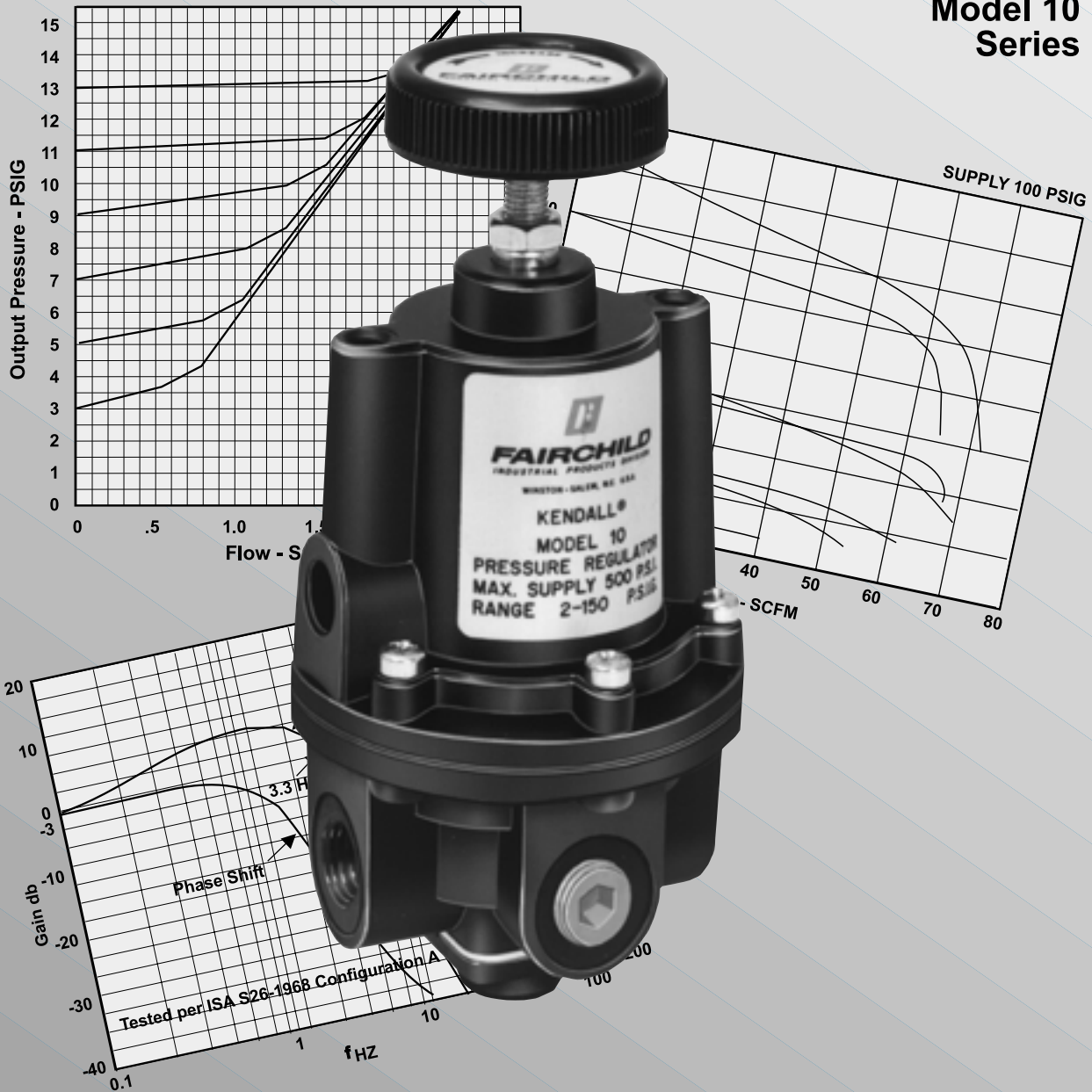


FAIRCHILD

PNEUMATIC PRECISION REGULATOR

Model 10
Series



FAIRCHILD
INDUSTRIAL PRODUCTS COMPANY

GENERAL INFORMATION

MODEL 10 SERIES PNEUMATIC PRECISION REGULATOR

APPLICATIONS

The Model 10 Series is a high capacity regulator that provides a uniform output pressure independent of supply pressure variation.

The combination of high capacity and sensitivity make the Model 10 Series an excellent choice for a wide range of precision applications including: Dancer and Calendar Roll Loading, Cylinder Bucking Pressure Control, Manometer Reference Pressure, Supply for Carrier Gas, Web Tensioning Control, Pneumatic Control Valve Diaphragm Loading, Clutch and Brake Controls and Flapper Nozzle Supply.

FEATURES

Performance

- The Model 10 Series can be set to 1/8" Water Column which permits use in precision processes.
- A Compensating Diaphragm allows the regulator to remain unaffected by supply pressure changes.
- An Optional Check Valve permits dumping of downstream pressure when supply is opened to atmosphere.

Functional

- Flow of Up to 40 SCFM with 100 psig Supply 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.
- Construction with Standard Removable Components allows in-line servicing.
- Mounting Bracket available.

OUTLINE DIMENSIONS

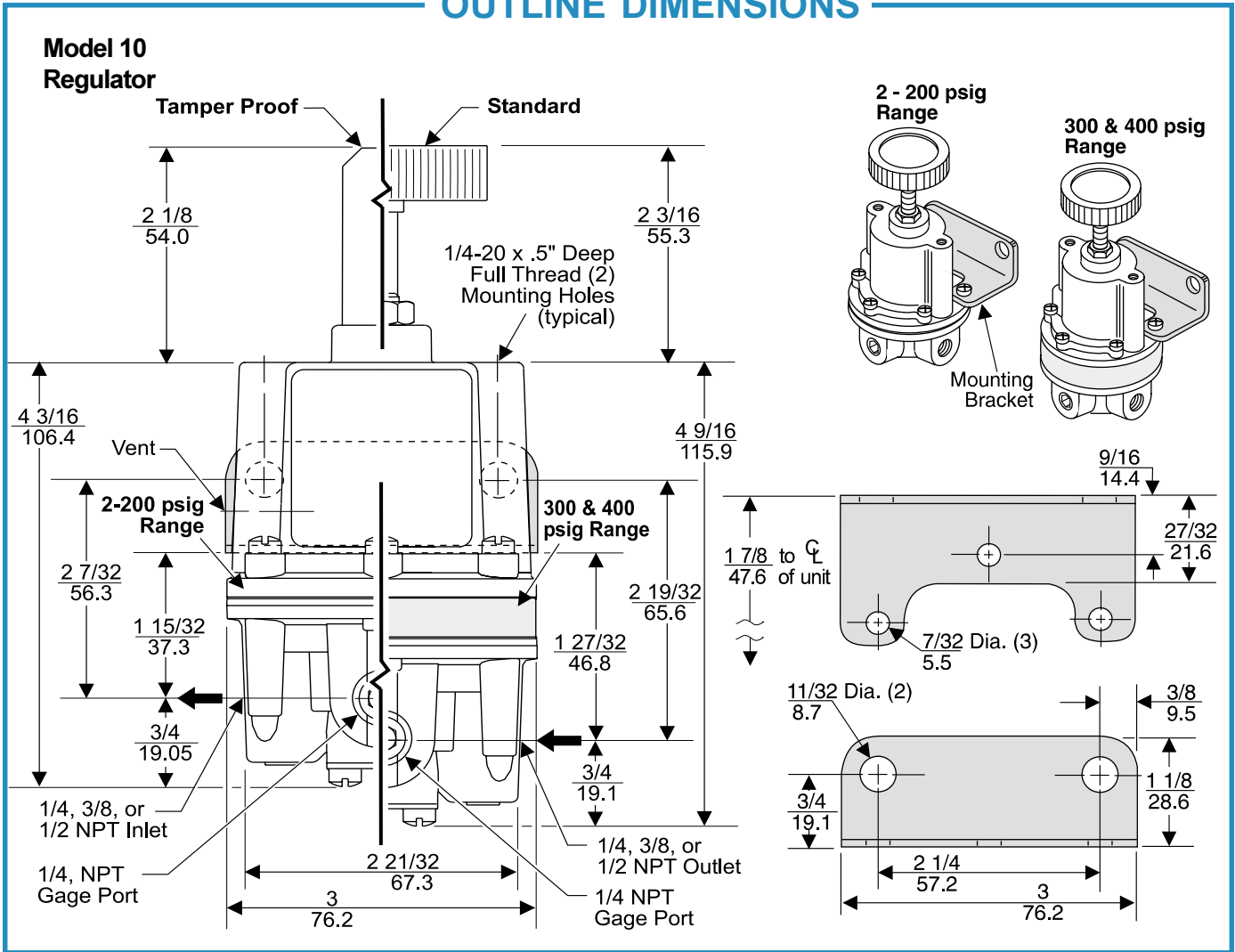


Figure 1. Outline Dimensions.

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

SPECIFICATIONS

FUNCTIONAL SPECIFICATIONS

Supply Pressure	500 psig, [35.0 BAR] (3500 kPa) Maximum
Flow Capacity (SCFM)	40 (68 m ³ /HR) @ 100 psig, [7.0BAR], (700 kPa) supply & 20 psig, [1.5 BAR], (150 kPa) setpoint.
Exhaust Capacity (SCFM)	5.5 (9.35 m ³ /HR) where downstream pressure is 5 psig, [.35 BAR], (35 kPa) above 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.
Supply Pressure Effect	Less than 0.1 psig, [.007 BAR], (.7 kPa) for 100 psig, [7.0 BAR], (700 kPa) change in supply pressure.
Materials of Construction	Body and Housing Aluminum Trim Stainless Steel, Brass, Zinc Plated Steel Diaphragms Buna N on Dacron (Std. Unit Only)

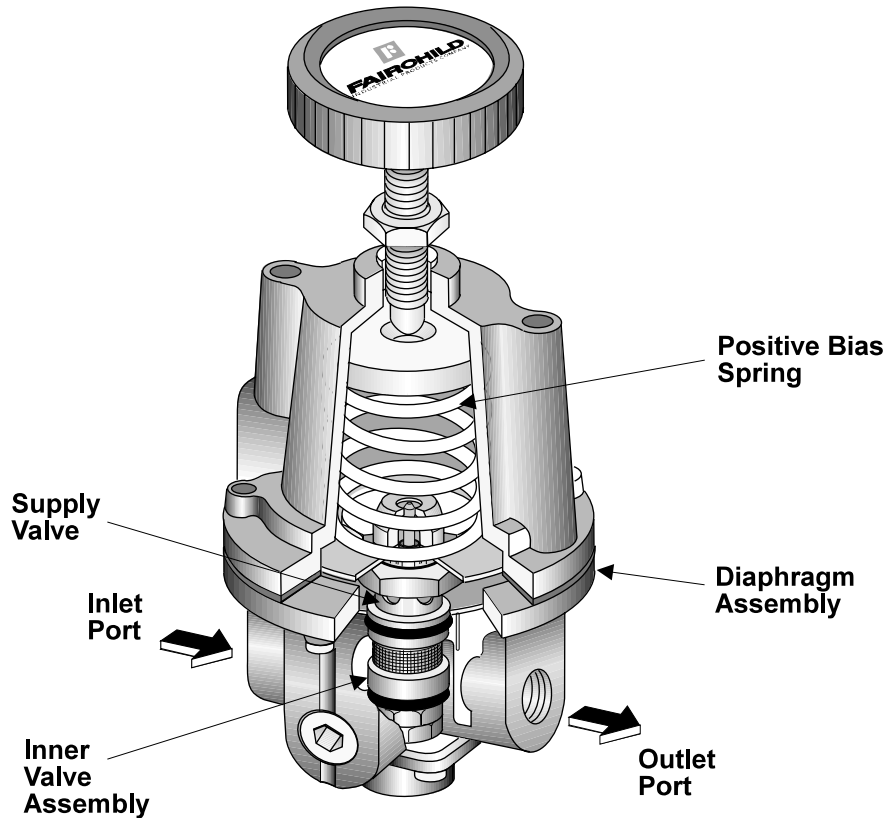


Figure 3. Model 10 Detail Drawing.

OPERATING PRINCIPLES

The Model 10 Regulator uses the force balance principal to control the movement of the Valve Assembly which in turn controls the output pressure. When the Model 10 Regulator is adjusted for a specific set point, the downward force of the Positive Bias Spring causes the Diaphragm Assembly to move downward. Then the Supply Valve opens and allows air to pass to the Outlet Port. As the set point is reached, the downward force exerted by the Positive Bias Spring is balanced by the force of the downstream pressure acting on the Diaphragm Assembly. The resultant force moves the Supply Valve upward to reduce the flow of air to the Outlet Port.

Outlet pressure is maintained as a result of balance between forces acting on the top and bottom of the Diaphragm Assembly. For more information, see Figure 3. "Model 10 Detail Drawing" above.

INSTALLATION

For Installation Instructions refer to the *Fairchild Model 10 Midget Precision Regulator IOM, IS-10000010*.

TYPICAL APPLICATIONS

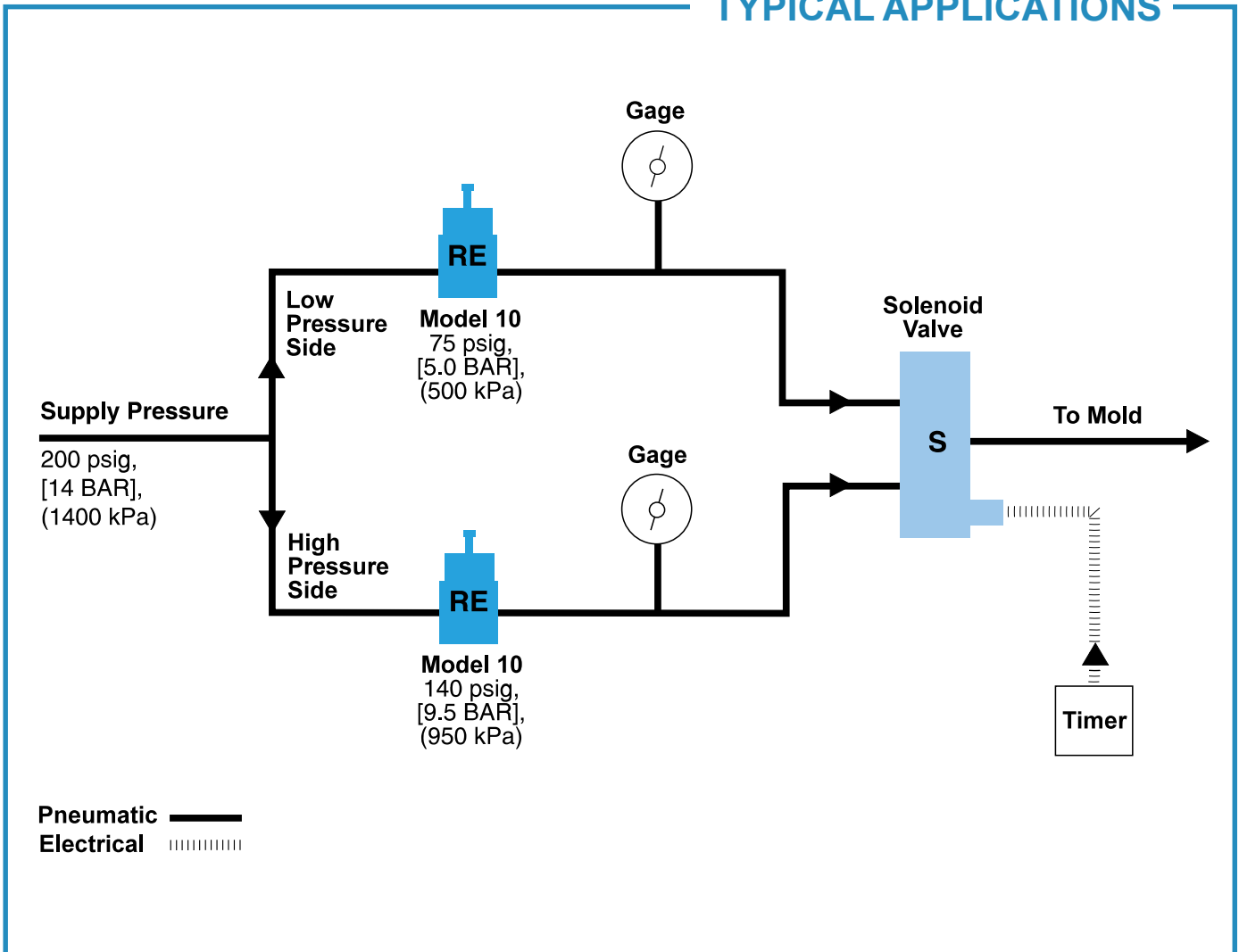


Figure 4. Tire Molding Process Application for the Model 10.

TYPICAL APPLICATIONS

The Model 10 Regulator is used to control the air pressure in a Tire Molding Process. During the process an initial Low Pressure is applied to the Mold. As the process approaches its final stage a Higher Pressure is applied.

An Automatic Timer is set to actuate the Solenoid Valve and deliver the Low Pressure to the Mold. At a preset point in the cycle, the Automatic Timer transfers to the

Pressure output of the Solenoid Valve and cuts off the Low Pressure output.

At the end of the cycle, the High Pressure to the Mold is cut off and the Mold is exhausted into the atmosphere. When the Mold closes, the cycle is repeated. Interlock switches are used to prevent the mold from opening while under High pressure. For more information, see Figure 4. "Tire Molding Process Application for the Model 10 Regulator".

— ORDERING INFORMATION —

Catalog Number 1 0 2

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 _____

Table 1. Plunger Operated Regulator.

Range	Push Rod Travel (inches)	Push Rod Thrust (lbs.)
0-2 psig	.560 ± 10%	6.28 ± 10%
0-10 psig	.668 ± 10%	31.4 ± 10%
0-20 psig	.668 ± 10%	62.8 ± 10%
.5-30 psig	.673 ± 10%	94.2 ± 10%
1-60 psig	.698 ± 10%	188.4 ± 10%
2-150 psig	.589 ± 10%	471.0 ± 10%
5-300 psig		
3-200 psig	.418 ± 10%	628.0 ± 10%
5-400 psig		

Compatibility

	T	E	L	R	N	B	C	A	J	U	H
Tamper Proof	(T)	-	Y	Y	N	Y	Y	Y	Y	Y	Y
Tapped Exhaust	(E)	Y	-	Y	N	Y	Y	Y	Y	Y	Y
Low Flow	(L)	Y	Y	-	Y	N	N	Y	Y	Y	Y
Plunger Operated ¹	(R)	N	N	Y	-	Y	Y	Y	Y	Y	Y
Non-Relieving	(N)	Y	Y	N	Y	-	N	N	Y	Y	Y
Low Bleed	(B)	Y	Y	N	Y	N	-	N	Y	Y	Y
Check Valve ²	(C)	Y	Y	Y	Y	N	N	-	Y	Y	Y
Silicone Elastomers ³	(A)	Y	Y	Y	Y	Y	Y	Y	-	N	Y
Viton Elastomers	(J)	Y	Y	Y	Y	Y	Y	Y	N	-	Y
BSPT (Tapered)	(U)	Y	Y	Y	Y	Y	Y	Y	Y	Y	-
BSPP (Parallel) ⁴	(H)	Y	Y	Y	Y	Y	Y	Y	Y	Y	N

¹ Refer to Table 1. for Push Rod Travel and Thrust.
² Maximum Supply Pressure - 250 psig, [35.0 BAR], (3500kPa)
³ Maximum Supply Pressure - 75 psig, [5.0 BAR], (500 kPa)
⁴ BSPP Threads in Inlet & Outlet Ports Only. Others BSPT.

