

IMI PBM IGENIX® TWO-WAY BALL VALVES

SI Cast Series 9/Forged Series 8, 1/4" - 6"



DESIGN FEATURES:

- Unique Adjust-O-Seal® feature allows in-line valve adjustment to compensate for normal wear on valve seats
- **SI SERIES VALVES DO NOT HAVE O-RINGS**
- Valves are a three-piece "swing-out" body design
- Upstream and downstream bubble-tight sealing capability allows valve body cleaning, purging, and draining
- Stem assembly accommodates IMI PBM Direct Mount Actuation for accurate alignment and increased cycling life
- Forged and cast valves are low-controlled ferrite
- True-Bore® (valve bore same as connecting tubing) – no puddling (Except 1/4" & 3/8")
- ASME BPE compliant
- USP Class VI elastomers and FDA compliant materials
- Valves are rated to full vacuum
- Material Test Report (MTRs) provided for wetted components
- Surface finishes are achieved without the use of ADIs (Animal Derived Ingredients)



SPECIFICATIONS	2-Way Valves
Sizes	1/4" - 6" Series 9, 1/2" - 4" Series 8 (1/4" & 3/8" in Series 8 is Ext. tube only)
Material	Low ferrite cast and forged 316L material. Castings (Series 9) comply with A351, Alloy CF3M and/or A479, Alloy S31603. Forgings (Series 8) comply with A182, Alloy F316L/1.4404 and/or A479, Alloy S31603. Also available are Hastelloy™, AL6XN™, others available
End Connections	Extended tube, hygienic clamp, please refer to PB-CE89 for compression ends, others available
Seats & Seals	White V-TEF™ standard, others available
Stem Packing Material	V-TEF™ and S-TEF®, others available
Body Bolts & Nuts	18-8 Stainless Steel standard, special bolting optional
Maximum Working Pressure	See table below
Temperatures	Up to 450°F depending on seat and seal material
Finish	Standard internal finish of 20 Ra ID Series 8 (SF1), 30 Ra ID Series 9 (SF3), other finishes available

CV Values (gpm), Series 8/Series 9		
Size	End Connections	
	F-	X-
1/4"	1.5	1.9
3/8"	4.4	5.4
1/2"	6.5	8
3/4"	23	28
1"	55	65
1-1/2"	160	193
2"	365	420
2-1/2"	700	800
3"	900	1,040
4"	1,800	2,080
6"	4,200	5,000

ID Surface Finish, Ra Readings for Valves per ASME BPE		
Surface Finish	IMI PBM Polish Code	µ-in.
Mechanical Polish		
SF 1	A	20
SF 2	A	25
SF 3	-	30
Mechanical Polish and Electropolish		
SF 4	G	15
SF 5	F	20

316L S/S Pressure Ratings at Ambient (PSIG)		
SIZE	SERIES 8	SERIES 9
1/4"	600	900
3/8"	600	900
1/2"	600	900
3/4"	600	900
1"	600	900
1-1/2"	600	900
2"	600	720
2-1/2"	600	720
3"	600	720
4"	600	720
6"	N/A	375

Sanitary clamps & gaskets may limit pressure ratings to less than shown above. Foreign regulatory agencies may also limit the pressure ratings above.

How To Order:

PRODUCT (1-2) MATERIAL (3-4)		SIZE (5) SERIES (6)		END CONNECTIONS (7-8)		SEAT & SEAL (9)		PURGE PORT BALL OPTIONS (10-11)		BALL & STEM (12)		OPERATOR (13-14)		POLISH OPTIONS (15)			
SI	HL	Cast (Ser. 9) 316L S/S	A	1/4"	9	F-	Ext. Butt weld for Tube	G	V-TEF™ Seats / Seals	--	No Purge Port or Ball Option	-	Standard Ball and Stem	--	W/ Standard Lever Handle	-	30 Ra ID (Std. Series 9)
	HF	Forged (Ser. 8) 316L S/S	B	3/8"	8	FX	Ext. Butt weld for Tube by Hygienic Clamp	J	V-TEF™ Seats / Seals VTFE Cavity Fillers	-8	Self Flushing Ball	F	Internal / External Grounding	02	W/O Handle W/ Stem Actuator Prep	A	20 Ra ID (Std. Series 8)
		Other material options available - Contact PBM.	C	1/2"		X-	Hygienic Clamp	H	S-TEF® Seats / Seals	-V	Slotted V-Ball	G	17-4PH Stem	04	Locking Lever Handle	D	15 Ra ID
			D	3/4"		G-	Female Cherry Burrell	I	S-TEF® Seats / Seals VTFE Cavity Fillers	-W	30° V-Ball			08	Gear Operator (Req'd for 6")	E	10 Ra ID
			E	1"		H-	Male Cherry Burrell	K	UHMWPE Seats / Seals	-X	45° V-Ball			18	Extended Handle (2-1/2" thru 4")	F	20 Ra ID after Electro Polish
			G	1-1/2"				L	UHMWPE Seats / Seals VTFE Cavity Fillers	-Y	60° V-Ball			20	DA 80psig actuator	G	15 Ra ID after Electro Polish
			H	2"										27	DA 60psig actuator	H	10 Ra ID after Electro Polish
			J	2-1/2"										34	SR 80psig actuator		
			K	3"										41	SR 60psig actuator		
			L	4"													
			M*	6"													

* Not available in forged.

Other seat/seal options available - Contact PBM.

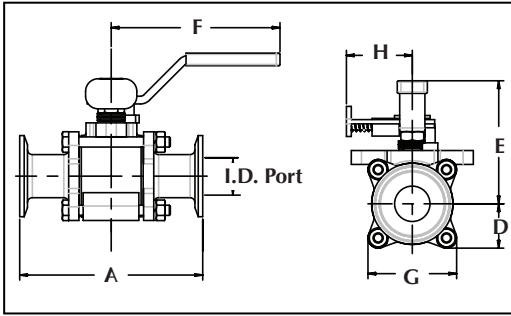
<http://pbmvalve.com/build-a-part-number>

Other operator options available - Contact PBM.

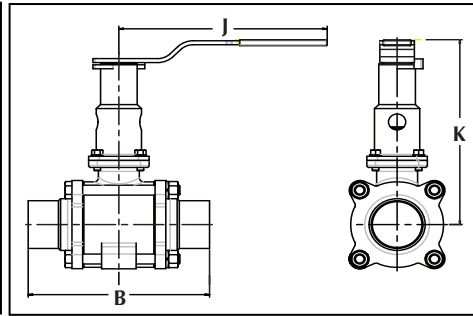
More polish available - Contact PBM.

IMI PBM Igenix® Cast Series 9/Forged Series 8 Manual

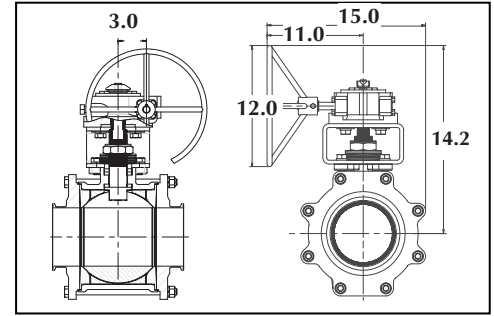
2-Way Valve with Locking Handle



2-Way Valve with Extended Lockable Handle



2-Way Valve with Gear Operator (6" only)

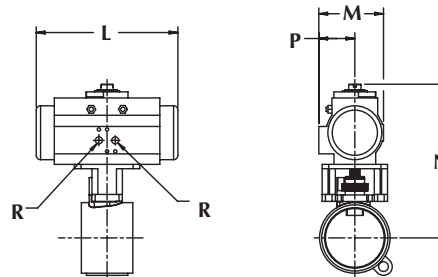


2-Way Sanitary Dimensioned valves in inches										Locking Handle		Ext. Lockable Handle		
Valve Size	Size Code	I.D. Port	A	B	D	E	F	G	Approx. Wgt (lbs)	H	Hole Dia. for Lock	J	K	Hole Dia. for Lock
1/4"	A	0.18	3.50	5.50	0.75	2.05	4.00	1.50	1.10	1.55	0.28	5.09	4.00	0.31
3/8"	B	0.31	3.50	5.50	0.75	2.05	4.00	1.50	1.10	1.55	0.28	5.09	4.00	0.31
1/2"	C	0.37	3.50	5.50	0.75	2.05	4.00	1.50	1.10	1.55	0.28	5.09	4.00	0.31
3/4"	D	0.62	4.00	6.00	0.85	2.23	4.00	1.68	1.40	1.55	0.28	5.09	4.14	0.31
1"	E	0.87	4.50	6.50	1.09	3.01	4.15	2.18	2.70	1.62	0.25	5.09	5.44	0.31
1-1/2"	G	1.37	5.50	7.50	1.68	5.02	8.81	3.31	8.90	2.57	0.38	8.00	7.46	0.31
2"	H	1.87	6.25	8.00	2.15	4.47	8.03	4.30	15.0	2.57	0.38	8.00	7.74	0.31
2-1/2"	J	2.37	8.00	11.50	2.79	6.51	12.06	5.58	36.0	3.47	0.38	12.06	9.36	0.31
3"	K	2.87	8.00	10.50	2.78	6.77	12.06	5.58	33.0	3.47	0.38	12.06	9.61	0.38
4"	L	3.83	10.00	13.00	3.66	7.53	12.06	7.33	67.0	3.47	0.38	12.06	10.38	0.38
6"*	M	5.78	13.00	17.00	6.18	NA	NA	12.37	164.0	NA	NA	NA	NA	NA

*Cast Series 9 Only

ACTUATED DIMENSIONS

Unit of Measure = inches
Dimensions based on actuators used with V-TEF™ seats.



Size	80 PSI Spring Return					60 PSI Spring Return					60, 80 PSI Double Acting				
	L	M	N	P	R	L	M	N	P	R	L	M	N	P	R
1/4"	5.55	2.80	5.45	1.61	1/8 NPT	6.46	3.17	5.90	1.77	1/8 NPT	5.55	2.80	5.45	1.61	1/8 NPT
3/8"	5.55	2.80	5.45	1.61	1/8 NPT	6.46	3.17	5.90	1.77	1/8 NPT	5.55	2.80	5.45	1.61	1/8 NPT
1/2"	5.55	2.80	5.45	1.61	1/8 NPT	6.46	3.17	5.90	1.77	1/8 NPT	5.55	2.80	5.45	1.61	1/8 NPT
3/4"	5.55	2.80	5.59	1.61	1/8 NPT	6.46	3.17	6.04	1.77	1/8 NPT	5.55	2.80	5.59	1.61	1/8 NPT
1"	6.46	3.17	6.51	1.77	1/8 NPT	8.27	3.72	7.22	2.07	1/8 NPT	5.55	2.80	6.06	1.61	1/8 NPT
1-1/2"	9.47	4.17	9.65	2.30	1/8 NPT	10.83	4.85	10.16	2.68	1/4 NPT	8.27	3.72	9.10	2.07	1/8 NPT
2"	10.83	4.84	10.45	2.68	1/4 NPT	13.11	5.39	11.80	2.87	1/4 NPT	8.27	3.72	9.39	2.07	1/8 NPT
2-1/2"	13.11	5.39	13.48	2.87	1/4 NPT	14.65	5.83	13.96	3.15	1/4 NPT	13.11	5.39	13.48	2.87	1/4 NPT
3"	14.65	5.83	14.21	3.15	1/4 NPT	16.85	6.46	15.10	3.44	1/4 NPT	13.11	5.39	13.73	2.87	1/4 NPT
4"	16.85	6.46	15.86	3.44	1/4 NPT	19.69	7.36	16.80	3.94	1/4 NPT	13.11	5.39	14.51	2.87	1/4 NPT
6"	22.78	8.54	23.02	4.29	1/4 NPT	22.46	11.42	27.74	5.71	1/4 NPT	22.78	8.54	23.02	4.29	1/4 NPT

Manual Valves with Tube Ends when used with insulation		
Tube OD	Insulation max with no extension	Insulation max with extension
0.50	0.76	2.68
0.75	0.79	2.72
1.00	1.45	3.88
1.50	3.10	5.57
2.00	2.31	5.60
2.50	4.00	8.88
3.00	4.08	8.88
4.00	4.35	9.12

IMI PBM IGENIX® CLEAN STEAM BALL VALVES

CS Cast Series 9/Forged Series 8, 1/4" - 6"



DESIGN FEATURES:

- Unique Adjust-O-Seal® feature allows in-line valve adjustment to compensate for normal wear on valve seats
- **CS SERIES CLEAN STEAM VALVES HAVE O-RINGS.**
- Valves are a three-piece "swing-out" body design.
- Upstream and downstream bubble-tight sealing capability allows valve body cleaning, purging, and draining
- Stem assembly accommodates IMI PBM Direct Mount Actuation for accurate alignment and increased cycling life
- Forged and cast valves are low-controlled ferrite
- True-Bore® (valve bore same as connecting tubing) – no puddling (Except 1/4" & 3/8")
- ASME BPE compliant
- USP Class VI elastomers and FDA compliant materials
- Valves are rated to full vacuum
- Material Test Report (MTRs) provided for wetted components
- Surface finishes are achieved without the use of ADIs (Animal Derived Ingredients)



SPECIFICATIONS	2-Way Valves
Sizes	1/4" - 6" Series 9, 1/2" - 4" Series 8 (1/4" & 3/8" in Series 8 is Ext. tube only)
Material	Low ferrite cast and forged 316L material. Castings (Series 9) comply with A351, Alloy CF3M and/ or A479, Alloy S31603. Forgings (Series 8) comply with A182, Alloy F316L/1.4404 and/or A479, Alloy S31603. Also available are Hastelloy™, AL6XN™, others
End Connections	Extended tube, hygienic clamp, please refer to PB-CE89 for compression ends, others available
Seats & Seals	White V-TEF™ standard, others available
O-rings	O-ring seal (FKM V1274-75/80, EPR E3609-70, others available)
Stem Packing Material	V-TEF™ and S-TEF®, others available
Body Bolts & Nuts	18-8 Stainless Steel standard, special bolting optional
Maximum Working Pressure	See table below
Temperatures	Up to 450°F depending on seat and seal material
Finish	Standard internal finish of 20 Ra ID Series 8 (SF1), 30 Ra ID Series 9 (SF3), other finishes available

CV Values (gpm), Series 8/Series 9		
Size	End Connections	
	F-	X-
1/4"	1.5	1.9
3/8"	4.4	5.4
1/2"	6.5	8
3/4"	23	28
1"	55	65
1-1/2"	160	193
2"	365	420
2-1/2"	700	800
3"	900	1,040
4"	1,800	2,080
6"	4,200	5,000

ID Surface Finish, Ra Readings for Valves per ASME BPE		
Surface Finish	IMI PBM Polish Code	µ-in.
Mechanical Polish		
SF 1	A	20
SF 2	A	25
SF 3	-	30
Mechanical Polish and Electropolish		
SF 4	G	15
SF 5	F	20

316L S/S Pressure Ratings at Ambient (PSIG)		
SIZE	SERIES 8	SERIES 9
1/4"	600	900
3/8"	600	900
1/2"	600	900
3/4"	600	900
1"	600	900
1-1/2"	600	900
2"	600	720
2-1/2"	600	720
3"	600	720
4"	600	720
6"	N/A	375

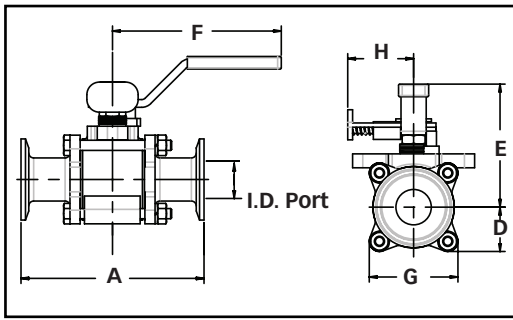
Sanitary clamps & gaskets may limit pressure ratings to less than shown above. Foreign regulatory agencies may also limit the pressure ratings above.

How To Order:

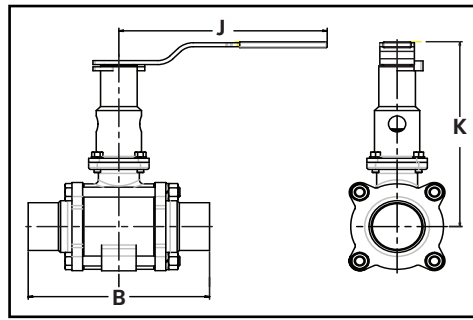
PRODUCT (1-2)		MATERIAL (3-4)		SIZE (5)		SERIES (6)		END CONNECTIONS (7-8)		SEAT & SEAL (9)		PURGE PORT BALL OPTIONS (10-11)		BALL & STEM (12)		OPERATOR (13-14)		POLISH OPTIONS (15)	
CS	HL	Cast (Ser. 9) 316L S / S		A	1/4"	9	F	Ext. Butt weld for Tube	G	V-TEF™ Seats / Seals FKM O-Rings	--	No Purge Port or Ball Option	-	Standard Ball and Stem	--	W/ Standard Lever Handle	-	30 Ra ID (Std. Series 9)	
	HF	Forged (Ser. 9) 316L S / S		B	3/8"	8	FX	Ext. Butt weld for Tube by Hygienic Clamp	J	V-TEF™ Seats / Seals / VTFE Cav Fill / FKM O-Rings	- 8	Self Flushing Ball	F	Internal / External Grounding	02	W/O Handle W/ Stem Actuator Prep	A	20 Ra ID (Std. Series 8)	
Other material options available - Contact PBM.																			
		C	1/2"	X-	Hygienic Clamp	Z	V-TEF™ Seats / Seals EPR O-Rings	- V	Slotted V-Ball	G	17-4PH Stem	04	Locking Lever Handle	D	15 Ra ID				
		D	3/4"	G-	Female Cherry Burrell	2	V-TEF™ Seats / Seals / VTFE Cav Fill / EPR O-Rings	- W	30° V-Ball			08	Gear Operator (Req'd for 6")	E	10 Ra ID				
		E	1"	H-	Male Cherry Burrell	2	V-TEF™ Seats / Seals / VTFE Cav Fill / EPR O-Rings	- X	45° V-Ball			18	Extended Handle (2-1/2" thru 4")	F	20 Ra ID after Electro Polish				
		G	1-1/2"			H	S-TEF™ Seats / Seals FKM O-Rings	- Y	60° V-Ball			20	DA 80psig actuator	G	15 Ra ID after Electro Polish				
		H	2"			0	S-TEF™ Seats / Seals EPR O-Rings					27	DA 60psig actuator	H	10 Ra ID after Electro Polish				
		J	2-1/2"			9	V-TEF™ Seats / Seals FEP Encaps. FKM O-Rings					34	SR 80psig actuator		10 Ra ID after Electro Polish				
		K	3"									41	SR 60psig actuator		10 Ra ID after Electro Polish				
		L	4"																
		M*	6"																

IMI PBM Igenix® Clean Steam Cast Series 9/Forged Series 8

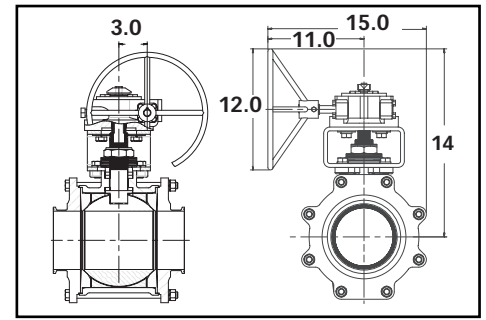
2-Way Valve with Locking Handle



2-Way Valve with Extended Lockable Handle



2-Way Valve with Gear Operator (6" only)

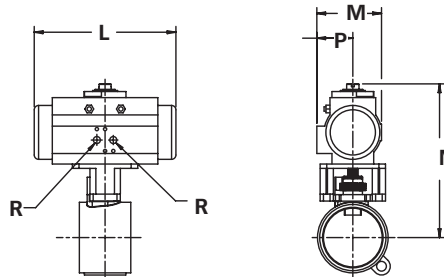


2-Way Sanitary Dimensioned valves in inches										Locking Handle		Ext. Lockable Handle		
Valve Size	Size Code	I.D. Port	A	B	D	E	F	G	Approx. Wgt (lbs)	H	Hole Dia. for Lock	J	K	Hole Dia. for Lock
1/4"	A	0.18	3.50	5.50	0.75	2.05	4.00	1.50	1.10	1.55	0.28	5.09	4.00	0.31
3/8"	B	0.31	3.50	5.50	0.75	2.05	4.00	1.50	1.10	1.55	0.28	5.09	4.00	0.31
1/2"	C	0.37	3.50	5.50	0.75	2.05	4.00	1.50	1.10	1.55	0.28	5.09	4.00	0.31
3/4"	D	0.62	4.00	6.00	0.85	2.23	4.00	1.68	1.40	1.55	0.28	5.09	4.14	0.31
1"	E	0.87	4.50	6.50	1.09	3.01	4.15	2.18	2.70	1.62	0.25	5.09	5.44	0.31
1-1/2"	G	1.37	5.50	7.50	1.68	5.02	8.81	3.31	8.90	2.57	0.38	8.00	7.46	0.31
2"	H	1.87	6.25	8.00	2.15	4.47	8.03	4.30	15.0	2.57	0.38	8.00	7.74	0.31
2-1/2"	J	2.37	8.00	11.50	2.79	6.51	12.06	5.58	36.0	3.47	0.38	12.06	9.36	0.31
3"	K	2.87	8.00	10.50	2.78	6.77	12.06	5.58	33.0	3.47	0.38	12.06	9.61	0.38
4"	L	3.83	10.00	13.00	3.66	7.53	12.06	7.33	67.0	3.47	0.38	12.06	10.38	0.38
6"*	M	5.78	13.00	17.00	6.18	NA	NA	12.37	164.0	NA	NA	NA	NA	NA

*Cast Series 9 Only

ACTUATED DIMENSIONS

Unit of Measure = inches
Dimensions based on actuators used with V-TEF™ seats.



Size	80 PSI Spring Return					60 PSI Spring Return					60, 80 PSI Double Acting				
	L	M	N	P	R	L	M	N	P	R	L	M	N	P	R
1/4"	5.55	2.80	5.45	1.61	1/8 NPT	6.46	3.17	5.90	1.77	1/8 NPT	5.55	2.80	5.45	1.61	1/8 NPT
3/8"	5.55	2.80	5.45	1.61	1/8 NPT	6.46	3.17	5.90	1.77	1/8 NPT	5.55	2.80	5.45	1.61	1/8 NPT
1/2"	5.55	2.80	5.45	1.61	1/8 NPT	6.46	3.17	5.90	1.77	1/8 NPT	5.55	2.80	5.45	1.61	1/8 NPT
3/4"	5.55	2.80	5.59	1.61	1/8 NPT	6.46	3.17	6.04	1.77	1/8 NPT	5.55	2.80	5.59	1.61	1/8 NPT
1"	6.46	3.17	6.51	1.77	1/8 NPT	8.27	3.72	7.22	2.07	1/8 NPT	5.55	2.80	6.06	1.61	1/8 NPT
1-1/2"	9.47	4.17	9.65	2.30	1/8 NPT	10.83	4.85	10.16	2.68	1/4 NPT	8.27	3.72	9.10	2.07	1/8 NPT
2"	10.83	4.84	10.45	2.68	1/4 NPT	13.11	5.39	11.80	2.87	1/4 NPT	8.27	3.72	9.39	2.07	1/8 NPT
2-1/2"	13.11	5.39	13.48	2.87	1/4 NPT	14.65	5.83	13.96	3.15	1/4 NPT	13.11	5.39	13.48	2.87	1/4 NPT
3"	14.65	5.83	14.21	3.15	1/4 NPT	16.85	6.46	15.10	3.44	1/4 NPT	13.11	5.39	13.73	2.87	1/4 NPT
4"	16.85	6.46	15.86	3.44	1/4 NPT	19.69	7.36	16.80	3.94	1/4 NPT	13.11	5.39	14.51	2.87	1/4 NPT
6"	22.78	8.54	23.02	4.29	1/4 NPT	22.46	11.42	22.74	5.71	1/4 NPT	22.78	8.54	23.02	4.29	1/4 NPT

Manual Valves with Tube Ends when used with insulation		
Tube OD	Insulation max with no extension	Insulation max with extension
0.50	0.76	2.68
0.75	0.79	2.72
1.00	1.45	3.88
1.50	3.10	5.57
2.00	2.31	5.60
2.50	4.00	8.88
3.00	4.08	8.88
4.00	4.35	9.12

www.PBMValve.com

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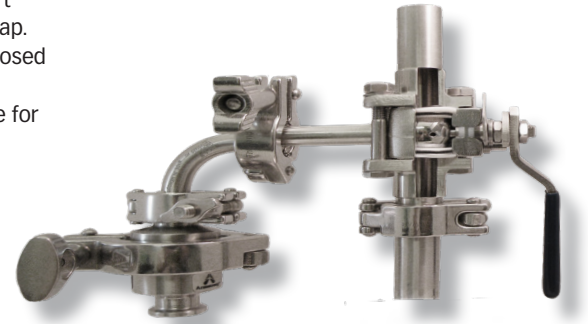
IMI PBM IGENIX® CLEAN STEAM TRAP VALVES

CT Cast Series 9/Forged Series 8, 1/2" - 2"



DESIGN FEATURES:

- Dual chamber seat design allows for a 1/2" Tri-Clamp® steam drain purge port positioned in the valve body to facilitate drainage of the body cavity to the trap.
- Two steam purge holes allows steam condensate to flow past seats in the closed position to the trap.
- Unique Adjust-O-Seal® feature allows in-line valve adjustment to compensate for normal wear on valve seats.
- **CT Series Clean Steam Trap valves have o-rings.**
- Forged and cast valves are low-controlled ferrite.
- True-Bore® (valve bore same as connecting tubing) – no puddling
- ASME BPE compliant
- USP Class VI elastomers and FDA compliant materials
- Valves are rated to full vacuum.
- Certified Material Test Report (CMTRS) provided for wetted components.
- Surface finishes are achieved without the use of ADIs (Animal Derived Ingredients).



SPECIFICATIONS	2-Way Valves
Sizes	1/2" - 2" Series 8 & 9
Material	Low ferrite cast and forged 316L material. Castings (Series 9) comply with A351, Alloy CF3M and/or A479, Alloy S31603. Forgings (Series 8) comply with A182, Alloy F316L/1.4404 and/or A479, Alloy S31603. Also available are Hastelloy™, AL6XN™, others
End Connections	Extended tube, extended butt weld, hygienic clamp
Seats & Seals	White V-TEF™ standard, others available
O-rings	EPR O-ring energizer, FKM O-ring energizer, others available
Stem Packing Material	V-TEF™ and S-TEF®
Body Bolts & Nuts	18-8 Stainless Steel
Maximum Working Pressure	up to 900 psig CWP depending on valve series, size and temperature
Temperatures	up to 450°F depending on seat and seal material
Polish	Standard internal polish of 20 Ra ID Series 8, 30 Ra ID Series 9

CV Values (gpm), Series 8/Series 9		
Size	End Connections	
	F-	X-
1/2"	6.5	8
3/4"	23	28
1"	55	65
1-1/2"	160	193
2"	365	420

ID Surface Finish, Ra Readings for Valves per ASME BPE			
Surface Finish	IMI PBM Polish Code	μ-in.	μ-m.
Mechanical Polish			
SF 1	A	20 Ra max	0.51
SF 2	A	25 Ra max	0.64
SF 3	-	30 Ra max	0.76
Mechanical Polish and Electropolish			
SF 4	G	15 Ra max	0.38
SF 5	F	20 Ra max	0.51
SF 6	F	25 Ra max	0.64

How To Order:

PRODUCT (1-2)		MATERIAL (3-4)		SIZE (5)		SERIES (6)		END CONNECTIONS (7-8)		SEAT & SEAL (9)		PURGES (10-11)		BALL & STEM (12)		OPERATOR (13-14)		POLISH (15-16)		
CT	HL	Cast (Ser. 9)	316L S / S	C	1/2"	8	F -	Ext. Butt weld for Tube	G	V-TEF™ Seats / Seals FKM O-Rings	BG	Clamp on ctr opposite stem Holes in close downstr. Pos.	-	Standard Ball and Stem	--	W/ Standard Lever Handle	-	30 Ra ID (Std. Series 9)		
	HF	Forged	316L S / S	D	3/4"	9	FX	Ext. Butt weld for Tube by Hygienic Clamp	J	V-TEF Seats / Seals / VTFE Cav Fill / FKM O-Rings			F	Internal / External Grounding	02	W/O Handle W/ Stem Actuator Prep	A	20 Ra ID (Std. Series 8)		
		Other material options available - Contact PBM.		E	1"		X-	Hygienic Clamp	Z	V-TEF Seats / Seals EPR O-Rings	DH	Clamp downstr. opposite stem Holes in open downstr. Pos.	G	17-4PH Stem	04	Locking Lever Handle	D	15 Ra ID		
				G	1-1/2"				2	V-TEF Seats / Seals / VTFE Cav Fill / EPR O-Rings					71	Extended Handle	E	10 Ra ID		
				H	2"				H	S-TEF® Seats / Seals FKM O-Rings	HG	BWTE on ctr opposite stem Holes in close downstr. Pos.			20	DA 80psig actuator	F	20 Ra ID after Electro Polish		
									0	S-TEF Seats / Seals EPR O-Rings					27	DA 60psig actuator				
									9	V-TEF Seats / Seals FEP Encaps. FKM O-Rings		Other Seat/seal options available - Contact PBM.		Other Purge Port & Ball Options - Contact PBM.			34	SR 80psig actuator	G	15 Ra ID after Electro Polish
																	41	SR 60psig actuator	H	10 Ra ID after Electro Polish
																				More polish available - Contact PBM.

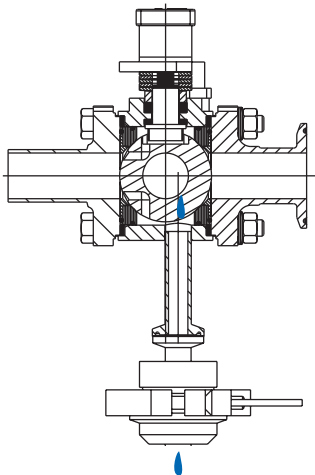
<http://pbmvalve.com/build-a-part-number>

IMI PBM Igenix® Clean Steam Trap Valves

Two-Way Sanitary Steam Trap valves use body purge port and ball purge holes to direct flow to the trap while shutting off flow downstream. Permits sampling of steam for purity and safely isolates trap for ease of maintenance.

Dead leg piping is reduced where condensate can cool and cause contamination. These valves perform three functions and also reduce costs by eliminating unnecessary welds, "T"s and piping. Valves can be installed in the vertical or horizontal position.

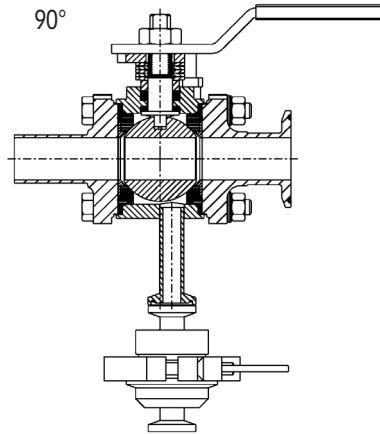
Trap Position



Condensate draining through trap

The **Trap Isolated Position** allows condensate to flow past the ball purge holes during normal operation, bypassing the upstream seat. Condensate flows past the purge holes in the ball and out the side port of the valve to the steam trap, allowing the body cavity to remain hot. The point-of-use, or sampling connection, is isolated by the surface of the ball without the purge holes pressing against the downstream seat.

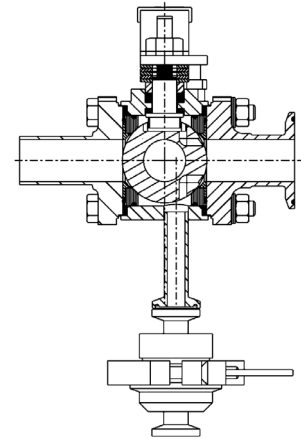
Open Position



Clean Steam to Point of Use

The **Open Position** allows the flow of steam. Appropriate sampling piping or equipment connections are made at the point-of-use port, and the ball is turned 90° counter-clockwise, opening the valve. The trap is isolated from flow allowing full sterilization temperature to be quickly reached. The valve is then turned 90° clockwise to return the steam trap to service in the "Trap" position.

Service Position



Trap can be removed for service

The **Closed or Service Position** allows steam trap maintenance by turning the ball 180° counterclockwise from the normal "Closed" position to the "Trap Isolated" position. As the ball is closed toward the steam-in port, it isolates the steam trap. Maintenance can then be performed on the steam trap. To return the trap to service, the ball is turned 180° clockwise to the "Trap" position.

For dimensional information please refer to Clean Steam (CS) Series 8 and 9 Product Bulletin.

www.PBMValve.com

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E-mail: info.pbmvalve@imi-critical.com

IMI Critical
Engineering



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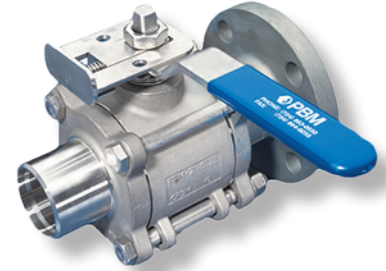
IMI PBM INDUSTRIAL 2-WAY BALL VALVES

SP Series 5, 1/4" - 6"



DESIGN FEATURES:

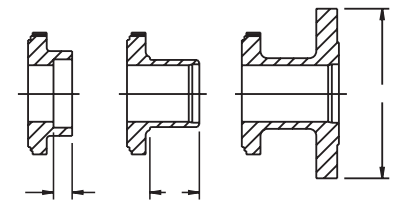
- Unique Adjust-O-Seal® feature allows in-line valve adjustment to compensate for normal wear on valve seats.
- **SP SERIES VALVES DO NOT HAVE O-RINGS.**
- Valve shall be a three-piece "swing-out" body design.
- Upstream and downstream bubble-tight sealing capability allows valve body cleaning, purging, and draining.
- Stem assembly accommodates IMI PBM Direct Mount Actuation for accurate alignment and increased cycling life.
- Full port design
- Valves are rated to full vacuum.
- Valves shall be a non-firesafe design unless otherwise specified.
- Solder Joint and Sil-brazed ends are bronze only.
- Socket weld ends for bronze valves must be 90/10 CuNi or 70/30 CuNi.



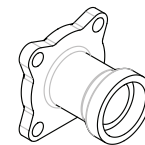
SPECIFICATIONS	2-Way Valves
Sizes	1/4" - 6" Series 5
Material	316/316L, Hastelloy™ C-276, Carbon Steel, Bronze Alloy 922, 89833 Bronze or other
Temperatures	Ambient for V-TEF™ to 400° F, S-TEF® to 450°F, PEEK to 500°F
End Connections	Flange, NPT, Buttweld for pipe, Sil-braze for pipe, Extended Socket Weld for pipe, Solder Joint for tube
Seats & Seals	White V-TEF™ standard, others available
Stem Packing Material	V-TEF™ and S-TEF®
Body Bolts & Nuts	18-8 Stainless Steel
Maximum Working Pressure	Up to 900 psig CWP depending on valve series, size and temperature

CV Values (gpm)	
Size	Series 5
1/4"	5
3/8"	10*
1/2"	12
3/4"	42
1"	73
1-1/2"	170
2"	360
2-1/2"	650
3"	935
4"	1,900
6"	4,800

End Fitting Length or Diameter			
Size	J-, U-	B-D-	L-
1/4", 3/8"	0.41	1.50	—
1/2"	0.41	1.50	3.50
3/4"	0.53	1.50	3.88
1"	0.53	1.50	4.25
1-1/2"	0.53	1.50	5.00
2"	0.66	1.75	6.00
2-1/2"	0.69	2.31	7.00
3"	0.69	2.31	7.50
4"	0.81	2.31	9.00
6"	NA	3.75	11.00



Socket Weld U- Butt Weld B-D- 150# Flange L-



Extended Socket Weld J-

How To Order:

PRODUCT (1-2)		MATERIAL (3-4)		SIZE (5)		SERIES (6)		END CONN. (7-8)		SEAT & SEAL (9)		PURGE/BALL (10-11)		BALL & STEM (12)		OPERATOR (13-14)		POLISH (15-16)	
SP	H-	Cast 316/316L	S / S	C	1/2"	5	B-	Sch. 40	Butt Weld	G	V-TEF™ Seats / Seals	--	No Purge Port or Ball Option	-	Standard Ball and Stem	--	W/ Standard Lever Handle	-	125 Ra ID Standard
	HL	Cast 316L	S / S	D	3/4"		D-	Sch. 10	Butt Weld	J	V-TEF™ Seats / Seals VTFE Cavity Fillers	- 8	Self Flushing Ball	F	Internal / External Grounding	02	W/O Handle W/ Stem Actuator Prep	A	20 Ra ID
	E-	Carbon Steel		E	1"		J-	Extended Socket Weld		H	S-TEF® Seats / Seals	- V	Slotted V-Ball	G	17-4PH Stem	04	Locking Lever Handle	C	20 Ra ID / 32 Ra OD
	C-	Hastelloy C-276		G	1-1/2"		L-	150# Flange*			S-TEF® Seats / Seals VTFE Cavity Fillers	- W	30° V-Ball			08	Gear Operator (Req'd for 6")	F	20 Ra ID after Electro Polish
				H	2"		M-	300# Flange*		I	S-TEF® Seats / Seals VTFE Cavity Fillers	- X	45° V-Ball			18	Extended Handle (1/2" thru 4")		
	Y-	Hastelloy C-22		J	2-1/2"		P-	Male NPT				- Y	60° V-Ball			20	DA 80psig actuator		
				K	3"		Q-	Female NPT				Other Purge Port & Ball Options - Contact PBM.				27	DA 60psig actuator		More polish available - Contact PBM.
	P-	AL6XN		L	4"		S-	Sil Braze 1 Groove		K	UHMWPE Seats / Seals					34	SR 80psig actuator		
	N-	922 Bronze		M	6"		T-	Solder Joint		L	UHMWPE Seats / Seals VTFE Cavity Fillers					41	SR 60psig actuator		
	G-	89833 Bronze					U-	Socket Weld											

Other material options available - Contact PBM.

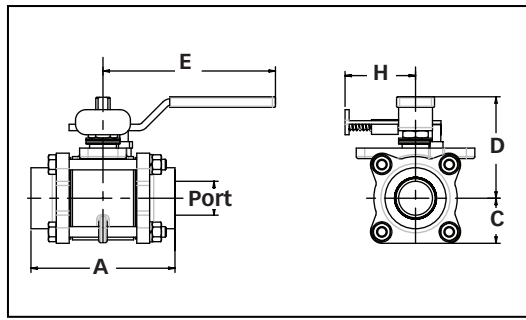
* Flat faced for Bronze
All others are raised face

Other seat/seal options available - Contact PBM.

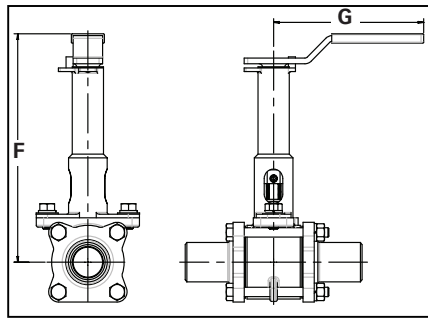
Other operator options available - Contact PBM.

IMI PBM Industrial 2-Way Ball Valves Manual

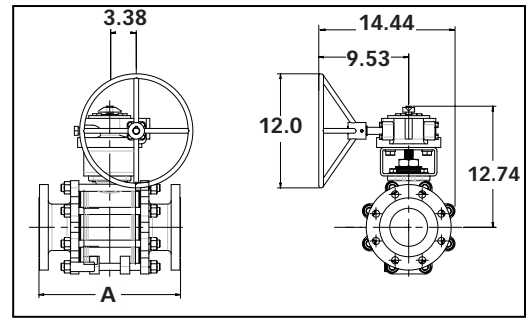
2-Way Valve with Locking Handle



2-Way Valve with Ext. Locking Handle



2-Way Valve with Gear Operator (6" only)

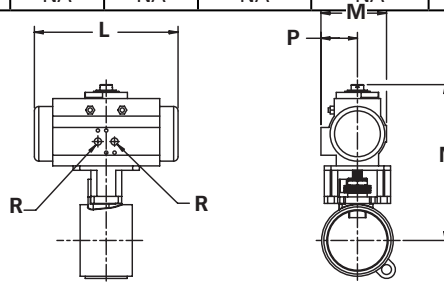


Valve Size	Size Code	Port Dia.	A				C ¢ to Bottom B- D- Q- S- T- U	D ¢ to Top of Handle	E Handle Length from ¢	Ext. Locking Handle		Locking Handle		Approx. Weights	
			Face to Face							F	G	H	Hole Dia. for Lock	B- D- Q- U-	L-
			Q- U- S- T-	B- D-	J-	L-									
1/4", 3/8"	A,B	0.5	3.12	5.5	NA	NA	0.92	2.63	4.15	7.19	5.09	1.62	.25	1.7 lbs.	4.0 lbs.
1/2"	C	0.5	3.12	5.5	6.34	5.5	0.92	2.63	4.15	7.19	5.09	1.62	.25	1.7 lbs.	4.0 lbs.
3/4"	D	0.75	3.44	5.5	6.57	5.8	1	2.78	4.15	7.34	5.09	1.62	.25	2.0 lbs.	5.2 lbs.
1"	E	1	4.25	6	7.05	6.5	1.33	3.03	5.09	7.62	5.09	2.08	.28	4.5 lbs.	8.7 lbs.
1-1/2"	G	1.5	5.5	7.5	8.56	8	1.78	4.1	8.68	9.45	8.00	2.58	.38	10.2 lbs.	17.4 lbs.
2"	H	2	6	8	9.26	9.8	2.15	4.41	8.68	9.76	8.00	2.58	.38	15.4 lbs.	26.5 lbs.
2-1/2"	J	2.5	8	11.5	CF	11.5	2.79	6.45	12.44	11.36	12.06	3.47	.38	36.0 lbs.	53.5 lbs.
3"	K	3	9	13.5	14.88	12.8	3.14	6.78	12.44	11.69	12.06	3.47	.38	48 lbs.	68 lbs.
4"	L	4	12	16	CF	15	4.91	7.34	24.4	13.97	24.06	NA	.44	109 lbs.	157 lbs.
6"*	M	6	NA	22	CF	20	7.25	NA	NA	NA	NA	NA	NA	320 lbs.*	357 lbs.*

*Weight with gear operator.

ACTUATED DIMENSIONS

Unit of Measure = inches
Dimensions based on actuators used with V-TEF™ seats.



Size	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
1/2"	5.55	2.79	5.84	1.61	1/8	6.46	3.17	6.29	1.77	1/8	5.55	2.79	5.84	1.61	1/8	5.55	2.79	5.84	1.61	1/8
3/4"	6.46	3.17	6.44	1.77	1/8	6.46	3.17	6.44	1.77	1/8	5.55	2.79	5.99	1.61	1/8	5.55	2.79	5.99	1.61	1/8
1"	8.27	3.72	7.80	2.07	1/8	8.27	3.72	7.80	2.07	1/8	5.55	2.79	6.64	1.61	1/8	5.55	2.79	6.64	1.61	1/8
1-1/2"	10.83	4.85	10.16	2.68	1/4	10.83	4.85	10.16	2.68	1/4	6.46	3.17	8.39	1.77	1/8	8.27	3.72	9.10	2.07	1/8
2"	10.83	4.85	10.47	2.68	1/4	13.12	5.39	11.82	2.87	1/4	8.27	3.72	9.42	2.07	1/8	8.27	3.72	9.42	2.07	1/8
2-1/2"	13.12	5.39	13.48	2.87	1/4	14.65	5.83	13.96	3.15	1/4	13.12	5.39	13.48	2.87	1/4	13.12	5.39	13.48	2.87	1/4
3"	14.65	5.83	14.29	3.15	1/4	17.13	6.46	15.16	3.44	1/4	13.12	5.39	13.81	2.87	1/4	13.12	5.39	13.81	2.87	1/4



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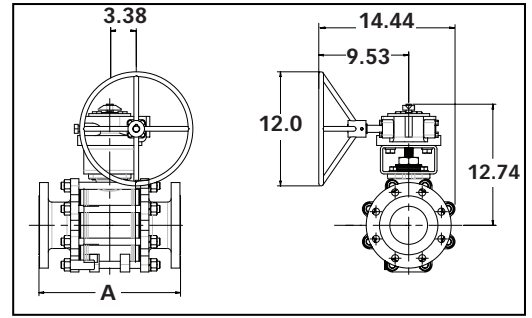
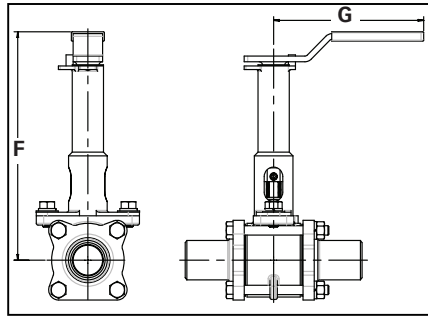
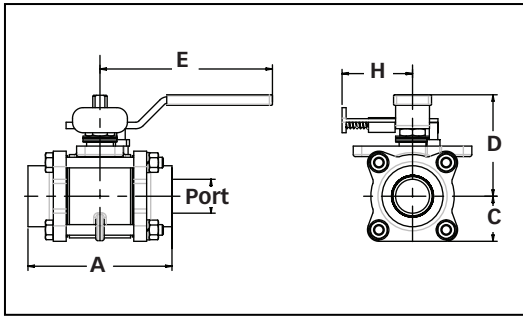


IMI PBM Industrial 2-Way Steam Valve, Manual

2-Way Valve with Locking Handle

2-Way Valve with Ext. Locking Handle

2-Way Valve with Gear Operator (6" only)

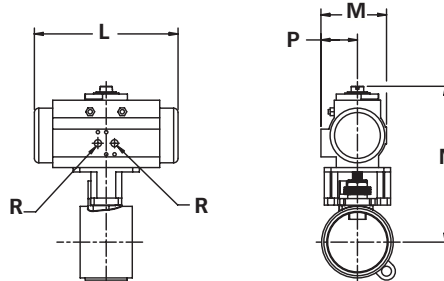


Valve Size	Size Code	Port Dia.	A				C ¢ to Bottom B- D- Q- S- T- U	D ¢ to Top of Handle	E Handle Length from ¢	Ext. Locking Handle		Locking Handle		Approx. Weights	
			Face to Face							F	G	H	Hole Dia. for Lock	B- D- Q- U-	L-
			Q- U- S- T-	B- D-	J-	L-									
1/4", 3/8"	A,B	0.5	3.12	5.5	NA	NA	0.92	2.63	4.15	7.19	5.09	1.62	.25	1.7 lbs.	4.0 lbs.
1/2"	C	0.5	3.12	5.5	6.34	5.5	0.92	2.63	4.15	7.19	5.09	1.62	.25	1.7 lbs.	4.0 lbs.
3/4"	D	0.75	3.44	5.5	6.57	5.8	1	2.78	4.15	7.34	5.09	1.62	.25	2.0 lbs.	5.2 lbs.
1"	E	1	4.25	5.99	7.05	6.5	1.33	3.03	5.09	7.62	5.09	2.08	.28	4.5 lbs.	8.7 lbs.
1-1/2"	G	1.5	5.5	7.5	8.56	8	1.78	4.1	8.68	9.45	8.00	2.58	.38	10.2 lbs.	17.4 lbs.
2"	H	2	6	8	9.26	9.8	2.15	4.41	8.68	9.76	8.00	2.58	.38	15.4 lbs.	26.5 lbs.
2-1/2"	J	2.5	8	11.5	CF	11.5	2.79	6.45	12.44	11.36	12.06	3.47	.38	36.0 lbs.	53.5 lbs.
3"	K	3	9	13.5	14.88	12.8	3.14	6.78	12.44	11.69	12.06	3.47	.38	48 lbs.	68 lbs.
4"	L	4	12	16	CF	15	4.91	7.34	24.4	13.97	24.06	NA	.44	109 lbs.	157 lbs.
6"*	M	6	NA	22	CF	20	7.25	NA	NA	NA	NA	NA	NA	320 lbs.*	357 lbs.*

*Weight with gear operator.

ACTUATED DIMENSIONS

Unit of Measure = inches
Dimensions based on actuators used with V-TEF™ seats.



Size	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
1/2"	5.55	2.79	5.84	1.61	1/8	6.46	3.17	6.29	1.77	1/8	5.55	2.79	5.84	1.61	1/8	5.55	2.79	5.84	1.61	1/8
3/4"	6.46	3.17	6.44	1.77	1/8	6.46	3.17	6.44	1.77	1/8	5.55	2.79	5.99	1.61	1/8	5.55	2.79	5.99	1.61	1/8
1"	8.27	3.72	7.80	2.07	1/8	8.27	3.72	7.80	2.07	1/8	5.55	2.79	6.64	1.61	1/8	5.55	2.79	6.64	1.61	1/8
1-1/2"	10.83	4.85	10.16	2.68	1/4	10.83	4.85	10.16	2.68	1/4	6.46	3.17	8.39	1.77	1/8	8.27	3.72	9.10	2.07	1/8
2"	10.83	4.85	10.47	2.68	1/4	13.12	5.39	11.82	2.87	1/4	8.27	3.72	9.42	2.07	1/8	8.27	3.72	9.42	2.07	1/8
2-1/2"	13.12	5.39	13.48	2.87	1/4	14.65	5.83	13.96	3.15	1/4	13.12	5.39	13.48	2.87	1/4	13.12	5.39	13.48	2.87	1/4
3"	14.65	5.83	14.29	3.15	1/4	17.13	6.46	15.16	3.44	1/4	13.12	5.39	13.81	2.87	1/4	13.12	5.39	13.81	2.87	1/4