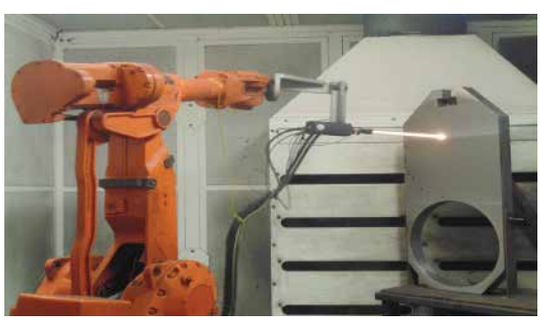
CAMTECH MANUFACTURING FZCO

Empowering Global Flow Control

Butterfly Valves

CAMTECH

Company Profile



CAMTECH MANUFACTURING FZCO is the first and only API accredited valve manufacturing company among UAE, Middle East and GCC, engaged in this business since 1999 for manufacturing mainly Ball Valves, Gate, Globe, Check valves, Butterfly valves, Plug valves, Pig valves & Choke valves in metallurgy such as carbon steel, Stainless steel, Duplex and Super duplex steel, for size range from ½" to 56" and class rating from 150 to 2500.

Our state of the art manufacturing facility based in Jebel Ali Free Zone (UAE) is spread over an area of 60,000 Sq.Ft,is fully equipped with modern six axis flexible machining center supported by standalone CNC and associated sub-systems fully equipped to manufacture and supply complete range of valves for Pipelines, Oil and Gas Sector, Petrochemical, Refineries, Pharmaceutical, Power, Contruction, Water Industries and other process indutries.

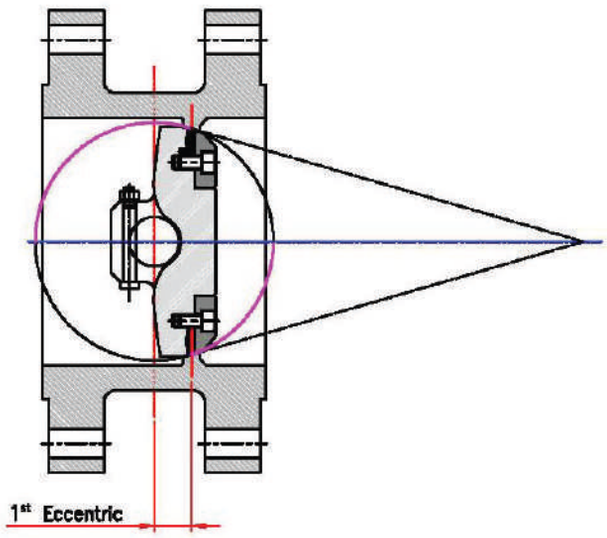
Camtech Manufacturing FZCO is API (6D, 6A, 600 & Q1) accredited and an ISO 9001, ISO 14001, ISO 45001 certified company with CE PED 2014/68/EU, ATEX 2014/34/EU and SIL certification. All our valves are designed, engineered and manufactured in strict conformance to API, ASME, ASTM, ANSI, BS, EN,DIN and other recognized international standards where ever applicable.

Our continuous and stringent quality consistency is achieved through rigorous quality control processes and latest testing equipment for Fugitive Emission test, Fire safe test, Positve material identification, Cryogenic test, Hydro test, Pneumatic test, High pressure gas test.

Over the recent years there is a dramatic increase in facilities handling H2S bearing hydrocarbons. Hence parameters like Hydrogen sulfide concentration, total system pressure, application temperature, existence of elemental sulfur and chloride content have a bearing on appropriate material selection in this severe environment. Hence all CAMTECH valves are manufactured in strict compliance with NACE MR0175/ISO 15156 to meet customer requirement.

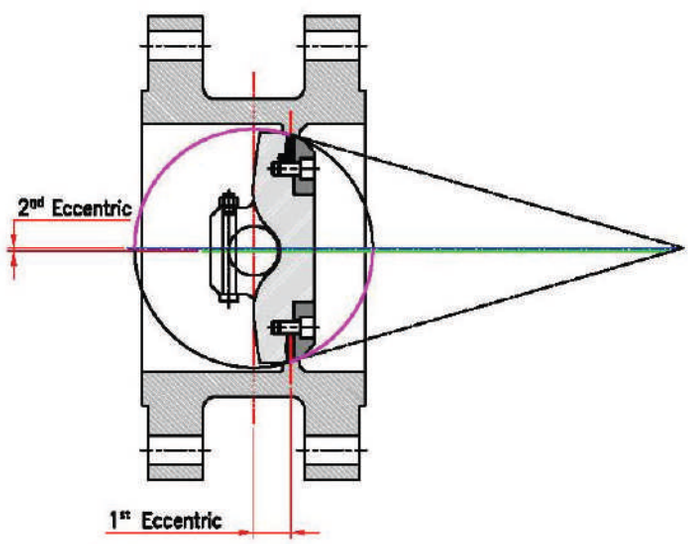
Our central geographical location along with the long term association with major forge masters and foundries locally as well as overseas and with qualified and experienced staff , we are proud to say that our commitment are always achieved on time and every time.

Eccentric Design Data



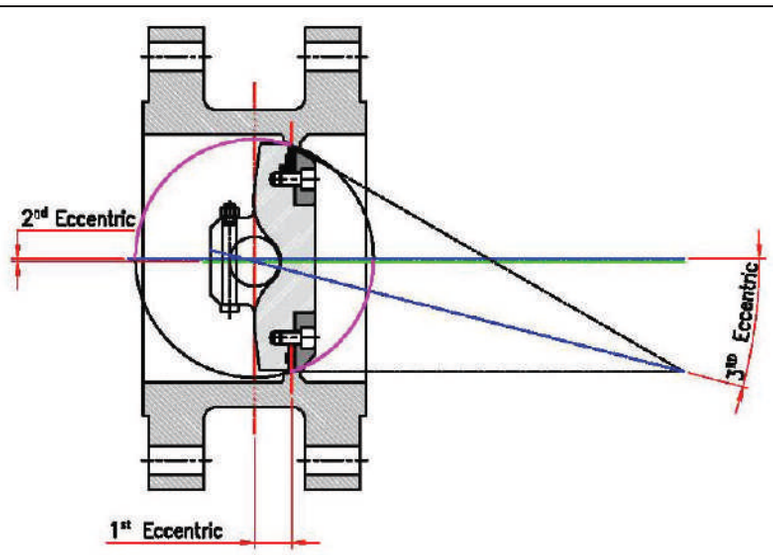
Single Eccentric

1) The center of rotation is moved back from centerline of the valve disc.
2) The seat and seal are designed conically and on centre.
3) This design relies on a frictional, interference seal and so is applicable only to soft seated valves.



Double Eccentric

1) The center of rotation is moved back from centerline of the valve disc.
2) The seat and seal are designed conically and on centre.
3) This design again relies on a frictional, interference seal, but the length of rotation over which this friction occurs is reduced, allowing a large range of process resistant seat material to be used. However these materials must be relatively soft or highly elastic to prevent "jamming".



Triple Eccentric

1) The centerline of the cone is rotated away from the valve centerline resulting in an ellipsoidal profile and providing the triple eccentric. With this geometry, seat seal interference is completely eliminated ensuring long sealing life.
2) The result is a torque seated, process pressure aid frictionless seal.
3) The geometry allows the body seat to be used as the closed limit stop, aiding operator adjustment.
4) The triple eccentric design is ideally suited to metal seated valves providing bubble tight performance on high temperature, high pressure and fire safe applications.

Applications

Camtech designs and manufactures high performance valves for exacting markets as diverse as

- Oil & gas
- Petrochemicals
- Power plant
- Sea water
- Exhaust gas
- Acids & Alkalies
- Steel
- Hydro carbons
- Sour services
- Oxygen service
- Slurries
- Fertilizers
- Pharmaceutical
- Food & Beverages

Basic Design Standards

Pressure Temperature Rating	:	ASME B16.34
Design Standard	:	API 609
Testing Standard	:	API 598
Fire Testing	:	API 607
Flange Details (up to 24")	:	ASME B16.5
Flange Details (26" & above)	:	ASME B16.47
Visual Inspection	:	MSS SP – 55
Face to face	:	API 609, ISO 5752

Sizes Range

- 2" - 48" Class 150
- 2" - 48" Class 300
- 2" - 48" Class 600
- 2" - 36" Class 900
- 2" - 36" Class 1500

Body Styles Provided

- Wafer
- Lug
- Double flanged
- Butt-weld
- Special execution on request

Options

- Live loaded shaft seal
- Extended bonnet for low temperature and Cryogenic applications
- High temperature configuration
- Steam jacketing
- Integral thermal lagging extension

Value Variations

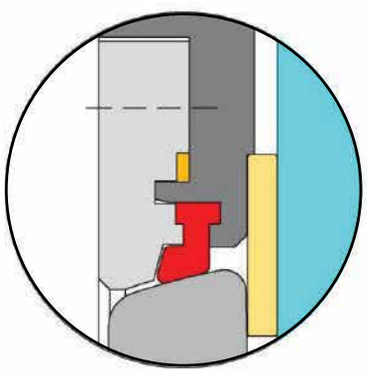
- Single Eccentric
- Double Eccentric
- Triple Eccentric

DOUBLE OFFSET BUTTERFLY VALVE FEATURES

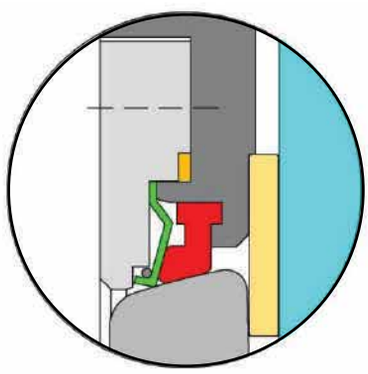
The axis of the disc rotation is double offset to the seat. When the disc rotates, it unseats at a small turning angle by its caming effect. This feature enables,

- Bubble tight shut off over extended period of service.
- Greatly reduced seat wear.
- Reduced torque compared to other conventional valves.

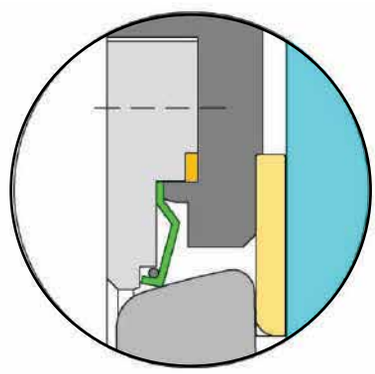
There are three seat variations available depending upon the application and the service requirements.



Non Fire Safe
For standard utility service

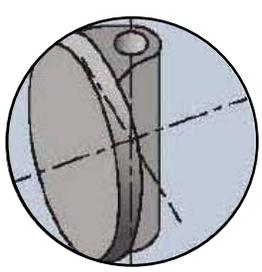


Fire Safe
Secondary lip type metal seat gives sealing after the soft seat burns.



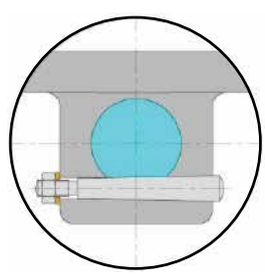
Metal Seat
Suitable for High temperature service up to 600°C with leakage rate of class IV.

SPHERICAL DISC



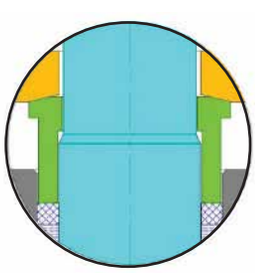
The geometry and construction of the seat results in smooth contact between the seat and the disc.
This also results in reduced valve torque.
Disc construction is well engineered and designed to maintain high CV.

SHAFT-TO-DISC CONNECTION



The shaft-to-disc connection is designed with a pin and tightened with a nut to prevent the stem and disc connection loosening due to vibration. This also acts as a secondary blow out proof shaft protection.

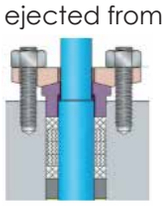
BLOW OUT PROOF SHAFT PROTECTION



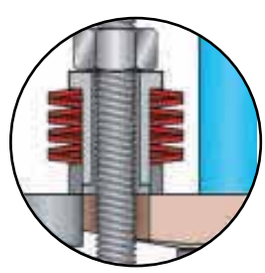
External

Internal

The gland arrangement holds the stem from extruding out under pressure if failure of the shaft to disc connection or of the shaft occurs, no portion of the shaft can be ejected from the valve.



LIVE LOADING (OPTIONAL)



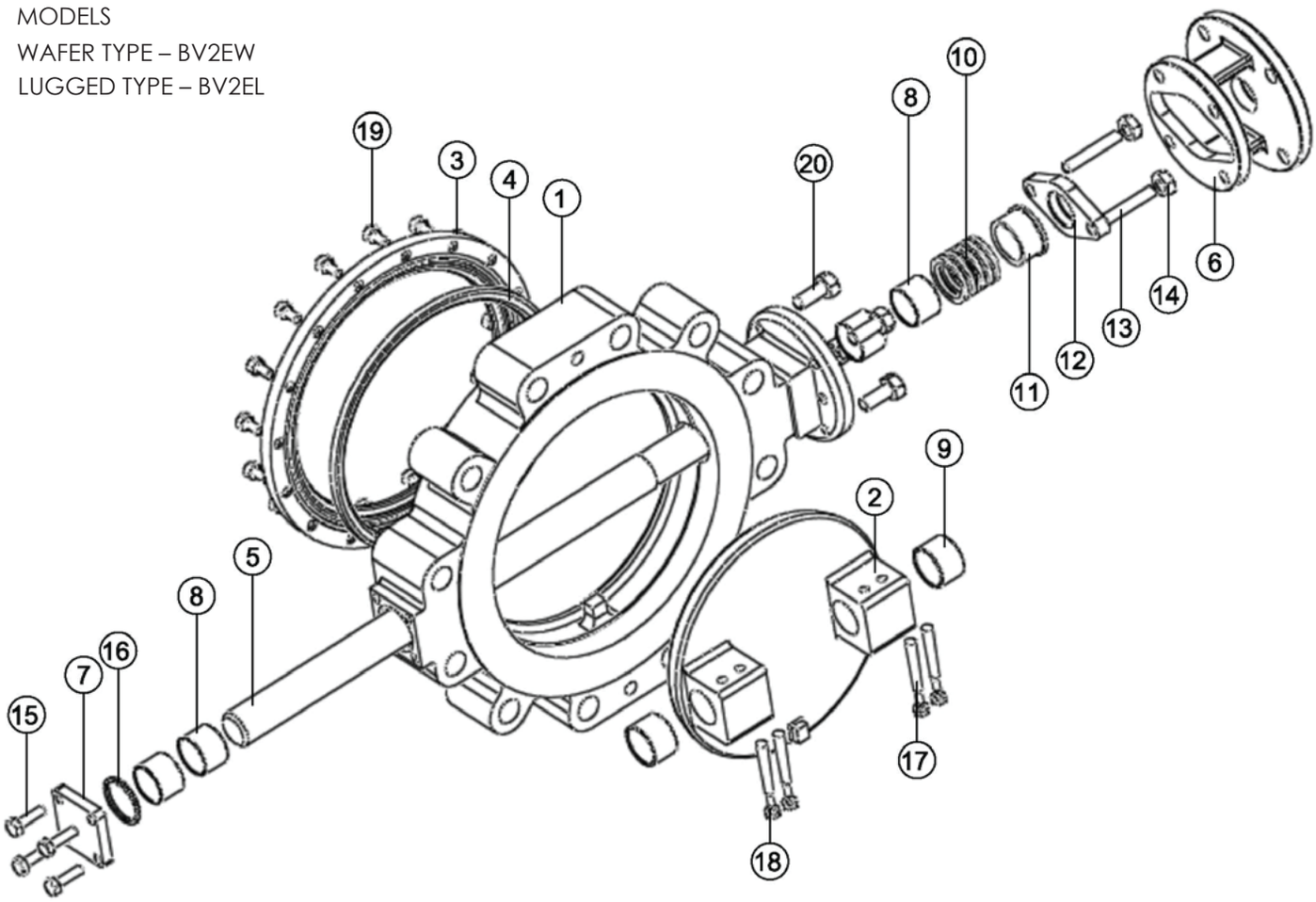
Provides constant packing compression and is essential for this low emission packing arrangement which provides predictable and constant packing compression

ADJUSTABLE PACKING

The Packing arrangement provided in valve is qualified to International Fugitive Emission standard and fully adjustable and replaceable at field.

DOUBLE ECCENTRIC BUTTERFLY VALVE

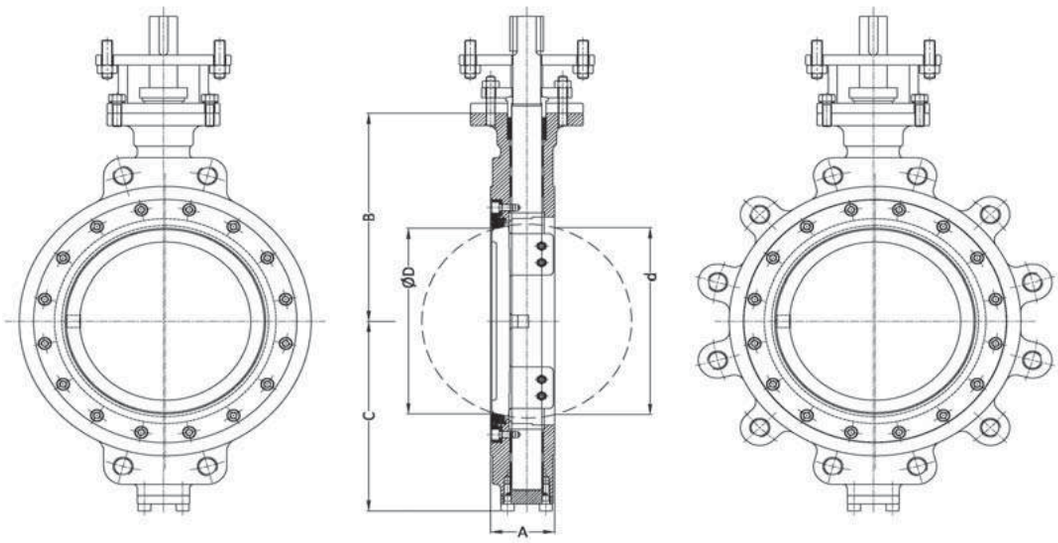
MODELS
WAFER TYPE – BV2EW
LUGGED TYPE – BV2EL



Item #	Description	Materials	Item #	Description	Materials
1	Body	A216 WCB / WCC / A351 CF8 / CF8M	11	Gland	F6a / XM19 / 17.4 PH / Inconel 718
2	Disc [1)2)]	A216 WCB / WCC / A351 CF8 / CF8M	12	Gland Flange	ASTM A105 / A182 F304 / F316 / F51
3	Retainer	ASTM A105 / A182 F304 / F316 / F51	13	Gland Stud	A193 B7 / B7M / B8 / B8M
4	Seat [3)]	PTFE / RPTFE / DEVLON	14	Gland Nut	A194 2H / 2HM / 8 / 8M
5	Stem	F6a / XM19 / 17.4 PH / Inconel 718	15	Cap Screws	A193 B7 / B7M / B8 / B8M
6	Yoke	A216 WCB	16	Gasket	Graphite
7	Bottom Cover	A216 WCB/WCC/A351 CF8/CF8M	17	Taper Pin	ASTM A 182 F316 / F51
8	Bearing	SS316 + Nitrided / SS316 + PTFE	18	Hex Nut	A194 2H / 2HM / 8 / 8M
9	Thrust Bearing	SS316 + Nitrided	19	Cap Screws	A193 B7 / B7M / B8 / B8M
10	Gland Packing [4)]	Braided Graphite	20	Hex Bolt	A193 B7 / B7M / B8 / B8M

■ Stellite hard face on the disc sealing face can be provided upon request.■WCB Disc material shall be nickel plated.■ Metal seat design also available on request for low pressure.■Low emission packing set available for special service.■Other material combination or optional material are made available, consult factory.

DOUBLE ECCENTRIC BUTTERFLY VALVE



CLASS 150

SIZE (Inch)	Dimensions in mm					Weight (Kg)	
	A	B	C	ØD	d	Wafer	Lugged
2"	43	115	95	60	40	4	6
3"	48	150	105	90	60	7	10
4"	54	175	115	115	80	9	14
6"	57	195	155	158	135	14	20
8"	64	220	185	215	180	36	45
10"	71	250	225	260	225	55	65
12"	81	290	265	315	285	70	85
14"	92	325	300	355	310	95	125
16"	102	355	325	400	356	140	205
18"	114	385	355	455	405	180	360
20"	127	425	380	495	455	230	455
24"	154	490	450	585	540	350	550

CLASS 300

SIZE (Inch)	Dimensions in mm					Weight(Kg)
	A	B	C	ØD	d	Lugged
2"	43	115	95	60	40	9
3"	48	150	105	90	60	13
4"	54	175	115	115	80	18
6"	59	200	175	158	135	40
8"	73	245	210	215	180	60
10"	83	280	240	260	220	95
12"	92	325	285	315	285	130
14"	117	360	315	355	305	180
16"	133	390	355	400	350	315
18"	149	430	385	455	395	390
20"	159	460	420	495	440	550
24"	181	540	490	585	525	725

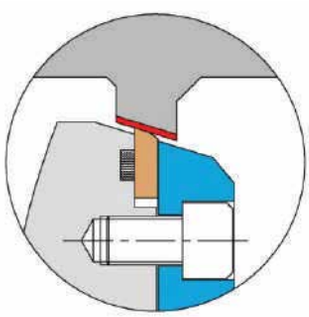
■ Face to face dimension 'A' above is for wafer & lugged style body. Internal diameter of the pipe shall be atleast 3mm for size 2" to 12", 6mm for size 14" to 20" & 13mm for size 24" more than dimensiond. ■ Gear operator mandatory for size 8" and above. ■ Please specify the working pressure, temperature & service condition. ■ Valves can be supplied to suit ASME / BS / DIN flanges. ■ Face-to-Face for sizes apart from table and for other dimensions consult factory.

TRIPLE OFFSET BUTTERFLY VALVE FEATURES

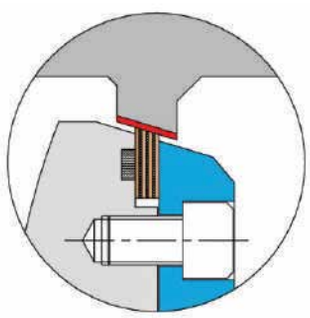
Seat cone center is offset from the valve centerline, completely eliminate the mechanical friction between disc and seat. It is a torque seated, process pressure aided frictionless seal valve, and this feature enables it to be suitable for,

- High Temperature and High Pressure.
- Metal Seated Valve
- Reduced torque compared to other conventional valves
- Fire Safe applications.

Seat Construction



Solid Seat

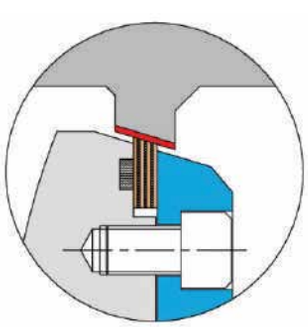


Laminated Seat

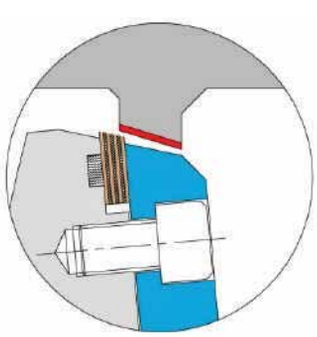
There are two seat variations available depending upon the application and the service requirements. The valve disc include a resilient, laminated metal seal ring, composed of alternating layers of corrosion-resistant alloy and composite graphite.

Each individual lamination provides an independent seal, unaffected by damage to the others. While improving long-term sealing properties, the resilience of the laminated design also allows lower operating torques.

For High temperature and severe applications Non Laminated, hardened solid seats are also made available on request. The hard facing provides larger service life.



After seating



Before seating

Adjustable Packing

The Packing arrangement provided in valve is qualified to International Fugitive Emission Standard and fully adjustable and replacement at field.

Low Emission Stem Seal

Adjustable shaft packing with multiple graphite rings sandwiched between two anti-extrusion rings control fugitive emission and gives longer packing life. Gland packing with live loading is available as an option.

Externally Retained Blow-Out Proof Design

Engineered gland design gives shaft blow out proof protection externally, conforming to the requirements of API 609. In addition, two screws provided at the bottom retain the shaft against blowout.

Inherent Fire Safe

Camtech triple offset butterfly valves are all metal construction and sealing with No elastomeric seals and it is inherently fire safe by design. Fire safe tests to API 607 were successfully performed at Camtech with in-house fire safe test facility.

Bearing Protection

Graphite ring encased in bearing ensures protection against ingress of line media in to the bearing surface and thus avoids jamming of shaft.

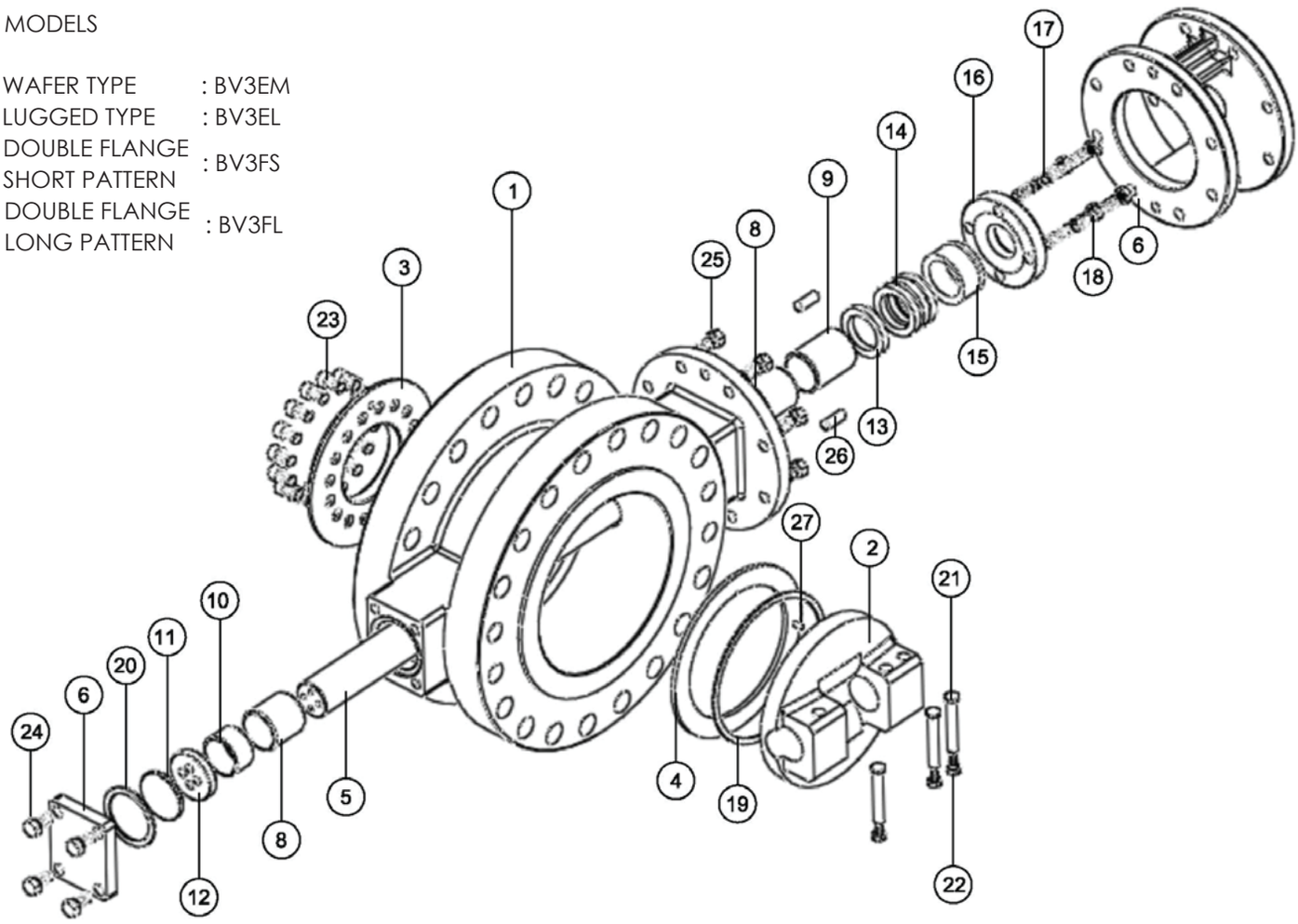
Live Loading (Optional)

Provides constant packing compression and is essential for this low emission packing arrangement which provides predictable and constant packing compression

TRIPLE ECCENTRIC BUTTERFLY VALVE

MODELS

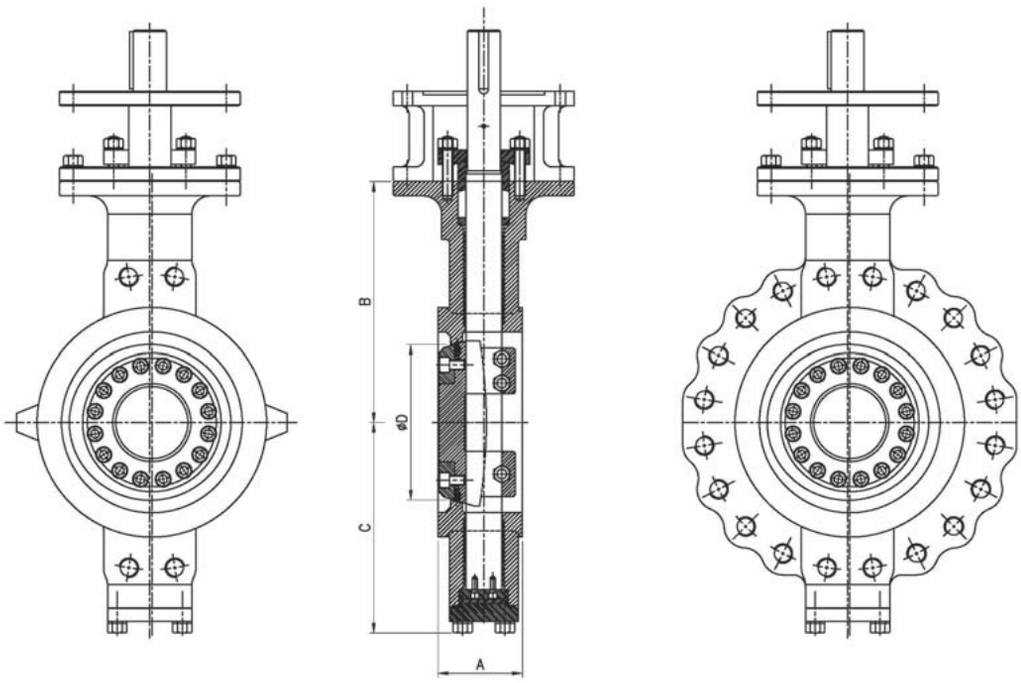
WAFER TYPE : BV3EM
LUGGED TYPE : BV3EL
DOUBLE FLANGE SHORT PATTERN : BV3FS
DOUBLE FLANGE LONG PATTERN : BV3FL



Item #	Description	Materials	Item #	Description	Materials
1	Body [1]	A216 WCB/WCC/A351 CF8/CF8M	15	Gland	F6a / XM19 / 17.4 PH / Inconel 718
2	Disc [2]	A216 WCB/WCC/A351 CF8/CF8M	16	Gland flange	ASTM A105 / A182 F304 / F316 / F51
3	Retainer [3]	ASTM A105 / A182 F304 / F316 / F51	17	Gland Stud	A193 B7 / B7M / B8 / B8M
4	Disc Seat [4]	SS316+graphite / Duplex + graphite	18	Gland Nut	A194 2H / 2HM / 8 / 8M
5	Stem	F6a / XM19 / 17.4 PH / Inconel 718	19	Retainer Gasket	Graphite / SS316 + Graphite
6	Yoke	A216 WCB	20	Gasket	Graphite / SS316 + Graphite
7	Bottom Cover	A216 WCB/WCC/A351 CF8/CF8M	21	Taper Pin	XM19 / 17.4 PH / Inconel 718
8	Bearing	SS316 + Nitrided / SS316 + PTFE	22	Hex Nut	A194 2H / 2HM / 8 / 8M
9	Upper Spacer	SS316 + Nitrided	23	Cap Screw	A193 B7 / B7M / B8 / B8M
10	Bottom Spacer	SS316 + Nitrided	24	Cap Screw	A193 B7 / B7M / B8 / B8M
11	Thrust pad	SS316 + Nitrided	25	Hex Bolt	A193 B7 / B7M / B8 / B8M
12	Thrust Bearing	F316 / F51 / F55	26	Dowel	F6a / F316 / F51
13	Antiextrusion Ring	F6a / XM19 / 17.4 PH / Inconel 718	27	Pin	F6a / F316 / F51
14	Gland Packing [5]	Braided Graphite	28	Key	C1045

■Body seat shall be integral for all material.■WCB Disc material shall be nickel plated. ■A105 retainer shall be nickel plated. Solid seat with Stellite hard face also available.■Low emission packing set available for special service.
■Other Size, Pressure and Material combination or optional material are made available, consult factory.

TRIPLE ECCENTRIC BUTTERFLY VALVE



CLASS 150

SIZE (Inch)	Dimensions in mm						Weight (Kg)			
	A			B	C	ØD	BV3EW	BV3EL	BV3FS	BV3FL
	BV3EW, BV3EL	BV3FS	BV3FL							
3"	48	114	203	184	115	58	12	17	29	41
4"	54	127	229	192	120	78	19	24	38	55
6"	57	140	267	231	150	128	25	32	55	70
8"	64	152	292	318	220	178	40	50	80	115
10"	71	165	330	358	250	228	56	70	110	150
12"	81	178	356	327	265	278	92	115	170	230
14"	92	190	381	448	275	328	116	145	210	310
16"	102	216	406	494	345	369	152	190	240	390
18"	114	222	432	539	370	419	192	240	280	455
20"	127	229	457	580	400	469	248	310	360	610
24"	154	267	508	625	440	567	360	450	510	850
26"	210	292	559	560	515	615	624	780	840	1150
28"	229	292	610	655	560	667	712	890	950	1490
30"	230	318	610	720	625	717	808	1010	1080	1660
32"	241	318	660	740	635	767	1000	1250	1350	2010
34"	241	330	711	760	640	816	1160	1450	1500	2310
36"	241	330	711	825	716	866	1416	1770	1830	2510

■ Face to face dimension 'A' up to 24" are as per API 609 and 26" and above are as per ISO 5752 series 16 for wafer & lugged type, series 13 for double flange short pattern, and ASME B16.10 for long pattern. ■ Gear operator mandatory for size 6" and above. ■ Please specify the working pressure, temperature & service condition. ■ Valves can be supplied to suit ASME / BS / DIN flanges. ■ Other Size, pressure and material combination or optional material are made available, consult factory. ■ Face-to-Face dimensions for sizes apart from above table and for other dimensions consult fcctory.

TRIPLE ECCENTRIC BUTTERFLY VALVE

CLASS 300

SIZE (Inch)	Dimensions in mm						Weight (Kg)			
	A			B	C	ØD	BV3EW	BV3EL	BV3FS	BV3FL
	BV3EW, BV3EL	BV3FS	BV3FL							
3"	48	114	282	184	115	58	19	24	35	50
4"	54	127	305	192	120	78	24	30	45	70
6"	59	140	403	294	195	128	44	55	90	125
8"	73	152	418	329	220	178	72	90	120	180
10"	83	165	457	358	250	228	104	130	145	230
12"	92	178	502	391	265	278	136	170	220	350
14"	117	190	762	477	320	328	204	255	345	510
16"	133	216	838	525	345	369	312	390	435	620
18"	149	222	914	565	385	419	436	545	580	880
20"	159	229	991	643	430	469	464	580	675	1010
24"	181	267	1143	683	480	567	728	910	980	1555
26"	210	292	1245	735	670	615	1208	1510	1400	1850
28"	229	292	1346	750	635	667	1290	1612	1650	1990
30"	230	318	1397	785	670	717	1392	1740	1850	2100
32"	241	318	1524	810	690	767	1464	1830	1930	2250
34"	241	330	1727	835	720	816	1576	1970	2010	2410
36"	241	330	1727	925	756	866	1640	2050	2115	2520

CLASS 600

SIZE (Inch)	Dimensions in mm						Weight (Kg)			
	A			B	C	ØD	BV3EW	BV3EL	BV3FS	BV3FL
	BV3EW, BV3EL	BV3FS	BV3FL							
3"	54	180	356	220	165	58	32	40	60	70
4"	64	190	432	263	181	78	48	60	80	115
6"	78	210	559	303	221	128	78	98	140	215
8"	102	230	660	355	277	178	140	175	245	320
10"	117	250	787	480	332	228	200	250	320	470
12"	140	270	838	455	352	278	288	360	500	620
14"	155	290	889	478	375	318	392	490	595	710
16"	178	310	991	553	415	368	544	680	745	1090
18"	200	330	1092	583	445	416	572	715	910	1250
20"	216	350	1194	618	484	466	776	970	1280	1650
24"	232	390	1397	680	546	518	1048	1310	1730	2360

■Face to face dimension 'A' up to 24" are as per API 609 and 26" and above are as per ISO 5752 series 16 for wafer & lugged type, series 13 for double flange short pattern, and ASME B16.10 for long pattern.■Gear operator mandatory for size 6" and above.■ Please specify the working pressure, temperature & service condition.■Valves can be supplied to suit ASME / BS / DIN flanges.■Face-to-Face dimensions for sizes apart from above table and for other dimensions consult fcctory.

TRIPLE ECCENTRIC BUTTERFLY VALVE

CLASS 900

SIZE (Inch)	Dimensions in mm						Weight (Kg)		
	A			B	C	D	BV3EL	BV3FS	BV3FL
	BV3EL	BV3FS	BV3FL						
6"	105	225	610	375	240	146	135	195	270
8"	140	275	737	455	290	191	305	315	630
10"	155	325	838	535	335	238	385	505	750
12"	178	375	365	595	405	282	680	750	1075
14"	229	425	1029	620	445	311	860	980	1205
16"	241	475	1130	635	490	356	1080	1275	1760
18"	244	500	1213	655	525	400	1360	1660	2550
20"	300	575	1321	685	590	444	1890	2220	3280
24"	350	675	1549	720	670	534	2475	3610	5250

CLASS 1500

SIZE (Inch)	Dimensions in mm					Weight (Kg)	
	A		B	C	D	BV3FS	BV3FL
	BV3FS	BV3FL					
6"	275	705	375	255	137	455	520
8"	325	832	475	310	175	775	880
10"	390	991	510	370	222	1330	1550
12"	450	1130	535	415	264	1640	1980
14"	515	1257	565	495	289	2870	3350
16"	575	1384	595	535	330	3640	4320
18"	663	1537	640	590	372	4740	5675
20"	700	1664	735	665	416	5560	6750
24"	765	1943	810	785	498	8480	10590

■ Face to face dimension 'A' for class 900 flanged end short pattern are as per ISO 5752 series 8 for lugged type are as per manufacturer standard, class 900 and 1500 as per ASME B.16.20 for long pattern. ■ Gear operator mandatory for size 6" and above. ■ Please specify the working pressure, temperature & service condition. ■ Valves can be supplied to suit ASME / BS / DIN flanges. ■ Face-to-Face dimensions for sizes apart from above table and for other dimensions consult fcctory.

BODY MATERIAL

MATERIAL	ASTM REFERENCE	RECOMMENDED TEMPERATURE LIMITS		APPLICATIONS
		°C	°F	
WCB	ASTM A216 WCB	-29 to 425	-20 to 800	Steam, water oil, oil vapour, gas and general service
LCB	ASTM A352 LCB	- 46 to 350	- 50 to 650	Low Temperature Applications
LCC	ASTM A352 LCC	- 46 to 350	- 50 to 650	
CF8M	ASTM A351 CF8M	-196 to 537	-320 to 1000	High and low temperature corrosion resistance Cryogenic service is also available upon request
CF8	ASTM A351 CF8	-196 to 537	-320 to 1000	
CF3M	ASTM A351 CF3M	-196 to 537	-320 to 1000	
CF3	ASTM A351 CF3	-196 to 537	-320 to 1000	

TECHNICAL DATA

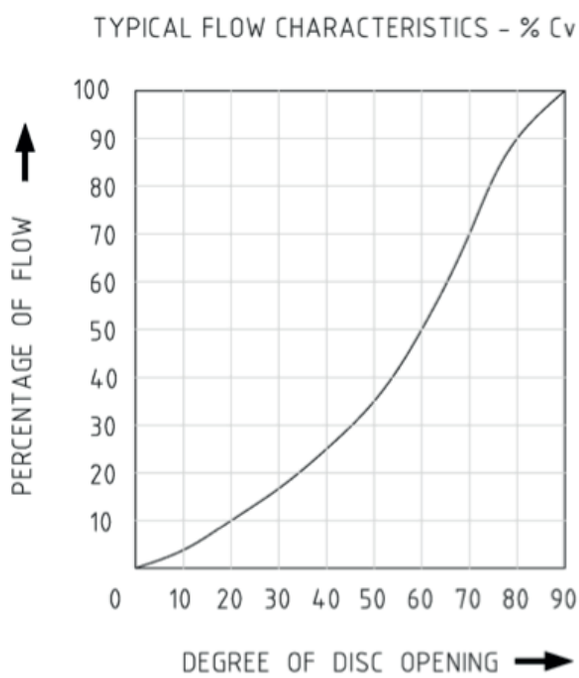
VALVE TORQUE VALUE

SIZE (Inch)	CLASS 150		CLASS 300		CLASS 600	
	OPENING	CLOSING	OPENING	CLOSING	OPENING	CLOSING
3"	90	80	150	135	270	180
4"	125	110	220	180	540	350
6"	190	160	460	350	1290	715
8"	380	250	1010	610	2450	1490
10"	670	480	1610	1030	4340	2560
12"	1040	730	2590	1510	6180	3320
14"	1465	980	3600	1780	8260	4360
16"	2060	1450	5750	2960	11800	6110
18"	2840	1640	7710	3660	20100	9090
20"	3530	1950	9890	4325	25870	11880
24"	5990	2700	15960	6420	39900	15780
26"	9320	3970	18670	7320		
28"	15100	5980	24200	8010		
30"	21890	6940	36100	15660		
32"	23150	7870	46310	18980		
34"	27540	9340	51760	22345		
36"	31190	12210	58900	26790		

- Valve torque for other sizes, please contact factory with details.

Cv VALUE

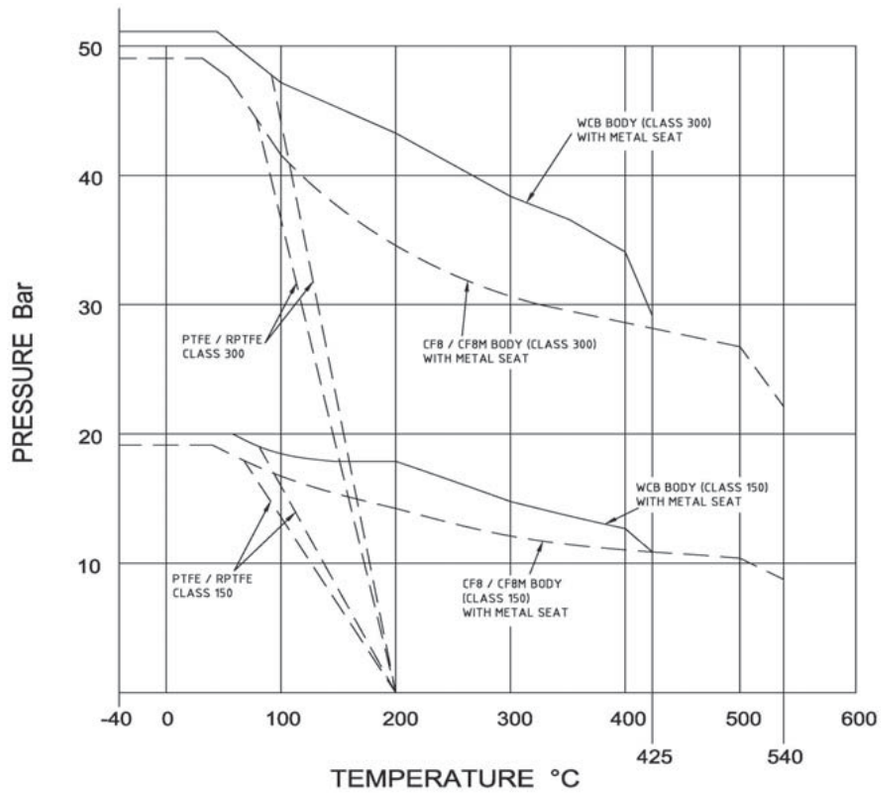
SIZE (Inch)	CLASS 150	CLASS 300	CLASS 600
3"	165	165	150
4"	290	290	250
6"	790	725	600
8"	1460	1330	1080
10"	2200	2110	1700
12"	3780	3500	2520
14"	5140	4620	4068
16"	6940	6280	5380
18"	9500	8590	7470
20"	13000	11500	9820
24"	18800	16180	14940
26"	23450	19870	
28"	27200	23500	
30"	30800	29800	
32"	34000	32600	
34"	37500	36450	
36"	43200	41500	



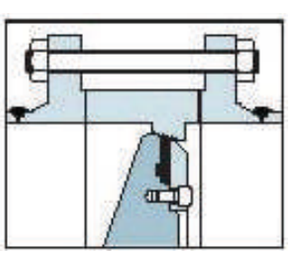
- Flow co-efficient 'Cv' of a valve is flow rate of cold water in gallons per minute with a pressure drop of 1 psig across the valve.
- For other sizes, please contact factory.

TECHNICAL DATA

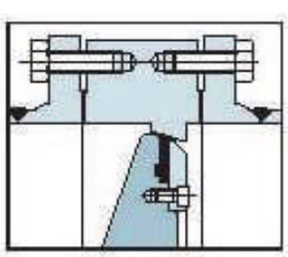
PRESSURE - TEMPERATURE CHART



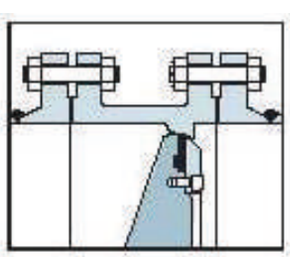
DIFFERENT BODY STYLES



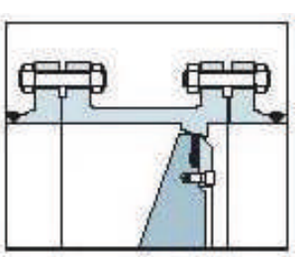
WAFER STYLE



LUGGED STYLE



DOUBLE FLANGED
SHORT PATTERN



DOUBLE FLANGED
LONG PATTERN

Other end connections can be made available if required.
Camtech reserves the right to change this information without notice.

CUSTOMER REFERENCE

CAM-BFV-00 (2023)

Head Office & Manufacturing Facility

CAMTECH MANUFACTURING FZCO

P.O. Box 17788, Plot No. S40309, Jebel Ali Free Zone, South
Dubai, United Arab Emirates
Telephone No. : +971 4 881 3133
Fax No. : +971 4 8815051, 881 9166
Email Address : camtech@emirates.net.ae
Website : www.camtechvalve.com