BUTTERFLY VALVES-HIGH PERFORMANCE & LINED



QUALITY VALVE MANUFACTURER

QUALITY COMMITMENT

Quality is Our First Priority, and is achieved by embracing a philosophy of Total Quality Commitment.



SUPERSEAL



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> American National Standards Institute M E M B E R

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High Performance Butterfly Valve



DHV Series Cam-Turn 150 to 600 Class

UNIQUE CAM OPERATED CLOSING MECHANISM FOR LONGER LIFE

NO OTHER VALVE OPERATES OR LASTS LIKE A DHV SERIES.

Similar to the orbit principle ball valve, this firesafe Butterfly valve operates using a cam so the final closing is purely parallel disc face seating, with the disc moving only in a linear path for a flat close-off pressing onto the seat. Conventional style butterfly valves squeeze and scrape seats as they close, causing quick wear and leakage whereas the DHV uses the stem to mechanically cam the valve closed. The DHV series has two shafts an outer and an inner. The outer moves 0-90 degrees in a circular motion. The inner is connected to a cam and moves back or forth and hence aligns the disc to the seat face radially. The disc does not touch the seat when it rotates. In conventional style valves, this is where the wear occurs and if particles of debris are present on the seat, conventional valves will damage the seat in the rotation process. The stem is not bolted to the disc which is also an advantage. The DHV valve is also very low torque and offers mechanically energised dead tight wedge like sealing on seat faces. The metal seated DHV is firesafe.

DISC ENERGISED METAL SEATED BUTTERFLY VALVE CHARACTERISTICS

I. Friction Free Opening and Closing

This action virtually eliminates the major cause of seat wear found in conventional Butterfly, ball, gate and plug valves.

2. Low Torque Required

Ease of operation eliminates the need for extension bars and impact handles. Can be actuated with low pressure custom pneumatic actuators.

3. Wear-resistant Hard Facing on Seat Contacts flexible metal body seat for positive seal.

4. Wedge Type Sealing

Tapers at bottom of stem provide a mechanically energised and adjustable dead-tight seal at high or low differential pressure.

One of the shafts is used to rotate the disc by 90 degrees, the other is used to linearly displace the disc, thereby tightly depressing the disc on the valve seat to completely prevent leakage.



FIRESAFE API6FA, API607

- I. Metal seated type for durability.
- 2. Ideal for high temperature.
- 3. Ideal for corrosion and erosion problem areas applications.
- 4. Wide applicable scope Class 150 to 600 up to 24 inch. All body materials.



COMPETITORS CONVENTIONAL SEATED BUTTERFLY VALVE

- 5. Low maintenance.
- 6. Bi-directional zero leakage, tight shut off (perfect sealing efficiency).
- 7. Lower torque (no-frictional contact).
- 8. Non-rubbing rotation.



CAMTURN DISC ENERGISED TYPE METAL SEATED BUTTERFLY VALVE

DHV Series Cam-Turn 150 to 600 Class





No	Part	Specific Character	Mate	erials	Standard
140.	Name	Specific Character	KS	ASTM	Material
_	BODY	Body is manufactured as standard in Carbon Steel and Stainless Steel. In addition, it can be manufactured in a	GC	A126	GC250
	& BODY SEAT	wide range of materials to suit any requirements such as : Low Temperature carbon steel LCB-LC3, Duplex. Monel, incoloy, hastelloy, 254 SMO Super-austenitic, Alloy Steel	GCD SC	A536 A216	GCD450 SC480
		WC6-WC9, Super-duplex, Inconel, Titanium. Alloy 20, RTFE, can be specified on the seating surfaces of the value body. The value disc is of the same material as	SSC	A351	SSC13, 14
2	DISC	specified for the valve body seat. The valve disc is machined on the outside diameter to conical form that matches the seat in the body. Firesafe style is available.	AC ALBC	B108 B148	AC2A ALBC3
3	INTERNAL & EXTERNAL SHAFT	External shaft is used to rotate the disc by 90 degrees, Internal shaft displaces the disc, thereby depressing the disc on the valve seat to completely prevent leakage. High strength and corrosion-resistant materials can be specified.	ALBC STS	B148 A276	ALBC3 STS410 STS304/316
4	END COVER	End cover is the same material as specified for the valve body.	STS	A276	STS304
5	PACKING	Three types of seal rings are used, Metal O-Ring or RTFE and VITON O-Ring. Metal O-Rings are available for high temperature and abrasive applications.	NBR STS	Acetal FPM	316 RTFE VITON

High Performance Butterfly Valves

Model SLHBF, SLHBFFS & SLHBF-T 150 to 1500 Class Double & Triple Offset

Standard and Firesafe

- Double & Triple offset style.
- Size range 50 NB to 1000 NB (2" to 40").
- ANSI class 150 to 1500.
- Metal seating for high pressure rating with PTFE insert.
- Wafer, lugged & flanged type end connections.
- ANSI class VI shut-off, bubble tight.

Principles of Valve Design - SLHBF, SLHBFFS

The standards SLHBF/SLHBFFS design is double offset (double eccentric). Triple eccentric (triple offset) SLHBF-T style is also available for class V and VI metal seated design.

The basic concept of the SLHBF/SLHBFFS is to only utilise a thin slice of a ball valve at the seat ring area. The body is only wide enough to hold the disc, shaft and seat in place, all the remaining material is eliminated because it serves no purpose. Ball valves have 2 seats, but floating balls only seal on the upstream seat hence the sealing effectiveness of a HP Butterfly Valve is the same. The disc seating edge is a segment of a sphere and creates a reliable, high pressure seal against an un-interrupted 360° seat sealing surface. The disc profile is very thin and allows maximum flow with a low pressure drop.

The most common use of the SLHBF/SLHBFFS is to shut-off flow inside a pipeline. Every component of the valve is designed to

contribute to this goal. The disc, shaft, bearings, packing and disc pins all work together to ensure that the disc is accurately positioned when closed to allow the seat to energise to the disc and create a seal.

FEATURES SLHBF/SLHBFFS

The SLHBF Range is based on a unique quarter-turn design. The double offset shaft and disc configuration together with the advanced high technology seat system provides a reliable rugged multi-purpose butterfly valve range. A triple offset design is also available and is ideal for metal to metal seated applications where a class VI shut off is required.

At the point of the disc opening, the double offset disc provides a cam-like action, thus preventing excessive seat wear and ensuring a long maintenance free life.

- Seat removal is possible without disassembly of the shaft and disc.
- Body insert protects seat from abrasion and erosion.
- Grafoil or PTFE seal-ring & packing.
- Shaft bearing in PTFE or AISI 316.
- 2 Piece stem for extra flow.

Actuator bracket according to ISO 5211, which allows replacement of the stem seals without removal of the actuator.

PTFE-Seat System - SLHBF/SLHBFFS

In the preferred flow-direction, the PTFE-Seat system provides optimum performance. In this design, the line pressure acts as a positive force in the seat system even in fluctuating working conditions. The seat ring is well protected by the valve-body, thus preventing seat distortion.

Bi-directional* - SLHBF/SLHBFFS

The primary PTFE-seat ring is backed up by a secondary metal ring. This metal seat provides a mechanical load to energize the PTFE-seat. The metal sealing ring secures and encapsulates the PTFE ring to ensure rigidity. In combination with the line pressure a Bi-directional sealing against the line pressure is obtained.

* Bi-directional flow, however, bi-directional leak tight shut off must be specified with order.

Fire Safe - SLHBFFS

The model SLHBFFS has a secondary metal seat which gives bi-directional sealing in the event of the PTFE seat insert being burned away in a fire.

Metal to Metal Seat - SLHBF/SLHBFFS

High temperature service and Abrasive service. Bi-directional and inherently firesafe design.

The primary metal seal enables this execution to be used up to 670°C. Seat-rings available are stainless steel ANSI 316L-chromium plated, (maximum allowed temperature: 310°C) and Inconel 625 (maximum allowed temperature: 760°C). As a result the Metal to Metal range meets the full pressure and temperature rating according to ANSI class ratings. For class VI or API598/ISO5208 metal to metal shut off a triple eccentric disc design is required. Seat leakage can be specified (metal seated specification) to API598 (ISO5208 Leakage Class A), API6D or FCI 70-2 Class VI (Triple eccentric metal seated only)



API 607, ISO 10497-5

Firesafe Certified



API 622 2011 2nd Edition Fugitive Emission Certified



Double Offset Design



Model SLHBF-T 150 to 1500 Class Triple Offset



Principles of Valve Design Triple Offset - SLHBF-T

Superseal Model SLHBF-T 150 to 1500 Class triple offset metal seat butterfly valves provide a bi-directional and bubble-tight shut-off which is attributed to the geometry of the triple offset seat. Available in metal to metal and metal laminated graphite seat insert designs. Can also be used for flow control linear flow characteristics between 90 degrees and 70 degrees of opening.

The valve stem is offset from the seat area (1st offset) and the valve seat surface centre line is offset against the centre line of the pipe (2nd offset) and the conical axis is offset from the valve centre line (3rd offset: inclined cone). The 3rd offset completely eliminates rubbing or scraping. The seat surfaces of the body and seal ring in this triple offset design, contact with an inclined "cone-in-cone", and this design requires precision seating tolerances and durability to ensure a slight precision lapped wedgemating effect. In addition, the angle of contact between the body and seat ring provides a low opening and closing torque due to almost no wedging and no scraping action on opening or closing (unlike trunnion mounted ball valves). This eccentric triple offset design provides excellent sealing performance and seat durability and it hardly ever needs repair under normal service conditions.

The seat design can be all metal to metal (optional resilient metal seat design) or multiple laminated using resilient metal alternated with one or even two of the following laminations depending on service: - graphite/aramid fibre/ceramic fibre.





Triple Offset Design

Characteristics and Merits - SLHBF-T

- Excellent seat durability and low operating torque due to non-rubbing characteristics of triple offset construction.
- Bi-directional zero leakage service available (when specified).
- Unrestricted selection of face to face dimensions for API, ASME (ANSI), BS, ISO etc. and perfect interchangeability of gate, ball, plug, high performance butterfly, and other valves.
- Low emission design, guarter turn construction, low operating torgue and lower cost.



SLHBF-T

Leakage rates range to FCI-70 Class IV, V or VI through to zero leakage. Valves can be specified to:--API598 Zero Leakage -ISO 5208 Leakage Rate A -EN1866 -API6D

Wafer & Lug Dimensions CLASS 150 & 300

Model SLHBF, SLHBFFS & SLHBF-T

APPLICABLE STANDARDS

Mounting Pad:	ISO 5211
End Flange:	ANSI B16.5
Wall Thickness:	ANSI B16.34
Face to Face:	MSS SP-68
Pressure Temperature Rating:	B16.34
Design	API609







I 50LB & PN25 DIMENSIONS (MM)

VALVE SIZE	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
Α	48.0	54.0	57.0	63.5	71.5	81.0	92.0	101.5	114.5	127.0	154.0
В	27.3	30.6	33.9	40.5	41.8	48.0	56.5	63.0	71.5	79.0	90.5
С	113.0	132.0	162.0	192.0	262.0	298.0	320.0	365.0	388.0	418.0	498.0
D	183.4	202.5	245.3	289.0	364.0	401.5	420.0	482.0	510.0	535.0	679.0
E	256.4	309.6	375.8	470.4	585.2	660.6	710.6	800.6	876.5	930.4	1302.7
ISO 5211 MOUNTING PAD *	F07	F07	FIO	FIO	FIO	FI4	FI4	FI4	FI6	FI6	F25

* Optional ** Indicative only SLHBT-T and SLHBF can vary. Refer drawing.

WEIGHT (KG)

LUG	5.5	15.5	21	36	45	69	95	162	216	242	554
WAFER	9.5	П	16	27	30	45	68	120	168	195	433

300LB[†] DIMENSIONS (MM)

VALVE SIZE	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
Α	48.0	54.0	59.0	73.0	82.5	92.0	117.5	133.5	149.5	159.0	181.0
В	27.3	30.6	33.9	40.5	50.3	59.0	60.5	72.5	81.5	94.0	116.5
С	123.0	138.0	183.0	213.6	282.0	324.0	340.0	369.0	421.4	458.6	552.0
D	193.4	206.0	265.5	311.0	384.0	427.5	446.0	501.0	548.5	581.0	690.0
E	292.4	321.0	416.6	514.8	626.7	708.7	731.8	816.4	962.0	1053.5	1414.6
ISO 5211 MOUNTING PAD *	F07	F07	FIO	FIO	FIO	FI4	FI4	FI4	FI6	FI6	F25

[†]ALSO SUIT AS/BST-F TO J * Optional ** Indicative only SLHBT-T and SLHBF can vary. Refer drawing.

WEIGHT (KG)

LUG	15.5	24	36	54	79	117	253	329	504	649	986
WAFER	10	13	19	32	39	55	167	195	325	407	632

600 to 2500 Class refer to drawing.

Assembly Drawing







PARTS LIST

No.	DESCRIPTION	MATE	RIAL	QTY.	No.	DESCRIPTION	MATERIAL	QTY.
01	BODY	A351 CF8M	A216 WCB	1	62	WRENCH BOLT	A193 B8M / B8	I SET
05	YOKE	A351 CF8	A216 WCB	I	64	DISC WASHER	A276 316 / 304	2
06	DISC	A351	CF8M	I	64-1	LOCK WASHER	STAINLESS STEEL	2
08	GLAND FLANGE	A351 CF8	A105	I	64-2	SPRING WASHER	STAINLESS STEEL	2
08-1	LOW GLAND FLANGE	A351 CF8M	A216 WCB	I	65	DISC PIN	316 / 17-4 PH / 304	2
13	LEVER	CARBO	N STEEL	I	66	STOPPER	CARBON STEEL	I
15	HANDWHEEL (GEAR)	CARBO	CARBON STEEL		71	NAME PLATE	STAINLESS STEEL	I
18	STEM	17-4 PH /	17-4 PH / 316 / 304		73	STEM BEARING	316 S/S BACKED R.T.F.E.	I
19	SEAT	R-P	TFE	I	73.1	STEM BEARING	316 S/S BACKED R.T.F.E.	I
20	GLAND RING	A276 3	16 / 304	I	75	O-RING	PTFE / GRAPHITE	I
23	SPACER	A276 3	16 / 304	I	76	LOW GLAND BOLT	A193 B8	I SET
25	INSERT	A351 CF8M	A105	I	76-1	SETTING BOLT	A193 B8	2
26	GEAR BOX	Ductil	e Iron	I SET	76-2	SETTING BOLT	A193 B8	I
56	YOKE BOLT	A193 B8		I SET	79	DISC SPRING	STAINLESS STEEL	I
58	GLAND BOLT	A193 B8		2	82	GEAR BOLT	A193 B8	I SET
59	GLAND NUT	A194 8		2	97	PACKING	PTFE / GRP	I SET

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Indicative example only, design varies according to size, class and specifications. Refer to as-built drawing. For Firesafe and metal seat design. 150 to 2500 class refer to drawing.

Engineering Data

SLHBF & SLHBFFS







VALVE SIZE	Сү
3"	170
4"	410
6"	960
8"	1820
10"	2920
12"	4320
14"	5160
16"	6930
18"	9330
20"	11340
24"	18540









TORQUE RATING* 150/300 CLASS

MAX. DIFFERENTIAL PRESSURE - PSI

Figure Number SLHBF, SLHBFFS & SLHBF-T



END CONNECTIONS

L = LUG TYPE

F = FLANGED

W = WAFER TYPE

BODY

MATERIALS

A = WCB

В

С = WC6

D = WC9

Ε = C-5

F = C-12

G = LCB

н = LC3

.1 K = CF3

1 = M = CF8C

= WC1

= CF8

= CF8M

N = CN7M

D = WCC

Z = SPECIAL

CF3M

TRIM

MATERIALS

A = F304

B = F316

C = F316L

= ALLOY-20

H = HASTELLOY

= MONEL

Z = OTHERS

D = F304L

Е = F321

F

G

SEAT

R = RPTFE

P = PTFE

C = CARBON

L = LAMINATED

METAL &

GRAPHITE

M = METAL CLASS VI*

SHUT OFF

N = METAL CLASS IV

SHUT OFF

P = METAL CLASS V

SHUT OFF

LEAKAGE

Q = METAL ZERO

Z = SPECIAL

FILLED PTFE

MODEL	RATINGS	
SLHBF	A = 150 CLASS	
Standard model	B = 300 CLASS	
SLHBFFS	C = 600 CLASS	
Firesafe model	D = 900 CLASS	
	E = 1500 CLASS	
	F = AS/BST-E	
	G = AS/BST-F	
	H = AS/BST-H	
	Z = SPECIAL	

EXAMPLE - SLHBF-ALJBRG

Standard Model 150LB Lug type CF8M Stainless steel body F316 Trim **RPTFE Seat insert Graphite Packing** Double offset design



- I. Double sealing construction - Primary RTFE seat (Non-fire) - Secondary metal seat (during and after fire)
- 2. Excellent sealing (in Bi-directions on request)
- 3. Conforms to API607 and 6th Edition

PTFE SEAT (NON FIRESAFE)					
Disc					
BODY					

- I. Reinforced PTFE
- 2. Excellent sealing (in both directions on request)
- 3. Cost effective





- I. Multi-sealing triple eccentric construction
 - Primary metal seat - Multiple metal laminations graphite or PTFE filled
- 2. Excellent sealing in **Bi-directions**
- 3. Inherently firesafe to API607 6th Edition

PACKING G = GRAPHITE

PTFE

SPECIAL

P =

Z =

BLANK = DOUBLE OFFSET (DOUBLE ECCENTRIC) T = TRIPLE ECCENTRIC*

MODIFIED

API 622 & ISO 15848-1 Endurance Test Certified

METAL SEAT FIRESAFE^{*} Metal Space Metal Seat (or solid) BODY

- I. High temperature capability allows maximum of 620°C (1150°F)
- 2. High pressure capability
- 3. Stainless steel sealing area is resistant to corrosion and wear
- 4. Inherently firesafe* in class VI or API598 (metal seat) shutoff

Actual drawing supplied on request.



* In class VI and API598/ISO 5208 Rate A metal seated, a triple eccentric (triple offset) design is required. Indicative drawing only.

SEAT DESIGN

Range & Standards SLHBF, SLHBFFS & SLHBF-T

SUPERSEAL

Butterfly Valves, Flanged and Wafer

Size:	50NB - 1800NB (2"	to 72")
Class:	150 to 900 ANSI	
Design:	Flanged: MSS-SP-67	Wafer: MSS-SP-68 / API609
	Hard face or soft sea	ts
Face to Face:	ASME BI6.10 /MSS-S	P-67 MSS-SP-68 / API 609
Flange Dimensions:	ASME B16.5, over 24	" - MSS-SP-44 OR API 605
Pressure Test:	API 598, ISO5208, EN	NI 266, API6D
Pressure/Temperature:	ASME B16.34	



Lined Butterfly Valve 10/16 Bar



TYPE: 2014, 2016, 2014A 1000 KPA (TO 600NB) & 1600 KPA RATED (TO 300NB) SUIT AS/BS TABLE D, E, ASA 125, PN10, PN16 etc



Shaft weather seal

SEAL CONSTRUCTION & FEATURES (Benefits of Superseal design compared to traditional designs) Strong precision key gives positive attachment for manual lever or actuator.

Luberized bushings give stem support at actuator mounting and immediately outward of seat.

Precision taper pins ensure positive, vibration proof, stem to disc connection. Easily field replaceable.

Valves available with both wafer and lug type bodies. Fully lined body in a broad range of materials - including Teflon.

One piece thru-stem design ensures dependability and positive disc control.

Alignment features allow easy installation between pipeline flanges; a real installation cost saver. (model 2014A HP2 & 2016HP2)

Axial bearing prevents shaft overload.

Actuator flange accommodates all types of operators: handle, gear, electric and pneumatic actuators.

Pressure surge seals* are moulded integrally inside the seat shaft hole area. These rings below disc are materially compatible with the seat to provide failsafe sealing around stem, eliminating possible leakage.

The phenolic backed* seat is non-collapsible, stretch resistant and blowout proof. Easily field replaceable.

Polished disc flats "mate" with seat flats to give a highly efficient seal: prevents leakage into the stem area.

Precision profile disc provides bubble-tight shut off with minimal disc/seat interference, assuring minimum torque and longer seat lift.

Supported stem seal protects against distortion, a common cause of stem leakage.

> The disc is precision manufactured to close tolerances on the O.D. and the flats. Seating edge is a polished half ball for torque control.

The conventional disc has been sanded to remove rough area, precise dimensions are not maintained. The modern seat and disc design insures positive sealing while maintaining low seating torque. The superseal design extends seat life by eliminating any bunching or tearing.

The conventional design relies

on distortion and bunching of the seat to achieve a bubble

decreased causing higher maintenance cost and increased

tight shutoff. Seat life is

down time.



The superseal seat design* has a much smaller mass of elastomer which can swell, in turn torque is controlled to a reasonable degree.

Elastomers are subject to swelling

from fluid absorption which can increase the mass of the seat. This

increase can and often does cause

excessively high seating torque.

Seat life is shortened.

Precision machined disc edge and shaft flats.

- Bonded distortion proof seat, close tolerances.
- Positive shaft seals.
 - Low potential of seat swell.
- Controlled torque by design superiority.
- Non-precision disc dimensions.
- Seat distorts during installation and operation.
- Shorter seat life.
- Shorter seat life.
- Higher torque due to bunching and potential swelling.

*Design varies according to size, rating and material specifications.

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CONSTRUCTION

TRADITIONAL

CONSTRUCTION

SUPERSEAL

This brochure is general in it's nature and design is subject to change at any time without notice.

SPECIFICATIONS

1. Available To Suit Following Flanging ANSI (ASA) 125LB/150LB, A.S/B.S. Table D, E and JIS, DIN etc. Face to face dimension generally in accordance with BS5155/ISO5752

2. Fluid Application

Water, seawater, sewage, air, oil, powder, petroleum, gas, chemicals, salts, alkalines etc.

3. Operation

Generally flow control lever & notch plate to 300NB, gear op over 300NB

4. Mounting

To ISO 5211 on request.

Long lasting, high performance American design.

PRESSURE RATING

Bi-directional bubble-tight shut off seat tested to 110% of full rating.

2 types available in this model:-Working pressure: 150 psig (1000kpa) and 232 psig (1600kpa). 1600kpa version only available up to 300NB in this model. See HP Version brochure if higher pressure required.

Over 600NB request pressure rating.



WAFER STYLE 2014A (Semi-lugged with 2 or 4 lugs). PCD of Lug holes (K) supplied according to order i.e. ASA 125, AS/BS D, E etc



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WAFER STYLE 2014



LUGGED STYLE 2016 (Can be supplied ASA 125 AS/BS D, E etc.)

 \odot

C



SEMI LUG



GEAR OPERATED

LEVER & NOTCH PLATE

GENERAL APPLICATIONS	CONTINUOUS WORKING TEMPERATURE RANGE	DISC MATERIAL	SEAT MATERIAL
Steam, Water, Hot Gases, Powders, Slurries and Aqueous Slurries of an abrasive nature	Liquids - 10°C to 120°C Dry Services - 10°C to 100°C	Stainless Steel	General Purpose EPDM
Brines, Sea Water, Estuary Water, Marine Bilge & Ballast Systems	-10°C to 90/100°C	Aluminium Bronze or ENP or S/S or Nylon coated	Black Nitrile or EPDM
Oils, Fuels, Water, Air, Gases, Powders, Pellets, Slurries etc.	Hydrocarbons (Except Aromatics) - 10°C to 90°C Other Liquids - 10°C to 90°C Dry Services - 10°C to 60°C	Teflon or Nylon Coated or SG Iron or ENP or stainless	Black Nitrile
Water & other non erosive fluids	All -10°C to 90/100°C (Solid PTFE will do up to 160°C)	S.G Iron or powder coated	ANY

MATERIALS

I. Body	Cast iron, stainless ductile iron, aluminium, carbon steel, stainless steel etc
2. Disc	316SS, 304SS, AL- Bronze, hard epoxy coated, hard rubber coated, nickel plated, PTFE coated, 410SS etc
3. Stem	316SS, 304SS, PTFE coated, AL-Bronze etc.
4. Seat	NBR (90°-100°C), EPDM (90°C) teflon, food grade rubber, Buna-N,Viton, Hypalon etc
5. Retaining Pin/ Gland Ring	304SS/316SS/410SS
6. Bottom Bushing	Bronze/Nylon
7. O-Rings	NBR (nitrile)/EPDM
8. Upper Bush	Delrin/Nylon/Bronze



DIMENSIONS

VALVE SIZE			DIMENSION							WEIGHT Suit Flanging			
in	mm	A	В	с	D	E	н	ID	Kg	GI*	G2*	К*	N-ø
1½	40	33		58	124		90	40	2				
2	50	43	57	55	143	30	90	52	2.3				
2½	65	46	70	64	155	30	90	65	2.7				
3	80	46	82	72	162	30	90	80	3.6				
4	100	52	104	90	181	30	90	100	5				
5	125	56	127	101	197	30	90	125	6.1				
6	150	56	150	114	210	30	90	148	7.1				
8	200	60	194	145	240	35	95	197	13.6				
10	250	68	247	178	286	35	110	247	21.3				
12	300	78	297	204	309	35	120	297	32.2				
14	350	76	330	266	355	55	125	327	85				
15	375	86	387	300	380	55	175	387					
16	400	86	387	300	380	55	175	387	106				
18	450	105	435	323	425	55	175	435	135				
20	500	130	489	350	430	90	210	477	170				
24	600	150	602	407	500	90	210	560	250				

650NB to 900NB refer separate Drawing *G1, G2 & K available to suit: AS/BST-C, D, E, ASA 125, PN10, PN16, JIS etc.

Sizes shown are subject to variation at any time

SEAT PRESSURE / TEMPERATURE



OPERATING TORQUE (NM)

2014/2014A/2016

VALVE		Δ P	(psi)	
(ins)	25	50	100	150
2	12	12	20	25
2 ½	12	12	25	30
3	18	19	30	35
4	32	33	40	50
5	49	51	60	70
6	72	76	70	90
8	127	139	160	190
10	196	219	240	300
12	289	323	400	500
14	439	481	554	830
16	568	636	762	1110
18	751	831	1005	1390
20	931	1052	1282	1730
24	1375	1559	1871	2020

Torque shown is break/reseating (same



INSTALLATION

(DO NOT USE GASKETS)

Pipework opened to allow valve free entry, disc in semi-closed position



Valve in semi-open to protect disc edge and reduce rubber interference during installation and start up, this helps reduce initial torque build up.



Disc should be turned to full open position after flange alignment and before doing up flange bolts.

TORQUE

Torques based on clean, wet fluids. 20% safety factor recommended. For oil/lubricated fluids torque can reduce from 20% to 50%.

For non lubricating dry gases torque can increase 35% to 80%. (see separate chart).

Dry or abrasive/dirty service, temperature variations as well as infrequent use can all dramatically increase torque.

Lined Butterfly Valve 16/21 Bar



TYPE: 2014-HP, 2016-HP, 2014A-HP 2100 KPA RATED TO 300NB 1600 KPA RATED TO 350-400NB SUIT AS/BS TABLE F ANSI 150 PN16/20 etc



Shaft weather seal

SEAL CONSTRUCTION & FEATURES (Benefits of Superseal design compared to traditional designs) Strong precision key gives positive attachment for manual lever or actuator.

Luberized bushings give stem support at actuator mounting and immediately outward of seat.

Precision taper pins ensure positive, vibration proof, stem to disc connection. Easily field replaceable.

Valves available with both wafer and lug type bodies. Fully lined body in a broad range of materials - including Teflon.

One piece thru-stem design ensures dependability and positive disc control.

Alignment features allow easy installation between pipeline flanges; a real installation cost saver. (model 2014A HP2 & 2016HP2)

Axial bearing prevents shaft overload.

Actuator flange accommodates all types of operators: handle, gear, electric and pneumatic actuators.

Pressure surge seals* are moulded integrally inside the seat shaft hole area. These rings below disc are materially compatible with the seat to provide failsafe sealing around stem, eliminating possible leakage.

The phenolic backed* seat is non-collapsible, stretch resistant and blowout proof. Easily field replaceable.

Polished disc flats "mate" with seat flats to give a highly efficient seal: prevents leakage into the stem area.

Precision profile disc provides bubble-tight shut off with minimal disc/seat interference, assuring minimum torque and longer seat lift.

Supported stem seal protects against distortion, a common cause of stem leakage.

> The disc is precision The m manufactured to close design tolerances on the O.D. while to and the flats. Seating torque edge is a polished half ball for torque control. any bu

The conventional disc has been sanded to remove rough area, precise dimensions are not maintained. The modern seat and disc design insures positive sealing while maintaining low seating torque. The superseal design extends seat life by eliminating any bunching or tearing.





Elastomers are subject to swelling from fluid absorption which can increase the mass of the seat. This increase can and often does cause excessively high seating torque.

Seat life is shortened.

degree.

The superseal seat design* has a

much smaller mass of elastomer which can swell, in turn torque is controlled to a reasonable Precision machined disc edge and shaft flats.

- Bonded distortion proof seat, close tolerances.
- Positive shaft seals.
 - Low potential of seat swell.
- Controlled torque by design superiority.
- Non-precision disc dimensions.
- Seat distorts during installation and
- operation.
- Shorter seat life.
- Higher torque due to bunching and potential swelling.

*Design varies according to size, rating and material specifications.

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CONSTRUCTION

TRADITIONAL

CONSTRUCTION

SUPERSEAL

This brochure is general in it's nature and design is subject to change at any time without notice.

SPECIFICATIONS

 Available To Suit Following Flanging ANSI (ASA) 150LB, AS/BS Table E, PN16, JIS, DIN etc. Face to face dimension generally in accordance with BS5155/ISO5752.

2. Fluid Application

Water, seawater, sewage, air, oil, powder, petroleum, gas, chemicals, salts, alkalines etc.

3. Operation

Generally flow control lever & notch plate to 300NB, gear op over 300NB

4. Mounting

To ISO 5211 on request. Long lasting, high performance American design.



WAFER STYLE 2014A HP Semi-lugged with 2 or 4 lugs). PCD of Lug holes supplied according to order i.e. ASA 150, AS/BS E, F etc



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WAFER STYLE 2014 HP

PRESSURE RATING

(to 300NB)

2100 KPA Working pressure:-Bi-directional bubble-tight shut off and seat tested to 110% of full rating.

Test Pressure: 314 psi.

Over 300NB rating is 1600 KPA to 400NB



LUGGED STYLE 2016 HP (Can be supplied ANSI 150 AS/BS E, F etc.)



SEMI LUG



GEAR OPERATED

LEVER & NOTCH PLATE

GENERAL APPLICATIONS	CONTINUOUS WORKING TEMPERATURE RANGE	DISC MATERIAL	SEAT MATERIAL
Steam, Water, Hot Gases, Powders, Slurries and Aqueous Slurries of an abrasive nature	Liquids - 10°C to 120°C Dry Services - 10°C to 100°C	Stainless Steel	General Purpose EPDM
Brines, Sea Water, Estuary Water, Marine Bilge & Ballast Systems	-10°C to 90/100°C	Aluminium Bronze or ENP or S/S or Nylon coated	Black Nitrile or EPDM
Oils, Fuels, Water, Air, Gases, Powders, Pellets, Slurries etc.	Hydrocarbons (Except Aromatics) - 10°C to 90°C Other Liquids - 10°C to 90°C Dry Services - 10°C to 60°C	Teflon or Nylon Coated or SG Iron or ENP or stainless	Black Nitrile
Water & other non erosive fluids	All -10°C to 90/100°C (Solid PTFE will do up to 160°C)	S.G Iron or powder coated	ANY

MATERIALS

I. Body	Cast iron, stainless ductile iron (ASTM A396), aluminium, carbon steel etc
2. Disc	316SS, 304SS, AL-Bronze, hard epoxy coated, hard rubber coated, nickel plated, PTFE coated, 410SS etc
3. Stem	316SS, 304SS, 410SS, PTFE coated etc
4. Seat	NBR (90°C), EPDM (90°-100°C), solid teflon (170°C), phenolic backed teflon (160°C), EPDM back teflon (150°C), food grade rubber, Buna-N, Viton, Hypalon etc
5. Retaining Pin/ Gland Ring	304SS/410SS/316SS
6. Bottom Bushing	Bronze/Nylon
7. O-Rings	NBR (nitrile)/EPDM
8. Upper Bush	Delrin/Nylon/Bronze
9. Backing	Phenolic (where applicable)



OPERATING TORQUE (NM)

VALVE SIZE (ins)	Δ P (psi)							
	200	250	300					
2	30	37	45					
2 ½	35	43	55					
3	55	67	75					
4	70	90	105					
5	100	150	180					
6	170	225	240					
8	300	416	490					

• Torque shown is break/reseating (same)

DIMENSIONS

VALVI	E SIZE			DI	MENSI	ом			WEIGHT		Suit Fla	inging	
in	mm	A	в	с	D	Е	н	ID	Kg	GI*	G2*	K*	N-ø
1%	40	33		58	124		90	40	2				
2	50	43	57	55	143	30	90	52	2.3				
2 ½	65	46	70	64	155	30	90	65	2.7				
3	80	46	82	72	162	30	90	80	3.6				
4	100	52	104	90	181	30	90	100	5				
5	125	56	127	101	197	30	90	125	6.1				
6	150	56	150	114	210	30	90	148	7.1				
8	200	60	194	145	240	35	95	194	13.6				
10	250	68	247	178	286	35	110	247	21.3				
12	300	78	297	204	309	35	120	298	32.2				
14	350	76	330	266	355	55	125	327	85				
15	375	86	387	300	380	55	175	387					
16	400	86	387	300	380	55	175	387	106				
	*G1, G2 & K available to fit any flanging i.e. AS/BS E, F, ASA 125, PN16, JIS etc.												

*Sizes shown are subject to variation at any time.

TORQUE

Torques based on clean, wet fluids. 20% safety factor recommended. For oil/lubricated fluids torque can reduce from 20% to 50%.

For non lubricating dry gases torque will increase 35% to 80%.

Dry or abrasive/dirty service, temperature variations as well as infrequent use can all dramatically increase torque.

PAGE 20

Lined Butterfly Valve High Pressure 25Bar



2500 KPA Rated Type 2014-HP2, 2014A-HP2, 2016-HP2 50NB TO 300NB SUIT AS/BS TABLE H, ANSI 150, PN25



Shaft weather seal

SEAL CONSTRUCTION & FEATURES (Benefits of Superseal design compared to traditional designs) Strong precision key gives positive attachment for manual lever or actuator.

Luberized bushings give stem support at actuator mounting and immediately outward of seat.

Precision taper pins ensure positive, vibration proof, stem to disc connection. Easily field replaceable.

Valves available with both wafer and lug type bodies. Fully lined body in a broad range of materials - including Teflon.

One piece thru-stem design ensures dependability and positive disc control.

Alignment features allow easy installation between pipeline flanges; a real installation cost saver. (model 2014A HP2 & 2016HP2)

Axial bearing prevents shaft overload.

Actuator flange accommodates all types of operators: handle, gear, electric and pneumatic actuators.

Pressure surge seals* are moulded integrally inside the seat shaft hole area. These rings below disc are materially compatible with the seat to provide failsafe sealing around stem, eliminating possible leakage.

The phenolic backed* seat is non-collapsible, stretch resistant and blowout proof. Easily field replaceable.

Polished disc flats "mate" with seat flats to give a highly efficient seal: prevents leakage into the stem area.

Precision profile disc provides bubble-tight shut off with minimal disc/seat interference, assuring minimum torque and longer seat lift.

Supported stem seal protects against distortion, a common cause of stem leakage.

> The disc is precision The manufactured to close desis tolerances on the O.D. whil and the flats. Seating torc edge is a polished half extrt ball for torque control. any

The conventional disc has been sanded to remove rough area, precise dimensions are not maintained. The modern seat and disc design insures positive sealing while maintaining low seating torque. The superseal design extends seat life by eliminating any bunching or tearing.





The superseal seat design* has a much smaller mass of elastomer which can swell, in turn torque is controlled to a reasonable degree.

Elastomers are subject to swelling

from fluid absorption which can increase the mass of the seat. This

increase can and often does cause

excessively high seating torque.

Seat life is shortened.

Precision machined disc edge and shaft flats.

- Bonded distortion proof seat, close tolerances.
- Positive shaft seals.
 - Low potential of seat swell.
- Controlled torque by design superiority.
- Non-precision disc dimensions.
- Seat distorts during installation and operation.
- Shorter seat life.
- Higher torque due to bunching and potential swelling.

*Design varies according to size, rating and material specifications.

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CONSTRUCTION

TRADITIONAL

CONSTRUCTION

SUPERSEAL

This brochure is general in it's nature and design is subject to change at any time without notice.

SPECIFICATIONS

1. Available To Suit Following Flanging

ANSI (ASA) 150LB, B.S. Table H, PN25 etc. Face to face dimension generally in accordance with BS5155/ISO5752

2. Fluid Application

Water, seawater, sewage, air, oil, powder, petroleum, gas, chemicals, salts, alkalines etc.

3. Operation

Generally flow control lever & notch plate to 100NB, gear op over 100NB

4. Mounting

To ISO 5211 on request.

Long lasting, high performance American design.



WAFER STYLE 2014A HP2 (Some sizes are often semi-lugged as shown with 2 or 4 lugs). PCD of Lug holes supplied according to order i.e. ASA 150, 300, Table H, PN25 etc



WAFER STYLE 2014 HP2

PRESSURE RATING

(50NB to 300NB Only) Bi-directional bubble-tight shut off to 2500 KPA, and seat tested to 110% of full rating. Body is tested to 150% of full rating.

Working pressure:- 2500 KPA.

Seat test pressure:- 2750 KPA.



LUGGED STYLE 2016 HP2 (Can be supplied ASA 150, 300

Table H, PN25 etc.)



SEMI LUG



GEAR OPERATED

LEVER & NOTCH PLATE

GENERAL APPLICATIONS	CONTINUOUS WORKING TEMPERATURE RANGE	DISC MATERIAL	SEAT MATERIAL
Steam, Water, Hot Gases, Powders, Slurries and Aqueous Slurries of an abrasive nature	Liquids - 10°C to 120°C Dry Services - 10°C to 100°C	Stainless Steel	General Purpose EPDM
Brines, Sea Water, Estuary Water, Marine Bilge & Ballast Systems	-10°C to 90/100°C	Aluminium Bronze or ENP or S/S or Nylon coated	Black Nitrile or EPDM
Oils, Fuels, Water, Air, Gases, Powders, Pellets, Slurries etc.	Hydrocarbons (Except Aromatics) - 10°C to 90°C Other Liquids - 10°C to 90°C Dry Services - 10°C to 60°C	Teflon or Nylon Coated or SG Iron or ENP or stainless	Black Nitrile
Water & other non erosive fluids	All -10°C to 90/100°C (Solid PTFE will do up to 160°C)	S.G Iron or powder coated	ANY

MATERIALS

I. Body	Ductile iron, stainless, aluminium, carbon steel, stainless steel etc
2. Disc	316SS, 304SS, AL- Bronze, hard epoxy coated, hard rubber coated, nickel plated, PTFE coated etc
3. Stem	316SS, 304SS, 410SS, 17-4 PH, PTFE coated etc
4. Seat	NBR (90°C), EPDM (90°- 100°C), teflon, food grade rubber, Buna-N,Viton, Hypalon etc. Larger sizes are phenolic backed.
5. Retaining Pin/Gland Ring	304SS/410SS/316SS
6. Bottom Bushing	Bronze/Nylon
7. O-Rings	NBR (nitrile)/EPDM
8. Upper Bush	Delrin/Nylon/Bronze
9. Backing Ring	Phenolic (where applicable)

DIMENSIONS

VALVI	E SIZE		DIMENSION						s		NGING	;
in	mm	Α	В	с	D	E	н	ID	GI*	G2*	К*	N-ø
2	50	43	57	55	143	30	90	52				
2 ½	65	46	70	64	155	30	90	65				
3	80	44.7	82	72	162	30	90	80				
4	100	52	104	90	181	30	90	100				
5	125	55	127	101	197	30	90	125				
6	150	56	150	114	210	30	90	148				
8	200	60	194	145	240	35	95	194				

250NB to 300NB refer to Drawing. *G1, G2 & K available to fit BST-H, ASA 150, ASA 300, JIS, PN25 etc.

Dimensions shown are subject to variation at any time.

SEAT PRESSURE / TEMPERATURE (to 300 NB ONLY)



INSTALLATION (DO NOT USE GASKETS)

Pipework opened to allow valve free entry, disc in semi-closed position

Valve in semi-open to protect disc edge and reduce rubber interference during installation and start up, this helps reduce initial torque build up.

Disc should be turned to full open position after flange alignment and before doing up flange bolts.

OPERATING TORQUE (NM)

2014 HP2/2014A HP2/2016 HP2

VALVE	Δ P (psi)							
(ins)	250	300	362					
2	37	45						
2 ½	43	55						
3	67	75						
4	90	105						
5	150	180						
6	225	240						
8	416	490						

• Torque shown is break/reseating (same)



Torques based on clean, wet fluids. 20% safety factor recommended. For oil/lubricated fluids torque can reduce from 20% to 50%.

For non lubricating dry gases torque will increase 35% to 80%.

Also, dry or abrasive/dirty service, temperature variations as well as infrequent use can all dramatically increase torque.

Teflon & Elastomer Lined Butterfly Valve 2 Piece Body

Model 2014-2P



"Double - D" STEM Featuring visual position indication Mounting Flange as per ISO 5211 Compatible to a variety of operating options

> **Centering Lugs** For accurate positioning of valve between flanges

> > Two-piece Body

Variety of Body

Materials available

One-piece Disc / Stem Offered in variety of materials & coatings

Body liner Made of high quality elastomers such as Buna N, Solid PTFE, EPDM, PTFE EPDM (Food grade) etc. assuring economical valve performance even in automated process systems

and high operating pressures

Fully encapsulated Teflon trim available



Service:

Hygenic, Chemical, Industrial, Mining, Oil & Gas, High Temperature

Size Range: 50 to 600mm

50 to 600mm

Pressure Rating:

0 to 1000 kPa in S/S trim with flexible liner 0 to 700 kPa with rubber or Teflon discs or solid Teflon seat 500 kPa max rating on dead end service

Temperature Rating:

Minus 20°C to 110°C with EPDM seats Minus 8°C to 90°C with Buna N seats Minus 5°C to 110°C with Teflon lined Buna N seats Minus 20°C to 130°C with Teflon lined EPDM seats Minus 10°C to 100°C with Urethane Minus 20°C to 150°C with solid Teflon

Standard Materials:

Body:	Cast Iron, 316SS etc
Disc:	316 S/S EPDM encapsulated,
	Teflon encapsulated
C	

- Stem: 316 S/S, EPDM or Teflon encapsulated
- Seat: EPDM or Buna N
 - Teflon Buna N backed Teflon - EPDM backed Urethane Teflon - solid

Flanging:

AS 2129 Table E ANSI Class 125/150 PN10, PN16



Design:Centric - Wafer and LugSize / Pressure Rating:DN 50mm to 300mm (2" to 12") PN 3.5, PN 10, PN 16Operation:Bare Stem, Flow Control Lever, Worm Gear & AutomatedReference Standards:API 609, API 598, BS 5155, BS 6755

MATERIALS OF CONSTRUCTION

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Component	Material Options Available
Body	Cast Iron FS220 Ductile Iron GGG40 Carbon Steel ASTM A216 WCB Stainless Steel ASTM A351 CF8 Stainless Steel ASTM A351 CF8M
Disc & Stem	Carbon Steel ASTM A105/WCB + Nylon Coating or PTFE Coated Stainless Steel ASM A351 CF8/CF8M/316L/CF3M Aluminium Bronze Nickel Titanium Hastalloy
Liner	PTFE (Solid) Buna N (Nitrile) EPDM Silicon Viton PTFE (EPDM Backed) White food grade Buna N White food grade EPDM



GENERAL DRAWING MM

Sizo	C .	Ø	D	ц	E		c	Ø	в	ĸ	Wt. i	in Kg
5120		ØL	В	п	E	J	9		F	ĸ	Wafer	Lug
2"	50	106	43	76	130	33	14	155	120.6		3.5	4.0
2½"	60	122	46	86	145	33	14	170	139.7		4.0	5.0
3"	80	134	46	98	160	33	14	182	152.4		4.8	5.3
4"	100	162	52	112	180	33	16	242	190.5		7.0	10.2
5"	125	192	56	126	190	33	18	274	215.9		8.7	13.3
6"	150	218	56	137.5	205	33	19	296	241.3		10.5	15.3
8"	200	273	60	171.5	240	33	22	350	298.5		16.7	22.5
10"	250	328	68	205.5	265	51	30	436	362.0		24.6	35.0
12"	300	378	78	239.5	290	51	30	506	431.8		32.2	50.0

We can also supply 350NB to 600NB (14" up to 24")

DETAILED DRAWINGS

(as built dimensions and materials will be inserted in accordance with individual drawing)

Valve Size	Α	В	C*	D	E	F	G	н	J	L*	Weight (kg)
50	94	43	51	72	140	90	14	10	32	33	2.95
65	106	46	64	85	152	90	14	10	32	49	3.86
80	124	46	76	102	159	90	14	10	32	65	4.31
100	154	52	102	131	178	90	16	11	32	91	5.44
125	181	56	127	156	190	90	18	13	32	118	7.26
150	206	56	146	178	203	90	19	13	32	138	9.07
200	267	60	197	241	241	150	22	16	32	189	15.90
250	324	68	248	291	273	150	30	22	50	242	22.70
300	378	78	298	342	311	150	30	22	50	291	39.50

Note: Up to 600 NB available *Dimensions shown are for PTFE Lined



ITEM	NAME	QTY	MATERIAL
I	Body	2	
2	Seat	I	
3	Disc-Stem	I	
4	Packing	I	
5	Bush	I	
6	Screw	2	

This brochure is general in it's nature and details can change anytime without notice.

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COMPLETE PRODUCT LINE

"Australian Pipeline Valve produces isolation, control and flow reversal protection products for severe and critical service media in utility, steam, pipelines, oil & gas and process industries. **APV** valves and pipeline products form the most competitive portfolio in the market."

AUSTRALIAN PIPELINE VALVE BRAND RANGE - CATALOGUES



Product Brochure



Oilfield Products Valves & Wellheads



& Trunnion Mounted



Gate, Globe & Check Valves - Cast



Floating Small Bore



Gate, Globe & Check Valves - Forged Steel



Ball Valves Special Service



Plug Valves Lubricated, Sleeved & Lined









TORQTURN

TWIN-LOK[®]

UNIFLO[®]





Diamond Gear Gearboxes



Flowturn Strainers & Sight Glasses













Flowturn Gate, Globe & Check Valves



Supercheck Wafer Check Valves





TwinLok Tube Fittings



Flowturn **Instrument Valves**



Superseal Butterfly Valves



Uniflo Check Valves

Contact us for your local stockist/distributor







APV AgentsWanted

APV FAMILY OF BRANDS RANGE - CATALOGUES

Flowturn Ball Valves





ADELAIDE • BRISBANE • PERTH



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API 622 2011 2nd Edition Fugitive Emission Certified



FPS Supplybase Registered



API 622 2011 2nd Edition Endurance Test Certified

QUALITY ASSURANCE AND CERTIFICATION

We are continually improving all facets of quality assurance. Full metallurgical and test certificates are always supplied for all pressure retaining parts, we also provide it on all major trim components.

We have endeavoured to provide a broad outline of our range and capabilities. Because we are continually developing new products for our customers this catalogue will, to some extent be incomplete. This catalogue is a general overview only, individual drawings and data sheets can be furnished on request.

If you have any requirement in the field of valves, please contact us for a prompt response. Continuous development of Australian Pipeline Valve products may necessitate changes in the design or manufacturing processes. Australian Pipeline Valve reserves the right to effect any such changes without prior notice.

