

# 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 Casing / LCC Body
	CF8M SS Body, Bonnet & Diaphragm Case
Diaphragm	
Option	Nitrile (low pressure) or Neoprene (high pressure)
Seat	
Options	Nitrile
	Nylon
	Fluorocarbon
Orifice	
Options	Aluminum
	Stainless Steel (NACE only)

## Specifications

Maximum Inlet Body Pressure		
Nylon Seat	2000 PSIG	Steel / SS
	1000 PSIG	Ductile Iron
	1485 PSIG	Flanged Steel
Nitrile Seat	1000 PSIG	All Units
Fluorocarbon Seat	300 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"	
Output		
	Outlet Range	Flow Range*
	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		
Steel, Iron Body	–20° to 180°F	(–29° to 82°C)
CF8M Body	–40° to 180°F	(–40° 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	250	250	N/A	N/A
	Steel / SS	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	375	375	N/A	N/A
	Steel / SS	1200	82.7	1200	82.7	1200	82.7

## P627 Part Matrix

P627							1	
								Port Size
<b>06</b>								3/4"
<b>08</b>								1"
<b>16</b>								2"
								Spring Range
								PSIG
								BAR
<b>020</b>								5 - 20      0.34 - 1.4
<b>040</b>								15 - 40      1 - 2.8
<b>080</b>								35 - 80      2.4 - 5.5
<b>095</b>								10 - 95      0.7 - 6.6
<b>150</b>								70 - 150      4.8 - 10.3
<b>250</b>								140 - 250      9.7 - 17.2
<b>500</b>								240 - 500      16.5 - 34.5
								Special Adders
<b>0</b>								None
<b>2</b>								Monitor
<b>A</b>								150 #RF*
<b>B</b>								300 #RF*
<b>C</b>								600 #RF*
<b>D</b>								Socket Weld*
<b>E</b>								900 #RTJ*
<b>W</b>								150 #RF & Monitor*
<b>X</b>								300 #RF & Monitor*
<b>Y</b>								600 #RF & Monitor*
<b>Z</b>								Socket Weld & Monitor*
								Versions
<b>0</b>								Standard
<b>N</b>								NACE
<b>F</b>								NACE & Fluorocarbon Elasto- mers
<b>T</b>								Stainless Trim
								Orifice
<b>0</b>								3/32"
<b>2</b>								1/8"
<b>3</b>								3/16"
<b>4</b>								1/4"
<b>6</b>								3/8"
<b>8</b>								1/2"
								Seat Material
<b>0</b>								Nitrile <sup>1</sup>
<b>1</b>								Nylon <sup>2,3</sup>
<b>2</b>								Fluorocarbon
<b>1</b>								Case / Body
<b>0</b>								Aluminum / Iron
<b>1</b>								Steel / Steel
<b>2</b>								Aluminum / Steel
<b>6</b>								Aluminum / LCC Steel
<b>7</b>								Steel / LCC Steel
<b>8</b>								Steel / Iron
<b>9</b>								Stainless / Stainless

NOTE: Nitrile or FKM is recommended for 5-20, 15-40 and 10-95 PSIG. Nylon is recommended for pressures above 150 PSIG or low pressure 3/32" & 1/8" orifice.

\*Steel, LCC Steel or Stainless Steel Bodies Only

## 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

1: Nitrile or FKM is recommended for 5-20, 15-40 and 10-95 PSIG. Nylon is recommended for pressures above 150 PSIG.

2: Nylon is recommended for the following condition(s): If Inlet Pressure is  $\geq$  500 PSIG, If Outlet Pressure is  $\geq$  150 PSIG, If Differential Pressure is  $\geq$  150 PSIG

3: Nylon is NOT recommended for the following condition(s): If Outlet Pressure is  $\leq$  15 PSIG









**P627 Flow Capacities of Natural Gas** (0.6 S.G.) in SCFH<sup>1</sup>



Outlet Pressure Range	Outlet Pressure Setting		Inlet Pressure		627H or HM - 2" Body Size								
	PSIG	BAR	PSIG	BAR	Port Diameter, inches								
					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 <sup>6</sup>	3200 <sup>4</sup>	7290	13,700	24,100	31,000			
			250	17.2	2260 <sup>6</sup>	4100 <sup>4</sup>	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 <sup>6</sup>	3850 <sup>4</sup>	8400	16,100	33,000	41,000	
	300	20.7	2700 <sup>6</sup>		4910 <sup>4</sup>	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 <sup>6</sup>	4500 <sup>4</sup>	9900	18,500	37,000	75,000		
	400		27.6		3600 <sup>6</sup>	6400 <sup>4</sup>	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 <sup>6</sup>	4500 <sup>4</sup>	9300	14,000	25,000	37,000	
					400	27.6	3600 <sup>6</sup>	6400 <sup>4</sup>	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 <sup>6</sup>	5150 <sup>4</sup>	11,300	18,400	31,000	45,000	
400					27.6	3500 <sup>6</sup>	6200 <sup>4</sup>	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 <sup>6</sup>	6400 <sup>4</sup>	14,000	25,000	47,000	67,000	
					500	34.6	4400 <sup>6</sup>	8090 <sup>4</sup>	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 <sup>6</sup>	7700 <sup>4</sup>	16,800	33,000	62,000	90,000
		600				47.4	4900 <sup>6</sup>	8800 <sup>4</sup>	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**

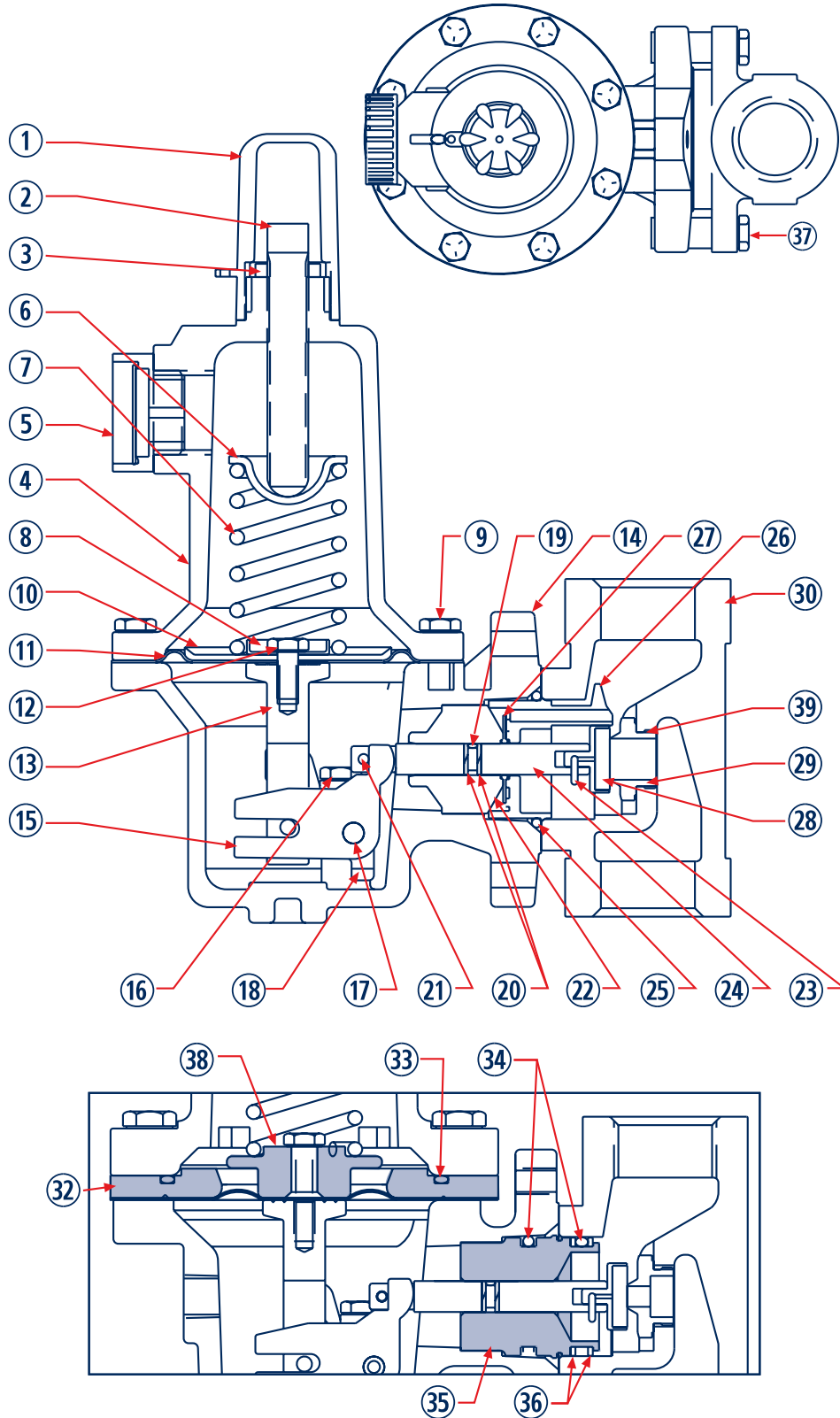
Orifice Size		3/4 Inch Body			1 Inch (DIN 25) Body			2 Inch (DIN 50) Body			K
Inches	mm	Wide-Open C <sub>g</sub> for External Relief Sizing	Wide-Open C <sub>v</sub> for External Relief Sizing	C <sub>1</sub>	Wide-Open C <sub>g</sub> for External Relief Sizing	Wide-Open C <sub>v</sub> for External Relief Sizing	C <sub>1</sub>	Wide-Open C <sub>g</sub> for External Relief Sizing	Wide-Open C <sub>v</sub> for External Relief Sizing	C <sub>1</sub>	
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	Qty.	Part Number	Item	Description	Qty.	Part Number
1	Cover Adj. Screw, Plastic	1	610-053-000	24	Stem, 316SS	1	689-005-000
2	Adjustment Screw	1	648-465-000	25	Diaphragm Case O-ring, Nitrile (P627 & P627H)	1	649-280-000
3	Locknut	1	634-154-000		Diaphragm Case O-ring, Fluorocarbon (P627 & P627H)		649-280-001
4	Bonnet, P627 - Aluminum	1	604-210-000	26	Boost Body P627 or P627H	1	686-003-000
	Bonnet, P627M, P627H & P627HM - Steel		604-211-000	27	Stabilizer, Nitrile (P627 & P627H)	1	649-278-000
	Bonnet, P627 - Stainless	604-266-000	Stabilizer, Fluorocarbon (P627 & P627H)		649-278-001		
5	Vent Screw Assembly	1	836-005-000	28	Seat assembly - Aluminum holder/nitrile disk	1	822-019-000
6	Spring Guide, Upper	1	626-079-000		Seat assembly - Aluminum / Nylon		822-019-001
7	Range Spring	1		Seat assembly - Aluminum / Fluorocarbon	822-040-000		
	5-20 PSIG–Yellow		655-661-000	Seat assembly - 316SS Holder / Nitrile	822-020-000		
	15-40 PSIG–Green		655-661-001	Seat assembly - 316SS / Nylon	822-020-001		
	35-80 PSIG & 10-95–PSIG Blue		655-661-002	Seat assembly - 316SS / Fluorocarbon	822-040-001		
	70-150 PSIG–Red		655-661-003	29	Orifice - Aluminum - 3/32"	688-013-005	
	140-250 PSIG–Blue		655-661-002		Orifice - Aluminum - 1/8"	688-013-004	
	240-500 PSIG–Red	655-661-003	Orifice - Aluminum - 3/16"	688-013-003			
8	Spring Guide, Lower (P627 or P627M only)	1	643-191-000	Orifice - Aluminum - 1/4"	688-013-002		
	Al Spring Case Screws - P627		648-466-000	Orifice - Aluminum - 3/8"	688-013-001		
	Steel Spring Case Screws - P627 or P627M		648-467-003	Orifice - Aluminum - 1/2"	688-013-000		
	Steel Spring Case Screws - P627H or P627HM		648-467-002	Orifice - 316SS - 3/32"	688-014-005		
	SS Spring Case Screws - P627 or P627M		648-550-000	Orifice - 316SS - 1/8"	688-014-004		
	SS Spring Case Screws - P627H or P627HM		648-550-001	Orifice - 316SS - 3/16"	688-014-003		
9	Diaphragm Piston (P627 or P627M only)	1	637-306-000	Orifice - 316SS - 1/4"	688-014-002		
	Diaphragm P627 & P627M Al / Iron (Nitrile)		618-069-000	Orifice - 316SS - 3/8"	688-014-001		
10	Diaphragm P627 & P627M Steel / SS (Nitrile)	1	618-070-000	Orifice - 316SS - 1/2"	688-014-000		
	Diaphragm P627H & P627HM Steel / SS (Neoprene)		618-070-001	30	Iron Body - 3/4 NPT	664-280-000	
	Diaphragm P627 & P627M Al / Iron (Fluoro)		618-069-001		Iron Body - 1 NPT	664-280-001	
	Diaphragm P627 & P627M Steel / SS (Fluoro)		618-096-000	Iron Body - 2 NPT	664-282-000		
	Diaphragm P627H & P627HM Steel / SS (Fluoro)		618-096-001	Steel Body - 3/4 NPT	664-281-000		
					Steel Body - 1 NPT	664-281-001	
11	Screw, Diaphragm P627 & P627M	1	648-466-002	Steel Body - 2 NPT	664-283-000		
	Screw, Diaphragm P627H & P627HM		648-467-000	LCC Body - 3/4 NPT	664-325-000		
12	Post, Pusher P627 & P627M Assy	1	827-005-000	LCC Body - 1 NPT LCC	664-325-001		
	Post, Pusher P627H & P627HM Assy		827-005-001	LCC Body - 2 NPT LCC	664-326-000		
	Post, Pusher P627 & P627M, NACE		827-008-000	Stainless Body - 3/4 NPT	664-394-000		
	Post, Pusher P627H & P627HM, NACE		827-008-001	Stainless Body - 1 NPT	664-394-001		
13	Diaphragm Case P627 - Aluminum	1	629-202-000	Stainless Body - 2 NPT	664-395-000		
	Diaphragm Case P627 & P627H - Steel		629-203-000	Steel - 3/4 NPT Socket Weld	664-356-000		
	Diaphragm Case P627M & P627HM- Steel		629-204-000	Steel - 1 NPT Socket Weld	664-358-000		
	Diaphragm Case, Aluminum (for Steel Body)		629-215-000	Steel - 2 NPT Socket Weld	664-359-000		
	Diaphragm Case P627 - Stainless		629-242-000	Stainless - 3/4" Socket Weld	664-422-000		
	Diaphragm Case P627H - Stainless		629-243-000	Stainless - 1" Socket Weld	664-423-000		
14	Lever, Stainless	1	703-011-000	Stainless - 2" Socket Weld	664-424-000		
	Lever		703-004-000	32	Diaphragm Spacer (P627H or P627HM only)	654-167-000	
	Lever, NACE		703-005-000		O-ring, Spacer, Nitrile (P627H or P627HM only)	649-279-000	
15	Lever Screw	2	648-466-002	O-ring, Spacer, Fluorocarbon (P627H or P627HM only)	649-279-001		
	Lever Screw, NACE		648-474-000	34	O-ring, Throat Block, Nitrile	649-281-000	
16	Pin, Lever	1	635-053-000		O-ring, Throat Block, Fluorocarbon	649-281-001	
	Pin, Lever, NACE		635-057-000	35	Throat Block (P627M or P627HM only)	626-081-000	
17	Lever Retainer, Stainless	1	643-210-000	36	Backup Ring, Throat Block	2	644-048-000
	Lever Retainer		643-192-000	37	Steel Build Bolt / 1" Aluminum Housing	648-466-001	
	Lever Retainer, NACE		643-194-000		Steel Build Bolt / 2" Aluminum Housing	648-466-003	
Stem O-ring, Nitrile	649-000-003	Steel Build Bolt / Steel Housing	648-467-001				
Stem O-ring, Fluorocarbon	649-000-343	Stainless Build Bolt / 1" Aluminum Housing	648-548-001				
18	Stem Backup Ring, TFE	2	644-047-000	Stainless Build Bolt / 2" Aluminum Housing	648-548-003		
	Pin, Groove, Stainless		635-076-000	Stainless Build Bolt / Steel or SS Housing	648-549-000		
19	Pin, Groove	1	635-054-000	38	Spring Guide, Lower (P627H & P627HM only)	1	637-307-000
	Pin, Groove, Nace		635-058-000	40	Name Plate Drive Screw (not shown)	2	648-464-000
	Pin Clip		635-055-000	41	NACE Tag (not shown)	1	632-503-000
20	Pin Clip NACE	1	635-056-000				
21	Stem Guide	1	626-083-000				
22	Pin Clip	1	635-055-000				
23	Pin Clip NACE	1	635-056-000				

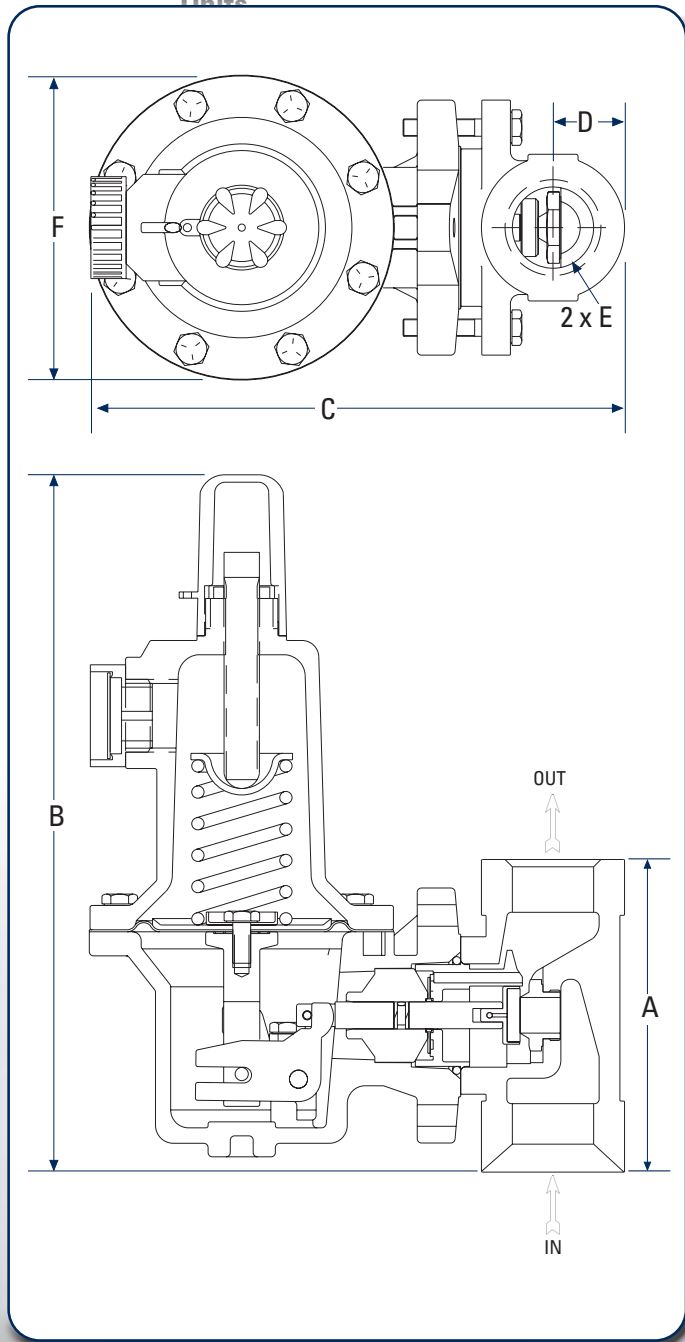


P627 Parts



## P627 / R627 Dimensions

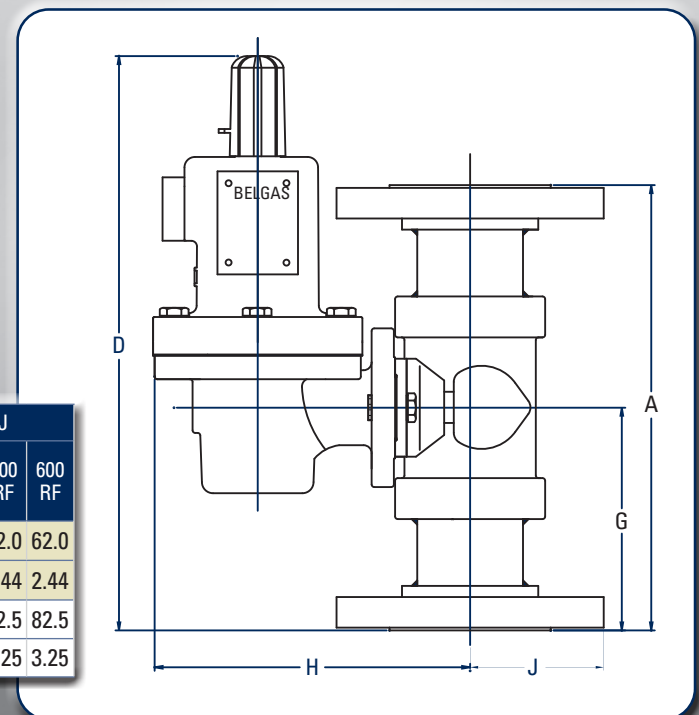
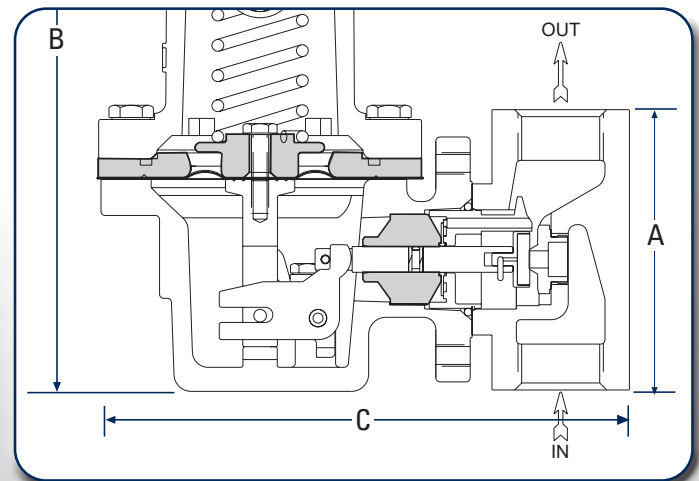
Aluminum/Cast Ductile Iron  
Units



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