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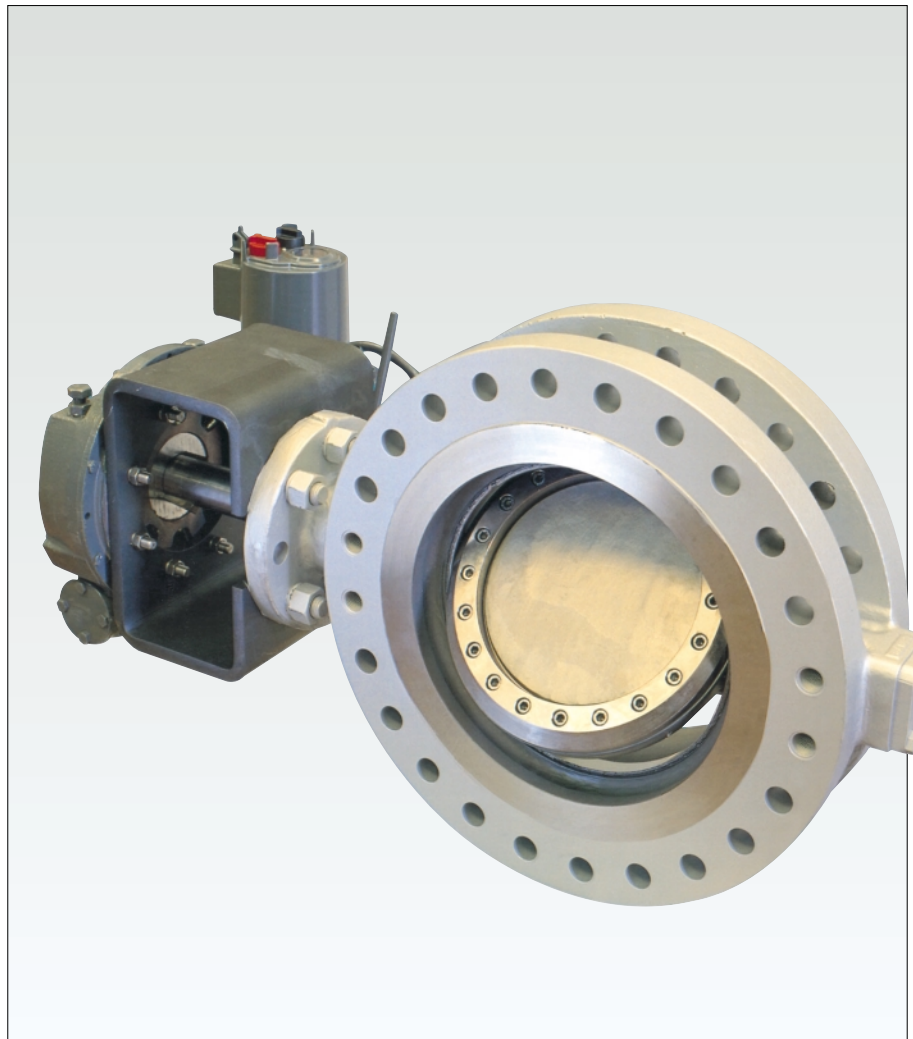
Flow Control

vanessa

The outstanding performance of triple offset, metal seated Vanessa Series 30,000 valve is the ideal solution to achieve perfect shutoff in any process.

Features

- Torque generated elastic metal seal provides zero leakage performance, as from API 598 and API 6D.
- Torque-seating action ensures continuous bi-directional, zero leakage performance.
- Quarter turn non-rubbing design is achieved by a unique, triple offset geometry, completely eliminating all seat to seal rubbing throughout the valve's 90 degrees rotation.
- 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, ASME B16.10 and API 609 provides interchangeability with gate, high performance butterfly, plug and other valves for simpler and more flexible installation.
- 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 graphite bearing protector ensure additional reliability.
- Internally and externally retained, three times blowout proof stem is safer to operate and provides complete compliance with API 609.
- Integral position indicators on the stem and the top mounting flange ensure positive disc position indication.



Technical data

Design standards	: ASME B16.34, API 609, DIN 3840.
Flange Drilling	: ASME B16.5, ASME B16.47, ISO 7005, DIN 2501.
Sizes (mm)	: 80 to 2100 (3" to 84")
Face-to-face	: ISO 5752, EN 558, ASME B16.10, API 609.
Temperature range	: from -254°C to + 815°C.

General application

The Vanessa valve is successfully installed in the following industries: Oil and Gas Processing, Offshore Platforms, Refineries, Hydrocarbon Storage and Transportation, Liquid Natural Gas (LNG) Storage and Transportation, Chemical and Petrochemical Plants, Power Plants, District Heating, Pulp and Paper, Steel Mills, Sugar Mills. Furthermore, Vanessa has a long-lasting experience of valves installed on services with the following media: Steam (Saturated and Superheated), Geothermal Steam, Hydrocarbons, Hydrogen, Oxygen, Cryogenic Fluids, Hot Gases, Sulphur (Tail Gas), Chemical Solvents, Chlorinated Solvents, Flare Gas.

Material selection

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 or ASTM A105	ASTM A351 gr.CF8M or ASTM A182 Type F316
2b		Retainer Flange	ASTM A516	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 Type XM19 (UNS S20910)
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

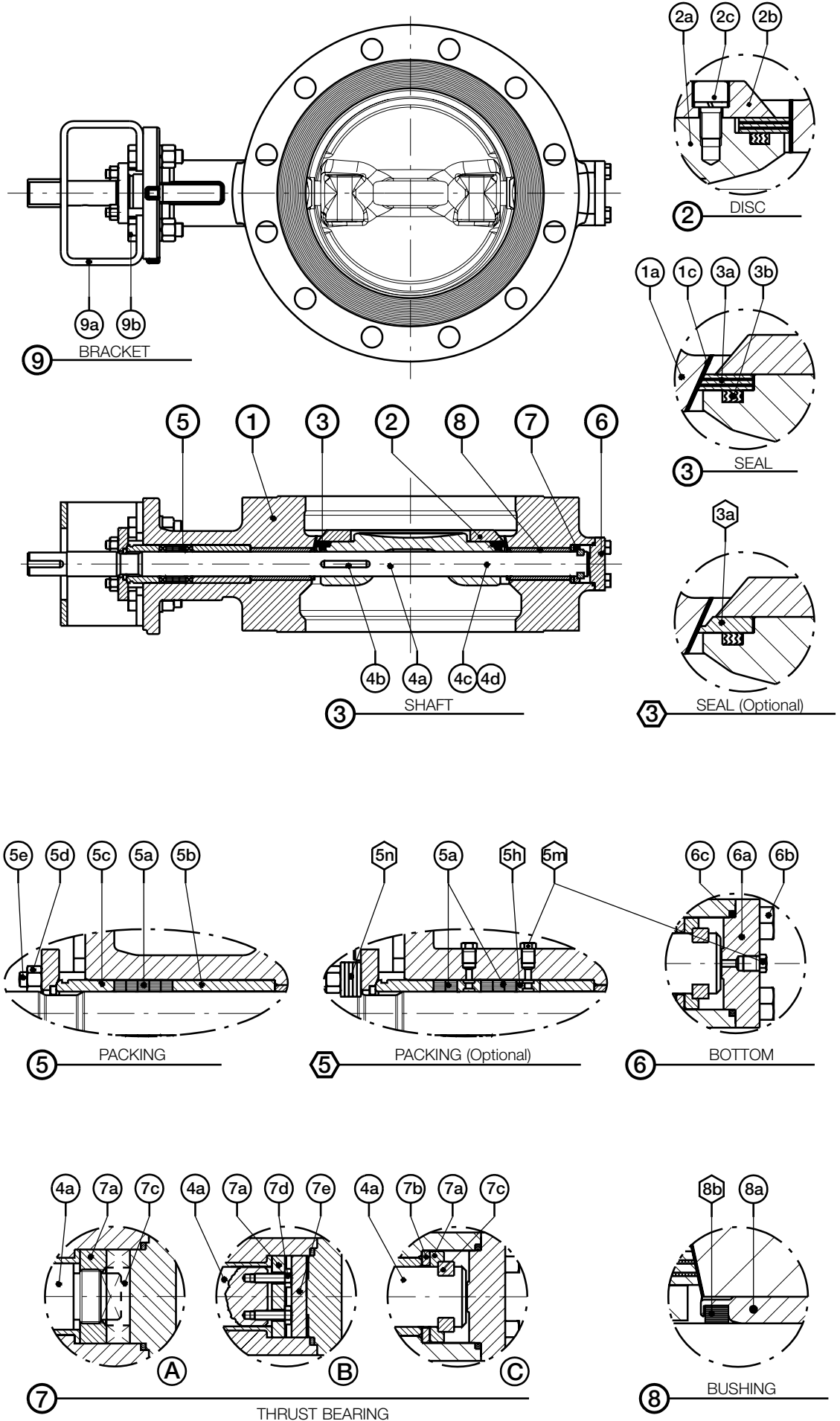
5n	Belleville Spring	Alloy Steel	Alloy Steel
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Seal Ring

3a	●	Seal Ring	UNS S17400	UNS S20910 or UNS S21800
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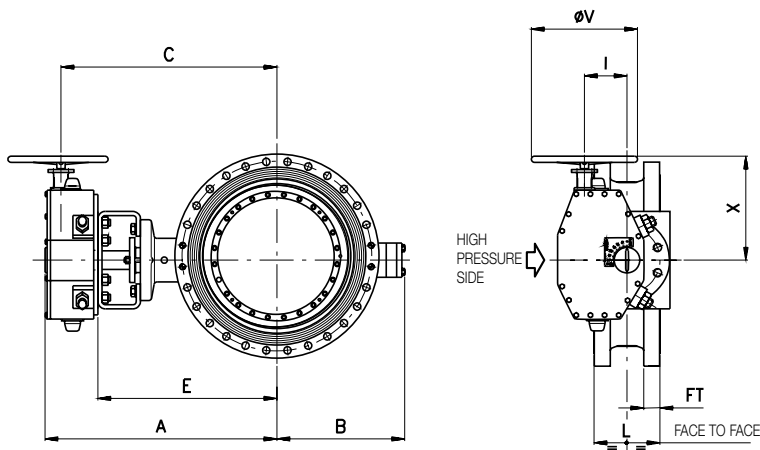
Notes

- ☐ The selection between cast or forged material depends on valve size.
- Suggested spare parts.
 1. The Vanessa Series 30,000 can be manufactured as standard in the following materials: WCB, CF8M, LCB, WC6, CF3M, Nickel Aluminium Bronze, Duplex, 250 SMO. Additionally, the Vanessa Series 30,000 can be manufactured also in the following materials: Monel, Incoloy, Hastelloy, Superduplex, Inconel, Titanium, Alloy 20.
 2. Contents may change without notice.



Vanessa Series 30,000 Rotary Process Valve

dimensions and weights



Notes

1. Suggested orientation is with the valve shaft horizontal or inclined from vertical.
2. For service above 200°C (392°F) valve body should be insulated to limit body-to-trim differential temperature to 100°C (212°F).
3. All dimensions are in mm and weight is in kilos.
4. Please consult Vanessa for other sizes.
5. Trim A: Δp max. 10 bar.
Trim B: Δp max. 25 bar.
Trim C: Δp max. 50 bar.
Trim D: Δp max. 110 bar.
Trim E: Δp max. 160 bar.

Double flanged - face to face ISO 5752 table 1 col.13 - body drilling ASME B16.5 Cl.150 - trim B

Size		Valve Dimensions					Gear Dimensions					Weight	
mm	inch	A	B	E	L	FT	Gear Type	C	I	X	ØV	Valve	Total
80	3	340	125	260	114	24	OV 10-18	298	56	165	125	22	29
100	4	370	141	290	127	24	OV 10-18	328	56	165	125	28	35
150	6	410	165	330	140	25.5	OV 10-18	368	56	165	125	40	47
200	8	475	214	385	152	30	OV 50-28	424	67	220	300	61	72
250	10	515	243	425	165	32	OV 50-28	464	67	220	300	83	94
300	12	592	286	490	178	34	OV 100-35	539	86	340	500	127	140
350	14	627	312	525	190	35	OV 100-35	574	86	340	500	166	179
400	16	670	350	545	216	36.5	OV 200-45	600	119	370	600	198	228
450	18	705	383	580	222	40	OV 200-45	635	119	370	600	229	259
500	20	765	407	640	229	43	OV 200-50	695	119	355	700	308	338
600	24	845	484	690	267	47.5	OV 400ER-55	750	130	420	300	433	479

Double flanged - face to face ISO 5752 table 1 col.13 - body drilling ASME B16.47 series A Cl. 150 - trim B

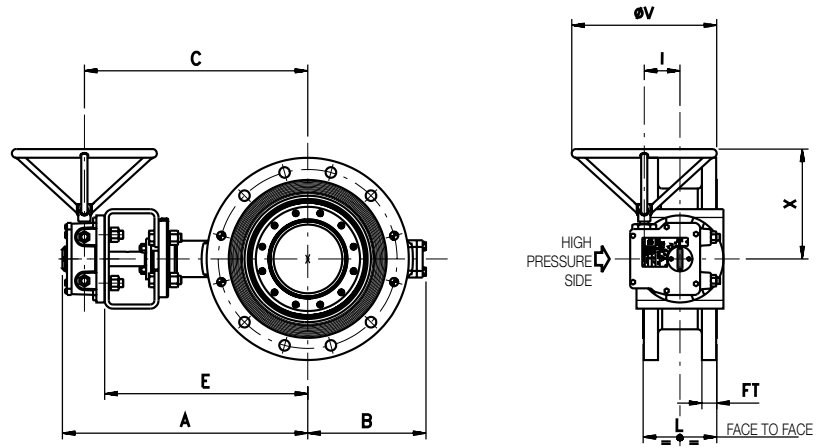
Size		Valve Dimensions					Gear Dimensions					Weight	
mm	inch	A	B	E	L	FT	Gear Type	C	I	X	ØV	Valve	Total
700	28	1080	525	825	292	71.5	MAGA 1000C-90	1006	200	500	450	767	922
750	30	1118	615	863	318	75	MAGA 1000C-90	1044	200	500	450	990	1145
800	32	1143	640	888	318	81	MAGA 1000C-90	1069	200	500	450	1165	1320
900	36	1305	672	1005	330	90	MAGA 2000C-110	1231	263	670	700	1495	1760
1000	40	1315	741	1015	410	90.5	MAGA 2000C-120	1241	263	670	700	2035	2300
1050	42	1385	755	1085	410	97	MAGA 2000C-120	1311	263	670	700	2155	2420
1200	48	1652	866	1267	470	108	MAGA 14KR	1460	200	964	820	3045	3690
1350	54	1765	985	1380	530	121	MAGA 14KR	1573	200	964	820	4300	4945
1500	60	1892	1132	1500	600	132	MAGA 18KR	1693	230	1056	820	5740	6535

Double flanged - face to face ISO 5752 table 1 col.13 - body drilling ASME B16.5 Cl.300 - trim C

Size		Valve Dimensions					Gear Dimensions					Weight	
mm	inch	A	B	E	L	FT	Gear Type	C	I	X	ØV	Valve	Total
80	3	340	125	260	114	28.5	OV 10-18	298	56	165	125	22	29
100	4	370	141	290	127	32	OV 10-18	328	56	165	125	33	40
150	6	440	189	350	140	36.5	OV 50-28	389	67	220	300	61	72
200	8	517	236	415	152	41.5	OV 100-35	464	86	340	500	86	99
250	10	557	272	455	165	47.5	OV 100-35	504	86	340	500	100	113
300	12	615	310	490	178	51	OV 200-45	545	119	370	600	175	205
350	14	670	335	545	190	54	OV 200-50	600	119	355	700	284	314
400	16	730	389	575	216	57	OV 400ER-55	635	130	420	300	340	386
450	18	870	422	660	222	60.5	MAGA 400S-65	757	100	350	450	487	557
500	20	910	461	700	229	63.5	MAGA 400S-65	797	100	350	450	529	599
600	24	995	531	785	267	70	MAGA 400C-75	882	100	350	450	834	904

Vanessa Series 30,000 Rotary Process Valve

dimensions and weights



Double flanged - face to face ISO 5752 table 1 col.14 - body drilling ASME B16.5 Cl.600 - trim D

Size		Valve Dimensions					Gear Dimensions					Weight	
mm	inch	A	B	E	L	FT	Gear Type	C	I	X	ØV	Valve	Total
80	3	314	136	234	180	31.5	OV 10-20	272	56	165	150	32	39
100	4	388	185	298	190	38	OV 50-30	337	67	220	300	66	77
150	6	457	238	355	210	47.5	OV 100-40	404	86	340	500	121	134
200	8	530	263	405	230	55.5	OV 200-45	460	119	370	600	198	228
250	10	640	328	485	250	63.5	OV 400ER-55	545	130	420	300	298	344
300	12	748	365	538	270	66.5	MAGA 400C-60	635	100	350	450	378	448
350	14	820	390	610	290	70	MAGA 400C-70	707	100	350	450	445	515
400	16	935	438	655	310	76	MAGA 1000S-75	861	200	500	450	670	825
450	18	938	460	683	330	82.5	MAGA 1000C-90	864	200	500	450	750	905
500	20	1095	526	795	350	89	MAGA 2000S-100	1021	263	670	700	1000	1265
600	24	1185	623	885	390	101.5	MAGA 2000C-120	1111	263	670	700	1450	1715

Double flanged - face to face ISO 5752 table 1 col.8 - body drilling ASME B16.5 Cl.900 - trim E

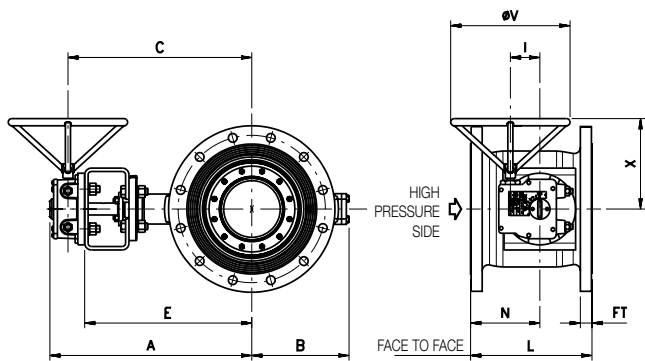
Size		Valve Dimensions					Gear Dimensions					Weight	
mm	inch	A	B	E	L	FT	Gear Type	C	I	X	ØV	Valve	Total
150	6	457	238	355	225	55.5	OV 100	404	86	340	500	167	180
200	8	646	293	466	275	63.5	MAGA 200C	548	80	315	300	297	339
250	10	730	345	520	325	70	MAGA 400C	617	100	350	450	385	455
300	12	988	480	733	375	79.5	MAGA 1000S	914	200	500	450	588	743
350	14	938	456	683	425	85.5	MAGA 1000C	864	200	500	450	795	950
400	16	985	492	730	475	89	MAGA 1000C	911	200	500	450	1228	1383
450	18	1070	510	770	500	101.5	MAGA 2000C	996	263	670	700	1442	1707
500	20	1170	590	870	575	108	MAGA 2000C	1096	263	670	700	1928	2193

Notes

1. Suggested orientation is with the valve shaft horizontal or inclined from vertical.
2. For service above 200°C (392°F) valve body should be insulated to limit body-to-trim differential temperature to 100°C (212°F).
3. All dimensions are in mm and weight is in kilos.
4. Please consult Vanessa for other sizes.
5. Trim A: Δp max. 10 bar.
Trim B: Δp max. 25 bar.
Trim C: Δp max. 50 bar.
Trim D: Δp max. 110 bar.
Trim E: Δp max. 160 bar.

Vanessa Series 30,000 Rotary Process Valve

dimensions and weights



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	FT	Valve	Total	
80	3	203	124	24	23	30
100	4	229	89	24	30	37
150	6	267	102	25.5	36	43
200	8	292	105	28.5	70	81
250	10	330	130	30	98	109
300	12	356	153	32	139	152
350	14	381	175	35	186	199
400	16	406	195	36.5	229	259
450	18	432	216	40	269	299
500	20	457	228	43	355	385
600	24	508	230	47.5	504	550

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	FT	Valve	Total	
80	3	283	198	28.5	26	33
100	4	305	95	32	40	47
150	6	404	109	36.5	79	90
200	8	419	128	41.5	115	128
250	10	457	140	47.5	136	149
300	12	502	153	51	232	262
350	14	762	572	54	397	427
400	16	838	618	57	481	527
450	18	914	664	60.5	707	777

Lugged - face to face API 609 CL.150 body drilling ASME B16.5 Cl. 150 - trim B

Size	Valve Dimensions		Weight		
	mm	inch	Valve	Total	
80	3	48	20	13	20
100	4	54	24	17	24
150	6	57	26	23	30
200	8	64	28	36	47
250	10	71	32	49	60
300	12	81	38	83	96
350	14	92	44	117	130
400	16	102	49	160	190
450	18	114	55	194	224
500	20	127	63	270	300
600	24	154	78	387	433

Lugged - face to face API 609 CL. 300 body drilling ASME B16.5 Cl. 300 - trim C

Valve Dimensions		Weight	
L	N	Valve	Total
48	20	18	25
54	24	22	29
59	26	41	52
73	32	56	69
83	37	77	90
92	39	119	149
117	60	254	284
133	65	300	346
149	73	455	525
159	72	499	569
181	82	788	858

Wafer - face to face API 609 CL. 150 body drilling ASME B16.5 Cl. 150 - trim B

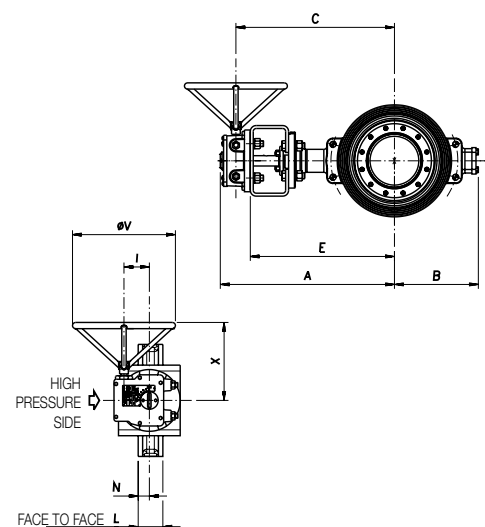
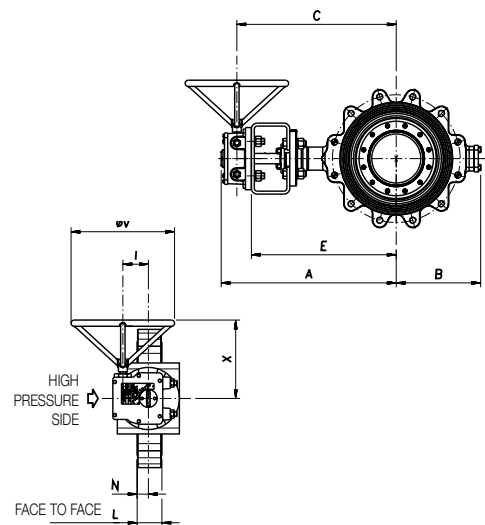
Size	Valve Dimensions		Weight		
	mm	inch	Valve	Total	
80	3	48	20	14	21
100	4	54	24	15	22
150	6	57	26	20	27
200	8	64	28	34	45
250	10	71	32	45	56
300	12	81	38	73	86
350	14	92	44	97	110
400	16	102	49	123	153
450	18	114	55	164	194
500	20	127	63	220	250
600	24	154	78	324	370

Wafer - face to face API 609 CL. 300 body drilling ASME B16.5 Cl. 300 - trim C

Valve Dimensions		Weight	
L	N	Valve	Total
48	20	14	21
54	24	15	22
59	26	29	40
73	32	50	63
83	37	75	88
92	39	109	139
117	60	164	194
133	65	228	274
149	73	285	355
159	72	343	413
181	82	513	583

Notes

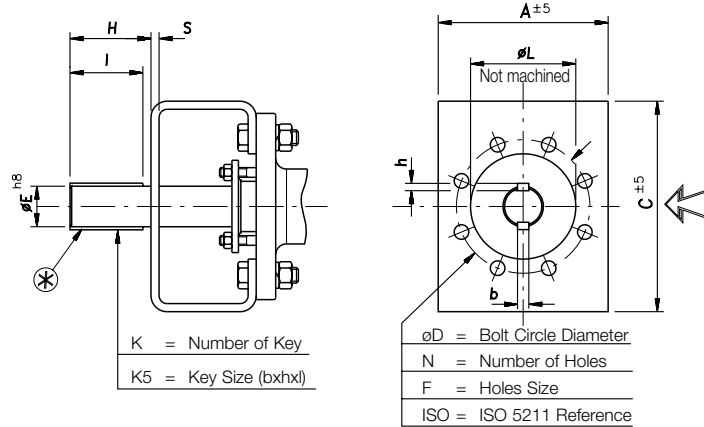
1. For the dimensions A, B, E, and for Gear Selection and dimensions, please refer to the relevant figures in the previous Double Flanged tables.
2. Suggested orientation is with the valve shaft horizontal or inclined from vertical.
3. For service above 200°C (392°F), valve body should be insulated to limit body-to-trim differential temperature to 100°C (212°F).
4. All dimensions are in mm and weight is in kilos.
5. Please consult Vanessa for other sizes.
6. Trim A: Δp max 10 bar.
Trim B: Δp max 25 bar.
Trim C: Δp max 50 bar.
Trim D: Δp max 110 bar.
Trim E: Δp max 160 bar.



Notes

1. Directional arrow represents the direction of the higher pressure side of the valve.
2. The rectangular shaft keys are according to ISO 773 and are shown with valve in closed position.
3. When only one key is foreseen, please consider the one indicated with (*) in the drawing.
4. It is possible to assemble the bracket rotated of 90° in respect of the above configuration.
5. All dimensions are in mm.
6. Trim A: Δp max. 10 bar.
Trim B: Δp max. 25 bar.
Trim C: Δp max. 50 bar.
Trim D: Δp max. 110 bar.
Trim E: Δp max. 160 bar.

Topworks with bracket - dimensions



Trim B

Size		Shaft Dimension					Coupling Flange Dimension						
mm	inch	ØE	H	K	KS (bxhxl)	ISO	A	C	S	ØD	N	F	ØL
80	3	18	36	1	6x6x36	F10	120	140	6	102	4	12	72
100	4	18	36	1	6x6x36	F10	120	140	6	102	4	12	72
150	6	18	36	1	6x6x36	F10	120	140	6	102	4	12	72
200	8	28	40	2	8x7x40	F14	175	175	8	140	4	18	103
250	10	28	40	2	8x7x40	F14	175	175	8	140	4	18	103
300	12	35	56	2	10x8x56	F16	200	240	10	165	4	22	133
350	14	35	56	2	10x8x56	F16	200	250	12	165	4	22	133
400	16	45	80	2	14x9x80	F16	200	250	12	165	4	22	133
450	18	45	80	2	14x9x80	F16	200	260	15	165	4	22	133
500	20	50	80	2	14x9x80	F16	200	300	15	165	4	22	133
600	24	55	140	2	16x10x140	F25	300	340	15	254	8	18	204

Trim C

Size		Shaft Dimension					Coupling Flange Dimension						
mm	inch	ØE	H	K	KS (bxhxl)	ISO	A	C	S	ØD	N	F	ØL
80	3	18	36	1	6x6x36	F10	120	140	6	102	4	12	72
100	4	18	36	1	6x6x36	F10	120	140	6	102	4	12	72
150	6	28	40	2	8x7x40	F14	175	175	8	140	4	18	103
200	8	35	56	2	10x8x56	F16	200	240	10	165	4	22	133
250	10	35	56	2	10x8x56	F16	200	250	12	165	4	22	133
300	12	45	80	2	14x9x80	F16	200	260	15	165	4	22	133
350	14	50	80	2	14x9x80	F16	200	300	15	165	4	22	133
400	16	55	140	2	16x10x140	F25	300	340	15	254	8	18	204
450	18	65	140	2	18x11x140	F30	350	400	20	298	8	22	234
500	20	65	140	2	18x11x140	F30	350	400	20	298	8	22	234
600	24	75	160	2	20x12x160	F30	350	410	20	298	8	22	234

Trim D

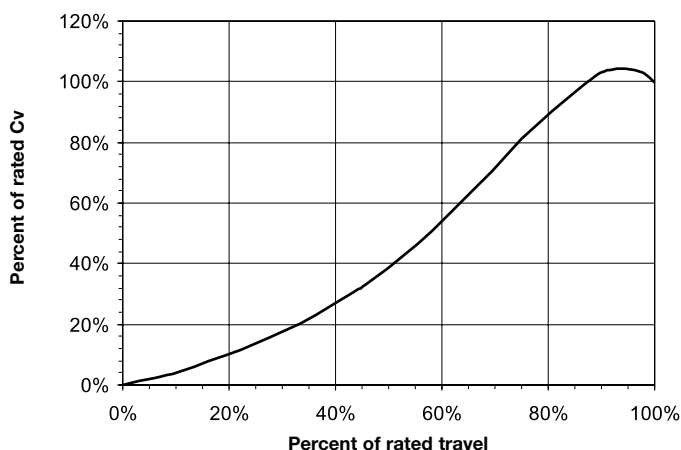
Size		Shaft Dimension					Coupling Flange Dimension						
mm	inch	ØE	H	K	KS (bxhxl)	ISO	A	C	S	ØD	N	F	ØL
80	3	20	40	1	6x6x40	F10	120	180	10	102	4	12	77
100	4	30	40	2	8x7x40	F14	160	250	10	140	4	18	105
150	6	40	65	2	12x8x63	F16	160	260	10	165	4	22	132
200	8	45	80	2	14x9x80	F16	160	270	15	165	4	22	135
250	10	55	110	2	16x10x110	F25	300	330	15	254	8	18	203
300	12	60	140	2	18x11x140	F30	350	380	18	298	8	22	234
350	14	70	140	2	20x12x140	F30	350	400	20	298	8	22	234
400	16	75	160	2	20x12x160	F35	415	470	25	356	8	32	263
450	18	90	160	2	25x14x160	F35	415	470	20	356	8	32	265
500	20	100	200	2	28x16x200	F40	475	580	30	406	8	39	305
600	24	120	220	2	32x18x220	F40	475	580	30	406	8	39	305

Flow data

Rated CV - KV - ζ

Shaft side		Trim A			Trim B			Trim C			Trim D			Trim E		
DN	ND	Cv	Kv	ζ	Cv	Kv	ζ	Cv	Kv	ζ	Cv	Kv	ζ	Cv	Kv	ζ
(mm)	(in)															
75	3	-	-	-	94	81	7,65	94	81	7,65	150	128	3,01	-	-	-
100	4	-	-	-	210	180	4,85	210	180	4,85	250	214	3,42	-	-	-
150	6	-	-	-	790	677	1,73	630	540	2,73	600	514	3,01	500	428	4,33
200	8	-	-	-	1530	1310	1,46	1250	1071	2,19	1080	925	2,93	930	797	3,95
250	10	-	-	-	2589	2217	1,25	2383	2041	1,47	1700	1456	2,89	1450	1242	3,97
300	12	-	-	-	3923	3360	1,12	3579	3065	1,35	2520	2158	2,73	2150	1841	3,75
350	14	-	-	-	5195	4450	1,19	4627	3963	1,50	4068	3484	1,94	3140	2689	3,25
400	16	-	-	-	6940	5944	1,14	6251	5354	1,40	5380	4608	1,89	4358	3733	2,88
450	18	-	-	-	9116	7808	1,05	8237	7055	1,29	7470	6398	1,57	5670	4856	2,73
500	20	-	-	-	11590	9927	0,99	10440	8942	1,23	9820	8411	1,39	7499	6423	2,38
600	24	-	-	-	17590	15066	0,90	16180	13858	1,06	14940	12796	1,24	10400	8908	2,56
700	28	29570	25327	0,59	28000	23982	0,65	23400	20042	0,94	-	-	-	-	-	-
750	30	34470	29524	0,57	31500	26980	0,68	30000	25695	0,75	23850	20428	1,19	-	-	-
800	32	40060	34311	0,55	36000	30834	0,68	33300	28521	0,79	-	-	-	-	-	-
900	36	52130	44649	0,52	45000	38543	0,69	42500	36401	0,78	32650	27965	1,32	-	-	-
1000	40	64500	55244	0,51	56000	47964	0,68	51800	44367	0,80	-	-	-	-	-	-
1050	42	71440	61188	0,51	61700	52846	0,68	53350	45694	0,91	-	-	-	-	-	-
1200	48	96130	82335	0,48	81000	69377	0,68	73970	63355	0,81	-	-	-	-	-	-

Cv curve



Cv value calculation

The following factors have to be considered when performing a Cv value calculation: flow value, characteristic, choked and critical flow, and regulation ratio.

Cv or Kv flow value

Kv is the flow of water at 15°C in m³/h and at a pressure drop of 1 bar at constant conditions within the valve.

Cv is the flow of water in gpm at 60°F and at a pressure drop of 1 psi at constant conditions within the valve.

Cv: 1.1675 Kv

Characteristic according to IEC 60534-2-1/ISA S75.01 and S75.02.

Cv/Rated Cv values

The flow characteristic represents the flow in relation to the opening position of the valve at constant pressure drop.

Choked and critical flow

The choked and critical flow is the max. possible flow of compressible and incompressible media through the valve at operating conditions.

Regulation ratio

Cv min/Rated Cv

The regulation ratio is the ratio of max. and min. flow (Cv or Kv) adjustable without any practical variation.

A calculation program according to IEC 60534-2-1 is available to calculate the Cv value. The characteristic values and the Cv values may differ slightly depending on the flow direction. This will be allowed for in the calculation program. The noise level is calculated according to VDMA 24422 (liquid) and IEC 534-8-3 (gas).

FL-XT-XF values

Opening angle (°)	FL	XT	XF _z
10	0.85	0.53	0.58
20	0.84	0.52	0.56
30	0.82	0.50	0.54
40	0.79	0.48	0.50
50	0.75	0.44	0.45
60	0.70	0.40	0.39
70	0.65	0.36	0.34
80	0.58	0.32	0.26
90	0.60	0.28	0.29

Notes

1. Flow direction from shaft side (fluid flow helps closing operation).
2. Rated Cv: Cv value at max. position angle.
3. ζ = flow resistance coefficient.
4. FL: pressure recovery factor for liquid.
5. XT: differential pressure ratio for gas.
6. XF_z: characteristic pressure ratio according to IEC 534-8-4.
7. Trim A: Δp max. 10 bar.
Trim B: Δp max. 25 bar.
Trim C: Δp max. 50 bar.
Trim D: Δp max. 110 bar.
Trim E: Δp max. 160 bar.
8. The values in the graph are typical and may vary depending on size and trim.