PROPORTION-AIR

Global Leader in Proportional
Electro-Pneumatic Pressure & Flow Control

PRODUCT CATALOG

Including Burling Valve and Protect-Air USA

ACCURATE • REPEATABLE • CUSTOMIZABLE

PRODUCT CATALOG

Table of Contents

WHY CHOOSE PROPORTION-AIR?

Advanced Pneumatic Control Technology

ACCURATE • REPEATABLE • CUSTOMIZABLE

Many manufacturing processes benefit from the accuracy provided by proportional closed-loop pneumatic pressure control. Control loops are a chain of events or processes that always lead back to the point of origin. This feedback loop is what allows the system to achieve the greatest levels of accuracy. Since Proportion-Air is committed to providing the customer with exceptional products and service to meet these needs, all Proportion-Air electro-pneumatic control valves use closed-loop control technology.

Our family of brands includes the accurate, repeatable, customizable proportional electro-pneumatic pressure and flow control options of our flagship brand, Proportion-Air; industrial process control valves with large CVs, easy in-line maintenance and fast delivery from Burling Valve; and affordable, preset, tamper-proof miniature regulators from Protect-Air USA.

These lines offer products that are excellent alone or can work together to meet your toughest needs.

CONTROL YOUR VARIABLES

PRESSURE

Proportion-Air's control products offer customizable pressure ranges from vacuum to 7,500 psi, with precision to ±0.02% repeatability and ±0.2% accuracy. No separate pressure sensor is needed, and units provide monitor output signals for data acquisition. They handle a wide range of gases and flow rates, from small to large.

FLOW

With flow packages and flow control valve options, Proportion-Air has you covered. The F-series flow monitor uses differential pressure technology to measure and produce fast response flow control with ranges as low as 2-20 SCFH (57 SLPH-570 SLPH) up to a maximum of 25 SCFM- 250 SCFM (708 SLPM -7080 SLPM).

This flow monitor can be teamed up with one of Proportion-Air's proportional flow packages to control the flow of air and gases through the same flow ranges. Flow output will be linear and proportional based on your command signal input.

VACUUM

Proportion-Air specializes in closed-loop vacuum control in three different ways.
Regulate (Inline) Vacuum - Calibrated ranges are chosen by the customer and can be factory calibrated as low as 0 to 2 inches of water column or as deep as 0 to 29.9 inches of mercury vacuum.
Generate Vacuum - Fine control can be achieved when using multi-stage vacuum generators and Proportion-Air's dual closed-loop controller scheme.
Break Vacuum - In this case vacuum control is achieved by regulating the amount of atmosphere introduced to the chamber with a closed-loop vacuum breaker.

FORCE

Proportion-Air's standard electronic proportional valve provides an accuracy of ±0.2 % of full scale and a repeatability of ±0.02 % of full scale calibration – precise force is easily achieved.

Some applications require that a load cell be used for closed-loop force control. In this case, the load cell's output can be sent directly into a QB2 proportional regulator as second loop feedback.

TENSION

Products that are accumulated on a roll, whether steel, paper, film or foil, require a means of precise tension control as the material is wound on a roll or unwound from the roll.

Proportion-Air offers control products for air clutches, air brakes and dancer cylinders.

DUAL-LOOP TECHNOLOGY

The Proportion-Air Difference

Any Flow & Any Media

Single loop control valves have a built-in pressure transducer that constantly monitors control pressure. When an electronic command signal is given, the "commanded pressure" is compared to the actual pressure and the inlet or exhaust solenoid valves are actuated until desired pressure is achieved. Dual loop control valves expand on the single loop operation by combining an additional feedback input (in conjunction with the internal transducer) from another external sensing device. The ability of the dual loop to accept electrical feedback from an external sensor allows precise control of conditions such as pressure of large volume systems, vacuum and flow. Proportion-Air carries a selection of single loop regulators as well as regulators and sensors to interface with dual loop mode valves to meet a variety of applications.

Our dual loop technology provides you the capability to control **virtually any media at any flow rate and any pressure without sacrificing accuracy and repeatability**. With a properly configured dual loop unit you can collect feedback from a vacuum, force, flow or pressure transducer. PID loops no longer need to be tuned in your controller. Dual loop technology paired with our unique analog circuit makes proportional control easy. Ramping pressure, vacuum, force, or flow up and/or down is simple. A dual loop control valve can track the ramped signal from the PLC or computer and achieve the control setting required.

Why Dual-Loop Technology?

Accuracy: The downstream pressure transducer senses pressure on the work port of the pressure regulator and allows the control valve to compensate for inaccuracy brought about by the mechanical properties of the regulator.

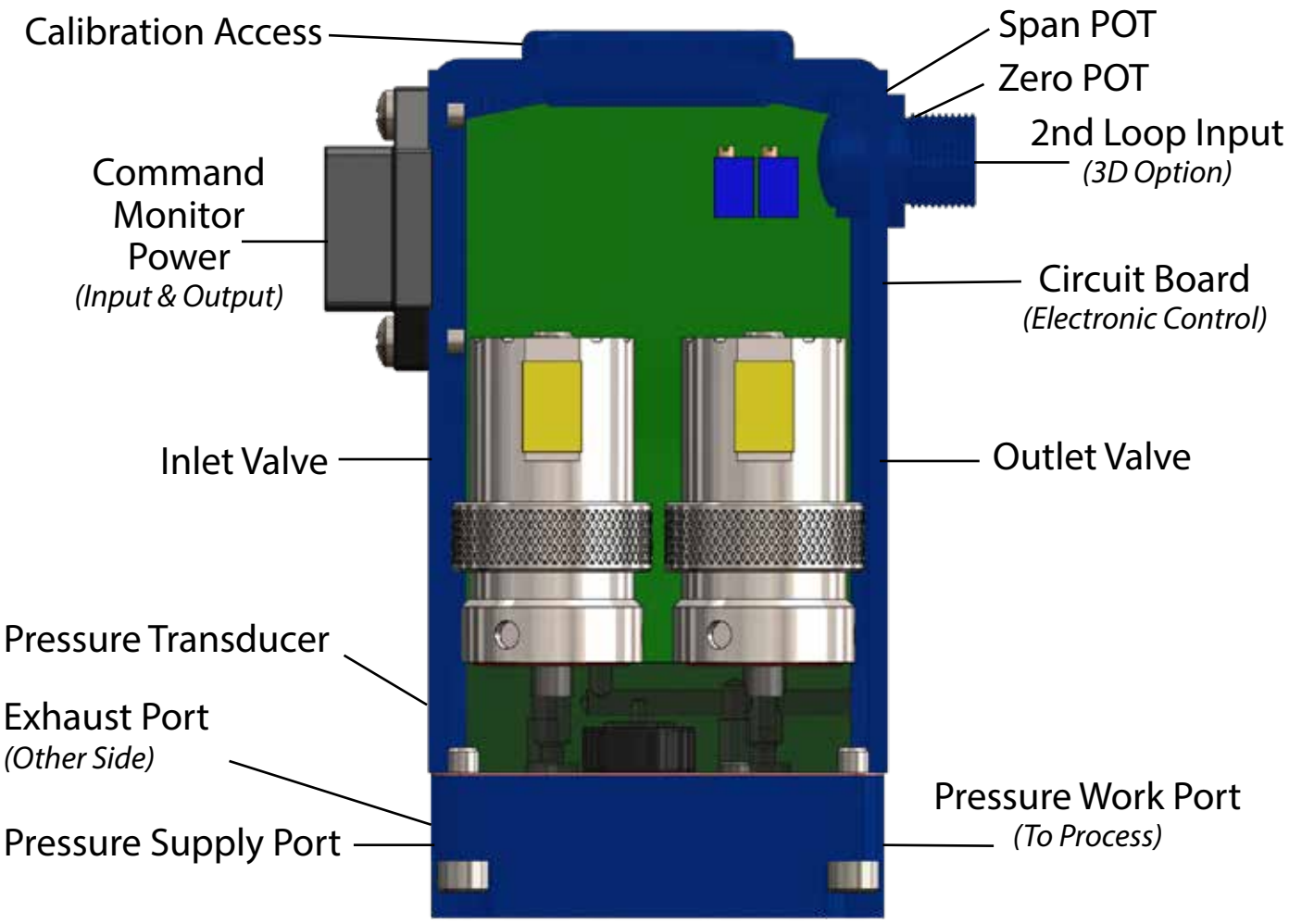
Repeatability: High flow capability, hydraulic or pneumatic media capability, more simple-to-use control and extremely repeatable: The same conditions with the same command signal from the same direction can have repeatability as high as 0.02% of full scale calibration.

High flow: Able to maintain high accuracy even in high flow applications.

Data acquisition: Just like our other electronic pressure regulators, all dual loop devices have analog output that comes from the controlling transducer. The dual loop feedback is provided the downstream transducer.

INSIDE A PROPORTION-AIR UNIT

Internal Components of a QB2X Pressure Regulator



PRESSURE CONTROL

Electro-Pneumatic Closed-Loop Pressure Control Valves

Low Pressure Low Flow

QBX

QBS

MM

SINGLE / DUAL LOOP MODEL	QB1X / QB2X	QB1S / QB2S	MM1 / MM2
PRESSURE RANGES	Full Vacuum to 175 psig (*12 Bar*)	Full Vacuum to 500 psig (*34 Bar*)	Full Vacuum to 175 psig (*12 Bar*)
ACCURACY	±0.2% F.S.	±0.25% F.S.	±0.2% F.S.
REPEATABILITY	±0.02% F.S.	±0.05% F.S.	±0.02% F.S.
MAX FLOW	1.2 SCFM (*34 slpm*)	1.2 SCFM (*34 slpm*)	1.2 SCFM (*34 slpm*)
PORTS	1/8" NPT	1/8" NPT	1/8" NPT
ETHERNET	Available	-	-
DIGITAL DISPLAY	Available	-	-
MANIFOLD MATERIAL	Blue Anodized Aluminum, Nickel-Plated Brass*	Stainless Steel, Blue Anodized Aluminum, Nickel-Plated Brass*	Blue Anodized Aluminum, Nickel-Plated Brass* **
OXYGEN SERVICE	Available*	Available*	Available*
MOUNTING OPTIONS	Single Unit, Bracket	Single Unit, Bracket	DIN Rail, Panel, or Manifold (Up to 12)
INPUT	Analog or MODBUS RS232 & RS485	Analog or MODBUS RS232 & RS485	Jumper selectable command 0-10 VDC or 4-20 mA
OUTPUT	Standard Analog, 0-10 VDC or 4-20 mA		
ADDITIONAL NOTES	• Operates with standard industrial air filtered to 40 micron while not consuming air in a steady state, reducing operating cost. • Can be assembled to an air-piloted regulator (volume booster) for higher flows up to 3,000 SCFM, higher pressures to 7,000 psig and control of various gaseous and liquid media. • Unaffected by mounting position or vibrations to 20Gs.		• Shares common supply and exhaust ports when manifold-mounted for easy plumbing. • Adjustable dead band allows field tuning of system stability.
	* Oxygen service available for brass manifolds only. Brass and stainless steel manifolds will not be blue. ** Brass manifold is standard for MM		

Higher Flows

PRESSURE CONTROL

Electro-Pneumatic Closed-Loop Pressure Control Valves

QB3

QB3H

QB4

GX1 | GX2

PRESSURE RANGES	Full Vacuum to 150 psig (10 Bar)	Full Vacuum to 500 psig (34 Bar)	Full Vacuum to 150 psig (10 Bar)	Full Vacuum to 1,000 psig (69 Bar)
ACCURACY	±0.5% F.S.	±0.5% F.S.	±0.4% F.S.	±0.25% F.S. Resolution: ±0.10% F.S.
REPEATABILITY	±0.2% F.S.	±0.2% F.S.	±0.3% F.S.	±0.15% F.S.
MAX FLOW	30 SCFM (850 slpm)	50 SCFM (1,416 slpm)	200 SCFM (5,663 slpm)	26 SCFM @ 1,000 psi (736 slpm)
PORTS	1/4" NPT	3/8" NPT (1/2" Optional)	1/2" NPT (3/4" Optional)	1/8" NPT
DIGITAL DISPLAY	Available	Available	Available	N/A, but features power and status indicator LED
MANIFOLD MATERIAL	Nickel-Plated Aluminum, Nickel-Plated Brass*	Nickel-Plated Aluminum, Nickel-Plated Brass*	Nickel-Plated Aluminum, Nickel-Plated Brass*	6061 Aluminum, Brass*, or Stainless Steel*
OXYGEN SERVICE	Available*	Available*	Available*	Available*
MOUNTING OPTIONS	Single Unit, Manifold Mount, Bracket	Single Unit, Manifold Mount, Bracket	Single Unit, Manifold Mount, Bracket	Single Unit, volume booster assembly available for higher flow applications
COMMAND SIGNAL OPTIONS	Analog or MODBUS RS232 & RS485, P2 Profiler	Analog or MODBUS RS232 & RS485	Analog or MODBUS RS232 & RS485	Analog or 0-5 VDC 1-5 VDC
MONITOR OUTPUT	Standard Analog, 0-10 VDC or 4-20 mA			
NOTES	• High flow electronic pressure regulators with two solenoid valves, control circuit, pressure transducer, and an integral volume booster. • Operating Temps: 32-158°F (0-70°C) • Immune to shock & vibration (up to 20-25 Gs) • GX units have 40 micron filtration and can be assembled with external volume boosters for even higher pressure applications.			
	*Oxygen service available for brass and stainless steel manifolds only. Brass and stainless steel manifolds will not be blue.			

PROPORTIONAL PRESSURE CONTROL

Electro-Pneumatic Closed-Loop Pressure Control Valves

High Resolution

QPV

MPV

SPV

QL3

PRESSURE RANGES	Full Vacuum to 150 psig (*10 Bar*)	Full Vacuum to 150 psig (*10 Bar*)	Full Vacuum to 150 psig (*10 Bar*)	0-110 psig (*8.6 Bar*)
ACCURACY	±0.2% F.S.	±0.2% F.S.	±0.25% F.S.	±0.4% F.S.
RESOLUTION	±0.005% F.S.	±0.005% F.S.	±0.015% F.S.	±0.05% F.S.
MAX FLOW	1.2 SCFM (*34 slpm*)	1.2 SCFM (*34 slpm*)	Based on inlet valve orifice size	25 SCFM (*708 slpm*)
PORTS	1/8" NPT	1/8" NPT	10-32 UNF	1/4" NPT
DIGITAL DISPLAY	Available	N/A	N/A	Available
MANIFOLD MATERIAL	Blue Anodized Aluminum, Nickel-Plated Brass*	Blue Anodized Aluminum, Nickel-Plated Brass*	Blue Anodized Aluminum	Nickel-Plated Aluminum, Nickel-Plated Brass*
OXYGEN SERVICE	Available*	Available*	N/A	Available*
MOUNTING OPTIONS	Single Unit, Bracket	DIN Rail, Panel, Manifold Mount	DIN Rail, Manifold Mount	Single Unit
COMMAND SIGNAL OPTIONS	Analog or Modbus RS232 & RS485, Ethernet, P2 Profiler	0-10 VDC, 4-20 mA, 0-5 VDC, 1-5 VDC	0-10 VDC, 0-5 VDC, 1-5 VDC	Analog or Modbus RS232 & RS485
MONITOR OUTPUT	0-10, 0-5 or 1-5 VDC; 4-20mA sinking or sourcing	0-10, 0-5 or 1-5 VDC	0-10, 0-5 or 1-5 VDC	0-10, 0-5 or 1-5 VDC; 4-20mA sinking or sourcing
NOTES	• Ultra-high resolution electro-pneumatic closed-loop proportional pressure control with variable orifice valve that eliminates the digital steps of traditional ON/OFF solenoids. • Operating temperature: 32-158°F (0-70°C) • Immune to shock & vibration (up to 20-25 Gs) • QL3 has 40 micron filtration			
	* Oxygen service available for brass and stainless steel manifolds only. Brass and stainless steel manifolds will not be blue.			

Intrinsically Safe

HAZARDOUS AREA PRESSURE CONTROL

Electro-Pneumatic Closed-Loop Pressure Control Valves

The ISQBF is an electronic pressure control regulator that is FM Approved Nonincendive*.

ISQBF

The ISQBX is an electronic pressure control regulator that is FM Approved Intrinsically Safe**.

ISQBX

HAZARDOUS AREA CLASSIFICATIONS	Nonincendive*	Intrinsically Safe**
PRESSURE RANGES	Full Vacuum to 150 psig (*10 Bar*)	Full Vacuum to 150 psig (*10 Bar*)
ACCURACY	±0.5% F.S.	±0.5% F.S.
REPEATABILTY	±0.5% F.S.	±0.5% F.S.
FLOW RATE	.80 SCFM @ 80 psig (*23 L/min*)	.80 SCFM @ 80 psig (*23 L/min*)
PORTS	1/8" NPT	1/8" NPT
MIN CLOSED END VOLUME	1 in^3	1 in^3
SUPPLY VOLTAGE / CURRENT	Specify 12 or 15-24 VDC / <80 mA	15-24 VDC Standard / <80 mA
COMMAND SIGNAL / IMPEDANCE	4-20 mA differential / 100Ω	4-20 mA differential / 100Ω
FILTRATION RECOMMENDED	40 Micron (Included)	40 Micron (Included)

ADDITIONAL NOTES	• Operating temperature: 23-104° F (0-40° C) (T4)
	• Housing: Blue Anodized Aluminum
	• **ISQBF Supply Voltage Options**:
	  • P1 = 12 VDC / 11 to 14.5 VDC (MAX)
	  • P2 = 15-24 VDC / 13.5 to 29 VDC (MAX)	

HAZARDOUS AREA CLASSIFICATIONS	***** Nonincendive for Class I, II, Division 2, Groups C, D, E, F and G with an Intrinsically Safe process connection for Class I, II, III Division 1, Groups C, D, E, F, and G hazardous (classified) locations with an ambient temperature rating of -25°C to +40°C. May be used with any non-corrosive compressible media compatible with the wetted materials. **Special Condition for Use:** *With Intrinsically Safe Process Connections* Intrinsically safe process connections refers to process connections that under any condition of installation or operation will not change the nature of the hazardous (classified) area from a division 2 to a division 1 location. ****** Intrinsically Safe for Class I, II, III Division 1, Groups C, D, E, F, and G hazardous (classified) locations in accordance with drawing ISQB-96026-2 with an ambient temperature rating of -25°C to +40°C. **Entity Parameters:** V Max=29 VDC I Max=150 mA Ci=0.26uF Li=0	

PRESSURE REGULATORS

Volume Boosters & Ratio Regulators

Three distinct components for most ***QB2 Volume Air Booster Assemblies***

1 – QB2X Electronic Pressure Regulator provides an air pilot signal to the dome of the volume air booster. By controlling pressure to the top of the diaphragm, we control pressure out of the volume booster.

2 – Volume Air Booster, also known as a dome-loaded or pilot-operated pressure regulator. This can be a pressure reducing valve or a back pressure valve. We have many volume boosters available that can handle different pressures, medias and flow rates.

3 – DSB or DST Pressure Transducer measures output pressure of the volume booster and provides this feedback signal to the QB2. The QB2 adjusts dome pressure (based on this feedback) to achieve the commanded pressure in the process.

PSR

RM SERIES

RMV SERIES
(Vacuum)

MAX OUTLET PRESSURE	Up to 200 psig (*14 Bar*)	Up to 250 psig (*17.2 Bar*)	0-29.9" Hg Vacuum (*0-759 mmHg*)
MAX FORWARD FLOW	700 SCFM (*19,822 slpm*)	2,000 SCFM (56,634 *slpm*)	45 SCFM (1,274 *slpm*)
MAX RELIEF FLOW	12 SCFM (*340 slpm*)	200 SCFM (5,663 *slpm*)	-
PORTS	1/4 to 1½" NPT	1/4 to 2" NPT	1/4 to 1-1/4" NPT

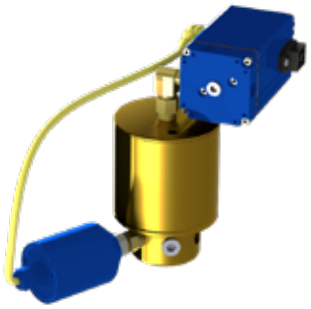
Our pilot-operated regulators are dome-loaded, self-venting volume boosters that function as a commanded regulator when paired with our QB Series electronic pressure regulators. They provide a controlled pressure with much higher flow rates than can be achieved through the QB products alone. They can handle any inert gas or many can be adapted for use with natural gas, propane or oxygen. The RM Series can also used in vacuum applications.

PRESSURE REGULATORS

Volume Boosters & Ratio Regulators

RG1262 & RG1262-1500

MAX INLET PRESSURE	6,000 PSI (*413 bar*)
MAX OUTLET PRESSURE	0-5,000 PSI (*345 bar*)
FLOW COEFFICIENT (Cv)	0.05
RATIO REGULATION	45:1 and 15:1
PORTS	1/4" NPT



RG1262 shown as an assembly paired with DST Transducer and QB2X

RG2112

MAX INLET PRESSURE	250 PSI (*17 bar*)
MAX OUTLET PRESSURE	150 PSI (*10 bar*)
MAX FORWARD FLOW	1800 SCFM
MAX RELIEF FLOW	65 SCFM
PORTS	1" & 1 1/4" NPT

RG2712 & RG2713

MAX INLET PRESSURE	250 PSI (*17 Bar*)
OUTLET PRESSURE	0 to 150 PSI (*10 Bar*)
FLOW CAPACITY	45 SCFM @ 100 psig inlet
PORTS	RG2712 - 1/4" NPT RG2713 - 3/8" NPT

RG873V

MAX INLET	6000 PSI (*414 bar*)
P2 PRESSURE RANGE	0 to 5,000 psig (*344 Bar*)
MAX FLOW	150 SCFM *(71 Lit/sec)*
PORTS	1/4" Inlet, 1/2" Outlet

PRESSURE TRANSDUCERS

Vacuum, Vacuum Through Positive Pressure, & Positive Pressure

DS Series pressure transducers offer high accuracy, cost-effective pressure transducers for vacuum only, vacuum through positive pressure or positive pressure only.

The lowest calibrated positive pressure range is 0-12 inches of water column. It also has field adjustable zero and span potentiometers.

DSB

DST

DSW

DSL

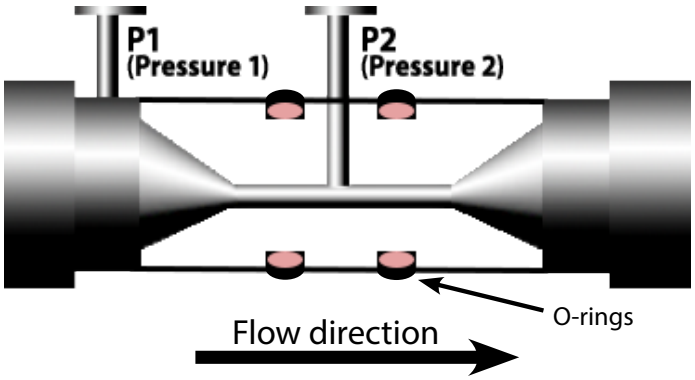
	DSB	DST	DSW	DSL
PRESSURE RANGES	Full Vacuum to 175 psig (*12 Bar*)	Full Vacuum to 7,000 psig (*483 Bar*)	Full Vacuum to 175 psig (*12 Bar*)	Full Vacuum to 30 psig (*2 Bar*)
ACCURACY	±0.2% F.S.	±0.5% F.S.	±0.2% F.S.	±0.2% F.S.
REPEATABILITY	Up to ±0.02% F.S.	Up to ±0.25% F.S.	Up to ±0.02% F.S.	±0.02% F.S.
PORTS	1/4" & 1/8" NPT & BSPT	1/4" & 1/8" NPT & BSPT	1/4" & 1/8" NPT & BSPT	10-32 Pneumatic Connection
MEDIA	Air and gases	Air, gases, and liquids	Air and gases	Air and gases
OXYGEN SERVICE	Available	Available	Available	Available
ANALOG OUTPUT	Available for voltage or current outputs.	Available for voltage or current outputs.	Available for voltage or current outputs.	0-10 VDC

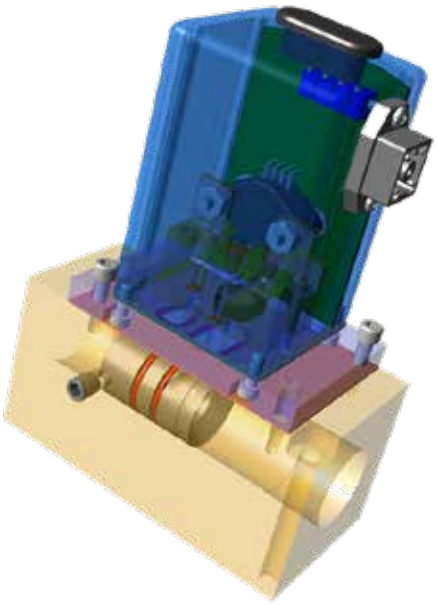
FLOW CONTROL

Performance Characteristics

Controlling the flow of air, gases and liquids is a common requirement in standard industrial and process control applications. The F-series flow monitor uses differential pressure technology to measure and produce fast response flow control with ranges as low as 2-20 SCFH (57 SLPH-570 SLPH) up to a maximum of 25 SCFM- 250 SCFM (708 SLPM -7080 SLPM).

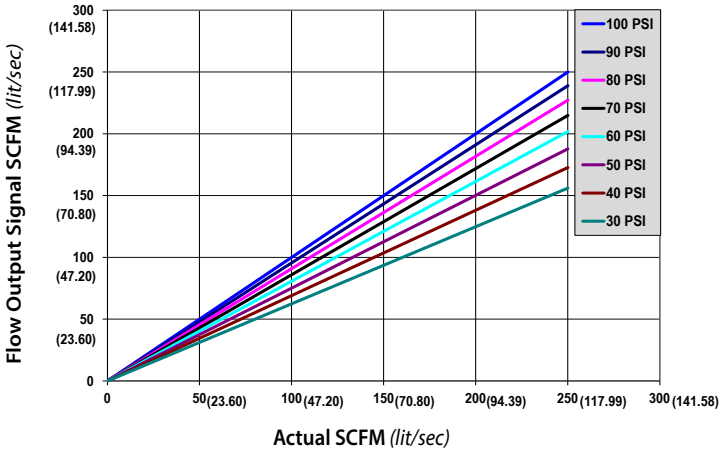
This flow monitor can be teamed up with one of Proportion-Air's proportional flow packages to control the flow of air and gases through the same flow ranges. Flow output will be linear and proportional based on your command signal input.





F-Series flow monitors sense differential pressure across a calibrated venturi. Its output is virtually instantaneous (<10ms) and is continuous.

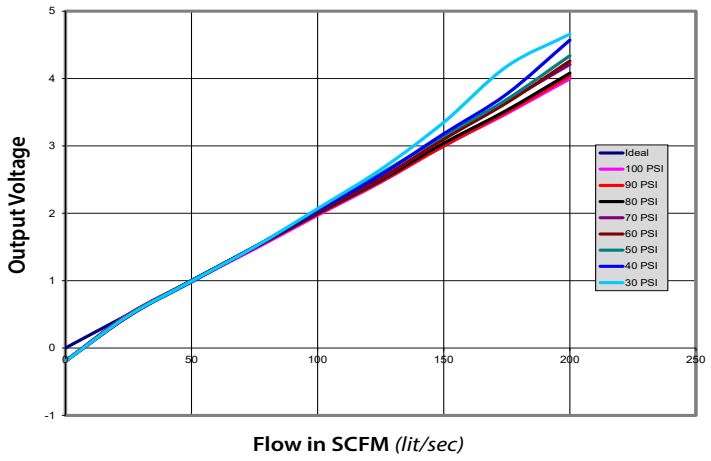
Non-Pressure Compensated (FR)



This graph illustrates the effect of varying supply pressures on the flow output signal of an FR Model Flow Transducer. This graph can be used to correct for variations in gas density due to the temperature and/or specific gravity of different gases by purposely altering the supply pressure with a Proportion-Air pressure control valve.

Regulating the inlet pressure to a constant value by fixing it to a specific pressure produces a linearly proportional signal.

Pressure Compensated (FP)



This graph illustrates how effectively the FP Model Flow Transducer automatically corrects the flow output signal when the supply pressure varies over a wide range.

Compare this to the results of a traditional non-pressure compensated flow transducer as shown in the 'Non-Pressure Compensated' graph on the left. With the Pressure Compensated model, the max inlet pressure can drop by as much as 50% and the F-Series Flow Transducer will compensate and provide accurate flow measurements.

FLOW CONTROL

Flow Monitors & Controllers

FR FLOW MONITOR

FQPV2

FQB3

FQB2/PSR

PRESSURE RANGE	Up to 150 PSIG (*10 Bar*)			
ACCURACY	±4% F.S.			
REPEATABILITY	±0.25% F.S.			
MIN FLOW RANGE	2 - 20 SCFH (*0.94 - 9.4 SLPM*)	4 - 40 SCFM (1.89 - 18.9 *SLPM*)	1 - 10 SCFM (1.89 - 18.9 *SLPM*)	3 - 30 SCFM (85 - 850 *SLPM*)
MAX FLOW RANGE	25 - 250 SCFM (708 - *7,080 SLPM*)	0.1 - 1 SCFM (*2.83 - 28.3 SLPM*)	2.5 - 25 SCFM (70.8 - *708 SLPM*)	25 - 250 SCFM (708 - *7,080 SLPM*)
PORTS	1/4 to 1½" NPT	1/4" NPT	1/4" NPT	1/4 to 1½" NPT
DIGITAL DISPLAY	Available			
RESPONSE TIME	<10ms			
COMMAND SIGNAL	-	0-10 VDC differential or 4-20 mA differential	0-10 VDC differential or 4-20 mA differential	0-10 VDC differential or 4-20 mA differential
IMPEDANCE	100 Ω	10k Ω	10k Ω	4.7k Ω
ANALOG OUTPUT	0-10 VDC or 4-20 mA			
FILTRATION RECOMMENDED	100 Micron			
MANIFOLD MATERIAL	Blue Anodized Aluminum, Nickel-Plated Brass	Blue Anodized Aluminum, Nickel-Plated Brass	Blue Anodized Aluminum, Nickel-Plated Brass	Blue Anodized Aluminum, Nickel-Plated Brass
ADDITIONAL NOTES	• Can be used with air and a variety of inert gases. • Minimum inlet pressure is 15 psig. • Unaffected by mounting position or vibration up to 20Gs. • Operates with standard industrial air filtered to 40 micron. • Saturated and lubed air will affect performance.			

FCV - Flow Control Valve

MAX P2	250 PSI (17.2 Bar)
LINEARITY	± 5% F.S.
RESOLUTION	± 0.3% F.S.
VALVE Cv	0 - 19 Linear to Command
END CONNECTIONS	1" NPT

NEW PRODUCTS

PAS

CHANNEL 1 ACCURACY	±0.5% F.S.	SET FLOW	1 - 10 SCFM
MAX INLET PRESSURE	100 PSIG (*6.9 bar*)	PRESSURE & FLOW CONTROL	

Example Part Number	PAS	1	X	0	1	A	X	0	0	A	P	X	R	A	A
Section Reference ->		1	2	3	4	5	6	7	8	9	10	11	12	13	14

1	Type
1	Analog

2	Channel 1 Pressure Monitor
X	No analog monitor

3	Channel 1 Offset Pressure
0	Zero offset

4	Channel 1 Max Pressure
0	50 PSI
1	100 PSI
	**Max pressure is set at factory during assembly. Not interchangable after calibration.*

5	Channel 1 Pressure Unit
A	PSI

6	Channel 2 Pressure Monitor
X	No analog monitor

7	Channel 2 Offset Pressure
0	Zero offset

8	Channel 2 Max Pressure
0	50 PSI
1	100 PSI

9	Channel 2 Pressure Unit
A	PSI

10	Channel 2 Flow Type
P	Pressure Compensated

11	Channel 2 Flow Monitor
X	No analog monitor

12	Channel 2 Media
A	Air

13	Channel 2 Max Flow
A	1 - 10 SCFM
	Maximum Flow Based on 10:1 Turn-down

14	Channel 2 Flow Unit
A	SCFM

PC

PRESSURE	0 - 125 PSIG (*8.6 bar*)	PUMP CONTROLLER	

Example Part Number	PC	8	P	N
Section Reference ->		1	2	3

1	Port Size
2	1/4"
3	3/8"
4	1/2"
6	3/4"
8	1"
A	1-1/4"
B	1-1/2"

2	Paint Options
P	Painted black
U	Unpainted *(Ports 2, 3, 4, 6 & 8 only)*

3	Thread Type
N	NPT
P	BSPP

ACCESSORIES

Add-ons for Proportion-Air Products

DC - *Potentiometer*

- Rotary potentiometer command signal generators
- Signal conditioned to provide a linear analog output signal
- Available as 0-10 VDC or 4-20 mA output signal
- Available in one-turn and ten-turn design
- Available with numeric indicator

PANEL METER - *PM-1,3,4,5*

- 3-½ digit panel meter display
- LCD display
- 100 mA maximum
- 12 to 15 VDC power standard
- Optional 24 VDC power

P2 PROFILER - *Mini PLC*

- Integrated or stand-alone
- Custom programming rates *(programmed at factory)*
  - 0-24 events
  - 25-49 events
  - 50-74 events
  - 75-96 events

MOUNTING KITS		
OPTION DESIGNATOR	**PART NUMBER**	**PRODUCT**
DR	**DRMKT-01**	MPV, MM
	PMK-MM	MPV, MM
DR	**DRMKT-SPV**	SPV

MATING CONNECTORS		
OPTION DESIGNATOR	**PART NUMBER**	**CABLE LENGTH**
3D	**H23**	3 Feet
3D	**H24**	6 Feet
3D	**H231**	12 Feet
3D	**H251**	20 Feet
	H14612	Connector Only
	H161569	Connector Only

FPP - *In-Line Filter*

- 1/8, 1/4, 3/8, and 1/2 NPT
- 40 - 100 micron filtration
- Brass construction standard
- Stainless steel version available
- Compact size
- Low pressure drop

POWER SUPPLY - *PS4515B/PS4524A*

- 15 VDC (PS4515) or 24 VDC (PS4524) output voltage
- 2.8 A (PS4515) or 2.0 A (PS4524) output current
- 110 to 240 VAC input power
- DIN rail mounted high efficiency & low working temperature
- CE & UL approved with built in EMI filter & low ripple noise
- For use with H338 power cable

POWER CONNECTOR CABLES		
OPTION DESIGNATOR	**PART NUMBER**	**CABLE LENGTH***
Std 6-pin Hirschmann	**QBT-C-3**	3 Feet
Std 6-pin Hirschmann	**QBT-C-6**	6 Feet
Std 6-pin Hirschmann	**QBT-C-12**	12 Feet
Std 6-pin Hirschmann	**QBT-C-15**	15 Feet
Std 6-pin Hirschmann	**QBT-C-25**	25 Feet
Std 6-pin Hirschmann	**H615**	Connector Only
Standard (SPV)	**H161569**	Connector Only
Standard (MM)	**H14612**	Connector Only
3M	**H6033**	3 Feet
3M	**H6036**	6 Feet
3M	**H6312**	12 Feet
3M	**H6315**	15 Feet
3M	**H6320**	20 Feet
4U	**H6045**	3 Feet
4U	**H60412**	12 Feet
5M	**H6053**	3 Feet
5M	**H6056**	6 Feet
5M	**H6512**	12 Feet
5M	**H6515**	15 Feet
5M	**H6520**	20 Feet
6R	**H26066**	6 Feet
6R	**H260612**	12 Feet
6U	**H6066**	6 Feet
Std/6M	**H6DC6**	6 Feet
Std/6M	**H6DC12**	12 Feet
Standard (GX)	**H6M1206**	6 Feet
Ethernet Power Cable	**H8FP-C-5**	5 Meters
Ethernet Communication	**HRJ-C-5**	5 Meters

*Contact factory for any cable lengths over 25 feet. Non-standard lengths require longer lead times. Standard cables longer than 25 ft are not recommended for use with VDC commanded units due to voltage drop.

PROTECT AIR

Miniature Regulators Distributed by PROPORTION-AIR

PRESET • AFFORDABLE • TAMPER-PROOF

Orders for Protect-Air USA products not included in an assembly are only available to our US distributors. Contact our team for more information.

CartReg - Max Inlet Pressure: 174 psig (12 bar)

A preset and tamper-proof pneumatic regulator for blow guns. Compact, inline and non-adjustable. CartReg can easily be threaded into any 1/4" blow gun and is an economical and discreet means to maintaining the ideal pressure requirements and reducing overall noise (DBA) exposure. The preset miniature regulator is designed to meet OSHA and other safety agency requirements for 2 bar/30 psig maximum pressure for pneumatic air guns.

- Protects personnel, machinery & plant by avoiding pressure surges
- Ensures optimal air tool efficiency by supplying a constant pre-set pressure
- Prevents compressed air waste & limits excessive compressed air consumption
- Reduces energy consumption
- Lightweight, compact size and compatible with all pneumatic systems

Technical Specifications

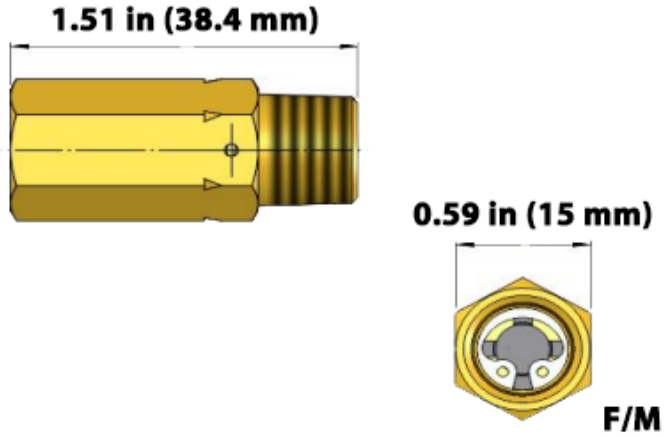
Max Inlet Pressure	174 psig (12 bar)
Outlet pressures	30, 45, 60, 90, 120 PSI; 2, 4 bar
Thread Connection	Female/Male - 1/4" NPT & BSP
Flows	12.36 SCFM (350 l/min)
Temperature Range	-4° to 140° F (-20° to 60° C)
Weight	1/4" BSP - 29g 1/4" NPT - 32g
Materials	Housing: Brass Other materials: Nitrile, rubber, stainless steel

*Other sizes available

Application Examples

- Pneumatic air gun
- Spray gun
- Workshop air lines
- Pneumatic tools

Dimensions



Max Inlet Pressure: 174 psig (12 bar)

THREAD CONNECTION	MAX REGULATED OUTPUT PRESSURE	MAX FLOW	TOLERANCES	CARTREG PART NUMBER
1/4" NPT, F/M	29 psig	12.5 scfm	± 4.5 psig (Pe 87 psig)	**PCR233FS1229**
1/4" NPT, F/M	30 psig	12.5 scfm	± 8.7 psig (Pe 87 psig)	**PCR233FS1230**
1/4" BSP, F/M	2 bar	350 lpm	± 0.6 bar (Pe 6 bar)	**PCR233F0220**
1/4" NPT, F/M	45 psig	12.5 scfm	± 10.1 psig (Pe 87 psig)	**PCR233FS1245**
1/4" NPT, F/M	60 psig	12.5 scfm	± 11.6 psig (Pe 87 psig)	**PCR233FS1260**
1/4" BSP, F/M	4 bar	350 lpm	± 0.8 bar (Pe 6 bar)	**PCR233F0240**
1/4" NPT, F/M	90 psig	12.5 scfm	± 14.5 psig (Pe 145 psig)	**PCR233FS1290**
1/4" NPT, F/M	120 psig	12.5 scfm	± 17.5 psig (Pe 125 psig)	**PCR233FS12120**

SaveAir - Max Inlet Pressure: 260 psig (18 bar)

An independent diaphragm regulator that supplies a constant and exact outlet pressure regardless of input pressure fluctuations. Can be installed in any compressed air system. The SaveAir prevents dynamic pressure waste that arises when the pressure and flow (at the process point) are unnecessarily higher than those specified by the original manufacturer to achieve the desired function.

- Supplies compressed air systems with pre-set pressure, No gauge needed
- Saves energy by preventing compressed air waste (also known as dynamic pressure waste)
- Reliable, small and compact design that is easy to install and affordable to purchase
- Tamper-proof
- Increases device service life

Technical Specifications

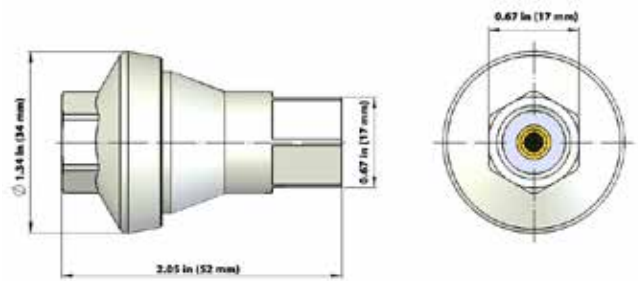
Max Inlet Pressure	260 PSIG (18 bar)
Outlet Pressures (preset)	15 to 135 PSIG; 1.5 to 4 bar*
Thread Connection	1/4" NPT, 1/4 BSP
Flows	14 SCFM
Temperature Range	32° to 140° F (0° to 60° C)
Materials	Housing: Zinc Other materials: Nitrile rubber, brass, stainless steel, PPH
Weight	80 grams/2.82 oz.

*Other sizes available

Application Examples

- Pneumatic supply lines
- Automotive
- Pneumatic power tools
- Pump, flow stabilization
- Workshop equipment

Dimensions



Max Inlet Pressure: 260 psig (18 bar)

THREAD CONNECTION	MAX REGULATED OUTPUT PRESSURE	TOLERANCES	MAX FLOW (at 174 psig; Δp 7 psig)	SAVEAIR PART NUMBER
1/4" NPT	15 psig	±4.35 psig	14.2 scfm	**PIR231AS1215**
1/4" NPT	23 psig	±4.35 psig	14.2 scfm	**PIR231AS1223**
1/4" NPT	30 psig	±4.35 psig	21.3 scfm	**PIR231AS1230**
1/4" NPT	35 psig	±4.35 psig	21.3 scfm	**PIR231AS1235**
1/4" NPT	45 psig	±4.35 psig	24.7 scfm	**PIR231AS1245**
1/4" NPT	50 psig	±10%	24.7 scfm	**PIR231AS1250**
1/4" NPT	60 psig	±10%	24.7 scfm	**PIR231AS1255**
1/4" NPT	65 psig	±10%	24.7 scfm	**PIR231AS1265**
1/4" NPT	75 psig	±10%	24.7 scfm	**PIR231AS1275**
1/4" NPT	80 psig	±10%	24.7 scfm	**PIR231AS1280**
1/4" NPT	90 psig	±10%	28.3 scfm	**PIR231AS1290**
1/4" NPT	95 psig	±10%	28.3 scfm	**PIR231AS1295**
1/4" NPT	100 psig	±10%	28.3 scfm	**PIR231AS12100**
1/4" NPT	110 psig	±10%	28.3 scfm	**PIR231AS12110**
1/4" NPT	120 psig	±10%	28.3 scfm	**PIR231AS12120**
1/4" NPT	135 psig	±10%	28.3 scfm	**PIR231AS12135**
1/4" BSP	1.5 bar	±0.3 bar	14.2 scfm	**PIR231A0215**
1/4" BSP	3.5 bar	±0.3 bar	24.7 scfm	**PIR231A0235**
1/4" BSP	4.0 bar	±0.3 bar	24.7 scfm	**PIR231A0240**

ToolReg - Max Inlet Pressure: 363 psig (25 bar)

The ToolReg regulator is an independent piston regulator that can be mounted on any pneumatic tool or installed in every compressed air system. It supplies a constant, exact outlet pressure regardless of the inlet pressure. The pressure is factory-set and cannot be changed. The ToolReg prevents "dynamic pressure waste." This arises when the pressure and flow at the withdrawal point are unnecessarily higher than those specified by the manufacturer to achieve the desired function. Dynamic pressure waste is extremely costly, and a waste of energy that may be found throughout industry.

- Protects personnel, machinery & plant by avoiding pressure surges
- Ensures optimal air tool efficiency by supplying a constant pre-set pressure
- Prevents compressed air waste & limits excessive compressed air consumption
- Reduces energy consumption
- Lightweight, compact size and compatible with all pneumatic systems

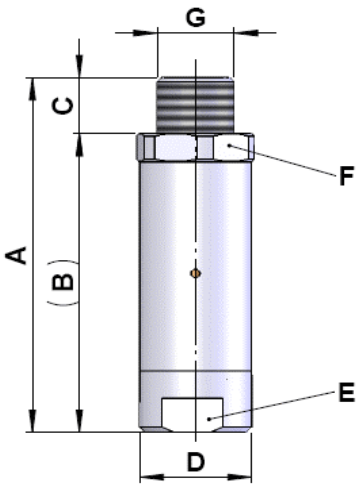
Technical Specifications

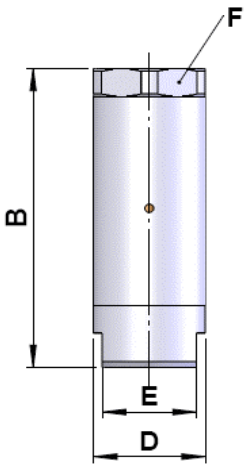
Max Inlet Pressure	25 bar / 365 psig
Outlet Pressures	30, 45, 60, 90, 105,120 PSI
Thread Connection	Female/Female, Female/Male 1/4" - 3/4"
Max Flow	26-162 scfm
Temperature Range	0°C to 60°C (32°F to 140°F)
Materials	Housing: Aluminum Spring: Stainless Steel O-Ring: Nitrile Rubber Valve Seat: PPH Spindle: Nickel Plated Brass
Weight and Dimensions	See table

Application Examples

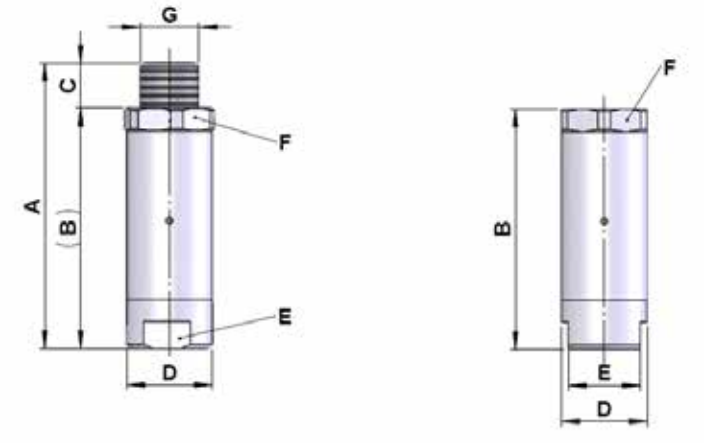
- Pneumatic impact wrench
- Pipe plugs
- Pick and place units
- Nail guns
- Pneumatic power tools
- Lifting bags
- Pneumatic doors
- Workshop air lines
- Jackhammers

Dimensions - See next page for values





ToolReg



Max Inlet Pressure: 363 psig (25 bar)

THREAD CONNECTION	MAX REGULATED OUTPUT PRESSURE	MAX FLOW Pe = 180 PSI, Δ7.5 psi	TOLERANCES	WEIGHT	DIMENSIONS (in)						TOOLREG PART NUMBER
					A	B	C	D	E	F	
1/4" F/F, NPT	30 psig	17 scfm	± 4.35 psig	1.16 oz/33 g		2.32		0.75	0.63	0.75	PTR232AS1230
1/4" F/M, NPT	30 psig	17 scfm	± 4.35 psig	1.41 oz/40 g	2.72	2.32	0.40	0.75	0.63	0.75	PTR232FS1230
1/4" F/F, NPT	45 psig	19 scfm	± 4.35 psig	1.16 oz/33 g		2.32		0.75	0.63	0.75	PTR232AS1245
1/4" F/M, NPT	45 psig	19 scfm	± 4.35 psig	1.41 oz/40 g	2.72	2.32	0.40	0.75	0.63	0.75	PTR232FS1245
1/4" F/F, NPT	60 psig	21 scfm	± 6 psig	1.16 oz/33 g		2.32		0.75	0.63	0.75	PTR232AS1260
1/4" F/M, NPT	60 psig	21 scfm	± 6 psig	1.41 oz/40 g	2.72	2.32	0.40	0.75	0.63	0.75	PTR232FS1260
1/4" F/F, NPT	75 psig	23 scfm	± 7.5 psig	1.16 oz/33 g		2.32		0.75	0.63	0.75	PTR232AS1275
1/4" F/M, NPT	75 psig	23 scfm	± 7.5 psig	1.41 oz/40 g	2.72	2.32	0.40	0.75	0.63	0.75	PTR232FS1275
1/4" F/F, NPT	90 psig	25 scfm	± 9 psig	1.16 oz/33 g		2.32		0.75	0.63	0.75	PTR232AS1290
1/4" F/M, NPT	90 psig	25 scfm	± 9 psig	1.41 oz/40 g	2.72	2.32	0.40	0.75	0.63	0.75	PTR232FS1290
1/4" F/F, NPT	105 psig	25 scfm	± 10 psig	1.16 oz/33 g		2.32		0.75	0.63	0.75	PTR232AS12105
1/4" F/M, NPT	105 psig	25 scfm	± 10 psig	1.41 oz/40 g	2.72	2.32	0.40	0.75	0.63	0.75	PTR232FS12105
1/4" F/F, NPT	120 psig	28 scfm	± 12 psig	1.16 oz/33 g		2.32		0.75	0.63	0.75	PTR232AS12120
1/4" F/M, NPT	120 psig	28 scfm	± 12 psig	1.41 oz/40 g	2.72	2.32	0.40	0.75	0.63	0.75	PTR232FS12120
3/8" F/F, NPT	30 psig	49 scfm	± 4.35 psig	2.12 oz/60 g		2.48		0.98	0.87	0.98	PTR232AS1330
3/8" F/F, NPT	45 psig	49 scfm	± 4.35 psig	2.12 oz/60 g		2.48		0.98	0.87	0.98	PTR232AS1345
3/8" F/F, NPT	60 psig	63 scfm	± 6 psig	2.12 oz/60 g		2.48		0.98	0.87	0.98	PTR232AS1360
3/8" F/F, NPT	75 psig	63 scfm	± 7.5 psig	2.12 oz/60 g		2.48		0.98	0.87	0.98	PTR232AS1375
3/8" F/F, NPT	90 psig	77 scfm	± 9 psig	2.12 oz/60 g		2.48		0.98	0.87	0.98	PTR232AS1390
3/8" F/M, NPT	90 psig	77 scfm	± 9 psig	2.12 oz/60 g	2.95	2.48	0.47	0.98	0.87	0.98	PTR232FS1390
3/8" F/F, NPT	105 psig	77 scfm	± 10 psig	2.12 oz/60 g		2.48		0.98	0.87	0.98	PTR232AS13105
3/8" F/F, NPT	120 psig	92 scfm	± 12 psig	2.12 oz/60 g		2.48		0.98	0.87	0.98	PTR232AS13120
1/2" F/F, NPT	30 psig	49 scfm	± 4.35 psig	3.17 oz/90 g		2.68		1.18	1.06	1.18	PTR232AS1430
1/2" F/M, NPT	30 psig	49 scfm	± 4.35 psig	3.17 oz/90 g	3.27	2.68	0.20	1.18	1.06	1.18	PTR232FS1430
1/2" F/F, NPT	45 psig	49 scfm	± 4.35 psig	3.17 oz/90 g		2.68		1.18	1.06	1.18	PTR232AS1445
1/2" F/M, NPT	45 psig	49 scfm	± 4.35 psig	3.17 oz/90 g	3.27	2.68	0.20	1.18	1.06	1.18	PTR232FS1445
1/2" F/F, NPT	60 psig	63 scfm	± 6 psig	3.17 oz/90 g		2.68		1.18	1.06	1.18	PTR232AS1460
1/2" F/M, NPT	60 psig	63 scfm	± 6 psig	3.17 oz/90 g	3.27	2.68	0.20	1.18	1.06	1.18	PTR232FS1460
1/2" F/F, NPT	75 psig	63 scfm	± 7.5 psig	3.17 oz/90 g		2.68		1.18	1.06	1.18	PTR232AS1475
1/2" F/F, NPT	90 psig	77 scfm	± 9 psig	3.17 oz/90 g		2.68		1.18	1.06	1.18	PTR232AS1490
1/2" F/M, NPT	90 psig	77 scfm	± 9 psig	3.17 oz/90 g	3.27	2.68	0.20	1.18	1.06	1.18	PTR232FS1490
1/2" F/F, NPT	105 psig	77 scfm	± 10 psig	3.17 oz/90 g		2.68		1.18	1.06	1.18	PTR232AS14105
1/2" F/F, NPT	120 psig	92 scfm	± 12 psig	3.17 oz/90 g		2.68		1.18	1.06	1.18	PTR232AS14120
3/4" F/F, NPT	30 psig	88 scfm	± 4.35 psig	9.88 oz/280 g		4		1.58	1.34	1.58	PTR232AS1530
3/4" F/F, NPT	60 psig	113 scfm	± 6 psig	9.88 oz/280 g		4		1.58	1.34	1.58	PTR232AS1560
3/4" F/F, NPT	90 psig	138 scfm	± 9 psig	9.88 oz/280 g		4		1.58	1.34	1.58	PTR232AS1590
3/4" F/F, NPT	120 psig	162 scfm	± 12 psig	9.88 oz/280 g		4		1.58	1.34	1.58	PTR232AS15120

OxyReg - Max Inlet Pressure: 260 psig (18 bar)

A preset, inline and non-adjustable regulator for oxygen, nitrogen and other inert gases. OxyReg ensures a constant output of pressure. OxyReg is made the FDA and NSF-certified material Grivory GV-5 FWA and has stainless steel internal components - ideal for applications in the medical industry.

- Reliable, lightweight and service free - no adjustment needed
- Reduces oxygen waste, which reduces energy use and cost
- Protects equipment by reducing risk of overpressurization
- Competitively priced, tamper-proof and factory preset pressure

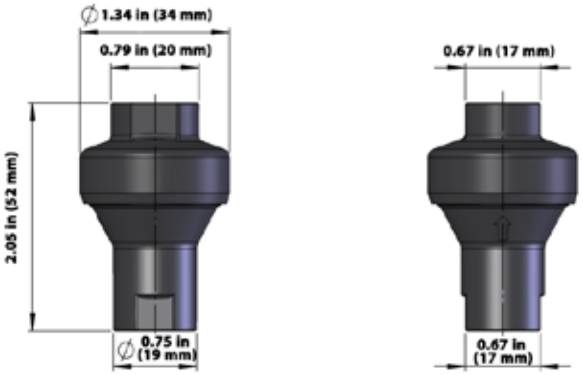
Technical Specifications

Max Inlet Pressure	260 PSIG (18 bar)
Outlet Pressures	15-120 PSIG (see table below)
Max Flow	400-800 L/min (14.2-28.3 SCFM) (see table below)
Size	1/4"
Thread Connection	NPT (BSP available by request)
Temperature Range	32° to 140° F (0° to 60° C)
Materials	Housing: Grivory GV-5 FWA Spindle: DIN 1.4404/AISI 316L Diaphragm: FPM O-Ring: FPM Spring: DIN 1.4310/AISI 301 Valve Seat: PPH/Santoprene
Weight	40 grams/1.41 oz.

Application Examples

- Anesthetic equipment
- Food and drink preservation equipment
- Respiratory equipment
- Nitrogen filling system

Dimensions



Max Inlet Pressure: 260 psig (18 bar)

THREAD CONNECTION	MAX REGULATED OUTPUT PRESSURE	MAX FLOW (L/min - SCFM)	TOLERANCES	OXYREG PART NUMBER
1/4" NPT	15 psig	400 - 14.2	±4.35 psig	**POR234KM1215**
1/4" NPT	23 psig	400 - 14.2	±4.35 psig	**POR234KM1223**
1/4" NPT	30 psig	600 - 21.3	±4.35 psig	**POR234KM1230**
1/4" NPT	35 psig	600 - 21.3	±4.35 psig	**POR234KM1235**
1/4" NPT	45 psig	700 - 24.7	±4.35 psig	**POR234KM1245**
1/4" NPT	50 psig	700 - 24.7	±10%	**POR234KM1250**
1/4" NPT	60 psig	700 - 24.7	±10%	**POR234KM1260**
1/4" NPT	65 psig	700 - 24.7	±10%	**POR234KM1265**
1/4" NPT	75 psig	700 - 24.7	±10%	**POR234KM1275**
1/4" NPT	80 psig	700 - 24.7	±10%	**POR234KM1280**
1/4" NPT	90 psig	800 - 28.3	±10%	**POR234KM1290**
1/4" NPT	95 psig	800 - 28.3	±10%	**POR234KM1295**
1/4" NPT	100 psig	800 - 28.3	±10%	**POR234KM12100**
1/4" NPT	120 psig	800 - 28.3	±10%	**POR234KM12120**

Fluid Regulators | FluidReg - Max Inlet Pressure: 145 psig (10 bar)

The FluidReg is an independent membrane regulator that can be installed in nearly any fluid or compressed air pneumatic system. It supplies a constant, exact outlet pressure regardless of the input pressure. The pressure is factory-set and cannot be changed. This ensures that no one can alter the specified pressure. It is well known that the pressure of a water or fluid line normally is too high, fluctuates, and varies according to the height of the building. In that case, the in-line FluidReg protects all equipment and components placed after it, so that they will only receive the correct pressure. This is particularly important for all machinery/plants for/or with dosing of liquids, as this will prevent stops in production. Furthermore, if the FluidReg is combined with a sprinkler nozzle, it creates an ideal method for cooling/cleaning with water spray or fog.

- Factory preset pressure & tamperproof
- Reduces consumption
- Service free - no adjustments needed
- Small footprint & lightweight
- Easy to mount in any water supply system

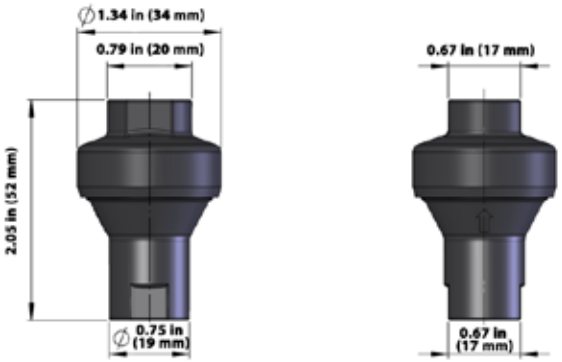
Technical Specifications

Max Inlet Pressure	Water: 10 bar/145 psig Other gases: 18 bar/260 psig
Size (output pressure)	15, 30, 45, 60, 75, 90, 120 psi
Flow (water)	7 l/min / 0.25 scfm
Size	1/4"
Thread Connection	Female/Female, NPT, BSP
Temperature Range	Water: 4°C to 60°C (39°F to 140°F) Gases: 0°C to 60°C (32°F to 140°F)
Weight	125 grams/4.4 oz
Materials	Housing: Brass nickel plated Diaphragm: Nitrile / FPM Spring: Stainless Steel Valve Seat: PPH

Applications Examples

- Filling machines
- Cooking ovens
- Plumbing
- Labratory dosing equipment
- Pharmacies
- Irrigation systems
- Sprinklers
- Misting

Dimensions



Max Inlet Pressure: 145 psig (10 bar)

THREAD CONNECTION	MAX REGULATED OUTPUT PRESSURE	MAX FLOW (Water)	MAX FLOW (Gas)	TOLERANCES	FLUIDREG PART NUMBER
1/4" NPT	15 psig	3000 ml/min	400 l/min / 14.2 scfm	± 2 psig	**PWR239AS1215**
1/4" NPT	30 psig	4000 ml/min	600 l/min / 21.3 scfm	± 4 psig	**PWR239AS1230**
1/4" NPT	45 psig	4000 ml/min	700 l/min / 24.7 scfm	± 4.5 psig	**PWR239AS1245**
1/4" NPT	60 psig	4000 ml/min	700 l/min / 24.7 scfm	± 6 psig	**PWR239AS1260**
1/4" NPT	75 psig	4000 ml/min	700 l/min / 24.7 scfm	± 7.5 psig	**PWR239AS1275**
1/4" NPT	90 psig	4000 ml/min	800 l/min / 28.3 scfm	± 9 psig	**PWR239AS1290**
1/4" NPT	100 psig	4000 ml/min	800 l/min / 28.3 scfm	± 10 psig	**PWR239AS12100**
1/4" NPT	120 psig	4000 ml/min	800 l/min / 28.3 scfm	± 10 psig	**PWR239AS12120**

Fluid Regulators | EcoReg - Max Inlet Pressure: 145 psig (10 bar)

This pressure regulator for drinking water ensures a constant and precise outlet pressure independent from the inlet pressure. The EcoReg's pressure value has been factory preset and cannot be changed. This ensures that no one can manipulate the specified pressure value. The choice of high quality materials allows the EcoReg to be used in various applications across different industries, like water dispensers, coffee systems or in respiratory oxygen machines. The EcoReg with its preset pressure will prevent unwanted pressure manipulation and protect the machines or help reduce potable water waste.

- NSF certified
- Factory preset pressure & tamperproof
- Reduces consumption
- Service free - no adjustments needed
- Small footprint & lightweight
- Easy to mount in any water supply system

Technical Specifications

Max Inlet Pressure	Water: 10 bar/145 psig Other gases: 18 bar/260 psig
Size (output pressure)	15, 30, 45, 60, 75, 90, 120 psi
Flow (water)	7 l/min / 0.25 scfm
Size	1/4"
Thread Connection	Female/Female, NPT, BSP
Temperature Range	Water: 4°C to 60°C (39°F to 140°F) Gases: 0°C to 60°C (32°F to 140°F)
Weight	45 grams/1.6 oz
Materials	Housing: Grivory® Spring: DIN 1.4310 / AISI 301 Valve Seat: PPH Spindle: DIN 1.4404 / AISI 316L

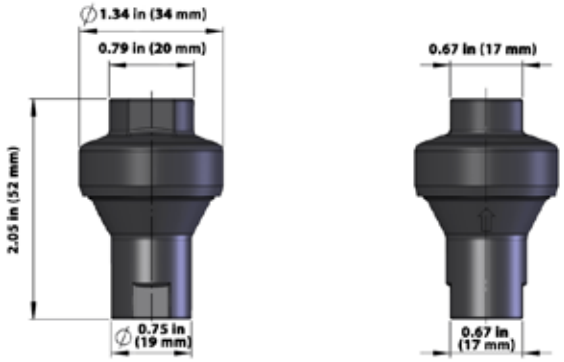
Regulatory Compliance

- DIN 50930-6 / FDA/EU drinking water directives, NSF/ANSI 169 and all applicable requirements.

Applications Examples

- Water dispensers
- Coffee & drink machines
- Filling machines
- Cooking ovens
- Fridges & ice makers
- Plumbing
- Respiratory equipment
- Labratory dosing equipment
- Pharmacies
- Irrigation systems
- Sprinklers
- Misting

Dimensions



Max Inlet Pressure: 145 psig (10 bar)

THREAD CONNECTION	MAX REGULATED OUTPUT PRESSURE	MAX FLOW (Water)	MAX FLOW (Gas)	TOLERANCES	ECOREG PART NUMBER
1/4" NPT	15 psig	3000 ml/min	400 l/min / 14.2 scfm	± 2 psig	**PER239KS1215**
1/4" NPT	30 psig	4000 ml/min	600 l/min / 21.3 scfm	± 4 psig	**PER239KS1230**
1/4" NPT	45 psig	4000 ml/min	700 l/min / 24.7 scfm	± 4.5 psig	**PER239KS1245**
1/4" NPT	60 psig	4000 ml/min	700 l/min / 24.7 scfm	± 6 psig	**PER239KS1260**
1/4" NPT	75 psig	4000 ml/min	700 l/min / 24.7 scfm	± 7.5 psig	**PER239KS1275**
1/4" NPT	90 psig	4000 ml/min	800 l/min / 28.3 scfm	± 9 psig	**PER239KS1290**
1/4" NPT	100 psig	4000 ml/min	800 l/min / 28.3 scfm	± 10 psig	**PER239KS12100**
1/4" NPT	120 psig	4000 ml/min	800 l/min / 28.3 scfm	± 10 psig	**PER239KS12120**

HoseGuard - Max Inlet Pressure: 255 psig (18 bar)

A preset air fuse that offers simple but effective protection for pneumatic systems in the event of a broken compressed air hose or pipe. This reduces the potential for an air hose to break and whip around violently, potentially damaging equipment and injuring personnel. Should the volume of air exceed the factory preset value, the HoseGuard automatically senses this increase and immediately shuts off the air supply.

- Protects personnel, equipment and facilities from dangerous pneumatic hose breaks
- Maintenance friendly - a small bleed allows for easy repairs if/when a hose does break
- Reliable, factory preset and tamper-proof. No adjustment necessary - simply install
- Lightweight, compact size and compatible with all pneumatic systems

Technical Specifications

Max Inlet Pressure	255 PSIG (18 bar)	
Sizes	1/4", 3/8", 1/2", 3/4", 1", 2"	
Thread Connection	Male/Female† Female/Female	
Flows	Low†, Standard, High†	
Temperature Range	1/4", 3/8", 1/2": -4° to 176° F (-20° to 80° C)	3/4", 1", 2": -4° to 248° F (-20° to 120° C)
Materials	Housing: Aluminum* Other: Nitrile, rubber, plastic, stainless steel	

†Not available on all sizes
**Stainless steel available by special order*

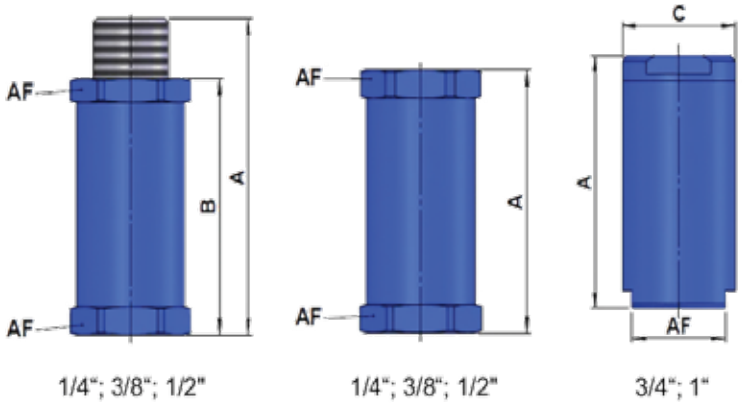
Regulatory Compliance

- ISO 4414:2010
- OSHA: 1926 Safety & Health Regulations for Construction, Power-operated hand tools - 1926.302(b)(7) OSHA regulations (Standards - 29 CFR)

Application Examples

- Offshore
- Power plants
- Amusement parks
- Factories
- Assembly lines

Dimensions (see table below)



Thread connection*	Flow Type	Flow Closing Point at 120 PSIG**	Dimensions (in) A	B	C	AF	Weight (g/oz)	Part Number
1/4", F/F, NPT	Low	~1.8 SCFM	1.93			.87	33/1.16	PHG281ZL1211
1/4", F/F, NPT	Standard	~27 SCFM	1.93			.87	33/1.16	PHG281A1211
1/4", F/F, NPT	High	~35 SCFM	1.93			.87	33/1.16	PHG281ZH1211
1/4", M/F, NPT	Low	~1.8 SCFM	2.32	1.93		.87	40/1.41	PHG281ZL1221
1/4", M/F, NPT	Standard	~27 SCFM	2.32	1.93		.87	40/1.41	PHG281A1221
1/4", M/F, NPT	High	~35 SCFM	2.32	1.93		.87	40/1.41	PHG281ZH1221
3/8" F/F, NPT	Standard	~38 SCFM	2.29			1.06	60/2.12	PHG281A1311
3/8" F/F, NPT	High	~51 SCFM	2.29			1.06	60/2.12	PHG281ZH1311
3/8" M/F, NPT	Standard	~38 SCFM	2.76	2.29		1.06	67/2.36	PHG281A1321
3/8" M/F, NPT	High	~51 SCFM	2.76	2.29		1.06	67/2.36	PHG281ZH1321
1/2" F/F, NPT	Standard	~107 SCFM	2.56			1.18	78/2.75	PHG281A1411
1/2" F/F, NPT	High	~121 SCFM	2.56			1.18	78/2.75	PHG281ZH1411
1/2" M/F, NPT	Standard	~107 SCFM	3.11	2.56		1.18	85/3	PHG281A1421
1/2" M/F, NPT	High	~121 SCFM	3.11	2.56		1.18	85/3	PHG281ZH1421
3/4" F/F, NPT	Standard	~144 SCFM	2.99		1.42	1.18	107/3.77	PHG281A1511
3/4" F/F, NPT	High	~184 SCFM	2.99		1.42	1.18	107/3.77	PHG281ZH1511
1" F/F, NPT	Standard	~184 SCFM	3.94		1.97	1.61	320/11.29	PHG281A1611
1" F/F, NPT	High	~268 SCFM	3.94		1.97	1.61	320/11.29	PHG281ZH1611
2" F/F, NPT	- Contact us -	~456 SCFM	- Contact us -					PHG281A1911

**Other sizes and BSP connection available; please contact us to learn more. **Data available for other flow closing point pressures on next page.*

HoseGuard Air Flow Closing Rates

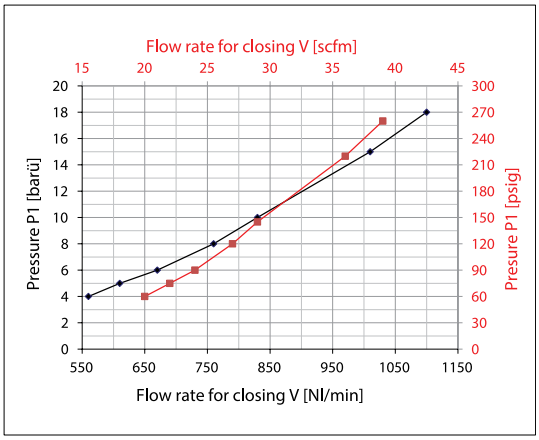
All the following measurement values (flow for closing function) apply for a HoseGuard (hose breakage safety device) charged with the appropriate pressure P1 and with a free Pa outlet.
If a component is fitted after the HoseGuard that reduces the flow performance (e.g. linkage, screw fitting, hose, etc.), it is possible that the required flow for the defined closing point is no longer attained and that the HoseGuard will not close.
In this case the application must be appropriately tested. It is possible that another component may have to be selected after the HoseGuard, or a smaller HoseGuard, depending on the test result.

HoseGuard® 1/4"

Flow measurement according to DIN EN 60534
Air flow rate for closing (±10%)

p1	p1	Dp	Dp	T	RF	RF	V	V
(barü)	(psig)	(bar)	(psig)	(K)	(Nl/min)	(scfm)	(Nl/min)	(scfm)
18	260	0.40	5.8	284	180	6.5	1100	39
15	220	0.40	5.8	283	160	5.5	1010	36
10	145	0.40	5.8	283	110	4.0	830	29
8	120	0.40	5.8	283	95	3.5	760	27
6	90	0.40	5.8	283	75	2.6	670	24
5	75	0.40	5.8	283	65	2.3	610	22
4	60	0.40	5.8	283	55	2.0	560	20

p1: Inlet pressure | Dp: Pressure difference | T: Temperarture | RF: Reset Flow | V: Flow rate for closing

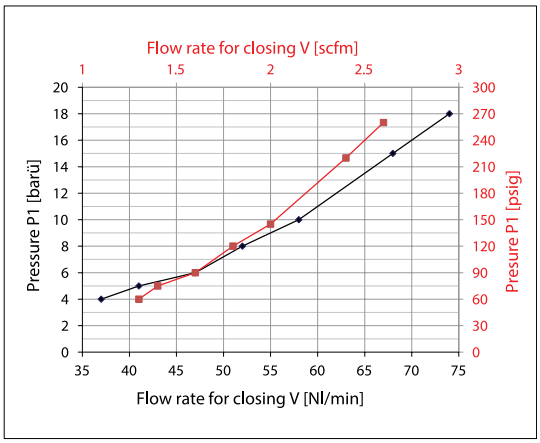


HoseGuard® 1/4" Low Flow

Flow measurement according to DIN EN 60534
Air flow rate for closing (±10%)

p1	p1	Dp	Dp	T	RF	RF	V	V
(barü)	(psig)	(bar)	(psig)	(K)	(Nl/min)	(scfm)	(Nl/min)	(scfm)
18	260	0.07	1.0	283	37	1.30	74	2.6
15	220	0.07	1.0	282	29	1.00	68	2.4
10	145	0.07	1.0	284	21	0.75	58	2.0
8	120	0.06	0.8	283	18	0.65	52	1.8
6	90	0.07	1.0	286	15	0.52	47	1.6
5	75	0.06	0.8	286	14	0.49	41	1.4
4	60	0.06	0.8	286	12	0.42	37	1.3

p1: Inlet pressure | Dp: Pressure difference | T: Temperarture | RF: Reset Flow | V: Flow rate for closing

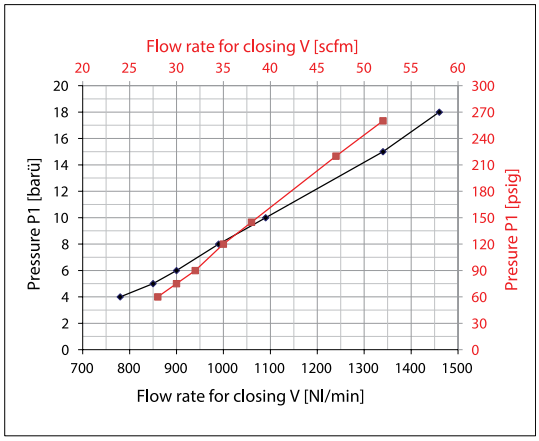


HoseGuard® 1/4" High Flow

Flow measurement according to DIN EN 60534
Air flow rate for closing (±10%)

p1	p1	Dp	Dp	T	RF	RF	V	V
(barü)	(psig)	(bar)	(psig)	(K)	(Nl/min)	(scfm)	(Nl/min)	(scfm)
18	260	0.90	13.0	287	180	6.5	1460	52
15	220	0.90	13.0	286	160	5.5	1340	47
10	145	0.90	13.0	287	110	4.0	1090	38
8	120	0.90	13.0	284	95	3.5	990	35
6	90	0.90	13.0	282	75	2.6	900	32
5	75	1.00	14.5	282	65	2.3	850	30
4	60	1.00	14.5	282	55	2.0	780	28

p1: Inlet pressure | Dp: Pressure difference | T: Temperarture | RF: Reset Flow | V: Flow rate for closing

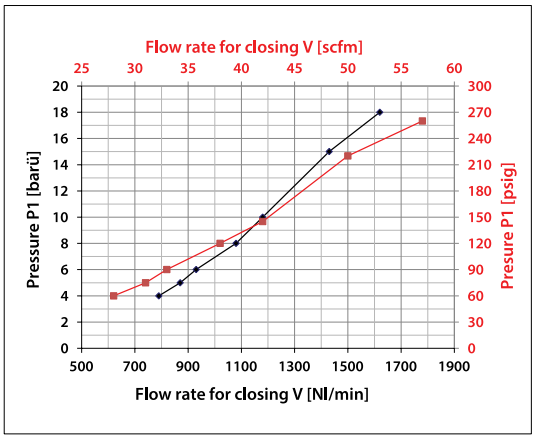


HoseGuard® 3/8"

Flow measurement according to DIN EN 60534
Air flow rate for closing (±10%)

p1	p1	Dp	Dp	T	RF	RF	V	V
(barü)	(psig)	(bar)	(psig)	(K)	(Nl/min)	(scfm)	(Nl/min)	(scfm)
18	260	0.20	2.9	282	180	6.5	1620	57
15	220	0.20	2.9	283	160	5.5	1430	50
10	145	0.21	3.0	283	110	4.0	1180	42
8	120	0.20	2.9	284	95	3.5	1080	38
6	90	0.19	2.7	285	75	2.6	930	33
5	75	0.20	2.9	284	65	2.3	870	31
4	60	0.19	2.7	284	55	2.0	790	28

p1: Inlet pressure | Dp: Pressure difference | T: Temperarture | RF: Reset Flow | V: Flow rate for closing

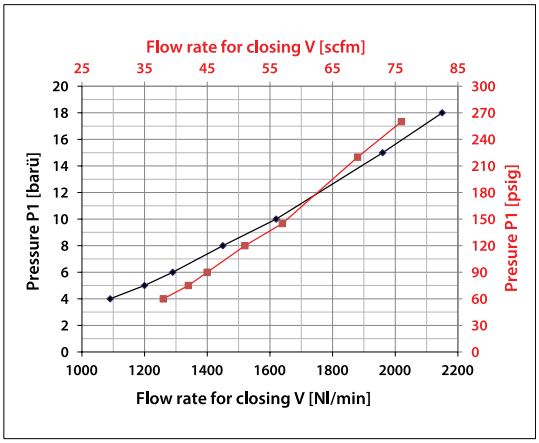


HoseGuard® 3/8" High Flow

Flow measurement according to DIN EN 60534
Air flow rate for closing (±10%)

p1	p1	Dp	Dp	T	RF	RF	V	V
[barü]	(psig)	[bar]	(psig)	[K]	(Nl/min)	(scfm)	[Nl/min]	(scfm)
18	260	0.23	3.3	282	180	6.5	2150	76
15	220	0.23	3.3	282	160	5.5	1960	69
10	145	0.23	3.3	283	110	4.0	1620	57
8	120	0.22	3.2	284	95	3.5	1450	51
6	90	0.22	3.2	286	75	2.6	1290	45
5	75	0.23	3.3	285	65	2.3	1200	42
4	60	0.23	3.3	283	55	2.0	1090	38

p1: Inlet pressure | Dp: Pressure difference | T: Temperarture | RF: Reset Flow | V: Flow rate for closing

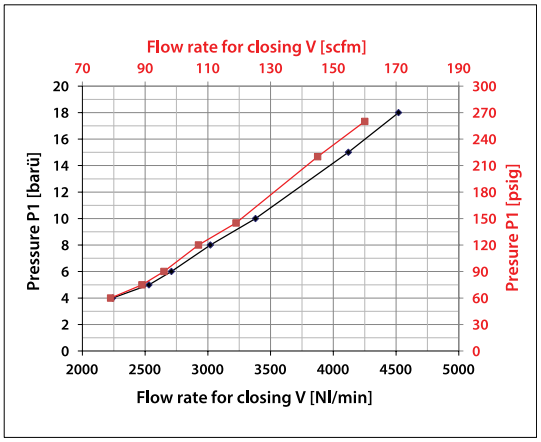


HoseGuard® 1/2"

Flow measurement according to DIN EN 60534
Air flow rate for closing (± 10%)

p1	p1	Dp	Dp	T	RF	RF	V	V
(barü)	(psig)	(bar)	(psig)	(K)	(Nl/min)	(scfm)	(Nl/min)	(scfm)
18	260	0.36	5.2	282	180	6.5	4520	160
15	220	0.37	5.4	282	160	5.5	4120	145
10	145	0.37	5.4	283	110	4.0	3380	119
8	120	0.36	5.2	284	95	3.5	3020	107
6	90	0.35	5.0	283	75	2.6	2710	96
5	75	0.35	5.0	282	65	2.3	2530	89
4	60	0.35	5.0	281	55	2.0	2240	79

p1: Inlet pressure | Dp: Pressure difference | T: Temperarture | RF: Reset Flow | V: Flow rate for closing

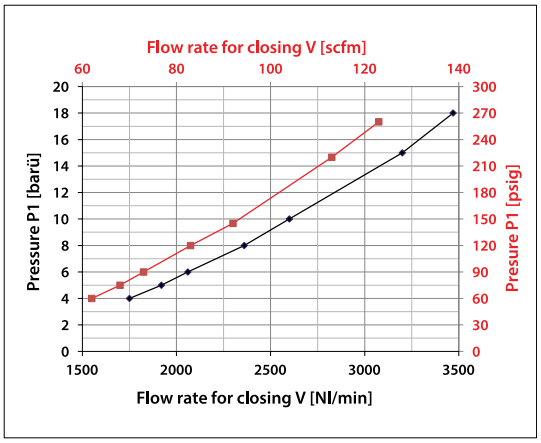


HoseGuard® 1/2" Low Flow

Flow measurement according to DIN EN 60534
Air flow rate for closing (± 10%)

p1	p1	Dp	Dp	T	RF	RF	V	V
(barü)	(psig)	(bar)	(psig)	(K)	(Nl/min)	(scfm)	(Nl/min)	(scfm)
18	260	0.24	3.5	276	180	6.5	3470	123
15	220	0.24	3.5	275	160	5.5	3200	113
10	145	0.25	3.6	275	110	4.0	2600	92
8	120	0.26	3.8	275	95	3.5	2360	83
6	90	0.26	3.8	276	75	2.6	2060	73
5	75	0.26	3.8	281	65	2.3	1920	68
4	60	0.26	3.8	280	55	2.0	1750	62

p1: Inlet pressure | Dp: Pressure difference | T: Temperarture | RF: Reset Flow | V: Flow rate for closing

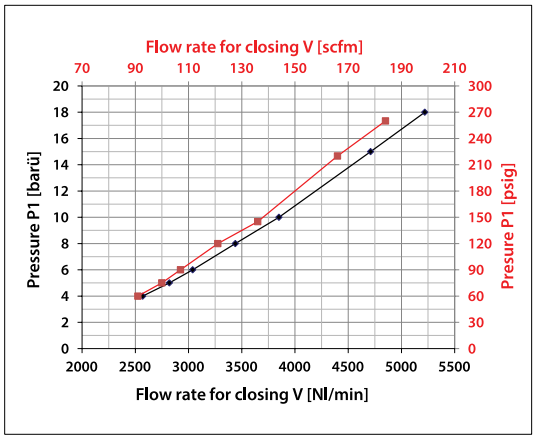


HoseGuard® 1/2" High Flow

Flow measurement according to DIN EN 60534
Air flow rate for closing (± 10%)

p1	p1	Dp	Dp	T	RF	RF	V	V
(barü)	(psig)	(bar)	(psig)	(K)	(Nl/min)	(scfm)	(Nl/min)	(scfm)
18	260	0.41	5.9	282	180	6.5	5220	184
15	220	0.42	6.1	282	160	5.5	4710	166
10	145	0.42	6.1	283	110	4.0	3850	136
8	120	0.41	5.9	285	95	3.5	3440	121
6	90	0.40	5.8	284	75	2.6	3040	107
5	75	0.41	5.9	283	65	2.3	2820	100
4	60	0.41	5.9	282	55	2.0	2570	91

p1: Inlet pressure | Dp: Pressure difference | T: Temperarture | RF: Reset Flow | V: Flow rate for closing

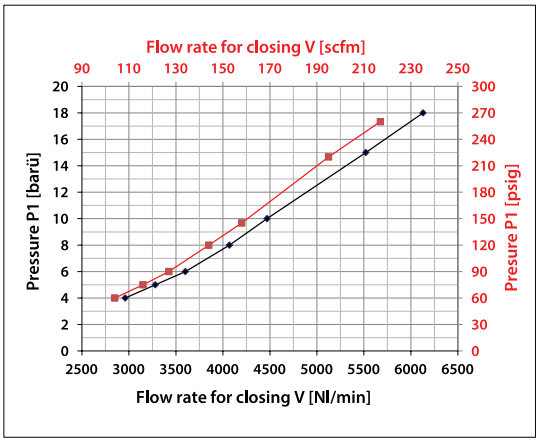


HoseGuard® 3/4"

Flow measurement according to DIN EN 60534
Air flow rate for closing (± 10%)

p1 (barü)	p1 (psig)	Dp (bar)	Dp (psig)	T (K)	RF (Nl/min)	RF (scfm)	V (Nl/min)	V (scfm)
18	260	0.24	3.5	282	690	24.5	6130	217
15	220	0.24	3.5	281	580	20.5	5520	195
10	145	0.25	3.6	283	400	14.0	4470	158
8	120	0.24	3.5	281	330	11.5	4070	144
6	90	0.25	3.5	283	260	9.0	3600	127
5	75	0.25	3.5	287	220	8.0	3280	116
4	60	0.25	3.5	285	180	6.5	2960	104

p1: Inlet pressure | Dp: Pressure difference | T: Temperarture | RF: Reset Flow | V: Flow rate for closing

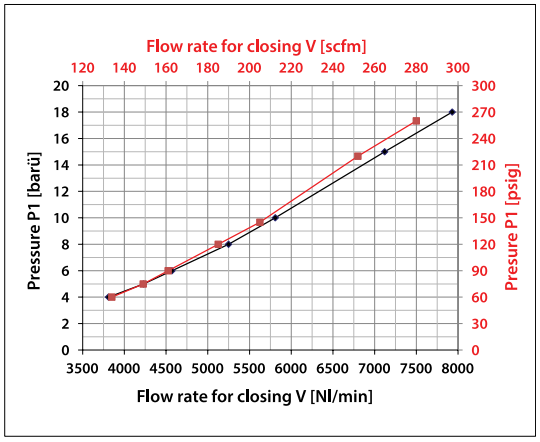


HoseGuard® 3/4" High Flow

Flow measurement according to DIN EN 60534
Air flow rate for closing (± 10%)

p1 (barü)	p1 (psig)	Dp (bar)	Dp (psig)	T (K)	RF (Nl/min)	RF (scfm)	V (Nl/min)	V (scfm)
18	260	0.29	4.2	282	2380	84	7930	280
15	220	0.29	4.2	282	2000	71	7120	252
10	145	0.30	4.3	282	1380	49	5810	205
8	120	0.29	4.2	281	1120	40	5250	185
6	90	0.31	4.5	283	880	31	4570	161
5	75	0.31	4.5	290	750	26.5	4230	149
4	60	0.31	4.5	285	630	22.5	3810	134

p1: Inlet pressure | Dp: Pressure difference | T: Temperarture | RF: Reset Flow | V: Flow rate for closing

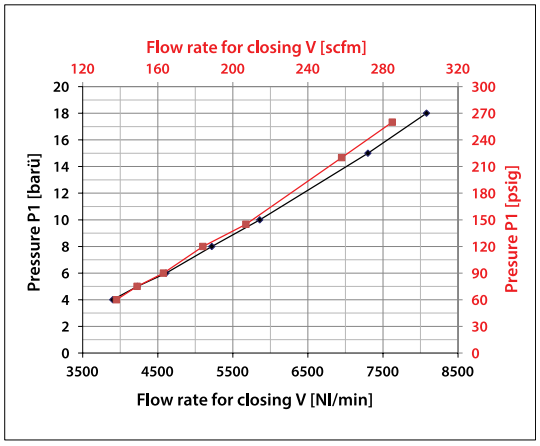


HoseGuard® 1"

Flow measurement according to DIN EN 60534
Air flow rate for closing (± 10%)

p1	p1	Dp	Dp	T	RF	RF	V	V
(barü)	(psig)	(bar)	(psig)	(K)	(Nl/min)	(scfm)	(Nl/min)	(scfm)
18	260	0.21	3.0	282	1440	51	8080	285
15	220	0.20	2.9	283	1200	43	7300	258
10	145	0.21	3.0	283	840	29.5	5860	207
8	120	0.22	3.2	284	690	24.5	5220	184
6	90	0.21	3.0	283	530	18.5	4610	163
5	75	0.20	2.9	288	460	16.5	4230	149
4	60	0.20	2.9	287	380	13.5	3900	138

p1: Inlet pressure | Dp: Pressure difference | T: Temperarture | RF: Reset Flow | V: Flow rate for closing

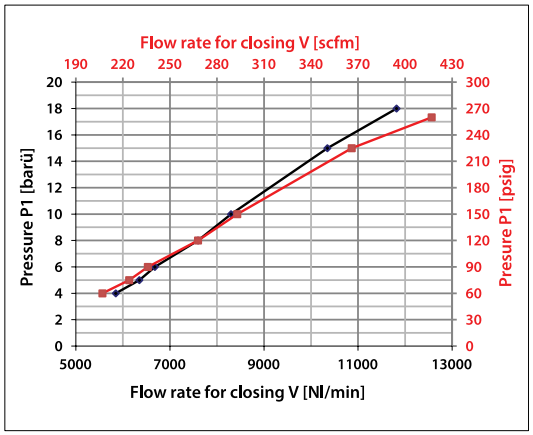


HoseGuard® 1" High Flow

Flow measurement according to DIN EN 60534
Air flow rate for closing (± 10%)

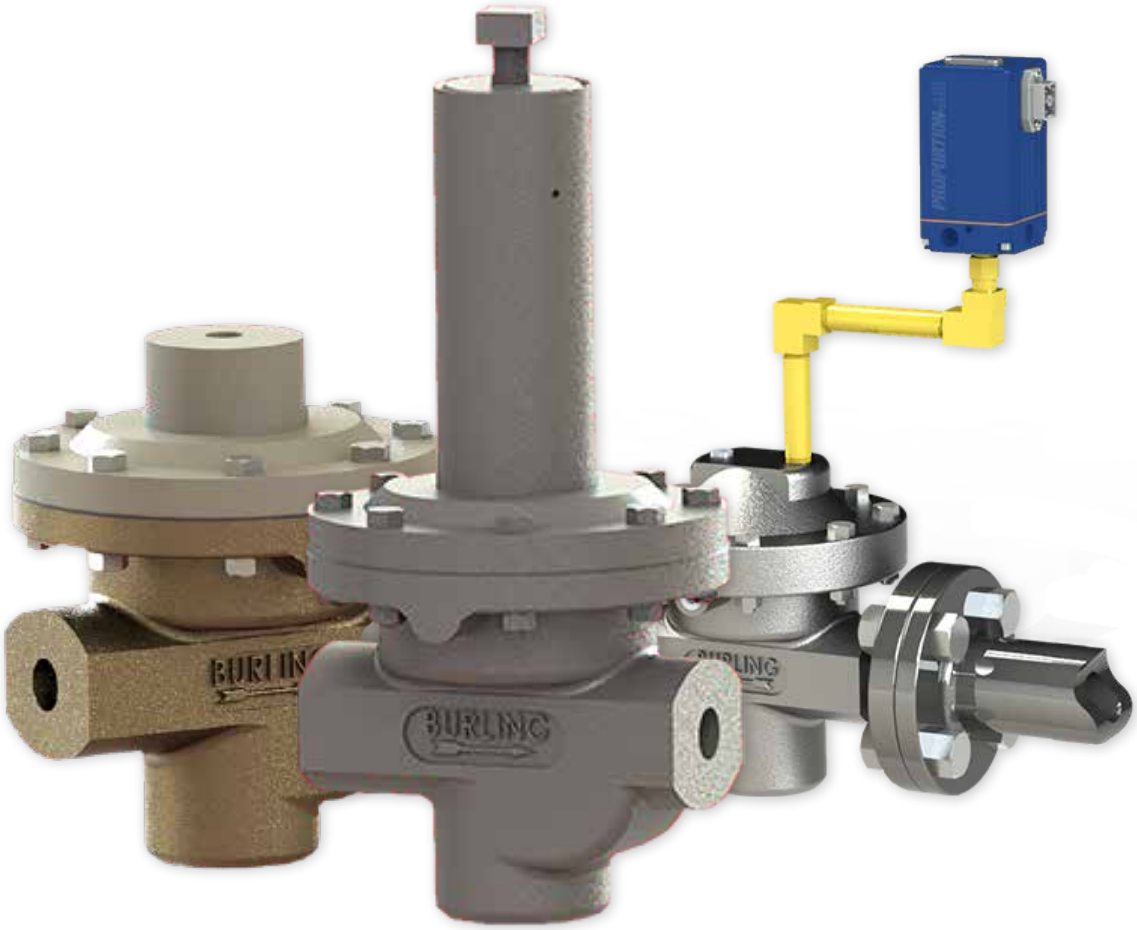
p1	p1	Dp	Dp	T	RF	RF	V	V
(barü)	(psig)	(bar)	(psig)	(K)	(Nl/min)	(scfm)	(Nl/min)	(scfm)
18	260	0.27	3.9	282	1440	51	11820	417
15	225	0.27	3.9	281	1200	43	10350	366
10	150	0.27	3.9	283	840	29.5	8300	293
8	120	0.27	3.9	284	690	24.5	7600	268
6	90	0.27	3.9	284	530	18.5	6680	236
5	75	0.27	3.9	286	460	16.5	6350	224
4	60	0.26	3.8	285	380	13.5	5850	207

p1: Inlet pressure | Dp: Pressure difference | T: Temperarture | RF: Reset Flow | V: Flow rate for closing



Burling Valve

A Proportion-Air Brand



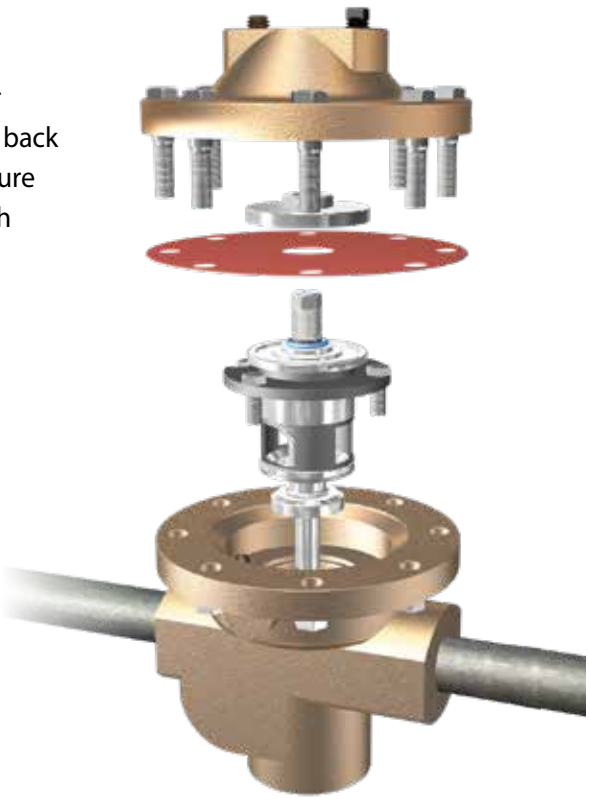
IN-LINE MAINTENANCE • FAST DELIVERY • LARGE CVs




About Burling Valve

Burling Valve brand industrial process regulators offer pressure solutions perfect for challenging environments. This versatile line includes pressure reducing regulators, back pressure regulators and differential regulators for applications controlling the pressure of most gases and fluids. Direct-acting (spring-loaded), dome-loaded or piloted with electronic or manual control options are available.

All Burling Valve regulators are made in the USA. With free application support, fast quotes, great lead times and custom engineered solutions, this line offers robust products to meet your exact needs.

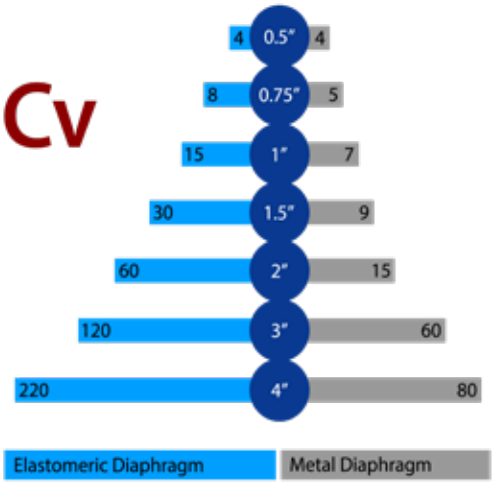


Large CVs

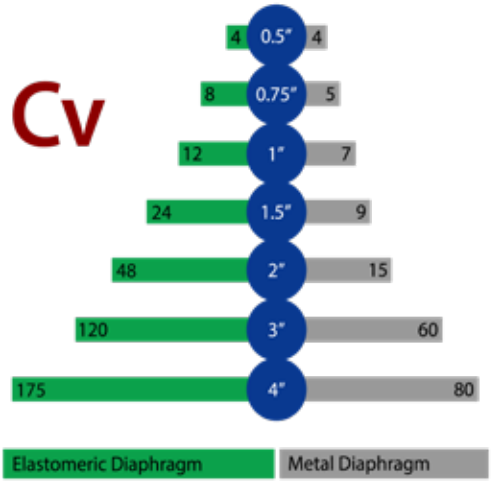
Fast Delivery

In-line Maintenance

Burling Pressure Reducing Regulators



Burling Back Pressure Regulators



1. **Body**
   - Cast Iron - Hamburg, PA
   - Stainless Steel - Monett, MO
   - Carbon Steel - Monett, MO
   - Bronze - Whitehall, PA
2. **Spring Chamber**
   - Made in New Jersey
3. **Spring**
   - Made in Pennsylvania
4. **Cylinders**
   - Made in New Jersey or Florida
5. **Stem**
   - Made in New Jersey
6. **U-Cup**
   - Made in Texas
7. **Seat**
   - Made in Texas
8. **Flanges**
   - Made in Illinois

Markets

- Chemical
- Petrochemical
- Refineries
- Food
- Pharmaceutical
- Power Generation
- Energy
- HVAC
- Environmental
- Semiconductor
- Cryogenic
- Medical
- OEM
- Marine
- Automotive
- Architectural Fountains
- Atmospheric Bulk Gas
- Natural Gas
- Boilers
- Paper

SPECIFICATIONS & MATERIALS

Body Sizes	1/2" - 4"
Body Materials	Cast Iron, Carbon Steel, Bronze, Stainless Steel, Hastelloy*, Alloy 20*
Trim Materials	17-4 PH or 316L S.S., Monel, others
Diaphragm Materials	6-ply special composition (PTFE, Viton) PTFE, Viton, Neoprene, Buna-N, EPDM, Beryilium Copper, Stainless Steel, Alloy 20*
Seats	Polyurethane, PTFE, Viton, others
Cv Rating	4 - 220
Set Points	to inches of water column (BD only)
Max Inlet Pressure	3000 psig @ 100°F (*material specific*)
Max Outlet Pressure	1000 psig @ 100°F (*material specific*)
Actuators	Elastomeric diaphragm, metal diaphragm or piston actuator
Temperature Range	-425°F - 450°F
End Connections	Threaded, Flanged, Socket Weld, Butt Weld, Tube, Tri-Clamp, BSP, others
Turn-Down Ratio	1000:1
Dynamic Response	10 cycles per second
Trim	Top Entry, Balanced, Quick-Change, Single Seat
Inlet Sensitivity Effect	Minimal due to balanced design. Outlet pressure changes by 3 to 8 psig for every 100 psig variation in inlet pressure, either directly or inversely
Sensing	Internal or external
Ratio-Loaded Configuration	Available for controlling set point when control signal is too low

*Consult factory

A stainless steel spring chamber (top material) can be substituted for carbon steel or bronze
4" body can be assembled to 6" or 8" flanges if larger than 4" regulator is needed

Cast Iron

END CONNECTION	0.5"	0.75"	1"	1.5"	2"	3"	4"
250# NPT Threaded	Available					N/A	
125# FF Flange	N/A					Available[2]	
250# RF Flange							

Bronze

END CONNECTION	0.5"	0.75"	1"	1.5"	2"	3"	4"
700# NPT Threaded	Available					N/A	
150# RF Flange	N/A					Available[2]	
300# RF Flange							

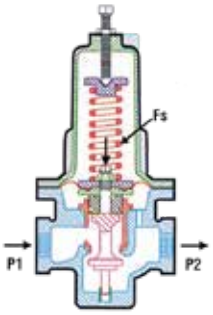
Carbon Steel

CF3M 316L Stainless Steel

END CONNECTION	0.5"	0.75"	1"	1.5"	2"	3"	4"
600# NPT Threaded	Available					N/A	
Socketweld Ends						Consult Factory[1]	
Buttweld Ends							
Swagelock Fittings						N/A	
Triclamp Connections							
150# RF Flange						Available[2]	
300# RF Flange							
600# RF Flange						Consult Factory[1]	
900# RF Flange						N/A	
1500# RF Flange							

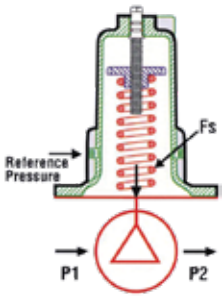
[1] Consult factory for special connections. Consult factory for SAE end connections.
[2] Consult factory for availability.

Pressure Reducing



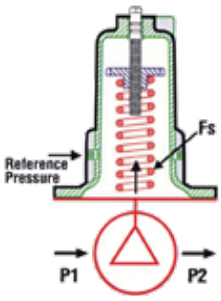
BS1 ***(Pressure Reducing)***
Simplest regulator design

- Chemical and all simple process applications and industries
- Most fluids and medias



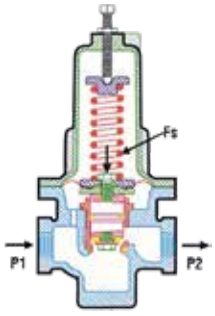
BS2 ***(Pressure Reducing, Differential)***
Using a sealed differential chamber instead of simple BS1 chamber produces a differential PRV

- Seal pressurization applications
- Spring atomization applications
- Spray tower applications



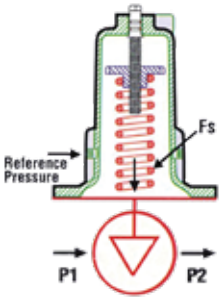
BS2–3 ***(Negative Bias Differential)***
By placing spring in tension rather than compression produces a negative bias relative to the reference pressure or a negative differential regulator.

Back Pressure

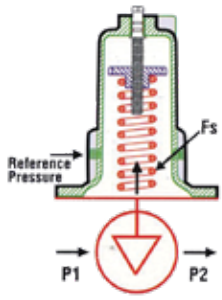


BS5 ***(Back Pressure)***
Replacing trim with back pressure trim produces simplest back pressure regulator

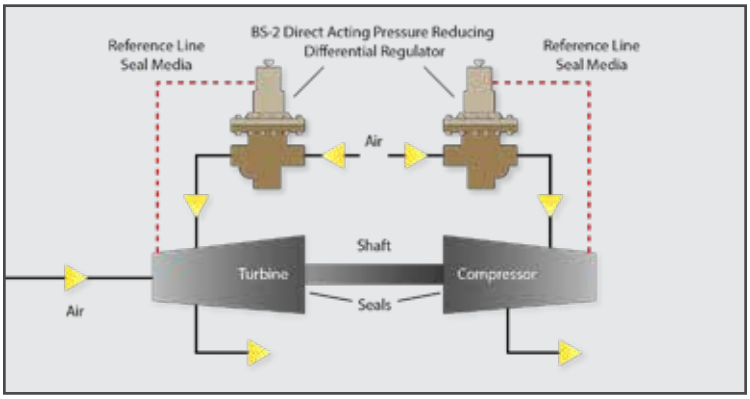
- Pump discharge applications
- Filter applications
- Relief valve



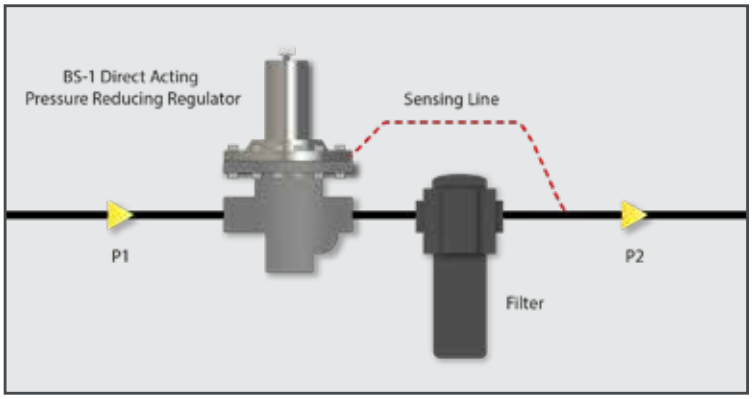
BS8 ***(Positive Differential Back Pressure)***
By using a positive bias on spring in compression with back pressure trim produces a positive differential back pressure regulator.



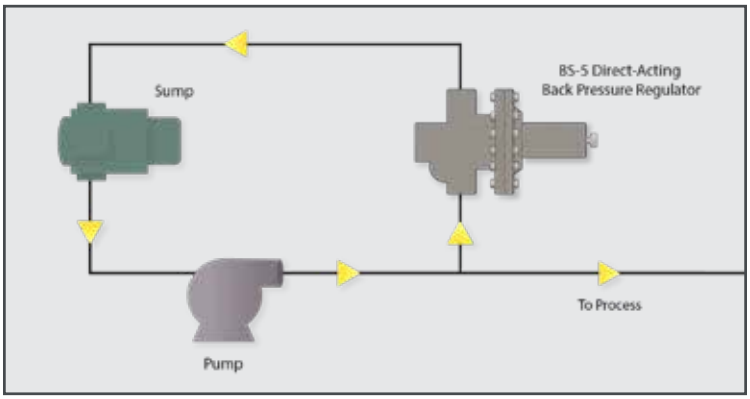
BS8-3 ***(Negative Differential Back Pressure)***
Similarly, by utilizing the spring in a negative or tension mode along with back pressure trim creates a negative differential back pressure regulator.



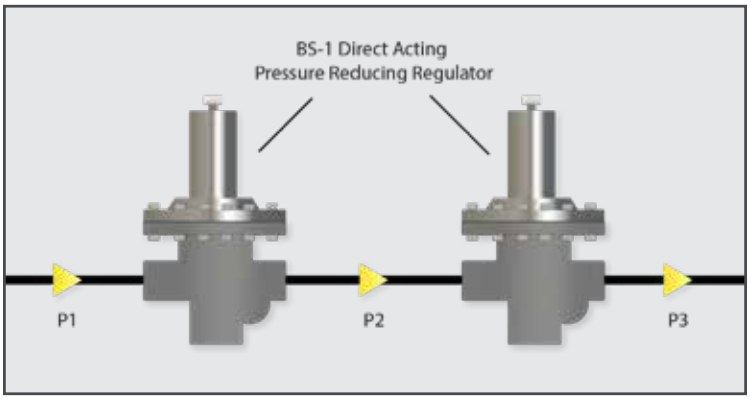
SEAL PRESSURIZATION
Spring loaded differential pressure regulators maintain lubrication or seal media on rotating or reciprocating equipment. The differential is maintained relative to internally sensed turbine or compressor pressures.



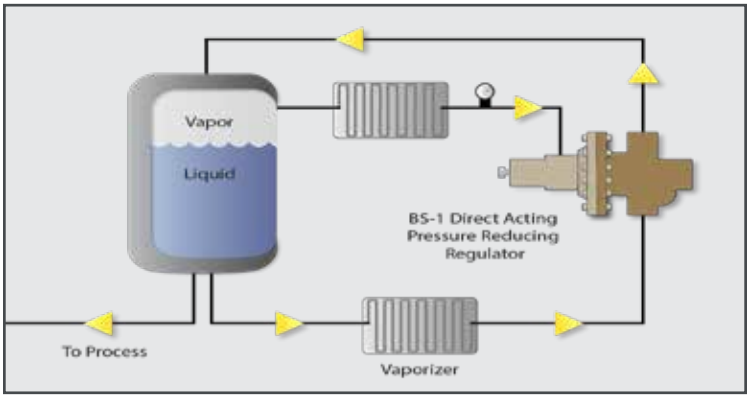
CONSTANT FILTER DISCHARGE
By using a spring loaded regulator with remote sensing, constant discharge pressure after a filter can be achieved regardless of cake buildup.



CONSTANT PUMP DISCHARGE PRESSURE
By using a simple spring loaded back pressure regulator, constant pump discharge pressure can be generated regardless of demand.

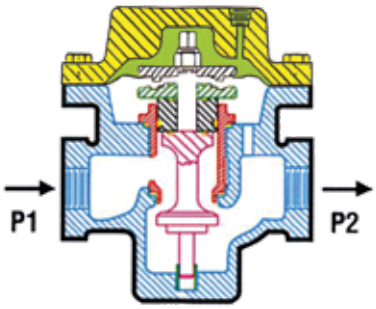


PRESSURE REDUCTION
Placing two or more spring loaded regulators in series for Pressure let-down will provide excellent accuracy, if flows are relatively constant. Valves are designed to fail-open position and minimization of "supply-line" effect.

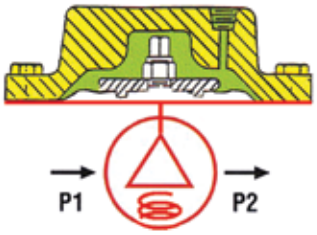


CRYOGENIC PRESSURE BUILD
Pressure building regulators used to maintain pressure in vapor space above cryogenic liquid in Dewar vessels. By using a light spring with low "droop" assisted by gas pressure, a highly accurate pressure of 275 psig or more is attained. Set-point is capable of accuracies of ± 2 psig.

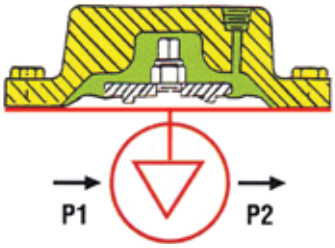
DOME LOADED PRESSURE REGULATORS | BD Series



BD3
Pressure Reducing
Simplest dome-loaded regulator or 1:1 "mimic" valve. Loading signal essentially equals P2.



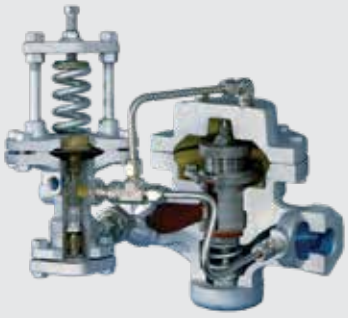
BD4
Pressure Reducing with Return Spring
Same as BD3 except with a bottom return spring for proportional band control. Used when a "closed loop," or feedback to regulator, is generated.



BD6
Back Pressure
By using back pressure trim instead of standard trim, a dome loaded back pressure valve is created.

BD7
Pressure Reducing with Steam Pilot
The BD7 is our dome-loaded regulator with a Spence steam pilot, ideal for steam control. It is offered with our BD3 (simple) or BD4 (spring return) internals.

BD9
Pressure Reducing Steam Regulator
The BD9 is employed when temperature is an issue. The BD9 has a diaphragm for better response and/ or more precise pressure or vacuum control than piston type regulator.

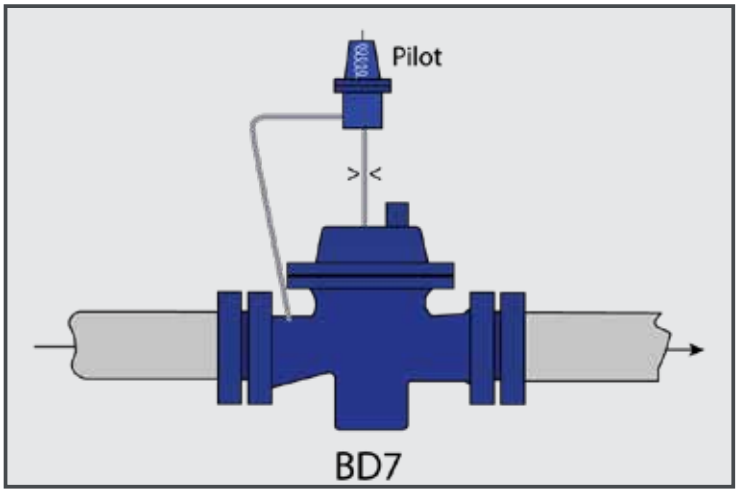


Typical steam pilot actuated dome loaded regulator for regulator accuracies of ± 1- 2 psig.

DOME LOADED REGULATORS WITH PILOTS

Accuracy of ± 1-2 psig is achievable with dome loaded regulators.

If greater accuracy is required, pilot operated dome loaded regulators are used if possible. Since pilots are narrow band proportional controllers, accuracies of 0.5 psig or better are possible.

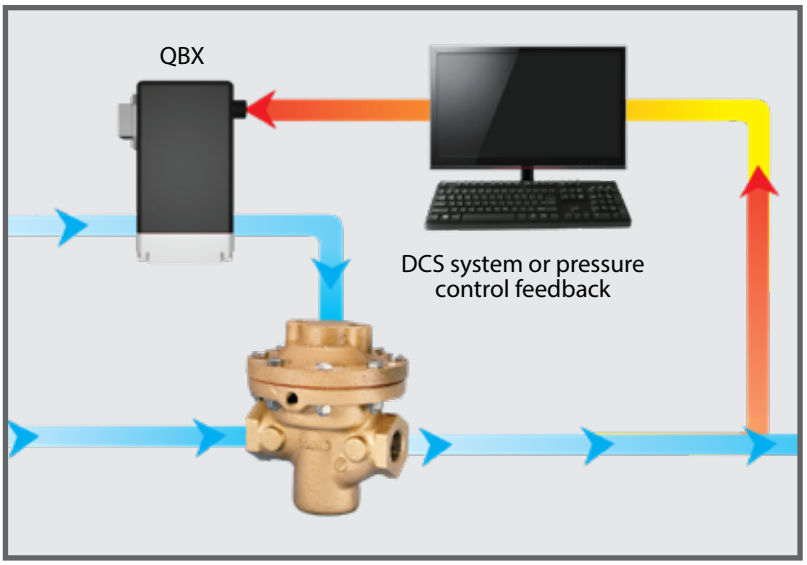


DOME LOADED REGULATORS AS CONTROL VALVES

With the selection of the sensing element such as a transducer, pH meter, level control or other, coupled with a controller and I/P (extended range, if necessary) the functionality of a control valve is accomplished.

Advantages Over Control Valves

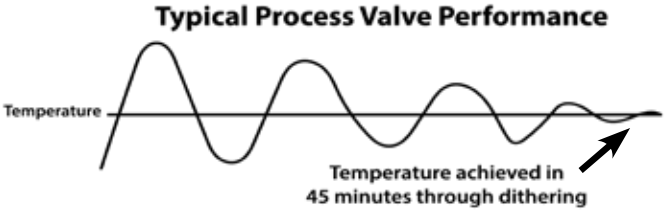
- Quicker dynamic response (10 cycles per second)
- More compact design (over 30% smaller)
- No fugitive emissions
- Higher turndown ratio 1000:1
- Generally less expensive than control valves in both cryogenics and industrial applications (approximately 30% less expensive)



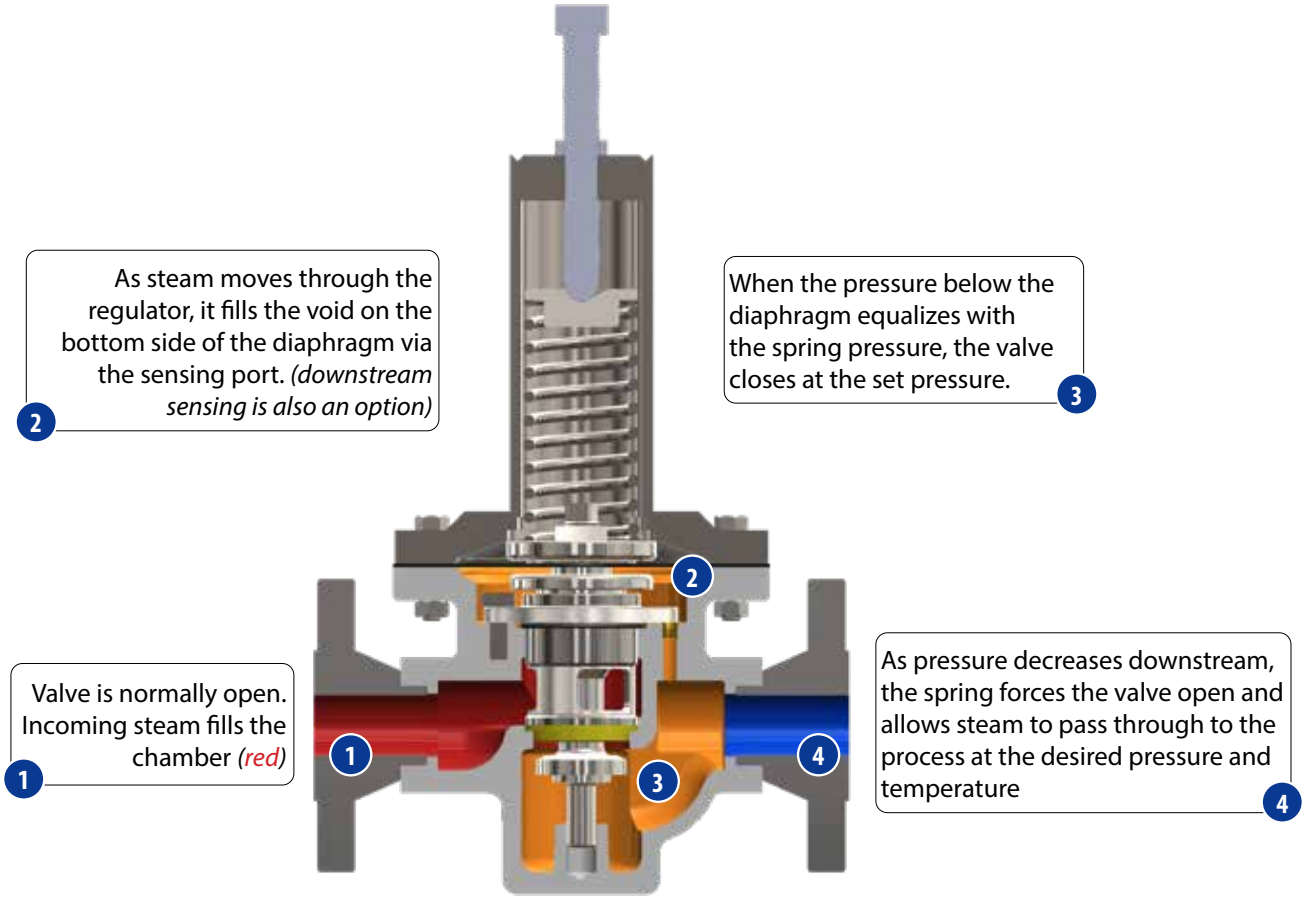
SATURATED STEAM CONTROL | BD Series

- Closed loop device with 4-20 mA command, analog, Modbus, or serial (*electronic pilot*)
- Works with standard industrial air, no instrument air required (*electronic pilot*)
- Available in single or dual loop configuration (*electronic pilot*)
- Fails closed at loss of power to maintain pressure (*electronic pilot*)
- No dithering of the command is required
- Automatically maintains correct pressure (*temperature*) at all times
- No dithering extends diaphragm life even further
- Carbon steel, flange mount body

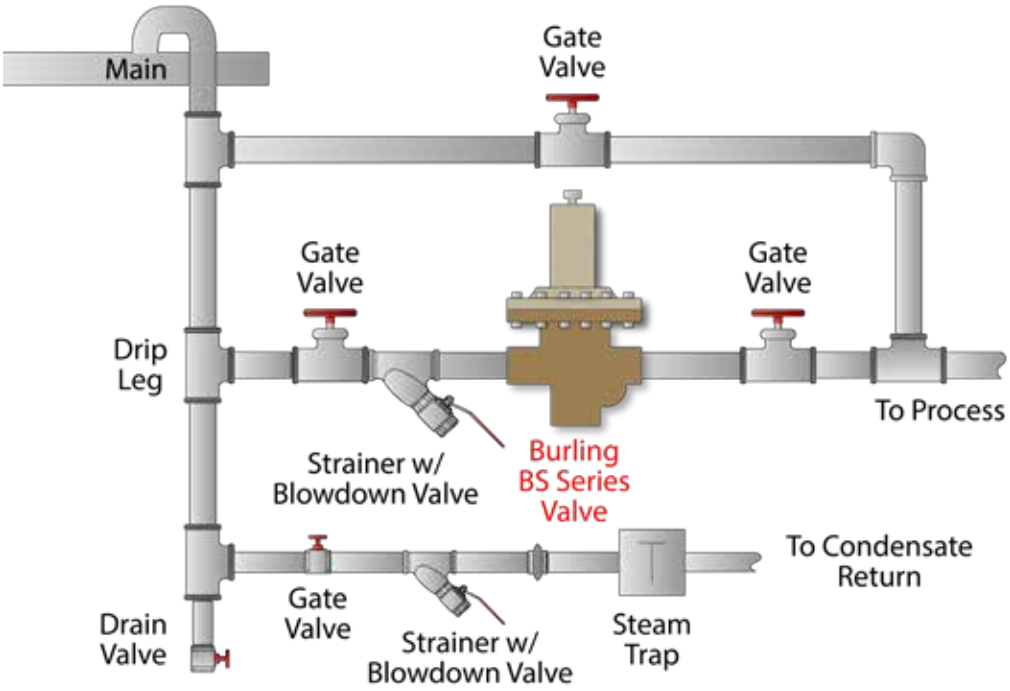
BD4 + QBX + DST



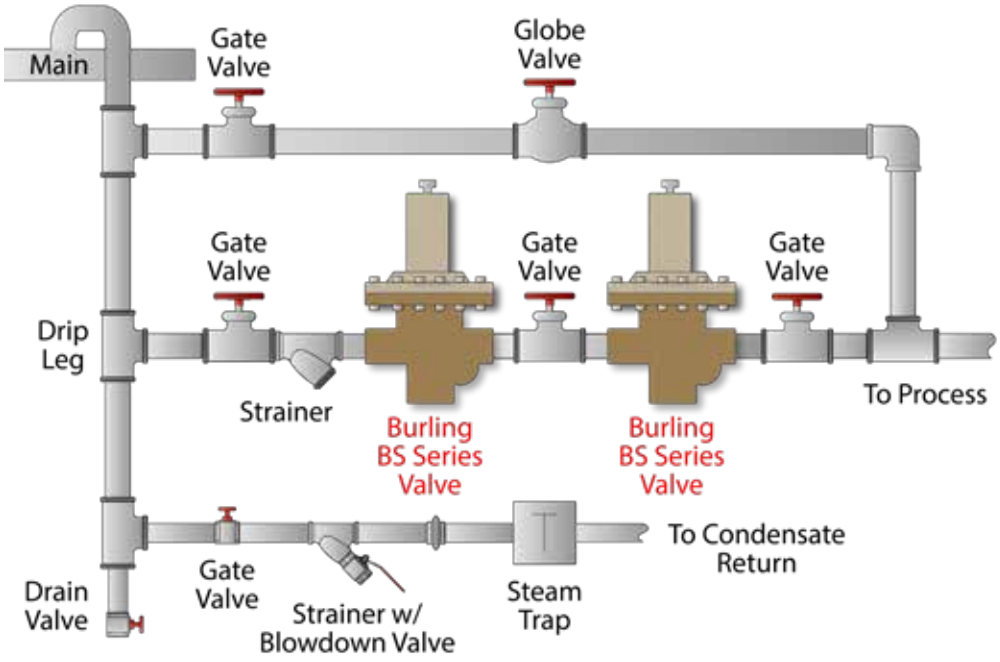
STANDARD OPERATING CYCLE OF THE BURLING STEAM REGULATOR



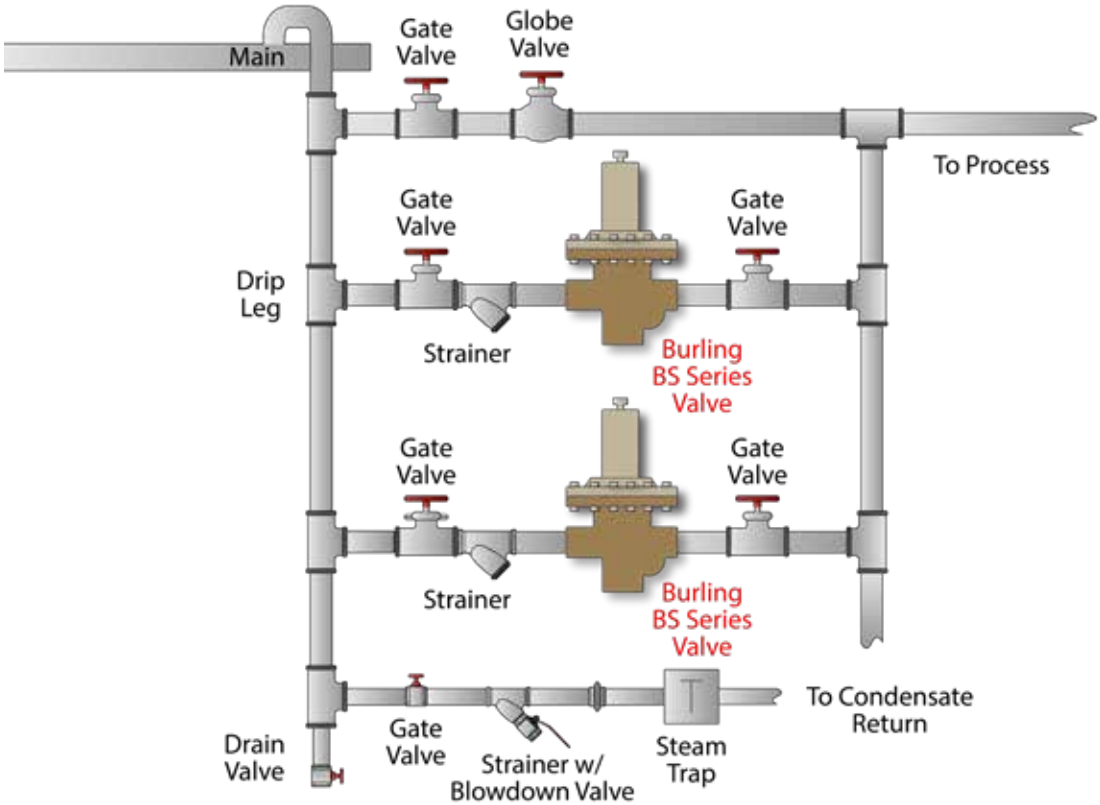
PRESSURE REDUCING VALVE STATION



PRESSURE REDUCING TWO STAGES (SERIES)



PARALLEL REDUCING STATION



BURLING VALVE HOW TO ORDER

Model		Size		Type	Body Material	Top Material	Rating (ANSI)	End Connection	Trim	Top Spring Range
BS	Spring	0.5	1/2"	1 Direct Acting	A Aluminum	A Aluminum	1 125	1 NPT	1 17-4 PH SS	0 None
BD	Dome	.75	3/4"	2 Differential	I Cast Iron	I *Cast Iron	2 150	2 Flange	2 316L SS	# See Table A
		1.0	1"	3 Dome	B Bronze	B *Bronze	3 250	3 Tube End	3 Monel	
		1.5	1.5"	4 Dome/ Return Spring	C Carbon Steel	C Carbon Steel	4 300	4 Butt Weld	4 Hybrid (Monel & 316L)	
		2.0	2"	5 Back Pressure Spring	S Stainless Steel	S Stainless	5 600	5 Socket Weld	5 Alloy 20 Stainless Steel	
		3.0	3"	6 Back Pressure Dome	H Hastelloy	H Hastelloy	6 700	6 Swagelok Fitings	6 Hastelloy	
		4.0	4"	7 Pilot Actuated	L Alloy 20	L Alloy 20	7 1500	8 *Tri-Clamp		
				8 Back Pressure Differential		*BD only	8 900	9 SAE		
				9 *Dome/Small Piston				A BSPP		

*Must choose special option 1

*Tri-Clamp uses a body one size smaller than chosen (ex., BS2.0 will use 1.5" body)

Seat	Membrane	Dynamic Seal	Static Seal	Return Spring	Trim Variation	Sensing	Flow	Special
1 Polyurethane	0 None	1 PTFE U-Cup	2 Buna-N	0 None	# See Table B	0 *Non-Sensing	1 Normal	0 None
2 PTFE	1 Neoprene	2 RTFE U-Cup	3 Viton	1 1-3 PSI		1 Internal	2 Reverse	1 1/4" NPT Body Taps
3 RTFE	2 PTFE 6-Ply	3 Polyurethane U-Cup	4 Fluoro-Silicone	2 2-7 PSI		2 External		3 Negative Differential
4 Kel-F	3 Viton	4 Viton U-Cup	5 EPDM	3 3-15 PSI		3 Ratio		4 Oxygen Cleaned
5 70 Durometer Polyurethane	4 EPDM	5 EPDM U-Cup	6 PTFE			*9 Type Only		6 Tamper-proof Cap
6 EPDM	5 Metal (316 SS)	6 Buna-N U-Cup						7 Handwheel
7 Viton	6 Fluoro-Silicone	7 TFM U-Cup						8 Gauge
8 Buna-N	7 Buna-N							9 6" Flange on 4" Body
9 TFM	A PTFE-Faced Viton							A Low Pressure
	B PTFE-Face Buna-N							B Special Face-to-Face
	C PTFE-Faced EPDM							C 1/2" NPT Dome Tap
	D PTFE-Faced Neoprene							D 8" Flange on 4" Body
	E Metal (17-7)							E High Pressure
	F Metal (BeCu)							
	G Viton (reduced thickness)							
	H Alloy 20							
	I Metal (Monel)							
	J PTFE 5-Ply							
	K TFM 6-Ply							

options in alphanumeric order

KEY

- Requires Adder Fee
- Consult Factory for Pricing and Availability
- Low Pressure: Consult Factory

Table A: Top Springs Rating (psi)

#	Standard Spring Ranges 0.5, .75 & 1.0	1.5	2.0	3.0 & 4.0
1	1 to 10	1 to 10	1 to 5	1 to 10
2	2 to 20	5 to 20	4 to 15	5 to 20
3	10 to 35	15 to 45	10 to 30	10 to 40
4	20 to 80	10 to 70	15 to 50	10 to 70
5	30 to 150	40 to 125	30 to 90	40 to 125
6	70 to 200	70 to 200	50 to 150	100 to 500
7	100 to 300			
B	.5 to 5			

#	Heavy Spring Ranges (Includes Heavy Spring Chamber) 0.5, .75 & 1.0	1.5	2.0	3.0 & 4.0
8	200 to 650	100 to 400	80 to 300	

#	Negative Bias Spring Ranges 0.5, .75 & 1.0	1.5	2.0	3.0 & 4.0
9	-1 to 20	-2 to 20	-1 to 15	
A	-20 to 50	-20 to 50	-20 to 50	-20 to 40

Table B: Trim Variations & Cv Selection

Size	#	Elastomer Membrane Pressure Reducing Cv	Elastomer Membrane Backpressure Cv	Metal Membrane All Types Cv
0.5	1			0.28
	2			0.70
	3			1.12
	4			1.4
	5	0.60		1.98
.75	1			5.0
	2	7.01	4.0	3.27
	3	5.66	3.0	2.64
	4	4.25	2.0	1.98
	5	3.0	1.0	1.4
	6	2.4		1.12
	7	1.5		0.70
	8	0.60		0.28
1.0	1	15.0	12.0	7.0
	2	11.82	4.0	5.52
	3	7.01	3.0	3.27
	4	5.66	2.0	2.64
	5	4.25	1.0	1.98
	6	3.0		1.4
	7	2.4		1.12
	8	1.5		0.70
	9	0.60		0.28
1.5	1	30.0	24.0	9.0
	2	15.0		4.5
	3	12.0		3.6
	4	9.0		2.7
	5	6.0		1.8
2.0	1	60	48	15
	2	47	16	11.75
	3	30	12	7.5
	4	20	8	5.0
	5	15	4	3.75
3.0	1	120	120	60
	2	50		25
	3	40		20
	4	30		15
	5	20		10
4.0	1	220	175	80
	2	50		18.18
	3	40		14.5
	4	30		10.9
	5	20		7.3

Sizing a Burling Valve Regulator Correctly

The following data is required for proper regulator sizing

Company		Name	
Email		Phone Number	
Fluid *(media)*		Specific Gravity[1]	
Temperature *(min-max)*		Viscosity[1]	
Function *(Pressure Reducing, Back Pressure, Differential or Other - please specify)*			

Flow *(min)*[2]		Flow *(norm)*		Flow *(max)*[2]	
P1 *(min)*[2]		P1 *(norm)*		P1 *(max)*[2]	
P2 *(min)*[2]		P2 *(norm)*		P2 *(max)*[2]	

Additional (helpful) Information

Application Description					
Regulation Accuracy				In/Out Pipe Size | Schd	Schd
Auxiliary Air Available				Pipe Material	
Body Material | Cv		Cv		Trim Material	
Soft Goods Materials				End Connection	

[1]This information is only required if we do not have information available on the fluid specified *(please contact factory)*.
[2]If regulator will always be operating at normal conditions, min and max values can be omitted.

BURLING VALVE REPAIR KITS

100			—						—			
Prefix	Model	Size	Type	Seat	Membrane	Dynamic Seal	Static Seal	Special	Disc*	Chamber Seals & Gasket**		
	BS Spring	0.5 1/2"	1 Direct Acting	1 Polyurethane	0 None	1 PTFE U-Cup	2 Buna-N	1 Oxygen Cleaned	1 Polyurethane	2 Buna-N		
	BD Dome	.75 3/4"	2 Differential	2 PTFE	1 Neoprene	2 RTFE U-Cup	3 Viton	2 High Pressure	2 PTFE	3 Viton		
		1.0 1"	3 Dome	3 RTFE	2 PTFE 6-Ply	3 Polyurethane U-Cup	4 Fluoro-Silicone	X None	3 RTFE	4 Fluorosilicone		
		1.5 1.5"	4 Dome/Return Spring	4 Kel-F	3 Viton	4 Viton U-Cup	5 EPDM		4 Kel-F	5 EPDM		
		2.0 2"	5 Back Pressure Spring	5 70 Durometer Polyurethane	4 EPDM	5 EPDM U-Cup	6 PTFE		X None	X None		
		3.0 3"	6 Back Pressure Dome	6 EPDM	5 Metal (316 SS)	6 Buna-N U-Cup			*Type 5, 6, 8 only		**Types 2, 8 only	
		4.0 4"	7 Pilot Actuated	7 Viton	6 Fluoro-Silicone	7 TFM U-Cup						
			8 Back Pressure Differential	8 Buna-N	7 Buna-N							
			9 Dome/Small Piston	9 TFM	A PTFE-Faced Viton							
					B PTFE-Face Buna-N							
					C PTFE-Faced EPDM							
					D PTFE-Faced Neoprene							
					E Metal (17-7)							
					F Metal (BeCu)							
					G Viton (reduced thickness)							
					H N/A							
					I Metal (Monel)							
					J PTFE 5-Ply							
					K TFM 6-Ply							

KEY

- Requires Adder Fee
- Consult Factory for Pricing and Availability
- Low Pressure: Consult Factory

EXAMPLE FULL PART NUMBER: **BS1.0-1**CC5114-**1132**01110

EXAMPLE REPAIR KIT PART NUMBER: 100**BS1.0-11132**-XXX

PROPORTION-AIR

BURLING VALVE

PROTECT AIR

Custom Engineered Solutions
Live support, M-F 8 a.m. - 6 p.m. ET.

info@proportionair.com

proportionair.com

317-335-2602

ISO 9001:2015

MADE IN USA