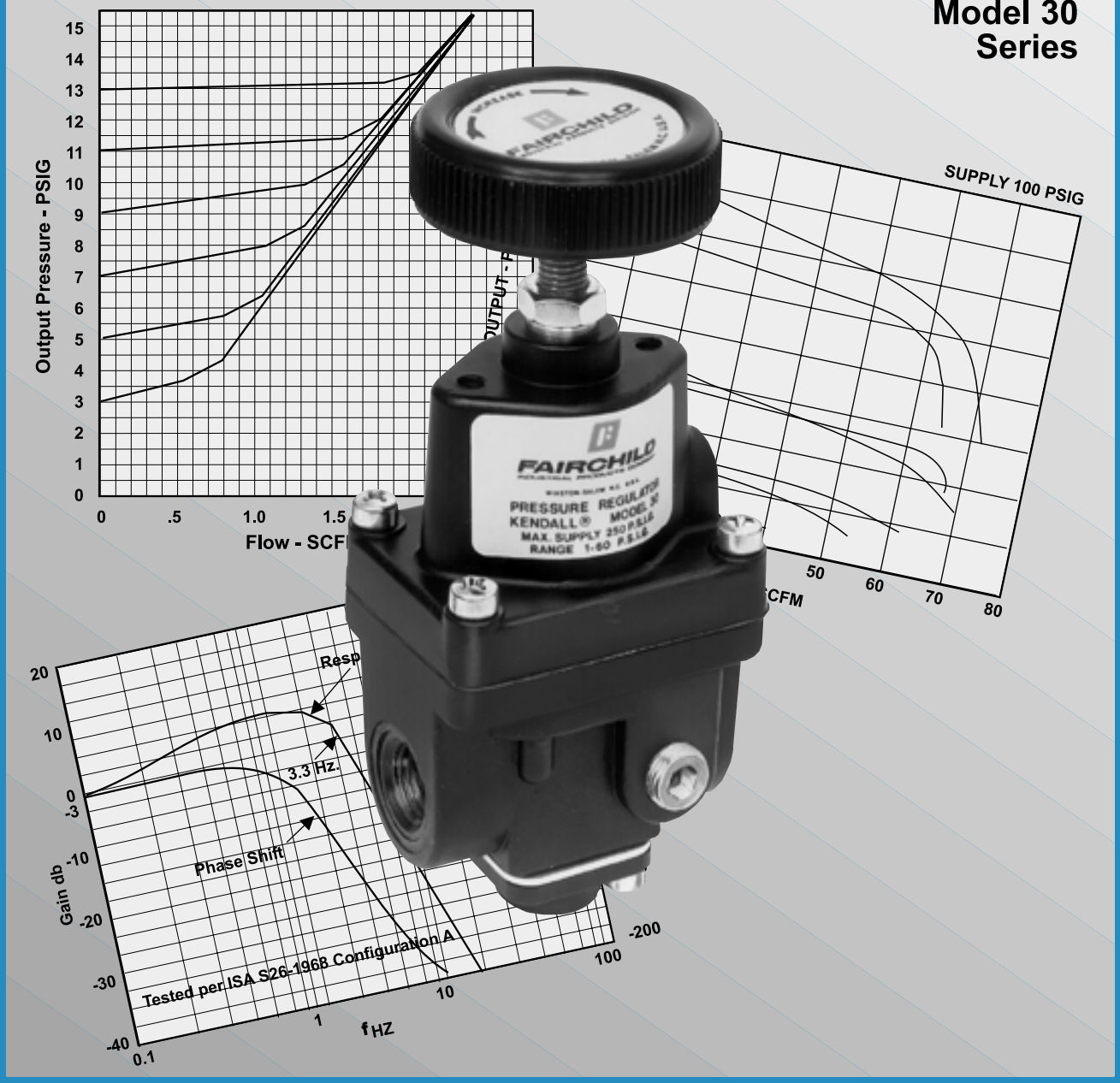
FAIRCHILD

MIDGET PRECISION REGULATOR

Model 30 Series



FAIRCHILD
INDUSTRIAL PRODUCTS COMPANY

GENERAL INFORMATION

MODEL 30 SERIES MIDGET PRECISION REGULATOR

APPLICATIONS

The Model 30 Series Midget Precision Regulator is designed for use in systems which require precision pressure control.

The combination of high capacity and compact size make the Model 30 Series 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 30 Series is sensitive to 1/4" Water Column variation which permits use in precision processes.
- A Compensating Diaphragm allows the regulator to remain unaffected by supply pressure changes.

Functional

- Flow of up to 40 SCFM with 100 psig Supply allow 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.

OUTLINE DIMENSIONS

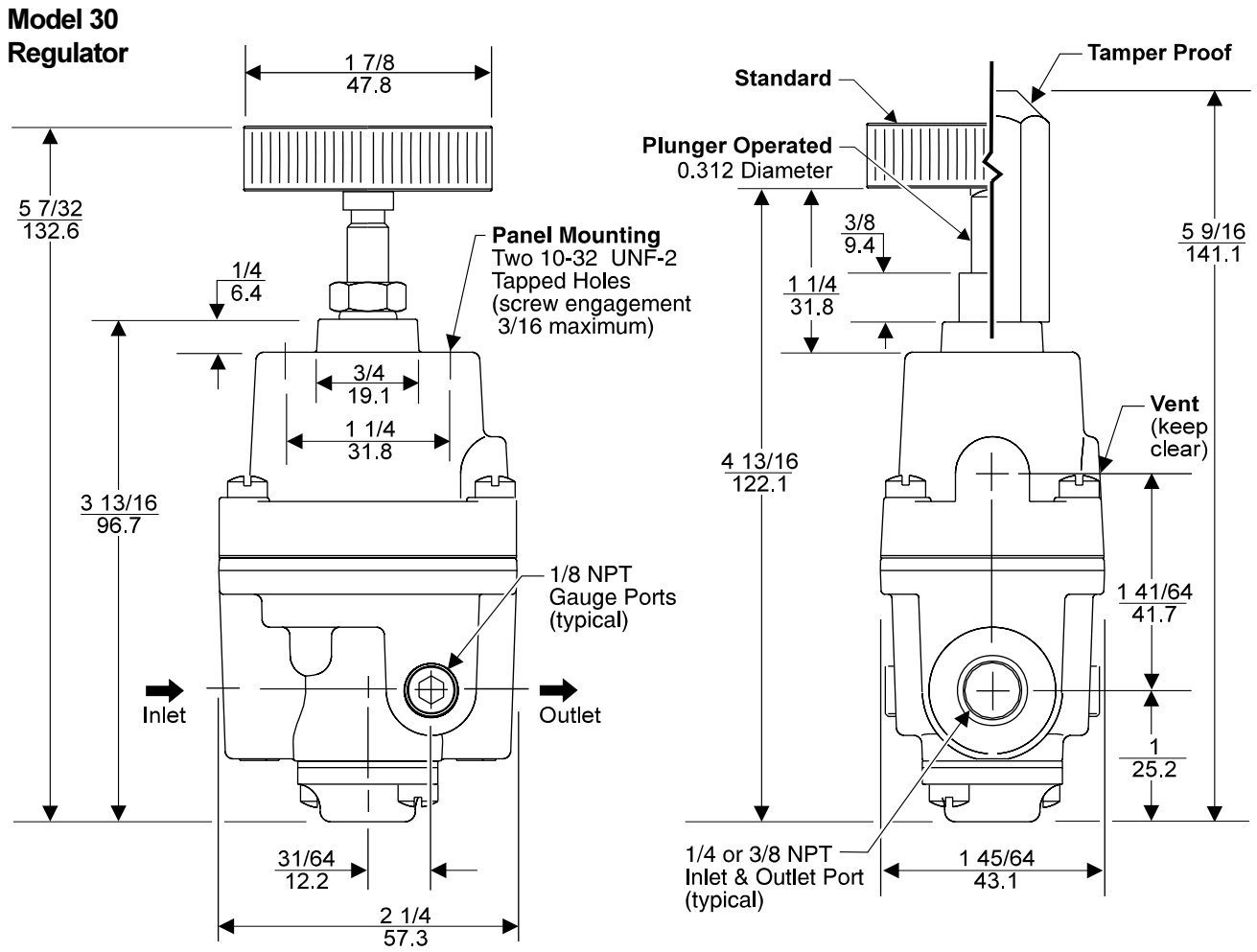


Figure 1. *Outline Dimensions.*

SPECIFICATIONS

FUNCTIONAL SPECIFICATIONS

Supply Pressure	250 psig, [17.0 BAR] (1700 kPa) Maximum
Flow Capacity (SCFM)	40 (68 m^3/HR) @ 100 psig, [7.0 BAR], (700 kPa) supply & 20 psig, [1.5 BAR], (150 kPa) setpoint.
Exhaust Capacity (SCFM)	2.0 (3.4 m^3/HR) where downstream pressure is 5 psig, [.35 BAR], (35 kPa) above 20 psig, [1.5 BAR], (150 kPa) setpt.
Ambient Temperature	-40° F to +200° F (-40° C to +93° C)

PERFORMANCE SPECIFICATIONS

Sensitivity	1/4" (.63 cm) Water Column.
Supply Pressure Effect	Less than 0.2 psig, [.014 BAR], (1.4 kPa) for 100 psig, [7.0 BAR], (700 kPa) change in supply pressure.

Materials of Construction

Body and Housing . . . . . Aluminum
Trim . . . . . Brass
Diaphragms . . . . . Nitrile on Dacron

CROSS SECTION

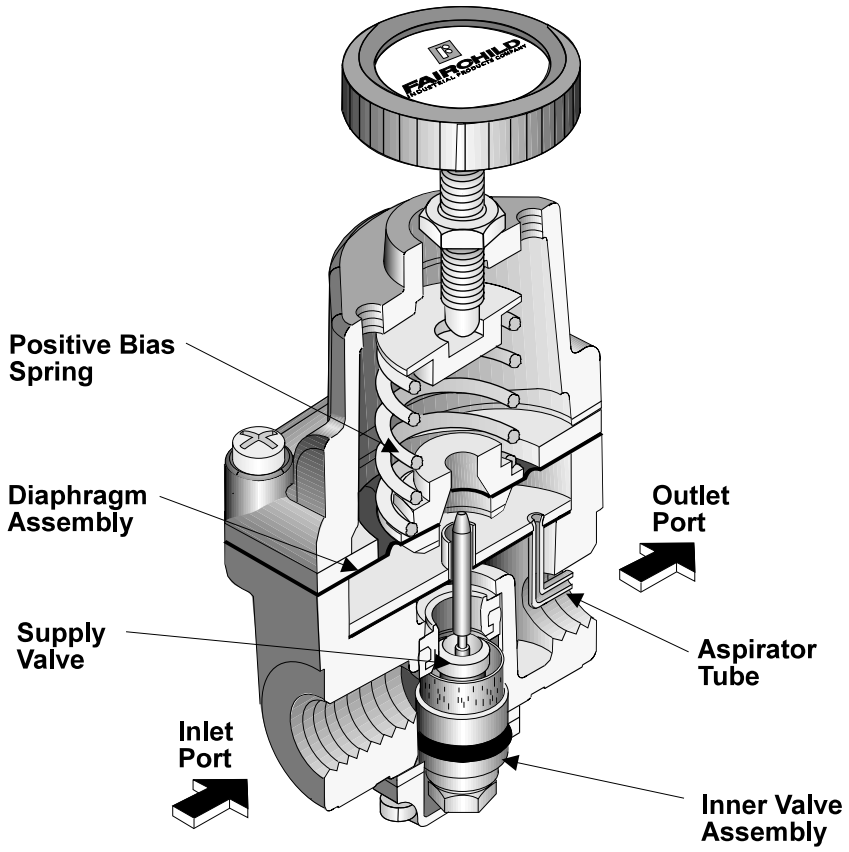


Figure 3. *Model 30 Detail Drawing.*

OPERATING PRINCIPLES

The Model 30 Regulator uses the force balance principal to control the movement of the valve assembly which in turn controls the output pressure. When the regulator is adjusted for a specific set point, the downward force of the Positive Bias Spring causes the Diaphragm Assembly to move downward. 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 upward force of the downstream pressure acting on the bottom of 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 30 Detail Drawing" above.

INSTALLATION

For Installation Instructions refer to the *Fairchild Model 30 Midget Precision Regulator IOM,* **IS-10000030.**

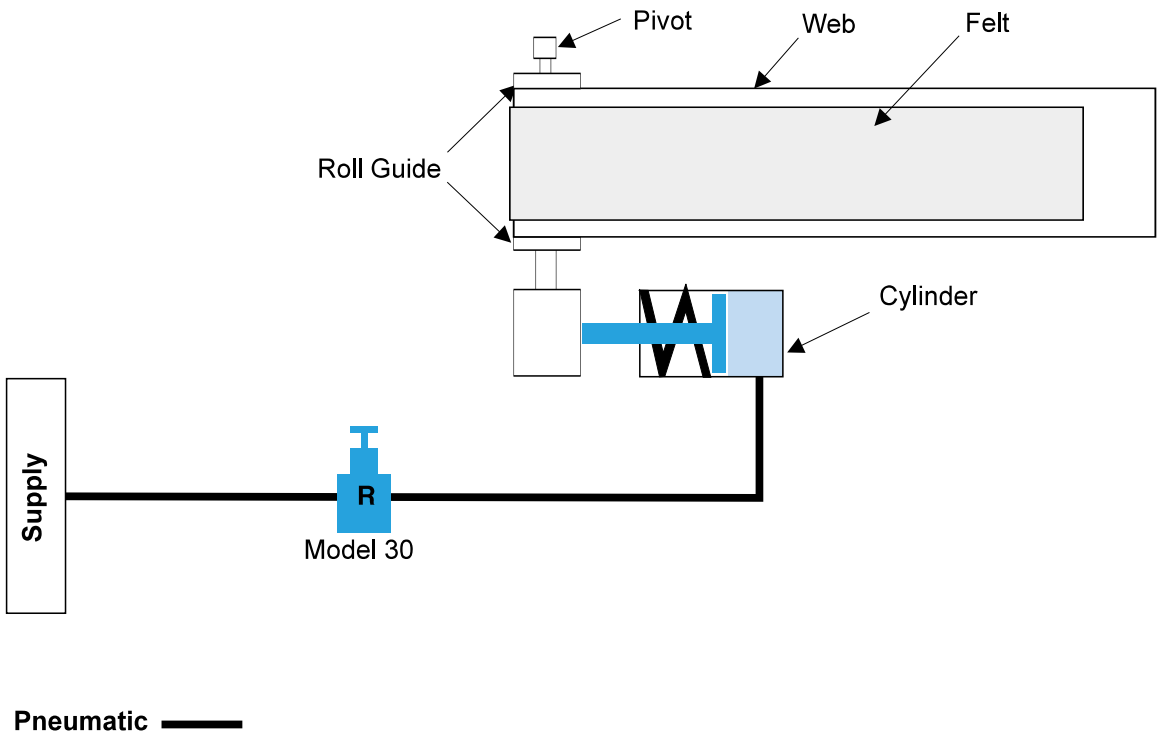


Figure 4. *Paper Machinery Felt Guide Application for the Model 30 Regulator.*

TYPICAL APPLICATIONS

The Model 30 Regulator is used to precisely control the position of a paper machinery felt guide. The roll guide on which the felt travels is attached to a pivot at the opposite end. Air is supplied to the inlet port of the Model 30 and the range screw is adjusted for a specific pressure input to the air cylinders.

The air cylinder piston is attached to a rod which exerts pressure against the roll guide axle. As the roll guide axle turns around the pivot, the web will move along the roll guide toward one side or the other as the air cylinder rod extends or retracts. Precise corrections are made by adjusting the regulator range screw. For more information, see Figure 4. “Paper Machinery Felt Guide Application for the Model 30 Regulator” above.

ORDERING INFORMATION

Catalog Number 3 0 2 ☐ ☐ ☐

Pressure Range

psig	[BAR]	(kPa)	
0-2	[0-0.1]	(0-15)	**(1)**
0-10	[0-0.7]	(0-70)	**(2)**
.5-30	[.03-2]	(3-200)	**(3)**
1-60	[0.1-4]	(10-400)	**(4)**
2-100	[0.1-70]	(15-7000)	**(5)**

Pipe Size

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

Options

Compatability

		T	L	R	N	B	S	A	J	U	H
Tamper Proof	**(T)**	-	Y	N	Y	Y	N	Y	Y	Y	Y
Low Flow	**(L)**	Y	-	Y	N	N	Y	Y	Y	Y	Y
Plunger Operated [1]	**(R)**	N	Y	-	Y	Y	Y	Y	Y	Y	Y
Non-Relieving	**(N)**	Y	N	Y	-	N	Y	Y	Y	Y	Y
Low Bleed	**(B)**	Y	N	Y	N	-	Y	Y	Y	Y	Y
Screwdriver Adjust	**(S)**	N	Y	N	Y	Y	-	Y	Y	Y	Y
Silicone Elastomers [2]	**(A)**	Y	Y	Y	Y	Y	Y	-	N	Y	Y
Viton Elastomers	**(J)**	Y	Y	Y	Y	Y	Y	N	-	Y	Y
BSPT (Tapered)	**(U)**	Y	Y	Y	Y	Y	Y	Y	Y	-	N
BSPP (Parallel) [3]	**(H)**	Y	Y	Y	Y	Y	Y	Y	Y	N	-

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

Table 1. Plunger Operated Regulator.

Range	Push Rod Travel *(inches)*	Push Rod Thrust *(lbs.)*
0-2 psig	.244 ± 10%	3.2 ± 10%
0-10 psig	.344 ± 10%	15.7 ± 10%
0-30 psig	.333 ± 10%	47.0 ± 10%
0-60 psig	.395 ± 10%	94.0 ± 10%
0-100 psig	.354 ± 10%	157.0 ± 10%

ISO 9002 Certified

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