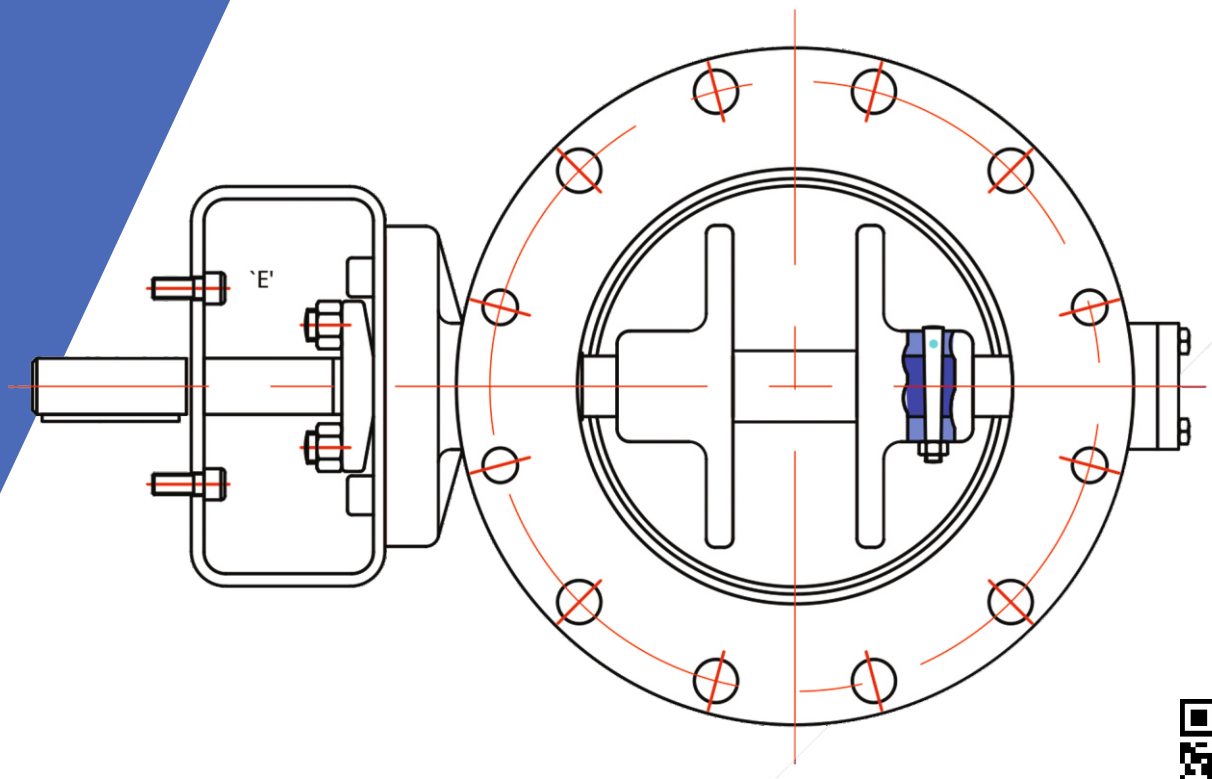
R&D MULTIPLES

An ISO 9001 Certified Company

TRIPLE OFFSET
BUTTERFLY VALVES



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CONSTRUCTIONAL FEATURES

Size range	:	3" to 60" (80mm to 1500mm)
Pressure rating	:	Upto ASME Class 600 (others available on request)
End Connection	:	Water lug, Double Flanged, Butt Weld (other available on request)

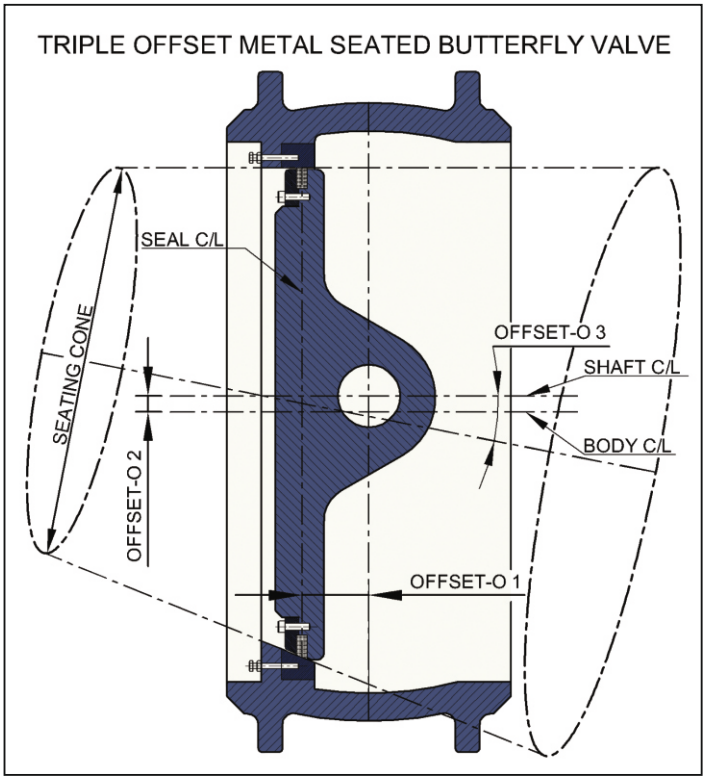
Manufacturing Standards:

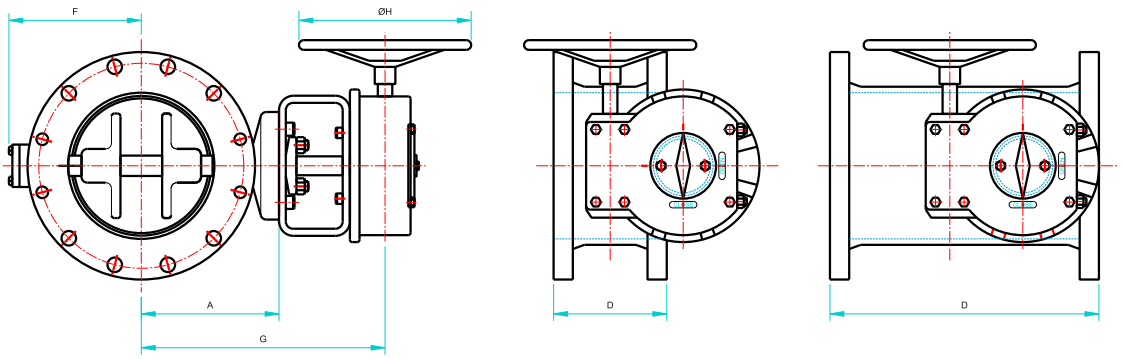
Design	:	API 609, ASME B 16.34, EN 593, ASME Section VIII
Face to Face	:	EN 558, API 609, ISO 5752, ASME B16.10
End Connection	:	ASME B16.5 / B16.47, EN 1092-1, ISO 7005, ASME B16.25
Testing	:	API 598, API 6D (Zero leakage)
Marking	:	MSS-SP-25, CE
Quality Assurance	:	ISO 9001:2015, ISO 14001:2015 and BS OHSAS 18001:2007
Temperature range	:	-60°C to 450°C (-76F to 842F; other high temperature and cryogenic applications also available)
Fluids	:	Steam superheated and saturated, hydrocarbons, H2, 02, hot gases, flare gases, chemical solvents, air, water etc.
Applications	:	Oil & Gas processing, refineries, hydrocarbon storage and transportation, power plants, chemical and petrochemical plants, steel mills, sugar mills, paper and pulp

TRIPLE OFFSET - THE CONCEPT EXPLAINED

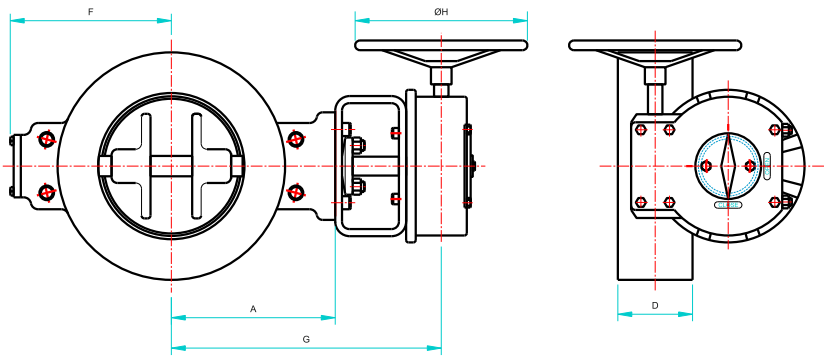
Compared to a concentric valve, there are three eccentricities in this product which offers various benefits compared to a traditional valve. The first eccentricity (seal ring offset from the shaft centre line) ensures that the seal and seat ring is in one piece without shaft interruption. The second eccentricity (shaft offset from pipe centre line) gives the non-symmetric trim design. This is useful for higher safety integrity applications where fail to open/close features can be used to assist required fail safe position with correct installation of valve to flow / high pressure direction. It also ensures that the seal does not contact the seat ring at full open position. The third eccentricity (seat and seal cone centre lines being inclined to pipe centre line) completely eliminates rubbing between seat and seal throughout 90° rotation.

Our design ensures that the seal contacts the seat ring only at the final stage of closing and there is no rubbing / skidding thereby precluding any galling and wear. The resiliency of the disc seal ensures that it adjusts to the seat ring surface thereby developing uniform compressive force between the seating surfaces. This guarantees perfect bubble-tight sealing contact. not only during normal operating conditions but also during thermal cycling.

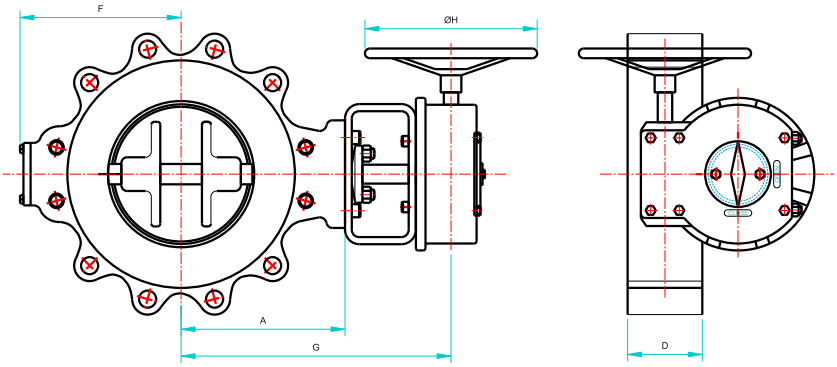




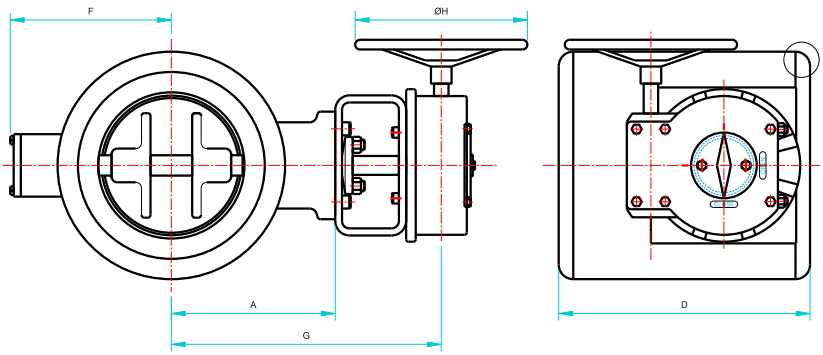
DOUBLE FLANGE SHORT & LONG PATTERN



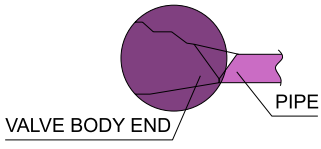
WAFER TYPE



LUG TYPE



BUTT WELD TYPE



DIMENSIONS (mm)									
DN	A	D					F	G	ØH
		VALVE BODY TYPE							
		LONG	SHORT	LUG	WAFER	BUTT WELD			
ASME CLASS 150, DN 80-1200									
80	140	203	114	48	48	180	125	240	200
100	160	229	127	54	54	190	145	287	200
150	150	267	140	57	57	210	165	307	200
200	230	292	152	64	64	230	215	361	300
250	250	330	165	71	71	250	240	387	500
300	290	356	178	81	81	270	285	434	500
350	320	381	191	92	92	290	305	517	600
400	350	406	216	102	102	310	340	556	600
450	390	432	222	114	114	330	380	599	600
500	425	457	229	127	127	350	410	634	700
600	525	508	267	154	154	390	495	735	600
700	620	610	292	165	165	--	575	949	600
750	635	610	318	191	191	--	590	949	600
900	750	711	330	203	203	--	700	1103	600
1000	770	813	409	229	229	--	765	1121	600
1050	775	813	409	246	246	--	805	1138	700
1200	840	914	470	276	276	--	890	1208	700
ASME CLASS 300, DN 80-900									
80	140	282	114	48	48	180	125	240	200
100	160	305	127	54	54	190	147	287	200
150	200	403	140	59	59	210	192	337	300
200	245	419	152	73	73	230	236	386	500
250	275	457	165	83	83	250	261	474	600
300	310	502	178	92	92	270	297	514	600
350	340	762	191	117	117	290	330	548	500
400	375	838	216	133	133	310	361	587	500
450	420	914	222	149	149	330	407	633	600
500	470	991	229	159	159	350	441	682	600
600	555	1143	267	181	181	390	511	866	600
700	655	1346	292	229	229	--	612	1009	600
750	670	1397	451	241	241	--	620	1023	600
900	750	1727	508	241	241	--	709	1100	600
ASME CLASS 600, DN 100-600									
100	170	432	191	64	64	---	176	307	300
150	225	559	210	78	78	210	213	367	500
200	265	660	230	102	102	230	254	473	600
250	305	787	249	117	117	250	301	413	500
300	345	838	270	140	140	270	336	553	500
350	370	889	290	155	155	290	389	735	600
400	445	991	310	178	178	310	411	866	600
450	485	1092	330	200	200	330	446	861	600
500	530	1194	350	216	216	350	488	907	610
600	610	1397	390	232	232	390	564	975	700

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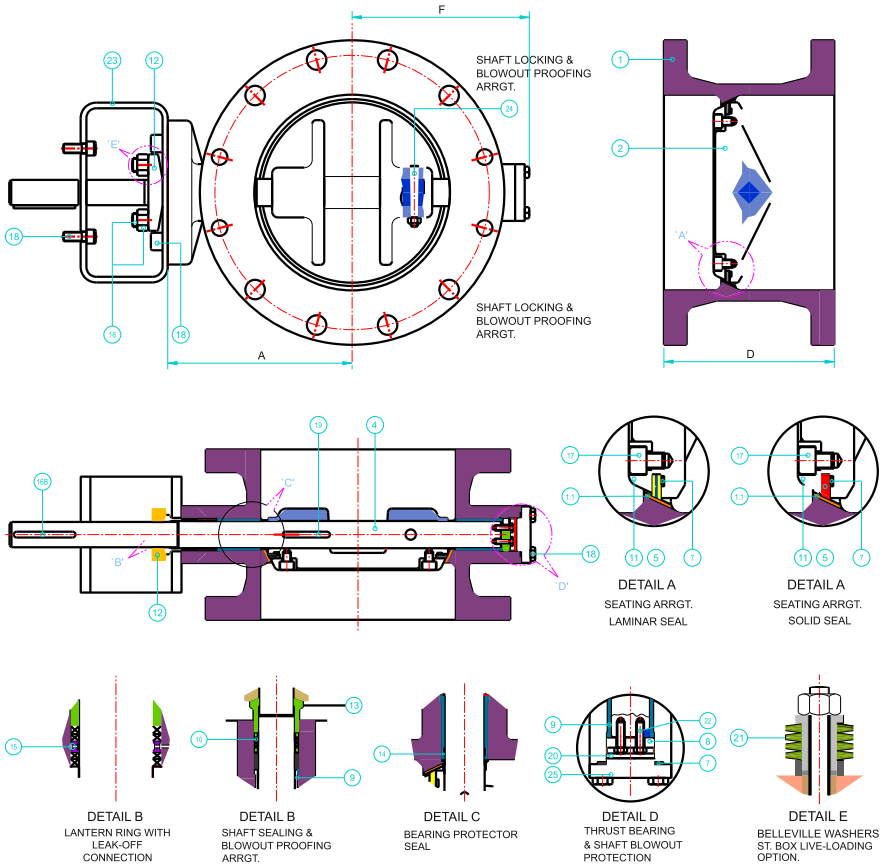
HIGH PERFORMANCE, TRIPLE OFFSET BUTTERFLY VALVE



NO.	PART NAME	CARBON STEEL Up to 800°F (427°C)	STAINLESS STEEL Up to (316°C/427°C)
1.	VALVE BODY	A 216WCB	A 351 CF8M
1.1	BODY SEAT (HARD FACED)		STELLITE GR. 21
2.	DISC:CAST	A216WCB (Ni PLATED)	A 351 CF8M
3.	DISC:FORGED	A105	A 182 TP.F316
4.	SHAFT/TAPER PIN	A479 UNS S41000	A564 TP.630/A638 TP.660.
5.	DISC SEAL (LAMINAR)	UNS S31803 (DUPLEX) + GRAPHITE	
6.	DISC SEAL (SOLID)	UNS S17400 (17-4PH:HF)	UNS S20910 (NITRONIC-50HF)
7.	SPIRAL WOUND GASKET	UNS S31600 + GRAPHITE	
8.	THRUST BEARING	ST. STEEL GR. 136 (NITRIDED)	ST. STEEL GR. 316 (Cr.PLATED)
9.	BUSH BEARING		
10.	GLAND PACKING		GRAPHITE
11.	SEAL RETAINING RING	DUPLEX OR S.S. 410	DUPLEX
12.	GLAND PACKING FLANGE	CARBON STEEL	STAINLESS STEEL
13.	GLAND BUSHING		STAINLESS STEEL
14.	BEARING PROTECTION SEAL		GRAPHITE
15.	LANTERN RING (OPTIONAL)	STAINLESS STEEL 410	STAINLESS STEEL 316
16.	STUD-NUT:(FOR PACKINGS)	A193:87- A194:2H	A193:88M/ A194:8M
17.	SCREW FOR DISC		STAINLESS STEEL
18.	EXTERNAL HARDWARE		ALLOY STEEL
19.	KEY (DISC)	A 479 TYPE 410	TYPE 630 ASTM 564
20.	SUPPORT PLATE		STAINLESS STEEL
21.	BELLEVILLE WASHER (OPTIONAL)	AISI Gr.H11/H13	AISI Gr. 6150
22.	SCREW FOR THRUST BRG.		A 193 Gr. BBM
23.	BRACKET (DRIVE MOUNT)		CARBON STEEL
24.	TAPER PIN	A 479 UNS S41000	A564 TP. 630/A638 TP. 660.
25.	END COVER	A 216 WCB	A 351 CF8M

NOTES

1. Other materials of construction possible against requirement
2. Options of drive mechanism such as electrical, pneumatic & hydraulic actuators available
3. Imperial dimensions can be offered if required
4. Views & dimensions are subject to change due to continuous design modifications

SOME OF THE KEY FEATURES/BENEFITS OF OUR DESIGN ARE OUTLINED AS FOLLOWS

- Metal seated, bi-directional zero leakage and inherently fire safe
- Non rubbing rotation ensures that above features are maintained during life cycle of valve
- Reliable and safe operation for on-off / isolation and control applications
- Can replace gate, globe and ball valves with substantial reduction in space and weight
- Substantially reduced operational maintenance
- Replaceable seat option means client need not replace entire body and this substantially reduces the cost of ownership
- One piece shaft is designed to transfer and maintain torque ensuring maximum robustness
- Shaft is retained internally and externally for full compliance to below out proof requirement ensuring safety of plant personnel

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R&D MULTIPLES (METAL-CAST) PVT. LTD.

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Plant 2 : Survey No. 304, Village Balda, Pardi-396 125, District Valsad, Gujarat, India

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Authorised Agent