B42 Series Regulator

Advanced Metering
and Regulation
Technolgy at Work

Features

Interchangeable aluminum orifice

12.6 in^2 of diaphragm area

Molded deep convolution diaphragm with o-ring seal

Plated steel diaphragm plate

Stainless steel lever pin

Plated steel 6:1 lever

One piece molded Buna-N valve seat

Die cast zinc valve stem

Delrin® vent valve with Buna-N seat

Spring loaded internal relief valve assembly

1" and 3/4" threaded vent with stainless steel screen

Fiberglass reinforced polethelyne seal cap with integral relief valve stop

Field interchangeable adjustment spring

CSA 6-18 Approved

Measurement Canada Approved - G108

B109.4 Compliant

Benefits

Increased Safety

Long Service Life

Easier Installation

Easier Transport

Application

Consistent pressure reduction of gas for typical domestic and light commercial applications.

Designed to Increase Your Customer's Satisfaction and Reduce Your Total Costs

The model B42 is uniquely constructed to give utilities the edge they need in an increasingly complex and competitive marketplace. The model B42 excels with benefits of size, safety, performance, and cost. The B42 also offers three connection versions providing the greatest flexibility for your regulation needs. In addition, due to inventory and manufacturing enhancements this product can be delivered with unparalleled speed and scheduling dependability.

Compact Size

While the model B42 is more compact than traditional regulators, it was also designed to meet customer expectations for safety and long field life. The B42 is designed to consolidate product usage for both residential and light commercial applications.

Description

The B-42 is a spring loaded self operated regulator with internal relief. The B42 features a molded diaphragm, 6:1 lever ratio and a one inch vent. The benefit is a lighter more compact unit that provides the power, capacity and relief performance of larger regulators

B42N The B42N is a spring loaded self-operated regulator with no internal relief (N) valve. This model can be used on low or intermediate inlet pressures where an internal relief, or other type of over-pressure protection device is not required.

B42R –The B42R is the internal relief (R) version of the B42 Series. The large 1" internal relief valve provides exceptional relief capacity.

Option Designations

N —   No Internal Relief
R —   Internal Relief

1 - **All metal restricting orifice**
2 - **Full 1" relief vent**
3 - **Field interchangeable springs**
4 - **Dual positive relief stops**
5 - **All metal linkage**
6 - **Integral o-ring diaphragm seal**
7 - **Mechanically fastened ID tag**
8 - **1-piece valve seat design**
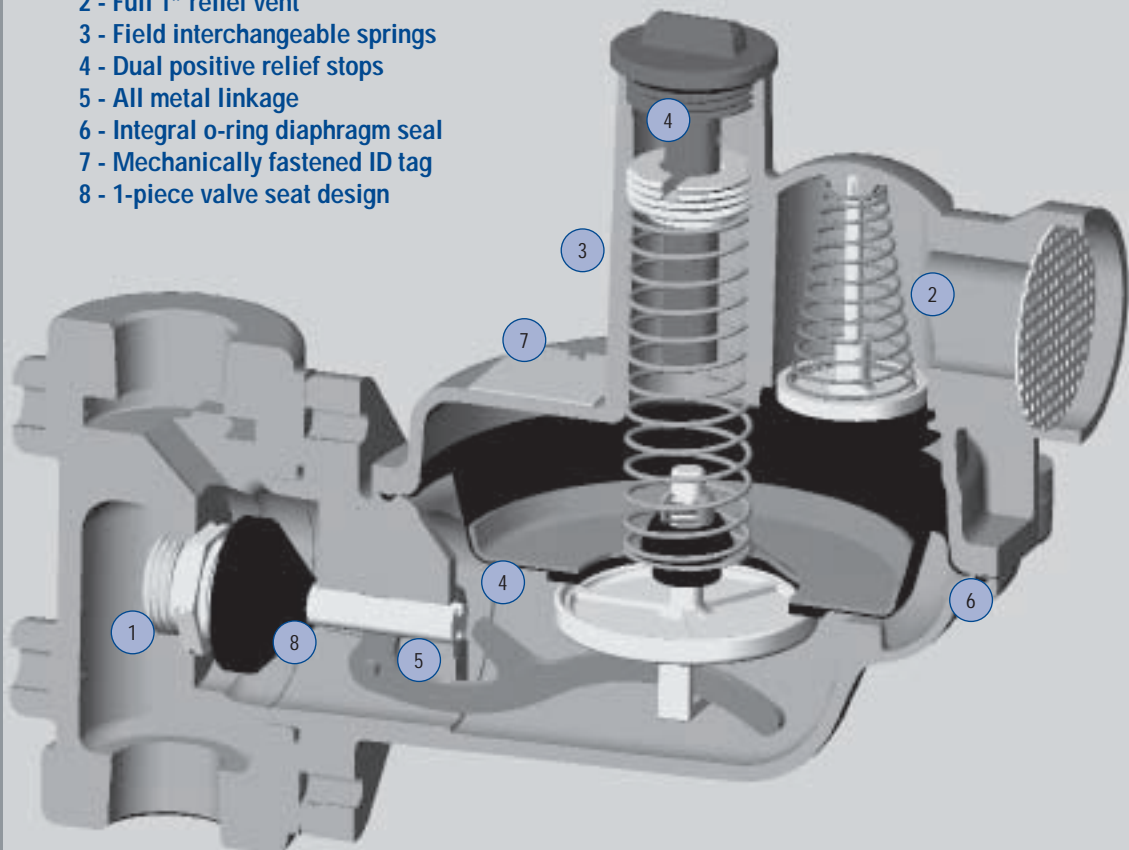
Specifications

Material Construction:

Valve Body:	High tensile strength cast iron (ASTM A-126, Class A)
Orifice	Aluminum
Valve Seat:	Buna-N or silicone
Valve Stem:	Die cast zinc
Lever Pin:	Stainless steel (Type 303)
Lever:	Zinc and dichromate plated steel (AISI C1010)
Upper Diaphragm Plate:	Zinc and dichromate plated steel (14 gauge steel)
Lower Diaphragm Plate:	Isoplast
Diaphragm:	Buna-N on Dacron reinforcing fabric
Vent Valve/Seat:	Neoprene
Vent Screen:	Stainless Steel (16 mesh)
Adjustment Ferrule:	Delrin
Seal Cap:	Fiberglass reinforced polyethlene
Diaphragm Case:	Die cast aluminum (ASTM B85 –Alloy SC84A)
Fastener Plating:	Dacromet with Plus Black

Shipping Weight:
12 per box: 48 lbs.

Correction factors for non-natural gas applications:

The B42 may be used to control gases other than natural gas. To determine the capacity of the B42 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	1.0	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:

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

Where:

SG_1 = Specific Gravity of the gas in which the capacity is published.
SG_2 = Specific Gravity of the gas to be controlled.

Standard Spring Data - B42	Spring Color	Outlet Pressure Range**
	Green (p/n 762649)	5 - 7" w.c.
	Brown (p/n 762645)	6 - 8" w.c.
	Blue (p/n 762646)	8 - 14" w.c.
	Silver (p/n 762647)	12 - 28" w.c.
	Yellow/Black (p/n 762650)	1 - 2 PSIG
Alternate Spring Data - B42		
	Orange (p/n 762002)	5.5 - 9" w.c.
	Dark Green (p/n 762003)	4 - 9" w.c.
High Pressure Spring Data - B42		
	Yellow (p/n 762131)	2 - 4 PSIG
	White (p/n 762137)	4 - 5 PSIG
Relief Spring Data - B42		
	Purple (p/n 762653)	7" w.c. Above Set Point
	Red (p/n 762655)	5" w.c. Above Set Point

*Note: Ranges are approximations, please contact manufacture to obtain the best spring for application.
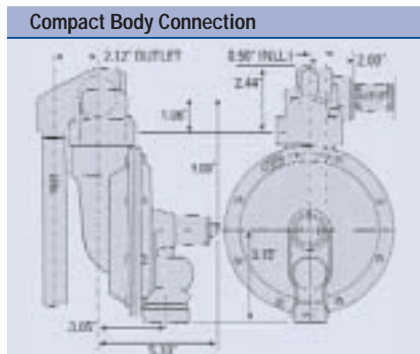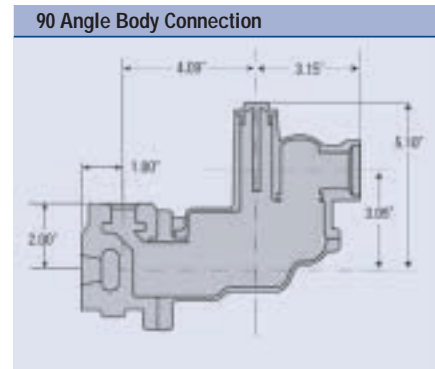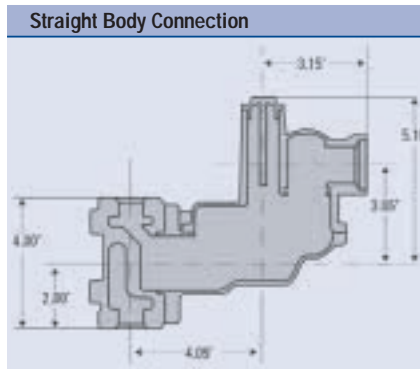
Orifice Data	Size	K-Factor	MAOP	Emergency Inlet	Emergency Outlet No Damage	Emergency Outlet Containment
	1/8"	30	125 PSIG	300 PSIG	60 PSIG	30 PSIG
	1/8" x 3/16"	30	125 PSIG	300 PSIG	60 PSIG	30 PSIG
	3/16"	71	125 PSIG	200 PSIG	60 PSIG	30 PSIG
	1/4"	127	60 PSIG	150 PSIG	60 PSIG	30 PSIG
	5/16"	193	35 PSIG	100 PSIG	60 PSIG	30 PSIG
	3/8"	290	20 PSIG	75 PSIG	60 PSIG	30 PSIG
	1/2"	416	10 PSIG	40 PSIG	60 PSIG	30 PSIG
	1/2" x 9/16"	416	10 PSIG	40 PSIG	60 PSIG	30 PSIG

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: $Q = \dfrac{KP_1}{2}$

Where: P_1 = absolute inlet pressure (psia)
Q = flow rate (scfh)

P_2 = absolute outlet pressure (psia)
K = orifice coefficient (scfh/psi)

Straight Body Connection

90 Angle Body Connection

Compact Body Connection

Connection Sizes				
Inlet	Outlet	Compact	90 Angle	Straight
1/2"	1/2"	-	X	X
1/2"	3/4	-	X	X
1/2"	1"	-	X	-
3/4"	3/4"	X	X	X
3/4"	1"	X	X	X
3/4"	1-1/4"	-	-	X
1"	1"	-	X	X
1"	1-1/4"	-	-	X
1-1/4"	1-1/4"	-	-	X