



AUDCO FABRICATED BUTTERFLY VALVES



Experience In Motion

FLOWSERVE INDIA CONTROLS PVT LTD

FLANGED BUTTERFLY VALVES FOR WATER SERVICE

Flowserve India Controls Pvt Ltd (AUDCO) is one of India's leading manufacturers of pipeline Valves. AUDCO Valves are widely used in India and abroad. Well known for its quality, reliability and excellent after sales service, AUDCO Valves spell true value for money. AUDCO flanged Butterfly Valves have been specifically designed and developed for water service applications. They have found wide spread acceptance in Public water distribution systems, irrigation systems, Thermal power plants and in many plants/ installations having water service lines. These valves can also be used on other applications such as handling air, vacuum and gases subject to its suitability.

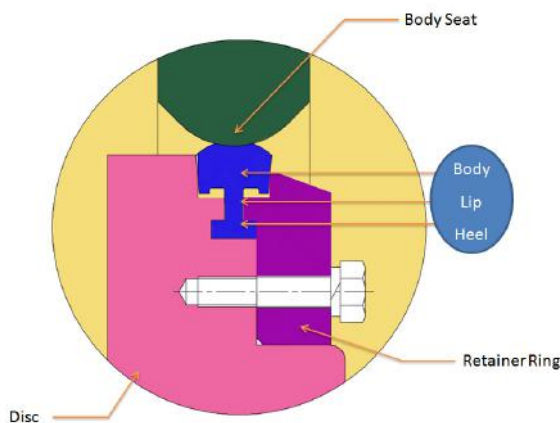
WELDED CONSTRUCTION

The welded body design ensures that these valves are lighter compared to similar cast iron valves. This results in easy handling both during installation and maintenance. Lower weight also ensures that minimal piping supports are required, resulting in an overall reduction in valve installation costs. The welded design also helps the valve in absorbing a certain amount of piping stresses and misalignments better than Cast Iron Valves. As the valve body is fabricated out of plates, it has better mechanical and structural properties.

The Seal has three distinct parts, namely body, lip and retaining heel. The profile of the Seal permits the line pressure to enter below the seal and exert pressure in the cavity between body and lip of the Seal. This pressure lifts the seal radially out against the body seat ring. In other words, the line pressure it self is effectively used for sealing without any external aid. This feature of the valve which provides for automatic Self Energized sealing has separated AUDCO Fabricated butterfly valves from the other competitive products.

SELF ENERGISING SEAL

AUDCO Fabricated butterfly valves have a unique design for disc seal for consistent sea ling over a wide range of pressures without adjustment.



The resilient Seal is held in place along the periphery of the disc by a retainer ring that is bolted directly to the disc by uniformly tightening across the circumference.

HOW SEAL BENEFITS THE USER

In case of fluctuation in the line pressure, there is no need to adjust the interference between the seal and body. For example when using a PN10 valves, if the actual line pressure is below 10 bar and also fluctuating there is no need for adjustments in AUDCO Fabricated valves. Whereas many competitive valves require laborious process of adjusting the bolting for leak tight sealing to suit the actual line pressure.

Some of the competitive products have a name-sake self energizing seal which do not have the facility for the line fluid exert beneath the seal and hence there is no automatic loading of the seal on to the body seat. In fact the seal only deflects every time which could result in permanent set due to constant load in one direction. This actually shortens the life of the seal in the long run.

In AUDCO Fabricated valves, uniform loading of the Seal extends the life of the valve. The unique profile of the Seal also helps in keeping the break torque low. This directly benefits the users as the manual operation of the valve will be much easier and also enables use of smaller size actuator.

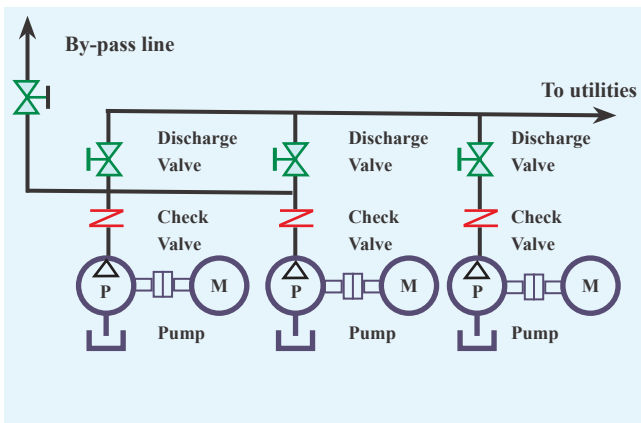
In an unforeseen circumstance of damage to the seal, it is very easy to replace the seal. The user has to only dismantle the retainer ring to access the Seal.

BI-DIRECTIONAL VALVE

AUDCO Fabricated butterfly valves are truly bi-directional. Due to superior Seal, these butterfly valves can be installed with flow in either direction. The disc and the shafts are designed in such a way that they can withstand the load in both the directions of flow.

All valves are hydro-statically tested for seat tightness in both the directions at the factory as a standard procedure. The preferred direction of flow indicated by an arrow mark on the valve is only for ease of operation and has no bearing on the leak tightness of the valve.

PUMP HOUSE



This bi-directional feature of AUDCO Fabricated butterfly valves makes it the only valve ideally suited for Pump house applications where both sides of the discharge valves are expected to be pressurized.

VACUUM SERVICE

AUDCO Fabricated butterfly valves are ideal for vacuum services where sealing across seat and to atmosphere is essential. While double 'o' rings provide sealing to atmosphere, the Seal takes care of seat tightness.

The specially profiled Seal provides for bi-directional sealing and also maintains vacuum across a closed valve in either direction. Hence the same valve seals both positive pressure and as well as vacuum. A typical vacuum service application can be found in pulsating water purification plants.

'O' SEAL FOR SHAFT

Double 'O' seals are provided on the shaft instead of conventional gland packings. This ensures an effective positive sealing to the atmosphere and at the same time, makes it maintenance free.

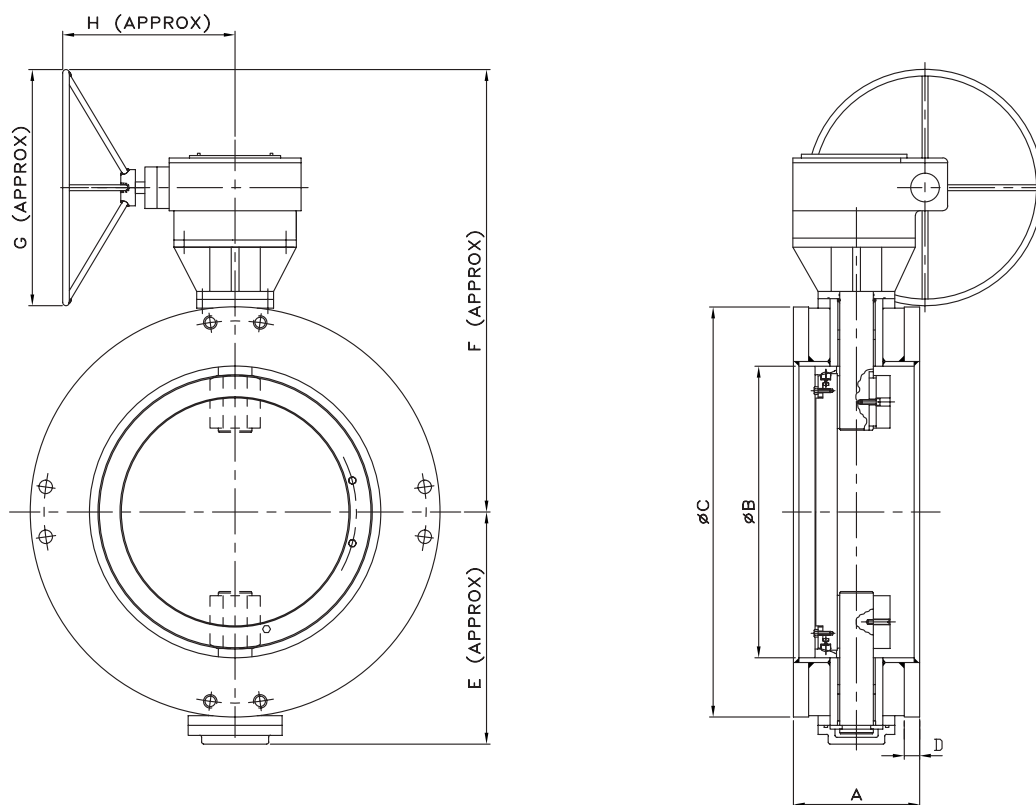
OFFSET DISC

The disc is offset from the axis of the shaft to provide an uninterrupted seating surface through 360°. The offsetting ensures that the disc loses contact with the seat immediately on crack opening. This reduces wear of the seat and also seating/ unseating torques. In effect the offset disc ensures longer valve life.

PHOSPHOR BRONZE BEARINGS

Phosphor bronze bush bearings are provided on the upper and lower shafts. These self lubricating bearings require no external lubrication and thereby maintenance free.

VALVE DIMENSIONS (in mm) AND WEIGHTS (kgs)



DIMENSIONS FOR PN 6 RATING - AWWA C 207 class B

Valve size	A	B	C	FLANGE DETAILS				E	F	G	H	WEIGHT Kgs
				D	PCD	HOLE DIA	NO.OF HOLES					
200	152	210	343	17.5	298	22.3	8	225	420	300	270	68
250	203	258	406	17.5	362	25.4	12	245	445	300	270	90
300	203	308	483	17.5	432	25.4	12	270	460	300	270	105
350	203	358	533	17.5	476	28.6	12	315	505	300	270	130
400	203	408	597	17.5	540	28.6	16	340	530	300	270	150
450	203	458	635	17.5	578	31.8	16	365	555	300	270	170
500	203	508	699	17.5	635	31.8	20	390	630	400	315	200
600	203	608	813	19.1	749	35.0	20	440	735	400	290	270
650	305	658	870	20.6	806	35.0	24	465	750	400	290	360
700	305	708	927	22.2	864	35.0	28	490	770	400	290	370
750	305	758	984	22.2	914	35.0	28	585	995	650	415	450
800	305	808	1060	23.8	978	41.3	28	615	1020	650	415	530
900	305	915	1168	25.4	1086	41.3	32	680	1210	650	620	860
1000	305	1010	1289	25.4	1200	41.3	36	750	1275	650	620	960
1050	305	1060	1346	28.6	1257	41.3	36	780	1310	650	620	1110
1100	381	1110	1403	28.6	1315	41.3	40	790	1320	650	620	1290
1200	381	1210	1511	31.8	1422	41.3	44	850	1470	650	620	1550
1300	381	1310	1626	31.8	1537	47.6	44	910	1530	650	620	1850
1400	381	1410	1683	34.9	1594	47.6	44	950	1570	650	620	2040
1500	381	1510	1854	38.1	1759	47.6	52	1035	1655	650	620	2540
1600	457	1610	2032	41.3	1930	47.6	52	1090	1710	650	620	3250
1800	457	1810	2197	44.5	2096	47.6	60	1200	1720	640	670	4000
2000	760	2010	2534	50.8	2426	54.0	64	1290	1815	640	670	5000

PN6 Rated Valve can be offered up to size 2400 mm on request

DIMENSIONS FOR PN 10 RATING - AWWA C 207 class D

Valve size	A	B	C	FLANGE DETAILS				E	F	G	H	WEIGHT Kgs
				D	PCD	HOLE DIA	NO.OF HOLES					
200	152	210	343	17.5	298	22.3	8	225	420	300	270	68
250	203	258	406	17.5	362	25.4	12	245	445	300	270	90
300	203	308	483	20.6	432	25.4	12	270	460	300	270	110
350	203	358	533	23.8	476	28.6	12	315	505	300	270	140
400	203	408	597	25.4	540	28.6	16	340	530	300	270	160
450	203	458	635	27.0	578	31.8	16	365	555	300	270	190
500	203	505	699	28.6	635	31.8	20	390	630	400	315	230
600	203	608	813	31.8	749	35.0	20	510	795	400	290	350
650	305	658	870	33.3	806	35.0	24	525	825	400	290	410
700	305	70H	927	33.3	864	35.0	28	535	865	400	290	490
750	305	758	984	34.9	914	35.0	28	570	975	650	415	580
800	305	808	1060	38.1	978	41.3	28	595	1050	650	415	680
900	305	915	1168	41.3	1086	41.3	32	680	1210	650	620	1000
1000	305	1010	1289	41.3	1200	41.3	36	750	1275	650	620	1160
1050	305	1060	1346	44.5	1257	41.3	36	775	1390	650	620	1350
1100	381	1110	1403	44.5	1315	41.3	40	800	1420	650	620	1480
1200	381	1210	1511	44.5	1422	41.3	44	880	1500	650	620	1950
1300	381	1310	1626	50.8	1537	47.6	44	940	1560	650	620	2250
1400	381	1410	1683	54.0	1594	47.6	44	985	1605	650	620	2520
1500	381	1510	1854	57.2	1759	47.6	52	1040	1660	650	620	3000
1600	457	1610	2032	63.5	1930	47.6	52	1100	1525	640	610	3900
1800	457	1810	2197	66.7	2096	47.6	60	1190	1715	640	670	5000
2000	760	2010	2534	69.9	2426	54.0	64	1300	1850	800	670	6200

PN 10 Rated Valve can be offered up to size 2200 mm on request

DIMENSIONS FOR PN 16 RATING - AWWA C 207 class E

Valve size	A	B	C	FLANGE DETAILS				E	F	G	H	WEIGHT Kgs
				D	PCD	HOLE DIA	NO.OF HOLES					
200	152	210	343	28.6	298	22.3	8	235	430	300	270	80
250	203	258	406	30.2	362	25.4	12	265	460	300	270	110
300	203	308	483	31.8	432	25.4	12	290	470	300	270	140
350	203	358	533	34.9	476	28.6	12	315	505	300	270	180
400	216	408	597	36.5	540	28.6	16	370	560	300	270	200
450	222	458	635	39.7	578	31.8	16	385	665	400	270	250
500	229	508	699	42.9	635	31.8	20	390	670	400	270	300
600	267	608	813	47.6	749	35.0	20	510	795	400	290	430
650	280	658	870	50.8	806	35.0	24	530	835	650	415	500
700	292	708	927	52.4	864	35.0	28	545	1080	650	620	600
750	305	758	984	54.0	914	35.0	28	625	1150	650	620	700
800	318	808	1060	57.2	978	41.3	28	650	1175	650	620	800
900	330	915	1168	60.3	1086	41.3	32	735	1355	650	620	1300
1000	410	1010	1289	63.5	1200	41.3	36	770	1305	650	620	1500
1050	425	1060	1346	66.7	1257	41.3	36	805	1335	650	620	1650
1100	440	1110	1403	66.7	1315	41.3	40	835	1360	650	620	1850
1200	470	1210	1511	69.9	1422	41.3	44	890	1430	650	620	2400
1300	500	1310	1626	73.0	1537	47.6	44	950	1485	650	620	2700
1400	530	1410	1683	76.2	1594	47.6	44	995	1405	640	610	3300
1500	560	1510	1854	79.4	1759	47.6	52	1040	1555	800	670	4000
1600	600	1610	2032	85.7	1930	47.6	52	1100	1605	800	670	5000

PN 16 Rated Valve can be offered up to size 1800 mm on request. PN 25 Rated Valves can also be offered in sizes from 200 mm to 1000 mm.

MATERIAL SPECIFICATION

Description	Material		
Body	Carbon Steel		
Disc	Carbon Steel		
Retainer	Carbon Steel		
Top Shaft	Stainless Steel AISI 410		
Bottom Shaft	Stainless Steel AISI 410		
Disc Seal (Seal)	Nitrile Rubber	EDPM	Viton
Bearings	Phosphor Bronze		
Thrust Plate	Cast Iron		
Gear Unit	Worm Type		
Bottom Cover	Cast Iron or Carbon Steel		
Bolting (Internal)	Stainless Steel AISI 304		

Body, Disc and Retainer are also available in Stainless Steel AISI 304 and AISI 316 material.

TEST PRESSURE

Rating	Hydrostatic Test Pressure	
	Seat	Body
PN 6	6	9
PN 10	10	15
PN 16	16	24
PN 25	25	37.5

Seat test at 1.1 times rated pressure and Disc strength test at 1.5 times rated pressure can be performed on specific request. Valves are tested with the disc in horizontal position.

QUALITY PROCEDURES

Welding procedures for AUDCO Fabricated Butterfly valves are qualified in accordance with ASME Section IX. Qualified welders or welding operators who have successfully completed performance qualification tests as laid down in ASME section IX only undertake welding. All longitudinal welds are butt welded and checked 100% by radiography. The acceptance criteria for radiography is as per ASME section VIII, Division I.

All fillet welds are subjected to Dye penetrant tests as per ASME Section VIII, Division 1, Appendix 8.

STANDARDS

Face to face dimensions : AWWA C-504-94, Short body
 Flange Drilling : AWWA C-207 or BS 4504
 Wall thickness : Meets the requirements of AD - Merkblätter

Valve conforming to EN 593 are also available. Face to face dimensions and flange drilling can be offered to meet specific requirement as the valve is of welded construction.

Flowserve has received ISO 9001 Certification for Quality Management System implemented at Plant manufacturing Fabricated Butterfly Valve.

OPERATION

AUDCO Fabricated Butterfly valves are operated through a worm type gear unit as a standard. On request valves can be actuated Electrically, Pneumatically or Hydraulically. The options are

1. MANUAL

By Chain wheel fitted to worm gear unit mounted on valve

2. ELECTRIC

By Electric Actuator fitted to the worm gear unit mounted on valve

3. HYDRAULIC

By means of Hydraulic Cylinder

- a) Single acting with counterweight for valve closing
- b) Double acting with / without counter weight

4. PNEUMATIC

By means of Pneumatic

Cylinder / Actuator

(Double Acting / Spring Return)

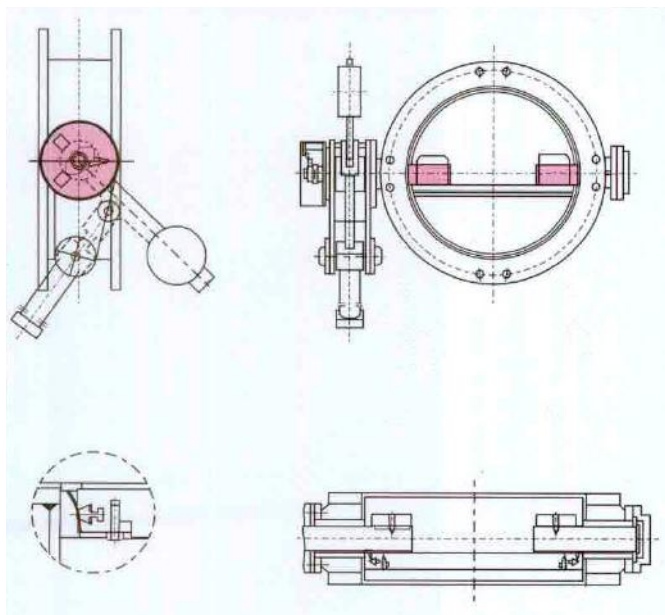
ACCESSORIES

AUDCO Fabricated Butterfly valves can be supplied with different accessories such as extension spindles, Floor stand, Chain wheel arrangement, Locking arrangement, etc., to meet specific customer

VALVE ORIENTATION

It is preferable, though not essential that the valves in sizes up to 1000 mm are installed with the shaft in the horizontal axis. For sizes above 1000 mm, it is essential that the valve is installed with the shaft in the horizontal axis.

SHUT- OFF AND NON - RETURN VALVE



SEALING ARRANGEMENT VALVE IN CLOSE POSITION

Flowserve offers Fabricated butterfly valve with hydraulic cylinder and counter weight to serve as combined Shut-off & Non- return valve in pump discharge lines of cooling water systems. This valve is operated by the hydraulic cylinder with power pack. With control circuitry, the hydraulic cylinder opens the butterfly valve as soon as the pump motor starts. When the pump motor stops or trip due to electrical failure, suitable control signal is fed into the hydraulic power pack to close the valve immediately and prevent back flow into the pump. This arrangement eliminates the need for two separate valves which act as a shut-off valve and non-return valve. It is also economical as it saves extra flange joints, weight and space.

CATALOGUE NUMBER

A familiarity with our catalogue number is not necessary when specifying or ordering AUDCO valves. If full description of the valve could be provided we will translate this into a catalogue number formulated as per the following system.

450 mm	D	G	2	2	4	N	Options
Size	Type	Operation	Body Material	Disc Material	Shaft Material	Seal Material	Options
450 mm	D Double flanged butterfly	G Gear Operated E Electric A Pneumatic DA H Pneumatic SR Y Hydraulic	2 Carbon Steel 4 SS 304 6 SS 316 7 ASTM A 516 Gr.70	2 Carbon Steel 4 SS 304 6 SS 316 7 ASTM A 516 Gr.70	4 AISI 410 5 SS 304 6 SS 316	N Nitrile rubber E EPDM V Viton	Eb Ebonite lining LA Locking Arrangement FS Floor stand and & Extension spridle ES GW Chain wheel for GU

As we continuously endeavour to improve our products, the data given herein are subjected to change without prior information.



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