



EAGLESKY CO., LTD.

HIGH PERFORMANCE BUTTERFLY VALVE

BUTTERFLY VALVE V-TYPE

1000 / 2000 Series

Class 150

Class 300



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,
PN50 / Class 150, Class 300

Temperature Rating : -29°C ~ 230°C
-27°F ~ 450°F

Patented Floating Seat Retainer

Bi-direction Zero Leakage

Low Fugitive Emission System

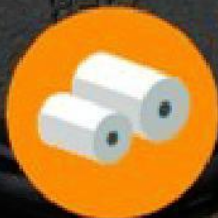
Fire Safe: Compliance with API 607

High Cycle Life

General Application



Chemistry



Pulp and Paper



Petrochemical



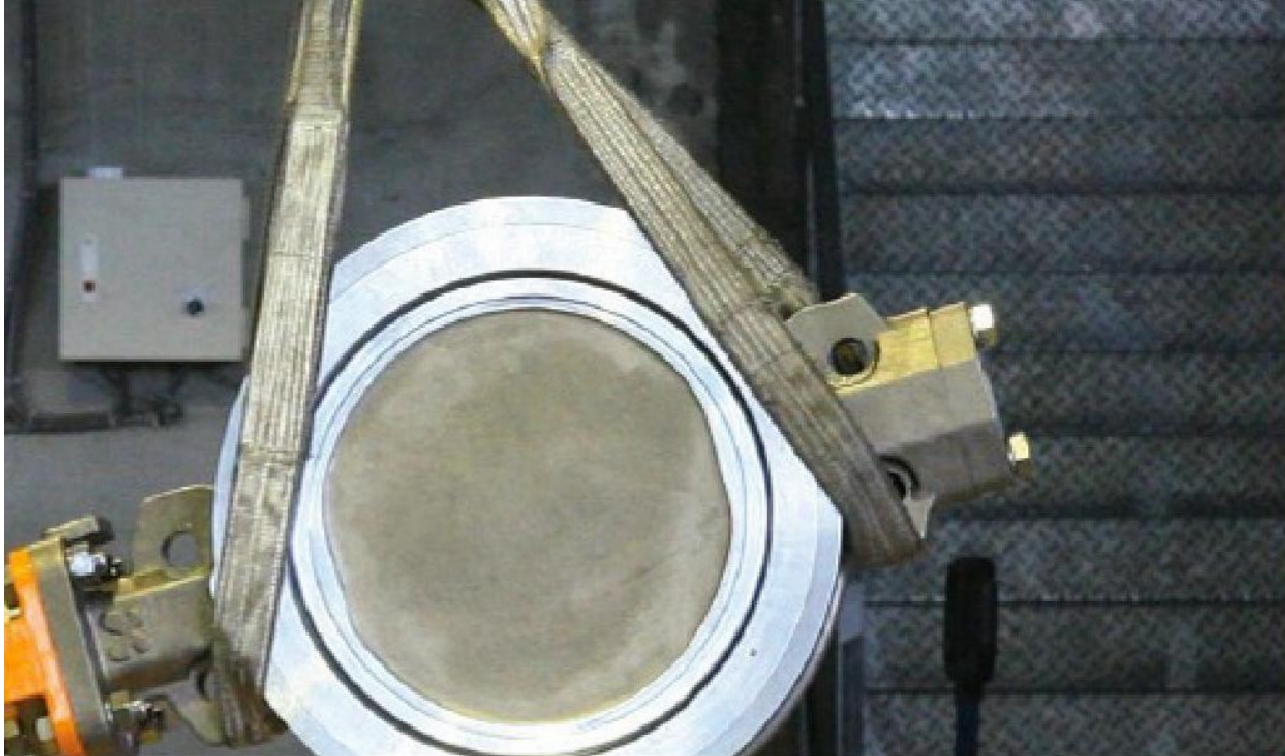
Air Separator
and HVAC



Energy and
Power Plant



Water Treatment



SPECIFICATION

Testing : API 598, ISO 5208

Pressure-Temperature Rating : API 609

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

Anti-Blow-Out Stem : API 609

Facc-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

Suitable Flange : ANSI 150lb, 300lb,

DIN:PN10, 16, 20, 25, 40, 50

JIS: 10K, 16K, 20K, 30K, 40K



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-direction zero leakage design. Use High-PTFE, 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

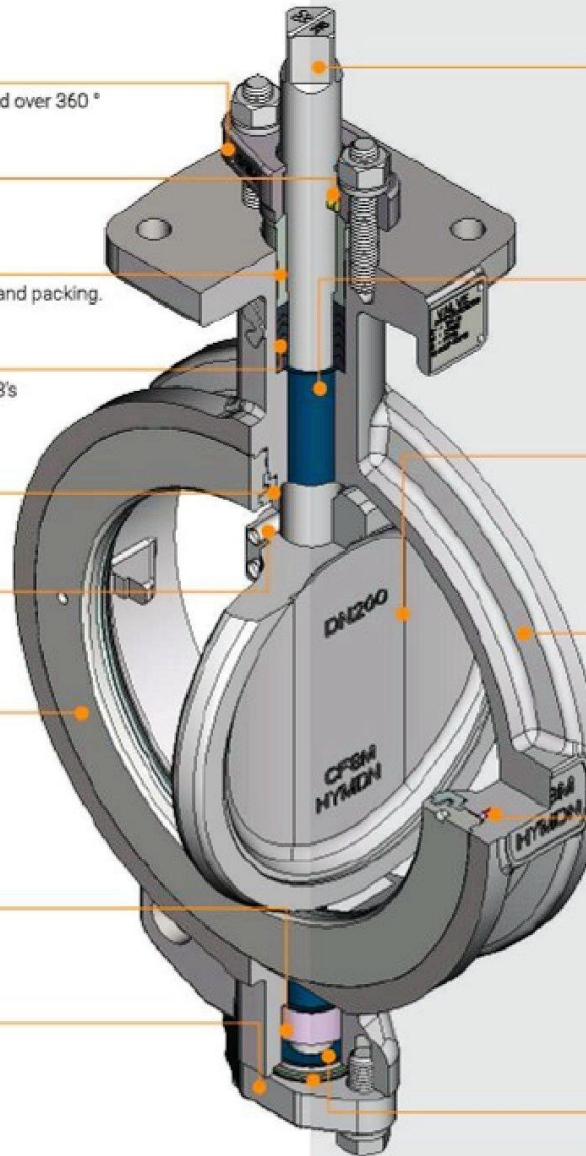
Use 316 as material. Position in bottom of stem for preventing incorrect stem shift.

Bottom Cover

Use rigid 316 as material to prevent abnormal leakage.

Bottom Gasket

Use RTFE 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 PTFE+316 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.

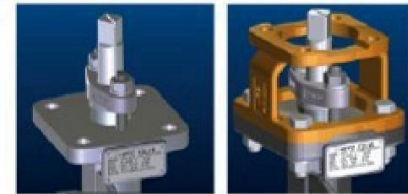
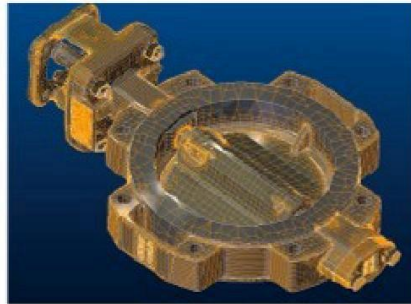
Thrust Plate

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

FEATURES

Valve Body

ESHP Valve V-Type 1000/2000 Series High Performance Butterfly Valves are designed 100% compliance with API 609 and ASME B16.34. Utilizing PTC Creo Parametric (Pro/E) Computer-aid-design in every component and result in best reliability.

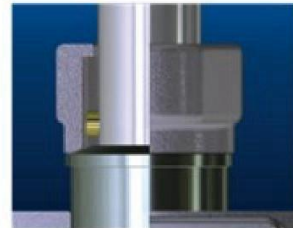


Top Mounting

Compliance with ISO 5211. York designed with draining system for outdoor service.

Anti-Blow-out Stem and Anti- Electrostatic System

An anti-Blow-out design and optional Anti-electrostatic system. Compliance with API 609 and ATEX.

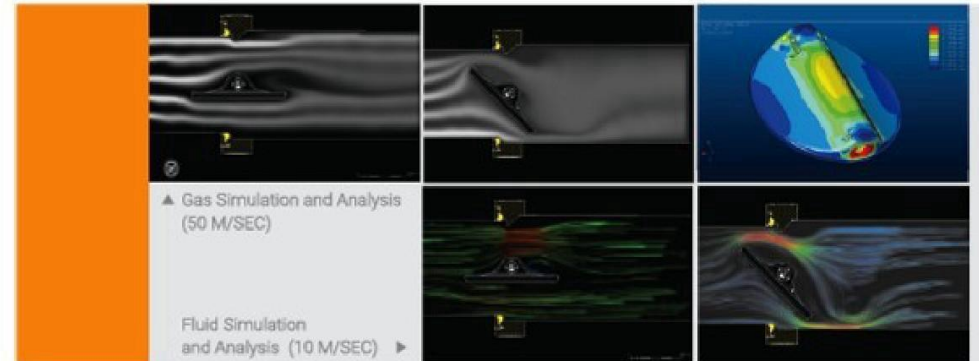


Marking and Name Plate

ESHP Valve designed additional platform. Providing distinct information about valve details. Compliance MSS-SP-25 & API 609.

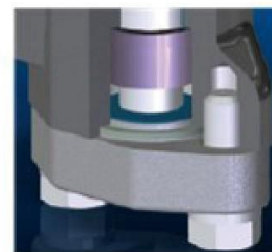
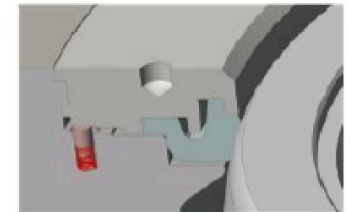
Valve Disc

Valve disc uses stainless steel with computer-aid PTC Creo Parametric software to analyze stress performance to achieve API 598. Based on advanced 3D CAD simulation, ESHP Valve developed a streamlined disc with lower noise and turbulence. Meanwhile, all our disc's and stem's surface are hard-chrome-plated. This feature significantly enlarges disc performance of anti-rubbing and anti-shocking, which result in better life cycle.



Patented Retainer Ring

A ESHP Patented Retainer Ring. During installation, screwing this ring into internal tooth of valve body, then a stainless-steel spring catch and PTFE pin will pop-up to fix retainer ring and valve body in correct position. This design enlarge the flange-gasket's touching surface, which provides better tolerance for installation error.



Thrust Ring for Positioning

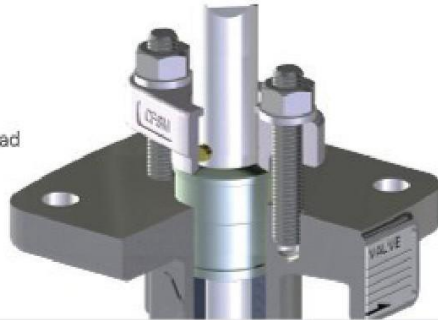
A Rigid Thrust Ring keeps stem always in an accurate position. This feature leads Valve to fully reliability.

Low Fugitive Emission Gland Packing System

Compliance with latest DIN3780 and MSS-SP143

Gland Flange and Gland Bush

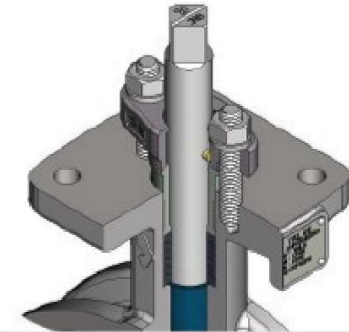
A fully adjustable two-piece gland with spherical mating surfaces to make sure an even packing load over 360 °



Long Gland Bush for Positioning

Long gland bush ensures gland flange always keep in center while adjust packing gland.

Preventing gland bush away from rubbing and jamming condition with stem.

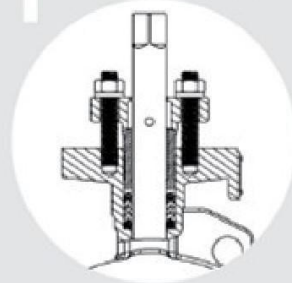


Gland Packing System

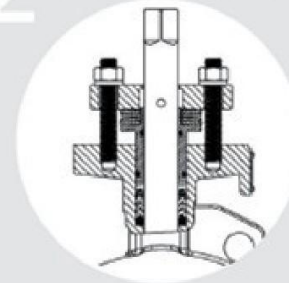
Five types:

1. Standard V-Type PTFE or RTFE
2. Live Loading Low Fugitive Emission V-Type PTFE or RTFE
3. Standard GRAPHITE
4. Live Loading Low Fugitive Emission GRAPHITE Having EVSP 9000 or 3300W in option.
5. Live Loading with Lantern Ring

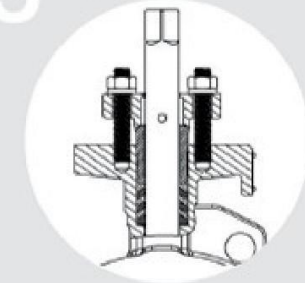
1 Standard V Type PTFE or RTFE Gland Packing System



2 Live Loading Low Fugitive Emission V-Type PTFE or RTFE Packing System

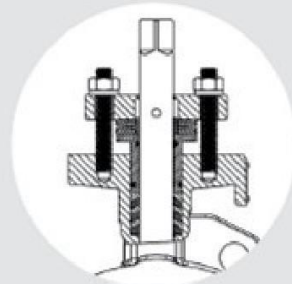


3 Standard GRAPHITE Packing System (Fire Safe Only)



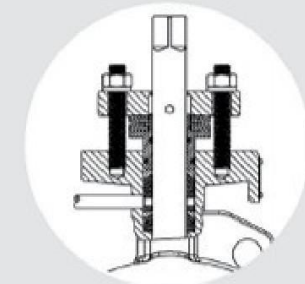
4 Live-Loading Low Fugitive Emission GRAPHITE Gland Packing System

Having EVSP 9000 or 3000W in option.



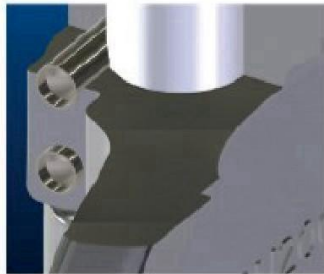
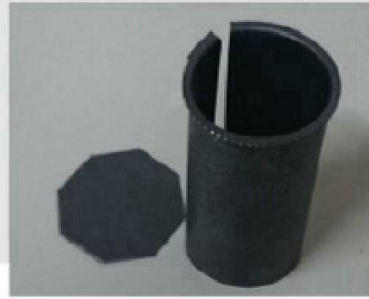
5 Live Loading with Lantern Ring Gland Packing System

A lantern ring with double packing leak-off-monitoring, provides functionality of purge and monitor leakage from bottom packing.



Self-Lubricant Bush

Uses RTFE+S.S 316 stem bush. Has excellent working temperature, strength rating, and low friction factor. Maintain good seat sealing capability even after high-cycle operations.



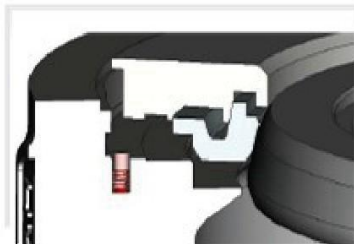
Taper Pin

Disc taper pins are tangentially positioned half in disc and half in stem, placing them in compression rather than shear, which eliminates potential of failure. This method is 3 times stronger than traditional shear way.

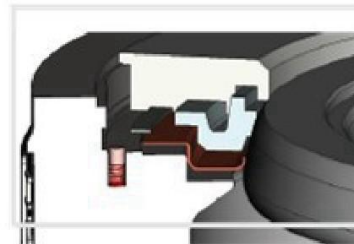
Valve Seat

ESHP V TYPE 1000/2000 Series design 2 types of seat: Soft Seat and Fire-Safe Seat. Pressure-Temperature Rating is compliance with API 609. Using reliable section and corresponding floating seat to achieve bi-directional, drop-tight zero leakage closure throughout all pressure ranges, as well as full rated differential pressure. This design reduces rubbing and friction between disc and seat which significantly results longer life cycle. With Higa-PTFE, V TYPE 1000/2000 Series can keep 285PSI bi-direction zero leakage after 100,000 times operations. And it will even higher while valve is working in vacuum environment.

Comparing to general PTFE, our Higa-PTFE has 2.5 times higher in Load-Deformation-Rate, 1.5-4 times higher in Acid-Alkaline Permeability. Meanwhile, PTFE, RTFE, UHMWPE are available.



< Standard Type >



< Fire-Safe Type >



PMI Production Inspection

QUALITY ASSURANCE

1. Testing: 100% tested before shop-out.
2. Operating Torque: 100% validated before shop-out.
3. Material Inspection: verified by PMI (Portable X-ray Material Inspector) and Optical Spectrometer.



Full Pressure Test



Optical Spectrometer Inspection



Precious Measurement

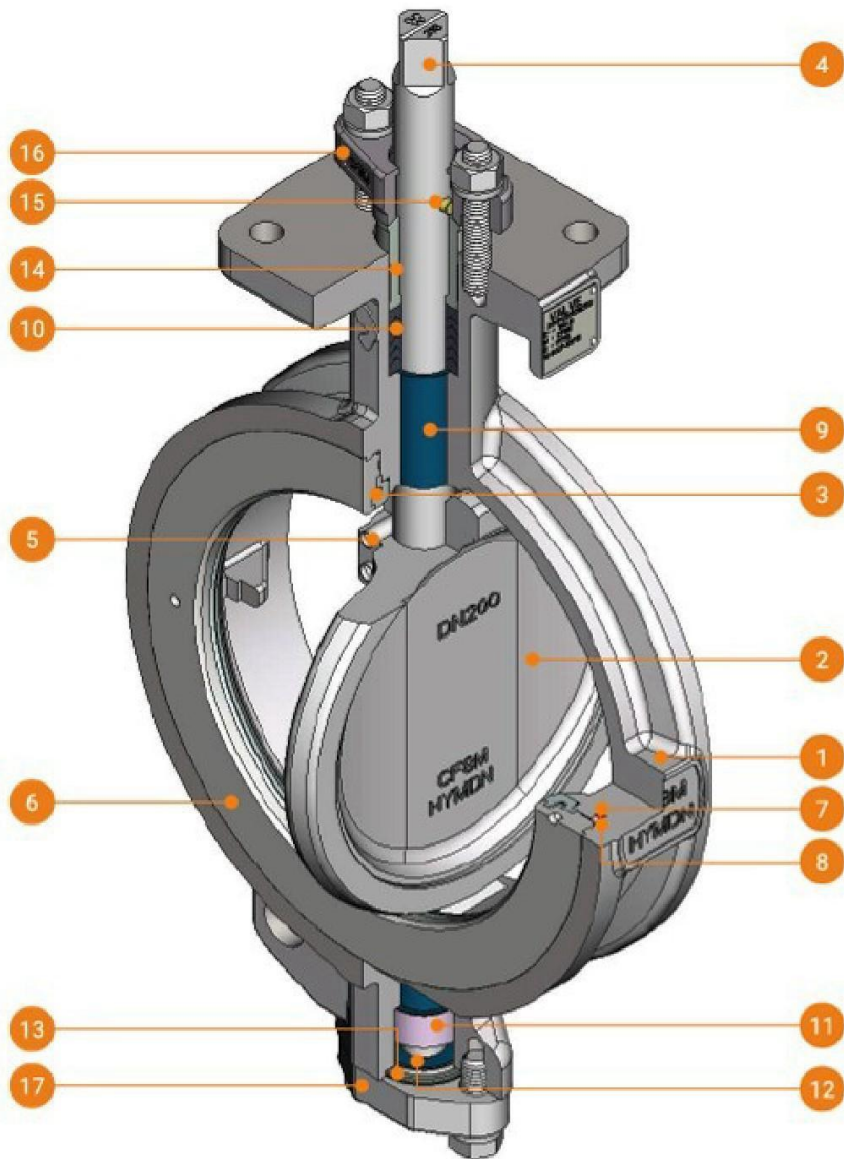


Life Cycle Test



LIFE CYCLE TEST

VALVE COMPONENTS

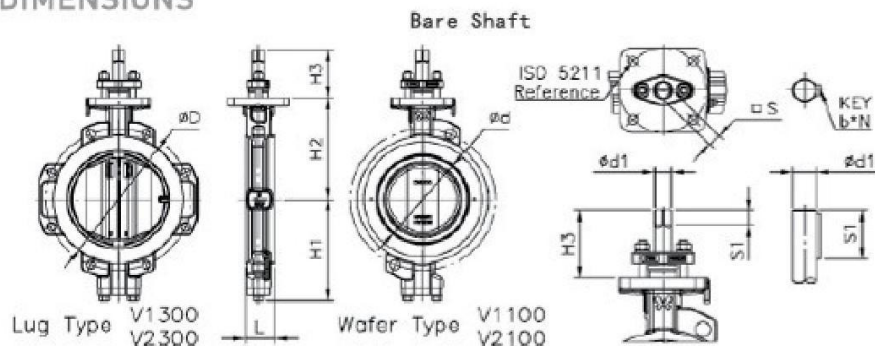


ITEM	NAME	QTY	MATERIAL			REMARK
1	Body	1	A216 Gr. WCB	A351 Gr. CF8	A351 Gr. CF8M	
2	Disc	1	A351 Gr. CF8		A351 Gr. CF8 M	●
3	Seat	1	Higa-PTFE / RTFE / FIRE SAFE			★
4	Stem	1	A182 Gr. F6A	A182 Gr. F304	A182 Gr. F316	●
5	Taper Pin	2	A182 Gr. F316L			
6	Retainer Ring	1	A351 Gr. CF8	A351 Gr. CF8M		
7	Spring	1	A182 Gr. F316			
8	Lock Pin	1	PTFE			
9	Stem Bush	2	PTFE+SS316L			
10	Gland Packing	1	PTFE / RTFE / GRAPHITE(FIRE SAFE ONLY)			▲
11	Thrust Ring	1	A351 Gr. CF8M			
12	Thrust Plate	1	PTFE+SS316L			
13	Gasket	1	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			

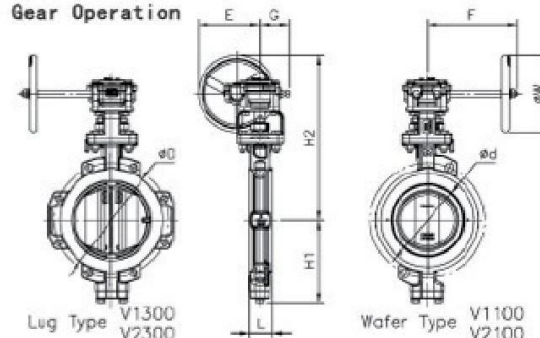
Remark

- 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 -29~180 °C , RTFE -29-230 °C
- 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.

DIMENSIONS



Gear Operation



150LB

SIZE		L	D	d	H1	H2	H3	S1	d1	S (b*H)	ISO	Weight (kg)	
mm	in											Wafer	Lug
50	2	43	95	46	101	110	72	14	14	11	F07	3.5	-
65	2.5	46	112	61	110	120	72	14	14	11	F07	4	-
80	3	48	126	76	134	140	86	18	18	14	F10	7	9
100	4	54	155	96	144	150	86	18	18	14	F10	9	13
125	5	57	184	118	178	170	89	21	22	17	F10	12	-
150	6	57	215	143	190	185	89	21	22	17	F10	13	19
200	8	62	267	188	214	215	101	23	25	19	F12	21	28
250	10	70	326	236	254	260	104	26	28	22	F12	30	44
300	12	81	375	281	298	290	129	31	35	27	F14	46	66
350	14	92	416	320	328	320	134	36	42	32	F14	63	86
400	16	102	480	371	377	370	158	40	48	36	F16	95	130
450	18	114	534	420	402	395	158	40	48	36	F16	125	163
500	20	127	588	469	437	430	168	50	60	46	F16	160	227
600	24	154	692	549	492	480	198	50	60	46	F25	265	358
700	28	165	800	655	560	555	207	59	72	55	F25	360	490
750	30	190	855	698	610	595	320	130	90	25*14	F30	460	620
800	32	190	910	755	620	625	330	140	100	28*16	F30	610	800
900	36	203	1000	870	680	685	340	150	110	32*18	F30	820	1020

150LB

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

SIZE		L	D	d	H1	H2	W	G	E	F	Weight (kg)		Gear Model	Gear Model
mm	in										Wafer	Lug		
50	2	43	95	46	101	254	100	66	97	133	7	-	G07	1:40
65	2.5	46	112	61	110	264	100	66	97	133	8	-	G07	1:40
80	3	48	126	76	134	294	100	66	97	133	11	12	G07	1:40
100	4	54	155	96	144	304	100	66	97	133	12	16	G07	1:40
125	5	57	184	118	178	324	100	66	97	133	15	-	G07	1:40
150	6	57	215	143	190	339	100	66	97	133	17	22	G07	1:40
200	8	62	267	188	214	431	200	77	161	236	28	35	G10	1:40
250	10	70	326	236	254	476	200	77	161	236	37	52	G10	1:40
300	12	81	375	281	298	529	200	94	183	236	58	78	G12	1:60
350	14	92	416	320	328	559	200	94	183	236	75	98	G12	1:60
400	16	102	480	371	377	690	300	120	257	324	118	153	G14	1:64
450	18	114	534	420	402	715	300	120	257	324	148	186	G14	1:64
500	20	127	588	469	437	750	300	120	257	324	183	250	G14	1:64
600	24	154	692	549	492	888	400	153	352	374	315	408	G16	1:96
700	28	165	800	655	560	963	400	153	352	374	410	540	G16	1:96
750	30	190	855	698	610	1110	600	200	509	470	555	715	G25	1:125
800	32	190	910	755	620	1140	600	200	509	470	705	895	G25	1:125
900	36	203	1000	870	680	1200	600	200	509	470	915	1115	G25	1:125

300LB

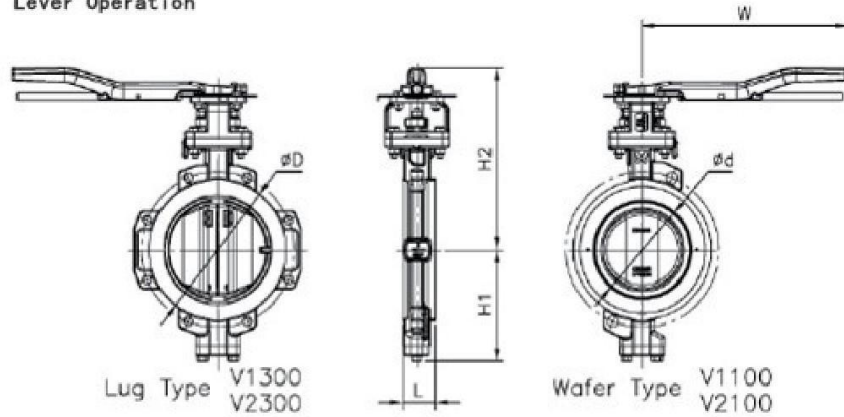
SIZE		L	D	d	H1	H2	H3	S1	d1	S (b*H)	ISO	Weight (kg)	
mm	in											Wafer	Lug
80	3	48	132	76	143	140	86	18	18	14	F10	9	11
100	4	54	162	96	157	160	86	18	18	14	F10	10	14
125	5	59	188	118	190	175	89	21	22	17	F10	13	-
150	6	59	224	143	209	200	101	23	25	19	F12	15	23
200	8	73	280	188	233	235	104	26	28	22	F12	28	37
250	10	83	345	236	273	275	129	31	35	27	F14	40	58
300	12	92	395	281	317	310	134	36	42	32	F14	62	80
350	14	117	440	320	353	350	158	40	48	36	F16	95	130
400	16	133	495	371	403	380	168	50	60	46	F16	130	190
450	18	149	560	420	440	415	198	50	60	46	F25	168	240
500	20	159	622	469	474	450	207	59	72	55	F25	195	360
600	24	181	720	549	542	530	320	130	90	25*14	F30	330	560

300LB

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

SIZE		L	D	d	H1	H2	W	G	E	F	Weight (kg)		Gear Model	Gear Model
mm	in										Wafer	Lug		
80	3	48	132	76	143	294	100	66	97	133	12	15	G07	1:40
100	4	54	162	96	157	314	100	66	97	133	13	18	G07	1:40
125	5	59	188	118	190	329	100	66	97	133	16	-	G07	1:40
150	6	59	224	143	209	416	200	77	161	236	22	31	G10	1:40
200	8	73	280	188	233	451	200	77	161	236	36	45	G10	1:40
250	10	83	345	236	273	514	200	94	183	236	52	70	G12	1:60
300	12	92	395	281	317	549	200	94	183	236	75	93	G12	1:60
350	14	117	440	320	353	670	300	120	257	324	118	153	G14	1:64
400	16	133	495	371	403	700	300	120	257	324	153	213	G14	1:64
450	18	149	560	420	440	823	400	153	352	374	218	290	G16	1:96
500	20	159	622	469	474	858	400	153	352	374	245	410	G16	1:96
600	24	181	720	549	542	1045	600	185	509	446	425	655	G25	1:125

Lever Operation



150LB

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

SIZE		L	D	d	H1	H2	W	Weight (kg)		Lever Model
mm	in							Wafer	Lug	
50	2	43	95	46	101	220	220	5.5	-	L22
65	2.5	46	112	61	110	230	220	6	-	L22
80	3	48	126	76	134	260	220	8	11	L22
100	4	54	155	96	144	270	220	11	15	L22
125	5	57	184	118	178	290	300	14	-	L23
150	6	57	215	143	190	305	300	16	21	L23
200	8	62	267	188	214	350	400	25	32	L34

300LB

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

SIZE		L	D	d	H1	H2	W	Weight (kg)		Lever Model
mm	in							Wafer	Lug	
80	3	48	132	76	143	260	220	11	13	L22
100	4	54	162	96	157	280	220	12	16	L22
125	5	59	188	118	190	295	300	15	-	L23
150	6	59	224	143	209	335	400	19	27	L34

TORQUE CHART

ANSI Class 150LB

SIZE		SOFT SEAT bar (Nm)			FIRE SAFE SEAT bar (Nm)		
mm	in	ΔP 6BAR	ΔP 10BAR	ΔP 16 BAR	ΔP 6BAR	ΔP 10BAR	ΔP 16 BAR
50	2	6	8	11	13	15	18
65	2.5	9	12	18	21	25	30
80	3	15	21	29	32	37	46
100	4	25	37	55	53	65	83
125	5	43	64	94	84	105	135
150	6	55	84	126	112	140	183
200	8	101	156	238	206	261	343
250	10	199	248	381	322	410	543
300	12	256	393	598	484	620	825
350	14	385	583	880	686	884	1180
400	16	565	853	1285	956	1245	1677
450	18	708	1091	1666	1229	1612	2187
500	20	1068	1607	2415	1717	2256	3065
600	24	1685	2510	3748	2578	3403	4640

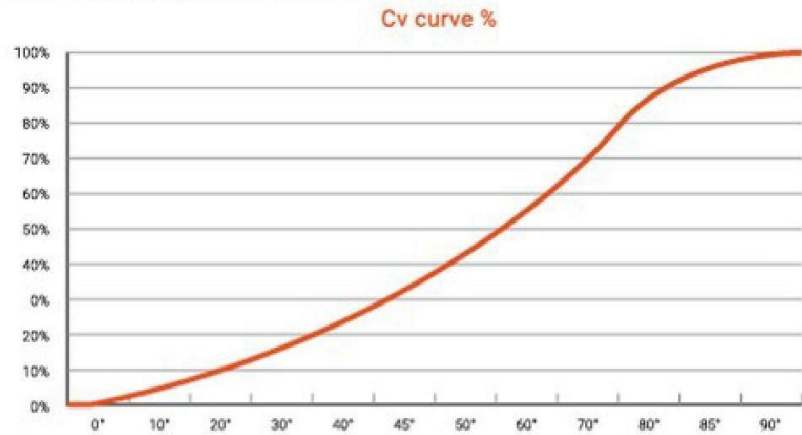
ANSI Class 300 LB

SIZE		SOFT SEAT bar (Nm)			FIRE SAFE SEAT bar (Nm)		
mm	in	ΔP 20 BAR	ΔP 30 BAR	ΔP 40 BAR	ΔP 20 BAR	ΔP 30 BAR	ΔP 40 BAR
80	3	49	63	77	76	90	104
100	4	82	112	142	126	156	186
125	5	141	192	243	207	258	309
150	6	206	280	354	297	371	445
200	8	363	506	650	531	674	818
250	10	627	871	1115	886	1130	1375
300	12	985	1358	1731	1349	1721	2094
350	14	1458	1999	2541	1939	2481	3022
400	16	2273	3086	3899	2900	3712	4525
450	18	3089	4221	5353	3922	5054	6187
500	20	4246	5785	7324	5285	6823	8362
600	24	6606	8984	11362	8034	10412	12789

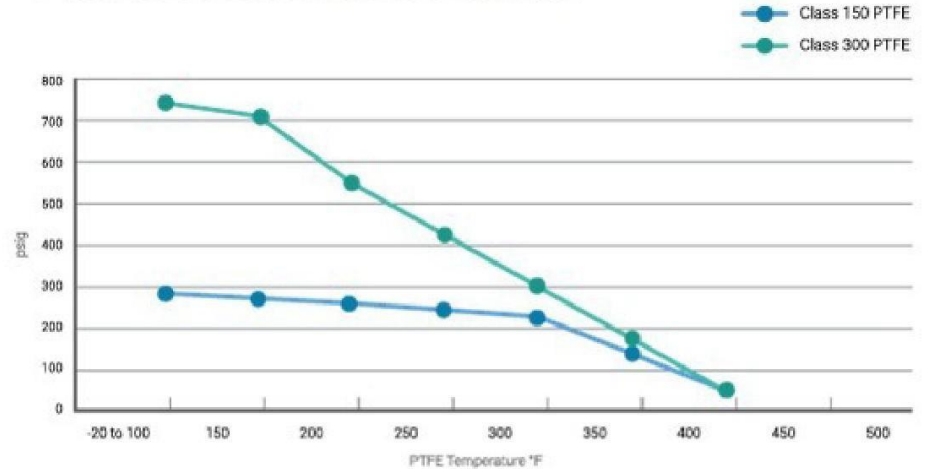
Remark

1. The torque in above chart is measured with water media under listed pressure .
2. Installing seat on updown direction will result lower torque and better life cycle.

Cv FLOW COEFFICIENT



PRESSURE-TEMPERATURE RATING

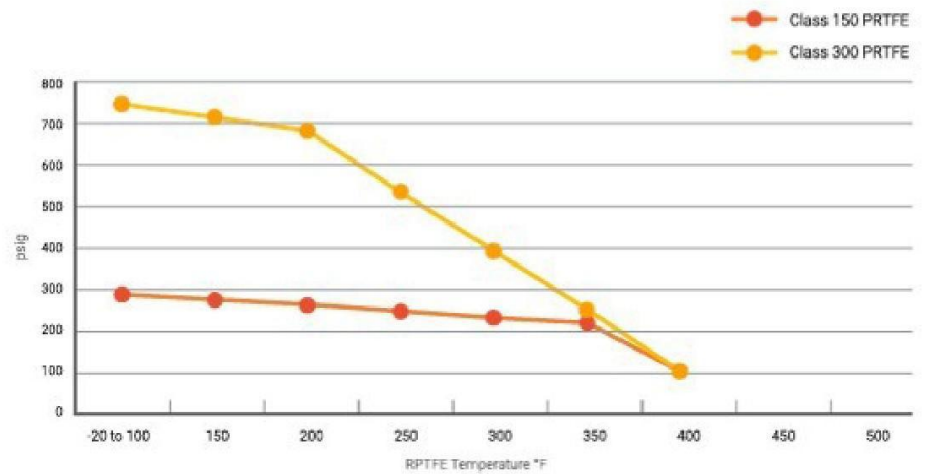


150LB

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

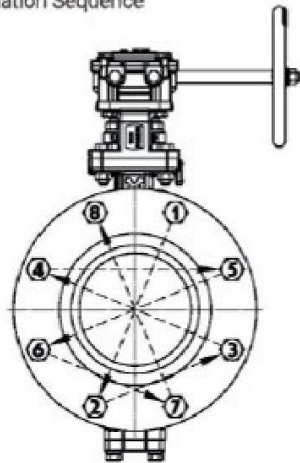


Temperature		Class 150				Class 300			
		PTFE		RPTFE		PTFE		RPTFE	
°F	°C	psig	bar	psig	bar	psig	bar	psig	bar
-20 to 100	-29 to 38	285	19.7	285	19.7	740	51	740	51
150	66	273	18.8	273	18.8	708	48.8	708	48.8
200	93	260	17.9	260	17.9	550	37.9	675	46.5
250	121	245	16.9	245	16.9	425	29.3	530	36.5
300	149	230	15.9	230	15.9	300	20.7	390	26.9
350	177	140	9.7	215	14.8	175	12.1	250	17.2
400	204	50	3.4	100	6.9	50	3.4	100	6.9

INSTALLATION INSTRUCTION

1. Performance is dominated by installation operation. Improper installation might damage valves.
2. Proper installation is very important to make valves work in a good condition. Please follow instructions as below:
 - a. Carefully remove protecting plates and check nameplate and tags.
 - b. Read alarms or labels with valve and take proper actions.
 - c. Check valve direction symbol. If suggested flow-direction arrow is marked, please follow recommend direction to install valve.
 - d. Check inside of valve is clean with no harmful articles.
 - e. Carefully perform one full-cycle operating check before installation if possible.
 - f. In last step before installation, check pipe flange is in correct position with clean status.

3. Screw Installation Sequence



NOTICE

1. Do NOT remove Valve Protector unless you need to check or install valve.
2. Valve should wear water protector and uphold away from ground while storing in outdoor environment.
3. Operation Torque might be increased when valve is not operated in long time. ESHP Valve suggests to operate valve once every 6 months.

PRODUCTION LIVE



Assembly Zone: DN700(28 Inch)



NC Lathe Zone



Precision Grinding: Stem



NC Vertical Lathe: Body Machining



Precision Boring: Valve Body



Horizontal Machine Center