B34 Series Regulator

Commercial & Industrial Regulator

- ▶ **Economical**
- ▶ **Light weight**
- ▶ **Protects equipment from shock damage**
- ▶ **Large 12" diaphragm for better outlet pressure control**
- ▶ **Unmatched overpressure protection with Internal Monitor plus Internal Relief (IMR) option**

Features

- Interchangeable brass orifice
- 78 in^2 of diaphragm area
- Spring-loaded internal relief valve assembly
- Field interchangeable adjustment spring
- Controlled size breather orifice eliminates pulsation and provides normal action at low flows
- Wide range of valve body sizes including NPT and Flange connections

Applications

Appropriate for many commercial and industrial uses such as gas engines, burners, furnaces, and boilers. The rapid response of the B34 is particularly well-suited for mid-range applications where quick on/off loads cause shock problems.

Description

▶ B34N

The B34N is a spring loaded self-operated regulator with no internal relief, an adjustable loading ring for controlled boost at higher flows, and a precision breather opening to ensure proper stability for all conditions. This regulator can be used on low or intermediate inlet pressures where an internal relief, or other type of over-pressure protection device is not required.

▶ B34R

The B34R is the internal relief version of the B34 Series. This model features an adjustable loading ring for controlled boost at higher flows, a precission breather opening to ensure proper stability for all conditions, and a 1" internal relief valve.

▶ B34DN

The B34DN is a standard B34N with a closed throat, downstream control tap on the bottom of the lower diaphragm case, and no internal relief capabilities. This unit is used when it is desirable to control the regulator from points other than the valve outlet. Since the control point is no longer at the outlet of the valve body the regulator does not boost, but all of the capacity tables are the same as the R and N models.

▶ B34DR

The B34DR is the same as the B34DN, except it has internal relief similar to the B34R.

▶ B34MN

The B34MN is very similar to the B34DN with a closed throat, downstream control line, and no internal relief capabilities, except for an O-ring seal on the valve body stem through the throat to assure positive downstream control when installed ahead of a downstream regulator. Used in a series monitoring installation as the upstream regulator, this unit gives customers an operating device that assumes control over an operating regulator when failure is sensed by the control line of the monitor. This series system assures maximum safety with uninterruped service. The monitor regulator is set to take over control form the operating regulator with only a slight increase in outlet pressure.

▶ B34MR

The B34MR is the same as the B34MN, except it has internal relief similar to the B34R.

Correction factors for non-natural gas applications:

The B34 may be used to control gases other than natural gas.
To determine the capacity of the B34 for gases other than natural gas, it will be necessary to multiply the values within the capacity tables by a correction factor.

The table below lists the correction factors for some of the more common gases:

Gas Type	Specific Gravity	Correction Factor (CF)
Air	1.00	0.77
Butane	2.01	0.55
Carbon Dioxide (Dry)	1.52	0.63
Carbon Monoxide (Dry)	0.97	0.79
Natural Gas	0.60	1.00
Nitrogen	0.97	0.79
Propane	1.53	0.63
Propane-Air-Mix	1.20	0.71

To calculate the correction factor for gases not listed on the table above, it will be necessary to know the specific gravity of the gas and use it in the formula listed below:

$$\text{Correction Factor (CF)} = \sqrt{\frac{SG_1}{SG_2}}$$

Where:

SG_1 = Specific Gravity of the gas in which the capacity is published.

SG_2 = Specific Gravity of the gas to be controlled.

Construction

Actaris takes pride in delivering American made products with the utmost concern for safety, quality and customer satisfaction.

Material Construction:

Valve Body:	High tensile strength cast iron
Orifice:	Brass
Valve Seat:	Buna-N or silicone (for temperatures below -20F)
Valve Stem:	Plated Steel
Lever Pin:	Stainless steel
Lever:	Zinc and dichromate plated steel
Stem Guide:	Stainless steel
Upper Diaphragm Plate:	Zinc and dichromate plated steel
Lower Diaphragm Plate:	Die Cast Aluminum
Diaphragm:	Buna-N and nylon
Vent Valve/Seat:	Delrin/Buna-N
Vent Screen:	Stainless Steel
Adjustment Ferrule:	Die cast aluminum
Seal Cap:	Die cast aluminum
Diaphragm Case:	Die cast aluminum

Shipping Weight:

1 per box:	24 lbs.

► Option Designations

N	No Internal Relief
R	Internal Relief
DN	Downstream Control with no Internal Relief
DR	Downstream Control with Internal Relief
MN	Monitor with no Internal Relief
MR	Monitor with Internal Relief
IMR	Internal Monitor with Internal Relief*
IMN	Internal Monitor with no Internal Relief*
IMRV	Internal Monitor with Internal Relief and Vent*

*Consult Product Bulletin or your Actaris Sales Representative for Internal Monitor Performance Data

Specifications – B34 N, R, M & D Models

	Spring Color	Outlet Pressure Range		
Standard Spring Data – B34	Orange	3.0" w.c.	–	5.0" w.c.
	Brown	4.0" w.c.	–	6.5" w.c
	Green	5.0" w.c.	–	8.0" w.c.
	Black	6.5" w.c.	–	13.0" w.c.
	Purple	9.1" w.c.	–	20.8" w.c.
	Blue	15.0" w.c.	–	28.0" w.c.
	Silver	1.0 PSIG	–	2 PSIG
	Yellow	2.0 PSIG	–	4.5 PSIG
	Red–Nested	4.0 PSIG	–	5.5 PSIG
	White–Nested	4.8 PSIG	–	7.3 PSIG

Orifice Data – Wide Open Flow Coefficients and Maximum Pressure Data

Orifice Size	K-Factor Wide Open	Maximum Operating Inlet			Maximum Emergency Inlet Pressure	Maximum Emergency Outlet Pressure
		in. w.c. Delivery N & R Models	in. w.c. Delivery D & M Models	PSIG Delivery All Models	All Deliveries All Models	All Deliveries All Models
1/4"	125	125 PSIG	175 PSIG	175 PSIG	300 PSIG	60 PSIG
1/4"x3/8"	125	125 PSIG	125 PSIG	175 PSIG	300 PSIG	60 PSIG
3/8"	290	125 PSIG	125 PSIG	175 PSIG	300 PSIG	60 PSIG
3/8"x1/2"	305	125 PSIG	125 PSIG	150 PSIG	300 PSIG	60 PSIG
1/2"	500	75 PSIG	125 PSIG	150 PSIG	300 PSIG	60 PSIG
1/2"x5/8"	550	60 PSIG	125 PSIG	150 PSIG	300 PSIG	60 PSIG
5/8"	700	60 PSIG	125 PSIG	150 PSIG	300 PSIG	60 PSIG
5/8"x3/4"	750	60 PSIG	100 PSIG	150 PSIG	300 PSIG	60 PSIG
3/4"	900	60 PSIG	100 PSIG	150 PSIG	300 PSIG	60 PSIG
3/4"x7/8"	950	60 PSIG	100 PSIG	150 PSIG	230 PSIG	60 PSIG
7/8"	1200	60 PSIG	100 PSIG	150 PSIG	230 PSIG	60 PSIG
7/8"x1"	1245	25 PSIG	100 PSIG	150 PSIG	230 PSIG	60 PSIG

Valve Body Type	Dimensions								
	A	B	C	D	E	F	G	H	R
1–1/4" ,1–1/2", or 2" NPT	5–3/4"	2–7/8"	8–11/16"	12–3/4"	4–5/16"	10"	2–3/16"	4–1/2"	2–1/4"
2" Flanged	10	5	8–11/16"	12–3/4"	4–5/16"	10"	2–3/16"	5–1/2"	3–1/4"
3" Flanged	10	5	8–11/16"	12–3/4"	4–5/16"	10"	2–3/16"	5–1/2"	3–1/4"

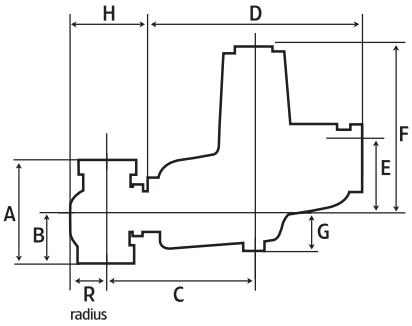
Wide–Open Flow Calculations

For wide–open orifice flow calculations use the following equations:

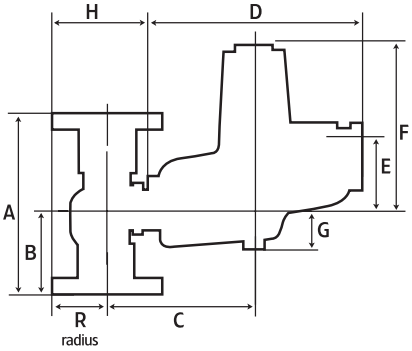
For $P_1/P_2<1.89$ use: $Q = K\sqrt{P_2 (P_1 - P_2)}$ For $P_1/P_2>1.89$ use: $Q = \frac{KP_1}{2}$

Where: P_1 = absolute inlet pressure (psia) P_2 = absolute outlet pressure (psia)
Q = flow rate (scfh) K = orifice coefficient (scfh/psi)

▶ **Screwed Valve Body**



▶ **Flanged Valve Body**



Available Vent Sizes: 1"
(Silicone valve seats available for applications below –20F)

Loading Ring Position:
M & D Models – 0°;
R & N Models for <1 PSIG set point – 21 degrees; >1 PSIG set point – 0°

▶ **Valve Body Sizes**

Inlet	Outlet	Screwed	Flanged
1–1/4"	1–1/4"	X	--
1–1/4"	1–1/2"	X	--
1–1/4"	2"	X	--
1–1/2"	1–1/2"	X	--
1–1/2"	2"	X	--
2"	2"	X	X
3"	3"	--	X

x – indicates that the valve body is available in that configuration.

B34 Commercial & Industrial Regulator – Models N, R, M, & D

7" w.c. (17.5 mbar) – Capacity Table (1" w.c. Droop)*

Capacities in scfh (m^3/hr) – Orifice Size

Inlet Pressure PSIG	(Bar)	1/4" (6.35 mm)	1/4" x 3/8" (6.35 x 9.52 mm)	3/8" (9.52 mm)	3/8" x 1/2" (9.52 x 12.7 mm)	1/2" (12.7 mm)	1/2" x 5/8" (12.7 x 15.9 mm)
8"w.c.	(20 mbar)					325 (9.10)	400 (11.20)
10"w.c.	(25 mbar)			325 (9.10)	435 (12.18)	500 (14.00)	650 (18.20)
12"w.c.	(30 mbar)		250 (7.00)	400 (11.20)	540 (15.12)	625 (17.50)	800 (22.40)
14"w.c.	(35 mbar)	225 (6.30)	300 (8.40)	475 (13.30)	610 (17.08)	750 (21.00)	900 (25.20)
16"w.c.	(40 mbar)	250 (7.00)	350 (9.80)	550 (15.40)	700 (19.60)	800 (22.40)	1050 (29.40)
18"w.c.	(45 mbar)	275 (7.70)	375 (10.50)	600 (16.80)	740 (20.72)	900 (25.20)	1150 (32.20)
21"w.c.	(52 mbar)	300 (8.40)	400 (11.20)	700 (19.60)	800 (22.40)	1050 (29.40)	1350 (37.80)
24"w.c.	(60 mbar)	350 (9.80)	400 (11.20)	800 (22.40)	890 (24.92)	1200 (33.60)	1450 (40.60)
1	(69 mbar)	400 (11.20)	400 (11.20)	875 (24.50)	1000 (28.00)	1300 (36.40)	1500 (42.00)
2	(0.138)	575 (16.10)	575 (16.10)	1300 (36.40)	1500 (42.00)	1900 (53.20)	2000 (56.00)
3	(0.207)	775 (21.70)	800 (22.40)	1700 (47.60)	2000 (56.00)	2000 (56.00)	2700 (75.60)
5	(0.345)	1000 (28.00)	1100 (30.80)	2000 (56.00)	2400 (67.20)	2400 (67.20)	4000 (112.00)
10	(0.69)	1500 (42.50)	1700 (47.60)	3400 (95.20)	3500 (98.00)	3500 (98.00)	5700 (159.60)
20	(1.38)	2150 (60.20)	2300 (64.40)	5000 (140.00)	5000 (140.00)	8500 (238.00)	8500 (238.00)
30	(2.07)	2750 (77.00)	2900 (81.20)	6500 (182.00)	6500 (182.00)	10000 (280.00)	10000 (280.00)
40	(2.76)	3450 (96.60)	3550 (99.40)	8000 (224.00)	8000 (224.00)	10000 (280.00)	10000 (280.00)
50	(3.45)	3800 (106.40)	4100 (114.80)	9200 (257.60)	9200 (257.60)	10000 (280.00)	10000 (280.00)
60	(4.14)	4500 (127.00)	5000 (140.00)	9500 (266.00)	10000 (280.00)	10000 (280.00)	10000 (280.00)
70	(4.83)	4700 (131.60)	5100 (142.80)	10000 (280.00)	10000 (280.00)	10000 (280.00)	
80	(5.52)	4900 (137.20)	6000 (169.90)	10000 (280.00)			
90	(6.21)	6800 (190.40)	7000 (196.00)	10000 (280.00)			
100	(6.90)	7400 (207.20)	7800 (218.40)	10000 (280.00)			
125	(8.63)	8800 (246.40)	9000 (252.00)	10000			

Change in outlet for a 10 PSIG (0.69 Bar) inlet change	0.3" w.c. (0.8 mbar)	0.3" w.c. (0.8 mbar)	0.3" w.c. (0.8 mbar)	0.3" w.c. (0.8 mbar)	0.3" w.c. (0.8 mbar)	0.3" w.c. (0.8 mbar)
Increase in outlet pressure required for no flow	0.3" w.c. (0.8 mbar)	0.3" w.c. (0.8 mbar)	0.3" w.c. (0.8 mbar)	0.5" w.c. (1.3 mbar)	0.5" w.c. (1.3 mbar)	0.6" w.c. (1.5 mbar)

Inlet pressure is too low to deliver 7" w.c. (17.5 mbar)

Do not use this orifice size at this inlet pressure

*Individual regulator performance may vary from data shown.

B34 Commercial & Industrial Regulator – Models N, R, M, & D

7" w.c. (17.5 mbar) – Capacity Table (1" w.c. Droop) – Continued*

Capacities in scfh (m^3/hr) – Orifice Size

Inlet Pressure PSIG	(Bar)	5/8" (15.9mm)	5/8" x 3/4" (15.9 x 19.1 mm)	3/4" (19.1 mm)	3/4" x 7/8" (19.1 x 22.2 mm)	7/8" (22.2 mm)	7/8" x 1" (22.2 x 25.4 mm)
8"w.c.	(20 mbar)	500 (14.00)	635 (17.78)	675 (18.90)	725 (20.30)	850 (23.80)	900 (25.20)
10"w.c.	(25 mbar)	750 (21.00)	850 (23.80)	900 (25.20)	1050 (29.40)	1150 (32.20)	1225 (34.30)
12"w.c.	(30 mbar)	950 (26.60)	1050 (29.40)	1100 (30.80)	1250 (35.00)	1425 (39.90)	1550 (43.40)
14"w.c.	(35 mbar)	1175 (32.90)	1200 (33.60)	1250 (35.00)	1525 (42.70)	1700 (47.60)	1900 (53.20)
16"w.c.	(40 mbar)	1175 (32.90)	1350 (37.80)	1550 (43.40)	1700 (47.60)	1950 (54.60)	2050 (57.40)
18"w.c.	(45 mbar)	1275 (35.70)	1575 (44.10)	1750 (49.00)	1825 (51.10)	2050 (57.40)	2350 (65.80)
21"w.c.	(52 mbar)	1500 (42.50)	1750 (49.00)	1800 (50.40)	2100 (58.80)	2350 (65.80)	2700 (75.60)
24"w.c.	(60 mbar)	1700 (47.60)	1950 (54.60)	2100 (58.80)	2250 (63.00)	2700 (75.60)	3000 (84.00)
1	(69 mbar)	2200 (61.60)	2200 (61.60)	2300 (64.40)	2400 (67.20)	2700 (75.60)	3200 (89.60)
2	(0.138)	3000 (84.00)	3300 (92.40)	3700 (103.60)	4000 (112.00)	4500 (126.00)	4700 (131.60)
3	(0.207)	4000 (112.00)	4200 (117.60)	4400 (123.20)	4600 (128.80)	5200 (145.60)	6000 (168.00)
5	(0.345)	5100 (142.80)	5700 (159.60)	6800 (190.40)	7000 (196.00)	7500 (210.00)	8000 (224.00)
10	(0.69)	8500 (238.00)	9000 (252.00)	10000 (280.00)	10000 (280.00)	10000 (280.00)	10000 (280.00)
20	(1.38)	10000 (280.00)	10000 (280.00)	10000 (280.00)	10000 (280.00)	10000 (280.00)	10000 (280.00)
30	(2.07)	10000 (280.00)	10000 (280.00)	10000 (280.00)	10000 (280.00)	10000 (280.00)	
40	(2.76)	10000 (280.00)	10000 (280.00)	10000 (280.00)	10000 (280.00)	10000 (280.00)	
50	(3.45)	10000 (280.00)	10000 (280.00)	10000 (280.00)	10000 (280.00)	10000 (280.00)	
60	(4.14)	10000 (280.00)	10000 (280.00)	10000 (280.00)	10000 (280.00)		
70	(4.83)						
80	(5.52)						
90	(6.21)						
100	(6.90)						
125	(8.63)						

Change in outlet for a 10 PSIG (0.69 Bar) inlet change	0.4" w.c. (1.0 mbar)	0.5" w.c. (1.3 mbar)	0.5" w.c. (1.3 mbar)	0.5" w.c. (1.3 mbar)	0.6" w.c. (1.5 mbar)	0.6" w.c. (1.5 mbar)
Increase in outlet pressure required for no flow	1.0" w.c. (2.5 mbar)	1.0" w.c. (2.5 mbar)	1.1" w.c. (2.8 mbar)	1.1" w.c. (2.8 mbar)	1.1" w.c. (2.8 mbar)	1.1" w.c. (2.8 mbar)

Do not use this orifice size at this inlet pressure

B34 Commercial & Industrial Regulator – Models N, R, M, & D

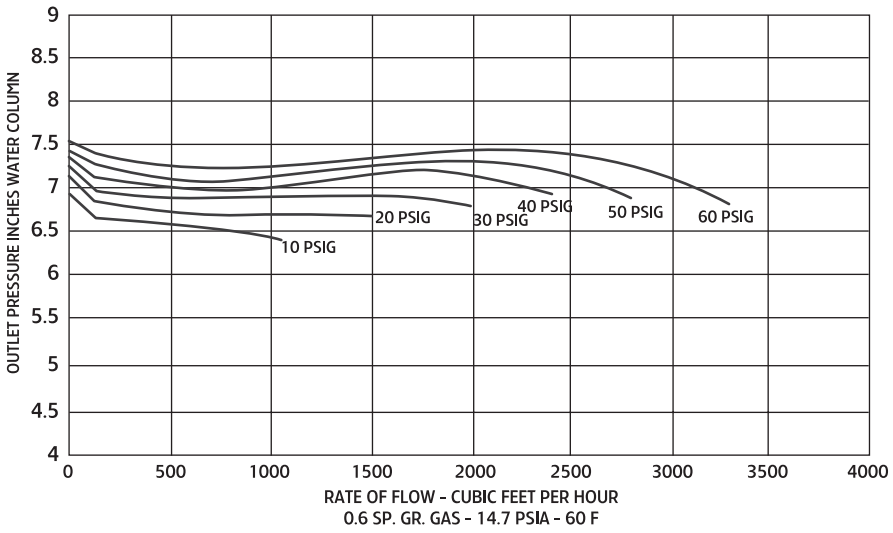
7" w.c. (17.5 mbar)

Typical Performance Curves

Manufacturer:		Actaris
Type and Model:		B34R
Regulator:	Inlet Size	2" NPT
	Outlet Size	2" NPT
	Orifice Size	1/4" x 3/8"
	Spring	Green

Set Point 7.0" w.c. with 40 PSIG inlet @ 200 scfh. All test results are reported at a base of 14.7 PSIA and 60 F.

B34 REGULATOR PERFORMANCE – 7" w.c. SET POINT

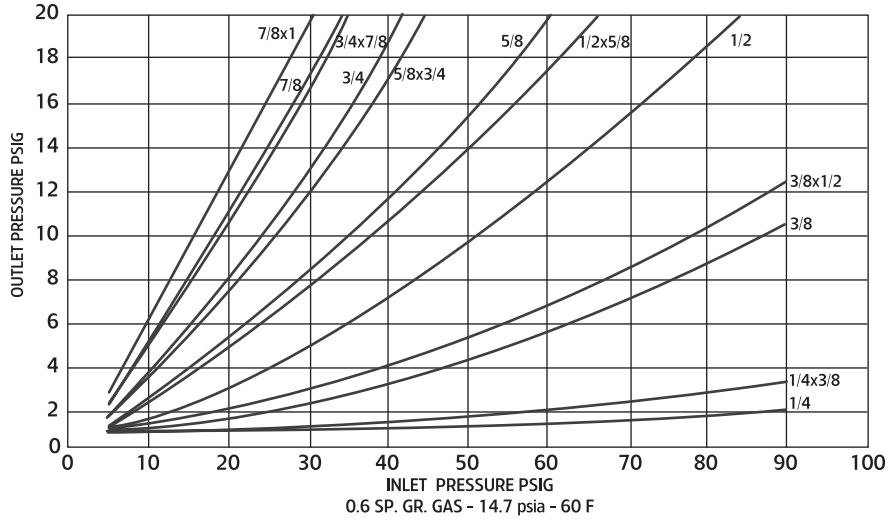


Relief Curves

Manufacturer:		Actaris
Type and Model:		B34R
Regulator:	Inlet Size	2" NPT
	Outlet Size	2" NPT
	Vent Size	1" NPT

Set Point 7.0" w.c. with 40 PSIG inlet @ 200 scfh. All test results are reported at a base of 14.7 PSIA and 60 F.

B34R RELIEF CURVES-BLOCKED OPEN – 7" w.c. SET POINT



B34 Commercial & Industrial Regulator – Models N, R, M, & D

14" w.c. (35 mbar) – Capacity Table (2" w.c. Droop)*

Capacities in scfh (m^3/hr) – Orifice Size

Inlet Pressure PSIG	(Bar)	1/4" (6.35 mm)		1/4" x 3/8" (6.35 x 9.52 mm)		3/8" (9.52 mm)		3/8" x 1/2" (9.52 x 12.7 mm)		1/2" (12.7 mm)		1/2" x 5/8" (12.7 x 15.9 mm)	
16"w.c.	(40 mbar)					350	(9.80)	400	(11.20)	450	(12.60)	500	(14.00)
18"w.c.	(45 mbar)			250	(7.00)	400	(11.20)	520	(14.56)	600	(16.80)	700	(19.60)
21"w.c.	(52 mbar)	220	(6.16)	300	(8.40)	500	(14.00)	600	(16.80)	750	(21.00)	850	(23.80)
24"w.c.	(60 mbar)	260	(7.28)	370	(10.36)	550	(15.40)	750	(21.00)	800	(22.40)	1100	(30.80)
1	(69 mbar)	300	(8.40)	430	(12.04)	700	(19.60)	800	(22.40)	900	(25.20)	1200	(33.60)
2	(0.138)	550	(15.40)	600	(16.80)	1200	(33.60)	1400	(39.20)	1700	(47.60)	1900	(53.20)
3	(0.207)	700	(19.60)	750	(21.00)	1600	(44.80)	2200	(61.60)	2400	(67.20)	3000	(84.00)
5	(0.345)	900	(25.20)	1000	(28.00)	2000	(56.00)	2300	(64.40)	2500	(70.00)	4000	(112.00)
10	(0.69)	1300	(36.40)	1500	(42.00)	3000	(84.00)	3200	(89.60)	4700	(131.60)	6000	(168.00)
20	(1.38)	2100	(58.80)	2300	(64.40)	4800	(134.40)	5000	(140.00)	8300	(232.40)	8500	(238.00)
30	(2.07)	2700	(75.60)	2800	(78.40)	6700	(187.60)	6900	(193.20)	10000	(280.00)	10000	(280.00)
40	(2.76)	3400	(95.20)	3600	(100.80)	7600	(212.80)	7800	(218.40)	10000	(280.00)	10000	(280.00)
50	(3.45)	3900	(109.20)	4200	(117.60)	8700	(243.60)	9000	(252.00)	10000	(280.00)	10000	(280.00)
60	(4.14)	4500	(126.00)	4700	(131.60)	10000	(280.00)	10000	(280.00)	10000	(280.00)	10000	(280.00)
70	(4.83)	4900	(137.20)	5100	(142.80)	10000	(280.00)	10000	(280.00)	10000	(280.00)	10000	(280.00)
80	(5.52)	5400	(151.20)	5600	(156.80)	10000	(280.00)	10000	(280.00)				
90	(6.21)	6500	(182.00)	6700	(187.60)	10000	(280.00)	10000	(280.00)				
100	(6.90)	7000	(196.00)	7500	(210.00)								
125	(8.63)	8500	(238.00)	9000	(252.00)								

Change in outlet for a 10 PSIG (0.69 Bar) inlet change	0.3" w.c. (0.8 mbar)	0.3" w.c. (0.8 mbar)	0.3" w.c. (0.8 mbar)	0.4" w.c. (1 mbar)	0.4" w.c. (1 mbar)	0.4" w.c. (1 mbar)
Increase in outlet pressure required for no flow	0.4" w.c. (1 mbar)	0.4" w.c. (1 mbar)	0.5" w.c. (1.3 mbar)	0.5" w.c. (1.3 mbar)	0.5" w.c. (1.3 mbar)	0.6" w.c. (1.5 mbar)

Inlet pressure is too low to deliver 14" w.c. (35 mbar)

Do not use this orifice size at this inlet pressure

B34 Commercial & Industrial Regulator – Models – N, R, M, & D

14" w.c. (35 mbar) – Capacity Table (2" w.c. Droop) – Continued*

Capacities in scfh (m^3/hr) – Orifice Size

Inlet Pressure PSIG	(Bar)	5/8" (15.9mm)		5/8" x 3/4" (15.9 x 19.1 mm)		3/4" (19.1 mm)		3/4" x 7/8" (19.1 x 22.2 mm)		7/8" (22.2 mm)		7/8" x 1" (22.2 x 25.4 mm)	
16"w.c.	(40 mbar)	600	(16.80)	700	(19.60)	750	(21.00)	900	(25.20)	950	(26.60)	1050	(29.40)
18"w.c.	(45 mbar)	750	(21.00)	850	(23.80)	900	(25.20)	1050	(29.40)	1200	(33.60)	1300	(36.40)
21"w.c.	(52 mbar)	900	(25.20)	1100	(30.80)	1250	(35.00)	1400	(39.20)	1450	(40.60)	1500	(42.00)
24"w.c.	(60 mbar)	1150	(32.20)	1350	(37.80)	1400	(39.20)	1500	(42.00)	1550	(43.40)	1700	(47.60)
1	(69 mbar)	1350	(37.80)	1450	(40.60)	1550	(43.40)	1650	(46.20)	1800	(50.40)	2150	(60.20)
2	(0.138)	2550	(71.40)	2800	(78.40)	3100	(86.80)	3200	(89.60)	4200	(117.60)	4400	(123.20)
3	(0.207)	3400	(95.20)	3600	(100.80)	3800	(106.40)	3900	(109.20)	4500	(126.00)	5200	(145.60)
5	(0.345)	4200	(117.60)	5000	(140.00)	5500	(154.00)	6000	(168.00)	6300	(176.40)	6500	(182.00)
10	(0.69)	7000	(196.00)	7600	(212.80)	8800	(246.40)	9000	(252.00)	9100	(254.80)	10000	(280.00)
20	(1.38)	10000	(280.00)	10000	(280.00)	10000	(280.00)	10000	(280.00)	10000	(280.00)	10000	(280.00)
30	(2.07)	10000	(280.00)	10000	(280.00)	10000	(280.00)	10000	(280.00)	10000	(280.00)		
40	(2.76)	10000	(280.00)	10000	(280.00)	10000	(280.00)	10000	(280.00)	10000	(280.00)		
50	(3.45)	10000	(280.00)	10000	(280.00)	10000	(280.00)	10000	(280.00)	10000	(280.00)		
60	(4.14)	10000	(280.00)	10000	(280.00)	10000	(280.00)	10000	(280.00)	10000	(280.00)		
70	(4.83)												
80	(5.52)												
90	(6.21)												
100	(6.90)												
125	(8.63)												

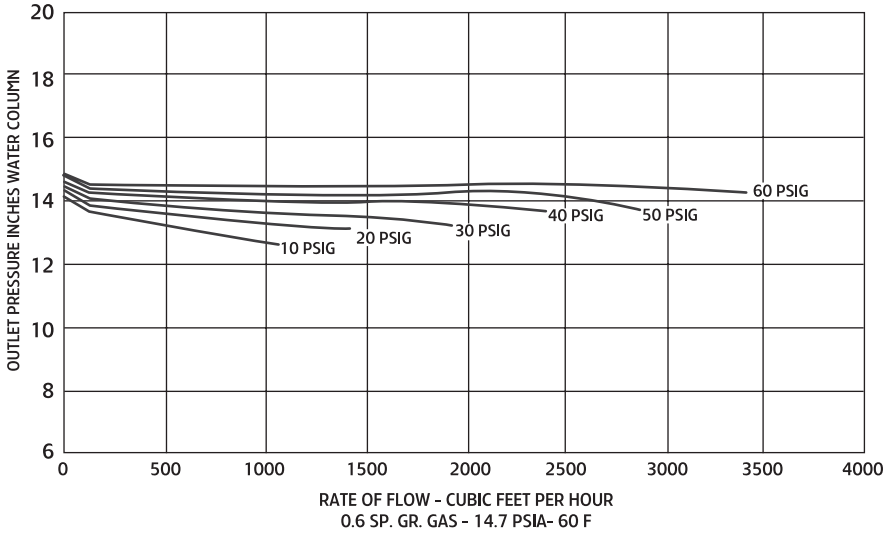
Change in outlet for a 10 PSIG (0.69 Bar) inlet change	0.5" w.c. (1.3 mbar)	0.5" w.c. (1.3 mbar)	0.5" w.c. (1.3 mbar)	0.5" w.c. (1.3 mbar)	0.6" w.c. (1.5 mbar)	0.6" w.c. (1.5 mbar)
Increase in outlet pressure required for no flow	1.1" w.c. (2.8 mbar)	1.1" w.c. (2.8 mbar)	1.2" w.c. (3.0 mbar)	1.2" w.c. (3.0 mbar)	1.2" w.c. (3.0 mbar)	1.2" w.c. (3.0 mbar)

Do not use this orifice size at this inlet pressure

B34 Commercial & Industrial Regulator – Models – N, R, M, & D

14" w.c. (35 mbar)

B34 REGULATOR PERFORMANCE – 14" w.c. SET POINT

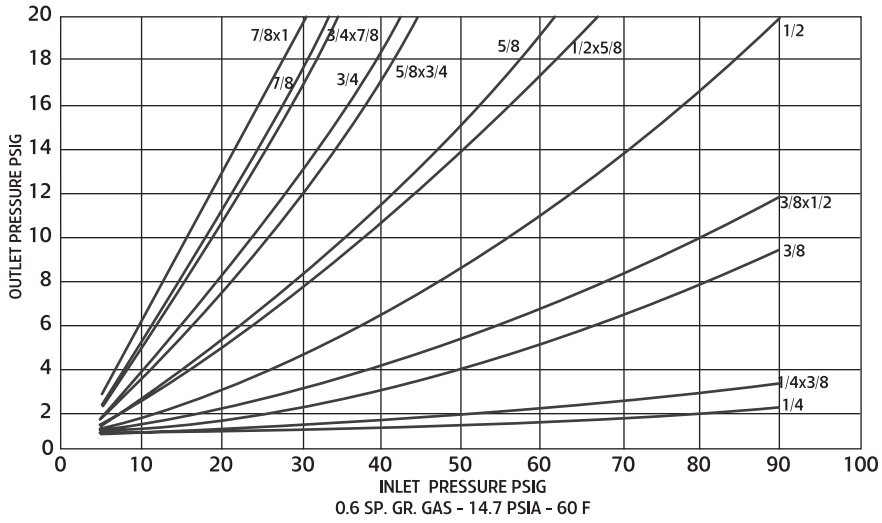


Typical Performance Curves

Manufacturer:		Actaris
Type and Model:		B34R
Regulator:	Inlet Size	2" NPT
	Outlet Size	2" NPT
	Orifice Size	1/4" x 3/8"
	Spring	Purple

Set Point 14.0" w.c. with 40 PSIG inlet @ 200 scfh. All test results are reported at a base of 14.7 PSIA and 60 F.

B34R RELIEF CURVES-BLOCKED OPEN – 14" w.c. SET POINT



Relief Curves

Manufacturer:		Actaris
Type and Model:		B34R
Regulator:	Inlet Size	2" NPT
	Outlet Size	2" NPT
	Vent Size	1" NPT

Set Point 14.0" w.c. with 40 PSIG inlet @ 200 scfh. All test results are reported at a base of 14.7 PSIA and 60 F.

B34R Commercial & Industrial Regulator

Inlet pressure is too low to deliver 1 PSIG (69 mbar)

Do not use this orifice size at this inlet pressure

1 PSIG (69 mbar) – Capacity Table (1% Absolute Droop)*

Capacities in scfh (m³/hr) – Orifice Size

Inlet Pressure PSIG	(Bar)	1/4" (6.35 mm)	1/4" x 3/8" (6.35 x 9.52 mm)	3/8" (9.52 mm)	3/8" x 1/2" (9.52 x 12.7 mm)	1/2" (12.7 mm)	1/2" x 5/8" (12.7 x 15.9 mm)
2	(0.138)						
3	(0.207)	550 (15.40)	575 (16.10)	1250 (35.00)	1300 (36.40)	1400 (39.20)	1500 (42.00)
5	(0.345)	600 (16.80)	1000 (28.00)	1500 (42.00)	1500 (42.00)	1800 (50.40)	2000 (56.00)
10	(0.69)	1000 (28.00)	1500 (42.00)	2000 (56.00)	2800 (78.40)	3000 (84.00)	4300 (120.40)
20	(1.38)	1700 (47.60)	2200 (61.60)	4000 (112.00)	4700 (131.60)	6300 (176.40)	8000 (224.00)
30	(2.07)	2400 (67.20)	2800 (78.40)	5600 (156.80)	6400 (179.20)	10000 (280.00)	11000 (308.00)
40	(2.76)	2800 (78.40)	3600 (100.80)	7000 (196.00)	7800 (218.40)	12500 (350.00)	13000 (364.00)
50	(3.45)	3700 (103.60)	4200 (117.60)	9000 (252.00)	9000 (252.00)	14000 (392.00)	15500 (434.00)
60	(4.14)	4000 (112.00)	4700 (131.60)	10000 (280.00)	10000 (280.00)	16000 (448.00)	17000 (476.00)
70	(4.83)	4800 (134.40)	5200 (145.60)	10800 (302.40)	11800 (330.40)	16500 (462.00)	18000 (504.00)
80	(5.52)	5150 (144.20)	5500 (154.00)	11400 (319.20)	13000 (364.00)	17000 (476.00)	19000 (532.00)
90	(6.21)	5300 (148.40)	5600 (156.80)	12300 (344.40)	14000 (392.00)	17500 (490.00)	20000 (560.00)
100	(6.90)	7000 (196.00)	7300 (204.40)	13500 (378.00)	15000 (420.00)	18000 (504.00)	21000 (588.00)
125	(8.63)	8400 (235.20)	8700 (243.60)				

Change in outlet for a 10 PSIG (0.69 Bar) inlet change	0.02 PSIG (1.38 mbar)	0.02 PSIG (1.38 mbar)	0.02 PSIG (1.38 mbar)	0.02 PSIG (1.38 mbar)	0.02 PSIG (1.38 mbar)	0.02 PSIG (1.38 mbar)
Increase in outlet pressure required for no flow	0.02 PSIG (1.38 mbar)	0.02 PSIG (1.38 mbar)	0.02 PSIG (1.38 mbar)	0.02 PSIG (1.38 mbar)	0.02 PSIG (1.38 mbar)	0.02 PSIG (1.38 mbar)

1 PSIG (69 mbar) – Capacity Table (1% Absolute Droop) – Continued*

Capacities in scfh (m³/hr) – Orifice Size

Inlet Pressure PSIG	(Bar)	5/8" (15.9 mm)	5/8" x 3/4" (15.9 x 19.1 mm)	3/4" (19.1 mm)	3/4" x 7/8" (19.1 x 22.2 mm)	7/8" (22.2 mm)	7/8" x 1" (22.2 x 25.4 mm)
2	(0.138)	1300 (36.40)	1350 (37.80)	1400 (39.20)	1425 (39.90)	1500 (42.00)	2000 (56.00)
3	(0.207)	1800 (50.40)	1900 (53.20)	2000 (56.00)	2050 (57.40)	2100 (58.80)	2200 (61.60)
5	(0.345)	2100 (58.80)	2700 (75.60)	2700 (75.60)	3200 (89.60)	3500 (98.00)	4000 (112.00)
10	(0.69)	4600 (128.80)	5800 (162.40)	6000 (168.00)	7500 (210.00)	8000 (224.00)	8500 (238.00)
20	(1.38)	8500 (238.00)	11000 (308.00)	11300 (316.40)	12000 (336.00)	12500 (350.00)	14000 (392.00)
30	(2.07)	12500 (350.00)	16200 (453.60)	16500 (462.00)	17500 (490.00)	18000 (504.00)	19000 (532.00)
40	(2.76)	14500 (406.00)	17200 (481.60)	17600 (492.80)	18500 (518.00)	20000 (560.00)	21000 (588.00)
50	(3.45)	16300 (456.40)	18000 (504.00)	18400 (515.20)	19300 (540.40)	22000 (616.00)	23000 (644.00)
60	(4.14)	17300 (484.40)	18200 (509.60)	18700 (523.60)	20100 (562.80)	23200 (649.60)	24400 (683.20)
70	(4.83)						
80	(5.52)						
90	(6.21)						
100	(6.90)						
125	(8.63)						

Change in outlet for a 10 PSIG (0.69 Bar) inlet change	0.03 PSIG (2.07 mbar)	0.03 PSIG (2.07 mbar)	0.03 PSIG (2.07 mbar)	0.04 PSIG (2.76 mbar)	0.04 PSIG (2.76 mbar)	0.04 PSIG (2.76 mbar)
Increase in outlet pressure required for no flow	0.03 PSIG (2.07 mbar)	0.03 PSIG (2.07 mbar)	0.03 PSIG (2.07 mbar)	0.04 PSIG (2.76 mbar)	0.04 PSIG (2.76 mbar)	0.05 PSIG (3.45 mbar)

B34 Commercial & Industrial Regulator

Inlet pressure is too low to deliver 1 PSIG (69 mbar)

Do not use this orifice size at this inlet pressure

1 PSIG (69 mbar) – Capacity Table (2% Absolute Droop)*

Capacities in scfh (m³/hr) – Orifice Size

Inlet Pressure PSIG	(Bar)	1/4" (6.35 mm)		1/4" x 3/8" (6.35 x 9.52 mm)		3/8" (9.52 mm)		3/8" x 1/2" (9.52 x 12.7 mm)		1/2" (12.7 mm)		1/2" x 5/8" (12.7 x 15.9 mm)	
2	(0.138)												
3	(0.207)	700	(19.60)	750	(21.00)	1500	(42.00)	1600	(44.80)	2300	(64.40)	2400	(67.20)
5	(0.345)	800	(22.40)	1000	(28.00)	1900	(53.20)	2000	(56.00)	3400	(95.20)	3700	(103.60)
10	(0.69)	1500	(42.00)	1500	(42.00)	3000	(84.00)	3200	(89.60)	5000	(140.00)	6000	(168.00)
20	(1.38)	1650	(46.20)	2200	(61.60)	4500	(126.00)	4800	(134.40)	8500	(238.00)	9000	(252.00)
30	(2.07)	2700	(75.60)	2900	(81.20)	6300	(176.00)	6500	(182.00)	11000	(308.00)	11500	(322.00)
40	(2.76)	3340	(93.52)	3500	(98.00)	7400	(207.20)	7600	(212.80)	13000	(364.00)	13500	(378.00)
50	(3.45)	3950	(110.60)	4100	(114.80)	8500	(238.00)	9000	(252.00)	15500	(434.00)	16000	(448.00)
60	(4.14)	4700	(131.60)	4700	(131.60)	10500	(294.00)	10800	(302.40)	16500	(462.00)	17000	(476.00)
70	(4.83)	4750	(133.00)	5000	(140.00)	11000	(308.00)	11600	(324.80)	17500	(490.00)	18000	(504.00)
80	(5.52)	4950	(138.60)	5400	(151.20)	12000	(336.00)	13000	(364.00)	18000	(504.00)	19000	(532.00)
90	(6.21)	5500	(154.00)	6500	(182.00)	12500	(350.00)	13500	(378.00)	19000	(532.00)	20000	(560.00)
100	(6.90)	7000	(196.00)	7250	(203.00)	13250	(371.00)	14000	(392.00)	20500	(574.00)	21000	(588.00)
125	(8.63)	8500	(238.00)	9000	(252.00)								

Change in outlet for a 10 PSIG (0.69 Bar) inlet change	0.02 PSIG (1.38 mbar)	0.02 PSIG (1.38 mbar)	0.02 PSIG (1.38 mbar)	0.02 PSIG (1.38 mbar)	0.02 PSIG (1.38 mbar)	0.02 PSIG (1.38 mbar)
Increase in outlet pressure required for no flow	0.02 PSIG (1.38 mbar)	0.02 PSIG (1.38 mbar)	0.02 PSIG (1.38 mbar)	0.02 PSIG (1.38 mbar)	0.02 PSIG (1.38 mbar)	0.02 PSIG (1.38 mbar)

1 PSIG (69 mbar) – Capacity Table (2% Absolute Droop) – Continued*

Capacities in scfh (m³/hr) – Orifice Size

Inlet Pressure PSIG	(Bar)	5/8" (15.9 mm)		5/8" x 3/4" (15.9 x 19.1 mm)		3/4" (19.1 mm)		3/4" x 7/8" (19.1 x 22.2 mm)		7/8" (22.2 mm)		7/8" x 1" (22.2 x 25.4 mm)	
2	(0.138)	2200	(61.60)	2300	(64.40)	2400	(67.20)	2500	(70.00)	2700	(75.60)	4200	(117.60)
3	(0.207)	2800	(78.40)	3000	(84.00)	3400	(95.20)	3800	(106.40)	4000	(112.00)	6000	(168.00)
5	(0.345)	4000	(112.00)	5000	(140.00)	5200	(145.60)	6000	(168.00)	7000	(196.00)	7500	(210.00)
10	(0.69)	7000	(196.00)	8900	(249.20)	9000	(252.00)	10000	(280.00)	11500	(322.00)	13000	(364.00)
20	(1.38)	10000	(280.00)	12000	(336.00)	13000	(364.00)	15000	(420.00)	15500	(434.00)	19000	(532.00)
30	(2.07)	13000	(364.00)	16000	(448.00)	18000	(504.00)	19000	(532.00)	20500	(574.00)	21800	(610.40)
40	(2.76)	16000	(448.00)	16500	(462.00)	19000	(532.00)	19500	(546.00)	21000	(595.00)	23700	(663.60)
50	(3.45)	19000	(532.00)	21000	(588.00)	22000	(616.00)	22500	(630.00)	24000	(672.00)	26000	(728.00)
60	(4.14)	20500	(574.00)	21900	(613.20)	22800	(638.40)	23500	(658.00)	25000	(700.00)	27000	(756.00)
70	(4.83)												
80	(5.52)												
90	(6.21)												
100	(6.90)												
125	(8.63)												

Change in outlet for a 10 PSIG (0.69 Bar) inlet change	0.03 PSIG (2.07 mbar)	0.03 PSIG (2.07 mbar)	0.03 PSIG (2.07 mbar)	0.04 PSIG (2.76 mbar)	0.04 PSIG (2.76 mbar)	0.04 PSIG (2.76 mbar)
Increase in outlet pressure required for no flow	0.03 PSIG (2.07 mbar)	0.03 PSIG (2.07 mbar)	0.03 PSIG (2.07 mbar)	0.04 PSIG (2.76 mbar)	0.04 PSIG (2.76 mbar)	0.05 PSIG (3.45 mbar)

B34 Commercial & Industrial Regulator – Models – N, R, M, & D

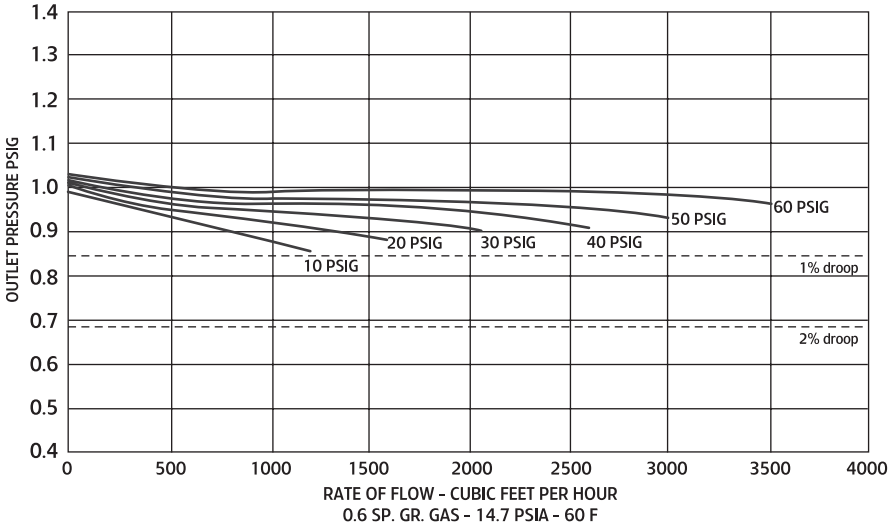
1 PSIG (69 mbar)

Typical Performance Curves

Manufacturer:		Actaris
Type and Model:		B34R
Regulator:	Inlet Size	2" NPT
	Outlet Size	2" NPT
	Orifice Size	1/4" x 3/8"
	Spring	Silver

Set Point 1PSIG with 40 PSIG inlet @ 200 scfh. All test results are reported at a base of 14.7 PSIA and 60 F.

B34 REGULATOR PERFORMANCE – 1 PSIG SET POINT

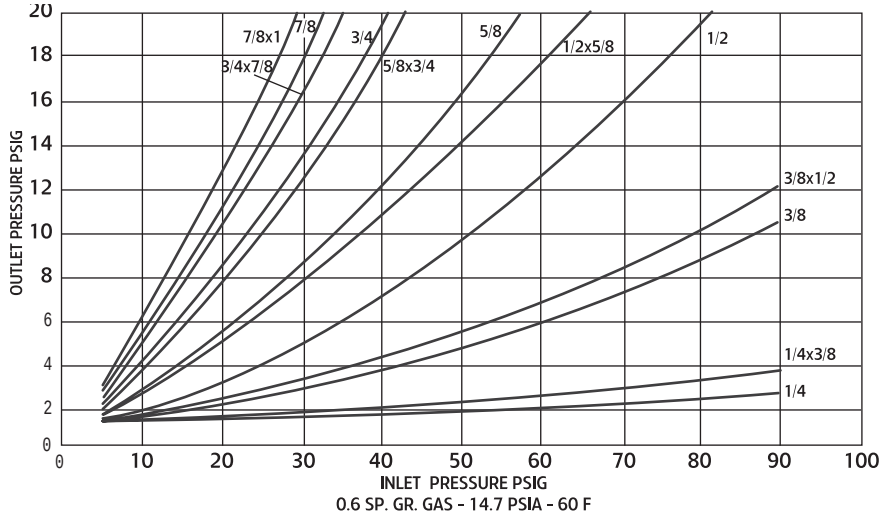


Relief Curves

Manufacturer:		Actaris
Type and Model:		B34R
Regulator:	Inlet Size	2" NPT
	Outlet Size	2" NPT
	Vent Size	1" NPT

Set Point 1 PSIG with 40 PSIG inlet @ 200 scfh. All test results are reported at a base of 14.7 PSIA and 60 F.

B34R RELIEF CURVES–BLOCKED OPEN – 1 PSIG SET POINT



B34 Commercial & Industrial Regulator

2 PSIG (69 mbar) – Capacity Table (1% Absolute Droop)*

Silver Spring (762359)
Position 11
2" NPT Outlet

Capacities in scfh (m³/hr) – Orifice Size

Inlet Pressure PSIG	(Bar)	1/4" (6.35 mm)	1/4" x 3/8" (6.35 x 9.52 mm)	3/8" (9.52 mm)	3/8" x 1/2" (9.52 x 12.7 mm)	1/2" (12.7 mm)	1/2" x 5/8" (12.7 x 15.9 mm)
3	(0.207)						
5	(0.345)	500 (14.00)	900 (25.20)	1000 (28.00)	1500 (42.00)	1700 (47.60)	1900 (53.20)
10	(0.69)	1000 (28.00)	1700 (47.60)	1800 (50.40)	2500 (70.00)	2700 (75.60)	3000 (84.00)
20	(1.38)	1050 (29.40)	2200 (61.60)	2300 (64.40)	4700 (131.60)	5200 (145.60)	5400 (151.20)
30	(2.07)	2200 (61.60)	2800 (78.40)	3700 (103.60)	6500 (182.00)	7000 (196.00)	9500 (266.00)
40	(2.76)	2700 (75.60)	3500 (98.00)	6000 (168.00)	7500 (210.00)	10800 (302.40)	12500 (350.00)
50	(3.45)	3500 (98.00)	4100 (114.80)	7600 (212.80)	8800 (246.40)	13300 (372.40)	14500 (406.00)
60	(4.14)	4000 (112.00)	4700 (131.60)	9500 (266.00)	10000 (280.00)	14000 (392.00)	16000 (448.00)
70	(4.83)	4400 (123.20)	5000 (140.00)	10900 (305.20)	11300 (316.40)	16000 (448.00)	16500 (462.00)
80	(5.52)	4800 (134.40)	5400 (151.20)	12500 (350.00)	13000 (364.00)	20000 (560.00)	21000 (588.00)
90	(6.21)	5500 (154.00)	5600 (156.80)	12300 (344.40)	13500 (378.00)	21000 (588.00)	21500 (602.00)
100	(6.90)	6400 (179.20)	7000 (196.00)	12800 (358.40)	14800 (414.40)	22000 (616.00)	23000 (644.00)
125	(8.63)	7000 (196.00)	7400 (207.20)				

Change in outlet for a 10 PSIG (0.69 Bar) inlet change	0.02 PSIG (1.38 mbar)	0.02 PSIG (1.38 mbar)	0.02 PSIG (1.38 mbar)	0.02 PSIG (1.38 mbar)	0.03 PSIG (2.07 mbar)	0.03 PSIG (2.07 mbar)
Increase in outlet pressure required for no flow	0.03 PSIG (2.07 mbar)	0.03 PSIG (2.07 mbar)	0.03 PSIG (2.07 mbar)	0.03 PSIG (2.07 mbar)	0.03 PSIG (2.07 mbar)	0.03 PSIG (2.07 mbar)

Inlet pressure is too low to deliver 2 PSIG (69 mbar)

Do not use this orifice size at this inlet pressure

2 PSIG (69 mbar) – Capacity Table (1% Absolute Droop) – Continued*

Capacities in scfh (m³/hr) – Orifice Size

Inlet Pressure PSIG	(Bar)	5/8" (15.9mm)	5/8" x 3/4" (15.9 x 19.1 mm)	3/4" (19.1 mm)	3/4" x 7/8" (19.1 x 22.2 mm)	7/8" (22.2 mm)	7/8" x 1" (22.2 x 25.4 mm)
3	(0.207)		1300 (36.40)	1500 (42.00)	1600 (44.80)	1700 (47.60)	2000 (56.00)
5	(0.345)	2000 (56.00)	2250 (63.00)	2500 (70.00)	3000 (84.00)	3000 (84.00)	3200 (89.60)
10	(0.69)	3200 (89.60)	4800 (134.40)	5000 (140.00)	6500 (182.00)	6800 (190.40)	7500 (210.00)
20	(1.38)	5500 (154.00)	8500 (238.00)	9000 (252.00)	9000 (252.00)	10600 (296.80)	11200 (313.60)
30	(2.07)	10000 (280.00)	13000 (364.00)	14500 (406.00)	16000 (448.00)	17000 (476.00)	17400 (487.20)
40	(2.76)	13000 (364.00)	16500 (462.00)	17900 (501.20)	18300 (512.40)	18900 (529.20)	20600 (576.80)
50	(3.45)	15000 (420.00)	19000 (532.00)	20000 (560.00)	20500 (574.00)	21000 (588.00)	22400 (627.20)
60	(4.14)	17000 (476.00)	19500 (546.00)	20500 (574.00)	21000 (588.00)	21500 (602.00)	23100 (646.80)
70	(4.83)						
80	(5.52)						
90	(6.21)						
100	(6.90)						
125	(8.63)						

Change in outlet for a 10 PSIG (0.69 Bar) inlet change	0.03 PSIG (2.07 mbar)	0.03 PSIG (2.07 mbar)	0.03 PSIG (2.07 mbar)	0.03 PSIG (2.07 mbar)	0.03 PSIG (2.07 mbar)	0.03 PSIG (2.07 mbar)
Increase in outlet pressure required for no flow	0.04 PSIG (2.76 mbar)	0.04 PSIG (2.76 mbar)	0.04 PSIG (2.76 mbar)	0.06 PSIG (4.14 mbar)	0.07 PSIG (4.83 mbar)	0.07 PSIG (4.83 mbar)

B34 Commercial & Industrial Regulator

Silver Spring (762359)
Position 11
2" NPT Outlet

2 PSIG (69 mbar) – Capacity Table (2% Absolute Droop)*

Capacities in scfh (m³/hr) – Orifice Size

Inlet Pressure PSIG	(Bar)	1/4" (6.35 mm)	1/4" x 3/8" (6.35 x 9.52 mm)	3/8" (9.52 mm)	3/8" x 1/2" (9.52 x 12.7 mm)	1/2" (12.7 mm)	1/2" x 5/8" (12.7 x 15.9 mm)
3	(0.207)						
5	(0.345)	700 (19.60)	900 (25.20)	1800 (50.40)	2000 (56.00)	2800 (78.40)	3100 (86.80)
10	(0.69)	1300 (36.40)	1500 (42.00)	2800 (78.40)	3000 (84.00)	4500 (126.00)	5800 (162.40)
20	(1.38)	1650 (46.20)	2200 (61.60)	4500 (126.00)	4800 (134.40)	8500 (238.00)	9000 (252.00)
30	(2.07)	2700 (75.60)	2900 (81.20)	6300 (176.40)	6500 (182.00)	11000 (308.00)	11500 (322.00)
40	(2.76)	3340 (93.52)	3500 (98.00)	7450 (208.60)	7600 (212.80)	13200 (369.60)	13500 (378.00)
50	(3.45)	3950 (110.60)	4100 (114.80)	8700 (243.60)	9000 (252.00)	15500 (434.00)	16000 (448.00)
60	(4.14)	4500 (126.00)	4700 (131.60)	10200 (285.60)	10500 (294.00)	17000 (476.00)	17000 (476.00)
70	(4.83)	4740 (132.72)	5000 (140.00)	10900 (305.20)	11600 (324.80)	19000 (532.00)	20500 (574.00)
80	(5.52)	4950 (138.60)	5400 (151.20)	12500 (350.00)	13000 (364.00)	21000 (588.00)	22500 (630.00)
90	(6.21)	5800 (162.40)	6000 (168.00)	13000 (364.00)	14000 (392.00)	22300 (624.40)	23400 (655.20)
100	(6.90)	6900 (193.20)	7500 (210.00)	13500 (378.00)	15500 (434.00)	23500 (658.00)	24900 (697.20)
125	(8.63)	8300 (232.40)	8800 (246.40)				

Change in outlet for a 10 PSIG (0.69 Bar) inlet change	0.02 PSIG (1.38 mbar)	0.02 PSIG (1.38 mbar)	0.02 PSIG (1.38 mbar)	0.02 PSIG (1.38 mbar)	0.03 PSIG (2.07 mbar)	0.03 PSIG (2.07 mbar)
Increase in outlet pressure required for no flow	0.03 PSIG (2.07 mbar)	0.03 PSIG (2.07 mbar)	0.03 PSIG (2.07 mbar)	0.03 PSIG (2..07 mbar)	0.03 PSIG (2.07 mbar)	0.03 PSIG (2.07 mbar)

Inlet pressure is too low to deliver 2 PSIG (69 mbar)

Do not use this orifice size at this inlet pressure

2 PSIG (69 mbar) – Capacity Table (2% Absolute Droop) – Continued*

Capacities in scfh (m³/hr) – Orifice Size

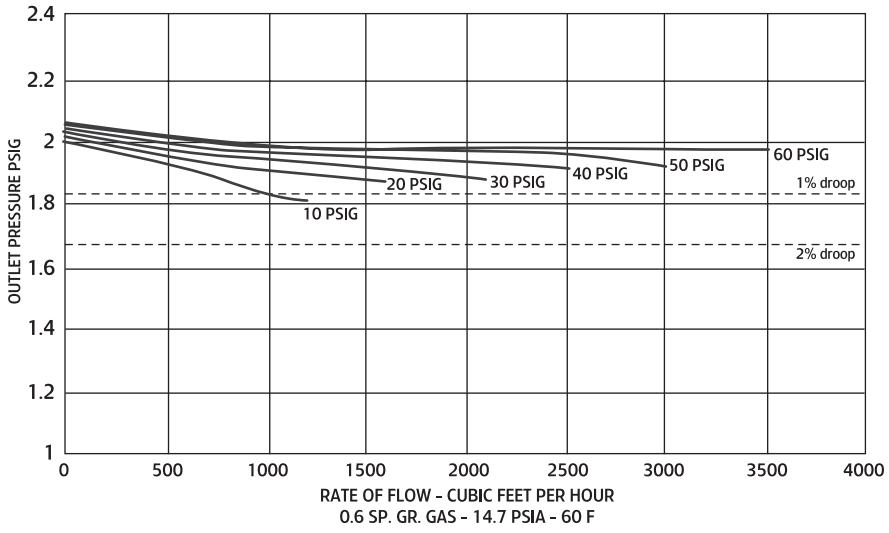
Inlet Pressure PSIG	(Bar)	5/8" (15.9 mm)	5/8" x 3/4" (15.9 x 19.1 mm)	3/4" (19.1 mm)	3/4" x 7/8" (19.1 x 22.2 mm)	7/8" (22.2 mm)	7/8" x 1" (22.2 x 25.4 mm)
3	(0.207)		2500 (70.00)	2800 (78.40)	3500 (98.00)	3700 (103.60)	4000 (112.00)
5	(0.345)	3200 (89.60)	3600 (100.80)	4100 (114.80)	5000 (140.00)	5000 (140.00)	6000 (168.00)
10	(0.69)	6000 (168.00)	7000 (196.00)	7500 (210.00)	9500 (266.00)	9800 (274.40)	12000 (336.00)
20	(1.38)	10000 (280.00)	12000 (336.00)	13000 (364.00)	14000 (392.00)	15500 (434.00)	19000 (532.00)
30	(2.07)	13000 (364.00)	16000 (448.00)	18500 (518.00)	19500 (546.00)	20500 (574.00)	21800 (610.40)
40	(2.76)	16000 (448.00)	19000 (532.00)	20000 (560.00)	21000 (588.00)	22000 (616.00)	23700 (663.60)
50	(3.45)	20500 (574.00)	21000 (588.00)	24000 (672.00)	25000 (700.00)	26500 (742.00)	27500 (770.00)
60	(4.14)	21300 (596.40)	22800 (638.40)	25700 (719.60)	26400 (739.20)	28000 (784.00)	28300 (792.40)
70	(4.83)						
80	(5.52)						
90	(6.21)						
100	(6.90)						
125	(8.63)						

Change in outlet for a 10 PSIG (0.69 Bar) inlet change	0.03 PSIG (2.07 mbar)	0.03 PSIG (2.07 mbar)	0.03 PSIG (2.07 mbar)	0.03 PSIG (2.07 mbar)	0.03 PSIG (2.07 mbar)	0.03 PSIG (2.07 mbar)
Increase in outlet pressure required for no flow	0.04 PSIG (2.76 mbar)	0.04 PSIG (2.76 mbar)	0.04 PSIG (2.76 mbar)	0.06 PSIG (4.14 mbar)	0.07 PSIG (4.83 mbar)	0.07 PSIG (4.83 mbar)

B34 Commercial & Industrial Regulator – Models – N, R, M, & D

2 PSIG (69 mbar)

B34 REGULATOR PERFORMANCE – 2 PSIG SET POINT

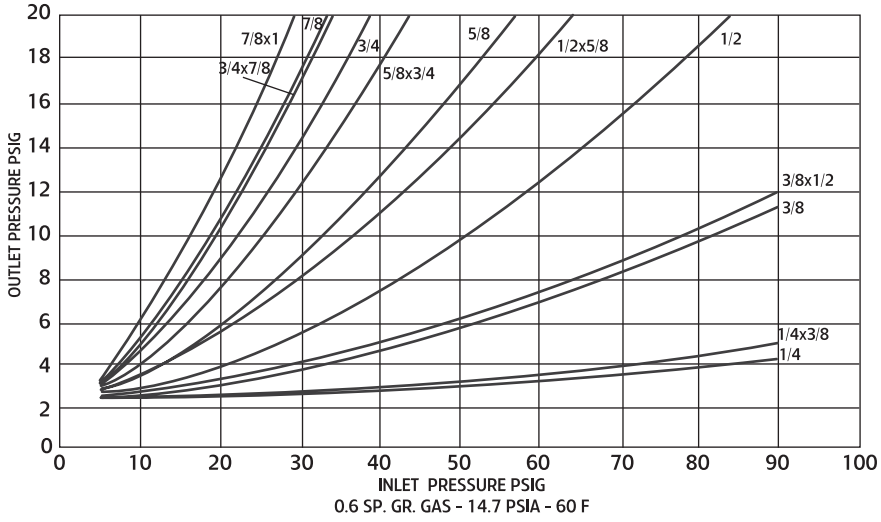


Typical Performance Curves

Manufacturer:		Actaris
Type and Model:		B34R
Regulator:	Inlet Size	2" NPT
	Outlet Size	2" NPT
	Orifice Size	1/4" x 3/8"
	Spring	Silver

Set Point 2 PSIG with 40 PSIG inlet @ 200 scfh. All test results are reported at a base of 14.7 PSIA and 60 F.

B34R RELIEF CURVES–BLOCKED OPEN – 2 PSIG SET POINT



Relief Curves

Manufacturer:		Actaris
Type and Model:		B34R
Regulator:	Inlet Size	2" NPT
	Outlet Size	2" NPT
	Vent Size	1" NPT

Set Point 2 PSIG with 40 PSIG inlet @ 200 scfh. All test results are reported at a base of 14.7 PSIA and 60 F.

B34 Commercial & Industrial Regulator – Models – N, R, M, & D

Red Nested Spring (762671)
Position 11
2" NPT Outlet

5 PSIG (345 mbar) – Capacity Table (1% Absolute Droop)*

Capacities in scfh (m³/hr) – Orifice Size

Inlet Pressure PSIG	(Bar)	1/4" (6.35 mm)		1/4" x 3/8" (6.35 x 9.52 mm)		3/8" (9.52 mm)		3/8" x 1/2" (9.52 x 12.7 mm)		1/2" (12.7 mm)		1/2" x 5/8" (12.7 x 15.9 mm)	
10	(0.69)	500	(14.00)	700	(19.60)	800	(22.40)	900	(25.20)	900	(25.20)	1000	(28.00)
20	(1.38)	800	(22.40)	1100	(30.80)	1100	(30.80)	1300	(36.40)	1500	(42.00)	1900	(53.20)
30	(2.07)	1100	(30.80)	1300	(36.40)	1400	(39.20)	1500	(42.00)	1700	(47.60)	2000	(56.00)
40	(2.76)	1200	(33.60)	1400	(39.20)	1500	(42.00)	1700	(47.60)	2000	(56.00)	2700	(75.60)
50	(3.45)	1300	(36.40)	1500	(42.00)	1700	(47.60)	2000	(56.00)	2500	(70.00)	3500	(98.00)
60	(4.14)	1400	(39.20)	1700	(47.60)	1800	(50.40)	3200	(89.60)	3500	(98.00)	4400	(123.20)
70	(4.83)	1500	(42.00)	1800	(50.40)	1900	(53.20)	3350	(94.90)	3600	(100.80)	4800	(134.40)
80	(5.52)	1600	(44.80)	1900	(53.20)	2000	(56.00)	4200	(117.60)	4500	(126.00)	5100	(142.80)
90	(6.21)	2000	(56.00)	2800	(78.40)	3000	(84.00)	4400	(123.20)	4800	(134.40)	6500	(182.00)
100	(6.90)	2600	(72.80)	3200	(89.60)	3700	(103.60)	4550	(127.40)	5100	(142.80)	7300	(204.40)
125	(8.63)	3200	(89.60)	3400	(95.20)								

Change in outlet for a 10 PSIG (0.69 Bar) inlet change	0.02 PSIG (1.38 mbar)	0.02 PSIG (1.38 mbar)	0.02 PSIG (1.38 mbar)	0.02 PSIG (1.38 mbar)	0.03 PSIG (2.07 mbar)	0.03 PSIG (2.07 mbar)
Increase in outlet pressure required for no flow	0.05 PSIG (0.8 mbar)	0.05 PSIG (3.45 mbar)	0.07 PSIG (4.83 mbar)	0.07 PSIG (4.83 mbar)	0.07 PSIG (4.83 mbar)	0.07 PSIG (4.83 mbar)

5 PSIG (345 mbar) – Capacity Table (1% Absolute Droop) – Continued*

Capacities in scfh (m³/hr) – Orifice Size

Inlet Pressure PSIG	(Bar)	5/8" (15.9 mm)		5/8" x 3/4" (15.9 x 19.1 mm)		3/4" (19.1 mm)		3/4" x 7/8" (19.1 x 22.2 mm)		7/8" (22.2 mm)		7/8" x 1" (22.2 x 25.4 mm)	
10	(0.69)	1100	(30.80)	1200	(33.60)	1300	(36.40)	1350	(37.80)	1400	(39.20)	1500	(42.00)
20	(1.38)	1950	(54.60)	2000	(56.00)	2200	(61.60)	2300	(64.40)	2500	(70.00)	2700	(75.60)
30	(2.07)	2300	(64.40)	2600	(72.80)	2700	(75.60)	3000	(84.00)	3500	(98.00)	3800	(106.40)
40	(2.76)	2800	(78.40)	3200	(89.60)	3300	(92.40)	3700	(103.60)	4500	(126.00)	4750	(133.00)
50	(3.45)	3600	(100.80)	3800	(106.40)	4200	(117.60)	4300	(120.40)	5500	(154.00)	6250	(175.00)
60	(4.14)	4700	(131.60)	6000	(168.00)	8000	(224.00)	8500	(238.00)	10000	(280.00)	11500	(322.00)
70	(4.83)												
80	(5.52)												
90	(6.21)												
100	(6.90)												
125	(8.63)												

Change in outlet for a 10 PSIG (0.69 Bar) inlet change	0.03 PSIG (2.07 mbar)	0.03 PSIG (2.07 mbar)	0.03 PSIG (2.07 mbar)	0.03 PSIG (2.07 mbar)	0.03 PSIG (2.07 mbar)	0.03 PSIG (2.07 mbar)
Increase in outlet pressure required for no flow	0.07 PSIG (4.83 mbar)	0.07 PSIG (4.83 mbar)	0.07 PSIG (4.83 mbar)	0.07 PSIG (4.83 mbar)	0.08 PSIG (5.52 mbar)	0.09 PSIG (6.21 mbar)

Inlet pressure is too low to deliver 5 PSIG (345 mbar)

Do not use this orifice size at this inlet pressure

B34 Commercial & Industrial Regulator – Models – N, R, M, & D

Red Nested Spring (762671)
Position 11
2" NPT Outlet

5 PSIG (345 mbar) – Capacity Table (2% Absolute Droop)*

Capacities in scfh (m³/hr) – Orifice Size

Inlet Pressure PSIG	(Bar)	1/4" (6.35 mm)		1/4" x 3/8" (6.35 x 9.52 mm)		3/8" (9.52 mm)		3/8" x 1/2" (9.52 x 12.7 mm)		1/2" (12.7 mm)		1/2" x 5/8" (12.7 x 15.9 mm)	
10	(0.69)	800	(22.40)	950	(26.60)	1000	(28.00)	1200	(33.60)	1300	(36.40)	1550	(43.40)
20	(1.38)	1100	(30.80)	1600	(44.80)	1700	(47.60)	2300	(64.40)	2750	(77.00)	2850	(79.80)
30	(2.07)	1500	(42.00)	2100	(58.80)	2200	(61.60)	2800	(78.40)	3300	(92.40)	3500	(98.00)
40	(2.76)	2000	(56.00)	2400	(67.20)	2700	(75.60)	3900	(109.20)	4300	(120.40)	5000	(140.00)
50	(3.45)	2500	(70.00)	3250	(91.00)	3400	(95.20)	4800	(134.40)	5700	(159.60)	7000	(196.00)
60	(4.14)	2800	(78.40)	4000	(112.00)	4500	(126.00)	5500	(154.00)	6500	(182.00)	7500	(210.00)
70	(4.83)	2900	(81.20)	4200	(117.60)	4600	(128.80)	5700	(159.60)	7300	(204.40)	8600	(240.80)
80	(5.52)	3100	(86.80)	4500	(126.00)	4800	(134.40)	8200	(229.60)	8600	(240.80)	9500	(266.00)
90	(6.21)	3600	(100.80)	5300	(148.40)	5700	(159.60)	9000	(252.00)	10000	(280.00)	15000	(420.00)
100	(6.90)	4100	(114.80)	6000	(168.00)	6500	(182.00)	10200	(285.60)	11000	(308.00)	15900	(445.20)
125	(8.63)	4900	(137.20)	6800	(190.40)								

Change in outlet for a 10 PSIG (0.69 Bar) inlet change	0.02 PSIG (1.38 mbar)	0.02 PSIG (1.38 mbar)	0.02 PSIG (1.38 mbar)	0.02 PSIG (1.38 mbar)	0.03 PSIG (2.07 mbar)	0.03 PSIG (2.07 mbar)
Increase in outlet pressure required for no flow	0.05 PSIG (3.45 mbar)	0.05 PSIG (3.45 mbar)	0.07 PSIG (4.83 mbar)	0.07 PSIG (4.83 mbar)	0.07 PSIG (4.83 mbar)	0.07 PSIG (4.83 mbar)

5 PSIG (345 mbar) – Capacity Table (2% Absolute Droop) – Continued*

Capacities in scfh (m³/hr) – Orifice Size

Inlet Pressure PSIG	(Bar)	5/8" (15.9 mm)		5/8" x 3/4" (15.9 x 19.1 mm)		3/4" (19.1 mm)		3/4" x 7/8" (19.1 x 22.2 mm)		7/8" (22.2 mm)		7/8" x 1" (22.2 x 25.4 mm)	
10	(0.69)	1600	(44.80)	2000	(56.00)	2200	(61.60)	2300	(64.40)	2450	(68.60)	2500	(70.00)
20	(1.38)	3000	(84.00)	3500	(98.00)	3800	(106.40)	4000	(112.00)	4300	(120.40)	4500	(126.00)
30	(2.07)	4100	(114.80)	4400	(123.20)	4500	(126.00)	5700	(159.60)	6800	(190.40)	7200	(201.60)
40	(2.76)	5300	(148.40)	6400	(179.20)	7000	(196.00)	7500	(210.00)	8000	(224.00)	10500	(294.00)
50	(3.45)	7200	(201.60)	7500	(210.00)	8300	(232.40)	9500	(266.00)	10600	(296.80)	11500	(322.00)
60	(4.14)	8800	(246.40)	13300	(372.40)	15000	(420.00)	15800	(442.40)	16500	(462.00)	17000	(476.00)
70	(4.83)												
80	(5.52)												
90	(6.21)												
100	(6.90)												
125	(8.63)												

Change in outlet for a 10 PSIG (0.69 Bar) inlet change	0.03 PSIG (2.07 mbar)	0.03 PSIG (2.07 mbar)	0.03 PSIG (2.07 mbar)	0.03 PSIG (2.07 mbar)	0.03 PSIG (2.07 mbar)	0.03 PSIG (2.07 mbar)
Increase in outlet pressure required for no flow	0.07 PSIG (4.83 mbar)	0.07 PSIG (4.83 mbar)	0.07 PSIG (4.83 mbar)	0.07 PSIG (4.83 mbar)	0.08 PSIG (5.52 mbar)	0.09 PSIG (6.21 mbar)

Inlet pressure is too low to deliver 5 PSIG (345 mbar)

Do not use this orifice size at this inlet pressure

B34 Commercial & Industrial Regulator – Models – N, R, M, & D

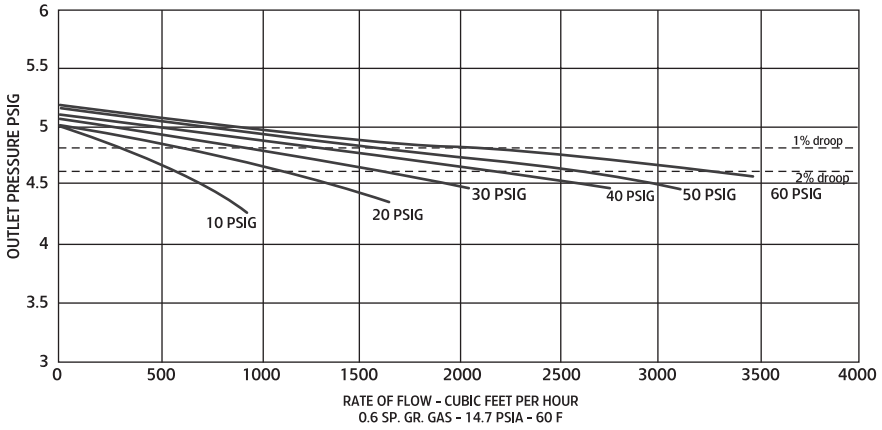
5 PSIG (69 mbar)

Typical Performance Curves

Manufacturer:		Actaris
Type and Model:		B34R
Regulator:	Inlet Size	2" NPT
	Outlet Size	2" NPT
	Orifice Size	1/4" x 3/8"
	Spring	Red–Nested

Set Point 5 PSIG with 40 PSIG inlet @ 200 scfh. All test results are reported at a base of 14.7 PSIA and 60 F.

B34 REGULATOR PERFORMANCE – 5 PSIG SET POINT

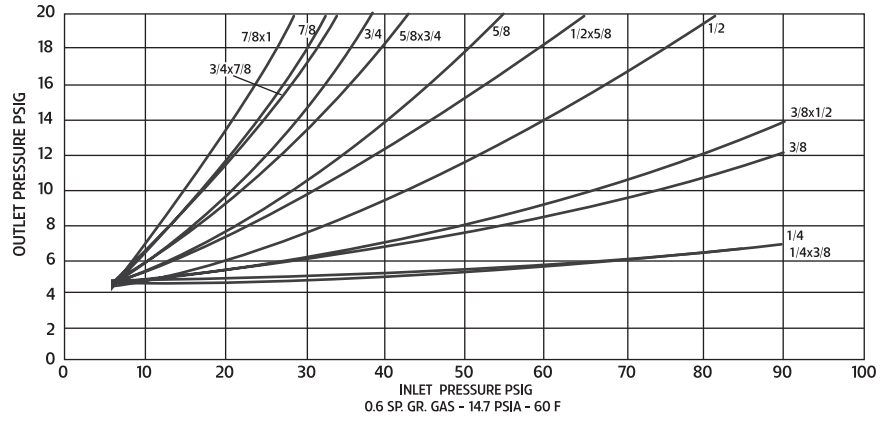


Relief Curves

Manufacturer:		Actaris
Type and Model:		B34R
Regulator:	Inlet Size	2" NPT
	Outlet Size	2" NPT
	Vent Size	1" NPT

Set Point 5 PSIG with 40 PSIG inlet @ 200 scfh. All test results are reported at a base of 14.7 PSIA and 60 F.

B34R RELIEF CURVES–BLOCKED OPEN – 5 PSIG SET POINT



B34 IM Internal Monitor* Service Regulator

GENERAL DESCRIPTION:
The B-34-IM regulator is designed specifically to comply with DOT OPS 192.197 Paragraph B which states, "or if the gas contains materials that seriously interfere with the operation of a service regulator, there must be suitable protective devices to prevent unsafe over-pressuring of the customer's appliance, if the service regulator fails." The code lists the devices, one of which is regulator and monitor. The code further states these devices may be installed as an internal part of the service regulator or as a separate unit.
The "IM" Internal Monitor is a newly designed, single valve body regulator with built-in monitor operation. It features the safety advantage of a second gas tight lock-up seat if the normal orifice face and valve seat fail to produce the adjusted outlet pressure. The monitor also controls gas flow between the failed open flow and no flow, thereby providing complete secondary regulation and monitor regulation function without relieving gas to the atmosphere or shutting off the gas flow to the customer. The monitor overpressure is 2" WC increase on regulators set for 6 to 9" WC, .5 PSIG increase for 2 PSIG set and 1 PSIG increase for 5 PSIG set.
The B-34-IM is designed especially for industrial and commercial installations where gas consumption is high but the venting of large volume of relief gas would be hazardous due to location, and/or the type of load would not allow shut-off in the event of an over-pressuring.

SPECIAL FEATURES & MODEL DESCRIPTION
The **B-34-IM** regulator is equipped with a special monitor orifice assembly consisting of a two-piece sliding brass orifice, a monitor spring, an "O" ring static seal and a monitor valve seat assembly. All orifice parts are replaceable in the field by removing the diaphragm case assembly (2 screws and a fixed brass stationary orifice). The inner orifice size can be changed or a damaged orifice replaced. In addition, any B-34 series valve body with the manufacturing year date of 1974 or later is machined to receive the IM orifice assembly.

*Patent Nos. 3,613,725, 3,754,570

The **B-34-IMN** performs 3 functions:
1. Normal regulation to the primary orifice and control by the large diaphragm area and lever power.
2. Monitoring secondary orifice also controlled by the large diaphragm area and lever power.
3. Soft Buna-N monitor seat for bubble-tight lock-up if the main seat fails due to materials in the gas that interfere with the operation of the regulator. The power for lock-up of the monitor is the large diaphragm area and lever. Power - 4" WC increase is equal to 47 lbs. Of force on the monitor seat; 14" WC increase is equal to 156 lbs. On the monitor seat.

The **B-34-IMR** - The same three functions as the standard "IM", but with relief back-up of the monitor orifice if both the main seat and the monitor seat fail at the same time

The **B-34-IMV** – The same as the IM and IMR except that at no flow position of the monitor 100 cu. ft. is vented through the relief valve and vent to serve as a signal that the regulator is on monitor function. No gas is vented until the main valve seat has failed and the gas load is less than 100 CFH and the regulator is in monitor operation.

Recommended Loading Ring Settings for B34IM**

For Outlet Pressure 1PSIG or less and Inlet Pressure 50 PSIG or less - set at 18° off center line.

Inlet Pressure more than 50 PSIG - set at 21° of center line.

For Outlet Pressure 1 PSIG through 2 PSIG set at 12°.

For Outlet Pressure more than 2 PSIG set at 0°.

**Exact settings may vary slightly with individual pressure and load conditions. Optimum settings should be determined by field installation.

- **Single valve body with built-in monitor operation**
- **Features added safety advantage of second gas tight lock-up seat**
- **Designed to meet D.O.T. Safety Standards**
- **No venting of relief gas-or controlled, minimal relief volume if preferred**

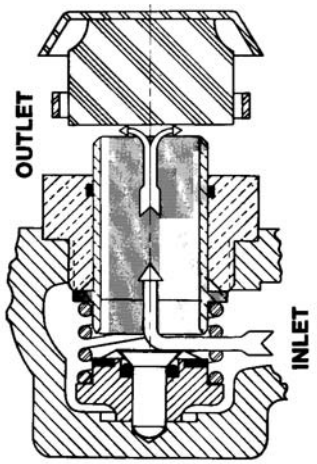
Valve Body Sizes

Inlet	Outlet	Screwed	Flanged
1-1/4"	1-1/2"	X	--
1-1/4"	2"	X	--
1-1/2"	1-1/2"	X	--
1-1/2"	2"	X	--
2"	2"	X	X
3"	3"	X*	X*

*with 2" bore.

x - indicates that the valve body is available in that configuration.

Orifice Size Inches	Max. Inlet Pressure	
	W.C. Outlet	PSIG Outlet
3/4	60	150
5/8	60	150
1/2	75	150
3/8	125	150



Principle of Operation

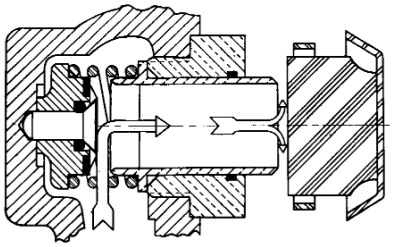
▶ **A.** The internal monitor "IM" orifice performs like a standard regulator and monitor orifice, in that the monitor orifice is wide open under normal operation and the regulating orifice and valve seat position to control outlet flow and pressure. The regulator is free to lock-up in the usual manner, with pressure increase to position the valve seat gas tight against the regulating orifice face. However, both the monitor seat and the regulator seat may close together if the positive shock lock-up exceeds the monitor spring setting.

▶ **B.** If the regulator valve seat fails to control the gas flow and pressure, due to foreign matter between the seat and orifice face, or if the seat is eroded, the internal monitor orifice automatically goes into operating position any time the pressure on the large main diaphragm and lever exceeds the power of the fixed monitor spring and the adjustable main regulator spring. The increase of outlet pressure over the adjusted pressure plus the monitor spring pressure causes the valve seat to push against the sliding orifice, compressing the monitor spring and positions the monitor orifice in relation to its valve seat so that the monitor orifice is in control of the gas flow and outlet pressure. The IM orifice now functions as a monitor regulator and will continue to monitor so long as the main seat fails to control at the normal adjusted outlet pressure. However, if the gas load demand is increased beyond the fail-to-control position, the outlet pressure is reduced to normal adjusted pressure and the regulator resumes normal regulation.

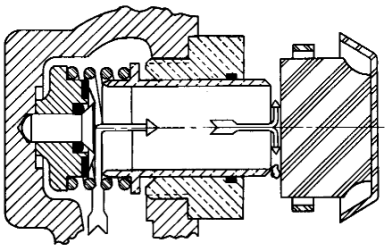
▶ **C.** If the demand for gas is decreased to zero flow during monitor operation, the sliding orifice continues to close and forms a gas-tight orifice seat against the Buna-N rubber of the monitor valve giving complete gas-tight lock-up – even though the main seat is still in a failed condition.

The close monitor control meets the lowest over-pressure specifications, and highest customer safety standards because of the power of the large main diaphragm and lever. The diaphragm is 1/16" thick and has a nylon insert and Buna-N coating. The diaphragm and diaphragm case have a pressure rating of 60 PSIG, and a large number of the case assemblies from each casting lot are tested at 90 PSIG.

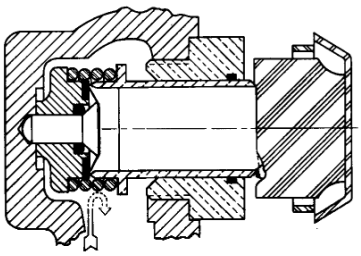
Schematic Sequence of Internal Monitor Operation



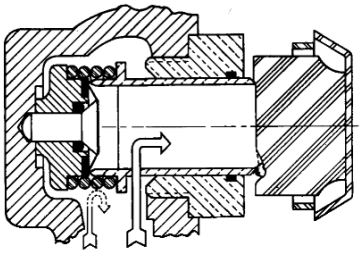
A. Standard Regulator and upstream monitor orifice.



B. Standard Regulator orifice failed — upstream monitor orifice control.



C. Standard Regulator orifice failed — upstream monitor orifice in No Flow.



C1. IMRV — Vent small volume to atmosphere.
(See tables below for pressure build-up and vented gas flow.**

Monitor Characteristics

Main Spring Color	Outlet Pressure Set	Maximum Downstream Pressure Buildup			
			**B34IMRV		
		B34IMR & B34IMN	Standard Relief Spring	Brown Relief Spring	Green Relief Spring
Brown	5.5"w.c.	10.5"w.c.	13.0"w.c.	–	–
Green/White	7.0"w.c.	11.5"w.c.	14.5"w.c.	–	–
Black	11.0"w.c.	16.0"w.c.	20.0"w.c.	–	–
Purple	14.0"w.c.	23.0"w.c.	28.0"w.c.	–	–
Blue	20.0"w.c.	26.0"w.c.	30."w.c.	–	–
Silver/Red	1 PSIG	1.4 PSIG	1.5 PSIG	2.0 PSIG	–
Silver	2 PSIG	2.5 PSIG	2.6 PSIG	3.2 PSIG	–
Yellow	3 PSIG	3.7 PSIG	3.9 PSIG	5.0 PSIG	6.4 PSIG
Red	5 PSIG	6.1 PSIG	6.6 PSIG	8.0 PSIG	8.9 PSIG

B34IMRV Flow Chart		
	Inlet Pressure PSIG	Flow SCFH
Vented gas flow, regulator seat failed; monitor seat closed	20	60
	40	90
	60	120
	75	150
	100	190
	125	230

B34IM Spring Data

Spring Color	Brown	Green/White	Black	Purple	Blue	Silver/Red	Yellow	Red
Outlet Pressure Range	4.5–5.5"w.c.	5.5–7.2"w.c.	7.2–13.5"w.c.	13.0–20"w.c.	15.0–28.0"w.c.	0.8–2.2PSIG	.5–4.4 PSIG	1.8–5.8 PSIG

B34IM Valve Body

Valve Body Type	Dimensions								
	A	B	C	D	E	F	G	H	R
1–1/4",1–1/2", or 2" NPT	5–3/4"	2–7/8"	8–11/16"	12–3/4"	4–5/16"	10"	2–3/16"	5"	2–1/4"
2" Flanged	10	5	8–11/16"	12–3/4"	4–5/16"	10"	2–3/16"	5–1/2"	3–1/4"
3" Flanged	10	5	8–11/16"	12–3/4"	4–5/16"	10"	2–3/16"	6–1/4"	4"

B34IM Commercial & Industrial Regulator

Capacity Table*

Outlet Pressure			5.5" w.c.	7" w.c.	11" w.c.	14" w.c.	20" w.c.	1 PSIG	2 PsIG	3 PSIG	5 PSIG	Corresponding Inlet - Outlet Pressure Changes	
Pressure Droop			1" w.c.	1" w.c.	2" w.c.	2" w.c.	3" w.c.	.2 PSIG	.2 PSIG	.3 PSIG	.5 PSIG		
Spring			Brown	Green	Black	Purple	Blue	Silver	Silver	Yellow	Red		
	Inlet Pressure PSIG*	Increase in Pressure Reqd. for No Flow **	Capacity - SCFH									Inlet Press. Change PSIG	Corresponding Outlet Press. Change in w.c.**
3/4" Orifice	.5	0.4" w.c.	1000	900	-	-	-	-	-	-	-	-	-
	1.0	0.4" w.c.	1500	1400	1300	1100	1000	-	-	-	-	1.0	0.05
	2.0	0.4" w.c.	2300	2200	2100	1850	1700	1750	-	-	-	2.0	0.1
	3.0	0.4" w.c.	2900	3000	2900	2450	2400	2500	1650	-	-	3.0	0.2
	5.0	0.4" w.c.	4500	4500	4100	3500	3400	3700	2850	1600	-	5.0	0.3
	10.0	0.4" w.c.	7500	7500	7000	5300	5700	6400	6200	3300	3300	10.0	0.5
	15.0	0.4" w.c.	10000	10000	9200	7000	7900	8500	8900	5200	5000	15.0	0.8
	25.0	0.4" w.c.	10000	10000	10000	10000	10000	13000	14000	8800	9000	25.0	1.0
	60.0	0.4" w.c.	10000	10000	10000	10000	10000	20000	20000	20000	19000	60.0	2.5
5/8" Orifice	.5	0.4" w.c.	800	775	700	-	-	-	-	-	-	-	-
	1.0	0.4" w.c.	1300	1100	1200	900	850	-	-	-	-	1.0	0.05
	2.0	0.4" w.c.	2100	1900	1900	1500	1450	1900	-	-	-	2.0	0.1
	3.0	0.4" w.c.	2800	2400	2700	2000	2000	2500	1400	-	-	3.0	0.1
	5.0	0.4" w.c.	4000	3200	3500	3000	2800	3200	2350	1700	-	5.0	0.3
	10.0	0.4" w.c.	6500	6500	6300	5000	4400	5300	4450	3000	3000	10.0	0.5
	15.0	0.4" w.c.	8500	8500	8500	7000	7800	7700	6600	4600	4600	15.0	0.6
	25.0	0.4" w.c.	10000	10000	10000	10000	10000	11000	10700	7200	7200	25.0	0.8
	60.0	0.4" w.c.	10000	10000	10000	10000	10000	20000	20000	19000	18500	60.0	2.0
1/2" Orifice	1.0	0.3" wc.	1000	950	850	850	650	-	-	-	-	-	-
	2.0	0.3" w.c.	1550	1350	1400	1350	1150	1150	-	-	-	-	-
	3.0	0.3" w.c.	1900	1750	1900	1750	1650	1600	900	-	-	2.0	0.1
	5.0	0.3" w.c.	2900	2500	2600	2500	2200	2250	1700	1550	-	3.0	0.2
	10.0	0.3" w.c.	4550	3650	4000	3900	3400	3900	3000	2300	2300	5.0	0.25
	15.0	0.3" w.c.	6100	6300	6150	5500	4400	5800	4300	3300	2450	10.0	0.3
	25.0	0.3" w.c.	9000	9000	8600	8000	8500	8300	7150	5200	5350	15.0	0.5
	60.0	0.4" w.c.	10000	10000	10000	10000	10000	17000	16300	14500	13000	25.0	0.7
	75.0	0.4" w.c.	10000	10000	10000	10000	10000	20000	19800	17500	17500	60.0	1.3
	100.0	0.5" w.c.	-	-	-	-	-	20000	20000	20000	20000	75.0	1.8
3/8" Orifice	1.0	0.3" wc.	650	650	550	500	450	-	-	-	-	-	-
	2.0	0.3" w.c.	1000	1000	1000	900	750	850	-	-	-	2.0	0.1
	3.0	0.3" w.c.	1250	1200	1200	1200	1000	1000	650	-	-	3.0	0.1
	5.0	0.3" w.c.	1700	1800	1650	1800	1600	1600	1000	800	-	5.0	0.2
	10.0	0.3" w.c.	2800	2800	2600	2600	2500	2500	1900	1600	1700	10.0	0.3
	15.0	0.3" w.c.	4000	4000	3800	3800	3350	3400	2800	2300	2500	15.0	0.3
	25.0	0.3" w.c.	5350	5500	5500	5200	5200	5000	4250	3400	3700	25.0	0.5
	60.0	0.3" w.c.	10000	10000	10000	10000	9000	10000	8950	8600	8200	60.0	1.0
	75.0	0.3" w.c.	10000	10000	10000	10000	10000	12000	11700	11000	11000	75.0	1.2
	100.0	0.3" w.c.	10000	10000	10000	10000	10000	15000	15000	15000	15000	100.0	1.6
	125.0	0.3" w.c.	10000	10000	10000	10000	10000	18000	18000	18000	18000	-	-

*The column showing inlet Pressures and recommended Orifice Size is for P.S.I.G. Inlet to Inches Water Column only.
For P.S.I.G. Outlet Pressure, any orifice size can be used for Inlet Pressures up 150 PSIG.

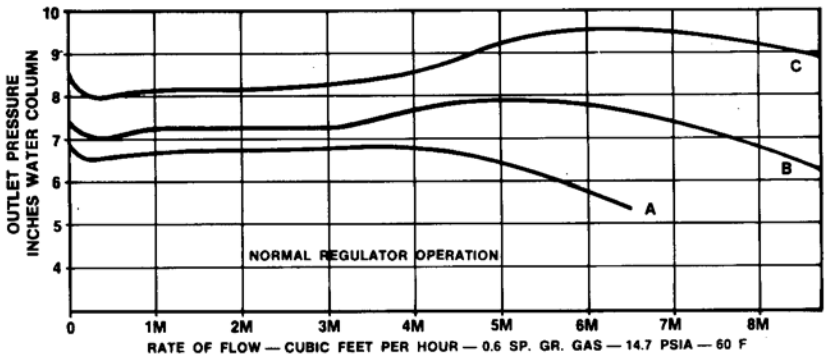
**Only for Inches W.C. Outlet Conditions.

NOTE: Max Capacity for 1-1/2" outlet pipe approx. 7500 cu. ft. per hr.; 2" outlet pipe 10,000 cu. ft. per hr. for outlet pressure less than 1 PSIG.
Set point on each of the above outlet pressures was at a flow rate of 200 cu. ft. per hr.

Based on 0.6 Sp. Gr. at 14.7 P.S.I.G. and 60°F.

B34IM Commercial & Industrial Regulator
Normal Regulation and Internal Monitor Operation

7" w.c. Set Point



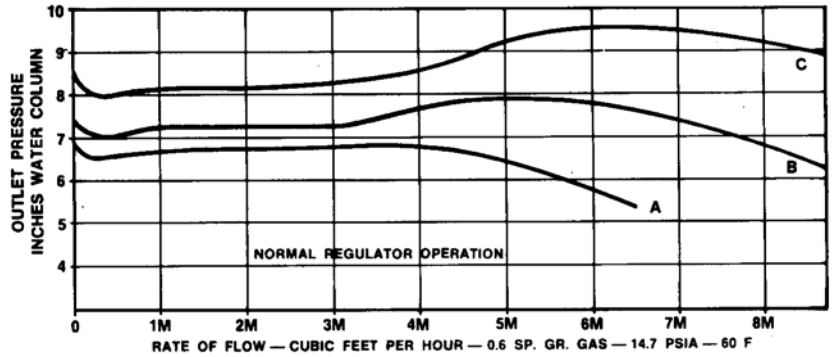
Typical Performance Curves

Manufacturer:		Actaris
Type and Model:		B34IM
Regulator:	Inlet Size	1-1/2" NPT
	Outlet Size	2" NPT
	Inlet Press.	20 PSIG at set
	Orifice Size	3/4"
	Spring Range	5.1 to 7.0" w.c.
	Bolt Circle Dia.	12-1/16"
	Flow Rate at set	200 scfh

Curves
A 10 PSIG inlet pressure - W.O.R.
B 20 PSIG inlet pressure - SET
C 40 PSIG inlet pressure - W.O.R.

B34IM Relief Monitor Curves

7" w.c. Set Point



Typical Performance Curves

Manufacturer:		Actaris
Type and Model		B34IM
Regulator:	Inlet Size	2" NPT
	Outlet Size	2" NPT
	Inlet Press.	20 PSIG at set
	Orifice Size	3/4"
	SpringRange	5.1 to 7.0" w.c.
	Bolt Circle Dia.	12-1/16"
	Flow Rate at set	200 scfh

Curves
A 10 PSIG inlet pressure - W.O.R.
B 20 PSIG inlet pressure - SET
C 40 PSIG inlet pressure - W.O.R.

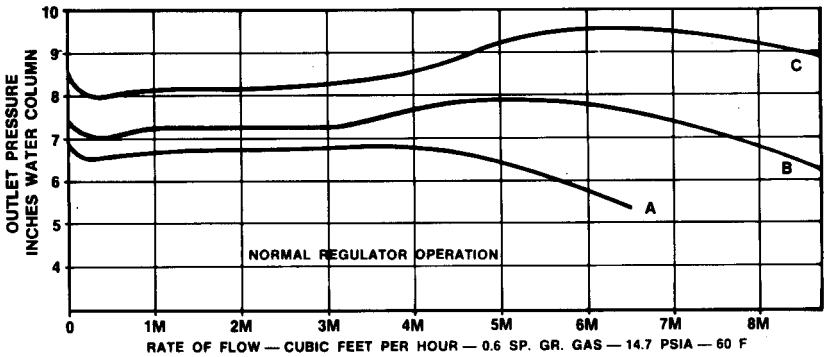
Typical Performance Curves

Manufacturer:		Actaris
Type and Model:		B34IM
Regulator:	Inlet Size	2" NPT
	Outlet Size	2" NPT
	Inlet Press.	40 PSIG at set
	Orifice Size	3/4"
	Spring Range	0.8 to 2.2 PSIG
	Bolt Circle Dia	12-1/16"
	Flow Rate at set	200 scfh
	Position	9
	Loading Ring	Set at 12°

Curves
A 60 PSIG inlet pressure - W.O.R. -23M @1.84 PSIG
B 40 PSIG inlet pressure - SET
C 25 PSIG inlet pressure - W.O.R.
D 40 PSIG inlet pressure - FAILED CONDITION
E 60 PSIG inlet pressure - FAILED CONDITION

B34IM Relief Monitor Curves

Set Point 2 PSIG

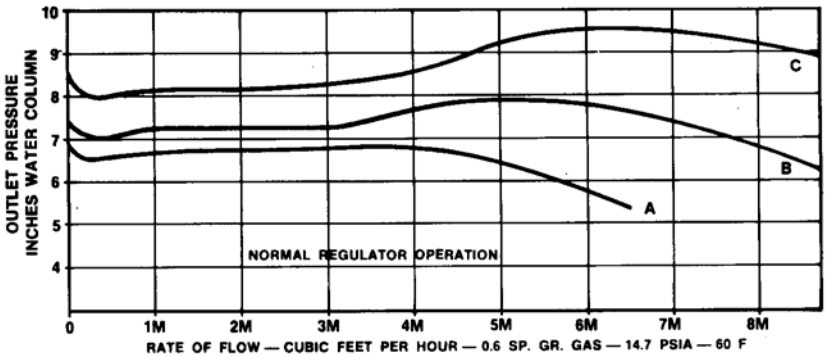


Typical Performance Curves

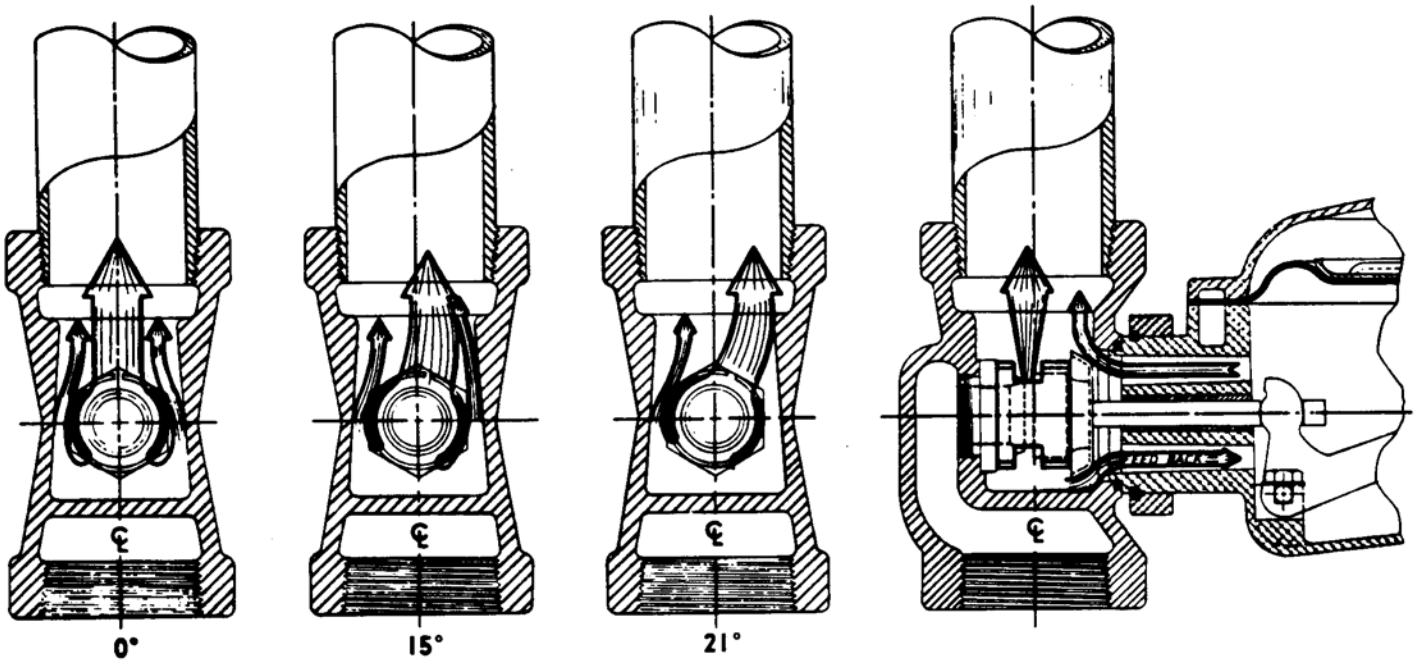
Manufacturer:		Actaris
Type and Model:		B34IM
Regulator:	Inlet Size	2" NPT
	Outlet Size	2" NPT
	Inlet Press.	40 PSIG at set
	Orifice Size	3/4"
	Spring Range	1.8 to 5.75 PSIG
	Bolt Circle Dia	12-1/16"
	Flow Rate at set	200 scfh
	Position	9
	Loading Ring	Set at 0°

Curves
A 60 PSIG inlet pressure - W.O.R. -19M @4.89 PSIG
B 40 PSIG inlet pressure - SET
C 25 PSIG inlet pressure - W.O.R.
D 40 PSIG inlet pressure - FAILED CONDITION
E 60 PSIG inlet pressure - FAILED CONDITION

Set Point 5 PSIG

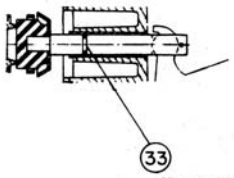


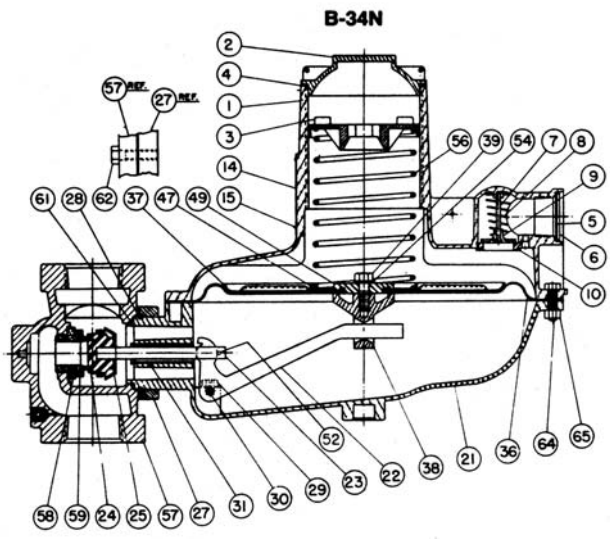
B34 N & R Adjustable Loading Ring Settings with Corresponding Outlet Pressure Flow Patterns



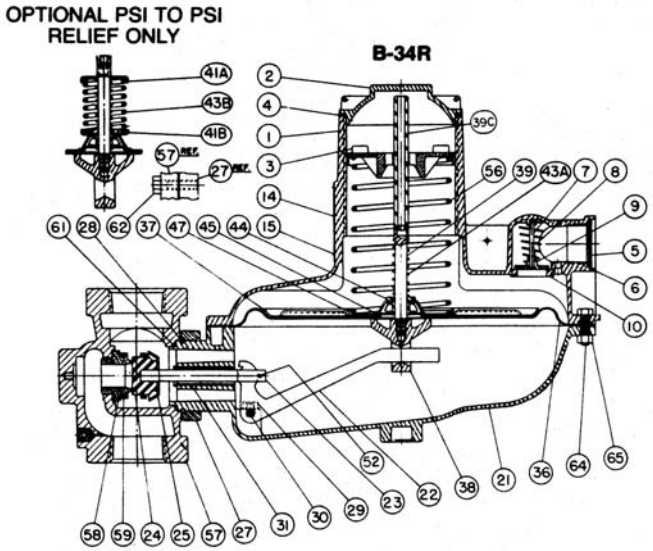
(Note: For a complete description and instructions on the use of the B34 Loading Ring, please call Actaris US Gas, Inc.

Parts Lists





B34N Reference Schematics



B34R Reference Schematics

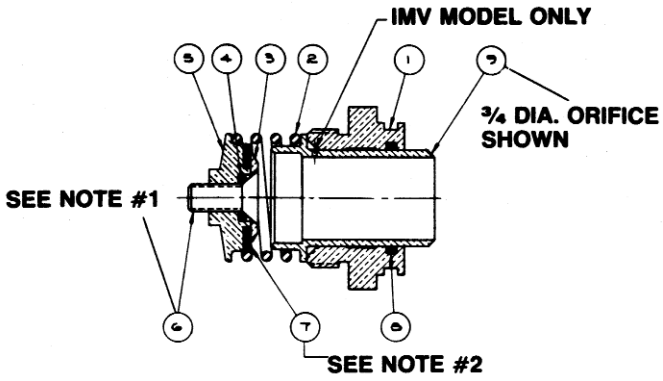
Parts List

Item No.	Part No.	Quantity Required per Regulator Model RD	RM	D	M	R	N	Description
1								**Upper Diaphragm Case Assembly - Specify**
	710040	1	1	1	1	1	1	1" NPT vent, #10 breather hole, Standard
	710088	1	1	1	1	1	1	1" BSP vent, #10 breather hole
	710089	1	1	1	1	1	1	1" NPT vent, no breather hole
	710100	1	1	1	1	1	1	1" NPT vent, #44 breather hole
2	**760083**	**1**	**1**	**1**	**1**	**1**	**1**	**Seal Cap**
3	**760233**	**1**	**1**	**1**	**1**	**1**	**1**	**Adjustment Screw**
4	**765607**	**1**	**1**	**1**	**1**	**1**	**1**	**Seal Cap Gasket**
5	**762933**	**1**	**1**	**1**	**1**	**1**	**1**	**Vent Screen**
6	**75579101**	**1**	**1**	**1**	**1**	**1**	**1**	**Vent Screen Retainer Ring**
7	**75483401**	**1**	**1**	**1**	**1**	**1**	**1**	**Vent Valve Disc Pin**
8	**762601**	**1**	**1**	**1**	**1**	**1**	**1**	**Vent Valve Spring - 1/2 oz.**
9	**765181**	**1**	**1**	**1**	**1**	**1**	**1**	**Vent Valve Disc**
10	**765685**	**1**	**1**	**1**	**1**	**1**	**1**	**Vent Valve Seat**
14	**769250**	**1**	**1**	**1**	**1**	**1**	**1**	**Regulator Badge**
15	**755071**	**2**	**2**	**2**	**2**	**2**	**2**	**Badge Screw**
21								**Lower Diaphragm Case (Use any Valve Body) -- Ratio**
	715050					1	1	4:1 Ratio - Open Throat
	715052	1	1	1	1			.35:1 Ratio - Closed Throat
22								**Valve Lever - Specify Ratio**
	761275					1	1	4:1 Ratio, Standard
	761271	1	1	1	1			3.5:1 Ratio
23								**Valve Stem**
	754151					1	1	Steel
	754154	1	1	1	1			Stainless Steel
24								**Valve Seat**
	765201	1	1	1	1	1	1	Valve Seat Buna-N 75-80 Duro
	765203							Valve Seat w/white stripe Buna-N 85-90 Duro, IM version only
	765251							Valve Seat w/yellow strip - with IM test tap
25								**Deflector Ring**
	761721	1	1	1	1	1	1	Deflector Ring, Standard
	761723	1	1	1	1	1	1	Deflector Ring, IM version only
27	**751913**	**1**	**1**	**1**	**1**	**1**	**1**	**Valve Body Ret. Plate-Alum.**
28	**755725**	**1**	**1**	**1**	**1**	**1**	**1**	**Retainer Rate Snap Ring**
29	**755223**	**2**	**2**	**2**	**2**	**2**	**2**	**Valve Linkage Pin Screw**
30	**754836**	**1**	**1**	**1**	**1**	**1**	**1**	**Valve Linkage Pin**
33	**765505**		**1**		**1**			**Valve Stem O-Ring**
36	**766301**	**1**	**1**	**1**	**1**	**1**	**1**	**Diaphragm**
37	**76104101**	**1**	**1**	**1**	**1**	**1**	**1**	**Upper Diaphragm Plate**
38								**Lower Diaphragm Plate**
	756073							With bead, R versions
	756075							No bead, N versions
39	**754375**	**1**	**1**			**1**		**Stop Stem - Assembly Self-aligning**
41A	**761451**	**1**	**1**			**1**		**Relief Spring Guide - PSI Relief**
41B	**761431**	**1**	**1**			**1**		**Relief Spring Guide - Use with Brown & Green Relief Spring**
43A		**1**	**1**			**1**		**Relief Spring -**
	762301							7" w.c. Above Set (standard)
43B		**1**	**1**			**1**		**Relief Spring - Specify Color:**
	762401							Brown .5 PSIG Above Set

Item No.	Part No.	Quantity Required per Regulator Model RD	RM	D	M	R	N	Description
	762403							Green 1.0 PSIG Above Set
44	**754931**	**1**	**1**			**1**		**Stop Stem Guide Busing**
45	**76166501**	**1**	**1**			**1**		**Relief Cap**
47								**Adjustment Spring Guide**
	761481	1	1			1		Adjustment Spring Guide
	761483			1	1		1	Adjustment Spring Guide
49	**761081**			**1**	**1**		**1**	**Secondary Diaphragm Plate**
52								**Valve Stem Slot Pin**
	755007					1	1	Valve Stem Slot Pin
	755009	1	1	1	1			Valve Stem Slot Pin
54	**755851**							**Diaphragm Plate Washer - Lock**
56		**1**	**1**	**1**	**1**	**1**	**1**	**Adjustment Spring**
	762351							Brown
	762353							Green
	762355							Black
	762357							Blue
	762359							Silver
	762361							Yellow
	762671							Red-Nested
	762673							White-Nested
	762321							Green/White
	762323							Silver/Red
	762365							Purple
	762341							Orange
	762345							Orange/Green
	762358							Blue/White
57		**1**	**1**	**1**	**1**	**1**	**1**	**NPT Valve Bodies - Specify Type & Size**
	750604							1-1/4" x 1-1/4"
	750605							1-1/4" x 1-1/4" BSPT
	750607							1-1/4" x 1-1/4" 1/8" Tap
	750616							1-1/4" x 1-1/4" 1/8" IM Test Tap
	750627							1-1/4" x 1-1/2"
	750630							1-1/4" x 1-1/2" 1/8" Tap
	750639							1-1/4" x 1-1/2" IM Test Tap
	750654							1-1/4" x 2"
	750657							1-1/4" x 2-1/8" Tap
	750666							1-1/4" x 2" IM Test Tap
	750676							1-1/2" x 1-1/2"
	750678							1-1/2" x 1-1/2" BSPT
	750679							1-1/2" x 1-1/2" BSP
	750680							1-1/2" x 1-1/2" 1/8" Tap
	750693							1-1/2" x 1-1/2" IM Test Tap
	750704							1-1/2" x 2"
	750707							1-1/2" 2" 1/8" Tap
	750716							1-1/2" x 2" IM Test Tap
	750726							2" x 2" NPT
	750728							2" x 2" BSPT
	750729							2" x 2" BSP
	750730							2" x 2-1/8" Tap

Item No.	Part No.	Quantity Required per Regulator Model RD	RM	D	M	R	N	Description
								Flanged Valve Bodies
	750754							2" x 2" ASA 125 Flat-face flange 10" Length
	750757							2" x 2" ASA 125 Flat-face flange 10" Length, 1/8" Tap
	750777							2" x 2" ASA 125 Flat-face flange 7.5" Length
	750780							2" x 2" ASA 125 F;at-face flange 7.5" Length, 1/8" Tap
	750804							3" x 3" ASA 125 Flat-face flange
	750807							3" x 3" ASA 125 Flat-face flange, 1/8" Tap
58		**1**	**1**	**1**	**1**	**1**	**1**	**Orifice - Specify Type & Size**
	758101							ORI 1/4"
	758104							ORI 3/8"
	758107							ORI 1/2"
	758110							ORI 5/8"
	758113							ORI 3/4"
	758117							ORI 7/8"
	758150							ORI 7/32" x 1/4"
	758151							ORI 1/4" x 3/8"
	758154							ORI 5/16" x 3/8
	758157							ORI 3/8" x 1/2"
	758160							ORI 1/2" x 5/8"
	758163							ORI 5/8" x 3/4"
	758166							ORI 3/4" x 7/8"
	758169							Ori 7/8" x 1"
61	**765651**	**1**	**1**	**1**	**1**	**1**	**1**	**Valve Body Gasket, Standard**
	765605	1	1	1	1	1	1	Valve Body Gasket, Square
62	**755386**	**2**	**2**	**2**	**2**	**2**	**2**	**Ret. Plate Screw 5/16 - 18 x 1-1/4 HEX HD SLT**
64	**755311**	**12**	**12**	**12**	**12**	**12**	**12**	**Case Screw - 1/4 - 20 x 1 HES HD CARB**
65	**755513**	**12**	**12**	**12**	**12**	**12**	**12**	**Case Screw Nut - 1/4 - 20 HEX HICARB**
								Sub - Assemblies
	715016					1	1	Lower Diaphragm Case Assembly - 4:1 Lever Ratio
	715018		1		1			Lower Diaphragm Case Assembly - 3.5:1 Lever Ratio
	715063	1		1				Lower Diaphragm Case Assembly - 3.5:1 Lever Ratio
	720025	1	1			1		Diaphragm Assembly - Relief (Standard)
	720026							Diaphragm Assembly - Brown Relief Spring
	720027							Diaphragm Assembly - Green Relief Spring
	720028	1	1	1	1	1	1	Diaphragm Assembly - 10" w.c. above set point Relief Spring
	720101	2	2	2	2	2	2	Diaphragm Plate Assembly
	756091							Lower Diaphragm Plate
								Torque Specifications
Retainer Plate Screws								100 in. lbs
Orifice								600 in. lbs
Orifice (IM & SO)								300 in. lbs
Margin Screws								50 in. lbs
								Special Parts
	799021							Orifice Wrench
	799055							Adjustment Wrench
	799081							Loading Ring Position Tool
	754852							Vent Valve Reducer #31
	754853							Vent Valve Reducer #44
	80002002							Seal Wire, No Lead 24 in.

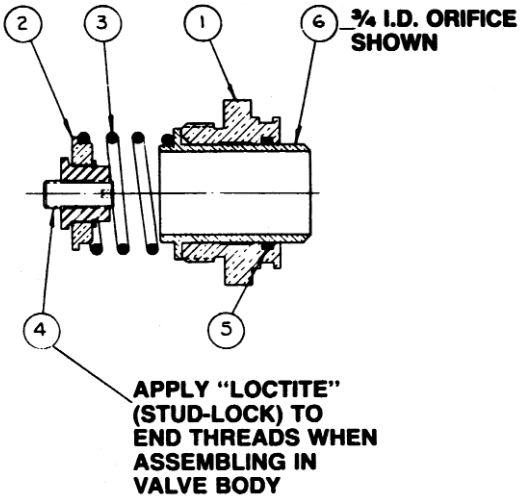
IM Orifice Assembly Schematic



Note 1: Apply Loctite (screw-lock) to end threads of item #6 before assembling in valve body.

Note 2: Cement item #7 to item #5 before assembling in valve body.

SO Orifice Assembly Schematic



Internal Monitor (IM) Orifice Assembly Numbers						
759127	759125	759123	759121	Item No.	Description	Part Number
1	–	–	–	9	3/4" Dia. Orifice–Straight	758231
–	1	–	–	9	5/8" Dia. Orifice – Stepped	758241
–	–	–	1	9	1/2" Dia. Orifice – Stepped	758238
–	–	–	1	9	3/8" Dia. Orifice – Stepped	758235
1	1	1	1	8	O-Ring	765501
1	1	1	1	7	Monitor Seat	765741
1	1	1	1	6	Sco. Fl. Hd. Screw	755131
1	1	1	1	5	Anchor	756103
1	1	1	1	4	O-Ring	765509
1	1	1	1	3	Anchor Plate	754511
1	1	1	1	2	Cut-off Spring	762311
1	1	1	1	1	Stationary Orifice	758221
All of the above parts are interchangeable						

Internal Monitor (IM) Orifice Assembly with Vent Hole "V" Option						
759127	759125	759123	759121	Item No.	Description	Part Number
1	–	–	–	9	3/4" Dia. Orifice–Straight	758251
–	1	–	–	9	3/8" Dia. Orifice – Stepped	758255
–	–	1	–	9	1/2" Dia. Orifice – Stepped	758258
–	–	–	1	9	5/8" Dia. Orifice – Stepped	758261
1	1	1	1	8	O-Ring	765501
1	1	1	1	7	Monitor Seat	765741
1	1	1	1	6	Sco. Fl. Hd. Screw	755131
1	1	1	1	5	Anchor	756103
1	1	1	1	4	O-Ring	765509
1	1	1	1	3	Anchor Plate	754511
1	1	1	1	2	Cut-off Spring	762311
1	1	1	1	1	Stationary Orifice	758221
All of the above parts are interchangeable						

Installation

SAFETY NOTES:

▶ **A.** The maximum inlet pressure for this regulator is dependent upon the size of the orifice and model designation. The non-relief models are limited to 60 PSIG maximum inlet pressure unless addition safety devices are used as outlined in DOT code, OPS, Part 192, section 192.197.

▶ **B.** When these models are used on liquid petroleum gases, they should be restricted to second-stage pressure reduction in the gaseous phase.

▶ **A.** Make certain all shipping plugs are removed from the inlet, outlet and vent of any regulator before installation.

▶ **B.** When installing the regulator, the inside of the piping and the regulator inlet and outlet are to be clean, free of dirt, pipe dope and other debris to prevent entry into the regulator which could cause loss of pressure control.

▶ **C.** The pipe joint sealant should be applied on the male threads of the pipe. Do not use any pipe joint material on the female threads of the regulator or it could become lodged in the regulator causing possible loss of pressure control.

▶ **D.** Gas must flow through the valve body of the regulator in the same direction as the arrow cast on the body, or the outlet side of the regulator may be overpressured and damaged.

▶ **E.** The diaphragm casing may be mounted in any position relative to the body through a full 360° angle.

▶ **F.** When the regulator is installed OUTDOORS, the vent must always be positioned so that rain, snow, moisture or foreign particles cannot enter the vent opening. It is recommended that the vent be positioned to face downward so as to avoid entry of water or other matter which could interfere with the proper operation of the regulator. The vent should be located away from building eves, window openings, building air intakes and above the expected snow level at the site. The vent opening should be inspected periodically to insure it does not become blocked by foreign material.

▶ **G.** When the regulator is installed INDOORS, the vent must be piped to the outside atmosphere while using the shortest length of pipe, the least number of elbows, and having as large a pipe diameter as the vent size or larger. USING VENT PIPE ANY SIZE SMALLER THAN THE VENT CONNECTION WILL LIMIT THE REGULATOR'S INTERNAL RELIEF VALVE CAPACITY. The outlet end of the pipe must be protected from moisture and the entrance of foreign particles. The regulator should be specified by the user with the size vent and pipe threads desired to make the vent pipe connection.

START-UP PROCEDURE

▶ **A.** A pressure gauge should be mounted downstream of the regulator to monitor the downstream pressure.

▶ **B.** With the downstream valve closed, slowly open the inlet valve. The outlet pressure should rise to slightly greater than the set-point.

▶ **C.** Be sure there are no leaks and all connections are tight.

▶ **D.** The regulator has been preset at the factory to match specifications given when it was ordered. The outlet pressure may be adjusted by removing the seal cap on top of the spring housing and adjusting the ferrule or screw inside the spring housing using a ratchet with a socket and an extension. With a small amount of gas flowing through the regulator, rotate the ferrule clock-wise to raise the outlet pressure and counter-clockwise to lower the outlet pressure.

▶ **E.** After the desired outlet pressure is achieved, replace the seal cap, recheck for leaks. The regulator is ready for operation.

SAFETY WARNING:

This product, as of the date of manufacture, is designed and tested to conform to all governmental or industry safety standards then existing as may apply to the manufacturer.

▶ The purchaser and user of this product are warned that compliance with the manufacturer's instructions and procedures is required in order to avoid the hazards of leaking gas resulting from improper installation, start-up or use of this product, and further, that all area fire control, building codes or other safety regulations which regulate or concern the application, installation, operation or general use of this product should be complied with.

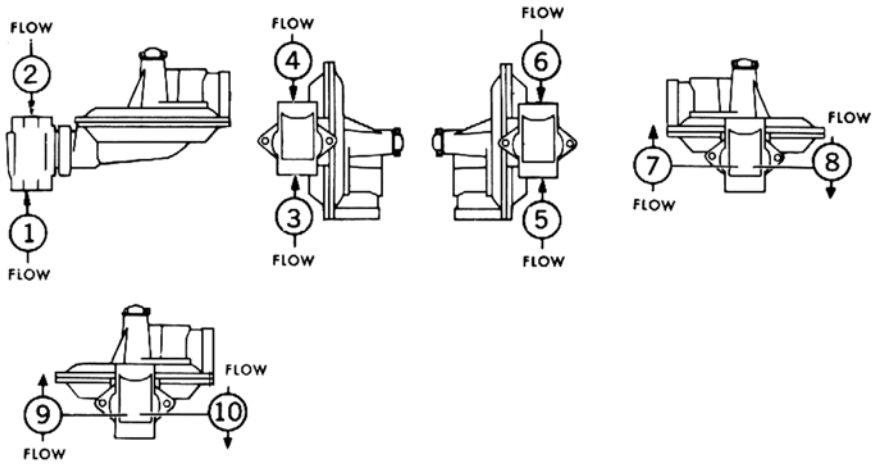
▶ In order to insure the safe and proper operation of this product, the manufacturer recommends that this product be installed by a qualified installer.

Vent Lines for Regulators

When constructing vent lines to be attached to regulators installed indoors, a few basic rules must be followed:

1. Never use pipe sizes smaller than the vent size itself; anything smaller will restrict the flow of gas. If a long run must be used, it is advisable to increase the pipe one size every ten feet in order to keep the flow restriction as low as possible.
2. Keep the length of vent line as short as possible to minimize the restriction as well as reduce the tendency for the vent piping to cause pulsation of the regulator.
3. Support the vent pipe so there is no strain on the regulator diaphragm case.
4. Always point the end of the vent pipe located outside the building in the downward position to reduce the possibility of rain, snow, sleet etc. from entering the pipe. A bug screen should be installed in the end of the pipe.
5. The terminus of the vent line must not be located near windows, fans, etc. See the installation instructions furnished with the regulator.
6. All applicable codes and regulations must be adherred to.
7. Vent pipe may cause regulator pulsation. If this situation occurs, please consult your regulator representative or the factory.
8. It is strongly recommended that a separate vent line be run for each regulator; a header with other devices installed in it can cause regulator malfunction.
9. If approved by the authority having jurisdiction, the vent lines may be manifolded inaccordance with accepted engineering practices to minimize backpressure in the event of diaphragm failure.

Assembly Positions



Limited Warranty

Actaris U.S. Gas, Inc., 970 Highway 127 North, Owenton, Kentucky 40359-9302, warrants this gas product against defects in materials and workmanship for the earlier of one (1) year from the date the product is shipped by Actaris or a period of one year from the date the product is installed by Actaris at the original purchaser's site. During such one-year period, provided that the original purchaser continues to own the product, Actaris 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.

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

• Actaris' liability for any claim of any kind, including negligence and breach of warranty for the sale and use of any product covered by or furnished, shall in no case exceed the price allocable to the product or part thereof which gives rise to the claim.

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

See Actaris Terms and Conditions of Sale for the full and complete terms of the Limited Warranty.

► Ordering Information

Specify:

1. Inlet and Outlet Connection Size and Type
2. Model Number
3. Outlet pressure desired
4. Inlet pressure range
5. Type of gas and maximum capacity required
6. Assembly position number (see page 31)
7. Vent size
8. Special requirements such as tagging, 1/8" pipe plug tap, seal wire, etc.

► Reference Information:

-Product Overview, JOB

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