

Model 143-80

Domestic Service Regulator (Models 143-80-1, 143-80-2, 143-80-2HP)

Capacities

SCFH Natural Gas (0.6 specific gravity - 14.65 psia - 60° F)

Pipe Size: 3/4 x 3/4"

Inlet Psig	Orifice						
	1/8"	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"
1/2*	-	-	-	-	340	450	510
1*	-	-	-	480	500	510	530
2*	-	-	530	560	570	580	600
3	-	420	600	620	630	650	670
5	250	560	700	720	730	770	790
7.5	310	700	840	860	880	900	900
10	370	830	950	970	1000	1020	1020
20	530	1200	1220	1240	1250	1270	-
40	860	1570	1330	1340	1450	-	-
60	1200	1660	1520	-	-	-	-
80	1500	1710	-	-	-	-	-
125	1800	1900	-	-	-	-	-

Pipe Size: 3/4" x 1" and 1" x 1"

Inlet Psig	Orifice						
	1/8"	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"
1/2*	-	-	-	-	350	460	520
1*	-	-	-	480	550	600	650
2*	-	-	530	700	840	880	780
3	-	420	650	870	1000	920	810
5	250	580	890	1120	1160	950	970
7.5	310	700	1140	1340	1270	1140	1060
10	370	840	1360	1500	1330	1200	1180
20	530	1230	2000	1600	1480	1400	-
40	860	1700	2000	1640	1900	-	-
60	1200	1900	2000	-	-	-	-
80	1540	2000	-	-	-	-	-
125	2100	2100	-	-	-	-	-

Pipe Size: 3/4" x 1-1/4"; 1" x 1-1/4"; 1-1/4" x 1-1/4"

Inlet Psig	Orifice						
	1/8"	3/16"	1/4"	5/16"	3/8"	1/2"	5/8"
1/2*	-	-	-	-	350	460	520
1*	-	-	-	480	550	680	760
2*	-	-	530	700	840	1020	1030
3	-	420	650	870	1030	1200	1050
5	250	580	890	1180	1350	1490	1060
7.5	310	700	1140	1500	1610	1580	1060
10	370	840	1360	1700	1710	1800	1180
20	630	1230	1600	1800	1900	1900	-
40	860	1800	2200	1900	2000	-	-
60	1200	2100	2400	-	-	-	-
80	1550	2200	-	-	-	-	-
125	2250	2400	-	-	-	-	-

NOTES:

Orifice Outlet Pressure variations:

- Red & Blue Springs 1" w.c. droop
- Orange Spring 3" w.c. droop
- Green Spring 2" w.c. droop
- Black Spring 10% droop

*The 1/2, 1, and 2 psig inlet pressures apply only to Red and Blue springs.

Note: Figures highlighted in each column indicate maximum capacity for each orifice at recommended pressure within the optimum performance range.

This performance data is based on normal testing at 70° F flowing temperature. Changes in performance can occur at extreme low flowing temperatures.

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Calculations for Other Gases

Type	Sp. Gravity	Corr. Factor
Air	1.00	0.77
Propane	1.53	0.63
1350 BTU Propane/Air	1.20	0.71
Nitrogen	0.97	0.79
Dry Carbon Dioxide	1.52	0.63

For other non-corrosive gases $\sqrt{\frac{0.60}{\text{Specific Gravity of the Gas}}}$

Full Open Capacity Calculations

Formula 1: For $\frac{P_1}{P_0}$ **less than 1.894**

$$Q = K \sqrt{P_0(P_1 - P_0)}$$

Formula 2: For $\frac{P_1}{P_0}$ **greater than 1.894**

$$Q = \frac{KP_1}{2}$$

Where:

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

K = the regulator constant from the table below

5/8"	1/2"	3/8"	5/16"	1/4"	3/16"	1/8"
820	520	292	206	132	74	33

P₁ = absolute inlet pressure (psia)

P₂ = absolute outlet pressure (psia)