

# 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  $\pm 5$  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 1½ or 2 NPT threaded or flanged.
- Hex body for practical field installation.
- Maximum working pressures to 6000 psig.
- Temperature limits: Process  $-50^{\circ}\text{F}$  to  $+392^{\circ}\text{F}$  ( $-46$  to  $200^{\circ}\text{C}$ ). Ambient  $-50^{\circ}\text{F}$  to  $+212^{\circ}\text{F}$  ( $-46$  to  $100^{\circ}\text{C}$ ).
- 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

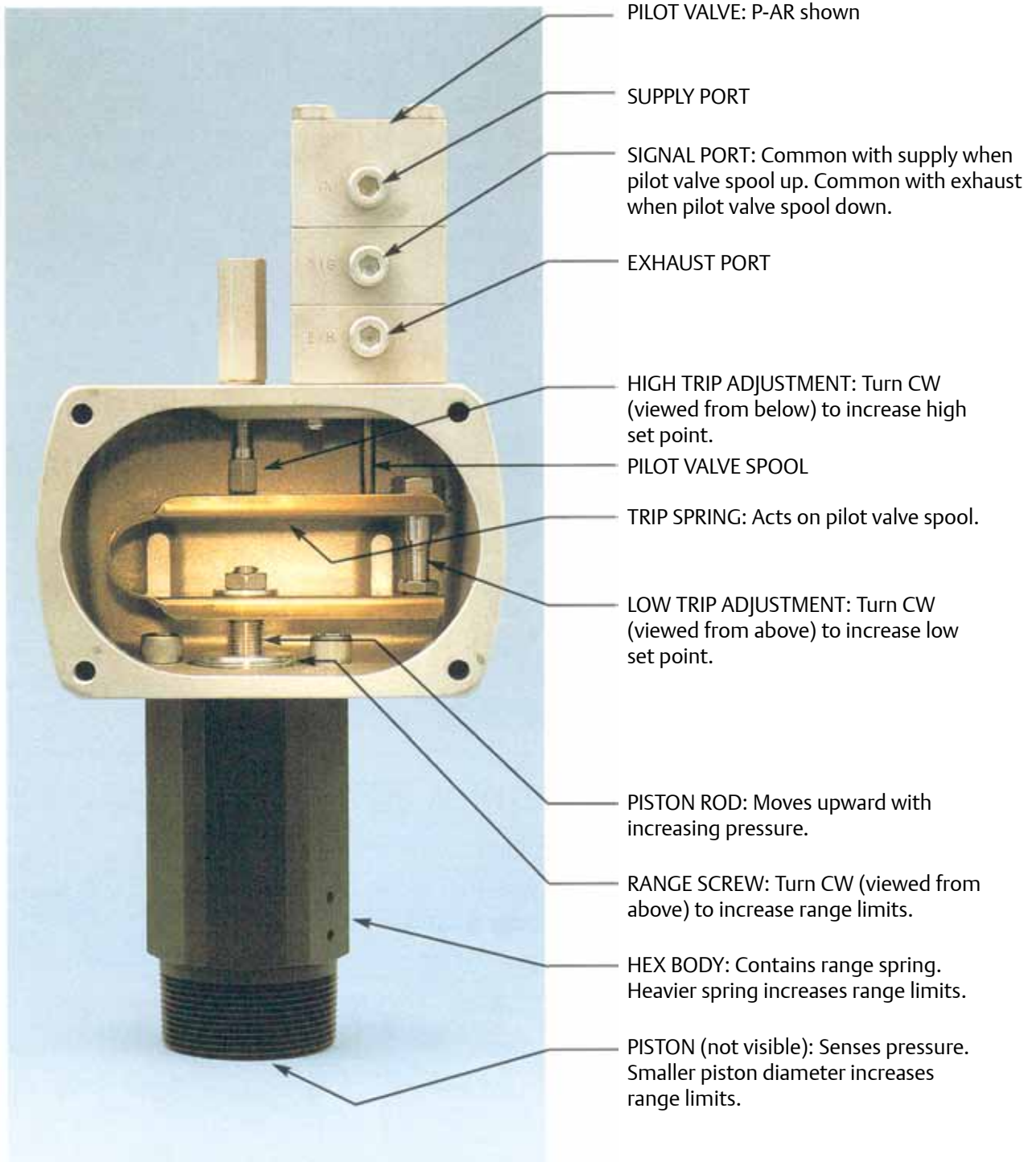
Product Name	Reset Type	** Series	Body Material	Code	Low Set Point (PSIG)	High Set Point (PSIG)	Span* (PSIG)	Connection
P: Pressurematic	AR: Auto reset MR: Manual reset	2000 2000 series	C: CS body L: A350 body, Low temp NACE	1	80-745	320-1200	235-320	2" NPT Male
				2	80-1060	410-1830	320-700	
				3	80-1550	540-2860	460-1200	
				4	140-1580	640-3250	500-1500	
		2200 2200 series	N: SS body, NACE	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	
<b>Example Model</b>								
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.

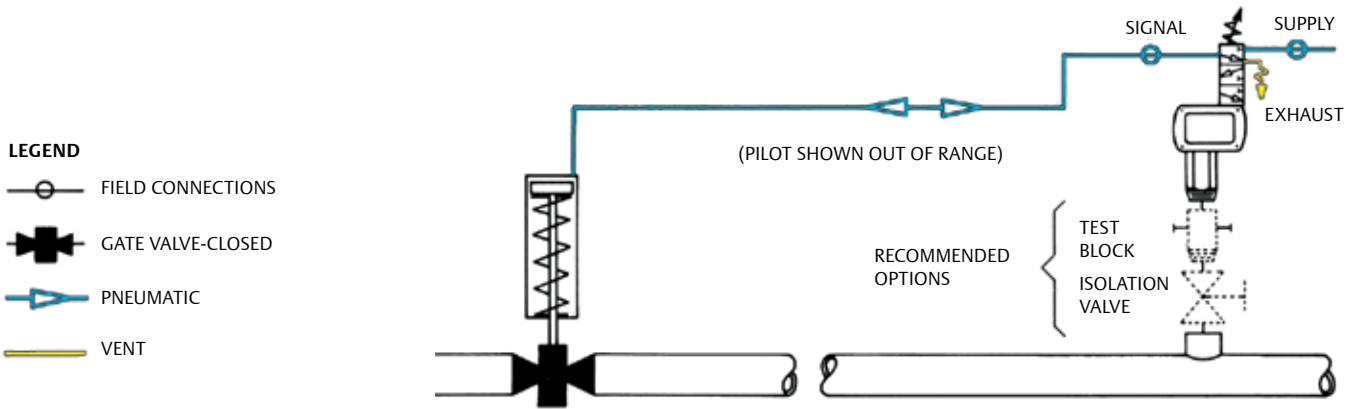
\*\* 2000 and 2200 series are the most common models and have shorter lead time.

# Construction

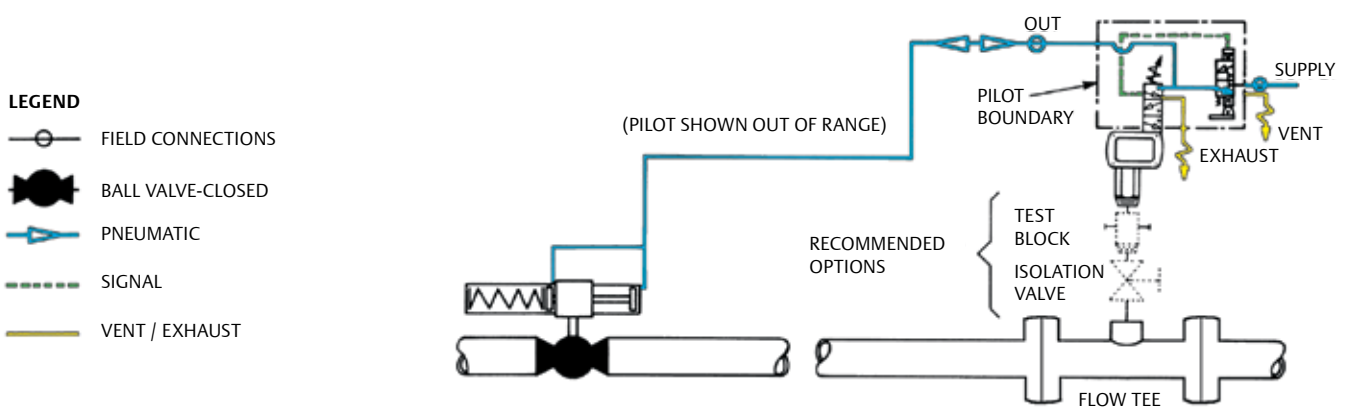


# Typical Schematics

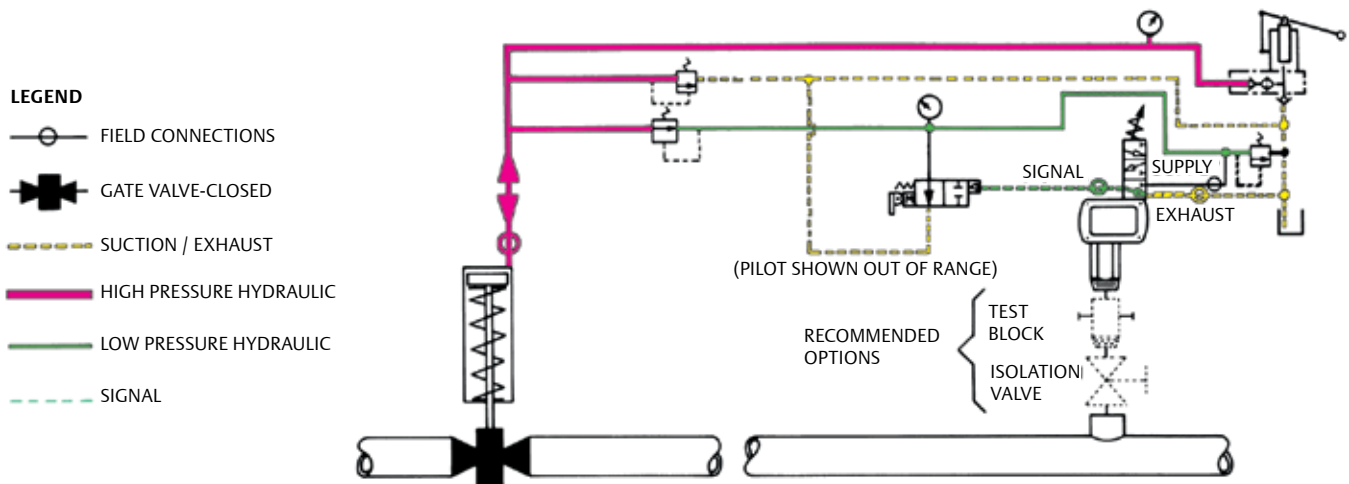
## Type P-AR (Auto Reset) with Pneumatic Operator



## 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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19200 Northwest Freeway  
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USA  
T +1 281 477 4100  
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Av. Hollingsworth  
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SP 18087-105  
Brazil  
T +55 15 3238 3788  
F +55 15 3228 3300

***ASIA PACIFIC***

No. 9 Gul Road  
#01-02 Singapore 629361  
T +65 6501 4600  
F +65 6268 0028

No. 1 Lai Yuan Road  
Wuqing Development Area  
Tianjin 301700  
P. R. China  
T +86 22 8212 3300  
F +86 22 8212 3308

***MIDDLE EAST & AFRICA***

P. O. Box 17033  
Dubai  
United Arab Emirates  
T +971 4 811 8100  
F +971 4 886 5465

P. O. Box 10305  
Jubail 31961  
Saudi Arabia  
T +966 3 340 8650  
F +966 3 340 8790

24 Angus Crescent  
Longmeadow Business Estate East  
P.O. Box 6908 Greenstone  
1616 Modderfontein Extension 5  
South Africa  
T +27 11 451 3700  
F +27 11 451 3800

***EUROPE***

Berenyi u. 72- 100  
Videoton Industry Park  
Building #230  
Székesfehérvár 8000  
Hungary  
T +36 22 53 09 50  
F +36 22 54 37 00

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DOC.6P.PM.US Rev C 03-17

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