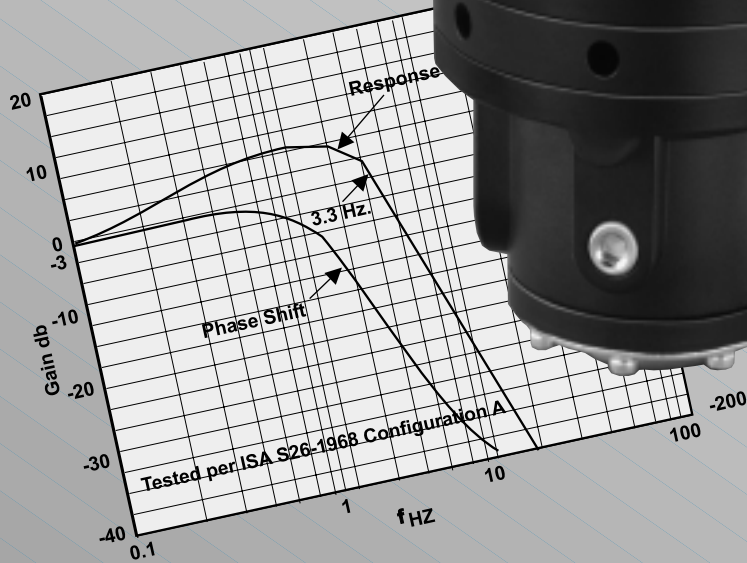
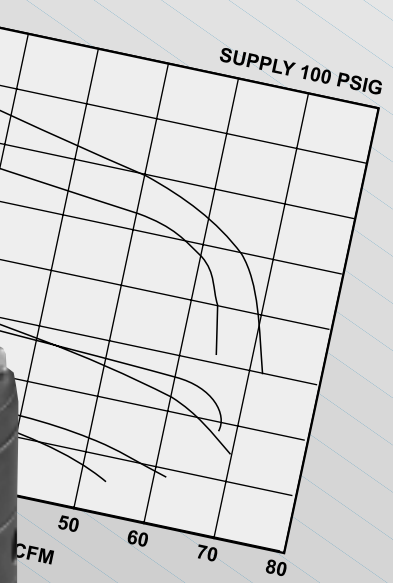
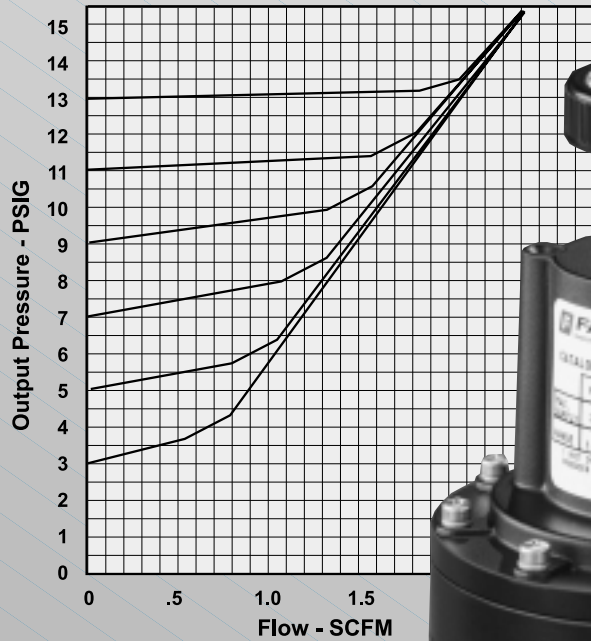


FAIRCHILD

BIAS REVERSING RELAY

Model 2500A



FAIRCHILD
INDUSTRIAL PRODUCTS COMPANY

CROSS SECTION

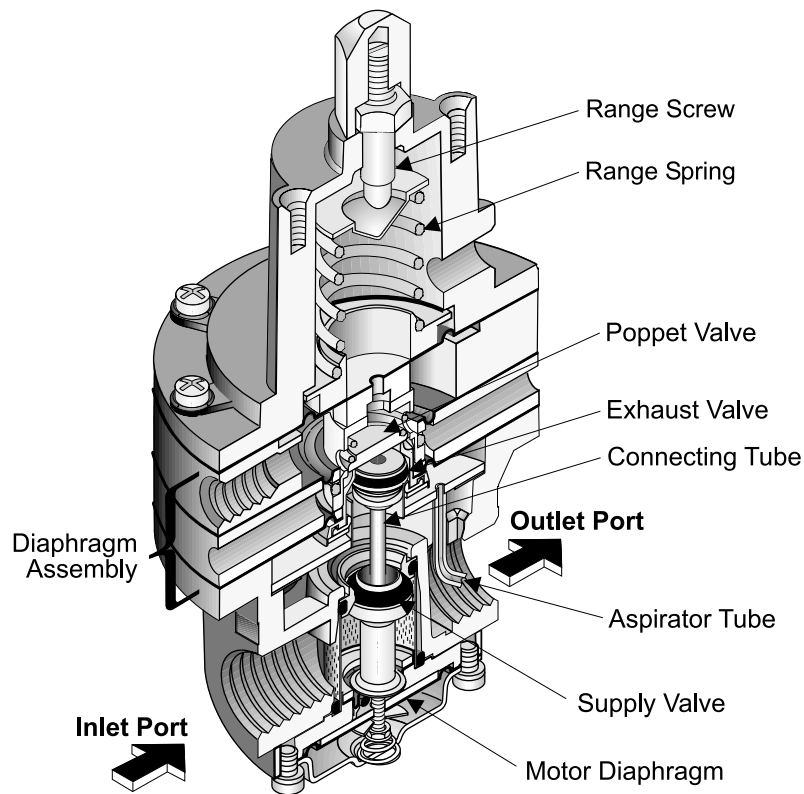


Figure 1. Model 2500A Detail Drawing

GENERAL INFORMATION

The Model 2500A Bias Reversing Relay provides output pressure that decreases in direct proportion to increases in input signal.

The Model 2500A has the following features:

- Control sensitivity of 1" 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 2500A without removing it from the line.

OPERATING PRINCIPLES

When you adjust the Range Screw to a specific setpoint, the Range Spring exerts a force against the top of the Diaphragm Assembly. The increasing input signal that acts on the Diaphragm Assembly opposes the Range Spring force and closes the Supply Valve to decrease output pressure. ($P_o = K - P_s$); where P_o is output pressure, K is the spring constant, set by the screw, and P_s is signal pressure. The output pressure flows through the Outlet Port and the Aspirator Tube to the Control Chamber to create an upward force on the bottom of the Control Diaphragm.

When the setpoint is reached, the net downward force of the Diaphragm Assembly balances with the upward force of the output pressure that acts on the bottom of the Control Diaphragm to close 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. When the Poppet Valve is closed, pressure flows down the Control 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 excess output pressure exhausts through the Vent in the side of the unit until it reaches the setpoint. For more information, see Figure 1.

OUTLINE DIMENSIONS

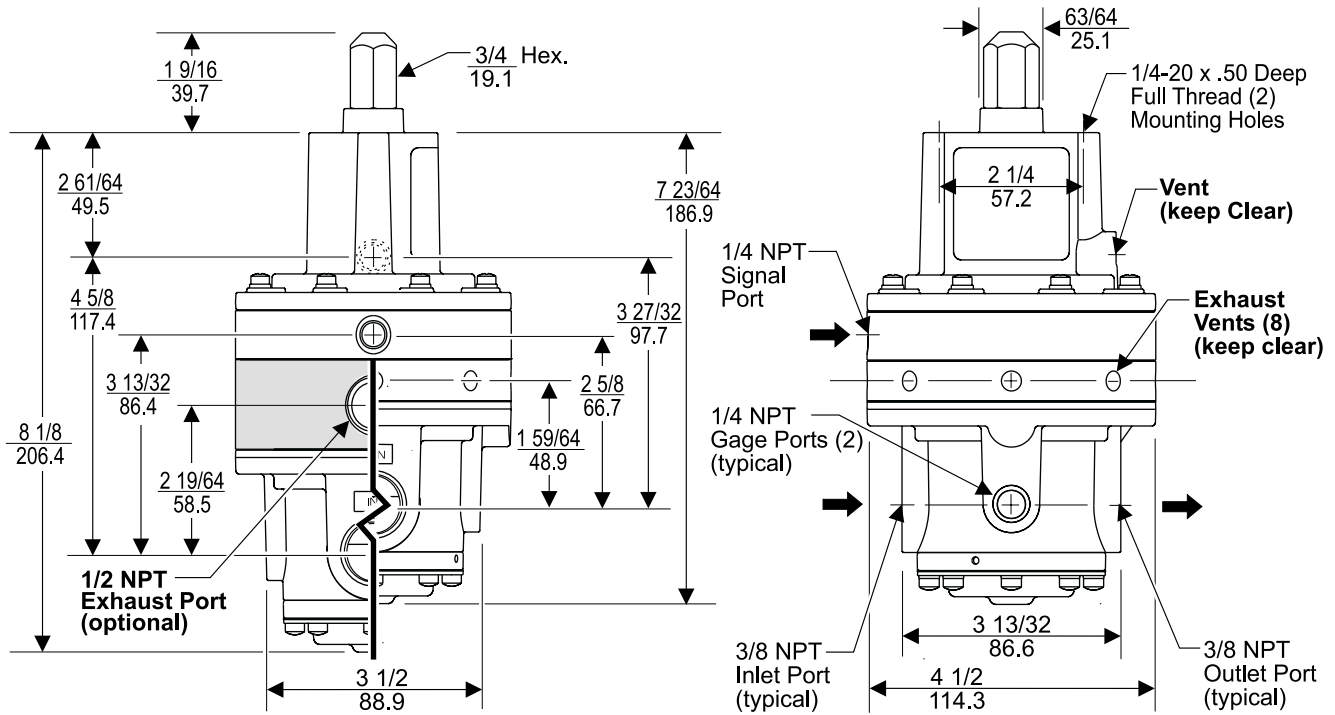


Figure 2. Model 2500A Outline Dimensions

SPECIFICATIONS

FUNCTIONAL SPECIFICATIONS

Supply Pressure	250 psig, [17.0 BAR] (1700 kPa) Maximum.
Signal or Output Pressure	150 psig, [10.0 BAR] (1000 kPa) Maximum.
Flow Capacity (SCFM)	150 (255 m ³ /HR) @ 100 psig, [7.0 BAR], (700 kPa) supply & 20 psig, [1.5 BAR], (150 kPa) setpt.
Exhaust Capacity (SCFM)	40 (68 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" (2.54 cm) Water Column.
Supply Pressure Effect	Less than 0.1 psig, [.007 BAR], (0.7 kPa) for 100 psig, [7.0 BAR], (700 kPa) change in supply pressure.
Materials of Construction	<p>Body and Housing Aluminum</p> <p>Trim Zinc Plated Steel, Brass</p> <p>Diaphragms Nitrile on Dacron</p>

TYPICAL APPLICATION

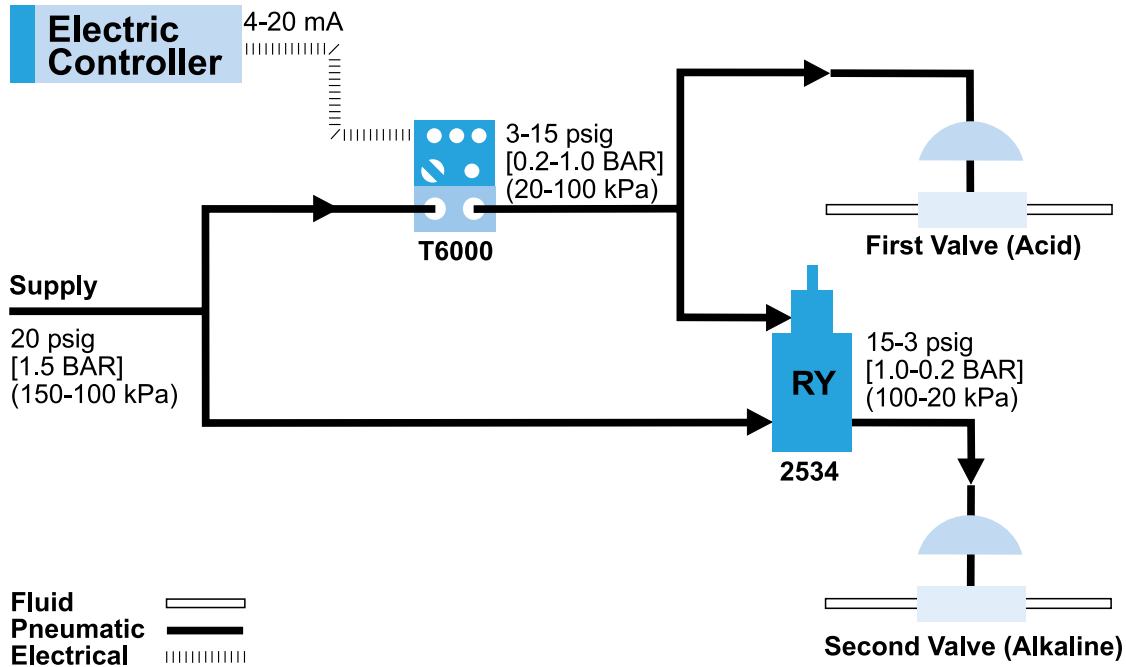


Figure 3. Model 2500A Waste Water System Application

TYPICAL APPLICATION

The Model 2500A Reversing Relay uses a common signal to open one valve and close a second valve at the same time.

The Electronic Controller controls the PH level in a waste-water system with one signal. An acidic solution flows through the First Valve and an alkaline solution flows through the Second Valve. When the signal pressure is 9 psig, both valves are half open to achieve the specified PH balance. If the PH level of the waste water becomes too acidic, the controller signal decreases. This decrease in signal begins to close the First Valve and simultaneously begins to open the Second Valve. The Reversing Relay inverts the signal from the Model T6000 transducer to the Second Valve to open it. For more information, see Figure 3.

INSTALLATION

For installation instructions, see the *Model 2500A Bias Reversing Relay IOM, IS-3002500A*.

ORDERING INFORMATION

Catalog Number	25	<input type="checkbox"/>	<input type="checkbox"/>	A	<input type="checkbox"/>
Pressure Range					
psig	[BAR]	(kPa)			
0.5-10	[0.03-0.7]	(3-0.7)	(2)		
0.5-30	[0.03-2]	(3-200)	(3)		
1-60	[0.1-4]	(10-400)	(4)		
2-150	[0.15-10]	(15-1000)	(6)		
Pipe Size					
3/8" NPT					(3)
1/2" NPT					(4)
3/4" NPT					(6)
Options					
Tapped Exhaust					(E)



FAIRCHILD
INDUSTRIAL PRODUCTS COMPANY

3920 WEST POINT BLVD. WINSTON-SALEM, NC 27103-6708
TEL 336-659-3400 FAX 336-659-9323

www.fairchildproducts.com



FM NO. 25571

CS-3002500A

Litho in USA

7/00