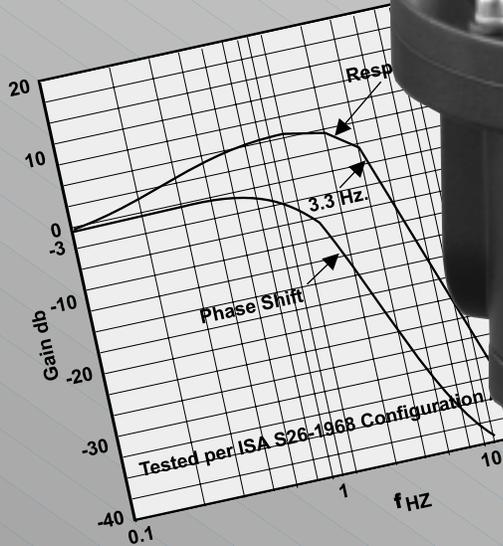
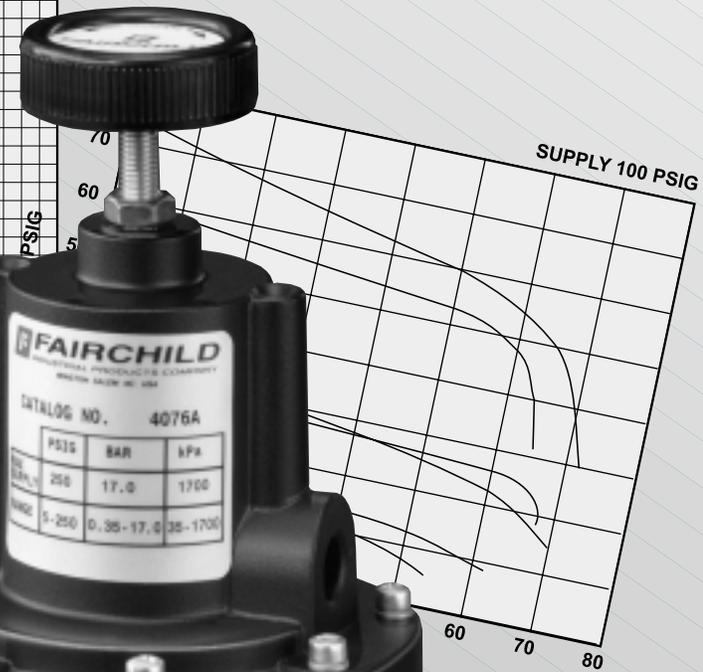
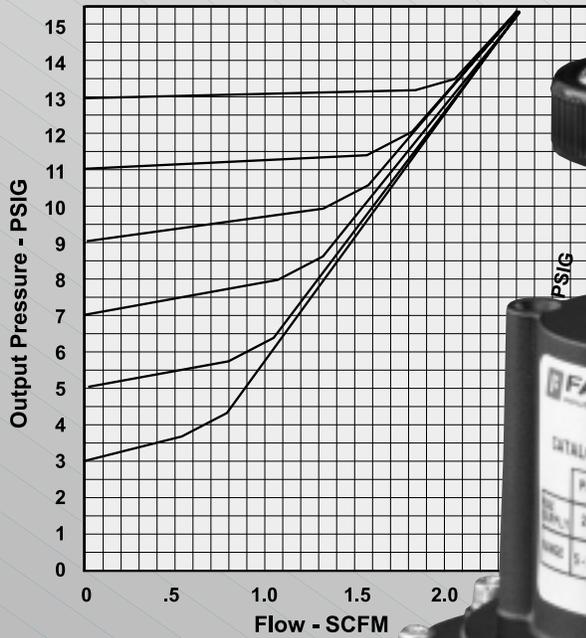


# FAIRCHILD

## PNEUMATIC PRECISION REGULATOR

Model 4000A



**FAIRCHILD**  
INDUSTRIAL PRODUCTS COMPANY

## CROSS SECTION

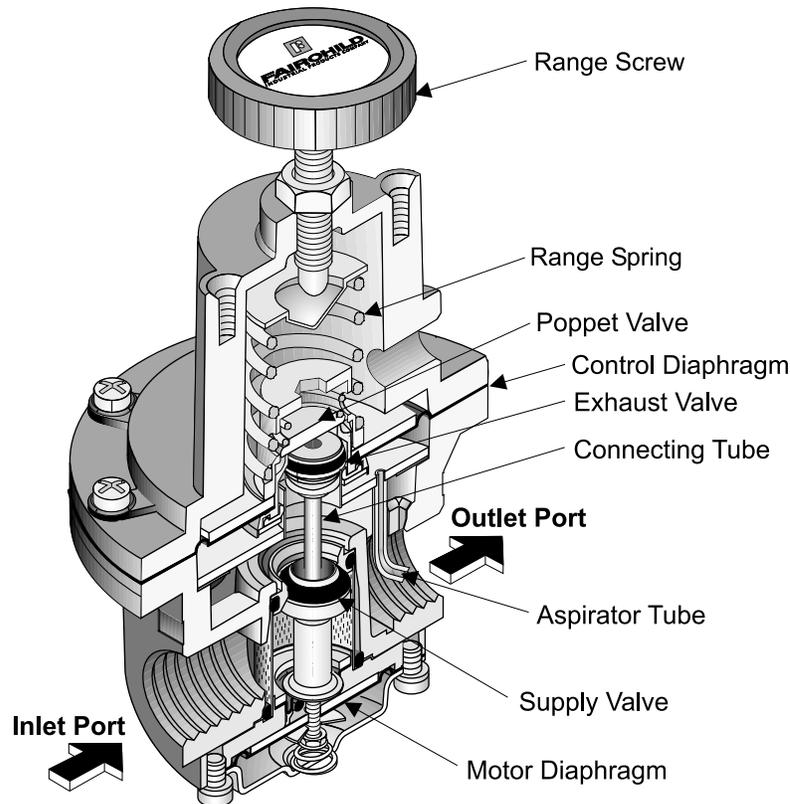


Figure 1. Model 4000A Detail Drawing

## GENERAL INFORMATION

The Model 4000A Pneumatic Precision Regulator is a non-bleeding regulator that precisely controls a set pressure.

The Model 4000A has the following features:

- Control sensitivity of 1/2" water column allows use in precision applications.
- Large Supply and Exhaust Valves provide high forward and exhaust flows.
- Soft Supply and Exhaust Valve seats minimize air consumption.
- A balanced Supply Valve minimizes the effect of supply pressure variation.
- An Aspirator Tube compensates downstream pressure drop under flow conditions.
- A separate Control Chamber isolates the diaphragm from the main flow to eliminate hunting and buzzing.
- Unit construction lets you service the Model 4000A without removing it from the line.

## OPERATING PRINCIPLES

When you adjust the Range Screw to a specific setpoint, the Range Spring exerts a downward force against the top of the Control Diaphragm. This downward force opens the Supply Valve. Output pressure flows through the Outlet Port and the Aspirator Tube to the Control Chamber where it creates an upward force on the bottom of the Control Diaphragm.

When the setpoint is reached, the force of the Range Spring that acts on the top of the Control Diaphragm balances with the force of output pressure that acts on the bottom of the Control Diaphragm and closes the Supply Valve.

When the output pressure increases above the setpoint, the Diaphragm Assembly moves upward to close the Supply Valve and open the Exhaust Valve. Because the Poppet Valve is closed, pressure flows down the Connecting Tube to the bottom of the Motor Diaphragm. This pressure keeps the Supply Valve tightly closed while in the exhaust mode. The Poppet Valve opens and output pressure exhausts through the Vent on the side of the unit until it reaches the setpoint. For more information, see Figure 1.

## OUTLINE DIMENSIONS

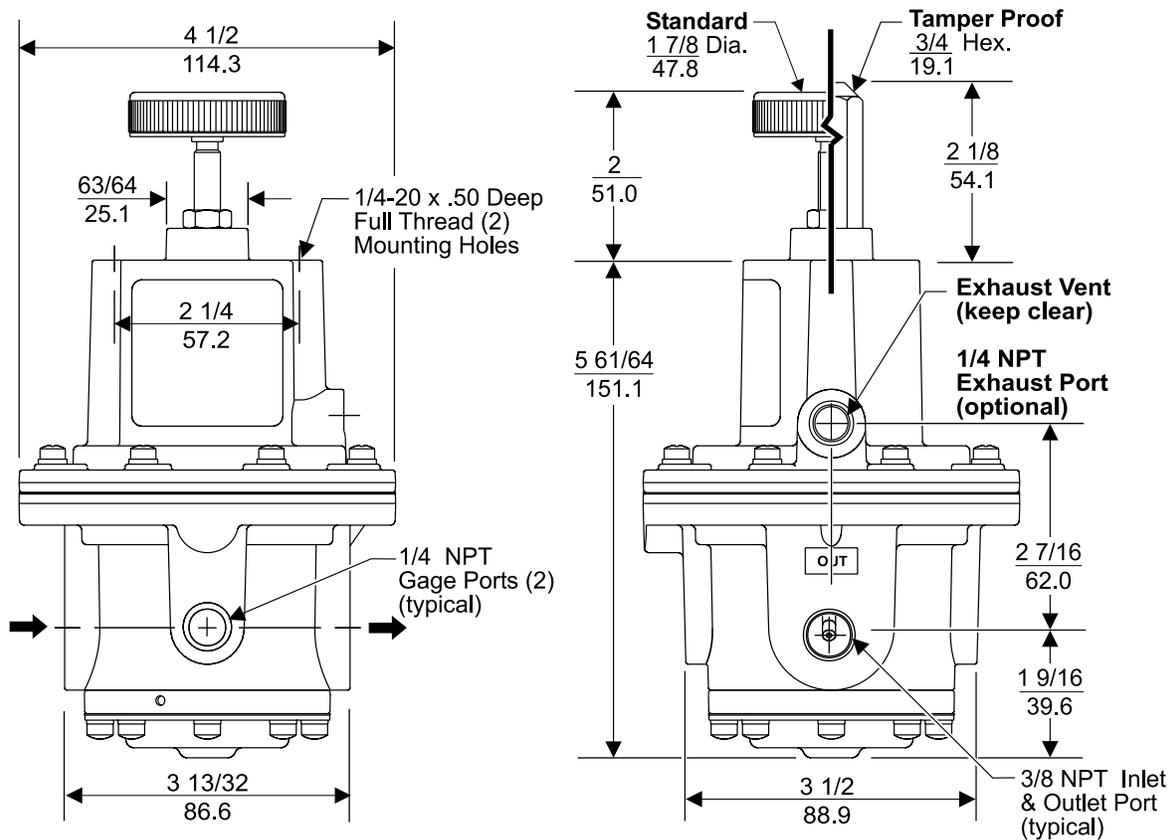


Figure 2. Model 4000A Outline Dimensions

## SPECIFICATIONS

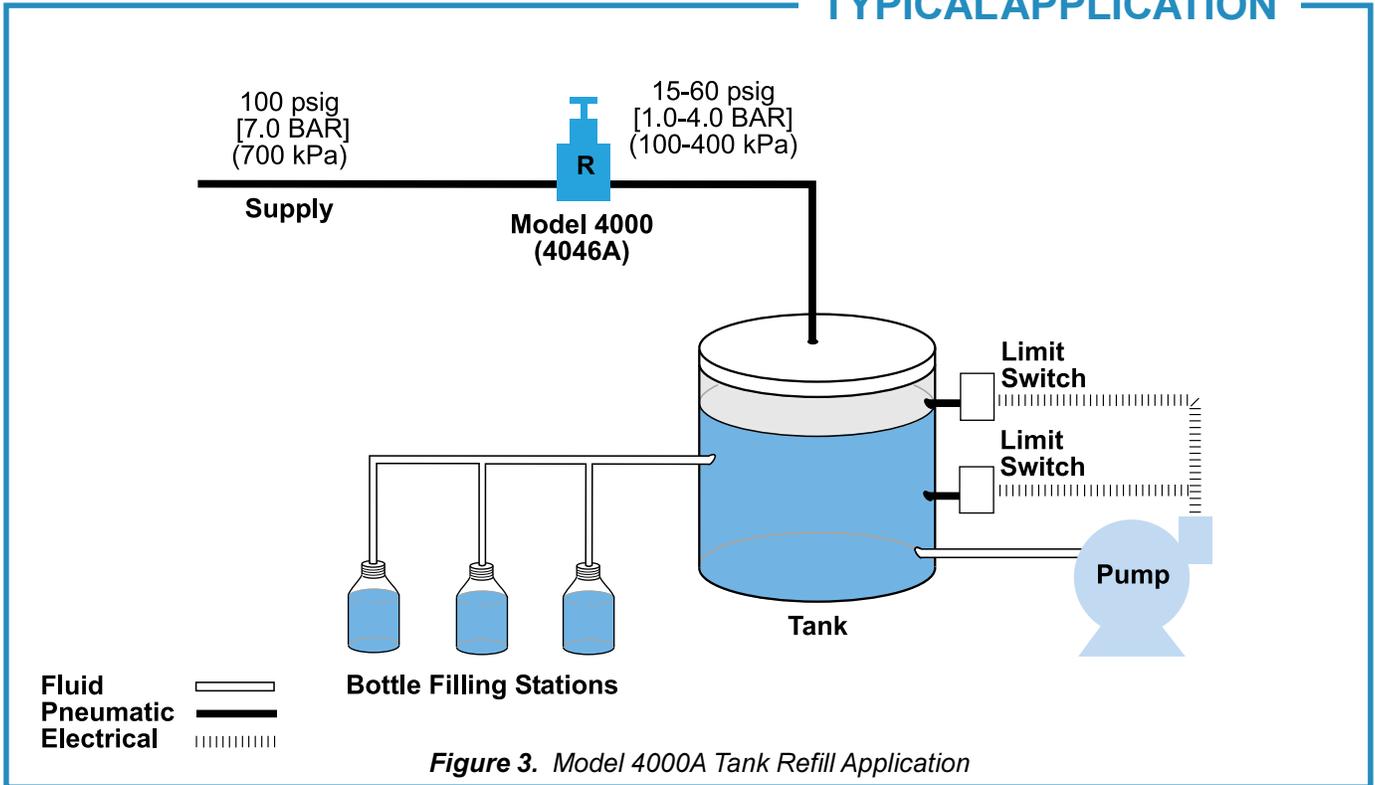
### FUNCTIONAL SPECIFICATIONS

<b>Supply Pressure</b>	250 psig, [17.0 BAR] (1700 kPa) Maximum.
<b>Flow Capacity (SCFM)</b>	150 (255 m <sup>3</sup> /HR) @ 100 psig, [7.0 BAR], (700 kPa) supply & 20 psig, [1.5 BAR], (150 kPa) setpoint.
<b>Exhaust Capacity (SCFM)</b>	40 (65.2 m <sup>3</sup> /HR) where downstream pressure is 5 psig, [.35 BAR], (35 kPa) above 20 psig, [1.5BAR], (150 kPa) setpoint.
<b>Ambient Temperature</b>	-40° F to +200° F (-40° C to +93° C)

### PERFORMANCE SPECIFICATIONS

<b>Sensitivity</b>	1/2" (1.27 cm) Water Column.
<b>Supply Pressure Effect</b>	Less than 0.1 psig, [.007 BAR], (0.7 kPa) for 100 psig, [7.0 BAR], (700 kPa) change in supply pressure.
<b>Materials of Construction</b>	Body and Housing ..... Aluminum Trim ..... Zinc Plated Steel, Brass Diaphragms ..... Nitrile on Dacron

## TYPICAL APPLICATION



## TYPICAL APPLICATION

The Model 4046A Regulator controls an inert gas blanket on a Tank. The high and low Limit Switches control the liquid level in the Tank. When the Pump refills the Tank, the regulator must exhaust the inert gas blanket at the same flow rate as the Pump is refilling the Tank while holding its setpoint within plus or minus 1 psig. For more information, see Figure 3.

## INSTALLATION

For installation instructions, see the *Model 4000A Pneumatic Precision Regulator IOM, IS-1004000A*.

## ORDERING INFORMATION

<b>Catalog Number</b>	4	0	<input type="checkbox"/>	<input type="checkbox"/>	A	<input type="checkbox"/>
<b>Pressure Range</b>	_____					
<b>psig</b>	<b>[BAR]</b>	<b>(kPa)</b>				
0.5-10	[0.035-0.7]	(3.5-70)	(2)			
0.5-30	[0.035-2]	(3.5-200)	(3)			
1-60	[0.07-4]	(7-400)	(4)			
2-150	[0.15-10]	(15-1000)	(6)			
5-250	[0.35-17]	(35-1700)	(7)			
<b>Pipe Size</b>	_____					
3/8" NPT						(3)
1/2" NPT						(4)
3/4" NPT						(6)
<b>Options</b>	_____					
Tamper Proof						(T)
Tapped Exhaust						(E)
BSPT (Tapered)						(U)
BSPP (Parallel) <sup>1</sup>						(H)

<sup>1</sup> BSPP Threads in Inlet & Outlet Ports Only. Others BSPT.



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