

## 200 & 150 WOG WAFER/LUG STYLE BUTTERFLY VALVE – Numbering System

Figure: BW & BL-1000 Series

Figure: BW & BL-2000 Series

Figure: BW & BL-4000 Series

Figure: BL-5000 Series

To make a figure number for ordering purposes, please use the following chart to understand the various trims as they relate to the figure number. Please ensure that the trims ordered are suitable for the service. As some combinations are seldom used, please confirm with your local stocking distributor of KVC Butterfly valves as to the delivery availability on non-stock items.

Example: Fig. BW-1000-11DBL06 is a 6" wafer style butterfly valve with a nickel plated ductile iron disc, 410 stainless steel stem, Buna-N seat and a lever handle.

Note: all valves in the 1000 series are rated at 200 psi bubble tight shut-off and come with cast iron bodies as standard.

Note: all valves in the 2000 series are rated at 150 psi bubble tight shut-off and come with ductile iron bodies as standard.

Note: all valves in the 4000 series are rated at 200 psi bubble tight shut-off and come with cast iron bodies as standard.

Body	Base #	Disc	Stem	Seat	Operator	Size	Special
<b>BW</b>	<b>- 1000</b>	<b>-1</b>	<b>1</b>	<b>DB</b>	<b>L</b>	<b>6"</b>	<b>—</b>

### Body

- BW – Wafer
- BL – Lug

1000 – base series model

2000 – base series model

4000 – base series model

### Seat

DB – Buna-N (NBR)

DN – Neoprene DE – EPDM

DH – Hypalon

DTB – Teflon/Buna-N DTE – Teflon/EPDM DV – Viton

Note: The 2000 & 4000 series seats are the main seating material (ie: EPDM) bonded to a phenolic backing ring to make it a slide-in cartridge.

### Disc

1. Nickel Plated Ductile iron
2. 316 Stainless steel
3. Nylon coated
4. Aluminum bronze
5. PTFE coated
6. EPDM coated
7. 304 Stainless steel

### Operator

L – Lever

G – Gear

B – Bare stem

A – Actuated

I – Infinite adjustable lever

### Stem

1. 410 Stainless steel
2. 316 Stainless steel
3. 304 Stainless steel

**FIG. BW-1000 200 WOG WAFER STYLE BUTTERFLY VALVE - LEVER HANDLE / GEAR OPERATOR**



**Features:**

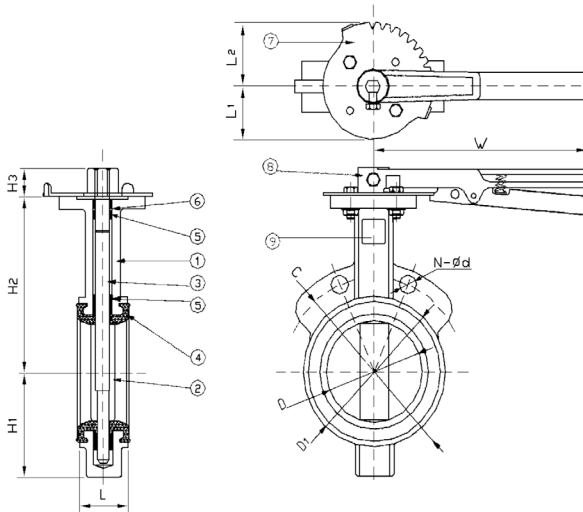
- Valves meet MSS-SP67 & API 609
- Flange drilling to: ANSI B16.1 Class 125/150 Testing to: API 598

Test Pressures	Shell: 300 psi
	Seat: 220 psi

**Materials List:**

No.	Part Name	BW-1000-11 DBL/DEL	BW-1000-22 DBL/DEL
1	Body	Ductile Iron	Ductile Iron
2	Disc	Ductile Iron*	CF8M SS 316
3	Stem	SS 410	SS 410
4	Seat	Buna-N/EPDM	Buna-N/EPDM
5	Bushing	PTFE	PTFE
6	O-Ring	Buna-N	Buna-N
7	Pin	Carbon Steel	Carbon Steel
8	Hand lever	Malleable Iron	Malleable Iron
9	Name Plate	Aluminum Plate	Aluminum Plate
10	Notch Plate	Stainless Steel	Stainless Steel

\* Nickel plated



Temperature range of seats	
Material	Range
Buna-N	-12°C ~+ 93°C
EPDM	-30°C ~+ 140°C
Neoprene	-7°C ~+ 107°C
Hypalon	-18°C ~+ 149°C
Viton	-12°C ~+ 140°C
PTFE	-20°C ~+ 121°C

**Note:** Seat materials are capable of withstanding lower temperatures without damage. However, the elastomer becomes hard and torques increase. Some flow media may further restrict the published temperature limits and/or significantly reduce seat life.

**Options:**

- Seats: Buna-N, EPDM, Hypalon, Viton, Neoprene, PTFE.
- Disc: Nickel plated Ductile iron, nylon coated ductile Iron, aluminum bronze, 316 stainless steel.
- Body: Cast iron, ductile iron.
- Note: Please refer to "Numbering System" sheet to obtain detailed figure numbers.

**Caution:** All 1000 series valves must be installed in the partial open position. Installing in the full closed position may damage the seat during start up and void any warranties.

**Dimensions:**

Size	D		L		H1		H2		H3		Flange			L1		L2		W		Weight				
	in	mm	in	mm	in	mm	in	mm	in	mm	C	D1	N-ød	in	mm	in	mm	in	mm	lb	kg			
2	50	2.00	51.00	1.70	43.00	2.80	71	5.50	140	1.30	33	4.80	120.70	3.70	95	11/16	1.90	50	2.60	67	10.40	265	8.40	3.80
2 ½	65	2.50	62.80	1.80	45.80	3.10	78	6.00	152	1.30	33	5.50	139.70	4.30	109	11/16	1.90	50	2.60	67	10.40	265	9.25	4.20
3	80	3.10	78.00	1.80	45.80	3.90	100	6.30	159	1.30	33	6.00	152.40	5.00	127	11/16	1.90	50	2.60	67	10.40	265	10.35	4.70
4	100	4.00	102.50	2.00	52.00	4.00	102	7.00	178	1.30	33	7.50	190.50	6.00	152	11/16	1.90	50	2.60	67	10.40	265	19.85	9.00
5	125	4.80	121.50	2.20	55.50	4.60	118	7.50	191	1.40	37	8.50	215.90	7.20	182	13/16	1.90	50	2.60	67	10.40	265	24.05	10.90
6	150	6.00	154.20	2.20	55.50	5.10	130	8.00	204	1.37	35	9.50	241.30	8.00	207	13/16	1.90	50	2.60	67	10.40	265	31.30	14.20
8	200	7.90	200.90	2.30	59.50	6.40	163	9.40	238	1.70	43	11.80	298.50	10.40	264	13/16	2.70	70	3.40	87	14.00	357	40.10	18.20
10	250	9.80	248.90	2.60	67.20	7.80	198	10.60	270	1.50	38	14.30	362.00	12.50	317	15/16	2.70	78	3.50	90	14.00	357	59.10	26.90
12	300	11.80	300.00	3.00	77.00	9.30	235	12.40	315	1.70	43	17.00	431.80	14.60	370	15/16	2.70	78	3.50	90	14.00	357	88.20	40.10

FIG. BL-1000

## 200 WOG LUG STYLE BUTTERFLY VALVE - LEVER HANDLE



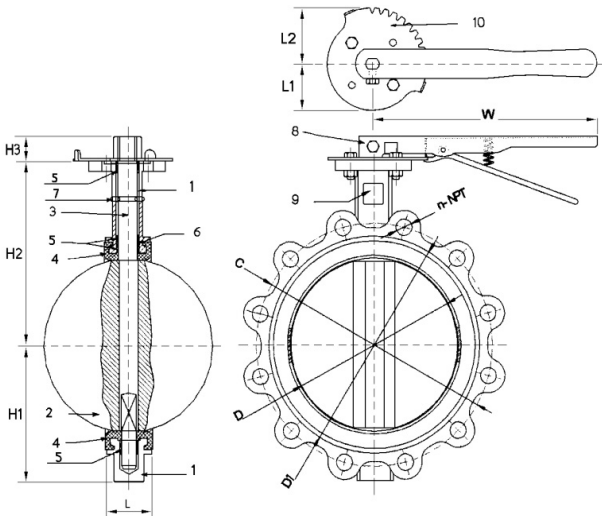
**Features:**

- Valves meet MSS-SP67 & API 609
- Flange drilling to: ANSI B16.1 Class 125/150 Testing to: API 598

Test Pressures	Shell: 300 psi
	Seat: 220 psi

**Materials List:**

No.	Part Name	BL-1000-11 DBL/DEL	B-1000-22 DBL/DEL
1	Body	Ductile Iron	Ductile Iron
2	Disc	Ductile Iron*	CF8M SS 316
3	Stem	SS 410	SS 410
4	Seat	Buna-N/EPDM	Buna-N/EPDM
5	Bushing	PTFE	PTFE
6	O-Ring	Buna-N	Buna-N
7	Pin	Carbon Steel	Carbon Steel
8	Hand lever	Malleable Iron	Malleable Iron
9	Name Plate	Aluminum Plate	Aluminum Plate
10	Notch Plate	Stainless Steel	Stainless Steel



\* Nickel plated

Material	Range
Buna-N	-12°C ~+ 93°C
EPDM	-30°C ~+ 140°C
Neoprene	-7°C ~+ 107°C
Hypalon	-18°C ~+ 149°C
Viton	-12°C ~+ 140°C
PTFE	-20°C ~+ 121°C

**Note:** Seat materials are capable of withstanding lower temperatures without damage. However, the elastomer becomes hard and torques increase. Some flow media may further restrict the published temperature limits and/or significantly reduce seat life.

**Options:**

- Seats: Buna-N, EPDM, Hypalon, Viton, Neoprene, PTFE.
- Disc: Nickel plated Ductile iron, nylon coated ductile Iron, aluminum bronze, 316 stainless steel.
- Body: Cast iron, ductile iron.
- Note: Please refer to "Numbering System" sheet to obtain detailed figure numbers.

**Caution:** All 1000 series valves must be installed in the partial open position. Installing in the full closed position may damage the seat during start up and void any warranties.

**Dimensions:**

Size	D		L		H1		H2		H3		Flange			L1		L2		W		Weight				
	in	mm	in	mm	in	mm	in	mm	in	mm	C	D1	n-NPT	in	mm	in	mm	in	mm	lb	kg			
2	50	2.00	51.00	1.70	43.00	2.80	71.00	5.50	140	1.30	33	4.80	120.70	3.70	95	4 5/8	1.90	50	2.60	67	10.40	265	9.50	4.30
2 1/2	65	2.50	62.80	1.80	45.80	3.10	78.00	6.00	152	1.30	33	5.50	139.70	4.30	109	4 5/8	1.90	50	2.60	67	10.40	265	12.00	5.50
3	80	3.10	78.00	1.80	45.80	3.90	100.00	6.30	159	1.30	33	6.00	152.40	5.00	127	4 5/8	1.90	50	2.60	67	10.40	265	12.00	5.60
4	100	4.00	102.50	2.00	52.00	4.00	102.00	7.00	178	1.30	33	7.50	190.50	6.00	152	8 5/8	1.90	50	2.60	67	10.40	265	21.00	9.40
5	125	4.80	121.50	2.20	55.50	4.60	118.00	7.50	191	1.40	37	8.50	215.90	7.20	182	8 3/4	1.90	50	2.60	67	10.40	265	28.00	12.70
6	150	6.00	154.00	2.20	55.50	5.10	130.00	8.00	204	1.37	35	9.50	241.30	8.00	207	8 3/4	1.90	50	2.60	67	10.40	265	29.00	13.10
8	200	7.90	201.00	2.30	59.50	6.40	163.00	9.40	238	1.70	43	11.80	298.50	10.40	264	8 3/4	2.70	70	3.40	87	14.00	357	43.00	19.50
10	250	9.80	249.00	2.60	67.20	7.80	198.00	10.60	270	1.50	38	14.30	362.00	12.50	317	12 7/8	2.70	78	3.50	90	14.00	357	63.00	28.50
12	300	11.80	300.00	3.00	77.00	9.30	235.00	12.40	315	1.70	43	17.00	431.80	14.60	370	12 7/8	2.70	78	3.50	90	14.00	357	92.00	42.00

FIG. 2000 Series

Large Diameter – Wafer & Full Lug Cast Iron Butterfly Valve



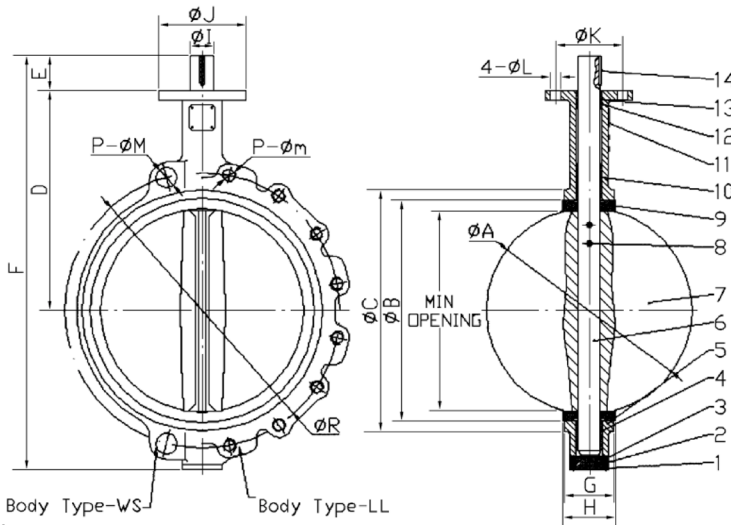
**Features:**

- Valves meet MSS-SP67 & API 609
- Flange drilling to: ANSI B16.1 Class 125/150
- Testing to: API 598

Test Pressures	Shell: 225 psi
	Seat: 165 psi

**Materials List:**

No.	Part Name	BW-2000-11DBG BL-2000-11DBG	BW-2000-22DEG BL-2000-22DEG
1	Screw	Carbon Steel	Carbon Steel
2	Bottom Cover	Ductile Iron	Ductile Iron
3	O-ring	Buna-N	Buna-N
4	Lower Bushing	PTFE	PTFE
5	Body	Ductile Iron	Ductile Iron
6	Stem	SS410	SS410
7	Disc	Ductile Iron	CF8M SS316
8	Tap Pin	Carbon Steel	Carbon Steel
9	Seat Cartridge	Buna-N w/Phenolic Backing Ring	EPDM w/Phenolic Backing Ring
10	Mid Bushing	PTFE	PTFE
11	Nameplate	Carbon Steel	Carbon Steel
12	Upper Bushing	PTFE	PTFE
13	O-Ring	Buna-N	Buna-N
14	Key	Carbon Steel	Carbon Steel



Temperature range of seats	
Material	Range
Buna-N	-12°C ~+ 93°C
EPDM	-30°C ~+ 140°C
Neoprene	-7°C ~+ 107°C
Hypalon	-18°C ~+ 149°C
Viton	-12°C ~+ 140°C

**Note:**  
 All seats are a cartridge style with the “rubber” bonded to a phenolic backing ring for support.  
 Please refer to the Numbering System guide, 2000 series, to establish a figure number for ordering.  
 Seat materials are capable of withstanding lower temperatures without damage. However, the elastomer becomes hard and torques increase.  
 Some flow media may further restrict the published temperature limits and/or significantly reduce seat life.

- Options:**
- **Disc:** Nickel plated ductile iron, Aluminum bronze, 304SS, 316SS, WCB, Nylon coated DI, PTFE coated DI.
  - **Body:** Cast iron, ductile iron, WCB, 304SS, 316SS, Aluminum bronze.
  - **Seat:** Buna-N, EPDM, Viton, PTFE, Hypalon, Neoprene.
  - **Stem:** 416SS, 431SS, 410SS, 316SS.

**Dimensions:**

Size	A		Min		B		C		D		E		F		G		H		
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm
14	350	13.10	333.30	12.70	322.00	14.80	375.10	15.90	405	14.50	368	1.77	45	26.80	680.00	3.01	76.50	3.13	79.50
16	400	15.30	389.60	14.90	379.10	17.30	439.50	18.50	470	15.70	400	2.83	72	30.70	780.60	3.37	85.70	3.54	90.00
18	450	17.30	440.50	16.80	426.80	19.30	490.50	20.50	521	16.60	422	2.83	72	32.30	821.60	4.12	104.60	4.29	109.00
20	500	19.50	491.60	18.60	472.70	21.10	535.40	22.20	565	18.90	480	3.23	82	36.10	916.00	5.13	130.30	5.31	135.00
24	600	23.30	592.50	22.50	571.60	25.70	654.00	27.30	693	22.10	562	3.23	82	43.40	1102.70	5.96	151.40	6.14	156.00
30	750	27.70	703.60	28.20	716.30	31.10	789.90	34.10	866	25.50	648	2.60	66	51.80	1315.70	6.59	167.40	6.77	172.00

Size	ØI		ØJ		ØK		ØL		P	P-m	P-M	R	Weight LL		Weight WS				
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg	lb	kg		
14	350	1.24	31.60	5.51	140	4.02	102	4-.47	12	0.63	16	1	1 1/8	18.10	460	123	56.00	91	41.30
16	400	1.50	38.00	7.76	197	5.51	140	4-.71	18	0.63	16	1	1 1/8	20.30	515	215	97.70	139	63.00
18	450	1.69	42.90	7.76	197	5.51	140	4-.71	18	0.79	20	1 1/8	1 1/4	22.20	565	272	123.80	178	80.70
20	500	1.80	45.70	7.76	197	5.51	140	4-.71	18	0.79	20	1 1/8	1 1/4	24.40	620	448	203.70	286	129.80
24	600	2.13	54.00	10.87	276	6.50	165	4-.87	22	0.79	20	1 1/4	1 3/8	28.50	725	602	273.50	422	191.60
30	750			11.81	300	10.00	254	8-.71	18	0.79	20	1 1/4	1 3/8	36.00	914	814	370.00	760	345.50

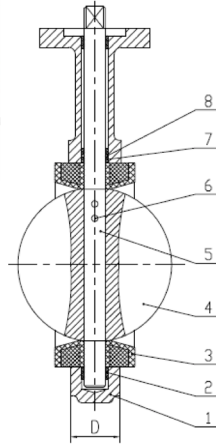
**FIG.BW-2000-22DVL-S6 Series 200 WOG WAFER STAINLESS STEEL BUTTERFLY VALVE – Lever Handle**



**Features:**

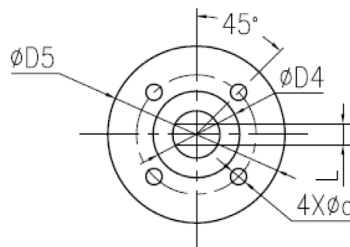
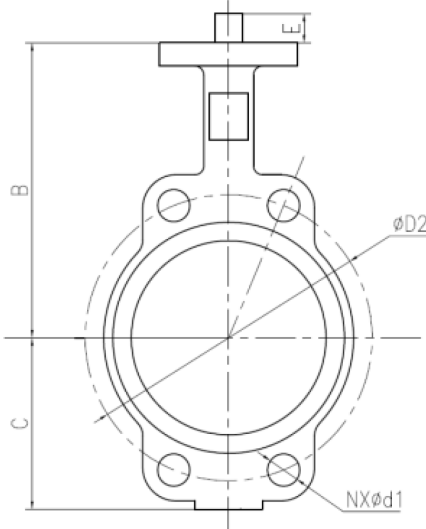
- Valves meet MSS-SP67 & API 609
- Flange drilling to: ANSI B16.1 Class 125/150 Testing to: API 598

Test Pressures	Shell: 300 psi
	Seat: 220 psi



**Materials List:**

No.	Part Name	Specifications
1	Body	SS316
2	Bushing(Long)	PTFE
3	Seat	VITON
4	Disc	SS316
5	Stem	SS316
6	Pin	SS316
7	Bushing(Short)	PTFE
8	O-Ring	VITON



Temperature range of seats	
Material	Range
Buna-N	-12°C ~+ 93°C
EPDM	-30°C ~+ 140°C
Neoprene	-7°C ~+ 107°C
Hypalon	-18°C ~+ 149°C
Viton	-12° C ~+ 140° C
PTFE	-20°C ~+ 121°C

**Note:** Seat materials are capable of withstanding lower temperatures without damage. However, the elastomer becomes hard and torques increase. Some flow media may further restrict the published temperature limits and/or significantly reduce seat life.

**Options:**

- **Seats:** Viton
- **Disc:** 316 stainless steel.
- **Body:** 316 Stainless Steel.

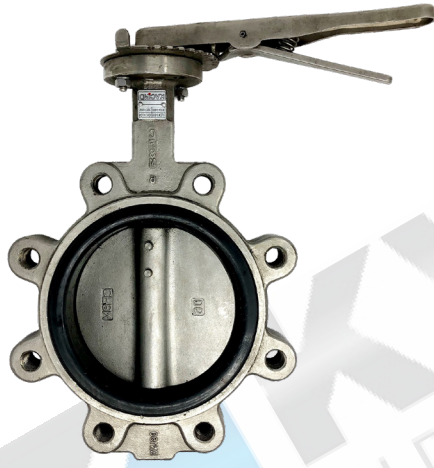
**Note:** Please refer to “Numbering System” sheet to obtain detailed figure numbers.

**Caution:** All 2000 series valves must be installed in the partial open position. Installing in the full closed position may damage the seat during start up and void any warranties.

**Dimensions:**

Size		D2		D4		D5		B		C		D		E		4Xød		L	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg	in	mm
2	50	4.79	120.60	1.38	35	2.56	65	6.14	156	3.15	80	1.66	42.04	1.26	32	15.43	7	0.39	10
2 ½	65	5.50	139.70	1.38	35	2.56	65	6.38	162	3.50	89	1.76	44.68	1.26	32	15.43	7	0.39	10
3	80	6.00	152.40	1.38	35	2.56	65	6.69	170	3.74	95	1.78	45.21	1.26	32	15.43	7	0.39	10
4	100	7.50	190.50	2.17	55	3.54	90	7.28	185	4.49	114	2.05	52.07	1.26	32	22.05	10	0.47	12
5	125	8.50	215.90	2.17	55	3.54	90	8.15	207	5.00	127	2.14	54.36	1.26	32	22.05	10	0.55	14
6	150	9.50	241.30	2.17	55	3.54	90	8.50	216	5.47	139	2.19	55.75	1.26	32	22.05	10	0.55	14
8	200	11.75	298.50	2.76	70	4.92	125	10.08	256	6.89	175	2.39	60.58	1.77	45	26.46	12	0.67	17
10	250	14.25	361.90	2.76	70	4.92	125	9.76	248	7.99	203	2.58	65.63	1.77	45	26.46	12	0.87	22
12	300	17.00	431.80	2.76	70	4.92	125	11.02	280	9.53	242	3.03	76.90	1.77	45	26.46	12	0.94	24

**FIG. BL-2000-22DVL-S6 Series 200 WOG LUG STAINLESS STEEL BUTTERFLY VALVE LEVER HANDLE**



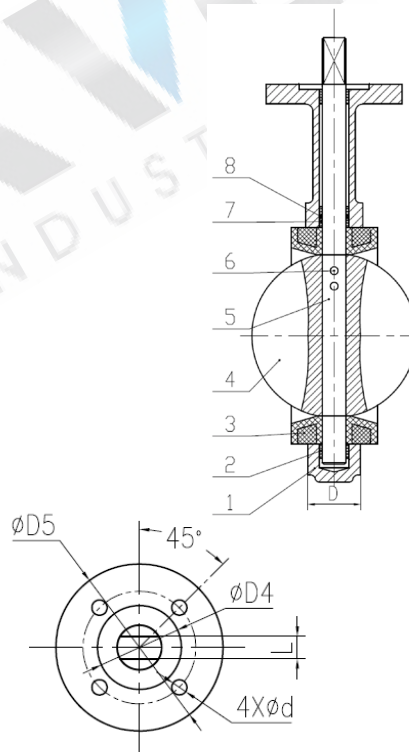
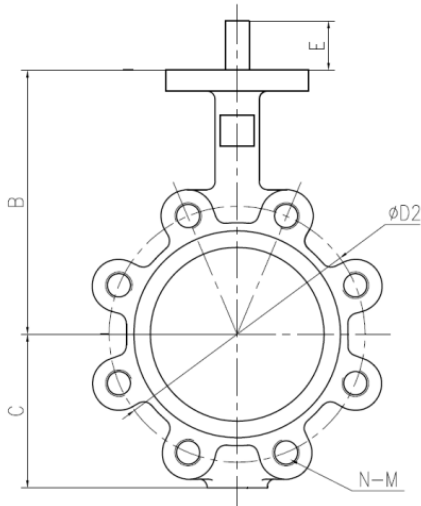
**Features:**

- Valves meet MSS-SP67 & API 609
- Flange drilling to: ANSI B16.1 Class 125/150 Testing to: API 598

Test Pressures	Shell: 300 psi
	Seat: 220 psi

**Materials List:**

No.	Part Name	Specifications
1	Body	SS316
2	Bushing(Long)	PTFE
3	Seat	VITON
4	Disc	SS316
5	Stem	SS316
6	Pin	SS316
7	Bushing(Short)	PTFE
8	O-Ring	VITON



Temperature range of seats	
Material	Range
Buna-N	-12°C ~+ 93°C
EPDM	-30°C ~+ 140°C
Neoprene	-7°C ~+ 107°C
Hypalon	-18°C ~+ 149°C
Viton	-12°C ~+ 140°C
PTFE	-20°C ~+ 121°C

**Note:** Seat materials are capable of withstanding lower temperatures without damage. However, the elastomer becomes hard and torques increase. Some flow media may further restrict the published temperature limits and/or significantly reduce seat life.

**Options:**

- **Seats:** Viton
- **Disc:** 316 stainless steel.
- **Body:** 316 Stainless Steel.

**Note:** Please refer to "Numbering System" sheet to obtain detailed figure numbers.

**Caution:** All 2000 series valves must be installed in the partial open position. Installing in the full closed position may damage the seat during start up and void any warranties.

**Dimensions:**

Size		D2		D4		D5		N-M		B		C		D		E		4Xød		L	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg	in	mm
2	50	4.79	120.6	1.38	35	2.56	65	4.63	117.6	6.14	156	3.15	80	1.66	42.04	1.26	32	15.43	7	0.39	10
2 1/2	65	5.50	139.7	1.38	35	2.56	65	4.63	117.6	6.38	162	3.50	89	1.76	44.68	1.26	32	15.43	7	0.39	10
3	80	6.00	152.4	1.38	35	2.56	65	4.63	117.6	6.69	170	3.74	95	1.78	45.21	1.26	32	15.43	7	0.39	10
4	100	7.50	190.5	2.17	55	3.54	90	8.63	219.2	7.28	185	4.49	114	2.05	52.07	1.26	32	22.05	10	0.47	12
5	125	8.50	215.9	2.17	55	3.54	90	8.75	222.3	8.15	207	5.00	127	2.14	54.36	1.26	32	22.05	10	0.55	14
6	150	9.50	241.3	2.17	55	3.54	90	8.75	222.3	8.50	216	5.47	139	2.19	55.75	1.26	32	22.05	10	0.55	14
8	200	11.75	298.5	2.76	70	4.92	125	8.75	222.3	10.08	256	6.89	175	2.39	60.58	1.77	45	26.46	12	0.67	17
10	250	14.25	361.9	2.76	70	4.92	125	12.88	327.2	9.76	248	7.99	203	2.58	65.63	1.77	45	26.46	12	0.87	22
12	300	17.00	431.8	2.76	70	4.92	125	12.88	327.2	11.02	280	9.53	242	3.03	76.9	1.77	45	26.46	12	0.94	24

## FIG.GBV-3000 Series

## 300 WOG GROOVED END BUTTERFLY VALVE – Lever Handle



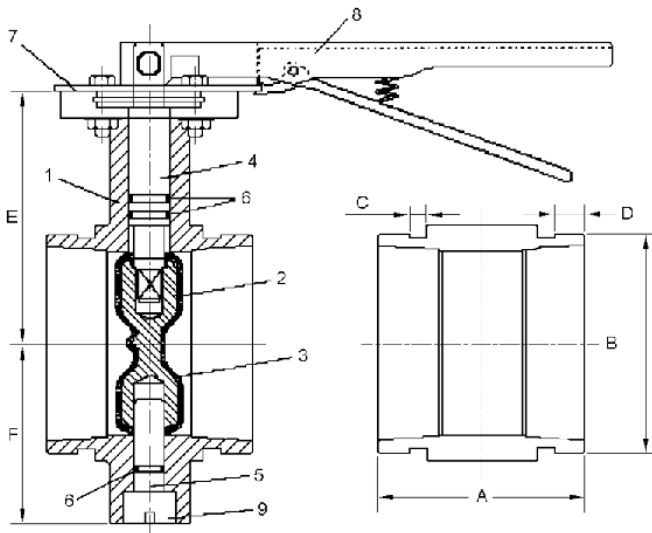
### Features:

- Valves to MSS-SP67 & API 609
- Valves conform to AWWA C-606
- Maximum operating temperature:
  - EPDM encapsulated disc: 121 °C (250 °F)
  - Buna-N encapsulated disc: 88 °C (190 °F)

Test Pressures	Shell: 450 psi
	Seat: 330 psi

### Materials List:

No.	Part Name	Specifications
1	Body	Ductile iron A536
2	Disc	Ductile iron A536
3	Rubber Lining	EPDM aa
4	Upper Stem	Stainless steel A433 410
5	Lower Stem	Stainless steel A433 410
6	O-Ring	Buna-N aa
7	Position Plate*	Carbon steel A27-91 65-35
8	Lever Handle	Malleable iron A47-90 22010
9	Plug	Steel



Temperature range of seats	
Material	Range
Buna-N	-12°C ~+ 93°C
EPDM	-30°C ~+ 140°C
Neoprene	-7°C ~+ 107°C
Hypalon	-18°C ~+ 149°C
Viton	-12°C ~+ 140°C
PTFE	-20°C ~+ 121°C

### Options:

- Buna-N lining on disc
- Manual gear operator, electric or pneumatic actuation.

### Dimensions:

Size		A		B		C		D		E		F		Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
2	50	3.20	81	2.40	60	0.31	8	0.63	16	3.30	85	2.20	57	5.90	2.70
2 ½	65	3.80	97	2.90	73	0.31	8	0.63	16	4.20	106	2.60	65	7.50	3.40
3	80	3.80	97	3.50	89	0.31	8	0.63	16	4.40	113	3.00	75	8.60	3.90
4	100	4.60	116	4.50	114	0.39	10	0.63	16	5.30	135	3.50	90	11.90	5.40
5	125	5.80	148	5.60	141	0.39	10	0.63	16	5.80	148	4.30	110	20.00	9.10
6	150	5.80	148	6.60	168	0.39	10	0.63	16	7.10	181	4.90	124	23.00	10.50
8	200	5.30	134	8.60	219	0.43	11	0.75	19	8.00	204	6.10	155	37.40	17.00
10	250	6.30	159	10.70	273	0.51	13	0.75	19	9.10	230	7.50	190	84.00	38.10
12	300	6.50	166	12.80	324	0.51	13	0.75	19	10.60	270	9.10	230	100.00	45.40

**FIG. BW-4000 Series**

**200 WOG WAFER STYLE BUTTERFLY VALVE – Lever Handle**



**Features:**

- Valves meet MSS-SP67 & API 609
- Flange drilling to: ANSI B16.1 Class 125/150
- Testing to: API 598

Test Pressures	Shell: 300 psi
	Seat: 220 psi

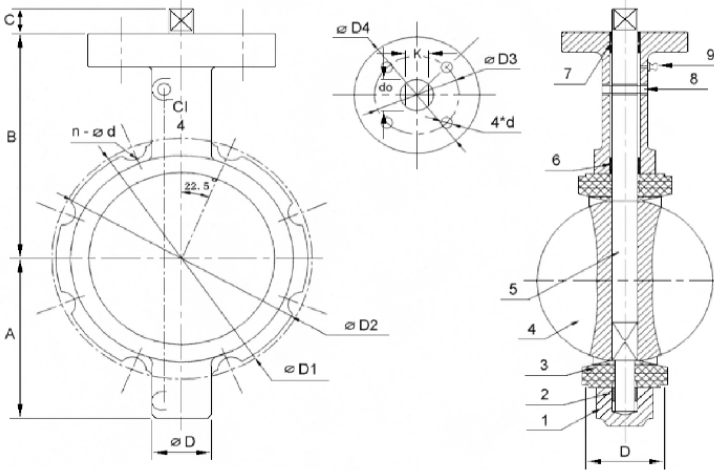
**Materials List:**

No.	Part Name	Specifications
1	Body	A126 Class B Cast Iron
2	Bushing(long)	PTFE
3	Seat**	Buna-N
4	Disc	A 536 Ductile Iron*
5	Stem	A433 410 Stainless Steel
6	Bushing(short)	PTFE
7	O-Ring	Buna-N
8	Spring Pin	65 Mn Carbon steel
9	Grease Fitting	B16 Brass

\*Nickel plated

Size	do	K
in	m	mm
2	50	12.6 ± 0.025
2 ½	65	12.6 ± 0.025
3	80	12.6 ± 0.025
4	10	15.77 ± 0.025
5	12	18.92 ± 0.025
6	15	18.92 ± 0.025
8	20	22.10 ± 0.025
10	25	28.45 ± 0.025
12	30	31.60 ± 0.051

Temperature range of seats	
Material	Range
Buna-N	-12°C ~+ 93°C
EPDM	-30°C ~+ 140°C
Neoprene	-7°C ~+ 107°C
Hypalon	-18°C ~+ 149°C
Viton	-12°C ~+ 140°C
PTFE	-20°C ~+ 121°C



**Options:**

- **Seats:** Buna-N, EPDM, Hypalon, Viton, Neoprene, PTFE.
- **Disc:** \*Nickel Plated Ductile iron, Nylon 11 Encapsulated ductile iron, EPDM Encapsulated Ductile iron, Aluminum bronze, 304 & 316 Stainless steel.
- **Body:** Cast iron, Ductile iron & Stainless steel.
- **Stem:** 410SS, 416SS, 304SS, 316SS.

**Note:** \*\*All seats are a cartridge style with the “rubber” bonded to a phenolic backing ring for support.

Please refer to the Numbering System guide, 4000 series, to establish a figure number for ordering.

**Note:** Seat materials are capable of withstanding lower temperatures without damage. However, the elastomer becomes hard and torques increase. Some flow media may further restrict the published temperature limits and/or significantly reduce seat life.

**Dimensions:**

Size		D		ØD		A		B		C		Flange			ØD3		ØD4		4*d		Weight			
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg	
2	50	1.65	42.00	1.38	36	2.87	73.0	3.94	100.00	1.26	32	4.75	120.60	4.13	105.00	4 ¾	2.76	70	3.54	90	0.39	10	7.70	3.50
2 ½	65	1.77	45.00	1.38	36	3.13	79.50	4.47	113.50	1.26	32	5.50	139.70	4.92	125.00	4 ¾	2.76	70	3.54	90	0.39	10	8.80	4.00
3	80	1.78	45.20	1.38	36	3.43	87.00	4.86	123.50	1.26	32	6.00	152.40	5.39	137.00	4 ¾	2.76	70	3.54	90	0.39	10	9.24	4.20
4	100	2.05	52.00	1.57	40	4.04	102.05	5.98	152.00	1.26	32	7.50	190.50	7.01	178.00	8 ¾	2.76	70	3.54	90	0.39	10	12.30	5.69
5	125	2.19	55.50	1.61	41	4.27	108.40	5.87	149.00	1.26	32	8.50	215.90	7.59	192.70	8 7/8	2.76	70	3.54	90	0.39	10	13.20	6.00
6	150	2.19	55.75	1.77	45	5.12	130.00	6.54	166.00	1.26	32	9.50	241.30	8.82	224.00	8 7/8	2.76	70	3.54	90	0.39	10	18.70	8.50
8	200	2.39	60.58	1.90	48	6.22	158.00	8.03	204.00	1.57	40	11.76	298.40	11.10	282.00	8 7/8	4.02	102	4.92	125	0.47	12	30.80	14.00
10	250	2.68	68.00	2.09	53	7.57	192.20	10.15	257.80	1.57	40	14.25	361.90	13.30	338.40	12 1	4.02	102	4.92	125	0.47	12	50.60	23.00
12	300	3.02	76.80	2.16	55	9.59	243.60	10.96	278.40	1.57	40	17.00	431.80	16.60	422.40	12 1	4.02	102	4.92	125	0.47	12	71.50	32.50

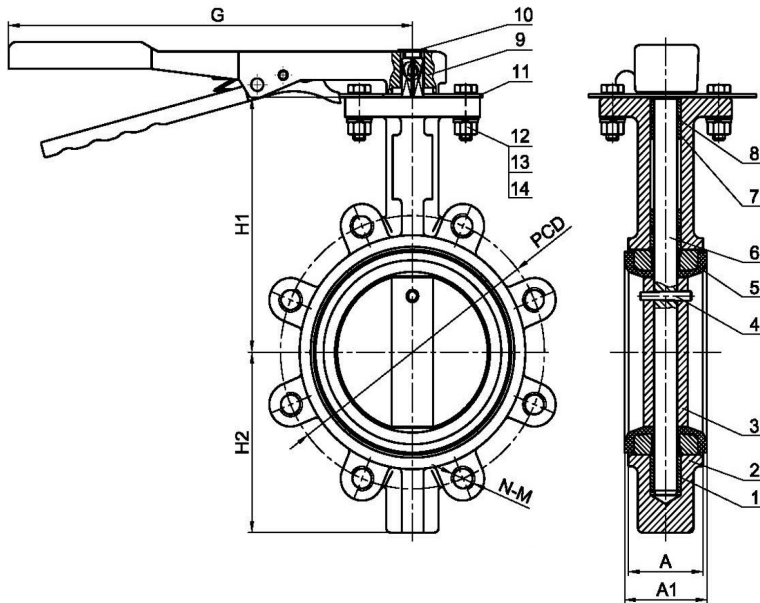
FIG. BL-5000-11DEL

## 200 WOG LUG STYLE BUTTERFLY VALVE - LEVER HANDLE

**Features:**

- Valves meet MSS-SP67 & API 609
- Flange drilling to: ANSI B16.1 Class 125/150
- Testing to: API 598

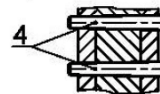
Working Pressure	150 psi / 200 psi
Valve Connection	ASME B 16.42 CLASS 150



**Materials List:**

No.	Part Name	BL-5000-11DEL
1	Bushing	Bronze
2	Body	Ductile Iron
3	Disc	Ductile Iron
4	Pin	SS416
5	Seat	EPDM
6	Shaft	SS410
7	Bushing	Bronze
8	O-Ring	EPDM
9	Lever	Malleable Iron
10	Plastic Cover	ABS
11	Notch Plate	SS304
12	Bolt	SS304
13	Flat Washer	Carbon Steel
14	Spring Washer	65Mn

6"-12" TWO PINS



Certified by Third-Party

**Dimensions:**

Size	H1	H2	A	A1	G	Flange		Weight (lb)
						PCD	N-M	
DN50 (2")	141.20	68.60	42.00	46.10	195 / 266	Ø120.70	4 5/8 11UNC	9.50
DN65 (2.5")	150.40	76.00	44.50	49.10	195 / 266	Ø139.70	4 5/8 11UNC	12.00
DN80 (3")	156.40	98.60	44.50	49.10	195 / 266	Ø152.40	4 5/8 11UNC	12.35
DN100 (4")	167.90	118.70	51.00	55.50	266	Ø190.50	8 7/8 11UNC	21.00
DN125 (5")	186.50	129.40	54.50	58.80	266	Ø215.00	8 3/4 10UNC	28.00
DN150(6")	205.70	142.00	54.50	59.10	328	Ø241.30	8 3/4 10UNC	29.00
DN200(8")	230.60	176.00	59.60	64.10	386	Ø298.50	8 3/4 10UNC	43.00
DN250(10")	269.90	208.80	67.00	71.80	386	Ø362.00	12 7/8 9UNC	63.00
DN300 (12")	327.80	248.50	75.50	79.50	386	Ø431.80	12 7/8 9UNC	92.00

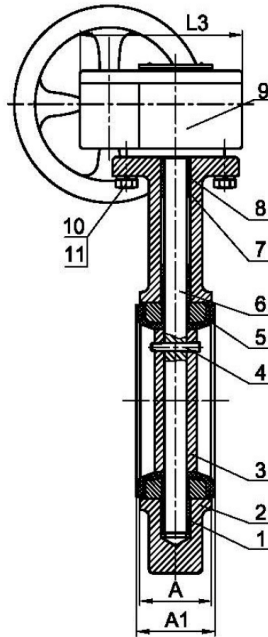
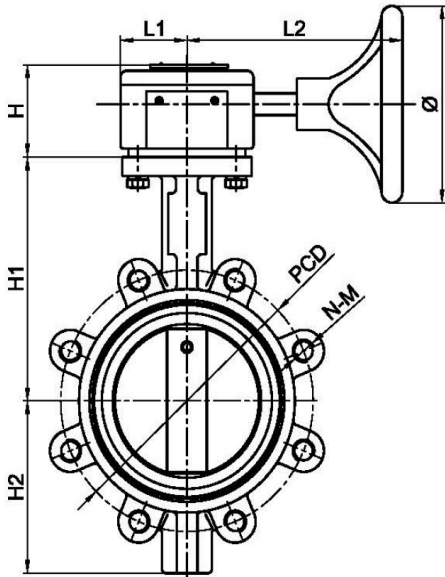
FIG. BL-5000-11DEG

## 200 WOG LUG STYLE BUTTERFLY VALVE - GEAR OPERATOR

**Features:**

- Valves meet MSS-SP67 & API 609
- Flange drilling to: ANSI B16.1 Class 125/150
- Testing to: API 598

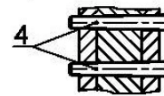
Working Pressure	150 psi / 200 psi
Valve Connection	ASME B 16.42 CLASS 150



**Materials List:**

No.	Part Name	BL-5000-11DEG
1	Bushing	Bronze
2	Body	Ductile Iron
3	Disc	Ductile Iron
4	Pin	SS416
5	Seat	EPDM
6	Shaft	SS410
7	Bushing	Bronze
8	O-Ring	EPDM
9	GEAR BOX	
10	Bolt	SS304
11	Spring Washer	65Mn

6"-12" TWO PINS



Certified by Third-Party

**Dimensions:**

Size	H1	H2	A	A1	L1	L2	L3	H	Ø	Flange		Weight (lb)
										PCD	N-M	
DN50 (2")	141.20	68.60	42.00	46.10	53	163	127	70	150	Ø120.70	4 5/8 11UNC	19.5
DN65 (2.5")	150.40	76.00	44.50	49.10	53	163	127	70	150	Ø139.70	4 5/8 11UNC	22
DN80 (3")	156.40	98.60	44.50	49.10	53	163	127	70	150	Ø152.40	4 5/8 11UNC	22.20
DN100 (4")	167.90	118.70	51.00	55.50	53	163	127	70	150	Ø190.50	8 5/8 11UNC	31.40
DN125 (5")	186.50	129.40	54.50	58.80	53	163	127	70	150	Ø215.90	8 3/4 10UNC	37.80
DN150 (6")	205.70	142.00	54.50	59.10	53	163	127	70	150	Ø241.30	8 3/4 10UNC	38.80
DN200 (8")	230.60	176.00	59.60	64.10	73	230	169	76	285	Ø298.50	8 3/4 10UNC	64.60
DN250 (10")	269.90	208.80	67.00	71.80	73	230	169	76	285	Ø362.00	12 7/8 9UNC	85.80
DN300 (12")	327.80	248.50	75.50	79.50	78	222	190	79	285	Ø431.80	12 7/8 9UNC	119.00

## Seating & Unseating Torques KVC models 1000 & 2000

The seating and unseating torque anticipated in butterfly valves varies widely with service conditions. Factors affecting torque are as follows:

### 1. Operating frequency

The first opening after a sustained period of closure is the tough one.

### 2. Media Lubricating Characteristics

Water is probably the best all round lubricant for metal-elastomer contact. Is the service completely dry? Seat compounds contain some lubricant. Is it extracted in service?

#### Lubricating

Water

Aqueous process streams

Lubricating oils i.e.: diesel oil, JP fuels

#### Non-Lubrication

Air – dry gases

Dry powders, pellets

Industrial solvents ie: acetone, ethyl acetate

### 3. Condition of disc edge

Is it an iron disc in corrosive service? Iron discs in uninhibited water corrode, the edge roughens and corrosion deposits build up. Is there an anticipated deposit on seating surfaces – calcium in a hard water system – various salts in sea water?

### 4. Temperature – High or Low

Operating temperatures approaching the upper limits of the seat material tend to increase its hardness over a sustained period. Temperatures approaching the lower limits of seat material raise its hardness immediately. Both conditions increase operating torque.

Anticipated Torque increase: EPDM – above 100°C (212°F) – below -18°C (0°F).

Buna-N – above 82°C (180°F) – below 0°C (32°F).

### 5. Chemical attack on seat material causing swelling

Increased interference and torque results.

The following torque tables are based upon “Normal” and “Severe” conditions and are shown as in/lbs:

#### Normal Conditions:

- Operating frequency at least once a month.
- Lubricating media – aqueous liquid.
- Disc corrosion – mild w/ minor deposition.
- Temperature within material limits.
- Chemical effect on seat – minor.

Torque values provided for normal conditions may incorporate a factor of two over shop tests in establishing frictional resistance of media exposed elements. Experience has indicated that selection of actuators based upon normal condition values provide satisfactory results.

#### Severe Conditions:

- Operating frequency – indefinitely long.
- Non-lubricating media – air, dry gas, cement powder.
- Disc corrosion – severe (iron in uninhibited water).
- Temperature possibly outside recommended limits.
- Chemical effects on elastomer unknown.

## Seating & Unseating Torques KVC models 1000 & 2000

Torque values provided for severe conditions incorporate a factor of three over shop tests in establishing frictional resistance of media exposed elements. Caustic cleaning is a typical Severe application.

In selecting actuators under Severe conditions, it is also necessary to compare “Anticipated Seating & Unseating Torque” with “Allowable Operating Torque” on the valve. This is especially important in power actuators not equipped with speed controls where impact loading may occur.

### Normal Conditions:

Valve Size		Pressure Differential $\Delta P$		
		100	150	200
2	50	71	80	97
2 ½	65	115	133	159
3	80	177	204	239
4	100	283	310	398
5	125	451	531	620
6	150	726	885	974
8	200	1239	1487	1947
10	250	2036	2478	3363
12	300	2832	3186	4425
14	350	4248	5310	8487
16	400	6284	8143	13272
18	450	8851	11064	17700
20	500	10621	14160	22128
24	600	17700	23016	36288

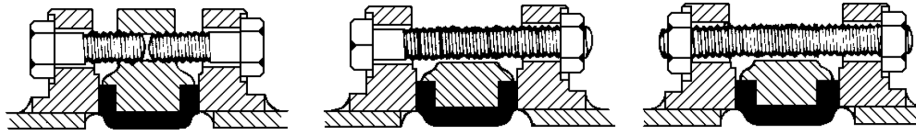
### Severe Conditions:

Valve Size		Pressure Differential $\Delta P$		
		100	150	200
2	50	94	106	129
2 ½	65	153	177	211
3	80	235	271	318
4	100	377	412	529
5	125	600	706	825
6	150	966	1177	1295
8	200	1648	1978	2590
10	250	2708	3296	4473
12	300	3767	4237	5885
14	350	5650	7062	11288
16	400	8358	10830	17652
18	450	11772	14715	23541
20	500	14126	18833	29430
24	600	23541	30611	48263

If pressure differential ( $\Delta P$ ) is not known, use full rated pressure capability of the valve. Dynamic torque values are not considered in the above table.

For 3-way valve assemblies where one valve is opening and another is closing, multiply torque by a 1.5 factor.

## Studs & Bolts for Mounting Butterfly Valves 2" to 24" Between ANSI Class 125/150 Flanges



Cap Screws

Machine Bolts

Stud Bolts

Note: Cap screws must be short enough to ensure that they do not touch each other after tightening to avoid cracking the lug.

**TABLE I**

Wafer body valve using Heavy Hex Machine bolts with 1 Heavy Hex nut each														
	2"	2 ½"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"
Diameter	⅝	⅝	⅝	⅝	¾	¾	¾	⅞	⅞	1	1	1 ⅛	1 ⅛	1 ¼
Length	4 ¼	4 ½	4 ¾	5	5 ¼	5 ¼	6	6 ¼	6 ¾	7 ¼	8 ¼	9	10	12
Quantity	4	4	4	8	8	8	8	12	12	12	16	16	20	20

**TABLE II**

Wafer body valve using Stud Bolts or All Thread cross bolting with 2 Heavy Hex nut each														
	2"	2 ½"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"
Diameter	⅝	⅝	⅝	⅝	¾	¾	¾	⅞	⅞	1	1	1 ⅛	1 ⅛	1 ¼
Length	5	5 ¼	5 ½	5 ¾	6 ¼	6 ¼	7	7 ¼	7 ¾	8 ½	9 ½	10 ¼	11 ¼	13
Quantity	4	4	4	8	8	8	8	12	12	12	16	16	20	20

**TABLE III**

Lug body valve with Tapped holes using Heavy Hex Cap Screws (National Coarse Threads)														
	2"	2 ½"	3"	4"	5"	6"	8"	10"	12"	14"	16"	18"	20"	24"
Diameter	⅝	⅝	⅝	⅝	¾	¾	¾	⅞	⅞	1	1	1 ⅛	1 ⅛	1 ¼
Length	1 ½	1 ½	1 ¾	1 ¾	1 ¾	1 ¾	2 ¼	2 ¼	2 ½	2 ¾	3 ¼	3 ½	4	4 ¼
Quantity	8	8	8	16	16	16	16	24	24	24	32	32	40	40

## CV VALUES for KVC 1000, 2000, 4000 & 5000 SERIES BUTTERFLY VALVES

**CV** is the flow coefficient for valves: expresses flow rate in US gallons per minute of 60° F clean water with a 1.0 psi pressure drop across the valve.

Size		Disc Position (in degrees)								
in	mm	10°	20°	30°	40°	50°	60°	70°	80°	90°
2	50	0.10	5	12	24	45	64	90	125	135
2 ½	65	0.20	8	20	37	65	98	144	204	220
3	80	0.30	12	22	39	70	116	183	275	302
4	100	0.50	17	36	78	139	230	364	576	600
5	125	0.80	29	61	133	237	392	620	930	1022
6	150	2.00	45	95	205	366	605	958	1437	1579
8	200	3.00	89	188	408	727	1202	1903	2854	3136
10	250	4.00	151	320	694	1237	2047	3240	4859	5340
12	300	5.00	234	495	1072	1911	3162	5005	7507	8250
14	350	6.00	338	715	1549	2761	4568	7230	10844	11917
16	400	8.00	464	983	2130	3797	6282	9942	14913	16388
18	450	11.00	615	1302	2822	5028	8320	13168	19752	21705
20	500	14.00	791	1674	3628	6465	10698	16931	25396	27908
24	600	22.00	1222	2587	5605	9989	16528	26157	39236	43116
36	900	60.00	3021	6063	11055	17449	26086	39731	60895	86375
48	1200	134.00	6188	12426	22675	35794	53424	80945	124531	176640

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

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

$$\Delta P = \frac{Q^2 \times G}{C_v^2}$$

$$V = \frac{Q \times 0.321}{A}$$

CV = Valveflowcoefficient

Q = Flow in U.S.gpm

G = Specific gravity (water=1.0)

ΔP = Pressure Drop(psi)

V = Velocity in feetpersecond

A = Area of pipe in squareinches

W = Flow in pounds perhour

$$Q = \frac{W}{500 \times G}$$

### Sample problem:

Q = 5500 gpm (kerosene) @ 150psi

ΔP = 2ps

G =0.824

$$C_v = Q \sqrt{\frac{G}{\Delta P}} = 5500 \sqrt{\frac{0.824}{2.0}}$$

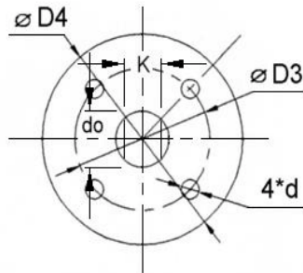
$$=5500 \times 0.6419 = 3530$$

A 10" KVC Series 1000 has a Cv of 5340 at 90° open and would be suitable. If a smaller size was requested then the following calculation becomes important:

For on/off service, an 8" KVC 1000 series has a Cv of 3136 at 90° open. Checking the liquid velocity of an 8" valve, where A = 50.0 sq. in.,  $V = Q \times 0.321/A = 35$  fps which is above the velocity limits of the 1000 series (30 fps). Therefore a 10" model 1000 would be required.

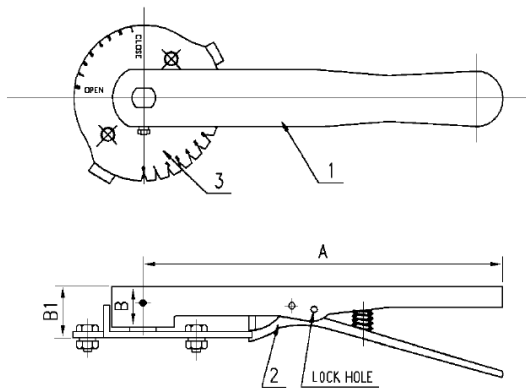
## Manual Operators for the KVC 1000/2000/4000 Series Butterfly Valve

### Lever Handle

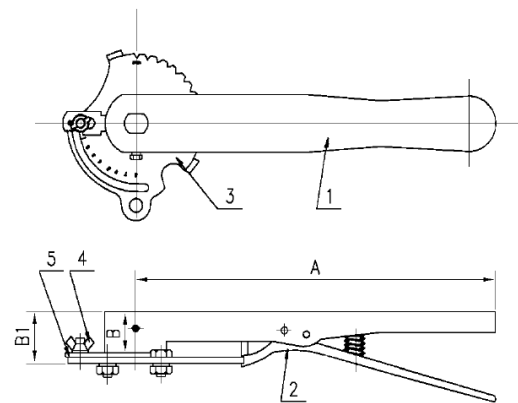


Item	Part Name
1	Handle
2	Lever
3	Notch plate
4	Locking nut
5	Throttle plate

### 10 Position Lever



### Infinite Position Lever

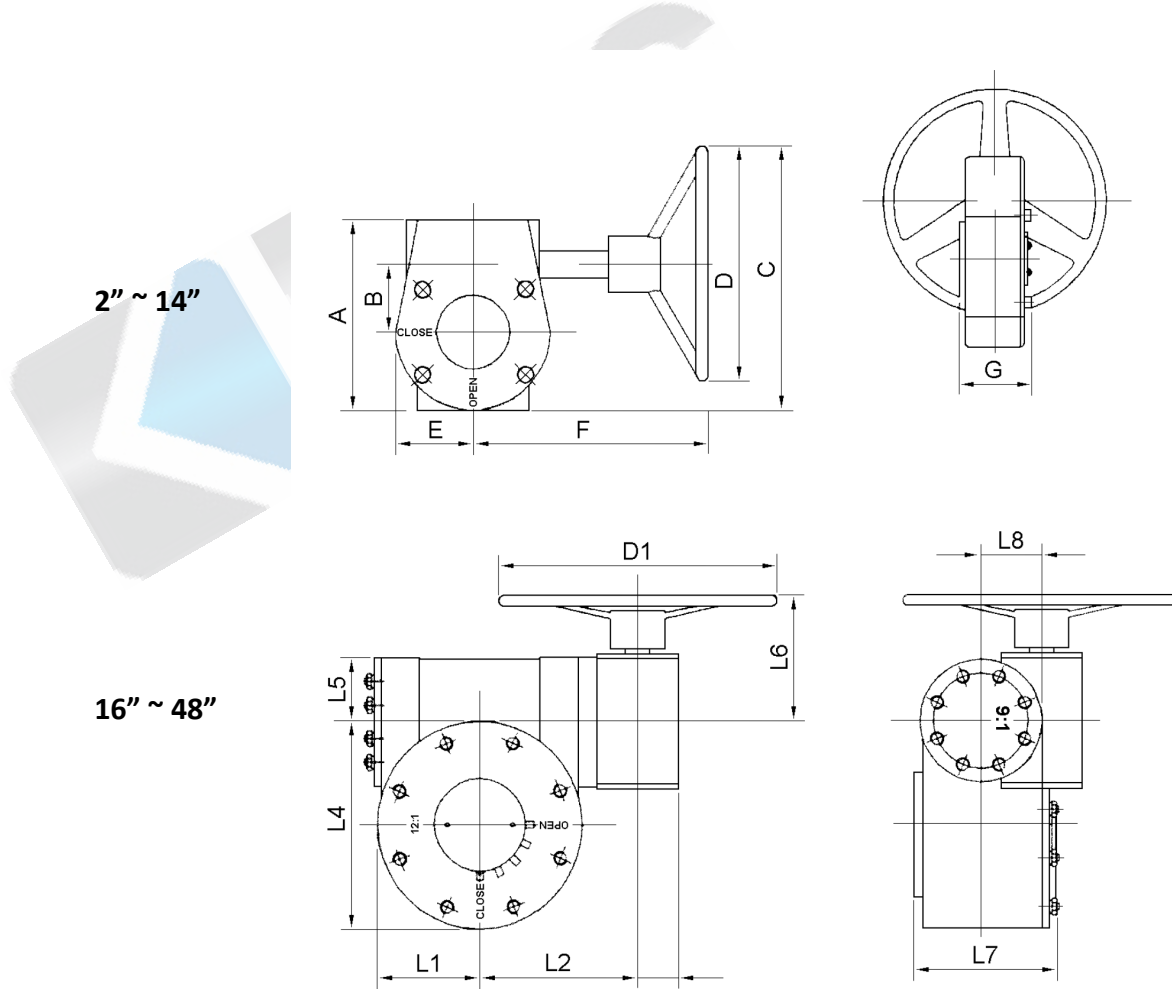


### Dimensions:

Size		A		B		B1		D3		D4		4*d		do	K	Weight	
in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	mm	mm	lb	kg
1½	40	10.50	266.70	1.06	27	1.37	35	2.76	70	3.54	90	0.39	10	12.6±0.025	10	1.87	0.85
2	50	10.50	266.70	1.06	27	1.37	35	2.76	70	3.54	90	0.39	10	12.6±0.025	10	1.87	0.85
2½	65	10.50	266.70	1.06	27	1.37	35	2.76	70	3.54	90	0.39	10	12.6±0.025	10	1.87	0.85
3	80	10.50	266.70	1.06	27	1.37	35	2.76	70	3.54	90	0.39	10	12.6±0.025	10	1.87	0.85
4	100	10.50	266.70	1.06	27	1.37	35	2.76	70	3.54	90	0.39	10	15.77±0.025	12	1.87	0.85
5	125	10.50	266.70	1.06	27	1.37	35	2.76	70	3.54	90	0.39	10	18.92±0.025	14	1.87	0.85
6	150	10.50	266.70	1.06	27	1.37	35	2.76	70	3.54	90	0.39	10	18.92±0.025	14	1.87	0.85
8	200	14.20	361.00	1.41	36	1.73	44	4.02	102	4.92	125	0.47	12	22.10±0.025	17	4.40	2.00
10	250	19.60	499.00	1.41	36	1.73	44	4.02	102	4.92	125	0.47	12	28.45±0.025	22	5.94	2.70
12	300	19.60	499.00	1.41	36	1.73	44	4.02	102	4.92	125	0.47	12	31.60±0.051	24	5.94	2.70

## Manual Operators for the KVC 1000/2000/4000 Series Butterfly Valve

### Manual Gear Operator



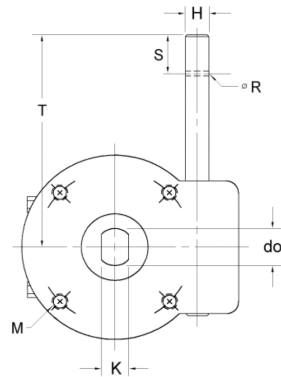
### Dimensions:

Model	Size Range		A		B		C		D		E		F		G		Weight	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
GJ24W	1½~6	40~150	5.00	127	1.77	45	6.89	175	5.91	150	2.05	52	6.22	158	2.95	75	11	5.20
GJ30W	8	200	6.97	177	2.48	63	11.81	300	11.81	300	3.03	77	9.37	238	3.35	85	27	12.30
GJ50W	10~12	250~300	7.80	198	3.07	78	12.20	310	11.81	300	3.27	83	8.94	227	3.39	86	32	14.40
GJ80W	14~16	350~400	11.42	290	4.72	120	15.75	400	11.81	300	5.12	130	10.63	270	4.92	125	70	32.00
GJ80WA	18	450	11.42	290	4.72	120	17.72	450	15.75	400	5.12	130	11.02	280	4.92	125	75	34.30
GJ300X	20~24	500~600	12.32	313	4.72	120	16.06	408	11.81	300	5.43	138	13.31	338	6.06	154	106	48.00

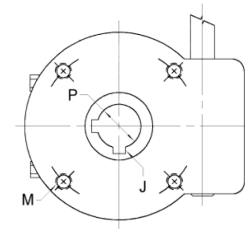
Model	Size Range		L1		L2		L3		L4		L5		L6		L7		L8		D1		Weight	
	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	in	mm	lb	kg
GJ700W	28 ~ 32	700 ~ 800	5.75	146	8.98	228	2.32	59	11.61	295	3.82	97	4.13	105	6.34	161	3.46	88	15.75	400	213	97
GJ500W	36 ~ 40	900 ~ 1000	6.97	177	13.27	337	2.32	59	13.46	342	3.82	97	4.13	105	7.20	183	3.46	88	15.75	400	260	118
GJ2500W	42 ~ 48	1050 ~ 1200	9.84	250	12.36	314	2.76	70	15.91	404	4.13	105	7.8	198	9.45	240	4.96	126	17.72	450	510	232

## Manual Operators for the KVC 1000/2000/4000 Series Butterfly Valve

### Manual Gear Operator



2" ~ 14"



16" ~ 48"

Model	Size		H	S		ØR	do		K		J (key size)	M	P	T	
	in	mm		in	mm		in	mm	in	mm				in	mm
GJ24W	2 ~ 3	50 ~ 80	16	0.79	20	5	0.49	12.55	0.35	8.86	-	4 - M6x9	-	4.84	123
GJ24W	4	100	16	0.79	20	5	0.62	15.77	0.43	11.10	-	4 - M8x12	-	4.84	123
GJ24W	5 ~ 6	125 ~ 150	16	0.79	20	5	0.74	18.92	0.50	12.70	-	4 - M8x12	-	4.84	123
GJ30W	8	200	19	1.34	34	6	0.87	22.10	0.63	15.88	-	4 - M10x15	-	7.64	194
GJ50W	10	250	19	1.34	34	6	1.12	28.45	0.81	20.62	-	4 - M10x15	-	7.64	194
GJ50W	12	300	19	1.34	34	6	1.24	31.60	0.87	22.10	-	4 - M12x18	-	8.23	209
GJ80W	14	350	19	1.34	34	6	1.24	31.60	0.87	22.10	-	4 - M12x18	-	8.23	209
GJ80W	16	400	25	1.38	35	8	-	-	-	-	10	4 - M18x27	33.40	9.06	230
GJ80WA	18	450	25	1.38	35	8	-	-	-	-	10	4 - M18x27	38.10	9.06	230
GJ300X	20	500	20	-	-	-	-	-	-	-	10	4 - M20x30	41.20	4.88	124
GJ300X	24	600	20	-	-	-	-	-	-	-	16	4 - M20x30	50.70	5.43	138
GJ700W	28	700	28	-	-	-	-	-	-	-	18	8 - M16x24	63.40	6.57	167
GJ700W	30	750	28	-	-	-	-	-	-	-	18	8 - M16x24	63.40	6.57	167
GJ700W	32	800	28	-	-	-	-	-	-	-	18	8 - M16x24	63.40	6.57	167
GJ500W	36	900	28	-	-	-	-	-	-	-	20	8 - M16x24	75.00	6.57	167
GJ500W	40	1000	28	-	-	-	-	-	-	-	22	8 - M16x24	85.00	6.57	167
GJ2500W	42	1050	28	-	-	-	-	-	-	-	25	8 - M20x30	92.00	7.24	184
GJ2500W	48	1200	28	-	-	-	-	-	-	-	28	8 - M20x30	100.00	7.24	184