



# V TYPE 1000 / 2000 Series High Performance Double-Offset Butterfly Valve

Type : **Wafer, Lug, Flanged**

Size : DN50~DN1200  
2" ~ 48"

Pressure Rating : **PN10, PN16, PN20, PN25, PN40, PN64**  
Class 150, Class 300, JIS 10K, JIS 6K

Temperature Rating : -29. ~ 600.  
-27. ~ 1112.

Patented Floating Seat Retainer

Bi-directional Zero Leakage

Low Fugitive Emission Stem

Fire Safe: Compliance with API 607

High Cycle Life

## General Application



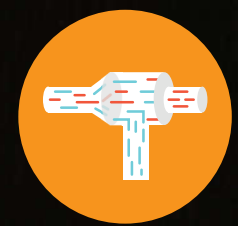
Chemistry



Pulp and Paper



Petrochemical



Air Separator  
and HVAC



Energy and  
Power Plant



Water Treatment

[sales@valveandflowcontrolspecialists.com](mailto:sales@valveandflowcontrolspecialists.com)

## SPECIFICATION

Testing : API 598, ISO 5208

Leakage : Soft seat Bi-directional Bubble Tight

Metal seat CLASS IV or V leakage

Pressure-Temperature Rating : API 609

Valve Design : ASME B16.34, MSS-SP-68

Anti-Blow-Out Stem : API 609

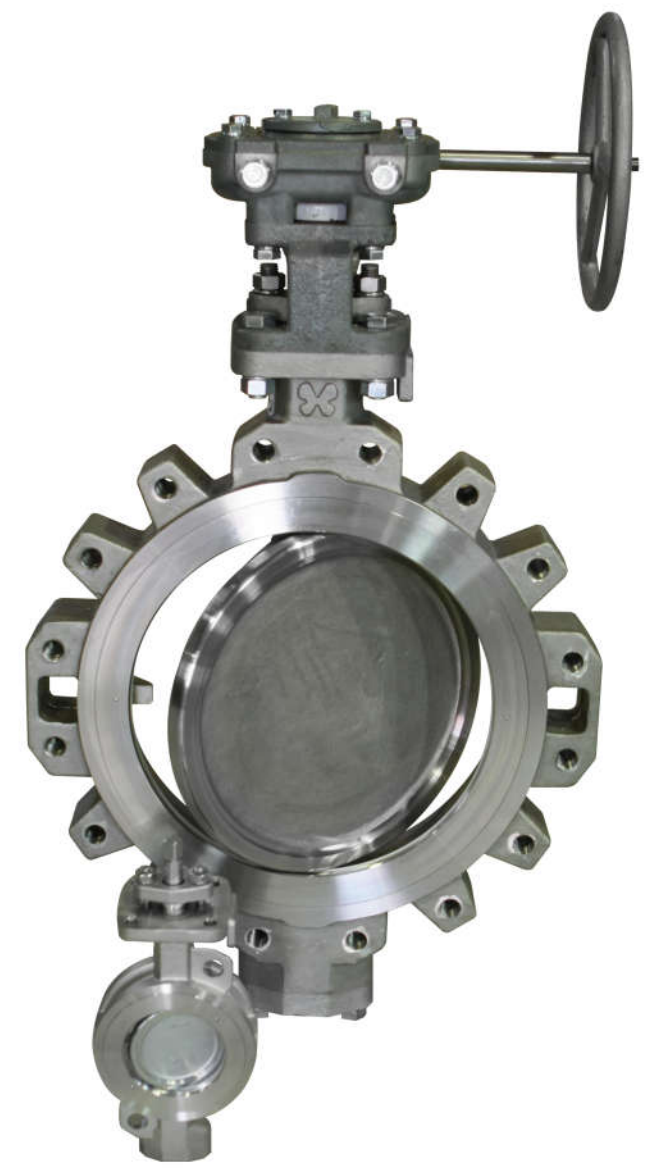
Face-to-Face : API 609, MSS-SP-68, ISO 5752

Fire Safe : API 607

Low Fugitive Emission  
Gland Packing System : DIN3780, MSS-SP-143

Marking : MSS-SP-25, API 609

Top Mounting : ISO 5211





## FEATURES

### Gland Flange

A fully adjustable two-piece gland flange to make sure an even packing load over 360°.

### Anti-Blow-Out Stem

Protecting stem blow-out caused by pressure.

### Gland Bush

Standing alone with Gland Flange, preventing uneven down-pressure on gland packing.

### Gland Packing

Use PTFE or same as Valve Seat. Performance is compliance with API 598's testing pressure.

### Valve Seat

Bi-directional zero leakage design. Use MPTFE, RTFE, or UHMWPE.

### Taper Pin

Tangentially positioned half in disc and half in stem to eliminate potential of failure.

### Patented Retainer Ring

A no-screw-floating design to eliminate cold flow. This design provides positive tight shut-off of seat. Surface roughness is 125-200AARH.

### Thrust Ring

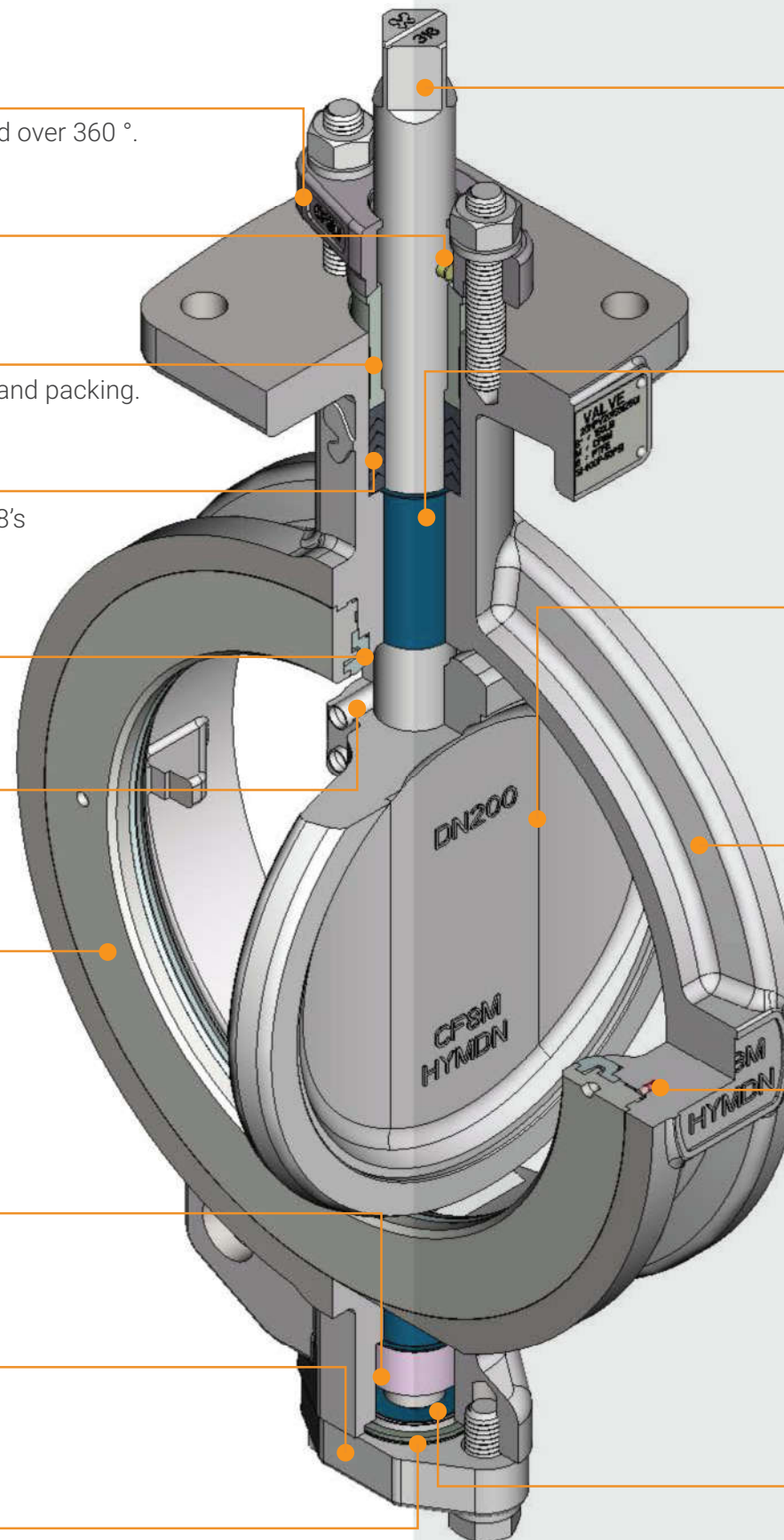
Use S.S.316L as material. Position in bottom of stem for preventing incorrect stem shift.

### Bottom Cover

Use rigid S.S.316L as material to prevent abnormal leakage.

### Bottom Gasket

Use PTFE or GRAPHITE as material.



### Valve Stem

Use stainless-steel with hard chrome plated. A strong and rigid one-piece-stem design which largely increase overall strength. Stem and corresponding components size are all compliance with ISO 5211. Stem material and disc position is marked on the top of stem.

### Self-Lubricant Bush

Use RTFE+S.S.316L as material to lower down stem's friction factor.

### Valve Disc

Use stainless-steel with hard chrome plated. A streamlined design with great enhancement on lowering noise and turbulence.

### Valve Body

Compliance with API 609 & ASME B16.34. In order to make valve context intuitive and straightforward, an additional name plate is designed to mark detail information.

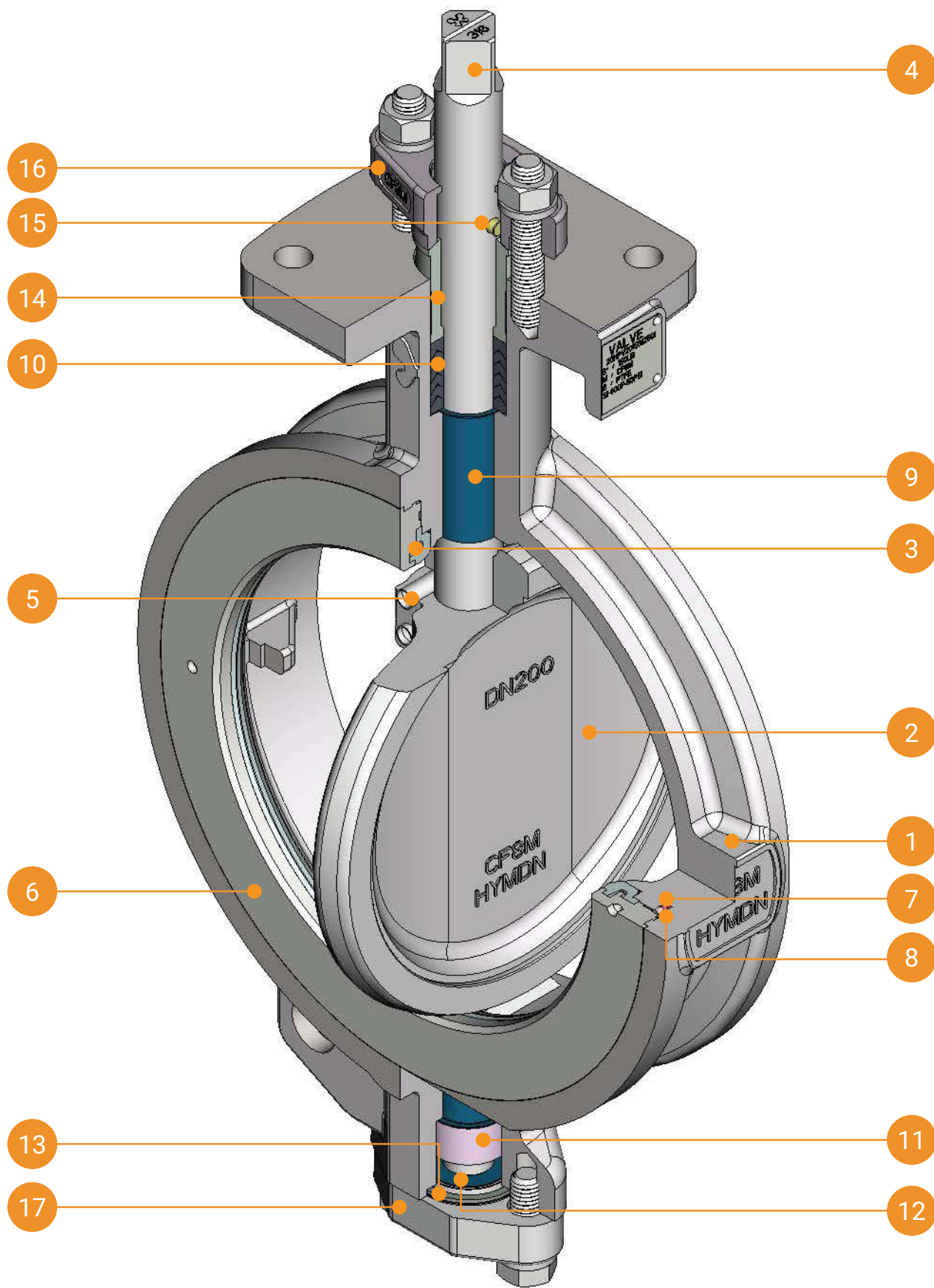
### Lock Pin and Spring

Use PTFE. While Retainer Ring moves to locking position, spring will pop-up and push pin locked in Retainer Ring.

### Thrust Plate

Use stainless-steel RTFE+S.S.316L to reduce operating friction between stem and bottom cover.

## VALVE COMPONENTS

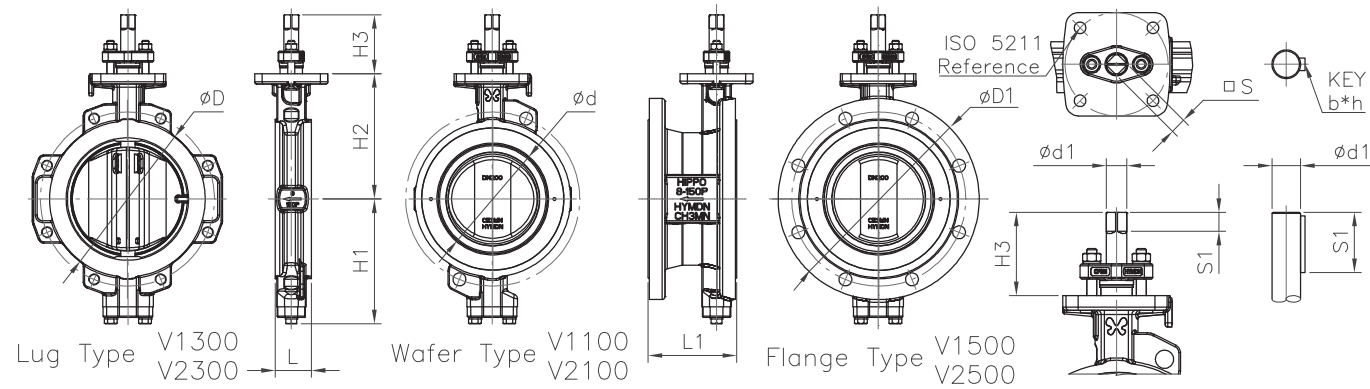


ITEM	NAME	QTY	MATERIAL			REMARK
1	Body	1	A216 Gr. WCB	A351 Gr. CF8	A351 Gr. CF8M	
2	Disc	1	A351 Gr. CF8		A351 Gr. CF8M	●
3	Seat	1	PTFE / MPTFE / RTFE / FIRE SAFE / RUBBER / METAL			★
4	Stem	1	A182 Gr. F6A	A182 Gr. F304	A182 Gr. F316	●
5	Taper Pin	2	A182 Gr. F316L			
6	Retainer Ring	1	A351 Gr. CF8		A351 Gr. CF8M	
7	Spring	1	A182 Gr. F316			
8	Lock Pin	1	PTFE			
9	Stem Bush	2	RTFE+S.S.316L		A182 Gr. F316	
10	Gland Packing	1	PTFE	RTFE	GRAPHITE (FIRE SAFE ONLY)	▲
11	Thrust Ring	1	A351 Gr. CF8M			
12	Thrust Plate	1	PTFE+S.S.316L			
13	Gasket	1	PTFE	RTFE	GRAPHITE	▲
14	Gland Bush	1	A351 Gr. CF8M			
15	Anti-Blow-Out Pin	1	A182 Gr. F316			
16	Gland Flange	1	A351 Gr. CF8			
17	Bottom Cover	1	A351 Gr. CF8M			

### Remark

- Surface is Hard Chrome Plated
- ▲ Same as ITEM 3 SEAT's material. If valve is Fire-Safe design, use GRAPHITE as material.
- ★ Working temperature: PTFE -29~160 °C , MPTFE -29~180 °C , RTFE -29-230°C. **Metal depends on material.**
- When VOC Emission is requested, ITEM10 has 2 more materials, EVSP 9000 and 3300W, in option.
- The listed materials are assorted with standard package. We have ALLOY 20, HASTELLOY C276, Duplex A890 6A , MONEL in option. Please contact us for more details.
- Item 4 uses 17-4PH or UNS S31803 for Class 300LB.

Bare Shaft



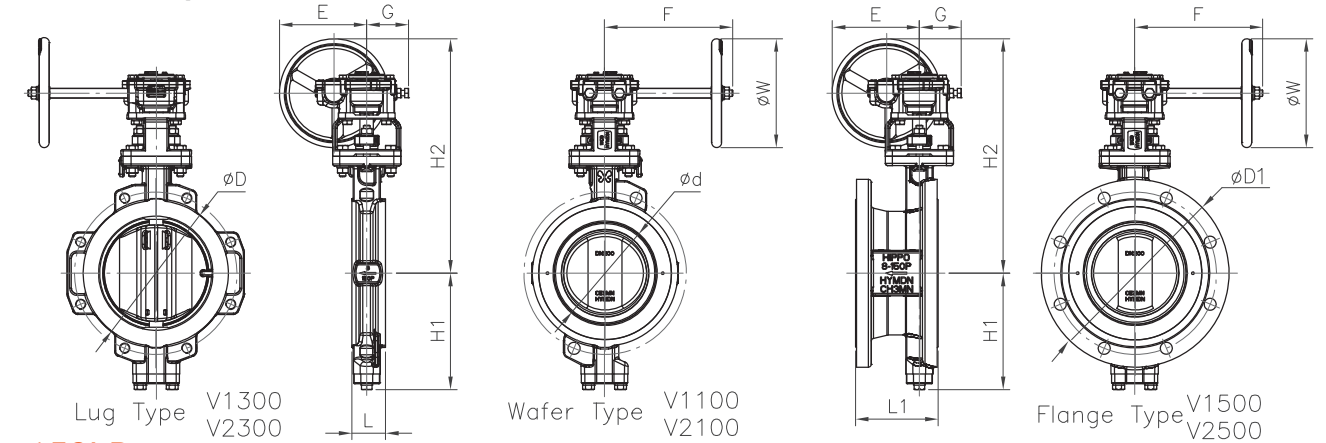
150LB

SIZE		L	L1	D	D1	d	H1	H2	H3	S1	d1	S	ISO	Weight (kg)		
mm	in													Wafer	Lug	Flange
50	2	45	-	95	150	46	118	128	86	18	18	14	F10	6	7	-
65	2.5	48	-	112	180	61	126	136	86	18	18	14	F10	7	8	-
80	3	48	114	126	190	76	134	140	86	18	18	14	F10	8	9	14
100	4	54	127	155	230	96	144	150	86	18	18	14	F10	9	13	19
125	5	57	-	184	255	118	178	170	89	21	22	17	F10	12	18	-
150	6	57	140	215	280	143	190	185	89	21	22	17	F10	14	20	28
200	8	62	152	267	345	188	214	215	101	23	25	19	F12	20	29	45
250	10	70	165	326	405	236	254	260	104	26	28	22	F12	32	47	63
300	12	81	178	375	485	281	298	290	129	31	35	27	F14	48	69	99
350	14	92	190	416	535	320	328	320	134	36	42	32	F14	65	92	128
400	16	102	216	480	595	371	377	370	158	40	50	36	F16	98	137	173
450	18	114	222	534	635	420	402	395	158	40	50	36	F16	131	173	206
500	20	127	229	588	700	469	437	430	168	50	60	46	F16	171	242	263
600	24	154	267	692	815	549	492	480	240	90	65	18*12	F25	275	378	405
700	28	165	292	800	927	655	570	555	245	95	75	20*12	F25	385	525	634
750	30	190	318	857	984	698	605	600	300	100	85	25*14	F30	510	620	793
800	32	190	318	910	1060	755	630	625	310	110	90	25*14	F30	551	768	918
900	36	203	330	1000	1168	870	690	685	320	120	100	28*16	F30	667	867	1186
1000	40	216	410	1115	1289	943	768	765	360	130	115	32*18	F35	936	1216	1537
1100	44	254	410	1220	1403	1045	818	815	360	130	115	32*18	F35	1173	1525	2059
1200	48	254	470	1330	1510	1145	884	880	360	130	125	36*20	F35	1399	1784	2537

300LB

SIZE		L	L1	D	D1	d	H1	H2	H3	S1	d1	S	ISO	Weight (kg)		
mm	in													Wafer	Lug	Flange
50	2	45	-	95	-	46	118	128	86	18	18	14	F10	6	8	-
65	2.5	48	-	112	-	61	126	136	86	18	18	14	F10	7	9	-
80	3	48	114	126	190	76	134	140	86	18	18	14	F10	8	11	14
100	4	54	127	155	230	96	144	150	86	18	18	14	F10	9	13	19
125	5	57	-	184	-	118	178	170	89	21	22	17	F10	12	18	-
150	6	59	140	224	318	143	199	200	101	23	25	19	F12	18	26	42
200	8	73	152	280	381	188	234	240	104	26	28	22	F12	28	43	68
250	10	83	165	345	445	236	278	270	129	31	35	27	F14	52	71	95
300	12	92	178	395	521	281	318	310	134	36	42	32	F14	72	102	149
350	14	117	190	440	585	320	367	360	158	40	50	36	F16	105	161	192
400	16	133	216	495	648	371	392	385	168	50	60	46	F16	148	218	260
450	18	149	222	560	712	420	437	425	240	90	65	18*12	F25	214	316	412
500	20	159	229	622	775	469	465	450	245	95	75	20*12	F25	271	395	526
600	24	181	267	720	915	549	535	530	310	110	90	25*14	F30	432	643	810

Gear Operation



150LB

● Operator chosen is according to following condition:  $\Delta 10$  Bar

SIZE		L	L1	D	D1	d	H1	H2	W	G	E	F	Weight (kg)			Gear Model	Gear Model
mm	in												Wafer	Lug	Flange		
50	2	45	-	95	150	46	118	282	100	66	97	133	10	11	-	G07	1:40
65	2.5	48	-	112	180	61	126	290	100	66	97	133	11	12	-	G07	1:40
80	3	48	114	126	190	76	134	319	150	66	122	133	12	13	18	G07	1:40
100	4	54	127	155	230	96	144	329	150	66	122	133	13	17	23	G07	1:40
125	5	57	-	184	255	118	178	349	150	66	122	133	16	22	-	G07	1:40
150	6	57	140	215	280	143	190	364	150	66	122	133	18	24	32	G07	1:40
200	8	62	152	267	345	188	214	431	200	77	161	236	28	37	53	G10	1:40
250	10	70	165	326	405	236	254	476	200	77	161	236	40	55	71	G10	1:40
300	12	81	178	375	485	281	298	529	200	94	183	236	60	81	111	G12	1:60
350	14	92	190	416	535	320	328	559	200	94	183	236	77	104	140	G12	1:60
400	16	102	216	480	595	371	377	690	300	120	257	324	121	160	196	G14	1:64
450	18	114	222	534	635	420	402	715	300	120	257	324	154	196	229	G14	1:64
500	20	127	229	588	700	469	437	750	300	120	257	324	194	265	286	G14	1:64
600	24	154	267	692	815	549	492	888	400	153	352	374	327	430	457	G16	1:96
700	28	165	292	800	927	655	570	963	400	153	352	374	437	577	686	G16	1:96
750	30	190	318	857	984	698	605	1165	600	185	512	446	606	716	889	G25	1:125
800	32	190	318	910	1060	755	630	1190	600	185	512	446	647	864	1014	G25	1:125
900	36	203	330	1000	1168	870	690	1250	600	185	512	446	763	963	1282	G25	1:125
1000	40	216	410	1115	1289	943	768	1360	600	185	512	446	1050	1330	1651	G30	1:125
1100	44	254	410	1220	1403	1045	818	1410	600	185	512	446	1287	1639	2173	G30	1:125
1200	48	254	470	1330	1510	1145	884	1475	600	185	512	446	1513	1898	2651	G30	1:125

300LB

● Operator chosen is according to following condition:  $\Delta 20$  Bar

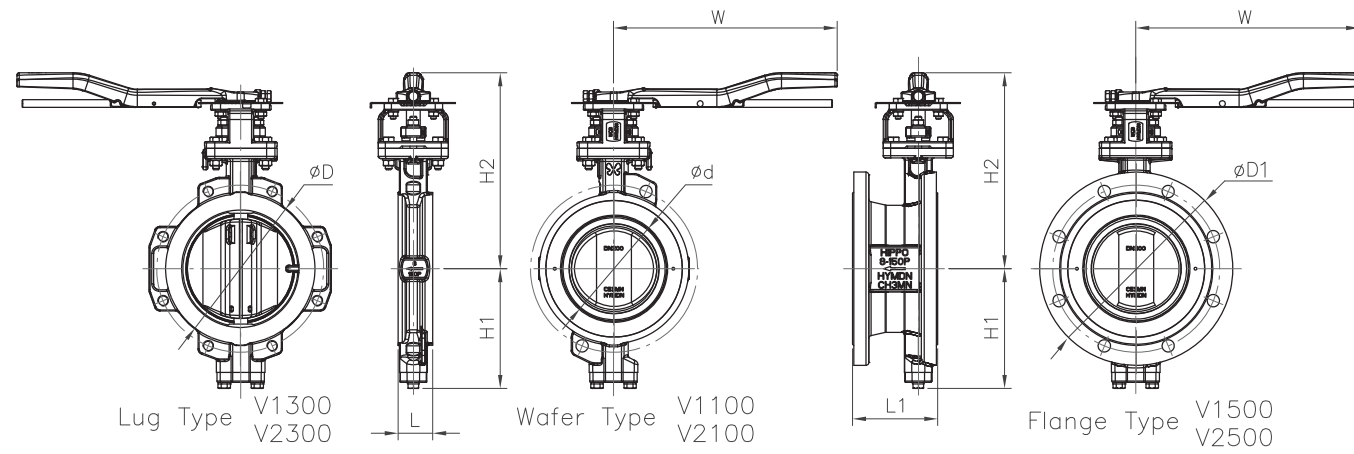
SIZE		L	L1	D	D1	d	H1	H2	W	G	E	F	Weight (kg)			Gear Model	Gear Model
mm	in												Wafer	Lug	Flange		
50	2	45	-	95	-	46	118	282	100	66	97	133	10	12	-	G07	1:40
65	2.5	48	-	112	-	61	126	290	100	66	97	133	11	13	-	G07	1:40
80	3	48	114	126	190	76	134	319	150	66	122	133	12	15	18	G07	1:40
100	4	54	127	155	230	96	144	329	150	66	122	133	13	17	23	G07	1:40
125	5	57	-	184	-	118	178	349	150	66	122	133	16	22	-	G07	1:40
150	6	59	140	224	318	143	199	416	200	77	161	236	26	34	50	G10	1:40
200	8	73	152	280	381	188	234	456	200	77	161	236	36	51	76	G10	1:40
250	10	83	165	345	445	236	278	509	200	94	183	236	64	83	107	G12	1:60
300	12	92	178	395	521	281	318	549	200	94	183	236	84	114	161	G12	1:60
350	14	117	190	440	585	320	367	680	300	120	257	324	128	184	215	G14	1:64
400	16	133	216	495	648	371	392	705	300	120	257	324	171	241	283	G14	1:64
450	18	149	222	560	712	420	437	833	400	153	352	374	266	368	464	G16	1:96
500	20	159	229	622	775	469	465	858	400	153	352	374	323	447	578	G16	1:96
600	24	181	267	720	915	549	535	1095	600	185	512	446	528	739	906	G25	1:125



# DIMENSIONS

V1000 150LB Series  
V2000 300LB Series

## Lever Operation



### 150LB

● Operator chosen is according to following condition:  $\Delta 10$  Bar

SIZE		L	L1	D	D1	d	H1	H2	W	Weight (kg)			Lever Model
mm	in									Wafer	Lug	Flange	
50	2	45	-	95	150	46	118	248	220	8	9	-	L22
65	2.5	48	-	112	180	61	126	256	220	9	10	-	L22
80	3	48	114	126	190	76	134	260	220	10	11	16	L22
100	4	54	127	155	230	96	144	270	220	11	15	21	L22
125	5	57	-	184	255	118	178	290	300	15	21	-	L23
150	6	57	140	215	280	143	190	305	300	17	23	31	L23
200	8	62	152	267	345	188	214	350	400	25	34	50	L34

### 300LB

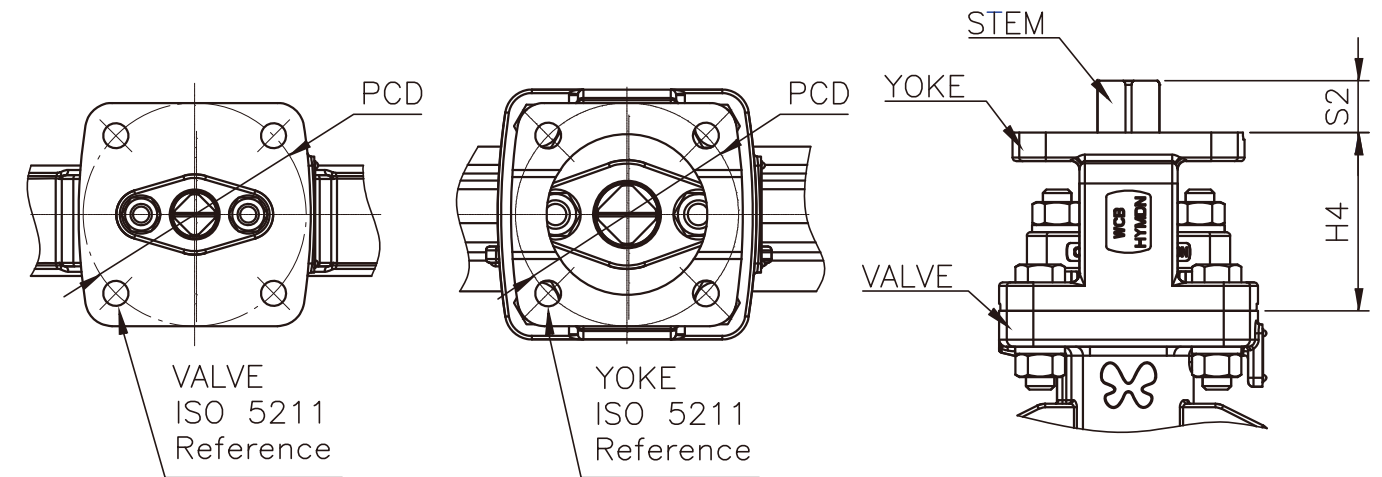
● Operator chosen is according to following condition:  $\Delta 20$  Bar

SIZE		L	L1	D	D1	d	H1	H2	W	Weight (kg)			Lever Model
mm	in									Wafer	Lug	Flange	
50	2	45	-	95	-	46	118	248	220	8	10	-	L22
65	2.5	48	-	112	-	61	126	252	220	9	11	-	L22
80	3	48	114	126	190	76	134	260	220	10	13	16	L22
100	4	54	127	155	230	96	144	270	220	11	15	21	L22
125	5	57	-	184	-	118	178	290	300	15	21	-	L23
150	6	59	140	224	318	143	199	335	400	23	31	47	L34

# DIMENSIONS

V1000 150LB Series  
V2000 300LB Series

## Yoke



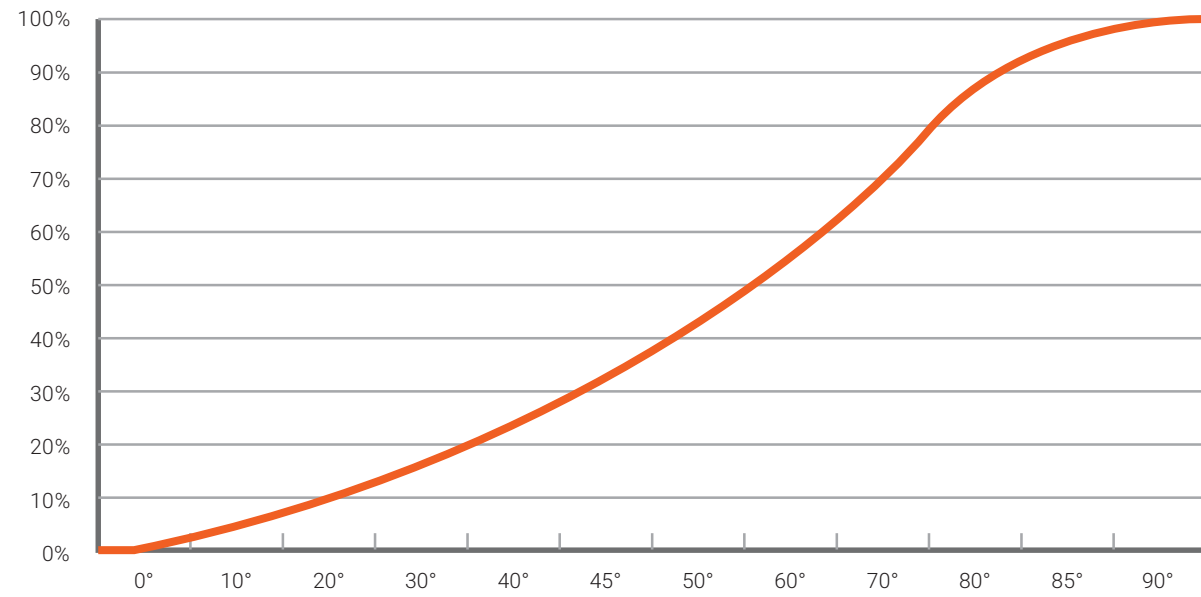
### 150LB

DN50 - DN1200

SIZE		H4	S2	Yoke		Valve
mm	in			ISO	PCD	ISO
50	2	70	16	F07	70	F10
65	2.5	70	16	F07	70	F10
80	3	70	16	F07	70	F10
100	4	70	16	F07	70	F10
125	5	70	19	F07	70	F10
150	6	70	19	F07	70	F10
200	8	80	21	F10	102	F12
250	10	80	24	F10	102	F12
300	12	100	29	F12	125	F14
350	14	100	34	F12	125	F14
400	16	120	38	F14	140	F16
450	18	120	38	F14	140	F16
500	20	120	48	F14	140	F16
600	24	150	90	F16	165	F25
700	28	150	95	F16	165	F25
750	30	200	100	F25	254	F30
800	32	200	110	F25	254	F30
900	36	200	120	F25	254	F30
1000	40	230	130	F30	298	F35
1100	44	230	130	F30	298	F35
1200	48	230	130	F30	298	F35

## Cv FLOW COEFFICIENT

Cv curve %



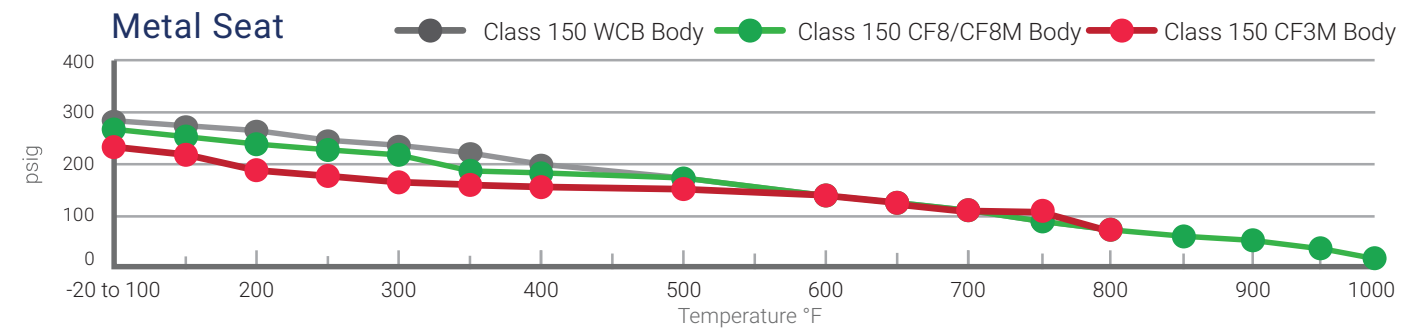
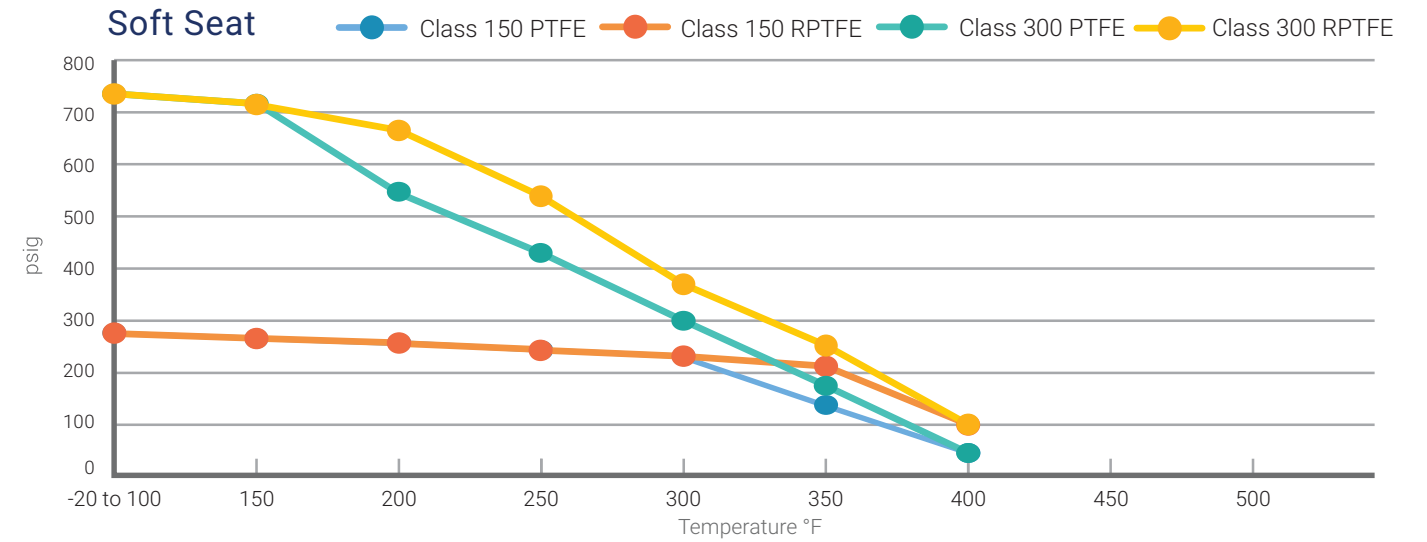
### 150LB

SIZE		Cv Value											
mm	in	10°	20°	30°	40°	45°	50°	60°	70°	80°	85°	90°	
50	2	0	8	22	36	44	51	60	69	72	70	70	
65	2.5	2	16	38	61	71	83	109	135	146	152	150	
80	3	6	33	62	94	108	118	143	176	208	230	227	
100	4	16	58	106	155	178	213	274	349	433	465	473	
125	5	20	94	167	230	263	310	391	488	561	604	605	
150	6	40	147	242	335	382	422	560	729	925	975	1010	
200	8	66	237	368	509	606	712	985	1296	1640	1715	2004	
250	10	139	390	595	807	963	1168	1606	2134	2814	3180	3199	
300	12	204	548	820	1138	1357	1591	2219	3067	4085	4484	4672	
350	14	264	674	972	1386	1658	1994	2840	3925	5164	5828	5947	
400	16	384	864	1196	1765	2155	2611	3755	5105	6975	7920	8182	
450	18	508	1092	1551	2341	2881	3522	5125	7134	9511	10599	11548	
500	20	626	1294	1792	2651	3304	4082	5919	8256	11429	13126	13813	
600	24	1047	2251	3178	4563	5543	6568	9277	12932	17093	18328	19021	

### 300LB

SIZE		Cv Value											
mm	in	10°	20°	30°	40°	45°	50°	60°	70°	80°	85°	90°	
80	3	6	33	62	94	108	118	143	176	208	230	227	
100	4	16	58	106	155	178	213	274	349	433	465	473	
125	5	20	94	167	230	263	310	391	488	561	604	605	
150	6	37	137	225	312	355	393	521	678	860	907	939	
200	8	62	220	343	473	563	662	916	1206	1525	1595	1864	
250	10	129	362	554	750	896	1087	1493	1985	2617	2957	2975	
300	12	190	510	762	1059	1262	1480	2064	2852	3799	4170	4345	
350	14	246	627	904	1289	1542	1854	2641	3650	4803	5420	5531	
400	16	357	803	1112	1642	2004	2428	3492	4748	6487	7365	7609	
450	18	473	1015	1442	2177	2679	3275	4766	6634	8845	9857	10739	
500	20	583	1204	1667	2466	3073	3797	5504	7678	10629	12207	12846	
600	24	974	2093	2956	4244	5155	6108	8627	12027	15897	17045	17689	

## PRESSURE-TEMPERATURE RATING



Body and Seat	Class 150										Class 300					
	General (a)		WCB		CF8/CF8M		CF3M		General (a)							
	PTFE	RPTFE	AMS 5596 Alloy Inconel® (b)								PTFE	RPTFE				
Temperature	°F	°C	psig	bar	psig	bar	psig	bar	psig	bar	psig	bar	psig	bar	psig	bar
-20 to 100	-29 to 38	285	19.7	285	19.7	285	19.7	275	18.9	230	15.9	740	51	740	51	
150	66	273	18.8	273	18.8	273	18.8	255	17.6	213	14.7	708	48.8	708	48.8	
200	93	260	17.9	260	17.9	260	17.9	235	16.2	195	13.4	550	37.9	675	46.5	
250	121	245	16.9	245	16.9	245	16.9	225	15.5	185	12.8	425	29.3	530	36.5	
300	149	230	15.9	230	15.9	230	15.9	215	14.8	175	12.1	300	20.7	390	26.9	
350	177	140	9.7	215	14.8	215	14.8	195	13.4	168	11.6	175	12.1	250	17.2	
400	204	50	3.4	100	6.9	200	13.8	183	12.6	160	11	50	3.4	100	6.9	
500	260	-	-	(c)	(c)	170	11.7	170	11.7	150	10.3	-	-	(c)	(c)	
600	316	-	-	-	-	140	9.7	140	9.7	140	9.7	-	-	-	-	
650	343	-	-	-	-	125	8.6	125	8.6	125	8.6	-	-	-	-	
700	371	-	-	-	-	110	7.6	110	7.6	110	7.6	-	-	-	-	
750	399	-	-	-	-	95	6.6	95	6.6	110	7.6	-	-	-	-	
800	427	-	-	-	-	80	5.5	80	5.5	80	5.5	-	-	-	-	
850	454	-	-	-	-	(d)	(d)	65	4.5	(e)	(e)	-	-	-	-	
900	482	-	-	-	-	(d)	(d)	50	3.4	-	-	-	-	-	-	
950	510	-	-	-	-	(d)	(d)	35	2.4	-	-	-	-	-	-	
1000	538	-	-	-	-	(d)	(d)	20 (f)	1.4 (f)	-	-	-	-	-	-	

- (a) General carbon steel and stainless steel.
- (b) AMS 5596 Inconel represents Aerospace Material Specification level Inconel 718.
- (c) RPTFE may covers instantaneous 500°F depends on working condition.
- (d) Above 800°F the carbide phase of WCB might be tranced to graphite. Workable but not suggested.
- (e) Shall not to be used over 800°F.
- (f) From 1000°F, shall only use CF8/CF8M with carbon content equals/greater than 0.04%. For temperature range between 1000°F to 1500°F, contact service window for further details.