





**210 AND 220 SERIES  
GAS PRESSURE REGULATORS FOR INDUSTRIAL APPLICATIONS**

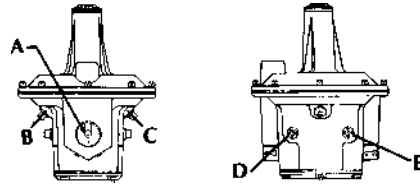
<p><b>Applications</b></p> <ul style="list-style-type: none"> <li>■ Gas fired boilers</li> <li>■ Steam generators</li> <li>■ Industrial furnaces</li> <li>■ Ovens</li> <li>■ High demand equipment</li> </ul>	 <p style="text-align: right; font-weight: bold;">210 Series</p>
<p><b>Lockup type regulator - complies with codes</b></p>	
<p><b>Balanced Valve Design</b></p> <ul style="list-style-type: none"> <li>■ Eliminates the inlet pressure effect acting on the valve</li> <li>■ Regulating stability improved</li> <li>■ Hunting tendencies reduced by dampening mechanisms in both breaker outlet and sensing tube</li> <li>■ Precise regulation over a broad range of pressures and flow rates including "zero governor" applications</li> </ul>	
<p><b>Housings</b></p> <p>210D, 210E, 210G</p> <ul style="list-style-type: none"> <li>■ High strength aluminum alloy</li> <li>■ Reinforced with webs for max. strength</li> </ul> <p>210J</p> <ul style="list-style-type: none"> <li>■ Cast aluminum and steel construction</li> <li>■ 125 pound flange connections</li> </ul>	 <p>Capacities ..... to 50,000 CFH          Emergency Exposure ..... 25 psi          Inlet Pressures ..... to 10 psi          Outlet Pressures ..... 1.0" to 42" w.c.</p>
<p><b>Internal Parts</b></p> <ul style="list-style-type: none"> <li>■ Cast or machined from corrosion resistant metals or electroplated</li> </ul>	<p><b>Ambient Temperature</b></p> <ul style="list-style-type: none"> <li>■ -40°F to 200°F</li> </ul>
<p><b>Diaphragms</b></p> <ul style="list-style-type: none"> <li>■ Finest quality synthetic coated fabrics</li> </ul>	<p><b>Maximum Emergency Exposure Pressure</b></p> <ul style="list-style-type: none"> <li>■ 25 psi <small>Note: At this pressure, regulator will suffer no internal damage, but it may not provide accurate regulation.</small></li> </ul>
<p><b>Painted</b></p> <ul style="list-style-type: none"> <li>■ 210J, 210D, 210E, 210G option</li> </ul>	<p><b>Placement</b></p> <ul style="list-style-type: none"> <li>■ Regulator should be mounted in an upright position in a horizontal run.</li> <li>■ Gas flow must be oriented to arrow on bottom of casting.</li> <li>■ Regulator should be selected within one size of the manifold pipe size.</li> <li>■ Recommend 10 pipe diameters of straight pipe at inlet and outlet of regulator.</li> <li>■ Remote sensing available.</li> </ul>
<p><b>Suitable for use with natural, manufactured, mixed and propane (LP) gases and LP gas-air mixtures.</b></p>	<p><b>Zero Governor Applications</b></p> <ul style="list-style-type: none"> <li>■ Counter spring mounted beneath the valve.</li> <li>■ 5 psi max inlet pressure recommended.</li> <li>■ Outlet pressure = adjusted from -1.0" - 1.5" w.c.</li> <li>■ Mounted in upright position.</li> </ul>

## 210 Series Spring Loaded models

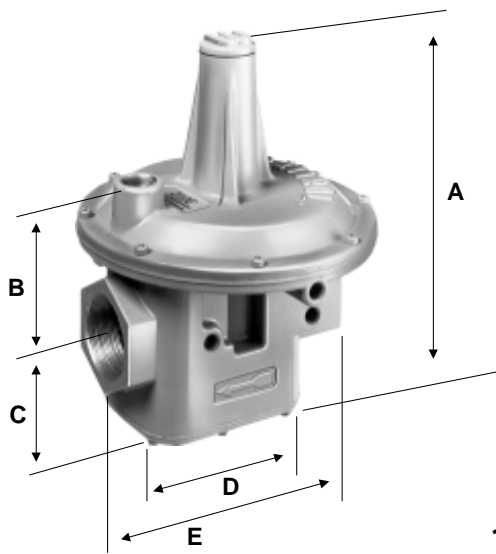
Sensing Taps

- Available for downstream sensing cross sections and differential control
- 4 locations for measuring pressure
- Remote sensing available
- Vertical vent tapped

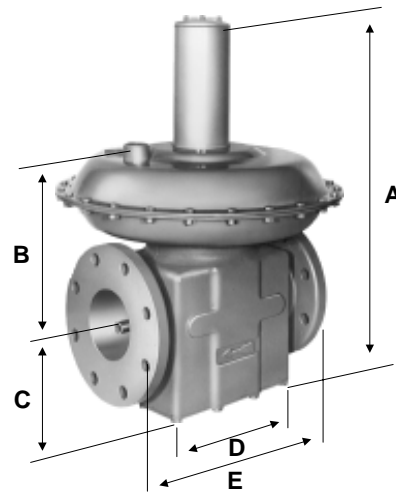
210D = 3/8" NPT  
 210E = 1/2" NPT  
 210G = 3/4" NPT  
 210J = 3/4" NPT



A = internal sensing tap #7, standard  
 B = remote sensing tap #5  
 C = remote sensing tap #6  
 D = outlet pressure tap #2, tap #1 on opposite side  
 E = inlet pressure tap #4, tap #3 on opposite side



1



2

### Dimensions

Model Num.	Illustration Num.	Pipe Size (in)	Diameter (in (mm))	Dimensions (in (mm))				
				A	B	C	D	E
210D	1	1x1	7 (178)	8 <sup>7/8</sup> (225)	3 <sup>5/8</sup> (92)	2 <sup>7/16</sup> (62)	3 <sup>7/8</sup> (98)	5 <sup>1/2</sup> (140)
		1 <sup>1/4</sup> x 1 <sup>1/4</sup>						
		1 <sup>1/2</sup> x 1 <sup>1/2</sup>						
210E	1	1 <sup>1/2</sup> x 1 <sup>1/2</sup>	9 <sup>1/8</sup> (232)	11 <sup>1/4</sup> (286)	4 <sup>5/16</sup> (110)	2 <sup>5/16</sup> (59)	5 <sup>3/4</sup> (146)	7 <sup>5/8</sup> (194)
		2 x 2						
210G	1	2 <sup>1/2</sup> x 2 <sup>1/2</sup>	13 <sup>7/16</sup> (341)	16 <sup>1/16</sup> (408)	6 <sup>1/8</sup> (156)	4 <sup>1/4</sup> (105)	8 <sup>1/8</sup> (206)	10 <sup>3/8</sup> (265)
		3 x 3						
210J	2	4 x 4	18 (457)	24 <sup>3/16</sup> (615)	10 <sup>7/16</sup> (265)	5 <sup>7/16</sup> (138)	9 <sup>7/8</sup> (251)	13 <sup>3/4</sup> (349)

### Spring Range Selection Chart (inches w.c.) For additional information see Bulletin MP2012

Model Num.	Standard* Plated	Brown	Orange	Green	Cd Plt	Pink	Violet	Blue	Red	Yellow	Black
210D	3-6	1-3.5	4-8	5-15	2-5	3-8	4-12	5-12	10-22	15-30	20-42
210E	3-6	1-3.5	4-8	5-15	2-5	3-8	4-12	5-12	10-22	15-30	20-42
210G	3-6	1-3.5	4-8	5-15	2-5	3-8	4-12	5-12	10-22	15-30	20-42
210J	3-6	—	—	—	2-5	3-8	4-12	5-12	10-22	15-30	20-42

\*Factory set at 4.0 w.c.



**CAPACITIES FOR SPRING LOADED MODELS**

**CUBIC FEET PER HOUR (0.64 sp gr gas)**

	Inlet Pressure	Outlet Pressure - Inches w.c.								
		2	4	6	9	12	16	20	24	28
210D 1"	8.0" w.c.	2,400	1,900	1,300						
	0.5 psi	3,400	3,100	2,700	2,200					
	0.75 psi	3,500	4,000	3,800	3,400	2,900	2,200			
	1.0 psi	3,500	4,000	4,500	4,300	3,900	3,400	2,700	1,900	
	1.5 psi	3,500	4,000	4,500	4,800	4,800	5,000	4,600	4,100	3,600
	2.0 psi	3,500	4,000	4,500	4,800	4,800	5,000	5,000	5,000	5,000
	3.0 psi	3,500	4,000	4,500	4,800	4,800	5,000	5,000	5,000	5,000
	5.0 psi	3,500	4,000	4,500	4,800	4,800	5,000	5,000	5,000	5,000
	7.5 psi	3,500	4,000	4,500	4,800	4,800	5,000	5,000	5,000	5,000
10.0 psi	3,500	4,000	4,500	4,800	4,800	5,000	5,000	5,000	5,000	
210D 1-1/4"	8.0" w.c.	3,000	2,400	1,700						
	0.5 psi	4,000	3,905	3,400	2,700					
	0.75 psi	4,000	5,000	4,700	4,200	3,700	2,700			
	1.0 psi	4,000	5,000	5,000	5,300	4,900	4,200	3,400	2,400	
	1.5 psi	4,000	5,000	5,000	6,000	6,000	6,000	5,700	5,200	4,600
	2.0 psi	4,000	5,000	5,000	6,000	6,000	6,000	6,500	6,500	6,500
	3.0 psi	4,000	5,000	5,000	6,000	6,000	6,000	6,500	6,500	6,500
	5.0 psi	4,000	5,000	5,000	6,000	6,000	6,000	6,500	6,500	6,500
	7.5 psi	4,000	5,000	5,000	6,000	6,000	6,000	6,500	6,500	6,500
10.0 psi	4,000	5,000	5,000	6,000	6,000	6,000	6,500	6,500	6,500	
210D 1-1/2"	8.0" w.c.	3,100	2,500	1,800						
	0.5 psi	4,000	4,000	3,600	2,800					
	0.75 psi	4,000	5,000	5,000	4,400	3,800	2,800			
	1.0 psi	4,000	5,000	5,000	5,600	5,100	4,400	3,600	2,500	
	1.5 psi	4,000	5,000	5,000	6,000	6,000	6,500	6,000	5,400	4,800
	2.0 psi	4,000	5,000	5,000	6,000	6,000	6,500	6,500	6,500	6,500
	3.0 psi	4,000	5,000	5,000	6,000	6,000	6,500	6,500	6,500	6,500
	5.0 psi	4,000	5,000	5,000	6,000	6,000	6,500	6,500	6,500	6,500
	7.5 psi	4,000	5,000	5,000	6,000	6,000	6,500	6,500	6,500	6,500
10.0 psi	4,000	5,000	5,000	6,000	6,000	6,500	6,500	6,500	6,500	
210E 1-1/2"	8.0" w.c.	4,450	3,650	2,550						
	0.5 psi	6,300	5,750	5,150	4,050					
	0.75 psi	7,000	7,500	7,050	6,300	5,450	4,050			
	1.0 psi	7,000	8,800	8,500	7,950	7,250	6,300	5,150	3,650	
	1.5 psi	7,000	8,800	8,800	10,450	9,950	9,250	8,550	7,700	6,800
	2.0 psi	7,000	8,800	8,800	10,500	10,500	10,500	10,500	10,250	9,600
	3.0 psi	7,000	8,800	8,800	10,500	10,500	10,500	10,500	10,500	10,500
	5.0 psi	7,000	8,800	8,800	10,500	10,500	10,500	10,500	10,250	10,500
	7.5 psi	7,000	8,800	8,800	10,500	10,500	10,500	10,500	10,250	10,500
10.0 psi	7,000	8,800	8,800	10,500	10,500	10,500	10,500	10,250	10,500	



**CAPACITIES FOR SPRING LOADED MODELS**

CUBIC FEET PER HOUR (0.64 sp gr gas)

	Inlet Pressure	Outlet Pressure - Inches w.c.								
		2	4	6	9	12	16	20	24	28
210E 2"	8.0" w.c.	5,150	4,200	2,950						
	0.5 psi	7,250	6,650	5,950	4,700					
	0.75 psi	8,000	8,650	8,150	7,250	6,300	4,700			
	1.0 psi	8,000	10,000	9,850	9,150	8,400	7,250	5,950	4,200	
	1.5 psi	8,000	10,000	10,000	12,000	11,500	10,700	9,850	8,900	7,850
	2.0 psi	8,000	10,000	10,000	12,000	12,000	12,000	12,000	11,850	11,000
	3.0 psi	8,000	10,000	10,000	12,000	12,000	12,000	12,000	12,000	12,000
	5.0 psi	8,000	10,000	10,000	12,000	12,000	12,000	12,000	12,000	12,000
	7.5 psi	8,000	10,000	10,000	12,000	12,000	12,000	12,000	12,000	12,000
10.0 psi	8,000	10,000	10,000	12,000	12,000	12,000	12,000	12,000	12,000	
210G 2-1/2"	8.0" w.c.	10,400	8,500	6,000						
	0.5 psi	14,700	13,410	12,000	9,500					
	0.75 psi	16,000	17,500	16,400	14,700	12,750	9,500			
	1.0 psi	16,000	20,000	19,900	18,500	16,950	14,700	12,000	8,500	
	1.5 psi	16,000	20,000	20,000	24,000	23,250	21,600	19,900	18,000	15,850
	2.0 psi	16,000	20,000	20,000	24,000	24,000	24,000	24,000	24,000	22,450
	3.0 psi	16,000	20,000	20,000	24,000	24,000	24,000	24,000	24,000	24,000
	5.0 psi	16,000	20,000	20,000	24,000	24,000	24,000	24,000	24,000	24,000
	7.5 psi	16,000	20,000	20,000	24,000	24,000	24,000	24,000	24,000	24,000
10.0 psi	16,000	20,000	20,000	24,000	24,000	24,000	24,000	24,000	24,000	
210G 3"	8.0" w.c.	11,500	9,400	6,600						
	0.5 psi	16,000	14,800	13,200	10,450					
	0.75 psi	16,000	19,300	18,100	16,200	14,000	10,450			
	1.0 psi	16,000	20,000	20,000	20,350	18,700	16,200	13,200	9,350	
	1.5 psi	16,000	20,000	20,000	24,000	24,000	23,800	21,900	19,800	17,450
	2.0 psi	16,000	20,000	20,000	24,000	24,000	27,000	27,000	26,400	24,700
	3.0 psi	16,000	20,000	20,000	24,000	24,000	27,000	27,000	27,000	27,000
	5.0 psi	16,000	20,000	20,000	24,000	24,000	27,000	27,000	27,000	27,000
	7.5 psi	16,000	20,000	20,000	24,000	24,000	27,000	27,000	27,000	27,000
10.0 psi	16,000	20,000	20,000	24,000	24,000	27,000	27,000	27,000	27,000	
210J 4"	8.0" w.c.	20,800	17,000	12,000						
	0.5 psi	29,500	27,000	24,000	19,000					
	0.75 psi	32,000	35,000	33,000	29,420	25,500	19,000			
	1.0 psi	32,000	40,000	40,000	37,000	34,000	29,420	24,000	17,000	
	1.5 psi	32,000	40,000	40,000	48,000	47,000	43,350	39,700	36,000	31,800
	2.0 psi	32,000	40,000	40,000	48,000	48,000	50,000	50,000	48,000	45,000
	3.0 psi	32,000	40,000	40,000	48,000	48,000	50,000	50,000	50,000	50,000
	5.0 psi	32,000	40,000	40,000	48,000	48,000	50,000	50,000	50,000	50,000
	7.5 psi	32,000	40,000	40,000	48,000	48,000	50,000	50,000	50,000	50,000
10.0 psi	32,000	40,000	40,000	48,000	48,000	50,000	50,000	50,000	50,000	



**PRESSURE DROP**


**Spring Loaded Design**

Flow Rate CFH	Values expressed in inches w.c.							
	210D			210E		210G		210J
	1"	1 1/4"	1 1/2"	1 1/2"	2"	2 1/2"	3"	4"
500	0.23	0.15	0.14					
1,000	0.92	0.59	0.54	0.27	0.20	0.05	0.04	0.01
1,500	2.08	1.33	1.22					
2,000	3.70	2.37	2.16	1.09	0.82	0.20	0.17	0.05
2,500	5.78	3.70	3.38					
3,000	8.32	5.33	4.87	2.46	1.84	0.45	0.37	0.12
3,500	11.33	7.25	6.62					
4,000	14.79	9.47	8.65	4.37	3.28	0.80	0.66	0.21
4,500	18.72	11.98	10.95					
5,000	23.11	14.79	13.52	6.82	5.12	1.25	1.03	0.34
5,500	27.97	17.90	16.35					
6,000	33.28	21.30	19.46	9.82	7.37	1.80	1.48	0.49
6,500		25.00	22.84					
7,000		28.99	26.49	13.36	10.05	2.45	2.02	0.66
7,500			30.41					
8,000				17.45	13.10	3.20	2.64	0.87
8,500								
9,000				22.10	16.60	4.05	3.35	1.10
9,500								
10,000				27.30	20.50	5.00	4.15	1.35
11,000				33.00	24.80	6.05	5.00	
12,000				39.30	29.50	7.20	5.95	1.95
13,000					34.60	8.50	7.00	
14,000					40.15	9.85	8.10	2.68
15,000						11.30	9.30	
16,000						12.85	10.60	3.47
17,000						14.50	11.95	
18,000						16.25	13.40	4.40
19,000						18.10	14.90	
20,000						20.05	16.50	5.42
22,000						24.25	20.00	6.56
24,000						28.85	23.80	7.81
26,000						33.85	27.90	9.06
28,000						39.25	32.40	10.62
30,000							37.20	12.41
32,000								13.90
34,000								15.69
36,000								17.60
38,000								19.60
40,000								21.70
45,000								27.40
50,000								33.80
55,000								41.00

NOTE: The maximum capacities for the different models listed on the capacity chart and represented by the heavy line on the pressure drop table are values at which these controls have been certified by the CSA (except for the 210J).



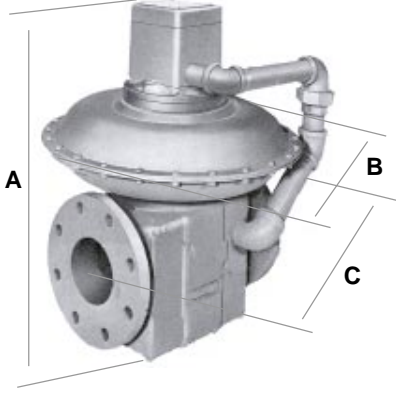
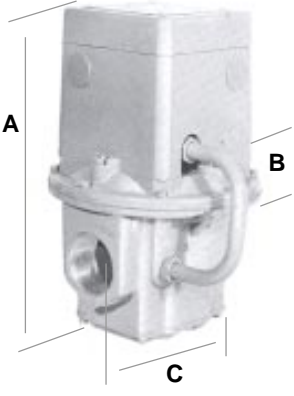
## 220 SERIES PILOT LOADED MODELS

Features	
<ul style="list-style-type: none"> <li>■ Utilizes a servo-operated design (not the conventional spring-loaded design)</li> <li>■ Delivers higher outlet pressure than spring-loaded models</li> <li>■ Remote sensing available.</li> <li>■ Suitable for use with natural, manufactured, mixed and propane (LP) gases and LP gas-air mixtures.</li> </ul>	
<ul style="list-style-type: none"> <li>■ Main diaphragm loaded with gas pressure</li> <li>■ Gas pressure precisely controlled by a small pilot regulator in upper housing.</li> <li>■ When the pilot regulated outlet pressure is changed by adjusting the spring, the main regulator outlet pressure changes in proportion.</li> <li>■ Inlet or outlet pressure readings can be tapped and plugged in three positions.</li> <li>■ Inlet pressure is supplied to the pilot regulator in the fourth position.</li> <li>■ Regulator should be mounted in an upright position in a horizontal pipe run to perform the most accurately.</li> <li>■ Gas flow must follow arrow on regulator.</li> <li>■ Single vent is located in upper housing. Its equipped with model 12A06 vent limiting device.</li> <li>■ Pipe size selection: Regulator should not be more than 1 size larger or smaller than manifold size.</li> </ul>	<p>Capacities ..... to 50,000 CFH</p> <p>Ambient Temp. Limits ..... -40°F to 200°F</p> <p>Maximum Emergency Exposure Pressure ..... 25 psi (At this pressure the regulator will suffer no internal damage, but it may not provide accurate regulation.)</p> <p>Inlet Pressures ..... to 10 psi</p> <p>Outlet Pressures ..... 1 psi to 5 psi</p>
	<p><b>Outlet Pressure Adjustment Springs</b></p> <p>R325C10-1022 (K spring) ..... 1 psi to 3 psi</p> <p>R325C10-1530 (L spring) ..... 2 psi to 5 psi</p>
Outlet Adjustments	
<ul style="list-style-type: none"> <li>■ Remove hood of pilot regulator.</li> <li>■ Remove cap on top of the pilot regulator. The adjusting screw is exposed. Adjust to desired pressure.</li> </ul>	



**PRESSURE DROP AND DIMENSIONS**

**Pilot Loaded Design**

DIMENSIONS			
Model	A	B	C
220D	10-3/16"	7"	6"
220E	11-1/4"	9-1/8"	7-5/8"
220G	14-3/4"	13-1/2"	10-3/8"
220J	20-1/2"	18"	13-7/8"

NOTE: Do not exceed 36" pressure drop when determining acceptable capacities at which these controls may be used. Under some conditions these limits may be surpassed, but only after consultation with Maxitrol Company. (NOT CSA CERTIFIED)

Flow Rate CFH	Values expressed in inches w.c.							
	210D			210E		210G		210J
	1"	1 1/4"	1 1/2"	1 1/2"	2"	2 1/2"	3"	4"
1,000	1.90	1.70	1.70					
2,000	4.93	3.10	2.90	1.90	1.90			
3,000	11.10	7.42	5.40	2.90	2.40			
4,000	19.70	13.20	11.10	4.93	4.00	2.00	1.90	1.70
5,000	30.80	20.70	17.40	7.70	6.25	2.20	2.10	1.70
6,000	44.20	29.70	25.00	11.10	9.00	2.60	2.30	1.70
7,000		40.60	34.00	15.10	12.25	3.00	2.60	1.70
8,000			44.50	19.70	16.00	4.00	3.00	1.80
9,000				24.90	20.25	5.00	3.80	1.90
10,000				30.80	25.00	6.22	4.60	2.10
12,000				44.20	36.00	9.00	6.80	2.40
14,000						12.20	9.30	2.80
16,000						16.00	12.10	3.40
18,000						20.20	15.30	4.40
20,000						25.00	18.90	5.40
25,000						40.60	30.70	8.90
30,000							42.50	12.40
35,000								17.05
40,000								21.70
45,000								27.40
50,000								33.80
55,000								41.00