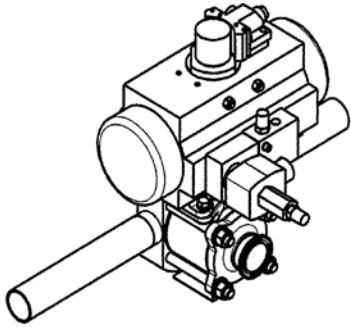


PBM's Z-Ball® - Zero Dead Leg Ball Valve Design



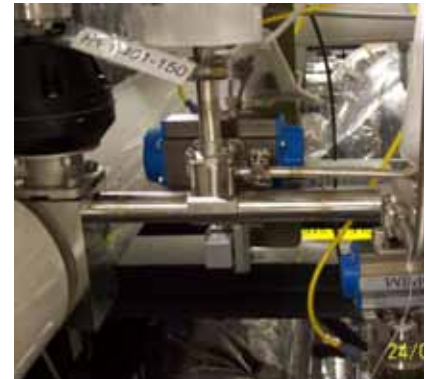
Features:



- Eliminates dead-legs in purified water systems and clean steam systems
- Compact size - short branch geometry
- 316L wrought low-ferrite stainless steel, other alloys available
- Manual or pneumatic operation with optional device net
- Mechanical and electro-polished surfaces
- Fully drainable
- Adjustable seats (Adjust-O-Seal®) resulting in both upstream and downstream seal.
- Optional purge porting available

PBM's Z-Ball®, zero dead leg ball valve replaces traditional diaphragm valve coupled with a ball valve design used as a sterile barrier for purified water system loops and clean gas utilities. For clean steam header sterilization, the PBM valve is opened to introduce clean steam into the process loop. In a closed position, to prevent condensate from accumulating, the purge port in the valve body removes condensate through trap to drain.

This design offers PBM the ability to provide an ultra-sanitary process isolation valve which seals on both upstream and downstream seats resulting in significant savings compared to traditional methods of using a combination diaphragm valve coupled with a ball valve.



NUMBER(S) IN PARENTHESES INDICATE VALVE CONFIGURATION PART NUMBER POSITION

PRODUCT (1-2)	MATERIAL (3-4)	VALVE SIZE (5)	VALVE SERIES (6)	MANIFOLD END CONNECTION BY VALVE END CONNECTION (7-8)	SEAT \ FILLER O-RING (9)
ZG Sanitary True-bore 2-way (Gas Service)	HL 316L Stainless Steel Cast HF 316L Stainless Steel Forged	C 1/2 inch D 3/4 inch	8 PBM Series 8, Igenix Sanitary Forged < 1% ferrite	FF Butt weld for Tube (Manifold) X Ext. Butt weld for Tube (Valve)	G TFM seats (ZG series)
ZS Sanitary Clean Steam True-bore 2-way	C- Hastelloy C-276 P- AL6XN Y- Hastelloy C-22	E 1 inch G 1-1/2 inch H 2 inch	9 PBM Series 9, Igenix Sanitary Cast < 2% ferrite	FX Butt weld for Tube (Manifold) X Hygenic Clamp (Valve) FS Butt weld for Tube (Manifold) X Compression End (1" Max. Valve)	Z TFM seats, O-rings (ZS series)
PURGE PORTS (10)	BALL FLATS/PURGE HOLES (11)	MANIFOLD SIZE BY VALVE SIZE OPTIONS (12)	OPERATOR (13-14)	POLISH (15)	LOX CLEANING(16)
- no purge ports required	- no ball flats or ball purge holes required	A Manifold and Valve Same Size	-- with lever handle operator	- No additional polish (30 Ra ID Standard)	L LOX cleaning per PBM procedure
A (1) 1/2" clamp on center, 90 degrees from stem	A ball flats facing downstream in ball-closed position	B 3/4 inch Manifold X 1/2 inch Valve	04 lever handle w/ locking device	A 20 RA ID polish	
B (1) 1/2" clamp on center, opposite stem	B ball flats facing upstream in ball-closed position	C 1 inch Manifold X 1/2 inch Valve	18 4" extended locking lever handle	D 15 RA ID polish	
C (1) 1/2" clamp upstream, 90 degrees from stem	C ball flats facing upstream in ball-open position	D 1 inch Manifold X 3/4 inch Valve	71 2" extended locking lever handle	E 10 RA ID polish	
D (1) 1/2" clamp downstream opposite stem	D ball flats facing downstream in ball-open position	E 1-1/2 inch Manifold X 1/2 inch Valve	20 80 PSIG Double Acting Actuator	F 20 RA ID polish after electropolish	
E (2) 1/2" clamps on center 90 deg from & opposite stem	E ball flats up & downstream in ball-open position	F 1-1/2 inch Manifold X 3/4 inch Valve	21 80 PSIG Double Acting Actuator w/ Nema 4 Limit Switch	G 15 RA ID polish after electropolish	
F (2) 1/2" clamps upstream 90 deg from & downstream opp stem	F ball holes facing downstream in ball-closed position	G 1-1/2 inch Manifold X 1 inch Valve	24 80 PSIG Double Acting Actuator w/ Nema 7 Limit Switch	H 10 RA ID polish after electropolish	
G (1) 1/2" stub on center, 90 degrees from stem	G ball holes facing upstream in ball-closed position	H 2 inch Manifold X 1/2 inch Valve	27 60 PSIG Double Acting Actuator	I 20 RA ID polish after electropolish	
H (1) 1/2" stub on center, opposite stem	H ball holes facing upstream in ball open position	J 2 inch Manifold X 3/4 inch Valve	28 60 PSIG Double Acting Actuator w/ Nema 4 Limit Switch	J 15 RA ID polish after electropolish	
I (1) 1/2" stub upstream, 90 degrees from stem	I ball holes facing downstream in ball open position	K 2 inch Manifold X 1 inch Valve	31 60 PSIG Double Acting Actuator w/ Nema 7 Limit Switch	K 10 RA ID polish after electropolish	
J (1) 1/2" stub downstream opposite stem	J ball holes up & downstream in ball in ball open position	L 2 inch Manifold X 1-1/2 inch Valve	34 80 PSIG Spring Return Actuator	L 15 RA ID polish after electropolish	
K (2) 1/2" stubs on center 90 deg from & opposite stem		M 3 inch Manifold X 1/2 inch Valve	35 80 PSIG Spring Return Actuator w/ Nema 4 Limit Switch		
L (2) 1/2" stubs upstream 90 deg from & downstream opp stem		N 3 inch Manifold X 3/4 inch Valve	38 80 PSIG Spring Return Actuator w/ Nema 7 Limit Switch		
		P 3 inch Manifold X 1 inch Valve	41 60 PSIG Spring Return Actuator		
		Q 3 inch Manifold X 1-1/2 inch Valve	42 60 PSIG Spring Return Actuator w/ Nema 4 Limit Switch		
		R 3 inch Manifold X 2 inch Valve	45 60 PSIG Spring Return Actuator w/ Nema 7 Limit Switch		

CONSULT FACTORY FOR SPECIFIC AUTOMATION OPTIONS
CONSULT FACTORY FOR OTHER CONFIGURATIONS OR OPTIONS