

Double Eccentric Soft Seated Butterfly Valves VF Series

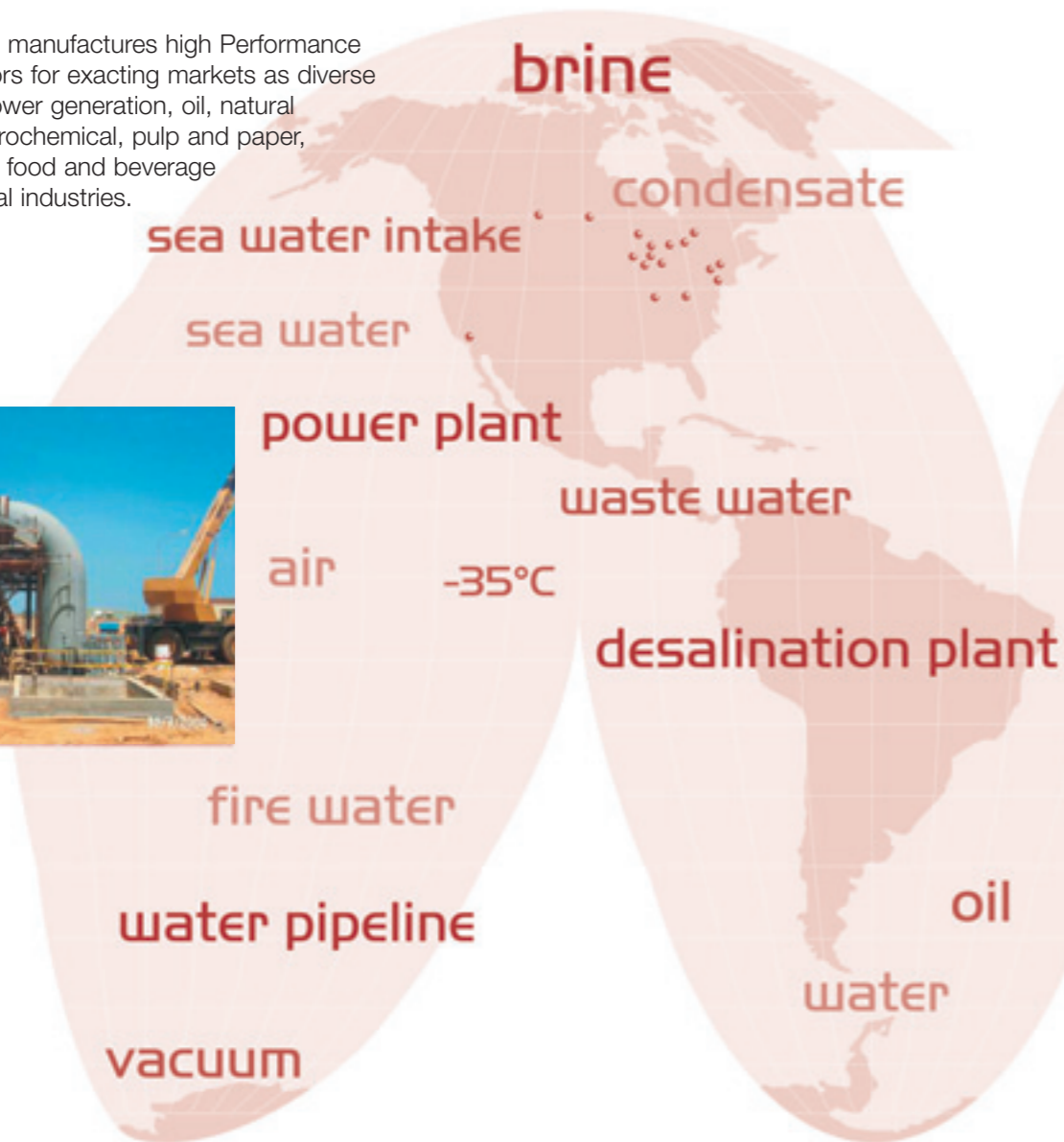


A Fluid Control Business of IMI

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 desalination, power generation, oil, natural gas, chemical, petrochemical, pulp and paper, shipbuilding, steel, food and beverage and pharmaceutical industries.

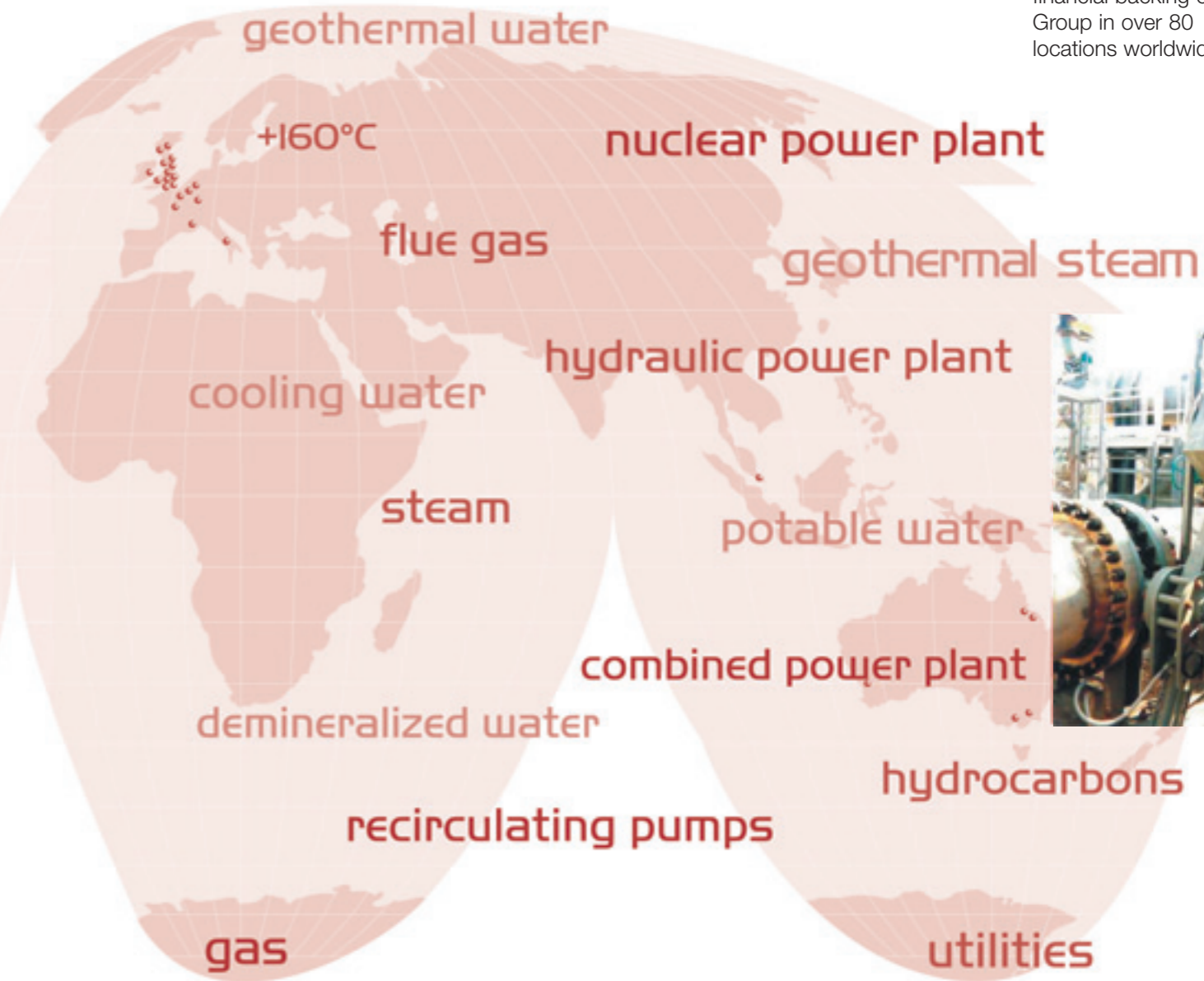


Manufacturing & Distribution

worldwide

Customer Service and Support.

Orton engineered solutions draw on the technological and financial backing of the Group in over 80 locations worldwide.



Added Value for Demanding Applications.

Orton double eccentric soft seated valves are specified worldwide for their unique combination of shut-off, control and reliability features, together with their compactness and fitness for purpose in critical tight shut-off isolation duties and combined isolation / non return applications (isolation duties).



Double Eccentric Soft Seated Valves. Orton VF Series.

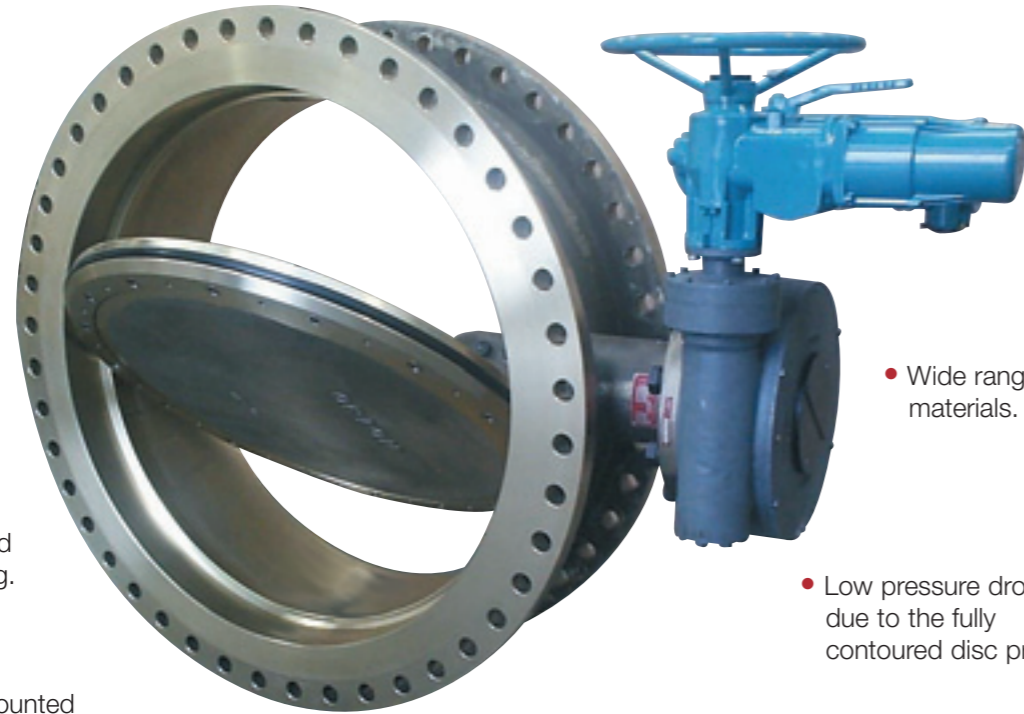
- Pressure range:
Full vacuum upto 25 Bar.

- Temperature range:
-35°C to +160°C
(-31°F to +320°F)

- Zero leakage, bi-directional tight shut-off.

- Two piece or one-piece shaft depending upon rating.

- Quarter turn.



- Double eccentric design.

- Uninterrupted seating.

- Wide range of materials.

- Interchangeable and adjustable seal ring.

- Low pressure drop due to the fully contoured disc profile.

- Disc mounted rubber seal ring.

- Easy maintenance without removing the valve from the pipeline.

- Self cleaning seat.

Applicable Standards

- **Design**
ANSI B16.34
ASME VIII
DIN 3840
- **Flanges**
ANSI
ISO
DIN
JIS
- **Testing**
API 598 - API 6D (zero leakage)
ISO 5208 rate A
DIN
BS
- **Face to face**
API 609
ISO 5752
- **Quality**
ISO 9001

Sizes

- 2" (50mm) - 160" (4000mm)

Rating

- PN 2,5 - 6 - 10 - 16 - 25
- ASME Cl. 150

Body Styles

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

Double Eccentric Soft Seated Valves. Orton VF Series.

Typical Materials and Specifications

	Ductile Iron	Carbon Steel	Stainless Steel
Body	ASTM A536 gr. 65-45-12	ASTM A216 gr. WCB	ASTM A351 gr. CF8M
Body Seat	AISI 316	AISI 316	Integral to the body
Disc	ASTM A536 gr. 65-45-12	ASTM A216 gr. WCB	ASTM A351 gr. CF8M
Shaft	AISI 420	AISI 420	AISI 316
Seal Ring	EPDM or Buna N	EPDM or Buna N	EPDM or Buna N
Stem Seals	O-Ring	O-Ring	O-Ring

	Ductile Iron Lined	Carbon Steel Lined	Aluminium Bronz
Body	ASTM A536 gr. 65-45-12 + Vulcanized Rubber	ASTM A216 gr. WCB + Vulcanized Rubber	ASTM B148 C95800
Body Seat	AISI 316 or Duplex	AISI 316 or Duplex	Integral to the body
Disc	ASTM A536 gr. 65-45-12 + Vulcanized Rubber	ASTM A216 gr. WCB + Vulcanized Rubber	ASTM B148 C95800
Shaft	AISI 316 or Duplex	AISI 316 or Duplex	ASTM B150 UNS C63000 HS
Seal Ring	EPDM or Buna N	EPDM or Buna N	EPDM or Buna N
Stem Seals	O-Ring	O-Ring	O-Ring

	Monel®	254 SMO®	Duplex
Body	ASTM A494 M-35-1	ASTM A351 CK-3MCuN	UNS S31803
Body Seat	Integral to the body	Integral to the body	Integral to the body
Disc	ASTM A494 M-35-1	ASTM A351 CK-3MCuN	UNS S31803
Shaft	Monel K500	ASTM A479 UNS S31254	ASTM A276 UNS S31803
Seal Ring	EPDM or Buna N	EPDM or Buna N	EPDM or Buna N
Stem Seals	O-Ring	O-Ring	O-Ring

	Titanium	Inconel®	Hastelloy®
Body	ASTM A216 gr. WCB + Vulcanized Rubber	Inconel 625	Hastelloy C276
Body Seat	Vulcanized Rubber	Integral to the body	Integral to the body
Disc	ASTM B367 gr. C-2	Inconel 625	Hastelloy C276
Shaft	ASTM B348 gr. 5	Inconel 725	Hastelloy C276
Seal Ring	EPDM or Buna N	EPDM or Buna N	EPDM or Buna N
Steam Seal	O-Ring	O-Ring	O-Ring

Special materials on request.

Rubber seal ring also available in the following materials: Neoprene, Viton®, Hypalon®, EPDM H.T., Incapsulated PTFE, Natural Rubber, Sylicon, etc.

254 SMO is a registered trademark of Avesta Sheffield AB.

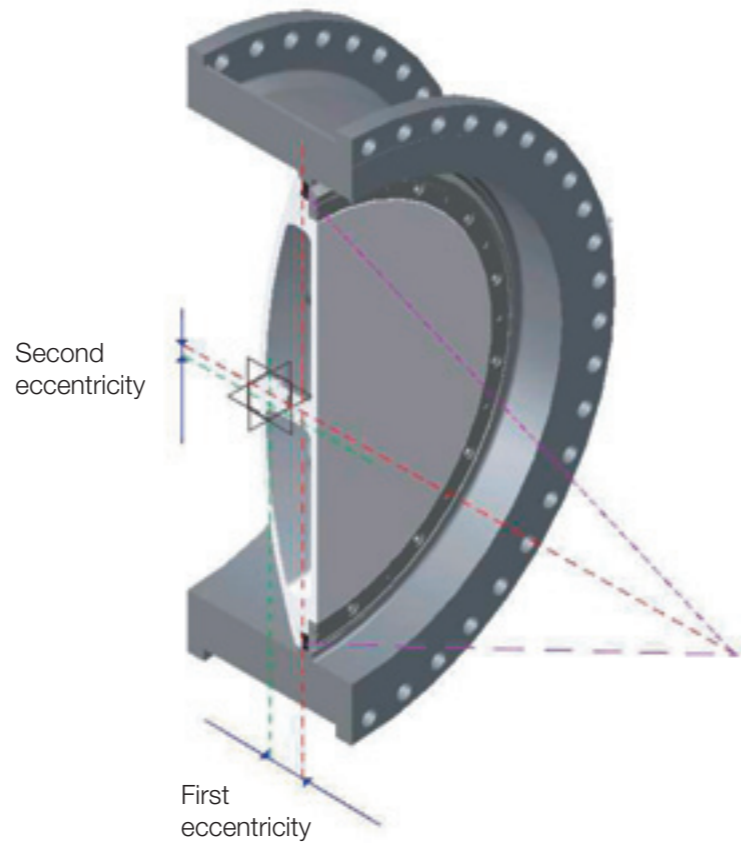
© Monel is a registered trademark of Inco Alloys International, Inc.

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

© Viton and © Hypalon are a registered trademark of Du Pont

Double Eccentric Soft Seated Valves.
Orton VF Series.

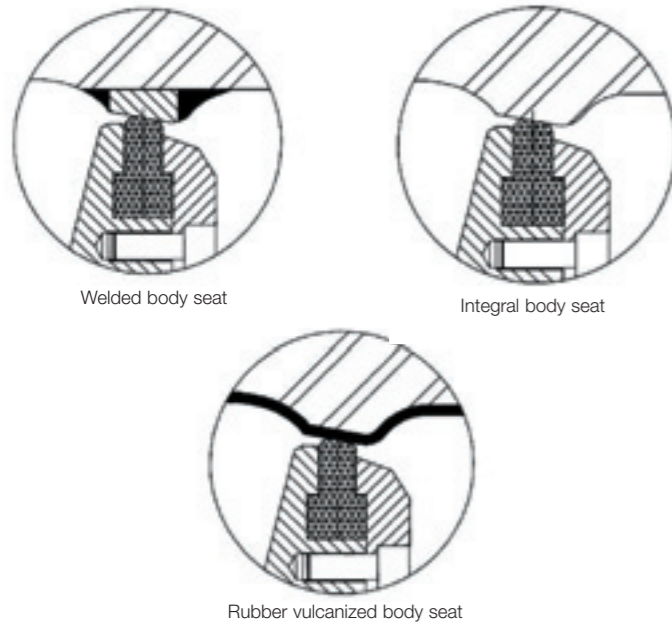
The VF Series design is based upon the double eccentric concept which minimises the contact between seal and seat and thereby enhances the valve performance, reduces maintenance and extends the valve life. These features make the VF series ideally suitable for medium to large size pipeline valves where maintenance costs and cost of ownership need to be kept to a minimum.



Engineered for Superior Performance.

- Rigid and heavy construction
- Contoured disc
- Full RF or FF flanges
- In-line replaceable seal
- Up to DN 4000 (160") size
- Fully rated PN 25 Bar & ASME cl.150
- Low pressure drop
- Customised specifications

Body seat configurations



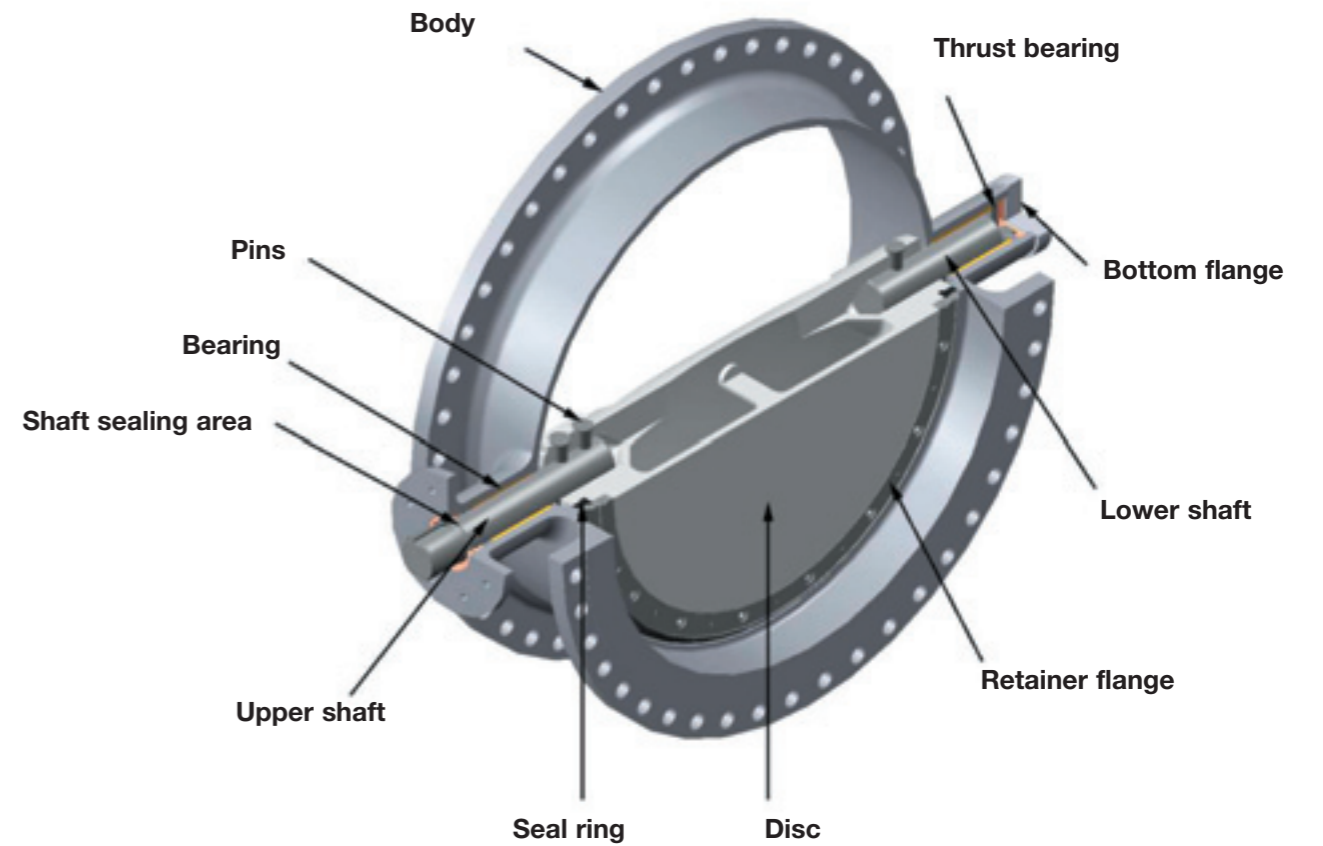
Efficient Leak - Free Construction.

• Body
 The body in the Orton VF Series is a one-piece cast or fabricated design, providing the ultimate in rigidity and leak free performance. The conical centered seat, welded, bolted or integral to the body retains a full face flange sealing surface completely free of interruptions and assures a minimum reduction of the inside port diameter as well as providing the maximum flow capacity. The body internal surface can be rubber vulcanized or epoxy lined.

• Body seat
 The body seat remains corrosion resistant to the effects of the pipeline media. Depending on the body material this is achieved by the following solutions:
 - integrally cast, for bodies in stainless steels, bronze or other corrosion resistant alloys;
 - welded to the body internal, for bodies in carbon steel;
 - fully vulcanized body internal, for bodies in ductile iron or cast / fabricated carbon steel.
 Integral replaceable seat options are also available.

• Seal ring
 The heavy "T" section seal ring is designed to eliminate the potential extrusion due to high shut-off DP or high flow velocity. As a result of this design, the valve is capable of providing a full tight shut-off at pressures up to 25 bar. The seal ring compression is adjustable in order to obtain the optimum sealing capability at differing pressure values.

Double Eccentric Soft Seated Valves.
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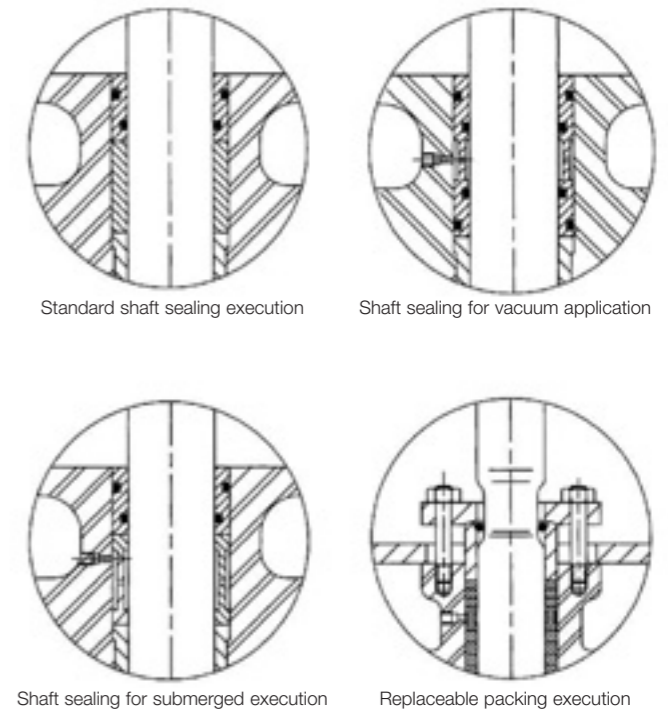


Shaft sealing configuration

• Disc and Shaft Arrangement
 An inherently rigid design, the upper and lower shafts are secured to the disc by pins, totally enclosed within the disc and protected from aggressive media. For heavy duty applications a one-piece shaft is provided. The hydro-dynamically efficient disc profile improves flow capability and reduces pressure drop and dynamic torque.

• Shaft bushings
 Long length, self lubricating bearings manufactured in corrosion resistant alloy are provided. The bearing protectors assure a very high level of immunity against contamination entries or solid particles, resulting in a longer service life and minimizing maintenance.

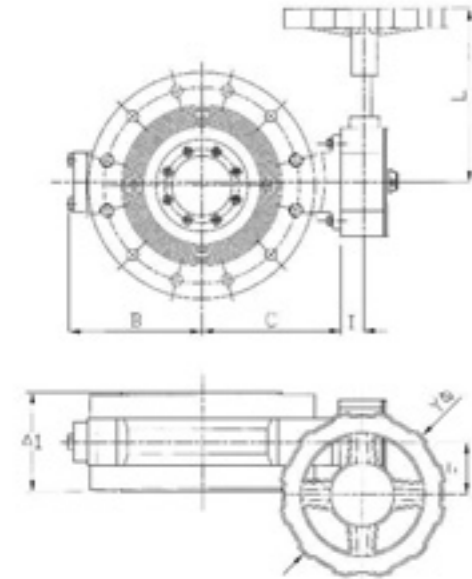
• Shaft sealing
 A corrosion resistance bushing, housing O-Ring seals ensures a complete and reliable sealing of the shaft. An adjustable and replaceable packing is also available upon request.



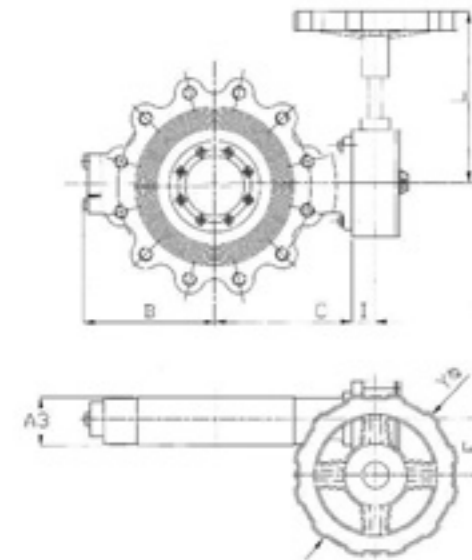
Double Eccentric Soft Seated Valves. Orton VF Series.

Overall Dimensions

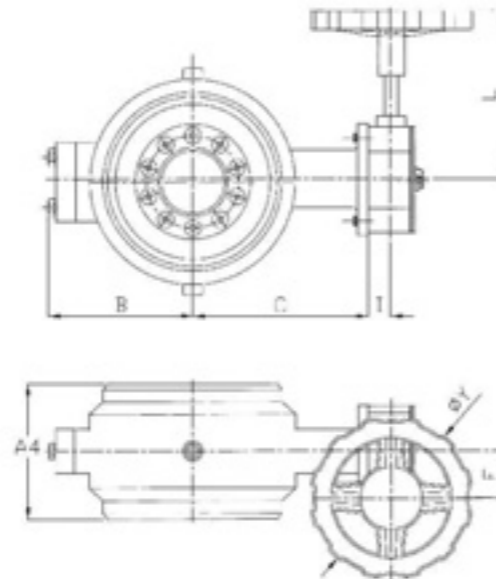
Model VFF: Double Flanged
API 609 Table 2 (C)
(ISO 5752)



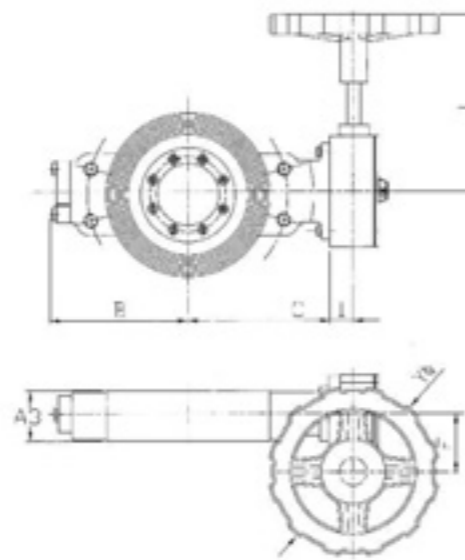
Model VFL: Lug
API 609 Table 2 (A)



Model VFB: But-Weld



Model VFW: Wafer
API 609 Table 2 (A)



Notes

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

Double Eccentric Soft Seated Valves. Orton VF Series.

SI Units ND (mm)	ND (inches)	Face to face (mm)			Other dimensions (mm)						Weights (Kg)			
		VFF	VFWL	VFB	B	C	L	I	Y	F	VFF	VFW	VFL	VFB
		Double Flanged	Wafer & Lug	Butt- Weld							Double Flanged	Wafer	Lug	Butt- Weld
		A1	A3	A4										
NP 20 - Class 150														
80	3"	114	48	180	130	141	200	43	200	68	27	24	24	27
100	4"	127	54	190	142	154	200	43	200	68	31	25	26	30
125	5"	140	57	200	161	165	200	43	200	68	40	27	27	35
150	6"	140	57	210	173	177	200	43	200	68	49	27	31	40
200	8"	152	64	230	214	202	200	43	200	68	75	44	53	63
250	10"	165	71	250	248	260	200	43	200	68	106	60	73	82
300	12"	178	81	270	283	295	230	50	300	99	138	85	101	107
350	14"	190	92	290	314	322	230	50	300	99	182	126	145	145
400	16"	216	102	310	360	383	330	48	500	88	230	174	197	189
450	18"	222	114	330	394	414	440	55	600	104	287	232	261	239
500	20"	229	127	350	436	452	440	55	600	104	362	311	348	308
600	24"	267	154	390	504	513	430	59	600	104	510	467	535	442
700	28"	292	229	430	573	582	482	65	600	155	730	693	815	642
750	30"	318	230	470	630	662	482	65	600	155	846	810	971	746
800	32"	318	241	470	658	690	517	80	600	217	970	933	1140	855
900	36"	330	241	510	740	764	529	80	600	217	1205	1249	1565	1130
1000	40"	410	300	550	790	810	603	96	700	293	1543	1609	2073	1447
1050	42"	410	300	550	820	835	603	96	700	293	1708	1810	2363	1624
1200	48"	470	350	630	910	933	603	96	700	293	2281	2498	3391	2235
1300	52"	530	-	710	970	1000	603	96	700	293	2717	-	-	2711
1400	56"	530	-	710	1025	1047	603	96	700	320	3196	-	-	3246
1500	60"	600	-	790	1070	1098	950	130	700	440	3721	-	-	3844
1600	64"	600	-	790	1120	1152	990	130	700	440	4293	-	-	4506
1700	68"	670	-	870	1180	1212	990	130	700	440	4913	-	-	5237
1800	72"	670	-	870	1250	1281	990	130	700	440	5582	-	-	6039
1900	76"	760	-	950	1310	1349	990	130	700	440	6303	-	-	6915
2000	80"	760	-	950	1370	1408	990	130	700	440	7075	-	-	7869
NP 10 - Class 125														
600	24"	267	154	390	504	513	338	55	600	104	484	457	525	432
700	28"	292	229	430	573	582	430	59	600	140	705	683	805	632
750	30"	318	230	470	630	662	430	59	600	140	836	800	961	736
800	32"	318	241	470	658	690	477	65	600	155	940	923	1130	845
900	36"	330	241	510	740	764	482	65	600	134	1171	1239	1555	1120
1000	40"	410	300	550	790	810	517	80	600	217	1473	1579	2043	1417
1050	42"	410	300	550	820	835	517	80	600	217	1678	1780	2333	1594
1200	48"	470	350	630	910	933	585	96	700	293	2207	2468	3361	2205
1300	52"	530	-	710	970	1000	603	96	700	245	2687	-	-	2681
1400	56"	530	-	710	1025	1047	603	96	700	245	3109	-	-	3216
1500	60"	600	-	790	1070	1098	603	96	700	245	3681	-	-	3804
1600	64"	600	-	790	1120	1152	950	130	700	320	4198	-	-	4466
1700	68"	670	-	870	1180	1212	990	130	700	440	4873	-	-	5197
1800	72"	670	-	870	1250	1281	990	130	700	440	5458	-	-	5999
1900	76"	760	-	950	1310	1349	990	130	700	440	6263	-	-	6875
2000	80"	760	-	950	1370	1408	990	130	700	440	6892	-	-	7809
2200	88"	800	-	1030	1429	1470	990	130	700	440	(1)	-	-	(1)
2400	96"	800	-	1030	1488	1502	990	130	700	440	(1)	-	-	(1)
2600	104"	850	-	1110	1551	1565	990	130	700	440	(1)	-	-	(1)
2800	112"	850	-	1110	1612	1618	990	130	700	440	(1)	-	-	(1)
3000	120"	900	-	1190	1675	1680	990	130	700	440	(1)	-	-	(1)
NP 6 Class 75														
900	36"	330	241	510	710	734	430	59	600	140	1160	1229	1545	1110
1000	40"	410	300	550	760	780	477	65	600	155	1462	1569	2033	1407
1050	42"	410	300	550	790	805	482	65	600	134	1668	1770	2323	1584
1200	48"	470	350	630	880	903	517	80	600	217	2194	2458	3351	2195
1300	52"	530	-	710	930	960	529	80	700	169	2672	-	-	2671
1400	56"	530	-	710	985	1007	529	80	700	169	3092	-	-	3186
1500	60"	600	-	790	1030	1058	585	96	700	293	3671	-	-	3774
1600	64"	600	-	790	1080	1112	603	96	700	245	4180	-	-	4436
1700	68"	670	-	870	1140	1172	603	96	700	245	4863	-	-	5167
1800	72"	670	-	870	1210	1241	603	96	700	245	5438	-	-	5969
1900	76"	760	-	950	1260	1299	950	130	700	320	6253	-	-	6835
2000	80"	760	-	950	1320	1358	950	130	700	320	6858	-	-	7749
2200	88"	800	-	1030	1379	1420	950	130	700	320	(1)	-	-	(1)
2400	96"	800	-	1030	1438	1452	990	130	700	440	(1)	-	-	(1)
2600	104"	850	-	1110	1491	1505	990	130	700	440	(1)	-	-	(1)
2800	112"	850	-	1110	1552	1558	990	130	700	440	(1)	-	-	(1)
3000	120"	900	-	1190	1615	1620	990	130	700	440	(1)	-	-	(1)

Double Eccentric Soft Seated Valves. Orton VF Series.

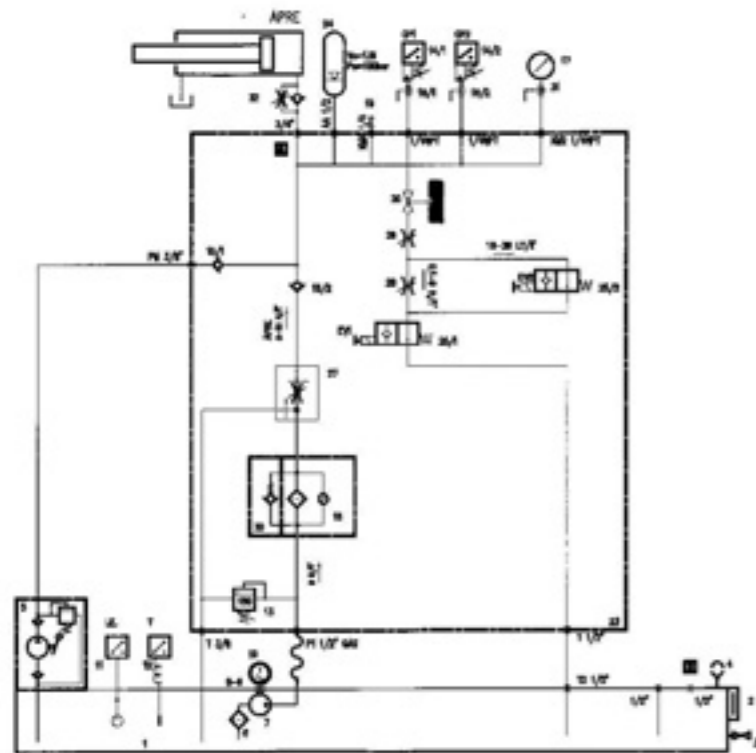
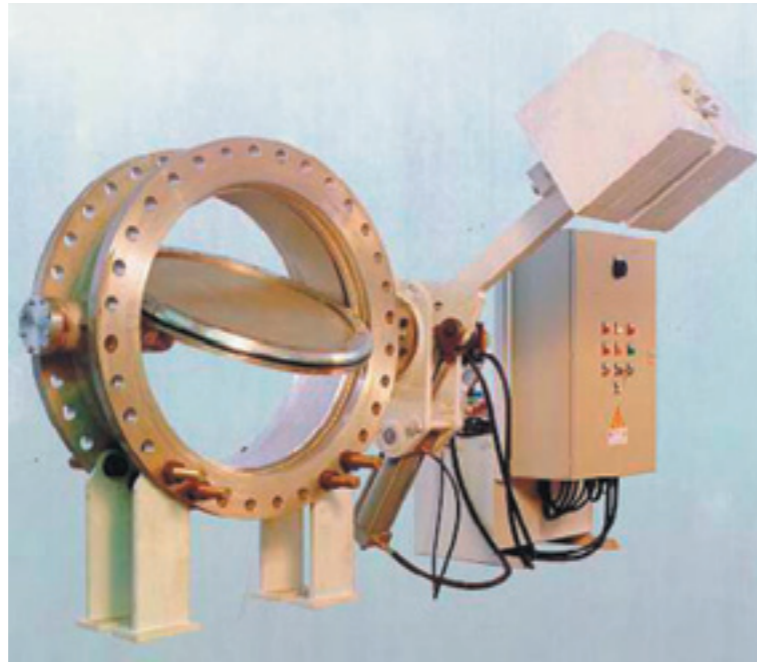
VF Series for Emergency Shut Down service (Combined NON-RETURN & ON-OFF valve)

Orton combined non-return and on-off emergency shut down valves offer total reliability for hydro-electric and conventional power plants.

The VF series valve, controlled by a counterweight and hydraulic cylinder is the safest, most reliable and cost effective method to prevent damage to important rotary machinery such as turbines and pumps.

The valve is maintained in the open position by the action of the hydraulic cylinder. In emergency situations, the solenoid valve is de-energised, the counterweight overcomes the cylinder and closes the valve.

The hydraulic circuit is designed to customer specific requirements, enables the cylinder to act as a damper, controlling closure speed, thus preventing dangerous water hammer effect in the pipeline.



Typical hydraulic diagram for a power pack including electric motor, oil pump, solenoid valves, pressure reducer, hand pump and flow control valves.

Typical applications of emergency shut down valves are:

- pump isolation, to prevent dangerous back flow to the pump;
- turbine inlet E.S.D. valve in hydroelectric power plants.

In addition to specifically engineered valves Orton also designs and supplies various accessories such as:

- Hydraulic units;
- Electric control panel;
- By-passes with accessories;
- Inlet and outlet valve adaptors;
- Overspeed flow detectors;
- Air admission and air exhausting.

A team of experienced engineers are available to assist with planning, erection, start-up and servicing for new and retro-fit applications.

Double Eccentric Soft Seated Valves. Orton VF Series.



ND 1800 NP 10 carbon steel, rubber lined body, AISI 316L disc, with mechanical safety locking device CET 3 - PIOMBINO - ITALY



ND 24" ÷ 88" Cl.150 - carbon steel rubber lined body & cast titanium disc - sea water isolation UREA PLANT - AL JUBAIL - SAUDI ARABIA



ND 48" ANSI 150 aluminium bronze body & disc sea water pump protection and isolation VINIL QATAR PROJECT



ND 24" ANSI 150, AISI 316L body & disc - sea water isolation JEBEL ALI DESALINATION PLANT - ABU DHABI



ND 2400 - 2800 NP 6 ductile iron, rubber lined body & disc sea water pump protection and isolation SHOIBA POWER PLANT - SAUDI ARABIA



ND 3000 NP 6 fabricated carbon steel rubber lined body & disc sea water isolation MUARA TAWAR C.C.P.P. - INDONESIA

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.

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

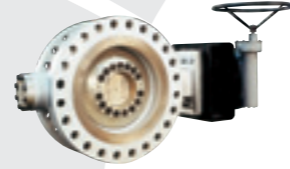
Fugitive Emissions
TA-LUFT Point 3.1.8.4
Certified by TÜV

Fire Safe
API 607 4th Edition
Certified by SwRI

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

Fire Safe
Department of Trade & Industry
Rule 54 Para 62
Certified by Lloyd's Register

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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

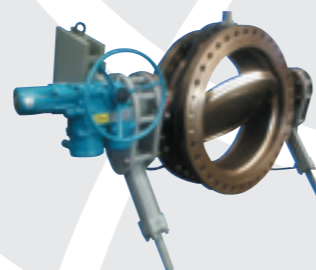
- Triple eccentric 1/4 turn friction-free operation.
- Resilient torque seated metal-to-metal seal.
- Fully replaceable seat and seal with in-line maintenance
- Inherently fire-safe.



Double Eccentric Valves

VF Series

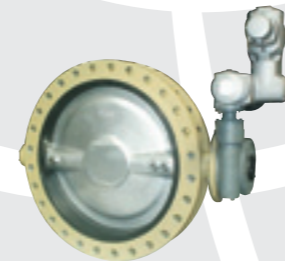
- Resilient disc-mounted seal ring.
- Bi-directional tight shut-off.
- Double eccentric operation.
- Bi-directional axial shaft support.



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.

Information is given in good faith. Orton Srl can accept no liability for any error or omission and reserves the right to modification without notice for technical development.



A Fluid Control Business of IMI