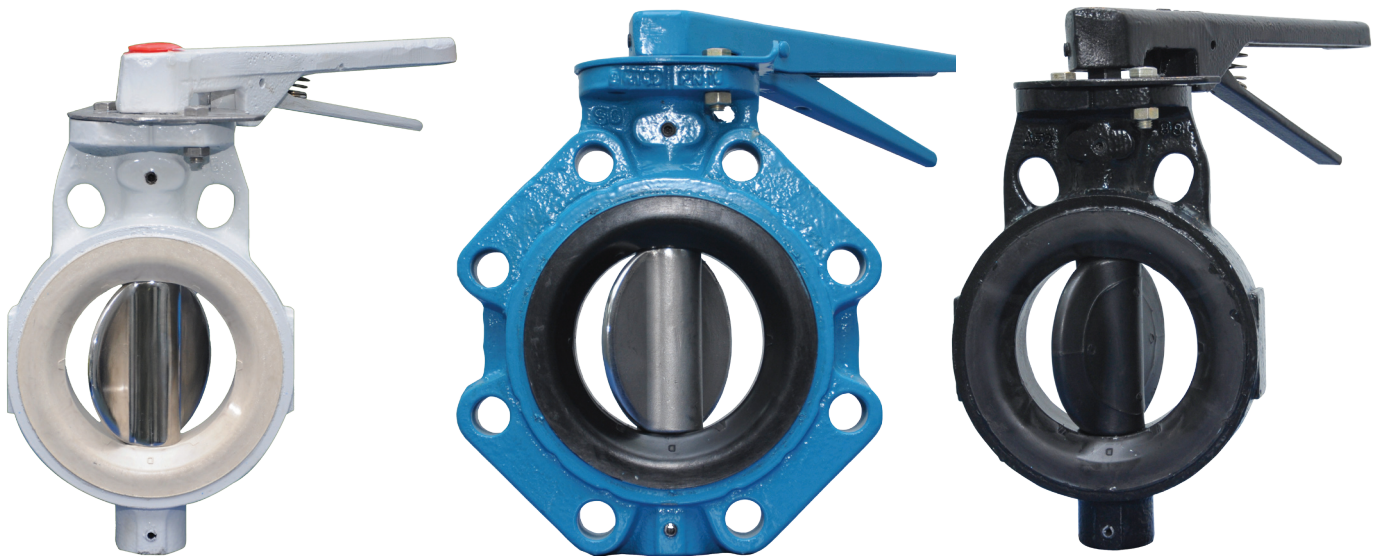




AUDCO BUTTERFLY VALVES



Experience In Motion

FLOWSERVE INDIA CONTROLS PVT LTD

AUDCO Butterfly Valve is a Wafer type Valve with an integrally moulded elastomer body liner. Designed to outperform loose liners, AUDCO Butterfly Valve elastomer liner is moulded directly in the body bore and vulcanised in-situ, making it last the entire life of the valve. The result - a valve that requires no form of maintenance. A perfect FIT AND FORGET valve.

AUDCO Butterfly Valve is available in different combinations of body, liner and disc materials to suit a wide range of line fluids, a size range of 50 to 600 mm, and a pressure rating up to PN 20. This permits its use in a wide range of applications making AUDCO Butterfly Valve a truly versatile valve.

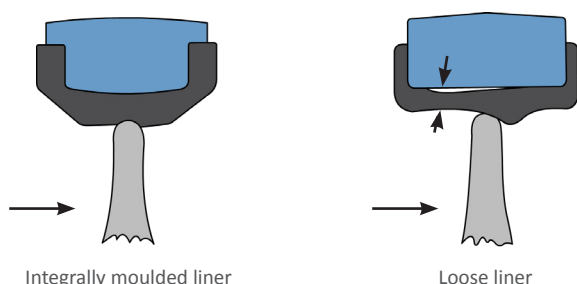
ADVANTAGES OF INTEGRALLY MOULDED LINER

LONGER VALVE LIFE

Integral moulding permits maximising the use of plasticiser in elastomer formulation. This ensures a smooth surface, thereby reducing friction between the disc and liner. In-situ vulcanisation imparts greater strength to the liner. Reduced friction and high strength of the seat extend valve life.

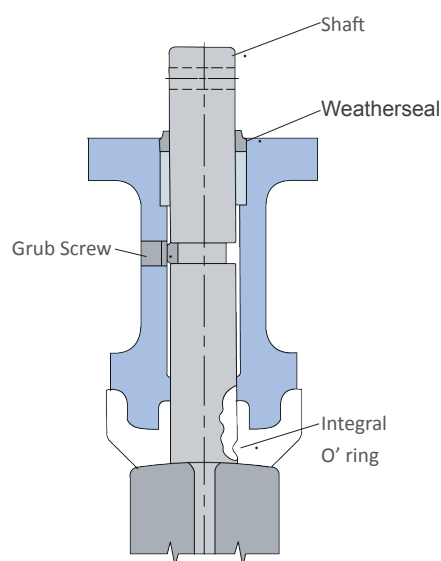
SUPERIOR SEATING

AUDCO Butterfly Valve integrally moulded body liner is not subjected to stretching, which is the cause for fatigue in loose-lined elastomers. Fatigue in elastomer results in excessive wear and subsequent tearing of the liner. A torn liner can be easily swept into the line causing extensive damage to expensive down-stream equipment. Though in valves with loose liners the seat can be replaced, by the time it is done the line fluid would have caused some corrosion to the valve body. This causes imperfect seating of the new liner, resulting in leakages. These drawbacks are eliminated in AUDCO Butterfly Valve integrally moulded liner design.



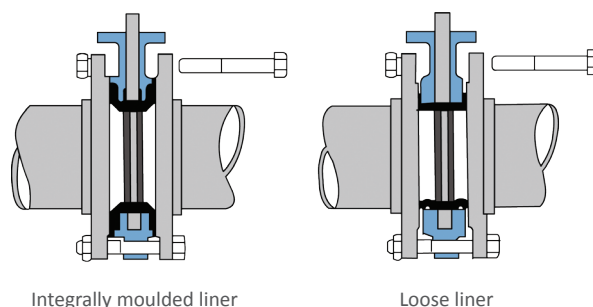
SHAFT SEALING

In AUDCO Butterfly Valve the body liner incorporates flats at the top and the bottom where the shaft passes through, providing a wide sealing area. The secondary sealing is by two 'O' rings that are moulded at the top and bottom of the seat, which get compressed around the shaft. A weatherseal at the top of the shaft prevents any ingress of foreign material into the valve.



EASY INSTALLATION

AUDCO Butterfly Valve has a gasket integral to the body which eliminates the need for a separate gasket between the valve face and companion flange. In addition, as the liner is bonded to the body, it will not hang out or get pinched during installation. Damage to expensive replaceable seats is thereby eliminated.



FULLY ISOLATED VALVE INTERNALS

In the AUDCO Butterfly Valve, the rubber liner incorporates flats at the top and the bottom where the shaft passes through, providing a wide sealing area. This ensures the line fluid does not enter the stem area and get contaminated. The secondary sealing is by two 'O' rings that are moulded at the top and bottom of the seat, which get compressed around the shaft.

FOR CORROSIVE APPLICATIONS

AUDCO CHEMSEAL is a wafer type butterfly valve specifically designed for corrosive services. The body liner is formulated from Hypalon which is a synthetic elastomer having a chemical inertness very close to that of PTFE, but at the same time having the resilience of rubber. This design eliminates contact of the valve body and shaft from the line media. These valves find application on lines carrying aqueous acids, alkali solutions and majority of inorganic salts. The valve has a coating of epoxy paint capable of withstanding corrosive atmospheres.



HYGIENIC APPLICATIONS

AUDCO CLEANSEAL is a wafer type butterfly valve specifically designed for hygienic services. The body seat is formulated from food grade EPDM or white Acrylo nitrile rubber, both synthetic elastomers which do not impart any toxic substance, colour, odour or flavour to the line media. This design eliminates contact of the valve body and shaft from the line media. These valves find application on Hygienic lines in food, dairy, beverages, pharmaceutical and other related industries. The valve has a white epoxy paint for providing corrosion resistance. These valves are available in a size range of 50 to 300 mm and maximum pressure rating of 16 bar for EPDM and 14 bar for White Nitrile.

SELF DRAINING AND CAVITY FREE

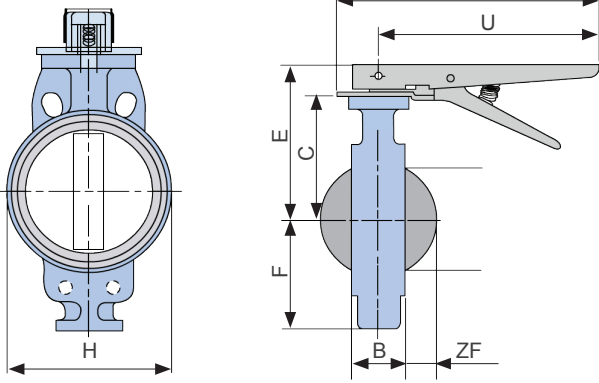
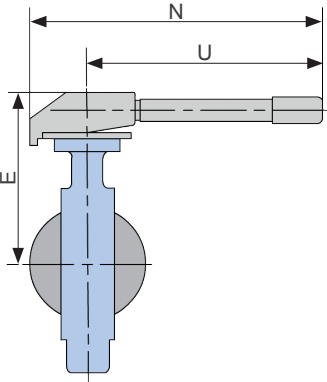
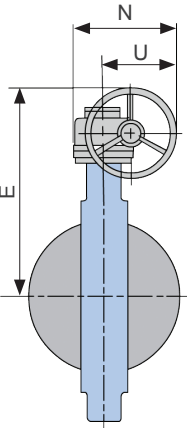
The CLEANSEAL valve design incorporates a crevice free construction, which is a pre-requisite for valves to be used on hygienic services. A smoothly streamlined elastomer lining with a fully polished stainless steel disc ensures that there are no dead pockets or crevices in the valve. The body seat and disc of the CLEANSEAL are contoured in such a way that it is impossible for any line media to remain stagnant inside the valve. The wiping action of the disc ensures that the seat is always maintained clean.



AUDCO SLIMSEAL PN10

AUDCO Slimseal PN10 Butterfly valve is a wafer type valve, with an integrally moulded elastomer body liner, is designed to outperform valves with loose liners. The elastomer liner, moulded directly in the body and vulcanized in-situ, ensures that the liner lasts the entire life of the valve. A valve that requires no form of maintenance.

AUDCO SLIMSEAL PN10 offers a cost effective solution to HVAC systems and is available in sizes from 50 mm to 300 mm, for use in water and air services.

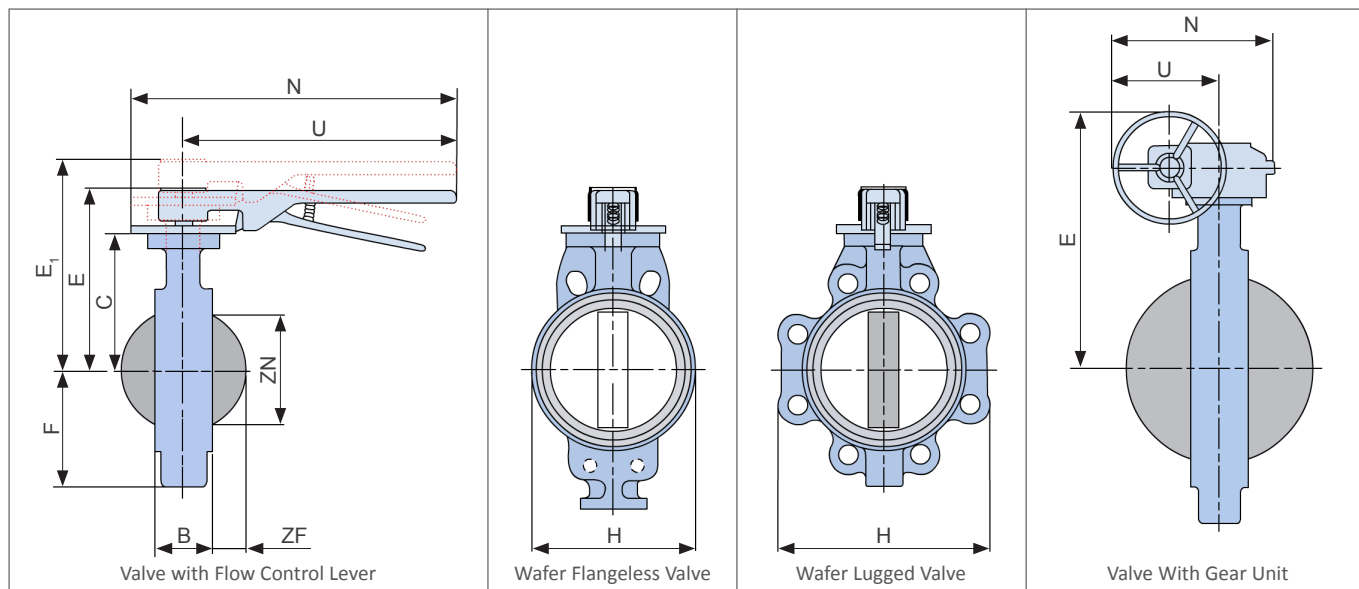
 Valve Size: DN50-DN150	 Valve Size: DN200-DN300	 Valve Size: DN50-DN300
Valve with Flow Control Lever		Valve with Gear Unit

DIMENSIONS (mm)

Valve size	AUDCO SLIMSEAL PN10											
	B	C	E		F	H	N		U		ZN	ZF
			Flow Control Lever	Gear Unit			Flow Control Lever	Gear Unit	Flow Control Lever	Gear Unit		
50	43	99	129	228	65	96	300	193	268	132	27	4
65	46	110	140	239	78	105	300	193	268	132	47	10
80	46	116	146	245	85	123	300	193	268	132	63	16
100	52	134	164	263	105	157	300	193	268	132	83	23
125	56	164	194	293	118	180	300	193	268	132	107	32
150	56	177	207	306	144	212	300	193	268	132	136	45
200	60	235	300	365	169	262	472	193	405	132	185	67
250	68	259	332	438	214	322	615	250	513	181	234	88
300	78	284	357	463	249	373	618	250	516	181	280	106

APPROXIMATE WEIGHT (kgs)

Valve size	AUDCO SLIMSEAL PN10								
	50	65	80	100	125	150	200	250	300
Flow Control Lever - Flangeless	2.2	2.4	3.0	5.7	6.8	9.0	16.7	28.2	38.4
Standard Gear Unit - Flangeless	4.6	4.8	5.4	7.6	8.7	11.0	17.7	29.2	39.4



DIMENSIONS (mm)

Valve size			AUDCO SLIMSEAL PN16/PN20 & CLEANSEAL												
			AUDCO CHEMSEAL								350	400	450	500	600
			50	65	80	100	125	150	200	250					
B			43	46	46	52	56	56	60	68	78	92	102	114	127
C			99	110	116	134	164	177	235	259	284	318	370	410	448
E	Flow Control Lever	E	125	140	146	174	204	217	302	326	351	-	-	-	-
	Long Neck - Flow Control Lever	E ₁	180	193	200	218	234	243	-	-	-	-	-	-	-
	Standard Gear Unit	E	228	239	245	263	293	306	429	453	478	512	-	-	-
	Heavy Duty Gear Unit		-	-	-	-	-	-	451	476	501	535	587	790	828
F			65	78	85	105	118	144	169	214	249	342	377	447	485
H	Wafer Flangeless		103	110	130	161	193	220	273	328	378	438	489	532	589
	Wafer Lugged		121	135	180	208	238	261	322	394	462	525	595	647	721
N	Flow Control Lever		320	320	320	320	320	320	619	619	619	-	-	-	-
	Standard Gear Unit		193	193	193	193	193	193	300	300	300	300	-	-	-
	Heavy Duty Gear Unit		-	-	-	-	-	-	375	375	375	375	375	552	552
U	Flow Control Level		268	268	268	268	268	268	508	508	508	-	-	-	-
	Standard Gear Unit		132	132	132	132	132	132	217	217	217	217	-	-	-
	Heavy Duty Gear Unit		-	-	-	-	-	-	255	255	255	255	255	437	437
ZN			27	47	63	83	107	136	185	234	280	325	376	424	476
ZF			4	10	16	23	32	45	67	88	106	123	144	163	183
H.W.Dia-Standard Gear Unit			152	152	152	152	152	152	300	300	300	300	-	-	-
H.W.Dia-Heavy Duty Gear Unit			-	-	-	-	-	-	300	300	300	300	300	578	578

APPROXIMATE WEIGHT (kgs)

Valve size		AUDCO SLIMSEAL PN16/PN20 & CLEANSEAL												
		AUDCO CHEMSEAL								350	400	450	500	600
		50	65	80	100	125	150	200	250					
Flow Control Lever - Flangeless		3.6	3.9	4.6	6.8	9.5	11.6	26.5	34.5	46.0	-	-	-	-
Flow Control Lever - Lugged		4.9	5.6	7.6	10.4	13.5	15.6	34.0	47.5	61.2	-	-	-	-
Standard Gear Unit - Flangeless		11.3	11.6	12.3	14.5	17.2	19.3	28.0	36.0	47.5	72.0	-	-	-
Standard Gear Unit - Lugged		12.6	13.3	15.3	18.1	21.2	23.3	35.5	49.0	62.7	95.0	-	-	-
Heavy Duty Gear Unit - Flangeless		-	-	-	-	-	-	46.0	54.0	65.5	90.0	115.5	146.0	181.5
Heavy Duty Gear Unit - Lugged		-	-	-	-	-	-	53.5	67.0	80.7	113.0	157.0	204.0	260.0

Note: 450 mm to 600 mm wafer flangeless bodies have lugs near the top and bottom shaft areas. Unless specified by the customer, lugs are tapped as per ASME B16.1 CLASS 125 / ASME 16.5 CLASS 150 (UNC) as shown in dotted lines. For more details contact Flowserve India Controls Pvt Ltd.

MATERIAL SPECIFICATION

Part	Material of Construction	Slimseal			Chemseal	Cleanseal
		PN10	PN16	PN20		
Body	Cast Iron to BS EN 1561 Gr.	EN-JL1030	EN-JL1040		EN-JL1040	EN-JL1040
	SG Iron to BS EN 1563 Gr. EN-JS1030		*	*	*	*
	Carbon Steel to ASTM A216 Gr WCB		*	*	*	*
Body Liner	Acrylo Nitrile	*				
	Black Nitrile		*	*		
	EPDM	*	*	*		*
	Hypalon				*	
	Viton				*	
	White Nitrile					*
Disc	Cast Iron to BS 1452 GR 250 with Nylon coating	*				
	SG. Iron to BS 2789 GR 420/12 with Nylon coating		*	*		
	Al. Bronze to BS 1400 Gr AB2		*			
	S/S to ASTM A351 Gr CF8/CF8M	*	*	*	*	*
	SG. Iron to BS 2789 GR 420/12 with Hypalon/Viton encapsulation				*	
Shaft	BS 970 - 080M40 with PTFE coating	*				
	AISI 410 PTFE coated for permanent dry lubrication		*	*	*	*
Bearings	Acetal	*	50-300mm	50-300mm	*	50-300mm
	Brass		350-600mm	350-600mm		350-600mm
Standard flow control lever	SG Iron/Steel	*	*	*	*	*

For other materials of body and disc, contact Flowserve India Controls Pvt Ltd.

TORQUE DATA (Nm)

Valve Size (mm)	PN10	PN16	PN20	Chemseal		Cleanseal
	10 bar	16 bar	20 bar	12 bar	12 bar*	14 bar
50	7	12	15	9	27	11
65	11	20	25	15	35	14
80	15	27	34	20	45	24
100	23	41	50	31	68	36
125	34	62	78	47	122	55
150	52	93	115	70	231	81
200	102	182	227	137	447	160
250	156	279	347	210	597	244
300	178	318	396	241	854	297
350	-	514	639	390	-	452
400	-	925	1150	701	-	813
450	-	1192	1480	903	-	1047
500	-	1506	1869	1144	-	1325
600	-	3029	3762	2295	-	2662

* For Butterfly Valve with rubber encapsulated discs only

Torque figures indicated are the maximum torque under static condition and do not include any safety factor. During operator I actuator selection suitable factor of safety is to be considered taking into account fluid parameters. Torque figures are at the top shaft of the valve.

STANDARDS

Valve Design	EN 593	- Specification for Butterfly valves
	API609	- Lug and Wafer type Butterfly Valve
Installed	MSS SP67	- Butterfly valves
	ISO 5752	- Metal valves for use in flanged pipe systems. Face to face and centre to face dimensions
Face to Face dimension	50mm to 300mm	BS EN 593 - Wafer Short API 609 - Category A MSS SP-67 - Narrow Body ISO 5752 - Short
	350mm to 600mm	BS EN 593 - Wafer Medium API 609 - Category A (Except DN 350) MSS SP-67 - Wide Body ISO 5752 - Medium
Pressure testing	EN 12266-1	

The valves have been designed to fit without gaskets between flanges drilled to BS 10 Tables D & E, ASME B16.1/ B16.5 Class 150, DIN ND 10/16, EN1092 - PN10/16, IS 6418 Tables 6 to 9 or IS 6392 Tables 10 to 20.

For mounting with any other flanges contact Flowserve India Controls Pvt Ltd. Lugged valves are provided with tapped holes as per ASME B16.1 Class 125 (UNC) unless otherwise specified.

Body top platform drilled to ISO 5211 to facilitate direct mounting of actuators and gear units. Contact Flowserve India Controls Pvt Ltd. for shaft top end details for bare shaft valves.

TEST PRESSURE - bar

Valve	Working Pressure	Test Pressures	
		Body	Seat
Slimseal PN10	10	15	11
Slimseal PN16	16	24	17.6
Slimseal PN20	20	30	22
Chemseal	12	18	13.2
Cleanseal	14	21	15.4

OPERATION

Valve are offered with a choice of operators like Flow control lever, Standard Gear Unit or Heavy Duty Unit as given below:

Operator Type	PN10	PN16	PN20	Chemseal	Cleanseal
Flow Control Lever	50 to 300	50 to 300	50 to 150	50 to 300	50 to 300
Standard Gear Unit	50 to 300	50 to 350	50 to 350	50 to 300	50 to 300
Heavy Duty Gear Unit	-	200 to 600	200 to 600	-	200 to 600

Valve size - mm

Heavy duty gear units are supplied for valves to be fitted with electric actuators.

ACCESSORIES

AUDCO Butterfly valves can be supplied with factory fitted pneumatic, hydraulic or electric actuators along with other accessories such as limit switches, manual overrides, positioners etc., to form a complete flow control package.

MATERIALS AND APPLICATIONS

	General Applications	Continuous Working	Temperature Range	Maximum Working Pressure	Disc Material	Seat Material
Slimseal PN16/20	Oils, Fuels, Water, Air, Gases	Hydrocarbons (Except Aromatics) Other Liquids Dry Service	- 10°C to 90°C - 10°C to 90°C - 10°C to 65°C	16/20 bar	Nylon Coated SG Iron	Black Nitrile
	Brines, Sea Water, Estuary Water,	Liquids	- 10°C to 90°C	16/20 bar	Aluminium Bronze	
	Steam, Water, Hot Gases, Powders, Slurries and aqueous slurries of an abrasive nature	Liquids Dry Services	- 10°C to 120°C - 10°C to 100°C	16/20 bar	Stainless Steel periphery polished	EPDM
Chemseal	Alcohols, Dilute alkalis, Animal & vegetable oils		- 10°C to 90°C	12 Bar	Hypalon Encapsulated SG Iron or Stainless steel periphery polished	CSM (Hypalon)
	Dilute Acids, Weak Alkalis, Oils , hydrocarbons & Salt solutions		-10°C Upto 150°C	12 Bar	Viton Encapsulated SG Iron or Stainless steel periphery polished	FKM (Viton)
	Oils, Fuels, Hot Air		-10 Upto 140 C	6 bar	Stainless Steel periphery polished	Silicone
Cleanseal	Food, Dairy, Pharma	Liquids Dry Services	- 10°C to 80°C - 10°C to 65°C	14 bar	Stainless steel Fully polished	White nitrile
		Liquids Dry Services	- 10°C to 120°C - 10°C to 100°C	16 bar		EPDM (Tasteless)
Slimseal PN10	Sea Water, Air, HVAC systems		- 10°C to 70°C	10 bar	Nylon Coated Cast Iron	# Nitrile

SLIMSEAL PN10 nitrile

CATALOGUE NUMBER

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

80 mm	I	B	F	A	C	E		
Size	Body Material		Operation		Disc Material		Lugs *	
80 mm	I Cast Iron G SG Iron C Carbon Steel A Aluminium Bronze X CF8 Y CF8M		A Pneumatic double acting actuator E Electric Actuator F Flow Control Lever G Gear Unit H Pneumatic spring return actuator N None, bare shaft		G SG Iron encapsulated with Hypalon V SG Iron encapsulated with Viton R Stainless Steel (CF8) S Stainless Steel (CF8M) A Aluminium bronze E SG Iron encapsulated with EPDM J SG Iron coated with nylon C Cast iron coated with Nylon		D Drilled clearance T Tapped	
	Body Style		Body Lining		Shaft material		Lugs Drill/Tap details*	
	B Wafer flangeless L Wafer lugged Z As B but with grey epoxy coating Q As L but with grey epoxy coating G As B but with black epoxy coating M As L but with black epoxy coating R AS B but with dark B.S. grey epoxy coating P As L but with dark B.S. grey epoxy coating J As B but with white Epoxy coating N As L but with white Epoxy coating		1 Hypalon V Viton A Acrylo nitrile 3 EPDM 2 Black Nitrile 4 EPDM (Tasteless) 5 White Nitrile		E Carbon Steel(EN8) with PTFE coating S Stainless Steel(410) with PTFE coating M Monel with PTFE coating W Stainless Steel(304) with PTFE coating D Stainless Steel(316) with PTFE coating		1 EN 1092 - PN10/DIN ND10 2 EN 1092 - PN16/DIN ND16 3 ASME B16.1 - Class 125/ ASME B16.5 - Class 150 4 BS 10 - TABLE 'D' 5 BS 10 - TABLE 'E'	

* For lugged valves only

As we continuously endeavour to improve our products, the data given herein are subject to change.



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