3.5	900	2200	3600	6400	6700	1000	2300	3800	7300	11,000
			60	4.1	1100	2600	4400	7500	9800	1200	2700	4700	8900	14,000
			75	5.2	1400	3300	5400	8800	11,000	1500	3400	5800	11,000	18,000
			100	6.9	1700	4100	6800	10,000	12,000	1800	4200	7800	16,000	28,000
			150	10.3	2600	6000	9100	13,000	14,000	2700	6100	11,000	20,000	44,000
			200	13.8	3500	8000	11,000	14,000	16,000	3600	8100	14,000	24,000	58,000
			280	19.3	4900	10,500	13,000	15,000	17,000	5000	11,000	20,000	46,000	80,000
			400	27.6	6900	13,000	15,000	17,000		7000	16,000	28,000	64,000	
			530	36.5	9400	14,500	15,800	19,000		9500	20,000	37,000	86,000	
			600	41.4	9700	15,000	16,000			10,000	23,000	42,000		
			1030	71.0	16,000	18,000	18,000			19,000	41,000	73,000		
			1500	103	16,400	18,500				27,000	61,000			

P630 Flow Capacities in SCFH of 0.6 S.G. Natural Gas at 20% Droop

Outlet Pressure Range	Outlet Pressure Setting		Inlet Pressure		1" Body Size					2" Body Size				
					Port Diameter, inches					Port Diameter, inches				
	PSIG	BAR	PSIG	BAR	1/8	3/16	1/4	3/8	1/2	1/8	3/16	1/4	3/8	1/2
27 to 40 PSIG (1.86 to 2.8 BAR)	30	2.1	40	2.8	800	1500	2400	4400	6400	850	1600	2600	4500	7200
			50	3.5	900	2000	3200	5600	7700	1000	2200	3500	5900	9700
			60	4.1	1100	2500	3900	6300	8900	1200	2600	4200	7300	12,000
			75	5.2	1400	3000	4700	7700	10,000	1500	3200	5300	9400	15,000
			100	6.9	1700	3900	6400	9400	11,000	1800	4200	6900	12,000	23,000
			150	10.3	2600	5700	8800	12,000	14,000	2700	6100	10,000	20,000	39,000
			200	13.8	3500	7000	9400	14,000	15,000	3600	8100	13,000	24,000	57,000
			280	19.3	4900	10,000	13,000	15,000	16,000	5000	11,000	19,000	45,000	78,000
			400	27.6	6900	12,000	15,000	17,000		7000	15,000	28,000	64,000	
			530	36.5	9400	12,600	15,800	18,000		9500	20,000	37,000	85,000	
			600	41.4	9700	13,400	16,000			10,000	23,000	42,000		
			1030	71.0	16,000	16,000	18,000			19,000	41,000	73,000		
			1500	103	16,400	18,000				27,000	61,000			
	40	2.8	50	3.5	950	1800	3200	5500	8900	1000	2100	3400	5900	9900
			60	4.1	1100	2300	4100	7600	10,000	1200	2600	4300	7900	12,000
			75	5.2	1400	3000	5300	9300	12,000	1500	3400	5600	10,000	16,000
			100	6.9	1800	4100	7000	11,000	14,000	1900	4300	7200	13,000	24,000
			150	10.3	2700	6000	9500	14,000	17,000	2800	6200	10,000	22,000	39,000
			200	13.8	3500	7800	12,000	17,000	19,000	3600	8200	14,000	30,000	56,000
			290	20.0	5100	10,000	15,000	19,000	21,000	5200	11,000	20,000	46,000	81,000
			400	27.6	7100	15,000	18,000	21,000		7200	16,000	28,000	63,000	
			540	37.2	9500	17,000	19,000	22,000		9600	21,000	38,000	86,000	
			600	41.4	9800	18,000	21,000			10,000	23,000	42,000		
			1040	71.7	17,500	20,000	23,000			18,000	41,000	73,000		
			1500	103	20,000	22,000				27,000	61,000			
27 to 50 PSIG (1.86 to 3.4 BAR)	50	3.4	60	4.1	900	2000	3100	5200	8100	1000	2100	3200	5300	12,000
			75	5.2	1300	2800	3800	7200	10,000	1400	2900	3900	7300	16,000
			100	6.9	1700	3500	5700	10,500	13,000	1800	3600	5800	10,000	21,000
			150	10.3	2600	5700	8700	13,000	17,000	2700	5800	9000	15,000	36,000
			200	13.8	3500	7800	11,000	16,000	19,000	3600	7900	12,000	21,000	55,000
			300	20.7	5300	10,500	14,000	20,000	23,000	5500	11,000	19,000	48,000	83,000
			400	27.6	6900	13,000	17,000	23,000		7000	15,000	27,000	63,000	
			550	19.3	9600	16,000	20,000	26,000		9700	21,000	38,000	88,000	
			600	41.4	9800	17,000	21,000			10,000	23,000	42,000		
			1050	72.4	17,000	23,000	27,000			19,000	42,000	74,000		
			1500	103	19,000	25,000				27,000	60,000			
46 to 95 PSIG (3.2 to 6.5 BAR)	50	3.4	60	4.1	800	1500	2400	4300	6400	900	1600	2500	4400	7300
			75	5.2	1200	2100	3100	5500	8000	1300	2200	3200	6100	9300
			100	6.9	1500	3100	4200	7500	10,000	1600	3400	4300	7600	12,000
			150	10.3	2400	4500	6700	11,000	14,000	2500	4600	7100	12,000	19,000
			200	13.8	3400	6600	9400	14,000	17,000	3500	6700	9600	16,000	27,000
			300	20.7	5200	8900	11,000	16,000	20,000	5300	10,000	14,000	27,000	51,000
			400	27.6	6800	11,000	15,000	20,000		6900	13,000	21,000	46,000	
			550	19.3	9500	13,000	17,000	23,000		9600	18,000	29,000	87,000	
			600	41.4	9800	14,000	19,000			10,000	20,000	35,000		
			1050	72.4	14,000	19,000	22,000			18,000	41,000	73,000		
			1500	103	18,000	24,000				26,000	59,000			
	75	5.2	100	6.9	1700	3200	5000	8000	13,000	1800	3300	5200	9000	14,000
			125	8.6	2200	4300	6700	10,000	15,000	2300	4400	6900	11,000	18,000
			200	5.2	3500	7300	10,000	16,000	22,000	3600	7400	11,000	19,000	30,000
			250	17.2	4400	9400	13,000	19,000	24,000	4500	9500	14,000	26,000	44,000
			325	22.4	5700	11,000	16,000	23,000	27,000	5800	12,000	18,000	36,000	67,000
			400	27.6	7100	14,000	19,000	27,000		7200	15,000	24,000	47,000	
			575	39.6	9700	18,000	23,000	30,000		9800	22,000	37,000	92,000	
			600	41.4	9900	19,000	25,000			10,000	23,000	39,000		
			1075	74.1	18,000	27,000	32,000			19,000	42,000	75,000		
			1500	103	23,000	32,000				24,000	60,000			
90 to 150 PSIG (6.2 to 10.3 BAR)	100	6.9	125	8.6	2000	3600	5500	9200	13,000	2100	3700	5600	9800	15,000
			150	10.3	2500	4600	6800	11,000	16,000	2600	4900	7400	12,000	18,000
			200	5.2	3600	6600	9400	13,000	22,000	3700	6900	10,000	17,000	27,000
			250	17.2	4400	8500	11,000	18,000	26,000	4500	8700	13,000	22,000	34,000
			300	20.7	5300	9800	14,000	21,000	30,000	5400	10,000	16,000	27,000	44,000
			350	24.1	6100	10,000	16,000	25,000	32,000	6300	12,000	19,000	33,000	57,000
			400	27.6	7000	13,000	18,000	27,000		7200	14,000	21,000	39,000	
			600	41.4	9500	18,000	23,000	35,000		10,000	21,000	34,000	69,000	
			1100	75.8	19,500	28,000	35,000			19,000	43,000	74,000		
			1500	103	25,000	35,000				27,000	59,000			
	125	8.6	150	10.3	2400	4600	6700	11,000	17,000	2500	5000	8100	12,000	20,000
			200	5.2	3500	6800	10,000	15,000	23,000	3600	7400	11,000	19,000	30,000
			250	17.2	4300	8900	12,000	19,000	29,000	4400	9400	14,000	24,000	39,000
			300	20.7	5200	10,000	15,000	25,000	34,000	5300	11,000	17,000	31,000	48,000
			375	25.9	6600	13,000	18,500	28,000	39,000	7000	15,000	24,000	43,000	65,000
			400	27.6	7300	14,500	19,000	29,000		8300	18,000	28,000	56,000	
			500	34.5	7900	15,000	25,000	36,000		8800	19,000	30,000	59,000	
			625	43.1	10,000	22,000	29,000	41,000		11,000	24,000	40,000	79,000	
			1125	77.6	18,000	33,000	42,000			19,000	44,000	79,000		
			1500	103	26,000	43,000				27,000	60,000			

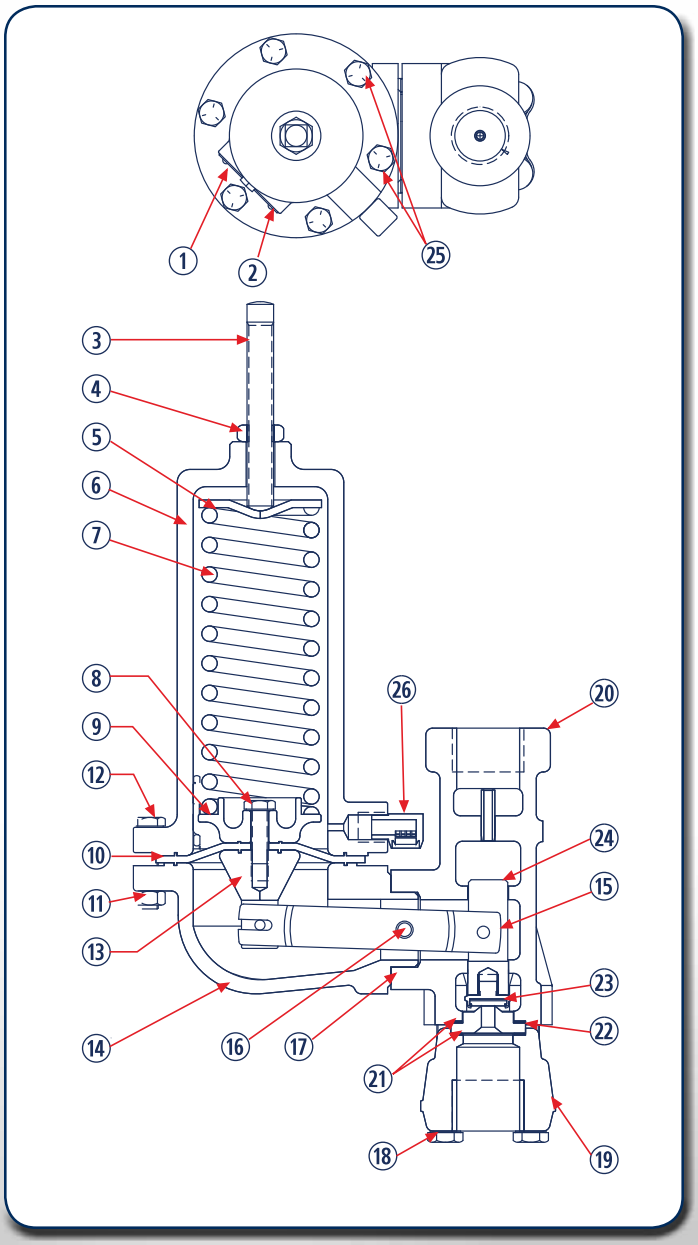
P630 Flow Capacities in SCFH of 0.6 S.G. Natural Gas at 20% Droop

BelGAS

Outlet Pressure Range	Outlet Pressure Setting		Inlet Pressure		1" Body Size					2" Body Size				
					Port Diameter, inches					Port Diameter, inches				
	PSIG	BAR	PSIG	BAR	1/8	3/16	1/4	3/8	1/2	1/8	3/16	1/4	3/8	1/2
90 to 150 PSIG (6.2 to 10.3 BAR)	150	10.3	200	13.8	3400	6800	10,000	16,000	26,000	3500	7300	11,000	18,000	30,000
			250	17.2	4400	8800	13,000	20,000	32,000	4500	9500	15,000	26,000	38,000
			300	20.7	5300	10,000	15,000	24,000	35,000	5400	11,000	19,000	32,000	52,000
			400	27.6	7100	14,000	22,000	34,000	42,000	7200	15,000	26,000	46,000	77,000
			450	31.0	7700	17,000	24,000	36,000		8100	18,000	29,000	54,000	
			650	44.8	9000	24,000	33,000	49,000		10,000	25,000	44,000	88,000	
			800	55.2	13,000	29,000	38,000			14,000	30,000	54,000		
			1150	79.2	20,000	38,000	49,000			21,000	46,000	78,000		
			1500	103	26,000	47,000				27,000	60,000			
150 to 200 PSIG (10.3 to 13.8 BAR)	150	10.3	200	13.8	3400	6200	9300	16,000	24,000	3500	6900	10,000	17,000	28,000
			250	17.2	4300	8800	12,000	20,000	27,000	4400	9000	13,000	23,000	36,000
			300	20.7	5300	10,000	15,000	24,000	30,000	5400	11,000	17,000	28,000	47,000
			400	27.6	7100	14,000	21,000	32,000	38,000	7200	15,000	24,000	40,000	66,000
			450	31.0	7600	15,000	24,000	36,000		8000	17,000	27,000	46,000	
			650	44.8	9000	21,000	33,000	48,000		10,000	22,000	40,000	74,000	
			800	55.2	13,000	27,000	37,000			14,000	30,000	51,000		
			1150	79.3	19,500	34,000	49,000			20,000	45,000	78,000		
			1500	103	26,000	44,000				27,000	60,000			
	200	13.8	250	17.2	4200	8300	12,000	20,000	30,000	4300	9100	13,000	23,000	42,000
			300	20.7	5200	10,000	16,000	25,000	35,000	5300	11,000	18,000	33,000	52,000
			450	31.0	7800	16,000	26,000	43,000	50,000	7900	17,000	29,000	52,000	84,000
			600	41.1	9500	22,000	34,000	55,000		10,000	23,000	40,000	75,000	
			700	48.3	11,000	25,000	40,000	61,000		12,000	27,000	47,000	90,000	
			800	55.2	13,000	30,000	43,000			14,000	31,000	54,000		
			1000	68.9	16,000	37,000	50,000			17,000	39,000	69,000		
			1200	82.7	20,000	41,000	59,000			21,000	48,000	83,000		
			1500	103	26,000	53,000				27,000	60,000			
200 to 275 PSIG (13.8 to 19 BAR)	200	13.8	250	17.2	4200	8200	11,000	20,000	29,000	4300	8900	12,000	23,000	35,000
			300	20.7	5200	10,000	14,500	25,000	35,000	5300	11,000	18,000	31,000	46,000
			450	31.0	7700	16,000	24,000	40,000	50,000	7800	17,000	28,000	50,000	78,000
			600	41.4	9500	22,000	31,000	51,000		10,000	23,000	38,000	70,000	
			700	48.3	11,000	25,000	35,000	55,000		12,000	27,000	45,000	83,000	
			800	55.2	13,000	29,000	42,000			14,000	31,000	52,000		
			1000	68.9	16,000	63,000	50,000			17,000	39,000	68,000		
			1200	82.7	19,000	41,000	55,000			20,000	46,000	83,000		
			1500	103	26,000	51,000				27,000	60,000			
	250	17.2	300	20.7	4900	9000	15,000	28,000	42,000	5000	10,000	17,000	30,000	52,000
			400	27.6	7000	14,000	23,000	40,000	56,000	7100	15,000	25,000	47,000	76,000
			500	34.5	8500	18,000	29,000	51,000	65,000	8600	19,000	34,000	62,000	103,000
			600	41.4	9500	22,000	34,000	59,000		10,000	23,000	41,000	78,000	
			750	51.7	12,500	28,000	44,000	69,000		13,000	29,000	51,000	106,000	
			1000	68.9	16,000	39,000	58,000			17,000	40,000	68,000		
			1200	82.7	21,000	49,000	69,000			22,000	50,000	87,000		
			1500	103	26,000	59,000				27,000	60,000			
	275	19	300	20.7	4700	9000	15,000	28,000	39,000	4800	10,000	17,000	29,000	43,000
			400	27.6	6900	14,000	25,000	40,000	54,000	7000	15,000	26,000	47,000	73,000
			525	36.2	8600	18,000	35,000	68,000	94,000	9200	20,000	36,000	69,000	112,000
			775	53.4	11,000	28,000	51,000	95,000		12,000	30,000	52,000	112,000	
			1000	68.9	16,000	39,000	67,000			17,000	40,000	68,000		
			1275	89.9	21,000	50,000	87,000			22,000	51,000	89,000		
			1500	103	26,000	60,000				26,000	61,000			
275 to 500 PSIG (19 to 34.5 BAR)	275	19	300	20.7	4500	7500	10,000	20,000	31,000	4600	8400	13,000	23,000	37,000
			400	27.6	6600	12,000	16,000	31,000	43,000	7000	13,000	20,000	32,000	53,000
			525	36.2	8600	16,000	21,000	39,000	56,000	9300	18,000	27,000	46,000	73,000
			775	53.4	11,000	24,000	32,000	55,000		13,000	28,000	44,000	73,000	
			1000	68.9	17,000	32,000	43,000			18,000	37,000	57,000		
			1275	87.9	21,000	40,000	53,000			22,000	48,000	77,000		
			1500	103	26,000	46,000				27,000	57,000			
	300	20.7	400	27.6	6600	11,000	16,000	31,000	42,000	7000	13,000	21,000	35,000	54,000
			550	38	9700	18,000	23,000	44,000	63,000	9800	20,000	30,000	52,000	78,000
			600	41.4	9900	19,000	26,000	48,000		10,000	21,000	34,000	59,000	
			700	48.3	11,000	23,000	30,000	54,000		12,000	26,000	40,000	72,000	
			800	55.2	13,000	26,000	35,000	61,000		14,000	29,000	47,000	81,000	
			900	62.1	15,000	29,000	39,000			16,000	34,000	53,000		
			1300	90	22,000	43,000	58,000			23,000	50,000	80,000		
			1500	103	26,000	49,000				27,000	58,000			
	400	27.6	500	34.5	8300	16,000	24,000	44,000	62,000	8800	17,000	28,000	49,000	77,000
			600	41.4	10,000	24,000	33,000	61,000	86,000	11,000	25,000	40,000	75,000	112,000
			800	55.2	13,000	30,000	41,000	76,000		14,000	31,000	51,000	95,000	
			900	62.1	15,000	34,000	49,000	85,000		16,000	36,000	58,000	110,000	
			1000	68.9	17,000	38,000	54,000			18,000	40,000	66,000		
			1200	82.7	20,000	46,000	63,000			21,000	48,000	80,000		
			1400	96.5	24,000	55,000	76,000			25,000	57,000	96,000		
			1500	103	26,000	60,000				27,000	61,000			
	500	34.5	500	34.5	8700	16,000	26,000	50,000	77,000	9000	18,000	30,000	53,000	89,000
			750	51.7	12,000	28,000	40,000	78,000	100,000	13,000	29,000	48,000	90,000	141,000
			900	62.1	15,000	34,000	52,000	92,000		16,000	35,000	60,000	113,000	
			1000	68.9	17,000	39,000	60,000	100,000		18,000	40,000	67,000	130,000	
			1500	103	26,000	59,000	72,000			27,000	60,000	82,000		

P630 Parts

Item	Description			Part Number
1	Nameplate (requires 4 drive screws for mounting)			632-472-000
2	Drive Screw (4 required)			648-464-000
3	Adjusting Screw Spring Range	3-10 PSIG	Low Pressure Spring Ranges	648-462-002
		8-20 PSIG		648-462-001
		17-30 PSIG		648-462-000
		27-40 PSIG		648-462-000
		27-50 PSIG	High Pressure Spring Ranges	648-462-002
		46-95 PSIG		648-462-001
		90-150 PSIG		648-462-000
		150-200 PSIG		648-462-000
		200-275 PSIG		648-462-000
		275-500 PSIG		648-462-000
4	Hex Nut			634-000-056
5	Upper spring guide - Pressure range to 275 PSIG			626-077-000
	Upper spring guide - Over 275 PSIG			626-078-000
6	Bonnet - Iron (27-50 PSIG thru 275-500 PSIG ranges)			604-204-000
	Bonnet - Steel (27-50 PSIG thru 275-500 PSIG ranges)			604-205-000
	Bonnet - Iron (3-10 PSIG thru 27-40 PSIG ranges)			604-233-000
	Bonnet - Steel (3-10 PSIG thru 27-40 PSIG ranges)			604-234-000
7	Range Spring	3-10 & 27-50 PSIG – Red Stripe	Low Pressure	655-659-000
		8-20 & 46-95 PSIG – Olive Drab		655-659-001
		17-30 & 90-150 PSIG – Silver		655-659-002
		27-40 & 150-200 PSIG – Green Stripe	High Pressure	655-659-003
		200-275 PSIG – Blue Stripe		655-659-004
		275-500 PSIG – Yellow Stripe		655-659-005
8	Diaphragm Screw			648-463-000
9	Lower spring guide - 3-10 PSIG thru 27-40 PSIG			626-095-000
	Lower spring guide - 27-50 PSIG thru 200-275 PSIG			637-304-000
	Lower spring guide - 275-500 PSIG			637-305-000
10	Diaphragm	Neoprene (27-50 PSIG Thru 275-500 PSIG)		618-068-000
		Fluorocarbon (2 required for 27-50 PSIG thru 275-500 PSIG)		618-068-001
		Neoprene (3-10 PSIG thru 27-40 PSIG)		618-073-000
		Fluorocarbon (2 required for 3-10 PSIG thru 27-40 PSIG)		618-073-001
11	Hex nut for the iron diaphragm housing (4 required for ranges 27-50 PSIG or greater, 10 required for 3-10 PSIG thru 27-40 PSIG)			634-000-112
12	Build Screws	For the iron diaphragm housing (4 required for 27-50 PSIG thru 275-500 PSIG ranges)		648-463-003
		For the steel diaphragm housing (4 required for 27-50 PSIG Thru 275-500 PSIG ranges)		648-463-005
		For the iron diaphragm housing (10 required for 3-10 PSIG Thru 27-40 PSIG ranges)		648-463-003
		For the steel diaphragm housing (10 required for 3-10 PSIG Thru 27-40 PSIG ranges)		648-463-007
13	Connector piston assembly Aluminum trim			827-004-000
	Connector piston assembly Stainless Steel trim			827-004-001
	Connector piston assembly Aluminum trim, NACE			827-006-000
	Connector piston assembly Stainless Steel trim, NACE			827-006-001
14	Diaphragm Housing	Iron (27-50 PSIG Thru 275-500 PSIG)		629-199-000
		Steel (27-50 PSIG Thru 275-500 PSIG)		629-200-000
		Iron (3-10 PSIG Thru 27-40 PSIG)		629-224-000
		Steel (3-10 PSIG Thru 27-40 PSIG)		629-225-000
15	Lever Assembly	(27-50 PSIG Thru 275-500 PSIG)		827-003-000
		NACE (27-50 PSIG Thru 275-500 PSIG)		827-007-000
		All Low Pressure, (3-10 PSIG Thru 27-40 PSIG)		827-010-000
16	Pin			635-052-000
17	Gasket - Composite			624-056-000



Item	Description		Part Number
18	Build screw	1" body (4 required)	648-463-004
		2" body (4 required)	648-463-006
19	Inlet adapter	1 NPT 1030 Carbon Steel	679-036-000
		2 NPT 1030 Carbon Steel	679-037-000
20	Body	1 NPT Iron	805-308-001
		1 NPT Steel	805-308-000
		2 NPT Iron	664-277-000
		2 NPT Steel	664-279-000
21	Body Gaskets Composite (2 required)		624-058-000
22	Orifice	1/8"	688-010-000
		3/16"	688-010-001
		1/4"	688-010-002
		3/8"	688-010-003
		1/2"	688-010-004
23	Seat Assembly	SS holder/nylon disk	822-018-000
		SS holder/TFE disk	822-018-001
24	Valve Carrier		673-017-000
25	Build screw for steel diaphragm housing (2 required)		648-463-001
26	Vent protector assembly		836-004-000
27	Cap screws (Body to Housing) not shown		648-463-002
28	NACE Tag (not shown-Steel Units only)		632-503-000
29	Piston - 3-10 PSIG thru 27 - 40 PSIG Ranges only		637-315-000

P630R High Flow Gas Relief Valve

- Stainless Steel Internals are Standard
- Steel Units comply with NACE MR0175
- Durable Powder Coated Exterior
- High Flow Capacities

Applications

- Compressor Stations
- Refineries
- High Pressure Plants

The BelGAS P630R is a spring loaded, adjustable relief valve designed for relief pressure settings from 3 PSIG to 250 PSIG (0.21 to 17.3 BAR). The heavy duty construction, made possible by the addition of stainless steel internal components and a powder-coated epoxy exterior finish, makes it ideally suited for the oil and gas industries. All P630 steel units meet NACE MR0175 material requirements for corrosive (sour gas) environments.

Materials of Construction

Body, Bonnet	Cast Iron
	Steel (1030 WCB)
Diaphragm	Neoprene
	Fluorocarbon
Seat	Nylon
	TFE
Orifice	316 Stainless Steel

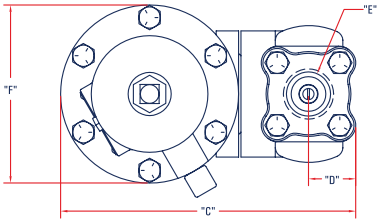
P630R Part Matrix

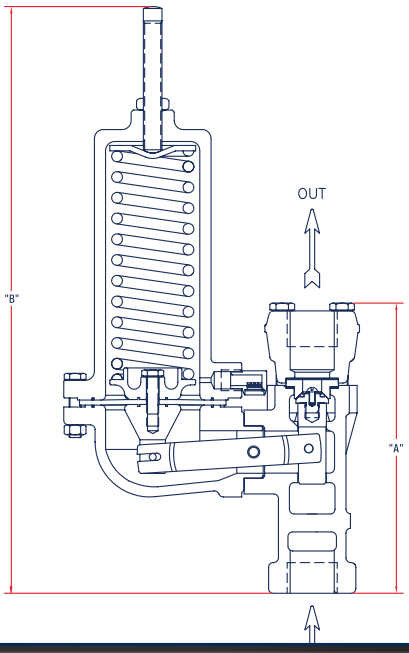
P630R				8	0				
								Body Size	
	08							1"	
	16							2"	
								Spring Range	
								PSIG	BAR
		008						3 - 8	0.21 - 0.55
		017						6 - 17	0.41 - 1.17
		022						15 - 22	1.02 - 1.52
		035						20 - 35	1.38 - 2.41
		050						35 - 50	2.41 - 3.45
		070						30 - 70	2.1 - 4.8
		095						50 - 95	3.4 - 6.6
		175						75 - 175	5.2 - 12.1
		250						150 - 250	10.3 - 17.2
				0				Standard NPT Units	
								Flanged Connections	
				A				150 # RF*	
				B				300 # RF*	
				C				600 # RF*	
						2		Diaphragm	
						2		Fluorocarbon	
						3		Neoprene	
								Casing Material	
							0	Cast Iron	
							1	Steel	

Low Pressure Spring Ranges

High Pressure Spring Ranges

*Steel Units Only





Specifications

Maximum Allowable Relief Inlet	Relief Pressure Setting Plus 250 PSIG	
Outlet	3–250 PSIG	
Body Sizes	1 NPT	
	2 NPT	
Outlet Ranges		
	3 – 8 PSIG	Low Pressure
	6 – 17 PSIG	
	15 – 22 PSIG	
	20 – 35 PSIG	
	35 – 50 PSIG	
	30 – 70 PSIG	High Pressure
	50 – 95 PSIG	
	75 – 175 PSIG	
	150 – 250 PSIG	
Temp. Range	–20º to 150ºF	–29º to 66ºC
Orifice Size	1/2"	
Weight Approximate		
1"	20 lbs	9 kg
2"	25 lbs	11.25 kg

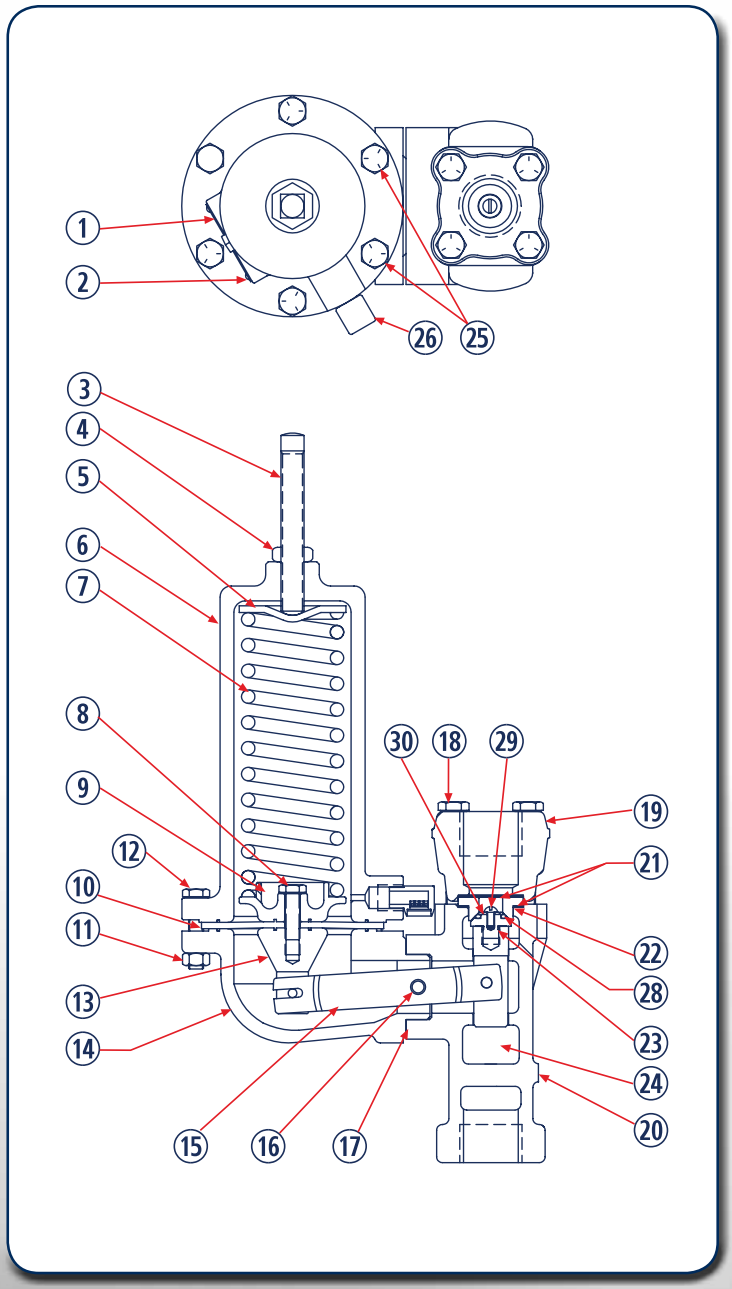
Body Size		A	B	C	D	E	F
1" P630R High Pressure	mm	193	391	198	29	1" NPT	119
	inches	7.61	15.39	7.79	1.15		4.67
2" P630R High Pressure	mm	211	398	215	45	2" NPT	119
	inches	8.31	15.66	8.45	1.90		4.67
1" P630R Low Pressure	mm	193	391	231	29	1" NPT	184
	inches	7.61	15.39	9.09	1.15		7.25
2" P630R Low Pressure	mm	211	398	248	45	2" NPT	184
	inches	8.31	15.66	9.75	190		7.25

P630R Parts

Item	Description		Part Number
1	Nameplate (requires 4 drive screws for mounting)		632-472-000
2	Drive Screw (4 required)		648-464-000
3	Adjusting Screw	Spring Ranges	
		3-8 PSIG	648-462-002
		6-17 PSIG	648-462-001
		15-22 PSIG	648-462-000
		20-35 PSIG	648-462-004
		35-50 PSIG	648-462-004
		30-70 PSIG	648-462-001
		50-95 PSIG	648-462-000
		75-175 PSIG	648-462-003
		150-250 PSIG	648-462-003
4	Hex Nut		634-000-056
5	Upper Spring Guide	Pressure Ranges: 3-8, 6-17, 15-22, 20-35, & 30-70, 50-95 & 75-175 PSIG	626-077-000
		Pressure Ranges: 35-50 & 150-250 PSIG	626-078-000
6	Bonnet - Iron (30-70 PSIG thru 150-250 PSIG)		604-204-000
	Bonnet - Steel (30-70 PSIG thru 150-250 PSIG)		604-205-000
	Bonnet - Iron (3-8 PSIG thru 35-50 PSIG)		604-233-000
	Bonnet - Steel (3-8 PSIG thru 35-50 PSIG)		604-234-000
7	Range Spring	3-8 PSIG	655-659-000
		6-17 PSIG	655-659-001
		15-22 PSIG	655-659-002
		20-35 PSIG	655-659-003
		35-50 PSIG	655-659-004
		30-70 PSIG	655-659-001
		50-95 PSIG	655-659-002
		75-175 PSIG	655-659-003
		150-250 PSIG	655-659-004
8	Diaphragm Screw		648-463-000
9	Lower Spring Guide	3-8 PSIG	626-095-000
		6-17 PSIG	
		15-22 PSIG	
		20-35 PSIG	
		35-50 PSIG	
		30-70 PSIG	637-304-000
		50-95 PSIG	
		75-175 PSIG	
		150-250 PSIG	637-305-000
10	Pressure Ranges: 3-8, 6-17, 15-22, 20-35, & 35-50 PSIG		
	Diaphragm	Neoprene	618-073-000
		Fluorocarbon (2 required)	618-073-001
	Pressure Ranges: 30-70, 50-95, 75-175, & 150-250 PSIG		
	Diaphragm	Neoprene	618-068-000
		Fluorocarbon (2 required)	618-068-001
11	Hex nut for the iron diaphragm housing	Pressure Ranges: 3-8, 6-17, 15-22, 20-35, & 35-50 PSIG (10 Required)	634-000-112
		Pressure Ranges: 30-70, 50-95, 75-175, & 150-250 PSIG (4 Required)	

Item	Description		Part Number
12	Build Screws	For the Iron Diaphragm Housing Ranges: 3-8, 6-17, 15-22, 20-35, & 35-50 PSIG (10 Required)	648-463-003
		For the Steel Diaphragm Housing Ranges: 3-8, 6-17, 15-22, 20-35, & 35-50 PSIG (10 Required)	648-463-007
		For the Iron Diaphragm Housing Ranges: 30-70, 50-95, 75-175, & 150-250 PSIG (4 Required)	648-463-003
		For the Steel Diaphragm Housing Ranges: 30-70, 50-95, 75-175, & 150-250 PSIG (4 Required)	648-463-005
13	Connector piston assembly Aluminum trim		827-004-000
	Connector piston assembly Stainless Steel trim		827-004-001
	Connector piston assembly Aluminum trim, NACE		827-006-000
	Connector piston assembly Stainless Steel trim, NACE		827-006-001
14	Diaphragm Housing	Iron (Ranges: 3-8, 6-17, 15-22, 20-35, & 35-50 PSIG)	629-224-000
		Steel (Ranges: 3-8, 6-17, 15-22, 20-35, & 35-50 PSIG)	629-225-000
		Iron (Ranges: 30-70, 50-95, 75-175, & 150-250 PSIG)	629-199-000
		Steel (Ranges: 30-70, 50-95, 75-175, & 150-250 PSIG)	629-200-000
15	Lever Assembly	(Ranges: 3-8, 6-17, 15-22, 20-35, & 35-50 PSIG)	827-010-000
		(Ranges: 30-70, 50-95, 75-175, & 150-250 PSIG)	827-003-000
		NACE units only (Ranges: 30-70, 50-95, 75-175, & 150-250 PSIG)	827-007-000
16	Pin		635-052-000
17	Gasket - Composite		624-056-000
18	Build screw	1" body (4 required)	648-463-004
		2" body (4 required)	648-463-006
19	Inlet adapter	1 NPT 1030 Carbon Steel	679-036-000
		2 NPT 1030 Carbon Steel	679-037-000
20	Body	1 NPT Iron	805-308-001
		1 NPT Steel	805-308-000
		2 NPT Iron	664-277-000
		2 NPT Steel	664-279-000
21	Body Gaskets Composite (2 required)		624-058-000
22	Orifice	1/2"	650-126-000
23	Seat Housing, SS		629-214-000
24	Valve Carrier		673-017-000
25	Build screw for steel diaphragm housing (2 required)		648-463-001
26	Vent protector assembly		836-004-000
27	Cap screws (Body to Housing) not shown		648-463-002
28	O-ring, Neoprene		649-292-000
	O-ring, Fluorocarbon		649-300-000
29	Housing Screw		648-486-000
30	Housing Plate		638-064-000

P630R High Flow Gas Relief Valve



Relief Capacity Table - P630R High Pressure

Initial Relief Pressure Setting		Capacities, SCFH of 0.6 S.G. Natural Gas	
		10% Pressure Increase	20% Pressure Increase
PSIG	BAR	SCFH	SCFH
50	3.4	2900	7100
75	5.2	2700	7480
250	6.9	3260	9670
125	8.6	5500	14,200
175	12.1	5480	19,000
250	17.2	13,500	48,000

Note: Maximum working pressure above setting is 250 PSIG (17.2 BAR)

Relief Capacity Table - P630R Low Pressure

Initial Relief Pressure Setting		Capacities, SCFH of 0.6 S.G. Natural Gas	
		10% Pressure Increase	20% Pressure Increase
PSIG	BAR	SCFH	SCFH
5	0.35	640	2710
10	0.69	1420	2900
15	1.0	2000	4200
20	1.4	2130	4450
35	2.4	3030	7230
50	3.4	4900	14000

Note: Maximum working pressure above setting is 250 PSIG (17.2 BAR)

Spring Range

Spring Range	Adj. Screw (3)	Range Spring (7)	Spring Color Code
3 - 8 PSIG	648-462-002	655-659-000	Red Stripe
6 - 17 PSIG	648-462-001	655-659-001	Olive Drab
15 - 22 PSIG	648-462-000	655-659-002	Silver
20 - 35 PSIG	648-462-004	655-659-003	Green Stripe
35 - 50 PSIG	648-462-004	655-659-004	Blue Stripe
30 - 70 PSIG	648-462-001	655-659-001	Olive Drab
50 - 95 PSIG	648-462-000	655-659-002	Silver
75 - 175 PSIG	648-462-003	655-659-003	Green Stripe
150 - 250 PSIG	648-462-003	655-659-004	Blue Stripe

P630R Relief Valve Rebuild Kits

	Kit Includes	Part Number
Pressure Ranges: 30 - 70 PSIG thru 150-250 PSIG	Neoprene diaphragms, nitrile O-ring, seat housing assembly and 2 orifice disks	971-630-R00
Pressure Ranges: 30 - 70 PSIG thru 150-250 PSIG	Fluorocarbon diaphragms, fluorocarbon O-ring, seat housing assembly and 2 orifice gaskets	971-630-R01
Pressure Ranges: 3 - 8 PSIG thru 35 - 50 PSIG	Low pressure Neoprene diaphragm, nitrile O-ring, seat housing assembly and 2 orifice disks	971-630-R02
Pressure Ranges: 3 - 8 PSIG thru 35 - 50 PSIG	Low pressure fluorocarbon diaphragms, fluorocarbon O-ring, seat housing assembly and 2 orifice disks	971-630-R03
P630R Conversion Kit (Nitrile Diaphragm)	Kit includes: Seat Assembly and Orifice	971-635-000
P630R Conversion Kit (Fluorocarbon Diaphragm)	Kit includes: Seat Assembly and Orifice	971-635-001

Notes:


BelgÅs
PART NO.
TYPE
DATE
TRIM
LOT
RANGE
CASING PRESS
MAX INLET
AT TEMP

P95H Regulator

- Large Capacity
- Working Media Include Air, Steam and Liquids
- All Vents are Tapped

The P95H is a direct operating pressure reducing regulator with large capacity. Ideally suited for uses in oil and gas, process gases, steam and liquids. Available in 3 spring ranges and metal or elastomer diaphragm and orifice seat materials.

Applications

- Steam Injection
- In Line Gas and Liquid Control
- Chemical Boilers, Process Heaters

P95H Part Matrix

P95H				0	0				
	▲	▲	▲	▲	▲	▲	▲	▲	Body Size
	04								1/2 NPT
	06								3/4 NPT
	08								1 NPT
									Spring Range
									PSIG / BAR
	030								15 - 30 / 1 - 2.1
	075								25 - 75 / 1.7 - 5.2
	150								70 - 150 / 9 - 10.3
									Options
		0							Standard
		A							150* RF
		B							300* RF
		C							600* RF
		D							Socket Weld*
									Valve Plug / Orifice Material
			A						416 SS (Metal / Metal)
			C						416 SS / Neoprene
			G						Brass / Neoprene
									Diaphragm Material
				0					302 SS
				3					Neoprene
									Case / Body Material
					0				Iron / Iron
					1				Steel / Steel
					3				Iron / Steel

* Steel Bodies Only

Specifications

Maximum Inlet		
	250 PSIG	Iron / NPT
	300 PSIG	Steel / NPT
Pressure Ranges	15–30 PSIG	
	25–75 PSIG	
	70–150 PSIG	
Body Size	1/2 NPT	
	3/4 NPT	
	1 NPT	
Temp. Range	-40˚F to 450˚F	-40˚C to 208˚C
Weight Approximate		
1/2"	8 lb	3.6 kg
3/4"	19 lb	8.6 kg
1"	19 lb	8.6 kg

Materials of Construction

Body, Bonnet, Diaphragm Case	
Options	Cast Iron
	Steel
Diaphragm	
Options	SS Steel 302SS
	Neoprene
Supply Valve Shutoff	
Options	Metal to Metal
	Metal to Elastomer

P95H Flow Coefficients

Body Size, Inches	Wide Open Coefficients (For Relief Sizing)			C_1	K_m
	C_v	C_G	C_S		
1/2	1.9	67	3.35	35	.71
3/4, 1	4.4	156	7.80	35	.67

P95H Maximum Pressures

Nominal Body Size, Inches (DN)	Body and Spring Case Materials	End Connections	Max Inlet Pressure		Max Outlet Pressure	
			PSIG	BAR	PSIG	BAR
1/2, 3/4, 1	Cast Iron	NPT	250	17.2	150	10.3
	Steel	150RF	285	19.7	150	10.3
	Steel	300RF	300	20.7	150	10.3

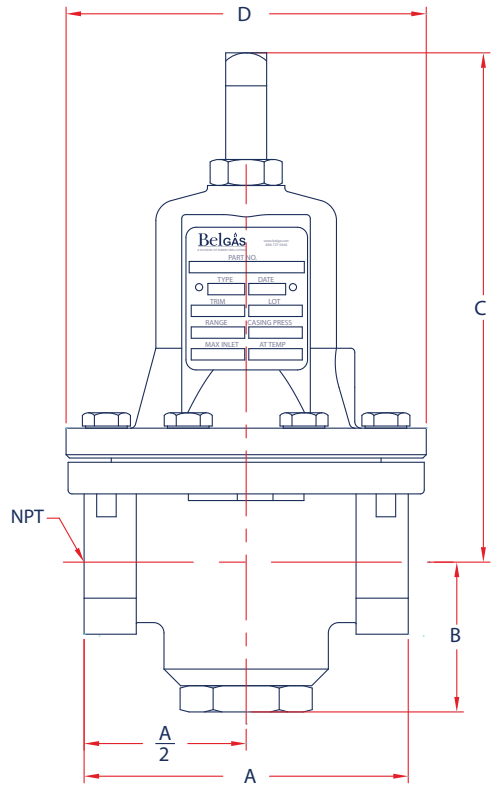
Spring Range

Body Size	PSIG	BAR	Spring Color Code
1/2, 3/4 and 1 NPT	15 - 30	1 - 2.1	Yellow
	25 - 75	1.7 - 5.2	Green
	70 - 150	9 - 10.3	Red

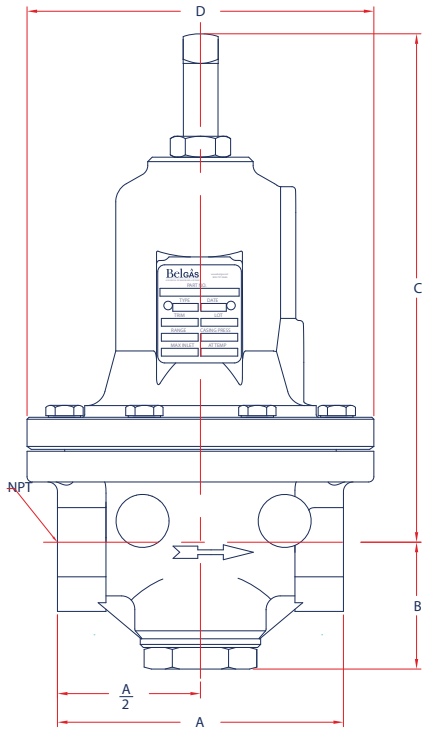
P95H Dimension, Inches

Nominal Body Size, Inches	A	B	C	D
1/2	3.90	1.80	6.12	4.33
3/4, 1	5.13	2.2	9.1	6.22

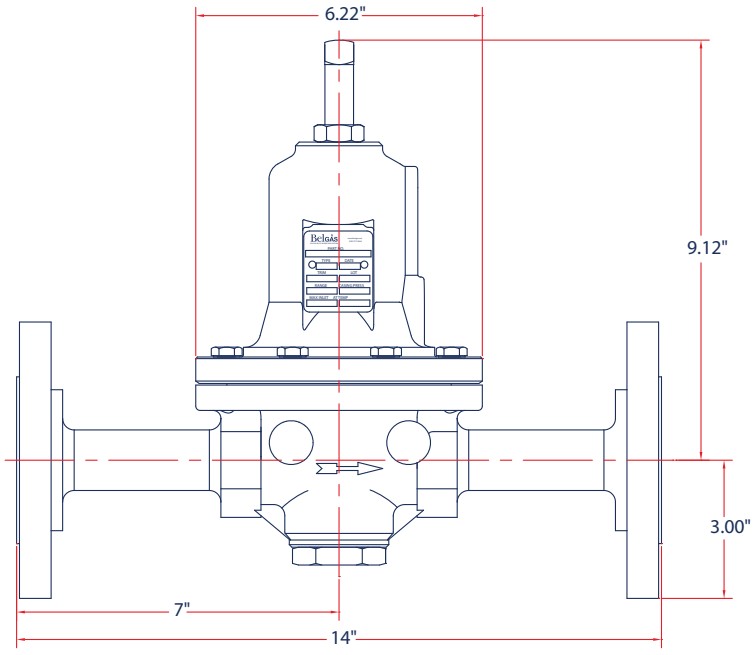
1/2 NPT



3/4 & 1 NPT



Flanged 3/4 & 1 NPT



P95H Regulator Rebuild Kits

	Kit Includes	Part Number
P95H 1/2" Repair Kits	302SS Diaphragms(2), Diaphragm Gasket, 416SS Orifice, 416SS/Neoprene Valve Plug, Valve Spring	971-P95-100
	302SS Diaphragms(2), Diaphragm Gasket, 416SS/M to M Orifice, 416SS/M to M Valve Plug, Valve Spring	971-P95-101
	Neoprene Diaphragm, 416SS Orifice, 416SS/Neoprene Valve Plug, Valve Spring	971-P95-102
	Neoprene Diaphragm, Brass Orifice, Brass/Neoprene Valve Plug, Valve Spring	971-P95-103
P95H 3/4" & 1" Repair Kits	302SS Diaphragms(2), Diaphragm Gasket, 416SS Orifice, 416SS/Neoprene Valve Plug, Valve Spring	971-P95-000
	302SS Diaphragms(2), Diaphragm Gasket, 416SS/M to M Orifice, 416SS/M to M Valve Plug, Valve Spring	971-P95-001
	Neoprene Diaphragm, 416SS Orifice, 416SS/Neoprene Valve Plug, Valve Spring	971-P95-002
	Neoprene Diaphragm, Brass Orifice, Brass/Neoprene Valve Plug, Valve Spring	971-P95-003

P95H Steam Capacities[1] with Metal Diaphragm

Outlet Pressure Range	Outlet Pressure Setting		Inlet Pressure		1/2" Body Size			3/4" Body Size			1" Body Size		
					Offset			Offset			Offset		
	PSIG	BAR	PSIG	BAR	10%	20%	40%	10%	20%	40%	10%	20%	40%
15 to 30 PSIG (1.0 to 2.1 BAR)	15	1.0	30	2.1	27	42	66	66	93	150	66	99	160
			40	2.8	27	45	69	81	110	190	78	130	200
			50	3.5	27	45	66	87	130	200	100	160	250
			75	5.2	36	54	81	110	170	250	140	210	330
			100	6.9	42	63	87	120	180	270	160	240	360
			150	10.3	54	72	96	150	210	300	210	300	450
			200	13.8	66	84	110	180	240	330	260	360	480
			250	17.2	63	93	120	200	260	330	260	360	510
			300	20.7	81	99	130	220	290	360	300	420	540
	30	2.1	40	2.8	45	69	110	87	140	190	96	160	200
			50	3.5	39	63	100	120	180	230	120	200	250
			75	5.2	54	84	130	170	260	360	160	280	360
			100	6.9	60	90	130	190	290	420	220	330	480
			150	10.3	72	110	160	230	360	480	300	450	660
			200	13.8	93	130	170	280	360	510	360	540	780
			250	17.2	110	140	190	270	390	540	420	600	810
			300	20.7	120	150	200	300	420	570	450	630	840
25 to 75 PSIG (1.7 to 5.2 BAR)	50	3.4	60	4.1	36	60	110	120	200	270	130	220	280
			75	5.2	42	69	120	180	260	360	190	290	360
			100	6.9	63	87	150	220	330	450	210	390	480
			150	10.3	75	110	170	250	390	630	480	540	720
			200	13.8	93	140	200	330	510	720	450	720	930
			250	17.2	93	140	210	350	540	750	510	780	1100
			300	20.7	110	150	220	360	540	780	570	810	1100
	75	5.2	100	6.9	69	110	190	240	360	450	260	390	450
			125	8.6	78	130	220	330	480	570	390	510	600
			150	10.3	96	140	230	360	540	660	390	630	750
			200	13.8	110	170	260	420	630	720	510	840	960
			250	17.2	120	180	290	480	720	780	660	990	1100
			300	20.7	140	210	300	480	750	840	690	1100	1400
70 to 150 PSIG (4.8 to 10.3 BAR)	100	6.9	125	8.6	100	170	260	260	420	540	330	480	570
			150	10.3	120	200	330	360	540	660	420	600	690
			175	12.0	140	230	360	390	630	780	480	750	840
			200	13.8	160	250	390	450	690	900	480	810	960
			250	17.2	130	270	420	450	750	1100	630	1000	1200
			300	20.7	240	330	450	570	870	1200	780	1100	1400
	125	8.6	150	10.3	160	250	330	360	540	630	390	600	690
			175	12.0	150	270	390	390	630	750	450	690	810
			200	13.8	170	280	420	480	750	870	510	840	930
			225	15.5	200	330	480	510	840	990	570	900	1100
			250	17.2	210	390	510	540	870	1100	600	1000	1200
			300	20.7	210	390	570	630	960	1400	780	1200	1400
	150	10.3	175	12.0	170	290	360	420	600	870	480	660	780
			200	13.8	200	330	420	480	720	870	600	780	900
			225	15.5	210	360	480	600	870	990	660	900	1100
			250	17.2	270	420	540	600	900	1100	780	1100	1200
			300	20.7	260	450	600	690	1100	1400	930	1300	1400

1. Capacities are based in Pounds of saturated steam per hour.

P95H Pressure Ranges

Nominal Body Size, Inches	Outlet or Differential Pressure Range[1]		Spring Wire Diameter		Spring Part Number	Spring Color
	PSIG	BAR	Inches	mm		
1/2	15 to 30	1.0 to 2.1	.218	5.54	655-714-000	Yellow
	25 to 75	1.7 to 5.2	.235	5.97	655-690-000	Green
	70 to 150	4.8 to 10.3	.281	7.14	655-714-001	Red
3/4, 1	15 to 30	1.0 to 2.1	.306	7.77	655-712-000	Yellow
	25 to 75	1.7 to 5.2	.343	8.71	655-712-001	Green
	70 to 150	4.8 to 10.3	.406	10.31	655-712-002	Red

P95H Air SCFH Capacities with Elastomer Diaphragm

Outlet Pressure Range	Outlet Pressure Setting		Inlet Pressure		1/2" Body Size			3/4" Body Size			1" Body Size		
					Offset			Offset			Offset		
	PSIG	BAR	PSIG	BAR	10%	20%	40%	10%	20%	40%	10%	20%	40%
15 to 30 PSIG (1.0 to 2.1 BAR)	15	1.0	30	2.1	900	1400	2200	2200	3100	4900	2200	3300	5400
			40	2.8	900	1500	2300	2700	3800	6200	2600	4200	6500
			50	3.5	900	1500	2200	2900	4300	6800	3400	5400	8200
			75	5.2	1200	1800	2700	3800	5500	8400	4800	7000	11,000
			100	6.9	1400	2100	2900	4000	6000	9000	5400	8000	12,000
			150	10.3	1800	2400	3200	5000	7000	10,000	7000	10,000	15,000
			200	13.8	2200	2800	3600	6000	8000	11,000	8700	11,700	16,000
			250	17.2	2100	3100	3900	6800	8700	11,000	8500	12,000	17,000
			300	20.7	2700	3300	4300	7400	9600	12,000	10,000	14,000	18,000
	30	2.1	40	2.8	1500	2300	3500	2900	4500	6200	3200	5200	6600
			50	3.5	1300	2100	3400	4000	6000	7800	4000	6600	8300
			75	5.2	1800	2800	4200	5700	8500	12,000	5400	9300	12,000
			100	6.9	2000	3000	4400	6300	9800	14,000	7400	11,000	16,000
			150	10.3	2400	3800	5300	7700	12,000	16,000	10,000	15,000	22,000
			200	13.8	3100	4300	5800	9200	12,000	17,000	12,000	18,000	26,000
			250	17.2	3500	4600	6300	9000	13,000	18,000	14,000	20,000	27,000
			300	20.7	4000	4900	6600	10,000	14,000	19,000	15,000	21,000	28,000
25 to 75 PSIG (1.7 to 5.2 BAR)	50	3.4	60	4.1	1200	2000	3800	4000	6700	9000	4400	7200	9200
			75	5.2	1400	2300	3900	6000	8600	12,000	6300	9600	12,000
			100	6.9	2100	2900	5000	7400	11,000	15,000	7000	13,000	16,000
			150	10.3	2500	3700	5700	8300	13,000	21,000	16,000	18,000	24,000
			200	13.8	3100	4600	6500	11,000	17,000	24,000	15,000	24,000	31,000
			250	17.2	3100	4500	6900	12,000	18,000	25,000	17,000	26,000	36,000
			300	20.7	3500	5100	7300	12,000	18,000	26,000	19,000	27,000	38,000
	75	5.2	100	6.9	2300	3700	6200	8000	12,000	15,000	87000	13,000	15,000
			125	8.6	2600	4300	7300	11,000	16,000	19,000	13,000	17,000	20,000
			150	10.3	3200	4700	7700	12,000	18,000	22,000	13,000	21,000	25,000
			200	13.8	3700	5500	8500	14,000	21,000	24,000	17,000	28,000	32,000
			250	17.2	4000	6100	9500	16,000	24,000	25,000	22,000	33,000	38,000
			300	20.7	4700	7100	10,000	16,000	25,000	28,000	23,000	35,000	45,000
70 to 150 PSIG (4.8 to 10.3 BAR)	100	6.9	125	8.6	3400	5800	8800	8500	14,000	18,000	11,000	16,000	19,000
			150	10.3	4000	6800	11,000	12,000	18,000	22,000	14,000	20,000	23,000
			175	12.0	4800	7800	12,000	13,000	21,000	26,000	16,000	25,000	28,000
			200	13.8	5200	8200	13,000	15,000	23,000	30,000	16,000	27,000	32,000
			250	17.2	4300	8900	14,000	15,000	25,000	37,000	21,000	34,000	39,000
			300	20.7	8000	11,000	15,000	19,000	29,000	41,000	26,000	38,000	46,000
	125	8.6	150	10.3	5200	8200	11,000	12,000	18,000	21,000	13,000	20,000	23,000
			175	12.0	5000	9000	13,000	13,000	21,000	25,000	15,000	23,000	27,000
			200	13.8	5500	9300	14,000	16,000	25,000	29,000	17,000	28,000	31,000
			225	15.5	6800	11,000	16,000	17,000	28,000	33,000	19,000	30,000	35,000
			250	17.2	6900	13,000	17,000	18,000	29,000	37,000	20,000	34,000	39,000
			300	20.7	7000	13,000	19,000	21,000	32,000	45,000	26,000	41,000	46,000
	150	10.3	175	12.0	5600	9500	12,000	14,000	20,000	29,000	16,000	22,000	26,000
			200	13.8	6500	11,000	14,000	16,000	24,000	29,000	20,000	26,000	30,000
			225	15.5	7100	12,000	16,000	20,000	29,000	33,000	22,000	30,000	35,000
			250	17.2	9000	14,000	18,000	20,000	30,000	37,000	26,000	35,000	39,000
			300	20.7	8700	15,000	20,000	23,000	37,000	45,000	31,000	44,000	46,000

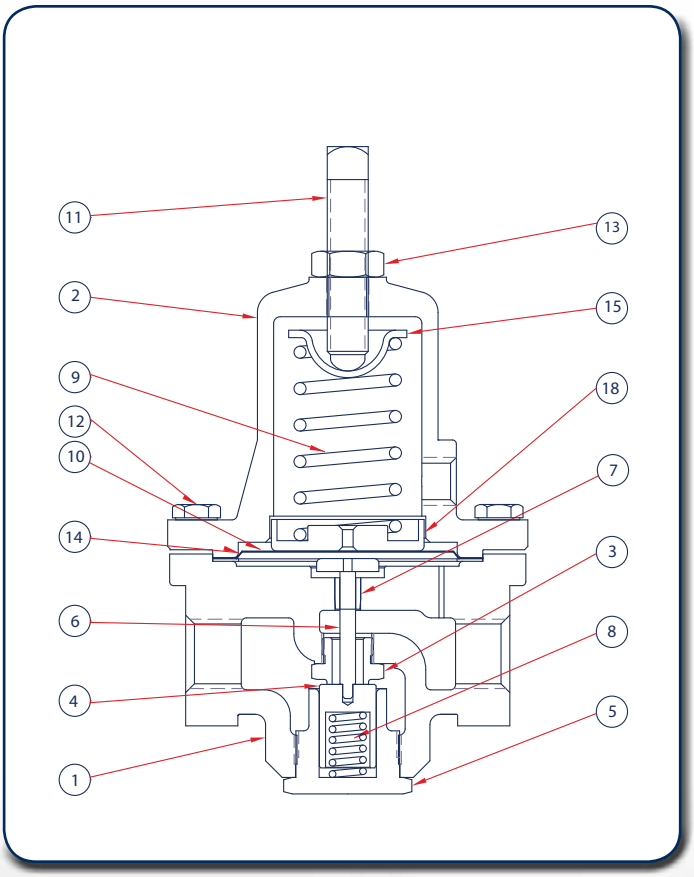
P95H Water Capacities with Elastomer Diaphragm[1]

Outlet Pressure Range	Outlet Pressure Setting		Inlet Pressure		1/2" Body Size			3/4" Body Size			1" Body Size		
					Offset			Offset			Offset		
	PSIG	BAR	PSIG	BAR	10%	20%	40%	10%	20%	40%	10%	20%	40%
15 to 30 PSIG (1.0 to 2.1 BAR)	15	1.0	30	2.1	2.0	3.2	6.8	7.0	10	15	8.0	11	16
			40	2.8	3.0	5.0	7.0	8.0	12	18	8.0	13	20
			50	3.5	4.0	5.5	7.2	9.0	14	20	8.5	15	23
			75	5.2	5.0	6.5	7.4	12	18	26	13	21	29
			100	6.9	5.0	6.5	7.6	13	19	28	19	26	34
			150	10.3	5.0	6.5	7.8	15	22	31	25	36	42
			200	13.8	5.1	6.5	8.0	19	25	35	32	37	44
			250	17.2	5.1	6.6	8.5	20	27	37	33	37	46
			300	20.7	5.2	6.6	9.0	20	28	40	34	38	48
	30	2.1	40	2.8	2.8	4.9	9.5	9.0	13	17	8.5	14	17
			50	3.5	3.5	5.7	10	11	16	21	11	18	22
			75	5.2	4.0	5.9	13	15	21	28	16	25	29
			100	6.9	5.0	6.1	14	17	24	33	19	31	34
			150	10.3	6.0	6.5	14	21	30	40	30	39	42
			200	13.8	6.5	6.9	14	24	31	46	35	48	49
			250	17.2	6.5	7.0	14	25	35	49	36	53	55
			300	20.7	7.0	7.5	14	26	36	53	37	54	60
25 to 75 PSIG (1.7 to 5.2 BAR)	50	3.4	60	4.1	4.0	6.5	12	9.0	14	20	12	17	23
			75	5.2	5.0	8.6	12	12	20	25	14	21	27
			100	6.9	5.5	9.0	13	15	24	31	16	26	34
			150	10.3	6.0	9.5	13	23	32	40	20	36	42
			200	13.8	6.5	10	14	24	34	47	30	42	49
			250	17.2	7.0	11	14	26	39	51	33	49	55
			300	20.7	7.3	11	15	25	40	55	40	55	60
	75	5.2	100	6.9	9.5	12	15	16	23	28	16	24	30
			125	8.6	10	14	18	20	29	33	21	31	36
			150	10.3	11	15	21	23	33	39	24	37	42
			200	13.8	11	15	23	28	41	47	29	46	49
			250	17.2	11	15	23	32	43	52	37	50	55
			300	20.7	11	15	23	33	49	56	39	56	60
70 to 150 PSIG (4.8 to 10.3 BAR)	100	6.9	125	8.6	7.0	11	16	15	24	30	30	24	32
			150	10.3	8.0	14	19	17	27	35	35	30	38
			175	12.0	9.0	15	21	24	28	40	40	33	43
			200	13.8	9.5	15	23	25	37	45	45	41	48
			250	17.2	10	16	24	29	42	52	52	42	54
			300	20.7	11	16	24	33	48	57	57	43	58
	125	8.6	125	8.7	7.8	12	18	19	25	32	17	27	35
			150	10.3	9.0	15	20	23	32	37	22	33	40
			175	12.0	9.5	16	23	27	36	42	24	25	47
			200	13.8	10	18	25	32	40	47	29	38	49
			250	17.2	11	18	26	34	44	51	32	42	53
			300	20.7	12	18	28	36	47	57	38	44	59
	150	10.3	175	12.0	8.7	14	19	21	28	34	34	26	37
			200	13.8	10	17	22	24	33	40	40	34	42
			225	15.5	12	19	24	29	37	45	45	39	48
			250	17.2	13	20	26	30	41	50	50	45	52
			300	20.7	13	20	28	35	49	55	55	53	59

1. Capacities are based in gallons per minute of water.

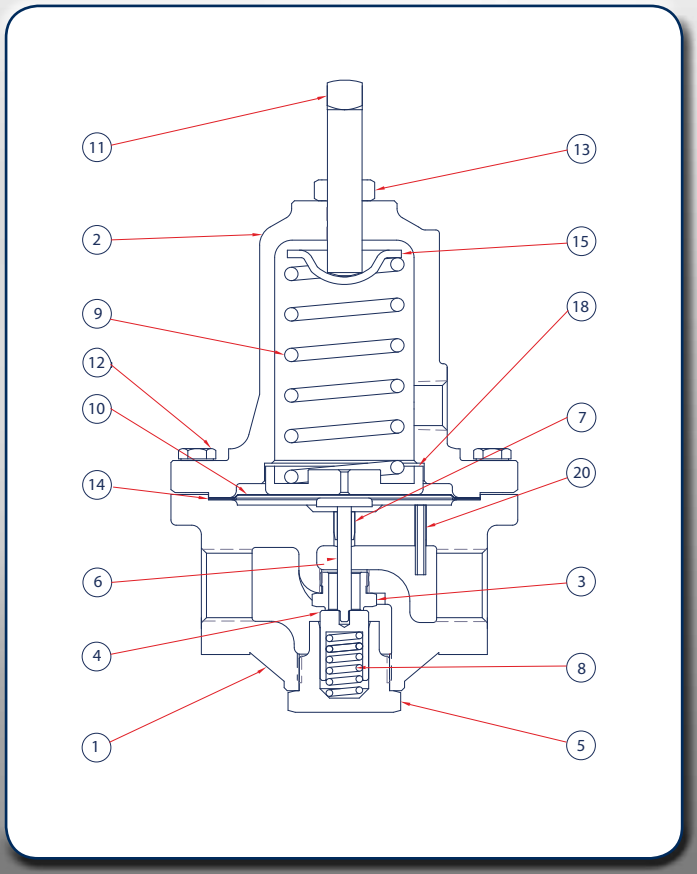
P95H Parts for 1/2" Body

Item		Description	Part Number
1	Body	Cast Iron, 1/2"	664-333-000
		Steel, 1/2"	664-334-000
2	Bonnet	Cast Iron, Tapped	604-251-000
		Steel, Tapped	604-250-000
3	Orifice	416 Stainless Steel (Metal)	688-025-000
		Brass (Composite)	688-031-000
		416 Stainless Steel (Composite)	688-029-000
4	Valve Plug Seat, 416 SS (Metal)		650-151-000
	Valve Plug Assemblies	416 Stainless Steel / Neoprene Seat	822-030-001
		Brass / Neoprene Seat	822-032-001
5	Valve Plug Guide	416 SS	639-109-000
		Brass	639-110-000
6	Stem Assembly, 416 SS		811-080-001
7	Stem Guide Bushing, 416 SS		608-079-000
8	Valve Plug Spring, SS		655-713-000
9	Range Springs	15-30 PSIG, Yellow	655-714-000
		25-75 PSIG, Green	655-690-000
		70-150 PSIG, Red	655-714-001
10	Diaphragm	Neoprene	618-087-000
		302 Stainless Steel (2 Required)	618-082-000
11	Adjusting Screw, Steel		648-487-000
12	Build Screws, Steel (8 Required)		648-463-009
13	Jam Nut, Steel		634-179-000
14	Diaphragm Gasket, Composition (Metal Diaphragms Only)		624-073-000
15	Spring Guide, Steel		626-079-000
16	NACE Tag (Not Shown)		632-503-000
17	P95H Nameplate (Not Shown)		632-524-000
18	Piston, Aluminum		637-323-000
19	Nameplate Drive Screws (2 Required) (Not Shown)		648-464-000



P95H Parts for 3/4" & 1" Bodies

Item		Description	Part Number
1	Body	Cast Iron, 3/4"	664-329-000
		Cast Iron, 1"	664-329-001
		Steel, 3/4"	664-330-000
		Steel, 1"	664-330-001
2	Bonnet	Cast Iron, Tapped	604-244-000
		Steel, Tapped	604-243-000
3	Orifice	416 Stainless Steel (Metal / Metal)	688-020-000
		Brass (Composite)	688-022-000
		416 Stainless Steel (Composite)	688-023-000
4	Valve Plug Seat, 416 SS (Metal)		650-145-000
	Valve Plug Assemblies	416 Stainless Steel / Neoprene Seat	822-026-001
		Brass / Neoprene Seat	822-028-001
5	Valve Plug Guide	416 SS	639-106-000
		Brass	639-107-000
6	Stem Assembly, 416 SS		811-079-001
7	Stem Guide Bushing , 416 SS		608-077-000
8	Valve Plug Spring, SS		655-710-000
9	Range Springs	15-30 PSIG, Yellow	655-712-000
		25-75 PSIG, Green	655-712-001
		70-150 PSIG, Red	655-712-002
10	Diaphragm	Neoprene	618-075-000
		302 Stainless Steel (2 Required)	618-077-000
11	Adjusting Screw, Steel		648-519-000
12	Build Screws, Steel (8 Required)		648-463-002
13	Jam Nut, Steel		634-181-000
14	Diaphragm Gasket, Composition (SS Diaphragms Only)		624-072-000
15	Spring Guide, Steel		626-100-000
16	NACE Tag (Not Shown)		632-503-000
17	P95H Nameplate (Not Shown)		632-524-000
18	Piston, Aluminum		637-321-000
19	Nameplate Drive Screws (2 Required) (Not Shown)		648-464-000
20	Pitot Tube		660-064-000



P98H Back Pressure Regulator / Relief Valve

The P98H monitors upstream pressure and opens to relieve excess pressure increases above setpoint. As a Back Pressure Regulator, the upstream pressure is monitored and released downstream when the setpoint is exceeded.

Applications

- Pulp and Paper - Boilers, Heaters, PM Drums
- Chemical Boilers, Process Heaters
- Water and Waste Water Systems
- Steam Injection

P98H Part Matrix

P98H				**0**	**0**				
									Body Size
	06								3/4 NPT
	08								1 NPT
									Spring Range
									PSIG / BAR
		035							15 - 35 / 1 - 2.4
		075							25 - 75 / 1.7 - 5.2
		140							70 - 140 / 4.8 - 9.7
		200							130 - 200 / 9 - 13.8
									Options
			0						None
			1						Tapped Vent Bonnet
			A						150 RF Steel Body Only
			B						300 RF Steel Body Only
			C						600 RF Steel Body Only
			D						Socket Weld Steel Body Only
									Valve Plug / Orifice Material
						A			416 SS (Metal / Metal)
						E			416 SS / Nitrile
									Diaphragm Material
							0		302 SS
							3		Neoprene
									Case / Body Material
								0	Iron / Iron
								1	Steel / Steel
								3	Iron / Steel

Spring Range

Body Size	PSIG	BAR	Spring Color Code
3/4 and 1 NPT (20 and 25 DN)	15 - 35	1.03 - 2.41	Yellow
	25 - 75	1.72 - 5.17	Green
	70 - 140	4.83 - 9.65	Red
	130 - 200	8.96 - 13.8	Blue

Specifications

Maximum Inlet Pressure (Set Pressure Plus Build Up)		
Seat	300 PSIG	Steel
	250 PSIG	Ductile iron
	300 PSIG	Aluminum/steel
	250 PSIG	All units
Pressure Ranges	15–35 PSIG	
	25–75 PSIG	
	70–140 PSIG	
	130–200 PSIG	
Body Size	3/4 NPT	
	1 NPT	
Orifice Size	9/16"	
Steel Body	Cast Iron Body	
450˚F Max* - 300 PSIG	Up to 315˚F* - 300 PSIG	
	Up to 406˚F* - 250 PSIG	
*Trim Materials will limit maximum operating temperatures		
Temperature Range Limits		
Nitrile Components	-20˚F to +200˚F	
Metal (SS) Diaphragm and Metal-Metal Seat		
Cast Iron Body and Spring Case		
Weight Approximate		
3/4"	20 lb	9.1 kg
1"	20 lb	9.1 kg

P98H Regulator Rebuild Kits

	Kit Includes	Part Number
P98H	302SS Diaphragms (2), Diaphragm Gasket, Thru hole Gasket, 416SS Orifice, 416SS/Nitrile Valve Plug, Seat O-ring Retainer & O-ring, Seat Machine Screw	971-P98-000
	302SS Diaphragms (2), Diaphragm Gasket, Thru hole Gasket, 416SS Orifice, 416SS / Metal to Metal Valve Plug	971-P98-001
	Neoprene Diaphragm, 416SS Orifice, 416SS/Nitrile Valve Plug, Thru Hole Gasket, Seat O-ring Retainer & O-ring, Seat Machine Screw	971-P98-002
	Neoprene Diaphragm, 416SS Orifice, 416SS / Metal to Metal Valve Plug, Thru Hole Gasket,	971-P98-003

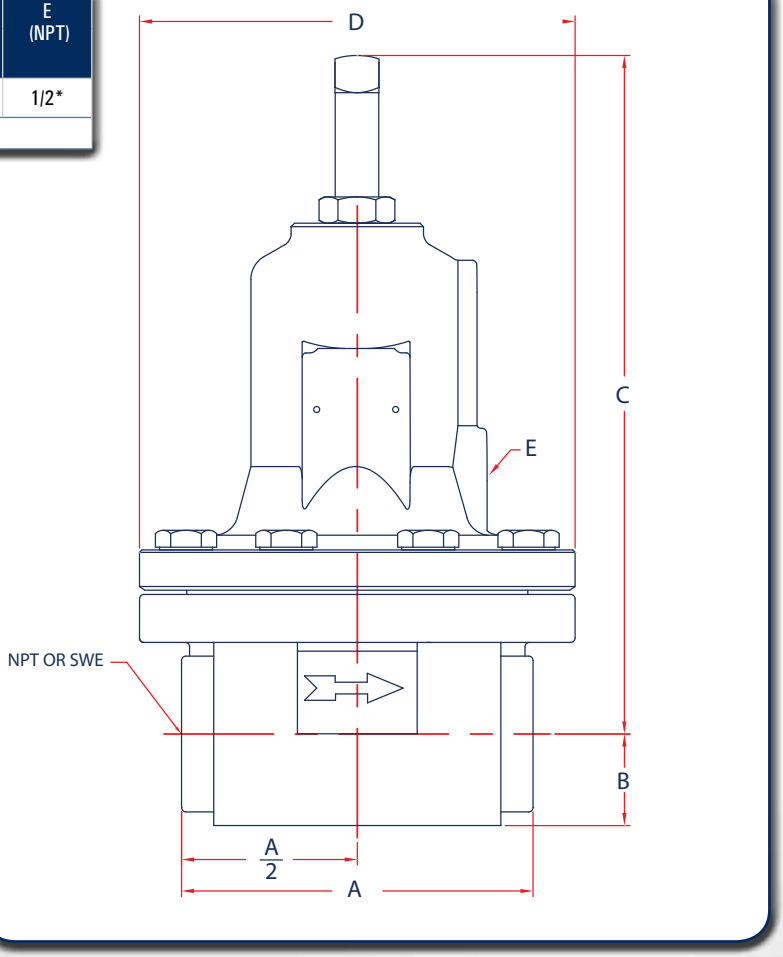
Materials of Construction

Body, Bonnet, Diaphragm Case	
Options	Cast Iron
	Steel
Diaphragm	
Options	302 SS
	Neoprene
Valve Plug / Seat	
Options	Nitrile Valve Plug / SS Orifice
	Metal Valve Plug / SS Orifice

P98H Dimension, Inches

Nominal Body Size, Inches	A		B	C (Maximum)	D	E (NPT)
	NPT or SWE	Flanged				
3/4, 1	5.0	14.0	1.31	9.69	6.22	1/2*

* Tapped Vent Option Only

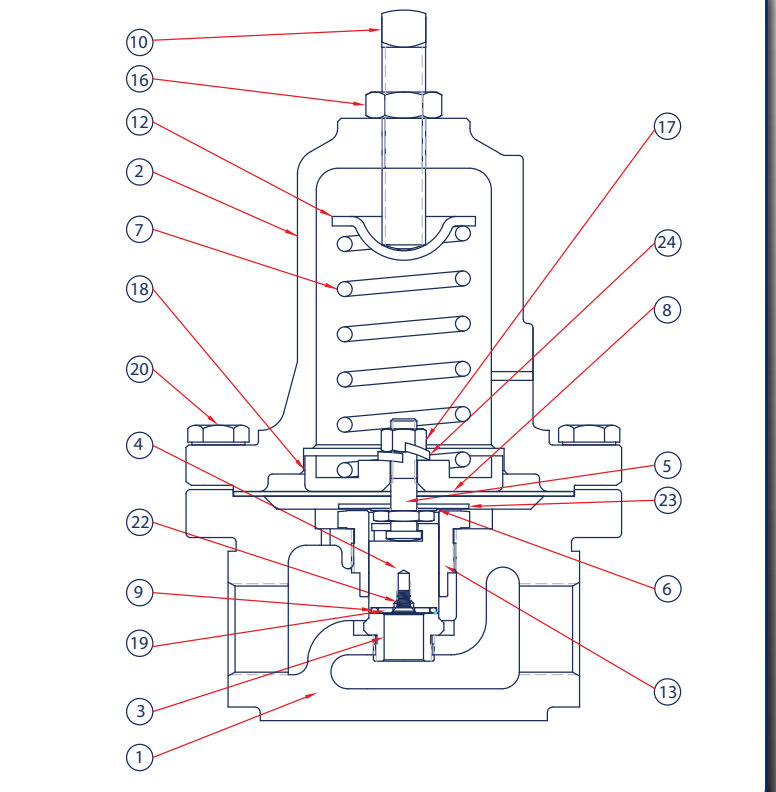


Installation

These valves may be installed in any position, as long as flow will be in the same direction as that of the arrow cast on the body.

P98H Parts

Item		Description	Part Number
1	Body	Iron 3/4"	664-336-000
		Iron 1"	664-336-001
		Steel 3/4"	664-337-000
		Steel 1"	664-337-001
2	Bonnet	Steel drilled	604-241-000
		Iron drilled	604-242-000
3	Orifice	416 Stainless Steel/ Metal to Metal	688-020-000
		416 Stainless Steel w/Elastomer	688-027-000
4	Valve Plugs	416 Stainless Steel w/Elastomer	639-112-000
		416 Stainless Steel/ Metal to Metal	639-116-000
5	Pusher Post, 416 SS Elastomer		613-034-000
	Pusher Post, 416 SS Metal to Metal		613-036-000
6	Diaphragm Assembly Gasket		624-074-000
7	Range Springs	15-35 PSIG, Yellow	655-712-000
		25-75 PSIG, Green	655-712-001
		70-140 PSIG, Red	655-712-002
		130-200 PSIG, Blue	655-717-000
8	Diaphragm	Neoprene	618-083-000
		302 Stainless Steel (2)	618-085-000
9	O-ring (Nitrile) (Composite Seat Only)		649-269-004
10	Adjusting Screw		648-519-000
11	Diaphragm Flange Gasket (Metal to Metal units only)		624-072-000
12	Spring Guide		626-100-000
13	Valve Plug Guide, 416 SS		626-103-000
14	NACE Tag (Not Shown)		632-503-000
15	Nameplate (Not Shown)		632-524-000
16	Stem Jam Nut		634-181-000
17	Diaphragm Assembly Locknut		634-184-000
18	Piston (Diaphragm Head)		637-324-000
19	Retainer, O-ring (416SS) (Composite Seat Only)		643-199-000
20	Steel Build Screw (8 Required)		648-463-002
21	Drive Screw (Nameplate) (2 Required)		648-464-000
22	Valve Plug Machine Screw (SS) (Composite Seat Only)		648-522-000
23	Washer, 416 SS (Composite Seat Only)		662-220-000
24	Lockwasher (Split Ring)		662-221-000



P98H Water Relief Capacities in Gallons per Minute (l/min) with Neoprene Diaphragm

Nominal Body Size, Inches (DN)	Spring		Relief Pressure Setting PSIG (BAR)	Flow at Relief Setting, GPM (l/min.)	Press Buildup Over Relief Setting, PSIG (BAR)								
	Part Number	Color Code			5 (0.34)	7 (0.48)	10 (0.69)	15 (1.03)	20 (1.38)	30 (2.07)	50 (3.45)	75 (5.17)	100 (6.90)
3/4, 1 (20, 25)	655-712-000	Yellow	15 (1.03)	1.8 (6.81)	18 (68.1)	23.5 (88.9)	27 (102)	31 (117)	33 (125)	37 (140)	45 (170)	53 (201)	59 (223)
			25 (1.72)	1.8 (6.81)	26 (98.4)	29 (110)	33 (125)	38 (144)	41 (155)	45 (170)	53 (201)	61 (231)	67 (254)
			35 (2.41)	1.8 (6.81)	32 (121)	34.5 (131)	37.5 (142)	42 (159)	45 (170)	49.5 (187)	56 (212)	64 (242)	70 (265)
	655-712-001	Green	35 (2.41)	1.5 (5.68)	20 (75.7)	25 (94.6)	28 (106)	33 (125)	37 (140)	44 (167)	50 (189)	57 (216)	63 (238)
			50 (3.45)	1.5 (5.68)	25 (94.6)	31 (117)	37 (140)	42.5 (161)	47 (178)	52 (197)	58 (220)	65 (246)	71.0 (269)
			75 (5.17)	1.5 (5.68)	35 (132)	41 (155)	45 (170)	50 (189)	53 (201)	58 (220)	63.5 (240)	68.5 (259)	74 (280)
	655-712-002	Red	75 (5.17)	1.3 (4.92)	19 (71.9)	25 (94.6)	32 (121)	37 (140)	41 (155)	47 (178)	57 (216)	66.5 (252)	72 (273)
			100 (6.90)	1.3 (4.92)	22 (83.3)	29 (110)	35 (132)	43 (163)	48.5 (184)	57 (216)	66.5 (252)	73 (276)	78 (295)
			125 (8.62)	1.3 (4.92)	27 (102)	34.5 (131)	42 (159)	50.5 (191)	57 (216)	67 (254)	73.5 (278)	78 (295)	83 (314)
	655-717-000	Blue	150 (10.34)	1 (3.78)	15 (56.8)	20 (75.7)	27 (102)	39 (148)	48 (182)	62 (235)	78 (295)	83 (314)	88 (333)
			175 (12.07)	1 (3.78)	19 (71.9)	24 (90.8)	32 (121)	50 (189)	60 (227)	72 (273)	82 (310)	88.5 (335)	94 (356)
			200 (13.79)	1 (3.78)	22 (83.3)	27 (102)	36 (136)	53 (201)	65 (246)	78 (295)	88 (333)	93 (352)	98 (371)

P98H Water Relief Capacities in Gallons per Minute (l/min) with Metal Diaphragm

Nominal Body Size, Inches (DN)	Spring		Relief Pressure Setting PSIG (BAR)	Flow at Relief Setting, GPM (l/min.)	Press Buildup Over Relief Setting, PSIG (BAR)								
	Part Number	Color Code			5 (0.34)	7 (0.48)	10 (0.69)	15 (1.03)	20 (1.38)	30 (2.07)	50 (3.45)	75 (5.17)	100 (6.90)
3/4, 1 (20, 25)	655-712-000	Yellow	15 (1.03)	1.8 (6.81)	6 (22.7)	13 (49.2)	16 (60.6)	20 (75.7)	26 (98.4)	31 (117)	37 (140)	44 (167)	49 (185)
			25 (1.72)	1.8 (6.81)	13 (49.2)	16 (60.6)	19.5 (73.8)	24 (90.8)	32 (121)	35 (132)	40 (151)	46 (174)	50 (189)
			35 (2.41)	1.8 (6.81)	16 (60.9)	19 (71.9)	23 (87.1)	28 (106)	33 (125)	37 (140)	41 (155)	47 (178)	51 (193)
	655-712-001	Green	35 (2.41)	1.5 (5.68)	8 (30.3)	14 (53.0)	16.5 (62.5)	21 (79.5)	23 (87.1)	29.5 (112)	33 (125)	37 (140)	41 (155)
			50 (3.45)	1.5 (5.68)	11 (41.6)	15 (56.8)	18.5 (70.0)	24 (90.8)	28.5 (108)	35.5 (134)	44 (167)	49 (185)	53 (201)
			75 (5.17)	1.5 (5.68)	14 (53.0)	20 (75.7)	26 (98.4)	33 (125)	37 (140)	42.5 (161)	50 (189)	58 (220)	62 (235)
	655-712-002	Red	75 (5.17)	1.3 (4.92)	7 (26.5)	10 (37.9)	14 (53.0)	20 (75.7)	26 (98.4)	35 (132)	46 (174)	55 (208)	58 (220)
			100 (6.90)	1.3 (4.92)	9 (34.1)	12 (45.4)	18 (68.1)	25.5 (96.5)	32 (121)	41 (155)	54 (204)	62 (235)	68 (257)
			125 (8.62)	1.3 (4.92)	11 (41.6)	14.5 (54.9)	20 (75.7)	30 (114)	38 (144)	50 (189)	60.5 (229)	67.5 (255)	72 (273)
	655-717-000	Blue	150 (10.34)	1 (3.78)	7 (26.5)	9 (34.1)	12 (45.4)	17.5 (66.2)	23 (87.1)	34 (129)	51 (193)	66 (250)	76 (288)
			175 (12.07)	1 (3.78)	8 (30.3)	10 (37.9)	14 (53.0)	20.5 (77.6)	27 (102)	39 (148)	59 (223)	74 (280)	81 (307)
			200 (13.79)	1 (3.78)	9 (34.1)	12 (45.4)	17 (64.3)	24.5 (92.7)	32.5 (123)	47 (178)	66 (250)	79 (299)	85 (322)

P98H Steam Relief Capacities in Pounds per Hour (kg/h) with Metal Diaphragm Only

Nominal Body Size, Inches (DN)	Spring		Relief Pressure Setting PSIG (BAR)	Flow at Relief Setting, LB/H (kg/h)	Press Buildup Over Relief Setting, PSIG (BAR)								
	Part Number	Color Code			5 (0.34)	7 (0.48)	10 (0.69)	15 (1.03)	20 (1.38)	30 (2.07)	50 (3.45)	75 (5.17)	100 (6.90)
3/4, 1 (20, 25)	655-712-000	Yellow	15 (1.03)	25 (11.3)	91 (41.3)	135 (61.2)	180 (81.6)	260 (118)	360 (163)	440 (200)	580 (263)	770 (349)	950 (431)
			25 (1.72)	25 (11.3)	120 (54.4)	180 (81.6)	230 (104)	330 (150)	395 (179)	510 (231)	660 (299)	850 (386)	1030 (467)
			35 (2.41)	25 (11.3)	135 (61.2)	190 (86.2)	250 (113)	360 (163)	455 (206)	590 (268)	730 (331)	920 (417)	1100 (499)
	655-712-001	Green	35 (2.41)	25 (11.3)	68 (30.8)	110 (49.9)	160 (72.6)	230 (104)	330 (150)	500 (227)	625 (284)	785 (356)	940 (426)
			50 (3.45)	25 (11.3)	110 (48.9)	160 (72.6)	210 (95.3)	340 (154)	430 (195)	640 (290)	910 (413)	1100 (499)	1300 (590)
			75 (5.17)	25 (11.3)	180 (81.6)	230 (104)	320 (145)	445 (202)	630 (286)	820 (372)	1100 (499)	1350 (612)	1550 (703)
	655-712-002	Red	75 (5.17)	25 (11.3)	130 (59.0)	155 (70.3)	210 (95.3)	320 (145)	410 (186)	590 (268)	1050 (476)	1350 (612)	1550 (703)
			100 (6.90)	25 (11.3)	135 (61.2)	160 (72.6)	230 (104)	350 (159)	455 (206)	680 (308)	1180 (535)	1600 (726)	1800 (816)
			125 (8.62)	25 (11.3)	145 (65.8)	205 (93.0)	280 (127)	450 (204)	540 (245)	860 (390)	1400 (635)	1770 (803)	2000 (907)
	655-717-000	Blue	150 (10.34)	25 (11.3)	86 (39.0)	135 (61.2)	200 (90.7)	340 (154)	455 (206)	720 (327)	1270 (576)	1900 (862)	2200 (998)
			175 (12.07)	25 (11.3)	91 (41.3)	145 (65.8)	230 (104)	350 (159)	500 (227)	770 (349)	1350 (612)	2000 (907)	2400 (1089)
			200 (13.79)	25 (11.3)	160 (72.6)	225 (102)	320 (145)	450 (204)	630 (286)	950 (431)	1600 (726)	2300 (1043)	2700 (1225)

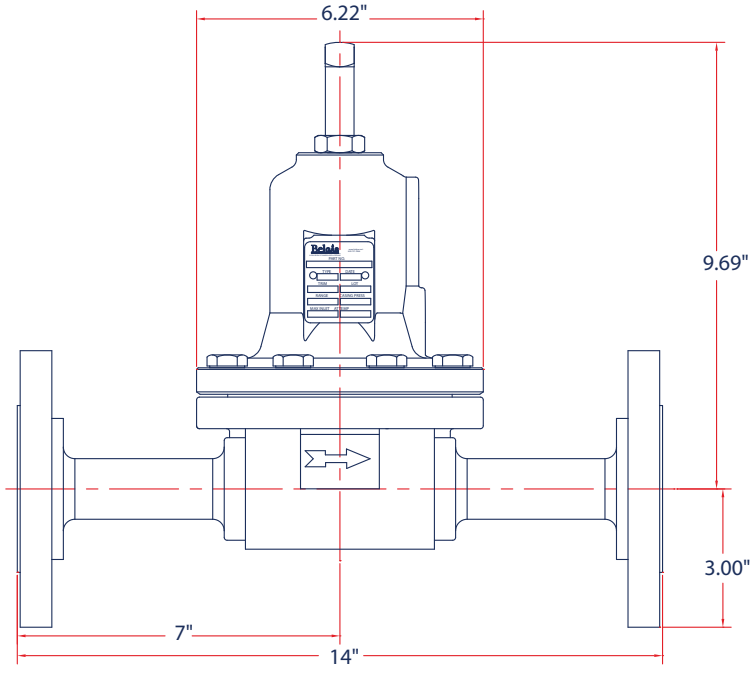
P98H Air Relief Capacities in SCFH (Nm^3/h) with Neoprene Diaphragm

Nominal Body Size, Inches (DN)	Spring		Relief Pressure Setting PSIG (BAR)	Flow at Relief Setting, SCFH (Nm^3/h)	Press Buildup Over Relief Setting, PSIG (BAR)								
	Part Number	Color Code			5 (0.34)	7 (0.48)	10 (0.69)	15 (1.03)	20 (1.38)	30 (2.07)	50 (3.45)	75 (5.17)	100 (6.90)
3/4, 1 (20, 25)	655-712-000	Yellow	15 (1.03)	500 (13.4)	5000 (134)	6500 (174)	7700 (206)	9500 (247)	9900 (265)	11,900 (319)	15,900 (426)	20,900 (560)	25,900 (694)
			25 (1.72)	500 (13.4)	7000 (188)	8500 (228)	9700 (260)	12,000 (322)	13,000 (348)	13,900 (373)	17,900 (480)	22,900 (614)	27,900 (748)
			35 (2.41)	500 (13.4)	9000 (241)	10,500 (281)	12,000 (322)	13,000 (348)	14,000 (375)	17,000 (456)	20,800 (557)	26,000 (697)	31,000 (831)
	655-712-001	Green	35 (2.41)	500 (13.4)	4500 (121)	5500 (147)	8500 (228)	13,000 (348)	14,000 (375)	17,000 (456)	20,800 (557)	26,000 (697)	31,000 (831)
			50 (3.45)	500 (13.4)	6000 (161)	7000 (188)	11,500 (308)	15,500 (415)	17,000 (456)	20,000 (536)	24,000 (643)	29,000 (777)	34,000 (911)
			75 (5.17)	500 (13.4)	7500 (201)	10,000 (268)	15,000 (402)	20,000 (536)	22,000 (590)	25,000 (670)	29,000 (777)	34,000 (911)	39,000 (1045)
	655-712-002	Red	75 (5.17)	500 (13.4)	5000 (134)	6500 (174)	10,000 (268)	15,000 (402)	20,000 (536)	24,000 (643)	29,000 (777)	34,000 (911)	39,000 (1045)
			100 (6.90)	500 (13.4)	6500 (174)	8500 (228)	13,000 (348)	20,000 (536)	24,000 (643)	29,000 (777)	34,000 (911)	39,000 (1045)	45,000 (1206)
			125 (8.62)	500 (13.4)	7000 (188)	9000 (241)	14,500 (389)	23,000 (616)	28,000 (750)	33,000 (884)	39,000 (1045)	45,000 (1206)	50,000 (1340)
	655-717-000	Blue	150 (10.34)	500 (13.4)	4700 (126)	6000 (161)	9000 (241)	14,000 (375)	19,000 (509)	28,000 (750)	42,000 (1126)	50,000 (1340)	56,000 (1501)
			175 (12.07)	500 (13.4)	5700 (153)	7000 (188)	10,500 (281)	17,000 (456)	23,000 (616)	34,000 (911)	49,000 (1313)	56,000 (1501)	61,000 (1635)
			200 (13.79)	500 (13.4)	5700 (153)	7500 (201)	12,000 (322)	18,000 (482)	24,000 (643)	36,000 (965)	54,000 (1447)	61,000 (1635)	66,000 (1769)

P98H Air Relief Capacities in SCFH (Nm^3/h) with Metal Diaphragm

Nominal Body Size, Inches (DN)	Spring		Relief Pressure Setting PSIG (BAR)	Flow at Relief Setting, SCFH (Nm^3/h)	Press Buildup Over Relief Setting, PSIG (BAR)								
	Part Number	Color Code			5 (0.34)	7 (0.48)	10 (0.69)	15 (1.03)	20 (1.38)	30 (2.07)	50 (3.45)	75 (5.17)	100 (6.90)
3/4, 1 (20, 25)	655-712-000	Yellow	15 (1.03)	500 (13.4)	2000 (53.6)	3000 (80.4)	4000 (107)	5700 (153)	8500 (228)	10,400 (279)	13,900 (373)	18.000 (482)	22,500 (603)
			25 (1.72)	500 (13.4)	2700 (72.4)	4000 (107)	5200 (139)	7200 (193)	8700 (233)	12,100 (324)	15,600 (418)	20,000 (536)	24,000 (643)
			35 (2.41)	500 (13.4)	3000 (80.4)	4200 (113)	5500 (147)	8000 (214)	10,000 (268)	13,000 (349)	17,300 (464)	21,700 (582)	26,000 (697)
	655-712-001	Green	35 (2.41)	500 (13.4)	1500 (40.2)	2500 (67.0)	3500 (93.8)	5200 (139)	7200 (193)	11,000 (295)	17,000 (456)	21,600 (579)	26,000 (697)
			50 (3.45)	500 (13.4)	2500 (67.0)	3500 (93.8)	4700 (126)	7500 (201)	9500 (255)	14,000 (375)	20,000 (536)	24,000 (643)	28,600 (766)
			75 (5.17)	500 (13.4)	4000 (107)	5200 (139)	7000 (188)	10,000 (268)	14,000 (375)	18,000 (482)	25,000 (670)	30,000 (804)	35,000 (938)
	655-712-002	Red	75 (5.17)	500 (13.4)	2900 (77.7)	3400 (91.1)	4700 (126)	7000 (188)	9200 (247)	13,000 (348)	23,000 (616)	30,000 (804)	35,000 (938)
			100 (6.90)	500 (13.4)	3000 (80.4)	3500 (93.8)	5000 (134)	7700 (206)	10,000 (268)	15,000 (402)	26,000 (697)	35,000 (938)	40,000 (1072)
			125 (8.62)	500 (13.4)	3200 (85.8)	4500 (121)	6200 (166)	9500 (255)	12,000 (322)	19,000 (509)	31,000 (831)	39,000 (1045)	45,000 (1206)
	655-717-000	Blue	150 (10.34)	500 (13.4)	1900 (50.9)	3000 (80.4)	4500 (121)	7500 (201)	10,000 (268)	16,000 (429)	28,000 (750)	42,000 (1126)	50,000 (1340)
			175 (12.07)	500 (13.4)	2000 (53.6)	3200 (85.8)	5000 (134)	7700 (206)	11,000 (295)	17,000 (456)	30,000 (804)	45,000 (1206)	54,000 (1447)
			200 (13.79)	500 (13.4)	3500 (93.8)	5000 (134)	7000 (188)	10,000 (268)	14,000 (375)	21,000 (563)	35,000 (938)	52,000 (1394)	60,000 (1608)

P98H Flanged Unit Dimension, Inches



Notes:

P119 Control Valve

- Tight Shut-off
- Easy Installation
- Leak Detection
- Low Seat Leakage
- Gas or Liquid Service
- Inline Maintenance
- NACE Capability

The Type P119 Control Valve is versatile and can be used for on-off or throttling service. Spring ranges from 3-15 psi to 30-60. The valve can be used in corrosive or non-corrosive gases or liquids, limited by available compatible materials. Maintenance on the valve can be accomplished without removing the valve body from the line (pressure must be removed and the valve isolated before attempting.) A vent is provided in the valve actuator to detect leakage of actuator stem seals. Our composition disc assembly and seat offer positive shutoff at maximum body working pressure. NACE construction materials are standard for the steel body valve only, and comply with the National Association of Corrosion Engineers MR-01-75.

Applications

- On-Off or Throttling Control
- Heater Fuel Valve Control
- Gas Distribution

P119 Part Matrix

P119			0	0					
								Port Size	
	06							3/4 NPT	* 1-1/4" Available in Iron Bodies Only
	08							1 NPT	
	12							1-1/4 NPT*	
								Spring Range	
								PSIG / BAR	
		015						3 - 15 / .20 - 1.03	
		020						5 - 20 / .34 - 1.38	
		035						5 - 35 / .34 - 2.41	
		060						30 - 60 / 2.07 - 4.14	
					2			1/8"	
					3			3/16"	
					4			1/4"	
					5			5/16"	
					6			3/8"	
					8			1/2"	
					9			9/16"	
						00		Nitrile	
						22		Fluorocarbon	
								Body Material	**Units with a Steel Body selection will automatically be provided with internal parts conforming to NACE MR 0175. Orifice and Seat Housing will be made from 316SS.
							0	Iron	
							2	Steel**	

Materials of Construction

Body	Cast Iron or WCB Steel
Spring Case	Aluminum
Bonnet	Aluminum
Disk Holder Assembly	Aluminum and Nitrile (standard), Stainless Steel and Nitrile, Stainless Steel and Fluoroelastomer or Aluminum and Fluoroelastomer
Orifice	Aluminum (standard) or 316 Stainless Steel
Diaphragm	Nitrile or Fluoroelastomer
O-rings	Nitrile (standard) or Fluoroelastomer
Stem Wiper	TFE
Adjusting Screw	Steel
Spring	Steel

Specifications

Body Sizes and End Connection Styles	3/4, 1 or 1-1/4 NPT screwed	
Maximum Inlet Pressure	150 PSIG	10.3 BAR
Maximum Pressure Drop	150 PSIG	10.3 BAR
	For all port diameters	
Maximum Spring Case Pressure	150 PSIG	10.3 BAR
Spring Ranges	See Table	
Material Temperature Capabilities	With Nitrile Seat / Diaphragm	
	-20 to 170˚F	-29 to 77˚C
	With Fluoroelastomer Seat / Diaphragm	
	40˚ to 250˚F	4.4 to 121˚C
	Note: Not for use with hot water or ammonia.	
Orifice Size and Flow Coefficients	See Table	
Pressure Setting Adjustment	May be adjusted throughout each spring range by rotating the adjusting screw	
Actuator Pressure Connection	1/4 NPT female	
Spring Case and Bonnet Vents	1/4 NPT female	
Weight	lbs.	kg.
3/4"	4.8	2.2
1"	4.8	2.2
1-1/4"	4.7	2.1

P119 Flow Coefficients

Orifice Size		3/4 Inch Body	1 Inch Body	1-1/4 Inch Body
Inches	mm	C_v	C_v	C_v
1/8	3.2	0.45	0.45	0.45
3/16	4.8	0.93	0.93	0.93
1/4	6.4	1.6	1.6	1.6
5/16	7.9	2.7	2.7	2.7
3/8	9.5	3.3	3.4	3.6
1/2	12.7	4.6	5.0	5.7
9/16	14.3	5.7	6.0	7.0

P119 Control Valve Rebuild Kits

	Kit Includes	Part Number
1/8" - 3/8" Orifice, Nitrile	Diaphragm assembly, seat assembly, O-rings, hairpin clip, retaining ring and stem seal wiper.	971-P11-900
1/2" - 9/16" Orifice, Nitrile		971-P11-901
1/8" - 3/8" Orifice, Fluorocarbon		971-P11-902
1/2" - 9/16" Orifice, Fluorocarbon		971-P11-903
1/8" - 3/8" Orifice, Nitrile/NACE		971-P11-904
1/2" - 9/16" Orifice, Nitrile/NACE		971-P11-905
1/8" - 3/8" Orifice, Fluorocarbon/NACE		971-P11-906
1/2" - 9/16" Orifice, Fluorocarbon/NACE		971-P11-907

P119 Spring Selection

Spring Range		Spring Part Number	Spring Color Code
PSIG	BAR		
3 - 15	0.2 - 1.0	655-689-000	Red
5 - 20	0.3 - 1.4	655-676-000	Silver
5 - 35	0.3 - 2.4	655-703-000	Blue
30 - 60	2.1 - 4.1	655-690-000	Green

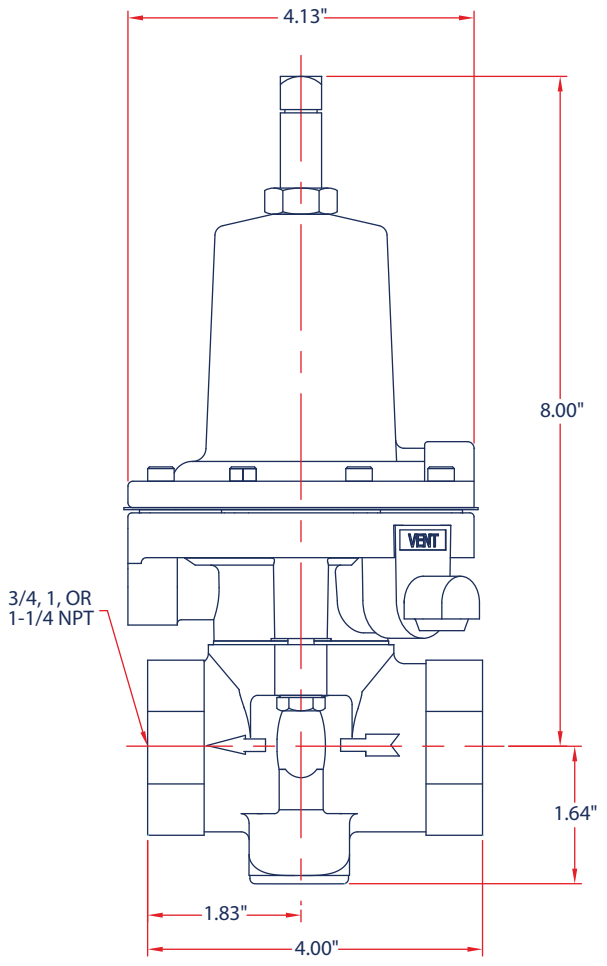
P119 Gas Sizing Equation

$$C_v = (Q / 963)\sqrt{\frac{(S G)\ (T)}{(\Delta P)\ (P 1 + P 2)}}$$

C_v	Flow Coefficient
Q	Gas Flow Rate, (SCFH)
SG	Specific Gravity
P1	Inlet Pressure (PSIA)
P2	Outlet Pressure (PSIA)
Δ P	Pressure Drop, (PSI)
T	°Rankin (°F +460)

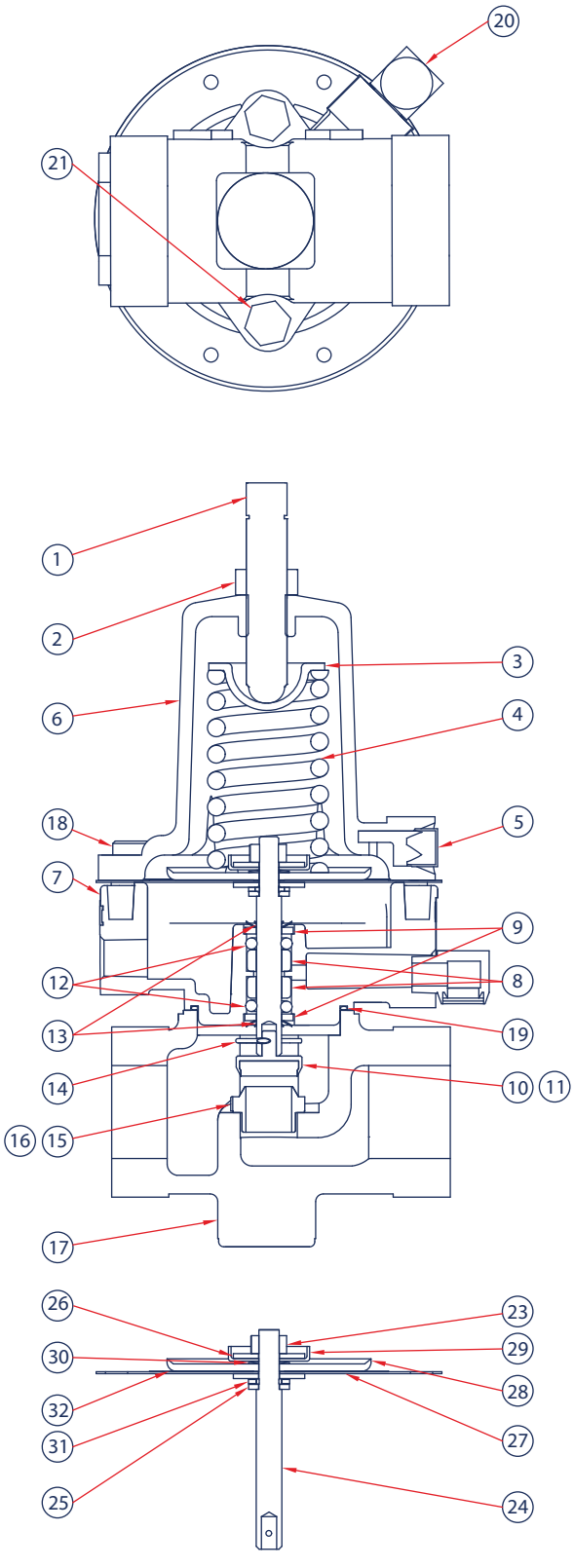
Useful Conversions for Gas Flow		
To Convert	Multiply By	To Obtain
SCFD	0.04167	SCFH
SCFS	3600	SCFH
SCFM	60	SCFH
M^3/Hr.	35.34	SCFH
Lb./Hr.	19.52	SCFH
Kg./Hr.	43.04	SCFH

P119 Dimensions



P119 Parts

Item	Description		Part Number
1	Adjustment Screw		648-487-000
2	Lock Nut		634-179-000
3	Spring Guide		626-079-000
4	Range Spring	3-15 PSIG, Red	655-689-000
		5-20 PSIG, Silver	655-676-000
		5-35 PSIG, Blue	655-703-000
		30-60 PSIG, Green	655-690-000
5	Screen		647-023-000
6	Machined Bonnet		604-237-000
7	Housing		629-226-000
8	Bushing (2 Required Per Unit)		608-074-000
9	Stem Wiper (2 Required Per Unit)		649-305-000
10	Seat Assemblies Aluminum	Aluminum/Nitrile for 1/8" to 3/8" Orifice	822-023-000
		Aluminum/Fluorocarbon for 1/8" to 3/8" Orifice	822-023-001
		Aluminum/Nitrile for 1/2" & 9/16" Orifice	822-023-002
		Aluminum/Fluorocarbon for 1/2" & 9/16" Orifice	822-023-003
11	Seat Assemblies Stainless NACE	316SS/Nitrile for 1/8" to 3/8" Orifice	822-024-000
		316SS/Fluorocarbon for 1/8" to 3/8" Orifice	822-024-001
		316SS/Nitrile for 1/2" & 9/16" Orifice	822-024-002
		316SS/Fluorocarbon for 1/2" & 9/16" Orifice	822-024-003
12	O-ring, (Stem)	Nitrile (2 Required Per Unit)	649-303-001
		Fluorocarbon (2 Required Per Unit)	649-304-001
13	Retaining Ring (2 Required Per Unit)		644-057-000
14	Hair Pin - NACE		635-066-000
15	Orifice Aluminum	1/8"	688-013-004
		3/16"	688-013-003
		1/4"	688-013-002
		5/16"	688-018-000
		3/8"	688-013-001
		1/2"	688-013-000
		9/16"	688-018-001
16	Orifice 316 Stainless Steel NACE	1/8"	688-014-004
		3/16"	688-014-003
		1/4"	688-014-002
		5/16"	688-019-000
		3/8"	688-014-001
		1/2"	688-014-000
		9/16"	688-019-001
17	Bodies	Steel - 3/4 NPT	664-320-000
		Steel - 1 NPT	664-320-001
		Iron - 3/4 NPT	664-318-000
		Iron - 1 NPT	664-318-001
		Iron - 1-1/4 NPT	664-319-000
18	Build Screws (8 Required Per Unit)		648-466-004
19	O-ring, (Housing)	Nitrile	649-303-000
		Fluorocarbon	649-304-000
20	Vent Assembly		836-004-000
21	Body Bolts	Iron Body (2 Required Per Unit)	648-463-005
		Steel Body (2 Required Per Unit)	648-463-008
22	NACE Tag (Not Shown)		632-503-000
23	Lock Nut		634-180-000
24	Stem	Aluminum	651-098-000
		Stainless Steel	651-099-000
25	Washer, Flat		662-213-001
26	Washer		662-213-000
27	Diaphragms	Nitrile	618-074-000
		Fluorocarbon	618-074-001
28	Piston		637-306-000
29	Spring Retainer		643-191-000
30	Belleville Washer		662-212-000
31	Washer, StatOSeal	Nitrile	662-214-000
		Fluorocarbon	662-214-001
32	Disk, Teflon (Fluorocarbon Units Only)		619-056-000
33	Blank label, Brady (Not Shown)		632-456-000



Notes:


BelGAS
A DIVISION OF MARSH BELLOFRAM
P289 P289080150000
OUTPUT PRESSURE:
BEL 103826
WWW.MARSHBELLOFRAM.COM

P289 Back Pressure Regulator

- Throttling Type Relief
- Compact
- Tight Shutoff
- High Flow Rates
- Reliability Due to Simplicity

The Type P289 Back Pressure Regulator functions as a high flow relief valve with an adjustable set point. The P289 can be used in place of a standard relief valve to provide protection against over pressurization in the downstream system. The design of a large diaphragm area and a pitot tube booster allow the valve to respond quickly and relieve the excessive pressure smoothly, especially in low-pressure settings.

Applications

- Fuel Gas Relief
- Gas Gathering Relief

Specifications

	P289 1"		P289 2"	
Port Size	1 NPT		2 NPT	
Maximum Relief Inlet Pressure	100 PSIG	6.9 BAR	25 PSIG	1.7 BAR
Relief Set Pressure Ranges	1-4.5 PSIG	.07-0.3 BAR	7-18" W.C.	0.017–0.045 BAR
	4-15 PSIG	.28-1.0 BAR	0.5-2.25 PSIG	0.035–0.16 BAR
	10-20 PSIG	0.7-1.4 BAR	1.75-7 PSIG	0.12–0.5 BAR
	15-50 PSIG	1-3.5 BAR	4-10 PSI	0.28–0.7 BAR
	45-75 PSIG	3.1-5.2 BAR		
Temperature Range	-20–150ºF with Nitrile and Neoprene		-20–150ºF with Nitrile and Neoprene Elastomers	
	0–300 ºF with Fluoroelastomer		0–300ºF with Fluoroelastomer	
Approximate Weight	2 lbs.	0.907 kg	15 lbs.	6.803 kg

Materials of Construction

	P289 1"	P289 2"
Body, Bonnet	Aluminum	Cast Iron Body with Aluminum Bonnet
Diaphragm	Nitrile or Fluoroelastomer	Nitrile or Fluoroelastomer
Gaskets	Neoprene	Neoprene/Composite
O-rings	Nitrile or Fluoroelastomer	Nitrile or Fluoroelastomer
O-ring Piston and space	Aluminum	N/A
Seat Washer	N/A	Stainless Steel
Pitot Tube	Aluminum	Brass or Stainless Steel
Main Seat	N/A	Brass or Stainless Steel
Spring	Zinc-plated steel	Zinc-Plated Steel
Diaphragm Piston	Zinc-plated steel	Zinc-Plated Steel
Closing Cap	N/A	Zinc

P289 1" Part Matrix

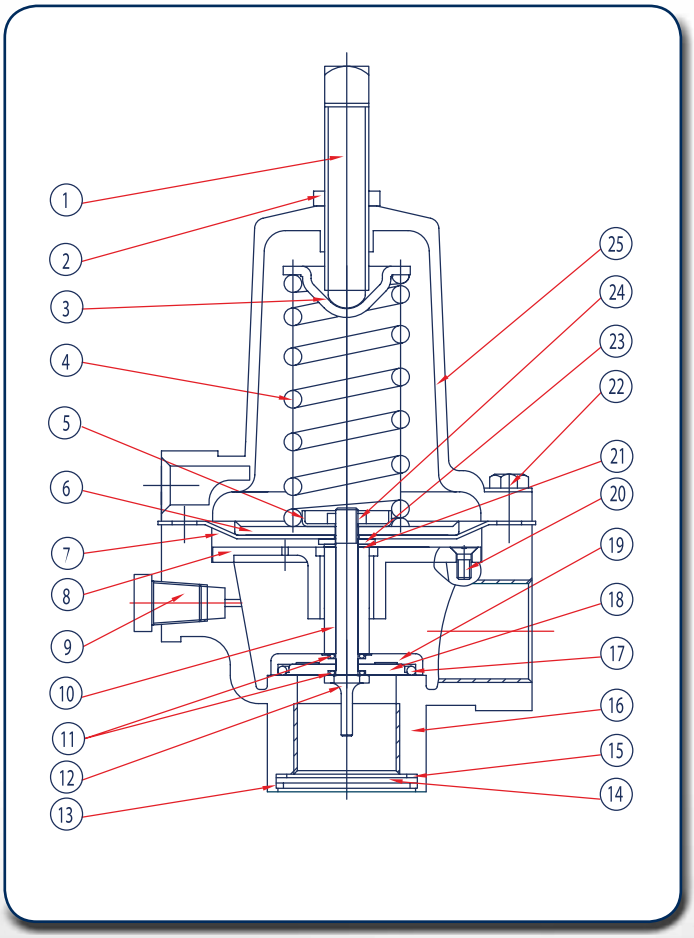
P289	08		0	0	0			0	
									Body Size
	08								1"
									Spring Range
									PSIG / BAR
		004							1 - 4.5 / 0.07 - 0.3
		015							4 - 15 / 0.3 - 1.0
		020							10 - 20 / 0.69 - 1.4
		050							15 - 50 / 1.0 - 3.4
		075							45 - 75 / 3.1 - 5.2
						0			O-ring Material
						0			Nitrile
						1			Fluoroelastomer
							0		Diaphragm Material
							0		Nitrile
							1		Fluoroelastomer

P289 2" Part Matrix

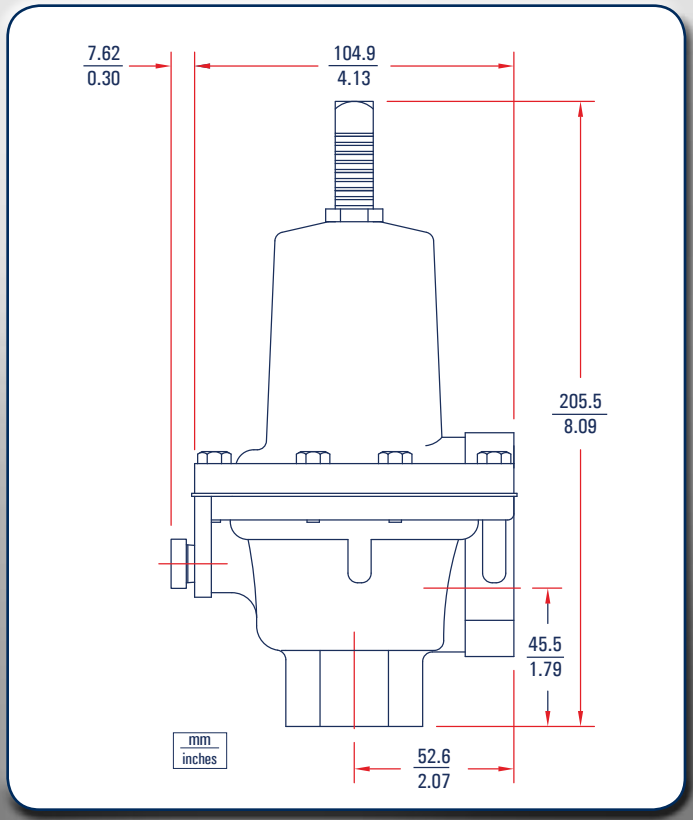
P289	16		0	0					
									Body Size
	16								2"
									Spring Range
									W.C. or PSIG / BAR
		001							7 - 18" W.C. / 0.02 - .05
		002							.05 - 2.25 PSIG / 0.04 - 0.16
		007							1.75 - 7 PSIG / 0.12 - 0.48
		010							4 - 10 PSIG / 0.28 - 0.7
									Main Seat Material
					0				Brass
					1				Stainless Steel
									O-ring Material
					0				Nitrile
					1				Fluoroelastomer
									Diaphragm Material
						0			Nitrile
						1			Fluoroelastomer
									Pitot Tube Material
							0		Brass
							1		Stainless Steel

P289 1" Parts

Item	Description		Part Number
1	Adjusting Screw, Plated Steel		648-487-000
2	Hex Nut, Plated Steel		634-154-000
3	Spring Guide, plated steel		626-079-000
4	Spring	1–4.5 PSIG (0.1–0.3 BAR), Pink	655-688-000
		4–15 PSIG (0.3–1 BAR), Red	655-689-000
		10–20 PSIG (0.7–1.4 BAR), Silver	655-676-000
		15–50 PSIG (1–3.4 BAR), & 45–75 PSIG (3.1–5.2 BAR), Green	655-690-000
5	Piston Retainer, Plated Steel		643-191-000
6	Piston,	Plated Steel (All Output Pressures other than 45-75 PSIG)	637-306-000
		Range 45-75 PSIG	637-319-000
7	Diaphragm	P289 1" Nitrile	600-497-000
		P289 1" Fluoroelastomer	600-497-001
8	Stem Guide Assembly		814-014-000
9	Pipe Plug, Plated Steel		639-099-000
10	Spacer Tube, Stainless Steel		654-178-000
11	O-ring	Nitrile (2 Required)	649-000-003
		Fluoroelastomer(2 Required)	649-000-343
12	Pitot Tube, Aluminum		660-051-000
13	Retaining Ring, plated steel		644-051-000
14	Screen, Stainless Steel		647-018-000
15	Gasket, Neoprene		624-063-000
16	Body, Aluminum		664-295-000
17	O-ring	Nitrile	649-293-000
		Fluoroelastomer	649-293-001
18	O-ring Spacer, Aluminum		654-177-000
19	O-ring Piston, Aluminum		637-311-000
20	Machine Screw, Stainless Steel (2 Required)		648-488-000
21	Gasket, Composite (2 Required)		624-062-000
22	Machine Screw (8 Required)		648-466-004
23	Washer, Steel		662-204-000
24	Hex Nut, Plated Steel		634-162-000
25	Bonnet, Aluminum		604-221-000



P289 1" Dimensions

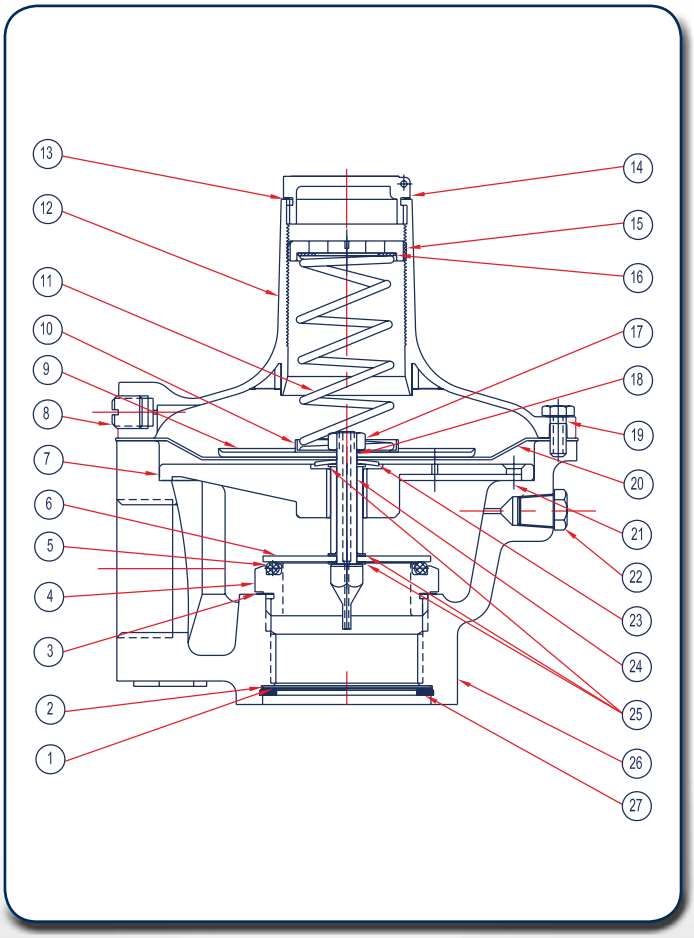


P289 1" Regulator Rebuild Kits

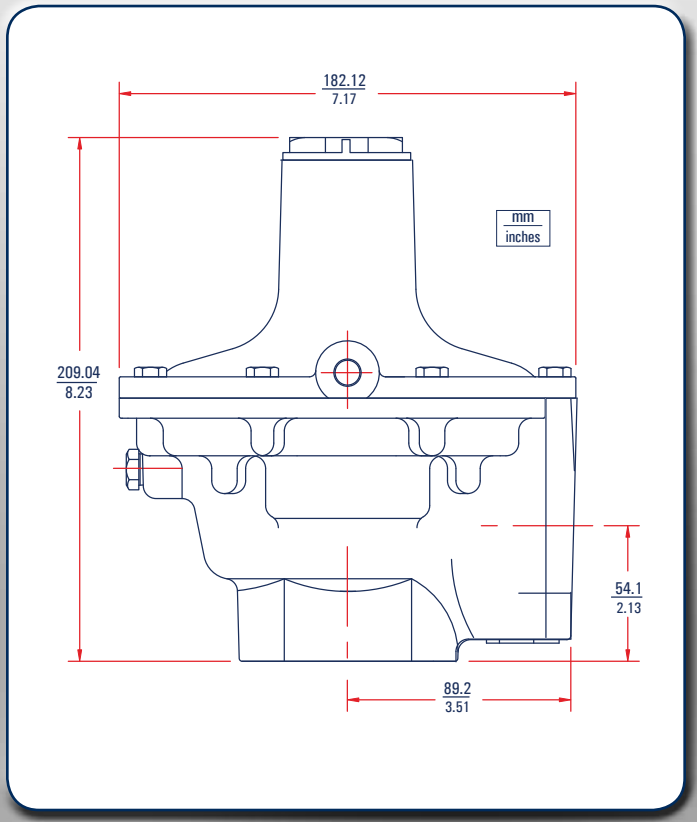
	Kit Includes	Part Number
P289 1"	Nitrile Diaphragms, Screen & Gasket	971-289-000
P289 1"	Fluorocarbon Diaphragm, Screen & Gasket	971-289-001

P289 2" Parts

Item	Description		Part Number
1	Gasket, neoprene		624-066-000
2	Screen, stainless steel		647-020-000
3	Seat Gasket, neoprene		624-071-000
4	Main Seat	Brass	650-132-000
		Stainless Steel	650-133-000
5	O-ring	Nitrile	649-302-000
		Fluoroelastomer	649-301-000
6	O-ring, Washer, Stainless Steel		662-207-000
7	Stem Guide Assembly, Cast Iron & Brass		814-015-000
8	Upper Pipe Plug		639-102-000
9	Diaphragm Head, Plated Steel		637-315-000
10	Lower Spring Retainer, Zinc Plated Steel		643-197-000
11	Spring	7 to 18" W.C. , Dark Blue	655-691-000
		0.5 to 2.25 PSIG (.03 to .15 BAR), Grey	655-692-000
		1.75 to 7 PSIG (.12 to .48 BAR), Dark Green	655-693-000
		4 to 10 PSIG (.27 to .69 BAR), Red Stripe	655-694-000
12	Bonnet, Aluminum		604-558-000
13	Closing Cap Gasket, Neoprene		624-069-000
14	Closing Cap, Acetal		610-056-000
15	Adjusting Screw, Zinc		648-499-000
16	Upper Spring Seat Washer, Aluminum		662-206-000
17	Hex Nut, Plated Steel		634-173-000
18	Pitot Tube	Brass	660-053-000
		Stainless Steel	660-054-000
19	Machine Bolt, (8 Required)		648-466-000
20	Diaphragm	Nitrile	618-071-000
		Fluoroelastomer	618-071-001
21	Machine Screw, Stainless Steel, (4 Required)		648-500-000
22	Low Pipe Plug, Plated Steel		639-099-000
23	Snap Washer, Plated Steel		662-208-000
24	Spacer	Brass	654-181-000
		Stainless Steel	654-182-000
25	Gasket, Neoprene, (3 Required)		624-065-000
26	Body, Cast Iron		664-302-000
27	Retaining Ring, Plated Steel		644-054-000



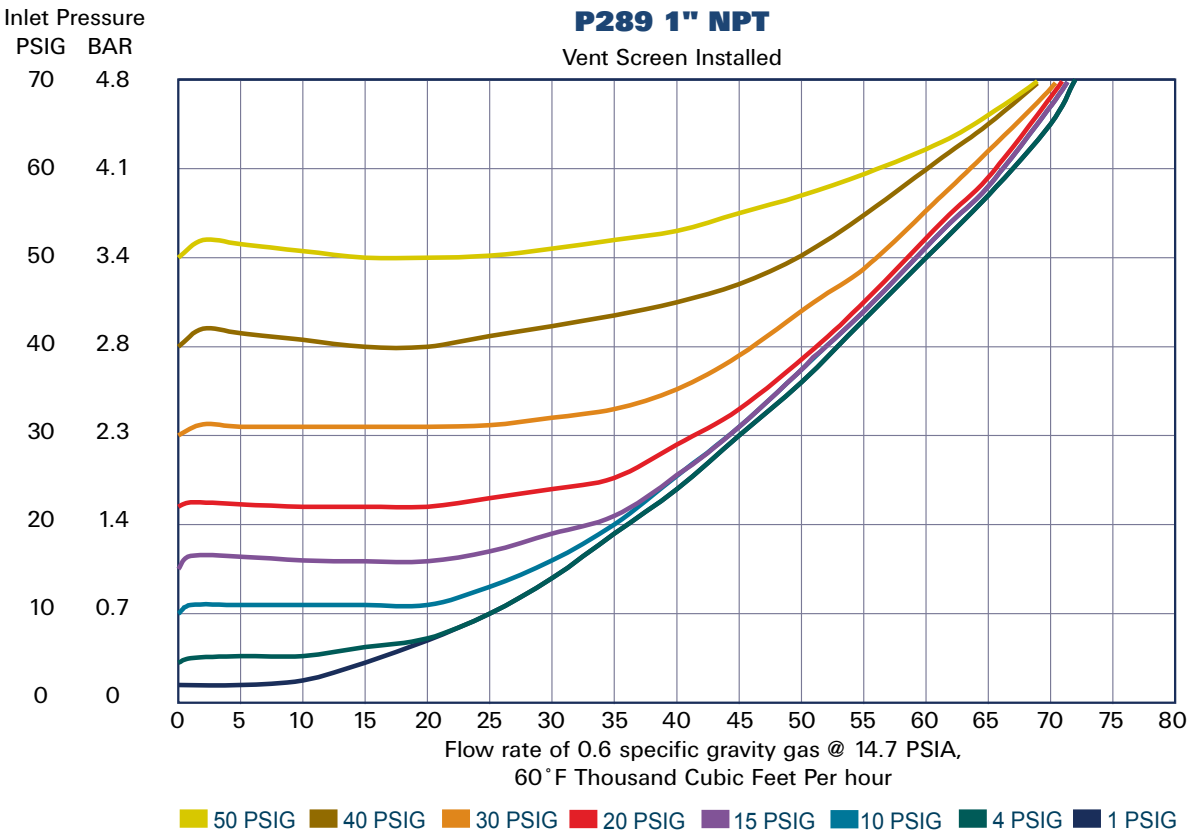
P289 2" Dimensions

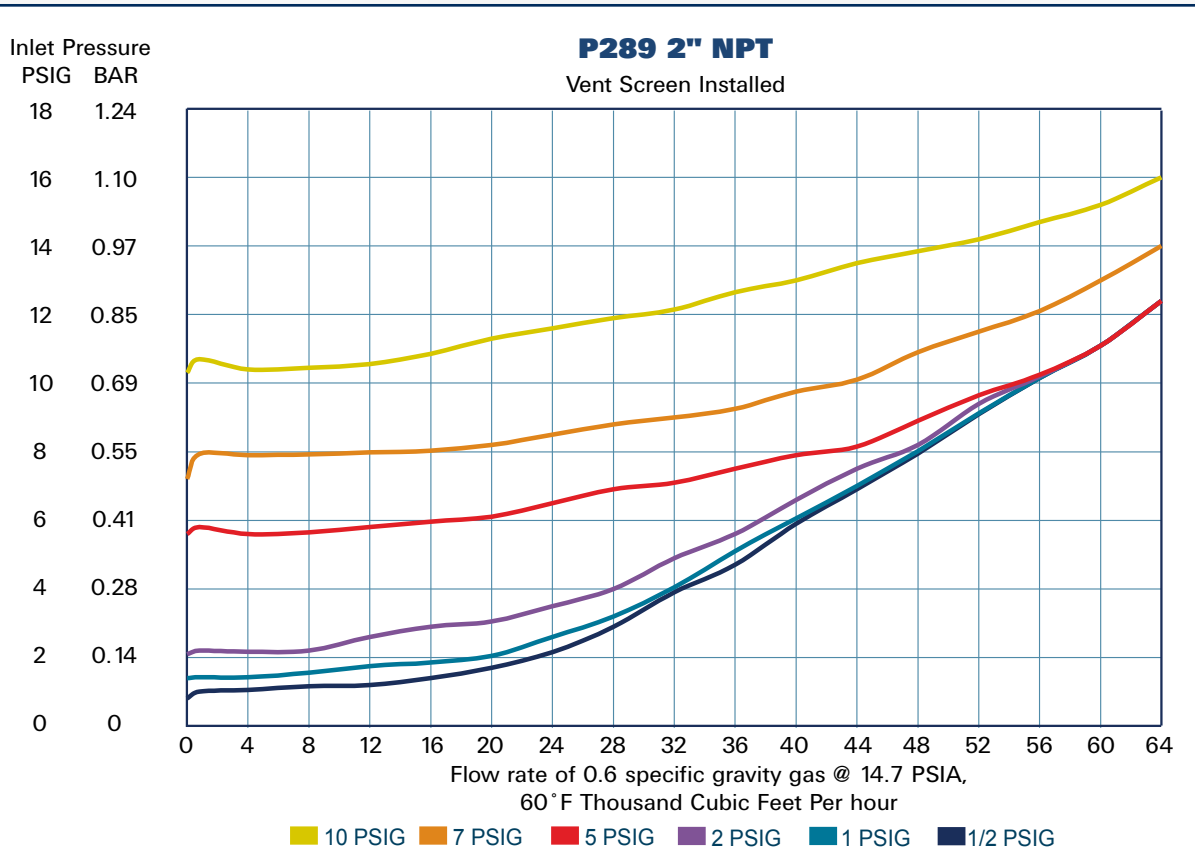


P289 2" Regulator Rebuild Kits

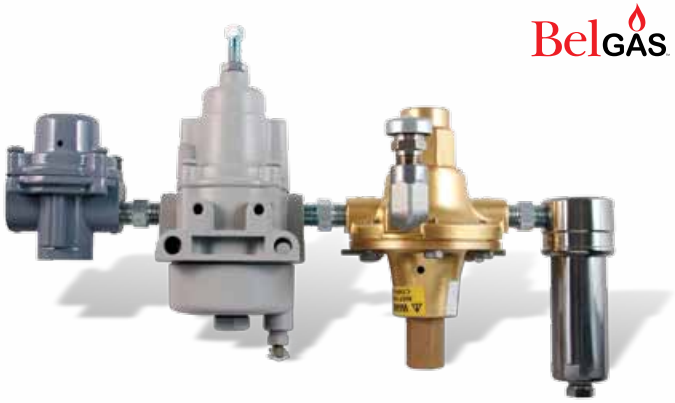
	Kit Includes	Part Number
P289 2"	Nitrile Diaphragms, Screen, Screen Gasket (Neoprene), Composite Gaskets (Qty.3)	971-289-002
P289 2"	Fluorocarbon Diaphragm, Screen, Screen Gasket (Neoprene), Composite Gaskets (Qty. 3)	971-289-003

P289 Flow Rates





P1367 Manifold System



Hi/Lo Pressure Instrument Supply Manifold System with Safety Relief Valve Protection.

P1367 pneumatic supply pressure manifold offers the customer a complete package for working pressures up to 2000 psig (138 bar.)

Features

- Hi-Lo Gas Pressure Regulation
- Inlet and Outlet Gas Filtration
- Overpressure Safety Protection
- Two connection hook-up
- Installation Flexibility
- NACE Capability

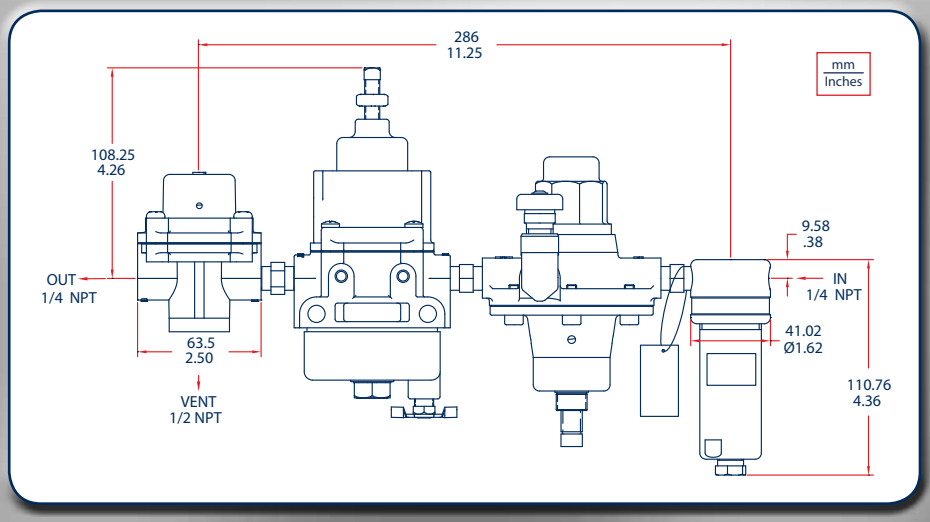
P136702					00	
	▲	▲	▲	▲	▲	Output Pressure Setting
	020					20 PSIG Setpoint
	035					35 PSIG Setpoint
						Mounting Bracket
		C				Casing Mounting Bracket
		Y				Yoke Mounting Bracket
						Filter Drain
			P			Plug
			V			Manual Drain Valve
						Construction
				S		Standard
				N		NACE

Specifications

Port Sizes	Inlet and Outlet	1/4 NPT
	P800 Vent	1/2 NPT with Removable Screen
Max Inlet Pressure	2000 PSIG	138 BAR
Temperature Range	-20˚to + 160˚F	-29˚ to +66˚C
Weight Approximate	8 lbs.	3.6 kg

Manifold includes the following items:

1	**P350** Stainless Steel Body, filter, SST drain. Available with a Plugged Drain Port or Manual Drain Valve	
2	**P39** First-stage high pressure regulator with mounting bracket.	
3	High pressure relief valve, attached to P39 regulator with pipe elbow. Preset to 150 PSIG (10.3 BAR)	
4	**P50** Second-stage low pressure filter regulator, nipple-mounted in outlet of the P39 regulator.	
5	**P800** Relief valve, nipple mounted in the outlet of the P50 regulator. Preset to 41 PSIG (2.83 BAR)	



Replacement Parts	Part Number
Casing Mounting Bracket	607-304-000
Yoke Mounting Bracket	607-305-000

P350 Filter

Excellent Filtration

The element is made from high efficiency glass microfiber with high grade 316SS end caps and support cages.

Filter complies with NACE MR1075 for sulfide stress cracking resistant metallic material for oil field equipment

Maintenance

A tight seal is guaranteed by the use of a thread element connection. The filter housing and element have been polished and degreased. No special lubricants are needed in the field for replacing the element.

The element is threaded into the housing so there is no need for extra parts during installation or maintenance of the filter. There is no chance of losing top or bottom seals or rings required for installation.

Applications

- Filtering Supply Gas
- Filtering Air Supply

P350 Part Matrix

P3500200000		000	
			Drain Valve Option
		P	Plug
		V	Manual Drain Valve

Replacement Element	667-051-000

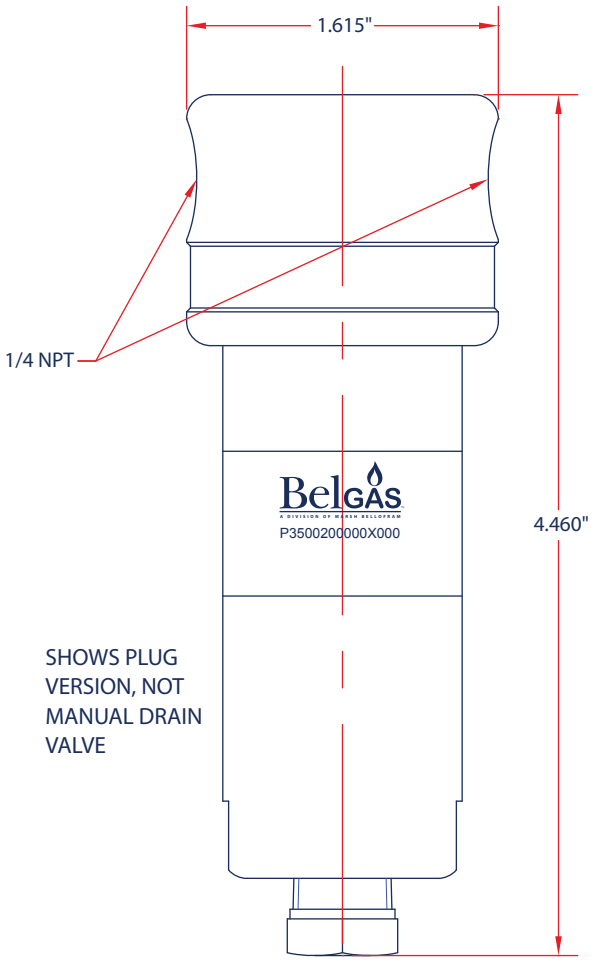
Flow Rates

Body Size	Pressure Differential	SCFM
1/4 NPT	5 PSIG	19 SCFM
	10 PSIG	27 SCFM
	20 PSIG	40 SCFM

Specifications

Body Size	1/4 NPT	
Max Operating Pressure	4000 PSIG	
Max Operating Temperature	248˚ F	120˚ C
Drain Valve Assemble Options	Plugged Drain Port	
	Manual Drain Valve	
Weight Approximate		
	1.1 lb	0.5 kg
Materials of Construction		
Body,	Stainless Steel NACE Construction	
Filter	25 Micron Glass Microfiber	
	Stainless Filter End Caps	

P350 Dimensions



P800 Relief Valve

The 800 is a direct operating, in-line, factory preset relief valve for use in pneumatic applications that warrant protection from over pressurization. The P800 is used primarily between a pneumatic instrument and a supply regulator to limit the instrument supply pressure to 50 PSIG in the case of a supply regulator failure.

Applications

- Instrument air supply
- Rolling diaphragm for enhanced accuracy
- Tamper resistant spring case

P800 Part Matrix

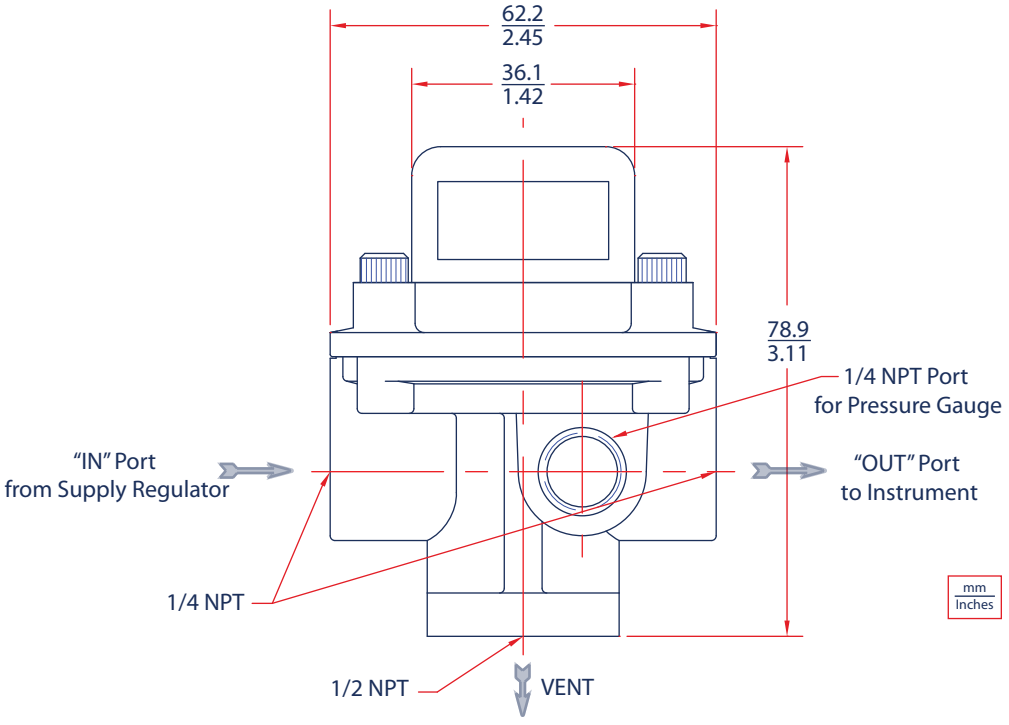
P80002		000000	
	↑		Output Pressure Setting
	xxx		Enter Pressure in PSIG setting Desired Minimum 2 PSIG (002) Maximum 50 PSIG (050)

Specifications

Non-rising Adjustment Assembly		
Large 0.344 Relief Seat Diameter		
Large Diaphragm Area		
1/4 NPT Ports		
Factory Preset	Plugged and Tamper Resistant	
1/2 NPT Tapped Vent		
Weight Approximate		
	0.56 lb	0.25 kg
Temperature Range		
	20˚ to 150˚F	-29˚to 66˚C

Accessories

	Part Number
Mounting Bracket	607-000-057



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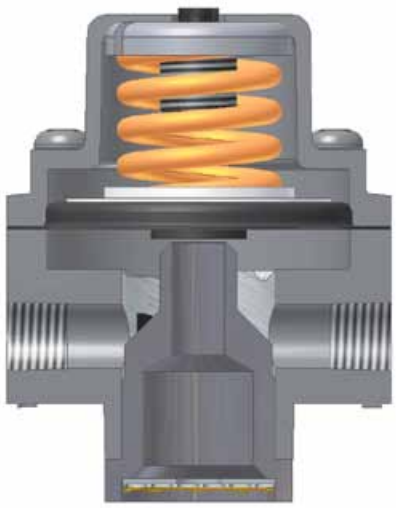


P50 & P50 NACE Filter Regulators

- Superior Regulation Characteristics
- Rugged, Corrosion-Resistant Construction
- Excellent Stability and Repeatability
- Integral, 40 micron, Self Cleaning Filter
- Self-Relieving
- Standard Tapped Vent
- Soft Relief Seat on P50
- Several Mounting Options

The BelGAS General Purpose P50 & P50 NACE Filter Regulators are reliable precision units designed for instrumentation and general purpose use in both standard environments (P50), and corrosive environments (P50 NACE). The P50 NACE complies with NACE material requirement MR0175 for sulfide stress cracking resistant metallic material for oil field equipment.

These BelGAS regulators are generally superior in regulated pressure vs. flow, forward-to-reverse flow offset, supply pressure sensitivity, repeatability and stability.

Ruggedly designed and constructed, the regulators have housings of diecast aluminum. The P50 Regulator is finished with vinyl paint (which resists scratching, weathering & other physical abuse), while the P50 NACE is finished with epoxy paint and includes a vent cap for added protection. Both models are pressure and leak tested prior to shipment from the factory.

The full flow gauge port is convenient for gauge installation and can also be used as an additional full flow outlet. The P50 regulators include a unique self-cleaning 40 micron nylon mesh filter (316 stainless steel in the P50 NACE) that can be easily removed.

The P50 NACE is available for use in corrosive environments. This complies with NACE material requirement MR0175 for sulfide stress cracking resistant metallic material for oil field equipment.

Applications

The design of these regulators is especially well suited to pilot-operated level, pressure and flow controllers and instruments, as well as applications such as air chucks, air spray guns, air cylinders and actuators, and a wide range of industrial pneumatic systems and equipment.

Materials of Construction

	P50 Filter Regulator	P50 NACE Filter Regulator
Body	Diecast aluminum with vinyl paint	Diecast aluminum with epoxy paint
Adjusting Screw	Plated steel	Stainless steel
Trim	Plated steel, brass, acetal resin	Stainless steel, Neoprene, Fluoroelastomer
Diaphragm	Buna-N elastomer with polyester fabric	Fluoroelastomer with Polyester Fabric
Knob	Phenolic plastic (option)	
Spring	Music wire	Inconel

P50 Part Matrix

P050		02			0	0	0		
								Versions	
	0							Standard	
	N							NACE	
								Output Range	
			010					0-10 PSIG*	
			035					0-35 PSIG	*Not available in NACE
			060					0-60 PSIG	
			120					0-120 PSIG	
								Options	
				00				Standard	
				0B				Non-relieving	
				0F				5 Micron Filter	
				0K				Knob*	*P50 standard version only
				BF				Non-relieving & 5 M Filter	
				BK				Non-relieving & Knob*	
				CD				Non-relieving, 5 M Filter & Knob*	

Non-relieving

Used in applications where it is desirable to relieve pressure downstream of the regulator, for some constant flow applications, and where the gas flowing through the regulator must not escape at the regulator. Non-relieving regulators should not be used for low or no flow applications.

5 Micron Filter

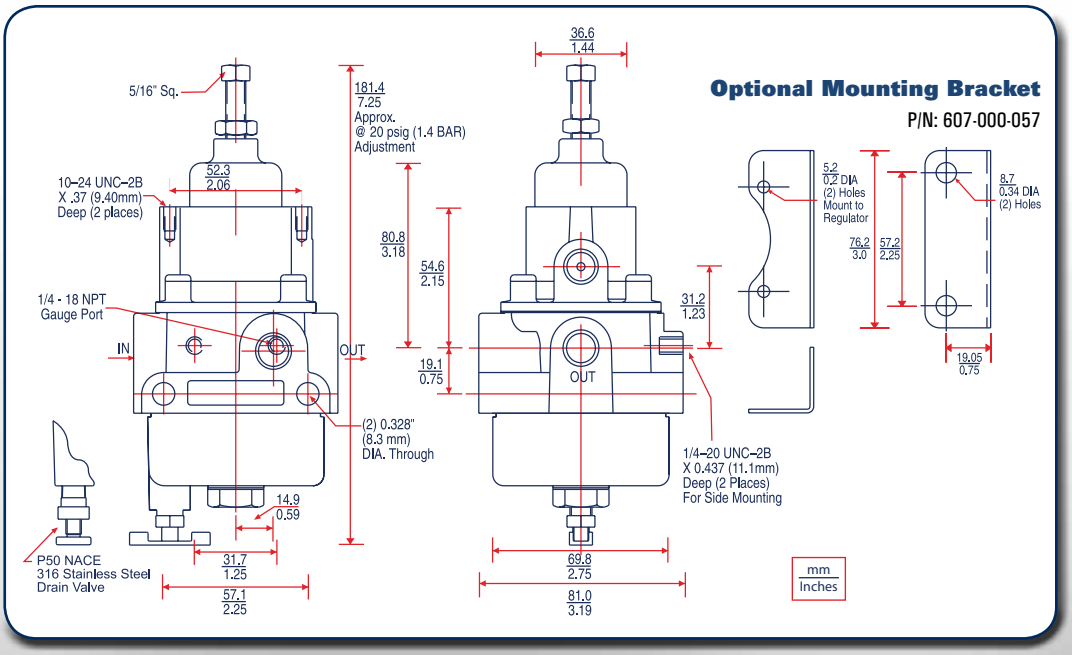
Replaces the 40 micron filter supplied with the standard P50 for more complete air filtration.

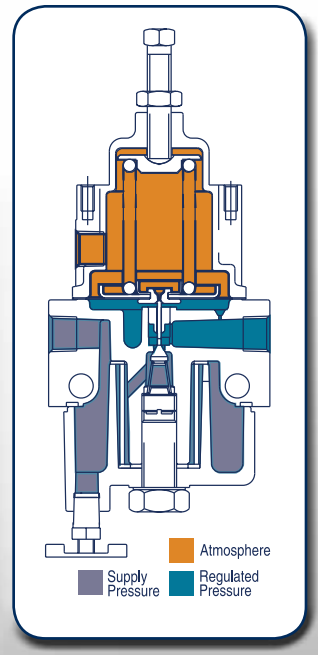
The standard P50 will have a tapped vent, vinyl paint, 40 micron filter and low bleed. The standard P50N will have a tapped vent, epoxy paint, 40 micron filter and standard bleed.

P50 & P50 Nace Specifications

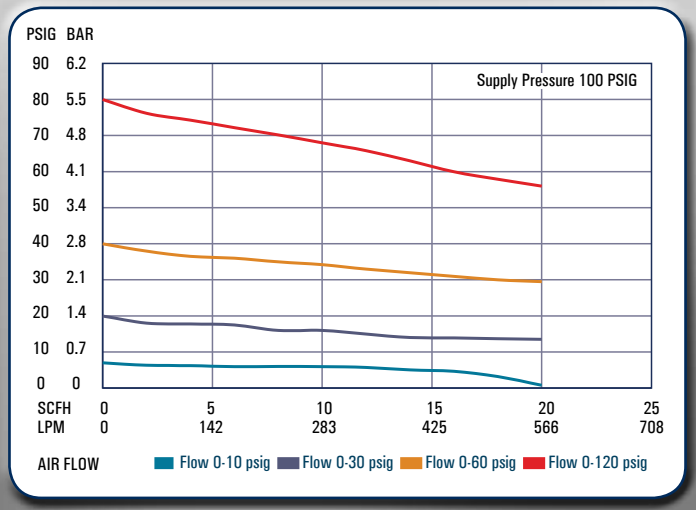
	P50 Filter Regulator	P50 NACE Filter Regulator
Sensitivity	1" (25.4 mm) Water Column	1" (25.4 mm) Water Column
Flow Capacity	20 SCFM (565 LPM)	18 SCFM (510 LPM)
Effect of Supply Pressure variation (25 PSIG) on Outlet Pressure	< 0.2 PSIG (0.01 BAR)	< 0.2 PSIG (0.01 BAR)
Exhaust Capacity (5 PSIG above 20 PSIG set point)	0.1–0.45 SCFM Typical (2.8–12.7 LPM)	0.1–0.45 SCFM Typical (2.8–12.7 LPM)
Maximum Input/Supply Pressure	250 PSIG (17.2 BAR)	250 PSIG (17.2 BAR)
Effect of Changes in Flow on Regulated Pressure (100 PSIG/6.9 BAR Supply)	4 PSIG (0.3 BAR) over flow 10 SCFM (283 LPM) (1/4 NPT, 20 PSIG / 1.4 BAR set point)	5 PSIG (0.3 BAR) over flow 10 SCFM (283 LPM) (1/4 NPT, 20 PSIG / 1.4 BAR set point)
Output Pressure Ranges	0-10 PSIG (0-0,7 BAR) 0-35 PSIG (0-2.4 BAR) 0-60 PSIG (0-4.1 BAR), 0-120 PSIG (0-8.3 BAR)	0-35 PSIG (0-2.4 BAR) 0-60 PSIG (0-4.1 BAR), 0-120 PSIG (0-8.3 BAR)
Temperature Range	0 to 160˚F (-18 to 71˚C)	-20 to 180º F (-29 to 82˚C)
Total Air Consumption @ Maximum Output	0.1 SCFH (0.05 LPM)	6 SCFH (2.8 LPM)
Port Size	1/4 NPT	1/4 NPT
Size	3.19" X 3.19" X 7.25" (81 X 81 X 184 mm)	3.19" X 3.19" X 7.25" (81 X 81 X 184 mm)
Weight	1.81 lb (0.8 kg)	1.81 lb (0.8 kg)
Mounting	Pipe, Panel, Bracket or Thru Body Holes	Pipe, Panel, Bracket or Thru Body Holes

P50 & P50 Nace Dimensions

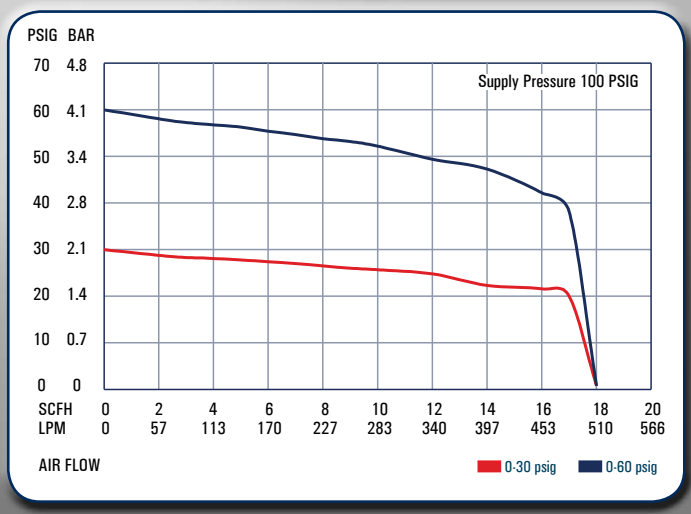




P50 Regulated Pressure vs. Flow



P50 NACE Regulated Pressure vs. Flow



P39 Standard Gas Regulators

- Spare valve disks provided. Each unit comes with a 4 seat valve disk block. This block can be easily rotated 90˚ to provide a fresh valve disk sealing surface.
- Easily changed from tamper-resistant to T-handle adjustment or vice versa.
- Both adjustment assemblies are supplied with every unit.
- Brass casing material

The BelGAS P39 regulator selection is the largest of its type in the industry. We offer this regulator in three different materials, one of which will ideally suit your application AND your budget. ALL of the P39's are offered with six different spring ranges. Our broad selection of outlet pressure spring ranges allows more precise regulation of downstream pressure, hence, better process control. Piping designs can be simplified by using any one (or all) of the 3 outlet ports that come standard on the regulator. The BelGAS P39 is the ONLY regulator of this type, which has 3 outlet ports. To enhance the versatility of this regulator further, we provide you with a choice of seat materials that allows the designer to custom fit the seat material with the application.

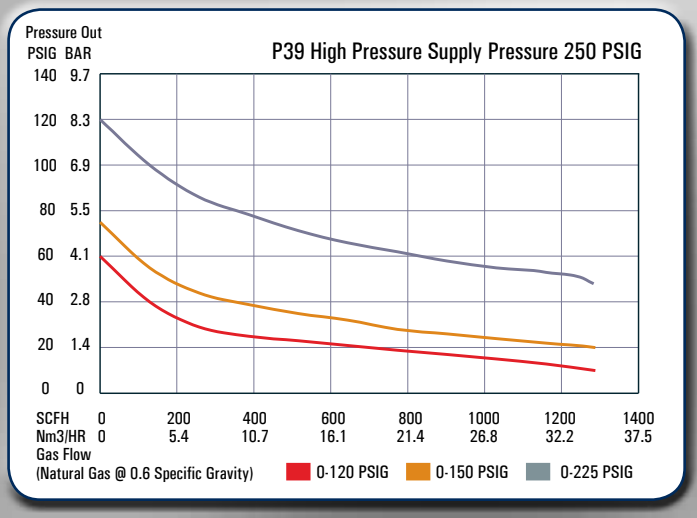
Applications

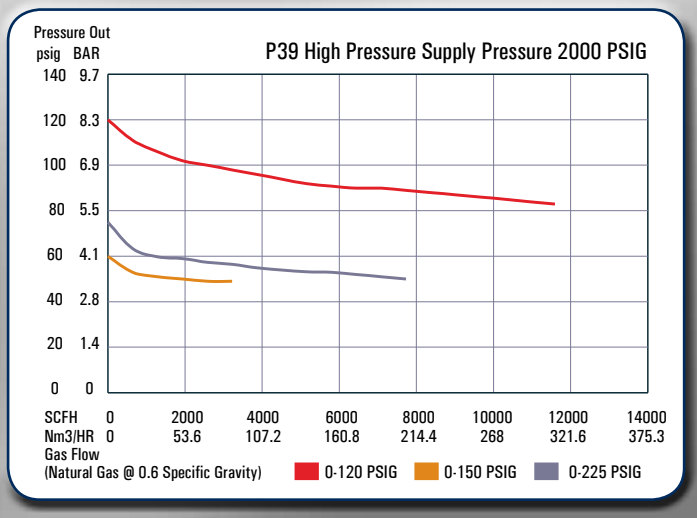
- First cut of high-pressure natural gas to control valve supply
- Natural gas instrumentation columns
- First cuts to any downstream, low flow application, such as catalytic heaters, valve actuators, pressure controllers and chemical injection pumps

Specifications

Inlet	1/4 NPT	
Outlet	1/4 NPT (3 Ports)	
Vent	4 holes (5/32" each) (STD)	
	1/4 NPT (Tapped Vent Option)	
Max Inlet	5500 PSIG, 379 BAR	
Orifice Size	5/64"	
Outlet Ranges		
	0 – 30 PSIG	2.1 BAR
	0 – 60 PSIG	4.1 BAR
	0 – 120 PSIG	8.3 BAR
	0 – 150 PSIG	10.3 BAR
	0 – 225 PSIG	15.5 BAR
Temp. Range	–40˚F to 225˚F	–46˚C to 106˚C
Weight Approximate		
Standard	3-1/4 lbs	1.46 kg
500 PSIG	3-3/4 lbs	1.69 kg

Flow Charts



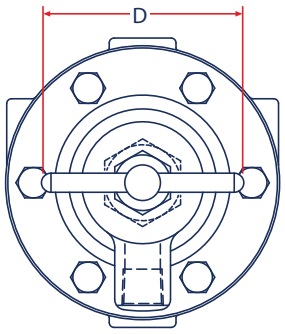


P39 Standard Part Matrix

P03902		0	X	0			0	
	↑	↑	↑	↑	↑	↑	↑	Spring Range
	030							0-30 PSIG 0-2.1 BAR
	060							0-60 PSIG 0-4.1 BAR
	120							0-120 PSIG 0-8.3 BAR
	150							0-150 PSIG 0-10.3 BAR
	225							0-225 PSIG 0-15.5 BAR
								Version
		0						Standard
								Adjustment Method
			X					T-Bar and Adjustment Screw (Allen Head) with Tamper Resistant Cover
								Vent
				0				Standard Untapped Bonnet Vent
								Seat Material
					1			Nylon
					3			Teflon
								Port Configuration
						0		Standard
								Casing Material
							0	Brass

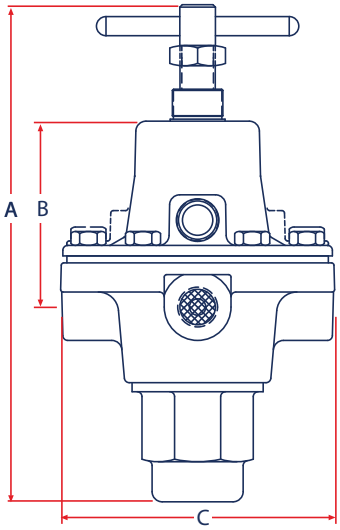
Materials of Construction

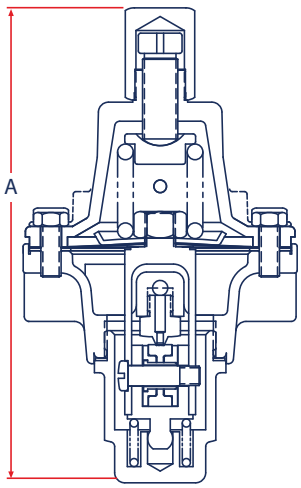
Brass Unit	
Body, Bonnet, Bottom Plug	Brass
Tamper Resistant Cover	Brass
Diaphragm	302 Stainless
Seals	TFE, Nitrile
Valve Spring	17-7^{PH} Stainless Steel
Range Spring	Spring Steel, Chrome Silicon
Seat Material	Nylon or TFE



P39 Standard Dimensions

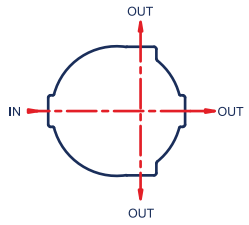
Dimensions Table		A	B	C	D
P39 w/T-Handle 0-30, 0-60, 0-120, 0-150, 0-225 PSIG range	mm	156	58	85	64
	inches	6.14	2.3	3.33	2.50
P39 w/Allen Head 0-30, 0-60, 0-120, 0-150, 0-225 PSIG range	mm	150	58	85	19
	inches	5.90	2.30	3.33	0.75





Ports

Standard

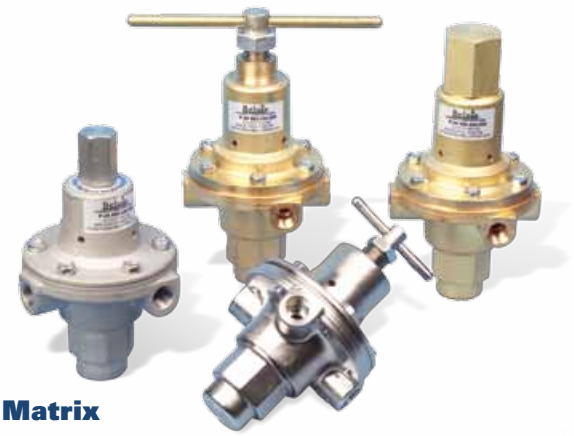


P39 Special Build Gas Regulators

BelGAS

Specials include these models:

- 500 PSI Outlet
- Dual Inlet Ports
- Nickel Plated and Stainless Steet
- Tapped Vent Models



Applications

- First cut of high-pressure natural gas to control valve supply
- Natural gas instrumentation columns
- First cuts to any downstream, low flow application, such as catalytic heaters, valve actuators, pressure controllers and chemical injection pumps

P39 Special Build Part Matrix

P03902									
	▲	▲	▲	▲	▲	▲	▲	Spring Range	
	030							0-30 PSIG 0-2.1 BAR	
	060							0-60 PSIG 0-4.1 BAR	
	120							0-120 PSIG 0-8.3 BAR	
	150							0-150 PSIG 0-10.3 BAR	
	225							0-225 PSIG 0-15.5 BAR	
	500							0-500 PSIG 0-34.5 BAR	
								Versions	
		0						Standard	
		3						PED (for EU)	*Not available in Stainless Steel
		4						ENVIRO-Cap* (Water Jacket)	
								Adjustment Method	
			0					T-Bar	
			1					Adjustment Screw (Allen Head) with Tamper Resistant Cover	
								Vent Options	
				0				Standard Bonnet	*Not available in Brass or Nickel 500 PSIG units. Tapped vent is standard on Stainless Steel 500 PSIG units.
				1				Tapped Vent Bonnet*	
								Seat Material	
					1			Nylon	*Nickel and Stainless Steel only
					3			Teflon (Brass units only)	
					4			PTFE*	
								Port Configuration	
						0		Standard	**Not available in Stainless Steel
						1		Dual Inlet**	
								Casing Material	
							0	Brass	
							1	Electroless Nickel	
							2	Stainless Steel	

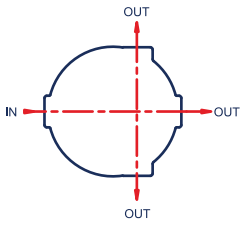
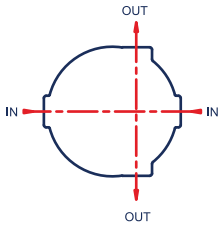
Materials of Construction

Brass Unit	
Body, Bonnet, Bottom Plug	Brass
Tamper Resistant Cover	Brass
Diaphragm	302 Stainless
Seals	TFE, Nitrile
Valve Spring	17-7PH Stainless Steel
Range Spring	Spring Steel, Chrome Silicon
Seat Material	Nylon or TFE
Nickel Plated Unit	
Body, Bonnet, Bottom Plug	Nickel Plated Brass
Tamper Resistant Cover	Nickel Plated Brass
Diaphragm	302 Stainless Steel
Seals	TFE, Nitrile
Valve Spring	17-7PH Stainless Steel (Nickel Plated)
Range Spring	Spring Steel or Chrome Silicon
Seat Material	Nylon or PTFE (316 SS Block)
Stainless Steel Unit	
Body, Bonnet, Bottom Plug	316 Stainless Steel
Tamper Resistant Cover	316 Stainless Steel
Diaphragm	Monel 400
Seals	TFE, Neoprene
Valve Spring	MP35N (UNS30035)
Range Spring	Spring Steel
Seat Material	Nylon or PTFE (316 SS block)
Only the P39SS Conforms to NACE MR0175	

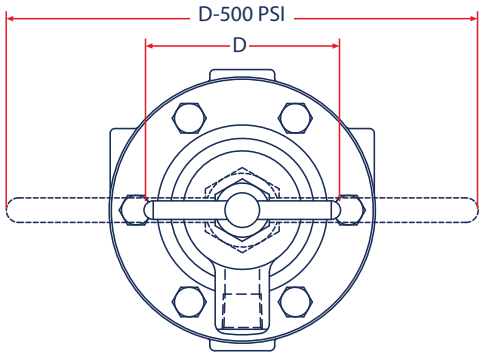
Specifications

Inlet	1/4 NPT	
Outlet	1/4 NPT (3 Ports)	
Vent	4 holes (5/32" each) (STD)	
	1/4 NPT (Tapped Vent Option)	
Max Inlet	5500 PSIG, 379 BAR	
Orifice Size	5/64"	
Outlet Ranges		
	0 – 30 PSIG	2.1 BAR
	0 – 60 PSIG	4.1 BAR
	0 – 120 PSIG	8.3 BAR
	0 – 150 PSIG	10.3 BAR
	0 – 225 PSIG	15.5 BAR
	0 – 500 PSIG	34.5 BAR
Temp. Range	–40˚F to 225˚F	–46˚C to 106˚C
Weight Approximate		
Standard	3-1/4 lbs	1.46 kg
500 PSIG	3-3/4 lbs	1.69 kg

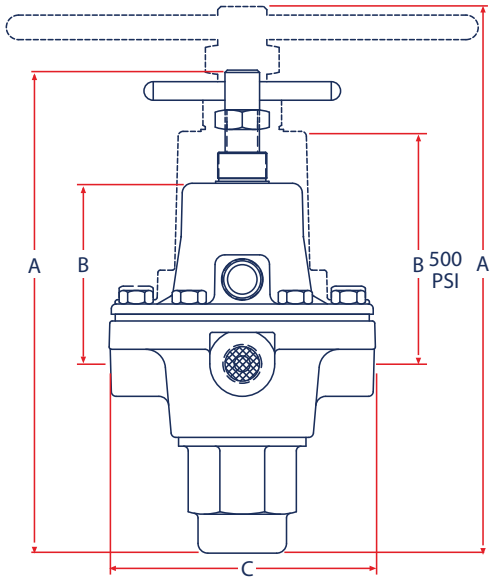
Ports

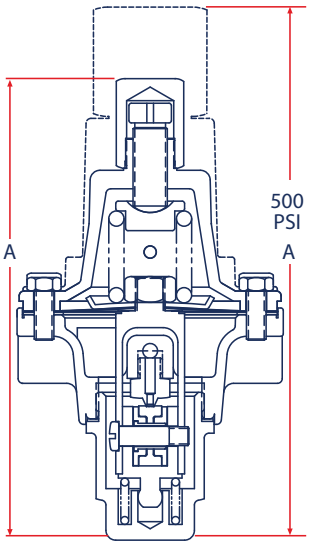
Standard	Dual Inlet
	

P39 Special Build Gas Dimensions



Dimensions Table		A	B	C	D
P39 w/T-Handle 0-30, 0-60, 0-120, 0-150, 0-225 PSIG range	mm	156	58	85	64
	inches	6.14	2.3	3.33	2.50
P39 w/Allen Head 0-30, 0-60, 0-120, 0-150, 0-225 PSIG range	mm	150	58	85	19
	inches	5.90	2.30	3.33	0.75
P39 w/T-Handle 0-500 PSIG range	mm	177	75	85	152
	inches	6.98	2.96	3.33	6.0
P39 w/Allen Head 0-500 PSIG range	mm	172	75	85	32
	inches	6.78	2.96	3.33	1.25





P51 Stainless Steel

- Ideal for Sour Gas and Corrosive Applications or Environments
- Excellent Stability and Repeatability
- Built-in Filter Assemblies and Dripwells
- Filter Only Assemblies Available
- Soft Relief Seat for Low Gas Consumption
- Low droop
- Tapped Vent for Exhaust Gas Capture
- Manual or Automatic Drain Options
- Panel, Bracket or Pipe Mounting

The P51SS regulator product line is designed for service with a wide variety of corrosive gases and environments. Special construction features include 316 stainless steel for the housing and filter assemblies, with fluorocarbon elastomers used for the control diaphragm and the supply valve.

This ruggedly built regulator operates in pressure ranges up to 150 PSIG (10.3 BAR). The P51SSFR and P51SSAR Regulators and the P51SSF and P51SSAF filter assemblies have built-in dripwells which trap water, oil and other contaminant's. The contaminant's are easily flushed out of the dripwell via a convenient manual or automatic drain valve. The 40-48 Micron Filter is constructed of sintered 316 stainless steel, and is easily removed.

The P51SS products can be through-panel mounted with the mounting nut supplied (regulators only), bracket-mounted using the optional bracket (regulators only), or pipe mounted by its ports (regulators and filters).

The regulators and filter assemblies comply with NACE Standard MR0175 (Metals for Sulfide Stress Cracking and Stress Corrosion Cracking Resistance in Sour Oilfield Environments.)

Applications

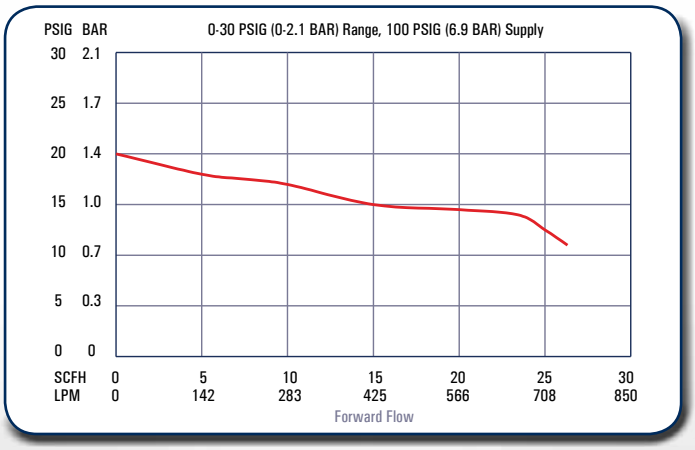
These corrosion resistant materials are compatible with sour gas and for use in off-shore environments. Typical applications include petrochemical processing, chemical plants, food processing and paper/pulp mills.

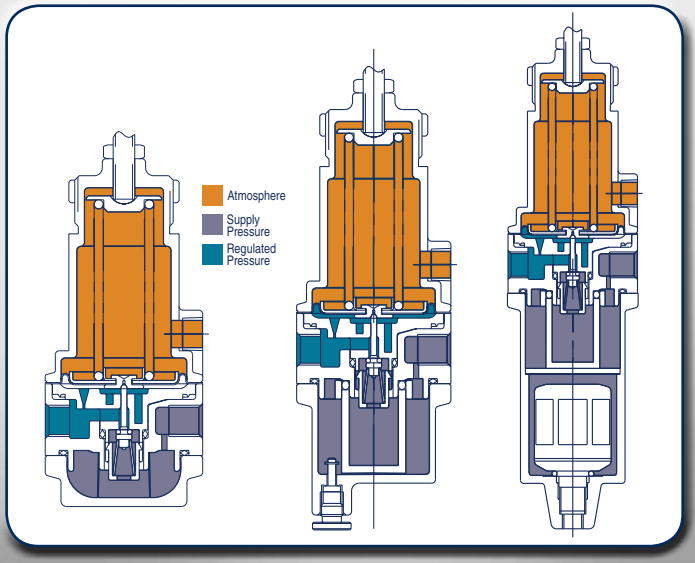
P51 Part Matrix

P051SS					
	↑	↑	↑	↑	Style
	RX				Regulator
	FR				Filter Regulator
	FX				Filter
	AR				Filter Reg w/Autodrain
	AF				Filter w/Autodrain
					Body Size
		02			1/4 NPT
		03			3/8 NPT
					Ranges*
			030		0-30 PSIG
			060		0-60 PSIG
			100		0-100 PSIG
			150		2-150 PSIG
					Options
				00	Standard
				0B	Non-relieving
				0F	5 Micron Filter
				BF	Non-relieving & 5 Micron Filter

* For filters only (FX & AF) use 000 for range

P51 Regulated Pressure vs. Flow





Non-relieving

Used in applications where it is desirable to relieve pressure downstream and not at the regulator. Non-relieving regulators should not be used for low or no flow applications.

Mounting Bracket

P/N 607-000-128

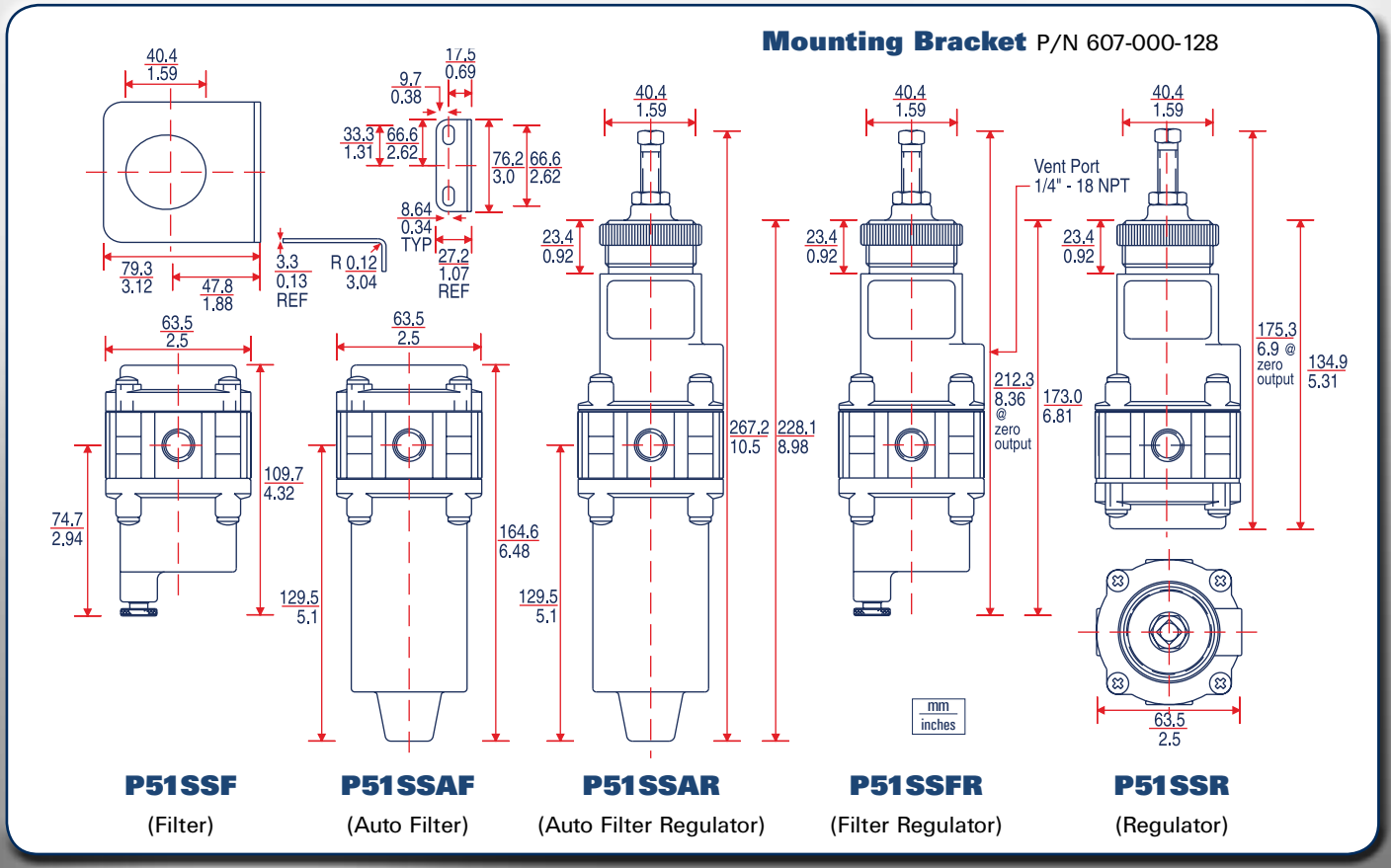
5 Micron Filter

Replaces the 40 micron filter for more complete air filtration. (Except P51SSR)

P51 Stainless Steel Regulators Specifications

	P51SSR Regulator	P51SSFR Filter Regulator	P51SSAR Auto Filter Regulator	P51SSF	P51SSAF
Filter	n/a	Built in 40 micron filter with manual drain	Built in 40 micron filter with automatic drain	40 micron filter with manual drain	40 micron filter with automatic drain
Maximum Supply Pressure	250 PSIG (17.3 BAR)	250 PSIG (17.3 BAR)	250 PSIG (17.3 BAR)	250 PSIG (17.3 BAR)	250 PSIG (17.3 BAR)
Output Pressure Range	0-30 PSIG (0-2.1 BAR) 0-60 PSIG (0-4.1 BAR) 0-100 PSIG (0-6.9 BAR) 2-150 PSIG (0.1-10.3 BAR)	0-30 PSIG (0-2.1 BAR) 0-60 PSIG (0-4.1 BAR) 0-100 PSIG (0-6.9 BAR) 2-150 PSIG (0.1-10.3 BAR)	0-30 PSIG (0-2.1 BAR) 0-60 PSIG (0-4.1 BAR) 0-100 PSIG (0-6.9 BAR) 2-150 PSIG (0.1-10.3 BAR)	n/a	n/a
Supply Pressure Sensitivity @ 25 PSIG / 1.7 BAR change in supply	0.45 PSIG (0.03 BAR) output change	0.45 PSIG (0.03 BAR) output change	0.45 PSIG (0.03 BAR) output change	n/a	n/a
Sensitivity	1" water column	1" water column	1" water column	n/a	n/a
Repeatability	0.1 PSIG (0.01 BAR)	0.1 PSIG (0.01 BAR)	0.1 PSIG (0.01 BAR)	n/a	n/a
Flow @ 100 PSIG (6.9 BAR) Supply & 20 PSIG (1.4 BAR) outlet	20 SCFM (566 LPM)	20 SCFM (566 LPM)	20 SCFM (566 LPM)	n/a	n/a
Exhaust Capacity @ 5 PSIG (0.3 BAR) above setpoint	0.1 SCFM (2.8 LPM)	0.1 SCFM (2.8 LPM)	0.1 SCFM (2.8 LPM)	n/a	n/a
Temperature Limits	-20˚ to 180˚F (-29˚ to 82˚C)	-20˚ to 180˚F (-29˚ to 82˚C)	-20˚ to 180˚F (-29˚ to 82˚C)	-20˚ to 180˚F (-29˚ to 82˚C)	-20˚ to 180˚F (-29˚ to 82˚C)
Air Consumption	0.1 SCFH (0.05 LPM) Maximum	0.1 SCFH (0.05 LPM) Maximum	0.1 SCFH (0.05 LPM) Maximum	n/a	n/a
Port Size	1/4 NPT or 3/8 NPT	1/4 NPT or 3/8 NPT	1/4 NPT or 3/8 NPT	1/4 NPT or 3/8 NPT	1/4 NPT or 3/8 NPT
Materials of Construction	316 Stainless Steel housing & filter assemblies fluorocarbon elastomers	316 Stainless Steel housing & filter assemblies fluorocarbon elastomers	316 Stainless Steel housing & filter assemblies fluorocarbon elastomers	316 Stainless Steel housing & filter assemblies fluorocarbon elastomers	316 Stainless Steel housing & filter assemblies fluorocarbon elastomers
Approximate Weight	2.6 lbs, 1.18 kg	3.0 lbs, 1.36 kg	3.4 lbs, 1.55 kg	2.1 lbs, 0.95 kg	2.9 lbs, 1.32 kg

P51 Stainless Steel Dimensions



Natural Gas & Propane Regulators

Applications

- Pneumatic Controllers
- Valve Positioners
- Actuation
- Fuel Gas
- Compressed Air

P32

Superior regulation and excellent stability make the P32 Regulator ideal for lower flow applications. Square head adjustment screw allows for easy in-field calibration. The P32 is available with handwheel adjustment, output pressure gauge and/or mounting bracket as options. The use of a relief valve is recommended for this product in accordance with NFPA 58.

- 60-mesh screen
- UL listed (Standard P32)
- NACE construction available
- Harmful particles blocked
- Non-Relieving

P36

This reliable precision preset regulator is ordered with the exact pressure regulation required. Ideal for areas requiring tamper resistant components or where incidental re-adjustment is a concern. The use of a relief valve is recommended for this product in accordance with NFPA 58.

- 60-mesh screen
- Dripwell option
- UL listed (Standard P36)
- NACE construction available
- Harmful particles blocked
- Release undesirable moisture
- Non-Relieving

P37

The P37 contains many of the same characteristics as the P38, but at a reduced price. At 110 SCFM (16.5 Mbtu/hr), the P37 offers flow rates comparable to current market suppliers. The use of a relief valve is recommended for this product in accordance with NFPA 58.

- Balanced pintle design
- Bubble tight/non-relieving
- 16.5 Mbtu/hr. (110 scfm)
- UL listed
- Bellofram Rolling Diaphragm
- High flow capacity
- Enclosed space use
- High volume applications
- Non-Relieving

P38

The P38 uses a patented balanced pintle design which eliminates unsteady changes in outlet pressure due to inlet pressure fluctuations. The P38 is a spring opposed, diaphragm - operated, non-relieving regulator. The use of a relief valve is recommended for this product in accordance with NFPA 58.

- Balanced pintle design
- Bubble tight/non-relieving
- 27 Mbtu/hr (260 scfm)
- UL listed
- Bellofram Rolling Diaphragm
- Exceptional flow capacity
- Enclosed space use
- High volume applications
- Minimal effect on output pressure from variation of supply pressure

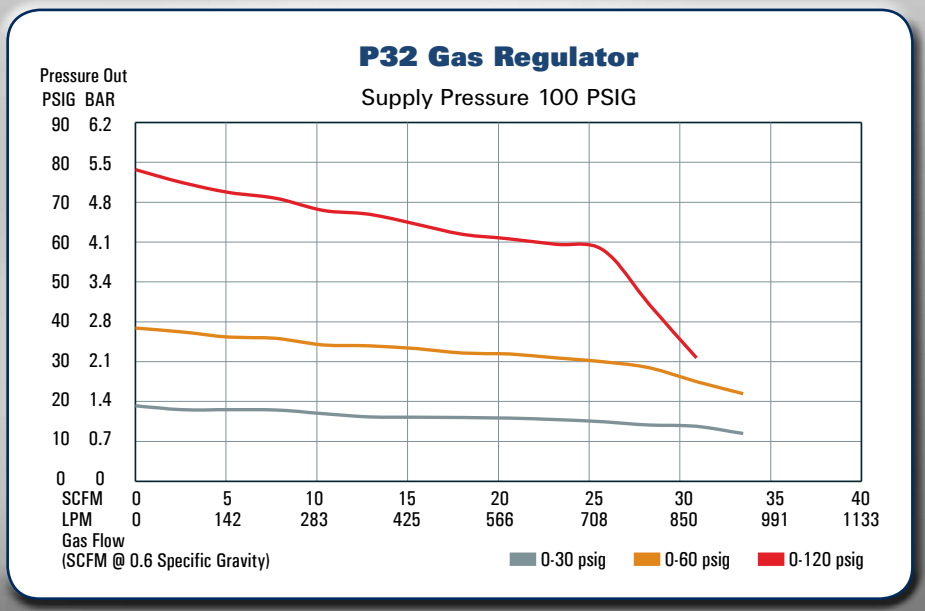
Specifications

	P32	P36	P37	P38
Sensitivity	1" water column	1" water column	1" water column	1/2" water column
Max. Inlet Pressure	250 PSIG (17 BAR)	250 PSIG (17 BAR)	400 PSIG (28 BAR)	400 PSIG (28 BAR)
Port Size	1/4 NPT	1/4 NPT	1/2, 3/4 NPT	3/8, 1/2, 3/4, 1 NPT
Outlet Ranges	0-10, 0-30, 0-60, 0-120 PSIG (0-0.7, 0-2, 0-4, 0-8 BAR)	0-20, 20-40, 40-60 PSIG (0-1.4, 1.4-2.8, 2.8-4 BAR)	0-10, 0-30, 0-60, 0-125 PSIG (0-0.7, 0-2, 0-4, 0-8 BAR)	0-30, 0-60, 0-125 PSIG (0-2, 0-4, 0-8 BAR)
Adjustment	Adjustment Screw	None	T-Bar	T-Bar
Materials of Construction	Aluminum, Brass, Plated Steel, Buna-N	Aluminum, Brass, Plated Steel, Buna-N	Zinc, Aluminum, Plated Steel, Buna-N, Brass	Zinc, Aluminum, Plated Steel, Buna-N, Brass
Diaphragm Material	Nitrile Elastomer with Polyester Fabric	Nitrile Elastomer with Polyester Fabric	Nitrile Elastomer with Polyester Fabric	Nitrile Elastomer with Polyester Fabric
Approximate Weight	0.85 lbs, 0.38 kg	0.70 lbs, 0.32 kg	1.4 lbs, 0.63 kg	5.0 lbs, 2.25 kg

P32, 36, 37 & 38 Part Matrix

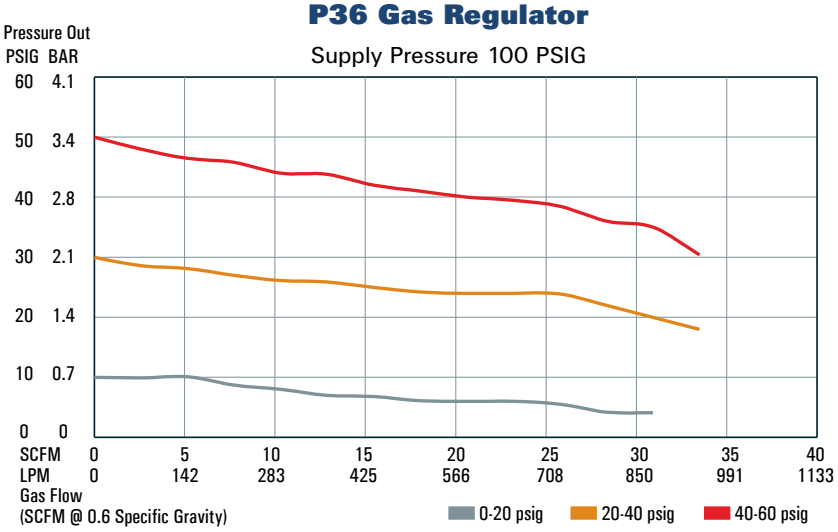
P0							0	0	0				
										Regulator			
	32									P32 regulators			
	36									P36 regulators			
	37									P37 regulators			
	38									P38 regulators			
										Body Size			
		02								1/4"	P32 & P36 only		
		03								3/8"	P38 only		
		04								1/2"	P37 & P38 only		
		06								3/4"	P37 & P38 only		
		08								1"	P38 only		
										Spring Range (see 'NOTE' for P36)			
			010							0-10 PSIG	0-0.7 BAR	P32 & P37 only	
			030							0-30 PSIG	0-2 BAR	P32, P37, P38	
			060							0-60 PSIG	0-4.1 BAR	P32, P37, P38	
			120							0-120 PSIG	0-8.3 BAR	P32 only	
			125							0-125 PSIG	0-8.6 BAR	P37 & P38 only	
										Special Construction			
				0						None			
				1						Epoxy Paint	P37 & P38 only		
				2						Tapped supply port for gauge	P38 only		
				3						Both options 1 & 2	P38 only		
				4						PED Version (for EU)	P32, P37 & P38 only		
				5						Tapped vent	P32, P37 & P38 only		
				6						Options 1 & 5	P37 & P38 only		
										Adjusting Method			
					0					No Option	P36, P37 & P38 only		
					1					Adjusting Screw	P32 only		
					2					Handwheel	P32 only		
										Versions			
						0				Standard			
						N				NACE	P32 & P36 only		

* NOTE: For P36
Enter the preset value in PSIG,
Example: 10 PSIG = 010
Minimum Pressure = 2 PSIG
Maximum Pressure = 60 PSIG



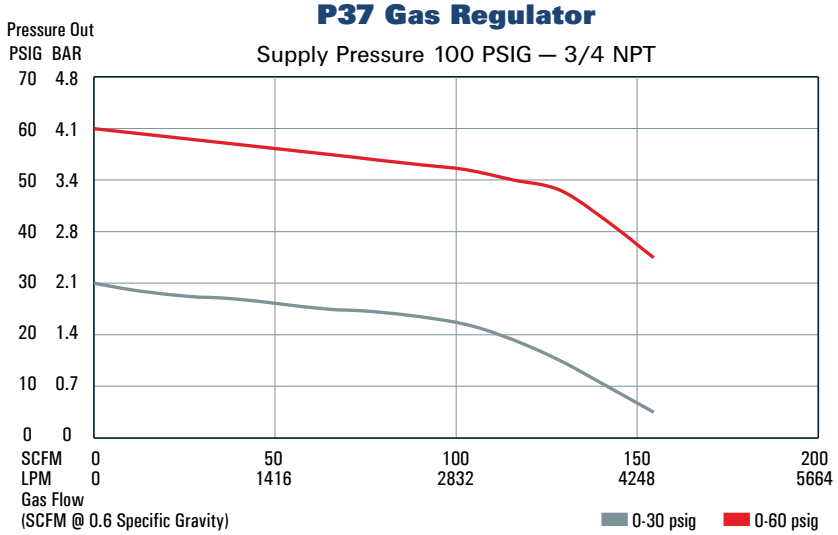
P36 Gas Regulator

Supply Pressure 100 PSIG



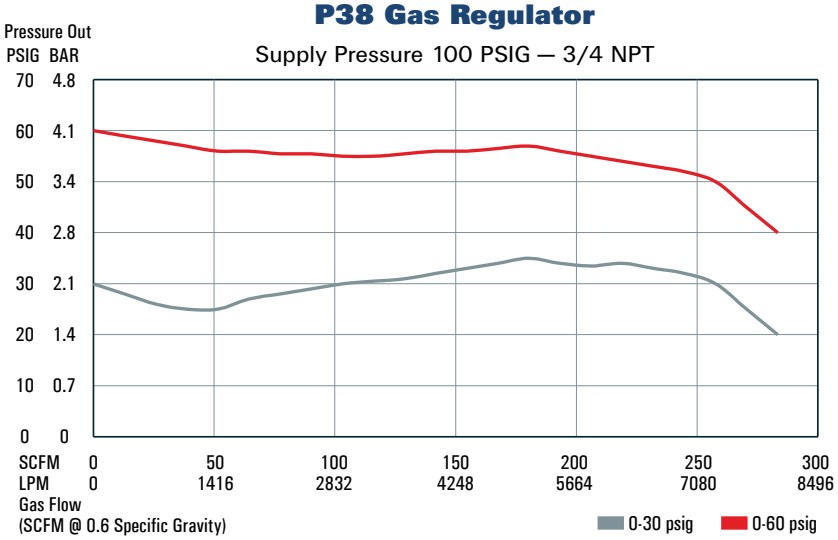
P37 Gas Regulator

Supply Pressure 100 PSIG — 3/4 NPT

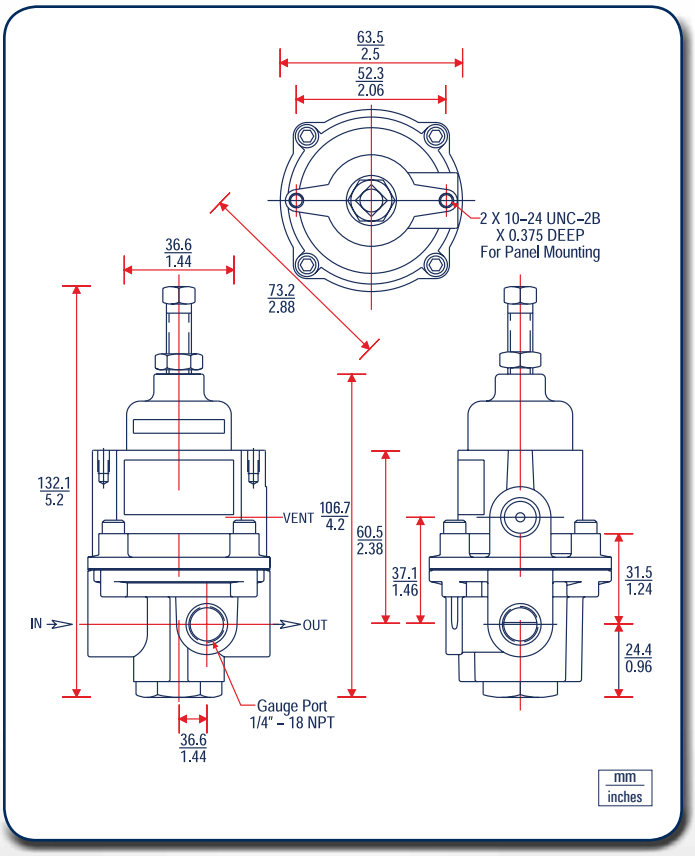


P38 Gas Regulator

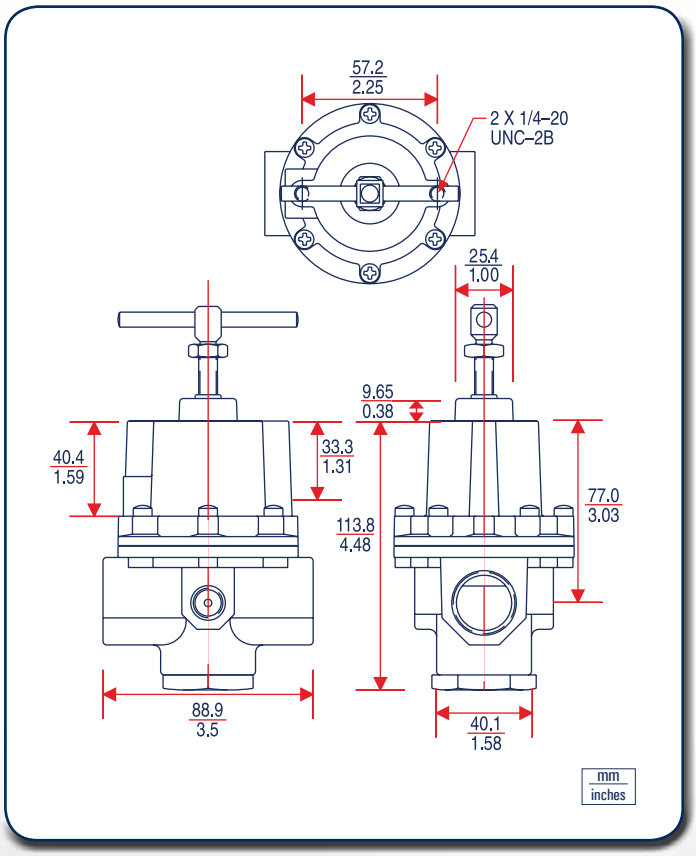
Supply Pressure 100 PSIG — 3/4 NPT



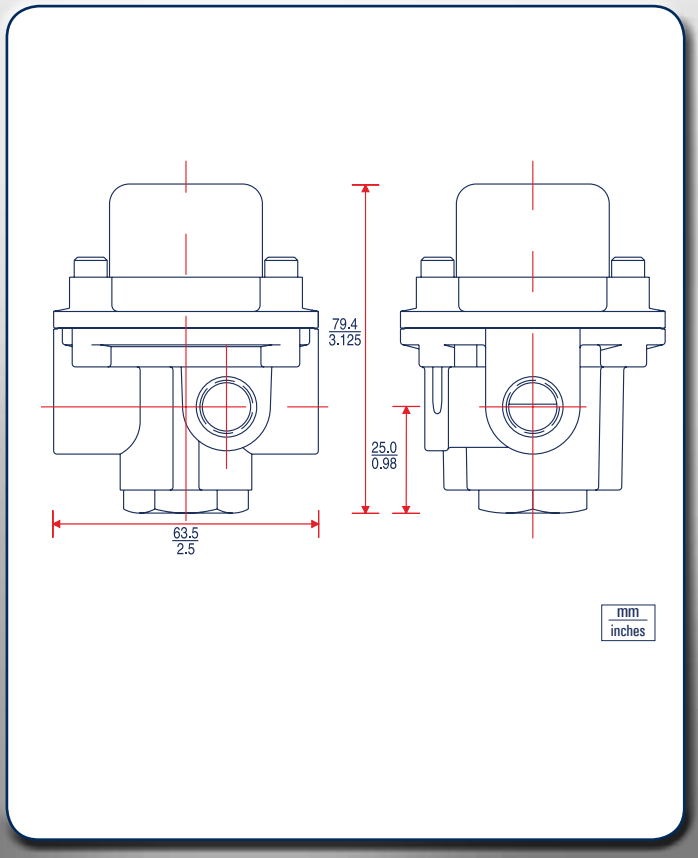
P32 Dimensions



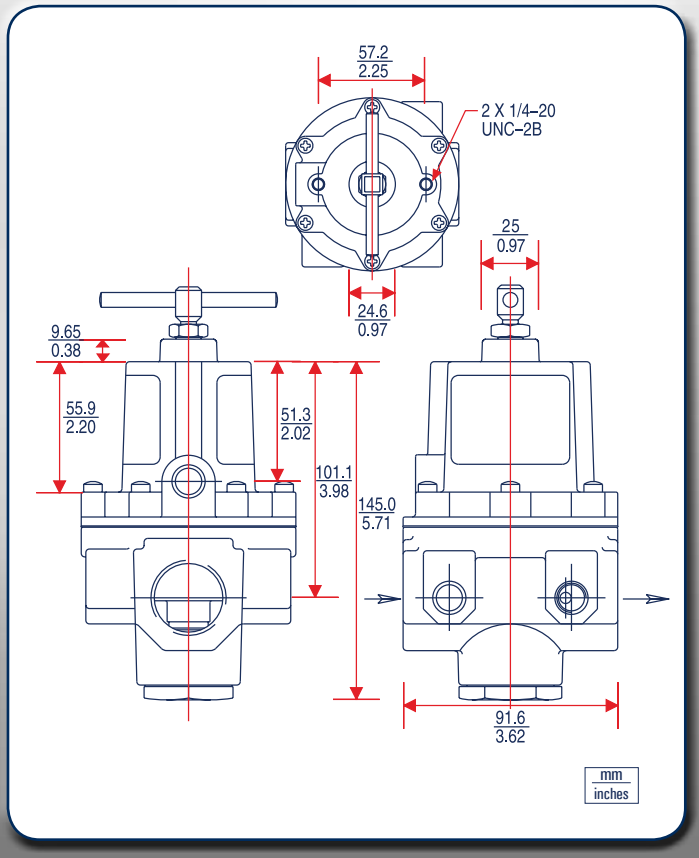
P37 Dimensions



P36 Dimensions



P38 Dimensions



P40 & P40 NACE Regulators

- Superior regulation characteristics
- Rugged, corrosion-resistant construction
- Economical
- Self-relieving
- Standard tapped vent
- Excellent stability and repeatability
- Soft relief seat on P40
- Several mounting options

The BelGAS General Purpose P40 & P40 NACE Filter Regulators are reliable precision units designed for instrumentation and general purpose use in both standard environments (P40), and corrosive environments (P40 NACE). The P40 NACE complies with NACE material requirement MR0175 for sulfide stress cracking resistant metallic material for oil field equipment.

Test data for these regulators show excellent performance characteristics compared with those of similar units presently on the market. These BelGAS regulators are generally superior in regulated pressure vs. flow, forward-to-reverse flow offset, supply pressure sensitivity, repeatability and stability.

Ruggedly designed and constructed, the regulators have housings of diecast aluminum. The P40 Regulator is finished with vinyl paint (which resists scratching, weathering & other physical abuse), while the P40 NACE is supplied with an epoxy paint for added corrosion protection. Both the P40 and P40 NACE, are pressure and leak tested prior to shipment from the factory.

The full flow gauge port is convenient for gauge installation and can also be used as an additional full flow outlet.

Applications

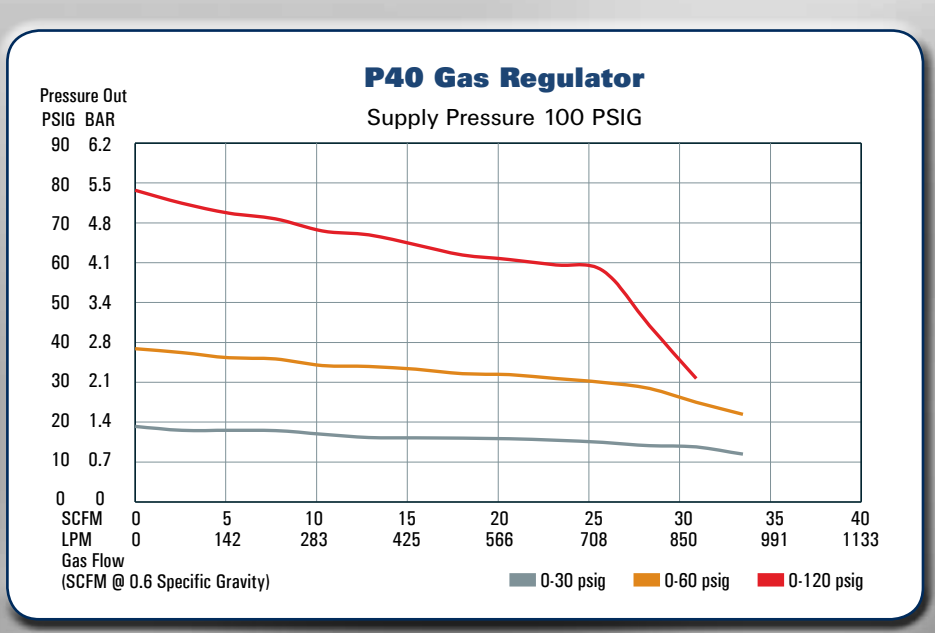
The design of these regulators is especially well suited to pilot-operated level, pressure and flow controllers and instruments.

P40 & P40 NACE Part Matrix

P040		0	2			0	0	0	
									Versions
	0								Standard*
	N								NACE**
									Spring Range
				010					0-10 PSIG
				035					0-35 PSIG
				060					0-60 PSIG
				120					0-120 PSIG
									Options
					00				Standard
					0K				Knob Adjustment

* Standard P40 is a Soft Relief Seat unit. Max Gas Consumption is 0.1 SCFH.

** The P40 NACE has a metal-on-metal relief seat. Max Gas consumption is 6 SCFH.

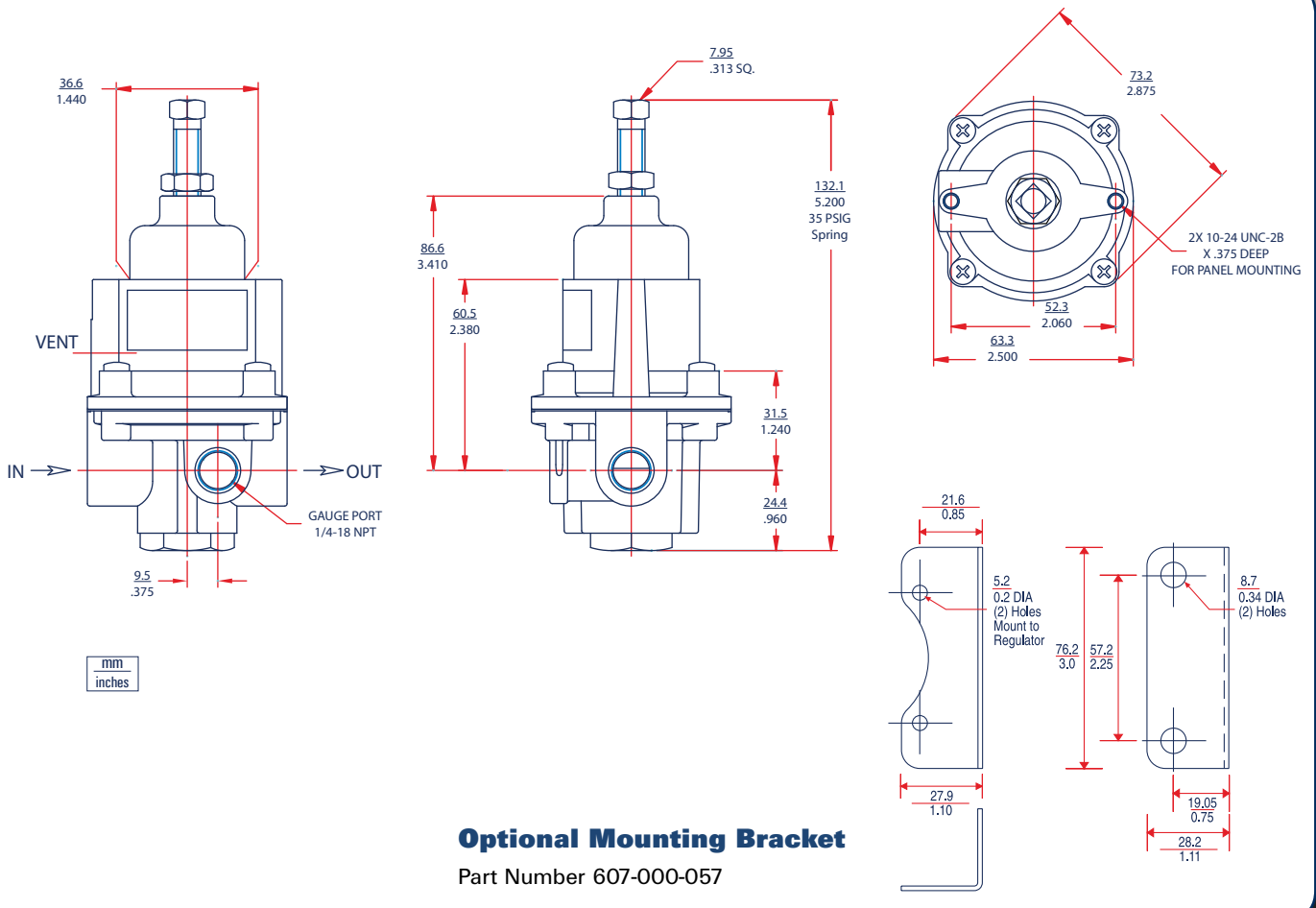


The P40 NACE is available for use in corrosive environments. This complies with NACE material requirement MR0175 for sulfide stress cracking resistant metallic material for oil field equipment.

P40 & P40 NACE Specifications

	P40 Regulator	P40 NACE Regulator
Sensitivity	1" (25.4 mm) Water Column	1" (25.4 mm) Water Column
Flow Capacity	20 SCFM (565 LPM)	20 SCFM (565 LPM)
Effect of Supply Pressure variation (25 PSIG) on Outlet Pressure	< 0.2 PSIG (0.01 BAR)	< 0.2 PSIG (0.01 BAR)
Exhaust Capacity (5 PSIG above 20 PSIG set point)	0.1–0.45 SCFM Typical (2.8–12.7 LPM)	0.1–0.45 SCFM Typical (2.8–12.7 LPM)
Maximum Input/Supply Pressure	250 PSIG (17.2 BAR)	250 PSIG (17.2 BAR)
Effect of Changes in Flow on Regulated Pressure (100 PSIG/6.9 BAR Supply)	4 PSIG (0.3 BAR) over flow 10 SCFM (283 LPM) (1/4 NPT, 20 PSIG / 1.4 BAR set point)	4 PSIG (0.3 BAR) over flow 10 SCFM (283 LPM) (1/4" NPT, 20 PSIG / 1.4 BAR set point)
Output Pressure Ranges	0-10 PSIG (0-0.7 BAR), 0-35 PSIG (0-2.4 BAR) 0-60 PSIG (0-4.1 BAR), 0-120 PSIG (0-8.3 BAR)	0-10 PSI (0-0.7 BAR), 0-35 PSIG (0-2.4 BAR) 0-60 PSIG (0-4.1 BAR), 0-120 PSIG (0-8.3 BAR)
Temperature Range	0 to 160˚F (-18 to 71˚C)	0 to 180˚F (-15 to 82˚C)
Total Air Consumption @ Maximum Output	0.1 SCFH (0.05 LPM)	6 SCFH (2.8 LPM)
Port Size	1/4 NPT	1/4 NPT
Size	2.5" X 2.5" X 5.63" (63.5 X 63.5 X 143 mm)	2.5" X 2.5" X 5.63" (63.5 X 63.5 X 143 mm)
Weight	0.82 lb. (.37 kg)	0.82 lb. (.37 kg)
Materials of Construction	Body: Diecast Aluminum with Vinyl Paint Adjusting Screw: Plated Steel Trim: Plated Steel, Brass, Acetal Resin Diaphragm: Buna-N elastomer with Polyester Fabric Knob: Phenolic Plastic (option) Spring: Music Wire	Body: Diecast Aluminum with Epoxy Paint Adjusting Screw: Plated Steel Trim: Plated Steel, Stainless Steel, Acetal Resin Diaphragm: Fluoroelastomers, Polyester Valve Spring: Inconel, Range Spring: Music Wire
Mounting	Pipe, Panel or Bracket	Pipe, Panel, or Bracket

P40 & P40 NACE Dimensions



Optional Mounting Bracket

Part Number 607-000-057

P70 & P70 NACE Regulators

- Superior regulation characteristics
- Rugged, corrosion-resistant construction
- Excellent stability and repeatability
- High flow capacity (80 SCFM)
- Self-relieving
- Standard tapped vent
- Soft relief seat for low gas consumption
- Several mounting options

The BelGAS P70 Regulators are reliable precision units designed for instrumentation and general purpose use.

Test data for these regulators show excellent performance characteristics compared with those of similar units presently on the market. These BelGAS regulators are generally superior in regulated pressure vs. flow, forward-to-reverse flow offset, supply pressure sensitivity, repeatability and stability.

Ruggedly designed and constructed, the regulators have housings of diecast aluminum. The P70 Regulator is finished with vinyl paint (which resists scratching, weathering & other physical abuse), while the P70 NACE is supplied with an epoxy paint for added corrosion protection. The P70 regulator is pressure and leak tested prior to shipment from the factory.

The full flow gauge ports are convenient for gauge installation and can also be used as an additional full flow outlet ports.

Applications

The design of these regulators is especially well suited to pilot-operated level, pressure and flow controllers and pneumatic instruments.

P70 & P70 NACE Specifications

Sensitivity	1/4" WC (6.4 mm)	
Flow Capacity	80 SCFM	2266 LPM
Effect of Supply Pressure variation (25 PSIG) on Outlet Pressure	< 0.05 PSIG	0.003 BAR
Exhaust Capacity (5 PSIG above 20 PSIG set point)	3 SCFM Typical	85 LPM
Maximum Input/Supply Pressure	250 PSIG	17.2 BAR
Effect of Changes in Flow on Regulated Pressure (100 PSIG/6.9 BAR Supply)	2.5 PSIG (0.2 BAR) over flow 50 SCFM (1416 LPM)	
Output Pressure Ranges	0-15 PSIG 0-30 PSIG 1-60 PSIG 2-100 PSIG 2-150 PSIG	0-1.0 BAR 0-2.1 BAR 0.1-4.1 BAR 0.2-6.9 BAR 0.2-10.3 BAR
Temperature Range	-40 to 200 ºF	-40 to 93 ºC
Total Air Consumption @ Maximum Output	0.1 SCFH	0.05 LPM
Port Size	1/4 NPT, 3/8 NPT, 1/2 NPT	
Size	3.0" x 3.0" x 6.0"	76 x 76 x 152 mm
Weight	1.41 lb.	0.6 kg
Mounting	Pipe, Panel or Bracket	

P70 & P70 NACE Part Matrix

P070						0	0	0	
									Port Size
	02								1/4 NPT
	03								3/8 NPT
	04								1/2 NPT
									Spring Range
		015							0 - 15 PSIG 0 - 1.0 BAR
		030							0 - 30 PSIG 0 - 2.1 BAR
		160							1 - 60 PSIG 0.1 - 4.1 BAR
		100							2 - 100 PSIG 0.2 - 6.9 BAR
		150							2 - 150 PSIG 0.2 - 10.3 BAR
									Special Construction
			0						Standard
			1						Epoxy Paint
			N						NACE Construction (Wetted Parts)
									Adjusting Method
				1					Square Head Screw
				2					Knob (Handwheel)
									Relieving Options
					0				Relieving*
					1				Non-Relieving

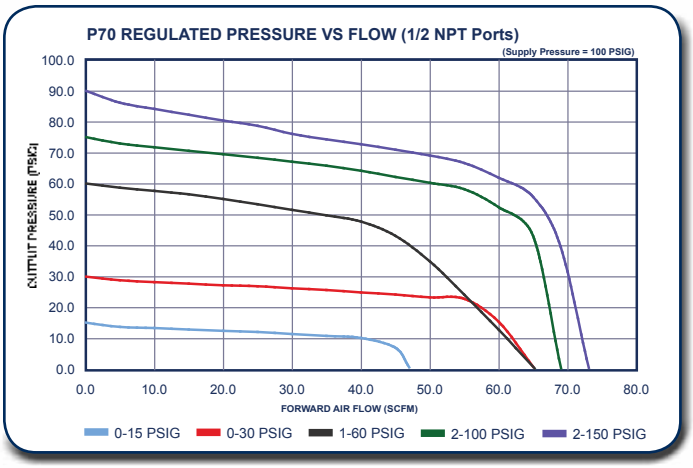
* Relieving version will have no constant bleed.

Materials of Construction

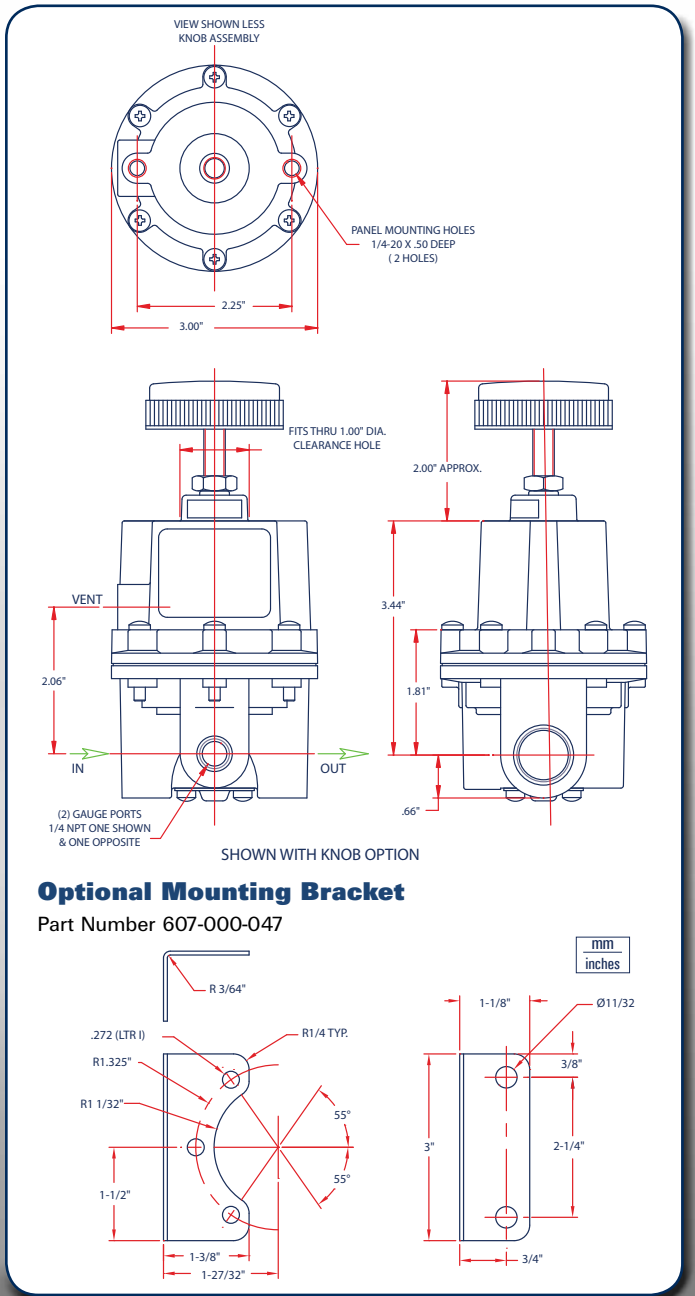
Body	Die Cast Aluminum
Adjusting Screw	P70 - Zinc Plated Steel
	P70 NACE - 316 Stainless Steel
Trim	Plated Steel , Brass, Acetal Resin
Knob	Phenolic Plastic (option)
Spring:	Music Wire
Diaphragm Material	P70 - Buna-N Elastomer with Polyester Fabric
	P70 NACE - Fluorocarbon with Dacron Fabric

P70 Flow Data

Outlet Pressure Range	Outlet Pressure Setting		Inlet Pressure		Air Capacity (SCFH)	
	PSIG	BAR	PSIG	BAR	20% Offset	MAX
0 to 15 PSIG (0 to 1 BAR)	5	0.3	10	0.7	140	570
			15	1.0	150	690
			25	1.7	185	960
			50	3.5	300	1500
			100	6.9	360	2700
	10	0.7	15	1.0	330	690
			25	1.7	492	930
			50	3.5	750	1560
			100	6.9	1260	2700
			125	8.6	1680	3300
	15	1.0	25	1.7	570	960
			50	3.5	900	1620
			100	6.9	1680	2820
			125	8.6	2100	3480
0 to 30 PSIG (0 to 2.1 BAR)	5	0.3	15	1.0	110	840
			50	3.5	250	1800
			100	6.9	345	3300
			125	8.6	400	3600
	15	1.0	25	1.7	450	1320
			50	3.5	1140	1920
			100	6.9	1800	3900
			125	8.6	2160	4500
	25	1.7	35	2.4	1320	1740
			50	3.5	1800	2280
			100	6.9	2820	3900
			125	8.6	3300	4800
	30	2.1	40	2.8	1500	1800
			50	3.5	1560	2100
			100	6.9	3240	3900
			125	8.6	3960	4800
1 to 60 PSIG (0.07 to 4.1 BAR)	20	1.4	30	2.1	600	1080
			50	3.5	960	1620
			100	6.9	1680	2820
			125	8.6	2280	3480
	30	2.1	40	2.8	870	1440
			50	3.5	1110	1620
			100	6.9	1980	3060
			125	8.6	7500	3780
	40	2.8	50	3.5	1050	1800
			100	6.9	2100	3300
			125	8.6	2700	4080
	60	4.2	70	4.8	1560	2700
			100	6.9	2400	3720
			125	8.6	3000	4500
2 to 100 PSIG (0.14 to 6.9 BAR)	40	2.8	50	3.5	1260	2100
			100	6.9	2280	3960
			125	8.6	2820	4800
	60	4.2	70	4.8	1800	3000
			100	6.9	2700	4050
			125	8.6	3360	4920
	80	5.5	100	6.9	3000	4140
			125	8.6	3900	5040
	100	6.9	110	7.6	3300	4500
			125	8.6	4020	5100
2 to 150 PSIG (0.14 to 10.3 BAR)	50	3.5	60	4.1	870	2700
			100	6.9	1440	3720
			125	8.6	1620	5220
	75	5.2	85	5.9	1800	3780
			100	6.9	2250	4380
			125	8.6	2760	5280
	100	6.9	110	7.6	3060	4800
			125	8.6	3660	5280



P70 Dimensions



Optional Mounting Bracket

Part Number 607-000-047

P912 Pressure Regulator

- Versatile
- Control Accuracy
- Compact Design
- Removable Vent Screen

The Type P912 pressure regulator functions as a pneumatic pressure controlling device with an adjustable set point. The P912 can be used in a variety of applications in which accurate pressure regulation is required. The internal relief feature allows the regulator to respond quickly and to relieve excessive pressure.

Applications

Applicable to a wide range of gaseous fluids, including air, natural gas and propane. Can be used as a LP regulator.

Specifications

	P912		
Inlet	1/4 NPT		
Outlet	1/4 or 3/8 NPT		
Temperature Range	-20 to 170 ºF (-29˚ to 77˚C)		
Outlet Pressure Ranges	3-7 inches W.C.	7 to 17 mBAR	
	5-10 inches W.C.	12 to 25 mBAR	
	9.25-13 inches W.C.	23 to 32 mBAR	U.L. 144 Listed
	10 inches W.C.-1.05 psig	25 to 72 mBAR	
	0.8-2.7 psig	55-186 mBAR	U.L. 144 Listed
	2.7-5 psig	186-340 mBAR	U.L. 144 Listed
Maximum allowable inlet pressure	250 PSIG (17.3 BAR)		
Approximate Weight	1.3 lbs.	0.59 kg	

Materials of Construction

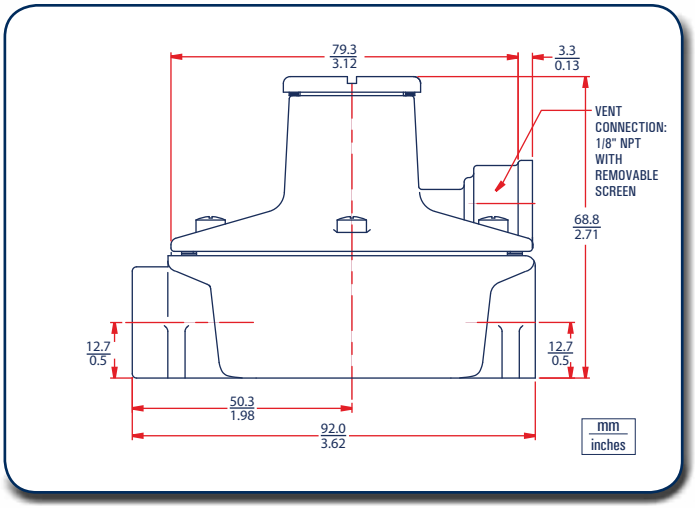
	P912
Body, Bonnet	Zinc
Diaphragm	Nitrile
Diaphragm Assembly	Zinc/Nitrile
Gaskets	Non-asbestos, CGR 2750
Pin	Stainless Steel
Vent screen	Monel
Spring	Zinc-Plated Steel
Diaphragm Piston	Zinc-Plated Steel

Output Pressure Settings	Outlet Pressure Setting	Spring Part Number	Offset	Capacity in SCFH (m3/h) of 0.6 Specific Gravity Natural Gas								
				Inlet Pressure, PSIG/BAR								
				5	10	25	50	75	100	150	200	250
				0.34	0.69	1.7	3.4	5.2	6.9	10	14	17
5 inches W.C	3 to 7 inches W.C.	655-681-000	1 inch W.C.	50	65	75	100					
12 mBAR	7 to 17 mBAR		2.5 mBAR	1.34	1.74	2.01	2.68					
7 inches W.C	5 to 10 inches W.C.	655-682-000	1 inch W.C.		75	112	155	155	155	155	155	
17 mBAR	12 to 25 mBAR		2.5 mBAR		2.01	3.0	4.15	4.15	4.15	4.15	4.15	
11 inches W.C	9-1/4 to 13 inches W.C.	655-683-000	1 inch W.C.		75	140	155	155	155	155	155	155
27 mBAR	23 to 32 mBAR		2.5 mBAR		2.01	3.75	4.15	4.15	4.15	4.15	4.15	4.15
15 inches W.C	10 inches W.C. to 1.05 PSIG	655-684-000	2 inch W.C.		68	100	135	150	160	190	200	200
27 mBAR	25 to 72 mBAR		5 mBAR		1.82	2.68	3.62	4.02	4.29	5.09	5.36	5.36
1 psig	0.8 to 2.7 psig	655-695-000	10%		40	40	85	90	100	155	160	185
					1.47	1.07	2.28	2.41	2.68	4.15	4.29	4.96
69 mBAR	55 to 186 mBAR		20%		55	100	135	155	185	240	285	300
					1.47	2.68	3.62	4.15	4.96	6.43	7.64	8.04
2 psig	0.8 to 2.7 psig	655-695-000	10%		50	85	105	130	145	200	260	300
					1.34	2.28	2.81	3.48	3.89	5.36	6.97	8.04
140 mBAR	55 to 186 mBAR		20%		70	120	180	240	300	400	450	500
					1.88	3.22	4.82	6.43	8.04	10.7	12.1	13.4
5 psig	2.7 to 5 psig	655-696-000	10%		68	85	135	170	200	325	400	500
					1.82	2.28	3.62	4.56	5.36	8.71	10.7	13.4
340 mBAR	186 to 340 mBAR		20%		75	135	200	280	360	560	685	750
					2.01	3.62	5.36	7.50	9.65	15.0	18.4	20.1

P912 Part Matrix

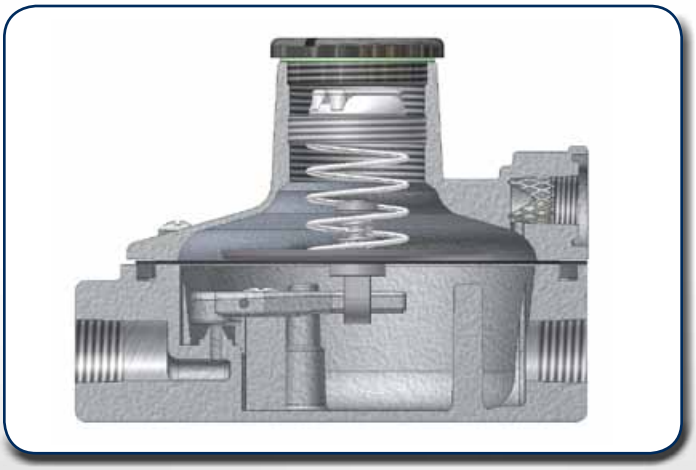
P912			1	0	0	0	0	0	
	▲	▲	▲	▲	▲	▲	▲	▲	Outlet Port Size
	02								1/4
	03								3/8
									Output Pressure
		020							3" - 7" W.C.
		040							5" - 10" W.C.
		060							9.25" - 13" W.C.
		080							10" W.C.-1.05 PSIG
		100							0.8 - 2.7 PSIG
		120							2.7 - 5 PSIG

P912 Dimensions



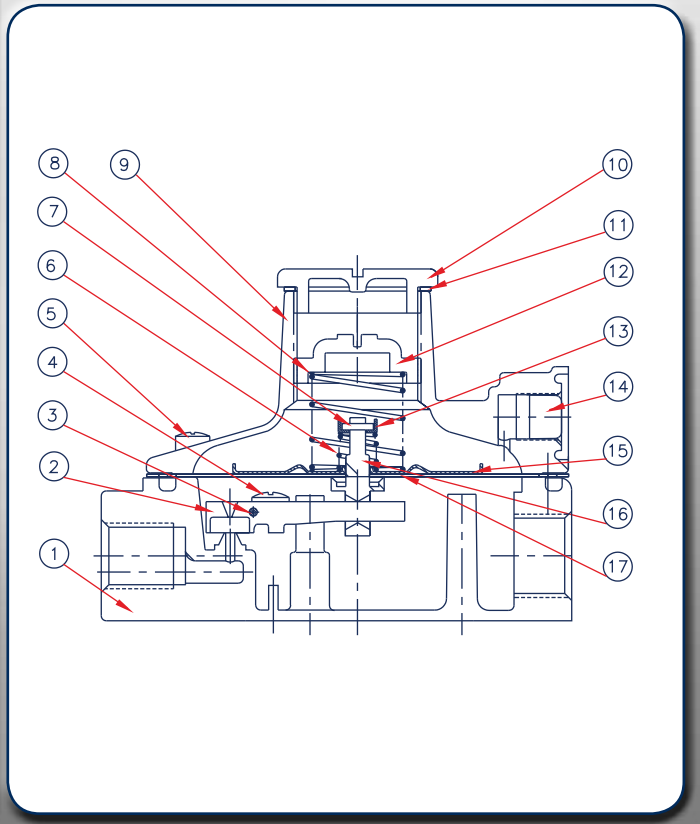
P912 Regulator Rebuild Kits

	Kit Includes	Part Number
P912	Arm Assembly (nitrile/zinc), Non-asbestos CGR 2750 Gasket, Monel Screen, Nitrile Diaphragm	971-912-000



P912 Parts

Item	Description		Part Number
1	Body	3/8 NPT Port, Zinc	664-310-000
		1/4 NPT Port, Zinc	664-311-000
2	Arm Assembly, Nitrile/Zinc	For 3-7" W.C. and 5-10" W.C. Only	827-012-000
		For All other ranges	827-009-000
3	Rod, Stainless Steel		646-540-000
4	Machine Screw, 5/16", plated steel (qty. 2)		648-000-417
5	Machine Screw, 3/8", plated steel (qty. 6)		648-000-418
6	Backup spring, plated steel (2.7 - 5.0 PSIG Range)		655-685-000
	Backup spring, plated steel (All Ranges Other than 2.7 - 5 PSIG)		655-715-000
7	Pin, Stainless Steel		635-062-000
8	Range Spring	3-7" W.C. red, plated steel	655-681-000
		5-10" W.C. orange, plated steel	655-682-000
		9.25-13" W.C. cadmium, plated steel	655-683-000
		10" W.C.-1.05 PSIG, blue, plated steel	655-684-000
		0.8-2.7 PSIG, yellow, plated steel	655-695-000
		2.7-5 PSIG, green, plated steel	655-696-000
9	Bonnet, Zinc		604-226-000
10	Closing Cap, Acetal		610-055-000
11	Gasket, Non-asbestos CGR 2750		624-064-000
12	Adjusting Screw, Acetal		648-000-419
13	Spring Seat, Plated Steel		650-128-000
14	Screen, Monel		647-019-000
15	Diaphragm Piston, Plated Steel		637-313-000
16	Poppet, Zinc		640-001-000
17	Diaphragm, Nitrile	(0.8 - 2.7 PSIG & 2.7 - 5.0 PSIG Ranges Only)	600-498-000
		(All Ranges Other than 0.8 - 2.7 PSIG & 2.7 - 5.0 PSIG)	600-506-000



T170 Explosion Proof Motorized Regulator

- High Flow Capacity
- Power Is Not Required for Operation
- Explosion Proof
- Field Adjustable Limit Switch

The Type 170 Motorized Pressure Regulator (M/P) is an electronic pressure regulator designed for use in Hazardous Area valve control in the Oil and Gas industry.

The T170 utilizes a DC Stepper Motor to turn a gear-driven range screw, which compresses the range spring on a Type 70 Precision Pressure Regulator. User-adjustable limit switches prevent motor operation beyond desired pressure limits. The T170 provides powerful speed-turning capabilities. Ultra-slow speed provides up to 13,000 steps full-scale for super-fine DC-stepper resolution. Fast speed provides 10-second Open/Close operation.

Applications

- Custody Transfer
- Remote Low-power Valve Control
- Fine Resolution Valve Control
- Oil & Gas Custody Transfer Stations
- Oil & Gas Well-Heads

Specifications

	T170
Power	12-24 VDC
Signal (applied to either INCREASE or DECREASE wires)	12-24 VDC
Maximum Supply Pressure	150 psig
Output Pressure Range	0.5-30 psig
Flow Capacity (100 psig supply; 20 psig setpoint)	40 SCFM
Exhaust Flow Capacity (5 psig over 20 psig setpoint)	15 SCFM
Weight	7.25 lbs.

Hazardous Area & Usage Classification

Explosion proof for Class I, Division 1, Groups B, C and D; Dust-ignitionproof for Class II, III, Division 1, Groups E, F and G hazardous (classified) locations, with an environmental rating of Type 4X, IP66. For use with air or natural gas at a maximum operating supply pressure of 150 PSI.

XP/I/1/BCD/T3C Ta = 85˚C;
DIP/II/III/1/EFG/T3C Ta = 85˚C; Type 4X, IP66

Part Numbers

		Part Number
T170	1/4 NPT Port	960522000
	3/8 NPT Port	960523000
	1/2 NPT Port	960524000

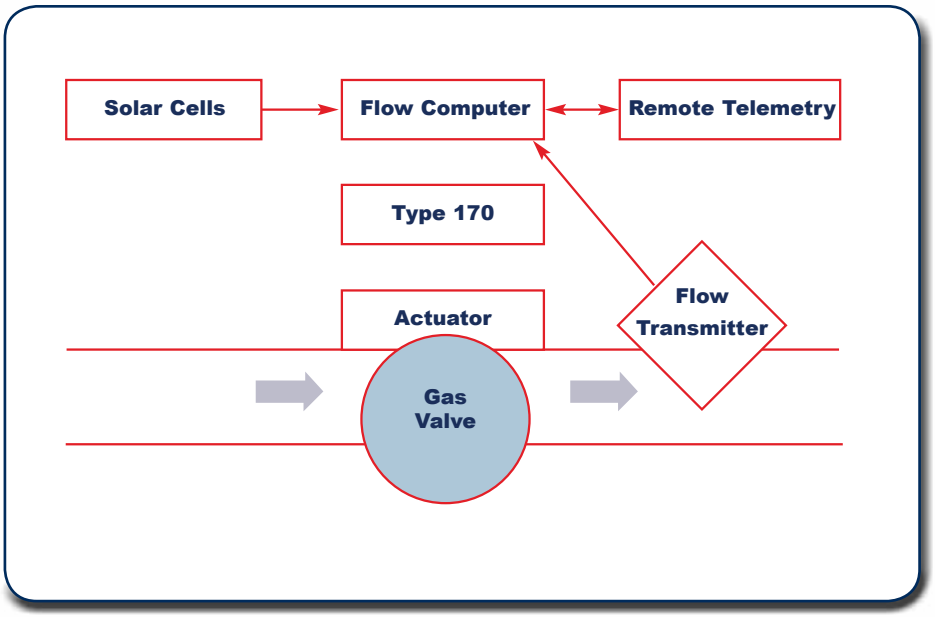
Mounting Kits

	Part Number	
Valve Mounting Kit*	010 134 000	* Valve Mounting Kit comes standard with each unit
2" Pipe Mounting Kit	010 143 000	
Panel Mounting Kit	010 135 000	

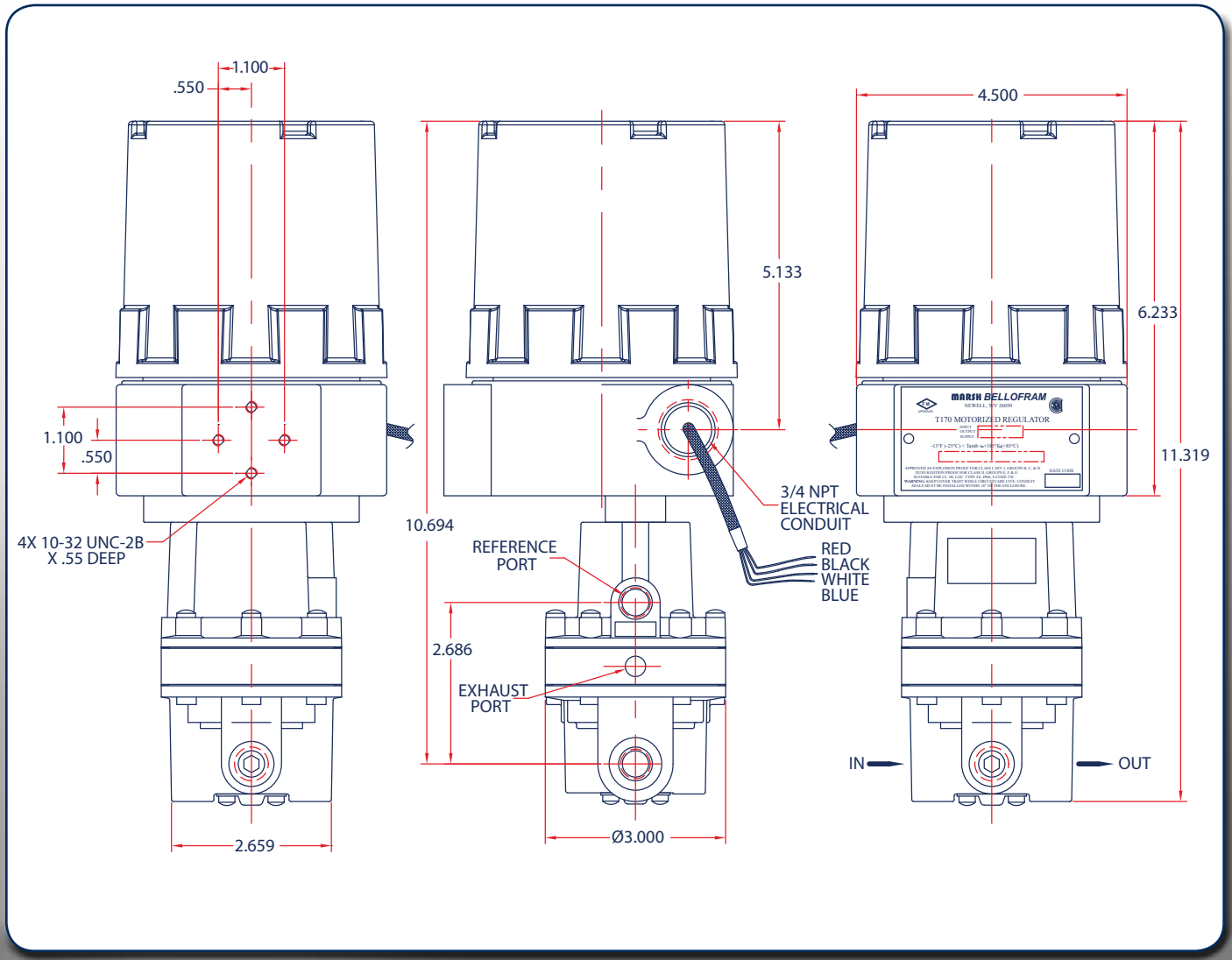
Port Sizes

Pneumatic Ports	"In" & "Out" Ports 1/4, 3/8, or 1/2 NPT
	Gauge Ports 1/4 NPT
Electrical Conduits	3/4" NPT

T170 Application Drawing



T170 Dimensions



T2000 Explosion Proof I/P & E/P Transducers

- Field-selectable inputs and direct/reverse/split ranging
- Multiple input/output/mounting configurations
- Precise, reliable performance under extreme conditions of temperature, vibration, orientation, supply pressure changes, supply voltage changes, RFI/EMI, humid/oil-laden media, and corrosive surroundings

The T2000EX is a robust electronic instrument that regulates an incoming supply pressure down to a precise output pressure which is directly proportional to an electrical control signal. The secret to the T2000EX's precise, reliable performance under a variety of demanding environmental conditions is a patented piezo-ceramic actuator with many industry-wide firsts.

Applications

- Valve Actuators
- Valve Positioners
- Relay
- Controllers
- Chemical & Petrochemical Industries
- Petroleum Production
- Pipeline Transmission

Principle of Operation

The T2000EX I/P and E/P transducers utilize closed-loop pressure feedback-control for precision pressure output and minimized effects of temperature, supply pressure changes, supply voltage changes, and mounting angle.

Supply pressure is reduced by the supply valve to provide an output pressure which is internally routed to a precision temperature compensated piezo resistive pressure sensor. Supply pressure is also routed to an externally removable orifice which provides a reduced pilot pressure to a chamber containing a servo diaphragm and nozzle. Pilot pressure is controlled by modulating the gap between the face of a nozzle and an adjacent piezo-ceramic actuator, which is part of a unique patented mechanism.

The piezo-ceramic actuator serves as a control link between electrical input and pressure output as follows:

- The input current (I/P) or voltage (E/P) signal is conditioned to provide a normalized control signal directly proportional to the desired pressure output.
- Simultaneously the output of the pressure sensor is amplified and conditioned to produce a feedback signal.
- The sum of the control signal and the feedback signal produce a command signal which is delivered as a DC voltage to the piezo-ceramic actuator.
- As voltage increases, the force applied by the actuator increases, so as to restrict nozzle bleed and thus increase pilot pressure.
- Increased pilot pressure applied to the servo diaphragm directly causes opening of the supply valve and an increase in the output pressure until the output feedback signal and control signal combine to produce the correct command signal.

Air Quality

Instrument-quality air consists of
a. A dew point less than 35˚F
b. No particles larger than three microns
c. Maximum oil content of 1 ppm

Fine-Tuning Your Application

For optimal performance in your application, the calibration of the Type 2000EX can be fine-tuned in the field. An easily-removable cover provides access to the isolated electronics. All potentiometers, connections, jumpers, and switches are clearly marked on the circuit board or on the handy chart located on the inside of the cover. The three elements of calibration (Gain, Zero, and Span) are described below. Consult the T2000EX User's Manual for detailed calibration procedures, cautions, and instrumentation requirements.

Gain (Damping) Adjustment

The output response of the T2000EX can be optimized for varying downstream volumes by adjusting the system gain of the control circuit. Adjust the Gain Pot counterclockwise for increased gain; clockwise for increased oscillation damping. For maximum allowable gain in your application, the pot should be turned clockwise until oscillation just disappears.

Zero & Span Adjustments

The T2000EX contains multi-turn Coarse-Zero, Fine-Zero, and Span adjustment potentiometers which are clockwise positive. Adjustment of either Zero Pot changes the unit's minimum output while the Span Pot changes the maximum output. The adjustments are interactive, so it may take iterations to reach the desired calibration.

Wide Rangeability

The T2000EX can be field calibrated to pressure ranges other than the standard ones by combinations of recalibration, pressure range switching, and split high/low ranging. A unit should not be switched to a range outside its pressure sensor family (eg., 0-15 PSIG can be switched to a 3-15 PSIG, but not to 0-30 PSIG). (Caution: Do not exceed the range of the onboard pressure sensor.) For example, the easiest way to recalibrate a 0-30 PSIG unit to 3-15 PSIG would be to change the switch setting to 3-27 PSIG, then switch to split range low.

Field-Selectable Features

Onboard switches allow the user to easily reconfigure the T2000EX for any of several electrical inputs, direct/reverse acting, or output split-ranging high/low. Fine tuning of the unit's calibration may be necessary after a reconfiguration.

Direct/Reverse Acting

Direct Acting transducers regulate to their minimum output when supplied with minimum input; maximum out with maximum in. Reverse Acting transducers regulate to their maximum output at minimum input.

Split Ranging–High & Low

The T2000EX can be configured to regulate either half (top or bottom) of it's normal output range, when supplied with it's normal full-ranging electrical input. For example, a 0-10V 0-30 PSIG unit set to split range low will regulate 0-15 PSIG @ 0-10V. It will regulate 15-30 PSIG @ 0-10V if set to split range high.

Hazardous Area & Usage Classification

"F" model: Dual Listing of FM/CSA for following approvals:

Explosion Proof: Class I, Division 1, Groups A,B,C,D, T6 @ 60°C Max

Dust Ignition Proof: Class II, III, Division 1, Groups E,F,G; T6 @ 60°C Max

Intrinsic Safety: FM/CSA Class I II III, Division 1, Groups A,B,C,D,E,F,G, T4 @ 60°C Max

Non-incendive: Class I, Division 2, Groups A, B, C, D. T4 @ 60°C Max

Suitable for use in Class II III, Division 2, Groups F, G. T4 @ 60°C Max

Environmental rating: TYPE 4X, IP66

Note: Certified by FM, "F" model can be used in Natural Gas application in US and Canada, merely in a condition that a suitably rated NRTL listed or certified conduit seal is mandatory.

"G" model: Listing of FM for using Natural Gas as a process medium in US and Canada for following approvals:

Explosion Proof: Class I, Division 1, Groups A,B,C,D, T6 @ 60°C Max

Dust Ignition Proof: Class II, III, Division 1, Groups E,F,G; T6 @ 60°C Max

Intrinsic Safety: FM Class I II III, Division 1, Groups A,B,C,D,E,F,G T4 @ 60°C Max

Non-incendive: Class I, Division 2, Groups A, B, C, D. T4 @ 60°C Max

Suitable for use in Class II III, Division 2, Groups F, G. T4 @ 60°C Max

Environmental rating: TYPE 4X, IP66

Note: "G" model includes a factory conduit seal. No additional NRTL certified seal is required for Natural Gas application.

CE: (Conduit Connector Only) EN 50081-1 Residential, commercial & light industry; EN-50082-2 Heavy Industrial.

T2000 Part Matrix

2K	E						1		00		
										Electrical Port	
		N								1/2 NPT Conduit	
										Pneumatic Ports	
			N							NPT	
			T							BSPT	
			P							BSPP	
			M							Manifold Mount*	*Bottom O-Ring Ports
										Agency Approval	
				F						FM/CSA	
				G						FM Natural Gas Approval for US and Canada, includes factory conduit seal	
										Electrical Input	
					42					4-20 mA	
					05					0-5 V	
					15					1-5 V	
					19					1-9 V	
					11					1-10 V	
					01					0-10 V	
						D				Direct Acting	
						R				Reverse Acting	
										Pneumatic Output	
							F			Full Range	
							H			Split Range High	
							L			Split Range Low	
										Pressure Ranges	
										PSIG / BAR	
								005		0-5 / 0-0.3	
								015		0-15 / 0-1.0	
								315		3-15 / 0.2-1.0	
								117		1-17 / 0.07-1.2	Maximum supply for these pressure ranges is 100 psig.
								030		0-30 / 0-2.1	
								630		6-30 / 0.4-2.1	
								327		3-27 / 0.2-1.9	
								060		0-60 / 0-4.1	
								100		0-100 / 0-6.9	Maximum supply for these pressure ranges is 140 psig.
								120		0-120 / 0-8.3	
										Specials	
									00	None	

It is mandatory for the user to install a suitably rated NRTL Listed or Certified conduit seal.

Terminal Block	I/P Transducer	E/P Transducer
S	N/C	+ Signal
+	+ Signal	+ Power Supply
-	- Signal	Common

Type 2000 Wiring Connections and Switch Positions

Switch #	1: psig	BAR	2	3	4	5	6: psig	BAR	7	8	9
ON	0-15 3-15 1-17 0-30 3-27 6-30 0-100	0-1.0 0.2-1.0 0.07-1.2 0-2.1 0.2-1.9 0.4-2.1 0-6.9	1-5 VDC 0-5 VDC	Split Low	Voltage Input (E/P)	Split Low Full	0-15 1-17 0-30 0-60 0-100 0-120	0-1.0 0.07-1.2 0-2.1 0-4.1 0-6.9 0-8.3	Reverse Acting	Full	I/P
Switch #	1: psig	BAR	2	3	4	5	6: psig	BAR	7	8	9
OFF	0-60 0-120	0-4.1 0-8.3	1-9 VDC 0-10 VDC 4-20 mA	Full Split High	Current Input (I/P)	Split High	3-15 3-27 6-30	0.2-1.0 0.2-1.9 0.4-2.1	Direct Acting	Split Low Split High	E/P

Mounting Options

Mounting Method	Explosion-Proof (E) Model
In-Line	Yes
Direct Mounting	Side or Bottom Holes
Panel Bracket	Accessory
Valve Bracket	Supplied
Pipe Bracket	Accessory
DIN-Rail Bracket	Accessory
Manifold Plate	Accessory

Mounting: The Type 2000 can be mounted in-line, or directly to a panel via mounting holes located in the side and bottom of the unit. In addition, the S model includes a panel-mounting bracket; while the E model includes a valve-mounting bracket. Kits are available for mounting of either model to panel, valve, pipe, or DIN-Rail. A custom plate is available for mounting of the bottom-ported version to a manifold. (See Accessories)

Sealing Fittings for FM approved T2000 EX Transducers

Application & Installation
Class I, Divisions 1 & 2

Seals in a Class I hazardous location is to minimize the passage of gases and vapors and prevent the passage of flames from one electrical installation to another through the conduit system. Seals are required to be installed within 18 inches on any conduit run entering an enclosure which contains devices that may produce arcs, sparks or high temperatures.

The T2000 Explosion Proof Transducer is available with the seal fitted to the transducer conduit port or can be supplied as a component to be applied at the installation of the system.

It is mandatory for a suitably rated conduit seal to be installed with the FM approved T2000 EXP Transducer.

Vertical or Horizontal Seals

All seal housings are approx. 3-1/2" in laying length and 1-1/2" OD

Part Number	Description
SF-04AMM	1/2" Aluminum
SF-04AMF	1/2" Aluminum w/nipple
SF-04IMM	1/2" Iron
SF-04IMF	1/2" Iron w/nipple

Sealing Materials

Per seal housing installed, approx. 1/16 oz of packing fiber is used for the dam and 1.5 oz of compound is used for the seal.

Part Number	Description
SC-4	4 oz. Sealing Compound
SC-8	8 oz. Sealing Compound
FP-4	4 oz. Packing Fiber

Larger quantities of fiber and compound available upon request.

Accessories

	Part Number
Panel Mounting Kit	010-135-000
Valve Mounting Kit	010-134-000
2" Pipe Mounting Kit (Valve Mounting Kit is required)	010-143-000
DIN Rail Adapter	010-115-000
Manifold Adapter Kit	971-158-000
Filter Kit, 60 microns	010-139-000
Pressure Gauge Kit 15 psig (1 BAR)	010-138-000
Pressure Gauge Kit 30 psig (2.1 BAR)	010-138-001
Pressure Gauge Kit 60 psig (4.1 BAR)	010-138-002
Pressure Gauge Kit 160 psig (11 BAR)	010-138-003

T2000 Specifications

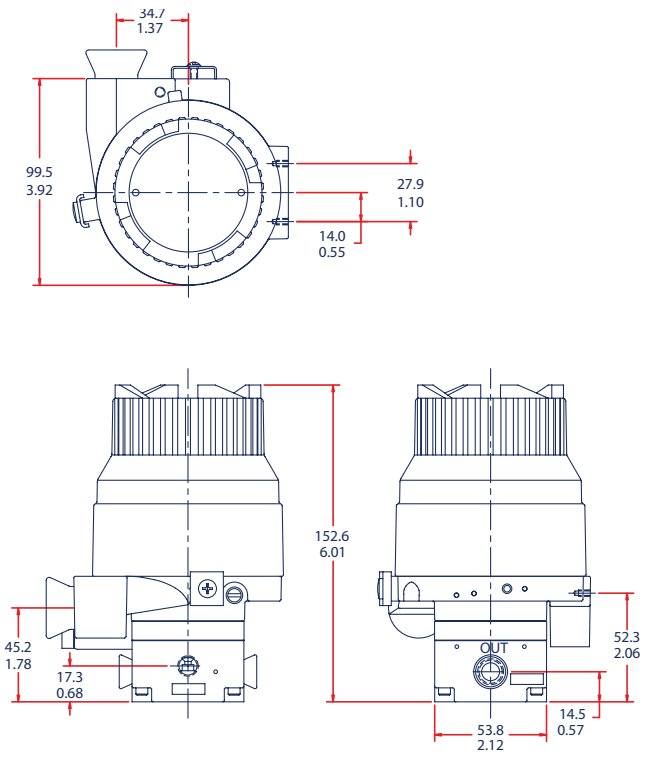
Accuracy	0.1% of full-scale output typical (0.25% guaranteed); includes effects of hysteresis, dead band, and repeatability	
Electrical		
Inputs	Switch-Selectable 4-20mA. 0-5, 1-5, 1-9, 1-10, or 0-10VDC	
Connections	1/2 NPT or 20mm Conduit	
Power Supply	5-28VDC (with voltage inputs only)	
Direct/Reverse Acting	Switch-Selectable	
Pneumatic		
Outputs	PSIG	0-5, 0-15, 3-15, 1-17, 0-30, 6-30, 3-27, 0-60, 0-100, or 120
	BAR	0-0.1, 0-0.3, 0-1.0, 0.2-1.0, 0.07-1.2, 0-2.1, 0.4-2.1, 0.2-1.9, 0-4.1, 0-6.9, 0-8.3
Ports (Input/Output)	1/4 (NPT, BSPT, or BSPP threads) Bottom-ported for Manifold Mounting	
Exhaust	(Explosion proof only) 1/8 - 27 NPT	
Ports (Gauge)	1/8 NPT	
Supply	For 0–5 PSIG (0.3 BAR) Through 0–60 PSIG From 5 PSIG (0.3 BAR) above maximum output to 100 PSIG maximum For 0-100 PSIG and 0–120 PSIG Ranges From 5 PSIG (0.3 BAR) above maximum output to 140 PSIG maximum	
Split-Ranging	Switch-Selectable, Full-Range or Split-Range High or Split-Range Low	
Consumption	4 scfh maximum (1.9 LPM)	

Flow Capacity

Range		Sensor		Flow	
PSIG	BAR	PSIG	BAR	scfm	LPM
0-5	0-0.3	5	0.3	11	312
0-15	0-1.0	15	1.0	15	423
3-15	0.2-1.0	15	1.0	15	423
1-17	0.07-1.2	15	1.0	15	423
0-30	0-2.1	30	2.1	15	423
3-27	0.2-1.9	30	2.1	15	423
6-30	0.4-2.1	30	2.1	15	423
0-60	0-4.1	50	3.5	17	480
(Typical Flow @ 100 PSIG (6.9 BAR) in and maximum out)					
0-100	0-6.9	100	6.9	21	595
0-120	0-8.3	100	6.9	21	595
(Typical Flow @ 140 PSIG (9.7 BAR) in and maximum out)					

Exhaust Capacity	3 SCFM (85 LPM) @ 5 PSIG (0.3 BAR) above setpoint (0-15 PSIG range unit set at mid range)
Stability	
Supply Voltage Effect	None
Supply Pressure Effect	None
Vibration Effect	< 1% FS (+/-1G; 5-1000Hz)
Mounting Position Effect	None
RFI/EMI	CE-Compliant
Temperature Effect	0.02% FS/°F (-40° to 180°F [-40° to 82°C])
Storage Temperature	-40°to 200°F (-40 to 93°C)
Approximate Weight	3.0 lbs, 1.35 kg

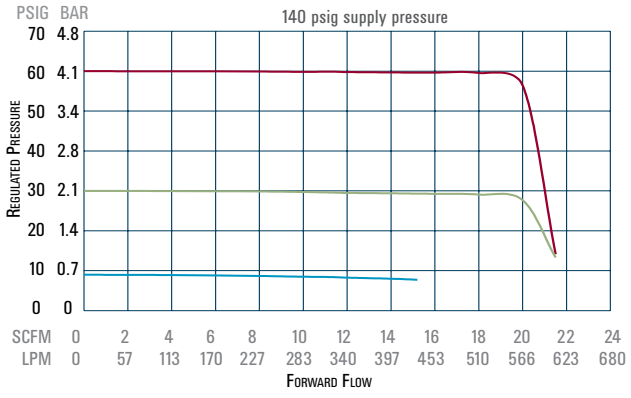
Type 2000 Explosion Proof Dimensions



mm
Inches

Drawings and dimensions are for reference only.

REGULATED PRESSURE VS. FLOW



Agency Approvals - Applies only to units ordered with approvals

Factory Mutual
T-2000 I/P & E/P Transducers Explosion Proof / Intrinsically Safe Model
Explosion Proof: Class I, Division 1, Groups A, B, C, & D, T6 Ta = 60°C
Dust-Ignition Proof: Classes II & III, Division 1, Groups E, F, & G , T6 Ta = 60°C; Type 4X **NEMA 4X**, IP66
Intrinsically Safe: Classes I, II, & III, Division 1, Groups A, B, C, D, E, F, & G , T4 Ta = 60°C; Entity; Type 4X **NEMA 4X**, IP66
Non-incendive: Class I, Division 2, Groups A, B, C, & D, T4 Ta = 60°C
Suitable: Class II, Division 2, Groups F & G , T4 Ta = 60°C
Suitable: Class III, Division 2, T4 Ta = 60°C, Type 4X, IP66
Entity Parameters:
Input Option b = 42: V_{Max} = 30 V, I_{Max} = 200 mA, P_{Max} = 1 W, C_i = 0, L_i = 0.
Input Option b = 01, 05, 11, 15 or 19: V_{Max} = 30 V, I_{Max} = 100 mA, P_{Max} = 0.75 W, C_i = 0, L_i = 0.
Special Conditions of Use:
The T-2000 for use with natural gas as a process medium, where a NRTL listed or certified conduit seal or a factory conduit seal is used.

T-2000 E/P or I/P Transducers Intrinsically Safe Model
Intrinsically Safe: Classes I, II, & III, Division 1, Groups A, B, C, D, E, F, & G, T4 Ta = 60°C; Entity;
Non-Incendive: Class I, Division 2, Groups A, B, C, & D, T4 Ta = 60°C
Suitable: Class II, Division 2, Groups F & G, T4 Ta = 60°C
Suitable: Class III, Division 2, T4 Ta = 60°C Type 4X **NEMA 4X**
Entity Parameters:
When Electrical Input Option *c* = 42: V_{Max} = 30 V, I_{Max} = 200 mA, P_{Max} = 1 W, C_i = 0, L_i = 0.
When Electrical Input Option *c* = 05, 15, 19, 11 or 01: V_{Max} = 30 V, I_{Max} = 100 mA, P_{Max} = 0.75 W, C_i = 0, L_i = 0.

T-2000 E/P or I/P Transducers Intrinsically Safe with Terminal Block Model
Intrinsically Safe: Class I, Division 1, Groups A, B, C, & D, T4 Ta = 60°C Entity;
Non-Incendive: Class I, Division 2, Groups A, B, C, & D, T4 Ta = 60°C
Entity Parameters:
When Electrical Input Option c = 42: V_{Max} = 30 V, I_{Max} = 200 mA, P_{Max} = 1 W, C_i = 0, L_i = 0.
When Electrical Input Option c = 05, 15, 19, 11 or 01: V_{Max} = 30 V, I_{Max} = 100 mA, P_{Max} = 0.75 W, C_i = 0, L_i = 0.

Canadian Standards Association - **T-2000 I/P & E/P Transducers**
Hazardous Locations: Class I, Division 1, Groups A, B, C, & D; Class II, Groups E, F & G; Class III.

Explosion Proof I/P & E/P Transducer, Rated: 28Vdc, 8mA;
T-Code T6; Enclosure Type 4X **NEMA 4X**, IP66;
Max Ambient Temperature: +60°C. IN COMPLIANCE WITH STD C22.2 No 213.

T-2000 I/P & E/P Transducers
Intrinsically Safe, Entity - Hazardous Locations: Class I, Divisions 1 & 2, Groups A , B, C, & D; Class II, Division 1, Groups E, F, & G, Division 2, Groups F & G; Class III Hazardous Locations
Electro-Pneumatic I/P and E/P Transducers. Maximum Ambient Temperature: +60°C. Enclosure Type 4X **NEMA 4X**, T4. Intrinsically Safe when installed.
Explosion proof: Class I, Division 1, Groups A, B, C & D; Class II, Groups E, F, & G; Class III. **NEMA 4X**
Rated: 28Vdc, 8mA; T-Code T6; Enclosure Type 4X, IP66; Max Ambient Temperature: +60°C. Intrinsically Safe when installed. Two sets of Entity Parameters may be used in the installation of this product.
Entity Parameters
I/P: V_{Max} = 30V I_{max} = 200mA P_{Max} = 1.0W C_i = 0mF L_i = 0mH
E/P: V_{Max} = 30V I_{Max} = 100mA P_{Max} = 0.75W C_i = 0mF L_i = 0mH

ATEX (EUROPEAN MODEL)
T-2000 I/P & E/P Transducers
INTRINSIC SAFETY: II 1 G EEx ia IIC T4 (-20<Ta<+60) EN 50014:1997 (A2) EN 50020:1994 EN 500284:1999

It is mandatory for the user to install a suitably rated NRTL Listed or Certified conduit seal

The Bellofram T-2000 Transducers were tested and found to comply with Electromagnetic Compatibility Directive effective January 1, 1996. The relevant EMC specifications tested were the following: EN 50081-1 (1992) and EN 50082-1 (1992). A Technical Construction File, Serial #107 was written and Certificate of Conformity issued by a Competent Body.

M1R & M2R

- Modular design for service & interchangeability
- Featuring Bellofram rolling diaphragms
- Miniature (M1) & Standard (M2) sizes
- Non-rising adjustment knob with push-pull lock ring feature
- Small package size and light weight construction
- Competitively priced

M1R

The Type M1R Miniature Air Regulator is a compact, low cost regulator, which operates in output pressure ranges up to 120 PSIG, with a maximum supply pressure of 145 PSIG. The Type M1R is available in 1/8 and 1/4 NPT port sizes. With a flow of up to 40 SCFM and low droop, the M1R provides the features of a large regulator in a small package.

M2R

The Type M2R Air Regulator is a mid-sized version of the M1R Miniature Air Regulator. Like the M1R this is a low cost regulator with output ranges up to 120 PSIG with a maximum supply pressure of 145 PSIG. The M2R is available in 1/4, 3/8, or 1/2 NPT port size. The Type M2R can provide flow rates to 90 SCFM.

Applications

- Instrumentation
- Control Panels
- Actuation
- Compressed Air
- Low Flow and Pressure

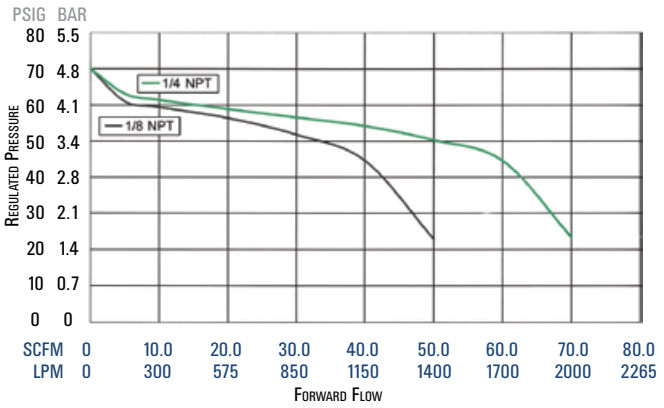
	M1		M2	
Filters				
Port Size	1/8, 1/4 NPT		1/4, 3/8, 1/2 NPT	
Filtration (micron)	5μ, 25μ, 50μ		5μ, 25μ, 50μ	
Maximum Supply Pressure	1.0 MPa 10 BAR 145 PSI		1.0 MPa 10 BAR 145 PSI	
Temperature Range	41˚–140˚F / 5–60˚C		41˚–140˚F / 5–60˚C	
Drain	Manual / Semi-Auto		Manual / Semi-Auto / Auto	
Bowl Capacity	0.75 inch^3		2.75 inch^3	
Flow (based on 100 PSI inlet pressure with 50 micron filter)	55, 85 SCFM		120, 120, 120 SCFM	
Regulators				
Effect of Supply Pressure variation (25 psig) on Outlet Pressure	< 0.2 PSIG		< 0.2 PSIG	
	13.8 mBAR		13.8 mBAR	
Exhaust Capacity (5 psig above 20 psig set point)	<0.25 SCFM		<0.25 SCFM	
	<7 LPM		<7 LPM	
Maximum Supply Pressure	145 PSIG		145 PSIG	
	10 BAR		10 BAR	
Flow Capacity at 100 PSIG (6.9 BAR) supply and 70 PSIG (4.8 BAR) outlet	40, 60 SCFM		90, 120, 120 SCFM	
Output Pressure Ranges	0-10 PSIG	0-0.69 BAR	0-10 PSIG	0-0.69 BAR
	0-30 PSIG	0-2.1 BAR	0-30 PSIG	0-2.1 BAR
	0-60 PSIG	0-4.1 BAR	0-60 PSIG	0-4.1 BAR
	0-120 PSIG	0-8.3 BAR	0-120 PSIG	0-8.3 BAR
Total Air Consumption @ Maximum Output	0.3 SCFH		0.3 SCFH	
	0.14 LPM		0.14 LPM	
Port Size	1/8, 1/4 NPT		1/4, 3/8,1/2 NPT	
Mounting Options	Pipe, Panel or Bracket		Pipe, Panel or Bracket	
Filter-Regulators				
Port Size	1/8, 1/4 NPT		1/4, 3/8, 1/2 NPT	
Filtration (micron)	5μ, 25μ, 50μ		5μ, 25μ, 50μ	
Maximum Supply Pressure	1.0 MPa		1.0 MPa	
	10 BAR		10 BAR	
	145 PSIG		145 PSIG	
Temperature Range	41–140˚F / 5–60˚C		41–140˚F / 5–60˚C	
Drain	Manual / Semi-Auto		Manual / Semi-Auto / Auto	
Bowl Capacity	0.75 inch^3		2.75 inch^3	
Regulator Output Range	0-10, 0-30, 0-60, 0-120 PSI		0-10, 0-30, 0-60, 0-120 PSI	
Flow (based on 100 PSIG supply/70 PSIG out)	40, 60 SCFM		90, 120, 120 SCFM	

M1 & M2 Part Matrix

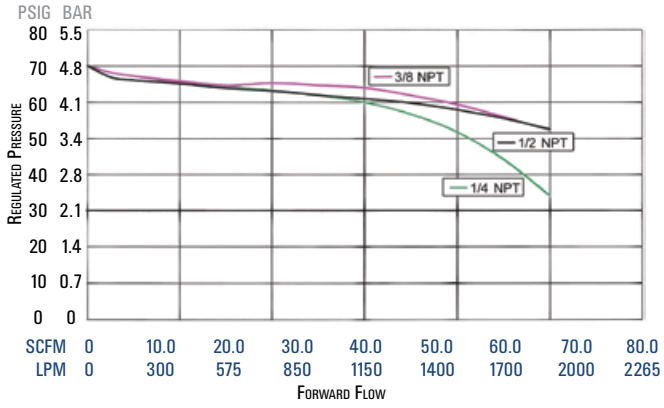
						Size
M1						Miniature Series
M2						Standard Series
						Description
	F					Filter
	R					Regulator
	FR					Filter Regulator
						Port Size
		1N				1/8 NPT (M1 only)
		2N				1/4 NPT
		3N				3/8 NPT (M2 only)
		4N				1/2 NPT (M2 only)
						Pressure Ranges
			A			0-10 PSIG, Optional
			L			0-30 PSIG, Optional
			M			0-60 PSIG, Optional
			H			0-120 PSIG, Standard
			-			Omit for Filters
						Filters
				C		50 Micron Filter, Standard
				B		25 Micron Filter
				F		5 Micron Filter
				-		Omit for Regulators
						Drain
					M	Manual Drain, Standard
					S	Semi-Automatic Drain
					A	Auto Drain (M2 only)
					-	Omit for Regulators

Note: Individual regulators, FRs, Filters come complete with bracket.

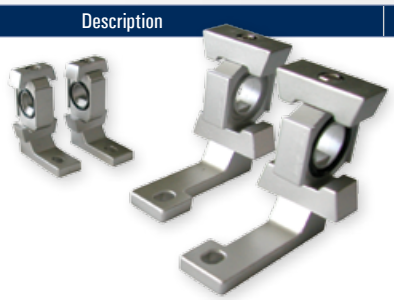
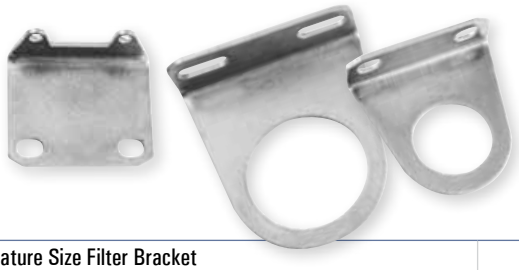
M1: Regulated Pressure VS. Flow



M2: Regulated Pressure VS. Flow

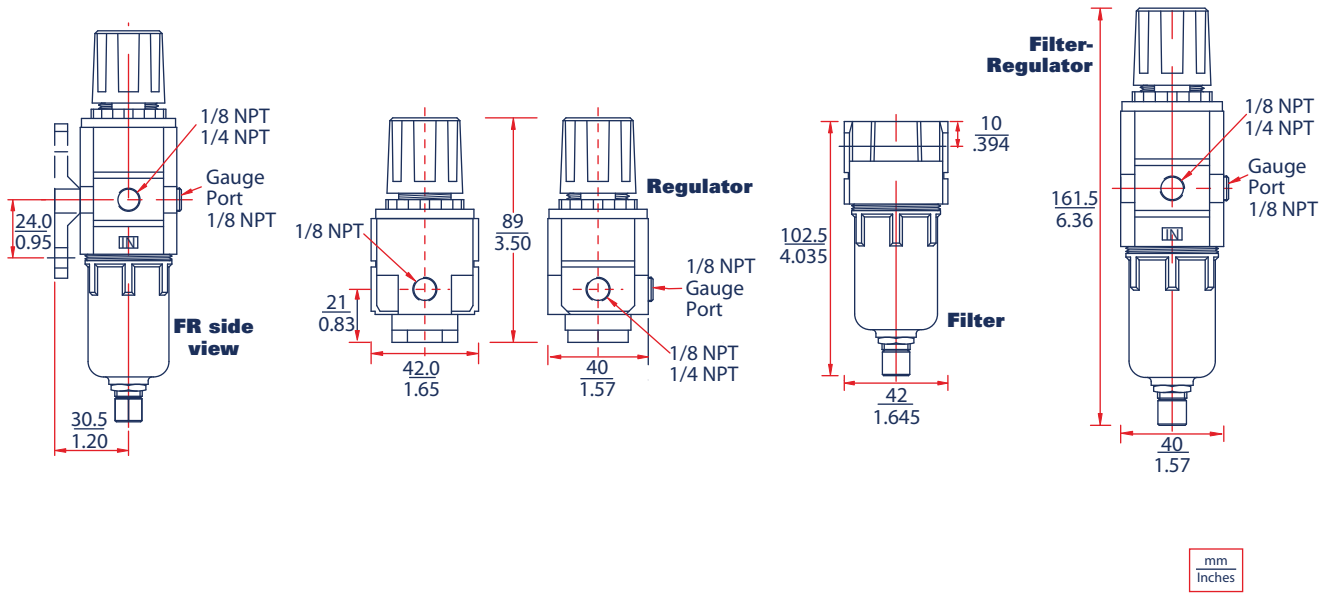


Replacement Parts

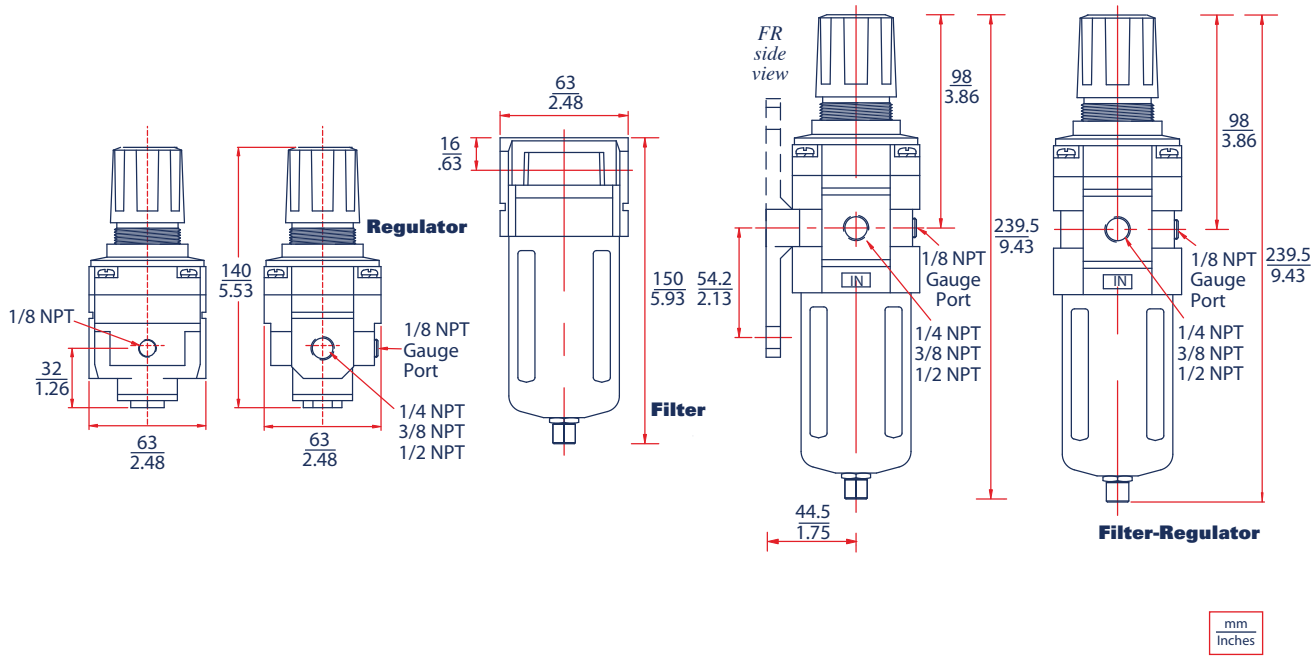
Description	Model Number
	
Miniature Size Connector Kit	M1K
Standard Size Connector Kit	M2K
	
Miniature Size Filter Bracket	M1FB
Standard Size Filter Bracket	M2FB
Miniature Size Regulator or Filter Regulator Bracket	M1RB
Standard Size Regulator or Filter Regulator Bracket	M2RB

Description	Model Number
	
Miniature 5 micron Filter Element	M1FK05
Miniature 25 micron Filter Element	M1FK25
Miniature 50 micron Filter Element	M1FK50
Standard 5 micron Filter Element	M2FK05
Standard 25 micron Filter Element	M2FK25
Standard 50 micron Filter Element	M2FK50
	
Miniature Bowl / Manual Drain Assembly	M1DM
Miniature Bowl / Semi-Automatic Drain Assembly	M1DSA
Standard Bowl / Manual Drain Assembly	M2DM
Standard Bowl / Semi-Automatic Drain Assembly	M2DSA
Standard Bowl / Automatic Drain Assembly	M2DA

M1


1/8 NPT
1/4 NPT
Gauge
Port
1/8 NPT
24.0
0.95
IN
FR side
view
30.5
1.20
1/8 NPT
21
0.83
42.0
1.65
89
3.50
Regulator
1/8 NPT
Gauge
Port
1/8 NPT
1/4 NPT
40
1.57
10
.394
102.5
4.035
Filter
42
1.645
Filter-
Regulator
161.5
6.36
1/8 NPT
1/4 NPT
Gauge
Port
1/8 NPT
IN
40
1.57
mm
Inches

M2


1/8 NPT
32
1.26
63
2.48
140
5.53
Regulator
1/8 NPT
Gauge
Port
1/4 NPT
3/8 NPT
1/2 NPT
63
2.48
63
2.48
16
.63
150
5.93
54.2
2.13
Filter
FR
side
view
98
3.86
239.5
9.43
1/8 NPT
Gauge
Port
1/4 NPT
3/8 NPT
1/2 NPT
IN
44.5
1.75
98
3.86
239.5
9.43
1/8 NPT
Gauge
Port
1/4 NPT
3/8 NPT
1/2 NPT
IN
Filter-Regulator
mm
Inches

Marsh Instruments

STD Pocket Thermometer

- 1" Dial
- 304SS Hermetically Sealed Case
- 5" long stem
- Protective Case with SS Clip

Marsh Instruments STD pocket thermometers have a 1" dial, 304SS hermetically sealed case, 304SS 0.4mm diameter 5" long stem, and plastic lens. The accuracy is ±1.5% of scale range. Each unit comes with a protective case with SS clip, that allows it to be safely carried in your pocket and also can be used to hold the thermometer in the medium to be tested.

Typical applications include the food industries, HVAC/R, and any applications requiring fast and accurate temperature.

Specifications

Accuracy	±1.5% of scale range
Scale	-40/160°F, 0/220°F, 50/550°F
Case	304 Stainless Steel
L020E	1" dial, 5" stem, -40/160°F
L041E	1" dial, 5" stem, 0/220°F
L080E	1" dial, 5" stem, 50/550°F

Digital Pocket Thermometer

- 3.5 Digital LCD display
- ABS Plastic Case
- 5" long stem
- Protective Case with SS Clip

Marsh Instruments Digital Pocket Thermometers have a 3.5 digit LCD display, ABS case and a 304SS 5" long stem. The accuracy is ±2 °F with an update time of 10 seconds. Each unit has an on-off switch for longer battery life and comes with the protective carrying case.

Typical applications include the food industries, HVAC/R, and any applications requiring fast and accurate temperature.

Specifications

Accuracy	±2ºF
Scale	-58 to 302°F / -50 to 150°C
Case	ABS Plastic
L021DG	3.5 digit display, 5" stem, -58 to 302°F / -50 to 150°C

Marsh Instruments

Marshalltown Value Series Gauge

- ASME Grade B Accuracy
- Extra Savings with Quantity Pricing
- 4 Standard Mounting Options: LM, CB, Right & Left

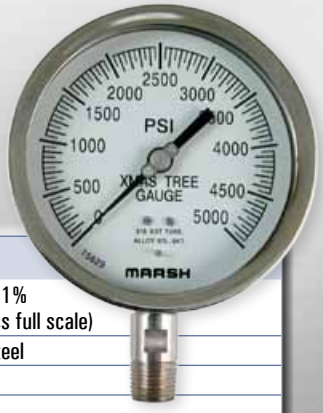
Marshalltown Value Series are the most economical, general purpose gauges in the Marsh gauge line. Suited for use with water, oil, air, gas, or other non-corrosive media.

Typical applications include FRL's, compressors, pumps, boilers, regulators, dryers as well as commercial and industrial equipment.

Specifications

Accuracy	ASME Grade B = ±3/2/3% (±2% of range across middle half of scale)							
Case Material	Drawn steel, pretreated for rust resistance and black enamel finish							
Tube & Socket	Copper alloy tube soft soldered to brass socket							
Movement	Brass sector and pinion							
Dial Standard	Dual scale PSIG and kPa							
Dial Color	Black markings on white							
Pointer	Aluminum, Black painted							
Window & Ring	Flat plastic window with steel friction ring							
Case Size	1-1/2"				2"			
Mounting/Case Style	LM	CB	Right	Left	LM	CB	LM	CB
Connection	1/8 NPT	1/8 NPT	1/8 NPT	1/8 NPT	1/4 NPT	1/4 NPT	1/8 NPT	1/8 NPT
0 to 15 PSI		GG1515C8						
0 to 30 PSI	GG1530L8	GG1530C8	GG1530G8	GG1530F8	GG2030L4	GG2030C4	GG2030L8	GG2030C8
0 to 60 PSI	GG1560L8	GG1560C8	GG1560G8	GG1560F8	GG2060L4	GG2060C4		
0 to 100 PSI	GG15100L8	GG15100C8			GG20100L4	GG20100C4	GG20100L8	GG20100C8
0 to 160 PSI	GG15160L8	GG15160C8			GG20160L4	GG20160C4	GG20160L8	GG20160C8
0 to 200 PSI		GG15200C8				GG20200C4		GG20200C8

X-Mas Tree Gauge



- Accuracy ±1%
- Polished Stainless Steel Case
- Ranges to 10,000 PSIG
- Adjustable Micrometer Pointer

Marsh Instruments has been on top of X-mas Trees and well-heads much longer than any other name. Marsh offers the same high-performance gauge for replacement. Other gauge manufacturers can state Xmas Tree Gauge on their products but only Marsh Instruments can offer you all the special features, and dependability, that you expect! Features include a polished stainless steel case with stainless steel tube, tip, and socket, and an easy to adjust micrometer pointer.

Marsh Instruments X-mas Tree gauges are designed for the oil patch, well heads and offshore oil platforms.

Specifications

Accuracy	ASME Grade 1A – ±1% (±1% of range across full scale)
Case Material	Polished Stainless Steel
Tube & Socket	Stainless Steel
Movement	Stainless Steel
Dial Standard	Single Scale PSIG
Dial Color	Black markings on white
Pointer	Aluminum, adjustable micrometer, black painted
Window & Ring	Acrylic window with bayonet ring
Case Size	4-1/2"
Mounting/Case Style	LM
Connection	1/2 NPT
0 to 1,000 PSI	W0574
0 to 1,500 PSI	W0578
0 to 2,000 PSI	W0582
0 to 3,000 PSI	W0586
0 to 5,000 PSI	W0590
0 to 10,000 PSI	W0594

63mm Severe Service Gauge

Marsh Instruments Liquid-Filled Gauges are designed to perform in rugged applications and harsh environmental conditions where pulsation and vibration are a problem. Liquid Filled Gauges offer a significant cushioning and dampening effect, reducing pointer flutter and internal gauge damage; also lubricating the internals, and reducing corrosion. All stainless steel Liquid Filled Gauges feature a ventable top fill plug for pressure relief and ease of venting after installation. The high pressure ranges offer a Helical Bourdon Tube for longer gauge life and increased durability. The hermetically sealed construction reduces the chance of leaks, and makes field filling an easy option.

Typical applications include refineries, chemical plants, offshore platforms, oil rigs, marine applications and OEM processes.

Specifications

Accuracy	ASME Grade B – ±3/2/3% (±2% of range across middle half of scale)					
Case Material	304 Stainless Steel					
Movement	Brass					
Dial Standard	Dual scale PSIG and kPa					
Dial Color	Black markings on white					
Pointer	Aluminum, Black painted					
Window	Polycarbonate					
Fill Medium	Glycerine					
Restrictor	Standard for all ranges					
Vent Plug	Removable tip for venting					
Case Size	63mm					
Internal-Tube & Socket	Copper Alloy			Stainless Steel		
Mounting/Case Style	LM	UC	CB	LM	UC	CB
Connection	1/4 NPT	1/4 NPT	1/4 NPT	1/4 NPT	1/4 NPT	1/4 NPT
0 to 30" Hg VAC	J7605P	J7205P	J6405P	J7805P	J7405P	J6605P
30" Hg VAC to 15 PSI						
30" Hg VAC to 30 PSI	J7612P					
30" Hg VAC to 60 PSI	J7614P					
30" Hg VAC to 100 PSI						
30" Hg VAC to 150 PSI	J7618P	J7218P	J6418P	J7818P	J7418P	J6618P
30" Hg VAC to 200 PSI	J7620P	J7220P	J6420P	J7820P	J7420P	J6620P
30" Hg VAC to 300 PSI	J7624P	J7224P	J6424P	J7824P	J7424P	J6624P
30" Hg VAC to 400 PSI	J7626P	J7226P	J6426P	J7826P	J7426P	J6626P
0 to 15 PSI	J7640P	J7240P	J6440P	J7840P	J7440P	J6640P
0 to 30 PSI	J7642P	J7242P	J6442P	J7842P	J7442P	J6642P
0 to 60 PSI	J7646P	J7246P	J6446P	J7846P	J7446P	J6646P
0 to 100 PSI	J7648P	J7248P	J6448P	J7848P	J7448P	J6648P
0 to 160 PSI	J7652P	J7252P	J6452P	J7852P	J7452P	J6652P
0 to 200 PSI	J7654P	J7254P	J6454P	J7854P	J7454P	J6654P
0 to 300 PSI	J7658P	J7258P	J6458P	J7858P	J7458P	J6658P
0 to 400 PSI	J7660P	J7260P	J6460P	J7860P	J7460P	J6660P
0 to 600 PSI	J7664P	J7264P	J6464P	J7864P	J7464P	J6664P
0 to 1,000 PSI	J7672P	J7272P	J6472P	J7872P	J7472P	J6672P
0 to 1,500 PSI	J7674P	J7274P	J6474P	J7874P	J7474P	J6674P
0 to 2,000 PSI	J7676P	J7276P	J6476P	J7876P	J7476P	J6676P
0 to 3,000 PSI	J7678P	J7278P	J6478P	J7878P	J7478P	J6678P
0 to 5,000 PSI	J7682P	J7282P	J6482P	J7882P	J7482P	J6682P
0 to 6,000 PSI	J7684P	J7284P	J6484P	J7884P	J7484P	J6684P
0 to 10,000 PSI				J7890P	J7490P	J6690P

NOTE: Items are available on special order. However, minimums and lead times apply. Consult factory.

Option	Type	Suffix	Available On Models
Fill Medium	Dry (no fill)	Delete suffix P	All models
	Silicone (SL)	I	All models
Front Flange	Adapter ring (3 hole)	R1	Center Back & U-Clamp only (Factory Installed)
	Adapter ring (no holes)	R2	U-Clamp only (Factory Installed)
Bayonet Case & Ring w/Safety Glass		J	Center Back or Lower Mount (Consult Factory)
Catalog Dials	PSIG only	E	See Marsh Price List for minimum
	Bar only	L1	
	kg/cm^2 only	L2	
	kPa only	L3	
	MPa only	L4	
	PSI & BAR	W1	
	PSI & kg/cm^2	W2	
	PSI & MPa	W4	
Custom Dials	Logo or Custom Face	M	Consult factory for colors and minimums
Restrictor	Special Restrictor	H	All models - See Marsh Price List for minimum
	Restrictor Removed	H1	
Increased Accuracy	Grade A (2/1/2%)	B	All models - See Marsh Price List for minimum
Special Connections			Consult Factory

100mm Severe Service Gauge

- Brass or Stainless Steel Internal
- Hermetically Sealed – Field Fillable

Marsh Instruments Liquid Filled Gauges are designed to perform in rugged applications and harsh environmental conditions - especially where pulsation and vibration are a problem. Liquid Filled Gauges offer a significant cushioning and dampening effect, reducing pointer flutter and internal gauge damage; also lubricating the internals, and reducing corrosion. All stainless steel Liquid Filled Gauges feature a vent top fill plug for pressure relief and ease of venting after installation. The hermetically sealed construction reduces the chance of leaks, and makes field filling an easy option.

Typical applications include refineries, chemical plants, offshore platforms, oil rigs, marine applications and OEM processes.

Specifications

Accuracy	ASME Grade A – ±2/1/2% (±1% of range across middle half of scale)					
Case Material	304 Stainless Steel					
Movement	Brass sector and pinion					
Dial Standard	Dual scale PSI & kPa					
Dial Color	Black markings on white					
Pointer	Aluminum. black painted					
Window	Polycarbonate					
Fill Medium	Glycerine					
Restrictor	Standard for all ranges					
Vent Plug	Removable tip for venting					
Case Size	100mm					
Internal Tube & Socket	Copper Alloy			Stainless Steel		
Mounting/Case Style	LM	CB	UC	LM	CB	UC
Connection	1/4 NPT	1/4 NPT	1/4 NPT	1/4 NPT	1/4 NPT	1/4 NPT
0 to 30" Hg VAC	X32965P			X32967P		
30" Hg VAC to 30 PSI	X32501P					
30" Hg VAC to 60 PSI	X32502P					
30" Hg VAC to 100 PSI						
30" Hg VAC to 150 PSI	X32887P	X32901P	X32894P	X32929P	X32941P	X32935P
30" Hg VAC to 200 PSI	X32888P	X32902P	X32895P	X32930P	X32942P	X32936P
30" Hg VAC to 300 PSI	X32889P	X32903P	X32896P	X32931P	X32943P	X32937P
0 to 15 PSI	X32504P	X32546P	X32525P	X32630P	X32678P	X32654P
0 to 30 PSI	X32505P	X32547P	X32526P	X32631P	X32679P	X32655P
0 to 60 PSI	X32506P	X32548P	X32527P	X32632P	X32680P	X32656P
0 to 100 PSI	X32507P	X32549P	X32528P	X32633P	X32681P	X32657P
0 to 160 PSI	X32508P	X32550P	X32529P	X32634P	X32682P	X32658P
0 to 200 PSI	X32509P	X32551P	X32530P	X32635P	X32683P	X32659P
0 to 300 PSI	X32510P	X32552P	X32531P	X32636P	X32684P	X32660P
0 to 400 PSI	X32511P	X32553P	X32532P	X32637P	X32685P	X32661P
0 to 600 PSI	X32512P	X32554P	X32533P	X32638P	X32686P	X32662P
0 to 1,000 PSI	X32513P	X32555P	X32534P	X32639P	X32687P	X32663P
0 to 1,500 PSI	X32514P	X32556P	X32535P			
0 to 2,000 PSI	X32515P	X32557P	X32536P	X32641P	X32689P	X32665P
0 to 3,000 PSI	X32516P	X32558P	X32537P	X32642P	X32690P	X32666P
0 to 5,000 PSI	X32518P	X32560P	X32539P	X32644P	X32692P	X32668P
0 to 6,000 PSI	X32519P	X32561P	X32540P	X32645P	X32693P	X32669P
0 to 10,000 PSI				X32647P	X32695P	X32671P

NOTE: Items are available on special order. However, minimums and lead times apply. Consult factory.

Option	Type	Suffix	Available On Models
Fill Medium	Dry (no fill)	Delete suffix P	All models
	Silicone option (SL)	I	All models
Front Flange	Adapter ring (3 hole)	R	Center Back & U-Clamp only (factory Installed)
Catalog Dials	PSIG only	E	See Marsh Price List for minimum
	BAR only	L1	
	kg/cm^2 only	L2	
	kPa only	L3	
	MPa	L4	
	PSI & BAR	W1	
	PSI & kg/cm^2	W2	
	PSIG & MPa	W4	
Custom Dials	Logo or Custom face	M	Consult factory for colors and minimums
Restrictor	Special restrictor	H	All models - See Marsh Price List for minimum
	Restrictor removed	H1	
Increased Accuracy	Grade 1A ±1% full scale	B	All models - See Marsh Price List for minimum
Special Connections			Consult Factory

100mm Elite Stainless Steel Gauge

- All Stainless Steel
- Field Fillable
- Ranges to 10,000 PSIG
- Liquid Filled or Dry
- Solid Front Design
  — Safecase

Marsh Instruments All Stainless Steel Gauges are built for extended life, and designed for harsh and corrosive environments. These stainless steel gauges feature top fill plugs and are field fillable. Marsh Liquid Filled Gauges offer significant cushioning and dampening which reduces pointer flutter and internal gauge damage.

Typical applications include refineries, chemical plants, offshore platforms, oil rigs, marine applications, general industrial application and OEM processes.

Specifications

Accuracy	ASME Grade 1A – ±1.0% of range across full scale
Case Material	304 Stainless Steel
Case Style	Solid front & blow-out back (Safecase construction)
Tube & Socket	316 Stainless Steel
Movement	Stainless Steel
Scale Standard	Dual scale PSI and kPa
Dial Color	Black markings on white
Pointer	Aluminum, black painted
Window	Safety Glass
Fill Medium	See Options
Vent	Internal compensating diaphragm
Case Size	100mm (4")
Mounting / Case Style	LM
Connection	1/2 NPT
0 to 30" Hg VAC	W9605
0 to 30 PSI	W9642
0 to 60 PSI	W9646
0 to 100 PSI	W9648
0 to 200 PSI	W9654
0 to 300 PSI	W9658
0 to 600 PSI	W9664
0 to 1,000 PSI	W9672
0 to 1,500 PSI	W9674
0 to 2,000 PSI	W9676
0 to 3,000 PSI	W9678
0 to 5,000 PSI	W9682
0 to 10,000 PSI	W9690

Option	Type	Suffix	Available On Models
Fill Medium	Dry (no fill)	Standard	All Ranges
	Glycerine (GL)	Add suffix P	
	Silicone (SL)	Add suffix PI	

63mm & 100mm Brass Gauge

- Forged Brass case
  (one piece construction)
- Ranges to 10,000 PSIG
- Heavy Duty Performance

Marsh forged brass gauges are designed for top performance in rugged applications and harsh environments, where corrosive gas or media is not an issue. Applications include Oil Patch, Hydraulics, Natural Gas, OEM and General Industrial applications where superior quality is required. Liquid Filling protects against pulsation and vibration offering a cushioning and dampening effect. The hermetically sealed one piece design reduces the chance of leaks and allows field filling as an easy option.

Specifications

Size	63mm	100mm
Accuracy	±1.6% F.S.	±1% F.S.
Case Material	Forged Brass	Forged Brass
Internals	Copper Alloy	Copper Alloy
Mounting / Case Style	LM	LM
Connection	1/4 NPT	1/2 NPT
Scale Standard	PSI	PSI
0 to 30" Hg VAC	W9005PE	W9405PE
30" Hg VAC to 30 PSI	W9012PE	W9412PE
30" Hg VAC to 60 PSI	W9014PE	W9414PE
30" Hg VAC to 100 PSI	W9016PE	W9416PE
30" Hg VAC to 200 PSI	W9020PE	W9420PE
0 to 15 PSI	W9040PE	W9440PE
0 to 30 PSI	W9042PE	W9442PE
0 to 60 PSI	W9046PE	W9446PE
0 to 100 PSI	W9048PE	W9448PE
0 to 160 PSI	W9052PE	W9452PE
0 to 200 PSI	W9054PE	W9454PE
0 to 300 PSI	W9058PE	W9458PE
0 to 400 PSI	W9060PE	W9460PE
0 to 600 PSI	W9064PE	W9464PE
0 to 1,000 PSI	W9072PE	W9472PE
0 to 1,500 PSI	W9074PE	W9474PE
0 to 2,000 PSI	W9076PE	W9476PE
0 to 3,000 PSI	W9078PE	W9478PE
0 to 5,000 PSI	W9082PE	W9482PE
0 to 10,000 PSI	W9090PE	W9490PE

Option	Type	Suffix	Available On Models
Fill Medium	Dry (no fill)	Delete Suffix P	Consult factory for minimums
	Glycerine	Standard	
	Silicone (SL)	I	
Catalog Dials	BAR only	L1	
	kg/cm^2 only	L2	
	kPa only	L3	
	MPa only	L4	
	PSI & BAR	W1	
	PSI & kg/cm^2	W2	
	PSI & kPa	W3	
	PSI & MPa	W4	
Custom Dials	Logo or Custom Face	M	

Quality Series 100mm Gauge

- Liquid Filled or Dry
- Adjustable Micrometer Pointer
- Ranges to 10,000 PSI
- Safety Glass Window

Marsh Stainless Steel gauges are built for extended life and designed for harsh and corrosive environments. They feature a top fill plug polished bayonet ring and are field fillable. Liquid filled gauges offer significant cushioning and dampening plus extend the life of a gauge.

Applications include Oil Patch, Refineries, Oil Rigs, Panel builders, Offshore Platforms, Marine and General Industrial.

Specifications

Accuracy	ASME Grade 1A – ±1.0% of range across full scale	
Case Material	304 Stainless Steel	
Tube & Socket	316 Stainless Steel	
Movement	Stainless Steel	
Scale Standard	PSI / kPa	
Dial Color	Black markings on white	
Pointer	Aluminum, Adjustable Micrometer, black painted	
Window	Safety Glass	
Fill Medium	See options	
Vent	Rubber plug with snip-off feature	
Case Size	100mm (4")	**NACE** 100mm (4")
Mounting / Case Style	LM	LM
Connection	1/2 NPT	1/2 NPT
0 to 30" Hg Vacuum	H20905	
0 to 15 PSI	H20940	HN20940
0 to 30 PSI	H20942	HN20942
0 to 60 PSI	H20946	HN20946
0 to 100 PSI	H20948	HN20948
0 to 160 PSI	H20952	HN20952
0 to 200 PSI	H20954	HN20954
0 to 300 PSI	H20958	HN20958
0 to 400 PSI	H20960	HN20960
0 to 600 PSI	H20964	HN20964
0 to 1,000 PSI	H20972	HN20972
0 to 1,500 PSI	H20974	HN20974
0 to 2,000 PSI	H20976	HN20976
0 to 3,000 PSI	H20978	HN20978
0 to 5,000 PSI	H20982	HN20982
0 to 10,000 PSI	H20990	HN20990

Option	Type	Suffix	Available On Models
Fill Medium	Dry (no fill)	Standard	All Ranges
	Glycerine (GL)	Add suffix P	
	Silicone (SL)	Add suffix PI	
Catalog Dials	PSI only	E	
	Bar only	L1	
	kg/cm^2 only	L2	
	kPa only	L3	
	MPa only	L4	
	PSI & BAR	W1	
	PSI & kg/cm^2	W2	
	PSI & MPa	W4	

Quality Series 100mm Copper Alloy Internals

- Liquid Filled or Dry
- Removable polished bayonet ring
- Ranges to 10,000 PSI
- Safety Glass Window

Stainless steel case with copper alloy internals. Ideal for heavy duty service in industrial and commercial environments. Features robust design with removable polished bayonet ring and adjustable pointer. Field fillable.

Applications include Industrial Machinery, Oilfield Equipment and Controls, Wellheads, Pipeline and General Industrial.

Specifications

Accuracy	ASME Grade 1A – ±1.0% of range across full scale
Case Material	304 Stainless Steel
Tube & Socket	Copper Alloy
Movement	Stainless Steel
Scale Standard	Single scale PSI
Dial Color	Black markings on white
Pointer	Aluminum, Adjustable Micrometer, black painted
Window	Safety Glass
Fill Medium	See options
Vent	Rubber plug with snip-off feature
Case Size	100mm (4")
Mounting / Case Style	LM
Connection	1/2 NPT
0 to 30" Hg Vacuum	H20505
0 to 15 PSI	H20540
0 to 30 PSI	H20542
0 to 60 PSI	H20546
0 to 100 PSI	H20548
0 to 160 PSI	H20552
0 to 200 PSI	H20554
0 to 300 PSI	H20558
0 to 400 PSI	H20560
0 to 600 PSI	H20564
0 to 1,000 PSI	H20572
0 to 1,500 PSI	H20574
0 to 2,000 PSI	H20576
0 to 3,000 PSI	H20578
0 to 5,000 PSI	H20582
0 to 10,000 PSI	H20590

Option	Type	Suffix	Available On Models
Fill Medium	Dry (no fill)	Standard	All Ranges
	Glycerine (GL)	Add suffix P	
	Silicone (SL)	Add suffix PI	
	Bar only	L1	
	kg/cm^2 only	L2	
	kPa only	L3	
	MPa only	L4	
	PSI & BAR	W1	
	PSI & kg/cm^2	W2	
	PSI & kPa	W3	
	PSI & MPa	W4	

Bimetal Thermometers

- External Reset Feature for Field Recalibration (3" & 5")
- 9 Dual Scale Ranges to 1,000°F (525°C)
- Hermetically Sealed Case Design
- 2", 3" and 5" Dials
- Stem Lengths to 24"
- 1% Full Scale Accuracy

Marsh Instruments Bimetal Thermometers combine the benefits of economy and reliability for local mounted temperature indication in the dual scale ranges from -50° to 1,000°F (-40° to 525°C). Additional advantages offered by the Series "L" Bimetal Thermometers include an easy-to-read dual scale, fast speed of response, and accurate temperature indication. The hermetically sealed and ruggedly built case is resistant to shock, vibration, dust and moisture. Corrosion resistance to most chemicals is provided by the all welded type 304 Stainless Steel construction. The extremely responsive bimetal sensing element provides an accuracy to within ±1% of scale. An external adjustment screw on the back of the 3" and 5" case provides convenient reset and field recalibration. Built-in over range protection is a standard feature.

Typical applications include process, offshore, power, chemical industries, HVAC and OEM applications.

Specifications

Accuracy	±1% of span throughout entire range for 2" immersion in liquids, 4" in gases					
Case Material	304 Stainless Steel					
Stem	304 Stainless Steel, 1/4" diameter					
Dials	Dual scale in degrees Fahrenheit and Celsius					
Window	Glass, hermetically sealed					
Size	2"					
Connection (NPT)	1/4 NPT					
Mounting	CB	CB	CB	CB	CB	
Stem Length	2-1/2"	4"	6"	9"	12"	
-50° to 120°F/-40° to 50°C	L11101	L11201	L11301	L11401	L11501	
-40° to 160°F/-40° to 70°C	L11102	L11202	L11302	L11402	L11502	
0° to 200°F/-20° to 90°C	L11104	L11204	L11304	L11404	L11504	
0° to 250°F/-20° to 120°C	L11105	L11205	L11305	L11405	L11505	
50° to 300°F/10° to 150°C	L11106	L11206	L11306	L11406	L11506	
50° to 400°F/10° to 200°C	L11107	L11207	L11307	L11407	L11507	
50° to 550°F/10° to 300°C	L11108	L11208	L11308	L11408	L11508	
150° to 750°F/70° to 400°C	L11110	L11210	L11310	L11410	L11510	
200° to 1000°F/100° to 525°C	L11111	L11211	L11311	L11411	L11511	
Size	3"					
Connection (NPT)	1/2 NPT					
Mounting	CB	CB	CB	CB	CB	CB
Stem Length	2-1/2"	4"	6"	9"	12"	15"
-50° to 120°F/-40° to 50°C	L31101	L31201	L31301	L31401	L31501	L31601
-40° to 160°F/-40° to 70°C	L31102	L31202	L31302	L31402	L31502	L31602
0° to 200°F/-20° to 90°C	L31104	L31204	L31304	L31404	L31504	L31604
0° to 250°F/-20° to 120°C	L31105	L31205	L31305	L31405	L31505	L31605
50° to 300°F/10° to 150°C	L31106	L31206	L31306	L31406	L31506	L31606
50° to 400°F/10° to 200°C	L31107	L31207	L31307	L31407	L31507	L31607
50° to 550°F/10° to 300°C	L31108	L31208	L31308	L31408	L31508	L31608
150° to 750°F/70° to 400°C	L31110	L31210	L31310	L31410	L31510	L31610
200° to 1000°F/100° to 525°C	L31111	L31211	L31311	L31411	L31511	L31611

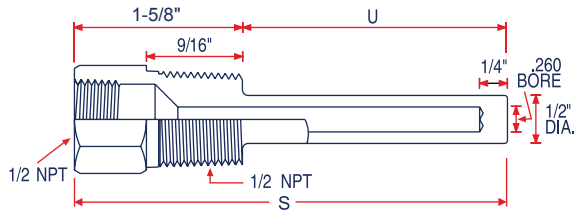
Size	3" Adjustable Angle						
Connection (NPT)	1/2 NPT						
Mounting	AJ	AJ	AJ	AJ	AJ	AJ	
Stem Length	2-1/2"	4"	6"	9"	12"	15"	
–50° to 120°F/-40° to 50°C	L33101	L33201	L33301	L33401	L33501	L33601	
–40° to 160°F/-40° to 70°C	L33102	L33202	L33302	L33402	L33502	L33602	
0° to 200°F/-20° to 90°C	L33104	L33204	L33304	L33404	L33504	L33604	
0° to 250°F/-20° to 120°C	L33105	L33205	L33305	L33405	L33505	L33605	
50° to 300°F/ 10° to 150°C	L33106	L33206	L33306	L33406	L33506	L33606	
50° to 400°F/ 10° to 200°C	L33107	L33207	L33307	L33407	L33507	L33607	
50° to 550°F/ 10° to 300°C	L33108	L33208	L33308	L33408	L33508	L33608	
150° to 750°F/ 70° to 400°C	L33110	L33210	L33310	L33410	L33510	L33610	
200° to 1000°F/ 100° to 525°C	L33111	L33211	L33311	L33411	L33511	L33611	

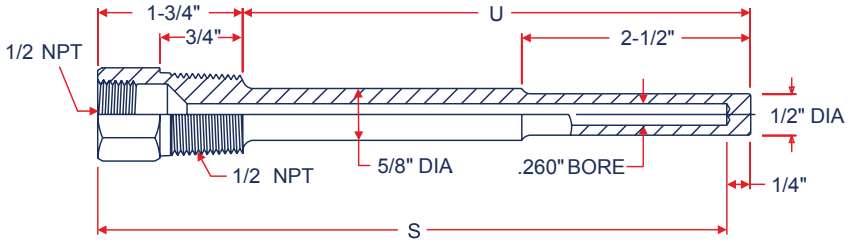
Size	5"							
Connection (NPT)	1/2 NPT							
Mounting	CB	CB	CB	CB	CB	CB	CB	CB
Stem Length	2-1/2"	4"	6"	9"	12"	15"	18"	24"
–50° to 120°F/-40° to 50°C	L51101	L51201	L51301	L51401	L51501	L51601	L51701	L51801
–40° to 160°F/-40° to 70°C	L51102	L51202	L51302	L51402	L51502	L51602	L51702	L51802
0° to 200°F/-20° to 90°C	L51104	L51204	L51304	L51404	L51504	L51604	L51704	L51804
0° to 250°F/-20° to 120°C	L51105	L51205	L51305	L51405	L51505	L51605	L51705	L51805
50° to 300°F/ 10° to 150°C	L51106	L51206	L51306	L51406	L51506	L51606	L51706	L51806
50° to 400°F/ 10° to 200°C	L51107	L51207	L51307	L51407	L51507	L51607	L51707	L51807
50° to 550°F/ 10° to 300°C	L51108	L51208	L51308	L51408	L51508	L51608	L51708	L51808
150° to 750°F/ 70° to 400°C	L51110	L51210	L51310	L51410	L51510	L51610	L51710	L51810
200° to 1000°F/ 100° to 525°C	L51111	L51211	L51311	L51411	L51511	L51611	L51711	L51811

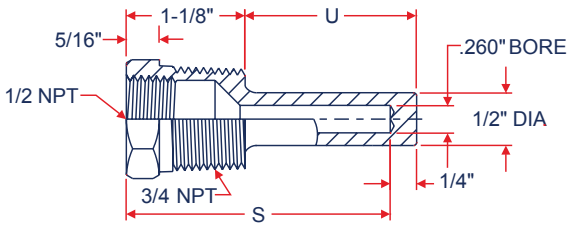
Size	5" Adjustable Angle							
Connection (NPT)	1/2 NPT							
Mounting	AJ	AJ	AJ	AJ	AJ	AJ	AJ	AJ
Stem Length	2-1/2"	4"	6"	9"	12"	15"	18"	24"
–50° to 120°F/-40° to 50°C	L53101	L53201	L53301	L53401	L53501	L53601	L53701	L53801
–40° to 160°F/-40° to 70°C	L53102	L53202	L53302	L53402	L53502	L53602	L53702	L53802
0° to 200°F/-20° to 90°C	L53104	L53204	L53304	L53404	L53504	L53604	L53704	L53804
0° to 250°F/-20° to 120°C	L53105	L53205	L53305	L53405	L53505	L53605	L53705	L53805
50° to 300°F/ 10° to 150°C	L53106	L53206	L53306	L53406	L53506	L53606	L53706	L53806
50° to 400°F/ 10° to 200°C	L53107	L53207	L53307	L53407	L53507	L53607	L53707	L53807
50° to 550°F/ 10° to 300°C	L53108	L53208	L53308	L53408	L53508	L53608	L53708	L53808
150° to 750°F/ 70° to 400°C	L53110	L53210	L53310	L53410	L53510	L53610	L53710	L53810
200° to 1000°F/ 100° to 525°C	L53111	L53211	L53311	L53411	L53511	L53611	L53711	L53811

Thermowells

- Brass, 304 Stainless Steel or 316 Stainless Steel
- Tapered or Straight Shank
- 0.260 and 0.385 Standard Bore Sizes
- Threaded, flanged, and socket welded for easy connection



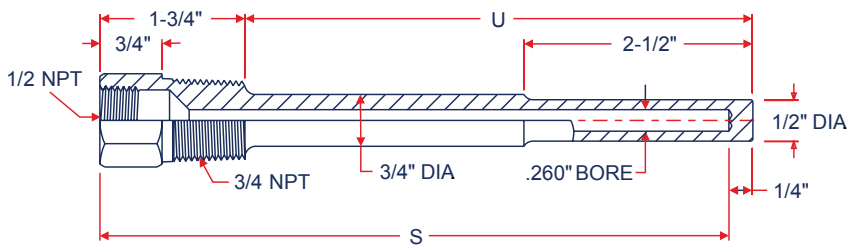




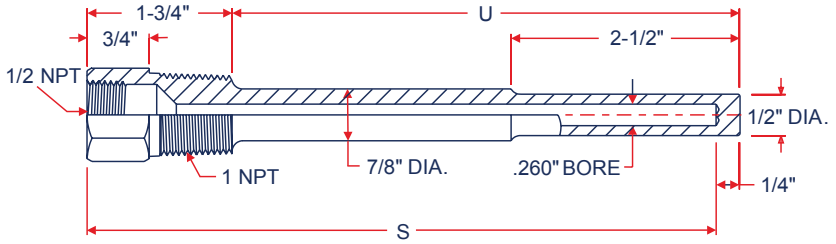
Part Number	"S" Stem	"U" Insertion	Well Material
M3957K67	2-1/2	1-1/8	Brass
M3957K68	2-1/2	1-1/8	304SS
M3957K69	2-1/2	1-1/8	316SS
M3957K64	4	2-1/2	Brass
M3957K65	4	2-1/2	304SS
M3957K66	4	2-1/2	316SS
M3957K37	6	4-1/2	Brass
M3957K38	6	4-1/2	304SS
M3957K51	6	4-1/2	316SS
M3957K39	9	7-1/2	Brass
M3957K41	9	7-1/2	304SS
M3957K52	9	7-1/2	316SS
M3957K42	12	10-1/2	Brass
M3957K43	12	10-1/2	304SS
M3957K53	12	10-1/2	316SS
M3957K71	18	16-1/2	Brass
M3957K72	18	16-1/2	304SS
M3957K73	18	16-1/2	316SS
M3957K75	24	22-1/2	304SS
M3957K76	24	22-1/2	316SS
M3957K77	2-1/2	1-5/8	Brass
M3957K78	2-1/2	1-5/8	304SS
M3957K79	2-1/2	1-5/8	316SS

Thermowells

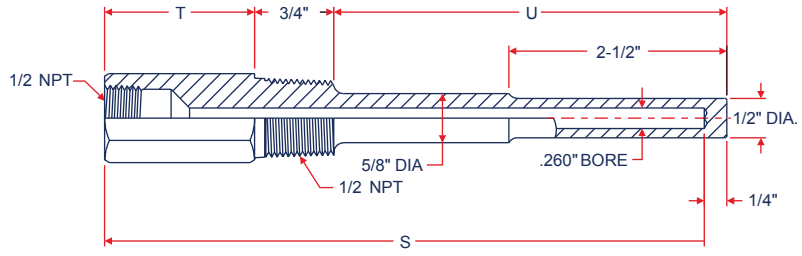
Part Number	"S" Stem	"U" Insertion	Well Material
M3957K11	4	2-1/2	Brass
M3957K21	4	2-1/2	304SS
M3957K54	4	2-1/2	316SS
M3957K12	6	4-1/2	Brass
M3957K22	6	4-1/2	304SS
M3957K55	6	4-1/2	316SS
M3957K13	9	7-1/2	Brass
M3957K23	9	7-1/2	304SS
M3957K56	9	7-1/2	316SS
M3957K44	12	10-1/2	Brass
M3957K45	12	10-1/2	304SS
M3957K57	12	10-1/2	316SS
M3957K84	18	16-1/2	Brass
M3957K85	18	16-1/2	304SS
M3957K86	18	16-1/2	316SS
M3957K87	24	22-1/2	Brass
M3957K88	24	22-1/2	304SS
M3957K89	24	22-1/2	316SS



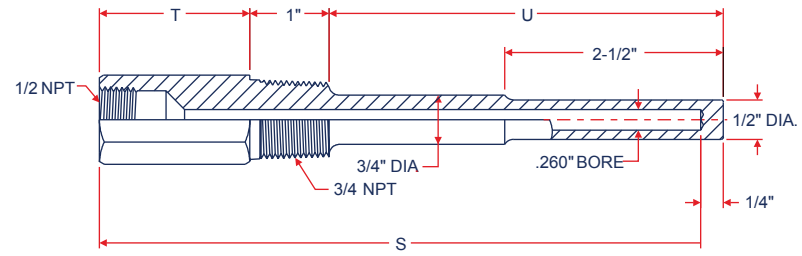
Part Number	"S" Stem	"U" Insertion	Well Material
M3957K46	4	2-1/2	Brass
M3957K47	4	2-1/2	304SS
M3957K58	4	2-1/2	316SS
M3957K48	6	4-1/2	Brass
M3957K49	6	4-1/2	304SS
M3957K59	6	4-1/2	316SS
M3957K91	9	7-1/2	Brass
M3957K92	9	7-1/2	304SS
M3957K93	9	7-1/2	316SS
M3957K94	12	10-1/2	Brass
M3957K95	12	10-1/2	304SS
M3957K96	12	10-1/2	316SS
M3957K14	18	16-1/2	Brass
M3957K15	18	16-1/2	304SS
M3957K16	18	16-1/2	316SS
M3957K18	24	22-1/2	304SS
M3957K19	24	22-1/2	316SS

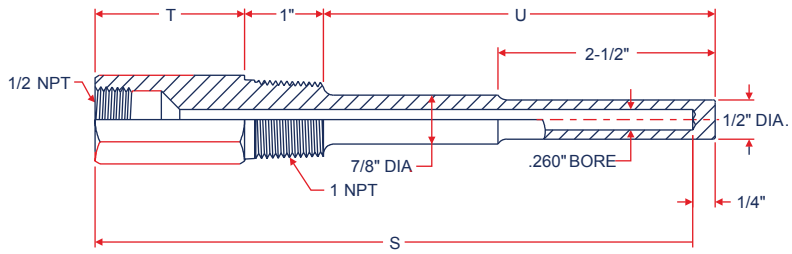


Part Number	"S" Stem	"U" Insertion	"T" Lag	Well Material
M3957K24	9	4-1/2	4	Brass
M3957K25	9	4-1/2	4	304SS
M3957K26	9	4-1/2	4	316SS
M3957K27	12	7-1/2	4	Brass
M3957K28	12	7-1/2	4	304SS
M3957K29	12	7-1/2	4	316SS
M3957K4	18	13-1/2	4	Brass
M3957K5	18	13-1/2	4	304SS
M3957K6	18	13-1/2	4	316SS
M3957K8	24	19-1/2	4	304SS
M3957K9	24	19-1/2	4	316SS

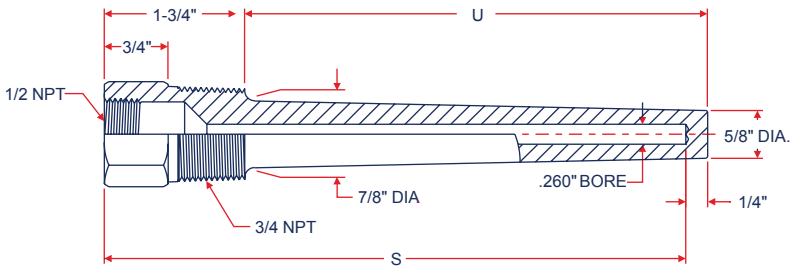


Part Number	"S" Stem	"U" Insertion	"T" Lag	Well Material
M3957K31	6	2-1/2	2-3/4	Brass
M3957K32	6	2-1/2	2-3/4	304SS
M3957K61	6	2-1/2	2-3/4	316SS
M3957K33	9	4-1/2	3-3/4	Brass
M3957K34	9	4-1/2	3-3/4	304SS
M3957K62	9	4-1/2	3-3/4	316SS
M3957K35	12	7-1/2	3-3/4	Brass
M3957K36	12	7-1/2	3-3/4	304SS
M3957K63	12	7-1/2	3-3/4	316SS
M3957K115	18	13-1/2	3-3/4	304SS
M3957K116	18	13-1/2	3-3/4	316SS
M3957K117	24	19-1/2	3-3/4	Brass
M3957K118	24	19-1/2	3-3/4	304SS
M3957K119	24	19-1/2	3-3/4	316SS

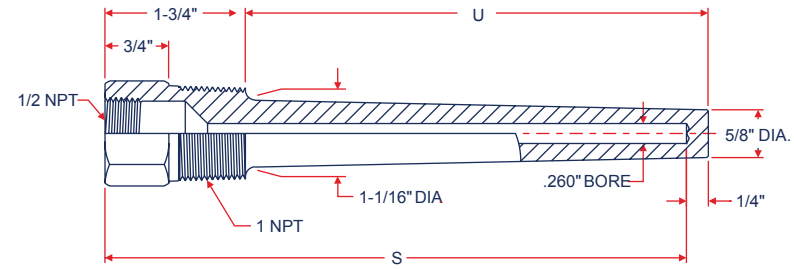




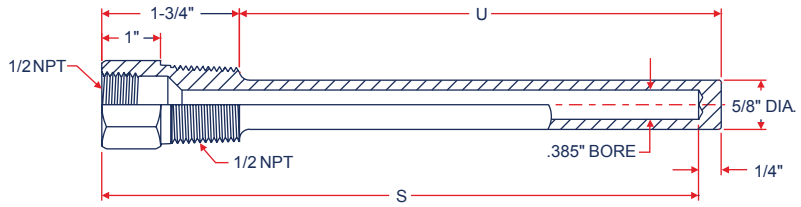
Part Number	"S" Stem	"U" Insertion	"T" Lag	Well Material
M3957K121	9	4-1/2	3-3/4	Brass
M3957K122	9	4-1/2	3-3/4	304SS
M3957K123	9	4-1/2	3-3/4	316SS
M3957K124	12	7-1/2	3-3/4	Brass
M3957K125	12	7-1/2	3-3/4	304SS
M3957K126	12	7-1/2	3-3/4	316SS
M3957K131	18	13-1/2	3-3/4	Brass
M3957K132	18	13-1/2	3-3/4	304SS
M3957K133	18	13-1/2	3-3/4	316SS
M3957K134	24	19-1/2	3-3/4	Brass
M3957K135	24	19-1/2	3-3/4	304SS
M3957K136	24	19-1/2	3-3/4	316SS



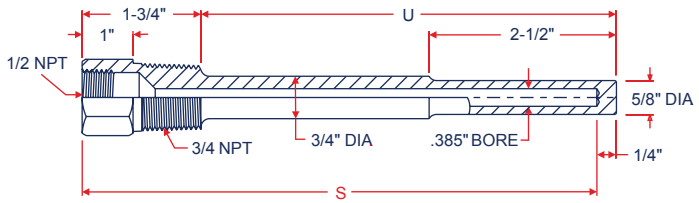
Part Number	"S" Stem	"U" Insertion	Well Material
M3957K137	4	2-1/2	Brass
M3957K138	4	2-1/2	304SS
M3957K139	4	2-1/2	316SS
M3957K141	6	4-1/2	Brass
M3957K142	6	4-1/2	304SS
M3957K143	6	4-1/2	316SS
M3957K144	9	7-1/2	Brass
M3957K145	9	7-1/2	304SS
M3957K146	9	7-1/2	316SS
M3957K147	12	10-1/2	Brass
M3957K148	12	10-1/2	304SS
M3957K149	12	10-1/2	316SS



Part Number	"S" Stem	"U" Insertion	Well Material
M3957K162	4	2-1/2	Brass
M3957K163	4	2-1/2	304SS
M3957K164	4	2-1/2	316SS
M3957K165	6	4-1/2	Brass
M3957K166	6	4-1/2	304SS
M3957K167	6	4-1/2	316SS
M3957K168	9	7-1/2	Brass
M3957K169	9	7-1/2	304SS
M3957K171	9	7-1/2	316SS
M3957K172	12	10-1/2	Brass
M3957K173	12	10-1/2	304SS
M3957K174	12	10-1/2	316SS



Part Number	"S" Stem	"U" Insertion	Well Material
M3957K221	4	2-1/2	Brass
M3957K222	4	2-1/2	304SS
M3957K223	4	2-1/2	316SS
M3957K231	6	4-1/2	Brass
M3957K232	6	4-1/2	304SS
M3957K233	6	4-1/2	316SS
M3957K241	9	7-1/2	Brass
M3957K242	9	7-1/2	304SS
M3957K243	9	7-1/2	316SS



Part Number	"S" Stem	"U" Insertion	Well Material
M3957K261	4	2-1/2	Brass
M3957K262	4	2-1/2	304SS
M3957K263	4	2-1/2	316SS
M3957K271	6	4-1/2	Brass
M3957K272	6	4-1/2	304SS
M3957K273	6	4-1/2	316SS
M3957K281	9	7-1/2	Brass
M3957K282	9	7-1/2	304SS
M3957K283	9	7-1/2	316SS

Needle Valves

BelGAS Standard Needle Valves offer four choices in 316 stainless steel as well as one piece forged carbon plated steel; soft seat and hard seat, angle and globe styles. The Mini Valve offers 2 choices in 316 stainless steel and bar stock plated carbon steel; soft seat and hard seat globe style, T-bar and thumb wheel operation.

These valves are suited for instrumentation, process plant use, oil and gas production and general applications where isolation and positive shutoff is a requirement.

For applications requiring a positive shutoff, the soft seat style with Delrin® seat insert offers a bubble tight seat for leak free operation. For corrosives and caustic applications, the hard seat style offers a metal to metal sealing force to clear obstructions and corrosion.

All valves are deigned to the following standards;
ANSI B31.1.0 – Power Piping
ANSI B11.20 – Fuel Gas Piping
ANSI B31.3 – Chemical Plant Petroleum Refinery Piping
ASME Section VII-DIV1 – Boiler & Pressure Vessel Code

Thread & Dimensional codes include;
ANSI B2.1 – Pipe Threads
ANSI B1.1 – Straight Threads
ASME B16.10

Needle Valves Part Matrix

			–				–			
										Valve Type
V										Standard
M										Mini
B										Block/Bleed
										Seat Design
	S									Soft Seat
	H									Hard Seat
										Body Material
		C								Carbon Steel
		S								316 SS
										Inlet Connection
				F						Female
				M						Male
										Outlet Connection
					F					Female
					M					Male
										Body Pattern
						G				Globe Pattern
						A				Angle Pattern
										Connection Size
								18		1/8 NPT
								14		1/4 NPT
								38		3/8 NPT
								12		1/2 NPT
								34		3/4 NPT
								01		1 NPT
										Options
									H	Graphite Packing - High Temp
									N	NACE
									P	Panel Mount
									W	Hand Wheel (Mini only)
									V	Viton O-ring, Soft Seat Only

Flow Coefficient (C_v)

Method of Calculating Flow: The flow coefficient "C_v" of a valve is the flow rate of water (gallons/minute) through a fully opened valve, with a pressure drop of 1 psi across the valve.

To find the flow of liquid through a valve from the flow coefficient (C_v), use the following formula:

$$Q_L = C\sqrt{\frac{\Delta P}{G}}$$

Q_L = flow rate of liquid (gal/min.)
ΔP = differential pressure across the valve (psi)
G = specific gravity of liquid (for water, G = 1)

To find the flow of gas through a valve, use the following formula:

$$Qg = 61 C_v \sqrt{\frac{P_2{}^y \Delta P}{g}} \quad \left\{ \begin{array}{l} \text{For noncritical flow} \\ \frac{\Delta P}{P_2} \text{ less than } 1.0 \end{array} \right\}$$

Qg = flow rate of gas (CFH at STP)
P = outlet pressure (psi)
g = specific gravity of gas; g air = 1.0000

IMPORTANT: Flow coefficients are dependent on both the size of the valve and the valve pattern itself. Marsh "C_v" factors give flow information for all sizes and patterns so that the designer is able to provide sufficient flow within the system.

BelGAS Metal-to-Metal Seat Needle Valves

These 316 stainless steel valves are ideally suited for applications when caustic and corrosive material are being used. Pressure ratings to 10,000 psi (70,000 kPa).

- "T" bar handle
- Teflon* packing
- Roll-formed stem threads
- Precision-machined stem
- Bonnet locking pin prevents accidental removal
- Below stem thread packing gland
- Hardened and ground self centering, non-rotating tip
- Metal-to-Metal seat
- Pressure rating, 10,000 psi (70,000 kPa)

Specifications and Description

Body and Bonnet Material	ASTM A182F 316 stainless steel or ASTM A105 forged single piece steel, plated
Stem Material	316 Stainless Steel
Pressure/ Temperature Rating	10,000 PSI (70,000 kPa) @ 200°F [93°C]
	4000 PSI (28,000 kPa) @ 500°F [260°C]
	Optional Graphite Packing (HT) 10,000 PSI (70,000 kPa) @ 400°F 204°C]
	Alloy Steel 1500 PSI (10,400 kPa) @ 850°F [460°C]
	316 Stainless Steel 1500 PSI (10,400 kPa) @ 1000°F [538°C]
Packing	Two piece molded Teflon* (PTFE).
Seat	Metal-to-Metal
Handle	"T" bar; 316 Stainless Steel or ASTM A108 Alloy Steel
Connection	National Pipe Thread, meeting specifications of ANSI B2.1
Finish	Stainless Steel is Passivated. Alloy Steel has a clear Zinc Dichromate finish.

* Teflon is a registered trademark of DuPont.
** NACE valves are manufactured of 316 SS.

Pattern	Size NPT	Part Number		C_v
		316 SST	Carbon	
FFG	1/8	VHS-FFG-18	VHC-FFG-18	0.40
	1/4	VHS-FFG-14	VHC-FFG-14	0.40
	3/8	VHS-FFG-38	VHC-FFG-38	0.90
	1/2	VHS-FFG-12	VHC-FFG-12	1.10
	3/4	VHS-FFG-34	VHC-FFG-34	2.30
	1	VHS-FFG-01	VHC-FFG-01	3.50
MFG	1/4	VHS-MFG-14	VHC-MFG-14	0.40
	1/2	VHS-MFG-12	VHC-MFG-12	1.20
	3/4 x 1/2	VHS-MFG-3412	VHC-MFG-3412	1.90
FFA	1/8	VHS-FFA-18	VHC-FFA-18	0.70
	1/4	VHS-FFA-14	VHC-FFA-14	0.80
	3/8	VHS-FFA-38	VHC-FFA-38	1.60
	1/2	VHS-FFA-12	VHC-FFA-12	2.20
	3/4	VHS-FFA-34	VHC-FFA-34	2.20
	1	VHS-FFA-01	VHC-FFA-01	2.20
MFA	1/4	VHS-MFA-14	VHC-MFA-14	0.60
	1/2	VHS-MFA-12	VHC-MFA-12	1.50

Option	Suffix
Graphite Packing - High Temp.	H
NACE**	N
Panel Mount	P

BelGAS Soft-Seat Needle Valves

For applications where bubble-tight shutoff of liquids or gases are required. Pressure rating to 6,000 psi (42,000 kPa). These valves are designed with a replaceable Delrin** soft seat.

- "T" bar handle
- Teflon* packing
- Roll-formed stem threads
- Precision-machined stem
- Bonnet locking pin prevents accidental removal
- Below stem thread packing gland
- Hardened and ground self-centering, non-rotating tip
- Soft-Seat
- Bubble-tight shutoff of liquids or gases to 6,000 psi (42,000 kPa)

Specifications and Description

Body and Bonnet Material	ASTM A182F 316 Stainless Steel or ASTM A105 forged single piece steel, plated.
Stem Material	316 Stainless Steel
Pressure/ Temperature Rating	6000 PSI (42,000 kPa) @ 200°F [93°C]
	4000 PSI (28,000 kPa) @ 500°F [260°C]
	Optional Graphite Packing (HT) 6000 PSI (42,000 kPa) @ 400°F [204°C]
	Alloy Steel 1500 PSI (10,400 kPa) @ 850°F [460°C]
	316 Stainless Steel 1500 PSI (10,400 kPa) @ 1000°F [538°C]
Packing	Two piece molded Teflon* (PTFE)
Seat	Delrin** Soft-Seat.
Handle	"T" bar; 316 Stainless Steel or ASTM A108 Alloy Steel
Connection	National Pipe Thread, meeting specifications of ANSI B2.1
Finish	Stainless Steel is Passivated. Alloy Steel has a clear Zinc Dichromate finish
Stem Retaining Method	All valves feature integral back-seated stem for preventing accidental removal
Assembly	Bonnet is threaded into body and pinned into place

* Teflon is a registered trademark of DuPont
** Delrin is a registered trademark of DuPont
*** NACE valves are manufactured of 316 SS

Pattern	Size NPT	Part Number		C_v
		316 SST	Carbon	
FFG	1/4	VSS-FFG-14	VSC-FFG-14	0.60
	1/2	VSS-FFG-12	VSC-FFG-12	0.70
	3/4	VSS-FFG-34	VSC-FFG-34	2.35
	1	VSS-FFG-01	VSC-FFG-01	2.00
MFG	1/4	VSS-MFG-14	VSC-MFG-14	0.60
	1/2	VSS-MFG-12	VSC-MFG-12	0.70
	1/4 x 1/2	VSS-MFG-1412	VSC-MFG-1412	0.80
MFA	1/4	–	VSC-MFA-14	0.70
	1/2	–	VSC-MFA-12	0.70

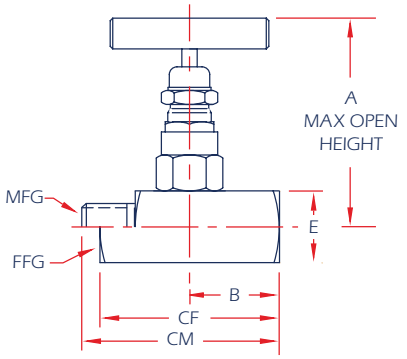
Option	Suffix
Graphite Packing - High Temp.	H
NACE***	N
Panel Mount	P

Needle Valves Patterns and Dimensions

Metal-to-Metal - 316 Stainless Steel or Alloy

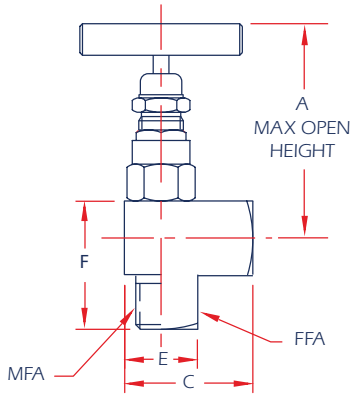
FFG and MFG
Double Female and Male/Female Globe Pattern

Dimension	Nominal Sizes (inches [mm])					
	1/8	1/4	3/8	1/2	3/4	1
A	3.39 [86.0]	3.39 [86.0]	3.46 [88.0]	3.62 [92.0]	3.66 [93.0]	4.41 [112.0]
B		1.18 [30.0]		1.26 [32.0]	1.26 [32.0]	1.69 [43.0]
CF	2.36 [60.0]	2.36 [60.0]	2.68 [68.0]	2.68 [68.0]	2.68 [68.0]	3.15 [80.0]
CM		2.99 [76.0]		3.50 [89.0]	3.50 [89.0]	4.13 [105.0]
E	1.12 [28.5]	1.12 [28.5]	1.26 [32.0]	1.50 [38.0]	1.57 [40.0]	1.77 [45.0]
Orifice	0.17 [4.2]	0.17 [4.2]	0.25 [6.4]	0.28 [7.0]	0.35 [9.0]	0.47 [12.0]



FFA and MFA
Double Female and Male/Female Angle Pattern

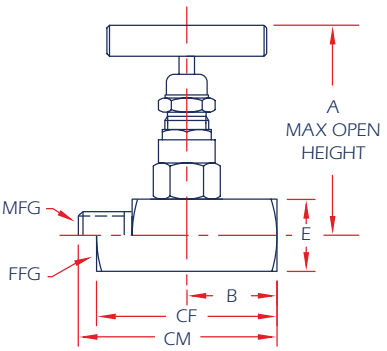
Dimension	Nominal Sizes (inches [mm])					
	1/8	1/4	3/8	1/2	3/4	1
A	3.39 [86.0]	3.39 [86.0]	3.39 [86.0]	3.62 [92.0]	3.62 [92.0]	4.41 [112.0]
C	1.65 [42.0]	1.65 [42.0]	1.65 [42.0]	1.97 [50.0]	1.97 [50.0]	2.36 [60.0]
E	1.10 [28.0]	1.10 [28.0]	1.10 [28.0]	1.26 [32.0]	1.42 [36.0]	1.81 [46.0]
F	1.65 [42.0]	1.65 [42.0]	1.65 [42.0]	1.97 [50.0]	1.97 [50.0]	2.36 [60.0]
Orifice	0.17 [4.2]	0.17 [4.2]	0.25 [6.4]	0.28 [7.0]	0.35 [9.0]	0.47 [12.0]



Soft-Seat - 316 Stainless Steel or Alloy

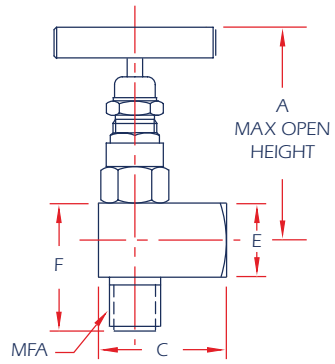
FFG and MFG
Double Female and Male/Female Globe Pattern

Dimension	Nominal Sizes (inches [mm])			
	1/4	1/2	1/4 x 1/2	1
A	3.39 [86.0]	3.62 [92.0]	3.62 [92.0]	4.41 [112.0]
B	1.18 [30.0]	1.26 [32.0]		1.26 [32.0]
CF	2.36 [60.0]	2.68 [68.0]		3.15 [80.0]
CM	2.99 [76.0]	3.50 [89.0]	3.50 [89.0]	
E	1.12 [28.5]	1.26 [32.0]	1.50 [38.0]	1.77 [45.0]
Orifice	0.17 [4.2]	0.28 [7.0]	0.28 [7.0]	0.47 [12.0]



MFA
Male/Female Angle Pattern

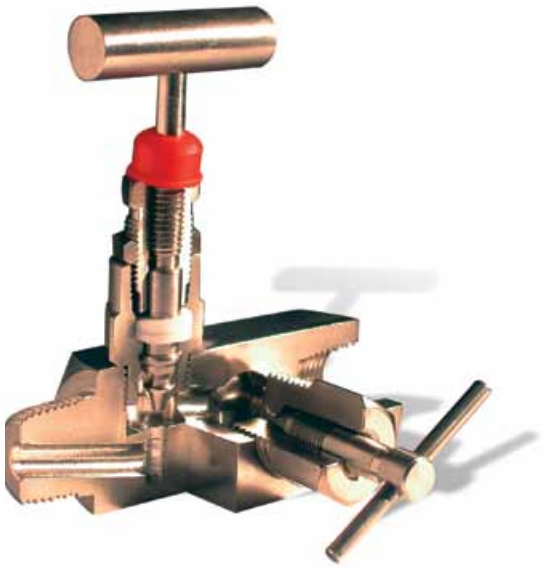
Dimension	Nominal Sizes (inches [mm])	
	1/4	1/2
A	3.39 [86.0]	3.62 [92.0]
C	1.65 [42.0]	1.97 [50.0]
E	1.10 [28.0]	1.26 [32.0]
F	1.65 [42.0]	1.97 [50.0]
Orifice	0.17 [4.2]	0.28 [7.0]



BelGAS Block/Bleed Needle Valves

Ideally used to isolate gauge legs and gauge reading, allow sampling to take place without loss of material and provide extra pressure ports with isolation capabilities and can be used only when needed.

- "T" Bar Handle
- Teflon* Packing
- Roll-Formed Stem Threads
- Precision-Machined Stem
- Below Stem Thread Packing Gland
- Hardened and Ground 316 Stainless Steel, Self-Centering, Non-Rotating Tip
- Carbon Steel or 316 SST Port Plug
- Pressure Rating, 10,000 PSI (70,000 kPa)



Specifications and Description

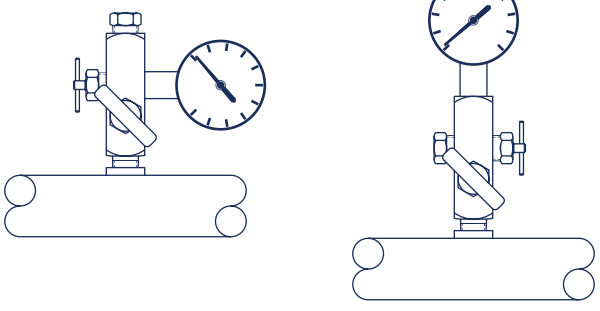
Body and Bonnet Material	ASTM A182F 316 Stainless Steel or ASTM A105 forged single piece steel, plated
Stem Material	316 Stainless Steel
Pressure/ Temperature Rating	10,000 PSI (70,000 kPa) @ 100°F [38°C]
	4000 PSI (28,000 kPa) @ 500°F [260°C]
	Optional Graphite Packing (HT) 10,000 PSI (70,000 kPa) @ 400°F [204°C]
	Alloy Steel 1500 PSI (10,400 kPa) @ 850°F [460°C]
	316 Stainless Steel 1500 PSI (10,400 kPa) @ 1000°F [538°C]
Packing	Two piece molded Teflon* (PTFE)
Seat	Metal-to-Metal
Handle	"T" Bar; 316 Stainless Steel or ASTM A108 Alloy Steel
Connection	National Pipe Thread, meeting specifications of ANSI B2.1
Finish	Stainless Steel is Passivated. Alloy Steel has a clear Zinc Dichromate finish
Stem Retaining Method	All valves feature integral back-seated stem for preventing accidental removal
Assembly	Bonnet is threaded into body and pinned into place.

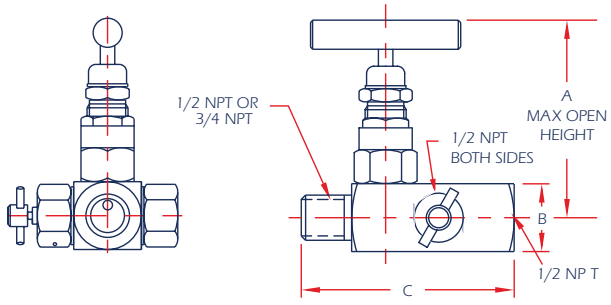
* Teflon is a registered trademark of DuPont.

Pattern	Size NPT	Part Number		C_v
		316 SST	Carbon	
Block/Bleed	1/2 x 1/2	BHS-MFG-12	BHC-MFG-12	0.40
	3/4 x 1/2	BHS-MFG-3412	BHC-MFG-3412	0.40

Option	Suffix
Graphite Packing - High Temp.	H

Dimension	Nominal Size (inches [mm])	
	1/2	3/4 x 1/2
A	3.54 [90.0]	3.54 [90.0]
B	1.50 [38.0]	1.50 [38.0]
C	3.74 [95.0]	3.74 [95.0]
Orifice	0.28 [7.0]	0.28 [7.0]





BelGAS Miniature Needle Valves

Miniature size for applications where space is limited.
Ideal for test stand and general equipment.

- "T" Bar Handle or Thumb Wheel
- Roll-Formed Stem Threads
- Precision-Machined Stem
- Teflon* Packing
- Bonnet Locking Pin Prevents Accidental Removal
- Metal-to-Metal and Soft Seat
- Pressure Rating, 6,000 PSI (42,000 kPa)

Specifications and Description

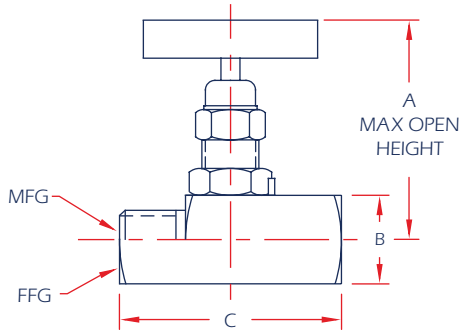
Body and Bonnet Material	ASTM A479 316 Stainless Steel or ASTM A108 Barstock Steel, Plated
Stem Material	316 Stainless Steel
Bonnet Cap (Protective Cover)	Low Density Polyethylene, Red
Pressure/ Temperature Rating	6000 PSI (42,000 kPa) @ 100°F [38°C]
	4000 PSI (28,000 kPa) @ 500°F [260°C]
Packing	Molded Teflon* (PTFE)
Seat	Metal-to-Metal and Delrin** Soft-Seat
Handle	"T" Bar; 316 Stainless Steel / ASTM A108 Alloy Steel / Aluminum Anodized Thumb Wheel
Connection	National Pipe Thread, meeting specifications of ANSI B2.1
Finish	Stainless Steel is Passivated. Alloy Steel has a clear Zinc Dichromate finish
Stem Retaining Method	All valves feature integral back-seated stem for preventing accidental removal
Assembly	Bonnet is threaded into body and pinned into place

* Teflon is a registered trademark of DuPont.
** Delrin is a registered trademark of DuPont.

Pattern	Size NPT	Part Number		Seat	C_v
		316 SST	Carbon		
FFG	1/8	MHS-FFG-18	MHC-FFG-18	Hard	0.25
	1/8	MHS-FFG-18W	MHC-FFG-18W	Hard	0.25
	1/4	MHS-FFG-14	MHC-FFG-14	Hard	0.25
	1/4	MHS-FFG-14W	MHC-FFG-14W	Hard	0.25
MFG	1/4	MHS-MFG-14	MHC-MFG-14	Hard	0.25
	1/4	MHS-MFG-14W	MHC-MFG-14W	Hard	0.25
	1/4	MSS-MFG-14	MSC-MFG-14	Soft	0.25
	1/4	MSS-MFG-14W	MSC-MFG-14W	Soft	0.25

Standard is T-bar — 'W' is thumb wheel

Dimension	Nominal Size (inches [mm])	
	1/8	1/4
A	2.44 [62.0]	2.44 [62.0]
B	0.87 [22.0]	0.87 [22.0]
C	1.89 [48.0]	1.89 [48.0]
Orifice	0.13 [3.2]	0.13 [3.2]



General Information

To Our Customers

Marsh Bellofram, a world leader in pneumatics & electro-pneumatics, is honored and pleased to continually meet the needs of you, our customer. We at Marsh Bellofram realize the central importance that our customer relationships have in our business.

As an ISO 9001:2000 firm, we also recognize the importance of quality throughout our entire organization, and constantly strive to deliver value in our product and throughout our whole company.

We always welcome comments, questions, and suggestions, so please feel free to call us. We think our customers are the greatest in the world!

To make our price list easier to read and use, we have adopted a more consistent format. The format of listing Product Type, Product Description, Part Number, and Price (in that order) was used whenever possible. When a separate part number listing was needed, a standard Part Number Selection Guide was used. We hope these improvements help you serve your own customers in a quicker and easier manner.

Remember that orders are accepted via fax or mail:
Sales Fax: 304-387-4417

Mail: Marsh Bellofram, State Route 2–Box 305,
8019 Ohio River Blvd., Newell, WV 26050

Statement of Warranty

Warranty extends for 18 months from the manufacturing date code to be free of defects in materials and workmanship in normal use. The warranty is limited to repair or replacement of the defective product at the discretion of Bellofram. Products returned for repair under warranty will be guaranteed for the remainder of the warranty period or 90 days which ever is longer. Products returned for repair under non-warranty will be guaranteed for a period of 90 days.

Important Notice

Our Recommendations, if any, for the use of our products are based on tests believed to be reliable. The greatest care is exercised in the selection of raw materials and in our manufacturing operations. However, since the use of this product is beyond the control of the manufacturer, no guarantee or warranty, expressed or implied is made as to such use or effects incidental to such use, handling or possession or results to be obtained, whether in accordance with the directions or claimed so to be. The manufacturer expressly disclaims responsibility therefor. Furthermore, nothing contained herein shall be construed as a recommendation to use any product in conflict with existing laws and/or patents covering any material or use.

Standard Additional Fees

Retesting Fee: There is a $25.00 fee per unit on products returned which successfully test within Quality Control Specifications. For example, if three units came back on an RGA and all three tests within our testing specification there would be a $25.00 per unit fee imposed, for a total of $75.00 for the three units. However, if a unit is returned and does not meet our Quality Control Specifications there will not be a charge for the defective unit. Note: If the product lists for $50.00 or less, the Retesting Fee will be equal to the repair charge which is less than $25.00.

Restocking Fee: On occasions Bellofram may authorize a credit return, when this occurs there will be a 25% restocking fee imposed. If Bellofram ships a product in error the fee will be waived. It is important that all communication be written and faxed such as order cancellations, additions, corrects, release date changes (the number release change can be limited). If a product ships and you had canceled it there will not be a restocking fee provided there is a written cancellation request on file.

Handling Fee: A $10.00 handling fee will be imposed on RGAs out of warranty. However, if you decide to pay to have the product repaired this fee would not apply.

Evaluation Fee: For mechanical products, there will be a $25.00 fee per unit if the product is out of warranty. For electro-mechanical, the fee is $25.00 to $75.00 depending on product.

Return Goods Authorization Procedure

Returns can be made for such reasons as defective product, authorized 90-day samples, wrong product shipped, duplicate shipment or warranty repair. Defective product will be confirmed prior to credit being issued.

The following procedure must be adhered to before material can be authorized for return;

1. An RGA number must be issued with all questions answered and information blocks completed. The more information obtained on the RGA will better help Bellofram to correct the problem.

2. The customer is to be notified that the RGA number MUST accompany the package on the outside of the box and on the packing slip.

3. All RGA's are to be shipped to Bellofram freight pre-paid. Freight for duplicate shipments, wrong products and defective product will be issued as credit.

4. All RGA's must be authorized by the Bellofram CS Manager or VP Sales and are valid for only 45 days from issue.

NOTE: All RGA's must have as a minimum the following information before being approved; Customer invoice number, Customer account number, Customer PO number, Bellofram system number, Product catalog number and quantity, Product description and Reason for return.

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