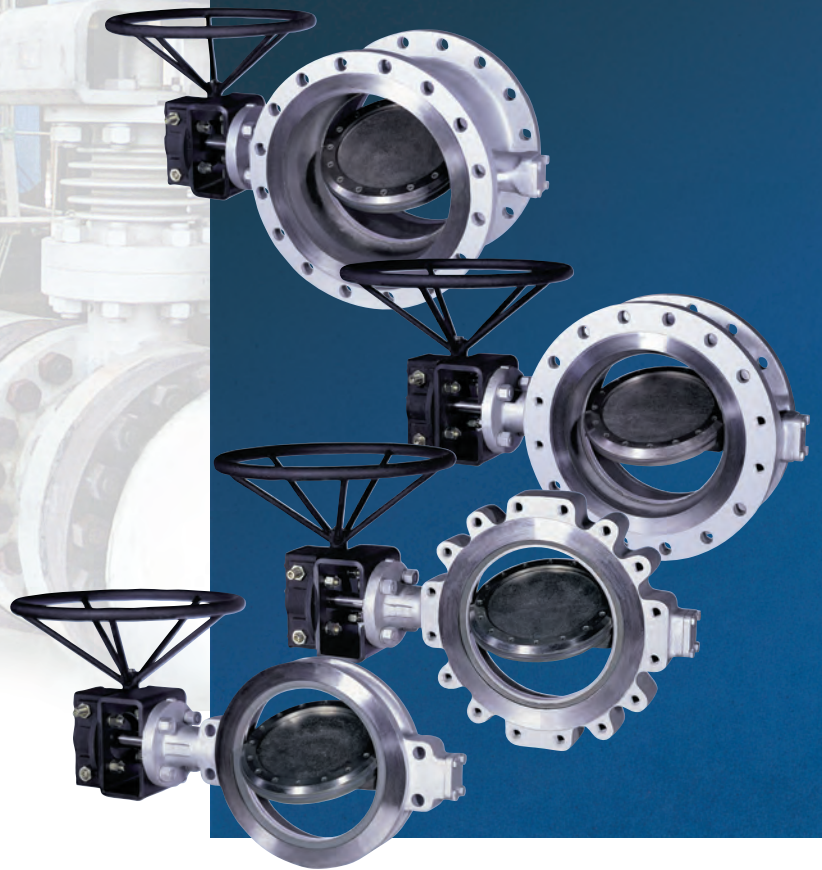




**vanessa**



***Series 30,000  
Rotary Process  
Valve***

***tyco*** Flow Control

# Company Profile

Vanessa has been successfully producing and marketing valves worldwide for almost four decades. After having been a subsidiary of Keystone, the company joined Tyco International Ltd. in 1997 to operate within one of its core business segments, Tyco Flow Control. In 2000, Vanessa became part of Tyco Valves & Controls Italia S.r.l., a leading European valve manufacturing group, which includes the Raimondi and Fasani brand names.

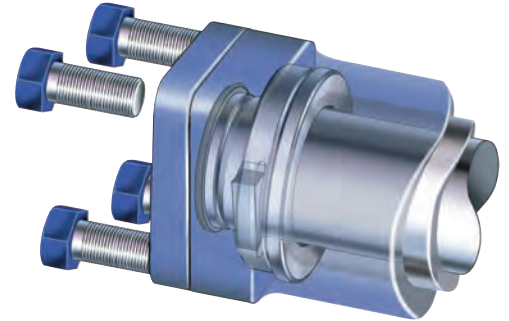
In 1975 Vanessa was the first company to introduce the revolutionary metal-to-metal seating technology into the market by offering the Series 30,000 Rotary Process Valve, a unique quarter turn, triple offset, zero leakage valve. This has enabled end users to cover a huge variety of applications in many different industries and has given Vanessa an enviable reputation world-wide.

Today, as from its inception, Vanessa is the international leader in the manufacture of high technology rotary process valves.

The achievements of the Vanessa valve in the international market have allowed a constant growth of the company. The reasons for its success can be attributed to the use of advanced technology, sophisticated quality control systems and above all the exclusive design of the Series 30,000.

Vanessa is committed to a constant improvement of its technology and equipment, an attitude which has contributed to the highest levels of performance of its products and the satisfaction of its customers.

## Series 30,000 metal seated,



### High-cycle thrust bearing

The high-cycle thrust bearing assembly rigidly fixes a super hardened thrust washer to the shaft while maintaining an intermediate sliding thrust washer, to extend an already long cycle life.



### Resilient metal seal

The flexible, resilient metal seal is located on the disc and is secured but not locked in position, so that the metal seal has the freedom to flex. The seal ring is located with a reference pin.

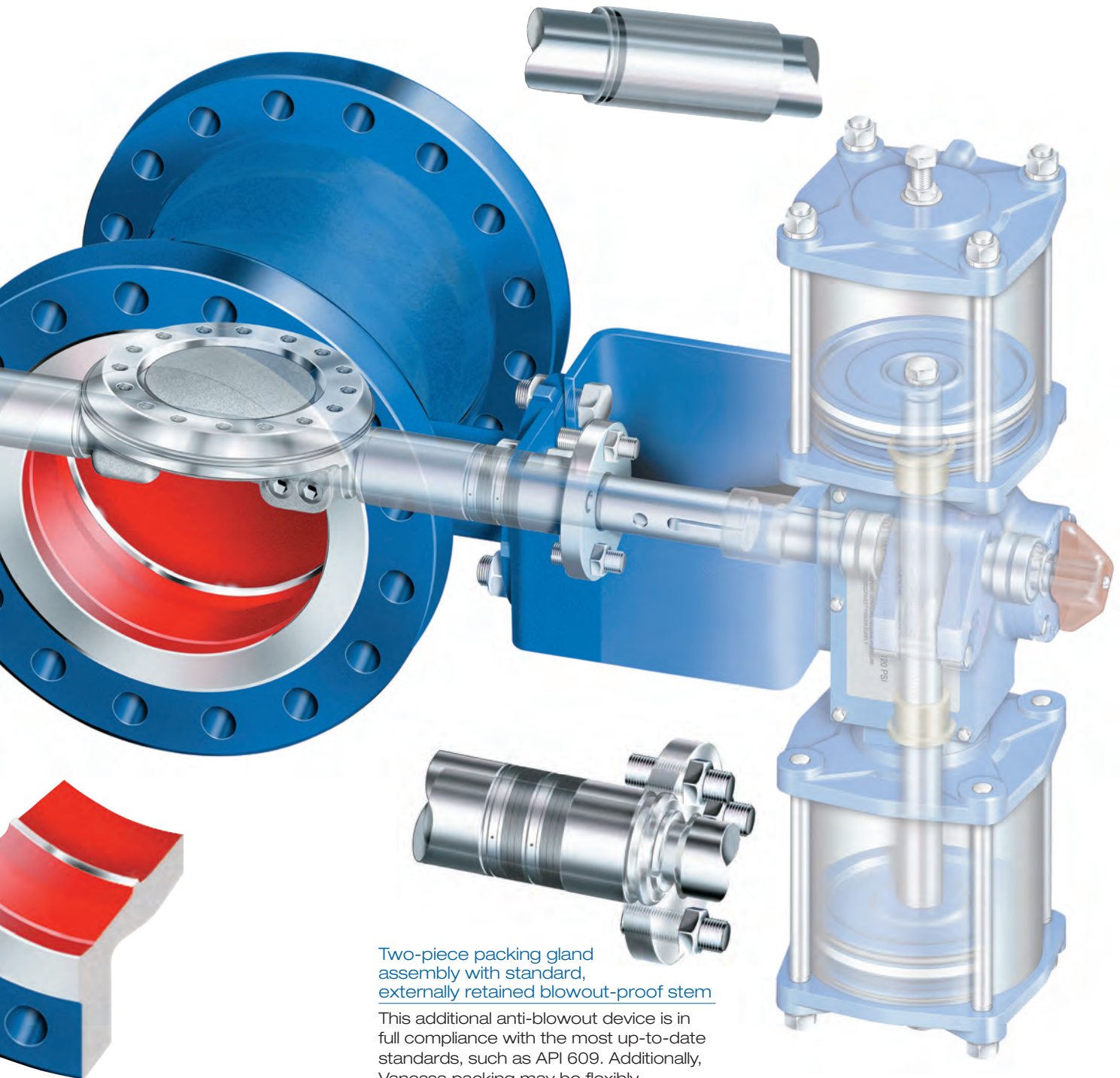
### Stellite® hard-face seat

Hardfacing ensures durability in the broadest range of applications, including higher temperatures and dirtier services. Stellite® seat is standard on the complete range of valves.

## zero leakage Rotary Process Valves

### Reinforced flexible graphite bearing protectors

Bearing protectors provide the highest level of protection to the bearings from dirty services while extending service life.



### Two-piece packing gland assembly with standard, externally retained blowout-proof stem

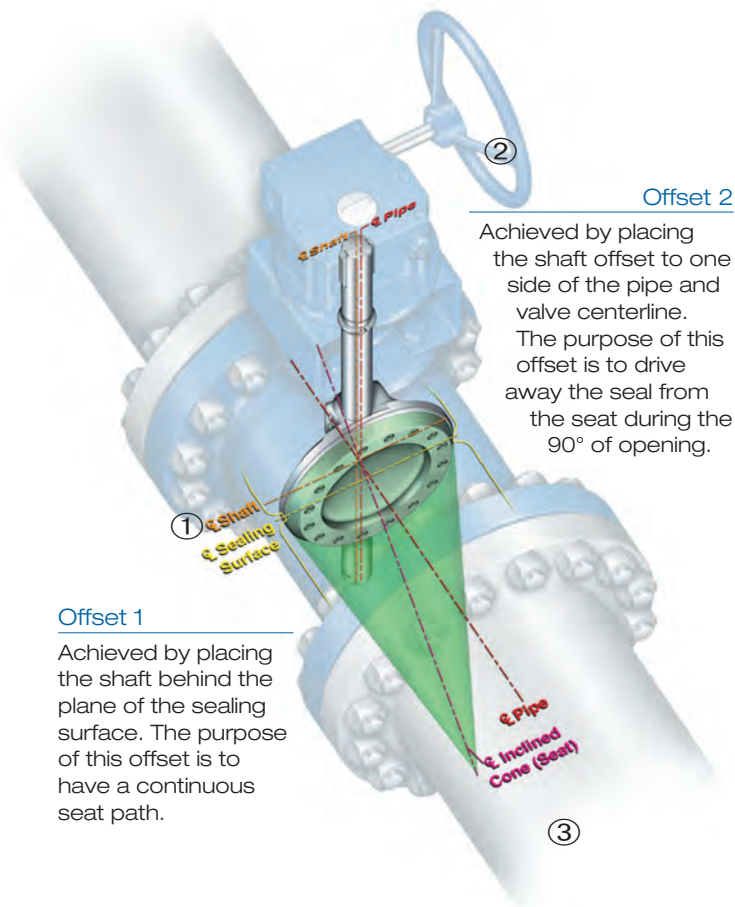
This additional anti-blowout device is in full compliance with the most up-to-date standards, such as API 609. Additionally, Vanessa packing may be flexibly arranged into numerous configurations, including packing and bearing flush or packing monitoring. Fugitive emissions are in accordance with the most stringent EPA and TA Luft requirements.

# Design Features

## Triple Offset

A typical high performance butterfly valve is manufactured with either a single or double offset shaft design. These shaft offsets are created by designing the valve with the shaft located behind the centerline of the sealing surface and slightly to one side of the pipe centerline. The purpose of these offsets is to reduce the rubbing and thus the wear between the seat and seal to approximately 20 degrees of travel.

Vanessa adds a unique third (inclined cone – offset 3) to allow not only camming, but also to completely eliminate all seat-to-seal rubbing throughout the valve's entire 90 degrees of rotation.



### Offset 1

Achieved by placing the shaft behind the plane of the sealing surface. The purpose of this offset is to have a continuous seat path.

### Offset 2

Achieved by placing the shaft offset to one side of the pipe and valve centerline. The purpose of this offset is to drive away the seal from the seat during the 90° of opening.

### Offset 3

Achieved by inclining the seat and seal cone centerline in respect of the pipe and valve centerline. This third offset completely eliminates rubbing. Any chances of associated wear and leakage between the seat and disc-mounted seal ring during travel are non-existent.

Vanessa optimizes the contact angle between the seat and seal for enhanced performance. Most gate valves provide a contact angle of between 3 and 6 degrees. Such designs create a locking taper that can cause dangerously high seating or unseating torques.

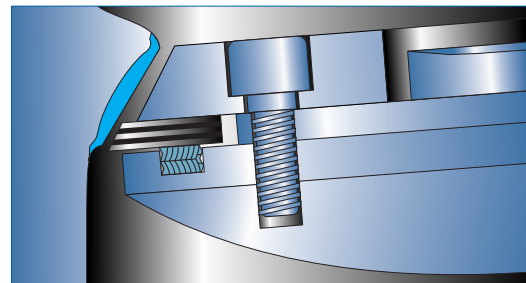
Vanessa's contact angle is above the locking taper range and its geometry eliminates the possibility of jamming, ensuring the forces necessary to seat or unseat the valve do not substantially vary over the service life of the valve.

## Resilient Metal Seal

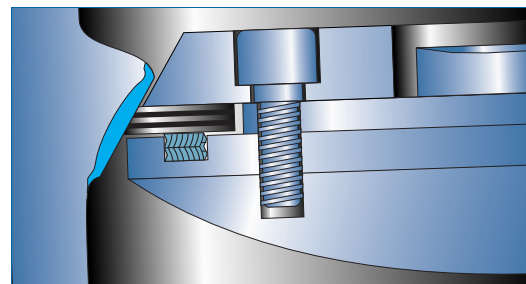
The Vanessa Series 30,000 utilizes a resilient, duplex stainless steel seal ring installed in the disc assembly to provide true zero leakage\*. The resilience of the seal ring is achieved through the radial compression of the seal ring as torque is applied to the valve shaft. The seal and seat contact surface is "cone-in-cone," where both cones are inclined. The angle of contact between the seal and the seat allows the torque applied to the shaft to radially compress the disc seal ring. By maintaining uniformity of contact angles and elasticity in the seal ring, the entire circumference of the seat is evenly loaded to achieve the tightest shutoff with the least amount of torque. Torque seating allows the Vanessa 30,000 valve to shutoff completely, regardless of the direction of flow or line pressure.

\* Zero Leakage means no visible leakage during test duration as per API 598 and/or API 6D.

## Resilient Metal Seal Ring



Before seat contact



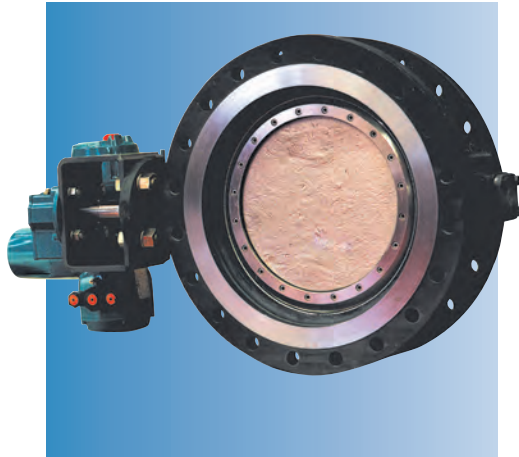
Seated

## Design Standards

Quality Assurance:	ISO 9001
Environmental Management System:	ISO 14001
Compliance with:	Pressure Equipment Directive PED 97/23/EC, category III. Cat. IV mod. H1 available on request.
Design:	ASME B16.34, API 609, DIN 3840, EN 593
Face-to-Face:	ISO 5752, EN 558, ASME B16.10, API 609
Flange Drilling:	ASME B16.5, ASME B16.47, ISO 7005, DIN 2501, EN 1092
Testing:	API 598, API 6D, ISO 5208
Fire Test:	API 607, 4th Edition
Marking:	MSS SP 25, EN 19

# Valve Configuration and options

## Series 30,000 Rotary Process Valve



### Size Range

3" to 112" [80 to 2,800 mm]

### Pressure Ratings

ASME 150 to 900/DIN PN 10 to 100 ISO PN 20 to 150

### Body Styles

Double Flanged, Lugged, Wafer, Butt weld.

### Temperature Range

-425 to +1500°F [-60 to +450°C] for stainless steel body material. Other temperatures are applicable depending on valve body material.

### Body Materials

WCB, CF8M, LCB, WC6, CF3M, Duplex, Superduplex, Inconel®, Alloy 20, Monel®, Incoloy®, Hastelloy®, C5, Titanium.

### Features

- Torque generated elastic metal seal provides zero leakage performance, in compliance with API 598 and/or API 6D.
- Quarter turn non-rubbing design is achieved by triple offset geometry, completely eliminating all seat to seal rubbing throughout the 90 degree rotation of the disc.
- Stellite® hardfaced standard integral seat results in broader applications, longer valve life and less maintenance.
- Single-piece cast body, with face-to-face dimensions in accordance to ISO 5752, API 609 and ASME B16.10 provides interchangeability with gate, ball and plug valves.
- Integral position indicators on the stem and on the top mounting flange ensure positive disc position indication, in accordance with API 609.
- All metal construction and sealing and zero leakage performance translate into an inherently firesafe valve.
- Long-length hardened bearings, incorporating a standard reinforced, die-formed, flexible and replaceable graphite bearing protector ensure additional reliability.
- Internally and externally retained, triple blow-out prevention.

## Cryogenic Configuration

### Body Styles, Sizes 3" thru 66" and Larger

Double Flanged, Lugged, Butt weld, Wafer

### Pressure Ratings

ANSI 150# to 900#

### Temperature range

Cryogenic down to -425°F [-254°C]

### Body Materials

CF8M and other stainless steel materials suitable for cryogenic temperatures.

### Features

- The metal sealing is virtually unaffected by the very low temperatures: the valve performance and the operating torque are the same at both room and cryogenic temperatures.
- Standard solid seal ring.
- The cryogenic valve design includes an extended bonnet, removing the packaging from the cold temperature zone. This minimizes the risk of fugitive emissions.
- Vanessa cryogenic valves are type approval tested according to Shell Tec. Spec. no. T-2.253.730, up to ASME class 600
- All valves are tested in the fully equipped facilities for cryogenic testing at Vanessa plant.
- Ideal for any application involving media at very low temperatures, such as LNG, LPG, liquid hydrogen and liquid oxygen.



## High Temperature Configuration

### Body Styles

Double Flanged, Lugged, Butt weld

### Temperature range

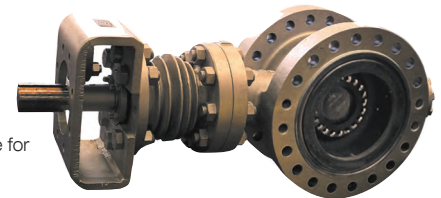
Up to +1500°F [+815°C]

### Body Materials

WC6, CF8M and other stainless steel materials suitable for high temperatures operations.

### Features

- Ideal for high temperature application up to +1500°F [+815°C].
- Customized to compensate the thermal expansion of the valve components and to withstand the creep of materials at temperatures over 1112°F [600°C].
- Standard solid seal ring.
- The extended bonnet helps maintain the packing operating temperature at normal levels, and this greatly reduces any risk of fugitive emissions.
- The actuator remains protected from extremely high line temperature.
- The reliability of the valve performance is guaranteed by the appropriate high temperature materials selection.
- The high temperature configuration is widely used in oil and gas processing, power and chemical fields, usually for services involving hot gases and steam.



## Steam Jacketed and Traced Configuration

### Body Styles

Double Flanged

### Temperature range

Up to +842°F [+450°C]

### Body Materials

WCB, CF8M. Other materials available on request.

### Features

- An excellent configuration to prevent any fluid crystallization in presence of particular media.
- The heat diffused by valve body jacket reaches all the critical areas, in particular the valve seat and the bearings area.
- The jacketed valve is manufactured using the double flanged body style. Vanessa recommends the use of a long face-to face pattern which increases the heating action.
- The jacket is dimensioned according to ASME Boiler and Pressure Vessel Code.
- For particularly harsh applications, Vanessa advises to use its Steam Jacketed and Traced Trim configuration. The addition of the traced trim provides an internal heating system obtained by drilling the shaft from top to bottom, to maximize the heat transfer to shaft and bearings.
- The jacketed configuration is targeted to usage in sulphur recovery units, and in any application with high fluid crystallization risk.



# Pressure/Temperature

## Pressure/Temperature Ratings in psig (ANSI B16.34)

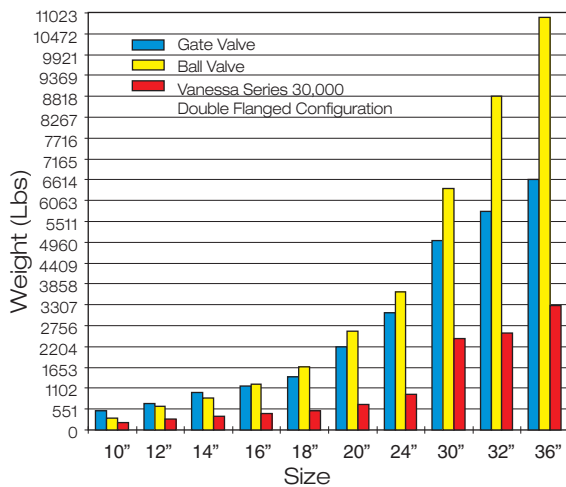
Temp. °F	Class 150		Class 300		Class 600		Class 900		Temp. °C
	CS	SS	CS	SS	CS	SS	CS	SS	
-20 to 100	285	275	740	720	1,480	1,440	2,220	2,160	-29 to 8
200	260	240	675	620	1,350	1,240	2,205	1,860	93
300	230	215	655	560	1,315	1,120	1,970	1,680	149
400	200	195	635	515	1,270	1,030	1,900	1,540	204
500	170	170	600	480	1,200	955	1,795	1,435	260
600	140	140	550	450	1,095	905	1,640	1,355	316
650	125	125	535	445	1,075	890	1,610	1,330	343
700	110	110	535	430	1,065	865	1,600	1,295	371
750	95	95	505	425	1,010	845	1,510	1,270	399
800	80	80	410	415	825	830	1,235	1,245	427
850	65	65	270	405	535	810	805	1,215	454
900	50	50	170	395	345	790	515	1,180	482
950	35	35	105	385	205	775	310	1,160	510
1000	20	20	50	365	105	725	155	1,090	538
1050	-	20 (1)	-	360	-	720	-	1,080	566
1100	-	20 (1)	-	325	-	645	-	965	593
1150	-	20 (1)	-	275	-	550	-	825	621
1200	-	20 (1)	-	205	-	410	-	620	649

### Notes (Pressure/Temperature Chart)

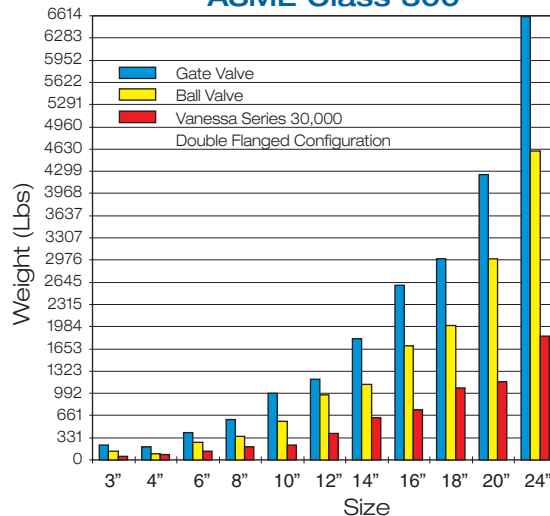
- WCB permissible but not recommended for prolonged use above 800°F [427°C].
- (1) For welding end valves only. Flanged end rating terminates at 1000°F [538°C].

## Weight Comparison with Gate and Ball Valves

### ASME Class 150



### ASME Class 300



## Leakage Comparison (Seat Tightness Test)

Isolation Valves					Control Valves FCI 70-2-1998 and IEC 534-4-1982				
Test Pressure = 1.1 * Design Differential Pressure					Test Pressure = 3.50 bar = 50.8 psi				
All Differential Pressures					e.g.: Design $\Delta p = 51\text{bar}/739.5\text{ psi}^{(4)}$				
Valve Size	Vanessa Standard <sup>(1)</sup>	API 598 Metal Seated (Water) <sup>(2)</sup>	API 598 Metal Seated (Air) <sup>(3)</sup>	FCI/IEC Class V (Water)	IEC Class VI (Air)	FCI/IEC Class IV (Water)	FCI/IEC Class IV (Air)	FCI/IEC Class V (Water)	IEC Class VI (Air)
mm inches									
80 3"	0	0.8	2.6	1.2	15	172	5680	0.08	0.9
200 8"	0	1.3	6.0	3.3	114	2290	75530	0.20	7.1
300 12"	0	1.3	6.0	4.9	269	6550	216260	0.30	16.8
600 24"	0	1.8	8.4	9.8	1078 <sup>(6)</sup>	29620	977680	0.61	67.3 <sup>(6)</sup>
900 36"	0	1.8	8.4	14.7	2427 <sup>(6)</sup>	778050	2568070	0.91	151.4 <sup>(6)</sup>

All leakage values are expressed in ml/min.

### Notes:

- Vanessa performs seat tightness test on each manufactured valve with water and air in both directions, covering all the requirements of API 598, API 6D and ISO 5208.
- According to API 598 standard, 1 ml of water is equivalent to 16 "drops".
- According to FCI 70-2 and IEC 534-4 standards, 1 ml of air is equivalent to 6.67 "bubbles".
- FCI 70-2 and IEC 534-4 leak rates depend on the test differential pressure.
- Class IV leak rates depend on the "valve rated capacity", and therefore they are function of the valve trim rating.
- Leak rates have been extrapolated using the relationship between seat diameter and leakage factors suggested in Note 2 of Table IV of IEC 534-4.
- Class VI leak rates depend on the Nominal Diameter, therefore they are independent of the pressure classes.

## Cryogenic Test

### Resilient METAL Seat No Teflon® or Kalrez®

The Vanessa Series 30,000 valve, Cryogenic Version provides for unmatched tightness even when compared to soft seated designs.

The tightness capability is achieved as a direct result of the resiliency of the metal seal ring. This seal ring resiliency is generated by the radial compression of the seal as torque is applied to the valve shaft.

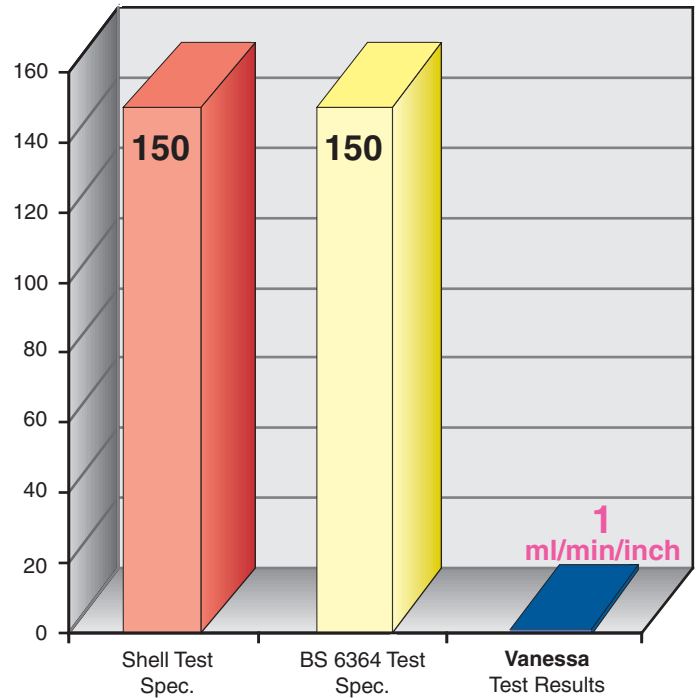
The Vanessa Series 30,000 valve, therefore, provides shutoff regardless of the direction of flow or line pressure.

Unlike Teflon® or Kalrez®, the all metal seal is virtually unaffected by the very low temperatures common in cryogenic service. Using an all metal seal, valve performance and operating torque are the same at both room and cryogenic temperatures.

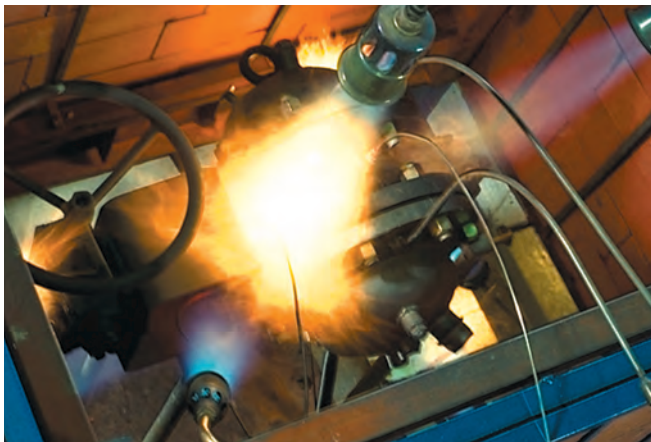
All soft seat materials become hard and brittle at cryogenic temperatures, this increases their vulnerability to damage, and decreases their life expectancy.

Note: Teflon® and Kalrez® are both registered trademarks of E.I. duPont de Nemours & Company.

**Helium Leakage Comparison**  
Leakage rate in ml/min X ND inch at -196°C



## Inherently Firesafe Design



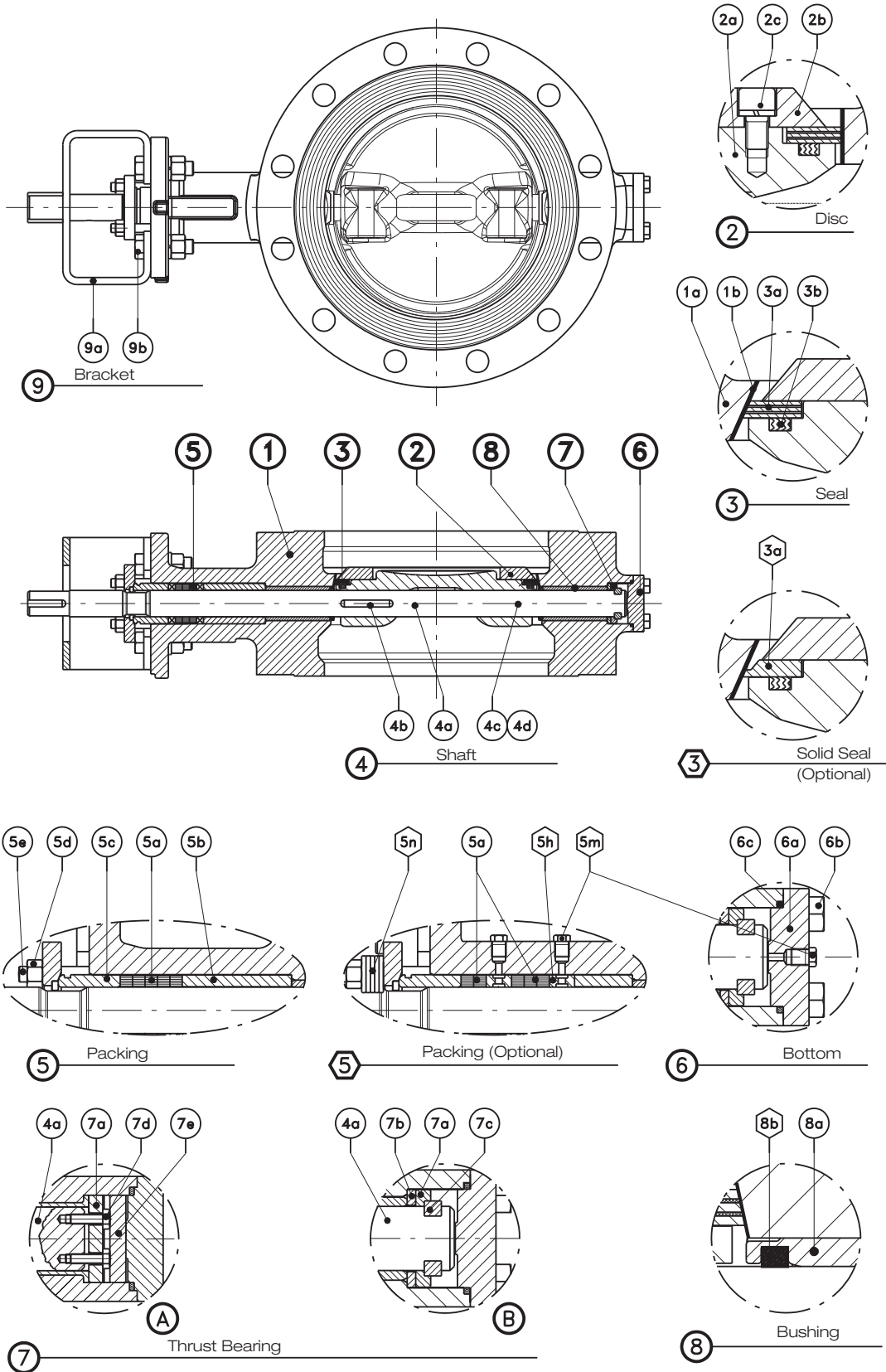
The Vanessa Series 30,000 is an all metal valve complete with metal-to-metal sealing elements. It is considered INHERENTLY firesafe by virtue of the fact that its performance does not change during firesafe simulation tests.

Tests have been carried out in accordance with the most stringent international firesafe standard such as API 607 and to the specific requirements of major oil companies such as Elf and Exxon. These tests confirm that the valves performance conforms to the standards and does not vary as a result of the fire. The Vanessa valves tested were ZERO LEAKAGE before, during and after the fire test.



# Series 30,000 Metal Seated, Zero Leakage Rotary Process Valves

## Sectional Drawing - Basic Configuration





## Materials of Construction (ASTM Standard) Basic Configuration

Item	Note	Description	Body in Carbon Steel	Body in Stainless Steel
1a		Body	ASTM A216 WCB	ASTM A351 Gr.CF8M
1b		Body Seat	Stellite® Gr.21 Weld Overlay	Stellite® Gr.21 Weld Overlay
2a*		Disc	ASTM A216 WCB Nickel Plated or ASTM A105 Nickel Plated	ASTM A351 Gr.CF8M or ASTM A182 type F316
2b		Retainer Flange	ASTM A516 Nickel Plated	AISI 316
2c		Screw	ISO 3506 A4 (AISI 316)	ISO 3506 A4 (AISI 316)
3a*		Seal Ring	UNS S31803 (Duplex) + Graphite	UNS S31803 (Duplex) + Graphite
3b*		Disc Spiral Wound Gasket	AISI 316 + Graphite	AISI 316 + Graphite
4a		Shaft	ASTM A182 F6a	ASTM A479 UNS S20910 (Nitronic® 50)
4b		Disc Key	AISI 410	UNS S20910
4c		Pin	AISI 410	UNS S20910
4d		Pin Retainer	AISI 316	AISI 316
5a*		Packing	Graphite	Graphite
5b		Spacer	AISI 316	AISI 316
5c		Packing Bushing	AISI 316	AISI 316
5d		Stud Nut	ISO 3506 A2 (AISI 304)	ISO 3506 A2 (AISI 304)
5e		Stud Bolts	ISO 3506 A2 (AISI 304)	ISO 3506 A2 (AISI 304)
6a		Bottom Flange	ASTM A516	ASTM A240 Type 316
6b		Screw	ISO 3506 A2 (AISI 304)	ISO 3506 A2 (AISI 304)
6c*		Bottom Spiral Wound Gasket	AISI 316 + Graphite	AISI 316 + Graphite
7a		Thrust Bearing	AISI 316 or AISI 410	UNS S20910
7b		Thrust Bearing Washer	AISI 316	AISI 316
7c		Key	AISI 316	AISI 316
7d		Screw	ISO 3506 A4 (AISI 316)	ISO 3506 A4 (AISI 316)
7e		Unloosening Washer	AISI 410	AISI 316
8a		Bearing	AISI 304 Hard Faced	AISI 316 Hard Faced
9a		Bracket	Carbon Steel	Carbon Steel
9b		Screw	Alloy Steel	Alloy Steel

## Options (available upon request)

### Bearing Protector

8b	Bearing Protector	Reinforced Graphite	Reinforced Graphite
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### Bearing and Packing Flushing

5h	Lantern Ring	AISI 316	AISI 316
5m	Plug	AISI 316	AISI 316

### Live Loaded Packing

5n	Belleville Spring	Alloy Steel	Alloy Steel
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### Solid Seal Ring

3a*	Solid Seal Ring	UNS S17400	UNS S20910 (Nitronic® 50)
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### Notes

- : The selection between cast or forged material depends on valve size.
- : Suggested spare parts.

The Vanessa Series 30,000 can be manufactured as standard in the following materials: WCB, CF8M, LCB, WC6, CF3M, Aluminum Bronze, Duplex, 250 SMO.

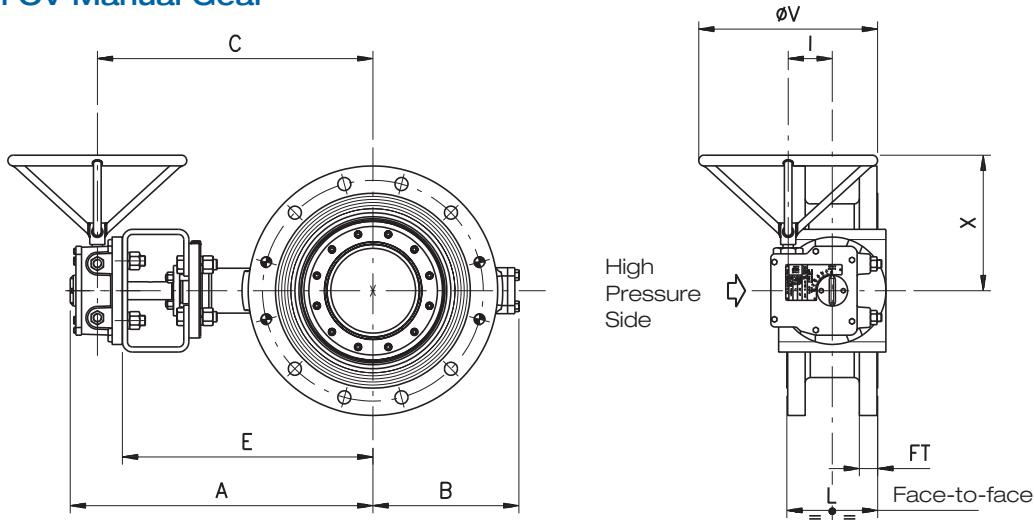
Additionally, the Vanessa Series 30,000 can be manufactured also in the following materials: Monel®, Incoloy®, Hastelloy®, Alloy Steel WC6-WC9, Superduplex, Inconel®, Alloy 20, C5, Titanium.

Contents may change without notice.

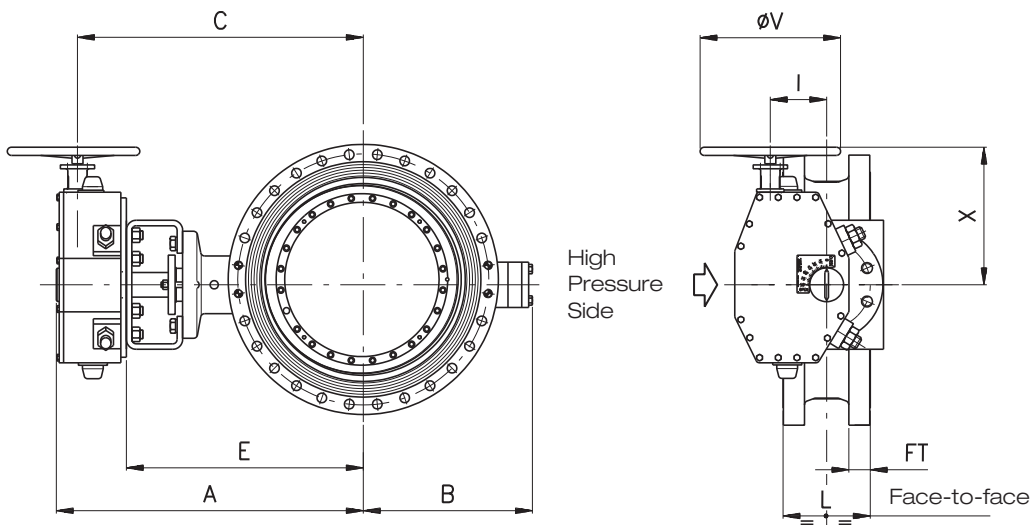
# Series 30,000 Metal Seated, Zero Leakage Rotary Process Valves

## Vanessa Series 30,000 Double Flanged Valve

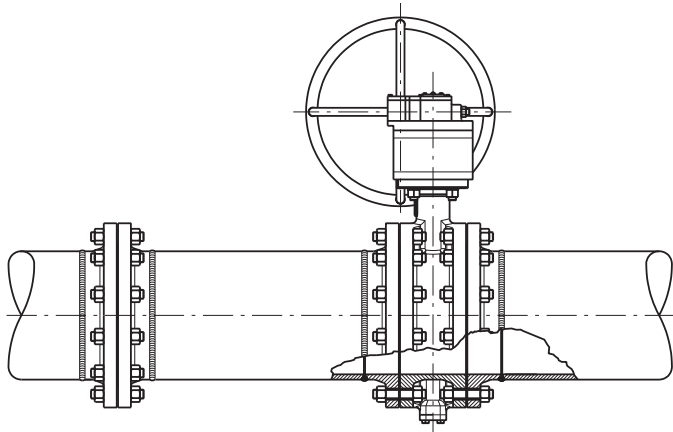
### With OV Manual Gear



### With MAGA Manual Gear



### Double Flanged installed on Piping



#### Notes:

1. Suggested orientation is with the valve shaft horizontal or inclined from vertical.
2. For service above 392°F [200°C] valve body should be insulated to limit body-to-trim differential temperature to 212°F [100°C].
3. All dimensions are in inches and weight is in pounds.
4. Please consult Vanessa for other sizes.

Vanessa has manufacturing experience for much larger sizes than those indicated (for example: 112"/Cl.150, 56"/Cl.300, 48"/Cl.600, 36"/Cl.900). Please consult factory for further information.

Stellite® is a registered trademark of Stoodly Deloro Stellite, inc.

**Double Flanged - Face-to-face ISO 5752 Table 1 Col. 13 - Body Drilling ASME B16.5 Cl.150 - Trim B**

Size		Valve Dimensions					Gear Type	Gear Dimensions				Weight	
mm	inch	A	B	E	L	FT		C	I	X	ØV	Valve	Total
80	3"	13.37	4.87	10.24	4.5	0.94	OV 10-18	11.75	2.25	6.5	5	48	63
100	4"	14.62	5.5	11.42	5	0.94	OV 10-18	12.87	2.25	6.5	5	61	77
150	6"	16.12	6.5	12.99	5.5	1	OV 10-18	14.5	2.25	6.5	5	88	103
200	8"	18.75	8.37	15.16	6	1.19	OV 50-28	16.75	2.62	8.62	11.75	134	158
250	10"	20.25	9.62	16.73	6.5	1.25	OV 50-28	18.25	2.62	8.62	11.75	182	207
300	12"	23.25	11.25	19.29	7	1.34	OV 100-35	21.25	3.37	13.37	19.75	279	308
350	14"	24.62	12.25	20.67	7.5	1.37	OV 100-35	22.62	3.37	13.37	19.75	365	394
400	16"	26.37	13.75	21.46	8.5	1.44	OV 200-45	23.62	4.62	14.62	23.5	436	502
450	18"	27.75	15.12	22.83	8.75	1.56	OV 200-45	25	4.62	14.62	23.5	504	570
500	20"	30.12	16	25.2	9	1.69	OV 200-50	27.37	4.62	14	27.5	679	745
600	24"	33.25	19	27.17	10.5	1.87	OV 400ER-55	29.5	5.12	1	11.75	954	1056

**Double Flanged - Face-to-face ISO 5752 Table 1 Col. 13 - Body Drilling ASME B16.47 Series A Cl. 150 - Trim B**

Size		Valve Dimensions					Gear Type	Gear Dimensions				Weight	
mm	inch	A	B	E	L	FT		C	I	X	ØV	Valve	Total
700	28"	42.5	20.62	32.5	11.5	2.81	MAGA 1000C-90	39.62	7.87	19.62	17.75	1690	2032
750	30"	44	24.25	34	12.53	2.94	MAGA 1000C-90	41.12	7.87	19.62	17.75	2182	2524
800	32"	45	25.25	35	12.53	3.19	MAGA 1000C-90	42.12	7.87	19.62	17.75	2568	2910
900	36"	51.37	26.5	39.62	13	3.53	MAGA 2000C-110	48.5	10.37	26.37	27.5	3295	3880
1000	40"	53.37	29.12	41.5	16.16	3.56	MAGA 2000C-120	50.37	10.37	26.37	27.5	4486	5070
1050	42"	54.5	29.75	42.75	16.16	3.81	MAGA 2000C-120	51.62	10.37	26.37	27.5	4750	5335
1200	48"	65	34.12	49.87	18.5	4.25	MAGA 14KR	57.5	7.87	38	32.25	6713	8134
1350	54"	69.5	38.75	54.37	20.87	4.75	MAGA 14KR	61.87	7.87	38	32.25	9479	10901
1500	60"	74.5	44.62	59	23.62	5.19	MAGA 18KR	66.62	9	41.62	2.25	12654	14407

**Double Flanged - Face-to-face ISO 5752 Table 1 Col. 13 - Body Drilling ASME B16.5 Cl.300 - Trim C**

Size		Valve Dimensions					Gear Type	Gear Dimensions				Weight	
mm	inch	A	B	E	L	FT		C	I	X	ØV	Valve	Total
80	3"	13.37	4.87	10.24	4.5	1.12	OV 10-18	11.75	2.25	6.5	5	48	63
100	4"	14.62	5.5	11.42	5	1.25	OV 10-18	12.87	2.25	6.5	5	72	88
150	6"	17.37	7.5	13.78	5.5	1.44	OV 50-28	15.37	2.62	8.62	11.75	134	158
200	8"	20.37	9.25	16.34	6	1.62	OV 100-35	18.25	3.37	13.37	19.75	189	218
250	10"	21.87	10.75	17.91	6.5	1.87	OV 100-35	19.87	3.37	13.37	19.75	220	249
300	12"	24.25	12.25	19.29	7	2	OV 200-45	21.5	4.62	14.62	23.5	385	451
350	14"	26.37	13.25	21.46	7.5	2.12	OV 200-50	23.62	4.62	14	27.5	626	692
400	16"	28.75	15.37	22.64	8.5	2.25	OV 400ER-55	25	5.12	16.5	11.75	749	850
450	18"	32.12	16.62	25.98	8.75	2.37	OV 400ER-65	28.37	5.12	21.87	19.75	1073	1177
500	20"	33.62	18.12	27.56	9	2.5	OV 400ER-65	29.87	5.12	21.87	19.75	1166	1269
600	24"	39.12	20.87	30.91	10.5	2.75	MAGA 400C-75	34.75	3.87	13.75	17.75	1838	1992

**Double Flanged - Face-to-face ISO 5752 Table 1 Col. 14 - Body Drilling ASME B16.5 Cl.600 - Trim D**

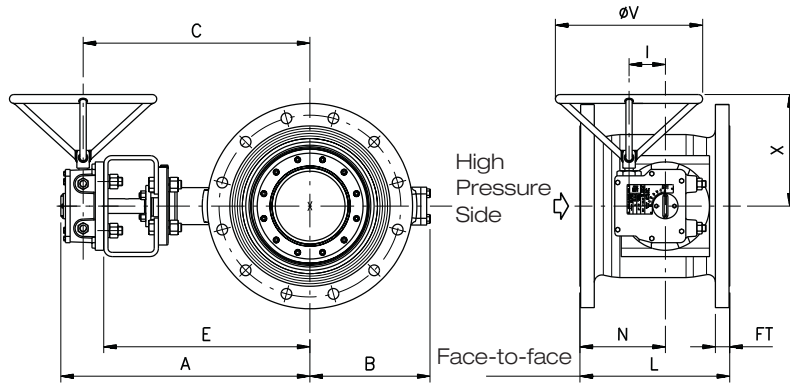
Size		Valve Dimensions					Gear Type	Gear Dimensions				Weight	
mm	inch	A	B	E	L	FT		C	I	X	ØV	Valve	Total
80	3"	12.37	5.37	9.25	7.09	1.25	OV 10-20	10.75	2.25	6.5	6	70	85
100	4"	15.25	7.25	11.75	7.47	1.5	OV 50-30	13.25	2.62	8.62	11.75	145	169
150	6"	18	9.37	14	8.28	1.87	OV 100-40	15.87	3.37	13.37	19.75	266	295
200	8"	20.87	10.37	16	9.06	2.19	OV 200-45	18.12	4.62	14.62	23.5	436	502
250	10"	25.25	12.87	19.12	9.84	2.5	OV 400ER-55	21.5	5.12	16.5	11.75	656	758
300	12"	29.5	14.37	21.12	10.62	2.62	MAGA 400C-60	25	3.87	13.75	17.75	833	987
350	14"	32.25	15.37	24	11.41	2.75	MAGA 400C-70	27.87	3.87	13.75	17.75	981	1135
400	16"	36.75	17.37	26.75	12.22	3	MAGA 1000S-75	33.87	7.87	19.62	17.75	1477	1818
450	18"	36.87	18.12	26.87	13	3.25	MAGA 1000C-90	34	7.87	19.62	17.75	1653	1995
500	20"	43.12	20.75	31.25	3.78	3.5	MAGA 2000S-100	40.25	10.37	26.37	27.5	2204	2788
600	24"	46.62	24.5	34.87	15.34	4	MAGA 2000C-120	43.75	10.37	26.37	27.5	3196	3780

**Double Flanged - Face-to-face ISO 5752 Table 1 Col. 8 - Body Drilling ASME B16.5 Cl.900 - Trim E**

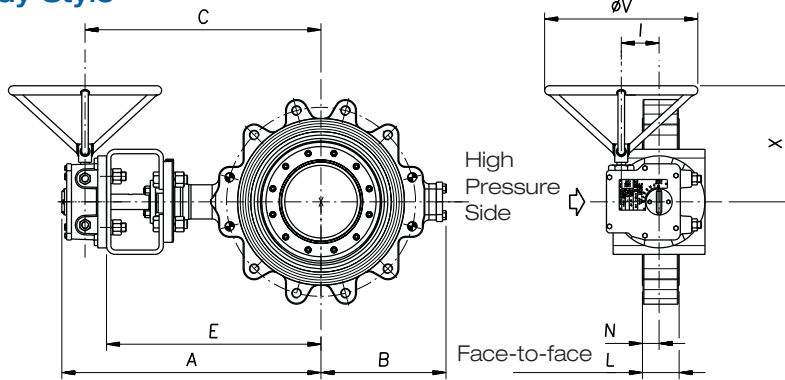
Size		Valve Dimensions					Gear Type	Gear Dimensions				Weight	
mm	inch	A	B	E	L	FT		C	I	X	ØV	Valve	Total
150	6"	18	9.37	14	8.84	2.19	OV 100-40	15.87	3.37	13.37	19.75	368	396
200	8"	24.5	11.5	18.37	10.81	2.5	OV 400ER-55	20.75	5.12	16.5	11.75	654	756
250	10"	28.75	13.62	20.5	12.78	2.75	MAGA 400C-60	24.25	3.87	13.75	17.75	848	1003
300	12"	38.87	18.87	28.87	14.75	3.12	MAGA 1000S-70	36	7.87	19.62	17.75	1296	1638
350	14"	36.87	18	26.87	16.72	3.37	MAGA 1000C-90	34	7.87	19.62	17.75	1752	2094
400	16"	38.75	19.37	28.75	18.69	3.5	MAGA 1000C-90	35.87	7.87	19.62	17.75	2707	3048
450	18"	42.12	20.12	30.37	19.69	4	MAGA 2000C-120	39.25	10.37	26.37	27.5	3179	3763
500	20"	46.12	23.25	34.25	22.62	4.25	MAGA 2000C-120	43.12	10.37	26.37	27.5	4250	4834
600	24"	55.75	26.5	40.5	26.56	5.5	MAGA 14KR	48.12	7.87	38	32.25	6267	7689

# Series 30,000 Metal Seated, Zero Leakage Rotary Process Valves

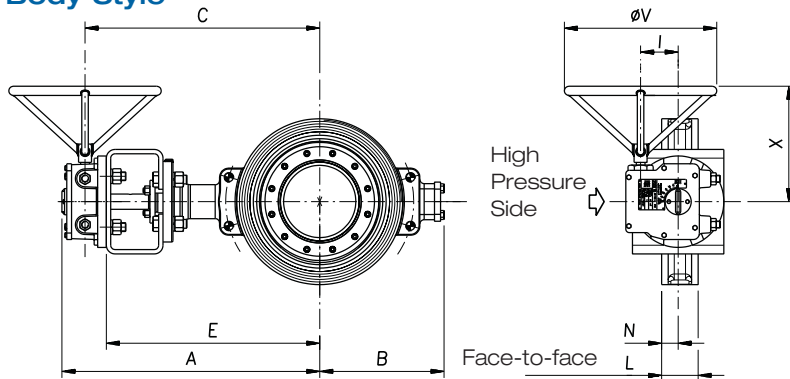
## Double Flanged Body Style (Face-to-Face ASME B16.10)



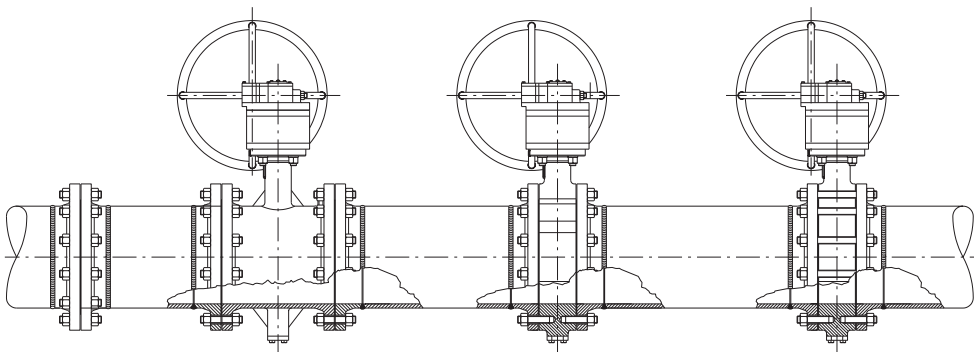
## Lug Body Style



## Wafer Body Style



## Double Flanged Body Style (Face-to-Face ASME B16.10), Lug and Wafer installed on Piping



**Double Flanged - Face-to-Face ASME B16.10 Table 1  
Col.7 Body Drilling ASME B16.5 Cl.150 - Trim B**

Size		Valve Dimensions			Weight	
mm	inch	L	N	FT	Valve	Total
80	3"	8	4.87	0.94	50	66
100	4"	9	3.5	0.94	66	81
150	6"	10.5	4	1	79	94
200	8"	11.5	4.12	1.12	154	178
250	10"	13	5.12	1.19	216	240
300	12"	14	6	1.25	306	335
350	14"	15	6.87	1.37	410	438
400	16"	16	7.62	1.44	504	570
450	18"	17	8.5	1.56	593	659
500	20"	18	9	1.69	782	848
600	24"	20	9	1.87	1111	1212

**Double Flanged - Face-to-Face ASME B16.10 Table 2  
Col.10 Body Drilling ASME B16.5 Cl.300 - Trim C**

Size		Valve Dimensions			Weight	
mm	inch	L	N	FT	Valve	Total
80	3"	11.12	7.75	1.12	57	72
100	4"	12	3.75	1.25	88	103
150	6"	15.88	4.25	1.44	174	198
200	8"	16.5	5	1.62	253	282
250	10"	18	5.5	1.87	299	328
300	12"	19.75	6	2	511	577
350	14"	30	22.5	2.12	875	941
400	16"	33	24.37	2.25	1060	1161
450	18"	36	26.12	2.37	1558	1662

**Lugged - Face-to-Face API 609 CL.150  
Body Drilling ASME B16.5 Cl.150 - Trim B**

Size		Valve Dimensions		Weight	
mm	inch	L	N	Valve	Total
80	3"	1.88	0.81	28	44
100	4"	2.12	0.94	37	52
150	6"	2.25	1	50	66
200	8"	2.5	1.12	79	103
250	10"	2.81	1.25	108	132
300	12"	3.19	1.5	182	211
350	14"	3.62	1.75	257	286
400	16"	4	1.94	352	418
450	18"	4.5	2.19	427	493
500	20"	5	2.5	595	661
600	24"	6.06	3.06	853	954

**Lugged - Face-to-Face API 609 Cl. 300  
Body Drilling ASME B16.5 Cl. 300 - Trim C**

Size		Valve Dimensions		Weight	
mm	inch	L	N	Valve	Total
80	3"	1.88	0.81	39	55
100	4"	2.12	0.94	48	63
150	6"	2.31	1	90	114
200	8"	2.88	1.25	123	152
250	10"	3.25	1.44	169	198
300	12"	3.62	1.56	262	328
350	14"	4.62	2.37	559	626
400	16"	5.25	2.56	661	762
450	18"	5.88	2.87	1003	1106
500	20"	6.25	2.81	1100	1203
600	24"	7.12	3.25	1737	1891

**Wafer - Face-to-Face API 609 Cl.150  
Body Drilling ASME B16.5 Cl.150 - Trim B**

Size		Valve Dimensions		Weight	
mm	inch	L	N	Valve	Total
80	3"	1.88	0.81	30	46
100	4"	2.12	0.94	33	48
150	6"	2.25	1	44	59
200	8"	2.5	1.12	74	99
250	10"	2.81	1.25	99	123
300	12"	3.19	1.5	160	189
350	14"	3.62	1.75	213	242
400	16"	4	1.94	271	337
450	18"	4.5	2.19	361	427
500	20"	5	2.5	485	551
600	24"	6.06	3.06	714	815

**Wafer - Face-to-Face API 609 Cl. 300  
Body Drilling ASME B16.5 Cl. 300 - Trim C**

Size		Valve Dimensions		Weight	
mm	inch	L	N	Valve	Total
80	3"	1.88	0.81	30	46
100	4"	2.12	0.94	33	48
150	6"	2.31	1	63	88
200	8"	2.88	1.25	110	138
250	10"	3.25	1.44	165	194
300	12"	3.62	1.56	240	306
350	14"	4.62	2.37	361	427
400	16"	5.25	2.56	502	604
450	18"	5.88	2.87	628	731
500	20"	6.25	2.81	756	859
600	24"	7.12	3.25	1130	1285

**Notes:**

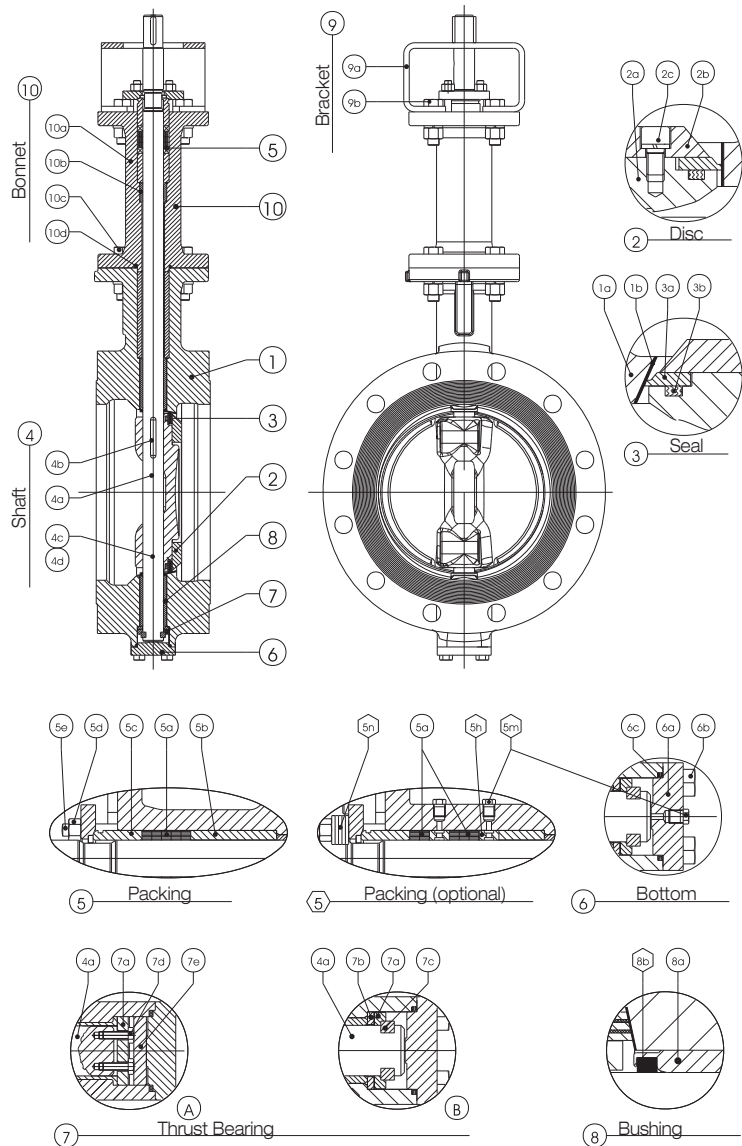
1. For the dimensions A, B, E, and for Gear Selection and dimensions, please refer to the relevant figures in the previous Double Flanged tables.
2. Suggested orientation is with the valve shaft horizontal or inclined from vertical.
3. For service above 392°F [200°C], valve body should be insulated to limit body-to-trim differential temperature to 212°F [100°C].
4. All dimensions are in inches and weight is in pounds.
5. Please consult Vanessa for other sizes.

Vanessa has manufacturing experience for much larger sizes than those indicated (for example: 112"/Cl.150, 56"/Cl.300, 48"/Cl.600, 36"/Cl.900). Please consult factory for further information.

# Cryogenic Configuration

## Materials selection

Item	Description	Material
1a	Body	ASTM A 351 CF8M
1b	Body Seat	Stellite® gr. 21 Weld Overlay
2a <sup>d</sup>	Disc	ASTM A 351 CF8M or ASTM A 182 gr. F316
2b	Retainer Flange	AISI 316
2c	Screw	ISO 3506 A4 (AISI 316)
3a <sup>e</sup>	Seal Ring	UNS S20910 or UNS S21800
3b <sup>e</sup>	Disc Spiral Wound Gasket	AISI 316 + Graphite
4a	Shaft	ASTM A479 Type XM19
4b	Disc Key	UNS S20910
4c	Pin	UNS S20910
4d	Pin Retainer	AISI 316
5a <sup>e</sup>	Packing	Graphite
5b	Spacer	AISI 316
5c	Packing Bushing	AISI 316
5d	Stud Nut	ISO 3506 A2 (AISI 304)
5e	Stud Bolts	ISO 3506 A2 (AISI 304)
6a <sup>d</sup>	Bottom Flange	ASTM A 351 CF8M or ASTM A 240 gr. F316
6b	Screw	ISO 3506 A2 (AISI 304)
6c <sup>e</sup>	Bottom Spiral Wound Gasket	AISI 316 + Graphite
7a	Thrust Bearing	UNS S20910
7b	Thrust Bearing Washer	AISI 316
7c	Key	AISI 316
7d	Screw	ISO 3506 A4 (AISI 316)
7e	Unloosening Washer	AISI 316
8a	Bearing	Aisi 304 Hard Faced
9a	Bracket	Carbon Steel
9b	Screw	Alloy Steel
10a	Bonnet	ASTM A351 gr. CF8M or AISI 316 Fabricated
10b	Bearing	AISI 304 Hard Faced
10c	Screw	ISO 3506 A2 (AISI 304)
10d	Bonnet Spiral Wound Gasket	AISI 316 + Graphite



## Options (available upon request)

### Bearing Protector

8b	Bearing Protector	Reinforced Graphite
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### Bearing and Packing Flushing

5h	Lantern Ring	AISI 316
5m	Plug	AISI 316

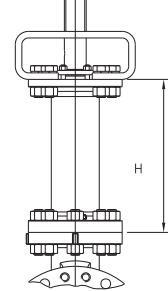
### Live Loaded Packing

5n	Belleville Spring	Alloy Steel
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## Extended bonnet - dimensions and weight

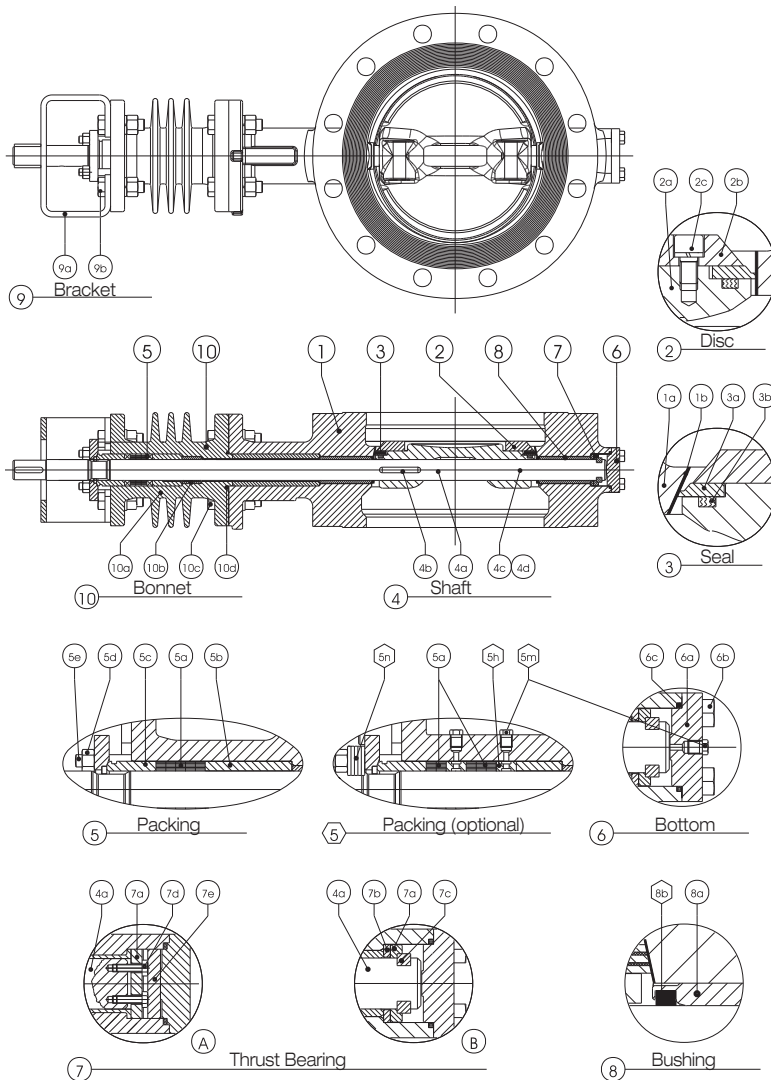
Size	Trim B	Trim C		Trim D		Trim E			
		H	Bonnet Weight	H	Bonnet Weight	H	Bonnet Weight		
3	80	9.84	13.2	9.84	13.2	9.84	13.2	-	-
4	100	9.84	15.4	9.84	15.4	9.84	17.6	-	-
6	150	11.81	22	11.81	26.5	11.81	35.3	11.81	41.9
8	200	11.81	28.7	11.81	44.1	11.81	61.7	11.81	79.4
10	250	13.78	39.7	13.78	52.9	13.78	86	13.78	114.6
12	300	13.78	61.7	13.78	66.1	13.78	141.1	13.78	174.2
14	350	17.72	66.1	17.72	81.6	17.72	191.8	17.72	246.9
16	400	17.72	83.8	17.72	127.9	17.72	242.5	17.72	319.7
18	450	17.72	110.2	17.72	149.9	17.72	304.2	17.72	418.9
20	500	17.72	123.5	17.72	196.2	17.72	377	17.72	496
24	600	17.72	163.1	17.72	288.8	17.72	434.3	17.72	551.2
28	700	17.72	264.6	17.72	385.8	17.72	529.1	-	-
30	750	19.69	363.8	19.69	454.2	19.69	595.2	-	-
32	800	19.69	418.9	19.69	522.5	19.69	705.5	-	-
36	900	19.69	476.2	19.69	595.2	-	-	-	-
40	1000	19.69	551.2	19.69	661.4	-	-	-	-
42	1050	19.69	597.5	19.69	716.5	-	-	-	-
48	1200	19.69	705.5	19.69	848.8	-	-	-	-

## Extended bonnet



## Notes

- Trim A: Dp max. 150 psi (10 bar).  
Trim B: Dp max. 362 psi (25 bar).  
Trim C: Dp max. 725 psi (50 bar).  
Trim D: Dp max. 1595 psi (110 bar).  
Trim E: Dp max. 2320 psi (160 bar).
  - Dimensions are in inches and weight is in pounds.
  - Other materials are available on request.
- ☐ The selection between cast and forged material depends on valve size.
- Suggested Spare Parts.



## Materials selection

Item	Description	Body in CF8M
1a	Body	ASTM A 351 CF8M
1b	Body Seat	Stellite® gr. 21 Weld Overlay
2a <sup>2</sup>	Disc	ASTM A 351 CF8M or ASTM A 182 gr. F316
2b	Retainer Flange	AISI 316
2c	Screw	ASTM A 453 gr. 660
3a <sup>•</sup>	Seal Ring	UNS S20910 or UNS S21800
3b <sup>•</sup>	Disc Spiral Wound Gasket	AISI 316 + Graphite
4a	Shaft	ASTM A479 Type XM19
4b	Disc Key	UNS S20910
4c	Pin	UNS S20910
4d	Pin Retainer	AISI 316
5a <sup>•</sup>	Packing	Graphite
5b	Spacer	AISI 316
5c	Packing Bushing	AISI 316
5d	Stud Nut	ISO 3506 A2 (AISI 304)
5e	Stud Bolts	ISO 3506 A2 (AISI 304)
6a <sup>2</sup>	Bottom Flange	ASTM A 351 CF8M or ASTM A 240 gr. F316
6b	Screw	ASTM A 453 gr. 660
6c	Bottom Spiral Wound Gasket	AISI 316 + Graphite
7a	Thrust Bearing	UNS S20910
7b	Thrust Bearing Washer	Stellite® gr. 21
7c	Key	AISI 316
7d	Screw	ASTM A 453 gr. 660
7e	Unloosening Washer	AISI 316
8a	Bearing	AISI 316 Hard Faced
9a	Bracket	Carbon Steel
9b	Screw	Alloy Steel
10a	Bonnet	ASTM A 351 CF8M
10b	Bearing	AISI 304 Hard Faced
10c	Screw	ASTM A 453 gr. 660
10d	Bonnet Spiral Wound Gasket	AISI 316 + Graphite

## Options (available upon request)

### Bearing Protector

8b	Bearing Protector	Reinforced Graphite
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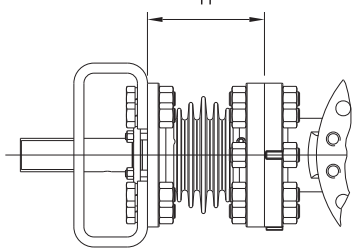
### Bearing and Packing Flushing

5h	Lantern Ring	AISI 316
5m	Plug	AISI 316

### Live Loaded Packing

5n	Belleville Spring	Alloy Steel
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## Extended bonnet



## Notes

- Trim A: Dp max. 150 psi (10 bar).  
Trim B: Dp max. 362 psi (25 bar).  
Trim C: Dp max. 725 psi (50 bar).  
Trim D: Dp max. 1595 psi (110 bar).  
Trim E: Dp max. 2320 psi (160 bar).
- Dimensions are in inches and weight is in pounds.
- Other materials are available on request.
- The selection between cast and forged material depends on valve size.
- Suggested Spare Parts.

## Extended bonnet - dimensions and weight

Size	in.	mm	Trim B		Trim C		Trim D		Trim E	
			H	Bonnet Weight	H	Bonnet Weight	H	Bonnet Weight	H	Bonnet Weight
3	80	5.91	11.0	5.91	11.0	5.91	13.2	-	-	
4	100	5.91	13.2	5.91	13.2	5.91	15.4	-	-	
6	150	5.91	17.6	5.91	22.0	5.91	28.7	5.91	35.3	
8	200	5.91	24.3	5.91	37.5	5.91	50.7	5.91	66.1	
10	250	5.91	33.1	5.91	44.1	9.84	72.8	9.84	92.6	
12	300	5.91	50.7	5.91	55.1	9.84	92.6	9.84	121.3	
14	350	5.91	55.1	5.91	68.3	9.84	119.0	9.84	211.6	
16	400	5.91	70.5	5.91	108.0	9.84	176.4	9.84	264.6	
18	450	9.84	90.4	9.84	119.0	9.84	277.8	9.84	330.7	
20	500	9.84	103.6	9.84	154.3	13.78	370.4	13.78	396.8	
24	600	9.84	141.1	9.84	242.5	13.78	458.6	13.78	485.0	
28	700	11.81	191.8	11.81	297.6	13.78	507.1	-	-	
30	750	11.81	260.1	11.81	330.7	13.78	551.2	-	-	
32	800	11.81	308.6	11.81	396.8	-	-	-	-	
36	900	11.81	352.7	11.81	463.0	13.78	683.4	-	-	
40	1000	11.81	396.8	11.81	507.1	-	-	-	-	
42	1050	11.81	463.0	11.81	551.2	-	-	-	-	
48	1200	11.81	507.1	11.81	617.3	-	-	-	-	

# Steam Jacketed Configuration

## Materials selection

Item	Description	Material
1a	Body	ASTM A216 WCB
1b	Body Seat	Stellite® gr. 21 Weld Overlay
1m	Flanged Fitting	ASTM A105
1n	Body Jacket	ASTM A515 gr. 60
2a <sup>2</sup>	Disc	ASTM A216 WCB or ASTM A105
2b	Retainer Flange	ASTM A516
2c	Screw	ISO 3506 A4 (AISI 316)
3a <sup>•</sup>	Laminated Seal Ring	UNS S31803 (Duplex) + Graphite
3b <sup>•</sup>	Disc Spiral Wound Gasket	AISI 316 + Graphite
4a	Shaft	ASTM A182 F6a
4b	Disc Key	AISI 410
4c	Pin	AISI 410
4d	Pin Retainer	AISI 316
5a <sup>•</sup>	Packing	Graphite
5b	Spacer	AISI 316
5c	Packing Bushing	AISI 316
5d	Stud Nut	ISO 3506 A2 (AISI 304)
5e	Stud Bolts	ISO 3506 A2 (AISI 304)
5h	Lantern Ring	AISI 316
5m	Plug	AISI 316
6a	Bottom Flange	ASTM A516
6b	Screw	ISO 3506 A2 (AISI 304)
6c <sup>•</sup>	Bottom Spiral Wound Gasket	AISI 316 + Graphite
7a	Thrust Bearing	AISI 316 or AISI 410
7b	Thrust Bearing Washer	AISI 316
7c	Key	AISI 316
7d	Screw	ISO 3506 A4 (AISI 316)
7e	Unloosening Washer	AISI 410
8a	Bearing	AISI 304 Hard Faced
8b	Bearing Protector	Reinforced Graphite
9a	Bracket	Carbon Steel
9b	Screw	Alloy Steel

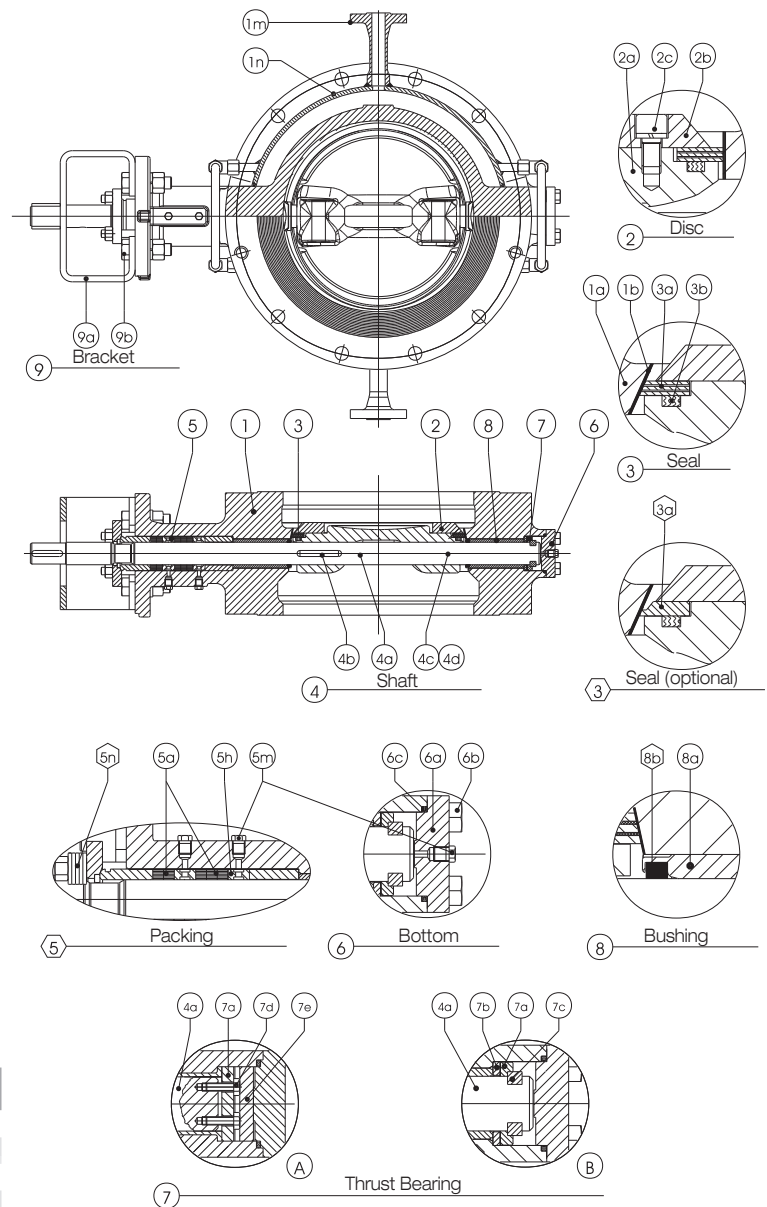
## Options (available upon request)

### Live Loaded Packing

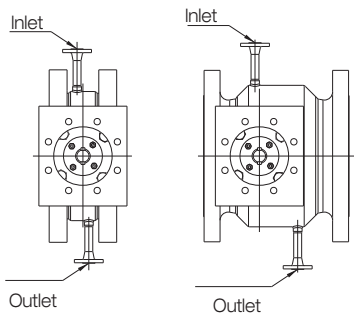
5n	Belleville Spring	Alloy Steel
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### Seal Ring

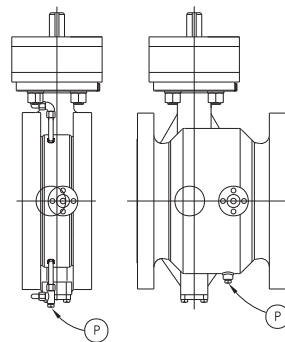
3a <sup>•</sup>	Seal Ring	UNS S17400
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## Heating connections



## Auxiliary condensate drainage

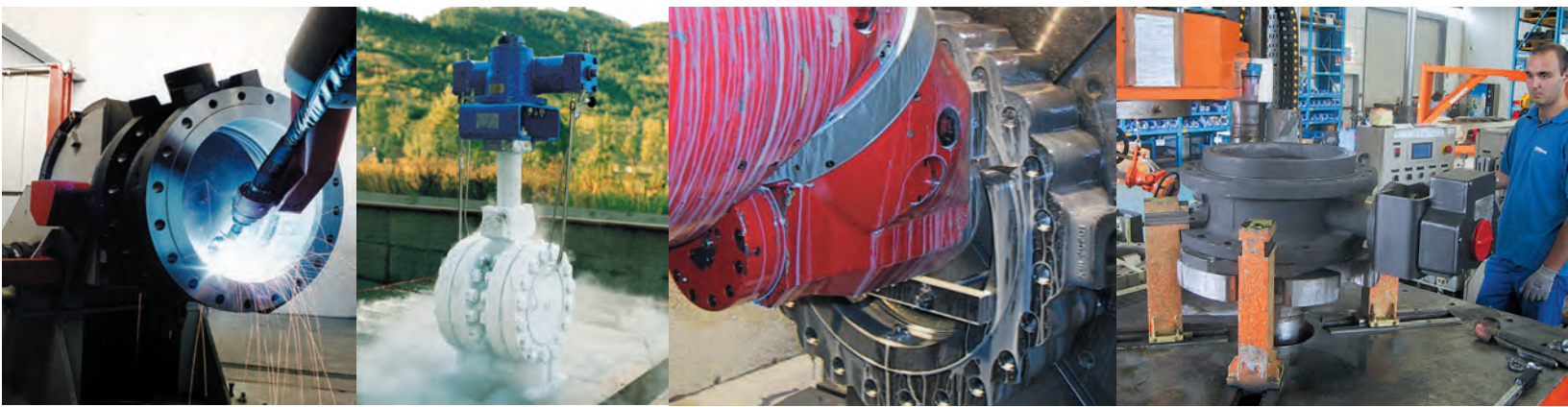


## Notes

- For ND up to 12" (ANSI drilling), the heating connection flange dim. is 1/2" Cl. 300 ANSI B16.5, RF 125±250 µinch. For DN up to 300 mm (DIN and ISO 7005 drilling), the heating connection flange dim. is DN 15 PN 40, RF 12,5±25 µm.
  - For ND from 14" and larger (ANSI drilling), the heating connection flange dim. is 3/4" Cl. 300 ANSI B16.5, RF 125±250 µinch. For DN from 350 mm and larger (DIN and ISO 7005 drilling), the heating connection flange dim. is DN 20 PN 40, RF 12,5±25 µm.
  - For ND up to 12", the auxiliary condensate drainage (P) is 3/8" NPT. For ND from 14" and larger, the auxiliary condensate drainage (P) is 1/2" NPT.
  - Vanessa recommends the horizontal shaft installation.
  - Other materials are available on request.
- The selection between cast and forged materials depends on valve size.
- Suggested spare parts.



## Superior Manufacturing Expertise



Vanessa valves are manufactured at our technologically advanced, purpose-built factory in Northern Italy, where the 30,500 square metre site incorporates:

- 11,500 sq. m. manufacturing area (of which 1200 sq. m. is the new Integrated Manufacturing Cell – see details below)
- 1,800 sq. m. office accommodation.

The utilization of advanced 3D design software, state-of-the-art machine tools and the most modern production process technology ensures the consistent levels of high performance and quality of production for which Vanessa is well known.

Advanced manufacturing facilities include:

- CNC flexible machining centres for turning, drilling and milling of bodies and discs for all sizes
- Horizontal CNC boring machining centre with multi-pallet station to machine bodies and discs up to very large sizes (up to 92")
- Welding robot system equipped with several welding stations
- Full cryogenic testing facilities in-house
- Final testing machines for any valve size complete with digital instrumentation to monitor the seating torque
- Surface treatment system using water based, environmentally low-impact, anticorrosive products
- Ultrasonic bath cleaning equipment specific for valves in oxidative services
- Three dimensional measuring machine for maximum measuring accuracy
- Magnetic particle examination equipment & Spectrotest meter for positive material identification
- Helium mass spectrometer analyzer.

### Quality Audits

The Vanessa plant operates under a Quality Assurance system which is in accordance with UNI EN ISO 9001.

The plant has held approval certificates for many years, from both major customers and independent authorities such as:

Det Norske Veritas, Italy (ISO 9001)

TUV (Ad-Merkblatt HP 0 – TRB 801 nr.45)

In addition, DNV has certified the plant to be in compliance with the standard for Environmental Management Systems (UNI EN ISO 14001).

### Integrated Manufacturing Cell (IMC)

The company has invested in a fully independent production facility, known as the Integrated Manufacturing Cell (IMC).

The IMC has been conceived as a 'focused factory', to concentrate exclusively on a selected range of valves (ND 3"-24" Cl. 150-300) and incorporates advanced manufacturing techniques based on Demand Flow Technology (DFT).

Utilizing Kanban process systems under a Total Quality Control (TQC) program, has enabled Vanessa to reduce the manufacturing lead time for the target product range to 2-4 weeks, ex works.

## Industries and Applications



Vanessa valves have an impressive track record of service in both isolation and control applications in all process industries including:

- Oil and Gas Processing
- Offshore Platforms
- Refineries
- Hydrocarbons Storage and Transportation
- Liquid Natural Gas (LNG) Storage and Transportation
- Chemical and Petrochemicals Plants
- Power Generation
- District Heating
- Pulp and Paper
- Steel Mills
- Sugar Mills
- Desalination Plants
- Water Treatment and Distribution

Vanessa has extensive experience of supplying valves for a wide variety of fluids including:

- Hydrocarbons
- Steam (Saturated and Superheated)
- Geothermal Steam
- Hydrogen
- Oxygen
- Cryogenic Fluids
- Hot Gases
- Sulphur (Tail Gas)
- Chemical Solvents
- Chlorinated Solvents
- Flare Gas



## HP Butterfly Valves

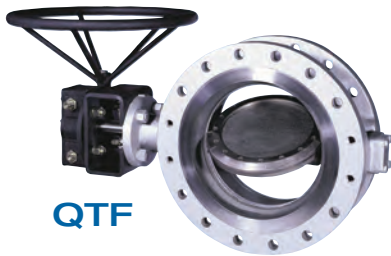
### Ball Valves

### Gate Valves

## Vanessa Valves



QTG



QTF



QTL



QTW



#### Zero Leakage Standard

Vanessa's Series 30,000 valves are bi-directionally tested to rigid zero leakage standard of both API 598 and API 6D.



#### Resilient Metal Seal

Vanessa's torque-generated resilient metal seal provides the ultimate seating performance long-term, repeatable zero leakage performance under most severe service conditions.



#### Quarter-Turn Operation

Fugitive emissions are greatly reduced. Automation is simplified. Compactness imposes less stress on pipe.



#### All-Metal Construction

Temperature limits inherent to soft-seated valves do not affect the all-metal construction of Vanessa Series 30,00 valves.



#### Bi-Directional

The Vanessa Series 30,000 valve provides bi-directional, zero leakage shutoff.



#### Inherently Firesafe

All-metal construction in combination with zero leakage performance equals inherently firesafe. The Series 30,000 is zero leakage before, during, and after a fire test.



#### Non-Rubbing Design

The Series 30,000's unique triple offset design eliminates all rubbing and resulting wear during the entire 90 degrees of travel.



#### Double-Flange Body

Standard double-flange end connections (ISO 5752) offer greater ease of installation and maintenance in a compact configuration.



#### Available ANSI B16.10 F-F

Vanessa's 30,000 QTL easily permits direct replacement of most gate, ball, and globe valves.



#### Available API 609 F-F

Vanessa's 30,000 QTL lug pattern and QTW wafer pattern easily permits direct upgrade from high performance butterfly valves to obtain the performance standard of Vanessa.



#### Lightweight

A lower weight valve (compared with gate, ball and plug valves) means lower piping stresses, less maintenance and lower construction costs.



#### ANSI 150, 300, 600, 900

Pressure classes matching gate and ball valves.



#### 3-inch to 72-inch Size Range

Sizes to suit virtually all applications.



#### Cryogenic to -400°F



#### High Temperature to 1500°F

Metal-seated performance with far better shutoff than soft seated valves in temperature affected applications.



#### Easily Automated

Quarter-turn operation reduces time and cost to automate.



#### Quick Operation

Vanessa's quarter-turn valves operate as quick as 0.15 seconds.



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