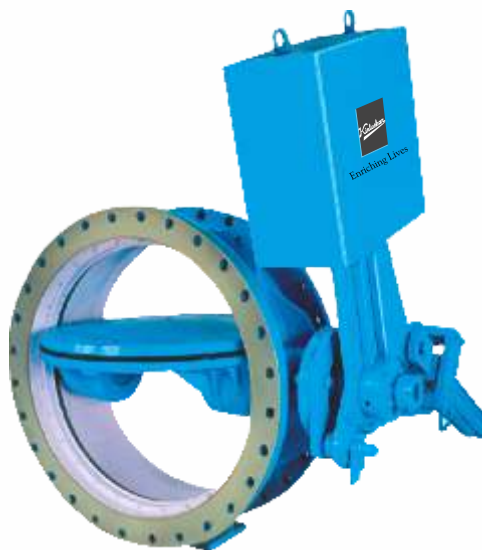




Enriching Lives

BUTTERFLY VALVE

AS PER BSEN 593 (BS 5155) / IS 13095 / AWWA C 504 / AWWA C516 / IS 7326 / API 609



KIRLOSKAR BROTHERS LIMITED

A Kirloskar Group Company

DOUBLE FLANGED SHORT & LONG BODY TYPE

Widely accepted by Municipal Corporations, Water Supply Authorities, Thermal Power Corporation, Nuclear Power Corporation and other Government and Industrial users. Valves are Designed as per latest editions of IS/ BSEN/ AWWA specifications.

Applications :

- Suitable for variety of liquids and gaseous media in water works, power plants, sewage plants, process industries, chemical and petrochemical plants for tight shut-off and control
- Ideally suited for isolating as well as throttling services

Special Features :

- Rigid and sturdy design with minimum loss of head across the valve
- Low operating torques
- Eccentric seat geometry results in less wear and tear and longer life
- Self cleaning and non jamming seat design
- Lattice (flow through) Disc Design in Large size Valves for Low Head Loss
- Combined O-Ring / U-Cup seal arrangement for shaft seal
- Drop tight shut off
- Self energising seat design

Salient Constructional Features :

- Body :
Wafer/ Double flanged short/ long valve body designed to withstand specified pressures
- Disc :
Streamlined Single/ Double eccentrically mounted disc to ensure complete shut-off
- Body Seat Ring :
Accurately machined to close tolerances to achieve tight shut off
- Shaft :
Stub type design, sealing with unique combination of "O-Ring / U-Cup" Seal to prevent leakage from Drive Shaft End side
- Clamping Ring :
Rigid Clamping ring design ensures controlled and uniform seat compression and facilitates easy replacement of seal.
- Journal Bearing :
Low friction self lubricated sleeve type bearings for supporting shaft outside fluid flow

Material of Construction :

Scope	Body	Disc	Body Seat Ring	Disc Seal	Clamping Ring (Seal Retaining Ring)	Shaft
Standard	Cast Iron	Cast Iron	SS AISI 304	Nitrile Rubber	Cast Steel - WCB/MS	SS AISI 410
Optional	2% Ni Cast Iron	2% Ni Cast Iron	SS AISI 316	EPDM Rubber	SS AISI 304/CF8	SS AISI 420
	Cast Steel	Cast Steel		Silicone Rubber	SS AISI 316/CF8M	SS 12Cr12
	SG (Ductile Iron)	SG (Ductile Iron)	SS AISI 316L	Viton Rubber	SS AISI 316L/CF3M	SS AISI 431
	Fabricated Steel	Fabricated Steel	SS AISI 410		Duplex St. Steel	SS AISI 304 SS AISI 304L
	SG Ni Resist	SG Ni Resist	SS AISI 304L		SS AISI 410/CA - 15	SS AISI 316
	SS CF8M	SS CF8M	Ni Weld Overlay Monel Weld Overlay		SS AISI 316L	
	SS CF3M	SS CF3M			Duplex Steel	
	Duplex St. Steel	Duplex St. Steel			SS 17 - 4 - PH	

Note:* For special material of construction, please contact Design Office.

* Protective coating for Body / Disc (Corrocoat / Ebonite / EPDM Lining) as per requirement

Technical Specifications :

Design and Manufacturing Standard	IS :13095 / BS EN 593 (BS 5155) / AWWA C 504 / AWWA C 516 / IS 7326	
Testing Standard	IS:13095 / BS EN 12266 / AWWA C 504 / AWWA C 516 / IS 7326	
Size Range	80 mm to 3800 mm	
Pressure Rating	IS:13095	PN 0.6, PN 1.0, PN 1.6, PN 2.0
	BS EN 593 (BS 5155)	PN 6, PN 10, PN 16, PN 20
	AWWA C 504 / AWWA C516	Class 25, 75, 150, 250

Note:1. For higher size requirement please contact Design Office.

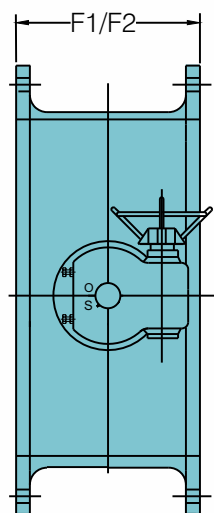
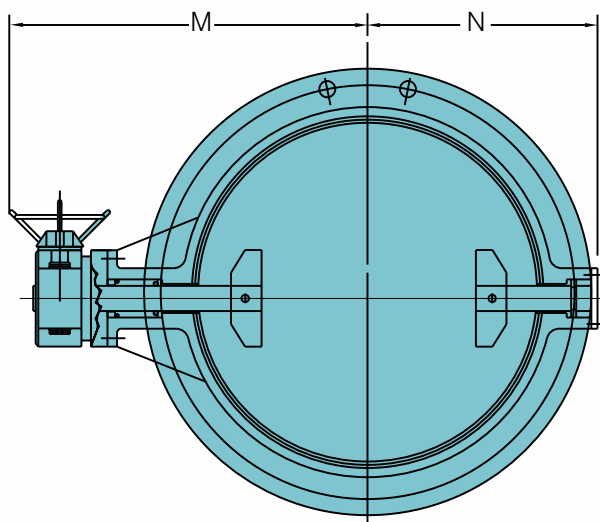
2. Higher Pressure Rating PN25 / PN30 / PN40 are also available against specific requirement

Operation :

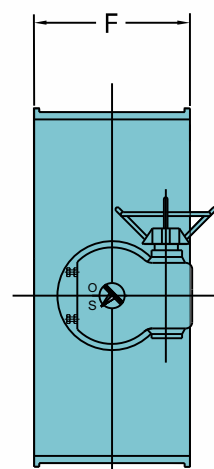
Mode of Operation (Standard Supply)	PN 6	PN 10	PN 16	PN 20
Hand Lever	Upto 150 mm	Upto 150 mm	Upto 100 mm	
Gear Box	200 mm and above	200 mm and above	150 mm and above	100 mm and above

General Outline Drawings :

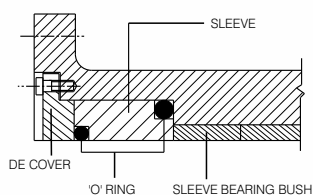
80 mm to 500 mm BUTTERFLY VALVES



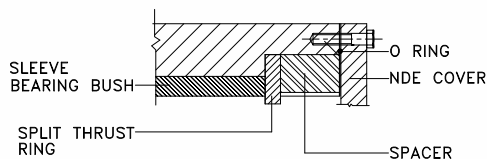
FOR DOUBLE FLANGED BODY



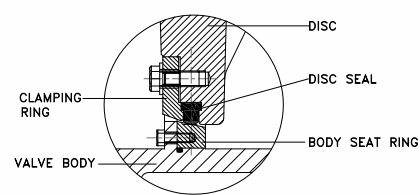
FOR WAFER TYPE LONG BODY



DRIVE SHAFT SEALING
ARRANGEMENT



NON DRIVE SHAFT
SEALING ARRANGEMENT



BODY SEAT RING
ARRANGEMENT

General Outline Dimensions :

80 mm to 500 mm BUTTERFLY VALVES

Dimensions as per BSEN 593(BS : 5155) / IS 13095

Normal Size	Face to Face			M (Approx.)	N (Approx.)
	F (Series - 16)	F1 (Series - 13)	F2 (Series - 14)		
80	64	114	180	320	125
100	64	127	190	330	135
150	76	140	210	355	165
200	89	152	230	390	195
250	114	165	250	470	230
300	114	178	270	500	265
350	127	190	290	545	300
400	140	216	310	600	325
450	152	222	330	700	355
500	152	229	350	725	390

Note: 1. F: Wafer Type Long Body | F1: Double Flanged Short Body Type | F2: Double Flanged Long Body Type (Refer VBU Design)
2. All dimensions are in mm.

General Outline Dimensions :

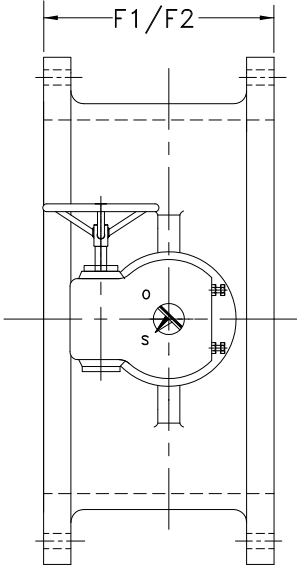
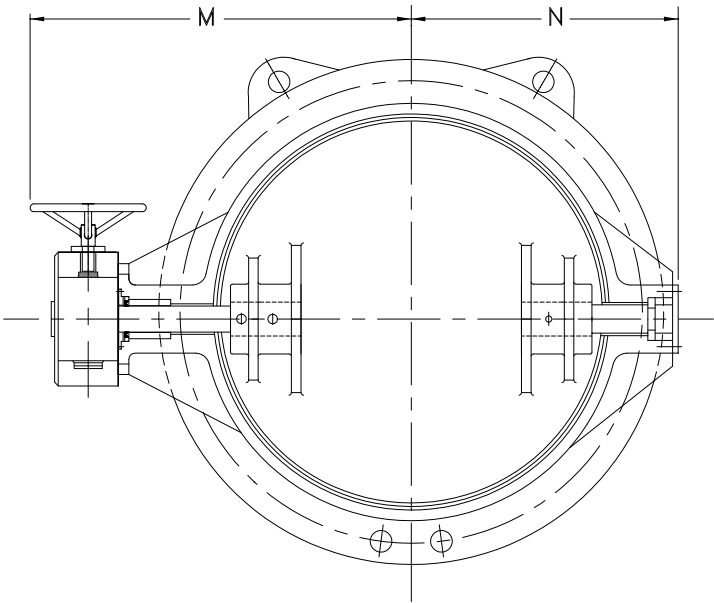
80 to 500 mm BUTTERFLY VALVE
Dimensions as per AWWA C 504

Normal Size	Face to Face F1	M (Approx.)	N (Approx.)
80	127	320	125
100	127	330	135
150	127	355	165
200	152	390	195
250	165	470	230
300	203	500	265
350	203	545	300
400	203	600	325
450	203	700	355
500	203	725	390

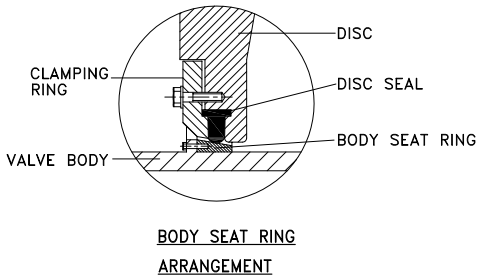
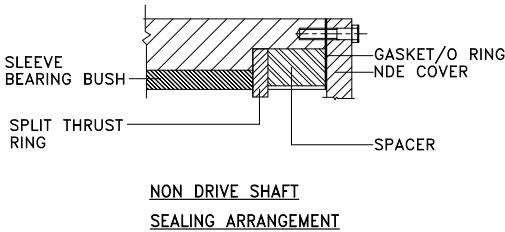
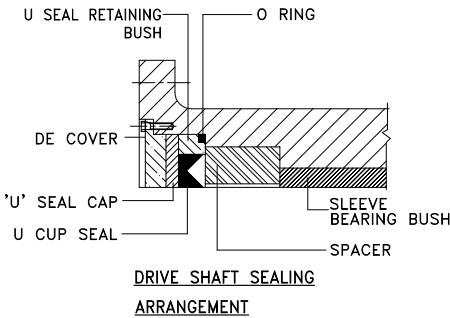
Note: 1. F1: Double Flange Short Body Type
2. All Dimensions are in mm.

General Outline Drawings :

550 mm to 3800 mm BUTTERFLY VALVES



FOR DOUBLE FLANGED BODY



General Outline Dimensions :

550 mm to 3800 mm BUTTERFLY VALVES

Dimensions as per BSEN 593 / IS 13095

Normal Size	Face to Face		M (Approx.)	N (Approx.)
	F1 (Series - 13)	F2 (Series - 14)		
550	248	370	850	455
600	267	390	870	455
650	280	410	900	500
700	292	430	930	520
750	305	450	940	540
800	318	470	995	580
900	330	510	1125	620
1000	410	550	1190	690
1050 (Fabricated)	425	570	1190	700
1100	440	590	1265	750
1200	470	630	1295	800
1300	500	670	1390	890
1350	515	690	1390	890
1400	530	710	1475	950
1500	565	750	1510	1055
1600	600	790	1590	1050
1700	635	830	1605	1105
1800	670	870	1700	1170
1900 (Fabricated)	715	910	1725	1205
2000	760	950	1915	1270
2100 (Fabricated)	565	990	1910	1350
2200	590	1030	1925	1370
2400	660	1110	2200	1490
2500	675	1150	2300	1600
2600	660	1190	2350	1650
2700 (Fabricated)	660	1230	2385	1700
2800 (Fabricated)	1120	1270	2550	1750
3000 (Fabricated)	950	1350	2600	1780
3600 (Fabricated)	990	1590	2900	2140
3800 (Fabricated)	1075	1670	3100	2260

Note: 1. Valve support lug / Valve foundation foot can be provided as per requirement

2. F1: Double Flanged Short Body Type | F2: Double Flanged Long Body Type

3. All dimensions are in mm

4. Face to Face dimensions of Valve Sizes not covered in scope of Standard are per Manufacturers standard / Customized.

General Outline Dimensions :

600 mm to 3800 mm BUTTERFLY VALVES
Dimensions as per AWWA C - 504 / AWWA C - 516

Normal Size	Face to Face	M (Approx.)	N (Approx.)
	F1 (Series - 13)		
600	203	870	450
650 (Fabricated)	305	870	480
700	305	890	480
750	305	940	540
800	305	965	575
900	305	1025	620
1000	305	1100	690
1050(Fabricated)	305	1190	700
1100(Fabricated)	381	1285	770
1200	381	1285	820
1300	381	1390	890
1350	381	1390	890
1400	381	1410	950
1500	381	1410	980
1600(Fabricated)	457	1590	1050
1700(Fabricated)	457	1605	1105
1800	457	1700	1170
1900(Fabricated)	457	1725	1205
2000(Fabricated)	540	1785	1220
2100(Fabricated)	565	1910	1350
2200	590	1925	1370
2400	660	2200	1490
2500	575	2300	1600
2600(Fabricated)	660	2350	1650
2700(Fabricated)	660	2385	1700
2800 (Fabricated)	660	2550	1750
3000(Fabricated)	700	2600	1780
3600(Fabricated)	820	2900	2140
3800(Fabricated)	1075	3100	2260

Note: 1. Valve support lug / Valve foundation foot can be provided as per requirement
2. F1: Double Flanged Short Body Type
3. All dimensions are in mm

End Connection :

Scope	Flange Drilling Standard
Standard Supply (Cast Construction)	IS : 1538 Table 4 and 6 (Upto 1500 mm) BS EN 1092.2 (BS:4505) (Above 1500 mm)
Standard Supply (AWWA C 504 / C 516 Design)	ANSI B 16.1, CL - 125 for Cast construction and AWWA C207 for Fab. construction ANSI B16.5 / 16.47 for Cast Steel
Optional for Valves as per IS 13095 / BS EN 593	BS : 10 - Table D/E/F
	IS : 1538 Table 5
	ANSI B 16.1 / 16.5 # / 16.47
	DIN 2532
	IS : 6392
	AWWA C 207 BS EN 1092-1

Accessories :

- Electrical Actuator
- Electro Hydraulic Actuator
- Pneumatic Cylinder Actuator
- Pneumatic Rotary Actuator
- Extension Shaft with Head Stock
- Chain Padlock Arrangement
- Limit Switch Arrangement
- Companion Flange
- Bypass across the valve
- Support Foot
- Flange Adaptor Assembly
- Dismantling Joint
- Position Transmitter
- Integral Locking Arrangement for Gear Box
- Chain and chain wheel Arrangement
- Disc Locking Arrangement

Hydrostatic Test Pressures :

IS:13095

Scope	Size Range	Manufacturing Standard and Pressure Rating (MPa)	Hydrostatic test Pressures Kg/Cm2 (MPa)	
			Body	Seat
Standard Supply	80 mm to 3800 mm	IS : 13095 PN 0.6	9.18 (0.9)	6.73 (0.66)
	80 mm to 3800 mm	IS : 13095 PN 1.0	15.3 (1.5)	11.22 (1.1)
	80 mm to 3800 mm	IS : 13095 PN 1.6	24.47 (2.4)	17.95 (1.76)
	80 mm to 3800 mm	IS : 13095 PN 2.0	30.59 (3.0)	22.43 (2.2)
Optional	For Higher Pressure ratings above PN 2.0 can be supplied on case to case basis, Contact design office			

BSEN 593

Scope	Size Range	Manufacturing Standard and Pressure Rating (Bar)	Hydrostatic test Pressures Kg/Cm2 (Bar)	
			Body	Seat
Standard Supply	80 mm to 3800 mm	BS EN 593 (BS 5155) PN 6	9	6.6
	80 mm to 3800 mm	BS EN 593 (BS 5155) PN 10	15	11
	80 mm to 3800 mm	BS EN 593 (BS 5155) PN 16	24	17.6
	80 mm to 3800 mm	BS EN 593 (BS 5155) PN 20	30	22
Optional	For Higher Pressure ratings above PN 20 can be supplied on case to case basis Contact design office			

Hydrostatic Test Pressures :

AWWA C 504 / AWWA C 516

Scope	Size Range	Manufacturing Standard and Pressure Rating	Hydrostatic test Pressures Kg/Cm2	
			Body	Seat
Standard Supply	80 mm to 3800 mm	Class - 25	3.52	1.76
	80 mm to 3800 mm	Class - 75	10.55	5.27
	80 mm to 3800 mm	Class - 150	21.1	10.55
Optional	For Higher Pressure ratings Class-250 can be supplied on case to case basis Contact design office			

Proof of design test as per AWWA C - 504 :

Kirloskar Brothers have successfully carried out proof of design test as per AWWA C - 504 / AWWA C516 Standard

Valve	Design Pressure	MOC	No. Of Cycles
2800mm NB	PN6	MS Fabricated	200 (Two Hundred)
2600 mm NB	CL 75	MS Fabricated	1000 (One Thousand)
2200 mm NB	CI 75	CI	1000 (One Thousand)
1600 mm NB	PN 6	DI With Integrally Ebonite lined Seat	1000 (One Thousand)
1400 mm NB	CL 75	CI	1000 (One Thousand)
1200 mm NB	PN 16+	SI GI (DI)	1000 (One Thousand)
1200mm NB	PN 10	2% NiCl	1000 (Five Thousand)
900 mm NB	PN 29	MS Fabricated	5000 (Five Thousand)
900 mm NB	PN 20	DI	250 (Two Fifty) at FCRI
800 mm NB	CL 150	CI	5000 (Five Thousand)
800 mm NB	PN 10	MS Fabricated	5000 (Five Thousand)
600 mm NB	PN 24	DI	250 (Two Fifty) at FCRI
600 mm NB	PN 16	2% Ni CL	5000 (Five Thousand)
600 mm NB	PN 6	DI With Integrally Ebonite lined Seat	5000 (Five Thousand)
450mm NB	CL 150	2% NiCl	10000 (Ten Thousand)
300mm NB	PN 16	2% NiCl	10000 (Ten Thousand)
100mm NB	PN 16	D2Ni	10000 (Ten Thousand)
80mm NB	PN 16	SS CF8M	10000 (Ten Thousand)

WAFER AND LUGGED WAFER TYPE

Widely used in variety of liquids in General Industries, Water Works, Food and beverages, Power, Building and Construction and Marine.

Applications :

- Suitable for variety of liquids in process and General Industry, Water Works, Power Plants, Sewage plants, Chemical and Petrochemical Plants, etc for tight shut off and flow control
- Ideally suited for isolating as well as throttling services

Special Features :

- Top plate double drilled to fit ISO 5211 dimensions
- Centre-lock seat design virtually eliminates any seat movement during the seating and un-seating of the disc
- Stem retention system to provide blow-out proof stem and easy assembly and disassembly of valve

Salient Constructional Features :

- Body :
Heavy duty one piece wafer / lugged wafer body design to withstand specified pressures
- Disc :
Nylon / Epoxy coated high strength disc with polished disc edge and hubs ensures excellent corrosion resistance to several chemical media
- Body Seat :
Heavy duty square groove seat designed with moulded O-Ring seals to serve as flange gasket
- Stem :
One Piece / Stubbed stem with close tolerances double D-Drive for lever operation which eliminates the need for disc screws or taper pins
- Journal Bearing :
Heavy duty bearings absorb the forces acting on the stem / disc assembly due to line pressure

Material of Construction

Scope	Body	Disc	Seat	Shaft
Standard	Cast Iron	Ductile Iron (Nylon / Epoxy Coated)	Buna (Nitrile)	ST.ST. 410
Optional	Ductile Iron	CF8	EPDM	ST.ST. 316
		CF8M	Viton	ST.ST. 17 - 4 PH
			Silicon	

Note: 1. For special material of construction, please contact Design Office..

Technical Specifications :

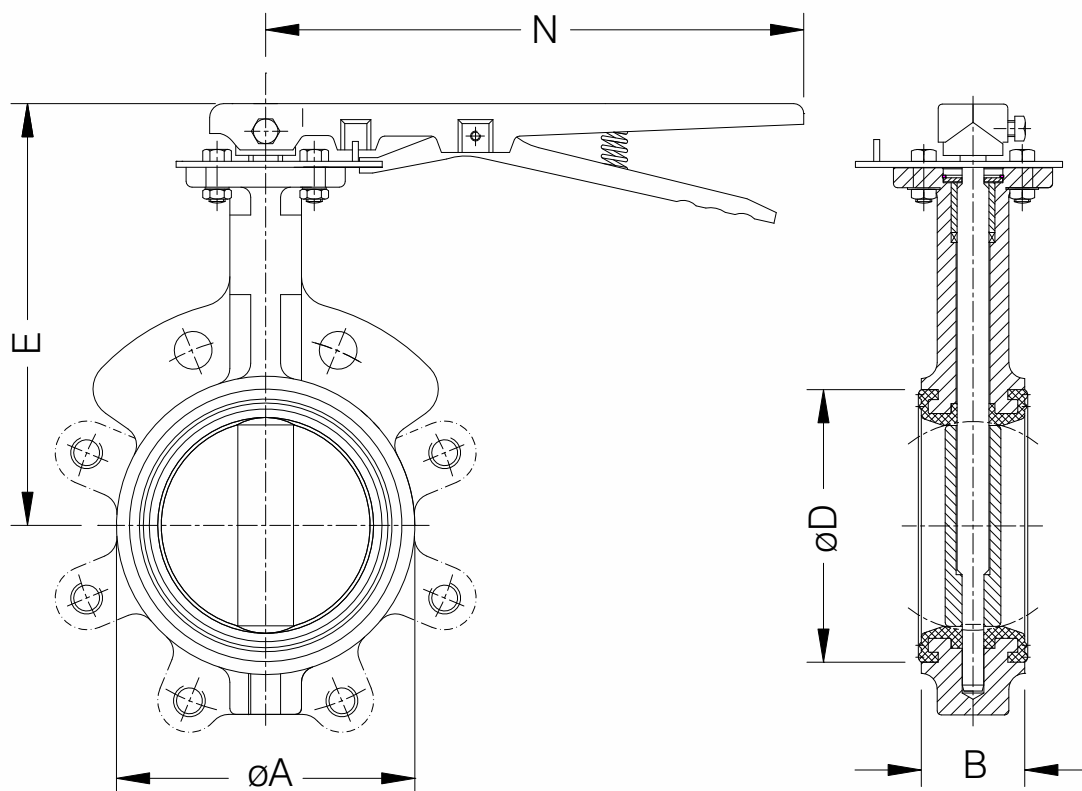
Design and Manufacturing Standard	IS : 13095 / EN 593 (BS 5155) / API 609
Testing Standard	API 598 / EN 12266 - 1
Size Range	40 mm to 600 mm :
Pressure Rating	PN 6, PN 10 and PN 16

Note: 1. For higher size requirement please contact Design Office.

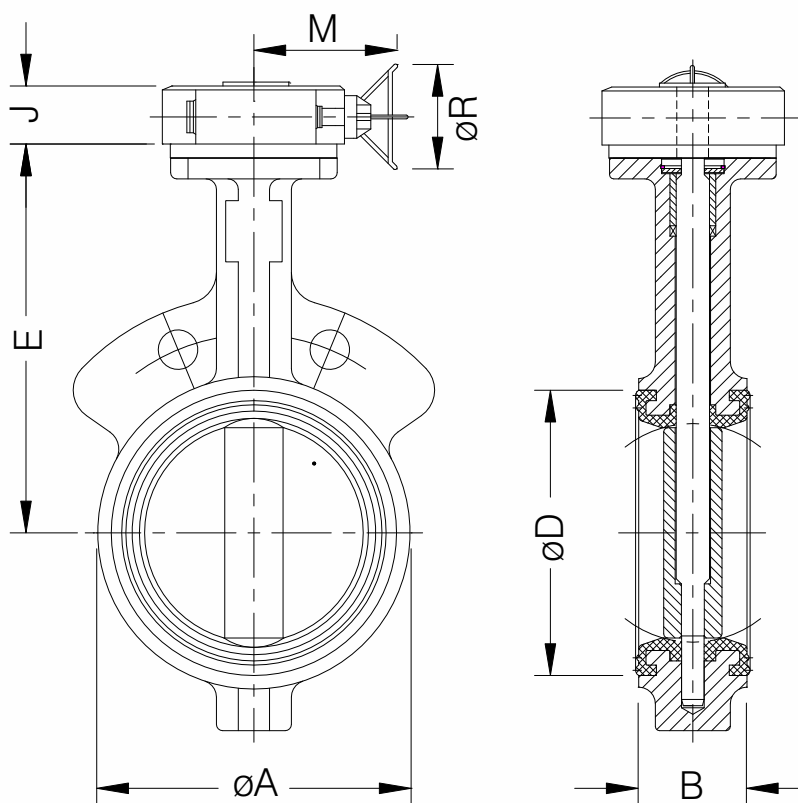
Operation :

Mode of Operation	PN 6	PN 10	PN 16
Hand Lever	Upto 200 mm	Upto 200 mm	Upto 150 mm
Gear Box	250 mm and above	250 mm and above	200 mm and above

General Outline Drawings :



Lever Operated (LO)



Gear Box Operated (GBO)

General Outline Dimensions :

Valve Size	øA	*B	øD	E	J (Approx.)		N	M (Approx.)	R (Approx.)
					LO	GBO			
#40 / 1.6"	91	43	72	140	35	63	180	240	250
50 / 2"	91	43	72	140	35	63	180	240	250
65 / 2.5"	105	46	88	152	35	63	180	240	250
80 / 3"	120	46	104	160	35	63	180	240	250
100 / 4"	150	52	130	180	35	63	260	240	250
125 / 5"	175	56	158	192	35	63	260	240	250
150 / 6"	205	56	185	205	35	63	400	240	250
200 / 8"	259	60	240	241	51	63	-	240	250
250 / 10"	310	68	292	273	-	63	-	240	250
300 / 12"	364	78	342	31	-	73	-	290	350
350 / 14"	415	78	388	346	-	86	-	300	350
400 / 16"	472	102	442	375	-	82	-	306	500
450 / 18"	525	114	495	406	-	82	-	306	500
500 / 20"	580	127	548	438	-	86	-	322	500
600 / 24"	692	154	654	495	-	113	-	350	600

Note : #For 40mm size the basic valve will be of 50mm NB but with mounting dimensions suitable to mount between flanges of 40mm NB size

1. Face to face dimensions "B" generally conforming to BSEN 558 Series 20

2. All dimensions are in mm

3. For higher size requirement please contact Design Office.

End Connection :

Scope	Flange Drilling Standard
Standard Supply	ANSI B 16.5 150 #
Optional	IS : 1538 Table 4 and 6
	BS : 10 - Table D/E/F
	BS EN 1092.2 (BS : 4505) 6, 10, 16 Bar
	IS : 1538 Table 5
	ANSI B 16.5 150
	DIN 2532
	IS : 6392

Note: For higher size requirement please contact Design Office.

Accessories :

- Electrical Actuator
- Pneumatic Actuator
- Extension Shaft with Head Stock
- Integral Locking Arrangement for Gear Box
- Chain and chain wheel Arrangement
- Limit Switch Arrangement
- Companion Flange

Hydrostatic Test Pressures :

Scope	Size Range	Hydrostatic test Pressures Kg/Cm2	
		Body	Seat
Standard Supply	40 mm to 600 mm	9	6.6
	40 mm to 600 mm	15	11
	40 mm to 600 mm	24	17.6



Assembly of 3800 mm Motorized Butterfly Valve

ABOUT KBL

Kirloskar Brothers Limited (KBL) is a world class pump manufacturing company with expertise in engineering and manufacture of systems for fluid management. Established in 1888 and incorporated in 1920, KBL is the flagship company of the \$ 2.1 billion Kirloskar Group. KBL, a market leader, provides complete fluid management solutions for large infrastructure projects in the areas of water supply, power plants, irrigation, oil & gas and marine & defence. We engineer and manufacture industrial, agriculture and domestic pumps, valves and hydro turbines.

In 2003, KBL acquired SPP Pumps, United Kingdom and established SPP INC, Atlanta, USA, as a wholly owned subsidiary of SPP, UK to expand its international presence. In 2007, Kirloskar Brothers International B.V., The Netherlands and Kirloskar Brothers (Thailand) Ltd., a wholly owned subsidiary in Thailand, were incorporated. In 2008, KBL incorporated Kirloskar Brothers Europe B.V. (Kirloskar Pompen B.V. since June 2014), a joint venture between Kirloskar International B.V. and Industrial Pump Group, The Netherlands. In 2010, KBL further consolidated its global position by acquiring Braybar Pumps, South Africa. SPP MENA was established in Egypt in 2012. In 2014, KBL acquired SyncroFlo Inc., the largest independent fabricator of commercial and municipal domestic water booster pumps.

To further strengthen its global position, in 2015, Kirloskar Pompen B.V. acquired Rodelta Pumps International, The Netherlands.

KBL has joint venture cooperation with Ebara, Japan since 1988 for the manufacture of API 610 standard pumps. Kirloskar Corrocoat Private Limited is a joint venture cooperation with Corrocoat, UK since 2006. KBL acquired The Kolhapur Steel Limited in 2007 and Hematic Motors in 2010.

KBL has eight manufacturing facilities in India at Kirloskarvadi, Dewas, Kondhapuri, Shirwal, Sanand, Kaniyur, Kolhapur and Karad. In addition, KBL has global manufacturing and packaging facilities in Egypt, South Africa, Thailand, The Netherlands, United Arab Emirates, United Kingdom and United States of America. KBL has 12,700 channel partners in India and 80 overseas and is supported by best-in-class network of Authorised Centres and Authorised Refurbishment Centres across the country.

All the manufacturing facilities at KBL are certified for ISO 9001, ISO 14001, ISO 50001, BS OHSAS 18001 and SA8000. In addition, the Kirloskarvadi plant is also certified for N & NPT Stamp. KBL's corporate office in Pune is certified for ISO 9001 & Sa8000.

The factories deploy Total Quality Management tools using European Foundation for Quality Management (EFQM) model. The Kirloskarvadi plant of KBL is a state-of-the-art integrated manufacturing facility having Asia's largest hydraulic research centre with testing facility upto 5000 kW and 50,000 m³/hr.

KBL is the ninth pump manufacturing company in the world to be accredited with the N and NPT certification by American Society of Mechanical Engineers (ASME).

Pumps | Valves | Hydro Turbines | Turnkey Projects

Water Resource Management | Irrigation | Power | Industry | Oil & Gas | Marine & Defence | Building & Construction | Distribution (Small Pumps) | Valves | Customer Service & Spares

KIRLOSKAR BROTHERS LIMITED

A Kirloskar Group Company

Registered Office: Udyog Bhavan, Tilak Road, Pune 411002. Tel: +91(20)24440770,
Global Headquarters: "Yamuna", Survey No. 98/(3.7), Baner, Pune 411045. Tel: +91(20)27214444,
Email: marketing@kbl.co.in, Website: www.kirloskarpumps.com, CIN No.: L29113PN1920PLC000670

OUR COMPANIES



United Kingdom



U.S.A.



South Africa



India



The Netherlands

Kirloskar Brothers Limited reserve the right to make alteration from time to time and such our products / equipments may differ from that detail in this publication. For latest information you may get in touch with our Regional Sales Offices.