

KVC UK Ltd

Federal International (2000) Ltd



wafer type
lug type
double flanged type

resilient seated butterfly valves

KVC UK LTD



KVC (UK) LTD SUPPLY RANGE

Concentric Resilient Seated Butterfly Valves are supplied in sizes ranging from 2" thru 48", (larger on request), and Pressure Classes ANSI 125 – 150, BS/DIN PN 06, 10 & 16. JIS Standards are also available. Our Range includes Body Styles in Wafer, Lug & Double Flanged Designs, with standard materials including Cast Iron, Cast Carbon & Stainless Steels, along with Bronze Materials.

KVC (UK) Ltd QUALITY SYSTEM

KVC (UK) Ltd quality system is Lloyds approved to BS: EN ISO 9001,2015 and API Q1 9th Edition which ensures that our product is controlled through each stage of manufacture. Valves are supplied with full chemical and mechanical material test certificates to BS EN 10204: 2004 3.1. hydrostatic and pneumatic test certificates are also supplied with each valve.

KVC (UK) Ltd is part of the **Federal International (2000) Ltd Group**. This long standing relationship coupled with our own experience has allowed **KVC (UK) Ltd** to grow and develop into our current and ever improving place within the market.

As part of a large multi-national group, **KVC (UK) Ltd** has the benefit and experience of our united Kingdom based operations together with worldwide access to our parent company resources and our numerous sister companies.

These valuable resources afford us global reach, whilst allowing local access and understanding of both global and local markets, allowing us to provide local technical support in almost any region.

Our key position within the group enables us to offer full management and supply of valves, services and subsidiary equipment. We also offer access to a large and continuously replenished inventory of our core in-house designed products and all others available within the group.

We can supply large quantities of varying product ranges almost instantly or equally manufacture at our various **KVC (UK) Ltd** controlled manufacturing sites with short lead times and impeccable quality.



COMPANY PROFILE

KVC (UK) Ltd specialises in the supply of valves for the Oil, Gas, Chemical, Petrochemical, Pipeline and Water Industries Worldwide. Our valves are used in Offshore, Onshore and Sub-Sea applications.

The Management of the Company has many years experience in the Valve Industry. The organisation and flexibility of the Company allows **KVC (UK) Ltd** to offer short lead-times, even on non-standard valves.

All valves are supplied to the highest quality standards and are fully tested before leaving the factory.

The aim of **KVC (UK) Ltd** is to provide valves and services, which meet or exceed our Customers requirements, at a realistic price and reliable manufacturing time and in so doing remain a market leader supplying a worldwide base of industry leading clients.

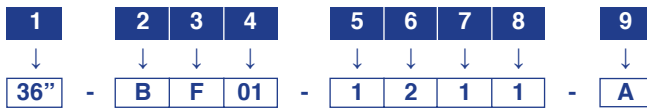
The **KVC®** series of resilient seated butterfly valves were developed in response to industries request for a reliable quality but low cost valve for use on corrosive medias such as seawater and brine (salty water). The design is such that the valve body and shaft are fully isolated from the line fluid and as such lower cost materials such as Cast Iron & Carbon Steel can be used in lieu of the more expensive alloys like Aluminium Bronze and Stainless Steel.

The **KVC®** series of resilient seated butterfly valves are ideally suited to the dual roles of process isolation and on-off control. With many body / seat material combinations, the valves are widely used in the following industries:-

- Commercial Construction (HVAC)
- Chemical Processing
- Food & Beverage
- Iron & Steel
- Marine
- Mining
- Oil & Gas Transmission
- Petroleum Production & Refinery
- Power Station
- Pulp and Paper
- Water Works

Due to the unique design, the valves can be supplied to suit all common flange standards such as BS 4504 and ANSI Classes 125-150, DIN and JIS standards. The valve face-to-face dimensions comply with those international standards such as BS 5155, ISO 5752, API 609, MSS SP-67 and AWWA C504.

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Example: 36''-BF01-1211-A

36" **KVC** "B" series Butterfly Valve, Double Flanged Body, Drilled to ANSI 125-150, Ductile Iron A536 Body, Epoxy Coated Ductile Iron Disc, SS410 Shaft, EPDM Seat, c/w Worm Gear Operator
Face-to-Face Dimension to ISO 5752 series 13

Example: 80-AL10-0532-X

DN 80 (3") **KVC** "A" series Butterfly Valve, Lugged Body, Drilled to DIN / BS PN 1.0 MPa, Gray Iron A126-B Body, Aluminium Bronze Disc, SS316 Shaft, Buna-N Seat, c/w Handle Lever Operator
Suitable for Dead-End-Service

1 Valve Size					
Customers have choice of specifying valve size in NPS (inch) or DN (mm).					
NPS	DN	NPS	DN	NPS	DN
1"	25 mm	16"	400 mm	44"	1100 mm
1-1/4"	32 mm	18"	450 mm	48"	1200 mm
1-1/2"	40 mm	20"	500 mm	56"	1400 mm
2"	50 mm	22"	550 mm	64"	1600 mm
2-1/2"	65 mm	24"	600 mm	72"	1800 mm
3"	80 mm	26"	650 mm	80"	2000 mm
4"	100 mm	28"	700 mm	88"	2200 mm
5"	125 mm	30"	750 mm	96"	2400 mm
6"	150 mm	32"	800 mm	104"	2600 mm
8"	200 mm	34"	850 mm	112"	2800 mm
10"	250 mm	36"	900 mm	120"	3000 mm
12"	300 mm	40"	1000 mm	128"	3200 mm
14"	350 mm	42"	1050 mm		

2 Type of Valve	
A	- A series, concentric disc type, c/w taper pins API 609-1A, MSS SP-67
AS	- AS series, concentric disc type, without taper pins API 609-1A, MSS SP-67
B	- B series, concentric disc type, c/w taper pins API 609-2C, ISO 5752 Series 13, BS 5155 Series 13 or AWWA504 (Short)
D	- D series, eccentric disc type (i.e. double offset disc) API 609-2C, ISO 5752 Series 13, BS 5155 Series 13 or AWWA504 (Short)

3 Type of End Connection	
W	- Wafer Type
L	- Lugged Type
F	- Double Flanged
X	- Special (to specify)

4 Rating / Flange Drilling		
ANSI / MSS Std.	DIN / BS Std.	JIS Std.
01 - ANSI 125-150	06 - PN 0.6 MPa	15 - JIS 5K
	10 - PN 1.0 MPa	11 - JIS 10K
	16 - PN 1.6 MPa	17 - JIS 16K

5 Body Material	
0	- Gray Iron, A126 Class B
1	- Ductile Iron, A536 Gr. 65-45-12
2	- Carbon Steel, A216 WCB
3	- St. St., A351 CF8
4	- St. St., A351 CF8M
5	- Aluminium Bronze, B148

6 Disc Material	
1	- A536 with Nickel Coating
2	- A536 with Epoxy Coating
3	- A536 with Nylon Coating
4	- A351 CF8
5	- Aluminium Bronze, B148-C95400
6	- A351 CF8M
7	- A743 CA15
8	- Monel, A351 M35
9	- Alloy 20
0	- Special (to specify)

7 Shaft Material	
1	- 13Cr, A582-416 or A276-410
2	- SS304, A276-304
3	- SS316, A276-316
4	- Monel
5	- 17-4PH, A564-630
6	- Special (to specify)

8 Seat (Liner) Material	
1	- EPDM
2	- Buna-N (NBR)
3	- Viton®
4	- Viton-GLT (high temp.)
5	- Teflon (PTFE®)
6	- Teflon over Buna
7	- R-PTFE
8	- Hypalon®
9	- Neoprene
0	- Special (to specify)

9 Actuation / Special Options	
A	- Standard 12" & smaller sizes – handle lever operated as standard. Use "G" if gear operated. 14" & larger sizes – gear operated as std.
B	- Bare Shaft
G	- Manual Gear Operated 12" & smaller sizes, if gear operated, use code "G"; For 14" & larger sizes, if gear operated, use code "A" (standard).
E	- Electric Actuator Operated
P	- Pneumatic Actuator Operated
X	- Special Services (to specify)
	Note: refer to page 13, "actuation" for more information.
	Note: refer to page 13, "actuation" for more information.

Hypalon®, Neoprene®, PTFE® and Viton® are trademarks of DuPont Performance Elastomers.

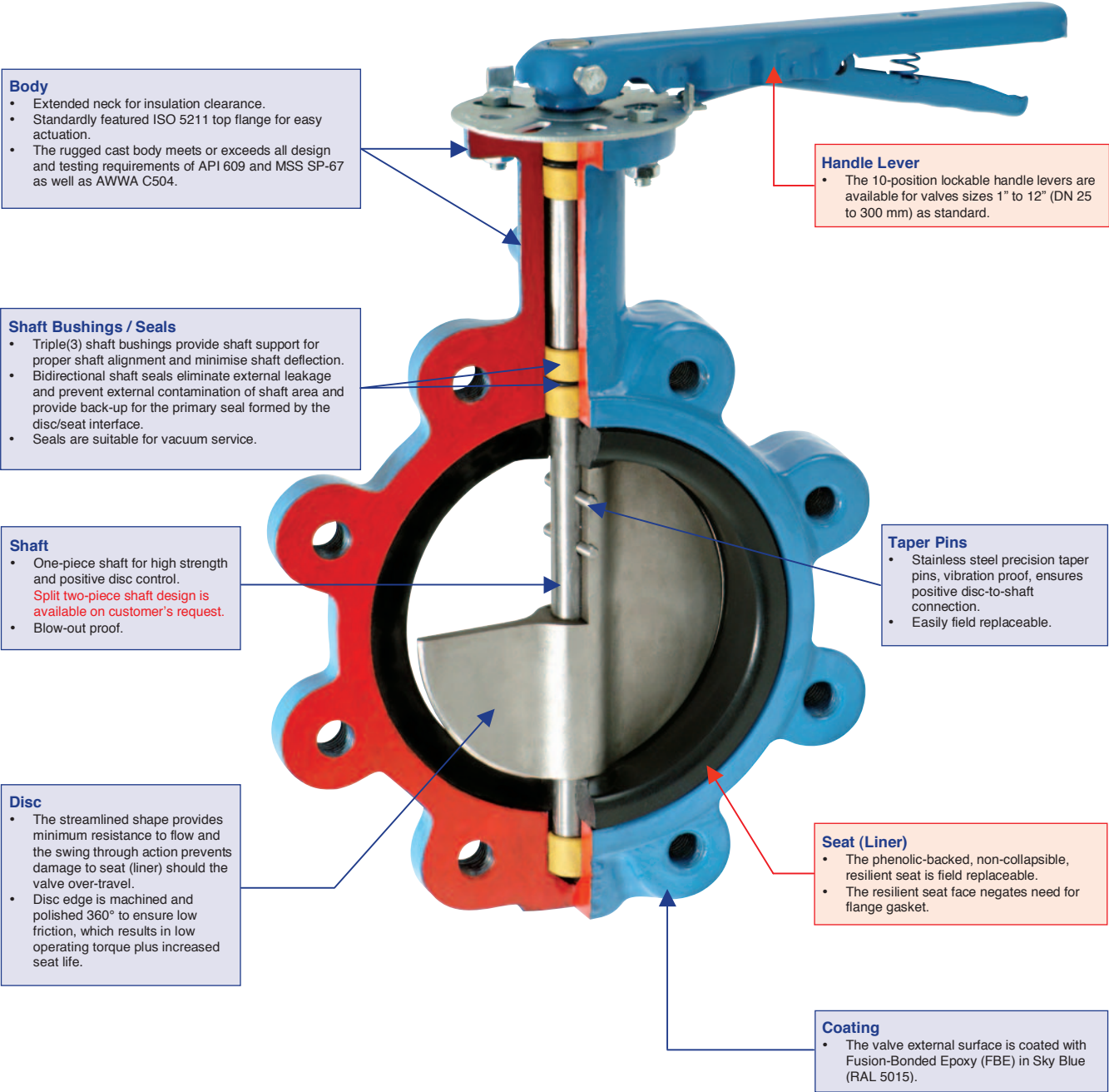
When ordering, a detailed description must accompany in customer's orders, which includes **KVC** figure number as shown above, and any special features / options.

design features

Concentric Disc Type

The **KVC[®]** resilient seated butterfly valve combines all the best features, and all standards in one valve. And the price for this high performance valve is relatively low.

When it comes to valves, choose the name you know – **KVC[®]**.



Concentric Disc Type



Wafer Type

TECHNICAL DATA

Size Range	NPS 1" to 48" (DN 25 to 1200 mm)
Face-to-Face	API 609 Category A MSS SP-67 BS 5155 Series 4 (basically comply) ISO 5752 Series 20 (basically comply)
End Connection	ANSI B16.1 Class 125 / ANSI B16.5 Class 150 ANSI B16.47-A / MSS SP-44 Class 150 DIN 2501 PN10-16 / JIS 10K-16K on request
Top Flange	ISO 5211/1
Tightness Check	API 598 Table 5 ISO 5208 Category 3 ANSI B16-104 Class VI
Temperature Range	-40° C to 232° C - depending on the medium and selected body / seat materials
Operating Pressure	Max. 232 psi (16 bar) for 1" to 12" (25 to 300 mm) Max. 150 psi (10 bar) for 14" to 48" (350 to 1200 mm)
Vacuum	29" of mercury - depending on medium and temp.

STANDARD FEATURES

- All wafer- and lug-type BFVs are designed to allow for 2" of insulation.
- Wafer body features 2 or 4 flange alignment holes for easy installation. Lugged body with drilled and tapped holes may be used for dead-end service (please specify when ordering).
- ISO 5211 top flange is provided on every valve for easy actuation.
- One-piece shaft design, blow-out proof, ensures positive disc positioning and accurate flow control.
- Triple(3) shaft bushings/seals provide shaft support for proper alignment and backup for the primary shaft seal formed by the disc/seat interface.
- Disc edge is machined and polished 360° to assure low friction, which results in low operating torque plus increased seat life.
- Precision taper pins, vibration-proof, ensure positive shaft-disc connection.
- The phenolic-backed, non-collapsible, resilient seat is perfectly secured and fully lined in the body, which isolates the body components from the media and provides the primary shaft seal. Seat is field replaceable.
- Absolutely tight shut-off in either flow direction.
- Can be installed in any desired direction.



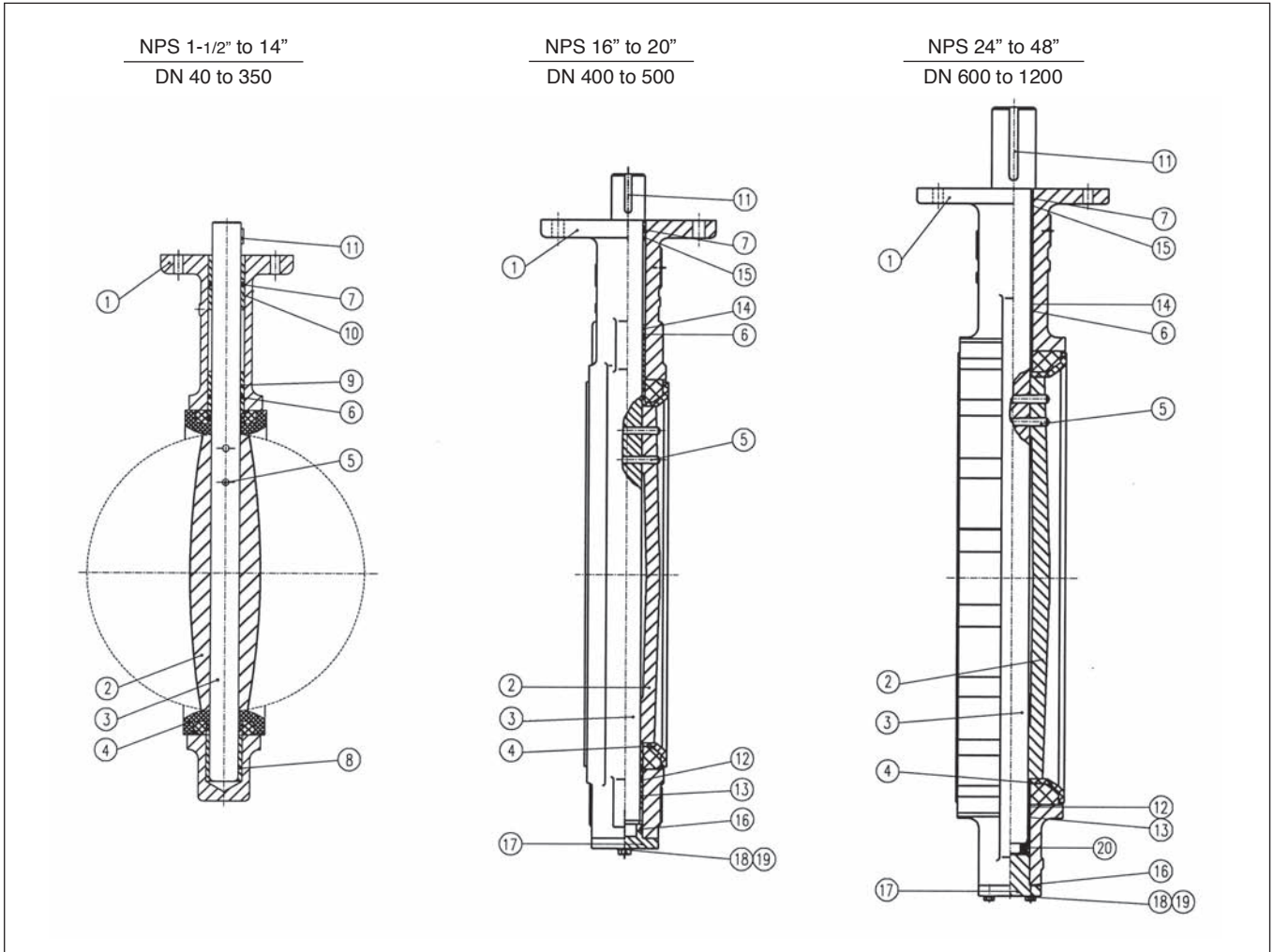
Lug Type



Double Flanged U-Section Type

Concentric Disc Type

CONSTRUCTION AND PART LIST

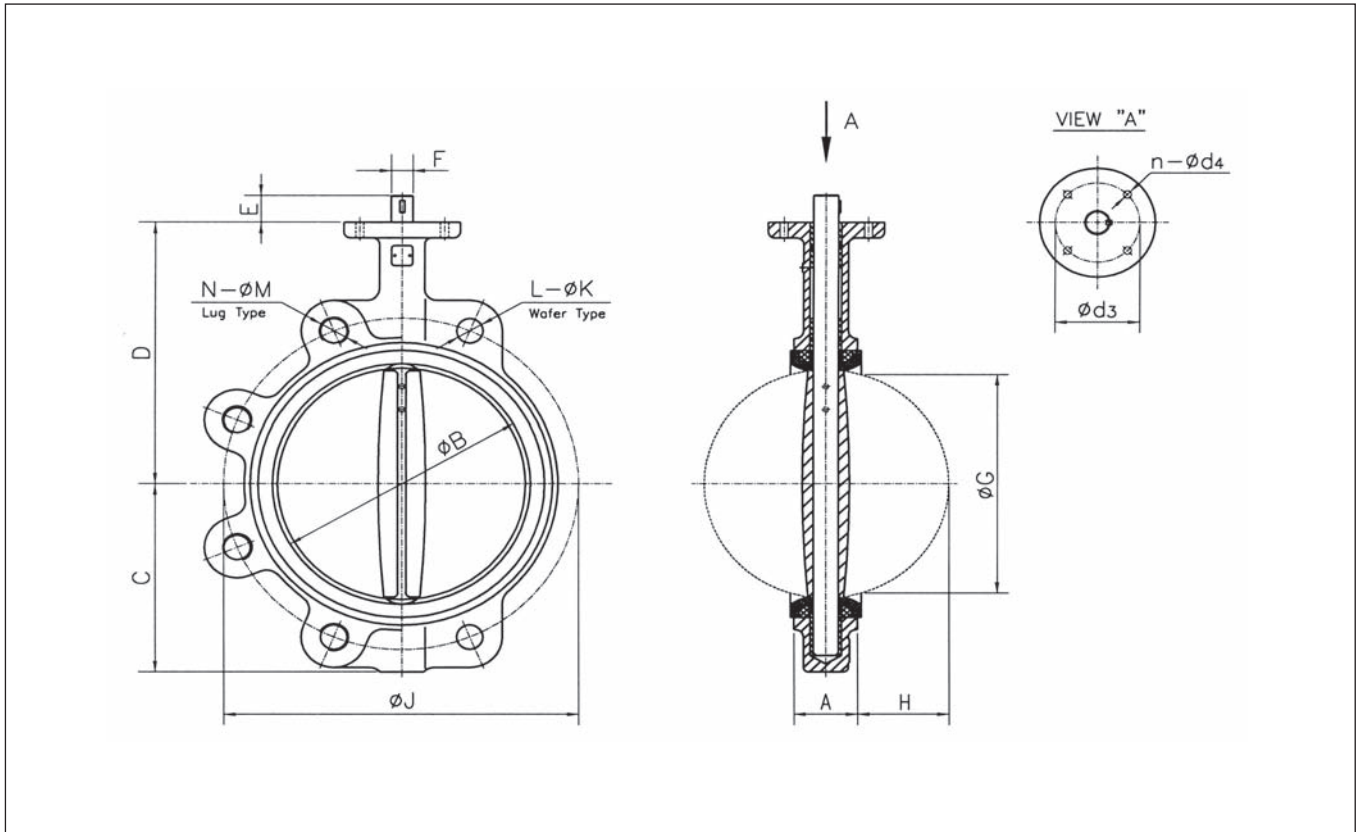


MATERIAL SPECIFICATIONS

Part Name	Material #	ASTM Specification	Code	Part Name	Material #	ASTM Specification	Code
1 Body	Gray Iron (CI)	A126 Class B	0	* 5 Taper Pin	316 Stainless Steel		
	Ductile Iron (DI)	A536 Gr. 65-45-12	1		Monel		
	Carbon Steel (CS)	A216 Gr. WCB	2	* 6 O-Ring	Buna-N (NBR) *		
	316 Stainless Steel	A351 CF8M	4	* 7 O-Ring	Buna-N (NBR) *		
2 Disc	DI with Nickel Coating	A536 + Nickel Coating	1	8 Bushing	PTFE or Bronze		
	DI with Epoxy Coating	A536 + Epoxy Coating	2	9 Bushing	PTFE or Bronze		
	DI with Nylon Coating	A536 + Nylon Coating	3	10 Bushing	PTFE or Bronze		
	Aluminum Bronze	B148 Gr. 95400	5	11 Key	Steel	A108 Gr. 1045	
	316 Stainless Steel	A351 Gr. CF8M	6	* 12 O-Ring	Buna-N (NBR) *		
	Monel	A351 M35	8	13 Bushing	PTFE or Bronze		
				14 Bushing	PTFE or Bronze		
3 Shaft	416 Stainless Steel	A582-416	1	15 Bushing	PTFE or Bronze		
	316 Stainless Steel	A276-316	3	16 O-Ring	Buna-N (NBR) *		
	Monel	B164	4				
* 4 Seat	EPDM †		1	17 Bottom Cover	Gray Iron (CI)	A126 Class B	
	Buna-N (NBR)		2		Ductile Iron (DI)	A536 Gr. 65-45-12	
	Viton		3		Carbon Steel (CS)	A216 Gr. WCB	
	Viton-GLT		4		316 Stainless Steel	A351 CF8M	
	PTFE		5	18 Washer	Steel		
	PTFE over Buna		6	19 Screw	Steel		
	R-PTFE		7	20 Bearing	Bearing Steel		
	Hypalon		8				
	Neoprene		9				

* Recommended spare parts.
* Viton O-Rings to be used for with Teflon, Hypalon and Neoprene seats (or liners).

† Do not use EPDM for hydrocarbon applications.
Other materials are available on request.



DIMENSIONS (mm) – WEIGHT (Kgs)

Valve Size		A	B	C	D	E	F	Disc Clearance		Type	Top Flange (to ISO 5211)			Flange Drilling to ANSI 125-150 #					Weight	
DN	NPS							G	H		d ₃	d ₄	n	J	K	L †	M ‡	N	Wafer	Lug
25	1"	28	31.5	32	78	21	9.5	-	-	F04	42	6.5	4	79.2	15.9	2	-	-		
32	1-1/4"	33	31.5	59	110	21	9.5	-	-	F04	42	6.5	4	88.9	15.9	4	-	-		
40	1-1/2"	33	38	65	110	32	10	19	2.5	F05	50	7	4	98.4	15.9	4	1/2"	4	2.7	3.7
50	2"	43	52.7	80	161	32	12.6	30	4.9	F05	50	7	4	120.7	19	4	5/8"	4	3.1	5.1
65	2-1/2"	46	64.4	89	175	32	12.6	45	9.2	F05	50	7	4	139.7	19	4	5/8"	4	3.7	5.5
80	3"	46	78.7	95	181	32	12.6	64	16.4	F05	50	7	4	152.4	19	4	5/8"	4	4.1	5.7
100	4"	52	104.4	114	200	32	15.8	91	26.2	F07	70	10	4	190.5	19	4	5/8"	8	5.4	9.9
125	5"	56	123.5	127	213	32	18.9	110	33.8	F07	70	10	4	215.9	22.2	4	3/4"	8	7.8	12.9
150	6"	56	156.1	139	226	32	18.9	146	50.1	F07	70	10	4	241.3	22.2	4	3/4"	8	8.6	14
200	8"	60	202.7	175	260	45	22.1	194	71.4	F10	102	12	4	298.5	22.2	4	3/4"	8	14.5	21.5
250	10"	68	250.7	203	292	45	28.5	241	91.4	F10	102	12	4	362	25.4	4	7/8"	12	22	32.5
300	12"	78	301.9	242	337	45	31.6	292	112	F10	102	12	4	431.8	25.4	4	7/8"	12	36.5	52
350	14"	78	334.2	267	368	45	31.6	325	128.1	F10	102	12	4	476.3	28.6	4	1"	12	60.5	90
400	16"	102	387.5	318	400	52	33.2	374	142.8	F14	140	18	4	539.8	28.6	4	1"	16	82	120
450	18"	114	438.4	334	422	52	38	423	162.2	F14	140	18	4	577.9	31.8	4	1-1/8"	16	117	141
500	20"	127	489	367	480	64	41.1	472	181	F14	140	18	4	635	31.8	4	1-1/8"	20	170	195
600	24"	154	590.1	471	562	70	50.6	570	218.1	F16	165	22	4	749.3	34.9	* 20	1-1/4"	20	225	250
650	26"	165	625	508	599	95	63.3	603	230	F25	254	18	8	806.5	34.9	* 24	1-1/4"	24	301	430
700	28"	165	691.7	539	629	95	63.3	672	263.4	F25	254	18	8	863.6	34.9	* 28	1-1/4"	28	320	475
750	30"	165	742.3	569	660	95	63.3	724	288.7	F25	254	18	8	914.4	34.9	* 28	1-1/4"	28	469	609
800	32"	190	792.1	608	666	95	63.3	769	301.1	F25	254	18	8	977.9	41.3	* 28	1-1/2"	28	520	715
900	36"	203	861	667	722	130	75	837	330.5	F25	254	18	8	1085.9	41.3	* 32	1-1/2"	32	910	1030
1000	40"	216	961	732	800	130	85	936	372.5	F25	254	18	8	1200.2	41.3	* 36	1-1/2"	36	1022	1140
1050	42"	251	1030	757	896	150	85	999	389.5	F25	254	18	8	1257.3	41.3	* 36	1-1/2"	36	1084	1209
1200	48"	276	1160	882	941	150	105	1127	442	F30	298	22	8	1422.4	41.3	* 44	1-1/2"	44	1260	1280

DIM_AW_AL01

† Wafer type valves, sizes up to 20" (DN500), 2 or 4 flange locating holes are provided for quick and proper alignment during installation.
 * Wafer type valves, NPS 24" (DN600) and larger, may be supplied with single flange wafer type body. 4 threaded blind holes may be used at shaft passage.
 ‡ For ANSI Class 125-150 flange drilling, thread is in accordance to ANSI B1.1 type UNC.
 § For DIN and JIS flange drilling, thread shall be in accordance to metric coarse threading.
 # DIN 2501 PN6-10-16 and JIS 5K-10K-16K metric flange drilling are available on request.

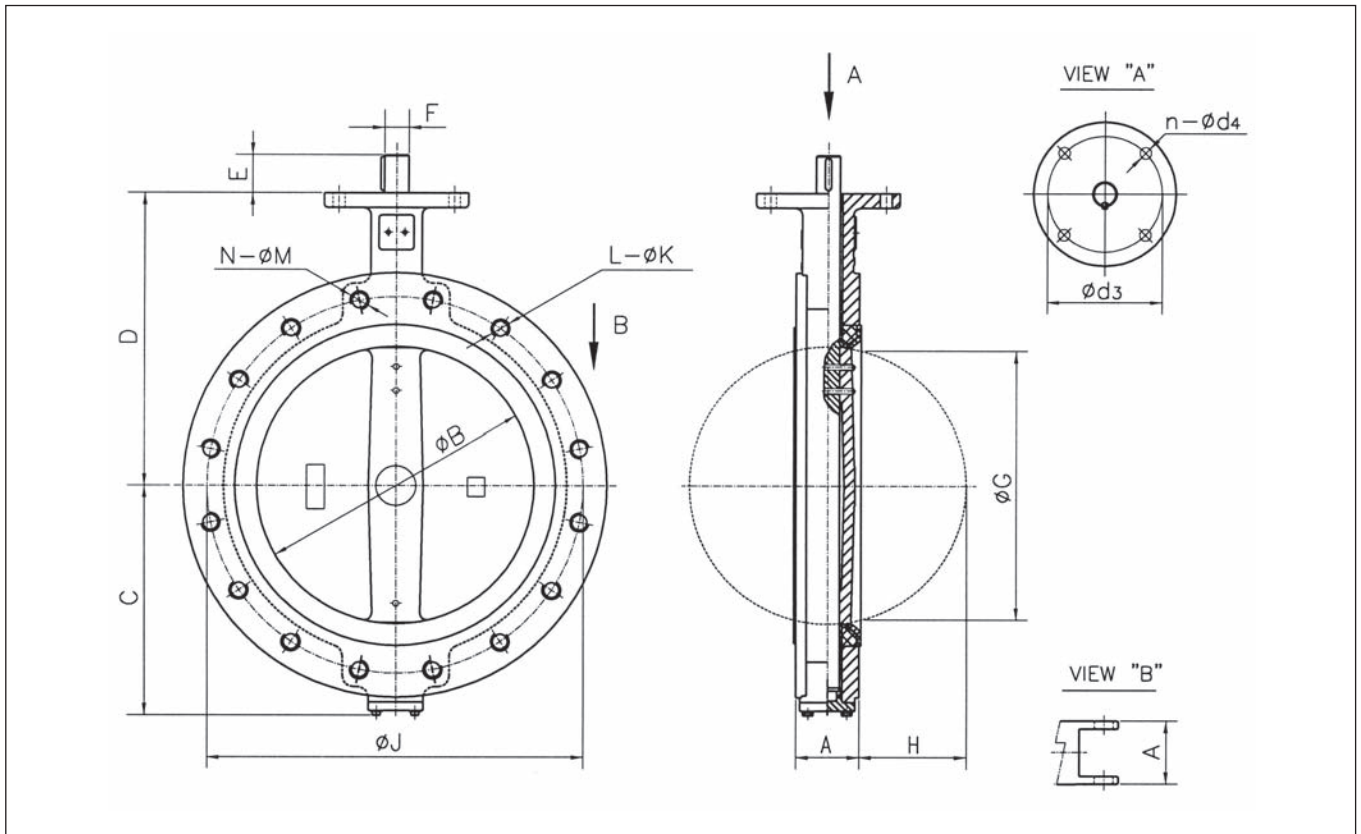
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resilient seated butterfly valves

A series

Concentric Disc Type

Double Flanged U-Section Type



DIMENSIONS (mm) – WEIGHT (Kgs)

Valve Size		A	B	C	D	E	F	Disc Clearance		Type	Top Flange (to ISO 5211)			Flange Drilling to ANSI 125-150 #				Weight (Kgs)	
DN	NPS							G	H		d ₃	d ₄	n	J	K ‡	L	M ‡		N †
150	6"	56	156.1	139	226	32	18.9	146	50.1	F07	70	10	4	241.3	3/4"	8			23.4
200	8"	60	202.7	175	260	45	22.1	194	71.4	F10	102	12	4	298.5	3/4"	8			32
250	10"	68	250.7	203	292	45	28.5	241	91.4	F10	102	12	4	362	7/8"	12			46
300	12"	78	301.9	242	337	45	31.6	292	112	F10	102	12	4	431.8	7/8"	12			57.5
350	14"	78	334.2	267	368	45	31.6	325	128.1	F10	102	12	4	476.3	1"	12			77.5
400	16"	102	387.5	318	400	52	33.2	374	142.8	F14	140	18	4	539.8	1"	16			119
450	18"	114	438.4	334	422	52	38	423	162.2	F14	140	18	4	577.9	1-1/8"	16			175.5
500	20"	127	489	367	480	64	41.1	472	181	F14	140	18	4	635	1-1/8"	20			221
600	24"	154	590.1	471	562	70	50.6	570	218.1	F16	165	22	4	749.3	1-1/4"	20			255
650	26"	165	625	508	599	95	63.3	603	230	F25	254	18	8	806.5	1-1/4"	20	1-1/4"	4	335
700	28"	165	691.7	539	629	95	63.3	672	263.4	F25	254	18	8	863.6	1-1/4"	24	1-1/4"	4	392
750	30"	165	742.3	569	660	95	63.3	724	288.7	F25	254	18	8	914.4	1-1/4"	24	1-1/4"	4	420
800	32"	190	792.1	608	666	95	63.3	769	301.1	F25	254	18	8	977.9	1-1/2"	24	1-1/2"	4	700
900	36"	203	861	667	722	130	75	837	330.5	F25	254	18	8	1085.9	1-1/2"	28	1-1/2"	4	870
1000	40"	216	961	732	800	130	85	936	372.5	F25	254	18	8	1200.2	1-1/2"	32	1-1/2"	4	970
1050	42"	251	1030	757	896	150	85	999	389.5	F25	254	18	8	1257.3	1-1/2"	32	1-1/2"	4	890
1200	48"	276	1160	882	941	150	105	1127	442	F30	298	22	8	1422.4	1-1/2"	40	1-1/2"	4	1250

DIM_UF01

† For double flanged U-Section butterfly valves, NPS 26" (DN650) and larger, 4 threaded blind holes may be used at shaft passage.

‡ For ANSI Class 125-150 flange drilling, thread is in accordance to ANSI B1.1 type UNC.

§ For DIN PN10-16 flange drilling, thread shall be in accordance to metric coarse threading.

DIN 2501 PN10-16 metric flange drilling are available on request.

Subject to change without prior notice.

Concentric Disc Type – Pinless Design



TECHNICAL DATA

Size Range	NPS 2" to 12" (DN 50 to 300 mm)
Face-to-Face	API 609 Category A MSS SP-67 BS 5155 Series 4 ISO 5752 Series 20
End Connection	ANSI B16.1 Class 125 / B16.5 Class 150
	DIN 2501 PN10-16 / JIS 10K-16K on request
Top Flange	ISO 5211/1
Tightness Check	API 598 Table 5 ISO 5208 Category 3 ANSI B16-104 Class VI
Temperature Range	-40° C to 232° C - depending on the medium and selected body / seat materials
Operating Pressure	Max. 232 psi (16 bar)
Vacuum	29" of mercury - depending on medium and temp.

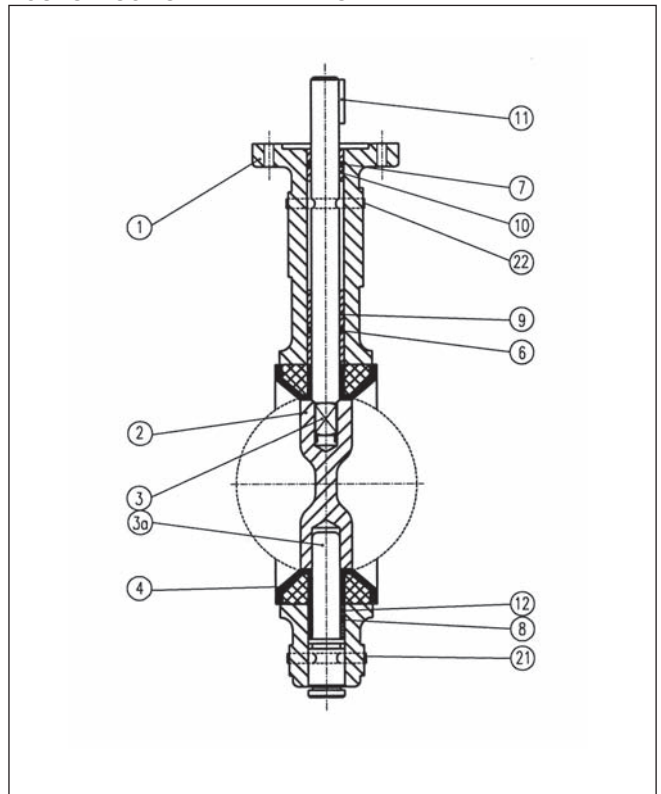
STANDARD FEATURES

- All wafer- and lug-type BFVs are designed to allow for 2" of insulation.
- Wafer body features 4 flange alignment holes for easy installation. Lugged body with drilled and tapped holes may be used for dead-end service (please specify when ordering).
- ISO 5211 top flange is provided on every valve for easy actuation.
- Split two-piece shaft design, blow-out proof, allows disc to "float". The upper square end shaft and the lower round end shaft design, engage the disc without need of taper pins.
- Triple(3) shaft bushings/seals provide shaft support for proper alignment and backup for the primary shaft seal formed by the disc/seat interface.
- Disc edge is machined and polished 360° to assure low friction, which results in low operating torque. The "Floating Disc" design makes a continuous line with resilient seat and reduces seat wear.
- The phenolic-backed, non-collapsible, resilient seat is perfectly secured and fully lined in the body, which isolates the body components from the media and provides the primary shaft seal. Seat is field replaceable.
- Absolutely tight shut-off in either flow direction.
- Can be installed in any desired direction.

MATERIAL SPECIFICATIONS

Part Name	Material #	ASTM Specification	Code
1 Body	Gray Iron (CI)	A126 Class B	0
	Ductile Iron (DI)	A536 Gr. 65-45-12	1
	Carbon Steel (CS)	A216 Gr. WCB	2
	316 Stainless Steel	A351 CF8M	4
2 Disc	DI with Nickel Coating	A536 + Nickel Coating	1
	DI with Epoxy Coating	A536 + Epoxy Coating	2
	DI with Nylon Coating	A536 + Nylon Coating	3
	Aluminum Bronze	B148 Gr. 95400	5
	316 Stainless Steel	A351 Gr. CF8M	6
	Monel	A351 M35	8
3 Upper Shaft	416 Stainless Steel	A582-416	1
	316 Stainless Steel	A276-316	3
3a Lower Shaft	416 Stainless Steel	A582-416	1
	316 Stainless Steel	A276-316	3
* 4 Seat	EPDM †		1
	Buna-N (NBR)		2
	Viton		3
	PTFE		5
* 6 O-Ring	Buna-N (NBR) *		
* 7 O-Ring	Buna-N (NBR) *		
8 Bushing	PTFE		
9 Bushing	PTFE		
10 Bushing	PTFE		
11 Key	Steel	A108 Gr. 1045	
* 12 O-Ring	Buna-N (NBR) *		
21 Roll Pin	Stainless Steel		
22 Roll Pin	Stainless Steel		

CONSTRUCTION AND PART LIST



* Recommended spare parts.
 * Viton O-Rings to be used for with PTFE, Hypalon and Neoprene seats (or liners).
 † Do not use EPDM for hydrocarbon applications.
 # Other materials are available on request.

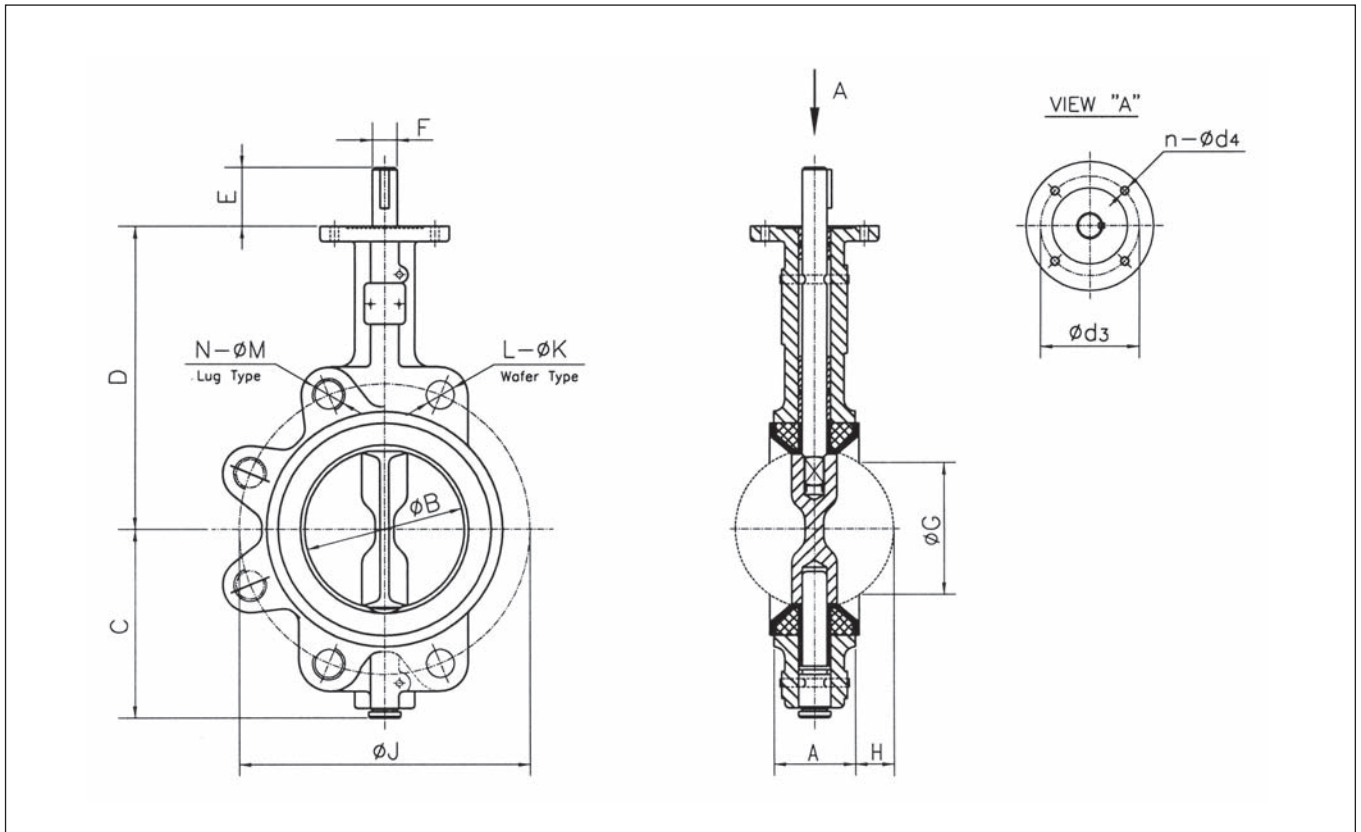
MATL_AS 01
 Subject to change without notice.

resilient seated butterfly valves

AS series

Concentric Disc Type – Pinless Design

Lug- and Wafer-Type



DIMENSIONS (mm) – WEIGHT (Kgs)

Valve Size		A	B	C	D	E	F	Disc Clearance		Type	Top Flange (to ISO 5211)			Flange Drilling to ANSI 125-150 #					Weight	
DN	NPS							G	H		d ₃	d ₄	n	J	Wafer Type K	L [†]	Full-Lug Type M [‡]	N	Wafer	Lug
50	2"	43	52.7	80	161	32	12.6	30	4.9	F05	50	7	4	120.7	19	4	5/8"	4	2.7	3.1
65	2-1/2"	46	64.4	89	175	32	12.6	45	9.2	F05	50	7	4	139.7	19	4	5/8"	4	3.2	3.6
80	3"	46	78.7	95	181	32	12.6	64	16.4	F05	50	7	4	152.4	19	4	5/8"	4	3.9	5.4
100	4"	52	104.4	114	200	32	15.8	91	26.2	F07	70	10	4	190.5	19	4	5/8"	8	5.1	9.2
125	5"	56	123.5	127	213	32	18.9	110	33.8	F07	70	10	4	215.9	22.2	4	3/4"	8	7.2	11.7
150	6"	56	156.1	139	226	32	18.9	146	50.1	F07	70	10	4	241.3	22.2	4	3/4"	8	8.1	13.1
200	8"	60	202.7	175	260	45	22.1	194	71.4	F10	102	12	4	298.5	22.2	4	3/4"	8	13.6	19.2
250	10"	68	250.7	203	292	45	28.5	241	91.4	F10	102	12	4	362	25.4	4	7/8"	12	19.1	31.5
300	12"	78	301.9	242	337	45	31.6	292	112	F10	102	12	4	431.8	25.4	4	7/8"	12	31.7	47.6

DIM_AS 01

[†] For wafer type valves, 4 flange locating holes are provided for quick and proper alignment during installation.

[‡] For ANSI Class 125-150 flange drilling, thread is in accordance to ANSI B1.1 type UNC.

For DIN and JIS flange drilling, thread shall be in accordance to metric coarse threading.

DIN 2501 PN6-10-16 and JIS 5K-10K-16K metric flange drilling are available on request.

Subject to change without prior notice.



TECHNICAL DATA

Size Range	NPS 2" to 48" (DN 50 to 1200 mm)
Face-to-Face	API 609 Table 2C (Short Pattern) ISO 5752 Series 13 BS 5155 Series 2 (Short)
End Connection	AWWA C504 (Short) ANSI B16.1 Class 125 / B16.5 Class 150 ANSI B16.47-A / MSS SP-44 Class 150
Top Flange	DIN 2501 PN10-16 / JIS 10K-16K ISO 5211/1
Tightness Check	API 598 Table 5 ISO 5208 Category 3 ANSI B16-104 Class VI
Temperature Range	-40° C to 232° C - depending on the medium and selected body / seat materials
Operating Pressure	Max. 232 psi (16 bar) for 2" to 12" (50 to 300 mm) Max. 150 psi (10 bar) for 14" to 48" (350 to 1200 mm)
Vacuum	29" of mercury - depending on medium and temp.

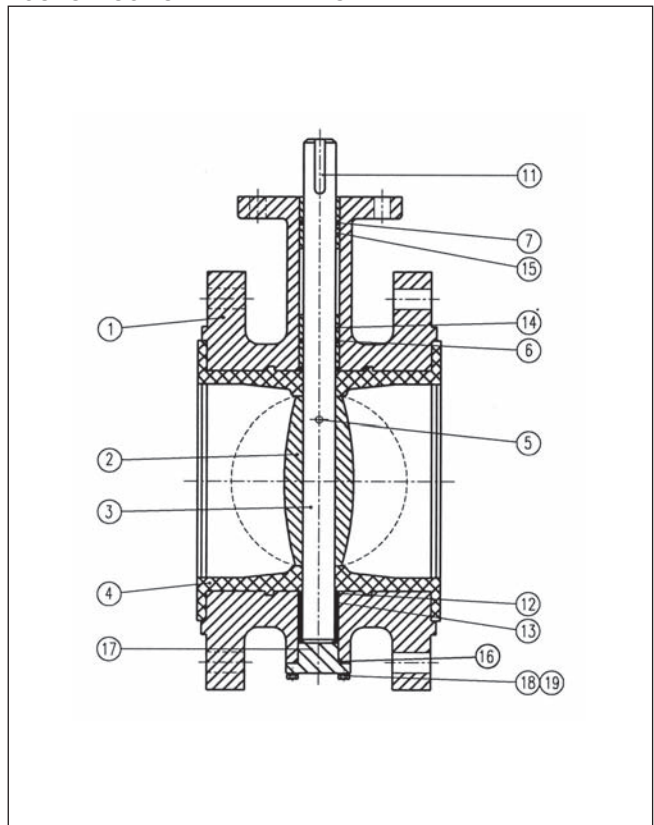
STANDARD FEATURES

- The heavy duty double flanged design is suitable for high pressure loading and is excellently suited for use in shipbuilding, waterworks, iron & steel industry and power stations.
- ISO 5211 top flange is provided on every valve for easy actuation.
- One-piece shaft design, blow-out proof, ensures positive disc positioning and accurate flow control.
- Disc edge is machined and polished 360° to assure low friction, which results in low operating torque plus increased seat life.
- Precision taper pins, vibration-proof, ensure positive shaft-disc connection.
- The resilient seat is fully vulcanized in the body, which isolates the body components from the media and provides the primary shaft seal.
- Absolutely tight shut-off (no visible leakage at the naked eye) in either flow direction.
- Can be installed in any desired direction.

MATERIAL SPECIFICATIONS

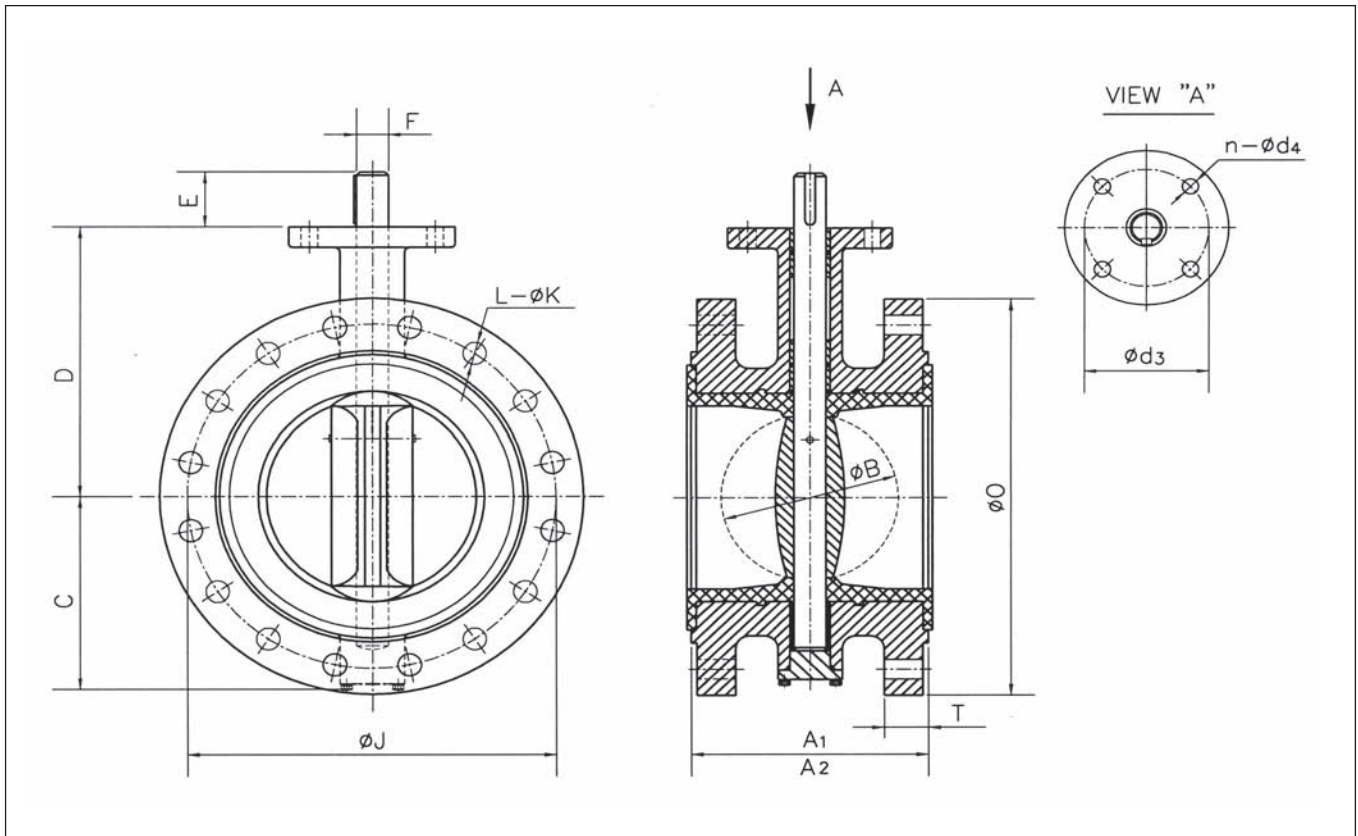
Part Name	Material #	ASTM Specification	Code
1 Body	Gray Iron (CI)	A126 Class B	0
	Ductile Iron (DI)	A536 Gr. 65-45-12	1
	Carbon Steel (CS)	A216 Gr. WCB	2
2 Disc	DI with Nickel Coating	A536 + Nickel Coating	1
	DI with Epoxy Coating	A536 + Epoxy Coating	2
	DI with Nylon Coating	A536 + Nylon Coating	3
	Aluminum Bronze	B148 Gr. 95400	5
	316 Stainless Steel	A351 Gr. CF8M	6
3 Shaft	416 Stainless Steel	A582-416	1
	316 Stainless Steel	A276-316	3
* 4 Seat	EPDM †		1
	Buna-N (NBR)		2
	Viton		3
* 5 Taper Pin	316 Stainless Steel		
* 6 O-Ring	Buna-N (NBR) •		
* 7 O-Ring	Buna-N (NBR) •		
11 Key	Steel	A108 Gr. 1045	
* 12 O-Ring	Buna-N (NBR) •		
13 Bushing	PTFE or Bronze		
14 Bushing	PTFE or Bronze		
15 Bushing	PTFE or Bronze		
* 16 O-Ring	Buna-N (NBR) •		
17 Bottom Cover	Gray Iron (CI)	A126 Class B	
	Ductile Iron (DI)	A536 Gr. 65-45-12	
	Carbon Steel (CS)	A216 Gr. WCB	
18 Washer	Steel		
19 Screw	Steel		

CONSTRUCTION AND PART LIST



* Recommended spare parts.
• Viton O-Rings to be used for with PTFE, Hypalon and Neoprene seats (or liners).
† Do not use EPDM for hydrocarbon applications.
Other materials are available on request.

MAT'L_BF 01
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DIMENSIONS (mm) – WEIGHT (Kgs)

Valve Size		Top Flange (to ISO 5211)							Flange Drilling to ANSI 125-150 #							Weight (Kgs)		
DN	NPS	A ₁ †	A ₂ ‡	B	C	D	E	F	Type	d ₃	d ₄	n	J	K	L		O	T •
50	2"	108		51	80	161	32	12.6	F05	50	7	4	120.7	19	4	152.4	15.8	15.3
65	2-1/2"	112		62.8	89	175	32	12.6	F05	50	7	4	139.7	19	4	177.8	17.6	16.1
80	3"	114	127	77.3	95	181	32	12.6	F05	50	7	4	152.4	19	4	190.5	19.1	19.7
100	4"	127	127	102.7	114	200	32	15.8	F07	70	10	4	190.5	19	8	228.6	23.9	22
125	5"	140	127	121.8	127	213	32	18.9	F07	70	10	4	215.9	22.2	8	254	23.9	30
150	6"	140	127	154.5	139	226	32	18.9	F07	70	10	4	241.3	22.2	8	279.4	25.4	36.5
200	8"	152	152	200.9	175	260	40	22.1	F10	102	12	4	298.5	22.2	8	342.9	28.5	49.6
250	10"	165	203	248.9	203	292	40	28.5	F10	102	12	4	362	25.4	12	406.4	30.3	72.7
300	12"	178	203	299.9	242	337	40	31.6	F10	102	12	4	431.8	25.4	12	482.6	31.8	102.2
350	14"	190	203	331.7	267	368	40	31.6	F10	102	12	4	476.3	28.6	12	533.4	35.1	130.6
400	16"	216	203	387.5	318	400	52	33.2	F14	140	18	4	539.8	28.6	16	596.9	36.6	172
450	18"	222	203	438.4	334	422	52	38	F14	140	18	4	577.9	31.8	16	635	39.7	212.5
500	20"	229	203	489	367	480	64	41.1	F14	140	18	4	635	31.8	20	698.5	43	285.6
600	24"	267	203	590.1	471	562	70	50.6	F16	165	22	4	749.3	34.9	20	812.8	47.8	375.6
700	28"	292		691.7	539	629	86	63.3	F25	254	18	8	863.6	34.9	28	927.1	71.4	593
750	30"	318	305	742.3	569	660	86	63.3	F25	254	18	8	914.4	34.9	28	984.2	74.7	698
800	32"	318		792.1	608	666	86	63.3	F25	254	18	8	977.9	41.3	28	1060.4	80.7	757
900	36"	330	305	861	667	722	118	75	F25	254	18	8	1085.9	41.3	32	1168.4	90.4	980
1000	40"	410		961	732	800	130	85	F25	254	18	8	1200.2	41.3	36	1289	90.4	1282
1200	48"	470	381	1160	882	941	150	105	F30	298	22	8	1422.4	41.3	44	1511.3	108	1810

† The face-to-face dimensions 'A₁' shown above conform to API 609 Table 2C (Short Pattern) / ISO 5752 Series 13 / BS 5155 Series 2 (Short).

‡ The face-to-face dimensions 'A₂' shown above conform to AWWA C504 (Short).

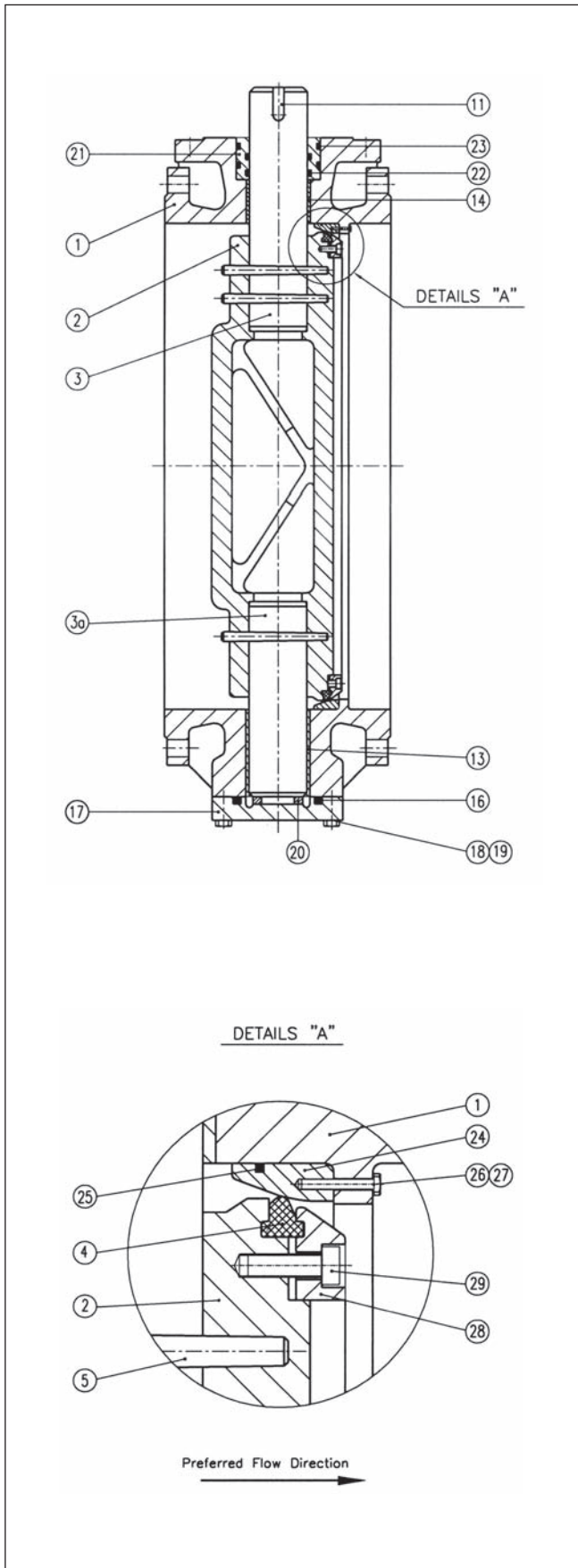
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Due to Face-to-Face having 2 sets of dimensions 'A₁' – 'A₂' in this table the customer shall clearly specify which column is applicable.

• The flange thickness 'T' may vary.

DIN 2501 PN10-16 and JIS 5K-10K-16K metric flange drilling are available on request.



TECHNICAL DATA

Size Range	NPS 8" to 128" (DN 200 to 3200 mm)
Face-to-Face	API 609 Table 2C (Short Pattern) ISO 5752 Series 13 BS 5155 Series 2 (Short)
End Connection	AWWA C504 (Short) ANSI B16.1 Class 125 / B16.5 Class 150 ANSI B16.47-A / MSS SP-44 Class 150
Top Flange	DIN 2501 PN 2.5-6-10-16 / JIS 5K-10K-16K ISO 5211/1
Tightness Check	API 598 Table 5 ISO 5208 Category 3 ANSI B16-104 Class VI
Temperature Range	-40° C to 135° C - depending on the medium and selected body / seat materials
Operating Pressure	Max. 150 psi (10 bar) for 8" to 104" (200 to 2600 mm) Max. 75 psi (5 bar) for 112" to 128" (2800 to 3200 mm)

STANDARD FEATURES

- The rugged one-piece body and disc construction, with heavier thickness, suitable for use in shipbuilding, waterworks and power stations.
- The eccentric shaft design ensures a uniform 360° seal ring contact with body seat only at final shut-off position, which reduces seal ring wear and results in low operating torque plus increased seat life.
- The resilient seal ring is firmly clamped to disc edge with a stainless steel retaining ring fixed with stainless steel setscrews, which makes on-line maintenance easy. The seal ring is easily field-replaceable.
- Absolutely tight shut-off (no visible leakage at the naked eye) against the specified working pressure in the preferred flow direction. When shut-off is specified in the reverse flow direction, valve is capable of withstanding up to approximately 50% of the rated maximum pressure.
- Preferred installation is in a horizontal pipeline with valve shaft horizontal and operator on right hand side of valve when looking in direction of flow.

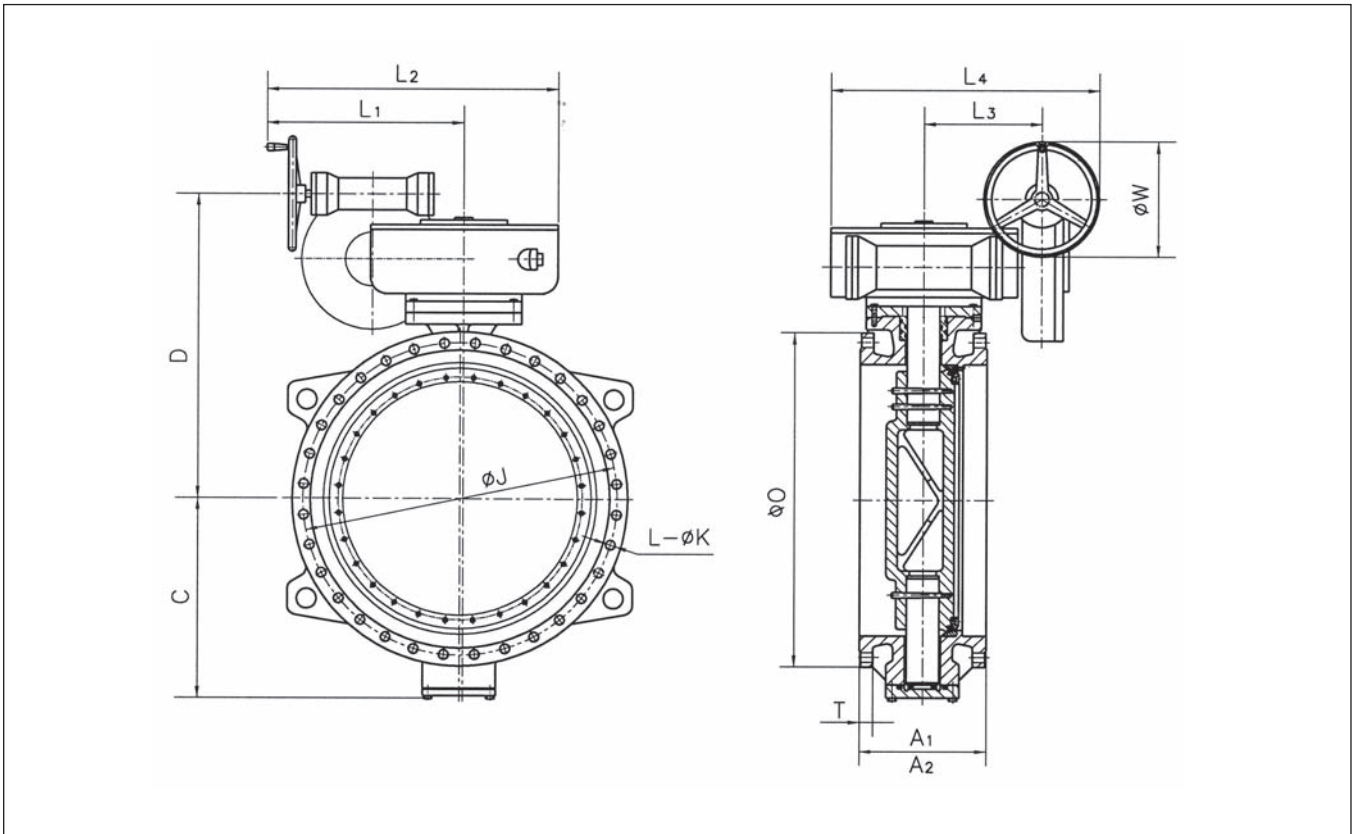
MATERIAL SPECIFICATIONS

Part Name	Material #	ASTM Specification	Code
1 Body	Ductile Iron (DI)	A536 Gr. 65-45-12	1
	Carbon Steel (CS)	A216 Gr. WCB	2
2 Disc	DI w / Epoxy Coating	A536 + Epoxy Coating	2
	316 Stainless Steel	A351 Gr. CF8M	6
3 Upper Shaft	416 Stainless Steel	A582-416	1
	316 Stainless Steel	A276-316	3
3a Lower Shaft	416 Stainless Steel	A582-416	1
	316 Stainless Steel	A276-316	3
* 4 Seat	EPDM	†	1
	Buna-N (NBR)		2
* 5 Taper Pin	316 Stainless Steel		
11 Key	Steel	A108 Gr. 1045	
13 Bushing	Bronze or PTFE		
14 Bushing	Bronze or PTFE		
* 16 O-Ring	EPDM or NBR *		
17 Bottom Cover	Ductile Iron (DI)	A536 Gr. 65-45-12	
	Carbon Steel (CS)	A216 Gr. WCB	
18 Washer	Steel		
19 Screw	Steel		
20 Thrust Plate	Steel		
21 Packing Box	Bronze		
* 22 O-Ring	EPDM or NBR *		
* 23 O-Ring	EPDM or NBR *		
24 Body Seat	Stainless Steel		
* 25 O-Ring	EPDM or NBR *		
26 Washer	Steel		
27 Screw	Steel		
28 Retaining Ring	Stainless Steel		
29 Setscrew	Stainless Steel		

MATL_DF 01

* Recommended spare parts.
• Viton O-Rings to be used for with PTFE, Hypalon and Neoprene seats (or liners).
† Do not use EPDM for hydrocarbon applications.
Other materials are available on request.

Subject to change without notice.



DIMENSIONS (mm) – WEIGHT (Kgs)

Valve Size		A ₁ †	A ₂ ‡	C	D	L ₁	L ₂	L ₃	L ₄	W	Flange Drilling to ANSI 125-150 #					Weight (Kgs)
NPS	DN										J	K	L	O	T	
200	8"	152	152	213	268	341	446	125	372	320	298.5	22.2	8	342.9	20	95
250	10"	165	203	253	317	341	446	125	372	320	362	25.4	12	406.4	22	126
300	12"	178	203	260	349	341	446	125	372	320	431.8	25.4	12	482.6	24.5	142
350	14"	190	203	297	386	420	575	180	500	360	476.3	28.6	12	533.4	26.5	190
400	16"	216	203	328	422	395	575	180	500	360	539.8	28.6	16	596.9	28	260
450	18"	222	203	360	450	395	528	175	481	360	577.9	31.8	16	635	30	280
500	20"	229	203	406	566	490	663	190	516	360	635	31.8	20	698.5	31.5	390
600	24"	267	203	476	644	490	663	190	516	360	749.3	34.9	20	812.8	36	518
700	28"	292	305	535	740	505	717	216	579	360	863.6	34.9	28	927.1	39.5	740
750	30"	318	305	557	645	505	717	216	579	360	914.4	34.9	28	984.2	43	886
800	32"	318	305	590	799	505	717	216	624	450	977.9	41.3	28	1060.4	43	985
900	36"	330	305	655	748	518	871	258	761	500	1085.9	41.3	32	1168.4	46.5	1150
1000	40"	410	305	720	918	518	871	258	761	500	1200.2	41.3	36	1289	50	1820
1200	48"	470	381	853	1112	585	850	287	807	500	1422.4	41.3	44	1511.3	57	2290
1350	54"	530	381	985	1146	725	1145	515	1220	600	1593.8	47.6	44	1682.8	60	3008
1400	56"	530	381	985	1146	725	1145	515	1220	600	1651	47.6	48	1746.2	60	3345
1500	60"	600	457	1190	1559	725	1145	515	1220	600	1759	47.6	52	1854.2	65	6010
1600	64"	600	457	1190	1559	725	1145	515	1220	600	1930.4	47.6	52	2032	65	6960
1650	66"	600	457	1190	1559	928	1145	515	1220	600	1930.4	47.6	52	2032	65	6960
1800	72"	670	457	1420	1975	928	1543	708	1593	600	2095.5	47.6	60	2197.1	70	9650
2000	80"	760	* 540													
2200	88"		* 590													
2400	96"		* 650													
2600	104"		* 700													
2800	112"		* 760													
3000	120"		* 810													
3200	128"		* 870													

CONSULT FACTORY FOR VALVE DIMENSIONS LARGER THAN 72"

† The face-to-face dimensions 'A₁' shown above conform to API 609 Table 2C (Short Pattern) / ISO 5752 Series 13 / BS 5155 Series 2 (Short).
 ‡ The face-to-face dimensions 'A₂' shown above conform to AWWA C504 (Short).

Due to Face-to-Face having 2 sets of dimensions 'A₁' – 'A₂' in this table the customer shall clearly specify which column is applicable.

* Those dimensions as per manufacturer's standard.
 • The flange thickness 'T' as per PN 16.
 # DIN 2501 PN 2.5-6-10-16 and JIS 5K-10K metric flange drilling are available on request.

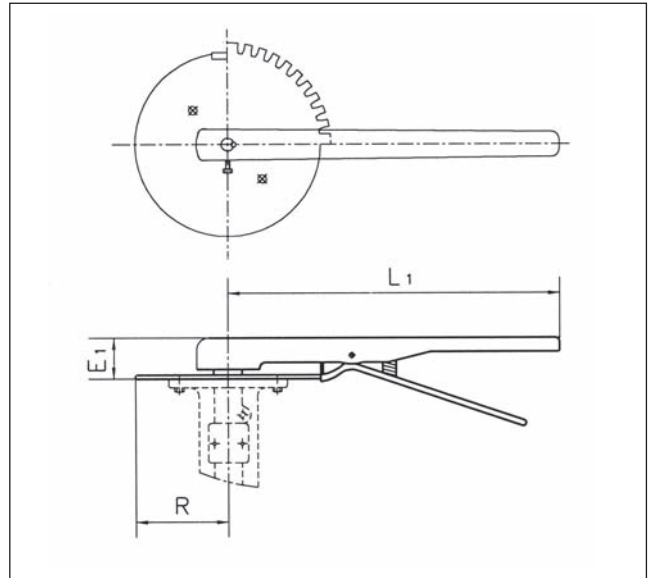
KVC® butterfly valves can be supplied for actuation by handle lever, gear operator, electric or pneumatic actuator and bare shaft suitable for customer's own operation requirement.

Standardly featured ISO 5211 top mounting flange easily accepts any type of actuators (manual worm gearbox, electric or pneumatic actuator).

Handle Levers

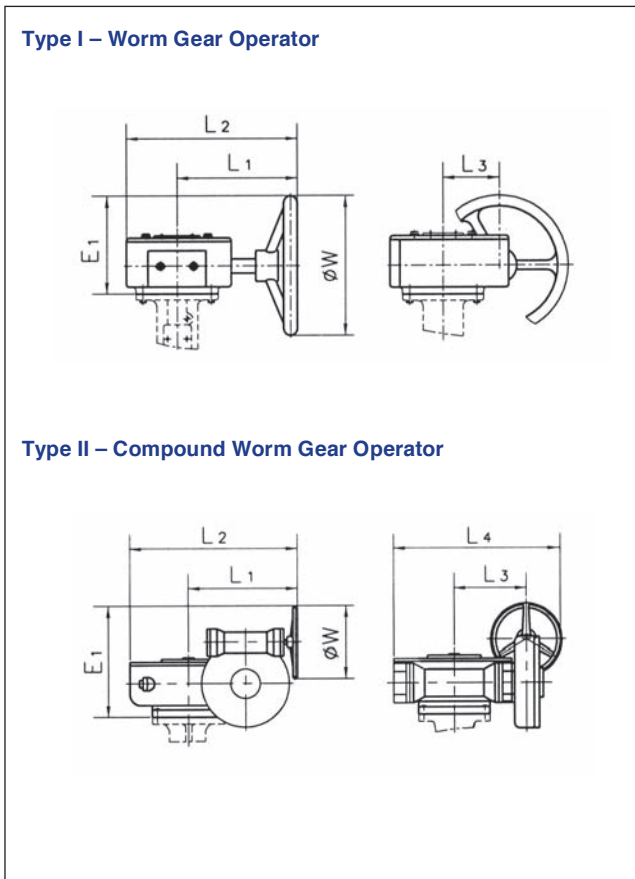
The 10-position lockable handle levers are available for valves sizes 1" to 12" (DN 25 to 300 mm) as standard. However, it is recommended that worm gear operators are used for valve sizes 8" (DN 200 mm) and larger to make operation easier.

Valve Size		Dimensions (mm)			Weight (Kgs)
NPS	DN	E ₁	L ₁	R	
1" to 1-1/2"	25 to 40	24	165	46	0.5
2" to 6"	50 to 150	30	267	51.5	0.8
8" to 12"	200 to 300	34	360	75	3



Gear Operators

The worm gear operators are available for all valves. Manual worm gear operators are standardly supplied on all 14" (DN 350 mm) and larger butterfly valves and are recommended on 8" to 12" (DN 200 to 300 mm) butterfly valves.



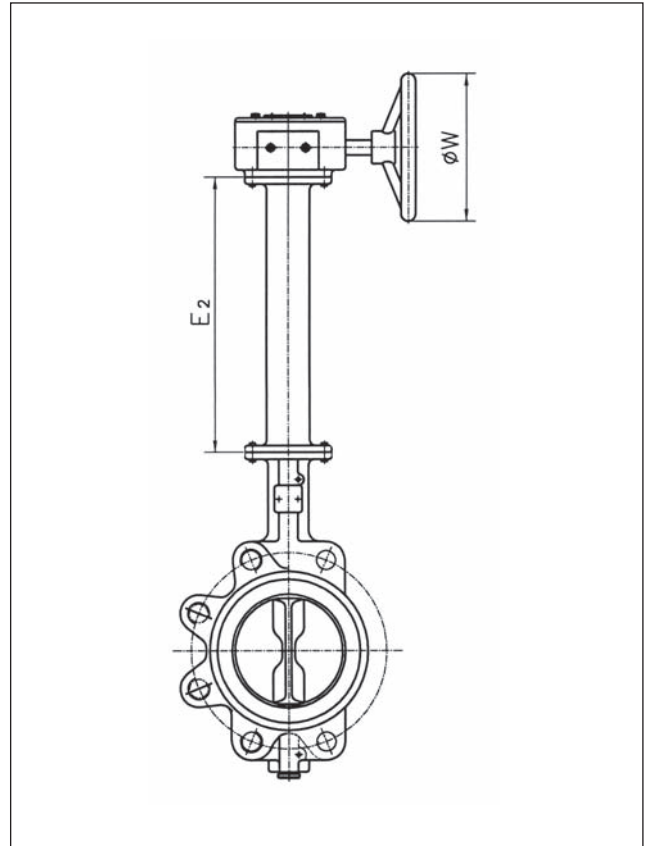
Valve Size	Model	Dimensions (mm)					Wt. (Kgs)	
		E ₁	L ₁	L ₂	L ₃	L ₄		
NPS 3" to 6" (DN 80 to 150)	SD-2	111	173.5	226	45		150	6
NPS 8" to 10" (DN 200 to 250)	SD-5	193	237	313	63		300	8.5
NPS 12" to 14" (DN 300 to 350)	SD-12	189	225	307	80		300	18
NPS 16" to 18" (DN 400 to 450)	SD-18	265	292	422	120		390	24.4
NPS 20" to 24" (DN 500 to 600)	SD-30	221	341.5	478	121.5		390	45.6
NPS 28" to 32" (DN 700 to 800)	SD-80	381.5	362	633.5	243	530	425	133
NPS 36" to 42" (DN 900 to 1050)	SD-150	475.5	411	696.5	278	611	425	193
NPS 48" (DN 1200)	SD-250	572.5	510	985.5	458	723	425	410

Shaft Extension

The shaft extension is normally required for valves installed in underground pipelines, or out-of-reach locations.

KVC® can supply shaft extension on customer's request (length of extension 'E2' to be specified by customer).

Manual gearbox, electric or pneumatic actuator can be easily adapted to mounting flange (to ISO 5211) on the extension.



Options

On request, the following options can be supplied on all **KVC®** butterfly valves.

- Memory Stop
- Chainwheel Operator
- Locking Device on Worm Gear Operator
- Electric or Pneumatic Actuator
- Limit Switches, Solenoid Valves, Positioners and Manual Override Devices, etc.

Operating Torques

Valve Size		A, AS & B series BFVs – Torques in N-m, at Differential Pressures, Psi									
DN	NPS	50 Psi		75 Psi		100 Psi		150 Psi		200 Psi	
		Wet	Dry	Wet	Dry	Wet	Dry	Wet	Dry	Wet	Dry
25	1"										
32	1-1/4"										
40	1-1/2"										
50	2"	12.3	19.7	12.7	20.2	13	20.8	13.9	22.1	15.1	24.2
65	2-1/2"	13	24.6	13.4	25.4	13.8	26.1	15.4	29.2	17.2	32.7
80	3"	19.8	37.5	20.4	38.7	21	39.9	21.7	41.1	23.1	43.7
100	4"	31.2	57.1	33.1	60.5	34.9	63.8	37.1	67.8	39.8	72.8
125	5"	48.9	85.1	51.4	89.3	53.8	93.8	57.9	101	61.9	108
150	6"	75.9	134	80.2	141	84.5	149	93.9	165	102	174
200	8"	137	236	145	250	154	264	173	297	192	330
250	10"	215	365	232	394	249	423	286	486	323	549
300	12"	314	512	343	559	371	605	429	699	490	799
350	14"	401	601	434	650	466	699	550	825	625	969
400	16"	499	748	565	848	632	947	755	1133	846	1307
450	18"	653	1002	742	1113	831	1246	1012	1518	1131	1787
500	20"	837	1256	965	1447	1093	1639	1350	2025	1431	2288
600	24"	1308	1963	1494	2241	1679	2519	2111	3166	2301	3711
700	28"	2680	4020	3360	5025	3010	4515	3272	4908		
750	30"	3200	4800	4000	6000	3487	5231	3767	5650		
800	32"	3663	5660	4579	7075	3963	6103	4308	6462		
900	36"	4590	6885	5738	8606	4913	7369	5257	7886		
1000	40"	7788	11682	9735	14603	8367	12550	8926	13389		
1050	42"	7881	11821	9851	14776	8433	12649	9024	13536		
1200	48"	10915	16449	13644	20561	11733	17600	12555	18833		

TORQUES_CONCENTRIC TYPE

OPERATING TORQUES

- All torques shown on table are for "wet" (water and other non-lubricating media) and "dry" (non-lubricating, dry gas media) on-off services. For lubricating (clean, non-abrasive media) service, multiply by 0.85.
- When sizing actuator, the seat material, fluid and frequency of operation factors should be considered and adjusted according to experience and judgement. **KVC** is not responsible directly nor indirectly for actuator selected by third parties.
- Torque Conversion:
1 N-m = 8.85 in-lbs
1 N-m = 0.7375 ft-lbs

Flow Coefficient Values (Cv)

Valve Size		A, AS & B series BFVs – Coefficient Values (Cv), Flow in US-GPM @ 1 Psi of Pressure Drop								
DN	NPS	Disc Opening Angles								
		10°	20°	30°	40°	50°	60°	70°	80°	90°
25	1"									
32	1-1/4"									
40	1-1/2"									
50	2"	0.1	5	12	24	45	64	90	125	135
65	2-1/2"	0.2	8	20	37	65	98	144	204	220
80	3"	0.3	12	22	39	70	116	183	275	302
100	4"	0.5	17	36	78	139	230	364	546	600
125	5"	0.8	29	61	133	237	392	620	930	1022
150	6"	2	45	95	205	366	605	958	1437	1579
200	8"	3	89	188	408	727	1202	1903	2854	3136
250	10"	4	151	320	694	1237	2047	3240	4859	5340
300	12"	5	234	495	1072	1911	3162	5005	7507	8250
350	14"	6	338	715	1549	2761	4568	7230	10844	11917
400	16"	8	464	983	2130	3797	6282	9942	14913	16388
450	18"	11	615	1302	2822	5028	8320	13168	19752	21705
500	20"	14	791	1674	3628	6465	10698	16931	25396	27908
600	24"	22	1222	2587	5605	9989	14949	22769	34898	43116
700	28"	36	1813	3639	6636	10000	16528	26157	39236	49500
750	30"	37	2080	4406	8736	13788	18147	28720	34898	58120
800	32"	45	2387	4791	9546	17010	20613	31395	48117	68250
900	36"	60	3021	6063	11055	17449	26086	39731	60895	86375
1000	40"	84	4183	8395	15307	24159	36166	55084	84425	119750
1050	42"	350	4095	9040	17108	27150	43640	70500	106890	135240
1200	48"	455	5365	11840	22400	30600	51200	92300	140000	154000

Cv_CONCENTRIC TYPE

COEFFICIENT VALUES

- Definition of C_v Value : Valve Coefficient (C_v) is defined as one U.S. gallon (3.8 liters) of 60°F (16°C) water that flows through a valve with 1.0 psi (0.07 bar) of pressure drop. As specified by the Instrument Society of America (ANSI/ISA Standard S75.01), the common equation for C_v is:

$$C_v = Q \sqrt{\frac{S_g}{\Delta P}}$$

where
 C_v = required valve
 Q = flow rate (in GPM)
 S_g = specific gravity of fluid
 ΔP = pressure drop (psi)

- The C_v values shown table are theoretical, which cannot be used for highly critical flow or pressure drop calculations. For very precise flow measurements, tests must be conducted on any valve mentioned herein.
- Flow Factor K_v : The flow factor (K_v) is defined as the flow of water through a valve at temperature of 20°C in cubic meters per hour (m³/h) with a pressure drop of 1 kg/cm² (1 bar).

Flow Coefficient Cv and Flow Factor Kv Conversion:

Cv = 1.156 Kv
 Kv = 0.853 Cv

Flange Drilling Dimensions

Dimensions in Millimeters (mm)

NPS	* ANSI Class 125-150					PN 0.6 MPa					PN 1.0 MPa					PN 1.6 MPa					DN
	O	J	K	M	N	O	J	K	M	N	O	J	K	M	N	O	J	K	M	N	
1"	4-1/4"	3-1/8"	5/8"	1/2"	4	100	75	11.5	M10	4	115	85	14	M12	4	115	85	14	M12	4	25
1-1/4"	4-5/8"	3-1/2"	5/8"	1/2"	4	120	90	14	M12	4	140	100	18	M16	4	140	100	18	M16	4	32
1-1/2"	5"	3-7/8"	5/8"	1/2"	4	130	100	14	M12	4	150	110	18	M16	4	150	110	18	M16	4	40
2"	6"	4-3/4"	3/4"	5/8"	4	140	110	14	M12	4	165	125	18	M16	4	165	125	18	M16	4	50
2-1/2"	7"	5-1/2"	3/4"	5/8"	4	160	130	14	M12	4	185	145	18	M16	4	185	145	18	M16	4	65
3"	7-1/2"	6"	3/4"	5/8"	4	190	150	18	M16	4	200	160	18	M16	8	200	160	18	M16	8	80
4"	9"	7-1/2"	3/4"	5/8"	8	210	170	18	M16	4	220	180	18	M16	8	220	180	18	M16	8	100
5"	10"	8-1/2"	7/8"	3/4"	8	240	200	18	M16	8	250	210	18	M16	8	250	210	18	M16	8	125
6"	11"	9-1/2"	7/8"	3/4"	8	265	225	18	M16	8	285	240	22	M20	8	285	240	22	M20	8	150
8"	13-1/2"	11-3/4"	1-1/8"	3/4"	8	320	280	18	M16	8	340	295	22	M20	8	340	295	22	M20	12	200
10"	16"	14-1/4"	1"	7/8"	12	375	335	18	M16	12	395	350	22	M20	12	405	355	26	M24	12	250
12"	19"	17"	1"	7/8"	12	440	395	22	M20	12	445	400	22	M20	12	460	410	26	M24	12	300
14"	21"	18-3/4"	1-1/8"	1"	12	490	445	22	M20	12	505	460	22	M20	16	520	470	26	M24	16	350
16"	23-1/2"	21-1/4"	1-3/8"	1"	16	540	495	22	M20	16	565	515	26	M24	16	580	525	30	M27	16	400
18"	25"	22-3/4"	1-1/4"	1-1/8"	16																450
20"	27-1/2"	25"	1-1/4"	1-1/8"	20	645	600	22	M20	20	670	620	26	M24	20	715	650	33	M30	20	500
24"	32"	29-1/2"	1-3/8"	1-1/4"	20	755	705	26	M24	20	780	725	30	M27	20	840	770	36	M33	20	600
26"	34-1/4"	31-3/4"	1-3/8"	1-1/4"	24																650
28"	36-1/2"	34"	1-3/8"	1-1/4"	28	860	810	26	M24	24	895	840	30	M27	24	910	840	36	M33	24	700
30"	38-3/4"	36"	1-3/8"	1-1/4"	28																750
32"	41-3/4"	38-1/2"	1-5/8"	1-1/2"	28	975	920	30	M27	24	1015	950	33	M30	24	1025	950	39	M36	24	800
36"	46"	42-3/4"	1-5/8"	1-1/2"	32	1075	1020	30	M27	24	1115	1050	33	M30	28	1125	1050	39	M36	28	900
40"	50-3/4"	47-1/2"	1-5/8"	1-1/2"	36	1175	1120	30	M27	28	1230	1160	36	M33	28	1255	1170	42	M39	28	1000
42"	53"	49-1/2"	1-5/8"	1-1/2"	36																1050
48"	59-1/2"	56"	1-5/8"	1-1/2"	44	1405	1340	33	M30	32	1455	1380	39	M36	32	1485	1390	48	M45	32	1200

* For ANSI 125-150 flange dimensions 'O' - 'J' - 'K' - 'M' in inches.

FLANGE_DIM 01

Flange Drilling Dimensions (Cont'd)

Dimensions in Millimeters (mm)

DN	JIS 5K					JIS 10K					JIS 16K					** ANSI Class 125-150					NPS
	O	J	K	M	N	O	J	K	M	N	O	J	K	M	N	O	J	K	M	N	
25	95	75	12	M10	4	125	90	19	M16	4	125	90	19	M16	4	108	79.2	15.9	1/2"	4	1"
32	115	90	15	M12	4	135	100	19	M16	4	135	100	19	M16	4	117.5	88.9	15.9	1/2"	4	1-1/4"
40	120	95	15	M12	4	140	105	19	M16	4	140	105	19	M16	4	127	98.4	15.9	1/2"	4	1-1/2"
50	130	105	15	M12	4	155	120	19	M16	4	155	120	19	M16	8	152.4	120.7	19	5/8"	4	2"
65	155	130	15	M12	4	175	140	19	M16	4	175	140	19	M16	8	177.8	139.7	19	5/8"	4	2-1/2"
80	180	145	19	M16	4	185	150	19	M16	8	200	160	23	M20	8	190.5	152.4	19	5/8"	4	3"
100	200	165	19	M16	8	210	175	19	M16	8	225	185	23	M20	8	228.6	190.5	19	5/8"	8	4"
125	235	200	19	M16	8	250	210	23	M20	8	270	225	25	M22	8	254	215.9	22.2	3/4"	8	5"
150	265	230	19	M16	8	280	240	23	M20	8	305	260	25	M22	12	279.4	241.3	22.2	3/4"	8	6"
200	320	280	23	M20	8	330	290	23	M20	12	350	305	25	M22	12	342.9	298.5	22.2	3/4"	8	8"
250	385	345	23	M20	12	400	355	25	M22	12	430	380	27	M24	12	406.4	362	25.4	7/8"	12	10"
300	430	390	23	M20	12	445	400	25	M22	16	480	430	27	M24	16	482.6	431.8	25.4	7/8"	12	12"
350	480	435	25	M22	12	490	445	25	M22	16	540	480	33	M30	16	533.4	476.3	28.6	1"	12	14"
400	540	495	25	M22	16	560	510	27	M24	16	605	540	33	M30	16	596.9	539.8	28.6	1"	16	16"
450	605	555	25	M22	16	620	565	27	M24	20	675	605	33	M30	20	635	577.9	31.8	1-1/8"	16	18"
500	655	605	25	M22	20	675	620	27	M24	20	730	660	33	M30	20	698.5	635	31.8	1-1/8"	20	20"
600	770	715	27	M24	20	795	730	33	M30	24	845	770	39	M36	24	812.8	749.3	34.9	1-1/4"	20	24"
650	825	770	27	M24	24	845	780	33	M30	24	895	820	39	M36	24	870	806.5	34.9	1-1/4"	24	26"
700	875	820	27	M24	24	905	840	33	M30	24	960	875	42	M39	24	927.1	863.6	34.9	1-1/4"	28	28"
750	945	880	33	M30	24	970	900	33	M30	24	1020	935	42	M39	24	984.2	914.4	34.9	1-1/4"	28	30"
800	995	930	33	M30	24	1020	950	33	M30	28	1085	990	48	M45	24	1060.4	977.9	41.3	1-1/2"	28	32"
900	1095	1030	33	M30	24	1120	1050	33	M30	28	1185	1090	48	M45	28	1168.4	1085.9	41.3	1-1/2"	32	36"
1000	1195	1130	33	M30	28	1235	1160	39	M36	28	1320	1210	56	M52	28	1289	1200.2	41.3	1-1/2"	36	40"
1050																1346.2	1257.3	41.3	1-1/2"	36	42"
1200	1420	1350	33	M30	32	1465	1380	39	M36	32	1530	1420	56	M52	32	1511.3	1422.4	41.3	1-1/2"	44	48"

** For ANSI 125-150 flange dimensions 'M' in inches.

FLANGE_DIM 02

The following profiles are offered as a general guide and indication of the suitability of various elastomers in use today for service with these chemicals and fluids. The ratings are based, for the most part, on published literature of various elastomer suppliers and rubber manufacturers, but, in some case, they are the opinion of experienced compounders. We cannot guarantee their accuracy nor assume responsibility for use thereof.

Elastomers

Material	Abbreviation	Generally Resistant to	Limited Resistant to	Temp. Limits	
Ethylene Propylene Terpolymer	EPDM	<ul style="list-style-type: none"> Animal & Vegetable Oils Hot & Cold Waters Ozone Strong & Oxidizing Chemicals (aliphatic phosphate-ester hydraulic fluids, acids, alkalis, salt solutions, alcohols, glycols and silicone oils) Sea Water, Salt Brine 	<ul style="list-style-type: none"> Hydrocarbon based oils Mineral Oils, or di-ester based lubricants Solvents 	-40 to 275°F	-40 to 135°C
	<i>EPDM (High Temp.)</i>			0 to 300°F	-18 to 149°C
Nitrile Rubber	NBR (Buna-N)	<ul style="list-style-type: none"> Fats, Mineral Oils, Greases Hydrocarbon Products Hydraulic Fluids Natural Gas, Air, Gasoline Sea Water, Salt Brine 	<ul style="list-style-type: none"> Acetones, Chlorinated & Nitrated Hydrocarbons Ozone, Ketones Esters, Aldehydes 	10 to 200°F	-12 to 93°C
Natural Rubber	NR	<ul style="list-style-type: none"> Hydrocarbon Products, Fats, Oils, Greases Hydraulic Fluids, Chemicals 	<ul style="list-style-type: none"> Ozone Ketones Esters, Aldehydes Chlorinated & Nitro Hydrocarbons 	-4 to 185°F	-20 to 85°C
Fluorocarbon Polymer	Viton® (FKM)	<ul style="list-style-type: none"> All Aliphatic, Aromatic & Halogenated Hydrocarbons Acids Petroleum Fuels and Mineral-based Hydraulic Fluids, and many solvents 	<ul style="list-style-type: none"> Esters, Ketones Nitro Containing Compounds Steam, Hot Water over 180°F (82°C) 	10 to 300°F	-12 to 149°C
Fluorocarbon Polymer, Glass-Filled	Viton-GLT	<ul style="list-style-type: none"> Petroleum Fuels and Mineral-based Hydraulic Fluids Many Solvents 		-25 to 450°F	-31 to 232°C
Polytetrafluoroethylene	PTFE®	<ul style="list-style-type: none"> Acids, Alkalis and Solvents 		-320 to 400°F	-196 to 204°C
Chlorosulphonated Polyethylene	Hypalon®	<ul style="list-style-type: none"> Fats Mineral Acids, Organic Acids Oxidizing Chemicals 	<ul style="list-style-type: none"> Esters Ketones Steam 	0 to 275°F	-18 to 135°C
Chloroprene (CR)	Neoprene®	<ul style="list-style-type: none"> Ammonia, Alcohols Mineral Oils & Greases Food & Beverage 	<ul style="list-style-type: none"> Concentrated Acids Ketones Thinners 	20 to 200°F	-7 to 93°C

Hypalon®, Neoprene®, PTFE® and Viton® are the trademarks of DuPont Performance Elastomers.

Guide to Material Use

Material Type	Elastomers						Metals					
	EPDM	NBR	VITON (1)	PTFE (1)	Hypalon (1)	Neoprene (1)	Ductile Iron	WCB	13%Cr SS	316 SS	Al. Bronze	Monel
Acetic Acid (30%)	A+	B	C	C	C	C	C	C	C	A	B	B
Acetone	A	C	C	C	C	C	A	A	A	A	A	A
Air, Ambient	A	A	A	A	A	A	A	A	A	A	A	A
Air, Hot (200°F - 93°C)	A	A	A	A		C	A	A	A	A	A	A
Air, Hot (400°F - 204°C)	C	C	A	A		C	C	A	A	A	B	B
Alcohol, Ethyl	A	A	C	A		A	A	A	A	A	A	A
Alcohol, Methyl	A	A	C	A		A+	A	A	A	A	A	A
Ammonia, Liquid	A	B	C	A	C	A+	A	A	A	A	B	A
Ammonia, Gas	B	C	C	A+	B	B	A	A	A	A	B	A
Animal Oil	A	A+	A	A			A+	A	A	A	A	
Beer (Beverage)	A	A	A	A	A	A	B	B	A	A	A	A
Brine	A	A	A	A	A	A	C	C	B	B	A	A+
Benzene (Benzol)	C	C	A	C	C	C	A	A	A	A	A	A
Butane, Gas	C	A+	A	B	B	A	A	A+	A+	A+	A+	A+
Butane, Liquid	C	A	A	C	C	B	A	A+	A+	A+	A+	A+
Calcium Chloride	A	A	A	A	A	A	B	B	C	A	A	A
Carbon Tetrachloride	C	C	A+	C	C	C	B	B	A	A	A	A
Carbonic Acid	C	C	A	A+	C		C	C	C	A	A	A
Chlorine, Dry	C	C	A+	C	C	C	A	A	B	B	A	A
Chlorine, Wet	C	C	A+	B	C	C	C	C	C	C	B	B
Coke Oven Gas	C	C	A+	A	C	C						
Diese Fuel	C	A	A	A	B	B	A	A	A	A	A	
Dowtherm A (2)	C	C	A+	B	C	C	A	A	A	A	A	A
Ethylene Glycol	A+	A	A	A	A	A	A	A	A	A	A	A
Freon	B	A	B	C	A+	A+	B	B	A	A	A	A
Gasline, Refined	C	A	A	C	C	C	A	A	A	A	A	A
Grease	C	A	A	A			A	A	A	A	A	A
Hydrogen Gas	A	A	A	A	A	A	A	A	C	A	A	A
Hydrogen Sulfide (Dry)	A+	A	C	A		A	C	C	C	A	A	A
Hydrogen Sulfide (Wet)	A+	C	C	A		A	C	C	C	A	A	A
Jet-Fuel (JP-4)	C	A	A	B	C	C	A	A	A	A	A	A
Kerosene	C	A+	A	A	C		A	A	A	A	A	A
Kotonex	A	C	C	A			A	A	A	A+	A	A
LPG	C	A+	A	A	C	B	A	A	A	A	A	A
Lubricating Oil	C	A	A	A	A	A	A	A	A	A	A	A
Methylene Chloride	C	C	B+	B	C	C						
Milk	A	A+	A	A	A	A	C	C	A	A	A	A
Mineral Oils	C	A	A	A	B	B	A	A	A	A	A	A
Natural Gas	C	A+	A	A	A	A	A	A	A	A	A	A
Natural Gas + H2S Gas	C	B	C	A	A	A+	C	C	C	A	A	A
Nitric Acid (10%)	B	C	A+	A	C	C	C	C	C	A	C	B
Nitric Acid (50-100%)	C	C	A+	B	C	C	C	C	C	A	C	B
Nitrogen	A	A	A	A	A	A	C	C	C	B	B	B
Oil (Fuel)	C	A+	A	A	B	B	A+	A+	A	A	A	A
Ozone	A	C	A	A	B	B	A	A	A	A	A	A
Propane	C	A+	A	A	A	A	A	A	A	A	A	A
Sea Water	A	A	A	A	B	B	C	C	C	B	A	A
Soap Solutions	A	A	A	A	A	A	A	A	A+	A+	A	A
Soybean Oil	C	A	A	A	B		A	A	A	A	A	A
Steam	B+	C	C	A+	C	C	A	A	A	A	A	A
Sugar	A+	A+	A+		A	A	A	A	A	A+	C	
Sulfur Dioxide (Dry)	A+	C	A	A	C	C	C	C	C	B+	A	
Sulfur Dioxide (Wet)	A+	C	A	A	B	B	C	C	C	B+	A	
Sulfuric Acid (to 50%)	B	C	A+	A	C	C	C	C	C	B	A	C
Sulfuric Acid (50 - 100%)	C	C	A+	A	C	C	C	C	C	C	A	C
Vegetable Oil	C	A+	A+				C	C	A	A+	A	A
Vinegar	A	A+	A+	A+	A	B	C	C		A+		
Water (Ambient)	A	A	A	A	A	A	A+	A+	A+	A+	A+	A+
Water, Hot (200°F - 93°C)	A+	C	B	C	C	C	A	A+	A+	A+	A	A
Water, Hot (300°F - 149°C)	B+	C	C			C	A	A	A	A	A	A

FLUID COMPATIBILITY

- Key:
 - A+ = Very Good
 - A = Good
 - B = Fair
 - C = Not Recommended
- The ratings shown in this chart are provided as a general guide only. Actual service will depend on type of application, whether static or dynamic, pressure and other conditions may alter the suitability of the selected metal / elastomer. There are also economic considerations that may influence material selection. **KVC** cannot guarantee their accuracy nor assume responsibility for use thereof.

NOTES:-
 (1) Viton®, PTFE®, Hypalon® and Neoprene® are trademarks of the DuPont Performance Elastomers.
 (2) Dowtherm A® is one of trademarks of the Dow Chemical Company.

FLUID COMPATIBILITY CHART

The following chart provides recommended cap screw and/or stud bolt information for mating **KVC® A-** and **AS-series** butterfly valves to various flange types.

Valve Size		Total Valve Body Width (Lug- and Wafer-Type) (a)	ANSI B16.1 Class 125 Cast Iron Flanges Thickness	ANSI B16.5 Class 150 Steel Flanges Thickness	ANSI B16.47-A / MSS SP-44 Class 150 Steel Flanges Thickness	Lug Type		Wafer Type			All Boltings (e)	
DN	NPS					Recommended Cap Screw Length	Total Quantity of Cap Screws (to Mount 2 Flanges) (c)	Recommended Stud Bolt Length	Total Quantity of Stud Bolts (to Mount 2 Flanges) (c), (d)	Recommended Cap Screw Length		Total Quantity of Cap Screws (to Mount 2 Flanges) (c)
50	2"	43	5/8"	3/4"		1-1/4"	8	4-1/2"	4		5/8" -11 UNC	
65	2-1/2"	46	11/16"	7/8"		1-1/2"	8	4-3/4"	4		5/8" -11 UNC	
80	3"	46	3/4"	15/16"		1-1/2"	8	5"	4		5/8" -11 UNC	
100	4"	52	15/16"	15/16"		1-3/4"	16	5-3/4"	8		5/8" -11 UNC	
125	5"	56	15/16"	15/16"		1-3/4"	16	6"	8		3/4" -10 UNC	
150	6"	56	1"	1"		2"	16	6-3/8"	8		3/4" -10 UNC	
200	8"	60	1-1/8"	1-1/8"		2-1/4"	16	6-3/4"	8		3/4" -10 UNC	
250	10"	68	1-3/16"	1-3/16"		2-1/4"	24	7-1/2"	12		7/8" - 9 UNC	
300	12"	78	1-1/4"	1-1/4"		2-1/2"	24	8"	12		7/8" - 9 UNC	
350	14"	78	1-3/8"	1-3/8"		2-1/2"	24	8-1/2"	12		1" - 8 UNC	
400	16"	102	1-7/16"	1-7/16"		3"	32	10"	16		1" - 8 UNC	
450	18"	114	1-9/16"	1-9/16"		3-1/4"	32	11"	16		1-1/8" - 7 UNC	
500	20"	127	1-11/16"	1-11/16"		3-1/2"	40	11-1/2"	20		1-1/8" - 7 UNC	
600	24"	154	1-7/8"	1-7/8"		4"	40	13-3/8"	20		1-1/4" - 7 UNC	
650	26"	165			2-11/16"	5-3/8"	40	15-3/8"	20	4-1/8"	8	1-1/4" - 7 UNC
700	28"	165			2-13/16"	5"	48	16"	24	4-1/8"	8	1-1/4" - 7 UNC
750	30"	165	2-1/8"			4-1/2"	48	14-1/2"	24	3-5/8"	8	1-1/4" - 7 UNC
800	32"	190			3-3/16"	5-7/8"	48	18"	24	4-3/4"	8	1-1/2" - 6 UNC
900	36"	203	2-3/8"			5"	56	17"	28	4-1/4"	8	1-1/2" - 6 UNC
1000	40"	216			3-9/16"	6-1/4"	56	19-1/2"	28	5-1/2"	8	1-1/2" - 6 UNC
1050	42"	251	2-5/8"			5-1/2"	64	19-1/2"	32	4-1/2"	8	1-1/2" - 6 UNC
1200	48"	276	2-3/4"			4-1/2"	64	22-1/4"	32	5-5/8"	8	1-1/2" - 6 UNC
					4-1/4"	5-3/4"	80	20-1/4"	40	4-5/8"	8	1-1/2" - 6 UNC
						4-5/8"	80	24-1/4"	40	6-1/8"	8	1-1/2" - 6 UNC
						6-1/8"	8					

NOTES:-

- (a) The face-to-face dimensions shown above are across body flats (metal-to-metal), which exclude thickness of liner (approximately 3 to 5 mm each face depending on valve sizes). Do NOT use flange gaskets when installing resilient seated lug- and wafer-type butterfly valves.
- (b) Refer to mating welding neck (WN) flanges.
- (c) For 26" and larger, lug type valves may be supplied with double flanged U-section type, and wafer type valves may be supplied with single flange type. For 26" and larger, valves have 4 threaded blind holes each side face at shaft passage area, thus 4 Cap Screws are to be used at each side of flange.
- (d) Total quantity of Nuts is double of Stud Bolts.
- (e) Threads on all boltings shall be in the Unified Coarse Series (UNC) in accordance with ANSI B1.1 Class 2A for bolts and Class 2B for nuts. Bolts should be square or heavy hexagon (ANSI B18.2.1), and nuts should be heavy semi-finished hexagon (ANSI B18.2.2).

BoltingData_ANSI 125-150
Subject to change without prior notice.

KVC® resilient seated butterfly valves, lug- and wafer-type, are designed for use between ANSI Classes 125-150 flanges (weld-neck flanges or slip-on flanges) of either flat face or raised face type.

- NOTE:- (1) Installation between ANSI Class 150 flanges does not increase the valve rating of 232 psig (for valve sizes NPS 2"-12") and 150 psig (for valve sizes NPS 14" & larger) respectively.
 (2) The resilient seat face negates need for flange gasket.
 (3) When using piping reducers, the transition area of said reducers must be sufficient enough so as to allow disc protrusion while the valve opens. The same consideration applies when using heavy schedule or lined pipe.
 Failure to ascertain adequate disc clearance prior to installation could damage the disc's sealing surface.

1. Installation

(A) Installation Between Existing Flanges

1. Thoroughly clean the piping system prior to valve installation.
2. Check the valve port and seating surfaces for cleanliness just prior to installation.
3. Rotate valve clockwise to position the disc sealing edge approximately 1/2" (12 mm) from the valve closed position.
4. Insert the valve between the flanges, loosely assemble flange bolts and align by:
 - For lugged body type – bolting the valve to the flanges;
 - For wafer body type – aligning the valve at centered position in between flanges and make sure a full and 360° uniform contact between the elastomer and the flange face.

CAUTION: Never force the valve in between flanges if the installation spacing is incorrect, as the subsequent distortion or damage may occur to the resilient seat face - it is necessary to spread mating flanges.

5. Carefully operate the valve to assure proper alignment and sufficient disc clearance.
6. Turn the valve to full open position. Then tighten all bolts, using the crossover method, to obtain a 360° uniform contact between the elastomer and flanges.
7. Verify handle lever position and/or gearbox travel stops after installation. Adjust as necessary.

(B) Installation In New Piping Systems

1. Follow steps 1 to 6 as outlined in section (A) above, however, the valve should be aligned as above and assembled between the flanges if they are to be welded. Use the assembly for fit-up and centering to the pipe.
2. **Tack weld** the flanges and **then remove** the valve assembly.
3. Complete welding the flanges and allow them to cool completely **before** reinstalling the valve.

CAUTION: Failure to do so (steps 2-3) may damage the resilient seat (i.e. elastomer).

4. Verify handle lever position and/or gearbox travel stops after installation. Adjust as necessary.

2. Operation

Manual butterfly valves can be operated by a handle lever or a worm gear operator. The handle lever comes with an indication of disc position (10 positions). The gear operator is provided with an indicator dial located on the top of gearbox. Valves that are used infrequently should be periodically cycled from open-closed-open so as to

3. Maintenance

KVC® resilient seated butterfly valves require no routine maintenance. However, cycling valve on a regular basis is highly recommended.

The leakage could occur after a long time service, then the valve could be replaced or repaired.

(A) Removal from Line System

IMPORTANT NOTE: For safety reasons, it is important to follow proper safety procedures practiced by individual customer and take some precautions before removing a valve from a line. Before removing a valve from a line, line pressure must be relieved with no exception.

1. Turn the valve approximately 20° open.
2. Loosen and remove bolting, spread flanges and remove valve.

(B) Disassembly

1. Turn the valve in its full open position, remove handle lever or gear operator.
2. Remove disc taper pins (pins to be replaced) – not applicable **AS series**.
3. Remove shaft from valve body
4. Remove disc from seat and store in such a manner so as not to damage its sealing surface.

NOTE: If damaged, disc and shaft must be replaced.

5. Remove seat from body (to be replaced if needed).

(C) Re-Assembly

1. Inspection and clean all parts to be used.
2. Insert disc into seat (align shaft holes).
3. Press seat into body (align shaft holes), using special tools.
4. Insert shaft (extra cares must be taken in order not to dislodge and /or damage the seat).
5. Close valve aligning shaft flat parallel to closed valve.
6. Drill and ream (per drawing or specification) thru disc and shaft (not applicable **AS series**).
7. Place disc taper pins and knock pin into place - not applicable **AS series**.
8. Clean valve free of shavings.
9. Install handle lever or gear operator.



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