

Pressurematic®

Pneumatic or Hydraulic High/Low Pressure Pilots
ISO - Test Valve IB Series



Description

The Bettis Pressurematic® line of pressure sensory devices are used to monitor pipeline or process pressure. They are suitable for use in high and low pressure shut down applications utilizing either a pneumatic or hydraulic signal. Set points are determined by piston size, spring rate and adjustments to the trip mechanism.

- Input is pipeline or process pressure.
- Output is pneumatic or hydraulic signal, responding to high and/or low pressure conditions.
- A spring loaded piston converts pressure into motion, activating a pilot valve when a pre-determined set point is reached.
- Repeatability is $\pm 2\%$ of set point (or ± 5 psi if greater).

Features

- Field adjustable high and low pressure set points.
- Manual or automatic reset on pilot valve.
- Extended sensing pressure capability through interchangeable range springs.
- Positive piston stop; limits piston travel against overpressure.
- Secondary piston seal with safety vent.
- Input connection 1 ½ or 2 NPT threaded or flanged.
- Hex body for practical field installation.
- Maximum working pressures to 6000 psig.
- Temperature limits: Process -50°F to +392°F (-46 to 200°C). Ambient -50°F to +212°F (-46 to 100°C).
- High set points (increasing) to 6000 psi. Low set points (decreasing) to 20 psi.
- Aluminum housing with sealed cover.
- Stainless steel or Impreglon™ coated carbon steel body.
- Electroless nickel plated process piston with TFE seal; no diaphragm to rupture.
- No brass or bronze components.
- Special trim options, coatings and bellows piston for corrosive applications.
- Nitrile seals standard, viton seals optional for higher temperatures.
- Supply pressure to 150 psig.

Model Designation

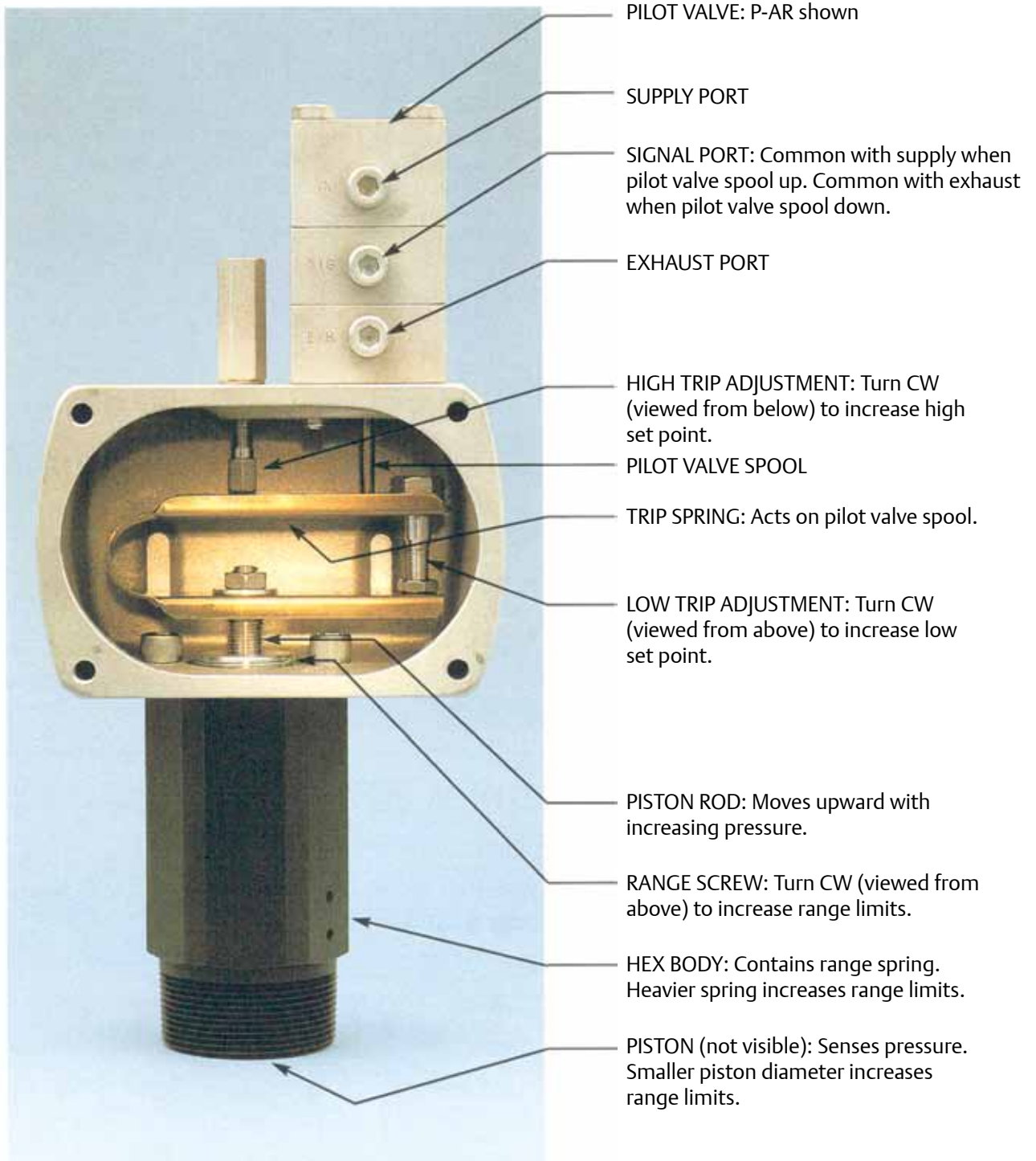
| Product Name | Reset Type | ** Series | Body Material | Code | Low Set Point (PSIG) | High Set Point (PSIG) | Span* (PSIG) | Connection |
|----------------------|--|---------------------|--|------|----------------------|-----------------------|--------------|-------------|
| P: Pressurematic | AR: Auto reset MR: Manual reset | 2000 2000 series | C: CS body L: A350 body, Low temp NACE N: SS body, NACE | 1 | 80-745 | 320-1200 | 235-320 | 2" NPT Male |
| | | | | 2 | 80-1060 | 410-1830 | 320-700 | |
| | | | | 3 | 80-1550 | 540-2860 | 460-1200 | |
| | | | | 4 | 140-1580 | 640-3250 | 500-1500 | |
| | | 2200 2200 series | | 1 | 20-190 | 130-305 | 65-80 | |
| | | | | 2 | 20-270 | 160-470 | 95-180 | |
| | | | | 3 | 20-385 | 170-725 | 145-295 | |
| | | | | 4 | 20-390 | 200-820 | 160-395 | |
| | | 2400 2400 series | N: SS body, NACE | 1 | 85-2050 | 690-3320 | 775-1015 | |
| | | | | 2 | 130-3000 | 900-5150 | 950-1880 | |
| | | | | 3 | 230-4400 | 1280-6000 | 1400-3220 | |
| | | | | 4 | 400-4400 | 1550-6000 | 1650-4100 | |
| Example Model | | | | | | | | |
| P | AR | 2000 | C | | | 3 | | |

*NOTE: If only one set point is needed (high or low), the span doesn't apply. If both are needed, subtract the low point from the high point to determine the span that meets your requirement; there could be more than one possible span. Once the span has been selected, choose the 2000, 2200, or 2400 series.

For example, if the low set point is 200 psi and high set point is 1500 psi (1300 psi difference), the suitable model is either PAR2000C4 or PAR2400N2. We recommend PAR2000C4 (2000 series) as it has a shorter lead time.

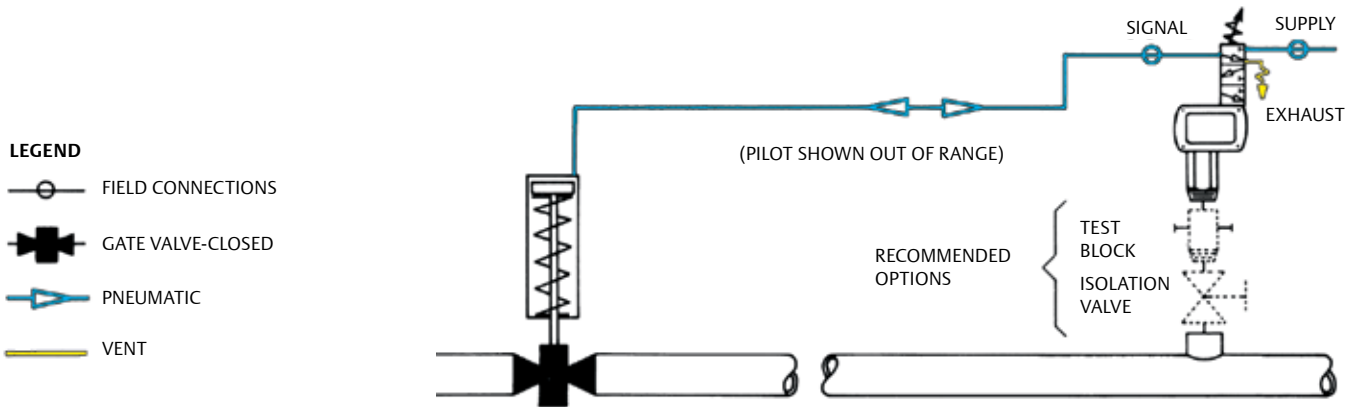
* * 2000 and 2200 series are the most common models and have shorter lead time.

Construction

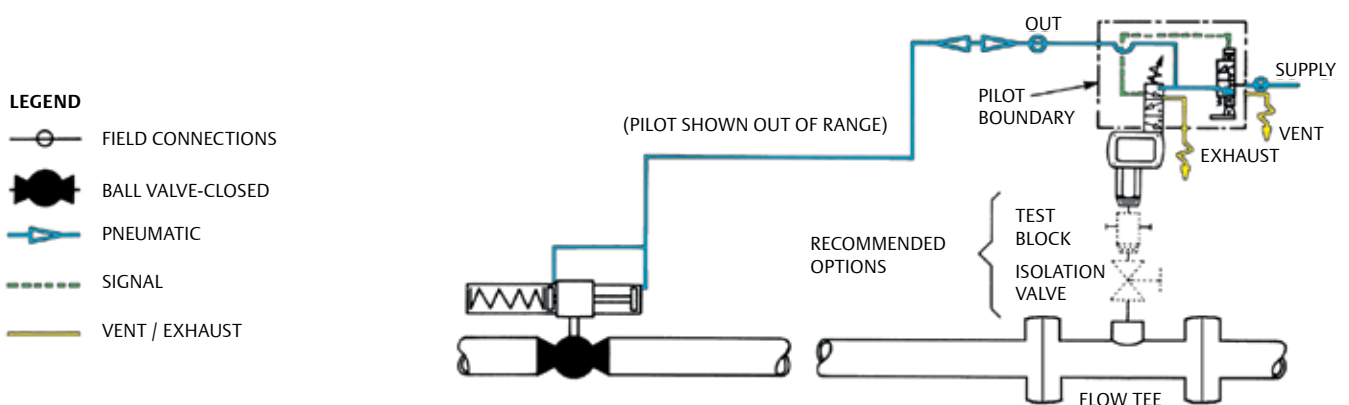


Typical Schematics

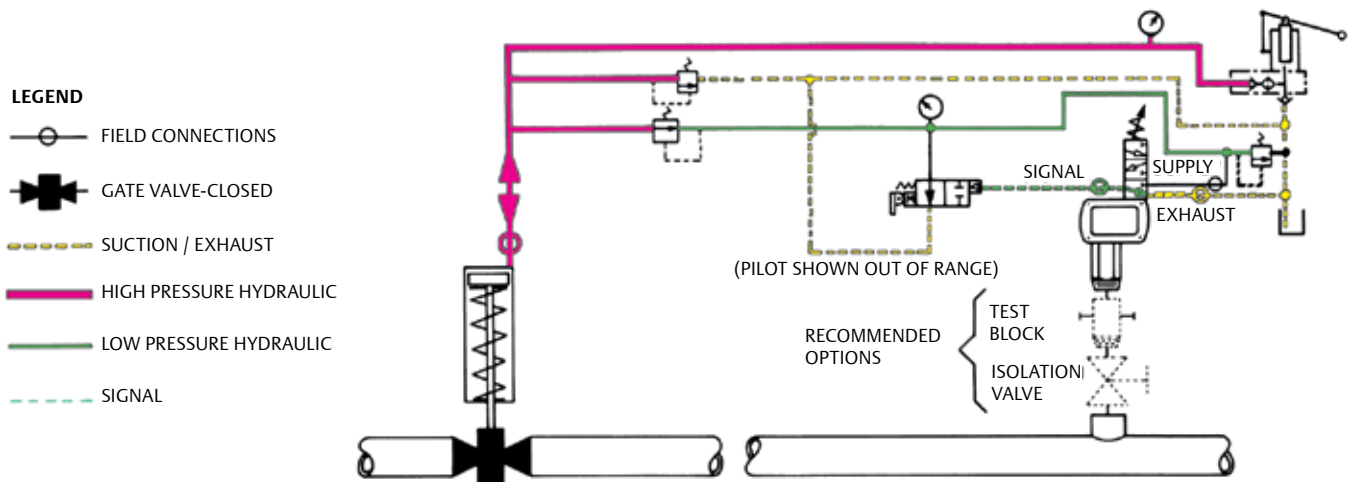
Type P-AR (Auto Reset) with Pneumatic Operator



Type P-MR (Manual Reset) with Pneumatic Operator



Type P-AR (Auto Reset) with Self-Contained Hydraulic Operator



ISO – Test Valve

Description

The Isolation Test Valve, when used with our Pressurematic pressure sensing device, enables calibration of the pressure pilot or pressure switch without shutting down the flow line.

Features

- Flats on body for easy installation.
- Quarter-turn operation, handle indicates position.
- Handle allows padlocking in either the open or closed position.
- Compact, safe, blow-out proof stem. Cannot be removed when valve is under pressure.
- Spring loaded stem seal automatically compensates for normal wear as well as seal expansion and contraction due to temperature fluctuations.
- Slotted seats relieve upstream pressure, decreasing operating torque and extending service life.
- Resilient seat sealing lip floats with load enabling low pressure sealing and support at high pressure, while minimizing operating torque.
- Canadian registration CRN 0C0082.2

Options

- Flanged Process Connection (A105 or LF2)
- Stainless Steel body and cap
- Sour Service (NACE MR-01-75)
- Other Pressure and Temperature Ranges
- NPS 2 Process Connection
- 1/2" or 1" NPT Reduced Process Connection



Specifications Model ISO-20 Low-Temp CS Body

| | | |
|--------------------------|-------------|--------------|
| Maximum Working Pressure | 3,000 PSIG | [20,680 kPa] |
| Minimum Temperature | -50°F | [-46°C] |
| Maximum Temperature | 150°F | [65°C] |
| Sensor Connection | 2 NPT | |
| Process Connection | 1 1/2 NPT | |
| Side Connections | Two 1/2 NPT | |

Specifications Model ISO-60 Low-Temp CS Body

| | | |
|--------------------------|-------------|--------------|
| Maximum Working Pressure | 6,000 PSIG | [41,370 kPa] |
| Minimum Temperature | -50°F | [-46°C] |
| Maximum Temperature | 150°F | [65°C] |
| Sensor Connection | 2 NPT | |
| Process Connection | 1 1/2 NPT | |
| Side Connections | Two 1/2 NPT | |

| ISO-Test Valve Model | Description | Maximum Working Pressure | Body Material |
|----------------------|-------------------------------|--------------------------|---------------|
| IB2 | 2" FNPT X 1.5" MNPT | 3000 | A350-LF2 |
| IB5 | 2" FNPT X 2" MNPT | 3000 | A350-LF2 |
| IB6 | 2" FNPT X 1" MNPT | 3000 | A350-LF2 |
| IB7 | 2" FNPT X 1.5" MNPT | 6000 | A350-LF2 |
| IBF1 | 2" FNPT X 2" 600# RF Flange | 3000 | A350-LF2 |
| IBF2 | 2" FNPT X 2" 1500# RF Flange | 3000 | A350-LF2 |
| IBJ2 | 2" FNPT X 2" 1500# RTJ Flange | 3000 | A350-LF2 |
| IB7J | 2" FNPT X 2" 2500# RTJ Flange | 6000 | A350-LF2 |

Ordering Information

In order to select the correct Pressurematic for your application, we require the following information:

Operating Environment

- Sensed Media: Crude, Gas, Other
- Service Conditions: Sweet, Sour, Other
- Maximum Pressure
- Minimum and Maximum Operating and Ambient Temperatures
- Special Requirements: Flanged Connections, Isolation Valve, etc.

Control System Specifications

- High and/or Low Set Point Pressure
- Reset Mode: Manual (Lockout), Automatic
- Control Media: Air, Gas, Hydraulic
- Pneumatic: Maximum / Minimum Supply Pressure
- Options Required
- Special Requirements

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