

## Howell High Performance Butterfly Valve

### Specification:

One Piece Body in Carbon Steel or Stainless Steel

Pressure Rating: Class 150 and 300

Styles: Wafer or Lug Style

Operation: Lever, Gear or Actuator

API607 Firesafe configuration is available

ISO 5211 Direct Mounting Pad

Double off-set configuration with conical angled disc.

Secure Stem Retainer Plate provides blowout-proof protection.

Durable ASTM A564 Gr.630 Stainless Steel Square Stem

Gland flange prevents uneven load distribution against packing.

Internal travel stop design to prevent over travel of disc, minimizing possible seat damage.

Available with Electric and Pneumatic Actuators, Double Acting / Spring Return.

Size Range:

- Class 150: 2" to 24"
- Class 300: 2" to 12"



### Valve Rating:

Top flange mounting pad: ISO 5211

Basic Design: API609, MSS-SP-68, BS 5155, ISO 5752

Pressure/Temp Rating: ANSI B16.34

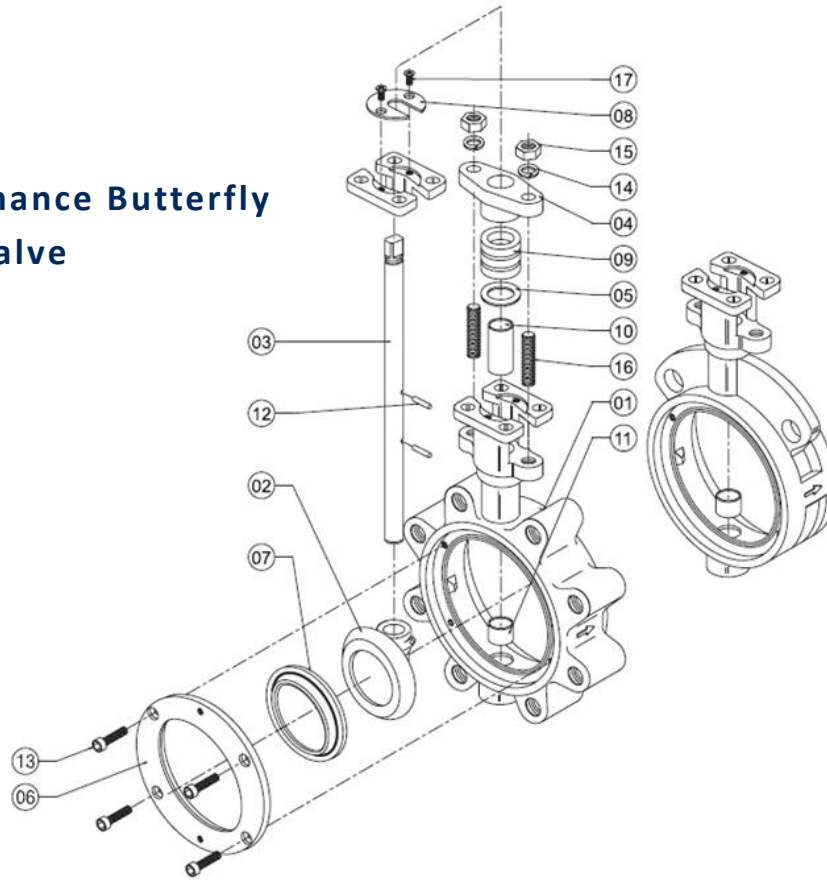
Shell/Seat Test: API 598, MSS-SP-61

Working Pressure:

- Class 150 (285 psig)
- Class 300 (740 psig)

Metal to Metal seat leakage is rated at Class IV per ASME/FCI 70-2

## High Performance Butterfly Valve

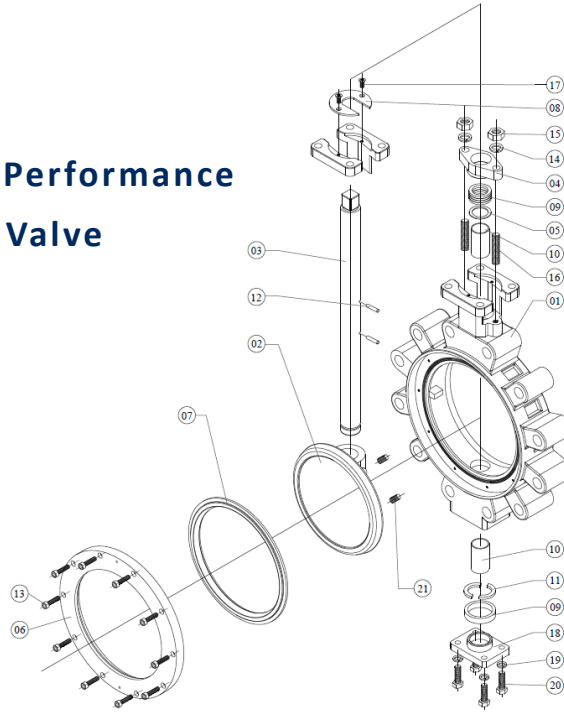


### MATERIALS LIST:

Item	Part	Material	Quantity
1	Body	A216WCB/A351 CF8M	1
2	Disc	A351 CF8M	1
3	Stem	A564 Gr.630	1
4	Gland Flange	A216WCB/A351 CF8M	1
5	Packing Retainer	A276 TP 316	1
6	Retainer Ring	A351 CF8M	1
7	Seat	PTFE/RTFE/316SS	1
8	Top Retainer	A276 TP 316	1
9	Gland Packing	Graphite	3 ~ 5
10	Upper Bearing	METALOPLAST	1
11	Lower Bearing	METALOPLAST	1
12	Disc Pin	A276 TP 316	2
13	Hex Socket Bolt	A283D - A36 / A276 316SS	4 ~ 16
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

\*\*Metal Seat type will have graphite seat ring

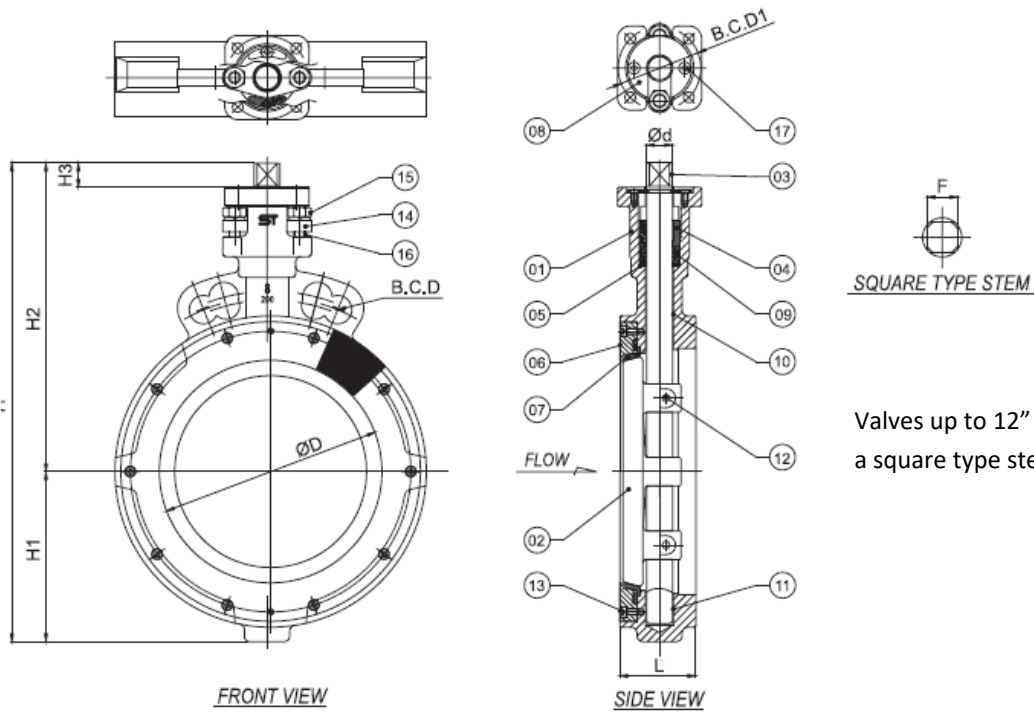
**Fire Safe** High Performance  
Butterfly Valve



**MATERIALS LIST:**

Item	Part	Material	Quantity
1	Body	A216 WCB / A351 CF8M	1
2	Disc	A351 CF8M	1
3	Stem	A564 Gr.630	1
4	Gland Flange	A216 WCB / A351 CF8M	1
5	Packing Retainer	A276 TP 316	1
6	Retainer Ring	A351 CF8M	1
7	Seat	Fire Safe RTFE + 316SS	1
8	Top Retainer	A276 TP 316	1
9	Gland Packing	Carbon Fibre Graphite + Braided Graphite	3 ~ 5
10	DU Bushing	A276 + 316SS	1
11	C-Type Ring	A276 + 316SS	1
12	Disc Pin	A276 + 316SS	2
13	Hex Socket Bolt	A283D-A36 / A276 TP 316	4 ~ 16
14	Spring Washer	A283D-A36 / A276 TP 316	2
15	Hex Nut	A283D-A36 / A276 TP 316	2
16	Stud Bolt	A283D-A36 / A276 TP 316	2
17	Flat Head Screw	A283D-A36 / A276 TP 316	2
18	Bottom Plug *	A216 WCB / A351 CF8M	1
19	Spring Washer *	A276 316SS / A283D A36	4
20	Bolt *	A276 316SS / A283D A36	4
21	Headless Bolt *	A276 316SS / A283D A36	2

\* Only  
Class 300,  
8" to 12"



Valves up to 12" feature a square type stem.

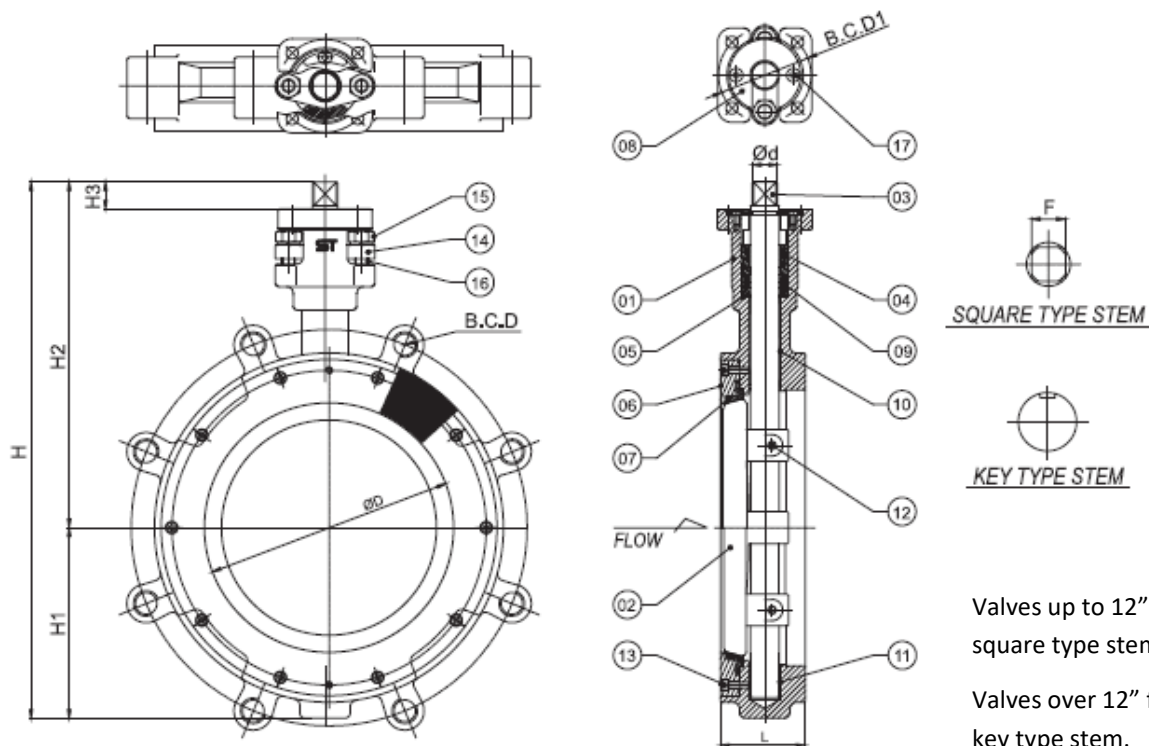
### Dimensions

#### STHW, Wafer Type, Class 150.

SIZE	H		H1		H2		H3		$\varnothing d$		F		$\varnothing D$		B.C.D1		L	
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
2"	8.63	219.2	2.36	60	6.27	159.2	0.6	15.2	0.51	13	0.43	11	1.65	42	2.76	70	1.73	44
2.5"	9.54	242.2	2.76	70	6.78	172.2	0.6	15.2	0.63	16	0.55	14	2.40	61	2.76	70	1.81	46
3"	9.85	250.2	3.01	76.5	6.84	173.7	0.6	15.2	0.63	16	0.55	14	2.91	74	2.76	70	1.89	48
4"	11.07	281.2	3.54	90	7.53	191.2	0.7	17.7	0.63	16	0.55	14	3.70	94	2.76	70	2.13	54
5"	12.55	318.7	4.09	104	8.45	214.7	0.7	17.7	0.71	18	0.55	14	4.65	118	2.76	70	2.24	57
6"	15.24	387.3	6.15	156.3	9.09	231	0.75	19	0.87	22	0.67	17	5.51	140	2.76	70	2.28	58
8"	15.91	404	5.65	143.5	10.26	260.5	0.81	20.5	0.87	22	0.67	17	7.40	188	2.76	70	2.52	64
10"	18.44	468.5	6.69	170.0	11.75	298.5	0.81	20.5	1.1	28	0.87	22	9.39	238.5	4.02	102	2.81	71.5
12"	22.12	561.9	9.24	234.8	12.88	327.1	0.95	24.1	1.1	28	0.87	22	11.02	280	4.02	102	3.19	81

#### STHW, Wafer Type, Class 300.

SIZE	H		H1		H2		H3		$\varnothing d$		F		$\varnothing D$		B.C.D1		L	
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
2"	8.63	219.2	2.36	60	6.27	159.2	0.6	15.2	0.51	13	0.43	11	1.65	42	2.76	70	1.73	44
2.5"	9.535	242.2	2.76	70	6.78	172.2	0.6	15.2	0.63	16	0.55	14	2.40	61	2.76	70	1.81	46
3"	9.85	250.2	3.01	76.5	6.84	173.7	0.6	15.2	0.63	16	0.55	14	2.91	74	2.76	70	1.89	48
4"	11.07	281.2	3.54	90	7.53	191.2	0.7	17.7	0.63	16	0.55	14	3.70	94	2.76	70	2.13	54
5"	12.55	318.7	4.09	104	8.45	214.7	0.7	17.7	0.71	18	0.55	14	4.65	118	2.76	70	2.24	57
6"	13.62	346	4.53	115	9.09	231	0.75	19	0.87	22	0.67	17	5.51	140	2.76	70	2.28	58
8"	17.4	442	7.16	182	10.24	260	0.81	20.5	1.1	28	0.87	22	7.40	188	4.02	102	2.87	73
10"	18.44	468.5	6.69	170	11.8	298.5	0.81	20.5	1.1	28	0.87	22	9.39	238.5	4.02	102	3.25	82.5
12"	20.12	510.9	7.24	183.8	12.88	327.1	0.95	24.1	1.1	28	0.87	22	11.02	280	4.02	102	3.62	92



Valves up to 12" feature a square type stem.  
Valves over 12" feature a key type stem.

## Dimensions

### STHL, Lug Type, Class 150.

SIZE	H		H1		H2		H3		$\phi d$		F		$\phi D$		B.C.D1		L	
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
2"	8.63	219.2	2.36	60	6.27	159.2	0.60	15.2	0.51	13	0.43	11	1.65	42	2.76	70	1.73	44
2.5"	9.54	242.2	2.76	70	6.78	172.2	0.60	15.2	0.63	16	0.55	14	2.40	61	2.76	70	1.81	46
3"	9.85	250.2	3.01	76.5	6.84	173.7	0.60	15.2	0.63	16	0.55	14	2.91	74	2.76	70	1.89	48
4"	11.07	281.2	3.54	90	7.53	191.2	0.70	17.7	0.63	16	0.55	14	3.70	94	2.76	70	2.13	54
5"	12.55	318.7	4.09	104	8.45	214.7	0.70	17.7	0.71	18	0.55	14	4.65	118	2.76	70	2.24	57
6"	13.62	346	4.53	115	9.09	231	0.75	19	0.87	22	0.67	17	5.51	140	2.76	70	2.28	58
8"	15.91	404	5.65	143.5	10.26	260.5	0.81	20.5	0.87	22	0.67	17	7.40	188	2.76	70	2.52	64
10"	18.44	468.5	6.69	170.0	11.75	298.5	0.81	20.5	1.10	28	0.87	22	9.39	238.5	4.02	102	2.81	71.5
12"	20.63	524.1	7.76	197	12.88	327.1	0.95	24.1	1.10	28	0.87	22	11.02	280	4.02	102	3.19	81
14"	27.4	696	10.41	264.5	16.99	431.5	2.76	70	1.50	38	-	-	11.62	295.1	5.51	140	3.62	92
16"	31.76	806.6	11.56	293.5	20.2	513.1	3.48	88.5	1.77	45	-	-	13.66	347	6.50	165	4.02	102
18"	34.22	869.2	12.72	323.2	21.5	546	3.48	88.5	2.17	55	-	-	15.45	392.4	6.50	165	4.49	114
20"	35.77	908.5	13.98	355	21.79	553.5	3.48	88.5	2.17	55	-	-	17.3	439.4	6.50	165	5.00	127
24"	40.89	1038.5	16.46	418	24.43	620.5	3.68	93.5	2.56	65	-	-	21.12	536.4	6.50	165	6.06	154

**STHL, Lug Type, Class 300.**

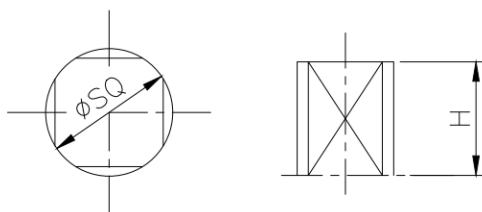
SIZE	H		H1		H2		H3		ød		F		øD		B.C.D1		L	
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
2"	8.63	219.2	2.36	60	6.27	159.2	0.6	15.2	0.51	13	0.43	11	1.65	42	2.76	70	1.73	44
2.5"	9.535	242.2	2.76	70	6.78	172.2	0.6	15.2	0.63	16	0.55	14	2.40	61	2.76	70	1.85	47
3"	9.85	250.2	3.01	76.5	6.84	173.7	0.6	15.2	0.63	16	0.55	14	2.91	74	2.76	70	1.89	48
4"	11.07	281.2	3.54	90	7.53	191.2	0.7	17.7	0.63	16	0.55	14	3.70	94	2.76	70	2.13	54
5"	12.55	318.7	4.09	104	8.45	214.7	0.7	17.7	0.71	18	0.55	14	4.65	118	2.76	70	2.24	57
6"	13.62	346	4.53	115	9.09	231	0.75	19	0.87	22	0.67	17	5.51	140	2.76	70	2.28	58
8"	18.82	478	8.15	207	10.67	271	0.81	20.5	1.1	28	0.87	22	7.40	188	4.02	102	2.87	73
10"	21.71	551.5	9.47	240.5	12.24	311	0.81	20.5	1.1	28	0.87	22	9.39	238.5	4.02	102	3.25	82.5
12"	25.18	639.6	11.18	284	14	355.6	0.95	24.1	1.1	28	0.87	22	11.02	280	4.02	102	3.62	92

**Stem & Key Dimensions**

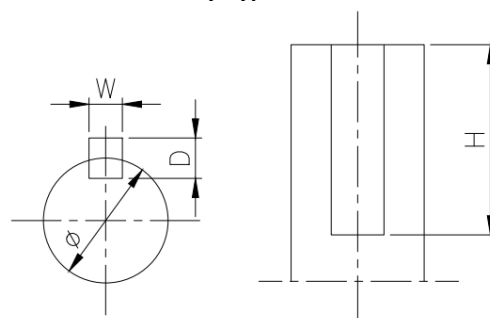
**STHL, Lug Type, Class 150.**

Size	Square Stem						Key					
	SQ		Ø		H		W		D		H	
	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM	IN	MM
2"	0.43	10.92	-	-	0.60	15.24	N/A					
2 1/2"	0.55	13.97	-	-	0.60	15.24	N/A					
3"	0.55	13.97	-	-	0.60	15.24	N/A					
4"	0.55	13.97	-	-	0.70	17.78	N/A					
5"	0.55	13.97	-	-	0.70	17.78	N/A					
6"	0.67	17.02	-	-	0.75	19.05	N/A					
8"	0.67	17.02	-	-	0.81	20.57	N/A					
10"	0.87	22.10	-	-	0.81	20.57	N/A					
12"	0.87	22.10	-	-	0.95	24.13	N/A					
14"	-	-	1.50	38.10	-	-	0.47	11.94	0.39	9.91	2.56	65.02
16"	-	-	1.77	44.96	-	-	0.47	11.94	0.39	9.91	3.15	80.01
18"	-	-	2.17	55.12	-	-	0.55	13.97	0.39	9.91	3.15	80.01
20"	-	-	2.17	55.12	-	-	0.55	13.97	0.39	9.91	3.15	80.01
24"	-	-	2.17	55.12	-	-	0.55	13.97	0.39	9.91	3.15	80.01

**Square Type Stem**



**Key Type Stem**



Flow Coefficient Charts

Class 150

Size		Disc Opening															
		20°		30°		40°		50°		60°		70°		80°		90°	
		Kv	Cv	Kv	Cv	Kv	Cv	Kv	Cv	Kv	Cv	Kv	Cv	Kv	Cv	Kv	Cv
50	2"	5.2	6	12.1	14	21.6	25	33.6	39	48.3	56	65.5	76	85.3	99	87.9	102
65	2 1/2"	7.8	9	18.1	21	31.9	37	48.3	56	69	80	94.8	110	122.4	142	125.9	146
80	3"	12.1	14	27.6	32	49.1	57	75	87	107.8	125	147.4	171	190.5	221	196.6	228
100	4"	23.3	27	54.3	63	98.3	114	147.4	171	213.8	248	291.4	338	376.7	437	388.8	451
125	5"	37.1	43	86.2	100	155.2	180	233.6	271	337.9	392	461.2	535	596.6	692	615.5	714
150	6"	56.9	66	132.8	154	239.7	278	361.2	419	523.3	607	712.9	827	922.4	1070	950.9	1103
200	8"	106.9	124	249.1	289	448.3	520	675.9	784	978.4	1135	1366	1584	1726	2002	1779	2064
250	10"	181.9	211	424.1	492	763.8	886	1151.7	1336	1667	1934	2274	2638	2941	3411	3032	3517
300	12"	250	290	583.6	677	1050.9	1219	1584.5	1838	2293	2660	3128	3628	4043	4690	4170	4837
350	14"	338	392	788	914	1419	1646	2139	2481	3097	3592	4223	4898	5629	6530	5911	6857
400	16"	458	531	1060	1230	1922	2229	2898	3361	4194	4865	5719	6634	7625	8845	8006	9287
450	18"	590	684	1376	1596	3339	3873	5045	5832	7405	8570	10371	11950	14116	15770	14400	16800
500	20"	714	828	1666	1932	2998	3478	4521	5244	6743	7890	9523	10950	13187	15000	13631	15840
600	24"	1086	1260	2535	2940	4562	5292	6802	7890	10157	11850	14378	16500	19804	22500	20009	22050

Class 300

Size		Disc Opening															
		20°		30°		40°		50°		60°		70°		80°		90°	
		Kv	Cv	Kv	Cv	Kv	Cv	Kv	Cv	Kv	Cv	Kv	Cv	Kv	Cv	Kv	Cv
50	2"	5	6	11	13	21	24	31	36	45	52	61	71	82	95	86	100
65	2 1/2"	7	8	16	19	29	34	45	52	65	75	88	102	117	136	123	143
80	3"	11	13	26	30	46	53	70	81	101	117	137	159	183	212	192	223
100	4"	22	25	50	58	90	104	135	157	197	228	267	310	357	414	375	435
125	5"	34	40	79	92	142	165	214	248	311	361	423	491	565	655	593	688
150	6"	52	60	120	139	216	250	325	377	471	546	641	744	855	992	897	1041
200	8"	94	109	220	255	396	459	597	692	863	1001	1177	1356	1569	1820	1647	1911
250	10"	158	183	367	426	661	767	997	1156	1442	1673	1967	2282	2622	3042	2753	3194
300	12"	218	259	509	590	916	1063	1381	1602	1999	2319	2727	3163	3635	4217	3817	4428
350	14"	281	326	655	760	1179	1368	1778	2063	2574	2986	3510	4072	4681	5430	4916	5702
400	16"	375	435	875	1015	1575	1827	2375	2755	3438	3988	4688	5438	6267	7180	6506	7523
450	18"	478	555	1116	1295	2009	2331	3030	3515	4386	5088	5981	6938	7974	9250	8372	9712
500	20"	543	630	1267	1470	2281	2646	3440	3990	4978	5775	6789	7875	9150	10150	9188	10658
600	24"	833	966	1943	2254	3497	4057	5274	6118	7634	8855	10409	12075	13879	16100	13970	16205

Cv is in imperial units, 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

## Torque Data

lbs.Inch		CLASS 150				CLASS 300			
		Actual Torque: lbf.inch							
		Teflon Seat		Metal Seat		Teflon Seat		Metal Seat	
Size		150 PSIG	285 PSIG	150 PSIG	285 PSIG	150 PSIG	500 PSIG	150 PSIG	500 PSIG
(mm)	(inch)								
50A	2"	200	270	564	677	220	520	900	1550
65A	2 1/2"	200	270	564	677	220	520	900	1550
80A	3"	200	270	564	677	220	520	900	1550
100A	4"	225	470	903	1128	250	670	1200	1850
125A	5"	540	680	1467	2144	600	1120	2800	5700
150A	6"	540	680	1467	2144	600	1120	2800	5700
200A	8"	910	1620	2031	2595	1000	2440	4100	8100
250A	10"	1620	2530	3385	4288	1800	4640	6800	14500
300A	12"	2530	3600	4513	5190	2790	7480	9100	23600
350A	14"	3720	5970	Contact Howell	Contact Howell	4130	10200	Contact Howell	Contact Howell
400A	16"	5530	9180			6140	17070		
450A	18"	6840	11900			7600	20400		
500A	20"	10020	16970			11140	31530		
600A	24"	18330	32290			20370	58820		

## Flange Connection

Unit: Inch

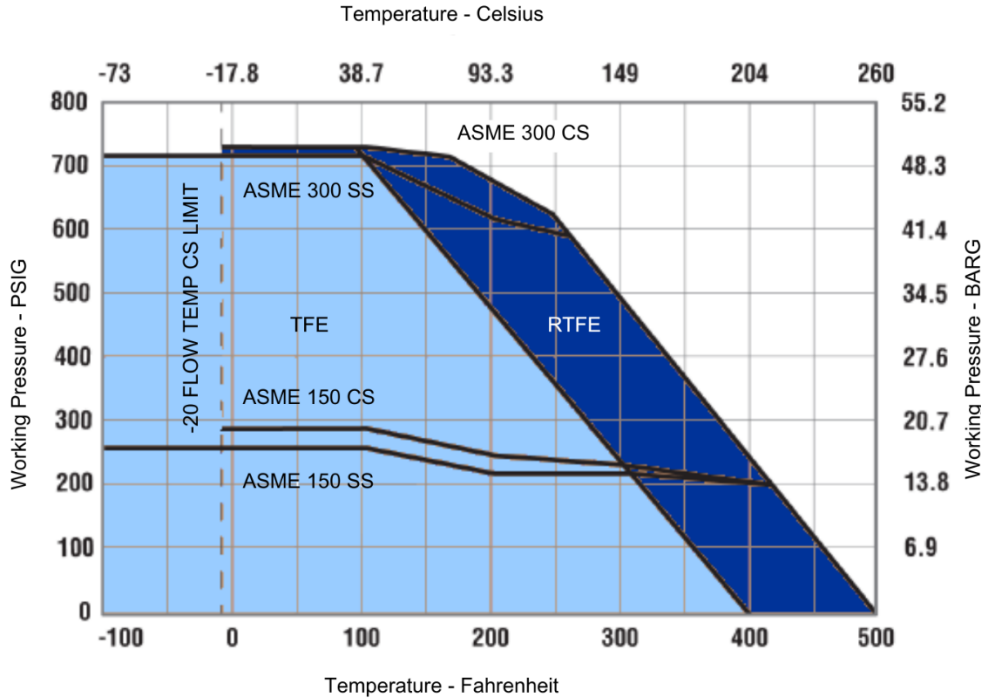
Size	STHW					
	Class 150			Class 300		
	B.C.D	n	h	B.C.D	n	h
2"	4.75	4	3/4"	5	8	3/4"
2 1/2"	5.5	4	3/4"	5.87	8	7/8"
3"	6	4	3/4"	6.63	8	7/8"
4"	7.5	8	3/4"	7.87	8	7/8"
5"	8.5	8	7/8"	9.25	8	7/8"
6"	9.5	8	7/8"	10.62	12	7/8"
8"	11.75	8	7/8"	13	12	1
10"	14.25	12	1"	15.25	16	1-1/8"
12"	17	12	1"	17.75	16	1-1/4"

Size	STHL					
	Class 150			Class 300		
	B.C.D	n	h	B.C.D	n	h
2"	4.75	4	3/4"	5	8	3/4"
2 1/2"	5.5	4	3/4"	5.87	8	7/8"
3"	6	4	3/4"	6.63	8	7/8"
4"	7.5	8	3/4"	7.87	8	7/8"
5"	8.5	8	7/8"	9.25	8	7/8"
6"	9.5	8	7/8"	10.63	12	7/8"
8"	11.75	8	7/8"	13	12	1"
10"	14.25	12	1"	15.25	16	1-1/8"
12"	17	12	1"	17.75	16	1-1/4"
14"	18.75	12	1 1/8"	-	-	-
16"	21.25	16	1 1/8"	-	-	-
18"	22.75	16	1 1/4"	-	-	-
20"	25	20	1 1/4"	-	-	-
24"	29.5	20	1 3/8"	-	-	-

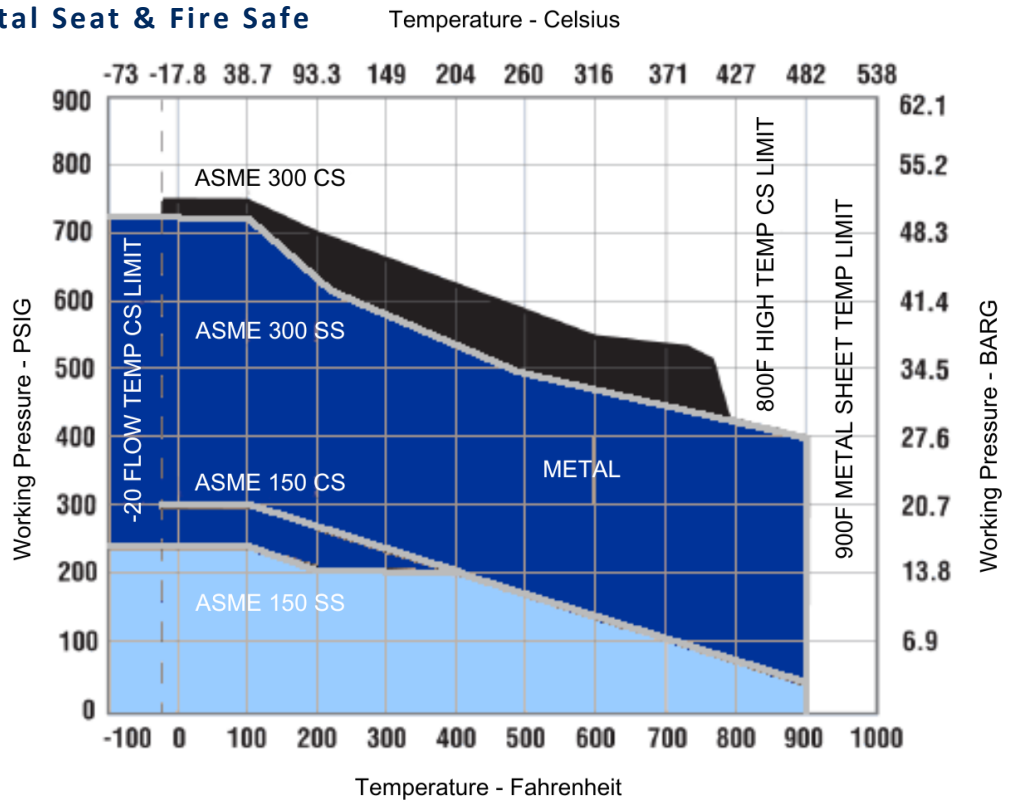


## Pressure Vs Temperature Charts

### PTFE & RTFE Seat



### Metal Seat & Fire Safe



**How to Order:**
