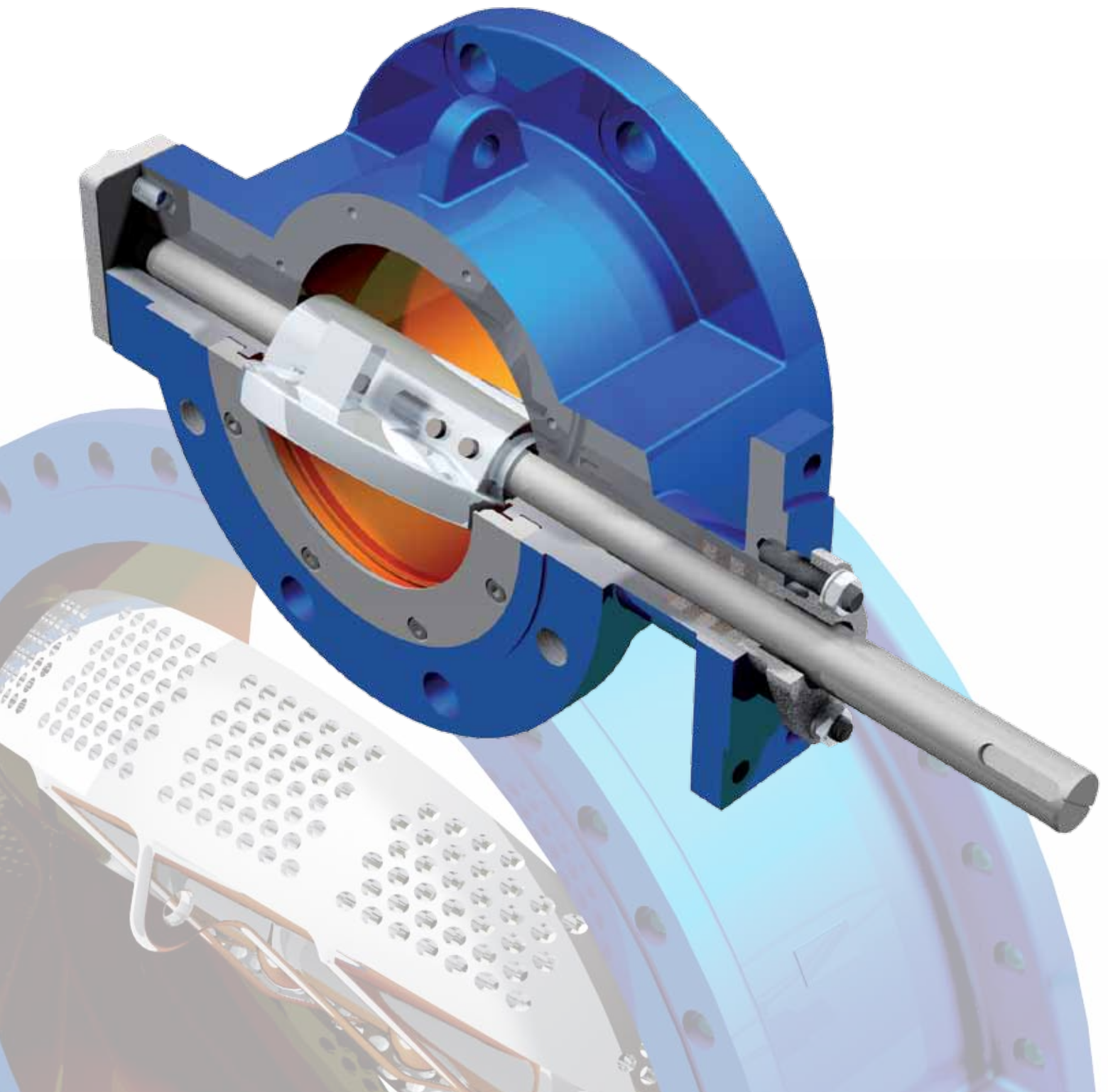


WEH

Batley Valve

**Isolation & Control
Butterfly Valves**





Weir UK purpose built factory at Elland Weir International, South Korea

A proven track record

We have extensive references and a proven track record in the supply of valves across a number of key industries.

Our valves are industry renowned brands, each with an established reputation for quality engineering and reliability.

Valve testing

All pressure containing items are hydrostatically tested, seat leakage tested and functionally tested.

We can also perform gas, packing emission, cryogenic and advanced functional testing, as well as seismic testing for nuclear applications.

Material testing

- Non-destructive examination by radiography, ultrasonics, magnetic particle and liquid penetrant.
- Chemical analysis by computer controlled direct reading emission spectrometer.
- Mechanical testing for tensile properties at ambient and elevated temperatures, bend and hardness testing. Charpy testing at ambient, elevated and sub-zero temperatures.

Aftermarket solutions

Our valve aftermarket solutions are based on our engineering heritage, applying our OEM knowledge and expertise to maintenance strategies, life extension and upgrade projects.

ATWOOD & MORRILL™
Engineered Isolation & Check Valves
BATLEY VALVE®
High Performance Butterfly Valves
BDK™
Industrial Valves
BLAKEBOROUGH®
Control & Severe Service Valves
HOPKINSONS®
Parallel Slide Gate & Globe Valves
MAC VALVE®
Ball & Rotary Gate Valves
SARASIN-RSBD™
Pressure Safety Devices
SEBIM™
Nuclear Valves
TRICENTRIC®
Triple Offset Butterfly Valves

Portfolio of engineered service solutions and aftermarket support



Our world-wide reputation is based on engineering excellence applied to a comprehensive range of specialist products and effective customer support.

Quality assurance

Weir is qualified to industry standards and working practices including:

- ASME BPVC Section III (N and NPT Stamp)
- NQA-1 Quality system
- 10CFR50 App. B
- 10CFR21
- RCC-E
- RCC-M
- CSA Z299
- Performance testing and qualification to:
 - ASME QME-1
 - ASME B16.41
 - IEEE 323
 - IEEE 344
 - IEEE 382
- ISO 9001
- ISO 14001
- PED 97/23/CE
- API Q1 TO API LICENCES:
 - API 6D (6D-0182)
 - API 6A (6A-0445)
- TUV-AD MERKBLATT WRD HPO
- OHSAS 18001
- ATEX 94/9/CE
- Lean manufacturing practices

Contents	
Product range & applications	3
Concentric Vane	4
Swing-through BV10000	5-6
Ledgeseat BV14000	7
Batseal BV18000	8-10
Steadseal BV20000	11-13
Hyperseal BV22000	14-17
Firesafe Hyperseal BV24000	18-19
Metalseal BV26000	20-24
Varidiff Vane BV30000	25-27
Refractory Lined Valve BV32000	28
Vulcanised Rubber Lined BV34000	29-30
Cryogenic Hyperseal BV36000	31-33
Special Applications	34-35

Selection of a control valve for service applications involves a number of factors which should be considered to determine the most economical option available:

- Flow rate
- Pressure range; Inlet, Outlet, Drop Design
- Temperature
- Level of shut-off required
- Valve configuration; End Connection Style, Size, Rating
- Material selection
- Method of operating valve
- Actuator control requirements
- Noise level, cavitation predictions
- Special requirements; Hazardous area, paint specification, certification

The process and application information necessary to fully specify the size, type and material of construction of a valve is very important. The omission of these aspects could lead to incorrect selection of a control valve for a particular requirement.

Actuation of our full range of valves can be via manual operators such as hand levers and gearboxes or full automation can be achieved through the use of diaphragm, piston (rotary or linear), electric, electro/hydraulic and hydraulic actuators.

All actuators can be fitted with a range of accessories such as positioner (E/P or P/P), limit switches, solenoids, position transmitter, filter regulators and trip valves.

Batley Valves sophisticated research and development department serves to develop and improve existing products which comply with changing requirements of industries.

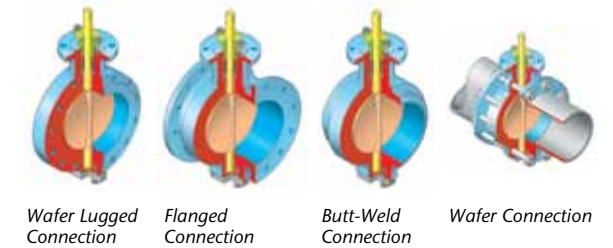
Do not hesitate to contact our Applications Engineers for solutions to your technical problems.

Applications

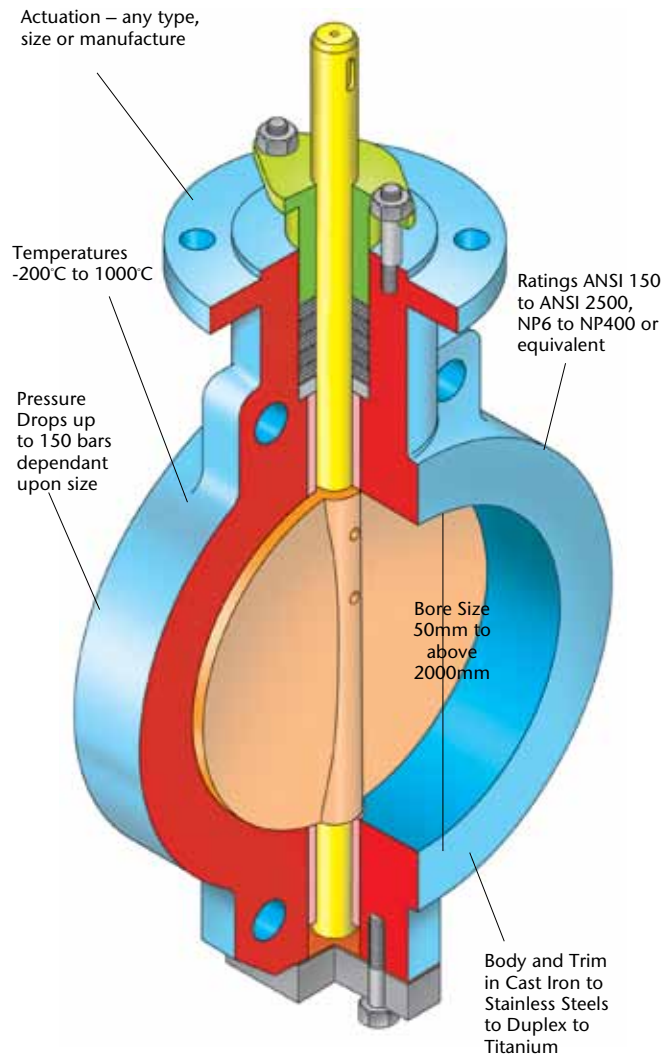
- Our experience of applications include:
- Catalytic cracker acid gas control valves
 - Flare stack control
 - Firewater ring main control
 - Overboard dump control
 - Brine blowdown control
 - Jetty loading valves
 - Seawater drain and re-circulation
 - Cooling water re-circulation
 - Distillate to culvert valves
 - Subsea template mud mat valves
 - Geothermal steam/brine control
 - Metering skid flow balancing valves

Flexibility of Design

- Generally, the valve body is rated at full line working pressure, although trims can be down rated when circumstances dictate.
- An extensive range of body and trim options - Special trims and materials are available for specific requirements.
- Full range of packing and bearing designs to suit various temperatures and fluids, even severe service applications.



Series No.	Valve Type	Design Type Body Connection Options	Class ANSI Rating	Size Range mm	Duty	Leak Rate ANSI
BV10000	Swing-through	Wafer, Lugged, Flanged, Butt-Weld	150-2500	50-2000	Control	II
BV14000	Ledgeseat	Wafer, Lugged, Flanged	150	50-1200	Control	III
BV18000	Batseal (PTFE Lined)	Wafer, Lugged	150	100-600	Isolation	VI
BV20000	Steadseal	Wafer, Lugged, Double Flanged	150-300	100-2600	Control/Isolation	T.S.O.
BV22000	Hyperseal	Wafer, Lugged, Flanged	150-900	50-1200	Control/Isolation	VI
BV24000	Firesafe	Wafer, Lugged, Double Flanged	150-300	50-1200 (Certified)	Isolation	VI
BV26000	Metalseal	Wafer, Lugged, Double Flanged, Butt Weld	150-900	50-1200	Control/Isolation	IV
BV30000	Varidiff Trim, Optional Flanged Downstream Diffuser	Wafer/Lugged, Double Flanged	150-600	100-1200	Control/Anti-Cavitation Low-Noise	II
BV34000	Vulcanised Rubber-Lined	Wafer, Lugged, Flanged	150	100-2200	Isolation	T.S.O.
BV36000	Cryogenic	Wafer, Lugged, Flanged	150-900	50-1200	Control/Isolation	VI



Blank End Plate Arrangement

Vane

The streamlined shape provides minimum resistance to flow and the swing-through design requires no seating torque.

Spindle - Generally one-piece spindles are provided in valves up to 200mm and two stub spindles 250mm upwards.

Blank End Gasket and Plate

A non-asbestos flat gasket, supported with a stainless steel cover.

Inboard Bearings

These are inserted into the valve body at a point closest to the vane to provide maximum support.

Vane Pins

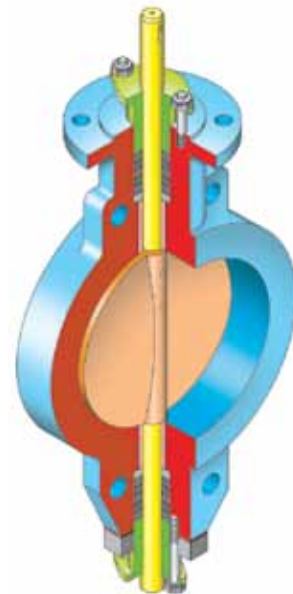
Vibration-proof taper pins. Above 1000mm parallel pins are used.

Gland Follower

A one-piece packing follower provides uniform support to the packing rings.

Gland Packing

Moulded packing rings selected to suit the flow media would generally be teflon based. Lubricated and purged glands are available.



Double Gland

For shafts up to 35mm diameter up to (51bar) blank ends are plate or plug arrangement. Above these sizes and pressures or when outboard bearings are fitted a conventional gland arrangement is provided at the blank end of the valve.

Description

BATLEY SWING-THROUGH Butterfly Control Valves are designed to control the flow of liquids and gases where a complete tight shut-off is not essential. The 'swing-through' vane which has no contact with the valve body enables the valves to be used with high pressures and a wide range of temperatures.

Sizes vary from 50mm up to 2000mm with body ratings up to ANSI Class 2500. Temperatures from minus 200°C to 1000°C, line pressures in excess of 300 bars and closed pressure drops up to 150 bars can be handled, depending upon valve size and construction.

For throttling control, 60 degree vane rotation is normally used, 90 degree is also available.

Actuation of the valves can be with pneumatic, electric or manual with accessories such as positioners (pneumatic/electric), transmitters, transducers, limit switches, air sets and solenoid valves.

The Batley Swing-through butterfly valve has a basic 'equal percentage' characteristic but this is only true between the 10° and 60° open position. Beyond these points the characteristic deviates rapidly from the ideal and is not considered suitable for control purposes.

All Batley control valves are mechanically set to operate between the closed and 60° open position. The rangeability of the Batley control valve operating between the 10° and 60° positions is approximately 33:1

Pressure Class

ASME 150 - 2500
PN10 - 400

Size Range

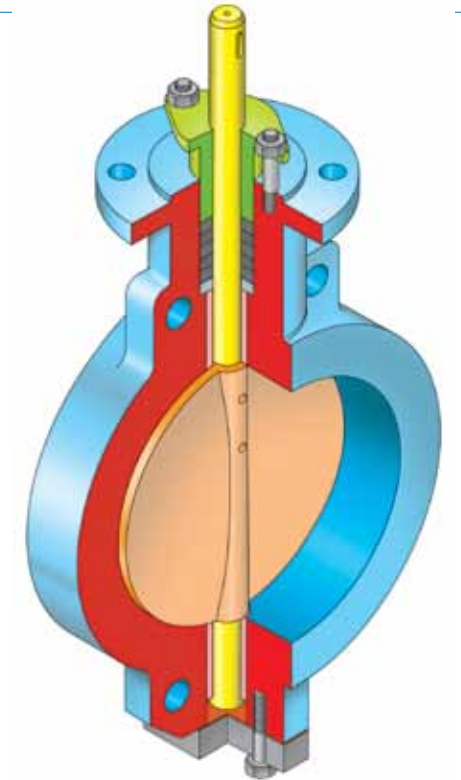
50 - 2000mm

Temp Range

196 °C - 1000 °C

Body Type

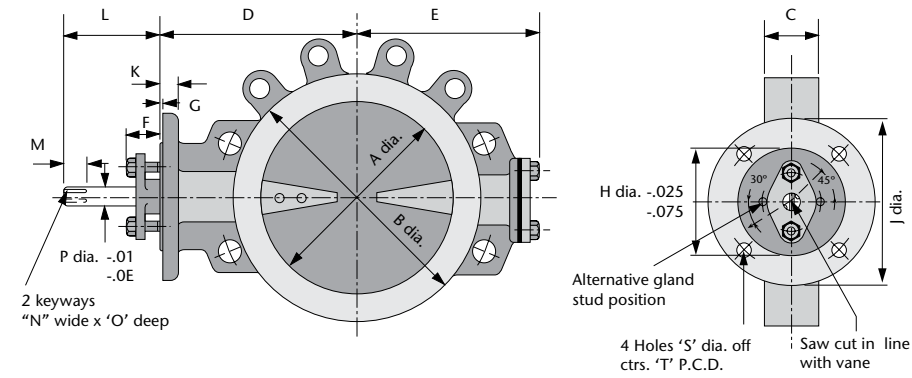
Wafer, Lugged, Flanged, & Butt-welded



Valve Size mm ins	Angle of Opening									
	0°	10°	20°	30°	40°	50°	60°	70°	80°	90°
50 2	0.6	2.3	7.9	16.2	29	49	77	120	168	188
80 3	1.3	5.2	17.7	36.3	65	108	172	270	378	424
100 4	2.3	9.2	31.6	65	117	193	307	480	680	750
125 5	3.8	14.4	50	101	182	302	480	750	1050	1180
150 6	5.3	21	71	145	262	435	690	1080	1510	1700
175 7	7.3	28	97	198	357	592	940	1470	2060	2300
200 8	9.5	37	127	260	467	775	1230	1920	2690	3000
225 9	12.0	47	160	327	591	980	1555	2430	3400	3800
250 10	14.8	58	198	405	730	1210	1920	3000	4200	4700
300 12	21	83	284	582	1049	1739	2760	4320	6050	6800
350 14	27	105	361	740	1330	2205	3500	5500	7650	8500
375 15	31	122	420	860	1550	2570	4080	6300	8800	9900
400 16	36	140	479	982	1767	2930	4650	7200	10100	11300
450 18	45	177	608	1243	2242	3717	5900	9200	12900	14400
500 20	56	216	743	1520	2740	4542	7210	11200	15500	17500
550 22	74	263	904	1850	3336	5531	8780	13600	19000	21400
600 24	88	314	1080	2210	3982	6602	10480	16300	22800	25500
700 28	115	429	1473	3000	5430	9010	14300	22170	31000	34700
750 30	127	495	1700	3480	6270	10395	16500	25800	36000	40000
800 32	142	565	1940	3950	7170	11890	18870	29400	41000	45900
900 36	186	720	2470	5000	9120	15120	24000	37200	52000	58500
1000 40	225	910	3090	6210	11490	19050	30000	46000	64300	72400
1200 48	335	1290	4430	9000	16340	27090	43000	67000	94000	105000
1300 52	379	1515	5200	10610	19190	31820	50500	78300	109000	122000
1400 56	440	1760	6050	12330	22300	36980	59100	91000	127000	142000
1500 60	525	2025	6950	14200	25650	42525	67000	102000	147000	165000
1600 64	525	2310	7930	16170	29260	48510	74000	110000	167000	187000

Materials

	Cast Iron	Carbon Steel	Stainless Steel	Duplex	Super Duplex	Aluminium Bronze
Body	EN1561-GJL-250	A216 WCB	A351 CF8M	A890 4A	A890 6A	EN1982-CC333G
Vane	EN1561-GJL-250	A216 WCB	A351 CF8M	A890 4A	A890 6A	EN1982-CC333G
Shaft	316 / 431 SS	17-4 PH SS	17-4 PH/316 SS	UNS 31803	UNS 32760	Monel
Bearings	Steel/PTFE	Steel/PTFE	316/PTFE	Inconel/PTFE	Inconel/PTFE	Bronze/PTFE
Packings	PTFE/Graphite	PTFE/Graphite	PTFE/Graphite	PTFE	PTFE	PTFE
Gland Follower	St. Steel	St. Steel	St. Steel	St. Steel	St. Steel	St. Steel



Dimensions

All valves can be supplied drilled to suit most flange standards.

Face to Face dimensions are based on Class 'A' shaft sizes & steel/PTFE bearings.

For valves with larger shaft sizes, please consult Batley Valve for face to face dimensions.

Dimension 'G' = 3mm for all valve sizes.

Dimension 'C2' is for double flanged bodies and conforms to BS 5155 short pattern.

None standard face to face dimensions can be offered on special request.

Class 150

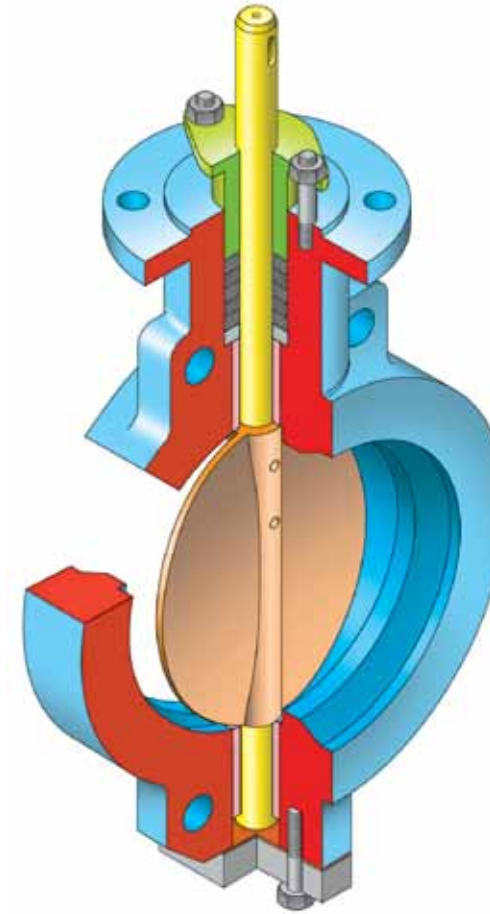
Nominal Bore	A	B	C Wafer	C Flanged	D	E	F	H	J	K	L	M	N	O	P	S	T	Weight
50	50	92	50	108	102	95	30	67	127	13	102	25	5	2.5	15	11	95	8
65	65	105	50	112	117	115	30	67	127	13	102	25	5	2.5	15	11	95	10
80	80	124	50	114	124	120	30	67	127	13	102	25	5	2.5	15	11	95	11
100	100	152	50	127	137	133	30	67	127	13	102	25	5	2.5	15	11	95	12
125	125	184	50	127	159	142	30	108	172	19	102	25	5	2.5	15	13	136	16
150	150	207	50	140	175	161	30	108	172	19	102	25	6	3	20	13	136	18
175	175	229	50	140	186	171	30	108	172	19	102	25	6	3	20	13	136	21
200	200	261	60	152	210	190	30	108	172	19	102	25	6	3	20	13	136	25
225	225	286	60	152	223	215	30	108	172	19	102	25	6	3	20	13	136	31
250	250	324	70	165	241	236	32	108	172	19	102	25	8	3.5	30	13	136	39
300	300	375	70	178	286	280	32	108	172	19	102	25	8	3.5	30	13	136	48
350	340	426	70	190	312	306	32	108	172	19	102	25	8	3.5	30	13	136	68
375	365	448	70	190	318	300	32	108	172	19	102	25	8	3.5	30	13	136	79
400	390	483	75	216	343	336	34	108	172	19	102	25	10	4	35	13	136	85
450	440	540	75	222	362	364	34	108	172	19	102	25	10	4	35	13	136	102
500	490	584	90	229	400	398	34	108	172	19	102	25	10	4	35	13	136	136
550	540	630	90	229	422	422	34	108	172	19	102	25	10	4	35	13	136	154
600	590	692	100	267	460	445	34	108	172	19	102	25	10	4	35	13	136	175
700	690	790	100	292	533	510	34	108	172	19	102	25	10	4	35	13	136	210
750	740	845	100	292	558	555	34	108	172	19	102	25	10	4	35	13	136	255
800	790	905	100	318	550	540	34	108	172	19	102	25	10	4	35	13	136	284
900	890	985	100	330	615	620	34	108	172	22	102	25	10	4	35	13	136	300
1000	990	1110	110	410	660	630	34	108	172	22	102	25	12	8	40	13	136	380
1200	1190	1328	120	470	787	790	34	108	172	22	102	25	12	8	40	13	136	550

All dimensions in millimetres

Class 300

Nominal Bore	A	B	C Wafer	C Flanged	D	E	F	H	J	K	L	M	N	O	P	S	T	Weight
50	50	92	50	150	108	125	37	67	127	13	102	25	5	2.5	15	11	95	9
80	80	124	50	180	124	120	37	67	127	13	102	25	5	2.5	15	11	95	11
100	100	157	50	190	156	176	37	67	127	13	102	25	5	2.5	15	11	95	13
125	125	186	50	200	172	192	37	108	172	19	102	25	5	2.5	15	13	136	17
150	150	216	60	210	203	225	40	108	172	19	102	25	6	3	20	13	136	20
200	200	270	70	230	222	240	40	108	172	19	102	25	6	3	20	13	136	38
250	250	324	80	250	292	315	43	108	172	19	102	25	6	3.5	30	13	136	44
300	300	394	70	270	298	320	43	108	172	19	102	25	8	3.5	30	13	136	54
350	337	426	70	290	343	365	43	108	172	19	102	25	8	3.5	30	13	136	73
400	390	483	75	310	375	400	43	108	172	19	102	25	10	4	35	13	136	91
450	432	534	110	330	420	445	43	108	172	19	102	25	10	4	35	13	136	110
500	480	584	90	350	438	460	43	108	172	19	102	25	10	4	35	13	136	147
600	684	692	100	390	508	525	43	108	172	19	102	25	10	4	35	13	136	190

All dimensions in millimetres



On services where the leakage through the Standard Valve is greater than can be tolerated, a ledgeseat can be incorporated in the valve to reduce the leakage to approximately one-third of that of a Standard Control swing-through valve at ambient temperature.

This design is generally limited to 5psi pressure drop and is particularly useful where high temperatures and low pressure gases are involved and soft seated shut-off valves are not suitable.

It should be noted that the ledge reduces the bore and may affect the flow capacity.

The Ledgeseat Valve is available in sizes of 50mm to 2000mm and temperatures up to 1000°C.

Pressure Class

ASME 150

Size Range

50mm to 1200mm

Temperature Range

0°C to 800°C

Body Type

Wafer, Lugged & Flanged

Materials

II castable materials, Carbon Steel, Stainless Steel, Duplex, Super Duplex, Hastalloy, Inconel, Monel, Titanium, etc.

Options/Features

Reduced Leakage - 0.15% of rated CV Class III.

For CV values refer to factory.



Description

BATSEAL Butterfly valves incorporates the use of PTFE to obtain maximum corrosion resistance for both shut off and control of line fluids.

Maximum Pressure Ratings

Bubble tight shut-off up to 10 Bars depending upon operating temperature.

Pressure Class

ASME 150

Size Range

100mm to 600mm

Temperature Range

0°C to 150°C

Body Type

Wafer, Lugged

Materials

All castable materials, Carbon Steel, Stainless Steel, Duplex, Super Duplex, Hastalloy, Inconel, Monel, Titanium, etc.

Materials

External Gland Seal

A Viton seal is used to prevent ingress of dirt or corrosive gases from the atmosphere and acts as a secondary gland.

Bearings

Self lubricated PTFE faced Glacier Du Bearings combines low friction with high load bearings properties.

Lining Back Up

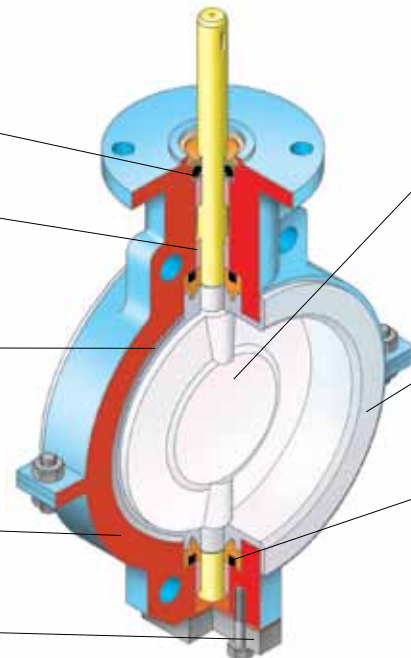
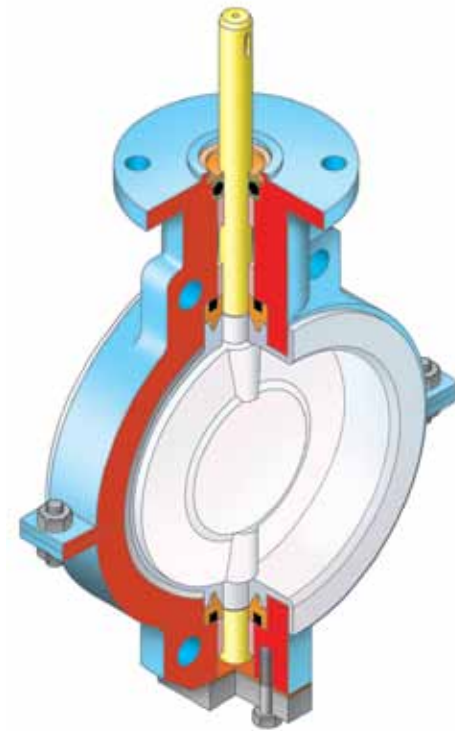
Resilient silicone rubber back up strips between body and lining ensure positive contact with disk at all times.

Body

The split wafer type body which make the integral vane and spindle possible is normally manufactured in Ductile Iron. Cast Steel or Stainless Steel are alternative materials if specially requested.

Blank End Plate

A Steel Blank end plate and PTFE gasket seals off the blank end of the valve.



Disc and Spindle

Normally manufactured as a one piece unit. Sizes up to 300mm are of 17/4 PH Stainless Steel and coated with Teflon FEP. Sizes 350mm and larger are of 316 Stainless Steel and E-CTFE coated. Alternative materials such as Titanium, Monel, Hastalloy, Duplex Steels, Ferralium, Alloy 20 and uncoated Stainless Steels are available on request.

Lining

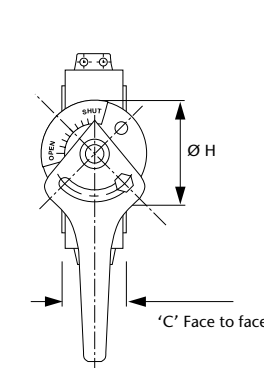
Moulded Teflon FEP (sizes 350mm and above are virgin PTFE) liner protects the body from the line fluid.

Spindle Seal

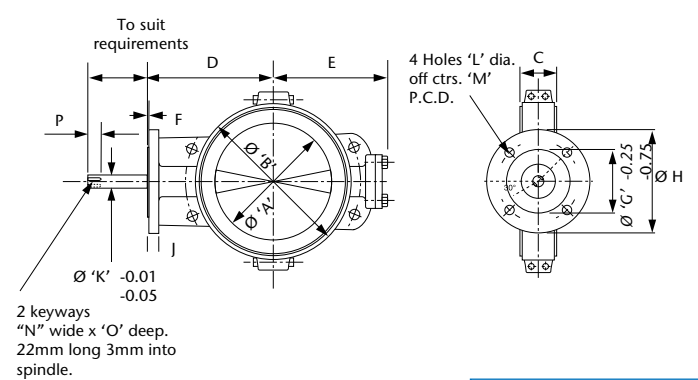
On sizes up to 300mm. A Stainless Steel Tapered plug backed up by a resilient silicone rubber ring ensures positive contact and sealing between lining, disc and spindle. Titanium can be an alternative material if specially requested. Sizes 350mm and larger have a PTFE "O" ring.

Dimensions

Lever operated



Bare shaft



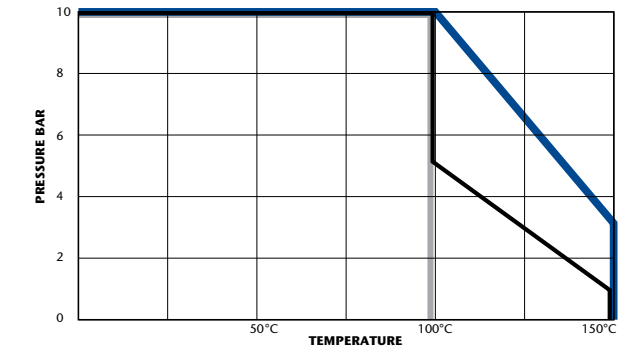
S	T	V	Weight kgs
32	64	171	2
32	86	261	2.5

Nominal bore	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P	Weight kgs
100	100	152	52	137	133	3	108	172	20	20	13	136	6	3		14.5
150	150	207	56	175	161	3	108	172	20	25	13	136	8	3.5		20
200	200	261	60	210	190	3	108	172	20	25	13	136	8	3.5		30
250	250	324	68	241	236	3	108	172	20	30	13	136	8	3.5		46
300	300	375	78	286	280	3	108	172	20	35	13	136	10	4		58
350	340	426	78	312	306	3	108	172	20	40	13	136	12	4		101
400	390	483	102	343	336	3	180	172	20	45	13	136	14	4		116
450	440	540	102	362	364	3	165	230	22	50	17	190	14	4		131
500	490	584	102	400	398	3	165	230	22	50	17	190	14	4		157
600	590	692	102	460	455	3	165	230	22	60	17	190	18	4.5		212

All dimensions in millimetres

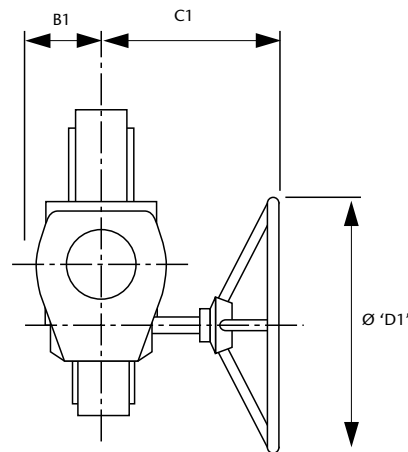
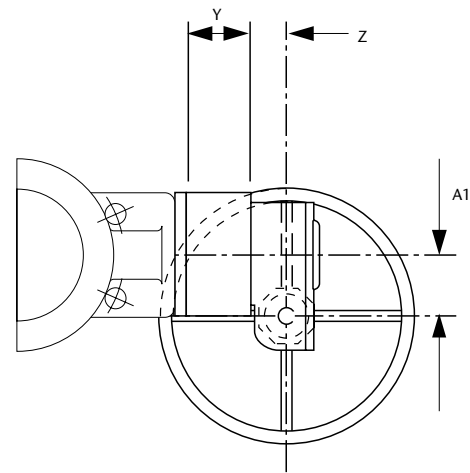
100	20	S17400	10	635
150	25	S17400	10	1642
200	25	S17400	10	2019
250	30	S17400	10	3226
300	35	S17400	10	5389
350	40	S31600	10	7657
400	45	S31600	10	10317
450	50	S31600	10	14060
500	50	S31600	10	17485
600	60	S31600	10	27636

A safety factor as recommended by the actuator manufacturer should be applied



Body lining PTFE or Teflon FEP

- Disc/Spindle coating Teflon FEP - Valve size up to 300mm
- Disc/Spindle coating E-CTFE - Valve size over 300mm
- Disc/Spindle coating Uncoated - All valve sizes
- PTFE - Polytetrafluoroethylene
- FEP* - Fluorinated Ethylene Propylene
- E-CTFE - Ethylene Chlorotrifluoro - Ethylene TEFLON *
- *Registered Trade Mark of Du Pont De Nemours.

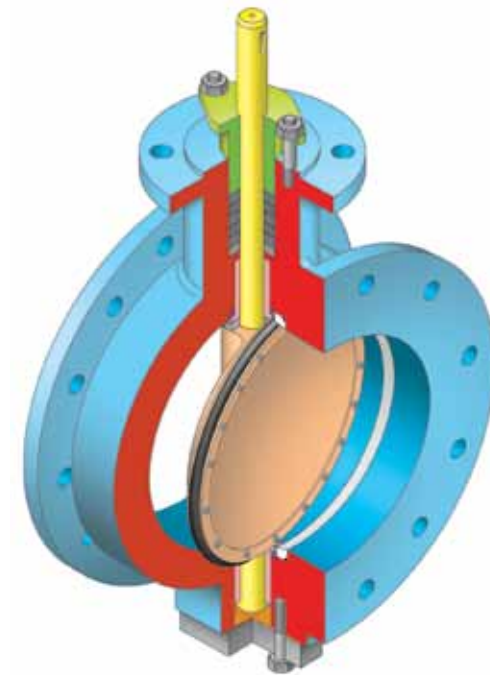


Gearbox Operated

150	10	78.5	35	52	86	169	203	7.8
200	10	78.5	35	52	86	169	203	7.8
225	10	78.5	35	52	86	169	203	7.8
250	10	78.5	35	52	86	169	203	7.8
300	10	78.5	35	52	86	181	254	9
350	10	78.5	35	52	86	193	305	10
375	10	78.5	42	67	86	219	305	12.5
400	5	78.5	42	67	86	219	305	12.5
400	10	78.5	42	67	86	230	356	13.5
450	5	78.5	42	67	86	262	457	15
450	10	78.5	50	89.5	99	279	457	23
500	10	78.5	50	89.5	99	279	457	23
600	5	78.5	50	89.5	99	279	457	23

Flow Coefficients cv

Valve size mm	Ins	Angle of opening (Cv)									
		0°	10°	20°	30°	40°	50°	60°	70°	80°	90°
100	4	0	9	30	63	114	188	299	448	615	684
150	6	0	21	70	143	259	429	681	1037	1435	1600
200	8	0	36	125	255	458	760	1207	1847	2562	2860
250	10	0	58	198	405	730	1210	1920	3000	4200	4700
300	12	0	82	281	576	1038	1720	2731	4230	5907	6604
350	14	0	103	353	724	1300	2156	3422	5136	7053	7850
400	16	0	137	468	959	1725	2860	4539	6870	9450	10529
450	18	0	172	590	1207	2177	3609	5729	8539	11684	12991
500	20	0	212	729	1490	2687	4454	7070	10510	14360	15960
600	24	0	310	1065	2178	3925	6508	10330	15230	20720	23000



Description

The Batley Steadseal Valve incorporates a rubber seal clamped to the vane edge and is designed to ensure a uniform 360° seal contact in the closed position. The double eccentric action moves the vane into and out of the bodyseat with the minimum of wear and seating torque. This valve is particularly suitable where both tight shut off and control is required.

For on/off service the valves can be operated manually with a worm and quadrant gearbox or remotely operated by pneumatic piston (rotary or cylinder), hydraulic or electric actuators.

- ASME 150 to 300
- 50mm to 2600mm
- 30° C to 200° C
- Wafer, Lugged, Flanged
- All castable materials, Carbon Steel, Stainless Steel, Duplex, Super Duplex, Hastalloy, Inconel, Monel, Titanium, etc.

Materials

Normally manufactured in materials including cast steel, stainless steel, duplex and aluminium bronze. The valve is suitable for through-bolt mounting between flanges to BS4504, BS10, BS1560, ANSI or DIN.

The vane's streamlined design improves the flow line, reduces the head loss and is manufactured in stainless steel, duplex and aluminium bronze to suit corrosive applications.

PTFE-faced self lubricating Glacier DU bearings are normally fitted and adequately provide for the high loading, low friction requirements of the butterfly valve.

Two stub spindles on larger sizes and through-spindles on smaller sizes are firmly secured to the vane with stainless steel pins. The spindles are sized to suit the service and pressure requirement in either stainless steel 17-4 Ph or 316.

We provide a stainless steel seat in the body for general applications but for strictly non-corrosive services such as clean air, we coat the body bore with an anti-corrosive surface treatment.

A high-quality nitrile rubber sealing ring is firmly attached to the vane edge with a steel clamping ring fixed with stainless steel setscrews and tab washers which ensure that the setscrews do not work loose in service. Alternative seals in viton, butyl, neoprene and ethylene propylene can be supplied depending on service conditions with clamping rings to suit the vane material.

At the drive end of the valve a conventional gland arrangement with a one piece gland follower in stainless steel provides uniform support to the packing material. Moulded packing rings selected to suit the flowing media would generally be teflon based. At the blank end of the valve a non asbestos flat gasket is supported with stainless steel cover.

The body is hydraulically tested and the seat is tested pneumatically for tight shut-off against the specified working pressure in the normal direction of flow. When shut-off is specified in the reverse direction of flow, the valve can be tested up to approximately half of the rated maximum pressure.

For CV values refer to page 16.

Materials

Seal Materials

NOTES: Intermittent operating temperature means peaking above the maximum continuous temperature for one to two minutes occasionally but not on an hourly/daily frequency.

The Rubber Selection table should only be used for general guidance and full details of temperatures, line fluids, pressures, frequency of operations, velocities and vacuum conditions etc., should be included with your enquiry to ensure that the correct seal selection is recommended.

Seal Materials	General Service	Temperature Range °C		
		Continuous Min	Continuous Max	Intermittent Max
Nitrile	Water, sea water, oils, natural gas	- 30	+ 100	+ 120
Neoprene	Some freons, oxygen, some chemicals and solvents	- 30	+ 100	+ 120
Butyl	Water, air, acetone, esters	- 30	+ 100	+ 110
Ethylene Propylene	LP Steam, hot water, ketones, ester, alcohols	- 40	+ 120	+ 140
Viton	Gasolines, fuels, oils, solvents, aromatic hydrocarbons. NOTE - Not steam	- 15	+ 200	

Dimensions

Nominal bore A	B	C1 Water	C2 Flanged	D	E
150	*	76	140	205	175
200	*	89	152	235	207
250	*	114	165	275	237
300	*	114	178	320	285
350	*	127	190	347	312
400	*	140	216	375	340
450	*	152	222	390	377
500	*	152	229	470	437
600	*	178	267	480	490
700	*	229	292	515	528
750	*	229	292	540	562
800	*	241	318	575	607
900	*	241	330	620	681
1000	*	300	410	685	731
1050	*	300	410	715	755
1200	*	350	470	813	860
1400	*	390	530	890	950
1600	*	440	600	1040	1110
1800	*	490	670	1160	1220
2000	*	540	760	1280	1360

* Dimension B will be to suit the dimensions of the mating flanges.

Dimension F is dictated by the design shut off pressure when the valve is in the closed position.

Alternative face to face dimensions can be supplied, such as AWWA C504, MSS SP67 or to the customers special requirements.

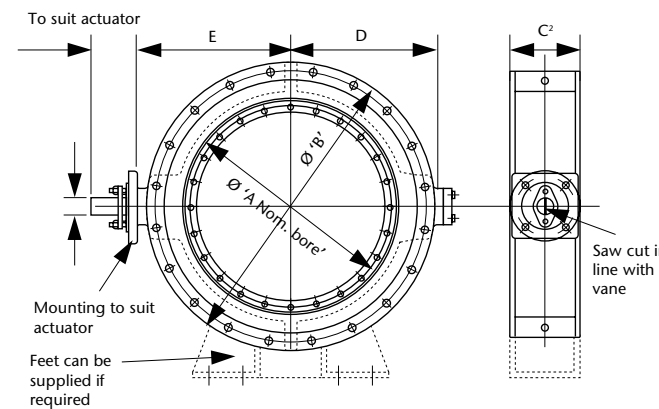
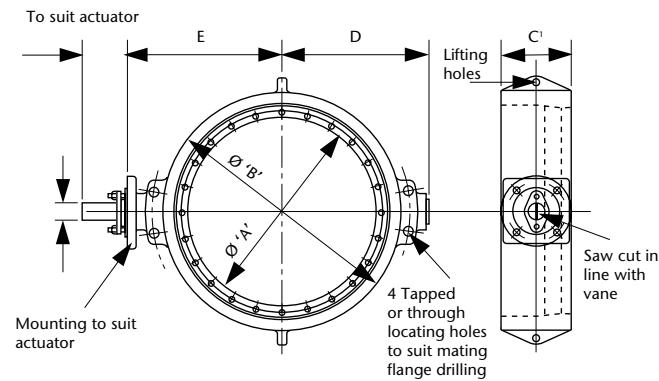
The table opposite represents the most common materials of construction but it should be noted that other materials and combinations of the above materials can be supplied.

For use on corrosive media cast iron and carbon Steel bodies can be supplied with a number of different linings for protection, the most common of which are given below:

Glass Flake Coating, Rubber lining both soft (neoprene) or hard (ebonite), Xylan resin bonded PTFE, Fusion bonded epoxy.

In some circumstances valve bodies may be supplied in a fabricated mild steel construction in lieu of cast iron or cast carbon steel.

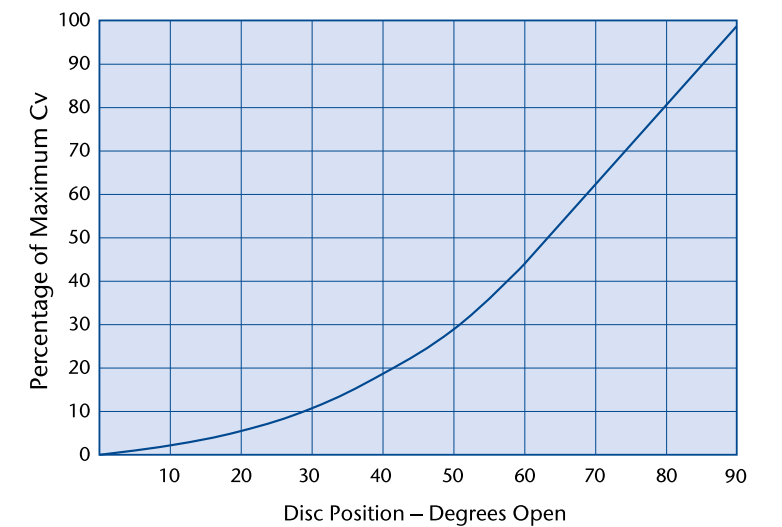
	Carbon Steel	316 St Steel	Al. Bronze	Cast Iron	Ductile Iron
Vane	ASTM A216 WCB	ASTM A351 CF8M	BS 1400 AB2	EN 1561	EN 1563
Seal	Nitrile/EPDM	Nitrile/EPDM	Nitrile/EPDM		

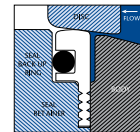
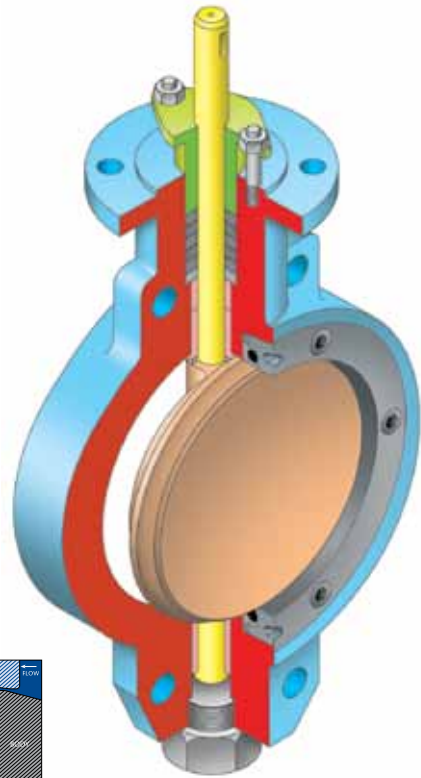


CV Tables

Nominal bore	CV values for (class 150) - Vane Angle								
	90°	80°	70°	60°	50°	40°	30°	20°	10°
50	89	73	55	40	28	18	11	5	3
80	226	185	140	102	70	45	27	14	7
100	402	330	249	181	125	80	48	24	12
125	642	526	398	289	199	128	77	39	19
150	1204	987	746	542	373	241	144	72	36
200	2190	1796	1358	986	679	438	263	131	66
250	3690	3026	2288	1661	1144	738	443	221	111
300	5483	4496	3399	2467	1700	1097	658	329	164
350	6924	5678	4293	3116	2146	1385	831	415	208
400	9199	7543	5703	4140	2852	1840	1104	552	276
450	11736	9624	7276	5281	3638	2347	1408	704	352
500	14215	11656	8813	6397	4407	2843	1706	853	426
600	20792	17049	12891	9356	6446	4158	2495	1248	624
700	29395	24104	18225	13228	9112	5879	3527	1764	882
750	34019	27896	21092	15309	10546	6804	4082	2041	1021
800	38900	31898	24118	17505	12059	7780	4668	2334	1167
900	46066	37774	28561	20730	14280	9213	5528	2764	1382
1000	60079	49265	37249	27036	18624	12016	7209	3605	1802

Nominal bore	CV values for (class 300) - Vane Angle								
	90°	80°	70°	60°	50°	40°	30°	20°	10°
50	89	73	55	40	28	18	11	5	3
80	226	185	140	102	70	45	27	14	7
100	383	314	237	172	119	77	46	23	11
125	642	526	398	289	199	128	77	39	19
150	1147	941	711	516	356	229	138	69	34
200	2086	1711	1293	939	647	417	250	125	63
250	3515	2882	2179	1582	1090	703	422	211	105
300	5222	4282	3238	2350	1619	1044	627	313	157
350	5885	4826	3649	2648	1824	1177	706	353	177
400	7819	6412	4848	3519	2424	1564	938	469	235
450	9976	8180	6185	4489	3093	1995	1197	599	299
500	12083	9908	7491	5437	3746	2417	1450	725	362
600	17673	14492	10958	7953	5479	3535	2121	1060	530
700	24986	20489	15491	11244	7746	4997	2998	1499	750
750	28916	23711	17928	13012	8964	5783	3470	1735	867
800	33065	27113	20500	14879	10250	6613	3968	1984	992
900	39156	32108	24277	17620	12138	7831	4699	2349	1175
1000	51067	41875	31662	22980	15831	10213	6128	3064	1532

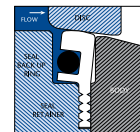




Normal direction of flow

In the closed position without pressure there is a slight interference between the disc and the seat. The stainless steel support ring prevents any outward movement of the teflon seat, so retaining the sealing force. The seat is designed to move slightly in the direction of flow, this allows the pressure access to the back of the seat, thus making the seal progressively tighter as the pressure increases.

Any slight deflection on the disc in the case of very high pressures, increases the tightness and shut off potential.



In the closed position without pressure there is a slight interference between the disc and the seat. The stainless steel support ring prevents any outward movement of the seat, so retaining the sealing force. The seat is designed to move slightly in the direction of flow, this allows the pressure access to the back of the seat, thus making the seal progressively tighter as the pressure increases.

Any slight deflection of the disc in the case of very high pressures, would tend to reduce the tightness but the pressure behind the seat compensates to maintain the shut off.

Description

The double offset design and geometry of the valve and seal combine to ensure a uniform 360° seal contact in the closed position and the double eccentric action moves the disc into and out of the seat with the minimum of wear and seating torque.

The valves are fully rated to ANSI class 150lb and 300lb in sizes up to 600mm with sizes above on request.

Standard valves can be drilled to suit most international flange standards up to class 300lb and special valves can be manufactured with bodies drilled to suit flanges up to ANSI class 2500lb. Lugged and fully flanged designs can be offered on request.

90° on/off action allows for fast operation when necessary and the low torque characteristics are an economic advantage in power operation. When fitted with a suitable positioning actuator, the valve can perform a dual purpose of modulating control and shut off.

Shut-off Pressures

Up to 1400psi (100 bar)

Pressure Class

ASME 150 to 900

Size Range

150mm to 600mm (Higher on request)

Temperature Range

-30°C to 220°C

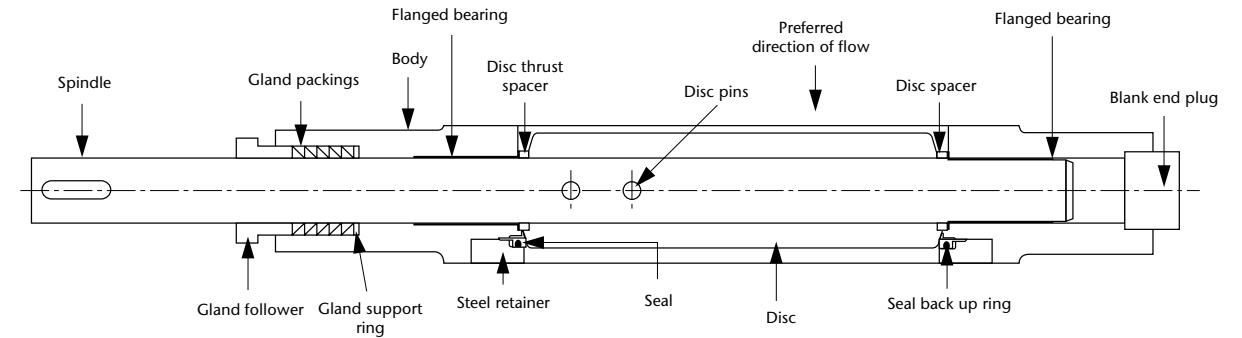
Body Type

Wafer, Lugged, Flanged & Butt Welded

Materials

All castable materials, Carbon Steel, Stainless Steel, Duplex, Super Duplex, Hastalloy, Inconel, Monel, Titanium, etc.

For CV values refer to page 17.



Materials

Body	A216 WCB	A351 CF8M	BS1400 AB2	A890 4A	A890 6A
Disc	A216 WCB/A351 CF8M	A351 CF8M	BS1400 AB2	A890 4A	A890 6A
Shaft	17-4PH/316 SS	17-4PH/316 SS	Monel	22 CR Duplex	25 CR Duplex
Pins	316	316	Monel	22 CR Duplex	25 CR Duplex
Gland Follower	St Steel	St Steel	St Steel	St Steel	St Steel
Gland Studs,	St Steel	St Steel	St Steel	St Steel	St Steel
Nuts & Washers					
Gland Packings	PTFE	PTFE	PTFE	PTFE	PTFE
Gland Ring	316 SS	316 SS	Monel	22 CR Duplex	25 CR Duplex
Bearings	316/PTFE	316/PTFE	Bronze/PTFE	Inc/PTFE	Inc/PTFE
Disc Spacers	316 SS	316 SS	Monel	22 CR Duplex	25 CR Duplex
Blank End Plug	Carbon Steel	316 SS	Monel	22 CR Duplex	25 CR Duplex
Seal Retainer	Carbon Steel	316 SS	Al-Bronze	22 CR Duplex	25 CR Duplex
Seal Back Up Ring	316 SS	316 SS	316 SS	22 CR Duplex	25 CR Duplex
Seal	R-PTFE	R-PTFE	R-PTFE	R-PTFE	R-PTFE

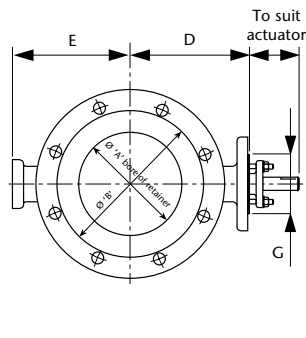
Alternative materials include: LCB, Monel, LG-2, Alloy 20, 316L, Titanium, Hastalloy, Inconel and super duplex.

Technical Standards

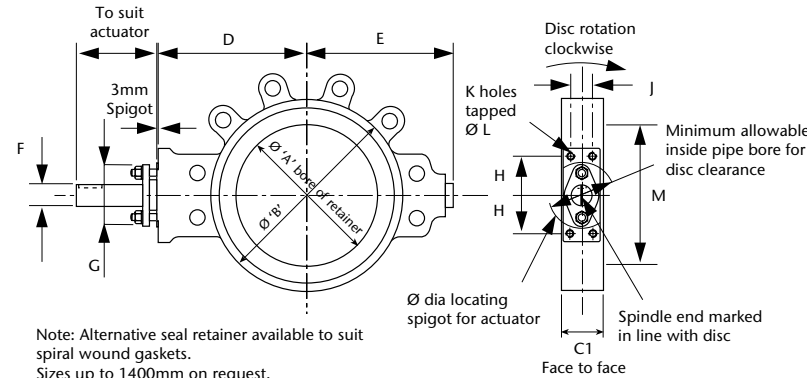
- Design: API 609, BS 5155, MSS SP68
- Pressure Testing: API 598, BS 6755 Part 1, FCI 70-2
- Wall Thickness: ANSI B16.34
- Face To Face Dimensions: BS5155, API 609, DIN 3202, ISO 5752
- Quality Assurance: ISO 9001

Dimensions

Double Flanged



Wafer/Lugged



Note: Alternative seal retainer available to suit spiral wound gaskets.
 Sizes up to 1400mm on request.
 Butt weld body designs available on request.

50 - 1000mm Class 150lb

Valve size M	A	B	C1		D	E	F	G	H	J	K	L	
			Wafer	Flanged									
50	44	95	43	108	95	70	12	67	44	11	4	M8	49
80	69	129	47	114	120	95	15	67	44	11	4	M8	74
100	90	160	52	127	143	120	15	67	44	15	4	M10	96
125	117	186	56	140	165	145	20	67	44	15	4	M10	120
150	140	212	58	140	205	180	20	108	66	16	4	M12	143
200	189	270	64	152	238	210	25	108	66	16	4	M12	194
250	233	328	72	165	260	255	30	108	66	18	4	M16	240
300	284	383	81	178	300	285	35	108	66	18	4	M16	288
350	327	426	92	190	310	325	35	108	66	18	4	M16	317
400	377	474	102	216	320	340	40	108	66	32	4	M16	363
450	426	534	114	222	370	350	45	108	70	32	4	M20	409
500	472	590	127	229	418	410	45	165	97	17	8	M16	455
600	567	692	154	267	490	510	60	165	103	-	-	-	547
700	667	800	172	292	560	580	70	165	103	-	-	-	647
750	725	857	180	292	590	610	80	200	123	-	-	-	705
800	770	914	190	318	610	620	80	200	123	-	-	-	750
900	845	1025	241	330	620	630	90	200	123	-	-	-	835
1000	945	1120	241	410	630	640	100	200	123	-	-	-	925

50 - 1000mm Class 300lb

Valve size M	A	B	C1		D	E	F	G	H	J	K	L	
			Wafer	Flanged									
50	44	95	43	150	95	70	12	67	44	11	4	M8	49
80	69	129	47	180	120	95	15	67	44	11	4	M8	74
100	90	160	52	190	143	120	20	67	44	15	4	M10	96
125	117	186	56	200	165	145	20	67	44	15	4	M10	120
150	140	212	58	210	205	180	25	108	66	16	4	M12	143
200	189	270	64	230	238	210	30	108	66	16	4	M12	194
250	233	328	72	250	260	255	35	108	66	18	4	M16	240
300	284	383	81	270	300	285	40	165	66	18	4	M16	288
350	317	412	127	290	354	360	50	165	97	36	4	M16	317
400	363	469	146	310	386	410	60	165	103	17	8	M16	363
450	409	533	160	330	418	440	65	165	103	17	8	M16	409
500	455	584	165	350	450	480	70	165	103	17	8	M16	455
600	547	692	181	390	515	560	80	165	103	22	8	M16	547
700	647	800	220	430	580	590	90	165	103	-	-	-	647
750	705	857	241	430	610	620	100	200	123	-	-	-	705
800	745	914	260	470	630	640	110	200	130	-	-	-	750
900	825	1022	270	510	655	665	120	220	130	-	-	-	825
1000	925	1085	270	550	680	690	130	220	130	-	-	-	925

Dimensions shown as on application. API 609 face to Face dimensions for 300lb valves available on request.

Sizing & Selection

Torques for Sizing Actuators - Inch-Pounds
 (R - P.T.F.E. Seat)

Actuator selection is dependent upon a number of variable factors such as pressure drop across the valve, seat and bearing friction torques, cryogenic temperatures and flowing media. The figures in the following table are based on standard valves and materials working in normal service conditions. A safety factor as recommended by the actuator manufacturer should be applied. Consult Batley Valve for cryogenic torque figures.

Sizes 50 - 1000mm, Class 150

Valve size	12	97	101	105	109	116
50	12	97	101	105	109	116
80	15	200	211	221	232	250
100	15	363	386	408	430	469
125	20	631	681	731	781	867
150	20	833	905	977	1049	1171
200	25	1570	1733	1895	2058	2335
250	30	2422	2716	3010	3304	3803
300	35	3159	3669	4178	4687	5553
350	35	4325	5001	5676	6351	7499
400	40	6397	7422	8447	9472	11215
450	45	8164	9636	11107	12579	15080
500	45	10375	12158	13940	15722	18752
600	60	15843	19319	22795	26271	32180
700	70	22162	27895	33628	39361	49107
750	80	25873	33455	41038	48621	61511
800	80	30161	38831	47502	56173	70913
900	90	40903	52454	64005	75557	95194
1000	100	50452	67191	83930	100669	129125

Valve Torque Figures (lbf/inches)

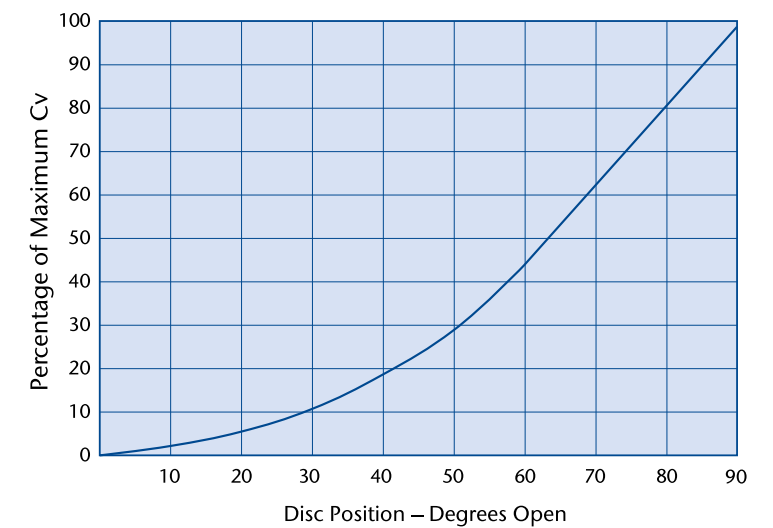
Valve dia.	Spindle dia.	Pressure drop across valve in closed position (psi)				
		300	400	500	600	740
50	12	117	125	134	143	154
80	15	385	312	338	364	401
100	20	535	595	655	714	798
125	20	882	982	1082	1182	1322
150	25	1346	1526	1706	1885	2137
200	30	2600	2991	3382	3772	4319
250	35	4206	4892	5577	6263	7222
300	40	6163	7327	8491	9655	11285
350	50	9594	11523	13452	15381	18052
400	60	14794	17870	20945	24021	28327
450	65	19650	23901	28152	32402	38535
500	70	25463	31008	36553	42098	49861
600	80	40297	49566	58835	68104	81081
700	90	60777	75519	90261	105003	109091
750	100	72528	94239	113195	132152	158691
800	110	93206	117051	140895	164739	198121
900	120	121946	152749	183553	214357	257482
1000	130	164461	207983	251504	295026	355956

316 shafts cannot be used without increasing size

CV TABLES

Nominal bore	CV values for (class 150) - Vane Angle									
	90°	80°	70°	60°	50°	40°	30°	20°	10°	
50	89	73	55	40	28	18	11	5	3	
80	226	185	140	102	70	45	27	14	7	
100	402	330	249	181	125	80	48	24	12	
125	642	526	398	289	199	128	77	39	19	
150	1204	987	746	542	373	241	144	72	36	
200	2190	1796	1358	986	679	438	263	131	66	
250	3690	3026	2288	1661	1144	738	443	221	111	
300	5483	4496	3399	2467	1700	1097	658	329	164	
350	6924	5678	4293	3116	2146	1385	831	415	208	
400	9199	7543	5703	4140	2852	1840	1104	552	276	
450	11736	9624	7276	5281	3638	2347	1408	704	352	
500	14215	11656	8813	6397	4407	2843	1706	853	426	
600	20792	17049	12891	9356	6446	4158	2495	1248	624	
700	29395	24104	18225	13228	9112	5879	3527	1764	882	
750	34019	27896	21092	15309	10546	6804	4082	2041	1021	
800	38900	31898	24118	17505	12059	7780	4668	2334	1167	
900	46066	37774	28561	20730	14280	9213	5528	2764	1382	
1000	60079	49265	37249	27036	18624	12016	7209	3605	1802	

Nominal bore	CV values for (class 300) - Vane Angle									
	90°	80°	70°	60°	50°	40°	30°	20°	10°	
50	89	73	55	40	28	18	11	5	3	
80	226	185	140	102	70	45	27	14	7	
100	383	314	237	172	119	77	46	23	11	
125	642	526	398	289	199	128	77	39	19	
150	1147	941	711	516	356	229	138	69	34	
200	2086	1711	1293	939	647	417	250	125	63	
250	3515	2882	2179	1582	1090	703	422	211	105	
300	5222	4282	3238	2350	1619	1044	627	313	157	
350	5885	4826	3649	2648	1824	1177	706	353	177	
400	7819	6412	4848	3519	2424	1564	938	469	235	
450	9976	8180	6185	4489	3093	1995	1197	599	299	
500	12083	9908	7491	5437	3746	2417	1450	725	362	
600	17673	14492	10958	7953	5479	3535	2121	1060	530	
700	24986	20489	15491	11244	7746	4997	2998	1499	750	
750	28916	23711	17928	13012	8964	5783	3470	1735	867	
800	33065	27113	20500	14879	10250	6613	3968	1984	992	
900	39156	32108	24277	17620	12138	7831	4699	2349	1175	
1000	51067	41875	31662	22980	15831	10213	6128	3064	1532	



Description

The double offset design and geometry of the valve and seal combine to ensure a uniform 360° seal contact in the closed position and the double eccentric action moves the disc into and out of the seat with the minimum of wear and seating torque.

The valves are fully rated to ANSI class 150lb and 300lb in sizes up to 600mm with sizes above on request. All are certified to BS 6755 part 2.

Due to the increased demands of the petrochemical & offshore industries the Hyperseal was developed into a “Firesafe” design which incorporates a metal secondary seal which will maintain a positive shut off in the event of the primary PTFE seal being destroyed in a fire.

All valves can be supplied with alternative flange drillings such as BS 4504 PN 10/16/25 & 40, JIS, BS10, with others on special request.

The Firesafe Hyperseal provides an economical package for both actuated on/off and control applications when fitted with a suitable operator.

The valve can be supplied with Wafer, Lugged and Double Flanged bodies and incorporating full and reduced bore sizes to suit the application.

Pressure Class

ASME 150 to 300

Size Range

150mm to 600mm (Higher on request)

Temperature Range

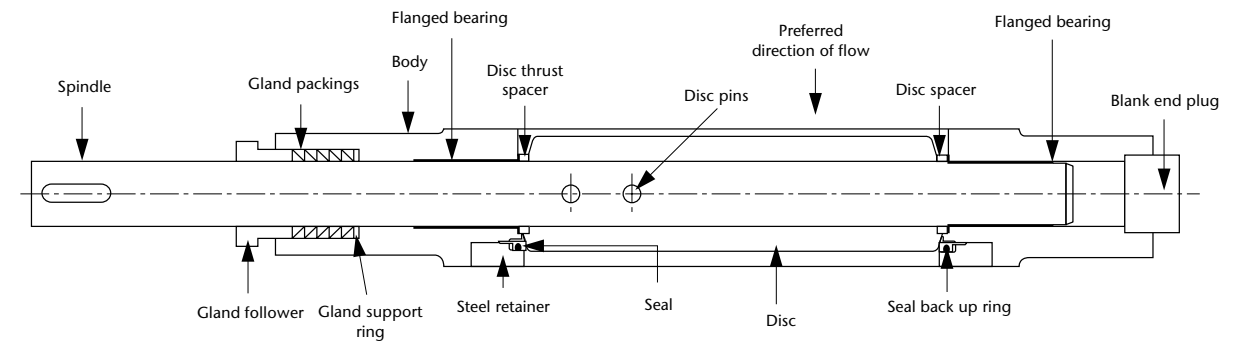
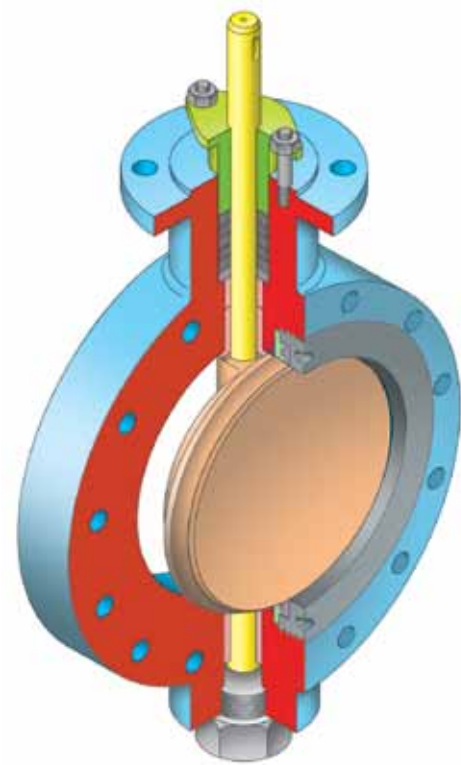
50°C to 220°C

Body Type

Wafer, Lugged, Flanged & Butt Welded

Materials

Carbon Steel, Stainless Steel, Duplex, Super Duplex, Hastalloy, Inconel, Monel, Titanium, etc.



Materials

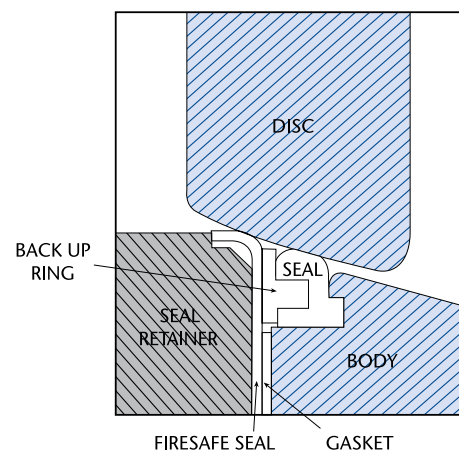
Body	A216 WCB	A351 CF8M	BS1400 AB2	A890 4A	A890 6A
Disc	A216 WCB/A351 CF8M	A351 CF8M	BS1400 AB2	A890 4A	A890 6A
Shaft	17-4PH/316 SS	17-4PH/316 SS	Monel	25 CR Duplex	25 CR Duplex
Pins	316	316	Monel	25 CR Duplex	25 CR Duplex
Gland Follower	St Steel	St Steel	St Steel	St Steel	St Steel
Gland Studs,	St Steel	St Steel	St Steel	St Steel	St Steel
Nuts & Washers					
Gland Packings	PTFE	PTFE	PTFE	PTFE	PTFE
Gland Ring	316 SS	316 SS	Monel	25 CR Duplex	25 CR Duplex
Bearings	316/PTFE	316/PTFE	Bronze/PTFE	Inc/PTFE	Inc/PTFE
Disc Spacers	316 SS	316 SS	Monel	25 CR Duplex	25 CR Duplex
Blank End Plug	Carbon Steel	316 SS	Monel	25 CR Duplex	25 CR Duplex
Seal Retainer	Carbon Steel	316 SS	Al-Bronze	25 CR Duplex	25 CR Duplex
Seal Back Up Ring	316 SS	316 SS	316 SS	25 CR Duplex	25 CR Duplex
Seal	R-PTFE	R-PTFE	R-PTFE	R-PTFE	R-PTFE
Firesafe Seal	316 SS	316 SS	316 SS	25 CR Duplex	25 CR Duplex

Alternative materials include: LCB, Monel, LG-2, Alloy 20, 316L, Titanium, Hastalloy, Inconel and super duplex.

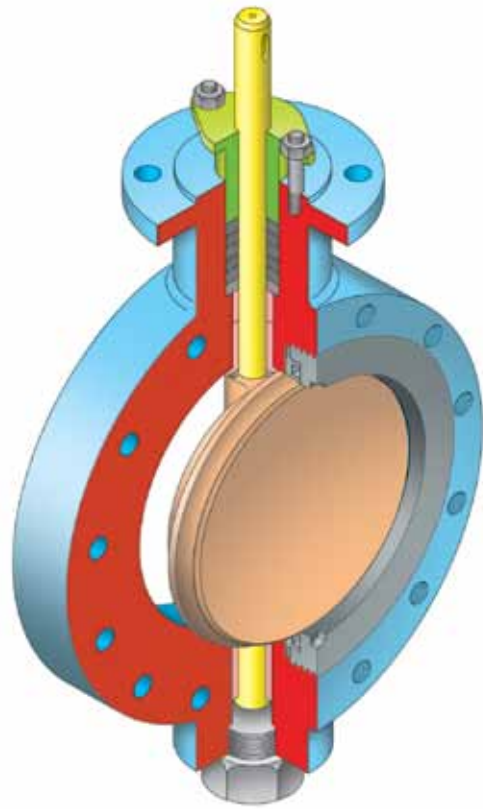
Technical Standards

- Design: API 609, BS 5155, MSS SP68
- Pressure Testing: API 598, BS 6755 Part 1, FCI 70-2
- Wall Thickness: ANSI B16.34
- Face to Face Dimensions: BS5155, API 609, DIN 3202, ISO 5752
- Quality Assurance: ISO 9001
- Firesafe: BS 6755 Part 2

FIRESAFE HYPERSEAL



For CV values refer to page 24.



Description

The double offset design and geometry of the valve and seal combine to ensure a uniform 360° seal contact in the closed position and the double eccentric action moves the disc into and out of the seat with the minimum of wear and seating torque.

The valves are fully rated to ANSI class 150lb and 300lb in sizes up to 600mm with sizes above on request.

All valve sizes can be drilled to suit most international flange standards up to 300lb and special valves can be manufactured with Bodies drilled to suit flanges up to ANSI Class 2500lb.

The Metalseal design lends its self for use on higher temperatures and abrasive service where a PTFE seal would not be acceptable. The valve is supplied to ANSI Class IV leakage.

The valve can be supplied with a range of hard surface deposits for the seat & seal such as hard Chrome plating, Stellite & Tungsten Carbide.

Pressure Class

ASME 150 to 900

Size Range

150mm to 600mm (Higher on request)

Temperature Range

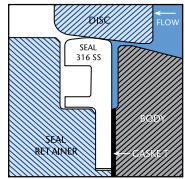
-196°C to 900°C

Body Type

Wafer, Lugged, Flanged & Butt Welded

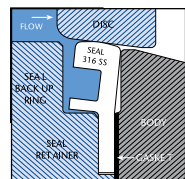
Materials

Carbon Steel, Stainless Steel, Duplex, Super Duplex, Hastalloy, Inconel, Monel, Titanium, etc.



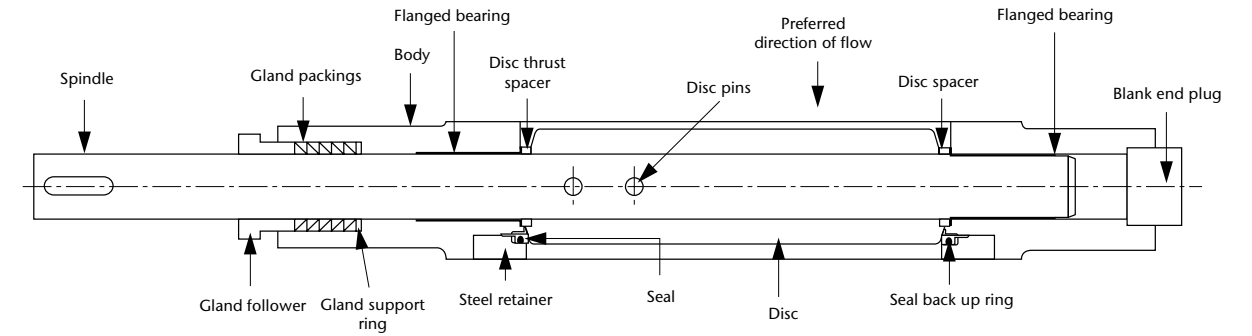
Reverse Flow Direction

In the closed position the seal retaining ring prevents the seal ring from moving away from the pressure and so maintaining the sealing force between the seal and disc. As the line pressure increases the disc will deflect slightly to help maintain the seat leakage within the required standard.



In the closed position the line pressure will deflect the seal in the direction of the valve body thus maintaining the sealing forces between the seal and disc. This movement allows the required seat leakage to be maintained within the required standard.

For CV values refer to page 24.



Materials

Component	Carbon Steel	High Temp Carbon Steel	316 St. Steel
Body	A216 WCB	A352 WC6/WC9	A351 CF8M
Disc, See Note 1	A216 WCB/A351 CF8M	A351 CF8M	A351 CF8M
Shaft	See Note 2	See Note 2	See Note 2
Pins	316 SS	316 SS	316 SS
Gland Follower	St Steel	St Steel	St Steel
Gland Studs, Nuts & Washers	St Steel	St Steel	St Steel
Gland Packings	PTFE/Graphoil	PTFE/Graphoil	PTFE/Graphoil
Gland Ring	316 SS	316 SS	316 SS
Bearings	316 SS	316 SS	316 SS
Disc Spacers	316 SS	316 SS	316 SS
Blank End Plug	Carbon Steel	Carbon Steel	316 SS
Seal Retainer	Carbon Steel	316SS	316 SS
Seal Back Up Ring	316 SS	316 SS	25 CR Duplex
Seal Gasket	Graphite	Graphite	Graphite
Seal	316 SS	316 SS	316 SS

Alternative materials include: LCB, Monel, LG-2, Alloy 20, 316L, Titanium, Hastalloy, Inconel and super duplex.

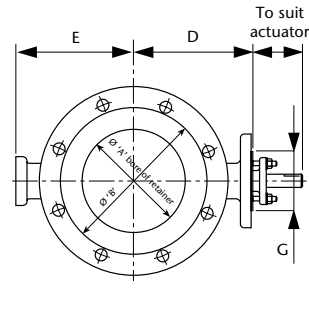
- All discs up to 700mm are hard chromium coated.
- Shaft materials are chosen to suit the design pressure and temperature of the valve. Standard materials are as follows:
 Up to 400°C - 17-4ph & 316
 401 to 600°C - 316, Monel, Nitronic 50/80, Inconel 625
 601 to 800°C - 37/18 ss

Technical Standards

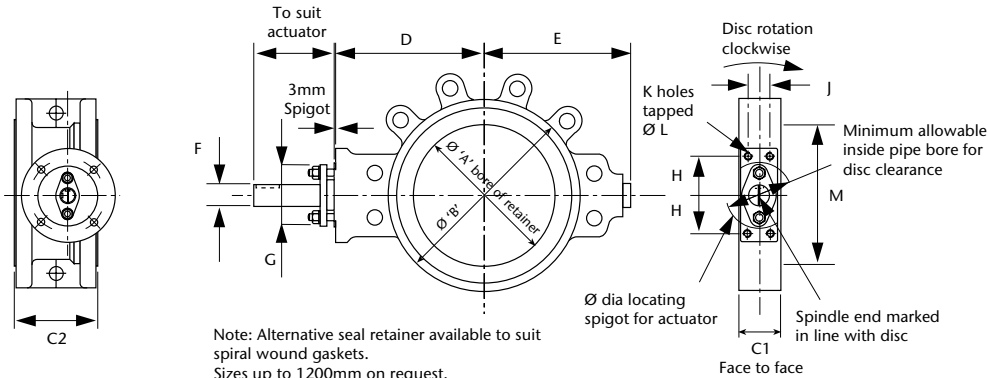
- Design: API 609, BS 5155, MSS SP68
- Pressure Testing: API 598, BS 6755 Part 1, FCI 70-2
- Wall Thickness: ANSI B16.34
- Face to Face Dimensions: BS 5155, API 609, DIN 3202, ISO 5752
- Quality Assurance: ISO 9001

Dimensions

Double Flanged



Wafer/Lugged



Note: Alternative seal retainer available to suit spiral wound gaskets. Sizes up to 1200mm on request. Butt weld body designs available on request.

50 - 1000mm Class 150lb

Valve size	Wafer		Flanged		D	E	F	G	H	J	K	L	M
	A	B	C1	C2									
50	44	95	43	108	95	70	12	67	44	11	4	M8	49
80	69	129	47	114	120	95	15	67	44	11	4	M8	74
100	90	160	52	127	143	120	15	67	44	15	4	M10	96
125	117	186	56	140	165	145	20	67	44	15	4	M10	120
150	140	212	58	140	205	180	20	108	66	16	4	M12	143
200	189	270	64	152	238	210	25	108	66	16	4	M12	194
250	233	328	72	165	260	255	30	108	66	18	4	M16	240
300	284	383	81	178	300	285	35	108	66	18	4	M16	288
350	327	426	92	190	310	325	35	108	66	18	4	M16	317
400	377	474	102	216	320	340	40	108	66	32	4	M16	363
450	426	534	114	222	370	350	45	108	70	32	4	M20	409
500	472	590	127	229	418	410	45	165	97	17	8	M16	455
600	567	692	154	267	490	510	60	165	103	-	-	-	547
700	667	800	172	292	560	580	70	165	103	-	-	-	647
750	725	857	180	292	590	610	80	200	123	-	-	-	705
800	770	914	190	318	610	620	80	200	123	-	-	-	750
900	845	1025	241	330	620	630	90	200	123	-	-	-	835
1000	945	1120	241	410	630	640	100	200	123	-	-	-	925

50 - 1000mm Class 300lb

Valve size	Wafer		Flanged		D	E	F	G	H	J	K	L	M
	A	B	C1	C2									
50	44	95	43	150	95	70	12	67	44	11	4	M8	49
80	69	129	47	180	120	95	15	67	44	11	4	M8	74
100	90	160	52	190	143	120	20	67	44	15	4	M10	96
125	117	186	56	200	165	145	20	67	44	15	4	M10	120
150	140	212	58	210	205	180	25	108	66	16	4	M12	143
200	189	270	64	230	238	210	30	108	66	16	4	M12	194
250	233	328	72	250	260	255	35	108	66	18	4	M16	240
300	284	383	81	270	300	285	40	165	66	18	4	M16	288
350	317	412	127	290	354	360	50	165	97	36	4	M16	317
400	363	469	146	310	386	410	60	165	103	17	8	M16	363
450	409	533	160	330	418	440	65	165	103	17	8	M16	409
500	455	584	165	350	450	480	70	165	103	17	8	M16	455
600	547	692	181	390	515	560	80	165	103	22	8	M16	547
700	647	800	220	430	580	590	90	165	103	-	-	-	647
750	705	857	241	430	610	620	100	200	123	-	-	-	705
800	745	914	260	470	630	640	110	200	130	-	-	-	750
900	825	1022	270	510	655	665	120	220	130	-	-	-	825
1000	925	1085	270	550	680	690	130	220	130	-	-	-	925

Dimensions shown as on application. API 609 face to face dimensions for 300lb valves available on request.

Sizing & Selection

Valve dia.	Shaft size	300	400	500	600	740
50	12	116	120	124	128	135
80	15	262	273	283	294	310
100	20	446	475	505	535	586
125	20	636	686	736	786	870
150	20	1010	1080	1150	1220	1340
200	25	1820	1990	2150	2310	2590
250	30	2820	3110	3410	3710	4210
300	35	4250	4760	5270	5780	6650
350	35	5680	6360	7100	7700	8850
400	40	7600	8620	9640	10670	12410
450	45	9800	11290	12760	14230	16730
500	45	12590	14600	16500	18500	21900
600	60	18500	21900	25300	28800	34700
700	70	23200	28100	33100	38000	46300
750	80	27000	33600	40000	46900	58200
800	80	32000	39600	47100	54700	67600
900	90	40800	51000	61000	71500	89000
1000	100	49500	62000	75100	87000	109100

50 - 1000mm Class 150lb Valve Torques at 400°C (lbf/in)

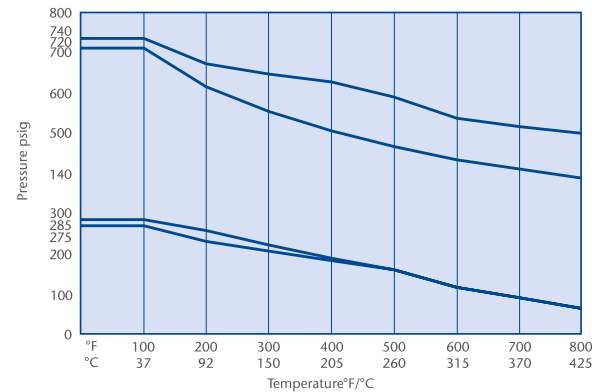
Valve dia.	Shaft size	Closed pressure drop position psi G		
		50	100	150
50	12	165	171	177
80	15	380	398	415
100	20	607	648	688
125	20	853	920	987
150	20	1340	1440	1530
200	25	2410	2620	2840
250	30	3710	4110	4510
300	35	5600	6280	6960
350	35	7450	8350	9250
400	40	9960	11300	12700
450	45	13000	14900	16900
500	45	15800	17700	19700
600	60	24200	28800	33400
700	70	31700	39300	47000
750	80	36900	47000	57100
800	80	44300	56000	67500
900	90	56000	71000	86000
1000	100	71200	93600	115000

50 - 1000mm Class 300lb Valve Torques at 200°C (lbf/in)

Valve dia.	Shaft size	Closed pressure drop position psi G				
		300	400	500	600	740
50	12	140	145	153	162	173
80	15	344	370	396	423	460
100	20	595	655	714	774	858
125	20	890	986	1090	1190	1230
150	25	1500	1670	1860	2030	2280
200	30	2860	3240	3630	4020	4570
250	35	4600	5300	5900	6660	7600
300	40	7200	8400	9500	10700	12300
350	50	10900	12800	14800	16700	19400
400	60	16300	19400	22500	25600	29800
450	65	21600	25900	30200	34400	40400
500	70	28000	33000	38000	44000	52000
600	80	43000	52000	61000	71000	84000
700	90	63000	78000	92000	106000	130000
750	100	78000	97000	126000	134000	160000
800	110	96000	120000	142000	166000	200000
900	120	122000	154000	183000	210000	260000
1000	130	167000	210000	250000	305000	350000

50 - 1000mm Class 300lb Valve Torques at 400°C (lbf/in)

Valve dia.	Shaft size	Closed pressure drop position psi G			
		200	300	400	500
50	12	185	195	204	215
80	15	450	468	503	538
100	20	798	810	891	972
125	20	1167	1187	1320	1454
150	25	1800	1800	2240	2480
200	30	3490	3790	4330	4840
250	35	5190	6110	3120	7950
300	40	8090	9620	11180	12700
350	50	11700	14300	16900	19500
400	60	17100	21000	25100	29200
450	65	22500	28300	33900	39600
500	70	28900	32400	38500	44600
600	80	44500	56800	69200	81600
700	90	63600	83200	101000	121000
750	100	78600	103000	127000	153000
800	110	97800	129000	160000	192000
900	120	123000	163000	203000	245000
1000	130	166000	223000	282000	340000



Metalseal

Correct material selection can accommodate operating temperatures up to 900°C.

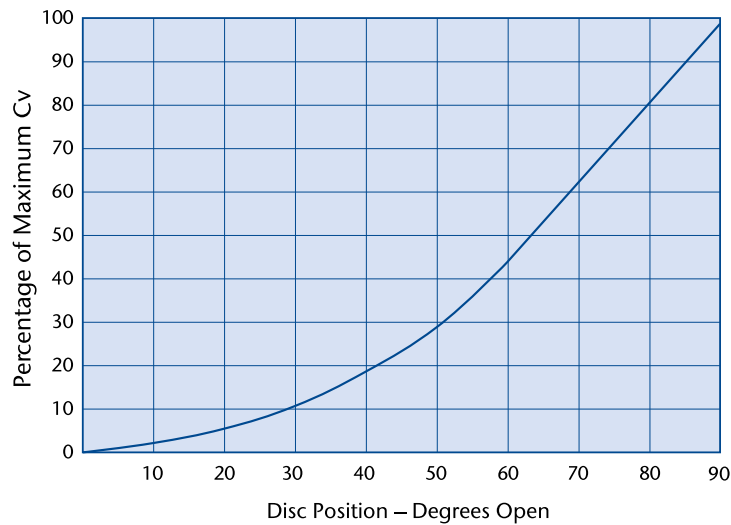
Torques for Sizing Actuators - Inch-Pounds (316 SS Seat)

Actuator selection is dependent upon a number of variable factors such as pressure drop across the valve, seat and bearing friction torques, cryogenic temperatures and flowing media. The figures in the following table are based on standard valves and materials working in normal service conditions. A safety factor as recommended by the actuator manufacturer should be applied. Consult factory for cryogenic torque figures.

CV Tables

Nominal bore	CV values for (class 150) - Vane Angle								
	90°	80°	70°	60°	50°	40°	30°	20°	10°
50	89	73	55	40	28	18	11	5	3
80	226	185	140	102	70	45	27	14	7
100	402	330	249	181	125	80	48	24	12
125	642	526	398	289	199	128	77	39	19
150	1204	987	746	542	373	241	144	72	36
200	2190	1796	1358	986	679	438	263	131	66
250	3690	3026	2288	1661	1144	738	443	221	111
300	5483	4496	3399	2467	1700	1097	658	329	164
350	6924	5678	4293	3116	2146	1385	831	415	208
400	9199	7543	5703	4140	2852	1840	1104	552	276
450	11736	9624	7276	5281	3638	2347	1408	704	352
500	14215	11656	8813	6397	4407	2843	1706	853	426
600	20792	17049	12891	9356	6446	4158	2495	1248	624
700	29395	24104	18225	13228	9112	5879	3527	1764	882
750	34019	27896	21092	15309	10546	6804	4082	2041	1021
800	38900	31898	24118	17505	12059	7780	4668	2334	1167
900	46066	37774	28561	20730	14280	9213	5528	2764	1382
1000	60079	49265	37249	27036	18624	12016	7209	3605	1802

Nominal bore	CV values for (class 300) - Vane Angle								
	90°	80°	70°	60°	50°	40°	30°	20°	10°
50	89	73	55	40	28	18	11	5	3
80	226	185	140	102	70	45	27	14	7
100	383	314	237	172	119	77	46	23	11
125	642	526	398	289	199	128	77	39	19
150	1147	941	711	516	356	229	138	69	34
200	2086	1711	1293	939	647	417	250	125	63
250	3515	2882	2179	1582	1090	703	422	211	105
300	5222	4282	3238	2350	1619	1044	627	313	157
350	5885	4826	3649	2648	1824	1177	706	353	177
400	7819	6412	4848	3519	2424	1564	938	469	235
450	9976	8180	6185	4489	3093	1995	1197	599	299
500	12083	9908	7491	5437	3746	2417	1450	725	362
600	17673	14492	10958	7953	5479	3535	2121	1060	530
700	24986	20489	15491	11244	7746	4997	2998	1499	750
750	28916	23711	17928	13012	8964	5783	3470	1735	867
800	33065	27113	20500	14879	10250	6613	3968	1984	992
900	39156	32108	24277	17620	12138	7831	4699	2349	1175
1000	51067	41875	31662	22980	15831	10213	6128	3064	1532



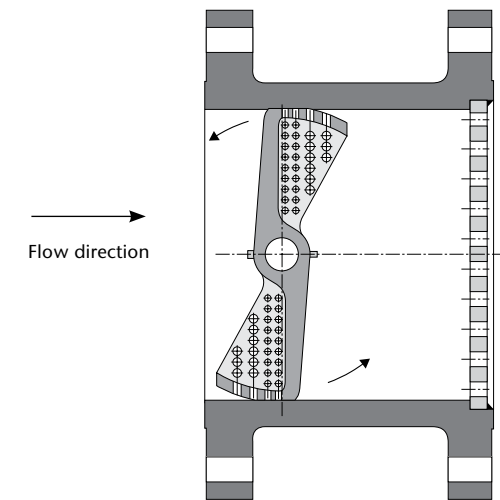
The Batley Varidiff trim was developed in the early 1970's in response to an increased demand for a low cost solution to the problems of cavitation and noise generated by conventional butterfly valves due to their inherent high pressure recovery.

The Varidiff trim, see Figure 1 on page 27, which incorporates two hemi-spherical control elements on opposite sides of the vane and ends of the face of the vane, significantly reduces the pressure recovery particularly at low openings i.e. 0 to 30 degrees. In terms of the pressure recovery factor which is used to determine the pressure at the vena-contracta, a value of 0.9 is achieved at openings below 30 degrees compared with 0.7 for a standard vane. Figure 3 on page 28, gives a comparison between the static pressure recovery between a standard vane and a varidiff vane.

Although the varidiff offers lower pressure recovery at openings up to 30 degrees it is sometimes necessary to complement the vane with an integral baffle either fitted into the valve body or optionally supplied loose. As the valve opens above 30 degrees the pressure drop is broken down across the vane and the baffle plate which results in a reduction in pressure recovery.

The varidiff trim can be incorporated within both the swing through range and the Hyperseal range of valves. The flow characteristic is equal percentage with a turn down in excess of 100:1. Due to the low dynamic torque a stable mode of operation is maintained for openings between 5 and 80 degrees.

The Varidiff trim has been used successfully on a number of demanding applications where the use of standard butterfly valves had resulted in severe operational problems, and premature failure of the valve. One such application is back pressure control on overboard dump lines in the offshore industry. Other applications include firewater ring system control valve, brine blowdown control, jetty loading valves, sea-water drain and re-circulation, cooling water circulation, and distillate to culvert valves. In addition to the above liquid service applications it has also found use on steam vent headers, and gas pipelines, for low noise requirements.



Materials

Part Description	Carbon Steel	All-bronze	Duplex	Super Duplex
Body	ASTM A216 WCB	BS1400 AB2C	ASTM A890 Gr4A	ASTM A890 Gr6A
Vane	ASTM A351 CF8M	BS1400 AB2C	ASTM A890 Gr4A	ASTM A890 Gr6A
Spindle	17/4 PH	Monel	25% Duplex St. St.	25 CR Duplex
Split taper pin	17/4 PH	Monel	25% Duplex St. St.	25 CR Duplex
Sealing ring (*)	Glass Filled P.T.F.E.	Glass Filled P.T.F.E.	Glass Filled P.T.F.E.	Glass Filled P.T.F.E.
Spindle bearing	316 + P.T.F.E.	Bronze + P.T.F.E.	P.T.F.E.	P.T.F.E.
Packing set	P.T.F.E. / Graphoil	P.T.F.E. / Graphoil	P.T.F.E. / Graphoil	P.T.F.E. / Graphoil
Gland Follower	St. Steel	St. Steel	St. Steel	St. Steel

Alternative material options available on request.
 (*) Used on tight shut-off applications.

Figure 1. Sectional view of valve fitted with Varidiff vane and baffle plate

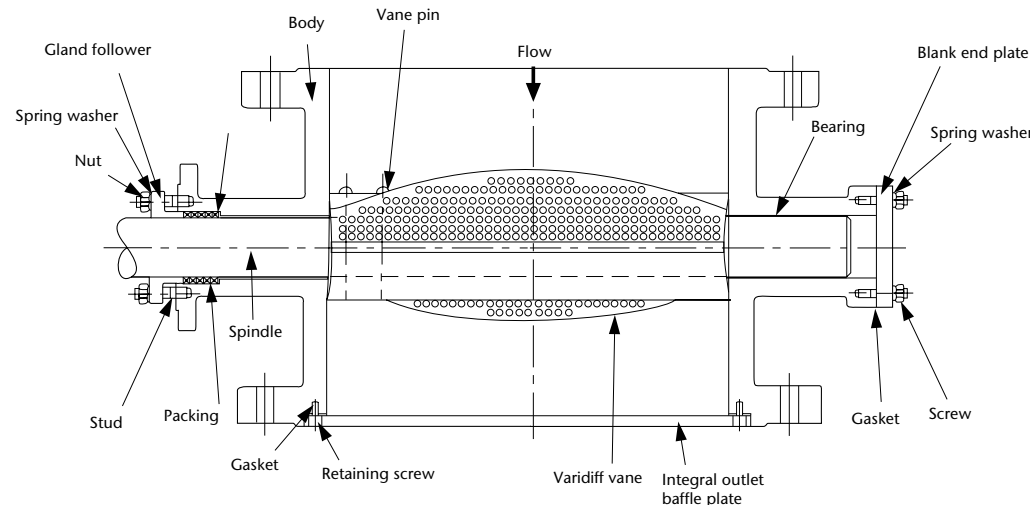
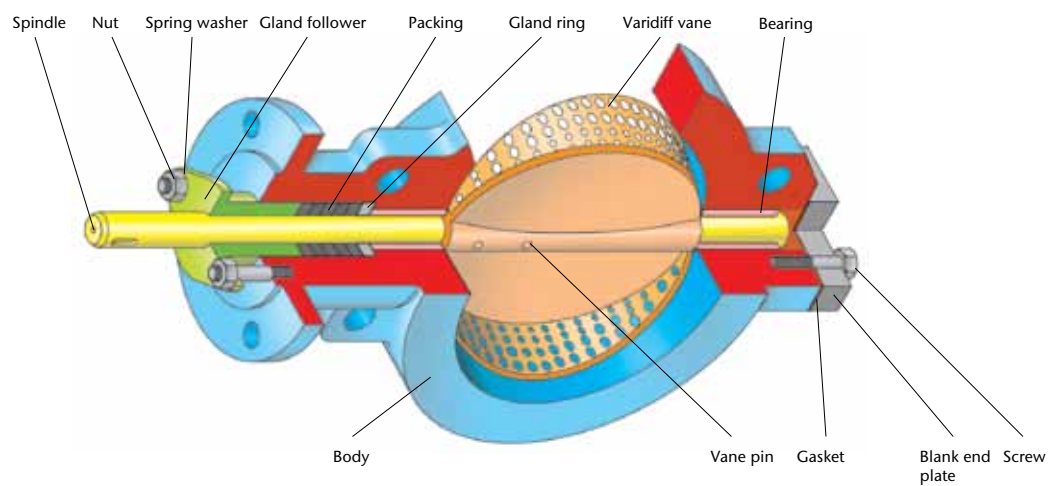


Figure 2. Wafer style valve with 'Swingthro' Varidiff vane



Sizing & Selection

100	400	320	220	152	100	64	40	20	7
125	625	500	344	237	156	100	63	31	12
150	899	719	495	341	224	144	90	44	17
200	1599	1279	880	607	399	256	160	79	29
250	2498	1998	1374	949	624	400	250	124	46
300	3598	2878	1979	1366	898	576	360	178	66
350	4621	3696	2542	1755	1154	739	463	229	85
400	6080	4863	3344	2309	1518	973	609	301	112
450	7739	6189	4257	2939	1933	1238	775	383	142
500	9598	7676	5279	3645	2397	1535	961	475	177
600	13915	11129	7654	5284	3475	2226	1393	689	256
700	19032	15221	10469	7227	4753	3044	1905	942	350
750	21890	17507	12041	8313	5466	3501	2192	1083	403
800	24948	19953	13723	9474	6230	3991	2498	1234	459
900	31663	25323	17416	12024	7907	5065	3170	1567	583
1000	39179	31334	21551	14878	9783	6267	3922	1939	721
1200	56607	45273	31137	21496	14135	9055	5667	2801	1042

CV Values For Hyperseal Varidiff Class 150Ib

Valve Size mm	Valve opening								
	90°	80°	70°	60°	50°	40°	30°	20°	10°
100	221	177	122	84	55	35	22	11	4
125	353	282	194	134	88	56	35	17	6
150	662	529	364	251	165	106	66	33	12
200	1205	964	663	458	301	193	121	60	22
250	2030	1624	1117	771	507	325	203	100	37
300	3016	2412	1659	1145	753	482	302	149	56
350	3808	3046	2095	1446	951	609	381	188	70
400	5059	4046	2783	1921	1263	809	506	250	93
450	6455	5163	3551	2451	1612	1033	646	319	119
500	7818	6253	4300	2969	1952	1251	783	387	144
600	11436	9146	6290	4343	2856	1829	1145	566	211
700	16167	12930	8893	6139	4037	2586	1619	800	298
750	18710	14964	10292	7105	4672	2993	1873	926	344
800	21395	17111	11768	8125	5343	3422	2142	1059	394
900	25336	20263	13936	9621	6327	4053	2537	1254	466
1000	33043	26427	18176	12548	8251	5285	3308	1635	608

Please note that the Cv's shown above are for guidance only as Cv's will change dependent on shaft size and the design of the Varidiff trim, which can vary with the required duty.

Recommended Maximum Velocities For Liquid Service

4-12	100-300	30	9	30	9	20	6.1
14-24	350-600	18	5.5	18	5.5	14	4.3
Above 24	Above 600	12	3.6	12	3.6	9	2.7

Valve Size ins	mm	Max. Inlet		Max. Outlet		Max. Outlet Mach No. for required noise level		
		ft/s	m/s	ft/s	m/s	>95 dBA	<95 dBA	<85 dBA
4-12	100-300	200	61					
14-24	350-600	100	30	350	107	0.3	0.25	0.2
Above 24	Above 600	80	24					

Figure 3. Static pressure recovery

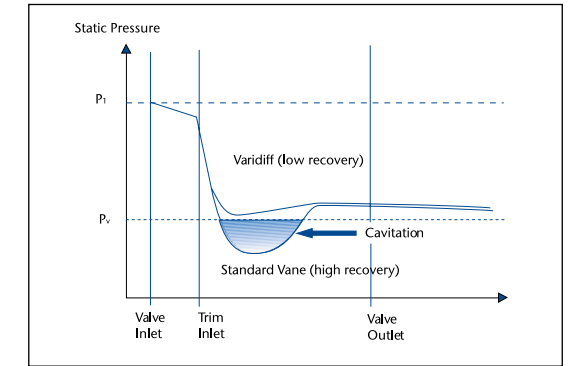


Figure 4. Typical Varidiff characteristic curve

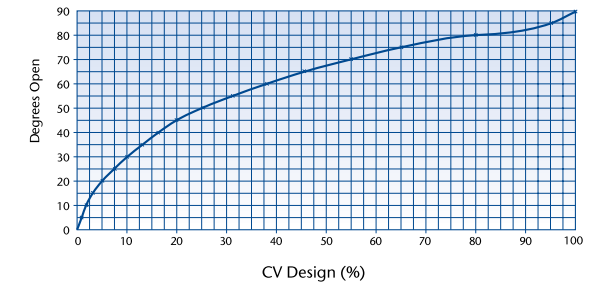
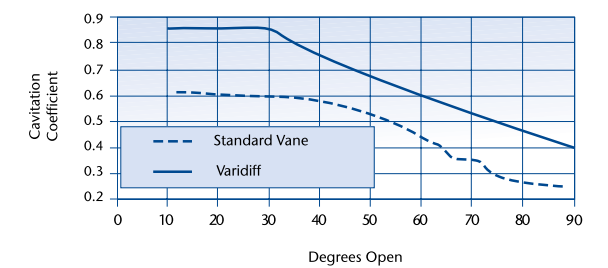


Figure 5. Comparison between cavitation coefficient for Varidiff and Standard Vane



Description

Since its formation the Batley Valve Company has specialised in butterfly valves for control of hot gases. Our experience of Refractory Lined Valves has been for gases at temperatures up to 1200°C with low or negligible pressure. All the valves are designed to meet the clients specifications and sizes can be manufactured to suit most pipeline bores and flanges.

For temperatures of 1000°C and above, or where higher pressures are involved special valves such as a water cooled design may be the solution that Batley Valve can offer.

Materials of construction can vary considerably depending upon temperature, pressure, temperature fluctuation, flowing media, particularly in respect to oxidising or sulphurous atmospheres and clients own specifications.

The valve body is traditionally of a wafer design and manufactured from fabricated steel or cast steel (ASTM A216 GR WCB), incorporating where possible our standard patterns. The body can be drilled to suit the clients pipe flanges. We recommend that the refractory cement lining is accurately cast into the body in our works to avoid problems on-site or in service.

Where the flowing media is dirty or dust laden and there is a possibility of internal bearing seizure, the valve may be designed to incorporate outboard bearings.

Pressure Class

ASME 150 to 2500

Size Range

50mm to 1200mm

Temperature Range

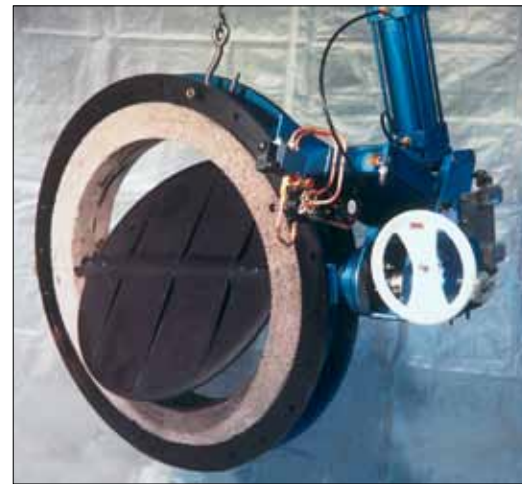
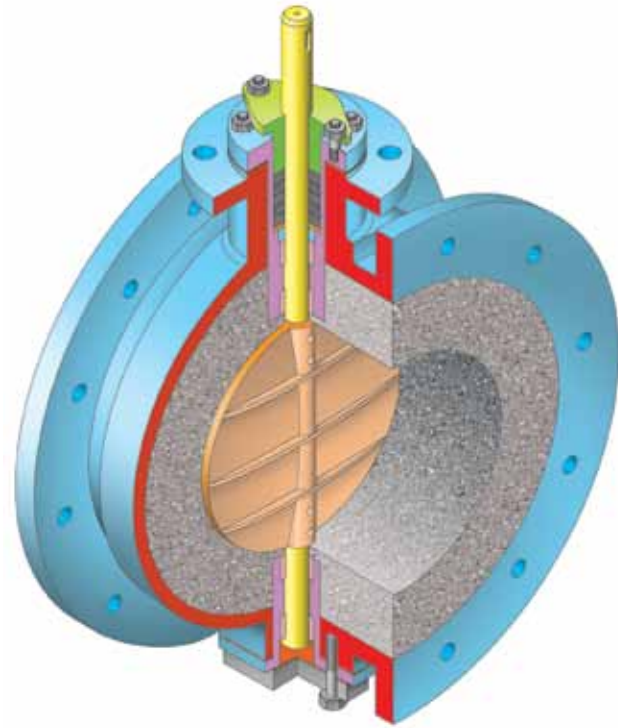
0 to 800°C

Body Type

Wafer, Lugged, Flanged

Materials

All castable materials, Carbon Steel, Stainless Steel, Duplex, Super Duplex, Hastalloy, Inconel, Monel, Titanium, etc.



For CV values refer to factory.

Description

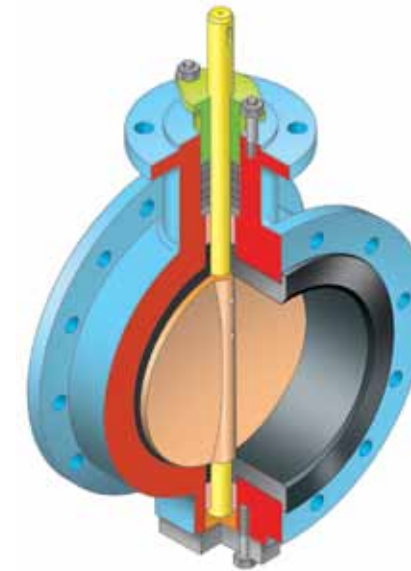
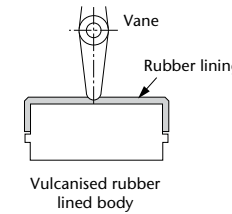
The Batley range of Vulcanised rubber lined butterfly valves was developed in response to industries request for a high quality low cost valve for use on corrosive line fluids such as seawater and brine. The design is such that the body and shaft material is fully isolated from the line fluid and as such lower specification materials such as Cast Iron & Carbon Steel can be used in lieu of the more expensive AL Bronze and Stainless Steel.

Due to the flexible design the valve can be supplied to suit all common flange standards such as BS 4504 PN2.5 to 40, ANSI 125 TO 300LB, JIS, DIN and BS 10, we can also supply valves to suit all

international standards for face to face dimensions such as BS 5155, AWWA C504, API 609, DIN and ISO with special non-standard dimensions available on special request.

The valve has a wide range of applications in many industries and in particular it has found favour in the Iron and Steel, Electrical Generation, Desalination and Marine Industry.

The valve is ideally suited to the dual role of process isolation and control and as such can be fitted with a wide range of manual and powered operators.



Materials

Rubber Selection Table

Nitrile	Water, sea water, oils, natural gas	- 30	+ 100	+ 120
Neoprene	Some freons, oxygen, some chemicals and solvents	- 30	+ 100	+ 120
Ethylene Propylene	LP Steam, hot water, ketones, ester, alcohols	- 40	+ 120	+ 140
EPDM	W.R.L. Approved for potable water	- 40	+ 120	+ 140

Component	Carbon Steel	Stainless Steel	Duplex Stainless Steel	Aluminium Bronze	Cast Iron	Ductile Iron
Body	A216 WCB	A351 CF8M	A890 4A	EN1982-CC333G	EN 1561	EN 1563
Vane	A216 WCB	A351 CF8M	A890 4A	EN1982-CC333G	EN 1561	EN 1563
Shaft	17-4 PH SS	17-4 PH/316 SS	UNS 31803	Monel	17-4 PH SS	17-4 PH SS
Bearings	316/PTFE	316/PTFE	PTFE	Bronze/PTFE	316/PTFE	316/PTFE
Packings	PTFE/Graphite	PTFE/Graphite	PTFE	PTFE	PTFE/Graphite	PTFE/Graphite
Gland Follower	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel	Stainless Steel

The table above represents the most common materials of construction but it should be noted that other materials and combinations of the above materials can be supplied. For use on corrosive media Cast Iron and Carbon Steel vanes can be supplied with a number of different coatings, the most common of which are shown below: Glass Flake Coating, Rubber lining both soft (neoprene) or hard (ebonite), Xylan resin bonded PTFE, Fusion bonded epoxy. In some circumstances valve bodies may be supplied in a fabricated mild steel construction in lieu of Cast Iron or Cast Carbon Steel.

Dimensions

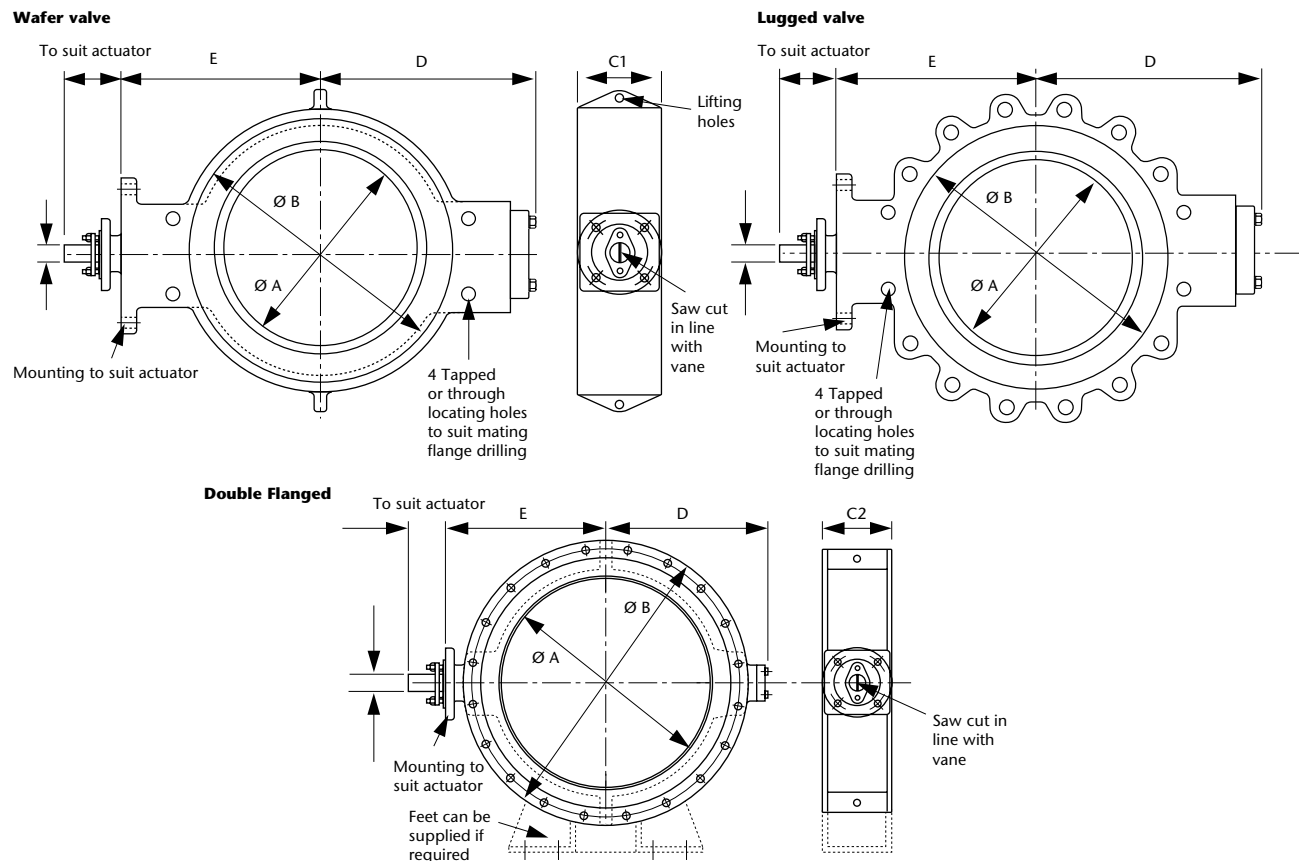
	50	*	43	108	95
102					
80	*	46	114	120	124
100	*	52	127	133	137
150	*	56	140	205	175
200	*	60	152	235	207
250	*	68	165	275	237
300	*	78	178	320	285
350	*	92	190	347	312
400	*	102	216	375	340
450	*	114	222	390	377
500	*	127	229	470	437
600	*	154	267	480	490
700	*	229	292	515	528
750	*	229	292	540	562
800	*	241	318	575	607
900	*	241	330	620	681
1000	*	300	410	685	731
1050	*	300	410	715	755
1200	*	350	470	813	860
1400	*	390	530	890	950
1600	*	440	600	1040	1110
1800	*	490	670	1160	1220
2000	*	540	760	1280	1360

Sizing & Selection

Flow Coefficients CV (US GPM) - Standard Class 150/300lb Valves

Valve Size mm	ins	Angle of Opening									
		0°	10°	20°	30°	40°	50°	60°	70°	80°	90°
50	2	0.6	2.3	7.9	16.2	29	49	77	120	168	188
80	3	1.3	5.2	17.7	36.3	65	108	172	270	378	424
100	4	2.3	9.2	31.6	65	117	193	307	480	680	750
125	5	3.8	14.4	50	101	182	302	480	750	1050	1180
150	6	5.3	21	71	145	262	435	690	1080	1510	1700
175	7	7.3	28	97	198	357	592	940	1470	2060	2300
200	8	9.5	37	127	260	467	775	1230	1920	2690	3000
225	9	12.0	47	160	327	591	980	1555	2430	3400	3800
250	10	14.8	58	198	405	730	1210	1920	3000	4200	4700
300	12	21	83	284	582	1049	1739	2760	4320	6050	6800
350	14	27	105	361	740	1330	2205	3500	5500	7650	8500
375	15	31	122	420	860	1550	2570	4080	6300	8800	9900
400	16	36	140	479	982	1767	2930	4650	7200	10100	11300
450	18	45	177	608	1243	2242	3717	5900	9200	12900	14400
500	20	56	216	743	1520	2740	4542	7210	11200	15500	17500
550	22	74	263	904	1850	3336	5531	8780	13600	19000	21400
600	24	88	314	1080	2210	3982	6602	10480	16300	22800	25500
700	28	115	429	1473	3000	5430	9010	14300	22170	31000	34700
750	30	127	495	1700	3480	6270	10395	16500	25800	36000	40000
800	32	142	565	1940	3950	7170	11890	18870	29400	41000	45900
900	36	186	720	2470	5000	9120	15120	24000	37200	52000	58500
1000	40	225	910	3090	6210	11490	19050	30000	46000	64300	72400
1200	48	335	1290	4430	9000	16340	27090	43000	67000	94000	105000

* Dimension B will be to suit the dimensions of the mating flanges.
 Dimension F is dictated by the design shut off pressure when the valve is in the closed position.
 Dimensions C1/C2 are to BS 5155
 Alternative face to face dimensions can be supplied, such as AWWA C504, MSS SP67 or to the customers special requirements.



Description

Batley Cryogenic Hyperseal utilises a pressure energised modified PTFE seal that gives exceptional sealing at both low & high pressures due to the metal energising ring which exerts a preload onto the vane seat area even at the lowest of pressures where other pressure energised seals fail to perform.

The valves can be supplied in a range of body styles, Wafer, Lugged, Flanged and Butt Weld. Fully rated valves can be offered up to ANSI 600lb (PN100) in sizes from 2" (50mm) to 64" (1600mm). Valve bodies can also be supplied in ratings up to ANSI 2500lb (PN400) for special applications.

The valve is offered as standard with a cryogenic sealing tightness that exceeds that of BS 6364 1984/98, verified test results are available for inspection by our clients.

Shut-off Pressures

Up to 1450psi (100 bar)

Pressure Class

ASME 150 to 900

Size Range

150mm to 1600mm

Temperature Range

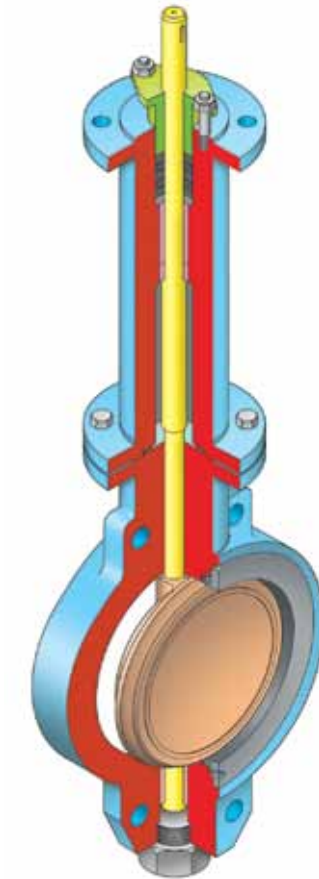
-196° to 220° C

Body Type

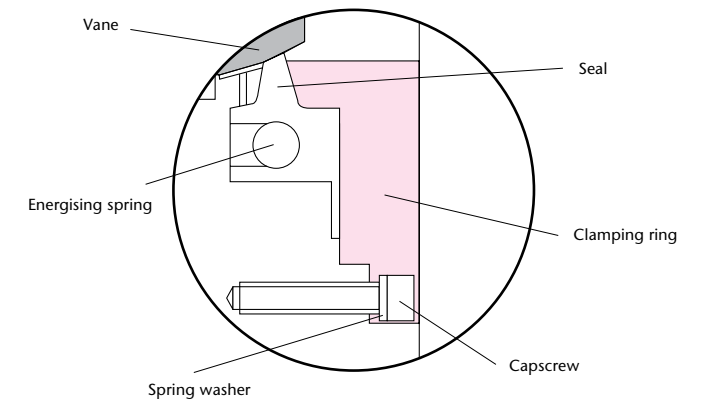
Wafer, Lugged, Flanged, Clamped & Butt Welded

Materials

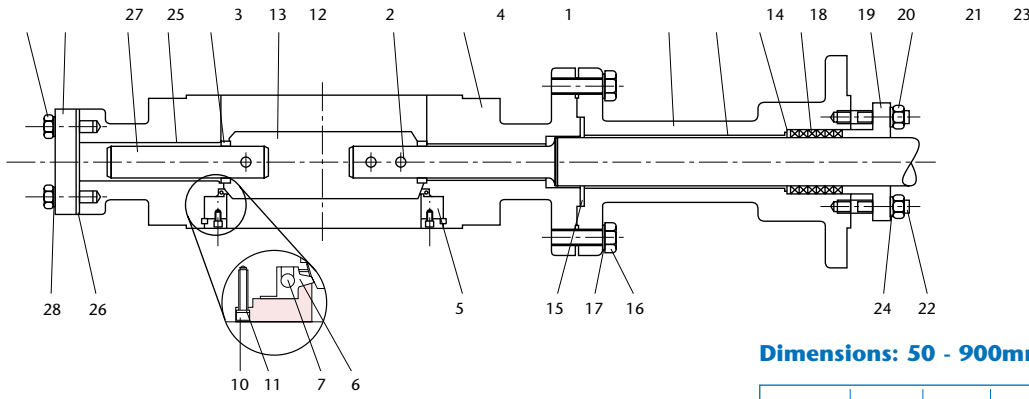
Stainless Steel, Duplex, Super Duplex, Hastalloy, Inconel, Titanium, etc.



Cryogenic Hyperseal



For CV values refer to page 37.

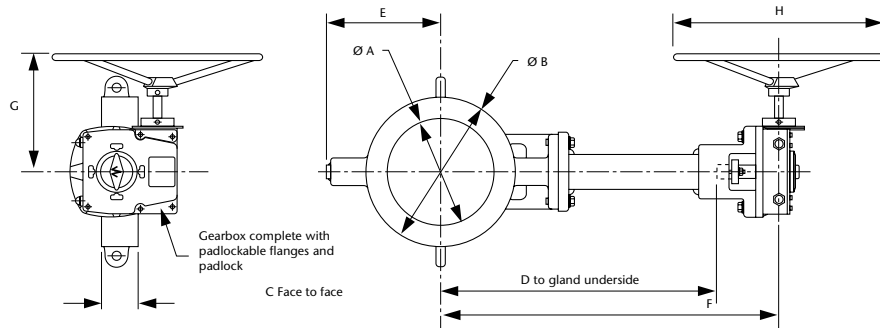


Dimensions: 50 - 900mm Class 150lb (PN16)

Valve size	A	B	C	D	E	F	G	H
50	44	95	43	565	70	726	164	203
80	72	129	47	565	95	726	164	203
100	90	158	53	565	115	726	164	203
125	117	186	58	565	145	826	164	203
150	140	216	58	665	160	826	164	203
200	190	270	70	790	200	958	209	254
250	235	324	80	790	240	958	232	356
300	280	381	90	880	245	1048	232	356
350	330	413	127	930	315	1108	260	457
400	380	470	140	930	330	1108	325	457
450	426	540	152	930	365	1139	445	356
500	472	590	152	930	420	1139	445	457
600	567	692	178	1058	485	1312	476	457
700	647	795	200	1058	590	1312	476	457
750	725	860	235	1185	620	1412	476	457
800	770	914	235	1185	630	1412	541	457
900	884	1030	241	1385	650	1423	541	457

50	44	95	43	565	70	726	164	203
80	72	129	47	565	95	726	164	203
100	90	158	53	565	115	726	164	203
125	117	186	58	565	145	826	164	203
150	140	216	58	665	160	840	209	254
200	190	270	70	790	205	966	249	305
250	235	324	80	790	240	966	325	457
300	284	381	90	880	275	1100	325	457
350	327	414	165	930	365	1110	445	356
400	377	470	180	930	382	1110	445	356
450	426	540	190	930	430	1130	476	457
500	472	590	200	930	470	1130	541	457
600	567	692	210	1058	520	1428	585	457
700	647	795	250	1058	590	1584	585	457
750	726	860	270	1185	644	1584	585	457
800	745	914	285	1185	690	1840	700	457
900	825	1030	300	1385	744	1840	700	457

All dimensions in mm. Face to face dimensions for double flanged bodies are BS 5155 short pattern.



Materials

Part No	Description	Material	Qty
1	Body	ASTM A351 CF8M St.St.	1
2	Vane	ASTM A351 CF8M St.St.	1
3	Spindle	316 St.St.	1
4	Split Taper Pin	316 St.St.	3
5	Clamping Ring	316 St.St.	1
6	Sealing Ring	Modified P.T.F.E.	1
7	Spring	Elgiloy	1
10	* Capscrew	BS6105 A2-70 St.St.	8
11	* Springwasher	316 St.St.	8
12	Vane Spacer	316 St.St.	2
13	Bearing	Metaloplast MP3	2
14	Bonnet	ASTM A351 CF8M St.St.	1
15	Spiral Wound Gasket	St.St./Graphite	1
16	Screw	BS4882 MB8M St.St.	8
17	Springwasher	316 St.St.	8
18	Bearing	Metaloplast MP3	1
19	Gland Ring	316 St.St.	1
20	Packing	Braided P.T.F.E.	6
21	Gland Follower	316 St.St.	1
22	Stud	BS6105 A2-70 St.St.	4
23	Nut	BS6105 A2-70 St.St.	4
24	Springwasher	316 St.St.	4
25	Blank End Plate	316 St.St.	1
26	Gasket	St.St./Graphite	1
27	Screw	BS6105 A2-70 St.St.	8
28	Springwasher	316 St.St.	8

* Depends on valve size

Alternative materials include: LCB, 316L, Duplex & Super Duplex.

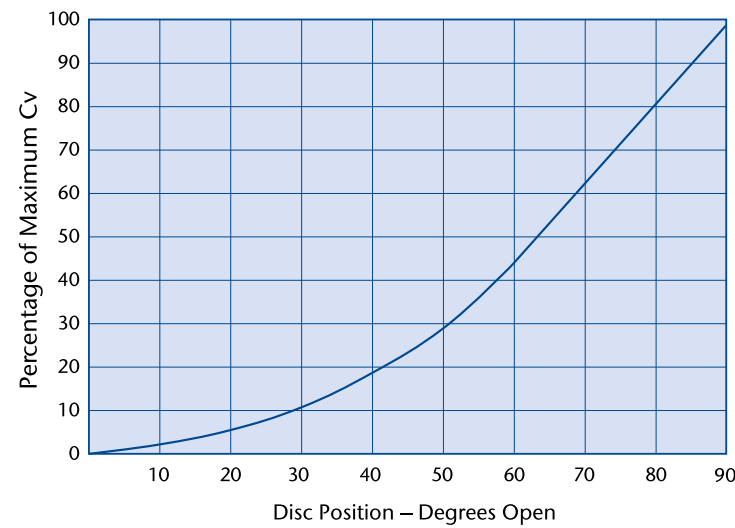
Technical Standards

- Design: API 609, BS 5155, MSS SP68
- Pressure Testing: API 598, BS 6755 Part 1, FCI 70-2
- Wall Thickness: ANSI B16.34
- Face to Face Dimensions: BATLEY STANDARD

CV TABLES

Nominal bore	CV values for (class 150) - Vane Angle								
	90°	80°	70°	60°	50°	40°	30°	20°	10°
50	89	73	55	40	28	18	11	5	3
80	226	185	140	102	70	45	27	14	7
100	402	330	249	181	125	80	48	24	12
125	642	526	398	289	199	128	77	39	19
150	1204	987	746	542	373	241	144	72	36
200	2190	1796	1358	986	679	438	263	131	66
250	3690	3026	2288	1661	1144	738	443	221	111
300	5483	4496	3399	2467	1700	1097	658	329	164
350	6924	5678	4293	3116	2146	1385	831	415	208
400	9199	7543	5703	4140	2852	1840	1104	552	276
450	11736	9624	7276	5281	3638	2347	1408	704	352
500	14215	11656	8813	6397	4407	2843	1706	853	426
600	20792	17049	12891	9356	6446	4158	2495	1248	624
700	29395	24104	18225	13228	9112	5879	3527	1764	882
750	34019	27896	21092	15309	10546	6804	4082	2041	1021
800	38900	31898	24118	17505	12059	7780	4668	2334	1167
900	46066	37774	28561	20730	14280	9213	5528	2764	1382
1000	60079	49265	37249	27036	18624	12016	7209	3605	1802

Nominal bore	CV values for (class 300) - Vane Angle								
	90°	80°	70°	60°	50°	40°	30°	20°	10°
50	89	73	55	40	28	18	11	5	3
80	226	185	140	102	70	45	27	14	7
100	383	314	237	172	119	77	46	23	11
125	642	526	398	289	199	128	77	39	19
150	1147	941	711	516	356	229	138	69	34
200	2086	1711	1293	939	647	417	250	125	63
250	3515	2882	2179	1582	1090	703	422	211	105
300	5222	4282	3238	2350	1619	1044	627	313	157
350	5885	4826	3649	2648	1824	1177	706	353	177
400	7819	6412	4848	3519	2424	1564	938	469	235
450	9976	8180	6185	4489	3093	1995	1197	599	299
500	12083	9908	7491	5437	3746	2417	1450	725	362
600	17673	14492	10958	7953	5479	3535	2121	1060	530
700	24986	20489	15491	11244	7746	4997	2998	1499	750
750	28916	23711	17928	13012	8964	5783	3470	1735	867
800	33065	27113	20500	14879	10250	6613	3968	1984	992
900	39156	32108	24277	17620	12138	7831	4699	2349	1175
1000	51067	41875	31662	22980	15831	10213	6128	3064	1532



Sizing & Selection

Torques for Sizing Actuators - Inch-Pounds (Modified P.T.F.E. Seat)

Actuator selection is dependent upon a number of variable factors such as pressure drop across the valve, seat and bearing friction torques, cryogenic temperatures and flowing media. The figures in the following table are based on standard valves and materials working in normal service conditions. A safety factor as recommended by the actuator manufacturer should be applied.

Valve dia.	Closed pressure drop position psi G				
	50	100	150	200	285
50	146	152	159	164	174
80	300	317	332	348	375
100	545	579	612	645	704
125	947	1021	1096	1171	1300
150	1249	1357	1465	1574	1756
200	2355	2599	2842	3087	3502
250	3633	4074	4515	4956	5704
300	4738	5503	6267	7030	8330
350	6487	7501	8514	9526	11250
400	9600	11130	12670	14210	16830
450	12250	14460	16660	18870	22600
500	15600	18300	20900	23600	28100
600	23800	28900	34200	39400	48300
700	32300	41800	50500	59100	73700
750	38900	50200	61600	72900	92300
800	45300	58300	71300	84300	106400
900	61400	78700	96000	113400	142800

50 - 1000mm Class 300lb Full Rated

Valve dia.	Closed pressure drop position psi G				
	300	400	500	600	740
50	176	188	201	215	231
80	427	468	507	546	601
100	802	892	982	1071	1197
125	1323	1473	1623	1773	1983
150	2019	2289	2559	2827	3210
200	3900	4486	5028	5658	6478
250	6309	7338	8365	9390	10840
300	9250	10990	12740	14480	16930
350	14400	18790	20180	23080	27080
400	22200	26800	31440	36040	42500
450	29500	35900	42300	48600	57800
500	38200	46500	54900	63200	74800
600	60400	74400	88400	102100	121600
700	91200	113400	135100	158100	163700
750	108900	141500	169800	198500	238100
800	139800	175600	212800	247400	297300
900	182900	229200	276800	322500	387000

Valve sizes up to 1800mm on request.

As part of Weir Flow Control, Batley Valve has it's own inhouse design department. Utilising extensive knowledge working with worldwide industries we have manufactured unusual design configurations for various requirements.

Examples of this capability are shown on the next two pages.

We are proud of our achievements to supply the correct valve for our customers needs, and our flexibility of design means we can consider the most extreme cases.



A 300mm standard 3 way control valve fitted with a Rotork AQ 1/4 turn rotary actuator.



A 600mm butt weld design reheat steam balancing valve with cylinder and Babcock positioner and transmitter. Installed at Castle Peak Power Station, Hong Kong.



Engine test rig. 1000mm/400mm twin operated vane control valve to control high and low flows over a wide range.



A 250mm cryogenic hyperseal valve for - 196 °C @ 55bar, with ANSI 600lb connection for an oxygen plant in Australia.

650mm valve for slotting into pipeworks. Lower segment of disc removed to clear tar deposits in line. Complete with Askania actuator used in a steel works.



2-750mm flanged rubberlined Butterfly Valves on water at 150psi, complete with 3.5m extension to gearbox. For use on Eleme Petrochemical Complex, Nigeria.



300mm and 50mm control valves with Mecair actuator mechanically linked for use on parallel lines at UK refinery.

Square two louvre damper valve 600 x 600mm for 335 °C service fitted with Serck pneumatic actuator supplied to UK refinery.



400mm double flanged ANSI 300lb control valve with Rotork Pneumatic Actuator shipped to indonesia.

Weir Valves & Controls UK Ltd

Britannia House
Huddersfield Road
Elland, West Yorkshire
HX5 9JR England

T +44 (0) 1422 282 000

F +44 (0) 1422 282 100

E controlvalves@weirgroup.com

www.weirpowerindustrial.com



Asia

Weir International Korea

10 Block 16, Banwol Ind Complex
#779-10 Wonshi Dong, Ansan-Shi
Gyeonggi-Do, South Korea
T +82 31 478 1100
F +82 31 8032 0017
korea@weirpowerindustrial.com

Weir Valves & Controls Beijing

RM2207H, Derun Tower
3A East Yong An Li, Jianwai Avenue, Chaoyang
District, Beijing 100022
T +86 (10) 8528 8315 / 8316 / 8317
F +86 (10) 8528 8318
china@weirpowerindustrial.com

Weir Valves & Controls Shanghai

17F, 1566 West Yan'an Road
Shanghai
China
200052
T +86 (21) 6151 3540
F +86 (21) 6151 3501
china@weirpowerindustrial.com

Weir Flow Control

No B-2-1, Pusat Komersial Jalan Kuching
Jalan Kepadang Off Jalan Kuching
51200 Kuala Lumpur
Malaysia
T: +60 3 6241 2154
pacificrimenq@mail.weir

India

Weir-BDK Valves

A unit of Weir India Private Ltd
47/48 Gokul Road, Hubli-580 030, India
T +91 836 4248222/2333930
F +91 836 4248484/2330799
sales.weirbdk@weirgroup.com

Europe

Weir Valves & Controls UK Ltd

Britannia House, Huddersfield Road
Elland, West Yorkshire, HX3 9JR
T +44 (0) 1422 282000
F +44 (0) 1422 282100
info@weirpowerindustrial.com

Middle East & Africa

Weir Valves & Controls Middle East

PO Box 11419
Jebel Ali Free Zone
Dubai
UAE
T +971 4 808 0000
F +971 4 883 8595
wvcme@weirgroup.com

Weir Valves & Controls South Africa

31 Isando Road, Johannesburg
Gauteng 1600
T +27 (0) 11 929 2906
F +27 (0) 11 929 2925
powerindustrial@weirgroup.com

Americas

Boston

29 Old Right Road Ipswich, MA 01938, USA
T +1 978-744-5690
F +1 978-741-3626
sales@weirvalveusa.com

Toronto

Weir Flow Control
8600 Rue St-Patrick
Montreal (Lasalle)
Quebec, H8N 1V1
Canada
T +1 514 366 6534
info@weirgroup.com