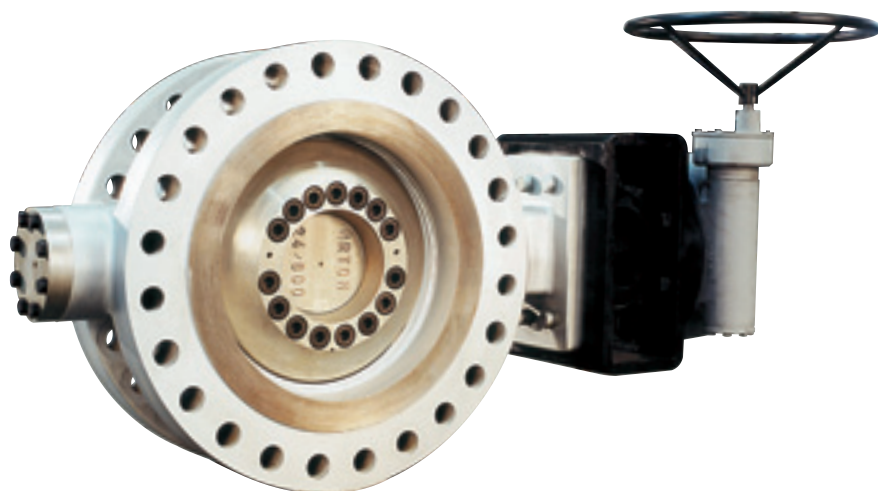


Triple Eccentric Metal Seated Valves

MV Series

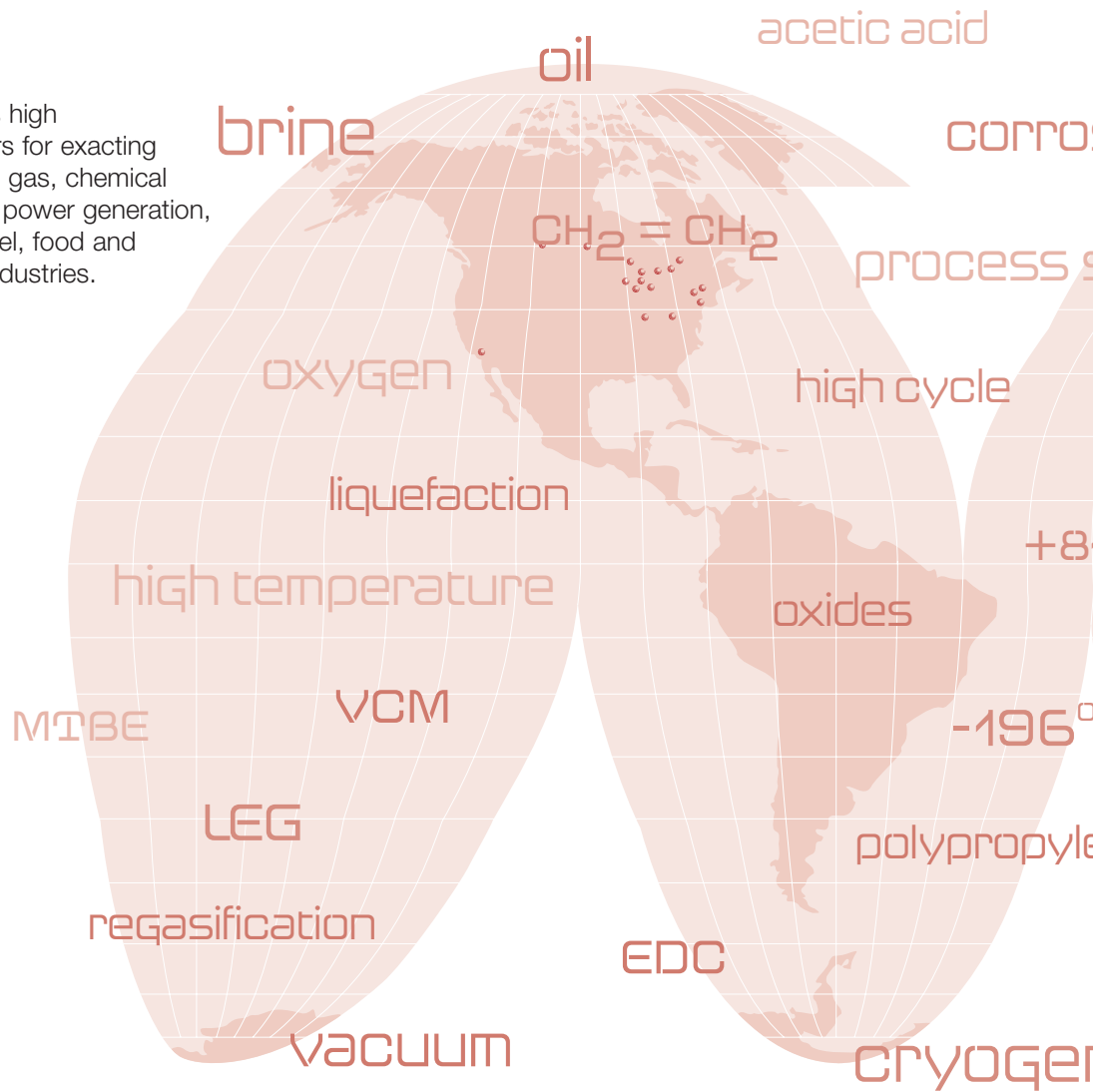


A Fluid Control Business of IMI

The Power to Perform.

Orton is part of IMI UK - Severe Service Division, a leading supplier of specialty flow control products, with a presence on each continent.

Orton designs and manufactures high performance valves and actuators for exacting markets as diverse as oil, natural gas, chemical and petrochemical, desalination, power generation, pulp and paper, shipbuilding, steel, food and beverage, and pharmaceutical industries.



Added Value for Demanding Applications.

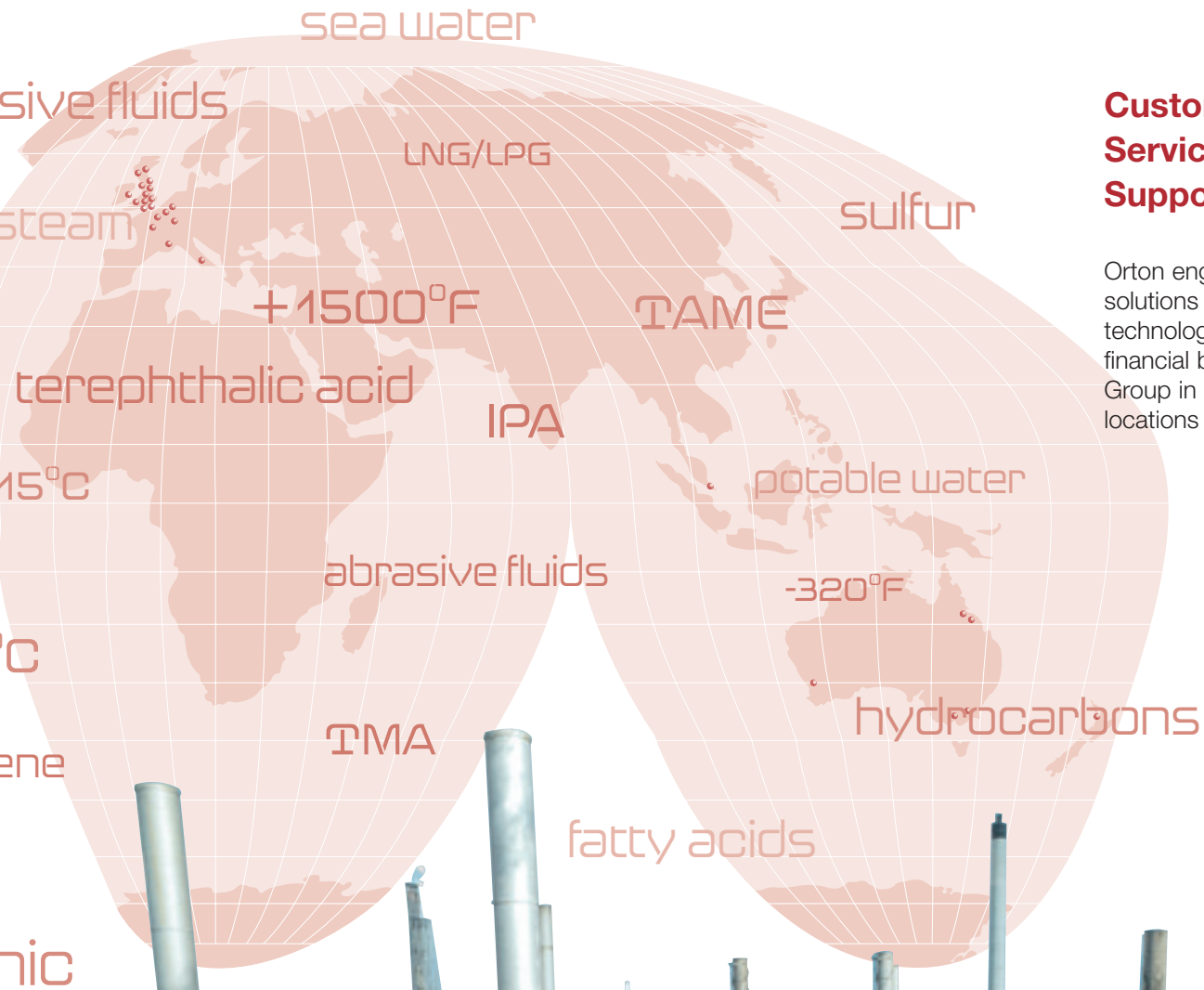
Orton triple eccentric metal seated valves are specified worldwide for their unique combination of control, reliability, compactness and fitness for purpose in critical high pressure tight shut-off, high temperature or cryogenic, throttling and isolation duties.

Manufacturing & Distribution

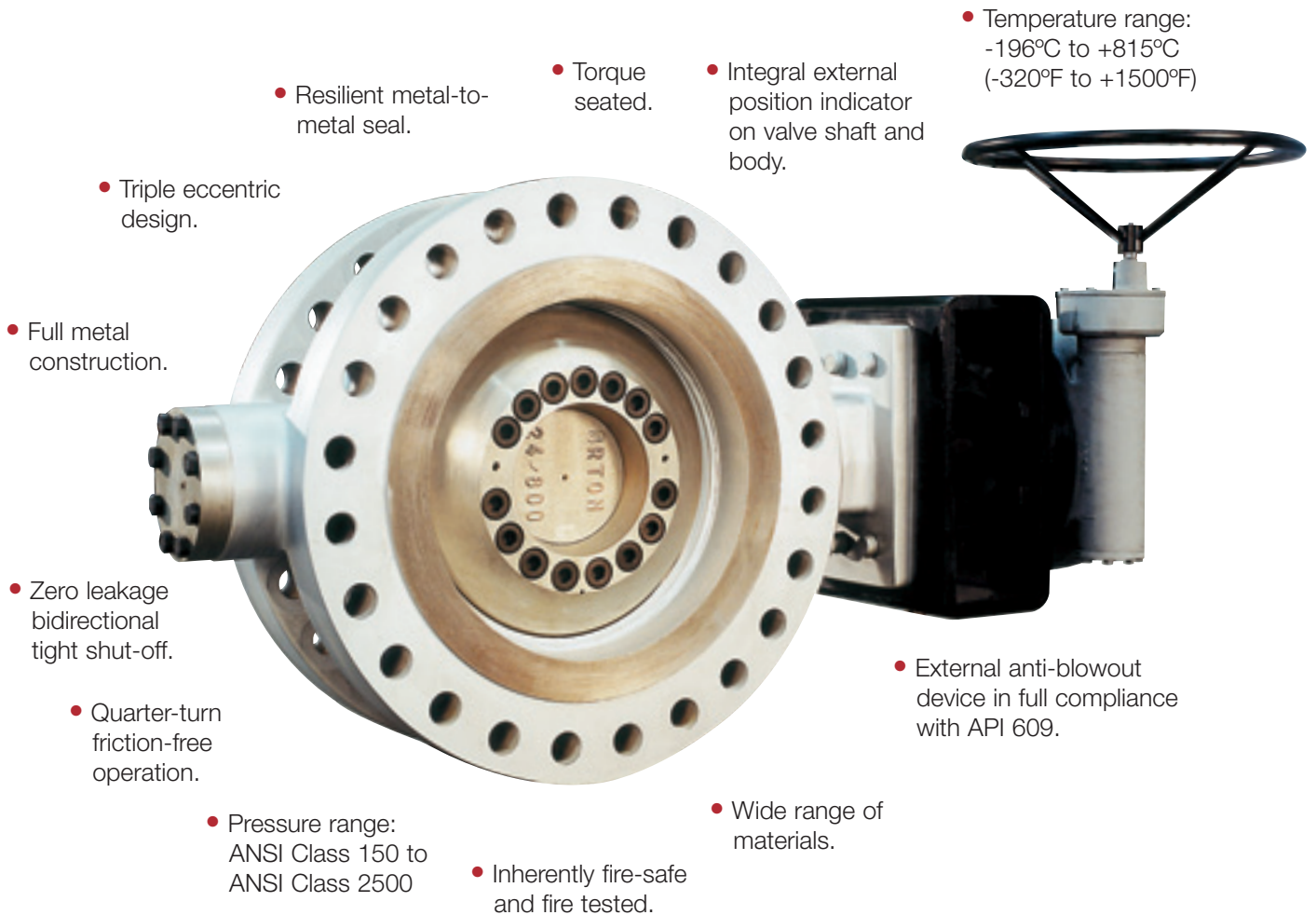
worldwide

Customer Service and Support.

Orton engineered solutions draw on the technological and financial backing of the Group in over 60 locations worldwide.



Triple Eccentric Metal Seated Valves. Orton MV Series.



Standards

- **Design**
ANSI B16.34
ASME VIII
DIN 3840
- **Face to face**
API 609
ISO 5752
ANSI B16.10
- **Fire test**
API 607 4th edition
BS 6755
ISO/FDIS 10497
- **Flanges**
ANSI
ISO
DIN
JIS
- **Testing**
API 598 - API 6D
(zero leakage)
ISO 5208 rate A
ANSI B16.104 Cl.VI
DIN 3230 rate 1
BS 6755 rate A
- **Quality**
ISO 9001
- **Fugitive emissions**
TA-LUFT Point 3.1.8.4

Sizes

- 2" - 160" Class 150
- 2" - 80" Class 300
- 3" - 60" Class 600
- 6" - 48" Class 900
- Class 1500 and 2500 on special request

Body Styles

- Double flanged
- Lug
- Wafer
- Butt-weld
- Special execution on request

Triple Eccentric Metal Seated Valves.

Orton MV Series.

Typical Materials and Specifications

	Standard CS	Standard SS	CS NACE
Body	A216 WCB	A351 CF8M	A216 WCB (22 HRc)
Body seat	AISI 316	Integral	AISI 316
Disc	A216 WCB	A351 CF8M	A216 WCB (22 HRc)
Shaft	AISI 420	A479 Tp. XM19	AISI 420 or 17-4 PH
Seal ring	AISI 430 + Reinf. graph.	AISI 316 + Reinf. graph.	AISI 430 + Reinf. graph.
Packing	High-density graphite	High-density graphite	High-density graphite

	LCB	WC6 / WC9	254 SMO®
Body	A352 LCB	A217 WC6 / WC9	A351 CK-3MCuN
Body seat	AISI 316	Stellite®	A351 CK-3MCuN
Disc	A352 LCB	A217 WC6 / WC9	A351 CK-3MCuN
Shaft	AISI 420	AISI 420	A479 UNS S31254
Seal ring	AISI 430 + Reinf. graph.	AISI 430 + Reinf. graph.	A240 UNS S31254 + Reinf. graph.
Packing	High-density graphite	High-density graphite	High-density graphite

	Monel®	Bz - Al	Duplex
Body	A494 M-35-1	B148 C95500	UNS S31803
Body seat	Integral	Integral	Integral
Disc	A494 M-35-1	B148 C95500	UNS S31803
Shaft	Monel K500	B150 C63000 HS	A276 UNS S31803
Seal ring	Monel K500 + Reinf. graph.	Monel K500 + Reinf. graph.	UNS S31803 + Reinf. graph.
Packing	High-density graphite	High-density graphite	High-density graphite

	Titanium	Alloy 20	Inconel®
Body	B367 gr.C-2	A351 CN7M	Inconel 625
Body seat	Integral	Stellite®	Integral
Disc	B367 gr.C-2	A351 CN7M	Inconel 625
Shaft	B348 gr.5	Incoloy 825	Inconel 725
Seal ring	B348 gr.5	Incoloy 825	Inconel 625 + Reinf. graph.
Packing	High-density graphite	High-density graphite	High-density graphite

	Incoloy®	Hastelloy®
Body	Incoloy 825	Hastelloy C276
Body seat	Integral	Integral
Disc	Incoloy 825	Hastelloy C276
Shaft	Incoloy 825	Hastelloy C276
Seal ring	Incoloy 825 + Reinf. graph.	Hastelloy C276 + Reinf. graph.
Packing	High-density graphite	High-density graphite

Other materials available on request.

Stellite® is a registered trademark of Deloro Stellite Company, Inc.

254 SMO® is a registered trademark of Avesta Sheffield AB.

Monel®, Inconel®, Incoloy® are registered trademarks of Inco Alloys International, Inc.

Hastelloy® is a registered trademark of Haynes International, Inc.

Triple Eccentric Metal Seated Valves. Orton MV Series.

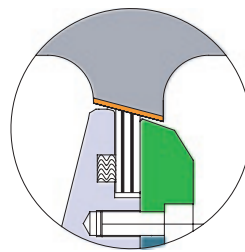
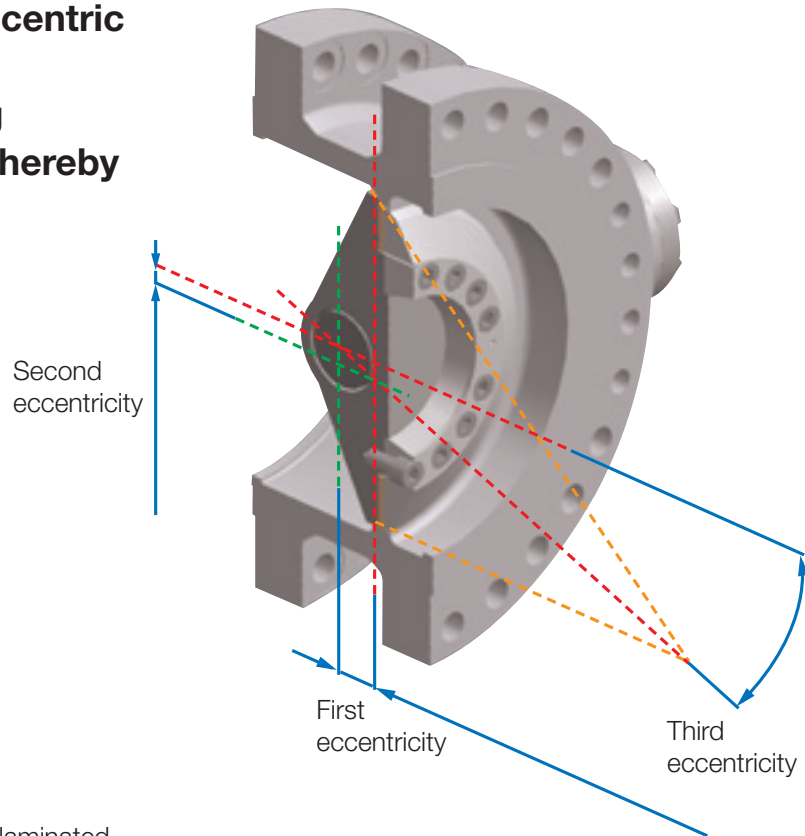
The unique Orton triple eccentric design eliminates friction between the disc seal ring and the seat in the body, thereby preventing wear and any consequent leakage. The result is a valve with a longer service life.

Engineered for Superior Performance.

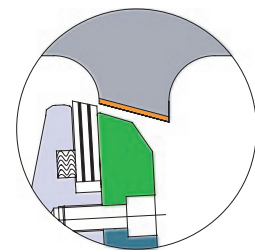
MV-series valve discs include a resilient, laminated metal seal ring, composed of alternating layers of corrosion-resistant alloy and composite graphite. Each individual lamination provides an independent seal, unaffected by damage to the others. While improving long-term sealing properties, the resilience of the laminated design also allows lower operating torques. (For high temperature and more severe applications, a hardened, non-laminated seal ring is available.)

Assembled on the disc, the seal ring is engineered with tolerance to allow radial compression and flexing when torque is applied to close the valve. Consequently, the valve seals tightly even when pressurized from the reverse direction.

In addition, the resiliency of the seal ring compensates for differences in expansion rates between body and trim.



Seal ring seated



Seal ring prior to seating

Triple Eccentric Metal Seated Valves. Orton MV Series.

Efficient Leak-Free Construction.

- **Body**

The body in the Orton MV design is one-piece cast or forged, providing the ultimate in rigidity and leak-free performance. Utilizing a seat integral to the body means the raised face flange sealing surface is completely free of interruptions. The integral seat is both conical and inclined, and is overlaid with corrosion and erosion resistant alloys.

- **Disc and Shaft Arrangement**

An inherently rigid design, the one-piece shaft is secured to the disc by taper pins, minimizing hysteresis. Being totally enclosed within the disc, the shaft is protected from aggressive media. The hydrodynamically efficient disc profile both improves flow capability and reduces pressure drop. The disc in the Orton MV-series valve is not a sealing element, only a “carrier” for the resilient corrosion-resistant metal seal ring mounted on the disc. The disc is therefore usually made from the same material as the body.

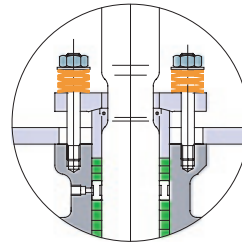
- **Bushings**

All bushings are long and made from hardened corrosion-resistant alloy. Bearing protectors provide very high levels of immunity against dirty or polymeric media, resulting in a longer service life.

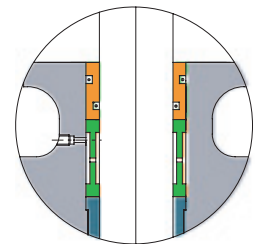
- **Packing**

The adjustable stuffing box includes two lantern rings that allow flushing, additional sealing, leakage control or monitoring.

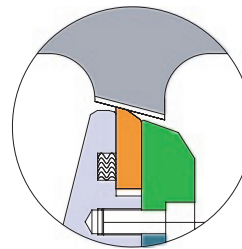
Standard Options for Specific Service.



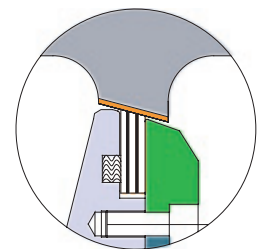
Live loading packing



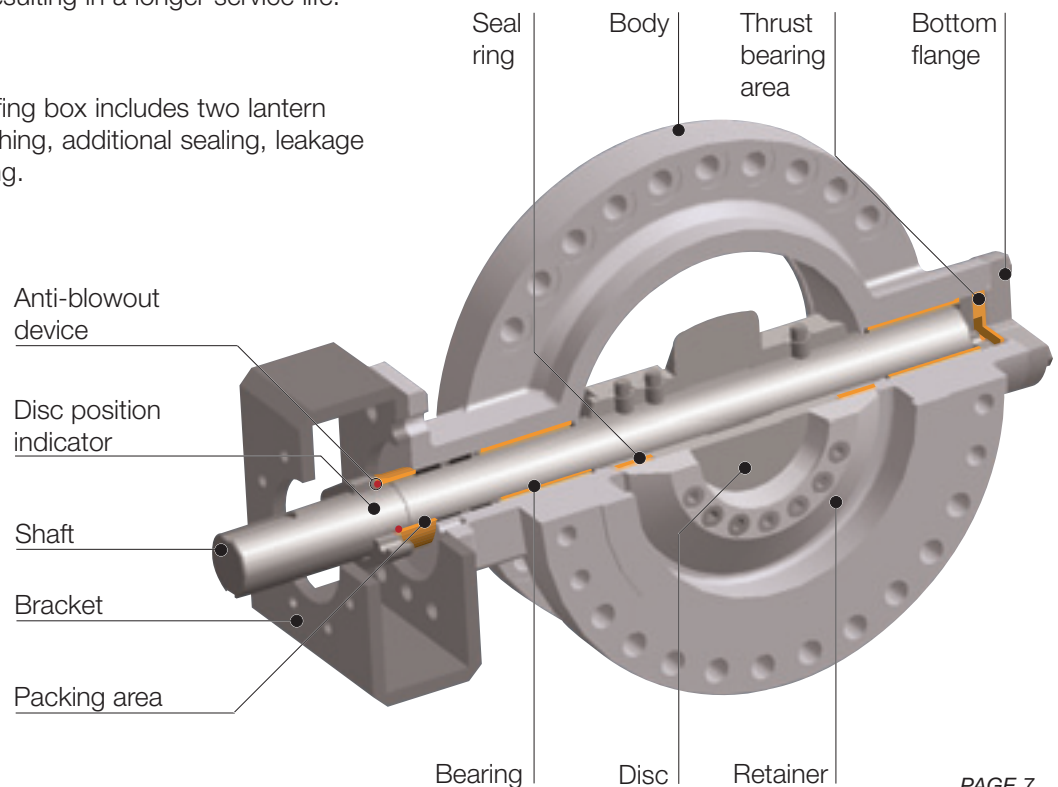
Submerged packing



Solid seal ring



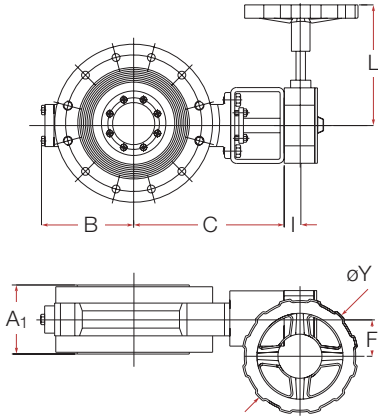
Stellite® seat



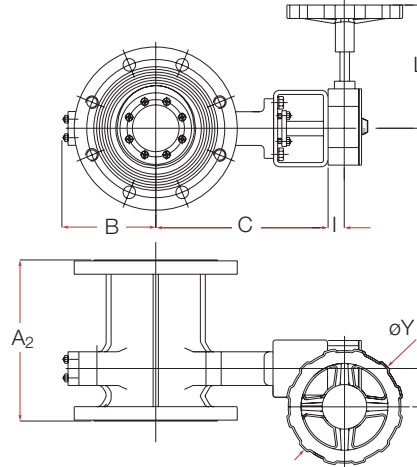
Triple Eccentric Metal Seated Valves. Orton MV Series.

Overall Dimensions

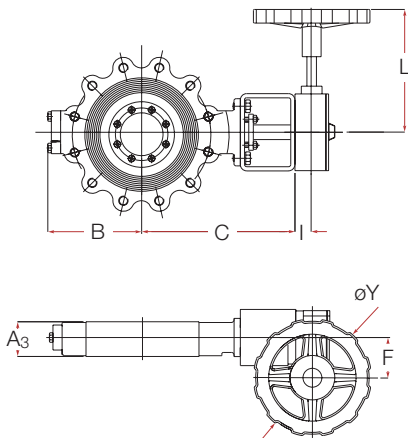
Model MVF: Double Flanged
API 609 Table 2 (C)
(ISO 5752)



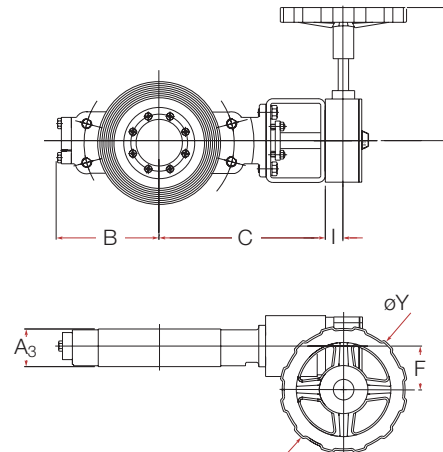
Model MVG: Double Flanged Long
API 609 Table 2 (B)
(ANSI B16.10)



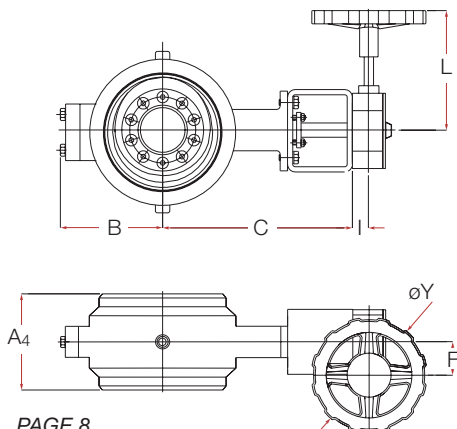
Model MVL: Lug
API 609 Table 2 (A)



Model MVW: Wafer
API 609 Table 2 (A)



Model MVB: Butt-Weld



Notes

1. Face to face dimensions are in strict accordance with the latest edition of the stated standards.
2. Flange/end connections are in strict accordance with ANSI B16.5 or ANSI B16.47.
3. Please consult Orton for other available sizes, classes and end connections.

SI Units

DN	Face to face (mm)				Other dimensions (mm)						Weights (kg)				
	MVF	MVG	MVW-L	MVB	B	C	L	I	Y	F	MVF	MVG	MVW	MVL	MVB
	Double Flanged	ANSI B16.10	Wafer & Lug	Butt-Weld							Double Flanged	ANSI B16.10	Wafer	Lug	Butt-Weld
A ₁	A ₂	A ₃	A ₄	B	C	L	I	Y	F						
Class 150															
2"	108	178	48	150	100	240	214	45	250	67	26	-	24	24	23
2½"	112	191	46	170	130	240	214	45	250	67	26	-	24	24	25
3"	114	203	48	180	130	240	214	45	250	67	27	30	24	24	27
4"	127	229	54	190	135	255	214	45	250	67	31	34	25	26	32
5"	140	254	57	200	165	265	214	45	250	67	40	44	27	27	35
6"	140	267	57	210	190	280	214	45	250	67	49	54	27	31	40
8"	152	292	64	230	215	322	243	45	300	97	80	88	44	53	63
10"	165	330	71	250	250	380	243	45	300	97	106	119	60	73	82
12"	178	356	81	270	285	415	243	45	300	97	138	158	85	101	107
14"	190	381	92	290	315	462	380	48	500	88	182	192	126	145	145
16"	216	406	102	310	360	523	380	55	600	105	230	261	174	197	189
18"	222	432	114	330	395	554	440	55	500	123	287	324	232	261	239
20"	229	457	127	350	438	592	475	60	600	140	362	415	311	348	308
24"	267	508	154	390	505	663	520	65	600	165	510	581	467	535	442
26"	267	559	154	390	530	686	510	65	600	159	600	677	561	653	523
28"	292	610	229	430	575	782	544	74	600	217	730	841	693	815	642
30"	318	610	241	470	630	862	658	74	700	169	846	947	825	996	746
32"	318	660	241	470	630	862	658	74	700	169	970	1079	933	1140	855
34"	318	711	241	510	665	895	658	74	700	169	1186	1275	1144	1408	1053
36"	330	711	241	510	745	964	696	115	700	285	1337	1475	1288	1620	1184
40"	410	762	300	550	760	1014	696	115	700	285	1690	1867	1614	2116	1487
Class 300															
2"	108	216	43	150	100	240	214	45	250	67	27	-	24	24	23
2½"	112	241	46	170	130	230	214	45	250	67	27	-	24	26	27
3"	114	282	48	180	130	241	214	45	250	67	28	30	26	27	33
4"	127	305	54	190	160	254	214	45	250	67	37	42	26	27	41
5"	140	381	59	200	190	305	214	45	250	67	56	63	31	33	50
6"	140	403	59	210	187	297	243	45	300	97	68	77	42	50	71
8"	152	419	73	230	225	355	243	45	300	97	95	110	65	80	99
10"	165	457	83	250	260	411	380	55	600	105	140	163	112	127	144
12"	178	502	92	270	300	447	440	55	500	123	207	267	132	177	197
14"	190	762	117	290	336	509	475	60	600	140	298	369	198	248	279
16"	216	838	133	310	370	540	510	65	600	156	375	508	270	318	357
18"	222	914	149	330	410	573	510	65	600	159	464	652	292	402	450
20"	229	991	159	350	455	610	544	74	600	217	552	777	402	499	559
24"	267	1143	181	390	525	730	673	99	700	293	887	1255	617	877	873
26"	267	1245	210	390	560	730	670	100	700	193	1115	1587	1005	1065	1123
28"	292	1346	254	430	650	872	696	115	700	285	1320	1917	1170	1270	1326
30"	318	1397	300	470	680	902	673	99	700	245	1570	2230	1345	1610	1549
Class 600															
3"	180	356	54	180	135	241	214	45	250	67	40	42	28	28	30
4"	190	432	64	190	190	340	214	45	250	67	70	74	33	47	46
5"	200	508	70	200	205	380	243	45	300	97	100	105	47	60	71
6"	210	559	78	210	235	425	243	45	300	97	128	134	70	90	79
8"	230	660	102	230	267	420	380	48	500	88	210	221	127	130	100
10"	250	787	117	250	300	501	440	55	500	123	355	373	202	290	200
12"	270	838	140	270	345	530	475	60	600	140	435	457	260	369	300
14"	290	889	155	290	385	559	510	65	600	156	560	588	331	500	394
16"	310	991	178	310	420	588	520	65	600	134	741	778	427	660	498
18"	330	1092	200	330	475	635	658	74	700	169	900	945	544	830	600
20"	350	1194	216	350	525	800	658	74	700	169	1244	1306	665	1150	750
24"	390	1397	232	390	610	900	673	99	700	245	1800	1890	1175	1610	1050

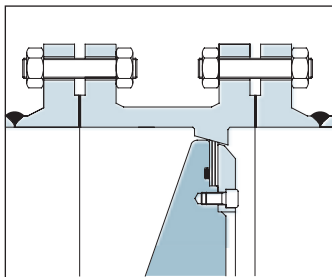
Imperial Units

DN	Face to face (inches)				Other dimensions (inches)							Weights (lb)				
	MVF	MVG	MVW-L	MVB	B	C	L	I	Y	F	MVF	MVG	MVW	MVL	MVB	
	Double Flanged	ANSI B16.10	Wafer & Lug	Butt-Weld							Double Flanged	ANSI B16.10	Wafer	Lug	Butt-Weld	
A ₁	A ₂	A ₃	A ₄													
Class 150																
2"	4,25	7,01	1,89	5,91	3,94	9,45	8,43	1,77	9,84	2,64	57	-	53	53	51	
2½"	4,41	7,52	1,81	6,69	5,12	9,45	8,43	1,77	9,84	2,64	57	-	53	53	55	
3"	4,49	7,99	1,89	7,09	5,12	9,45	8,43	1,77	9,84	2,64	60	66	53	53	60	
4"	5,00	9,02	2,13	7,48	5,31	10,04	8,43	1,77	9,84	2,64	68	75	55	57	71	
5"	5,51	10,00	2,24	7,87	6,50	10,43	8,43	1,77	9,84	2,64	88	97	60	60	77	
6"	5,51	10,51	2,24	8,27	7,48	11,02	8,43	1,77	9,84	2,64	108	119	60	68	88	
8"	5,98	11,5	2,52	9,06	8,46	12,68	9,57	1,77	11,81	3,82	176	194	97	117	139	
10"	6,50	12,99	2,80	9,84	9,84	14,96	9,57	1,77	11,81	3,82	234	263	132	161	181	
12"	7,01	14,02	3,19	10,63	11,22	16,34	9,57	1,77	11,81	3,82	304	349	188	223	236	
14"	7,48	15,00	3,62	11,42	12,40	18,19	14,96	1,89	19,69	3,46	401	424	278	320	320	
16"	8,50	15,98	4,02	12,2	14,17	20,59	14,96	2,17	23,62	4,13	507	576	384	435	417	
18"	8,74	17,01	4,49	12,99	15,55	21,81	17,32	2,17	23,62	4,84	633	715	512	576	527	
20"	9,02	17,99	5,00	13,78	17,24	23,31	18,70	2,36	23,62	5,51	799	915	686	768	679	
24"	10,51	20,00	6,06	15,35	19,88	26,10	20,47	2,56	23,62	6,50	1125	1282	1030	1180	975	
26"	10,51	22,01	6,06	15,35	20,87	27,01	20,08	2,56	23,62	6,26	1324	1493	1238	1441	1154	
28"	11,50	24,02	9,02	16,93	22,64	30,79	21,42	2,91	23,62	8,54	1610	1855	1529	1798	1416	
30"	12,52	24,02	9,49	18,50	24,80	33,94	25,91	2,91	27,56	6,65	1866	2089	1820	2197	1646	
32"	12,52	25,95	9,49	18,50	24,80	33,94	25,91	2,91	27,56	6,65	2140	2380	2058	2515	1886	
34"	12,52	27,99	9,49	20,08	26,18	35,24	25,91	2,91	27,56	6,65	2616	2813	2524	3106	2323	
36"	12,99	27,99	9,49	20,08	29,33	37,95	27,40	4,53	27,56	11,22	2949	3254	2841	3574	2612	
40"	16,14	30,00	11,81	21,65	29,92	39,92	27,40	4,53	27,56	11,22	3728	4119	3560	4668	3280	
Class 300																
2"	4,25	8,50	1,69	5,91	3,94	9,45	8,43	1,77	9,84	2,64	60	-	53	53	51	
2½"	4,41	9,49	1,81	6,69	5,12	9,45	8,43	1,77	9,84	2,64	60	-	53	57	60	
3"	4,49	11,1	1,89	7,09	5,12	9,45	8,43	1,77	9,84	2,64	62	66	57	60	73	
4"	5,00	12,01	2,13	7,48	6,30	10,00	8,43	1,77	9,84	2,64	82	93	57	60	90	
5"	5,51	15,00	2,32	7,87	7,48	12,01	8,43	1,77	9,84	2,64	124	139	68	73	110	
6"	5,51	15,87	2,32	8,27	7,36	11,69	9,57	1,77	11,81	3,82	150	170	93	110	157	
8"	5,98	16,50	2,87	9,06	8,86	13,98	9,57	1,77	11,81	3,82	210	243	143	176	218	
10"	6,50	17,99	3,27	9,84	10,24	16,18	14,96	2,17	23,62	4,13	309	360	247	280	318	
12"	7,01	19,76	3,62	10,63	11,81	17,60	17,32	2,17	19,69	4,84	457	589	291	390	435	
14"	7,48	30,00	4,61	11,42	13,23	20,04	18,70	2,36	23,62	5,51	657	814	437	547	615	
16"	8,50	32,99	5,24	12,20	14,57	21,26	20,08	2,56	23,62	61,4	827	1121	596	702	788	
18"	8,74	35,98	5,87	12,99	16,14	22,56	20,08	2,56	23,62	6,26	1024	1438	644	887	993	
20"	9,02	39,02	6,26	13,78	17,91	24,02	21,42	2,91	23,62	8,54	1218	1714	887	1101	1233	
24"	10,51	45,00	7,13	15,35	20,67	28,74	26,50	3,90	27,56	11,54	1957	2769	1361	1935	1926	
26"	10,51	49,02	8,27	15,35	22,05	28,74	26,38	3,94	27,56	7,60	2460	3501	2217	2349	2477	
28"	11,50	52,99	10,00	16,93	25,59	34,33	27,4	4,53	27,56	11,22	2912	4229	2581	2802	2925	
30"	12,52	55,00	11,81	18,50	26,77	35,51	26,50	3,90	27,56	9,65	3463	4919	2967	3552	3417	
Class 600																
3"	7,09	14,02	2,13	7,09	5,31	9,49	8,43	1,77	9,84	2,64	88	93	62	62	66	
4"	7,48	17,01	2,52	7,48	7,48	13,39	8,43	1,77	9,84	2,64	154	162	73	104	101	
5"	7,87	20,00	2,76	7,87	8,07	14,96	9,57	1,77	11,81	3,82	221	232	104	132	157	
6"	8,27	22,01	3,07	8,27	9,25	16,73	9,57	1,77	11,81	3,82	282	296	154	199	174	
8"	9,06	25,98	4,02	9,06	10,51	16,54	14,96	1,89	19,69	3,46	463	486	280	287	221	
10"	9,84	30,98	4,61	9,84	11,81	19,72	17,32	2,17	19,69	4,84	783	822	446	640	441	
12"	10,63	32,99	5,51	10,63	13,58	20,87	18,70	2,36	23,62	5,51	960	1008	574	814	662	
14"	11,42	35,00	6,10	11,42	15,15	22,01	20,08	2,56	23,62	6,14	1235	1297	730	1103	869	
16"	12,20	39,02	7,01	12,20	16,54	23,15	20,47	2,56	23,62	5,28	1635	1716	942	1456	1099	
18"	12,99	42,99	7,87	12,99	18,70	25,00	25,91	2,91	27,56	6,65	1985	2085	1200	1831	1324	
20"	13,78	47,01	8,50	13,78	20,67	31,50	25,91	2,91	27,56	6,65	2744	2881	1467	2537	1655	
24"	15,35	55,00	9,13	15,35	24,02	35,43	26,50	3,90	27,56	9,65	3971	4169	2592	3552	2316	

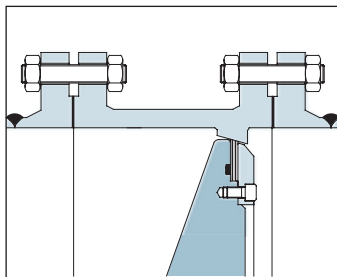
Triple Eccentric Metal Seated Valves. Orton MV Series.

Body Styles

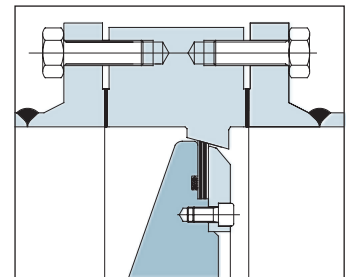
Double flanged
With electric actuator.



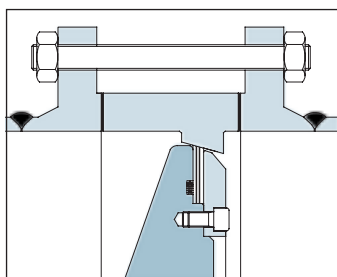
Double flanged long pattern
ANSI B16.10 (gate) with
pneumatic actuator.



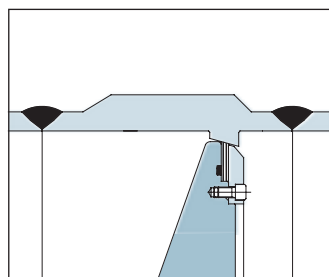
Lug
With manual gear.



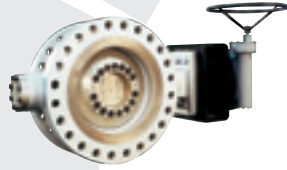
Wafer
With pneumatic actuator and
manual override.



Butt-weld
With electric actuator.



A member of IMI UK - Severe Service Division, an international leader in specialist flow control products, Orton offers the most complete range of triple eccentric metal seated valves and soft seated butterfly valves for all applications.



Triple Eccentric Metal Seated Valves

- MV Series**
- Triple eccentric 1/4 turn friction-free operation.
 - Resilient torque seated metal-to-metal seal.
 - Bi-directional zero leakage shut-off.
 - Inherently fire-safe.



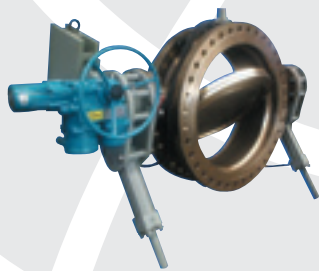
Triple Eccentric Metal Seated Valves

- MV Royal Series**
- Triple eccentric 1/4 turn friction-free operation.
 - Resilient torque seated metal-to-metal seal.
 - Fully replaceable seat and seal with in-line maintenance
 - Inherently fire-safe.



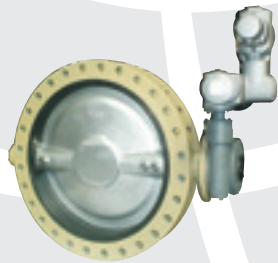
Double Eccentric Valves

- VF Series**
- Resilient disc-mounted seal ring.
 - Bi-directional tight shut-off.
 - Double eccentric operation.
 - Bi-directional axial shaft support.



Non-Return Valves

- NR Series**
- Triple or double eccentric.
 - Metal or rubber seal.
 - Counter balance weight with a dampening system.
 - Low pressure drop.



Rubber Seated Valves

- DS Series**
- Bi-directional tight shut-off.
 - Self-centering disc on a resilient seat.
 - Body and stem free from fluid contact.
 - No disc connecting pin or key (up to 24").



PTFE Seated Valves

- TF Series**
- Self-centering disc on a PTFE seat.
 - Bi-directional tight shut-off.
 - Body and stem free from fluid contact.
 - No disc connecting pin or key.

QS Certificate of Assessment
97/23 EC-PED-H
Pressure Equipment Directive
Certified by DNV

Certificate of Assessment
ATEX 94/9/EC
Filed at DNV

Quality System
ISO 9001
Certified by DNV

Fugitive Emissions
TA-LUFT Point 3.1.8.4
Certified by TÜV

Fire Safe
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Certified by SwRI

Fire Safe
BS 6755 : Pt. 2 : 1987
Certified by LLoyd's Register

Fire Safe
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