



Cryogenic Valve Solutions

www.pbmvalve.com

- 2-Way & 3-Way Manual and Automated Valves
- Temperatures to -320°F / -195°C
- Pressures to 1440 PSI CWP / 49.6 bar (ANSI 600# Class)
- Has been shown to meet or exceed leakage Performance Per MSS SP-134-2010

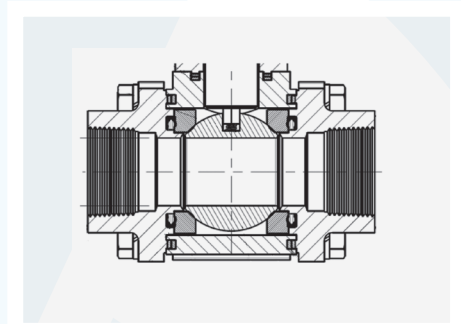
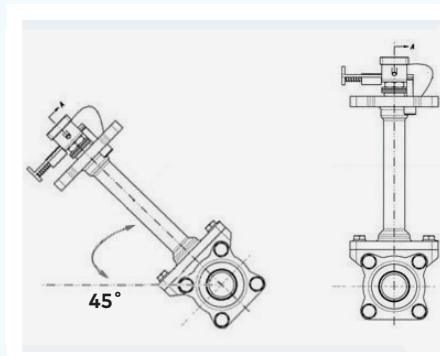
Specifically Designed for Cryogenic Applications

IMI PBM cryogenic valves have a unique design that provides superior performance through cooling and heating cycles. The valves have been shown to meet leakage criteria per MSS SP-134.

What Makes It Work

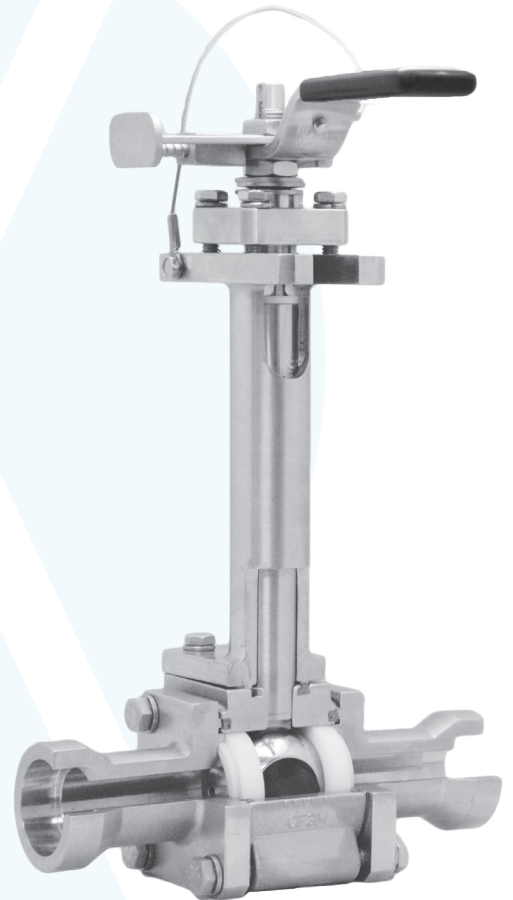
An extended bonnet with an upper set of **live loaded** stem packings. As metal shrinks, it keeps pressure on seals as temperature goes through cooling and heating cycles. The vented ball allows explosive gas expansion to vent upstream.

Cryogenic valves are optimally oriented with the stem 90° from the horizontal plane. IMI PBM cryogenic valves are capable of operating with the stem oriented as low as 45° above the horizontal plane.



Features

- Sizes 1/2" - 4" (DN15 - DN100) - Full port. Consult IMI PBM for additional sizes.
- Temperatures from 400° F (205° C) down to -320° F (-200° C)
- Live-loaded stem packings
- Firesafe to API 607 Rev. 6
- Designed and tested in accordance with ASME B31.1 and B16.34.
- Materials of construction: stainless steel, other materials available – consult IMI PBM for details.
- Pressures to 1440 psi CWP (ANSI 600# class)
- Cleaned for oxygen service.
- Quarter turn operation
- Locking lever handle or optional oval locking handwheel
- Automation available.
- V-TEFTM seats/graphite seals
- Internal and external grounding
- Uni-directional flow and vented ball
- Optional API-622 Low-e Packing (cannot be LOX cleaned)



Leakage Rate Comparison

Cryogenic Allowable Leakage Rate Comparison Allowable He scc/min			
NPS	DN	MSS-SP134-2010	BS 6364-1984
1/2	15	37.5	90
3/4	20	56.25	120
1	25	75	150
1-1/2	40	112.5	240
2	50	150	300
3	80	225	480
4	100	300	600

"CP" & "CD" Series Firesafe, Cryogenic Valves

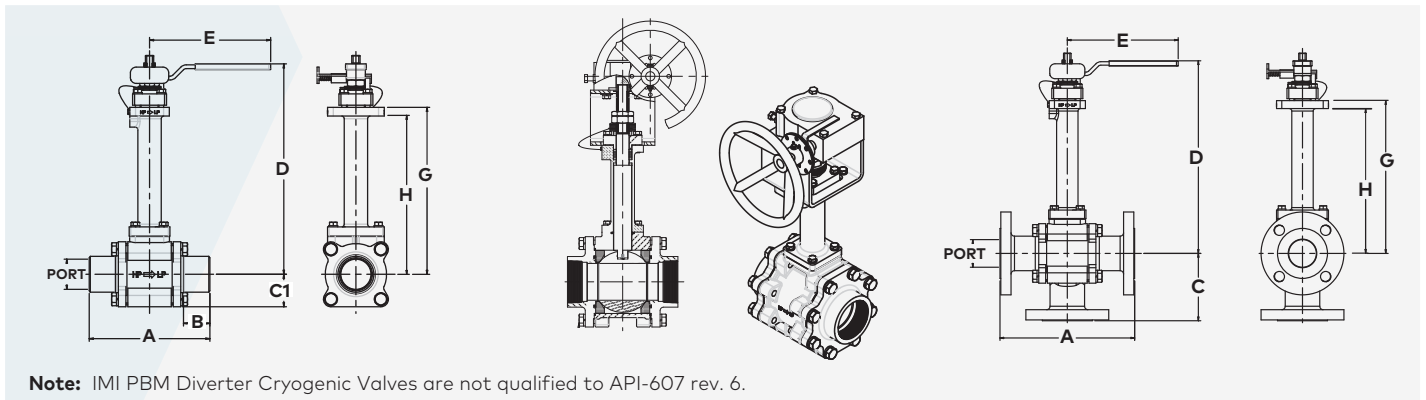
How To Order:

PRODUCT	MATERIAL	SIZE	SERIES	END HP	END LP	SEAT & SEAL	FLOW PATTERN*	BONNET	OPERATOR	VALVE PREPARATION															
CP	2-Way	HL	316L Stainless Steel	C	1/2"	6	Series 6	B	Ext. Butt weld Sch. 40 Pipe or ISO tube	B	Ext. Butt weld Sch. 40 Pipe or ISO tube	G	V-TEFTM/ Oxygen Cleaned spiral wound, graphite stem packing and seals	18	3-Way, Bottom Entry L-Port	--	Std. Bonnet Ext.	00	SS locking oval handle	-L	Cleaned for O2 Service				
CD	3-Way																								
Stainless Steel Construction. Other materials available upon request.				D	3/4"			Q	Female NPT	Q	Female NPT	Z*	V-TEFTM/ Low emission, wire braided, graphite stem packing/ Graphite seals	--	2-Way, Valve	-V	**12" Ext. Bonnet	04	Locking Lever Handle						
				E	1"			J	Extended Socket Weld	J	Extended Socket Weld	*Note: Valves with seat/seal code "Z" are not O2 Clean O4 handle option not available for 3" or 4" 4" gear operated or actuated only													
				G	1.5"			Q1	Female BSPT	Q1	Female BSPT														
				H	2"			D	Ext. Butt weld Sch. 10S Pipe	D	Ext. Butt weld Sch. 10S Pipe														
				K	3"			L	150# Flange	L	150# Flange														
				L	4"																				
											Consult IMI PBM for other flow patterns.														
											12" Extended Bonnet is Minimum 12" from Pipe Centerline to Bottom of Bonnet Flange														
											08 Gear operator														
											09 Tee handle														
											20 DA80 psig actuator														
											27 DA60 psig actr														
											34 SR80 psig actuator														
											41 SR60 psig actuator														

"CP" Series 2-Way Cryogenic Valve

Gear Operated 2-Way Cryogenic Valve

"CD" Series Diverter Cryogenic Valve



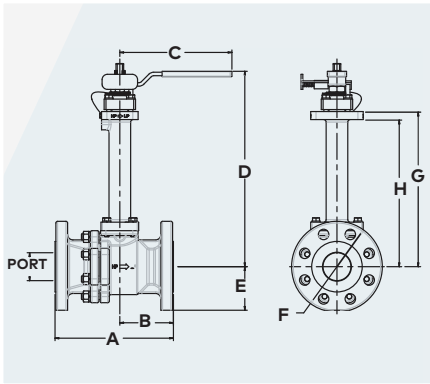
Note: IMI PBM Diverter Cryogenic Valves are not qualified to API-607 rev. 6.

SIZE			UNIT	BALL PORT	BUTT WELD	EXTENDED SOCKET WELD		150# Flange		300# Flange		FNPT		C1	D HANDLE HEIGHT STD. EXT. BONNET	E	G CL TO TOP OF BONNET	H CL TO BOTTOM OF BONNET	TORQUE				
US	DIN	ISO		A	B	A	Socket Depth	A	C	A	C	A	C						UNIT	at 0° F	at -320° F	ACT. SIZING	
1/2"	8, 10, 15	8, 10	inches	0.50	5.50	1.50	6.32	0.41	5.50	2.75	5.75	2.88	3.12	1.56	1.00	9.92	4.15	7.78	7.46	IN-LBS	95	95	143
			mm	12.70	139.70	38.10	160.53	10.41	139.70	69.85	146.05	73.03	79.25	39.62	25.40	251.97	105.41	32.29	189.48	N-m	11	11	16
3/4"	20	15, 20	inches	0.75	5.50	1.50	6.56	0.53	5.75	2.88	6.00	3.00	3.44	1.72	1.00	9.92	4.15	7.78	7.46	IN-LBS	95	95	143
			mm	19.05	139.70	38.10	166.62	13.46	146.05	73.03	152.40	76.20	87.38	43.69	25.40	251.97	105.41	197.61	189.48	N-m	11	11	16
1"	25, 32	25	inches	1.00	6.00	1.50	7.06	0.53	6.50	3.25	6.75	3.38	4.25	2.13	1.33	9.91	5.09	7.64	7.22	IN-LBS	145	160	240
			mm	25.40	152.40	38.10	179.32	13.46	165.10	82.55	171.45	85.85	107.95	54.10	33.78	251.71	129.29	194.06	183.39	N-m	16	18	27
1-1/2"	40	32, 40	inches	1.50	7.50	1.50	8.56	0.53	8.00	4.00	8.25	4.13	5.50	2.75	1.78	13.60	8.03	10.76	10.18	IN-LBS	420	420	630
			mm	38.10	190.50	38.10	217.42	13.46	203.20	101.60	209.55	104.78	139.70	69.85	45.21	345.44	203.96	273.30	258.57	N-m	48	48	72
2"	50	50	inches	2.00	8.00	1.75	9.32	0.66	9.75	4.88	10.00	5.00	6.00	3.00	2.15	13.95	8.03	11.07	10.49	IN-LBS	540	840	1260
			mm	50.80	203.20	44.45	236.73	16.76	247.65	123.83	254.00	127.00	152.40	76.20	54.61	354.33	203.96	281.18	266.45	N-m	61	96	144
3"	80	80	inches	3.00	13.50	2.31	14.88	0.69	12.75	6.38	13.25	6.63	9.00	4.50	3.14	17.37	12.06	13.41	12.83	IN-LBS	1020	1320	1980
			mm	76.20	342.90	58.67	377.95	17.53	323.85	161.93	336.55	168.28	228.60	114.30	79.76	441.20	306.32	340.61	325.88	N-m	115	151	226
4"	80	80	inches	4.00	16.00	2.31	17.62	.81	15.00	7.50	16.00	8.00	12.00	6.00	4.91	n/a	n/a	14.83	12.83	IN-LBS	1440	5460	8190
			mm	101.6	406.4	58.67	447.55	20.57	381.0	190.5	406.4	203.2	304.8	152.4	124.71	n/a	n/a	376.68	325.88	N-m	163	617	925

Note: Only Butt Weld ends apply to DIN and ISO dimensions.

"CN" Series CL300 & CL150, Split-Body ANSI Flanged Cryogenic Valves

"CN" Series ANSI Cryogenic Valve (CL150 & CL300)



**FIRE TESTED TO
API-607 REV. 6**



SIZE	UOM	PORT DIA.	PRESSURE CLASS	A OVERALL LENGTH	B C _L TO END FACE	C HANDLE LENGTH	D HANDLE HEIGHT STD. EXT.	E C _L TO BOTTOM FLANGE	F FLANGE DIA.	G C _L TO TO OF BONNET	H C _L TO BOTTOM OF BONNET	TORQUE				
												UNIT	at 70°F	at -320°F	ACT. SIZING	
1/2"	DN15	inches	0.37	CL150	4.25	1.85	4.15	9.71	1.62	3.50	7.63	7.31	IN-LBS	95	95	143
		mm	9.40	20 PN	107.95	46.99	105.41	246.63	41.15	88.90	193.80	185.67	N-m	11	11	16
		inches	0.37	CL300	5.50	2.52	4.15	9.71	1.75	3.75	7.63	7.31	IN-LBS	95	95	143
3/4"	DN20	mm	9.40	50 PN	139.70	64.01	105.41	246.63	44.45	95.25	193.80	185.67	N-m	11	11	16
		inches	0.75	CL150	4.62	2.12	4.15	9.86	1.80	3.88	7.78	7.31	IN-LBS	95	95	143
		mm	19.1	20 PN	117.35	53.85	105.41	250.44	45.72	98.55	197.61	185.67	N-m	11	11	16
1"	DN25	inches	0.75	CL300	6.00	2.90	4.15	9.86	2.15	4.62	7.78	7.31	IN-LBS	95	95	143
		mm	1.00	50 PN	152.40	73.66	105.41	250.44	54.61	117.35	197.61	185.67	N-m	11	11	16
		inches	1.00	CL150	5.00	2.25	5.09	10.08	2.06	4.25	7.71	7.29	IN-LBS	145	160	240
1-1/2"	DN40	mm	25.4	20 PN	127.00	57.15	129.29	256.03	52.32	107.95	195.83	185.17	N-m	16	18	27
		inches	1.00	CL300	6.50	3.15	5.09	10.08	2.38	4.88	7.71	7.29	IN-LBS	145	160	240
		mm	25.4	50 PN	165.10	80.01	129.29	256.03	60.45	123.95	195.83	185.17	N-m	16	18	27
2"	DN50	inches	2.00	CL150	6.50	2.68	8.03	13.70	2.38	5.00	10.81	10.23	IN-LBS	420	420	630
		mm	50.8	20 PN	165.10	68.07	203.96	347.98	60.45	127.00	274.57	259.84	N-m	48	48	72
		inches	2.00	CL300	7.50	3.18	8.03	13.70	3.00	6.12	10.81	10.23	IN-LBS	420	420	630
3"	DN80	mm	50.8	50 PN	190.50	80.77	203.96	347.98	76.20	155.45	274.57	259.84	N-m	48	48	72
		inches	2.00	CL150	7.00	3.12	8.03	14.00	2.88	6.00	11.12	10.53	IN-LBS	540	840	1260
		mm	50.8	20 PN	177.80	79.25	203.96	355.60	73.15	152.40	282.45	267.46	N-m	61	96	144
4"	DN100	inches	2.00	CL300	8.50	3.84	8.03	14.00	3.12	6.50	11.12	10.53	IN-LBS	540	840	1260
		mm	50.8	50 PN	215.90	97.54	203.96	355.60	79.25	165.10	282.4	267.46	N-m	61	96	144
		inches	3.00	CL150	8.00	3.57	12.06	17.37	3.50	7.50	13.41	12.83	IN-LBS	1020	1320	1980
3"	DN80	mm	76.2	20 PN	203.20	90.68	306.32	441.20	88.90	190.50	340.61	325.88	N-m	115	151	226
		inches	3.00	CL300	11.12	5.19	12.06	17.37	4.00	8.25	13.41	12.83	IN-LBS	1020	1320	1980
		mm	76.2	50 PN	282.45	131.83	306.32	441.20	101.60	209.55	340.61	325.88	N-m	115	151	226
4"	DN100	inches	4.00	CL150	9.00	3.84	N/A	N/A	4.38	9.00	14.83	12.83	IN-LBS	1440	5460	8190
		mm	101.6	20 PN	228.60	97.54	N/A	N/A	111.25	228.60	376.68	325.88	N-m	163	617	925
		inches	4.00	CL300	12.00	5.34	N/A	N/A	4.75	10.00	14.83	12.83	IN-LBS	1440	5460	8190
mm	101.6	50 PN	304.80	135.64	N/A	N/A	120.70	254.00	376.68	325.88	N-m	163	617	925		

How To Order:

PRODUCT	MATERIAL	SIZE	SERIES	END	SEAT & SEAL	BONNET	OPERATOR	VALVE PREPARATION	
CN	Uni-Directional	H- 316/316L Stainless Steel	C 1/2"	6 Series 6	L- CL150	G V-TEFTM/ O2 Cleaned spiral wound, graphite stem packing and seals	-- Std. Bonnet Ext.	00 SS locking oval handle	-L Cleaned for O2 Service
	Stainless Steel Construction. Other materials available upon request.		D 3/4"		M- CL300	*Z V-TEFTM/ Low emission, wire braided, graphite stem packing/ Graphite seals	V **12" Ext. Bonnet	04 Locking Lever Handle	
			E 1"					08 Gear operator	
			G 1-1/2"					09 Tee handle	
			H 2"					20 DA80 psig actuator	
			K 3"					27 DA60 psig actuator	
			L 4"					34 SR80 psig actuator	
								41 SR60 psig actuator	

Note: Valves with Seat/Seal Code "Z" are not O2 Clean

04 handle option not available for 3" or 4" 4" gear operator or actuated only

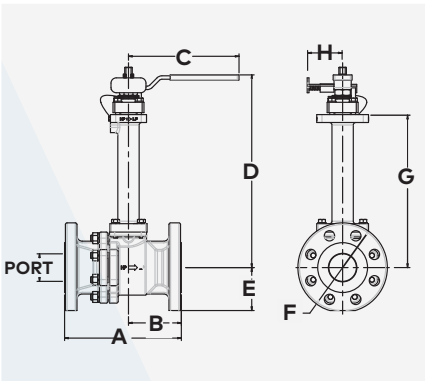
** 12" Extended Bonnet is Minimum 12" from Pipe CL to Bottom of Bonnet Flange.

Testing and Documentation Available

- PMI (Positive Material Identification)
- LP (Liquid Penetrant)
- Radiographic Examination
- Magnetic Particle Examination
- Ultrasonic Examination

"CN" Series CL600, Firesafe ANSI Cryogenic Valves

"CN" Series ANSI Cryogenic Valve (CL600)



SIZE	UOM	PORT DIA.	PRESSURE CLASS	A OVERALL LENGTH	B C ₁ TO END FACE	C HANDLE LENGTH	D C ₂ TO TOP OF STEM	E C ₃ TO VALVE BOTTOM	F FLANGE DIA.	G	H	HOLE DIA. FOR LOCK	TORQUE				
													UNIT	at 70°F	at -320°F	ACT. SIZING	
1/2"	DN15	inches	0.50	CL600	6.50	3.11	8.09	10.21	1.81	3.75	7.87	2.08	0.28	IN-LBS	150	160	240
		mm	12.7	110 PN	165.1	79.0	205.5	259.3	46.0	95.3	199.9	52.8	7.1	N-m	17	18	27
3/4"	DN20	inches	0.75	CL600	7.50	3.75	8.09	10.21	2.25	4.62	7.87	2.08	0.28	IN-LBS	160	225	338
		mm	19.1	110 PN	190.5	95.3	205.5	259.3	57.15	117.3	199.9	52.8	7.1	N-m	18	25	38
1"	DN25	inches	1.00	CL600	8.50	4.07	18.03	11.14	2.38	4.88	7.70	2.57	0.38	IN-LBS	540	660	990
		mm	25.4	110 PN	215.9	103.4	458.0	283.0	60.5	124.0	195.6	65.3	9.7	N-m	61	75	112
1-1/2"	DN40	inches	1.50	CL600	9.50	4.02	CF	CF	3.38	6.12	10.81	CF	CF	IN-LBS	1020	1200	1800
		mm	38.1	110 PN	241.3	102.1	CF	CF	85.9	155.4	274.6	CF	CF	N-m	115	136	203
2"	DN50	inches	2.00	CL600	11.50	5.75	CF	CF	3.25	6.50	11.11	CF	CF	IN-LBS	1200	1680	2520
		mm	50.8	110 PN	292.1	146.1	CF	CF	82.6	165.1	282.2	CF	CF	N-m	136	190	285
3"	DN80	inches	3.00	CL600	14.00	6.00	CF	CF	4.31	8.25	13.41	CF	CF	IN-LBS	1740	1800	2700
		mm	76.2	110 PN	355.6	152.4	CF	CF	109.5	209.6	340.6	CF	CF	N-m	197	203	305
4"	DN100	inches	4.00	CL600	17.00	7.75	CF	CF	5.69	10.75	15.08	CF	CF	IN-LBS	3120	3240	4860
		mm	101.6	110 PN	431.8	196.9	CF	CF	144.5	273.1	383.0	CF	CF	N-m	353	366	549

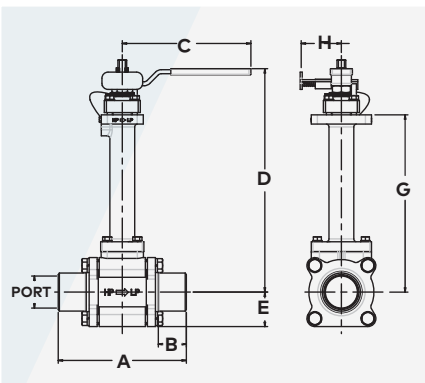
How To Order:

PRODUCT	MATERIAL	SIZE	SERIES	END	SEAT & SEAL	BONNET	OPERATOR	VALVE PREPARATION
CN	H- 316 Stainless Steel	D 3/4"	6 Series 6	N- CL600 RF FLANGED	G V-TEF™/ Graphite Seals, Spiral wound graphite stem packing	-- Std. Bonnet	00 No Handle, Stem Actuator Prep	-L Oxygen Clean Per IMI PBM Procedure *G* seat/seal code only
	Stainless Steel Construction. Other materials available upon request.	E 1"			*Z V-TEF™/ Graphite Seals, Spiral wound graphite stem packing	V **12" Ext. Bonnet	04 Locking Lever Handle - Std. 1/2" - 1" Only	-- No Oxygen Clean *Z* seat/seal code only
		G 1-1/2"					08 Gear operator - Std. 1-1/2" - 4" only	
							20 DA80 psig actuator	
		H 2"					27 DA60 psig actuator	
		K 3"					34 SR60 psig actuator	
		L 4"					34 SR80 psig actuator	
							41 SR60 psig actuator	

Note: Valves with Seat/Seal Code "Z" are not O2 Clean

** 12" Extended Bonnet is Minimum 12" from Pipe CL to Bottom of Bonnet Flange.

"C6" Series 2-Way Cryogenic Valve (CL600)



"C6" Series CL600, Firesafe Cryogenic Valves

SIZE	UOM	PORT DIA.	PRESSURE CLASS	EXT. SOCKET WELD		A	B	D	E	F	G	HOLE DIA. FOR LOCK	TORQUE							
				BUTT WELD	SOCKET DEPTH								FNPT	HANDLE LENGTH	C ₁ TO TOP OF STEM	UNIT	at 70°F	at -320°F	ACT. SIZING	
1/2"	DN15	inches	0.50	CL600	6.50	1.50	7.32	0.41	4.12	8.09	10.21	1.59	7.87	2.08	0.28	IN-LBS	150	160	240	
		mm	12.7	110 PN	165.1	38.1	185.9	10.4	104.7	205.5	259.3	40.4	199.9	52.8	7.1	N-m	17	18	27	
3/4"	DN20	inches	0.75	CL600	7.50	1.75	8.56	0.53	4.25	8.09	10.21	1.59	7.87	2.08	0.28	IN-LBS	160	225	338	
		mm	19.1	110 PN	190.5	44.5	217.4	13.5	108.0	205.5	259.3	40.4	199.9	52.8	7.1	N-m	18	25	38	
1"	DN25	inches	1.00	CL600	8.50	2.50	9.56	0.53	5.50	18.03	11.14	2.38	7.70	2.57	0.28	IN-LBS	540	660	990	
		mm	25.4	110 PN	215.9	63.5	242.8	13.5	139.7	458.0	283.0	60.5	195.6	65.3	7.1	N-m	61	75	112	
1-1/2"	DN40	inches	1.50	CL600	11.00	3.00	12.06	0.53	7.00	CF	CF	CF	2.75	10.81	CF	CF	IN-LBS	1020	1200	1800
		mm	38.1	110 PN	279.4	76.2	306.3	13.5	177.8	CF	CF	CF	69.9	274.6	CF	CF	N-m	115	136	203
2"	DN50	inches	2.00	CL600	11.50	3.25	12.82	0.66	7.00	CF	CF	CF	3.00	11.11	CF	CF	IN-LBS	1200	1680	2520
		mm	50.8	110 PN	292.1	82.6	325.6	17.8	177.8	CF	CF	CF	76.2	282.2	CF	CF	N-m	136	190	285
3"	DN80	inches	3.00	CL600	15.50	4.35	16.38	0.69	11.00	CF	CF	CF	4.38	13.41	CF	CF	IN-LBS	1740	1800	2700
		mm	76.2	110 PN	393.7	110.5	416.1	17.5	279.4	CF	CF	CF	111.3	340.6	CF	CF	N-m	197	203	305
4"	DN100	inches	4.00	CL600	18.50	5.00	20.13	0.81	N/A	CF	CF	CF	5.38	15.08	CF	CF	IN-LBS	3120	3240	4860
		mm	101.6	110 PN	469.9	127.0	511.3	20.6	N/A	CF	CF	CF	136.7	383.0	CF	CF	N-m	353	366	549

How To Order:

PRODUCT	MATERIAL	SIZE	SERIES	END	SEAT & SEAL	BONNET	OPERATOR	VALVE PREPARATION
CN	H- 316 Stainless Steel	D 3/4"	6 Series 6	N- CL600 RF FLANGED	G V-TEF™/ Graphite Seals, Spiral wound graphite stem packing	-- Std. Bonnet Ext.	00 No Handle, Stem Actuator Prep	-L Oxygen Clean Per IMI PBM Procedure *G* seat/seal code only
		E 1"			*Z V-TEF™/ Graphite Seals, Spiral wound graphite stem packing	V **12" Ext. Bonnet	04 Locking Lever Handle - Std. 1/2" - 1" Only	-- No Oxygen Clean *Z* seat/seal code only
		G 1-1/2"					08 Gear operator - Std. 1-1/2" - 4" only	
		H 2"					27 DA60 psig actuator	
		K 3"					34 SR60 psig actuator	
		L 4"					34 SR80 psig actuator	
							41 SR60 psig actuator	

Note: Valves with Seat/Seal Code "Z" are not O2 Clean



www.pbmvalve.com

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