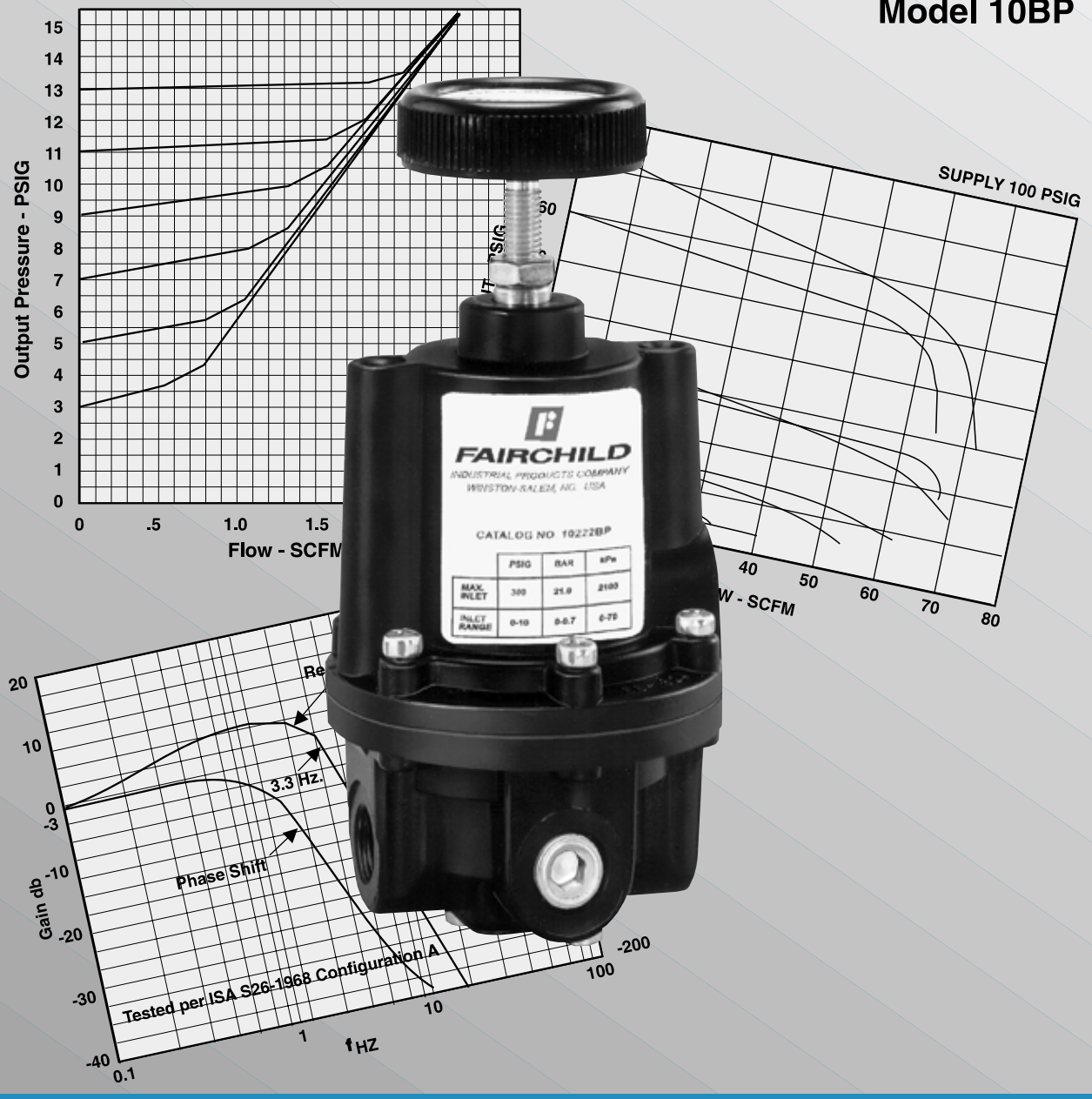
FAIRCHILD

PNEUMATIC PRECISION BACK PRESSURE REGULATOR

Model 10BP



FAIRCHILD
INDUSTRIAL PRODUCTS COMPANY

GENERAL INFORMATION

MODEL 10BP PNEUMATIC PRECISION BACK PRESSURE REGULATOR

APPLICATIONS

The Model 10BP is a high capacity regulator that provides relief of excess pressure in a pneumatic system.

The Model 10BP provides greater accuracy over a narrow pressure range than simple relief valves. The Model 10BP is an excellent choice for a wide range of precision applications including: Precise Control of Paper Machinery Felt Guides, Supply of a Precise Repeatable Signal to a Pneumatic Clutch, or Control of Cylinder Supply Pressure.

FEATURES

Performance

- The Model 10BP is sensitive to 1/8" Water Column variation which permits use in precision processes.

Functional

- Flow of up to 40 SCFM allows use in applications with high flow requirements.

Physical

- A Separate Control Chamber and Aspirator Tube isolates the diaphragm from the main flow eliminating hunting and buzzing.
- Mounting Bracket available.

OUTLINE DIMENSIONS

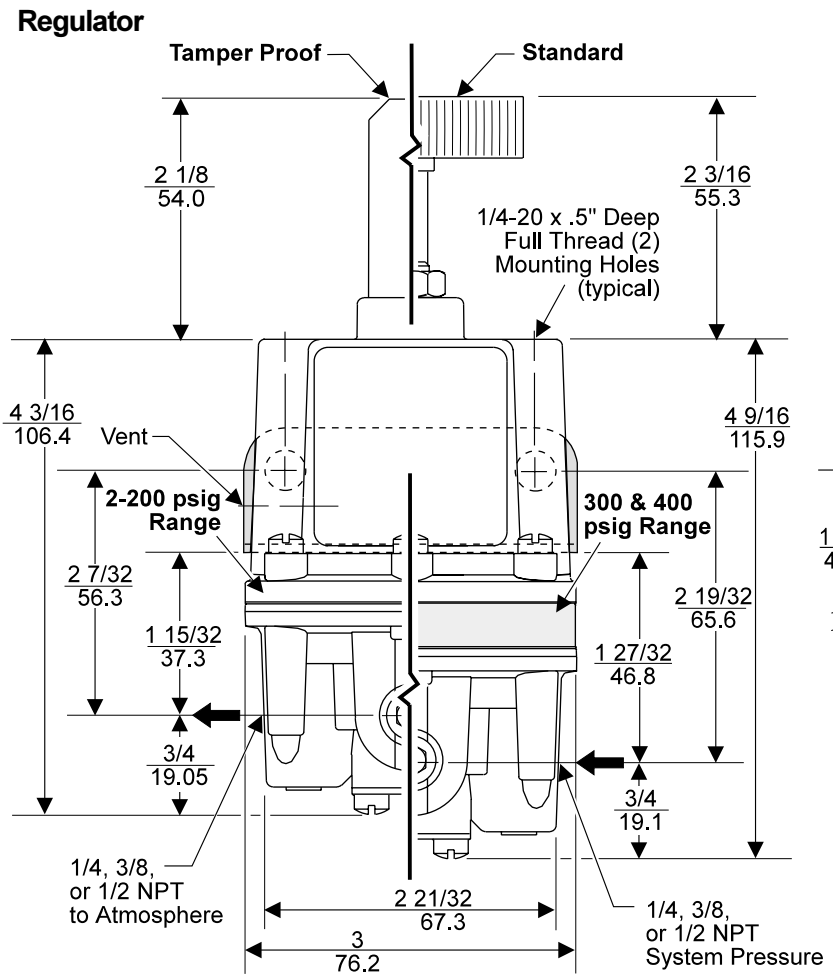


Figure 1. *Outline Dimensions.*

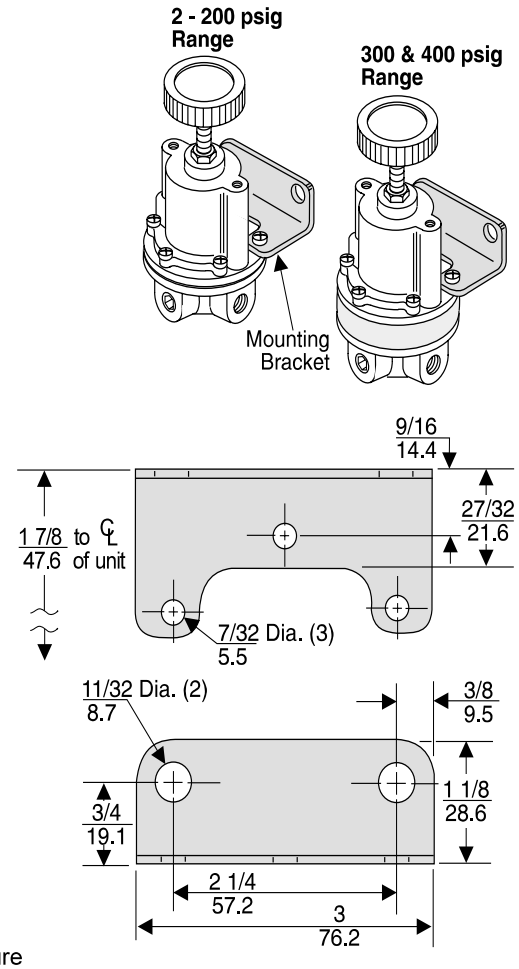


Figure 2. *Mounting Bracket EB-09921.* ***(Sold Separately)***

SPECIFICATIONS

FUNCTIONAL SPECIFICATIONS

	Set Point Range	
	2-200 psig [0.15-1400 BAR] (15-1400 kPa)	**300-400 psig [21-28 BAR] (2100-2800 kPa)**
System Pressure (Max.)	300 psig [21.0 BAR] (2100 kPa)	500 psig [35.0 BAR] (3500 kPa)
Flow Capacity (SCFM)	40 (68 m^3/HR) @ 100 psig, [7.0BAR], (700 kPa) supply & 20 psig, [1.5 BAR], (150 kPa) setpoint.	
Ambient Temperature	-40° F to +200° F (-40° C to +93° C)	

PERFORMANCE SPECIFICATIONS

Sensitivity	Less than 1/8" (.32 cm) Water Column.

Materials of Construction

Body and Housing . . . . . Aluminum
Trim . . . . . Zinc Platted Steel, Brass
Diaphragms . . . . . Nitrile on Dacron

CROSS SECTION

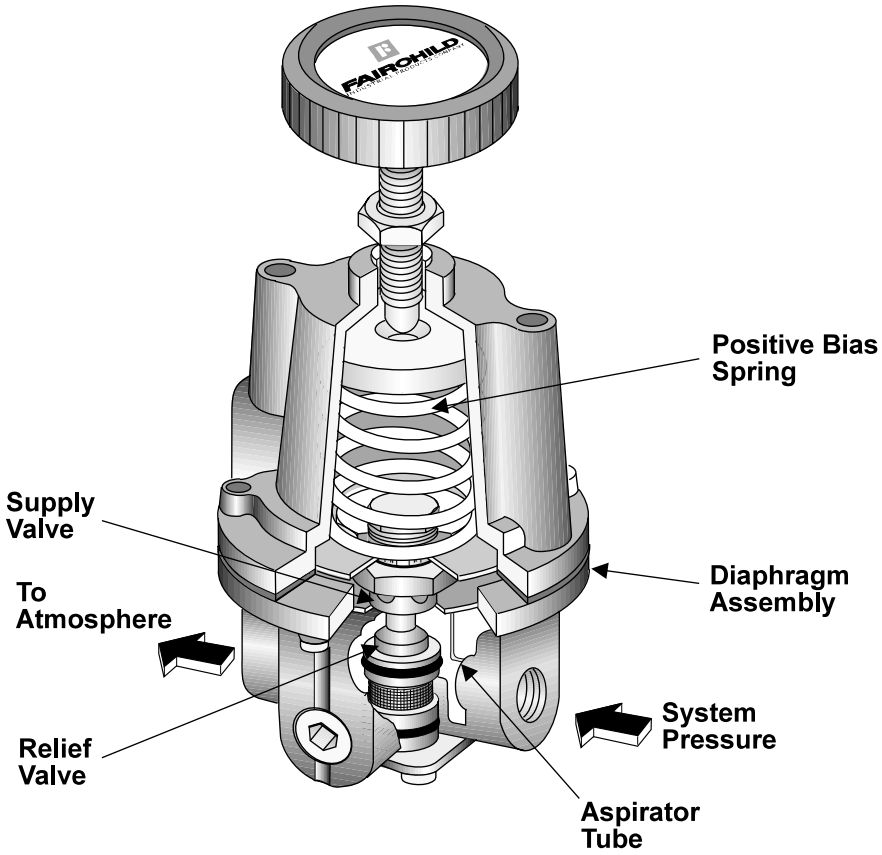


Figure 3. *Model 10BP Detail Drawing.*

OPERATING PRINCIPLES

The Model 10BP Regulator uses the force balance principle to cause the Relief Valve to open and vent downstream pressure when set point is reached.

Downstream pressure is transmitted through the Aspirator Tube to the underside of the Diaphagm Assembly. When the range screw is adjusted for a specific set point, the Positive Bias Spring is compressed. It exerts a force on the top of the Diaphragm Assembly. As long as the pressure acting on the underside of the Diaphragm Assembly produces a force less than the spring force acting on the top of the Diaphragm Assembly, the Relief Seat remains closed. As downstream pressure increases, the force on the bottom of the Diaphragm Assembly increases until it reaches the set point. As downstream pressure increases beyond setpoint, the assembly moves upward, lifting the Relief Valve from its seat and causing the downstream air to vent.

If downstream pressure decreases below setpoint, the decrease in pressure is transmitted through the Aspirator Tube to the bottom of the Diaphragm Assembly. The assembly moves downward and the force exerted by the range spring against the top of the Diaphragm Assembly will cause the Relief Valve to close. For more information, see Figure 3. “Model 10BP Detail Drawing” above.

INSTALLATION

For Installation Instructions refer to the *Fairchild Model 10BP Pneumatic Back Precision Regulator IOM,* **IS-100010BP.**

TYPICAL APPLICATIONS

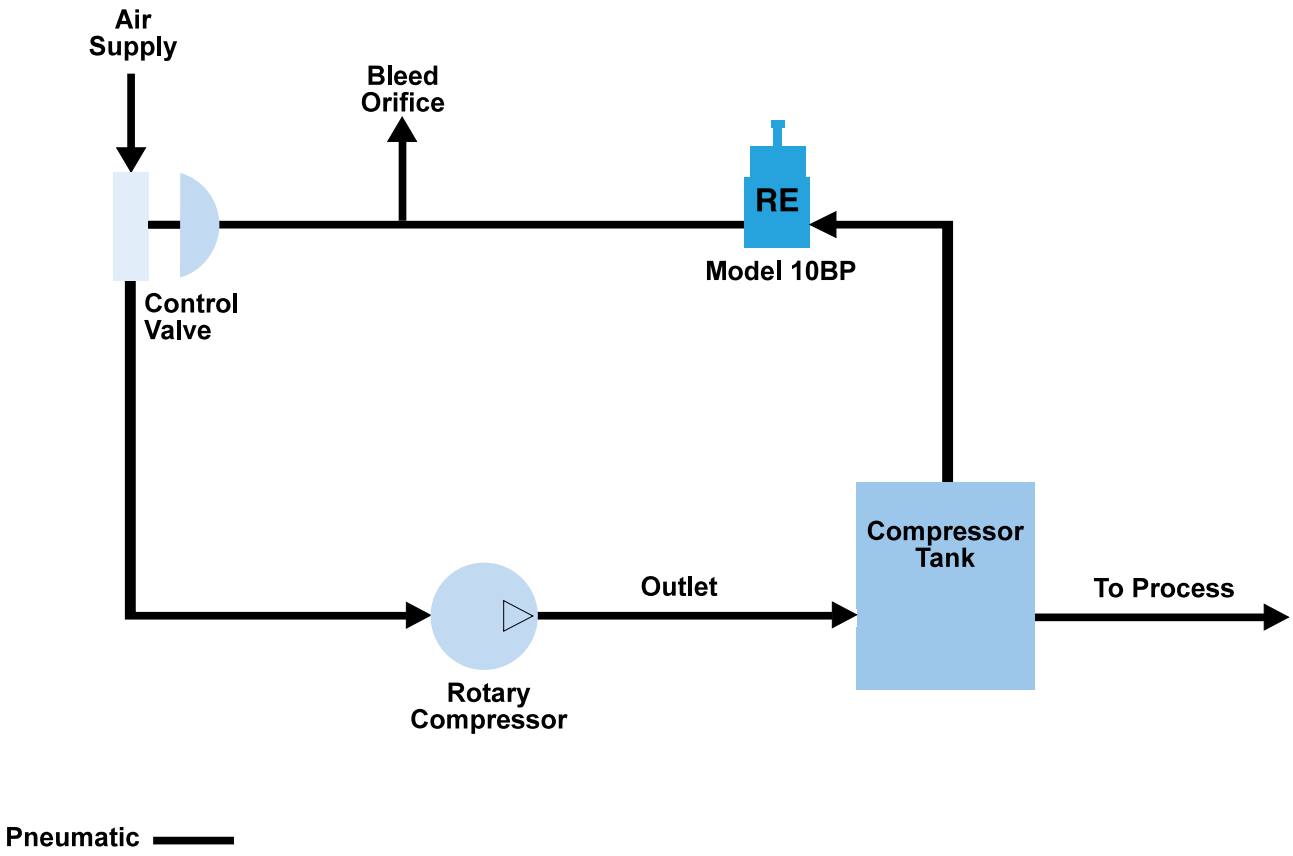


Figure 4. *Controlled Air Pressure Application for the Model 10BP.*

TYPICAL APPLICATIONS

The Model 10BP Regulator is used to control the air pressure in a manufacturing process.

Air is supplied to a Rotary Compressor through the Control Valve. The Rotary Compressor furnishes outlet air to the Compressor Tank. When the pressure in the Compressor Tank reaches the desired value, the Model 10BP opens and relieves any excess pressure. The excess pressure is passed on to the control valve which reduces flow from the air supply to the Rotary Compressor.

When the Control Valve closes, outlet pressure from the Rotary Compressor drops closing the Model 10BP. Air in the line between the Model 10BP and the Control Valve vents through the Bleed Orifice. Then the Control Valve opens to increase flow to the Rotary Compressor. For more information, see Figure 4. “Controlled Air Pressure Application for the Model 10BP Regulator” above.

ORDERING INFORMATION

Catalog Number 1 0 2 ☐ ☐ B P ☐

Pressure Range

psig	[BAR]	(kPa)	
0-2	[0-0.1]	(0-15)	**(1)**
0-10	[0-0.7]	(0-70)	**(2)**
0-20	[0-1.5]	(0-150)	**(0)**
.5-30	[.03-2]	(3-200)	**(3)**
1-60	[0.1-4]	(10-400)	**(4)**
2-150	[0.1-10]	(15-1000)	**(6)**
3-200	[0.2-15]	(20-1500)	**(7)**
5-300	[0.3-21]	(35-2100)	**(8)**
5-400	[0.3-28]	(35-2800)	**(9)**

Pipe Size

1/4" NPT	**(2)**
3/8" NPT	**(3)**
1/2" NPT	**(4)**

Options

Tamper Proof	**(T)**
Silicone Elastomers [1]	**(A)**
Viton Elastomers	**(J)**
BSPT (Tapered)	**(U)**
BSPP (Parallel) [2]	**(H)**

[1] *Maximum System Pressure - 75 psig, [5.0 BAR], (500 kPa)*
[2] *BSPP Threads in Inlet & Outlet Ports Only. Others BSPT.*

ISO 9002 Certified

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