

**Process
Automation**

IMI PBM



Marine & Offshore Valve Solutions

Breakthrough
engineering for
a better world

Valves for Marine and Offshore Applications

IMI PBM ball valves are designed, tested and manufactured in the USA for long service life under arduous conditions - using legacy (cast/forged) and additive methods (LPBF/WAMM) in a variety of materials to meet the most aggressive Marine corrosion environments.

- Air, Ballast, Cooling/Lubrication, and Fire Protection Systems
- Desalination/Drinking/Water Treatment, Injection Water, and Water Flood
- Water, Shipboard, Platform and Pier Transportation Systems
- Fuel, Flare Gas, Mud Transfer, Critical Utility and Process Systems for OSV, FPSO
- Liquid Natural Gas (LNG) Processing Storage and Transfer, Platform, Tankers
- Specialized Vessels and Terminal Facilities
- Laser etched high pressure to low pressure flow directive

Specifications

- Sizes: 1/4" - 6"
- Pressures Class 150 and 300. Higher available.
- -320°F (-200°C) to 400°F (205°C) Cryogenic
- -20°F (-29°C) to 500°F (260°C) Soft Seated
- -20°F (-29°C) to 800°F (427°C) Metal Seated

Materials Non-Ferrous

- Bronze: 836, 922
- 955 and 958 NiAl-Bronze
- 953 and 954 Al-Bronze
- 70/30 and 90/10 CuNi
- Bronze and Copper Nickel valve testing and acceptance criteria IAW MSS-72

Materials Ferrous

- Stainless Steel
- Duplex and Super Duplex Alloys
- High Performance Alloys (i.e. Monel, Hastelloy, Alloy 20, etc.)
- ASME B16.34 and MSS-61 and others as required
- Laser etched high pressure to low pressure flow direction

* COPPER ALLOYS C89833, C8935, AND C87600 HAVE BEEN EVALUATED BY NSF TO NSF/ANSI/CAN 61 FOR USE IN DRINKING WATER SUPPLIES PH OF 6.5 AND ABOVE. DRINKING WATER SUPPLIES THAT ARE LESS THAN PH 6.5 MAY REQUIRE CORROSION CONTROL TO LIMIT LEACHING OF COPPER INTO THE DRINKING WATER

Approvals

- ABS Type Approval
- BV Type Approval
- DNV-GL Type Approval
- LR Type Approval
- API 607 Fire Test Qualified
- API 6D (certification per order)
- API 622 Low-E Packing
- API 641 Fugitive Emission
- CE
- CRN Registrations
- EU Pressure Equipment Directive (PED)
- ISO 9001
- NACE - MR 0175
- NSF-61* / ANSI-372
- USCG Category A



Cryogenic and LNG Valve Solutions

IMI PBM Cryogenic Valves have a unique design that provides superior performance through cooling and heating cycles. Our valves are designed for liquified natural gas production, purification, transportation and storage.

Safety is #1

Our Cryogenic Valves are designed to B16.34, tested to API 607 and meet leakage criteria per MSS SP-134.

They are capable of operating with the stem oriented as low as 45° above the horizontal plane.

- Sizes ½" to 6"
- Temperatures from 400°F (205°C) to -423°F (-253°C). Lower than -320°F, please consult factory.
- Pressures to 1440 psi CWP / 49.6 bar (ANSI Class 600) (Above 1440 psi / CWP available)
- V-TEFT™ seats/graphite seals, internal and external grounding
- Optional API-622 Low-E Packing (cannot be LOX cleaned)
- Cleaned for oxygen service
- Meets European PED and ATEX standards
- Locking lever handle, optional oval locking handwheel, or manual gear operator

Keyed Ball and Stem for Maintenance Safety

Keyed connection ensures proper assembly orientation ball, stem and flow direction alignment determined by external visual.

Vented Ball for Safety

Prevents liquid from being trapped inside the cavity; positioned to high pressure side of the valve to equalize pressure in ball cavity.

Extended Socket Weld Ends (Optional)

- Welding without disassembly
- Save fabrication time and money
- Minimize fabrication errors
- Maintain factory warranty

Live Loaded Packing for Reliable Stem Sealing

Packing materials: V-TEFT™ and graphite

Adjustable Belleville/Spring washers ensure proper loading of stem packing through temperature/pressure cycles, and normal wear to prevent leakage.

Proprietary Seat Gasketing

Spring energized seat-back seal applies pressure to both upstream/downstream seats during low pressure usage and temperature fluctuations to ensure a tight seal.



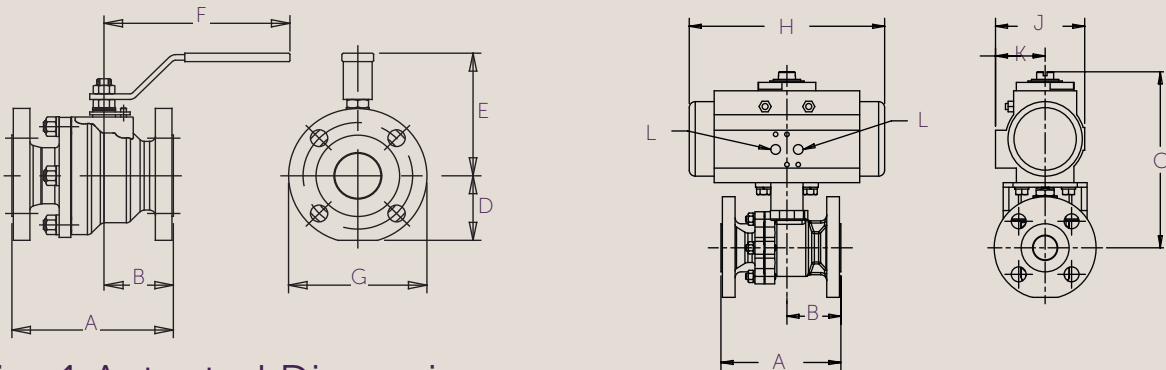
AN Series 1 - Class 150 Manual Dimensions

AN Series seawater valves are two piece valves with two flanged end fittings and meet ANSI B16.10 long pattern face to face dimensions. In addition, encapsulated seats facilitate performance in high-velocity applications and support the seats in elevated temperature applications.

Valve Size		I.D. Port Dia.		A		B		D		E		F		G		~ Weight lbs	
				Overall Length		C _L to Face End		C _L to Bottom of Flange		C _L to Top of Handle		Handle Length from C _L		Flange Dia.			
		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
½"	DN15	0.62	15.7	4.25	108.0	1.84	46.7	1.62	41.1	3.07	78.0	6.09	154.7	3.50	88.9	6	2.7
¾"	DN20	0.81	20.6	4.62	117.3	2.01	51.1	1.88	47.8	3.14	79.8	6.09	154.7	3.88	98.6	9	4.1
1"	DN25	1.00	25.4	5.00	127.0	2.20	55.9	2.06	52.3	3.80	96.5	6.09	154.7	4.25	108.0	10	4.5
1½"	DN40	1.50	38.1	6.50	165.1	2.78	70.6	2.38	60.5	5.25	133.4	8.06	204.7	5.00	127.0	20	9.1
2"	DN50	2.00	50.8	7.00	177.8	2.99	75.9	2.88	73.2	5.56	141.2	8.06	204.7	6.00	152.4	24	10.9
3"	DN80	3.00	76.2	8.00	203.2	3.62	91.9	3.75	95.3	7.08	179.8	12.06	306.3	7.50	190.5	55	24.9
4"	DN100	4.00	101.6	9.00	228.6	3.84	97.5	4.50	114.3	9.16	232.7	14.06	357.1	9.00	228.6	100	45.4
6"	DN150	6.07	154.2	15.50	393.7	7.33	186.2	6.98	177.3	CF ⁵	CF ⁵	CF ⁵	CF ⁵	11.00	279.4	310	140.6

NOTES

1. Standard product is 316 Stainless Steel. Carbon Steel, Bronze and other materials are available upon request. Consult IMI PBM.
2. Dimensions meet ASME Standard B16.10 long pattern.
3. Stainless Steel valves and Carbon Steel valves have raised face flanges, but are also available with flat faced flanges. Bronze valves have flat face flanges only.
4. Drawings are for illustration purposes only. Consult IMI PBM prior to any fabrication or installation work.
5. A gear operator is recommended for valves 6" and larger. Consult IMI PBM.
6. Dimensions are for ANSI Class 150 valves. Consult IMI PBM for Class 300.



AN Series 1 Actuated Dimensions

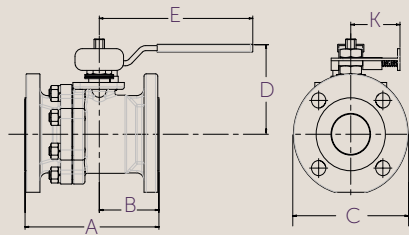
RTFE OR UHMWPE SEAT MATERIAL													
Valve Size		Actuator	Air Pressure		C		H		J		K		L
			psig	barg	in	mm	in	mm	in	mm	in	mm	NPT
½"	DN15	Double Acting	60, 80	4.1/5.5	6.30	160.1	5.55	141.0	2.80	71.1	1.61	40.9	⅛
		Spring Return	60, 80	4.1/5.5	6.75	171.6	6.46	164.1	3.17	80.5	1.77	45.0	⅛
¾"	DN20	Double Acting	60, 80	4.1/5.5	6.41	162.8	5.55	141.0	2.80	71.1	1.61	40.9	⅛
		Spring Return	80	5.5	6.86	174.2	6.46	164.1	3.17	80.5	1.77	45.0	⅛
		Spring Return	60	4.1	7.57	192.3	8.27	210.1	3.72	94.5	2.07	52.6	⅛
1"	DN25	Double Acting	60, 80	4.1/5.5	7.64	194.1	5.55	141.0	2.80	71.1	1.61	40.9	⅛
		Spring Return	80	5.5	8.80	223.5	8.27	210.1	3.72	94.5	2.07	52.6	⅛
		Spring Return	60	4.1	9.35	237.5	9.47	240.5	4.17	105.9	2.30	58.4	⅛
1½"	DN40	Double Acting	60, 80	4.1/5.5	8.97	227.9	8.27	210.1	3.72	94.5	2.07	52.6	⅛
		Spring Return	80	5.5	10.02	254.6	10.83	275.1	4.84	122.9	2.68	68.1	¼
		Spring Return	60	4.1	11.38	289.1	13.11	333.0	5.39	136.9	2.87	72.9	¼
2"	DN50	Double Acting	60, 80	4.1/5.5	9.28	235.7	8.27	210.1	3.72	94.5	2.07	52.6	⅛
		Spring Return	80	5.5	10.33	262.3	10.83	275.1	4.84	122.9	2.68	68.1	¼
		Spring Return	60	4.1	11.69	296.9	13.11	333.0	5.39	136.9	2.87	72.9	¼
3"	DN80	Double Acting	60, 80	4.1/5.5	12.13	308.1	13.11	333.0	5.39	136.9	2.87	72.9	¼
		Spring Return	80	5.5	12.61	320.3	14.65	372.1	5.83	148.1	3.15	80.0	¼
		Spring Return	60	4.1	13.50	342.9	17.13	435.1	6.46	164.1	3.44	87.4	¼
4"	DN100	Double Acting	80	5.5	17.26	438.4	13.11	333.0	5.39	136.9	2.87	72.9	¼
		Double Acting	60	4.1	17.74	450.6	14.65	372.1	5.83	148.1	3.15	80.0	¼
		Spring Return	80	5.5	19.57	497.1	19.69	500.1	7.32	185.9	3.90	99.1	¼
		Spring Return	60	4.1	21.82	554.2	22.78	578.6	8.54	216.9	4.29	109.0	¼
6"	DN150	Double Acting	60, 80	4.1/5.5	21.54	547.1	19.69	500.1	7.32	185.9	3.90	99.1	¼
		Spring Return	80	5.5	23.79	604.3	22.78	578.6	8.54	216.9	4.29	109.0	¼
		Spring Return	60	4.1	28.55	725.2	26.46	672.1	11.42	290.1	5.71	145.0	¼

AN Series 5 (Stainless Steel and Carbon)

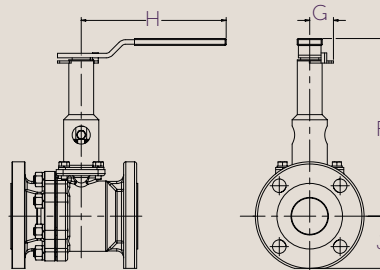
AN Series seawater valves are two piece valves with two flanged end fittings and meet ANSI B16.10 long pattern face-to-face dimensions. In addition, encapsulated seats facilitate performance in high-velocity applications and support the seats in elevated temperature applications.

Valve Size		Units	Port Dia.	A		B		C		D	E	J		Ext. Locking Handle			Locking Handle	
				Overall Length		CL to End		Flange Dia.		CL to Top of Handle	Handle Length from CL	CL to bottom		F	G	H	K	Hole Dia. for Lock
				150#	300#	150#	300#	150#	300#			150#	300#					
1/2"	DN15	inch	0.50	4.25	5.50	1.85	2.52	3.50	3.75	2.66	4.15	1.62	1.75	7.19	1.00	5.09	1.62	0.25
		mm	12.7	108.0	139.7	47.0	64.0	88.9	95.3	67.6	105.4	41.1	44.5	182.6	25.4	129.3	41.1	6.4
3/4"	DN20	inch	0.75	4.62	6.00	2.12	2.90	3.88	4.62	2.78	4.15	1.80	2.15	7.34	1.00	5.09	1.62	0.25
		mm	19.1	117.3	152.4	53.8	73.7	98.6	117.3	70.6	105.4	45.7	54.6	186.4	25.4	129.3	41.1	6.4
1"	DN25	inch	1.00	5.00	6.50	2.25	3.15	4.25	4.88	3.09	5.06	2.06	2.38	7.63	1.00	5.09	2.08	0.28
		mm	25.4	127.0	165.1	57.2	80.0	108.0	124.0	78.5	128.5	52.3	60.5	193.8	25.4	129.3	52.8	7.1
1 1/2"	DN40	inch	1.50	6.50	7.50	2.68	3.18	5.00	6.12	4.16	8.03	2.38	3.00	9.50	1.31	8.00	2.58	0.38
		mm	38.1	165.1	190.5	68.1	80.8	127.0	155.4	105.7	204.0	60.5	76.2	241.3	33.3	203.2	65.5	9.7
2"	DN50	inch	2.00	7.00	8.50	3.12	3.84	6.00	6.50	4.46	8.03	2.88	3.12	9.81	1.31	8.00	2.58	0.38
		mm	50.8	177.8	215.9	79.2	97.5	152.4	165.1	113.3	204.0	73.2	79.2	249.2	33.3	203.2	65.5	9.7
3"	DN80	inch	3.00	8.00	11.12	3.57	5.19	7.50	8.25	7.00	12.06	3.50	4.00	11.69	1.50	12.06	3.47	0.38
		mm	76.2	203.2	282.4	90.7	131.8	190.5	209.6	177.8	306.3	88.9	101.6	296.9	38.1	306.3	88.1	9.7
4"	DN100	inch	4.00	9.00	12.00	3.84	5.34	9.00	10.00	7.39	24.06	4.38	4.75	13.03	3.50	24.06	N/A	N/A
		mm	101.6	228.6	304.8	97.5	135.6	228.6	254.0	187.7	611.1	111.3	120.7	331.0	88.9	611.1	N/A	N/A

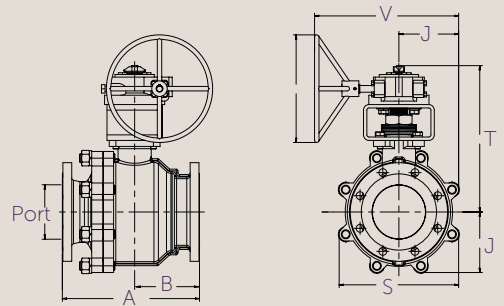
ANSI Valve with Locking Handle



ANSI Valve with Ext. Locking Handle



ANSI Valve with Gear Operator



TN Series 5 Class 150 (Bronze, Aluminum Bronze, Stainless, Duplex and Carbon)

TN adds a trunnion to an AN Series valve

Valve Size		Units	Port Dia.	A		B		C		J		S		T	U	V	
				Overall Length		CL to End		Flange Dia.		CL to bottom		Body Width		CL to Top of Gear Op	Handwheel Dia.	OAL Width	
				150#	300#	150#	300#	150#	300#	150#	300#	150#	300#			150#	300#
6"	DN150	inch	6.00	15.50	15.88	7.33	7.70	11.00	12.50	6.75	7.72	13.50	15.53	16.32	12.00	16.28	17.25
		mm	152.4	393.7	403.4	186.2	195.6	279.4	317.5	171.5	196.1	342.9	394.5	414.5	304.8	413.5	438.2
8"	DN200	inch	8.00	18.00	19.75	8.56	9.51	13.50	15.00	8.37	9.38	17.72	18.75	CF	CF	CF	CF
		mm	203.2	457.2	501.7	217.4	241.6	342.9	381.0	212.6	238.3	450.1	476.3	CF	CF	CF	CF
10"	DN250	inch	10.00	21.00	22.38	10.07	CF	16.00	17.50	10.75	CF	21.50	CF	CF	CF	CF	CF
		mm	254.0	533.4	568.5	255.8	CF	406.4	444.5	273.1	CF	546.1	CF	CF	CF	CF	CF
12"	DN300	inch	12.00	24.00	25.50	12.00	CF	19.00	20.50	12.00	CF	24.00	CF	CF	CF	CF	CF
		mm	304.8	609.6	647.7	304.8	CF	482.6	520.7	304.8	CF	609.6	CF	CF	CF	CF	CF



AN Series 5
Bronze ANSI Valve
Prepped for Actuation



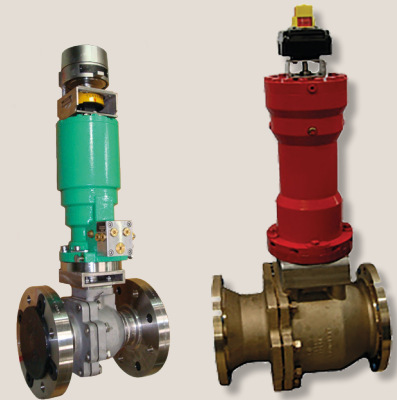
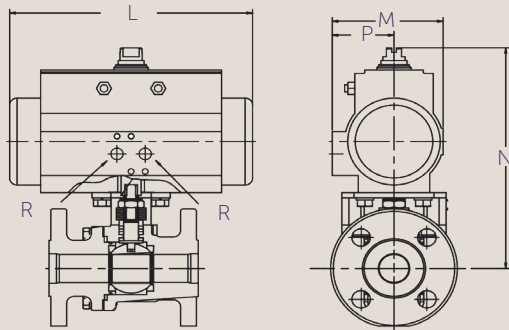
AN Series 5
Stainless Steel
ANSI Valve

AN & TN Series 5 Actuated

Valve Size	Units	Units	80 PSI Double Acting					60 PSI Double Acting					80 PSI Spring Return					60 PSI Spring Return				
			L	M	N	P	R	L	M	N	P	R	L	M	N	P	R	L	M	N	P	R
½"	DN15	inch	5.55	2.80	5.84	1.61	⅛	5.55	2.80	5.84	1.61	⅛	5.55	2.80	5.84	1.61	⅛	6.38	2.80	6.29	1.77	⅛
		mm	141.0	71.1	148.3	40.9		141.0	71.1	148.3	40.9		141.0	71.1	148.3	40.9		162.1	71.1	159.8	45.0	
¾"	DN20	inch	5.55	2.80	5.99	1.61	⅛	5.55	2.80	5.99	1.61	⅛	6.38	3.17	6.44	1.77	⅛	6.38	3.17	6.44	1.77	⅛
		mm	141.0	71.1	152.1	40.9		141.0	71.1	152.1	40.9		162.1	80.5	163.6	45.0		162.1	80.5	163.6	45.0	
1"	DN25	inch	5.55	2.80	6.71	1.61	⅛	5.55	2.80	6.71	1.61	⅛	8.27	3.72	7.87	2.07	⅛	8.27	3.72	7.87	2.07	⅛
		mm	141.0	71.1	170.4	40.9		141.0	71.1	170.4	40.9		210.1	94.5	199.9	52.6		210.1	94.5	199.9	52.6	
1½"	DN40	inch	6.46	3.17	8.44	1.77	⅛	8.27	3.72	9.15	2.07	⅛	10.83	4.84	10.20	2.68	¼	10.83	4.84	10.20	2.68	¼
		mm	164.1	80.5	214.4	45.0		210.1	94.5	232.4	52.6		275.1	122.9	259.1	68.1		275.1	122.9	259.1	68.1	
2"	DN50	inch	8.27	3.72	9.46	2.07	⅛	8.27	3.72	9.46	2.07	⅛	10.83	4.84	10.51	2.68	¼	13.11	5.39	11.87	2.87	¼
		mm	210.1	94.5	240.3	52.6		210.1	94.5	240.3	52.6		275.1	122.9	267.0	68.1		333.0	136.9	301.5	72.9	
3"	DN80	inch	13.11	5.39	13.81	2.87	¼	13.11	5.39	13.81	2.87	¼	14.65	5.83	14.29	3.15	¼	17.13	6.46	15.18	3.44	¼
		mm	333.0	136.9	350.8	72.9		333.0	136.9	350.8	72.9		372.1	148.1	363.0	80.0		435.1	164.1	385.6	87.4	
4"	DN100	inch	17.13	6.46	17.34	3.44	¼	17.13	6.46	17.34	3.44	¼	19.69	7.32	18.28	3.94	¼	19.69	7.32	18.28	3.94	¼
		mm	435.1	164.1	440.4	87.4		435.1	164.1	440.4	87.4		500.1	185.9	464.3	100.1		500.1	185.9	464.3	100.1	
6"	DN150	inch	22.78	8.54	24.11	4.29	¼	22.78	8.54	24.11	4.29	¼	22.78	8.54	24.11	4.29	¼	26.46	11.42	28.87	5.71	¼
		mm	578.6	216.9	612.4	109.0		578.6	216.9	612.4	109.0		578.6	216.9	612.4	109.0		672.1	290.1	733.3	145.0	

NOTES

1. Dimensions meet ASME Standard B16.10 long pattern.
2. Stainless Steel valves and Carbon Steel valves have raised face flanges, but are also available with flat faced flanges. Bronze valves have flat face flanges only.
3. Drawings are for illustration purposes only. Consult IMI PBM prior to any fabrication or installation work.
4. A Gear Operator is recommended for valves 6" and larger. Consult IMI PBM.
5. Dimensions are for ANSI Class 150 valves. Consult IMI PBM for Class 300.
6. Trunnion mounted (TN) available for larger line sizes and pressure classifications. Consult IMI PBM.



SP Series Bronze 2-Way Valve Comparison

		VALVE WEIGHT								FACE-TO-FACE DIMENSIONS							
		SERIES 1				SERIES 5				SERIES 1				SERIES 5			
Standard Body/End Material		836 Bronze (B62, C83600)				922 Bronze (B61, C92200)				836 Bronze (B62, C83600)				922 Bronze (B61, C92200)			
Std. Trim Material		316 Stainless Steel				316 Stainless Steel				316 Stainless Steel				316 Stainless Steel			
Standard Seat/Seal Material		Standard RTFE (Glass Filled Teflon) Opt: V-TEF™				V-TEF™				Standard RTFE (Glass Filled Teflon) Opt: V-TEF™				V-TEF™			
Swing Out Design		No				Yes				No				Yes			
Body Bolt Patterns		Non-Symmetric on ½" to 1" and 3" sizes				Symmetric patterns on all sizes (4 bolts up to 3", 8 bolts on 4")				Non-Symmetric on ½" to 1" and 3" sizes				Symmetric patterns on all sizes (4 bolts up to 3", 8 bolts on 4")			
Actuator Mounting		Standard (except 1¼")				Standard				Standard (except 1¼")				Standard			
End Connections		FNPT, Sil-Braze, SW, Solder Joint		Class 150 F.F. Flange		FNPT, Sil-Braze, SW, Solder Joint		Class 150 F.F. Flange		FNPT, Sil-Braze, SW, Solder Joint		Class 150 F.F. Flange		FNPT, Sil-Braze, SW, Solder Joint		Class 150 F.F. Flange	
Valve Size		lb	kg	lb	kg	lb	kg	lb	kg	in	mm	in	mm	in	mm	in	mm
½"	DN15	2	0.9	5	2.3	2	0.9	4	2.0	3.12	79.2	5.38	136.7	3.12	79.2	5.51	140.0
¾"	DN20	3	1.4	6	2.7	2	1.1	5	2.4	3.45	87.6	5.75	146.1	3.45	87.6	5.75	146.1
1"	DN25	4	1.8	9	4.1	5	2.4	9	3.9	3.90	99.1	6.30	160.0	4.25	108.0	6.50	165.1
1¼"	DN32	8	3.6	15	6.8	12	5.3	16	7.4	4.54	115.3	7.26	184.4	5.50	139.7	8.00	203.2
1½"	DN40	10	4.5	17	7.7	13	5.9	18	8.2	5.36	136.1	6.98	177.3	5.50	139.7	8.00	203.2
2"	DN50	13	5.9	25	11.3	17	7.8	25	11.3	5.75	146.1	8.43	214.1	6.00	152.4	9.76	247.9
2½"	DN65	33	15.0	52	23.6	37	16.6	53	24.0	8.36	212.3	10.86	275.8	8.00	203.2	11.50	292.1
3"	DN80	49	22.2	77	34.9	52***	23.6	68***	30.8	8.62	218.9	12.04	305.8	9.00	228.6	12.76	324.1
4"	DN100	84	38.1	115	52.2	118***	53.5	136***	61.7	10.46	265.7	12.90	327.7	12.00	304.8	15.00	381.0

*Series 1 3" valves have Port I.D. of 2.75". **Series 1 4" valves have Port I.D. of 3.5". ***Series 5 valves are full port (3" and 4" respectively).

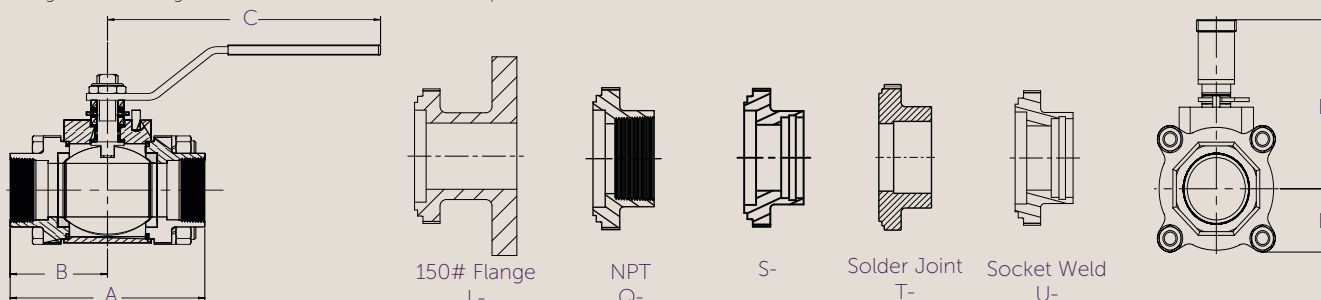
SP Series 1 (836 Bronze)

SP Series 1 seawater valves are three piece valves available in female NPT, socket-weld (for pipe), sil-braze (for pipe) and Class 150 flanged end fittings.

Valve Size		Port Diameter		A				B				C		D		E				~Weight			
				Face to Face				℄ to Face				Handle Length from ℄		℄ to Top of Handle		℄ to Bottom							
				Q- T-	S- U-	L-		Q- T-	S- U-	L-						Q- T-	S- U-	L-		Q- T-	S- U-	L-	
				in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
¼"	DN8	0.62	15.7	3.12	79.2	-	-	1.56	39.6	-	-	6.09	154.7	3.03	77.0	1.34	34.0	-	-	2	0.9	-	-
⅜"	DN10	0.62	15.7	3.12	79.2	-	-	1.56	39.6	-	-	6.09	154.7	3.03	77.0	1.34	34.0	-	-	2	0.9	-	-
½"	DN15	0.62	15.7	3.12	79.2	5.38	136.7	1.56	39.6	2.69	68.3	6.09	154.7	3.03	77.0	1.34	34.0	1.75	44.5	2	0.9	5	2.3
¾"	DN20	0.81	20.6	3.45	87.6	5.75	146.1	1.72	43.7	2.88	73.2	6.09	154.7	3.15	80.0	1.47	37.3	1.94	49.3	3	1.4	6	2.7
1"	DN25	1.00	25.4	3.90	99.1	6.30	160.0	1.95	49.5	3.15	80.0	6.09	154.7	3.53	89.7	1.69	42.9	2.13	54.1	4	1.8	9	4.1
1¼"	DN32	1.25	31.8	4.54	115.3	7.26	184.4	2.27	57.7	3.63	92.2	8.06	204.7	4.90	124.5	1.57	39.9	2.31	58.7	8	3.6	15	6.8
1½"	DN40	1.50	38.1	5.36	136.1	6.98	177.3	2.68	68.1	3.49	88.6	8.06	204.7	5.08	129.0	1.71	43.4	2.50	63.5	10	4.5	17	7.7
2"	DN50	2.00	50.8	5.75	146.1	8.43	214.1	2.87	72.9	4.21	106.9	8.06	204.7	5.45	138.4	2.03	51.6	3.00	76.2	13	5.9	25	11.3
2½"	DN65	2.50	63.5	8.36	212.3	10.86	275.8	4.18	106.9	5.42	137.7	12.06	306.3	5.50	139.7	2.81	71.4	3.50	88.9	33	15.0	52	23.6
3"	DN80	2.75	69.9	8.62	218.9	12.04	305.8	4.31	109.5	6.02	152.9	12.06	306.3	6.82	173.2	3.88	98.6	3.88	98.6	49	22.2	77	34.9
4"	DN100	3.50	88.9	10.46	265.7	12.90	327.7	5.23	132.8	6.45	163.8	12.06	306.3	7.32	185.9	4.50	114.3	4.50	114.3	84	38.1	115	52.2

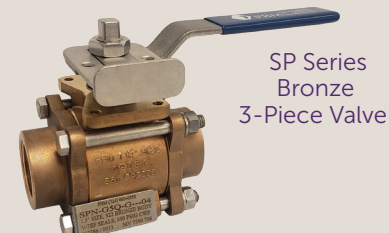
NOTES

1. SP Series valves with Class 150 flanges are three piece valves that do not meet ANSI face-to-face dimensions.. Use AN Series two piece flanged valves if ANSI face-to-face dimensions are required.
2. Consult IMI PBM for actuator mounting dimensions.
3. For flanged valves, flange holes straddle the center line except for the SP Series 1 - 1 1/2" valves.



SP Series 5 (922 Bronze)

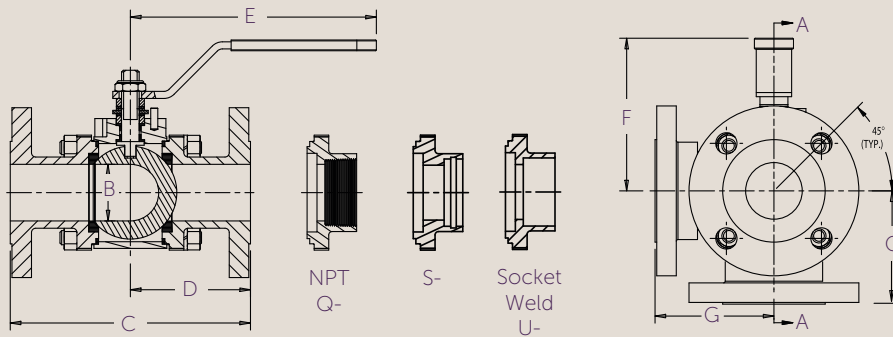
Valve Size		Port Diameter		A				B				C		D		E				~Weight			
				Face-to-Face				Q _L to Face				Handle Length from Q _L		Q _L to Top of Handle		Q _L to Bottom							
				Q- T-	S- U-	L-		Q- T-	S- U-	L-						Q- T-	S- U-	L-		Q- T-	S- U-	L-	
				in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
½"	DN15	0.50	12.7	3.12	79.2	5.51	140.0	1.56	39.6	2.76	70.1	4.15	105.4	2.63	66.8	0.92	23.4	1.75	44.5	2	0.9	4	2.0
¾"	DN20	0.75	19.1	3.45	87.6	5.75	146.1	1.73	43.9	2.88	73.2	4.15	105.4	2.79	70.9	1.00	25.4	1.94	49.3	2	1.1	5	2.4
1"	DN25	1.00	25.4	4.25	108.0	6.50	165.1	2.13	54.1	3.25	82.6	5.09	129.3	3.06	77.7	1.33	33.8	2.13	54.1	5	2.4	9	3.9
1¼"	DN32	1.37	34.8	5.50	139.7	8.00	203.2	2.75	69.9	4.00	101.6	8.03	204.0	4.38	111.3	1.78	45.2	2.32	58.9	12	5.3	16	7.4
1½"	DN40	1.50	38.1	5.50	139.7	8.00	203.2	2.75	69.9	4.00	101.6	8.03	204.0	4.38	111.3	1.78	45.2	2.50	63.5	13	5.9	18	8.2
2"	DN50	2.00	50.8	6.00	152.4	9.76	247.9	3.00	76.2	4.88	124.0	8.06	204.7	4.69	119.1	2.15	54.6	3.00	76.2	17	7.8	25	11.3
2½"	DN65	2.50	63.5	8.00	203.2	11.50	292.1	4.00	101.6	5.75	146.1	12.06	306.3	6.51	165.4	2.79	70.9	3.50	88.9	37	16.6	53	24.0
3"	DN80	3.00	76.2	9.00	228.6	12.76	324.1	4.50	114.3	6.38	162.1	12.06	306.3	6.85	174.0	3.14	79.8	3.75	95.3	52	23.6	68	30.8
4"	DN100	4.00	101.6	12.00	304.8	15.00	381.0	6.00	152.4	7.50	190.5	24.06	611.1	9.0	228.6	4.91	124.7	4.91	124.7	118	53.5	136	61.7



DP Series 1 Dimensional Data (836 Bronze)

Diverter Port Valves with Female NPT (Q-), Sil-Braze (S-), Socket Weld (U-) and Class 150 Flanged (L-) End Fittings.

Valve Size		B		C				D				G				E		F		150# Flange Diam.		~ Weight			
		Ball Port		Face-to-Face				CL to End				CL to Bottom or Side				Handle Length from CL		CL to Top of Handle				Q-S-U-		L-	
Size		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg	lb	kg
½"	DN15	0.62	15.7	3.12	79.2	-	-	1.56	39.6	-	-	2.50	63.5	-	-	6.09	154.7	3.03	77.0	3.50	88.9	2	0.9	-	-
¾"	DN20	0.81	20.6	3.77	95.8	-	-	1.89	48.0	-	-	2.50	63.5	-	-	6.09	154.7	3.03	77.0	2.38	60.5	3	1.4	-	-
1"	DN25	1.00	25.4	3.90	99.1	6.28	159.5	1.95	49.5	3.14	79.8	2.44	62.0	3.16	80.3	6.09	154.7	3.53	89.7	4.25	108.0	5	2.3	10	4.5
1½"	DN40	1.50	38.1	5.36	136.1	7.00	177.8	2.68	68.1	3.50	88.9	3.38	85.9	3.50	88.9	8.06	204.7	5.05	128.3	5.00	127.0	12	5.4	23	10.4
2"	DN50	2.00	50.8	5.75	146.1	8.40	213.4	2.86	72.6	4.20	106.7	3.25	82.6	4.20	106.7	8.06	204.7	5.42	137.7	6.00	152.4	15	6.8	30	13.6
3"	DN80	2.75	69.9	8.62	218.9	11.87	301.5	4.31	109.5	5.93	150.6	5.12	130.0	6.00	152.4	12.44	316.0	6.82	173.2	7.50	190.5	49	22.2	93	42.2
4"	DN100	3.50	88.9	-	-	12.91	327.9	-	-	6.45	163.8	-	-	6.44	163.6	12.44	316.0	7.21	183.1	9.00	228.6	-	-	120	54.4



MP Series 1 Dimensional Data (836 Bronze)

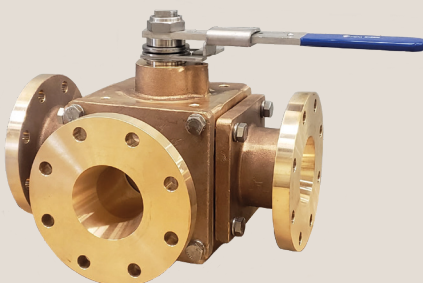
Multi-Port Valves with Female NPT (Q-), Sil-Braze (S-), Socket Weld (U-) and Class 150 Flanged (L-) End Fittings.

Valve Size		B		C				D, G				E		F		~ Weight			
				Face-to-Face				℄ to Face				Handle Length from ℄		℄ to Top of Handle					
		Q-S-U-		L-		Q-S-U-		L-		Q-S-U-						L-			
		in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg	lb	kg
½"	DN15	0.62	15.7	4.00	101.6	-	-	2.00	50.8	-	-	6.09	154.7	3.83	97.3	8	3.6	-	-
¾"	DN20	0.75	19.1	4.00	101.6	-	-	2.00	50.8	-	-	6.09	154.7	3.83	97.3	12	5.4	-	-
1"	DN25	1.00	25.4	4.72	119.9	7.24	183.9	2.36	59.9	3.62	91.9	8.06	204.7	4.99	126.7	12	5.4	19	8.6
1½"	DN40	1.50	38.1	6.56	166.6	10.56	268.2	3.28	83.3	5.28	134.1	12.44	316.0	5.42	137.7	33	15.0	46	20.9
2"	DN50	2.00	50.8	7.76	197.1	11.94	303.3	3.88	98.6	5.97	151.6	12.06	306.3	5.86	148.8	52	23.6	72	32.7
3"	DN80	2.75	69.9	11.06	280.9	14.56	369.8	5.53	140.5	7.28	184.9	12.06	306.3	6.82	173.2	81	36.7	119	54.0
4"	DN100	3.00	76.2	-	-	17.00	431.8	-	-	8.50	215.9	14.06	357.1	8.75	222.3	-	-	250	113.4

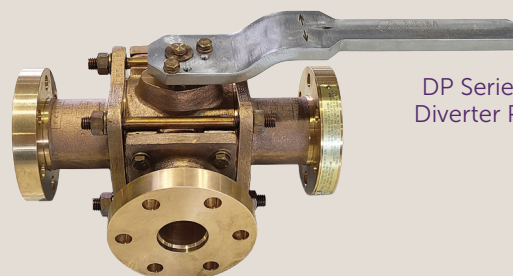
NOTES

1. Male NPT, Solder Joint, Camlock and Grooved end fittings are also available.
2. Other flanged end fittings are available upon request.
3. ½" through 1" valves have three bolts, ¾" valves have four bolts, 1¼" through 2" valves have four bolts, 3" through 4" valves have eight bolts.
4. Flange holes straddle the centerline except for Series 1 - 1½" size.
5. Drawings are for illustration purposes only. Consult IMI PBM prior to any fabrication or installation work.
6. Using a welded connection on the common port of a DP or MP valve may complicate maintenance. Provisions must be made to allow removal of end fittings and body from the line.

MP Series
Bronze 3-Way
Flanged Valve



DP Series Bronze
Diverter Port Valve



Torque Charts

Valve Style/ Series	Valve Size	As Built Torque		Minimum Actuator Sizing vs. Differential Pressure Across Seats																				
				0 psig	0 barg	100 psig	6.9 barg	200 psig	13.8 barg	300 psig	20.7 barg	400 psig	27.6 barg	500 psig	34.5 barg	600 psig	41.4 barg	700 psig	48.3 barg					
		in (lb)	N-m	in (lb)	N-m	in (lb)	N-m	in (lb)	N-m	in (lb)	N-m	in (lb)	N-m	in (lb)	N-m	in (lb)	N-m	in (lb)	N-m					
All Series 5 & 6 2-Way & 3-Way	½"	32	3.6	64	7.2	64	7.2	64	7.2	64	7.2	64	7.2	64	7.2	64	7.2	64	7.2					
	¾"	40	4.5	80	9.0	80	9.0	80	9.0	80	9.0	80	9.0	96	10.8	112	10.8	128	12.7					
	1"	58	6.6	116	13.1	116	13.1	116	13.1	150	16.9	185	20.9	220	24.9	trun.								
	1½"	154	17.4	308	34.8	308	34.8	440	49.7	580	65.5	715	80.8	trun.	trun.									
	2"	182	20.6	364	41.1	364	41.1	635	71.7	910	102.8	1180	133.3	trun.	trun.									
	2½"	288	32.5	576	65.1	576	65.1	1200	135.6	1600	180.8	trun.												
	3"	430	48.6	860	97.2	860	97.2	1560	176.3	trun.	trun.													
	4"	787	88.9	1570	177.4	2650	299.4	2650	299.4	trun.	trun.													
6"	1920	217.0	3840	433.9	7100	802.3	Use trunnion above 75 psid.																	
AN Series 1 & 3	½"	38	4.3	76	8.6	76	8.6	76	8.6	76	8.6													
	¾"	48	5.4	96	10.8	96	10.8	96	10.8	96	10.8													
	1"	58	6.6	116	13.1	116	13.1	116	13.1	150	16.9													
	1½"	154	17.4	308	34.8	308	34.8	440	49.7	580	65.5													
	2"	182	20.6	365	41.2	365	41.2	635	71.7	910	102.8													
	3"	430	48.6	860	97.2	860	97.2	1560	176.3	2050	231.6													
	4"	787	88.9	1570	177.4	2650	299.4	4300	485.8	6000	677.9													
6"	1920	216.9	3840	433.9	7200	813.5	12000	1355.8	trun.	trun.														
CP Series 6 These are actuals, not sizing.	½"	95	11	95	11	95	11	95	11	95	11	95	11	95	11	101	11	110	12					
	¾"	95	11	95	11	95	11	95	11	95	11	95	11	95	11	101	11	110	12					
	1"	145	16	160	18	160	18	160	18	160	18	170	19	193	22	215	24	238	27					
	1½"	420	47	420	47	420	47	420	47	420	47	477	54	544	61	611	69	677	76					
	2"	540	61	840	95	840	95	840	95	866	98	1013	114	1162	131	1310	148	1458	165					
	3"	1020	115	1320	149	1320	149	1542	174	1984	224	2425	274	2866	324	3307	374	3749	424					
	4"	Consult IMI PBM Engineering																						
MP Series 1	½" & ¾"	77	8.7	144	16.3	144	16.3	144	16.3	144	16.3	144	16.3											
	1"	192	21.7	385	43.5	385	43.5	385	43.5	385	43.5	385	43.5											
	1½"	384	43.4	770	87	770	87	770	87	940	106.2	trun.	trun.											
	2"	432	48.8	865	97.7	865	97.7	865	97.7	1200	135.6	trun.	trun.											
	3"	576	65.1	1150	129.9	1150	129.9	1620	183	2100	135.6													
	4"	864	97.6	1700	192.1	3000	339	trun.	trun.															
SP, DP Series 1	½"	48	5	96	6.6	96	6.6	96	6.6	96	6.6	96	6.6	96	6.6	96	6.6	96	6.6					
	¾"	60	7	120	8.3	120	8.3	120	8.3	120	8.3	120	8.3	120	8.3	136	136	142	9.8					
	1"	72	8.1	144	9.9	144	9.9	144	9.9	144	9.9	179	12.3	220	15.2	trun.	trun.							
	1½"	168	19	336	23.2	336	23.2	440	30.3	580	40.0	715	49.3	trun.										
	2"	192	22	384	26.5	384	25.5	635	43.8	910	62.7	1180	81.4	trun.										
	2½"	300	34	600	41.4	600	41.4	1200	82.7	1600	110.3	trun.												
	3"	420	48	860	59.3	860	59.3	1560	107.6	trun.														
	4"	540	61	1080	74.5	2500	172.4	trun.																

Allowable Working Pressures and Temperatures

Valve Style/ Series	Material	Size	Non-Flanged					
			-20 to 100°F	-28.9 to 37.8°C	300°F	148.9°C	450°F	232.2°C
			psig	barg	psig	barg	psig	barg
SP, DP Series 5	316 SS/316L	1½" (DN40) & smaller	900	62.1	770	53.1	680	46.9
	316 SS/316L	2" & larger	720	49.6	620	42.7	540	37.2
	C-276	All	600	41.4	520	35.9	450	31.0
	Carbon Steel	1½" (DN40) & smaller	900	62.1	770	53.1	680	46.9
	Carbon Steel	2" (DN50) & larger	740	51.0	655	45.2	620	42.7
SP, DP Series 1	316 SS/316L	1½" (DN40) & smaller	900	62.1	770	53.1	680	46.9
	316 SS/316L	2" (DN50)	575	39.6	490	33.8	430	29.6
	316 SS/316L	3" (DN80) & 4" (DN100)	850	58.6	720	49.6	640	44.1
	836/922/LF Bronze	1½" (DN40) & smaller	400	27.6	310	21.4	220	15.2
	836/922/LF Bronze	2" (DN50)	300	20.7	230	15.9	160	11.0
SP Series 6	316 SS/316L	3" (DN80) & smaller	720	49.6	620	42.7	540	37.2
	Carbon Steel	3" (DN80) & smaller	740	51.0	655	45.2	620	42.7
AN, CN All Series	316 SS/316L	All	See Flanged Table at Right.					
	C-276	All						
	Carbon Steel	All						
	Bronze	All						
CP Series 6	316 SS/316L	All	720	49.6	620	42.7	540	37.2
	C-276	All	600	41.4	520	35.9	450	31.0
	922 Bronze	All	600	41.4	600	41.4	580	40.0
MP Series 1	836/922/LF Bronze	1½" (DN40 & smaller)	400	27.6	310	21.4	220	15.2
	836/922/LF Bronze	2" (DN50)	350	24.1	270	18.6	190	13.1
	836/922/LF Bronze	3" (DN80)	300	20.7	230	15.9	160	11.0
	836/922/LF Bronze	4" (DN100)	See Flanged Table at Right					
	Ductile Iron	1½" (DN40)	550	37.9	470	32.4	400	27.6
	Ductile Iron	2" (DN50)	500	34.5	430	29.6	370	25.5
	Ductile Iron	3" (DN80)	450	31.0	380	26.2	330	22.8
	Ductile Iron	4" (DN100)	See Flanged Table at Right					

Valid for all Flanged Valves

ANSI CLASS 150 FLANGE						
Valve Material	-20° to 100°F	-28° to 38°C	300°F	150°C	450°F	232°C
	psig	barg	psig	barg	psig	barg
836 Bronze	225	15.5	180	12.4	135	9.3
Lead-Free Bronze	225	15.5	180	12.4	135	9.3
922 Bronze	225	15.5	195	13.4	160	11.0
955 Bronze	225	15.5	195	13.4	160	11.0
C-276	230	15.9	200	13.8	180	12.4
316/316L S/S	275	19.0	215	14.8	180	12.4
Carbon Steel	285	19.7	230	15.9	185	12.8
Ductile Iron	250	17.2	215	14.8	185	12.8
ANSI CLASS 300 FLANGE						
Valve Material	-20° to 100° F	-28° to 38° C	300° F	150° C	450° F	232° C
	psig	barg	psig	barg	psig	barg
C-276	600	41.4	520	35.9	475	32.8
316/316L S/S	720	49.6	560	38.6	495	34.1
Carbon Steel	740	51.0	655	45.2	620	42.7

Process Automation

IMI PBM

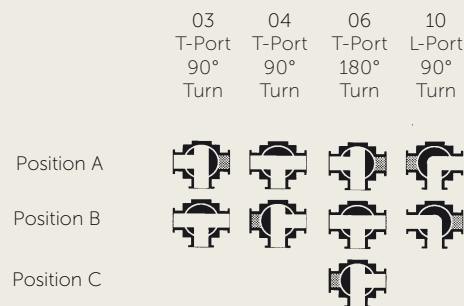
Flow Pattern Diagrams

The IMI PBM Flow Pattern Diagrams show the top view as though you were looking down on the stem. The clear areas indicate the path available for process flow. Shaded areas indicate unused ports for given flow position. Fail position must be selected for spring return actuators only.

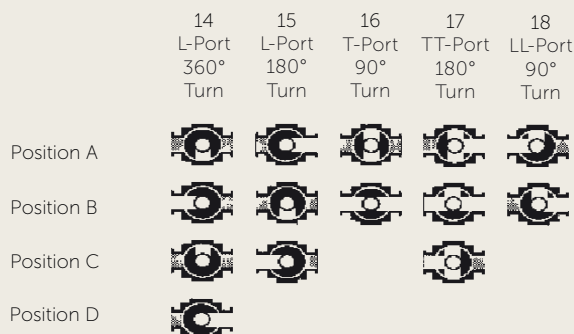
DIVERTER PORT PATTERNS

By specifying a T-Port, Double T-Port (TT), Angle Port (L) or Double Angle Port (LL) Ball, different flow configurations are possible. For example, an IMI PBM DP Valve with a T-Port Ball might be used to control flow to one or two simultaneous operations. The side entry Angle Port Ball and the bottom entry Double Angle Port Ball are ideal for connecting two relief valves to a system. The Double Angle Port Ball diverts flow from one outlet to another outlet 180° away, with only 90° stem rotation. This allows use of 90° double acting or spring return actuation, instead of 180°.

SIDE ENTRY



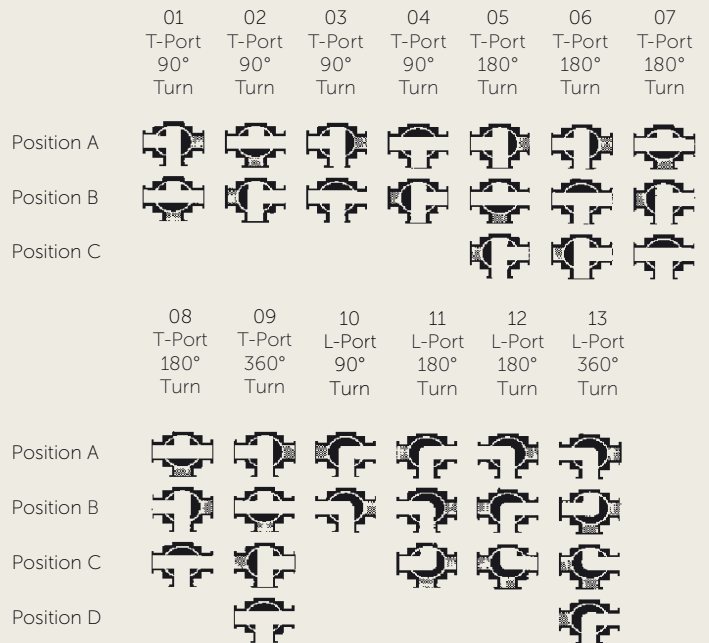
BOTTOM ENTRY



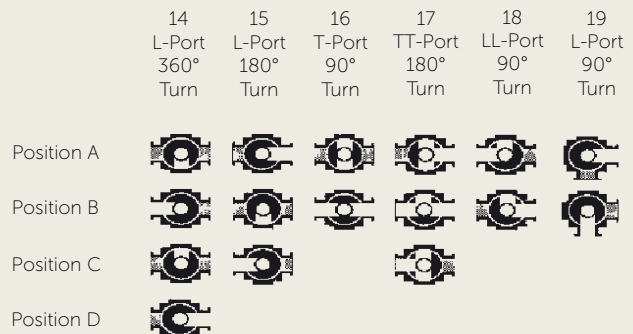
3-WAY MULTI-PORT PATTERNS

3-Way Multi-Port Valves are a popular choice in a variety of industries. A seal at every port distinguishes the IMI PBM 3-Way MP/MI Valve from diverting type valves. In some applications, the 3-Way MP/MI valve can take the place of two or three 2-Way Valves, with corresponding savings in piping and fittings. For applications requiring simultaneous process line changes, two 3-Way MP/MI Valves may be mounted in tandem and controlled with a single actuator or handle for greater control and additional savings. Additional flow patterns are possible by using manifolds of two or more valves.

SIDE ENTRY



BOTTOM ENTRY

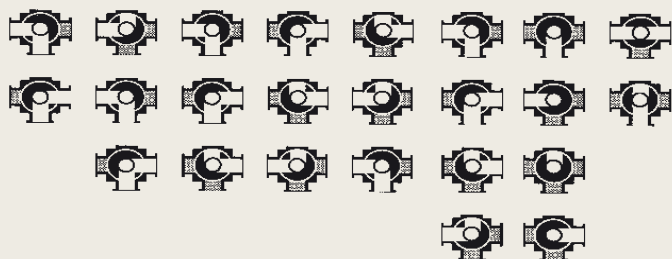


4-WAY MULTI-PORT PATTERNS

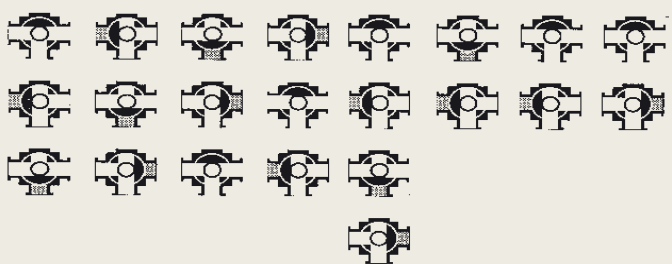
4-Way IMI PBM Multi-Ports are a true Multi-Port Valve with seals at every port. This design makes the IMI PBM 4-Way MP/MI Series ideal for flow switching operations. In some applications, this valve can replace as many as four ordinary 2-Way Valves, with corresponding savings in piping and fittings. The following illustrations show how different ball and port configurations create many flow patterns with a single 4-Way Multi-Port.

BOTTOM ENTRY

20	21	22	23	24	25	26	27
LL-Port	LL-Port	LL-Port	LL-Port	LL-Port	LL-Port	L-Port	T-Port
90°	180°	180°	180°	180°	360°	360°	90°
Turn	Turn	Turn	Turn	Turn	Turn	Turn	Turn



28	29	30	31	32	33	34	35
TT-Port	TT-Port	TT-Port	TT-Port	TT-Port	TT-Port	TT-Port	TT-Port
180°	180°	180°	180°	360°	90°	90°	90°
Turn	Turn	Turn	Turn	Turn	Turn	Turn	Turn



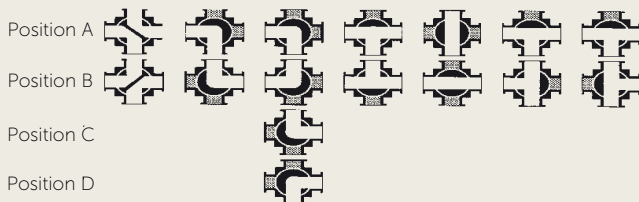
36
TT-Port
90°
Turn



4-WAY MULTI-PORT PATTERNS

SIDE ENTRY

37	38	39	40	41	42	43
LL-Port	L-Port	L-Port	T-Port	Straight	T-Port	T-Port
90°	180°	360°	180°	Port	90°	90°
Turn	Turn	Turn	Turn	90° Turn	Turn	Turn

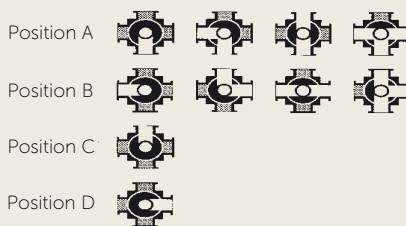


5-WAY MULTI-PORT PATTERNS

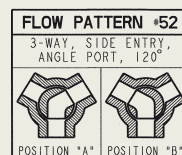
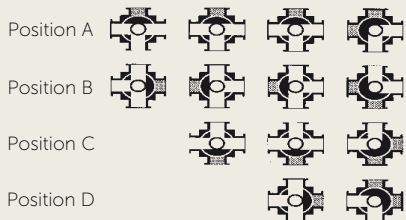
5-Way IMI PBM Multi-Ports are five seated to provide positive shut-off and flow control at each port. This design is not only versatile, but extremely economical. In some applications, this valve can replace as many as four ordinary 2-Way valves, with corresponding savings in piping and fittings. The following illustrations show available flow patterns with a single 5-Way Multi-Port Valve.

BOTTOM ENTRY

44	45	46	47
L-Port	LL-Port	T-Port	TT-Port
360°	180°	90°	90°
Turn	Turn	Turn	Turn



48	49	50	51
TT-Port	TT-Port	TT-Port	LL-Port
90°	180°	360°	360°
Turn	Turn	Turn	Turn



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