



 **PBM VALVE SOLUTIONS**

ENERGY INDUSTRY VALVES

- **DOUBLE BLOCK AND BLEED**
- **FLUSH AND BLEED RINGS**
- **INSTRUMENT AND TRANSMITTER ISOLATION**
- **LOW-EMISSION PACKING DESIGN**
- **PROCESS FLOW**
- **SAMPLING**
- **TRIPLE REDUNDANT SENSING MANIFOLD**





PBM's Energy Industry 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.

SIZES

- 1/4" - 10" Full Port
- 1/4" - 12" Standard Port

PRESSURE CLASS

- 1/4" - 3/4" Up to ANSI Class 2500 (Class 1500 standard)
- 1" ANSI Class 1500
- 1-1/2", 2" ANSI Class 900
- 3", 4" ANSI Class 600
- 6", 8", 10", 12" ANSI Class 300

MATERIALS

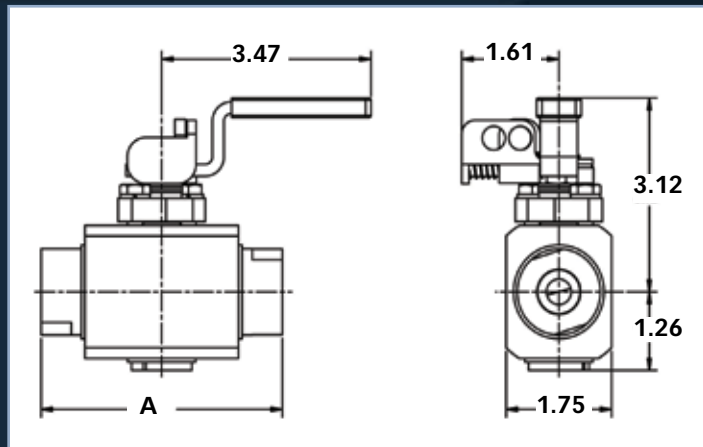
- Stainless Steel
- Duplex Stainless Steel
- Carbon Steels
- Monel®
- Hastelloys®
- Others Available

END CONNECTIONS

- Extended male or female NPT
- Male or female NPT
- Flanged
- Buttweld (tube or pipe)
- Ext. Socket Weld
- Compression
- Instrument Adapter Flange
- Others Available

FEATURES

- Full or Standard Port
- Quarter Turn Operation
- Optional Extended Handle with lock out
- Bleed or Gauge Ports Available
- Locking Handle Standard
- Welded Body
- Rodable in 1/4" - 3/4"
- API-622 Low-E Stem Packing Standard
- SIL-3 Capable per IEC 61508



2-WAY VALVE with .41 dia. port End Fitting	A inches	A mm
Ext. Male NPT	6.50	165
Male NPT	4.75	121
Female NPT	4.00	102
Ext. Female Socket Weld	6.50	165
Buttweld for Sch. 40 Pipe	6.50	165
Buttweld for Tube	6.50	165

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

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 Carbide Coated S/S Ball & Seats - 800°F, 427°C
- Chrome Carbide Coated S/S Ball & Seats - 1000°F, 538°C

Notes:
PBM can comply with API-6D if specified.

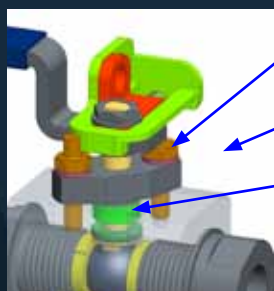
PACKING

- 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.

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

Valves Double Block & Bleed Valves



Gland Bolt

Gland Plate

Stem-Packing

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)
- Stem packing is suitable for service at temperatures of -400° to 850°F (-240° to 450°C)
- API 607 Rev. 4 fire tested
- ASME Class 1500 Weld Design standard



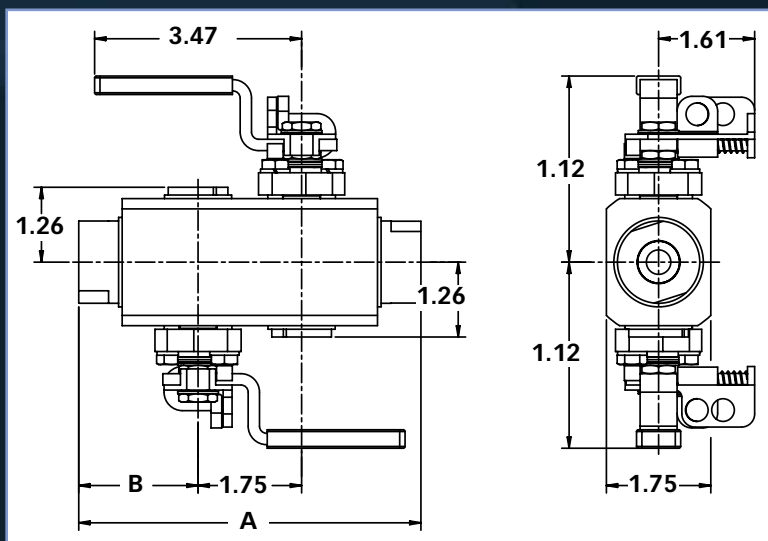
1/2" CLASS 1500 DOUBLE BLOCK AND BLEED VALVE

with locking lever handles and ends per customer requirements



DBB VALVE .41 dia. port End Fitting	A in.	A mm	B in.	B mm
Extended Male NPT	8.25	210	4.13	105
Male NPT	6.50	165	3.25	83
Female NPT	5.75	146	2.88	73
Ext. Female Socket Weld	8.25	210	4.13	105
Buttweld for Sch. 40 Pipe	8.25	210	4.13	105
Buttweld for Tube	8.25	210	4.13	105

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



Certified SIL-3 Capable per IEC 61508



Solutions for all your valve applications: Double Block and Bleed 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 designed to ASME B16.34.

SIZES

- 1/4" - 10" Full Port
- 1/4" - 12" Reduced Port

PRESSURE CLASS

- 1/4" - 3/4" Up to ANSI Class 2500 (Class 1500 Standard)
- 1" ANSI Class 1500
- 1-1/2", 2" ANSI Class 900
- 3", 4" ANSI Class 600
- 6", 8", 10", 12" ANSI Class 300

MATERIALS

- Stainless Steel
- Duplex Stainless Steel
- Carbon Steels
- Monel®
- Hastelloys®
- Others Available

END CONNECTORS

- Thread pipe, male or female
- Flanged
- Buttweld
- Socket Weld
- Bleed or Gauge Ports available
- Others Available



1-1/2 inch Class 1500 (Standard Port) double block and bleed valve with manual locking lever handles

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.

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

Notes:

PBM can comply with API-6D if specified.

SEALING

- 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 Carbide Coated S/S Ball & Seats - 800°F, 427°C
- Chrome Carbide Coated S/S Ball & Seats - 1000°F, 538°C

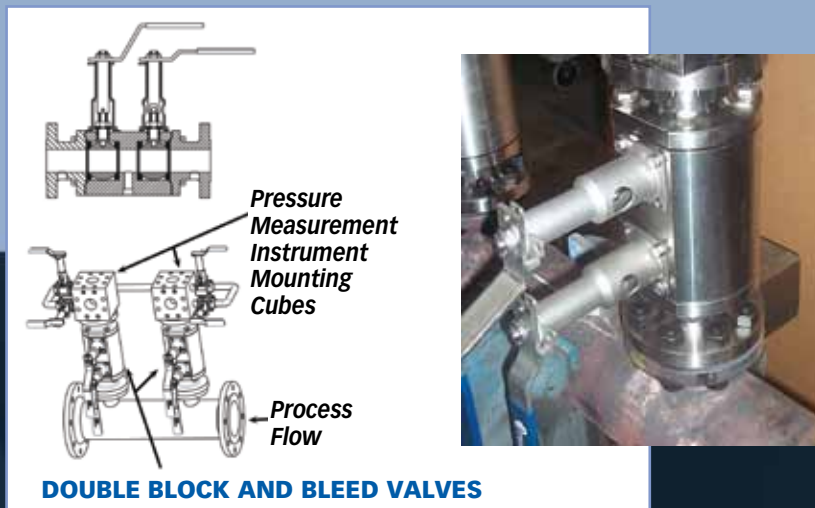
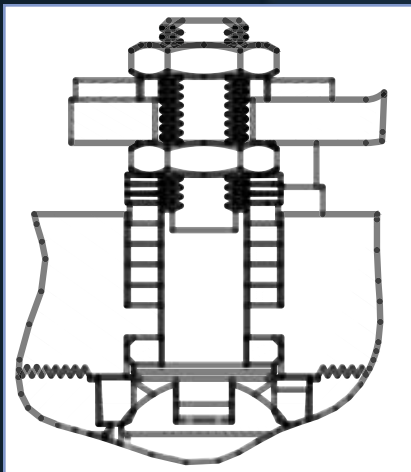
FEATURES

- Full or reduced port
- Quarter turn operation
- True Double Positive Isolation
- Optional extended handle with lock out
- API 607 Rev. 4 Fire Rated
- SIL-3 Capable per IEC 61508
- Locking Handles Standard
- Welded or bolted body
- Custom configurations – consult PBM

eed Valves



The high temperature valve version consists of Stellite®, PEEK®, Carbon Graphite, Chrome Carbide Coated or Tungsten Carbide Coated s/s seats and ball material with multiple graphite packing in the stem area.



The PBM difference - True Double Positive Isolation

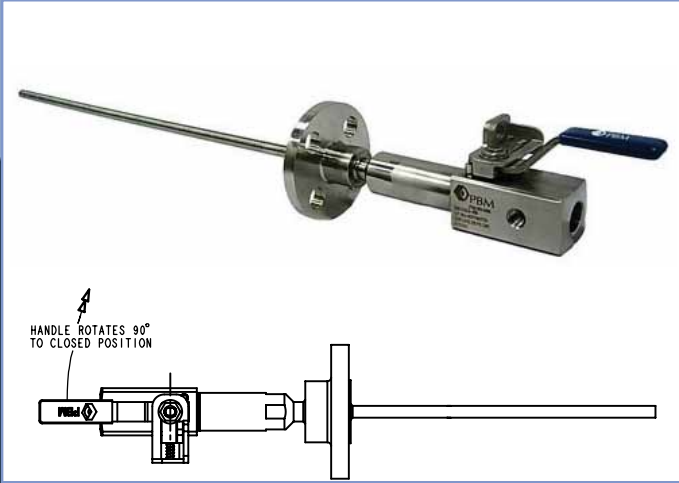
PBM double block and bleed valves provide true double positive isolation:

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

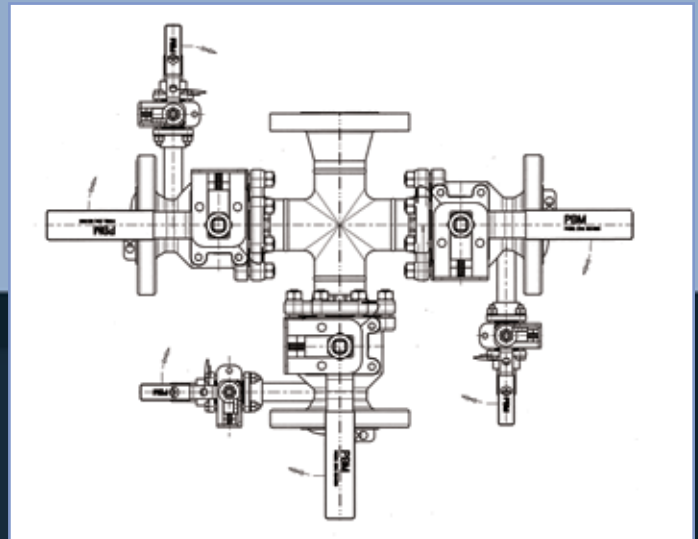
This configuration provides the best technology for the most severe isolation services where double block and bleed is required.



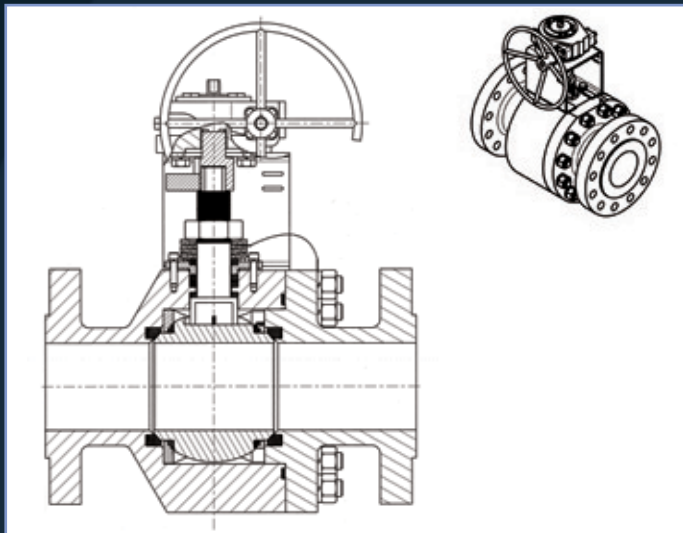
Double Positive Isolation when safety is critical.



Sampling valve removes sample directly from the process stream at system pressure. Available in single and double block configurations.



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.

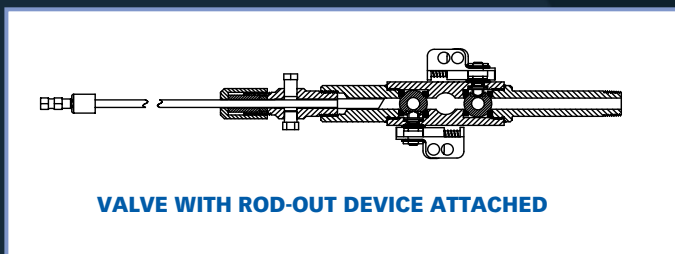


PBM's pigging style valve was produced to match extra heavy wall pipe in sizes of 3", 4" and 6". The port matched the pipe inside diameter.

PBM Valve Pressure Class



Rating Size	150	300	600	900	1500	2500
1/4"	•	•	•	•	•	•
1/2"	•	•	•	•	•	•
3/4"	•	•	•	•	•	•
1"	•	•	•	•	•	
1-1/2"	•	•	•	•	•	
2"	•	•	•	•	•	
3"	•	•	•			
4"	•	•	•			
6"	•	•				
8"	•	•				
12"	•	•				



VALVE WITH ROD-OUT DEVICE ATTACHED

Double block and bleed ball valve with rodable hot tap

Operating Temperatures:
Up to 1000° F, 538° C for certain metal seated valves

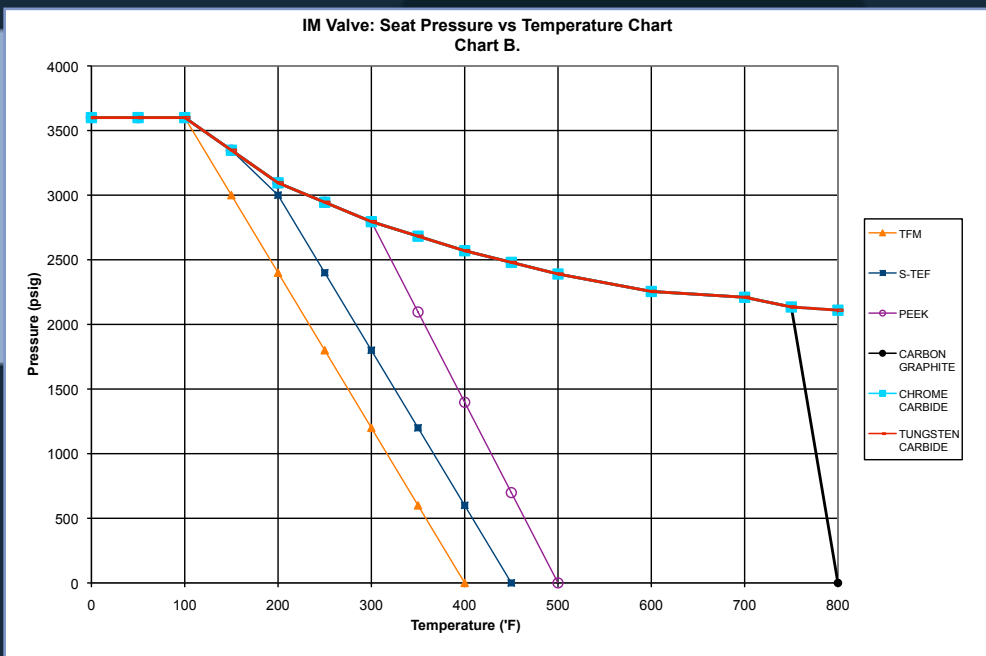
Construction Standards:
Bar or cast components / Soft seated / or Metal seated/ Various end connections available

Main Characteristics:
Full or standard port, Quarter turn operation, Locking handle standard, Bleed or gauge ports available, Welded body, API-622 Low-E packing

Available Materials: Carbon Steels, Stainless Steel, Duplex, Monel, & Others



Lockable Manual Handles
standard and automation available



Consult factory for metal seat ratings.

How to Order

POS 1 & 2	POS 3 & 4	POS 5	POS 6	POS 7	POS 8	POS 9
	MATERIAL	VALVE TYPE (1500# Class STD)	SERIES	1ST END CONNECTION TYPE (HP / UPSTREAM)	2ND END CONNECTION TYPE (LP / DOWNSTREAM)	SEAT / STEM PACKINGS / O-RINGS (GRAPHITE STEM PACKING FOR ALL)
IM	H- = 316 S/S Body & End Conn. (800° F Max.)	A = 2-Way 150# Class	6	B = Ext. Butt weld Schedule 40	B = Ext. Butt weld Schedule 40	G = TFM / Graphite / Viton or TFM / TFM / Viton "A"
	HH = 316H S/S Body & End Conn. (Over 800° F)	B = 2-Way 300# Class		D = Ext. Butt weld Schedule 10	D = Ext. Butt weld Schedule 10	H = S-TEF® / Graphite / Viton or S-TEF® / S-TEF® / Viton "A"
	E7 = A-105 Carbon Steel Body & End Connections	C = 2-Way 600# Class		F = Ext. Butt weld for Tube	F = Ext. Butt weld for Tube	N = PEEK / Graphite / Kalrez or PEEK / PEEK / Kalrez
	C = Hastelloy C-276 Body & End Connections	D = 2-Way 900# Class		G = Eye Flange	G = Eye Flange	Q = Celazole Seats / Perfluoroelastomer O-Ring - 600° F.
	C1 = Hastelloy B-2 Body & End Connections	E = 2-Way 1500# Class		L = RF Flange	L = RF Flange	S = Stellite Seats / Graphite Seals - 800° F. Max.
	Y = Hastelloy C-22 Body & End Connections	F = 2-Way 2500# Class		N = Extended Male NPT	N = Extended Male NPT	T = Tungsten Carb. Ctd S/S Ball & Seats/Graphite Seals - 800° F. Max
	M = Monel Body & End Connections	K = Double Block 150# Class		P = Male NPT	P = Male NPT	U = Chrome Carb Ctd S/S Ball & Seats/Graphite Seals - 1000° F. Max.
	P = AL6XN Body & End Connections	L = Double Block 300# Class		Q = Female NPT	Q = Female NPT	Valves seal HP to LP. Consult PBM for other configurations.
	22 = Duplex 2205 Body & End Connections	M = Double Block 600# Class		R = Extended Female NPT	R = Extended Female NPT	
	25 = 254 SMO 6 Moly Body & End Connections	N = Double Block 900# Class		S = Female Comp. Thread *	S = Female Comp. Thread *	
	F9 = A182 Gr. F9 Carbon Steel Body & End Conn.	O = Double Block 1500# Class		J = Ext. Female Socket Weld	J = Ext. Female Socket Weld	
	5 = Inconel 625	P = Double Block 2500# Class		V = Ext. Male Socket Weld	V = Ext. Male Socket Weld	
				W = RTJ Flange	W = RTJ Flange	

* Ferrules Not Included

POS 10	POS 11	POS 12	POS 13 & 14	POS 15
1ST END CONNECTION SIZE (HP / UPSTREAM)	2ND END CONNECTION SIZE (LP / DOWNSTREAM)	BLEED / GAUGE PORT OPTIONS	OPERATOR OPTIONS	BLEED / GAUGE VALVE OPTIONS
A = 1/4 inch, .41" Dia. Port	A = 1/4 inch, .41" Dia. Port	- = No Bleed or Gauge Ports (2-Way Only - STD)	04 = manual locking lever handle - Right Hand Operation (CW) - STD	- = No Bleed or Gauge Valves (2-Way Only - STD)
B = 3/8 inch, .41" Dia. Port	B = 3/8 inch, .41" Dia. Port	A = (1) 1/4" FNPT Bleed Port 90° from Stem (Double Block Only - STD)	05 = manual locking lever handle - Left Hand Operation (CCW)	A = 1/4" FNPT Ball Valve
C = 1/2 inch, .41" Dia. Port	C = 1/2 inch, .41" Dia. Port	B = (2) 1/4" FNPT Bleed Ports 90° from Stem (Double Block Only)	00 = manual lever handle - Right Hand Operation (CW)	B = 3/8" FNPT Ball Valve
D = 3/4 inch, .41" Dia. Port	D = 3/4 inch, .41" Dia. Port	C = (1) 3/8" FNPT Bleed Port 90° from Stem (Double Block Only)	01 = manual lever handle - Left Hand Operation (CCW)	C = 1/2" FNPT Ball Valve
2 = 1 inch, .41" Dia. Port	2 = 1 inch, .41" Dia. Port	D = (2) 3/8" FNPT Bleed Ports 90° from Stem (Double Block Only)	02 = manual oval handwheel	F = 1/4" FNPT Needle Valve
5 = 1-1/2 inch, .41" Dia. Port	5 = 1-1/2 inch, .41" Dia. Port	E = (1) 1/2" FNPT Bleed Port 90° from Stem (Double Block Only)	03 = manual locking oval handwheel	G = 3/8" FNPT Needle Valve
8 = 2 inch, .41" Dia. Port	8 = 2 inch, .41" Dia. Port	F = (2) 1/2" FNPT Bleed Ports 90° from Stem (Double Block Only)	20 = 80 PSIG Double Acting Actuator	H = 1/2" FNPT Needle Valve
			27 = 60 PSIG Double Acting Actuator	
			34 = 80 PSIG Spring Return Actuator	
			41 = 60 PSIG Spring Return Actuator	

Note: Larger sizes available through 10" FP - 12" RP Note: additional bleed port options available.

Consult Factory

Note: Additional operator options available



Flush & Bleed Rings

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.

Flush Rings/Bleed Rings with Integral Valve

SIZES

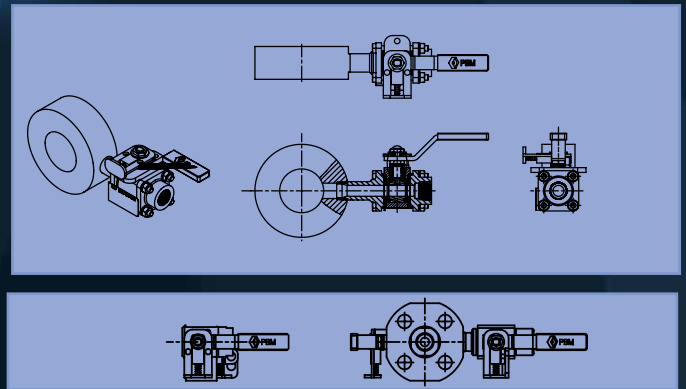
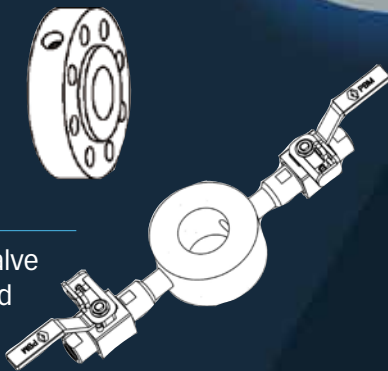
- Face-to-face is 2" standard. Consult factory for other widths.

MATERIALS

- Stainless Steel
- Duplex
- Hastelloy®
- Others Available

FEATURES

- Integral code-welded valve for flushing, purging and instrument isolation



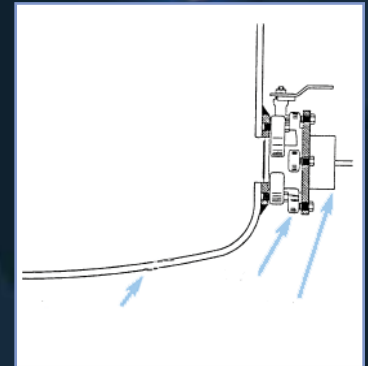
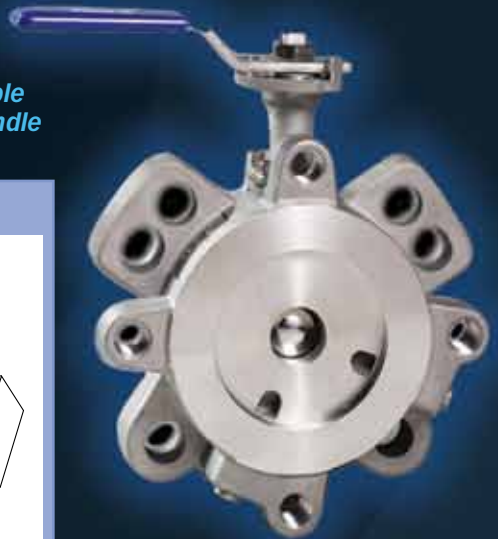
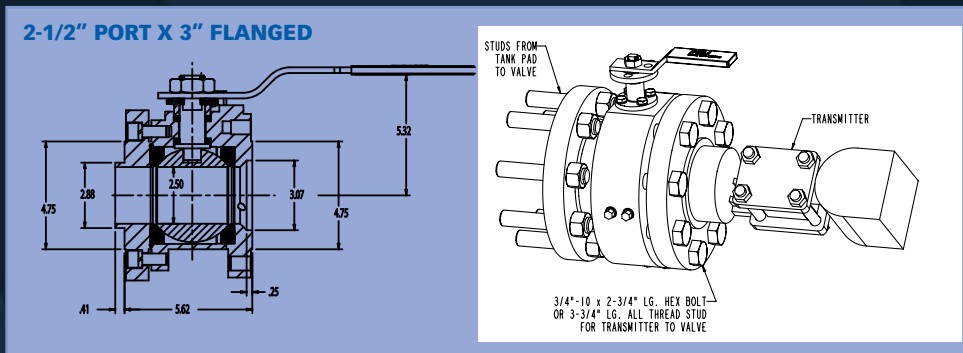
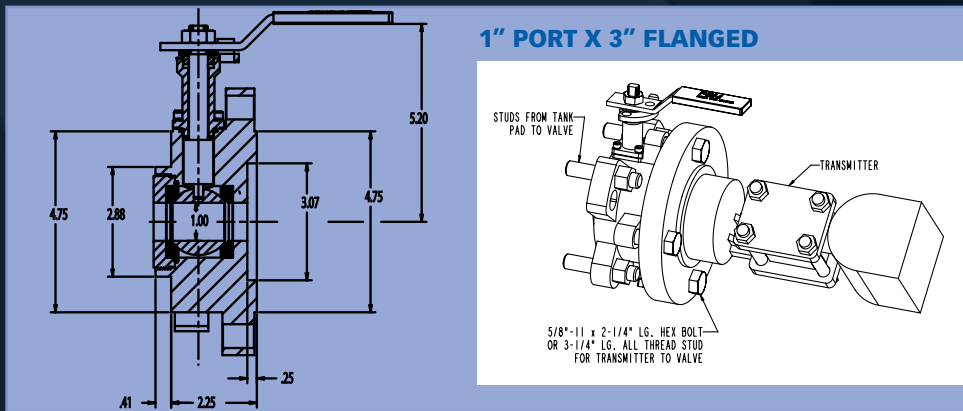
1 & 2	3&4	5	6	7	8	9	10
PRODUCT	MATERIAL	SIZE	SERIES	FLUSH RING CLASS	NO & LOCATION PURGE/BLEED PORTS	PURGE/BLEED PORT SIZE	PURGE/BLEED PORT TYPE
FR = Flush Ring	H- = 316 Stainless Steel	C = 1/2 inch	5	H = 900# (RF - Inside Ring)	- = None	- = None	- = None
	HL = 316 Stainless Steel	D = 3/4 inch	6 = Firesafe API-607	J = 1500# (RF - Inside Ring)	A = 1 Purge / Bleed Port	A = 1/4 inch	Q = FNPT
	E- = A-105 Carbon Steel	E = 1 inch		K = 2500# (RF - Inside Ring)	B = 2 Purge / Bleed Ports 90° Apart	C = 1/2 inch	U = Socket Weld
	C- = Hastelloy C-276	F = 1-1/4 inch		L = 150# (RF - Inside Ring)	C = 2 Purge / Bleed Ports 180° Apart	D = 3/4 inch	(Socket weld is not bronze.)
	Y- = Hastelloy C-22	G = 1-1/2 inch		M = 300# (RF - Inside Ring)		E = 1 inch	
	P- = AL6XN	H = 2 inch		N = 600# (RF - Inside Ring)			
	W- = Nickel 200	J = 2-1/2 inch		R = 150# (RF - Full Ring)			
	HC = Alloy 20	K = 3 inch		S = 300# (RF - Full Ring)			
	22 = Duplex 2205	L = 4 inch		T = 600# (RF - Full Ring)			
	N- = 922 Bronze	M = 6 inch		U = 900# (RF - Full Ring)			
		N = 8 inch		W = 1500# (RF - Full Ring)			
		P = 10 inch		X = 2500# (RF - Full Ring)			
		Q = 12 inch					
		R = 14 inch					

*All of the above also available as ring type joint (RTJ)

PBM Transmitter Isolation Valves

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.

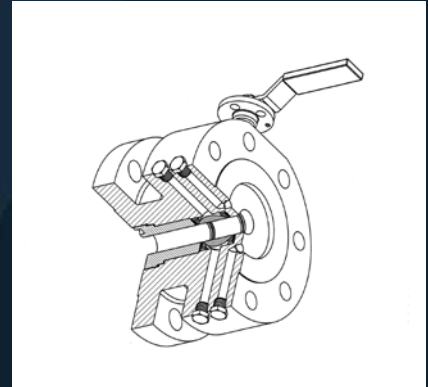
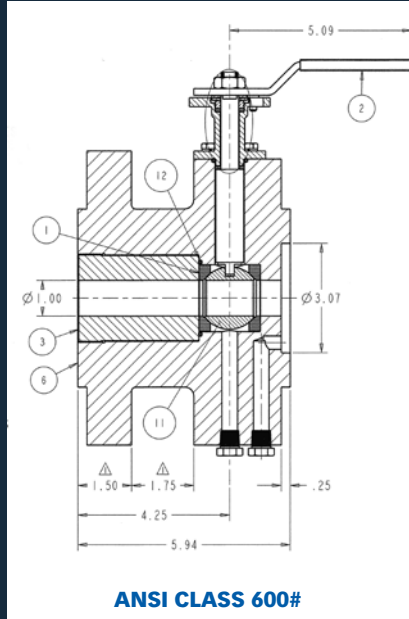
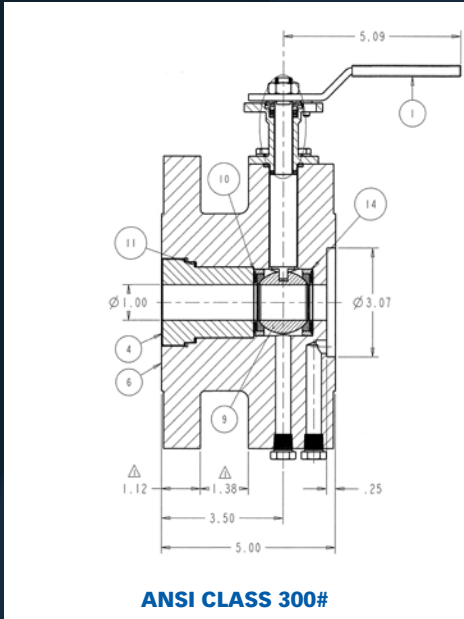
TIV valves feature minimal dead space and positive shut-off. They are available in 150#, 300#, and 600# RF Flange. Calibration port, CIP port, and locking handle are standard.



1&2	3&4	5	6	7	8	9	10	11	12
	MATERIAL	TIV SIZE	SERIES	CLASS OF END CONNECTION	TYPE OF END CONNECTION	SEAT /FILLER /O-RING	PURGE/BLEED PORT SIZE	BALL FLATS OPEN OR CLOSED POSITION	BALL/ STEM OPTIONS
T 1	C- = Hastelloy C-276	E = 1 inch Port x 3 inch flanges	5 = PBM Series 5	L- = 150# Flanged	- = 3" Flange	G = TFM seats, VTFE O-Rings	- = Qty. 4, 1/4" Plugged Purge Ports with Hex Head Plugs	- = Standard (no options)	- = Standard (316/316L S/S Ball and Stem)
	E- = A-105 Carbon Steel	J = 2-1/2" Port x 3 inch flanges	6 = Series 6 API-607 Rev. 4 Firesafe	M- = 300# RF	H- = 2" Flange	H = S-TEF® Seats, PTFE Encapsulated Viton O-Rings		A = Flats closed downstream	F = Internal/ External Grounding
	H- = 316 Stainless Steel			N- = 600# RF					B = Flats closed upstream
	H2 = 317 Stainless Steel			O- = 900# RF		N = PEEK Seats, Kalrez O-Rings		C = Flats open upstream	
	HC = Alloy 20					Q = Carbon Graphite, Graphite / - / -		D = Flats open downstream	
	P- = AL6XN							E = Flats open upstream & downstream	
	T- = Grade 5 Titanium								
	W- = Nickel 200								
	Y- = Hastelloy C-22								



Transmitter Isolation Valves 300#, 600#



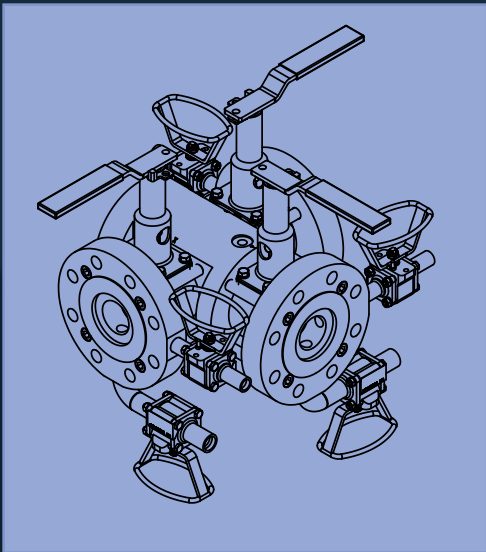
*Isolation valve for differential pressure level transmitter.
600° F/316° C Service*

Triple Redundant Sensing Manifold



Triple Redundant Sensing Manifold

A major international petrochemical company was looking for a triple-redundant method of isolating transmitters used to provide vital feedback on petrochemicals stored in tanks.



The valves required to insolate transmitters had to be fire-rated and capable of providing a tight shutoff against corrosive and high-temperature petrochemicals. Each assembly contained three transmitter isolation valves, each with two fire-rated valves on the purge connections to facilitate cleaning the valve bodies and calibrating the transmitters.

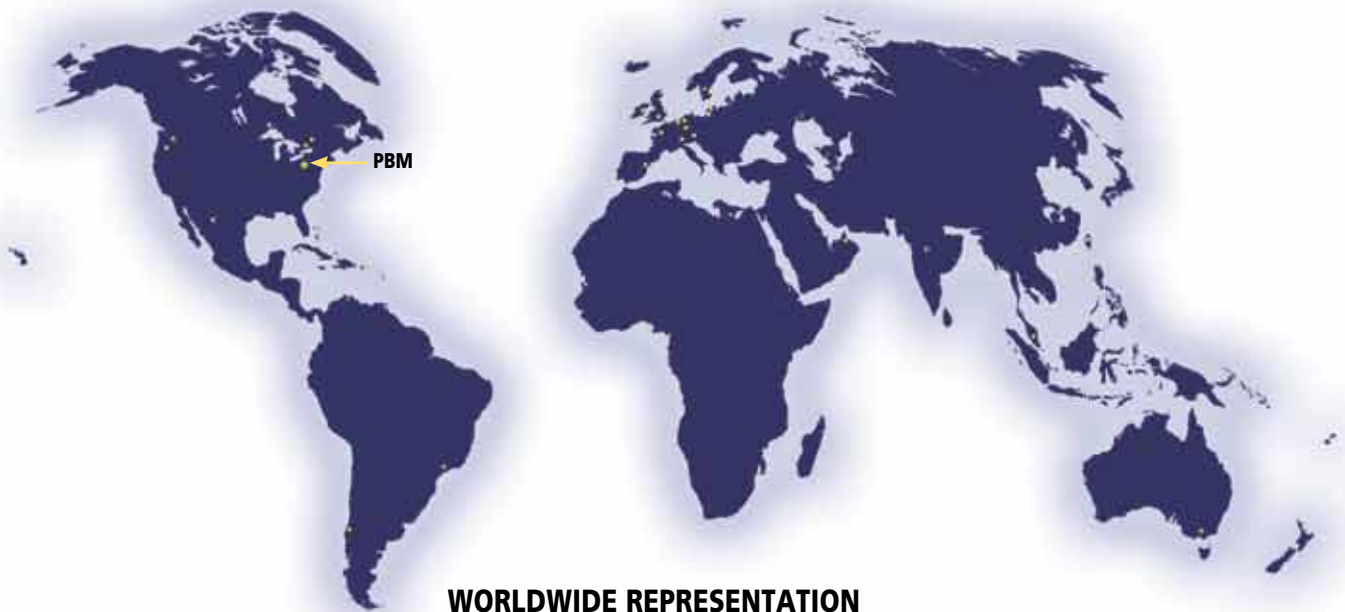
Unique Instrument Valve Application



Fire Safe Instrument ball valves are used in pairs for flow meter installations.

- 1/4 turn
- Customer specified end fittings
- Easily mounted on 2-1/8" Centers

Note that this configuration does not have API-622 packing due to space constraints.



WORLDWIDE REPRESENTATION

- United States • Canada • Australia • Mexico • Brazil • Argentina • Chile • UAE • United Kingdom
- Central Europe • Germany • Sweden • Spain • Belgium • France • Ireland • Switzerland • Austria • The Netherlands
- South Africa • India • Taiwan • China • Thailand • Singapore • Saudi Arabia • Malaysia • Korea



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