



ISO Registered Company



# Model P7

## High Flow High Sensitivity Pressure Reducing Regulator 1/2"-3/4" (DN15-DN20) NPT

The Model P7 is designed to safely reduce inlet pressures of up to 4500 psig (310.0 Barg)\* and accurately deliver high gas flows throughout the 10-1500 psig (.69-103.4 Barg) outlet pressure range. Designed for control of high and low pressure gases, this self-venting unit can also be furnished as a non-venting regulator for hydraulic applications.

### TYPICAL APPLICATIONS

The P7 can be applied for hyperbaric chambers, air compressors, pressurized ballast tanks, high pressure testing, life support applications, manifold systems, tube trailers, and gas transfer stations.

### FEATURES

- Large Piston Sensor Gives Excellent Sensitivity
- Balanced Stem Design Assuring Constant Down-stream Pressure
- Low Operating Torque
- Self-Relieving (Spring Loaded Design)
- Material Traceability on Wetted Parts
- Anti-Resonance Design

### FUNCTIONAL PERFORMANCE

#### Design Proof

Pressure:	150% Max Operating Pressure
Brass	5,625 psig (387.93 Barg)
Stainless Steel	6,750 psig (465.52 Barg)

Internal Volume: 1.77 in<sup>3</sup> (29 cm<sup>3</sup>)

Design Leakage: Bubble Tight

### GENERAL SPECIFICATIONS

#### Inlet & Outlet

Port Size: 1/2" and 3/4" (DN15 and DN20)

Cv Capability: 2 Cv

#### \* Maximum Inlet

##### Pressure:

Brass	3,750 psig (258.6 Barg)
Stainless	4,500 psig (310.3 Barg)

**NOTE** These pressure ratings may be further derated by limitations through the Pressure Equipment Directive (2014-/68/EU). See Table 1.

Outlet Pressure: 10-1500 psig (.69-103.4 Barg)  
See table 7 for Spring Ranges.

Body End Connections: FNPT in Brass or SST,  
300#, 600#, 1500#RF  
Flanges in SST.

Body and Spring Chamber Material: 316L SST/316L SST -ASTM A479  
Brass/Brass - ASTM B151 C71500/  
ASTM B16 C36000

Wetted Material: See Position 6

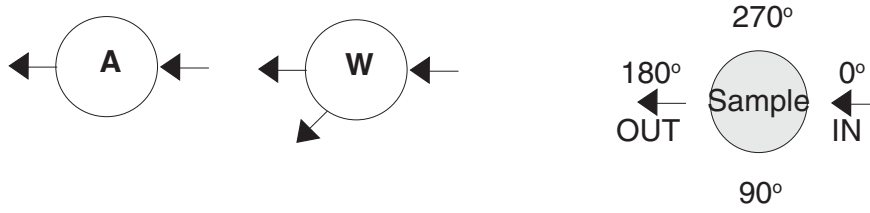
Operating Temp. Range: -15 to 165°F (-25.0 to 75° C)

Model P7 - Table 1 Design Pressure vs Temperature NPT ratings per ASME B31.3; Flange ratings per ASME B16.5								
Body and Spring Chamber Material	End Connection	Temperature		Inlet Pressure		Outlet Pressure		
		°F	(°C)	psig	(Barg)	psig	(Barg)	
Brass * ASTM B151 C71500 ASME B16 C36000	NPT	-325 to +165	(-198 to +74)	3750	(258)	1500	(103)	
		200	(93)	3680	(253)	1470	(101)	
		300	(149)	3520	(242)	1380	(95.1)	
		400	(200)	3355	(231)	1235	(85.1)	
Stainless Steel ** ASTM A479 S31600/S31603	NPT	-425 to +300	(-254 to +149)	4500	(310)	1500	(103)	
		400	(204)	4340	(299)	1445	(99.6)	
		500	(260)	4025	(277)	1340	(92.4)	
		600	(316)	3825	(263)	1275	(87.9)	
		700	(371)	3665	(252)	1220	(84.1)	
		800	(425)	3575	(246)	1190	(82.0)	
	Class 300 RF Flanged	-425 to +100	(-254 to +38)	720	(49.6)	720	(49.6)	
		200	(93)	620	(42.7)	620	(42.7)	
		300	(149)	560	(38.6)	560	(38.6)	
		400	(204)	515	(35.5)	515	(35.5)	
		500	(260)	480	(33.1)	480	(33.1)	
		600	(316)	450	(31.0)	450	(31.0)	
		800	(425)	420	(28.9)	420	(28.9)	
	Class 600 RF Flanged	-425 to +100	(-254 to +38)	1440	(99.3)	1440	(99.3)	
		200	(93)	1240	(85.5)	1240	(85.5)	
		300	(149)	1120	(77.2)	1120	(77.2)	
		400	(204)	1025	(70.6)	1025	(70.6)	
		500	(260)	955	(65.8)	955	(65.8)	
		600	(316)	900	(62.0)	900	(62.0)	
		800	(425)	845	(58.2)	845	(58.2)	
	Class 1500 RF Flanged	-425 to +100	(-254 to +38)	3600	(248)	1500	(103)	
		200	(93)	3095	(213)	1500	(103)	
		300	(149)	2795	(192)	1500	(103)	
		400	(204)	2570	(177)	1445	(99.6)	
		500	(260)	2390	(164)	1340	(92.4)	
		600	(316)	2255	(155)	1275	(87.9)	
		800	(425)	2170	(149)	1220	(84.1)	
					2110	(145)	1190	(82.0)

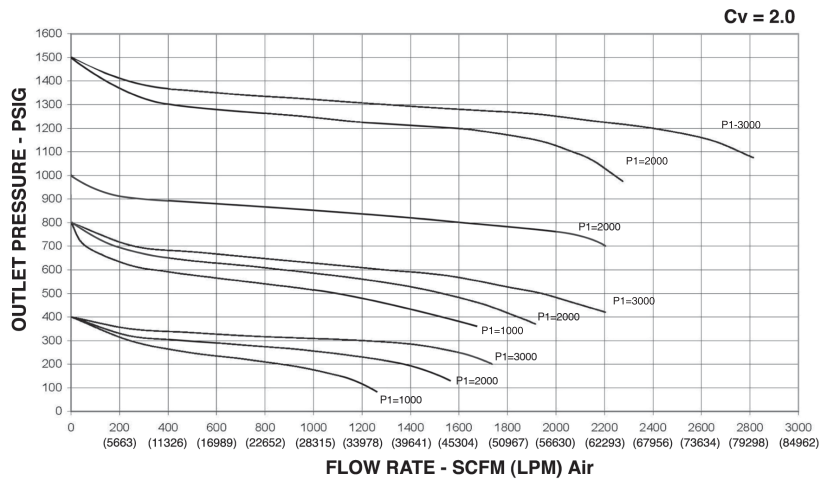
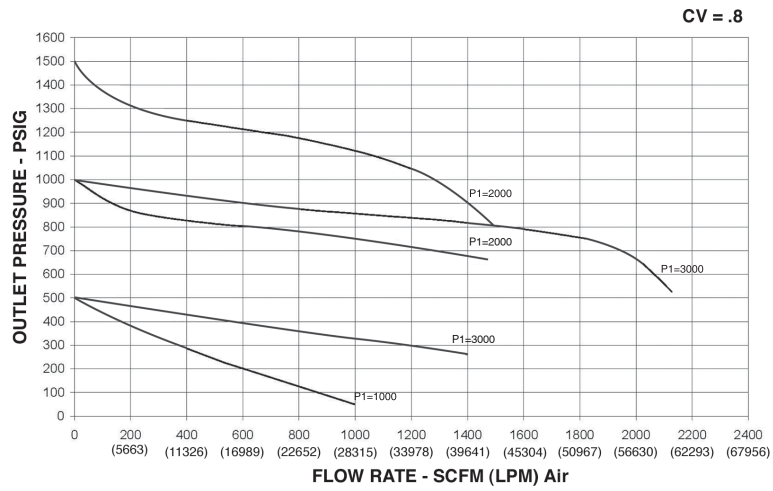
\* Design pressure/temperature rating shall not exceed 3000 psig (206.8 Barg) and 400°F (200°C) when body material is brass and process medium is oxygen (CGA G-4.4)

\*\* Design pressure/temperature rating shall not exceed 375 psig (26 Barg) and 400°F (200°C) when the process medium is oxygen (CGA G-4.4).

## PORTING CONFIGURATION GUIDE



## HIGH FLOW / HIGH PRESSURE FLOW CHARTS



## **OPTIONS**

**NACE Construction - ( 5, 6, 7 or 8 )** in Position 6. - Internal wetted portions meet NACE standard MR0175, when the exterior of the regulator is not directly exposed to a sour gas environment, buried, insulated or otherwise denied direct atmospheric exposure. SST/SST body/spring chamber materials only. Inconel w/TFE liner, Inconel X-750 spring. Includes Non-Relieving Construction code 6.

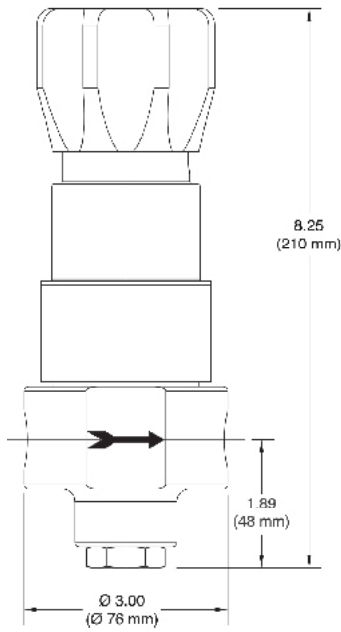
**Panel Mount - (C)** in Position 14. - The panel mount feature requires a panel minimum of 11 gauge (.12) thick with a 1-3/8" hole cut out, complete with a threaded spring housing, and a panel mount ring to secure the regulator. Not available with ratio or dome loaded constructions.

**Non-Relieving Construction - Spring Loaded Design - (6)** in Position 16. - The poppet, poppet spring and seat are removed from the top works of the spring chamber.

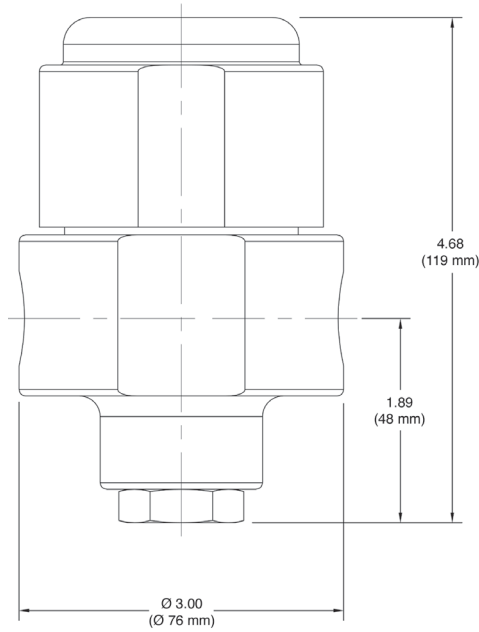
**Cleaned for Oxygen Service #S-1134 - (M)** in Position 17. -This is a requirement for gaseous oxygen environments. All regulators requiring advanced cleaning shall be processed according to strict guidelines. **NOTE:** Design Pressure/Temperature Rating shall not exceed 375 psig (26 Barg) / 400 °F (200 °C).

**Cleaned per Spec. #S-1542 - (N)** in Position 17. - Cleaning identical to that of #S-1134, but not labeled for application in oxygen service. NOT suitable for Oxygen Service.

## DIMENSIONS - in (mm)

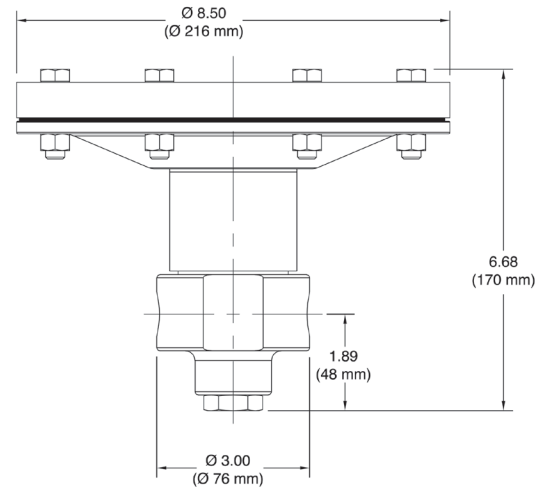


**Spring Loaded**

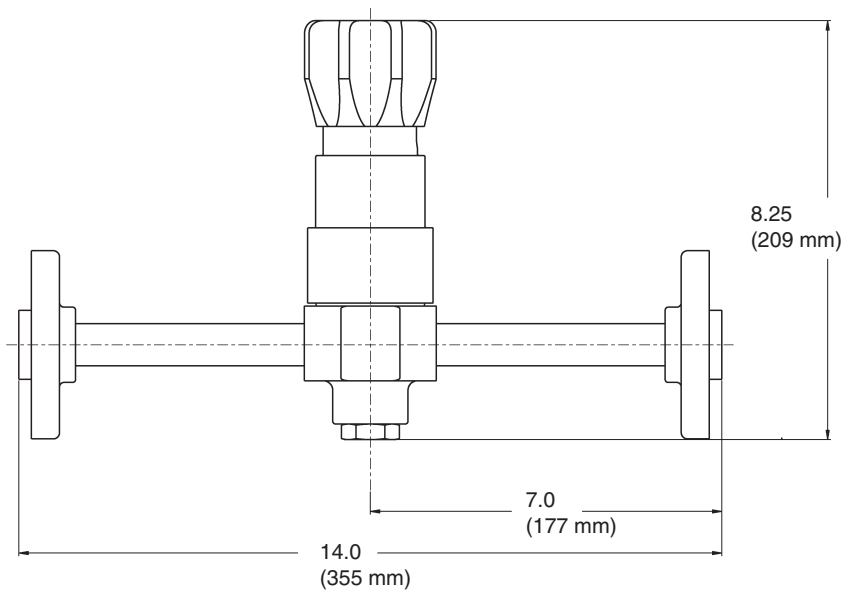


**Dome Loaded**

Approx. Weight  
 Spring Loaded - NPT: 7.50 lbs (3.40 kgs)  
 -W / flanges: upwards to 26 lbs. (11.8 kgs)



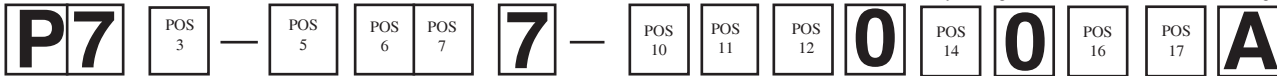
**Ratio Loaded**



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**MODEL P7 PRODUCT CODER** 02/07/20  
**(COMPOSITE BLACK KNOB STANDARD)**

An "X" in POS 12 followed by a 5-digit control number overrides remaining selections.



POSITION 3 - BODY SIZE/Cv		
Size	Cv	CODE
1/2" (DN15)	0.8	2
	2.0	3
3/4" (DN20)	0.8	5
	2.0	6

POSITION 5 - BODY/SPRING CHAMBER	
Body/Spring Chamber Mat'l.	CODE
316L SST/316L SST *	S
Brass/Brass	B

\* Select for NACE Construction

POSITION 6 - SEAT MATERIALS				
Outlet	Main Valve	Vent Valve	Std	NACE
			CODE	CODE
300 Psig (20.7 Barg)	TFE	CTFE	1	5
600 Psig (41.4 Barg)	TFE	CTFE	2	6
1000 Psig (69.0 Barg)	TFE	CTFE	3	7
1500 Psig (103.0 Barg)	TFE	CTFE	4	8

POSITION 7 - PORTING CONFIGURATION	
Description	CODE
See Porting Guide	**** A
	** W

If specifying gauges from Position 12 review asterisks as follows:

**NOTE:** \*\* Outlet gauge port only  
\*\*\*\* No gauge ports available

POSITION 10 - END CONNECTIONS	
End Connection(s)	CODE
FNPT	1
300 # RF Flange *	7
600 # RF Flange *	8
1500 # RF Flange *	A

\* Not available on Brass body material.

POSITION 11 - RANGE SPRING/OUTLET PRESSURE	
Psig (Barg)	CODE
Ratio Loaded 19 : 1	A
Pneumatic Dome Loaded 10 - 1500 (0.69 - 103.0)	0
10 - 300 (.69 - 20.7)	2
15 - 600 (1.0 - 41.3)	3
20 - 1000 (1.4 - 69.0)	5
50 - 1500 (3.4 - 103.4)	6

POSITION 12 - OUTLET GAUGE (See "NOTE" - Position 7)	
Psig (Barg)	CODE
0 - 100 (0 - 6.9)	D
0 - 160 (0 - 11.0)	E
0 - 300 (0 - 20.7)	F
0 - 600 (0 - 41.3)	G
0 - 1000 (0 - 69.0)	H
0 - 2000 (0 - 138.0)	J
No Outlet Gauge	0
For Special Construction Contact Cashco for Special Product Code	X

POSITION 14 - OPTIONS			
OPTIONS	CODE	OPTIONS	CODE
No Option	0	Panel Mount.	C

POSITION 16 - OPTIONS			
OPTIONS	CODE	OPTIONS	CODE
No Option	0	Non-Relieving Construction for Spring Loaded Design.	6

POSITION 17 - OPTIONS			
OPTIONS	CODE	OPTIONS	CODE
No Option	0	Oxygen Cleaned per Spec #S-1134.	M
		* Special Cleaning Per Spec #S-1542.	N

\* NOT suitable for Oxygen Service.

**\* For information on ATEX see pages 9 & 10 on the IOM.**