

HIPPO in the fluid world.



 HIPPO Valve Co., Ltd.  
High Performance Butterfly Valve.

Control /Double Offset/Triple Offset Metal Seated

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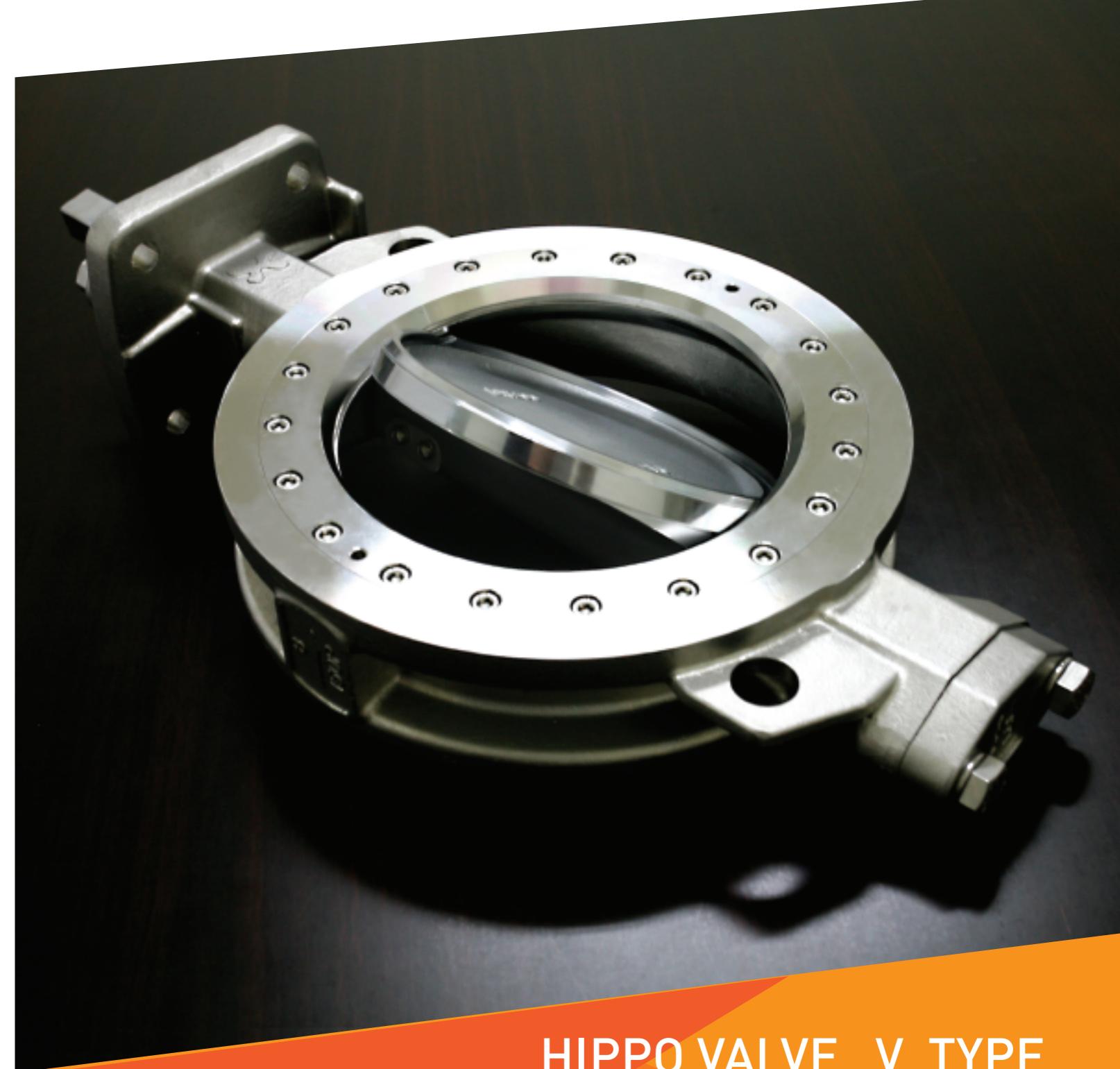
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HIPPO VALVE V TYPE

4000/5000 Series  
Class 150 Class 300

Triple Offset Metal Seated Butterfly Valve

[www.hippovalve.com](http://www.hippovalve.com)



## V TYPE 4000 / 5000 Series Metal Seated Triple-Offset Butterfly Valve

Type : Wafer, Lug, Flanged

Size : DN50~DN1200  
2" ~ 48"

Pressure : PN10, PN16, PN20, PN25, PN40, PN50  
Rating      Class 150, Class 300

Temperature Rating : -196°C ~ 550°C  
-320°F ~ 1020°F

Bi-direction Zero Leakage

Low Fugitive Emission System

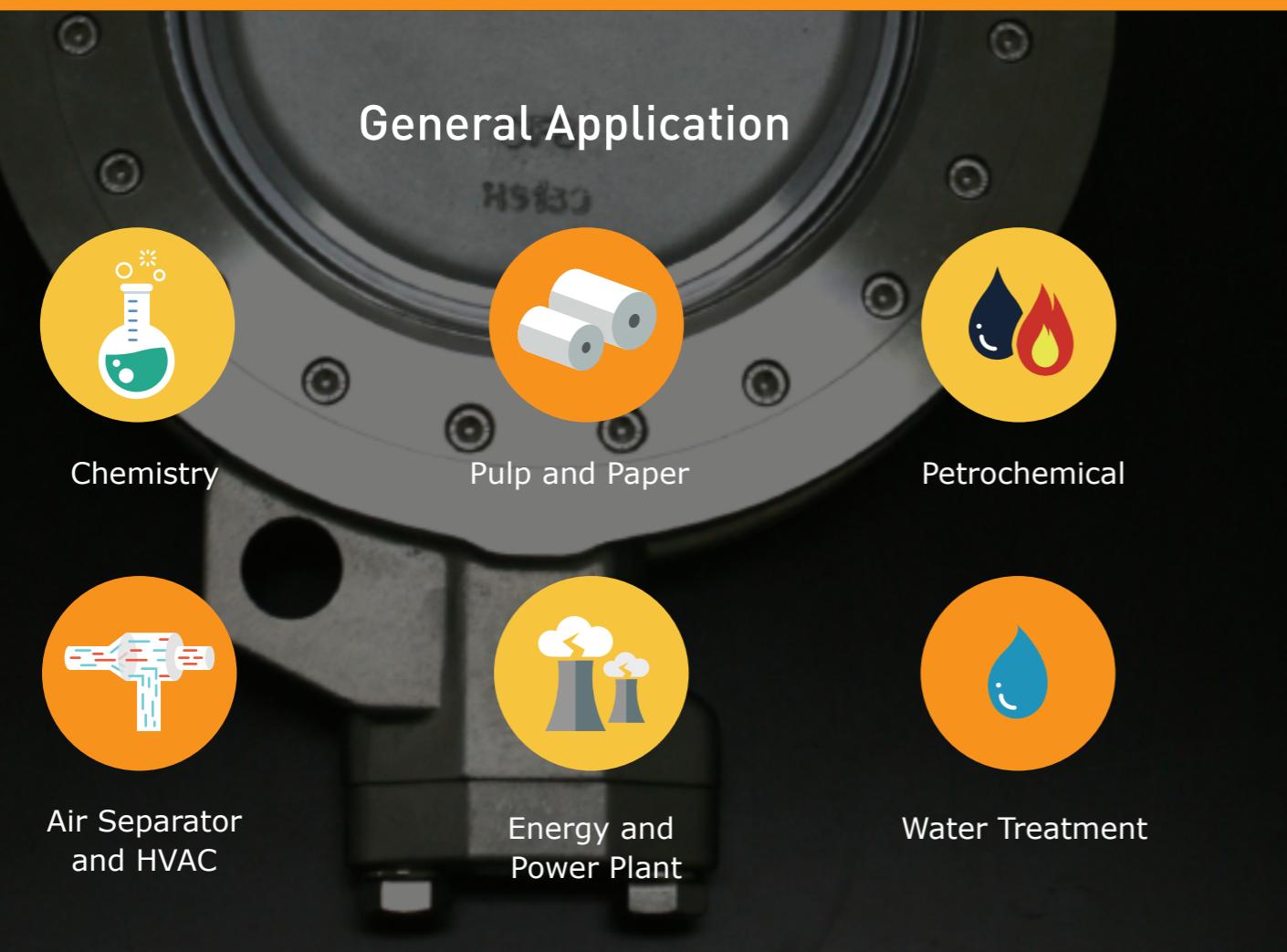
Fire Safe: Compliance with API 607

High Cycle Life

Laminated or Solid Metal Seat

1° Opening Disc away from body

## CONTENT



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## COMPANY PROFILE

HIPPO Valve Co., Ltd. is a TUV ISO9001 certified professional High Performance Double-Offset Butterfly Valve and Triple-Offset Metal Seated Butterfly Valve manufacturer. We are a new subsidiary from an 1985 established Mariposa Valve.

With more than 40 years experience in butterfly valve and other related products, our engineering teams have had serve lots industries as chemistry, pulp and paper, petrochemical, air separator and HVAC, energy and power plant, and water treatment.

In order to deliver high quality, HIPPO Valve, a professional butterfly manufacturer, integrates our 40 years experience and valve engineering knowledge into new generation valves.

Now we are pleased to introduce our synergy of latest engineering software PTC Creo Parametric, modern 3D CAD simulation, advanced CNC devices, and 40 years experience. All above best performances are 100% implemented in our new released reliable and trustable V4000/5000 Metal Seated Triple-Offset Butterfly Valve Series.

## SPECIFICATION

**Testing :** API 598, ISO 5208

**Pressure-Temperature Rating :** API 609 / ASME B16.34

**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



# COMPONENTS

## 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

Multiple materials are available to use. Performance is compliance with API 598's testing pressure.

## Valve Seat

Bi-direction zero leakage design. Use Solid or Laminated Metal.

## Taper Pin

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

## Retainer Ring

A screw-fixed design retainer ring. This design can be used in the end of pipe system.

Surface roughness is 125-200AARH.

## Thrust Ring

Use 316 as material.

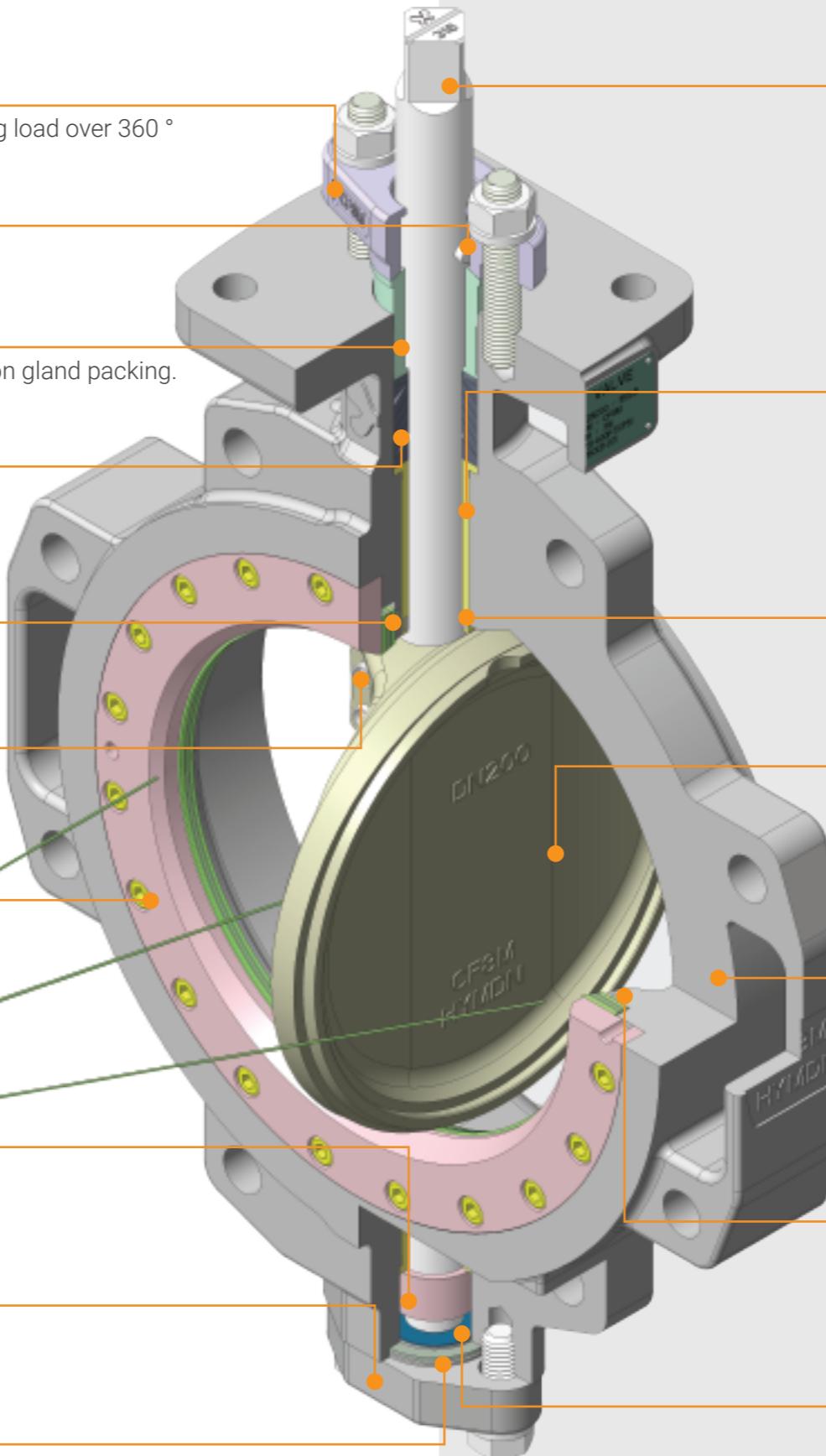
Position in bottom of stem for preventing incorrect stem shift.

## Bottom Cover

Use rigid 316 as material to prevent abnormal leakage.

## Bottom Gasket

Uses Spiral wound Gasket 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.

## Bush

Uses Nitrided 316 stem bush. Has excellent working temperature, strength rating, and low friction factor.

## Bush Protector

Using graphite. Resisting fluid debris into the valve to ensure smooth operations.

## Valve Disc

Use stainless-steel with ENP or Stellite 21 treatment. An anti-corrosion, 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.

## Seat Gasket

Uses Spiral wound Gasket to keep zero-leakage under any kind of pressure or temperature.

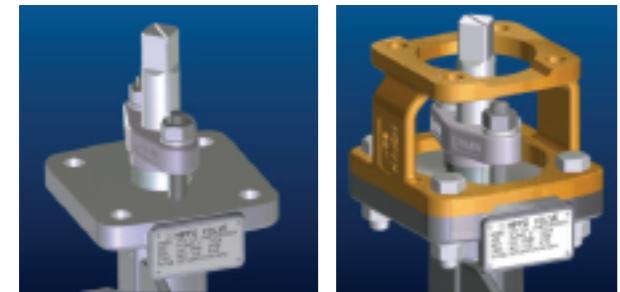
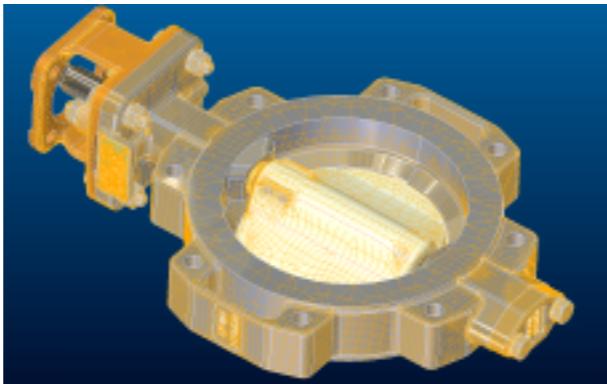
## Thrust Plate

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

# FEATURES

## Valve Body

HIPPO Valve V-Type 4000/5000 Series High Performance Butterfly Valves are designed 100% compliance with API 609 and ASME B16.34. Utilizing PTC Creo Parametric (Pro/E) Computer-add-design in every component and result in best reliability.

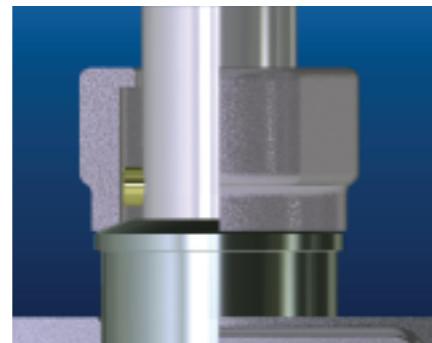


## Top Mounting

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.

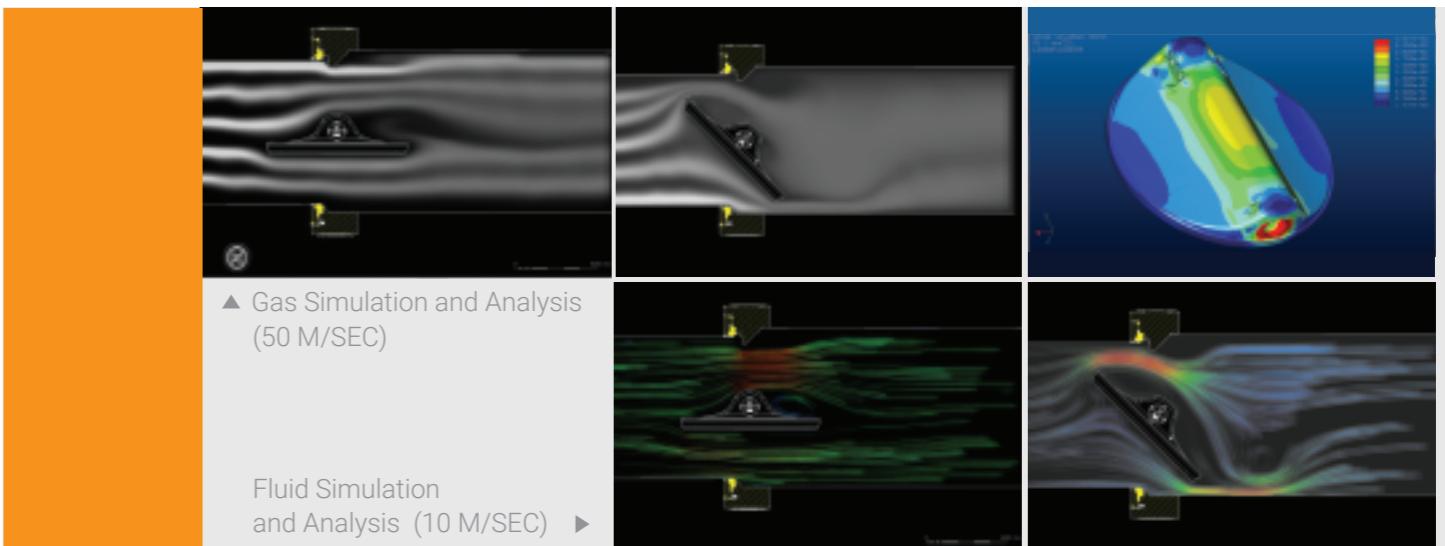


## Marking and Name Plate

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

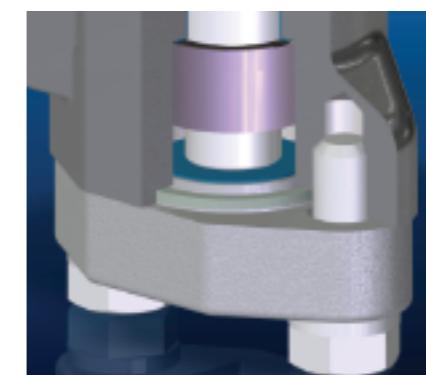
## Valve Disc

Valve disc uses stainless steel with computer-add PTC Creo Parametric software to analyze stress performance to achieve API 598. Based on advanced 3D CAD simulation, HIPPO Valve developed a streamlined disc with lower noise and turbulence. Meanwhile, all our disc's and stem's surface are ENP or Stellite 21 treated. This feature significantly enlarges disc performance of anti-rubbing and anti-shocking, which result in better life cycle.



## Flexible and Resilient Laminated Metal Seat

Laminated Metal Seat uses GRAPHITE material. By special treatment, HIPPO Valve successfully combine graphit and metal, which gives seat strong capabilities to operate against temperature, pressure, corrosion, and erosion. In addition, the flexibility and resilience of laminated seat results better leakage condition and long life cycle.



## Thrust Ring for Positioning

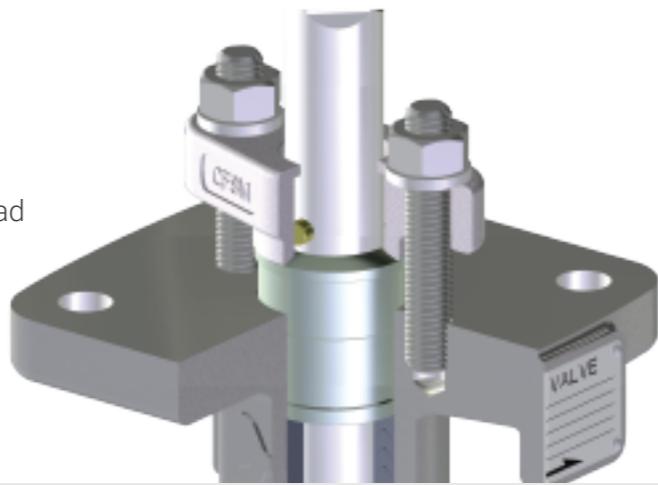
A Rigid Thrust Ring keeps stem always in an accurate position. This feature leads HIPPO Valve to fully reliability.

## Low Fugitive Emission Gland Packing System

Compliance with latest DIN3780 and MSS-SP143

### Gland Flange and Gland Bush

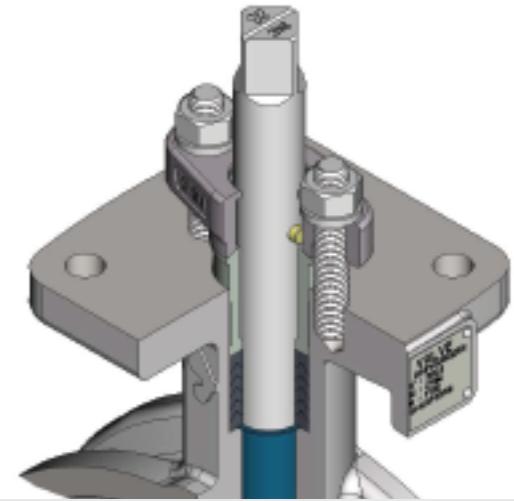
A fully adjustable two-piece gland with spherical mating surfaces to make sure an even packing load over 360 °



### 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.

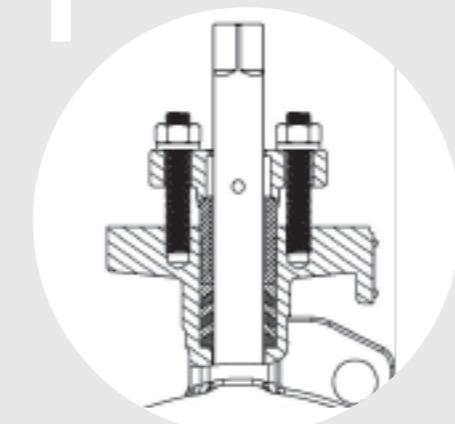


### Gland Packing System

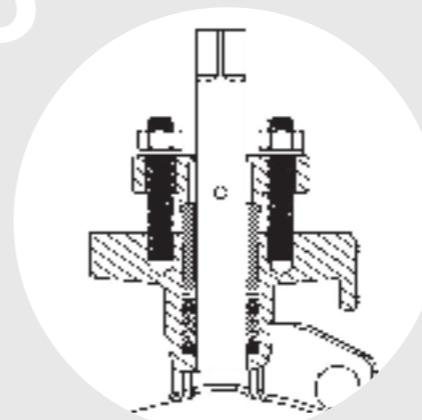
Five types:

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

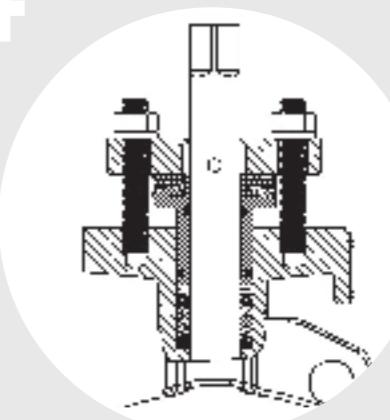
1 Standard GRAPHITE Packing System



3 Standard V Type PTFE or RTFE  
Gland Packing System

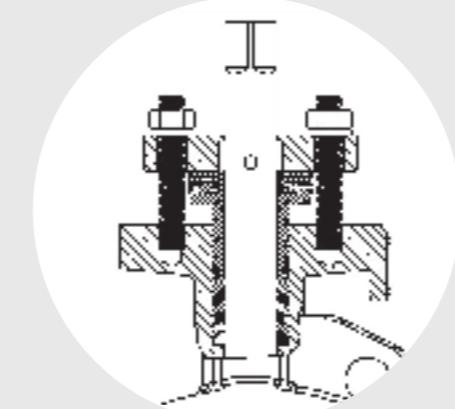


4 Live Loading Low Fugitive Emission  
V-Type PTFE or RTFE Packing System



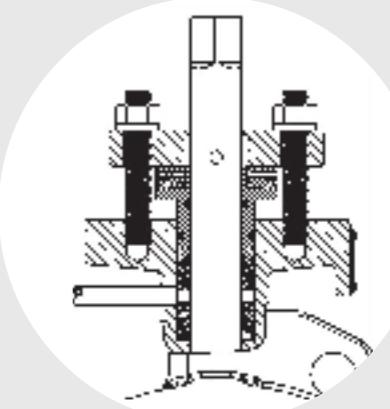
2 Live-Loading Low Fugitive Emission  
GRAPHITE Gland Packing System

Having EVSP 9000 or 3300W in  
option.



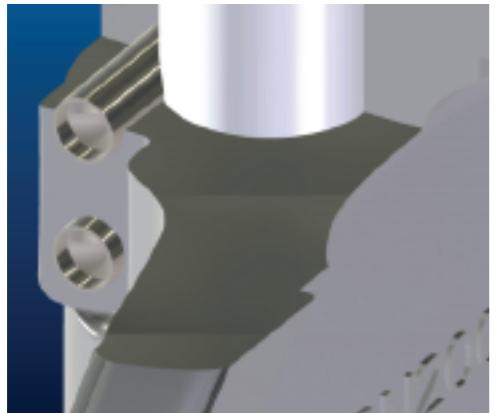
5 Live Loading with Lantern Ring  
Gland Packing System

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



### Bush

Uses Nitrided stainless steel 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 tradi-

### Valve Seat

HIPPO V TYPE 4000/5000 Series design 2 types of seat: Solid Seat and Laminated 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 guarantees no rubbing and low friction between disc and seat which significantly results long life cycle.

Laminated Metal Seat uses GRAPHITE material. By special treatment, HIPPO Valve successfully combine graphit and metal, which gives seat strong capabilities to operate against temperature, pressure, corrosion, and erosion. In addition, the flexibility and resilience of laminated seat results better leakage condition and long life cycle.



< Solid Metal Seat>



<Laminated Metal Seat>

## PRODUCTION MONITORING

Safe Lean Clean  
Efficiency Green Earth

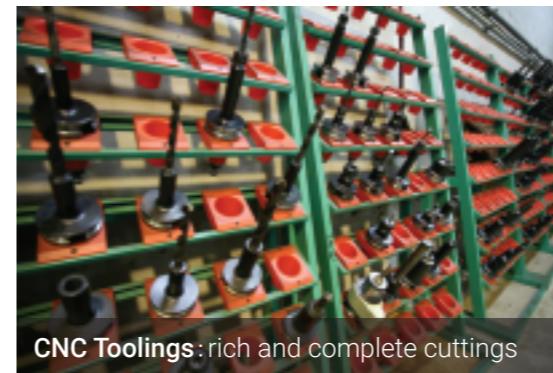
As a 40-years-experienced company, we implemented best practice as HIPPO LEAN PRODUCTION to manufacture world-class valves.



Well-experienced Mechanics



Precision Boring : Valve Body



CNC Toolings : rich and complete cuttings



Precision Grinding : Stem



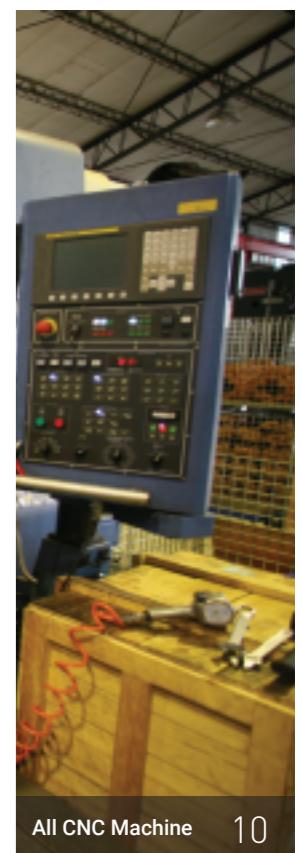
Assembly Zone : DN700(28 Inch)



NC Vertical Lathe : Body Machining



Horizontal Machine Center



All CNC Machine 10

## QUALITY ASSURANCE

# TUV ISO 9001:2008 Certified

**"We guarantee to deliver high-performance-high-quality valves"**

The well-defined standards for control proceedings and auditing are key to the quality.

We clearly understand and seriously implement this concept from performance engineering, production monitoring, inspection, test, till maintenance.

All our products are lot-controlled or serial-number-controlled. This traceability ensures we can provide good support service.

### HIPPO Valve's 3 Shop-out Standards

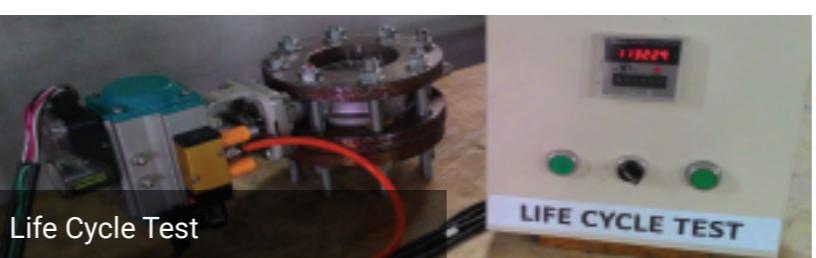
1. Pressure Testing: 100% tested before shop-out.
2. Operating Torque: 100% validated before shop-out.
3. Material Inspection: verified by PMI(Portable X-ray Material Inspector) and Optical Spectrometer.



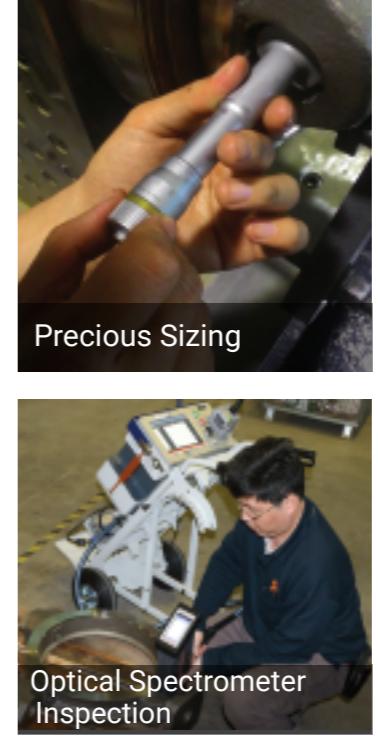
### HIPPO Valve's Standard Inspection and Test Procedures (ITPs)

Step by Step Operation is the only way to quality.

- ◆ Measurement
- ◆ Optical Spectrometer
- ◆ Inspection
- ◆ Operation Torque Inspection
- ◆ PMI Production Inspection
- ◆ Density Inspection
- ◆ Full-Pressure Testing
- ◆ Life Cycle Testing
- ◆ Shop-out Testing
- ◆ Emission Testing
- ◆ Fire-Safe Testing
- ◆ Tensile Testing

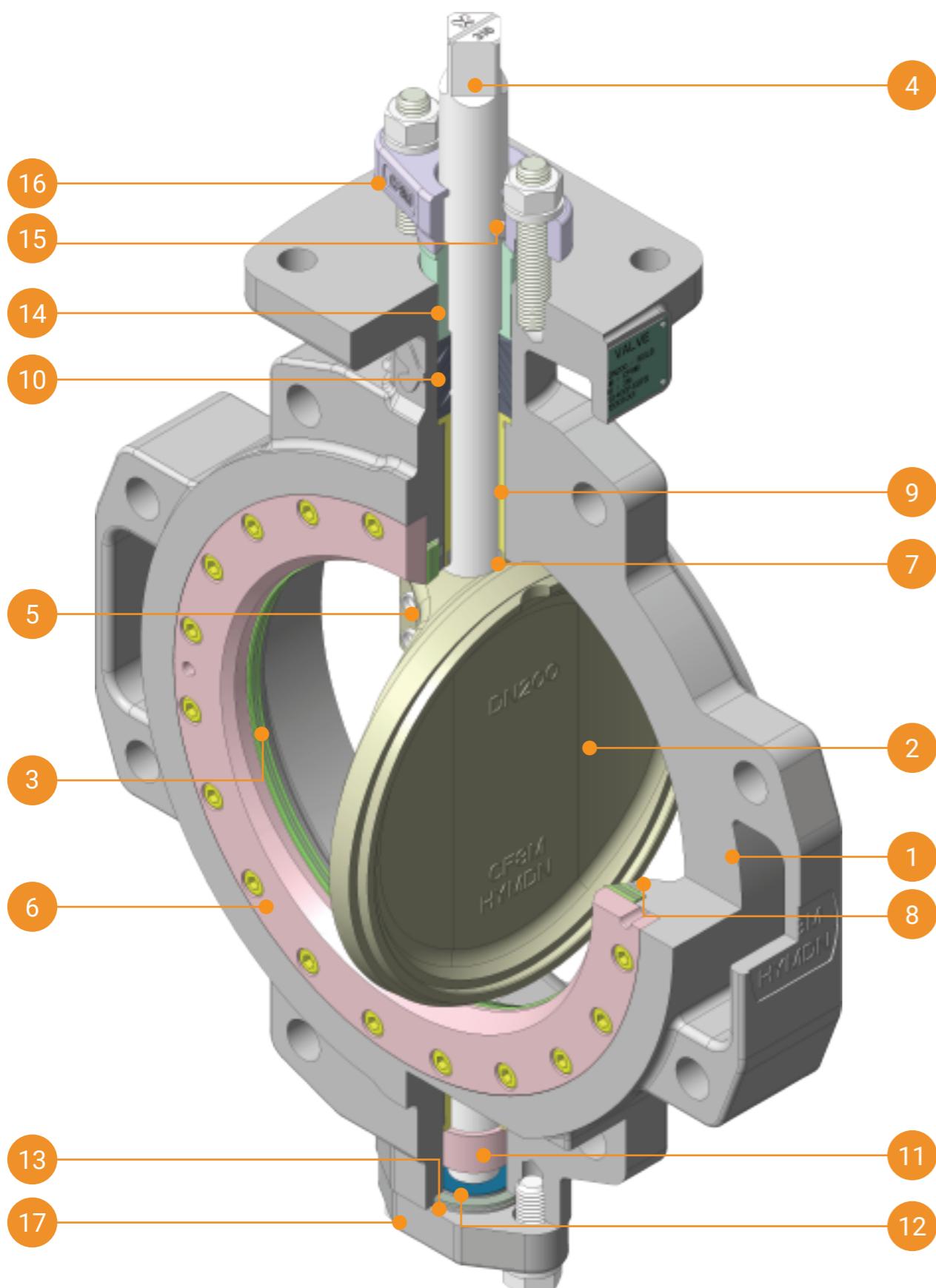


Lot or Serial-Number-Controlled



PMI Production Inspection

# BILL OF MATERIALS



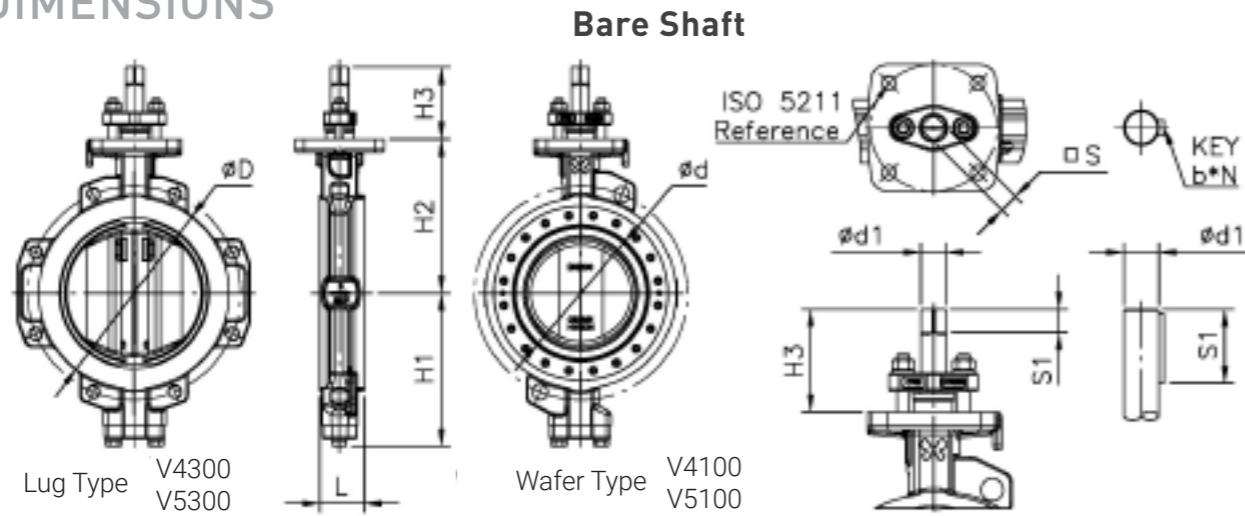
ITEM	NAME	QTY	MATERIAL			REMARK
1	Body	1	A216 Gr. WCB	A351 Gr. CF8	A351 Gr. CF8M	
2	Disc	1	A216 Gr. WCB	A351 Gr. CF8	A351 Gr. CF8M	●
3	Seat	1	A240 Gr. 316 + GRAPHITE			★
4	Stem	1	17-4 PH	Type XM19		
5	Taper Pin	2	A182 Gr. F316			
6	Retainer Ring	1	A351 Gr. CF8		A351 Gr. CF8M	
7	Bush Protector	1	GRAPHITE			
8	Seat Gasket	1	316+GRAPHITE			
9	Stem Bush	2	A182 Gr. F316			Nitrided
10	Gland Packing	1	GRAPHITE / PTFE / RTFE			
11	Thrust Ring	1	A351 Gr. CF8M			
12	Thrust Plate	1	A240 Gr. 316			Nitrided
13	Bottom Gasket	1	316+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

- Edge Surface is Electroless Nickel Plated or Settite 21 overlay.
- ★ Working temperature: -75°C (-100°F)~480°C (900°F)
- 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.

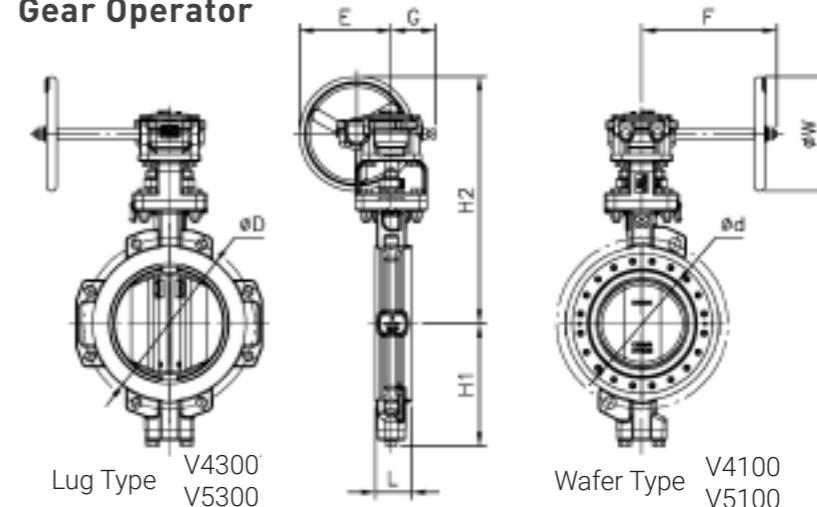
# HIPPO VALVE

## DIMENSIONS



# HIPPO VALVE

## Gear Operator



## 150LB

SIZE		L	D	d	H1	H2	H3	S1	d1	S (b*h)	ISO	Weight (kg)	
mm	in											Wafer	Lug
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
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	225	75	65	20x12	F25	265	358
700	28	165	800	655	560	555	290	90	75	22x14	F30	360	490
750	30	190	855	698	610	595	305	105	85	25x14	F30	460	620
800	32	190	910	755	620	625	310	110	90	25x14	F35	610	800
900	36	203	1000	870	680	685	320	120	100	28x16	F35	820	1020

## 150LB

SIZE		L	D	d	H1	H2	W	G	E	F	Weight (kg)		Gear Model	Gear Ratio
mm	in										Wafer	Lug		
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
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	G14	1:64
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	G16	1:96
500	20	127	588	469	437	750	300	120	257	324	183	250	G16	1:96
600	24	154	692	549	492	888	400	153	352	374	315	408	G25	1:125
700	28	165	800	655	560	963	400	153	352	374	410	540	G30	1:324
750	30	190	855	698	610	1110	600	200	509	470	555	715	G30	1:324
800	32	190	910	755	620	1140	600	200	509	470	705	895	G35	1:640
900	36	203	1000	870	680	1200	600	200	509	470	915	1115	G35	1:640

## 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
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	F16	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	F25	130	190
450	18	149	560	420	440	415	225	75	65	20x12	F25	168	240
500	20	159	622	469	474	450	290	90	75	22x14	F30	195	360
600	24	181	720	549	542	530	310	110	90	25x14	F35	330	560

## 300LB

SIZE		L	D	d	H1	H2	W	G	E	F	Weight (kg)		Gear Model	Gear Ratio
mm	in	Wafer	Lug											




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## HIPPO VALVE

### TORQUE CHART

#### ASME Class 150LB

SIZE		PREFERRED-DIRECTION bar (NM)						BI-DIRECTION bar (NM)					
		$\Delta P$ 6BAR		$\Delta P$ 10BAR		$\Delta P$ 20BAR		$\Delta P$ 6BAR		$\Delta P$ 10BAR		$\Delta P$ 20BAR	
mm	in	To Open	To Close	To Open	To Close	To Open	To Close	To Open	To Close	To Open	To Close	To Open	To Close
80	3	22	24	28	28	42	41	22	33	28	33	42	50
100	4	31	35	43	45	69	64	31	50	43	50	69	80
150	6	68	76	100	76	174	120	69	198	99	198	175	198
200	8	123	184	200	184	353	298	123	249	198	249	353	431
250	10	283	395	447	399	773	633	285	507	444	507	780	857
300	12	483	595	758	595	1335	934	483	807	758	807	1329	1379
350	14	518	610	845	610	1519	824	515	894	846	894	1533	1582
400	16	732	755	1090	755	1900	1175	732	1185	1090	1185	1903	2062
450	18	1220	1580	2068	1580	3703	2385	1224	2214	2072	2214	3714	3841
500	20	1505	1685	2640	1685	4751	2544	1512	2783	2644	2783	4761	4852
600	24	2789	2818	4838	2818	8779	4572	2781	6492	4831	6492	8742	9042

#### ASME Class 300 LB

SIZE		PREFERRED-DIRECTION bar (NM)						BI-DIRECTION bar (NM)					
		$\Delta P$ 10BAR		$\Delta P$ 20BAR		$\Delta P$ 50BAR		$\Delta P$ 10BAR		$\Delta P$ 20BAR		$\Delta P$ 50BAR	
mm	in	To Open	To Close	To Open	To Close	To Open	To Close	To Open	To Close	To Open	To Close	To Open	To Close
80	3	28	41	44	41	90	91	29	34	43	52	85	116
100	4	43	67	69	67	147	147	41	51	69	84	153	195
150	6	118	147	195	147	461	307	119	122	198	205	460	504
200	8	253	368	414	387	1039	887	258	284	413	492	1031	1201
250	10	454	644	758	644	1908	1465	465	525	792	859	1874	2077
300	12	744	945	1326	945	3135	2117	756	769	1374	1355	3226	3193
350	14	1070	1191	1894	1191	4454	2798	1047	1096	1792	1926	4412	4369
400	16	1577	1897	2922	1897	7054	4376	1573	1665	2875	2791	6781	7130
450	18	1973	2494	3859	2611	9359	6026	2010	2178	3543	3655	9469	9224
500	20	3298	3255	6086	3481	13650	7847	3340	3280	5895	5608	14369	13947
600	24	4630	4738	8868	4777	21983	10672	5066	4743	8769	8779	20684	23035

#### Remark

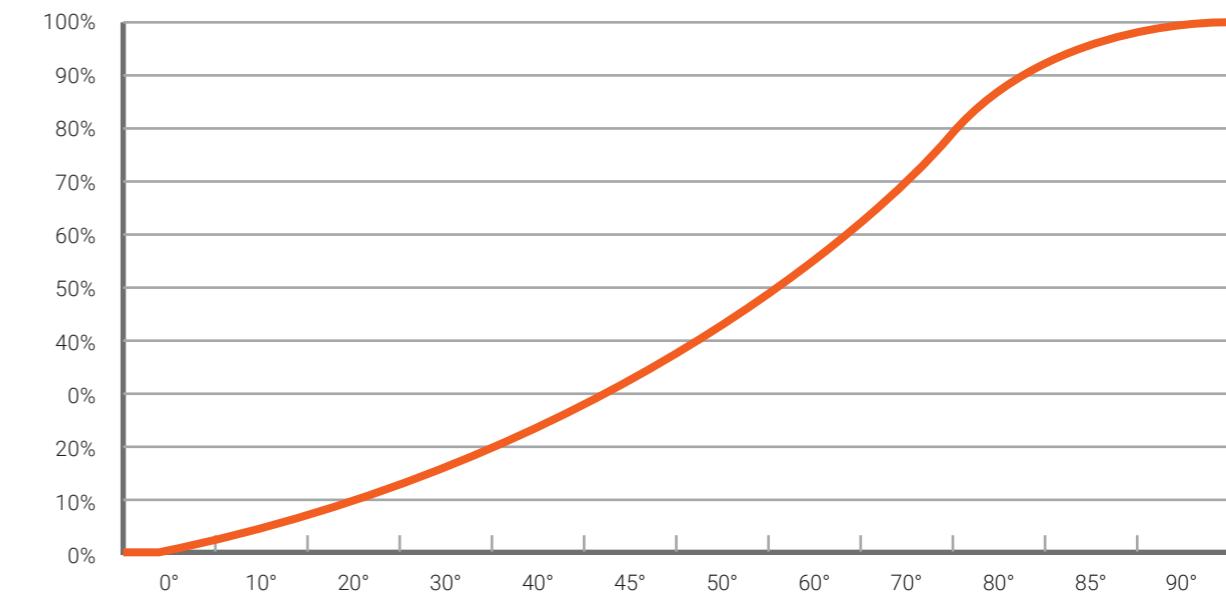
1. The torque in above chart is measured with water media under listed pressure .
2. Installing seat on upsteam direction will result lower torque and better life cycle.

## HIPPO VALVE

V4100 & V4300 150LB Series  
V5100 & V5300 300LB Series

### Cv FLOW COEFFICIENT

Cv curve %



#### 150LB

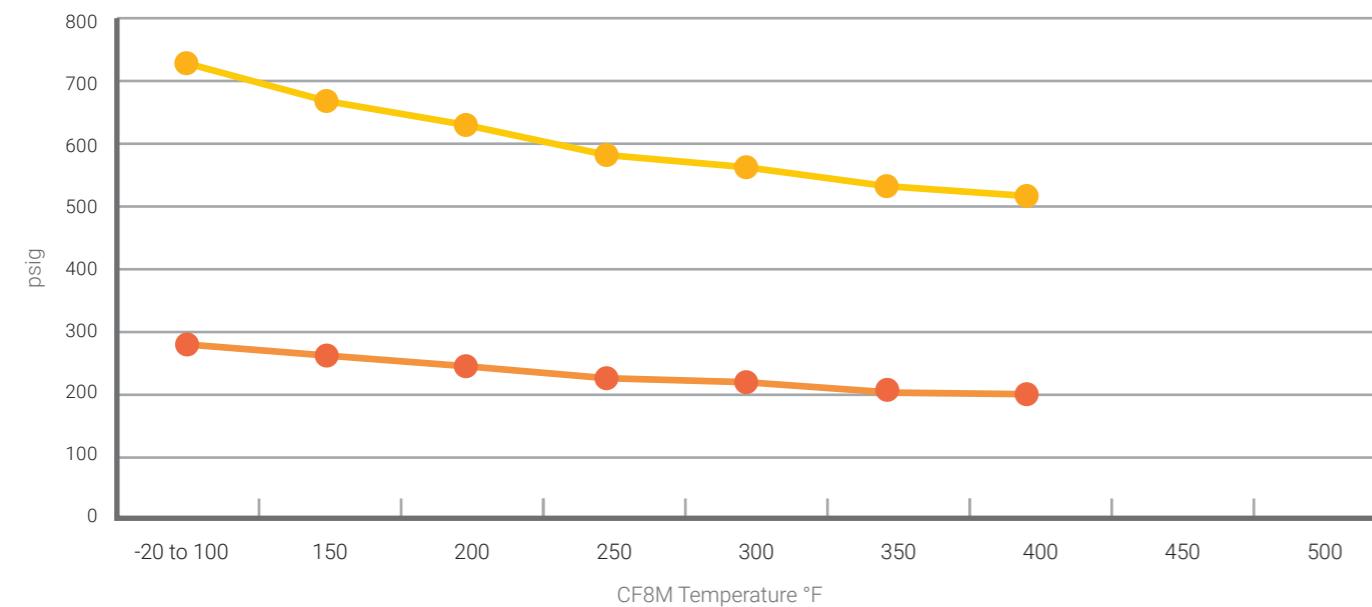
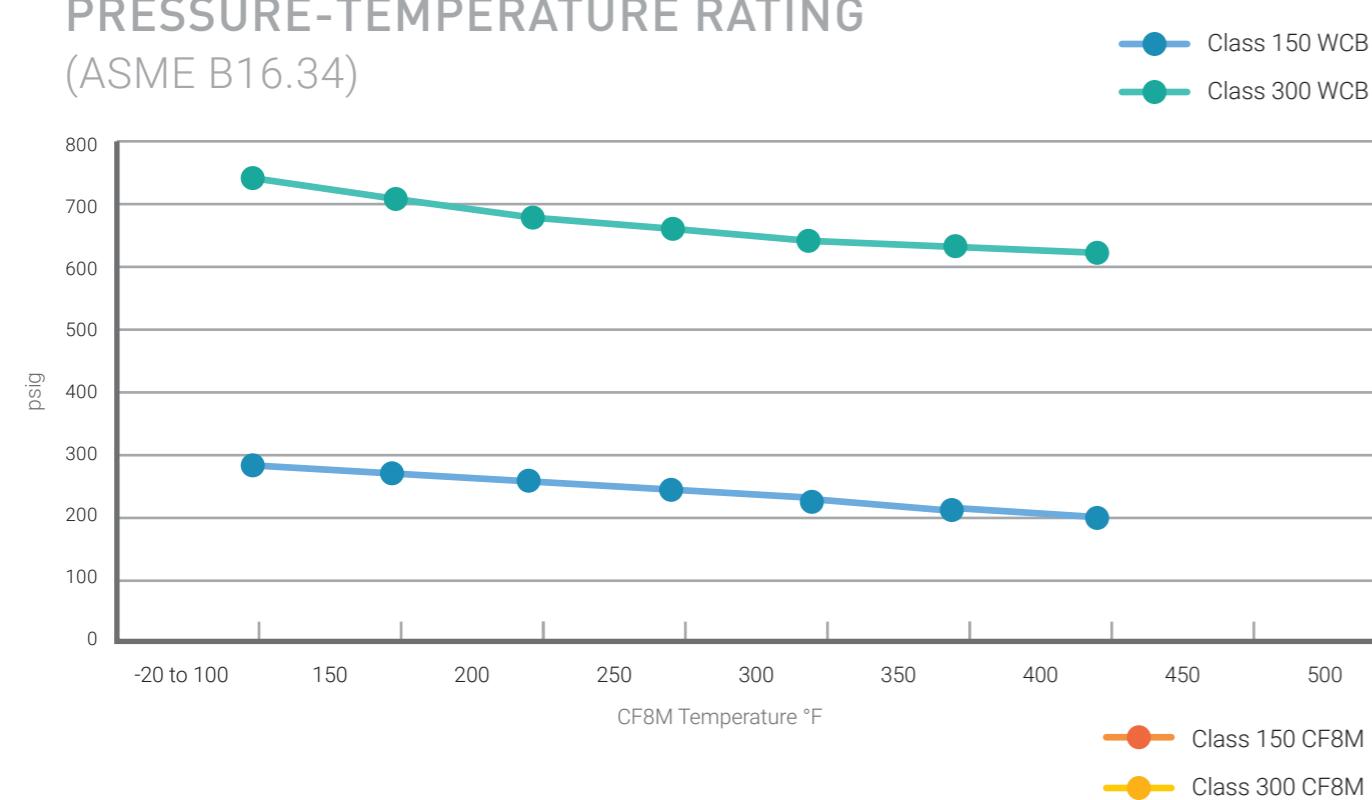
SIZE		Cv Value										
mm	in	10°	20°	30°	40°	45°	50°	60°	70°	80°	85°	90°
80	3	6	33	62	94	108	118	143	176	208	230	227
100	4	16	58	106	155	178	213	274	349	433	465	473
150	6	40	147	242	335	382	422	560	729	925	975	1010
200	8	66	237	368	509	606	712	985	1296	1640	1715	2004
250	10	139	390	595	807	963	1168	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°	

## HIPPO VALVE

### PRESSURE-TEMPERATURE RATING (ASME B16.34)

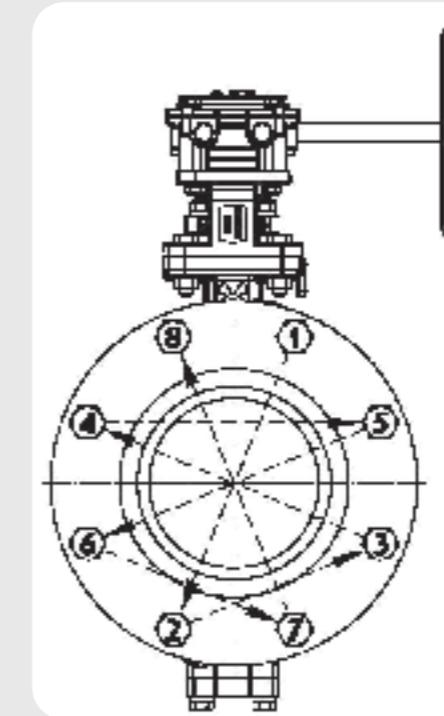


Temperature		Class 150				Class 300					
		WCB		CF8		CF8M		WCB		CF8	
°F	°C	psig	bar	psig	bar	psig	bar	psig	bar	psig	bar
-20 to 100	-29 to 38	285	19.7	280	19.3	275	19.0	740	51.0	730	50.3
150	66	273	18.8	259	17.9	245	16.9	695	47.9	682	47.0
200	93	260	17.9	247	17.0	235	16.2	680	46.9	650	44.8
250	121	245	16.9	235	16.2	225	15.5	667	46.0	628	43.3
300	149	230	15.9	222	15.3	215	14.8	655	45.2	607	41.9
350	177	215	14.8	210	14.5	205	14.1	645	44.5	591	40.7
400	204	200	13.8	197	13.6	195	13.4	635	43.8	575	39.6
450	232	185	12.8	185	12.8	185	12.8	620	42.7	608	41.9
500	260	170	11.7	170	11.7	170	11.7	605	41.7	542	37.4
550	288	155	10.7	155	10.7	155	10.7	597	41.2	531	36.6
600	316	140	9.7	140	9.7	140	9.7	570	39.3	510	35.2

## HIPPO VALVE

### 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. HIPPO Valve suggests to operate valve once every 6 months.