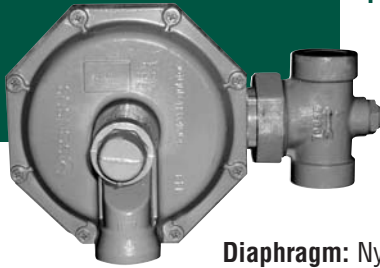


Model 143-80 Service Regulator with Low Pressure Cut-Off

Technical Data



Model:
143-80-6

Valve Body: Cast Iron, 125 psig Working Pressure

Spring and Lower Case: Die-Cast Aluminum

Orifice: Aluminum

Fulcrum Pin: Stainless Steel

Valve Seat/Stem: One piece molded Buna-N seat pad and fiberglass reinforced nylon stem

Throat/Support/Stem Guide: Cast Aluminum integral to lower case

Diaphragm Plate: Plated Steel

Straight Body

3/4" x 3/4"

3/4" x 1"

1" x 1"

1" x 1-1/4"

1-1/4" x 1-1/4"

Diaphragm: Nylon fabric reinforced Buna-N with full 26 in² effective area

Vent and Valve: Precision-fit polyethylene valve and seat, threaded 3/4" or 1" NPT

Operating Temperature: -20° F to 150° F (-28.9° C to 65.5° C)

Corrosion Protection: Cases dip primed chromate conversion coating, topcoat enamel

Internal Relief Valve: Set to relieve at approximately 7" w.c. above normal outlet pressure setting

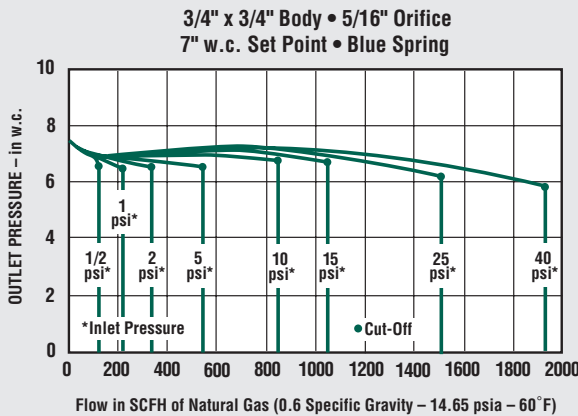
Spring Ranges

Outlet Pressure Ranges	Spring Color	Spring Part Number
4 1/2" to 7 1/2" w.c.	Red	143-62-021-15
6" to 9 1/2" w.c.	Blue	143-62-021-16
7 1/2" to 15" w.c.	Green	143-62-021-17
13 1/2" to 29" w.c.	Orange	143-62-021-18

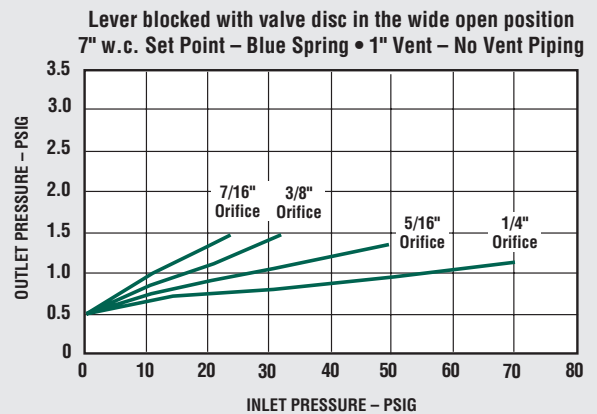
Orifice and Maximum Inlet Pressure

Orifice	Part Number	Pressure
1/4" aluminum	143-62-023-49	60 psig
5/16" aluminum	143-62-023-51	40 psig
3/8" aluminum	143-62-023-52	25 psig
7/16" aluminum	143-62-023-53	15 psig

Typical Performance Curve



Internal Relief Valve



Maximum Emergency Pressure

The maximum pressure that the model 143-80-6 low pressure regulator inlets may be subjected under abnormal conditions without causing damage to the regulator is the stated Maximum Inlet Pressure + 10 psi

The maximum pressure to which the 143-80-6 diaphragm case may be subjected under abnormal conditions without causing damage to the internal parts of the regulator is the set point + 3 psi.

If the outlet pressure exceeds this pressure, the regulator must be removed from service and carefully inspected. Damaged or otherwise unsatisfactory parts must be replaced before returning the regulator to service. The maximum outlet pressure that can be safely contained in the 143-80-6 diaphragm case is 10 psi (safely means no leakage as well as no bursting).

Full Open Capacity

Use the following formula for the full open capacity for the 143-80-6

$$1. Q = K\sqrt{P_0(P_1 - P_0)} \dots \text{(for } \frac{P_1}{P_0} \text{ less than 1.894)}$$

$$2. Q = \frac{KP_1}{2} \dots \text{(for } \frac{P_1}{P_0} \text{ greater than 1.894)}$$

Q = maximum capacity of the regulator (in SCFH of 0.6 specific gravity natural gas).

K = the "K" factor, the regulator constant from the table below (orifice with low pressure cut-off stem inside).

P₁ = absolute inlet pressure (psia).

P₀ = absolute outlet pressure (psia).

Orifice	7/16"	3/8"	5/16"	1/4"
K	415	212	125	51



Model 143-80 with Low Pressure Cut-Off

Capacities

Flow capacities in SCFH natural gas
(0.6 specific gravity – 14.65 psia – 60°F)

Note: The last capacity figure in each column indicates the maximum capacity for each orifice at recommended pressure within the optimum performance range.

The performance data is based on normal testing at 70°F flowing temperature.

Changes in performance can occur at extreme low flowing temperatures.

Other Gases

143-80 Regulators are mainly used on natural gas. However, they perform equally well on LP gas, nitrogen, dry CO₂, air and others.

Other Gases	Correction Factor
Air (Specific Gravity 1.0)	0.77
Propane (Specific Gravity 1.53)	0.63
1350 BTU Propane Air Mix (1.20)	0.71
Nitrogen (Specific Gravity 0.97)	0.79
Dry Carbon Dioxide (Specific Gravity 1.52)	0.63

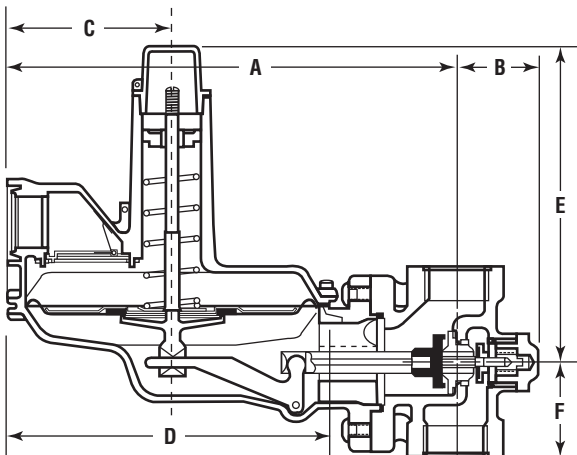
For other non corrosive gases:
CORRECTION FACTOR =

$$\sqrt{\frac{0.6}{\text{Specific Gravity of the Gas}}}$$

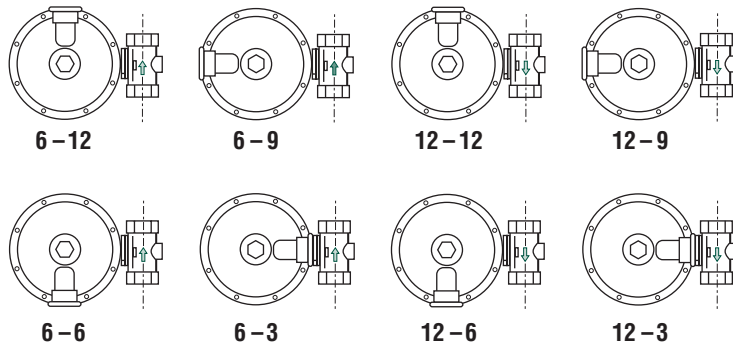
Pipe Size (inches)	Inlet Pressure (psig)	Outlet Pressures Red Spring 4-1/2" to 7-1/2" w.c. Blue Spring 6-1/2" to 9-1/2" w.c.				Outlet Pressures Green Spring 7-1/2" to 15" w.c.			
		Orifice Size (inches)				Orifice Size (inches)			
		7/16"	3/8"	5/16"	1/4"	7/16"	3/8"	5/16"	1/4"
3/4" x 3/4"	1/2	240	180	90		140	120	90	
	1	400	300	200	100	250	200	160	90
	2	580	420	300	140	370	320	240	140
	5	800	750	600	230	580	530	460	220
	10	1050	990	740	380	780	720	700	370
	15	1140	1050	950	460	920	860	800	480
	25		1100	1100	640		900	1000	660
	40			1300	870			1300	910
60				1160				1160	
3/4" x 1" 1" x 1"	1/2	270	210	90		160	120	90	
	1	430	310	210	100	260	230	160	90
	2	650	420	300	140	410	350	270	140
	5	1100	750	610	230	800	730	470	220
	10	1300	1120	760	380	1220	1090	740	370
	20	1300	1300	960	460	1300	1300	930	480
	25		1300	1300	640		1300	1160	660
	40			1300	870			1300	910
60				1160				1160	
1-1/4" x 1-1/4"	1/2	270	210	90		160	120	90	
	1	430	310	210	100	260	230	160	90
	2	650	420	300	140	430	350	270	140
	5	1100	750	510	230	870	730	470	220
	10	1300	1120	760	380	1300	1090	740	370
	20	1300	1300	960	460	1300	1300	930	480
	25		1300	1300	640		1300	1160	660
	40			1300	870			1300	910
60				1160				1160	

Dimensions

Regulator	A	B	C	D	E	F
143-80-6	9 3/8"	1 5/8"	3 7/16"	6 7/8"	6 7/16"	1 31/32"



Mounting Positions



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