ENERGY INDUSTRY VALVES

- DOUBLE BLOCK AND BLEED
- FLUSH AND BLEED RINGS
- INSTRUMENT AND TRANSMITTER ISOLATION VALVES
- LOW-EMISSION PACKING DESIGN
- PROCESS FLOW
- SAMPLING
PBM’s Instrument Valves are used for process flow or isolation of pressure gauge, orifice plates, flush rings and various measurement instruments. Valves are designed to ASME B16.34. They offer a higher performance solution to needle valves.

PBM Double Block and Bleed Valves are custom engineered from standard components in a variety of alloys and pressure classifications to meet customer specifications. All PBM double block and bleed valves are made in the USA and have full supporting material and testing documentation available. PBM valves are trusted by major oil refineries where safety and reliability are critical. Valves are also designed to ASME B16.34.

### SIZES
- 1/2” and 3/4” sizes with 0.41 bore

### PRESSURE CLASS
- 1/4” - 3/4” Up to ANSI Class 2500 (Class 1500 standard)

### END CONNECTIONS
- Extended Male or Female NPT
- Male or Female NPT
- Flanged
- Butt weld (tube or pipe)
- Ext. Socket Weld
- Compression
- Instrument Adapter Flange
- Others Available

### FEATURES
- Quarter Turn Operation
- Optional Extended Handle with lock out
- Bleed or Gauge Ports Available
- Soft and Metal Seated Designs
- Welded Body
- Rodable in 1/4” - 3/4”
- API-622 Low-E Stem Packing Standard
- SIL-3 Capable per IEC 61508

### MATERIALS
- Stainless Steel
- Duplex Stainless Steel
- Carbon Steels
- Monel®
- Hastelloy®
- Others Available

### 2-WAY VALVE with .41 dia. port
**End Fitting**

<table>
<thead>
<tr>
<th></th>
<th>A inches</th>
<th>A mm</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ext. Male NPT</td>
<td>6.50</td>
<td>165</td>
</tr>
<tr>
<td>Male NPT</td>
<td>4.75</td>
<td>121</td>
</tr>
<tr>
<td>Female NPT</td>
<td>4.00</td>
<td>102</td>
</tr>
<tr>
<td>Ext. Female Socket Weld</td>
<td>6.50</td>
<td>165</td>
</tr>
<tr>
<td>Butt weld for Sch. 40 Pipe</td>
<td>6.50</td>
<td>165</td>
</tr>
<tr>
<td>Butt weld for Tube</td>
<td>6.50</td>
<td>165</td>
</tr>
</tbody>
</table>

Notes:
- Dimensions shown for 1/2” valves only.
- Design is rodable with rod out tool.

### PACKING
- Die Molded Graphite (High Temperature)
- TFM™ or S-TEF®
- API-622 Low-E Stem Packing Standard
- in 1/2” and 3/4” sizes with .41 bore. It is optional in larger sizes.

### SEATING
- TFM™ Seats: 350°F (176°C)
- S-TEF® Seats: 400°F (204°C)
- PEEK® Seats: 500°F (260°C)
- Stellite® Ball & Seats: - 800°F (427°C)
- Tungsten or Chrome Carbide Coated S/S Ball & Seats: 800°F (427°C)

### TESTING AND DOCUMENTATION
- MTR (Material Test Reports)
- PMI (Positive Material Identification)
- LP (Liquid penetrant)
- Radiographic examination
- Pressure testing per API 598
- Magnetic particle examination
- Ultrasonic examination

**Certified SIL-3 Capable per IEC 61508**

Notes:
- PBM can comply with API-6D if specified.
The PBM difference - True Double Positive Isolation

PBM double block and bleed valves provide true double positive isolation:

- Two independent sealing members (two ball and seat combinations)
- Two separate actuating mechanisms (two stems and handles or actuators)

This configuration provides the best technology for the most severe isolation services where double block and bleed is required.

Double Positive Isolation when safety is critical.

**PBM DBB/DPI IM (Instrument valve)**
with locking lever handles and ends and API 622 Low E Packing

Temp: <800°F
Pressure: CL 2500
Sizes: 1/2" - 1 inch
Ends: Any

**PBM Standard/ DPI IM (Instrument valve)**
with locking lever handles

Temp: <800°F
Pressure: 2000 WOG
Sizes: 1/4" - 1 inch
Ends: Any

**True DPI in 5 configurable body styles:**

- Smaller than traditional 2 valve designs
- Lower potential emissions due to less flange connections
- 1/2 inch through 12 inch
- Full or standard (reduced) port
- Fire rated to API 607 Rev. 4
- API-622 low emissions packing available
- Various bleed or purge options available
- Extended handles available
- 1/4 turn ball valve enables easy open/close and visual indication of valve position.

**DBB VALVE .41 dia. port End Fitting**

<table>
<thead>
<tr>
<th></th>
<th>A (in)</th>
<th>A (mm)</th>
<th>B (in)</th>
<th>B (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Extended Male NPT</td>
<td>8.25</td>
<td>210</td>
<td>4.13</td>
<td>105</td>
</tr>
<tr>
<td>Male NPT</td>
<td>6.50</td>
<td>165</td>
<td>3.25</td>
<td>83</td>
</tr>
<tr>
<td>Female NPT</td>
<td>5.75</td>
<td>146</td>
<td>2.88</td>
<td>73</td>
</tr>
<tr>
<td>Ext. Female Socket Weld</td>
<td>8.25</td>
<td>210</td>
<td>4.13</td>
<td>105</td>
</tr>
<tr>
<td>Buttweld for Sch. 40 Pipe</td>
<td>8.25</td>
<td>210</td>
<td>4.13</td>
<td>105</td>
</tr>
<tr>
<td>Buttweld for Tube</td>
<td>8.25</td>
<td>210</td>
<td>4.13</td>
<td>105</td>
</tr>
</tbody>
</table>

Notes:
Dimensions shown for 1/2" valves only.
Design is rodable with rod out tool.

**PBM DBB/DPI Configurations**
3-piece High Temp, High Pressure DBB/DPI

Temp: <800°F
Pressure: CL 1500
Sizes: 3, 4 CL600 only
Ends: Any

Certified SIL-3 Capable per IEC 61508
PBM’s bolted Instrument Valve design allows end connection design and fabrication flexibility. It is available in a wide range of materials for a variety of temperature and pressure classes to meet your most stringent process applications.

**FEATURES**

- Full and Reduced Port Designs
- Customizable End Connections
- Quarter Turn Operation
- Bleed or Gauge Ports Available
- Bolted Body
- API-607 Fire Rated
- Braided Graphite Packing
- API-622 Low-E Stem Packing Standard
- Gear Operator recommended for 1-1/2” and above.

**SIZES**

- 1/2” - 2” CL600, CL900 and CL1500

**SEATING**

- TFMTM Seats: 350°F (176°C)
- S-TEF® Seats: 400°F (204°C)
- PEEK® Seats: 500°F (260°C)
- Stellite® Ball & Seats: 800°F (427°C)
- Tungsten or Chrome Carbide Coated S/S Ball & Seats: 800°F (427°C)
PBM valves with Low-E packing offer solutions to emission reduction. Design features:

- Average stem packing leakage ≤ 10 ppmv for the duration of the test (100 ppm allowable)
- API 607 fire tested

The high temperature valve version consists of carbide coating on the ball and seats.
## How to Order IM or IB Valves

**Position 1**

- **Connection**
  - IB: Instrument Valve - Bolted W/ 1/2" Port and Larger.

**Position 2 & 4**

- **Material**
  - IM: Hastelloy®
  - IB: Duplex

**Position 3 & 4**

- **MATERIAL**
  - **SIZES**
    - **Hastelloy®**
      - M = 6 inch, Full Port
      - L = 4 inch, Full Port
      - K = 3 inch, Full Port
      - J = 2-1/2 inch, Full Port
      - I = 2 inch, Full Port
      - H = 1-1/2 inch, Full Port
      - G = 1 inch, Full Port
      - F = 3/4 inch, Full Port
      - E = 1/2 inch, Full Port
      - D = 3/8 inch, Full Port
      - C = 1/4 inch, Full Port
    - **Duplex**
      - B = 1/4 inch, Full Port
    - **Face-to-face**
      - 2" standard. Consult factory for other configurations.

**Position 5 & 6**

- **BLEED / GAUGE PORT OPTIONS**
  - **OPERATION OPTIONS**
  - **BLEED / GAUGE VALVE OPTIONS**

**Position 7 & 8**

- **SEAT / STEM PACKINGS / O-RINGS**
  - **FEATURES**
    - Integral code-welded valve for flushing, purging and instrument isolation.

**Position 9**

- **POSITIONS**
  - **Bleed / Gauge**
  - **Valve Options**
  - **Options**
  - **Options**
  - **Options**

---

### Flush Rings/Bleed Rings with Integral Valve

Flush rings and Bleed rings to customer material and pressure class specifications designed to fit between standard flanges using conventional flange gaskets. Integral ball valve allows venting, purging, sampling and instrument isolation.

**Sizes**

- Face-to-face is 2” standard. Consult factory for other widths.

**Materials**

- Stainless Steel
- Duplex
- Hastelloy®
- Others Available

**Features**

- Integral code-welded valve for flushing, purging and instrument isolation.
PBM Transmitter Isolation Valves are valves used to isolate media in a tank from a pressure/level transmitter. The valve when in the open position creates a communication between the media in the tank and the transmitter. The valve is only closed when the transmitter needs to be isolated for service.

*TIV valves feature minimal dead space and positive shut-off. They are available in CL150, CL300, and CL600 RF Flange. Calibration port, CIP port, and locking handle are standard. Cast body, universal design, in stock.*
Energy Industry Valves

Transmitter Isolation Valves CL300, CL600

Pressure Classes: 150-600
Sizes: 1x2, 1x3, 2.5 x 3 Inch (ball port size x flange size)
Any Materials, Temps <800˚F
Purge/Cal Port Sizes: 1/4 or 1/2 inch FNPT (2 or 4 ports available)
Make to Order. Custom configurations available.

2" PBM TIV on 4 inch ABB Wedge Meter
Heavy Crude Line in a Coker Unit
PBM’s Valve Manifolds have temperatures that range from 300˚ to 600˚ F, 149 to 316˚C with pressures from 150 to 400 psig, 10 to 28 barg. A refinery uses these manifolds for measuring as well as level indication.

Fabflex® fabricated manifold solution:

- Custom PBM Fabflex® manifold design for multiple instrumentation mounts.
- Custom manifold design to optimize space utilization.
- Factory fabricated in a controlled manufacturing environment to ensure high quality welding fabrication process.
- Individual valves fabricated “into” the manifold eliminating many emission leak paths to improve the overall EPA rating of the system.
- Field installation simplified into bolting up one flange and installing the transmitters, transducers or other instrumentation.
Double Block and Bleed for hydrogen use

Fabflex Manifold® Assembly
Various configurations available.

Lockable Manual Handles
Standard and automation available.

Sampling Valve
Available in single and double block configurations.

ANSI Trunnion Valve
BOLTED INSTRUMENT VALVES
PRESSURE/Temperature AND TOrQUE CHARTS

IB/IM Valve: Seat Pressure vs Temperature Chart Class 1500

IB 600# Valve: Seat Pressure vs Temperature

IB Sizing Torque (S-Tef Seats)

IB Sizing Torque (Metal Seats)