Jomar VALVE

High Performance Butterfly Valve Specification Packet

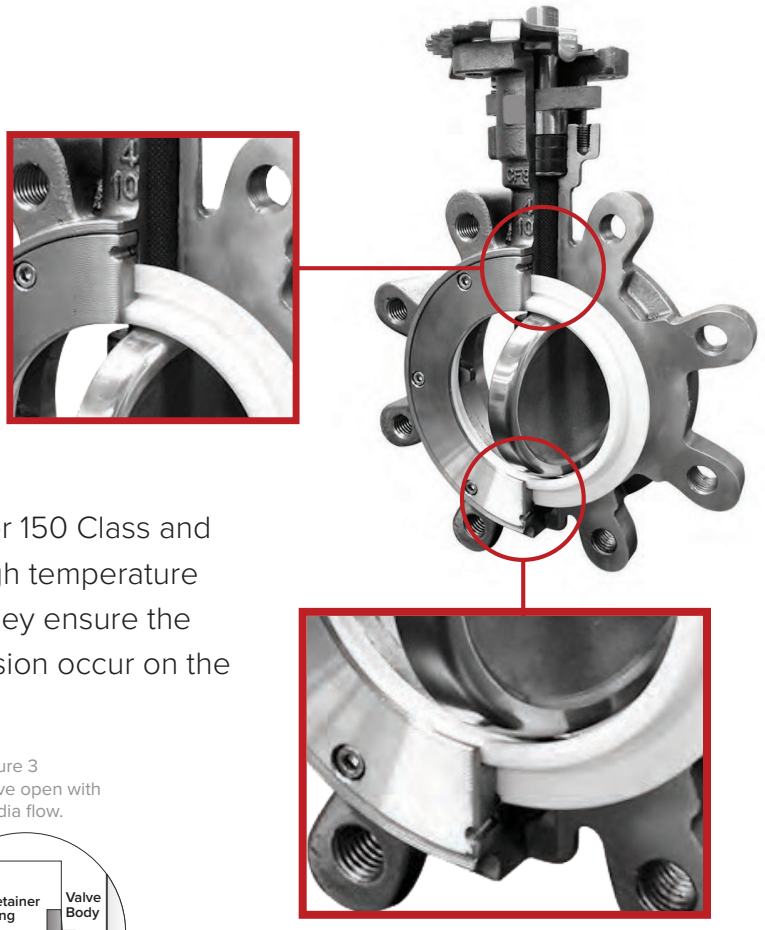
Models

HPBFV-600-CS-150
HPBFV-600-SS-150
HPBFV-600-CS-300
HPBFV-600-SS-300

High Performance Features

Jomar's high performance lug butterfly valve (HPBFV) is available in 150 Class and 300 Class, with carbon or stainless steel body options. The valve's simple design allows for an easy installation to prevent errors. The body and disc are manufactured using investment casting methods adhering to ISO standards. The body features a direct mount pad for actuation and an internally casted stop to prevent over-traveling. Our lug body is suitable for bidirectional dead end service and indicates the preferred flow direction with an arrow. The carbon steel body features a powder coated epoxy finish, while the stainless steel body features an A351 stainless steel finish.

Jomar's HPBFV is a double offset design that standardizes on a stainless disc and features a one piece blowout proof 17-4 PH® stainless steel shaft with a corrosion-resistant graphite meshed coating. The valve includes a gland flange which applies a load against the packing gland to prevent external leakage. If a stem leak occurs, this allows the valve's packing gland to be tightened in the field, stopping the leak.



Seat Options

Reinforced Teflon (RPTFE), Fire-Safe, or Metal seats are available for the HPBFVs, dependent on model. RPTFE provides a common soft-seated design which is ideal for most applications.

The Fire-Safe and Metal Seats are available for 150 Class and are suitable for applications where there is high temperature exposure. These seat options are viable as they ensure the elastomer O-Rings will not swell nor will corrosion occur on the metal.

Figure 1
Valve closed, flow right to left.

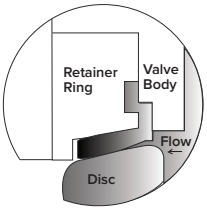


Figure 2
Valve closed, flow left to right.

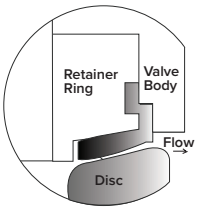
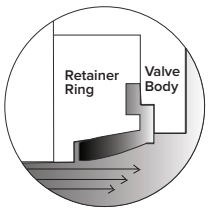


Figure 3
Valve open with media flow.



The flange-facing finish is designed in accordance to ASME B16.5 (6.4.5.3) allowing the retainer ring to provide a tight seal in the valve. Additionally, the outside diameter of the retainer ring is recessed within the body to provide quality sealing and prevent external leakage. These features and more make Jomar's high performance butterfly valve ideal for commercial, industrial and mechanical applications.

High Performance Butterfly Valve, 150 Class

Models: HPBFV-600-CS-150 & HPBFV-600-SS-150

Features:

- Size: 2” - 24”
- Pressure Rating: 150 Class
- Body Material: Carbon or Stainless Steel
- Seat Material: RPTFE or Fire-Safe Metal
- Operation: Lever, Gear, Actuators
- Drilling: ANSI 150

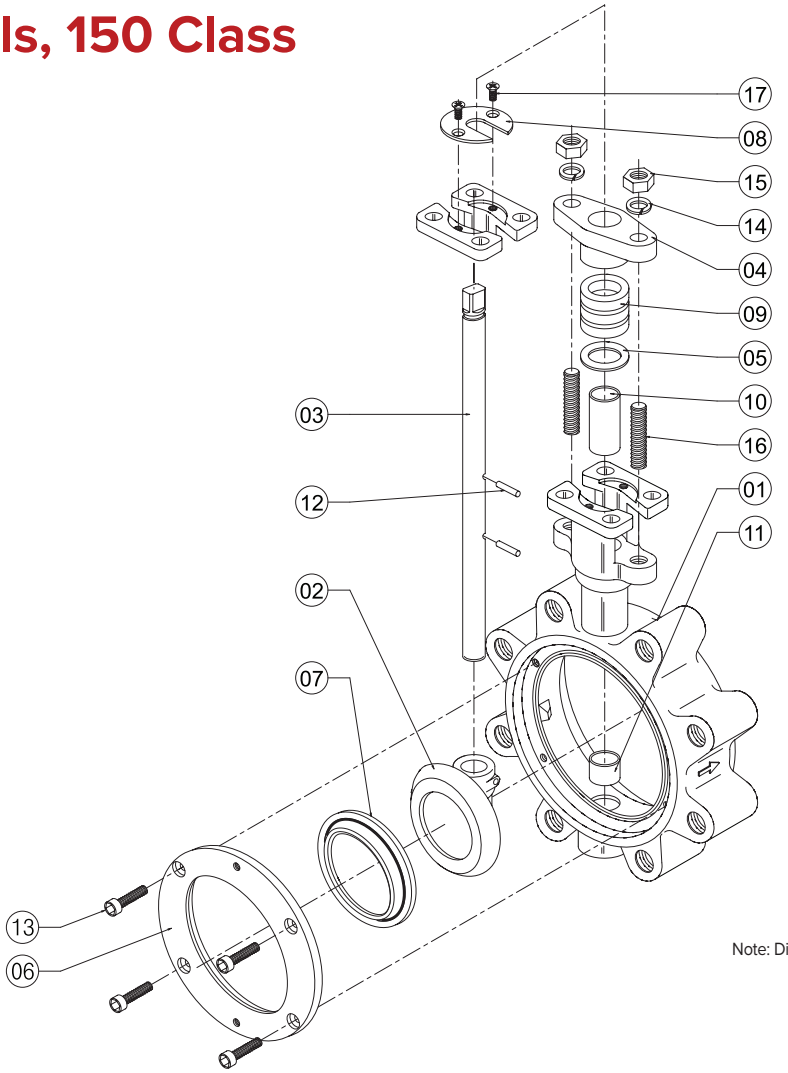
Valve Rating:

- Basic Design: API 609, MSS-SP-68, BS 5155, ISO 5752
- Pressure / Temperature Rating: ANSI B16.34
- Shell/Seat Test: API 598, MSS-SP-61
- Working Pressure: 150 Class (285 psig)
- Metal to Metal Seat Leakage: Class IV per ASME/FCI 70-2

Benefits:

- Bubble-tight Shut-off Design
- Corrosion Resistant One-Piece Body
- Durable One-Piece Stem A564 Gr.630/17-4 PH® Materials
- ISO 5211 Mounting Pad
  - 2” - 12” – Square Design
  - 14” - 24” – Keyed Design
- Tight Gland Packing Flange to Prevent Uneven Load Distribution
- Dual Offset Disc Design
- RPTFE or Fire-Safe Metal Seat Available
- Internal Stop to Prevent Disc Over-travel
- Heavy Duty Handle Design with 10 Position Notch Plate

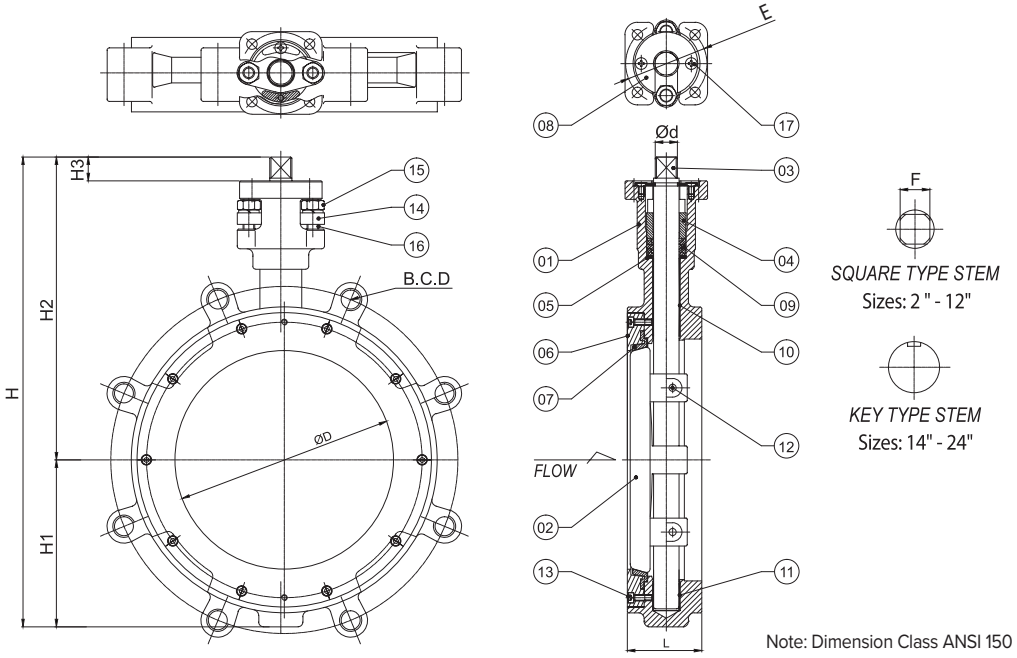
Materials, 150 Class



Note: Dimension Class ANSI 150

NO.	DESCRIPTION	HPBFV-600-CS-150		HPBFV-600-SS-150		QUANTITY
		SOFT SEAT	FIRE-SAFE SEAT	SOFT SEAT	FIRE-SAFE SEAT	
1	Body	A216 WCB		A351 CF8M		1
2	Disc	A351 CF8M				1
3	Stem	A564 Gr. 360				1
4	Gland Flange	A216 WCB		A351 CF8M		1
5	Packing Retainer	A276 TP 316				1
6	Retainer Ring	A351 CF8M				1
7	Seat	RPTFE	Fire-Safe Metal	RPTFE	Fire-Safe Metal	1
8	Top Retainer	A283D-A36		A276 TP 316		1
9	Grand Packing	Graphite				3
10	Upper Bearing	RPTFE+316SS				1
11	Lower Bearing	RPTFE+316SS				1
12	Disc Pin	A276 TP 316				2
13	Hex Socket Bolt	A283D-A36		A276 316SS		4 ~ 14
14	Spring Washer	A283D-A36		A276 316SS		2
15	Hex Nut	A283D-A36		A276 316SS		2
16	Stud Bolt	A283D-A36		A276 316SS		2
17	Flat Head Screw	A283D-A36		A276 316SS		2

Lug Type, 150 Class



Note: Dimension Class ANSI 150

Size (in)	H	H1	H2	H3	Ød	F	ØD	E	L	B.C.D	n*	h*
2”	8.63	2.36	6.27	0.60	0.51	0.43	1.65	F07	1.73	4.75	4	0.75
2-1/2”	9.54	2.76	6.78	0.60	0.63	0.55	2.40	F07	1.81	5.50	4	0.75
3”	9.85	3.01	6.84	0.60	0.63	0.55	2.91	F07	1.89	6.00	4	0.75
4”	11.07	3.54	7.53	0.70	0.63	0.55	3.70	F07	2.13	7.50	8	0.75
5”	12.55	4.09	8.45	0.70	0.71	0.55	4.65	F07	2.24	8.50	8	0.87
6”	13.62	4.53	9.09	0.75	0.87	0.67	5.51	F07	2.28	9.50	8	0.87
8”	15.91	5.65	10.26	0.81	0.87	0.67	7.40	F07	2.52	11.75	8	0.87
10”	18.44	6.69	11.75	0.81	1.10	0.87	9.39	F10	2.81	14.25	12	1.00
12”	20.63	7.76	12.88	0.95	1.10	0.87	11.02	F10	3.19	17.00	12	1.00
14”	26.87	11.00	15.87	2.76	1.50	-	-	F14	3.62	18.75	12	1.13
16”	31.66	12.54	19.12	3.48	1.77	-	-	F16	4.02	21.75	16	1.13
18”	33.73	13.31	20.41	3.48	2.17	-	-	F16	4.49	22.75	16	1.25
20”	34.59	14.17	20.41	3.48	2.17	-	-	F16	5.00	25.00	20	1.25
24”	39.76	16.70	23.05	3.68	2.56	-	-	F16	6.06	29.50	20	1.37

*Note: n = number of bolt holes
h = bolt hole diameter

Torque Data, 150 Class

lbs.inch	150 CLASS			
	ACTUAL TORQUE: lbf.inch			
	RPTFE SEAT		METAL SEAT	
SIZE	150 PSIG	285 PSIG	150 PSIG	285 PSIG
2”	200	270	564	677
2-1/2”	200	270	564	677
3”	200	270	564	677
4”	225	470	903	1128
5”	540	680	1467	2144
6”	540	680	1467	2144
8”	910	1620	2031	2595
10”	1620	2530	3385	4288
12”	2530	3600	4513	5190
14”	3720	5970		
16”	5530	9180		
18”	6840	11900		
20”	10020	16970		
24”	18330	32290		

The torques listed above are applicable to most medias, including water and hydrocarbons, between temperatures 32-180°F. The operating speed of the actuator must be considered to avoid water hammer when the valve is closed.

Multiple factors affect the torque required to operate butterfly valves. Please consult Jomar Valve for additional assistance.

Flow Coefficient Charts, 150 Class

150 CLASS SIZE	DISC OPENING							
	20°	30°	40°	50°	60°	70°	80°	90°
Inches	C_V							
2”	6	14	25	39	56	76	99	102
2-1/2”	9	21	37	56	80	110	142	146
3”	14	32	57	87	125	171	221	228
4”	27	63	114	171	248	338	437	451
5”	43	100	180	271	392	535	692	714
6”	66	154	278	419	607	827	1070	1103
8”	124	289	520	784	1135	1584	2002	2064
10”	211	492	886	1336	1934	2638	3411	3517
12”	290	677	1219	1838	2660	3628	4690	4837
14”	392	914	1646	2481	3592	4898	6530	6857
16”	531	1230	2229	3361	4865	6634	8845	9287
18”	684	1596	3873	4332	6270	8850	11270	11400
20”	828	1932	3478	5244	7590	10350	13800	14420
24”	1260	2940	5292	7890	11550	15750	21000	22050

C_V is an imperial unit measuring the water flow in U.S. gallons per minute, which passes through the valve giving a pressure drop of 1 PSI at a temperature of 68° F.

$$Q = Cv \cdot \sqrt{\frac{\Delta p \cdot 62.4}{D}}$$

Where:

Q = valve flow rate in gpm (USGPM)

δp = pounds per square inch (PSI) pressure drop through valve

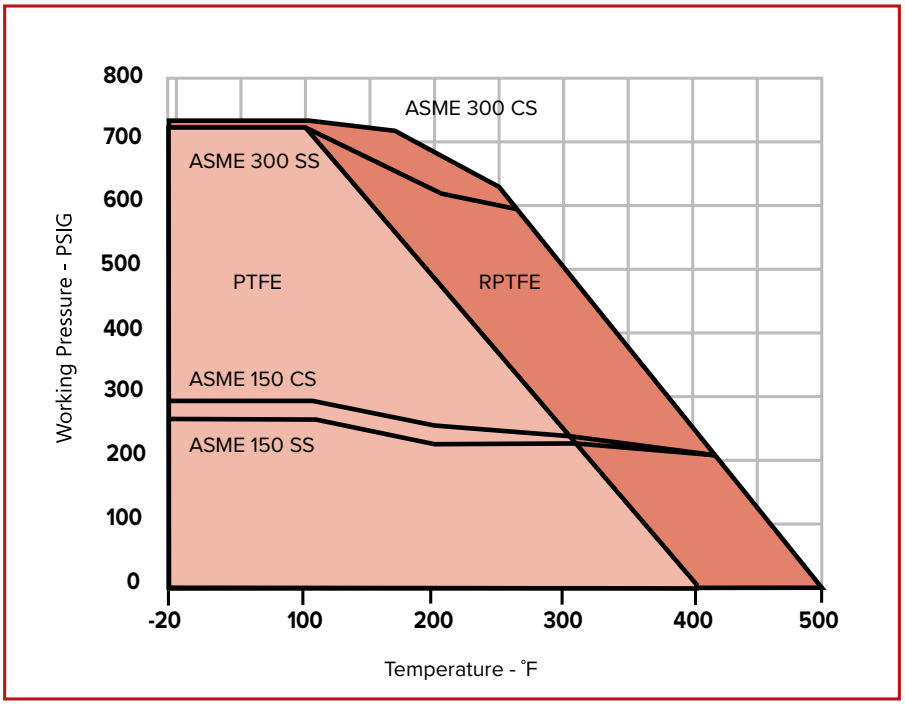
62.4 = conversion factor for fluids computed in relation to water

D = pounds per cu ft (PCT) fluid density

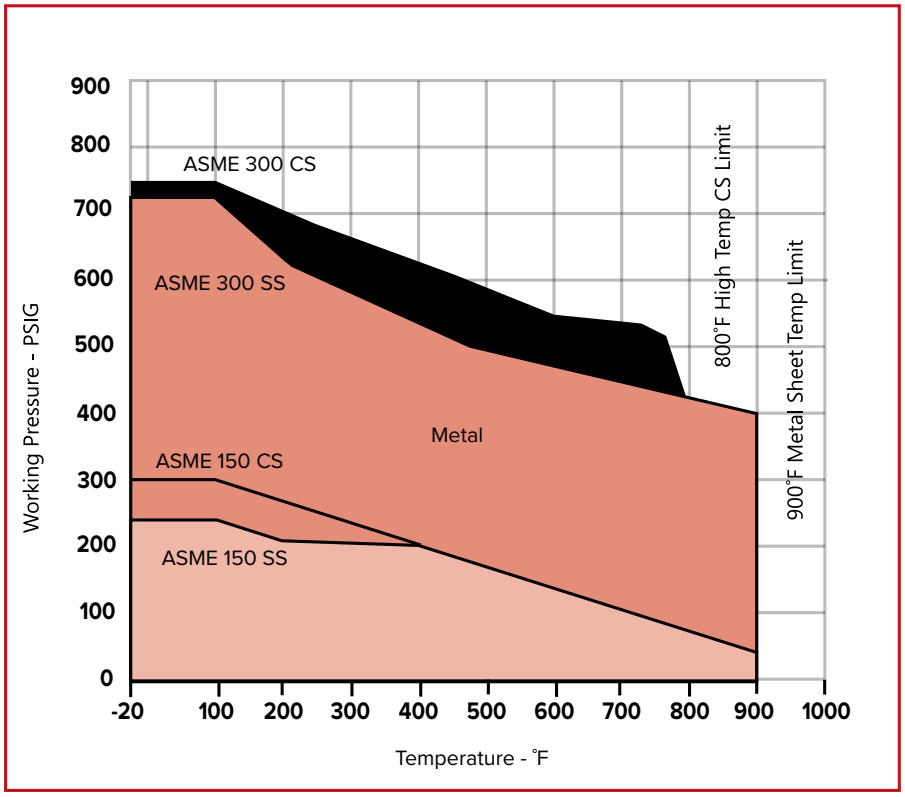
Technical Data, 150 Class

Pressure vs. Temperature

PTFE & RPTFE Seat

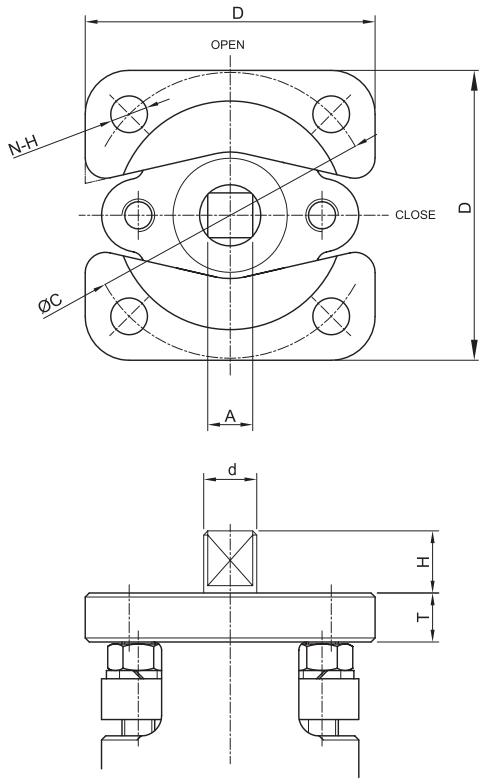


Metal Seat, 150 Class

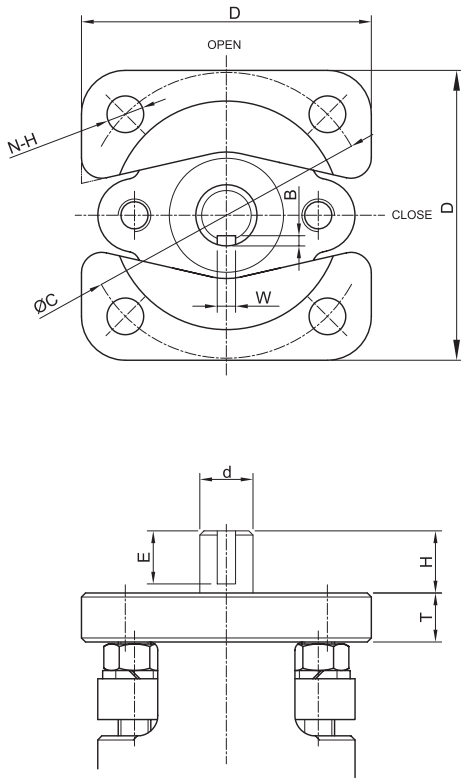


Butterfly Valve Top Flange Dimensions, 150 Class

SIZE 2" - 12"



SIZE 14" - 24"



SIZE in.	d	T	ØC	N-H	A	D	B	W	H	E
2"	0.51	0.47	F07	0.35	0.43	2.80	-	-	0.60	-
2-1/2"	0.63	0.47	F07	0.35	0.55	2.80	-	-	0.60	-
3"	0.63	0.47	F07	0.35	0.55	2.80	-	-	0.60	-
4"	0.63	0.47	F07	0.35	0.55	2.80	-	-	0.70	-
5"	0.71	0.55	F07	0.35	0.63	2.80	-	-	0.70	-
6"	0.87	0.55	F07	0.35	0.67	2.80	-	-	0.75	-
8"	0.87	0.63	F07	0.35	0.67	2.80	-	-	0.81	-
10"	1.00	0.71	F10	0.43	0.87	3.74	-	-	0.81	-
12"	1.10	0.71	F10	0.43	0.87	3.74	-	-	0.95	-
14"	1.50	0.71	F14	0.71	-	5.51	0.20	0.47	2.76	2.36
16"	1.77	0.79	F16	0.87	-	6.30	0.20	0.47	3.48	2.76
18"	2.17	0.79	F16	0.87	-	6.30	0.20	0.47	3.48	2.76
20"	2.17	0.79	F16	0.87	-	6.30	0.20	0.47	3.48	2.76
24"	2.17	0.79	F16	0.87	-	6.30	0.20	0.47	3.68	2.76

High Performance Butterfly Valve, 300 Class

Models: HPBFV-600-CS-300 & HPBFV-600-SS-300

Features:

- Size: 2” - 12”
- Pressure Rating: 300 Class
- Body Material: Carbon or Stainless Steel
- Seat Material: RPTFE
- Operation: Lever, Gear, Actuators
- Drilling: ANSI 300

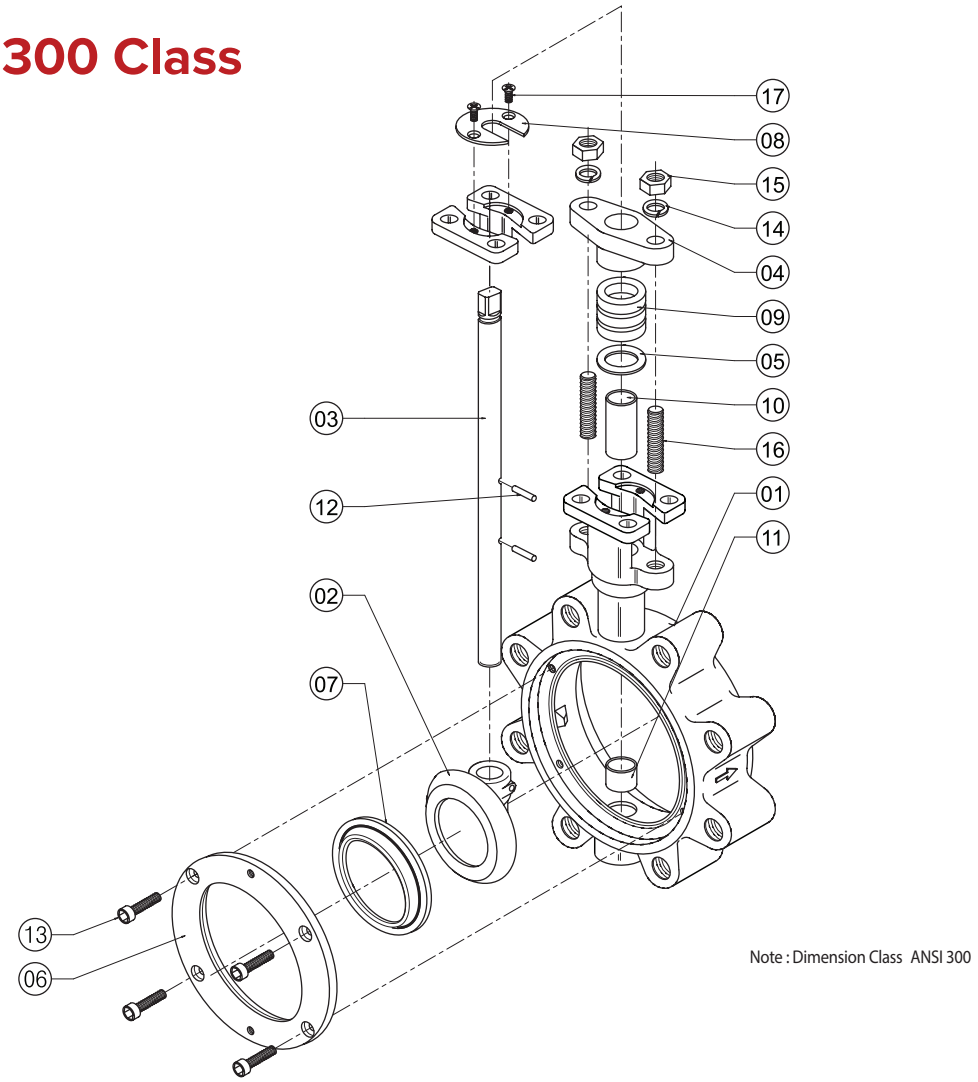
Valve Rating:

- Basic Design: API 609, MSS-SP-68, BS 5155, ISO 5752
- Pressure / Temperature Rating: ANSI B16.34
- Shell/Seat Test: API 598, MSS-SP-61
- Working Pressure: 300 Class (740 PSIG)

Benefits:

- Bubble-Tight Shut-off Design
- Corrosion Resistant One-Piece Body
- Durable One-Piece Stem A564 Gr.630/17-4 PH® Materials
- ISO 5211 Mounting Pad
  - 2” - 12” – Square Design
- Tight Gland Packing Flange to Prevent Uneven Load Distribution
- Dual Offset Disc Design
- Internal Stop to Prevent Disc Over-travel
- Heavy Duty Handle Design with 10 Position Notch Plate

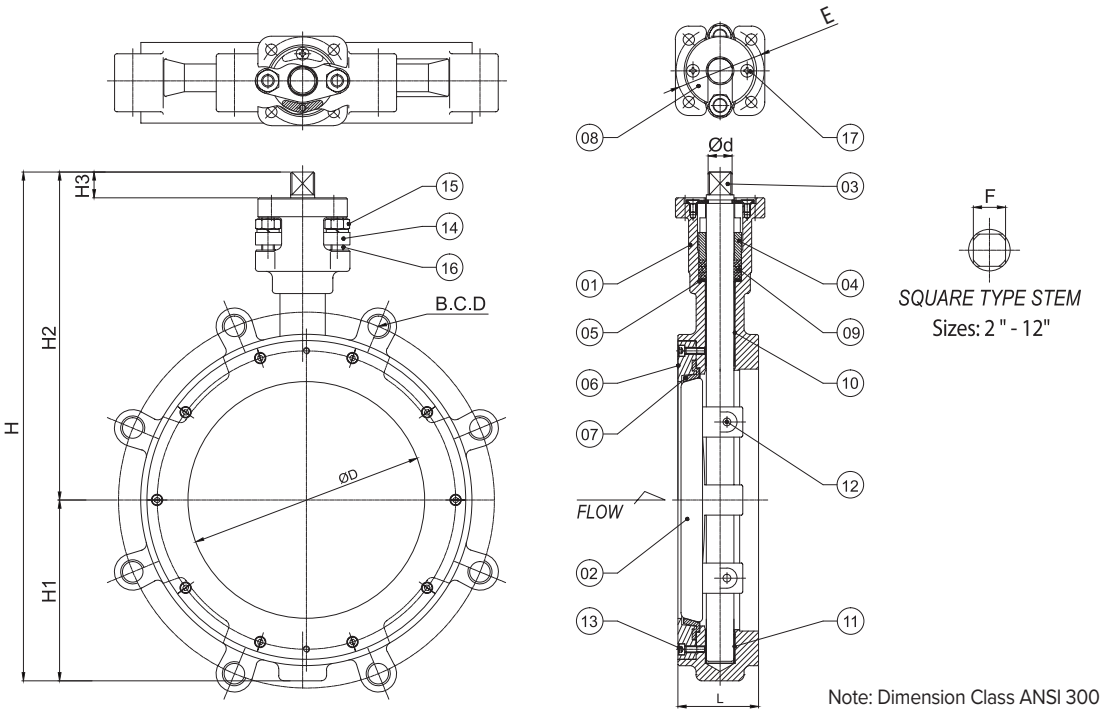
Materials, 300 Class



Note : Dimension Class ANSI 300

NO.	DESCRIPTION	HPBFV-600-CS-300		HPBFV-600-SS-300		QUANTITY
		SOFT SEAT	FIRE-SAFE SEAT	SOFT SEAT	FIRE-SAFE SEAT	
1	Body	A216 WCB		A351 CF8M		1
2	Disc	A351 CF8M				1
3	Stem	A564 Gr. 360				1
4	Gland Flange	A216 WCB		A351 CF8M		1
5	Packing Retainer	A276 TP 316				1
6	Retainer Ring	A351 CF8M				1
7	Seat	RPTFE		RPTFE		1
8	Top Retainer	A283D-A36		A276 TP 316		1
9	Grand Packing	Graphite				3
10	Upper Bearing	RPTFE+316SS				1
11	Lower Bearing	RPTFE+316SS				1
12	Disc Pin	A276 TP 316				2
13	Hex Socket Bolt	A283D-A36		A276 316SS		4 ~ 14
14	Spring Washer	A283D-A36		A276 316SS		2
15	Hex Nut	A283D-A36		A276 316SS		2
16	Stud Bolt	A283D-A36		A276 316SS		2
17	Flat Head Screw	A283D-A36		A276 316SS		2

Lug Type, 300 Class



Note: Dimension Class ANSI 300

Size (in)	H	H1	H2	H3	Ød	F	ØD	E	L	B.C.D	n*	h*
2”	8.63	2.36	6.27	0.60	0.51	0.43	1.65	F07	1.73	5.00	8	0.75
2-1/2”	9.54	2.76	6.77	0.60	0.63	0.55	2.40	F07	1.81	5.87	8	0.87
3”	9.85	3.01	6.84	0.60	0.63	0.55	2.91	F07	1.89	6.63	8	0.87
4”	11.07	3.54	7.53	0.70	0.63	0.55	3.70	F07	2.13	7.87	8	0.87
5”	12.55	4.09	8.45	0.70	0.71	0.55	4.65	F07	2.24	9.25	8	0.87
6”	13.62	4.53	9.09	0.75	0.91	0.67	5.51	F07	2.28	10.63	12	0.87
8”	15.91	5.65	10.26	0.81	1.10	0.87	7.40	F07	2.87	13.00	12	1.00
10”	18.44	6.69	11.75	0.81	1.10	0.87	9.39	F10	3.25	15.25	16	1.13
12”	20.71	7.83	12.88	0.95	1.10	0.87	11.02	F10	3.62	17.75	16	1.25

*Note: n = number of bolt holes
h = bolt hole diameter

Torque Data, 300 Class

lbs.inch	300 CLASS ACTUAL TORQUE: lbf.inch RPTFE SEAT	
SIZE	150 PSIG	285 PSIG
2”	220	520
2-1/2”	220	520
3”	220	520
4”	250	670
5”	600	1120
6”	600	1120
8”	1000	2440
10”	1800	4640
12”	2790	7480

The torques listed above are applicable to most medias, including water and hydrocarbons, between temperatures 32-180°F. The operating speed of the actuator must be considered to avoid water hammer when the valve is closed.

Multiple factors affect the torque required to operate butterfly valves. Please consult Jomar Valve for additional assistance.

Flow Coefficient Charts, 300 Class

300 CLASS SIZE	DISC OPENING							
	20°	30°	40°	50°	60°	70°	80°	90°
Inches	C_v							
2”	6	13	24	36	52	71	95	100
2-1/2”	8	19	34	52	75	102	136	143
3”	13	30	53	81	117	159	212	223
4”	25	58	104	157	228	310	414	435
5”	40	92	165	248	361	491	655	688
6”	60	139	250	377	546	744	992	1041
8”	109	255	459	692	1001	1365	1820	1911
10”	183	426	767	1156	1673	2282	3042	3194
12”	253	590	1063	1602	2319	3163	4217	4428

C_v is an imperial unit measuring the water flow in U.S. gallons per minute, which passes through the valve giving a pressure drop of 1 PSI at a temperature of 68° F.

$$Q = Cv \cdot \sqrt{\frac{\Delta p \cdot 62.4}{D}}$$

Where:

Q = valve flow rate in gpm (USGPM)

δp = pounds per square inch (PSI) pressure drop through valve

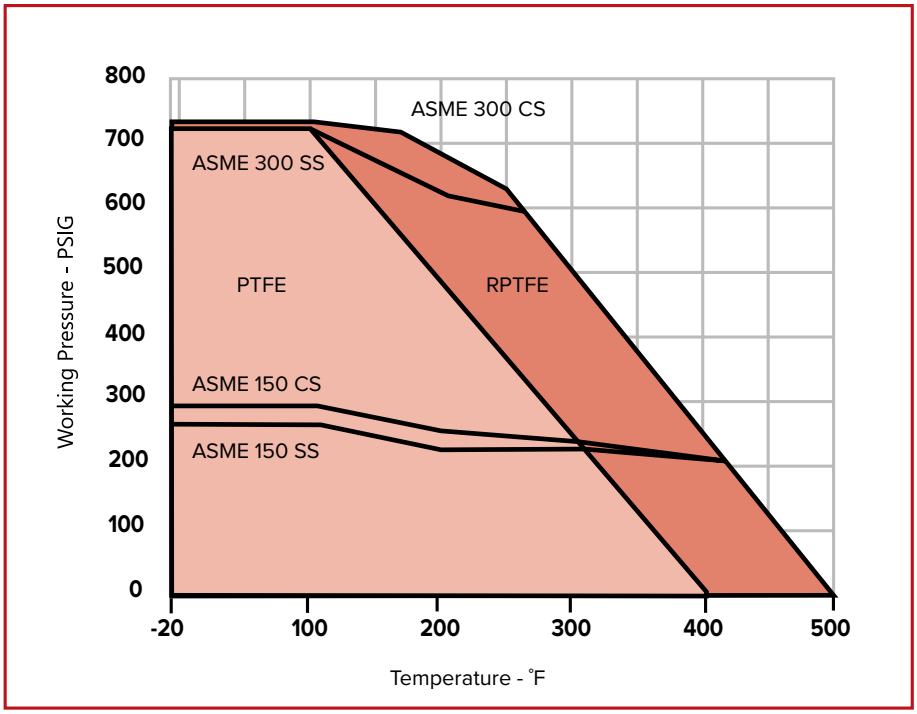
62.4 = conversion factor for fluids computed in relation to water

D = pounds per cu ft (PCT) fluid density

Technical Data, 300 Class

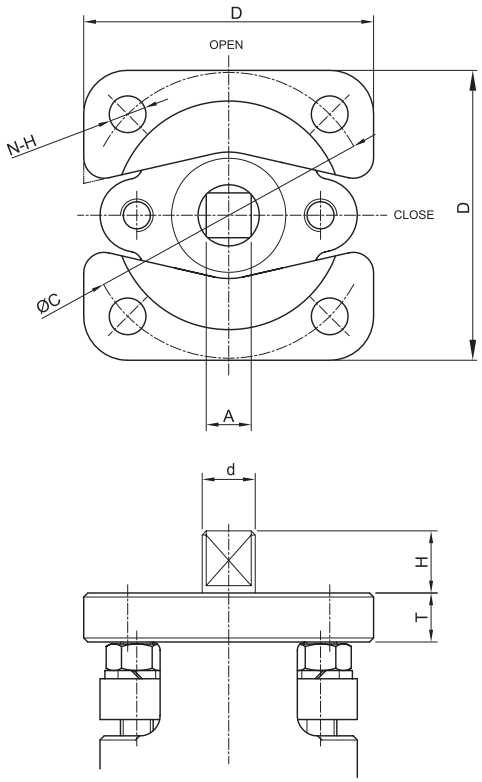
Pressure vs. Temperature

PTFE & RPTFE Seat



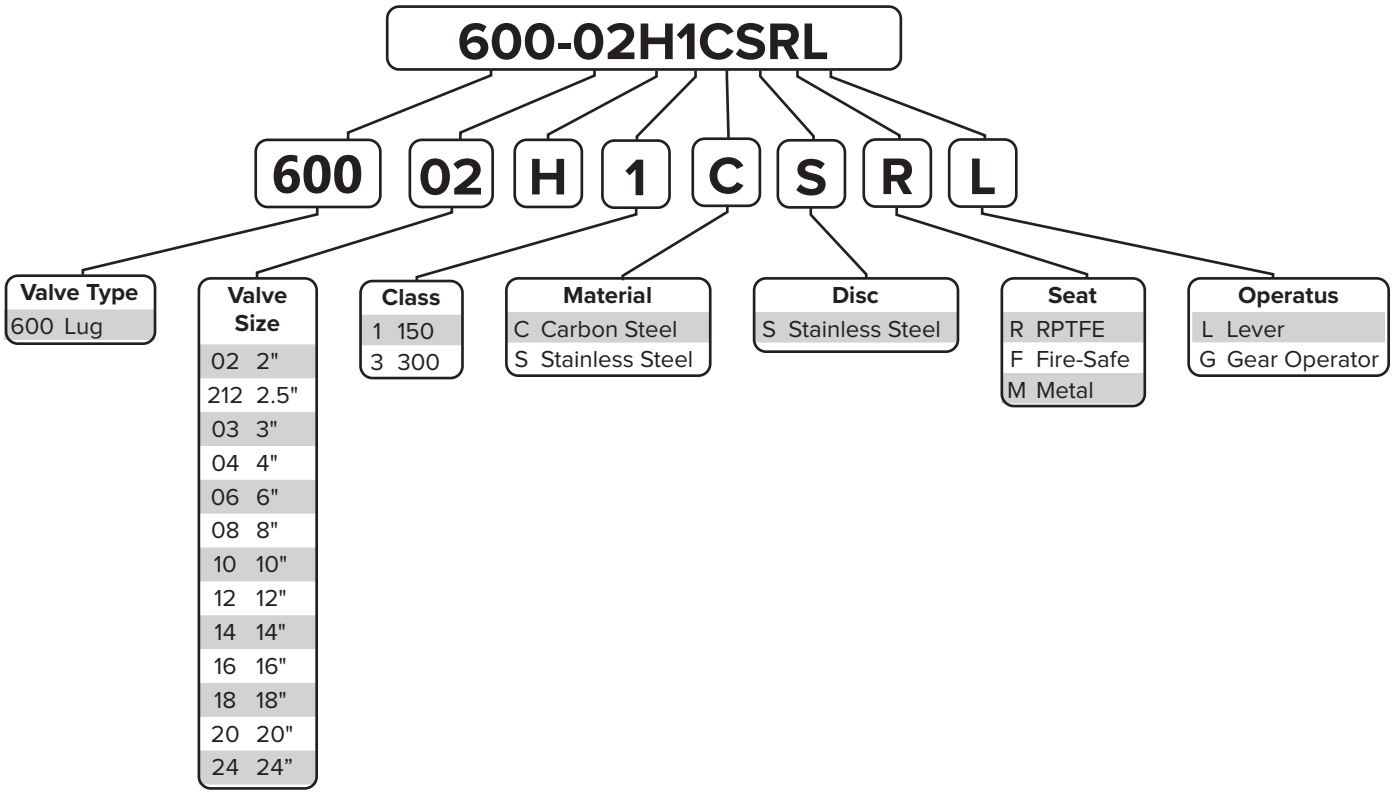
Butterfly Valve Top Flange Dimensions, 300 Class

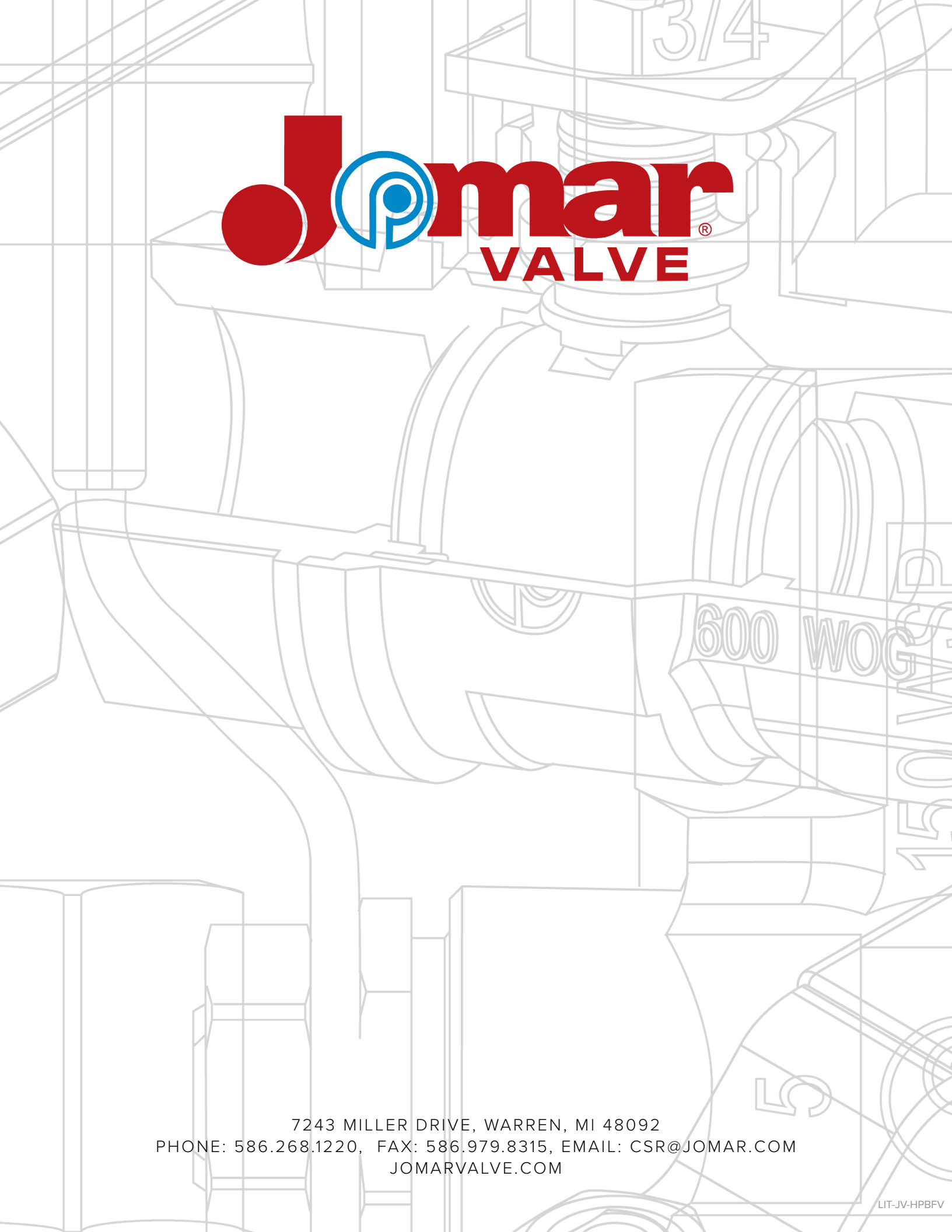
SIZE 2" - 12"



SIZE in.	d	T	ØC	N-H	A	D	B	W	H	E
2"	0.51	0.47	F07	0.35	0.43	2.80	-	-	0.60	-
2-1/2"	0.63	0.47	F07	0.35	0.55	2.80	-	-	0.60	-
3"	0.63	0.47	F07	0.35	0.55	2.80	-	-	0.60	-
4"	0.63	0.47	F07	0.35	0.55	2.80	-	-	0.70	-
5"	0.71	0.55	F07	0.35	0.63	2.80	-	-	0.70	-
6"	0.87	0.55	F07	0.35	0.67	2.80	-	-	0.75	-
8"	1.10	0.63	F07	0.43	0.87	3.74	-	-	0.81	-
10"	1.00	0.71	F10	0.43	0.87	3.74	-	-	0.81	-
12"	1.10	0.71	F10	0.43	0.87	3.74	-	-	0.95	-

Material Selection / How to Order





7243 MILLER DRIVE, WARREN, MI 48092
PHONE: 586.268.1220, FAX: 586.979.8315, EMAIL: CSR@JOMAR.COM
JOMARVALVE.COM

LIT-JV-HPBFV