

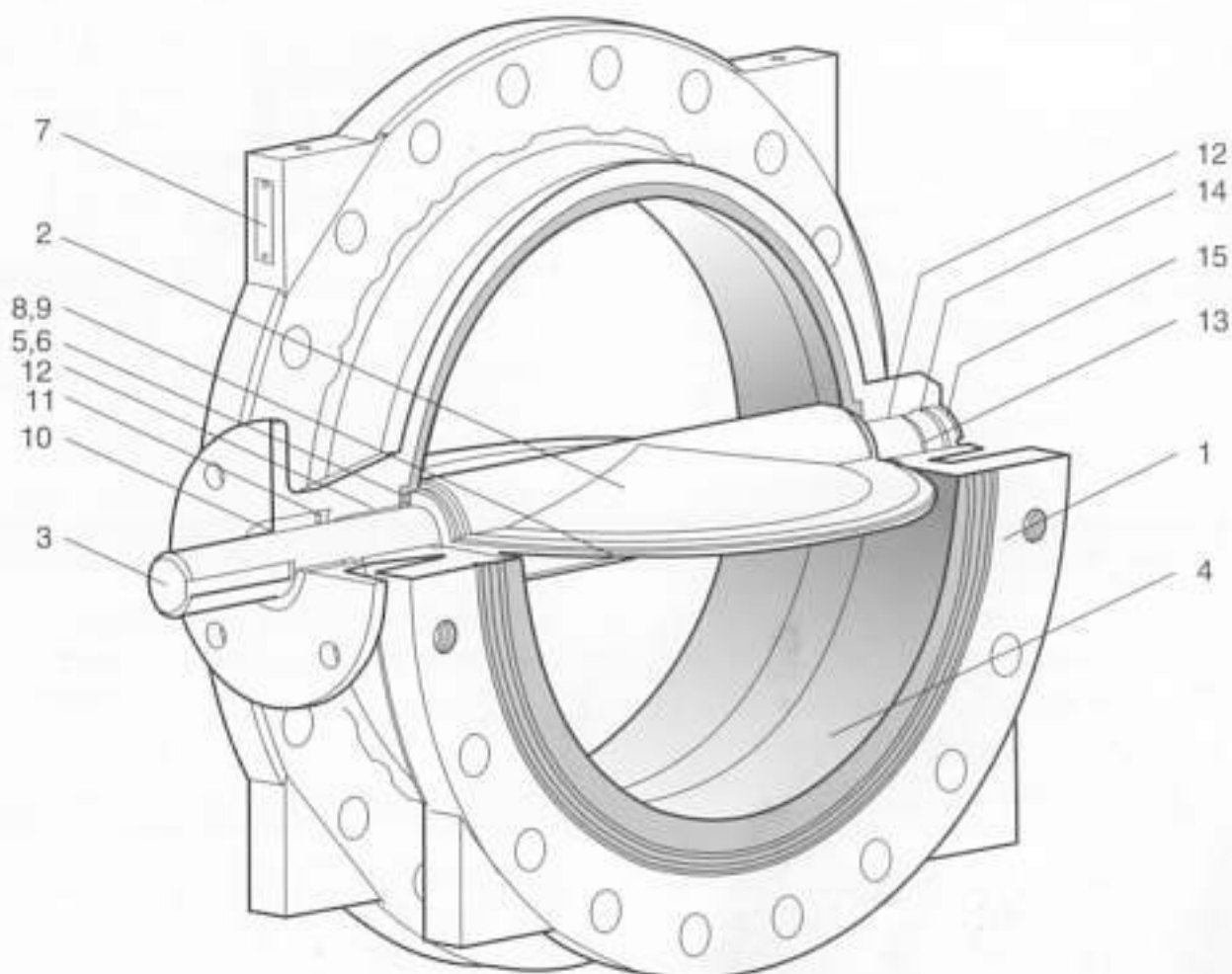


**UNITED**  
Engineering Corporation

**F 631 PN 10/16 bi-directional, double flanged, resilient seated butterfly valve.**

**Features**

- Double flanged bi-directional valve with replaceable, bed grooved seat.
- Face to face dimensions in accordance with BS 5155
- Size range from 100-750 mm.
- Suitable for pressure up to 1600 kPa (PN16)
- Suitable for temperatures up to 80°C with natural rubber and 120°C with EPDM.
- Upper and lower inboard shaft bearings prevent shaft deflection and provide optimum guidance to prolong valve life.
- Standard flanging to ANSI B16.1, BS 4504 JIS B 2210 and DIN 2501.
- Uses the proven seal on body design.
- Suitable for on/off or control service.
- Primary stem sealing by pre-loaded contact between flattened seat surface and rounded polished disc hub completely isolates the shaft and body from the flow stream.
- Bubble tight shut-off at full rated pressure.
- The field replaceable seat has integrally moulded-in O-ring, providing flange sealing and eliminating the need for gaskets.
- The entire wetted area of the valve is rubber lined, extending over the flanges, providing superior corrosion protection.

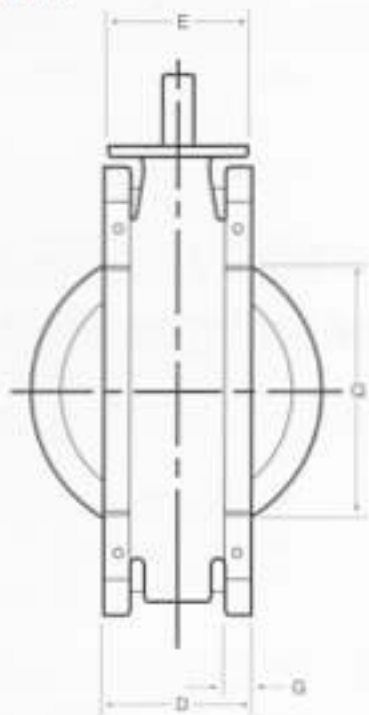
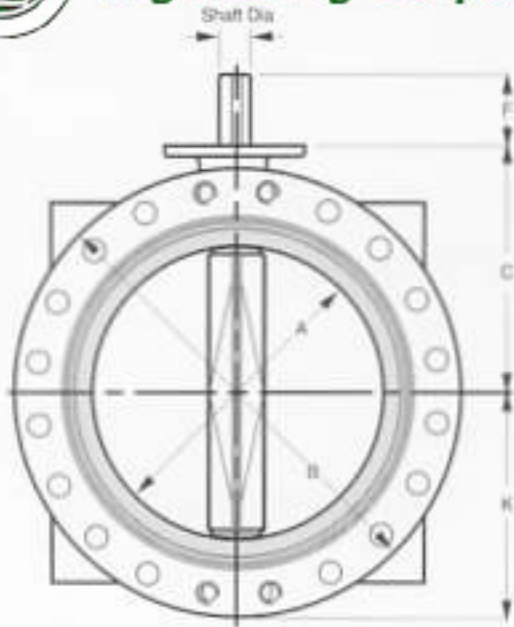


Parts List			
No.	Description	PN 10	PN 16
1	Body	CI/WCB/DI	WCB/DI
2	Disc	WCB/DI Al. Bronze CF8M	WCB/DI Al. Bronze CF8M
3	Shaft	SS 316 / 17-4PH / SS 410	SS 316 / 17-4PH / SS 410
4	Seat	EPDM Buna - N	EPDM Buna - N
5	Seat Insert	316 S/S	316 S/S
6	Seat Insert O-Ring	Buna - N	Buna - N
7	Tag	S/S	S/S
8	Disc Screw	316 S/S	316 S/S
9	Disc Screw O-Ring	Buna - N	Buna - N
10	Shaft Bush	Acetal	Acetal
11	Shaft Seal	Buna - N	Buna - N
12	Bearings	RTFE	RTFE
13	O-Ring	Buna - N	Buna - N
14	Body Plug	431 S/S	431 S/S
15	Circlip	Spring Steel	Spring Steel

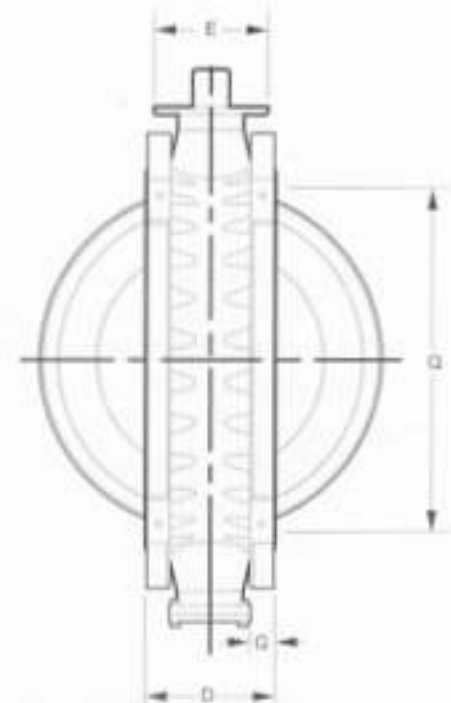
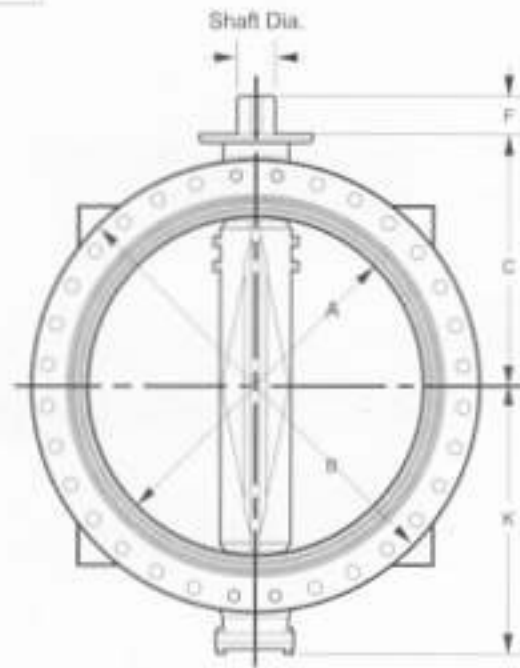




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**Note :**  
Plan view of stem connection on 100-500 mm valves.



## Dimensions (mm) 100 - 500 mm, PN 10 /16

Valve Size mm	Stem Conn. Code	A mm	B mm	C mm	D mm	E mm	F mm	G mm	K mm	Q mm	Shaft Dia. Inches	Stem Conn. Inches	Key Inches	Top Plate Data			Mass Kg PN 10/16
														PCD mm	No Holes	Hole Dia. mm	
100	BAC	103	230	178	127	100	32	24	115	0	5/8	5/8 x 7/16	-	83	4	11	19
150	BAD	148	305	203	140	100	32	26	153	48	3/4	3/4 x 1/2	-	83	4	11	29
200	CAE	199	370	242	152	150	32	29	185	128	7/8	7/8 x 5/8	-	127	4	14	46
250	CAF	250	430	273	165	150	51	30	215	187	1 1/8	1 1/8	1/4 x 1/4	127	4	14	66
300	CAF	300	490	311	178	150	51	32	245	242	1 1/8	-	1/4 x 1/4	127	4	14	85
350	CAG	338	550	305	190	150	76	35	275	280	1 3/8	-	5/16 x 5/16	127	4	14	117
400	CAH	390	610	336	216	150	69	37	305	324	1 5/8	-	3/8 x 3/8	127	4	14	157
450	DAJ	441	675	369	222	210	108	40	337	381	1 7/8	-	1/2 x 3/8	165	4	21	190
500	DAJ	492	735	403	229	210	108	43	367	435	1 7/8	-	1/2 x 3/8	165	4	21	222

## Dimensions (mm) 600-750 mm, PN 10

Valve Size mm	A mm	B mm	C mm	D mm	E mm	F mm	G mm	K mm	Q mm	Shaft Dia. Inches	Key Inches	Top Plate Data			Mass Kg PN 10
												PCD mm	No Holes	Hole Dia. mm	
600	593	850	495	267	210	100	48	525	530	2 1/4	1/2 x 3/8	165	4	21	374
700	683	935	538	292	300	100	48	576	617	2 1/4	1/2 x 3/8	254	8	17	482
750	747	1015	578	305	300	100	54	616	681	3	3/4 x 3/4	254	8	17	608

## Dimensions (mm) 600-750 mm, PN 16

Valve Size mm	A mm	B mm	C mm	D mm	E mm	F mm	G mm	K mm	Q mm	Shaft Dia. Inches	Key Inches	Top Plate Data			Mass Kg PN 16
												PCD mm	No Holes	Hole Dia. mm	
600	593	850	495	267	210	100	48	525	530	2 1/4	1/2 x 3/8	165	4	21	386
700	683	935	538	292	300	100	48	576	617	3 1/2	7/8 x 7/8	254	8	17	517
750	747	1015	578	305	300	100	54	616	681	3 1/2	7/8 x 7/8	254	8	17	627

**Note :**  
Q is the disc chordal dimension at the face of the valve for disc clearance into the pipe or the flange.  
Masses nominated are for bare shaft valves only.  
All dimensions are nominal only.



**Anticipated Seating and Unseating Torque Valves - Nm**

Size mm	Shut Off Pressure (kPa)											
	Normal Service						Severe Service					
	0	350	700	1000	1400	1600	0	350	700	1000	1400	1600
100	54	58	61	64	68	71	81	85	88	92	95	97
150	102	113	124	136	147	154	152	164	175	186	198	206
200	169	192	215	237	260	275	254	277	299	322	345	360
250	260	294	328	362	395	416	390	424	458	492	525	546
300	350	407	463	520	576	612	525	582	638	695	751	787
350	486	576	667	757	847	905	729	819	910	1000	1090	1148
400	621	757	893	1028	1164	1251	932	1068	1203	1339	1475	1562
450	850	990	1130	1330	1610	1750	1275	1415	1555	1755	2035	2175
500	1080	1280	1470	1745	2135	2330	1620	1820	2010	2285	2675	2870
600	1640	1995	2337	2830	3515	3855	2460	2815	3157	3650	4335	4675
700	2345	2915	3455	4245	5335	5870	3518	4088	4628	5418	6508	7043
750	2765	3450	4110	5075	6410	7065	4148	4833	5493	6458	7793	8448

**Notes :**

1. The charted seating and unseating torques are the sum of all friction and resistance for pening and closing of the disc against the indicated pressure differential for normal and severe services respectively.
2. Normal Service : Valve must be regularly operated on liquid service at moderate temperatures with no internal deposition or chemical attack.
3. Severe Service : All other conditions including - dry service, infrequent operation, very low or high temperatures any significant media build-up or chemical attack.
4. The relationship between valves is linear, therefore, you can interpolate between nominated valves.
5. The effect of dynamic torque is not considered in tabulation.
6. In sizing operators it is necessary to include safety factors.

**Kv Value**

Valve Size mm	Disc Opening (Degrees)								
	10°	20°	30°	40°	50°	60°	70°	80°	90°
100	5	25	54	95	150	240	400	620	710
150	15	52	120	220	340	550	950	1380	1630
200	21	95	220	380	590	950	1550	2410	2840
250	33	155	340	610	950	1550	2580	3960	4640
300	49	220	510	860	1460	1220	3780	5850	6880
350	65	290	660	1200	1890	2920	4820	7740	8600
400	86	380	860	1550	2410	3870	6360	9460	11200
450	110	490	1120	1980	3100	4990	8260	12900	15500
500	130	610	1380	2490	3960	6190	10300	15500	18900
600	190	865	1986	3460	5536	8650	14273	22490	25950
700	254	1156	2568	4510	7500	11540	18910	29100	34230
750	294	1298	3114	5363	8564	13840	22490	34600	40655

**Notes :**

Kv = The volume of water in m<sup>3</sup>/hr that will pass through a given valve opening at a pressure of 1 bar (100 kPa)  
Cv = 1.155 Kv

**Valve Trims**

Trim	Body	Disc	Shaft	Seat
264	Cast Iron	DI	410 S/S	EPDM
202	Cast Iron	CF8M	410 S/S	EPDM
301	Ductile Iron	DI	410 S/S	EPDM
145	Ductile Iron	CF8M	410 S/S	EPDM
	Cast Iron	NAB	316 S/S	EPDM
	Ductile Iron	NAB	316 S/S	EPDM

Notes : Seat Material in Bona - N also available. • For other body & Disc Material Contact works.



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## End connections

CODE	STANDARD	100	150	200	250	300	350	400	450	500	600	650	700
VALVE SIZE													
500	ANSI B16.1 #125 / #150	P	P	P	P	P	P	P	P	P	P	NA	NA
501	ANSI B16.1 #125 / #150	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NA	NA
502	ANSI B16.47 150 # Sr. A	P	P	P	P	P	P	P	P	P	P	P	P
503	ANSI B16.47 150 # Sr. B	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP
504	BS 10 TABLE D	P	P	P	P	P	P	P	P	P	P	P	P
505	BS 10 TABLE E	P	P	P	P	P	P	P	P	P	P	P	P
506	BS 10 TABLE F	P	P	P	P	P	P	P	P	P	P	P	P
509	DIN PN 10	P	P	P	P	P	P	P	P	P	P	P	NA
510	ISO 7005 PN 10	P	P	P	P	P	P	P	P	P	P	P	NA
511	DIN PN 16	P	P	P	P	P	P	P	P	P	P	P	NA
512	ISO 7005 PN 16	P	P	P	P	P	P	P	P	P	P	P	NA
513	DIN PN 25	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NA
514	ISO 7005 PN 25	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NP	NA
515	JIS PN 10	P	P	P	P	P	P	P	P	P	P	P	P

• P = POSSIBLE • NP = NOT POSSIBLE

## Typical Specifying Sequence

Example:	200	F631	16	202	501
	Valve Size	Figure No.	Pressure Rating	Trim Code	End Connections



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Quality Solutions for Flow Control Requirements

20/22, Nagdevi Street, P.B.No. 3450, Mumbai - 400 003 ■ : +91-22-2343 6281 / 2341 5519 / 2341 2537 Fax : +91-22-2340 0211  
E-mail : sales@valves-n-actuators.com / flowlineengineers@vsnl.com Visit us at : www.valves-n-actuators.com