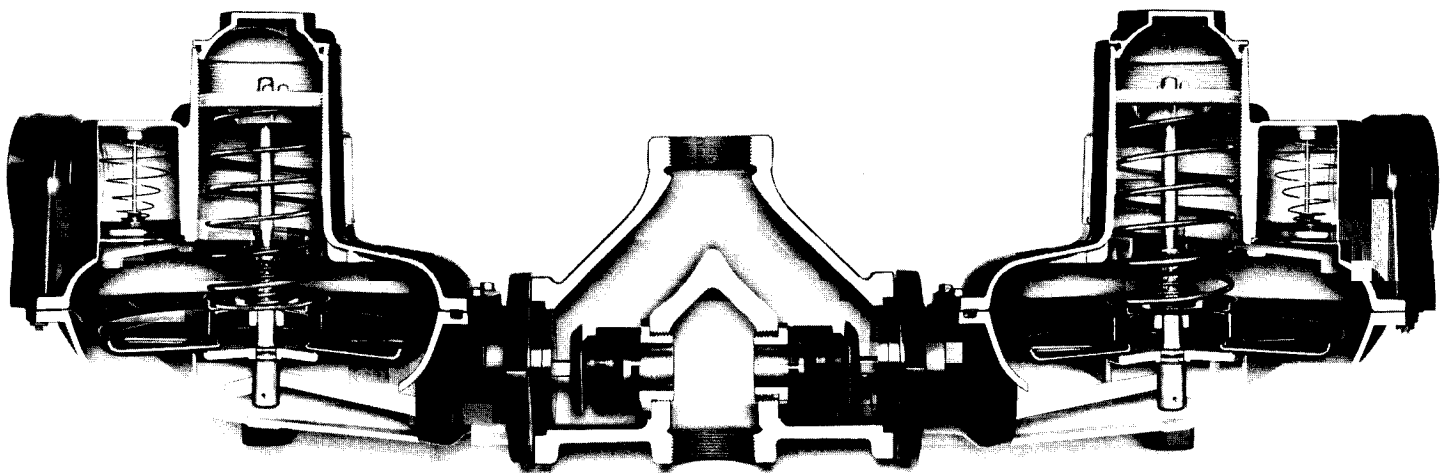


B-838 R, N, D, & M Twin Parallel Flow Service Regulators



- High capacity service regulators with single large valve body; orifices to 1³/₈"
- Parallel regulation with extra large double relief capacity for increased safety.
- Combined unit saves space; eliminates extra piping.
- Reduces regulator installation costs significantly.

Below: Cut-away illustration of B-838 R showing single valve body with two diaphragm cases.



MODEL DESCRIPTION

The B-838 models N, R, M & D are single valve body regulators with large (12¹/₁₆" dia.) twin diaphragm cases. They are designed to smoothly handle the increased and varying flows of larger orifices (up to 1³/₈") and provide excellent control of widely fluctuating inlet pressures.

Twin parallel flow regulator design offers unusually large internal relief capacity for greater safety. It also saves space, eliminates extra piping and reduces installation costs. These regulators are ideal for commercial and small industrial applications. They can be piped into diaphragm-type or rotary meters.

The four models described in this data sheet are of the same basic construction with design options available to meet your needs for relief or no relief regulation, downstream control or monitoring.

B-838-N (non-relief) model is used on low or intermediate inlet pressures where an internal relief, or other type of over-pressure equipment is not required. Orifice size: ³/₈" to 1³/₈".

B-838-R is the largest internal relief service regulator in the industry. Its design features unrestricted flow areas from loading ring outlet through the lower case throat and into the relief valve area. Relief valve plate allows unrestricted flow to the large vent valve and vent (see relief data and curves). Two positive safety stops ensure operation of the internal relief in event of mechanical failure of other functioning parts. The stops give consistent initial relief and stop valve travel before orifice can cut into seat material. The point of relief is a function of the main adjustment spring setting and relief spring compression. Example: Regulator main spring set to give 9" w.c. outlet pressure. Relief spring is equal to 7" w.c. outlet pressure. The point of relief will be 16" w.c. or 7" w.c. above set. Orifice size: ¹/₄" to 1³/₈".

B-838-D. A standard B-838 unit with closed throat and downstream control tap. This is used when it is desirable to control the regulator from points other than the valve outlet side to take up pressure loss in long runs of pipe or where boost is undesirable. All capacity curves are the same except there is no boost experienced at the control point. Internal relief is available in this model. Control line limits capacity, however. Orifice size: ¹/₄" to 1³/₈".

B-838-M. Same as B-838-D with a closed throat and an O-ring seal on the valve stem through the throat to assure positive control downstream when installed ahead of the operating regulator. Used in a series installation as the first or upstream regulator. As an upstream monitor, this unit gives customers an operating safety device that assumes control over the operating regulator when failure is sensed by the control line of the monitor. This system assures maximum safety with uninterrupted service. The monitor regulator should be set to take over control from the operating regulator with only a slight increase in outlet pressure. Orifice size: ¹/₄" to 1³/₈".

SAMPLE PROBLEMS FOR SIZING B-838 REGULATORS

Problem No. 1

Max Flow: 15,000 scfh

Inlet Pressure Range: 5-25 PSIG

Outlet Pressure: 7" W.C.

Set Point: 15 PSIG inlet; 7" W.C. outlet

1. Smallest orifice based on 5 PSIG inlet pressure, 7" W.C. outlet and flowing 15,000 scfh is 1" in a 2" x 4" Valve Body.
2. Select Correct Adjustment Spring. See "B838R Spring Ranges". For a 1" orifice, a BROWN SPRING has a range of 6.2 to 9.3" W.C. at 25 PSIG Inlet pressure. The set point is 15 PSIG, therefore the adjusted spring range is based on "SPRING DATA" chart. For a 1" orifice, BROWN SPRING, the outlet pressure changes .85" W.C. for each 10 PSIG inlet pressure change. Therefore, the spring range at 15 PSIG is:
6.2 - .85 = 5.35" W.C. Min.
9.3 - .85 = 8.45" W.C. Max.
3. Determine the outlet pressure swing when the set point is 7.0" W.C. outlet pressure and 15 PSIG inlet pressure and the inlet varies from 5 to 25 PSIG. The outlet pressure varies .85" W.C. for each 10 PSIG inlet pressure change for a BROWN SPRING and 1" orifice. Therefore, the outlet pressure at 5 PSIG inlet pressure is:
7.0 - .85 = 6.15" W.C., WOR, and
7.0 + .85 = 7.85" W.C., WOR, at 25 PSIG, inlet pressure.
4. See "B-838-R Relief Valve Characteristics". With a 1" orifice and 7" W.C. set point, with one valve seat blocked wide open, the downstream pressure build-up will be approximately 1.5 PSIG with 25 PSIG inlet and venting approximately 30 Mcfh.

Problem No. 2 **

Downstream Monitor Installation

Max. Flow: 20,000 scfh

Inlet Pressure: 10 PSIG

Outlet Pressure: 7" W.C.

Set Monitor For: 11" W.C.

Select Model B-838-M as the *first* or upstream regulator and it is the OPERATING REGULATOR.

Select Model B-838-R as the second or downstream regulator and it is the MONITOR REGULATOR.

Note: The "M" model regulator is *always* the *upstream* regulator *regardless of its function*.

1. Select orifice for MONITOR regulator.
Orifice = 1¹/₄" K = 3500
2" x 4" Valve Body.
2. Since MONITOR regulator will be normally wide open (set for 11" W.C.), calculate the pressure drop required to flow 20,000 scfh

$$* Q = K \sqrt{P_{out} \Delta P}$$

where: Q = scfh

K = Regulator Flow Constant

P_{out} = Outlet Pressure - PSIA

Δ P = Differential Pressure - PSI

*Below critical velocity

**Based on flow and pressure drop, it may be possible to match the valve body of the upstream regulator to the inlet of the downstream regulator.

$$\sqrt{\Delta P} = \frac{Q}{\sqrt{P_{out} \times K}}$$

$$\sqrt{\Delta P} = \frac{20,000}{\sqrt{14.4 + .25 \times 3500}} = 1.4929$$

$$\Delta P = 2.23 \text{ PSI}$$

3. Select correct adjustment spring for the MONITOR REGULATOR. For 1 1/4" orifice, 10 PSIG inlet and 11" W.C. outlet, correct spring is BLACK with a range from 9.2 to 16.5" W.C.
4. Select smallest orifice in 2" x 4" Valve Body for 10 PSIG inlet, 2.48 PSIG outlet (2.23 + .25) and 20,000 scfh for the upstream operating regulator. Try a 3/4" orifice.

$$Q = K \sqrt{P_{out} \times \Delta P}$$

$$= 2100 \sqrt{(14.4 + 2.48) \times (10 - 2.48)}$$

$$= 2100 \sqrt{16.88 \times 7.52}$$

$$= 2100 \sqrt{126.9376}$$

$$= 2100 \times 11.2667$$

$$= 23,660 \text{ scfh}$$

5. Select correct adjustment spring for the operating regulator. For 3/4" orifice, 10 PSIG inlet and 7" W.C. outlet, correct spring is BROWN with a range of:

$$8.6 - \left(\frac{15}{10 \times .60}\right) = 7.7" \text{ W.C. max.}$$

$$5.5 - \left(\frac{15}{10 \times .60}\right) = 4.6" \text{ W.C. min.}$$

Problem No. 3 **

Upstream Monitor Installation

Max Flow: 20,000 scfh
 Inlet Pressure: 10 PSIG
 Outlet Pressure: 7" W.C.
 Set Monitor For: 11" W.C.

Select Model B-838-M as the *first* or upstream regulator and it is the MONITOR REGULATOR.

Select Model B-838-R as the second or downstream regulator and it is the OPERATING REGULATOR.

1. Select largest practical orifice for the monitor to flow 20,000 scfh with minimum pressure drop. See "B-838 Monitor Specifications 2" x 4". For 10 PSIG inlet, a 1 1/4" orifice will flow 23,500 scfh with a 2.0 PSIG max. pressure drop. Therefore, the inlet pressure will be 8 PSIG to the operating regulator.
2. Select smallest orifice with 8 PSIG inlet, 7" outlet and flow 20,000 scfh.
Select a 1" orifice.
3. Select Monitor Regulator adjustment spring for 1 1/4" orifice, 11" W.C. outlet pressure, BLACK SPRING has a range of 9.2" W.C. to 16.5" W.C.
4. Select OPERATING REGULATOR adjustment spring for 1" orifice, 7" W.C. outlet pressure, BROWN SPRING will have a range of:

$$9.3 - \left(\frac{17}{10 \times .60}\right) = 8.3" \text{ W.C. max.}$$

$$6.2 - \left(\frac{17}{10 \times .60}\right) = 5.1" \text{ W.C. min.}$$

B-838 R, N, D, M SPECIFICATIONS

Max. Inlet Pressure: 125 PSIG
 Max. Emergency Outlet Pressure: 30 PSIG
 Outlet Pressure Range: Approx. 5" W.C. to 5 PSIG
 Relief: See Relief Curves
 Inlet Connection Sizes: 2" NPT or Flanged
 Outlet Connection Sizes: 2" NPT: 2", 3" or 4" Flanged
 Do Not Mix Inlet & Outlet NPT & Flange
 Basic Orifice Sizes: 1/4", 3/8", 1/2", 5/8", 3/4", 1", 1 1/4" & 1 3/8"
 Diameter
 Max. Inlet Pressure per orifice size:

Vent Sizes: 1" NPT (without internal relief)
 2 1/2" NPT (with internal relief)
 Shipping Weights: 2" x 2" NPT 57 lbs.
 2" x 2" Fig. 59 lbs.
 2" x 3" Fig. 70 lbs.
 2" x 4" Fig. 80 lbs.

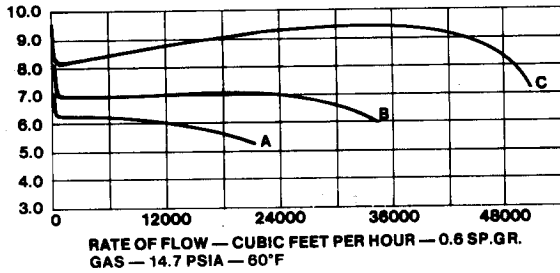
Downstream Control Line Taps: 1/2" NPT
 Loading Ring Settings: See Capacity Tables
 Packing: One per box

Valve Body Size			
Orifice Size	2" x 2"	2" x 3"	2" x 4"
3/8"	125 PSIG	125 PSIG	125 PSIG
1/2" & 5/8"	75 PSIG	75 PSIG	75 PSIG
3/4"	60 PSIG	60 PSIG	60 PSIG
1"	45 PSIG	45 PSIG	60 PSIG
1 1/4"	25 PSIG	30 PSIG	40 PSIG

Max. Capacity on inches W.C. inlet: 80,000 scfh

B-838 R TYPICAL PERFORMANCE DATA

Set Point 7" w.c.

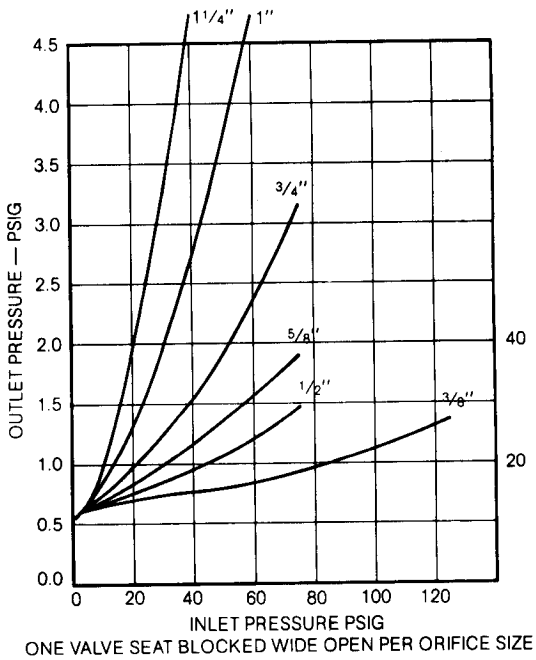


INLET CONN. — 2" FLANGED
OUTLET CONN. — 4" FLANGED
INLET PRESSURE — 10 PSIG @ SET
ORIFICE SIZE — 1 1/4"
FLOW RATE AT SET — 500 SCFH
SPRING RANGE — GREEN
POSITION NO. — A
BOLT CIRCLE DIA. — 12 1/16"

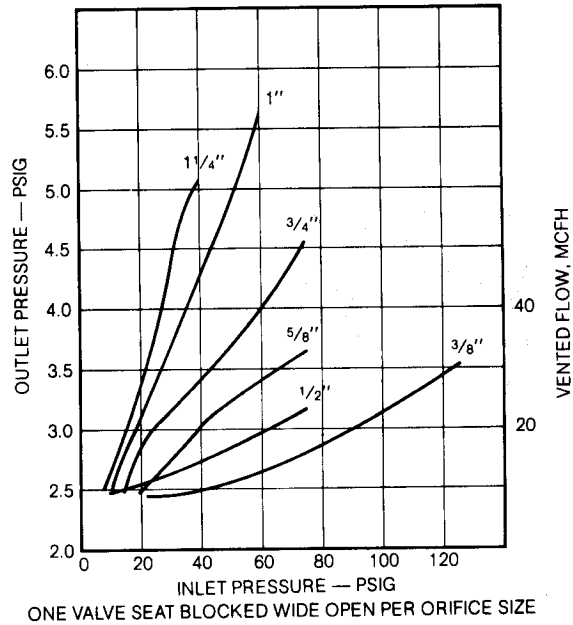
A — 5 PSIG — W.O.R., 5.25" w.c. @ 21000 SCFH
B — 10 PSIG — SET, 6.0" w.c. @ 34000 SCFH
C — 20 PSIG — W.O.R., 7.1" w.c. @ 50000 SCFH

B-838 R RELIEF VALVE CHARACTERISTICS

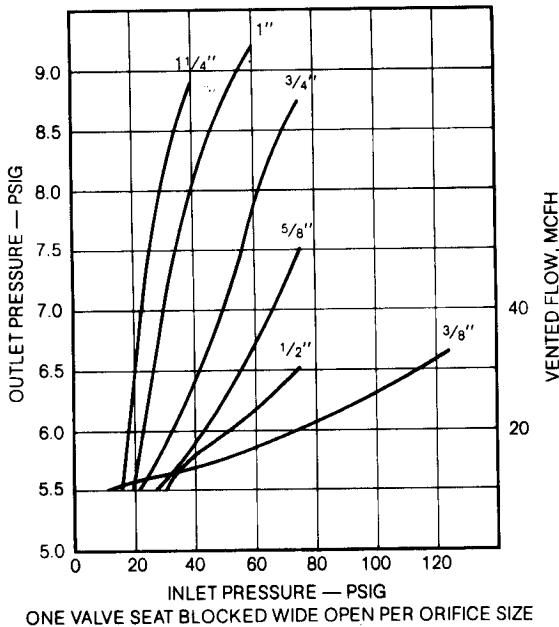
Set Point 7" w.c.



Set Point 2 PSIG



Set Point 5 PSIG



B-838 N SPRING RANGES

ADJUSTED OUTLET PRESSURE RANGE Spring Adjustment Ferrule at Min. & Max. Depths				
ORIFICE SIZE	INLET PRESSURE	SPRING COLOR	OUTLET PRESSURE	
			MIN.	MAX.
3/8"	25 PSIG	ORANGE	2.61" W.C.	5.0" W.C.
		BROWN	3.66" W.C.	7.79" W.C.
		GREEN	4.08" W.C.	10.21" W.C.
		BLACK	6.34" W.C.	16.74" W.C.
		BLUE	.51 PSIG	1.42 PSIG
		SILVER	1.42 PSIG	3.21 PSIG
		YELLOW	2.92 PSIG	4.87 PSIG
		RED	2.90 PSIG	6.33 PSIG*
1/2"	25 PSIG	ORANGE	2.7" W.C.	5.0" W.C.
		BROWN	3.9" W.C.	8.2" W.C.
		GREEN	4.5" W.C.	10.7" W.C.
		BLACK	6.8" W.C.	18.0" W.C.
		BLUE	.56 PSIG	1.5 PSIG
		SILVER	1.43 PSIG	3.3 PSIG
		YELLOW	2.3 PSIG	4.5 PSIG
		RED	2.9 PSIG	6.35 PSIG*
5/8"	25 PSIG	ORANGE	2.8" W.C.	5.8" W.C.
		BROWN	4.3" W.C.	9.2" W.C.
		GREEN	5.2" W.C.	11.8" W.C.
		BLACK	7.8" W.C.	19.8" W.C.
		BLUE	.64 PSIG	1.65 PSIG
		SILVER	1.45 PSIG	3.57 PSIG
		YELLOW	2.31 PSIG	4.5 PSIG
		RED	2.98 PSIG	7.18 PSIG*
3/4"	25 PSIG	ORANGE	3.0" W.C.	6.2" W.C.
		BROWN	4.7" W.C.	9.6" W.C.
		GREEN	5.7" W.C.	12.3" W.C.
		BLACK	8.7" W.C.	20.9" W.C.
		BLUE	.68 PSIG	1.67 PSIG
		SILVER	1.46 PSIG	3.6 PSIG
		YELLOW	2.32 PSIG	4.5 PSIG
		RED	3.02 PSIG	7.45 PSIG*
1"	25 PSIG	ORANGE	4.3" W.C.	7.2" W.C.
		BROWN	5.9" W.C.	10.8" W.C.
		GREEN	6.8" W.C.	13.3" W.C.
		BLACK	9.6" W.C.	21.5" W.C.
		BLUE	.70 PSIG	1.68 PSIG
		SILVER	1.48 PSIG	3.7 PSIG
		YELLOW	2.33 PSIG	4.5 PSIG
		RED	3.04 PSIG	7.05 PSIG*
1 1/4"	10 PSIG	ORANGE	3.2" W.C.	6.4" W.C.
		BROWN	4.7" W.C.	9.6" W.C.
		GREEN	5.6" W.C.	12.2" W.C.
		BLACK	8.4" W.C.	20.0" W.C.
		BLUE	.61 PSIG	1.62 PSIG
		SILVER	1.42 PSIG	3.5 PSIG
		YELLOW	2.25 PSIG	4.5 PSIG
		RED	2.9 PSIG	6.20 PSIG*

B-838 R SPRING RANGES

ADJUSTED OUTLET PRESSURE RANGE Spring Adjustment Ferrule at Min. & Max. Depths				
ORIFICE SIZE	INLET PRESSURE	SPRING COLOR	OUTLET PRESSURE	
			MIN.	MAX.
3/8"	25 PSIG	ORANGE	2.61" W.C.	4.30" W.C.
		BROWN	4.50" W.C.	7.41" W.C.
		GREEN	4.81" W.C.	8.49" W.C.
		BLACK	7.92" W.C.	14.51" W.C.
		BLUE	.59 PSIG	1.10 PSIG
		SILVER	1.01 PSIG	2.08 PSIG
		YELLOW	2.83 PSIG	4.89 PSIG
		RED	3.27 PSIG	6.20 PSIG*
1/2"	25 PSIG	ORANGE	2.7" W.C.	4.3" W.C.
		BROWN	4.8" W.C.	7.8" W.C.
		GREEN	5.3" W.C.	8.9" W.C.
		BLACK	8.5" W.C.	15.6" W.C.
		BLUE	.65 PSIG	1.16 PSIG
		SILVER	1.02 PSIG	2.14 PSIG
		YELLOW	2.18 PSIG	4.52 PSIG
		RED	3.25 PSIG	6.22 PSIG*
5/8"	25 PSIG	ORANGE	3.0" W.C.	4.6" W.C.
		BROWN	5.1" W.C.	8.1" W.C.
		GREEN	5.6" W.C.	9.3" W.C.
		BLACK	8.9" W.C.	16.0" W.C.
		BLUE	.68 PSIG	1.20 PSIG
		SILVER	1.05 PSIG	2.17 PSIG
		YELLOW	2.22 PSIG	4.62 PSIG
		RED	3.34 PSIG	6.32 PSIG*
3/4"	25 PSIG	ORANGE	3.5" W.C.	4.9" W.C.
		BROWN	5.5" W.C.	8.6" W.C.
		GREEN	6.0" W.C.	9.5" W.C.
		BLACK	9.2" W.C.	16.3" W.C.
		BLUE	.70 PSIG	1.21 PSIG
		SILVER	1.08 PSIG	2.20 PSIG
		YELLOW	2.23 PSIG	4.60 PSIG
		RED	3.36 PSIG	6.31 PSIG*
1"	25 PSIG	ORANGE	4.2" W.C.	5.6" W.C.
		BROWN	6.2" W.C.	9.3" W.C.
		GREEN	6.9" W.C.	10.2" W.C.
		BLACK	10.1" W.C.	17.3" W.C.
		BLUE	.72 PSIG	1.23 PSIG
		SILVER	1.10 PSIG	2.25 PSIG
		YELLOW	2.32 PSIG	4.65 PSIG
		RED	3.43 PSIG	6.35 PSIG*
1 1/4"	10 PSIG	ORANGE	3.5" W.C.	5.0" W.C.
		BROWN	5.7" W.C.	8.6" W.C.
		GREEN	6.2" W.C.	9.7" W.C.
		BLACK	9.2" W.C.	16.5" W.C.
		BLUE	.70 PSIG	1.22 PSIG
		SILVER	1.05 PSIG	2.16 PSIG
		YELLOW	2.23 PSIG	4.52 PSIG
		RED	3.20 PSIG	6.27 PSIG*

*MAXIMUM ALLOWABLE OUTLET PRESSURE IS 5.00 PSIG

SPRING DATA

Outlet Pressure Change as a Result of a 10 PSIG Inlet Pressure Change						
Spring Color	Orifice Size — Inches					
	3/8	1/2	5/8	3/4	1	1 1/4
ORANGE	.17" W.C.	.24" W.C.	.36" W.C.	.52" W.C.	.83" W.C.	1.15" W.C.
BROWN	.21" W.C.	.26" W.C.	.38" W.C.	.60" W.C.	.85" W.C.	1.20" W.C.
GREEN	.22" W.C.	.28" W.C.	.40" W.C.	.62" W.C.	.88" W.C.	1.23" W.C.
BLACK	.25" W.C.	.30" W.C.	.44" W.C.	.65" W.C.	.90" W.C.	1.27" W.C.
BLUE	.01 PSIG	.01 PSIG	.02 PSIG	.02 PSIG	.03 PSIG	.06 PSIG
SILVER	.02 PSIG	.02 PSIG	.02 PSIG	.03 PSIG	.04 PSIG	.06 PSIG
YELLOW	.02 PSIG	.04 PSIG	.04 PSIG	.05 PSIG	.06 PSIG	.07 PSIG
RED	.03 PSIG	.05 PSIG	.05 PSIG	.05 PSIG	.08 PSIG	.09 PSIG

B-838 CAPACITY TABLE 2" x 2"

Outlet Pressure		7" W.C.	7" W.C.	11" W.C.	11" W.C.	1 PSIG	2 PSIG	2 PSIG	2 PSIG	5 PSIG	5 PSIG	5 PSIG
Pressure Drop		1" W.C.	1" W.C.	2" W.C.	2" W.C.	0.2 PSIG	1% ABS	2% ABS	WO	1% ABS	2% ABS	WO
Loading Ring Setting		0°		0°		0°	0°	0°	0°	0°	0°	0°
Orifice Size	Inlet Press. PSIG	Flow Rate, scfh of .60 Sp. Gr. Gas @ 14.7 psia & 60°F										
1 1/4"	1	4750		5350								
	2	6400		7200		6900						
	3	8500	N.C.	9200	N.C.	9200	3800	6200	11950			
	5	11500		11750		12100	5600	9500	20705			
	10	18000		16000		18000	9300	14000	33785	5200	8000	29015
	15	20000		20000		20000	11700	16300	43085	7000	10900	41040
K = 2925	25	20000		20000		20000	17400	20000	58060	9500	15200	58060
Loading Ring Setting		0°	29°	0°	25°	0°	0°	0°	0°	0°	0°	0°
1"	1	4000	3200	3750	3200							
	2	5950	5000	6000	5100	5550						
	3	7300	6000	7600	6500	8450	3300	5550	9355			
	5	10900	7800	10650	8700	10950	4550	7950	16210			
	10	15100	11600	15000	13000	15100	7450	12000	26450	3850	5750	22715
	15	20000	17400	20000	19000	20000	9700	14700	33730	5200	8000	32130
K = 2290	25	20000	20000	20000	20000	20000	15800	19800	45455	8750	13500	45455
	45	20000	20000	20000	20000	20000	20000	20000	68355	12500	18100	68355
Loading Ring Setting		0°	32°	0°	32°	0°	0°	0°	0°	0°	0°	0°
3/4"	1	3000	2850	2500	2350							
	2	3750	3400	4200	4050	4000						
	3	5150	4400	5500	5250	6200	2750	4150	6700			
	5	7800	6100	8300	7650	7900	4000	6500	11610			
	10	11250	10600	11700	10500	12600	6400	10000	18940	3650	5500	16270
	15	15250	13900	15700	13500	15800	8500	13200	24155	4800	7400	23010
K = 1640	25	20000	19000	20000	20000	20000	12000	17200	32555	8100	12000	32555
	60	20000	20000	20000	20000	20000	20000	20000	61255	14800	20000	61255
Loading Ring Setting		0°	36°	0°	36°	0°	0°	0°	0°	0°	0°	0°
5/8"	1	2000	1850	2000	2050							
	2	3500	2900	3250	3200	2800						
	3	4750	3500	4400	4150	3800	2450	3700	5025			
	5	6700	5150	6450	5850	5600	3500	5250	8705			
	10	9800	7400	10200	9300	8700	5800	8600	14205	3150	4600	12200
	15	12900	9850	13350	11000	11500	7500	11100	18120	4100	6000	17225
K = 1230	25	20000	14000	16100	17000	11300	15300	24415	6200	9400	24415	
	60	20000	20000	20000	20000	20000	19100	20000	45940	12750	18150	45940
	75	20000	20000	20000	20000	20000	20000	20000	55165	14300	20000	55165
Loading Ring Setting		0°	36°	0°	40°	0°	0°	0°	0°	0°	0°	0°
1/2"	1	1600	1550	1500	1450							
	2	2500	2300	2300	2250	2350						
	3	3500	3000	3400	3200	3200	1850	2600	3670			
	5	5000	3800	4800	4450	4300	2960	4000	6370			
	10	8700	6000	7550	6700	7000	4600	7050	10395	2650	3250	8930
	15	10100	7300	9800	8000	9300	6800	8750	13255	3700	5000	12625
K = 900	25	12250	10500	13100	10800	12800	10400	13400	17865	5400	7550	17865
	60	20000	19200	20000	20000	20000	17400	20000	33615	9600	14700	33615
	75	20000	20000	20000	20000	20000	20000	20000	40365	13000	18700	40365
Loading Ring Setting		0°	25°	0°	32°	0°	0°	0°	0°	0°	0°	0°
3/8"	1	1400	1400	1400	1300							
	2	2150	1850	2150	2050	1850						
	3	2750	2450	2700	2450	2450	1350	2050	2800			
	5	3600	3400	3450	3400	3450	2350	3000	4250			
	10	5400	4900	5300	4700	5050	3400	4450	6930	2050	2650	5950
	15	6850	5900	6650	5950	6650	4400	6250	8840	2700	3550	8420
K = 600	25	10200	8500	10100	8300	9500	6400	8900	11910	3600	5000	11910
	60	20000	15300	18300	15400	18300	13200	17800	22410	6500	10600	22410
	75	20000	17400	17700	17700	20000	14900	19800	26910	7400	12200	26910
	100	20000	20000	20000	20000	20000	17300	20000	34410	9800	15300	34410
	125	20000	20000	20000	20000	20000	20000	20000	41910	11300	20000	41910

Capacities are in SCFH, 60° F @ 14.7 P.S.I.A.
 N.C. — No change needed in loading ring setting
 K factors are wide open

B-838 CAPACITY TABLE 2" x 3"

Outlet Pressure		7" W.C.	7" W.C.	11" W.C.	11" W.C.	1 PSIG	2 PSIG	2 PSIG	2 PSIG	5 PSIG	5 PSIG	5 PSIG
Pressure Droop		1" W.C.	1" W.C.	2" W.C.	2" W.C.	0.2 PSIG	1% ABS	2% ABS	WO	1% ABS	2% ABS	WO
Loading Ring Setting		0°	40°	0°	43°	0°	0°	0°	0°	0°	0°	0°
Orifice Size	Inlet Press. PSIG	Flow Rate, scfh of .60 Sp. Gr. Gas @ 14.7 psia & 60°F										
1 1/4"	1	5600	5400	5450	5350							
	2	9600	8450	8800	8500	7800						
	3	13200	11000	11600	11000	11800	5500	8000	13890			
	5	18900	17400	16700	16100	17000	9100	12900	24065			
	10		29100	28000	26200	27700	15600	22200	39270	5500	8600	33730
	15		38500	37100	34500	36500	22300	33400	50080	7300	11700	47700
	25		40000		40000	40000	39500	40000	67490	13100	23200	67490
	30		40000		40000	40000	40000	40000	75990	18000	27400	75990
Loading Ring Setting		0°	46°	0°	43°	0°	0°	0°	0°	0°	0°	0°
1"	1	4450	3800	4400	4200							
	2	7300	6500	7400	7200	6500						
	3	10850	8500	10300	9000	9300	5100	6800	11850			
	5	16400	14400	14800	12200	13650	7100	10600	20525			
	10	23800	23000	23300	19600	22500	12600	18500	33495	4900	7600	28770
	15		29900	30100	26500	29200	17100	23000	42715	6600	10100	40685
	25		40000		40000	40000	28800	39000	57565	11500	18400	57565
	45		40000		40000	40000	40000	40000	86565	21200	34000	86565
Loading Ring Setting		0°	46°	0°	45°	0°	0°	0°	0°	0°	0°	0°
3/4"	1	3500	3100	3100	2900							
	2	5500	4500	5000	4750	4300						
	3	7500	6400	7050	6450	6450	4100	6000	8170			
	5	13100	10200	11850	9200	10200	5900	8250	14155			
	10	19000	18100	19700	17000	17050	9600	13700	23100	3700	6050	19840
	15	26500	25250	26400	23700	23800	13200	19800	29460	5300	8500	28060
	25		40000		38000	38200	23900	32000	39700	8400	13800	39700
	60		40000		40000	40000	40000	40000	74700	20200	35500	74700
Loading Ring Setting		0°	48°	0°	43°	0°	0°	0°	0°	0°	0°	0°
5/8"	1	2300	2100	2200	2100							
	2	3950	3200	3700	3500	3000						
	3	5600	4300	5000	4750	4550	3400	4650	5925			
	5	7350	6100	7550	6500	6100	4900	6650	10265			
	10	14200	11800	14400	12000	11950	7200	10900	16750	3200	4800	14385
	15	20400	17400	20000	17000	16000	11300	14000	21360	4850	7100	20345
	25		28850	34300	29100	27450	14400	22000	28785	7200	11100	28785
	60		40000		40000	40000	34000	40000	54160	16800	24600	54160
75		40000		40000	40000	40000	40000	65035	19800	32000	65035	
Loading Ring Setting		0°	48°	0°	45°	0°	0°	0°	0°	0°	0°	0°
1/2"	1	1650	1550	1500	1450							
	2	2500	2300	2650	2250	2450						
	3	3500	3000	3750	3500	3600	2800	3800	4495			
	5	5450	4400	6000	4650	5100	4450	5700	7785			
	10	10500	6850	8900	7450	7550	6050	8200	12705	2850	4100	10910
	15	13800	8500	12100	11100	11100	7800	11100	16205	3800	5300	15435
	25	21000	16600	19700	17600	17400	13000	17300	21835	5800	8800	21835
	60		36600		38800	38400	28000	33000	41085	12100	18800	41085
75		40000		40000	40000	35000	40000	49335	17500	24400	49335	
Loading Ring Setting		0°		0°		0°	0°	0°	0°	0°	0°	0°
3/8"	1	1400		1400								
	2	2150		2150		1850						
	3	2800		2700		2450	1700	2050	2800			
	5	3700		3650		3450	2600	3200	4250			
	10	5900		5800		5050	3900	5200	6930	2200	3000	5950
	15	7450	N.C.	7300	N.C.	6650	5200	6650	8840	3000	4100	8420
	25	10900		10500		9500	8600	10750	11910	4300	6100	11910
	60	21400		21400		19000	19200	20600	22410	8000	12600	22410
	75	26000		26000		25400	24800	26200	26910	10800	17100	26910
	100	30000		30000		29800	26400	28500	34410	12000	19000	34410
125	35000		35000		34700	31200	34600	41910	15700	23000	41910	

N.C. — No change needed in loading ring setting
K factors are wide open

B-838 CAPACITY TABLE 2" x 4"

Outlet Pressure		7" W.C.	7" W.C.	11" W.C.	11" W.C.	1 PSIG	2 PSIG	2 PSIG	2 PSIG	5 PSIG	5 PSIG	5 PSIG
Pressure Drop		1" W.C.	1" W.C.	2" W.C.	2" W.C.	0.2 PSIG	1% ABS	2% ABS	WO	1% ABS	2% ABS	WO
Loading Ring Setting			30°	0°	32°	0°	0°	0°	0°	0°	0°	0°
Orifice Size	Inlet Press. PSIG	Flow Rate, scfh of .60 Sp. Gr. Gas @ 14.7 psia & 60°F										
1 1/4"	1		6000	6000	5500							
	2		10300	10900	9500	8850						
	3		14800	14100	13000	13300	5750	8400	14300			
	5	N.C.	21000	20000	17500	19000	9550	13600	24775			
	10		34000		31000	32600	16400	23350	40425	5600	10000	34720
	15		45600		42000	44000	23450	35150	51555	7500	13500	49105
	25		58000		54000	56000	47000	58500	69475	13400	23500	69475
	40		75000		74000	74000	69700	74000	95725	19000	28200	95725
Loading Ring Setting		0°	40°	0°	46°	0°	0°	0°	0°	0°	0°	0°
1"	1	5100	5550	5450	4500							
	2	8350	8150	8250	7500	6850						
	3	11500	11400	11000	10050	9900	5350	7150	12260			
	5	17600	17400	15600	14300	14200	7450	11150	21235			
	10	31200	31000	30900	28400	28200	13250	19450	34650	5050	7850	29760
	15		44000	43900	40300	40000	18000	27500	44190	6800	10400	42090
	25		52000		51600	51300	34000	45000	59550	11850	18950	59550
	60		80000		80000	80000	75000	80000	112050	29000	48000	112050
Loading Ring Setting		0°	40°	0°	46°	0°	0°	0°	0°	0°	0°	0°
3/4"	1	4050	3950	3950	3500							
	2	6000	5700	5800	5650	5100						
	3	8000	7950	7900	7600	6900	4300	6300	8580			
	5	14200	12100	14000	12000	11800	6200	8650	14865			
	10	19500	18800	21600	19000	19200	10100	14400	24255	3800	6200	20835
	15		27600		27600	27600	13900	20850	30935	5450	8750	29465
	25		39400		39400	39400	25150	33700	41685	8650	14200	41685
	60		65000		65000	65000	62000	67000	78435	21900	39000	78435
Loading Ring Setting		0°	40°	0°	46°	0°	0°	0°	0°	0°	0°	0°
5/8"	1	3000	2900		3300							
	2	4900	4300		5400	3600						
	3	6350	6100		6700	5700	3650	5050	6730			
	5	9750	9100		10700	7700	5300	7200	10795			
	10	15800	15500	N.C.	17600	14600	7800	11800	17615	3300	4950	15130
	15	22000	18100		22750	19400	12000	14900	22465	5000	7300	21395
	25	30200	29000		30200	30200	14900	23800	30270	7400	11450	30270
	75		44100		46500	46500	37000	51500	56960	17300	28300	56960
Loading Ring Setting		0°	46°	0°	46°	0°	0°	0°	0°	0°	0°	0°
1/2"	1	2250	2100	2100	2050							
	2	3500	3550	3500	3400	3000						
	3	4900	4550	4500	4500	4150	2900	3900	4905			
	5	7000	6350	6400	6200	6100	4700	6000	8495			
	10	11350	10700	10400	10150	9900	6650	9050	13860	2950	4250	11905
	15	14000	13900	13500	13300	12900	8750	12500	17675	3600	5450	16835
	25		21500	21000	20800	19400	14750	19600	23820	6000	9100	23820
	75		43500		41400	39500	34800	43500	44820	12500	19400	44820
Loading Ring Setting		0°		0°		0°	0°	0°	0°	0°	0°	0°
3/8"	1	1400		1400								
	2	2200		2250		2000						
	3	2800		2800		2650	1700	2050	2800			
	5	3950		4050		3800	2600	3200	4250			
	10	6350		6350		6000	3900	5200	6930	2200	3000	5950
	15	8150	N.C.	8150	N.C.	7750	5200	6650	8840	3000	4100	8420
	25	11100		11100		10600	8600	10750	11910	4300	6100	11910
	100	30000		30000		29800	28000	28700	34410	12000	19000	34410
Loading Ring Setting		0°		0°		0°	0°	0°	0°	0°	0°	0°
3/8"	125	35000		35000		34700	34000	35100	41910	15700	23000	41910

N.C. — No change needed in loading ring setting
K factors are wide open

B-838 MONITOR SPECIFICATIONS 2" x 2"

ORIFICE SIZE	INLET PRESS. PSIG	CAPACITY, SCFH DROP IN PRESSURE ACROSS ORIFICE, PSIG									
		0.1	0.2	0.3	0.4	0.5	1.0	2.0	3.0	5.0	
1 1/4"	1	3650	5100	6250	7200	8050					
	2	3750	5300	6450	7450	8300	11500				
	3	3850	5450	6650	7650	8550	11900	16300			
	5	4050	5750	7000	8100	9050	12600	17400	20700		
	8	4350	6200	7550	8700	9700	13600	18800	22400	27500	
	10	4550	6450	7900	9100	10100	14200	19700	23500	29000	
	15	5000	7100	8650	10000	11100	15600	21700	26100	32500	
	25	5800	8200	10000	11500	12900	18100	25300	30600	38500	
	35	6500	9200	11200	12900	14500	20400	28500	34600	43700	
	50	7400	10500	12800	14800	16500	23300	32700	39700	50500	
	75	8750	12300	15100	17400	19500	27500	38700	47100	60100	
100	9900	13900	17100	19700	22000	31100	43900	53500	68500		
1"	1	2850	4000	4900	5650	6300					
	2	2950	4150	5050	5800	6500	9050				
	3	3000	4250	5200	6000	6700	9350	12800			
	5	3200	4500	5500	6350	7050	9900	13600	16200		
	8	3400	4850	5900	6800	7600	10600	14700	17600	21500	
	10	3550	5050	6150	7100	7950	11100	15400	18400	22700	
	15	3900	5550	6800	7800	8750	12200	17000	20400	25400	
	25	4550	6400	7850	9050	10100	14200	19800	24000	30100	
	35	5100	7200	8800	10100	11300	15900	22300	27100	34200	
	50	5800	8200	10000	11600	12900	18200	25600	31100	39500	
	75	6850	9650	11800	13600	15200	21500	30300	36900	47100	
100	7750	10900	13400	15400	17300	24400	34300	41900	53600		
3/4"	1	2050	2875	3500	4050	4500					
	2	2100	2975	3600	4150	4650	6450				
	3	2150	3050	3700	4300	4800	6700	9150			
	5	2275	3200	3950	4550	5050	7050	9750	11600		
	8	2450	3450	4250	4850	5450	7600	10500	12600	15400	
	10	2550	3600	4400	5100	5700	7950	11000	13200	16200	
	15	2800	3950	4850	5600	6250	8750	12200	14600	18200	
	25	3250	4600	5600	6500	7250	10200	14200	17200	21600	
	35	3650	5150	6300	7250	8100	11400	16000	19400	24500	
	50	4150	5850	7200	8300	9250	13000	18300	22300	28300	
	75	4900	6900	8450	9800	10900	15400	21700	26400	33700	
100	5550	7800	9600	11000	12300	17400	24600	30000	38400		

B-838 MONITOR SPECIFICATIONS 2" x 3"

ORIFICE SIZE	INLET PRESS. PSIG	CAPACITY, SCFH DROP IN PRESSURE ACROSS ORIFICE, PSIG									
		0.1	0.2	0.3	0.4	0.5	1.0	2.0	3.0	5.0	
1 1/4"	1	4200	5950	7300	8400	9350					
	2	4350	6150	7500	8650	9650	13400				
	3	4500	6350	7750	8900	9950	13800	19000			
	5	4750	6700	8200	9400	10500	14700	20200	24000		
	8	5100	7200	8800	10100	11300	15800	21800	26100	31900	
	10	5300	7500	9150	10600	11800	16500	22900	27400	33700	
	15	5850	8250	10000	11600	12900	18200	25300	30400	37700	
	25	6750	9550	11600	13400	15000	21100	29500	35600	44700	
	35	7550	10600	13000	15000	16800	23700	33200	40200	50800	
	50	8600	12200	14900	17200	19200	27100	38000	46200	58700	
	75	10100	14300	17600	20300	22700	32000	45000	54800	69900	
100	11500	16200	19900	22900	25600	36200	51000	62200	79600		
1"	1	3600	5100	6200	7150	7950					
	2	3700	5250	6400	7400	8250	11400				
	3	3800	5400	6600	7600	8500	11800	16200			
	5	4050	5700	6950	8050	8950	12500	17200	20500		
	8	4350	6150	7500	8650	9650	13500	18600	22200	27200	
	10	4500	6400	7800	9000	10000	14100	19500	23300	28700	
	15	4950	7000	8600	9900	11000	15500	21500	25900	32200	
	25	5750	8150	9950	11400	12800	18000	25100	30400	38100	
	35	6450	9100	11100	12800	14300	20200	28300	34300	43300	
	50	7350	10400	12700	14700	16400	23100	32400	39400	50100	
	75	8650	12200	15000	17300	19300	27300	38400	46700	59600	
100	9800	13800	16900	19600	21900	30900	43500	53000	67900		
3/4"	1	2475	3500	4250	4900	5500					
	2	2575	3600	4400	5100	5650	7900				
	3	2650	3700	4550	5250	5850	8150	11200			
	5	2800	3900	4800	5550	6150	8600	11800	14100		
	8	3000	4200	5150	5950	6650	9300	12800	15300	18800	
	10	3100	4400	5400	6200	6950	9700	13400	16100	19800	
	15	3400	4850	5900	6800	7600	10700	14800	17800	22200	
	25	3950	5600	6850	7900	8850	12400	17300	20900	26300	
	35	4450	6250	7650	8850	9900	13900	19500	23600	29800	
	50	5050	7150	8750	10100	11300	15900	22300	27200	34500	
	75	5950	8450	10300	11900	13300	18800	26400	32200	41100	
100	6750	9550	11700	13500	15100	21300	30000	36600	46800		

B-838 MONITOR SPECIFICATIONS 2" x 4"

ORIFICE SIZE	INLET PRESS. PSIG	CAPACITY, SCFH DROP IN PRESSURE ACROSS ORIFICE, PSIG									
		0.1	0.2	0.3	0.4	0.5	1.0	2.0	3.0	5.0	
1 1/4" K = 3500	1	4350	6150	7500	8650	9600					
	2	4500	6300	7750	8900	9900	13800				
	3	4600	6500	7950	9200	10200	14300	19600			
	5	4850	6900	8400	9700	10800	15100	20800	24700		
	8	5200	7400	9000	10400	11600	16300	22400	26800	32800	
	10	5450	7700	9400	10900	12100	17000	23500	28100	34600	
	15	6000	8450	10300	11900	13300	18700	26000	31200	38800	
	25	6950	9800	12000	13800	15400	21700	30300	36600	45900	
	35	7750	11000	13400	15500	17300	24400	34100	41300	52200	
	50	8850	12500	15300	17700	19800	27900	39100	47500	60300	
	75	10400	14700	18100	20900	23300	32900	46300	56300	71900	
	100	11800	16700	20500	23600	26400	37300	52500	63900	81800	
1" K = 3000	1	3700	5250	6400	7400	8250					
	2	3850	5400	6600	7600	8500	11800				
	3	3950	5600	6800	7850	8750	12200	16800			
	5	4150	5900	7200	8300	9250	12900	17800	21200		
	8	4500	6350	7750	8900	9950	13900	19250	23000	28100	
	10	4650	6600	8100	9300	10400	14600	20200	24100	29700	
	15	5150	7250	8900	10200	11400	16000	22300	26800	33200	
	25	5950	8400	10300	11800	13200	18600	26000	31400	39400	
	35	6650	9400	11500	13300	14800	20900	29200	35400	44800	
	50	7600	10700	13100	15200	16900	23900	33500	40700	51700	
	75	8950	12600	15500	17900	20000	28200	39700	48300	61600	
	100	10100	14300	17500	20200	22600	31900	45000	54800	70200	
3/4" K = 2100	1	2600	3650	4500	5150	5750					
	2	2700	3800	4650	5350	5950	8300				
	3	2750	3900	4750	5500	6150	8550	11700			
	5	2900	4100	5050	5800	6500	9050	12400	14800		
	8	3150	4450	5400	6250	6950	9750	13500	16100	19700	
	10	3250	4600	5650	6500	7300	10200	14100	16900	20800	
	15	3600	5050	6200	7150	8000	11200	15600	18700	23300	
	25	4150	5900	7200	8300	9250	13000	18200	22000	27600	
	35	4650	6600	8050	9300	10400	14600	20500	24800	31300	
	50	5300	7500	9200	10600	11800	16700	23500	28500	36200	
	75	6250	8850	10800	12500	14000	19700	27600	33800	43100	
	100	7100	10000	12300	14100	15800	22300	31400	38400	49100	

WARRANTY

Schlumberger Gas, 970 Highway 127 North, Owenton, Kentucky 40359-9302, warrants this gas product against defects in materials and workmanship for a period of one year from the date the product is installed by Schlumberger at the original purchaser's site. During such one-year period, provided that the original purchaser continues to own the product, Schlumberger will, at its sole option, repair any defects, replace the product or repay the purchase price.

This Warranty will be void if the purchaser fails to observe the procedures for installation, operation or service of the product as set forth in the Operating Manual and Specifications for the product or if the defect is caused by tampering, physical abuse or misuse of the product.

SCHLUMBERGER SPECIFICALLY DISCLAIMS ALL IMPLIED WARRANTIES INCLUDING THOSE OF MERCHANTABILITY OR OF FITNESS FOR A PARTICULAR PURPOSE. UNDER NO CIRCUMSTANCES WILL SCHLUMBERGER BE LIABLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES OF ANY KIND WHATSOEVER.

In the event of a malfunction of the product, consult your Schlumberger Service Representative or Schlumberger Gas, 970 Highway 127 North, Owenton, Kentucky 40359-9302.

Schlumberger Gas

Gas Division, 970 Highway 127 North, Owenton, Kentucky 40359-9302
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