

Butterfly Valve

Manual Butterfly Valves

PRODUCT DATA



GENERAL

This V4 manual Butterfly Valve is designed for chilled & hot water applications, to be operated by lever or gear box.

FEATURES

- Wide size range (DN 50...DN600).
- Operated by lever or gear box. (see Table 1)
- 90° opening / closing operation, 9 positions.
- Cast iron or ductile iron valve body with epoxy coating.
- Wafer or Lug end connection.

SPECIFICATIONS

Sizes	DN50...DN600
Nominal pressure	PN16
Medium Temperature	-10°C ~ +90°C Maximum
Body Material	GG25 (for DN50...DN150) GGG40 (for DN200...DN600)
Stem Material	SS416
Disc Material	Epoxy coated ductile iron GGG40
Liner Material	EPDM
Gear Box	Cast Iron
Lever	Cast Iron
Detent	Nylon
Leakage Rate	No visible leakage
Medium Type	Chilled and Hot water
Pipe Connection	ISO7005-2

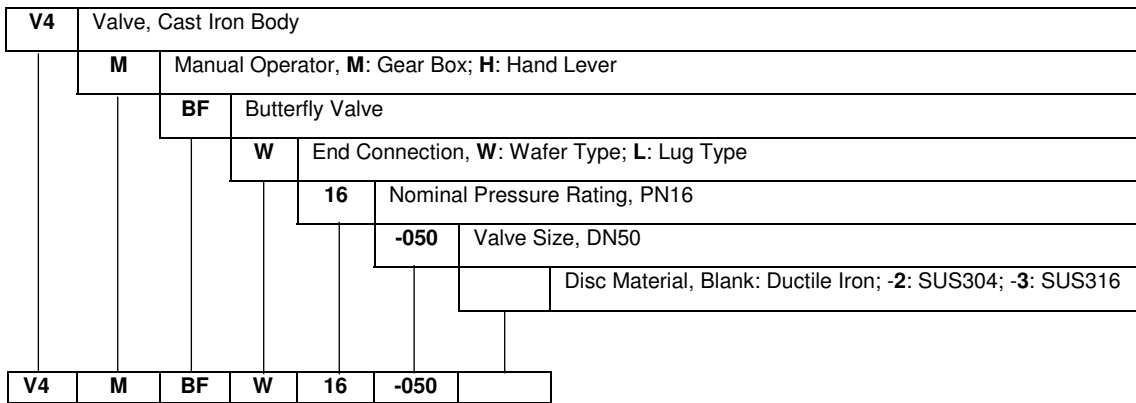
Table (1) Valve Size

Size	OS#	Max. Kvs	Manual Operator	Operator Weight (Kg)	Total Weight (Kg)
DN50	V4MBFW16-050	109	Gear Box	5.2	7.7
DN65	V4MBFW16-065	177	Gear Box	5.2	8.4
DN80	V4MBFW16-080	243	Gear Box	5.2	8.8
DN100	V4MBFW16-100	483	Gear Box	5.2	10.1
DN125	V4MBFW16-125	822	Gear Box	5.2	12.2
DN150	V4MBFW16-150	1,270	Gear Box	5.2	13
DN200	V4MBFW16-200	2,550	Gear Box	13	25.9
DN250	V4MBFW16-250	4,342	Gear Box	13	32.2
DN300	V4MBFW16-300	6,708	Gear Box	15	47.5
DN350	V4MBFW16-350	9,793	Gear Box	15	56.3
DN400	V4MBFW16-400	13,467	Gear Box	57	118
DN450	V4MBFW16-450	17,836	Gear Box	57	136
DN500	V4MBFW16-500	22,933	Gear Box	57	185
DN600	V4MBFW16-600	35,431	Gear Box	72	260

DN50	V4HBFW16-050	109	Lever	0.7	3.2
DN65	V4HBFW16-065	177	Lever	0.7	4.1
DN80	V4HBFW16-080	243	Lever	0.7	4.5
DN100	V4HBFW16-100	483	Lever	0.9	5.8
DN125	V4HBFW16-125	822	Lever	0.9	7.9
DN150	V4HBFW16-150	1,270	Lever	0.9	8.7
DN200	V4HBFW16-200	2,550	Lever	2.3	14.7

Figure (1) Product Identification System

The labeling system for manual butterfly valves is as follows:



e.g. V4MBFW16-050: Manual Butterfly Valve, Cast Iron Valve Body, Gear Operator, Wafer End Connection, PN16 Nominal Pressure, DN50 Size, Ductile Iron Disc.

e.g. V4HBFL16-050-2: Manual Butterfly Valve, Cast Iron Valve Body, Hand Lever Operator, Lug End Connection, PN16 Nominal Pressure, DN50 Size, SUS304 Disc.

Part Description & outside dimension (mm)

a. Valve size DN50...200 with Lever Operator

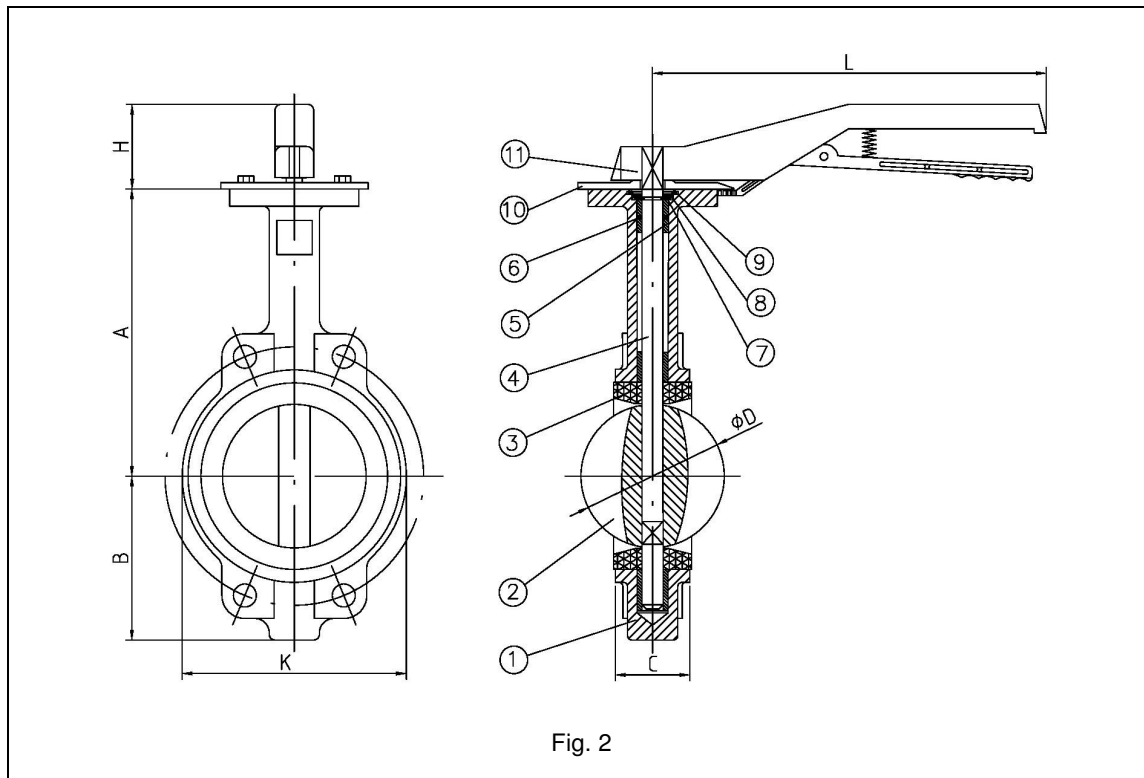


Fig. 2

• Part Descriptions

Part No.	1	2	3	4	5	6	7	8	9	10	11
Description	Body	Disc	Liner	Stem	Bushing	O-Ring	Split Washer	Washer	Circlip	Detent	Lever
Material	GG25/40	GGG40	EPDM	SS416	PTFE	EPDM	ASTM 1020	SS304	SS304	Nylon	Cast iron

• Outside Dimension (mm)

Valve Size	A	B	C	D	H	L	K (Wafer)	K (Lug)
DN50	130.5	66.5	43	52.7	42	190	118	159
DN65	140	71	46	64.3	42	190	137	184
DN80	150	83	46	78.6	42	190	143	197
DN100	183	95	52	103.8	61	250	156	222
DN125	178	110	56	123.1	61	250	190	254
DN150	191	124	56	155.4	61	250	212	292
DN200	239	163	60	202.3	72	350	268	349

b. Valve size DN50...200 with Gear Box Operator

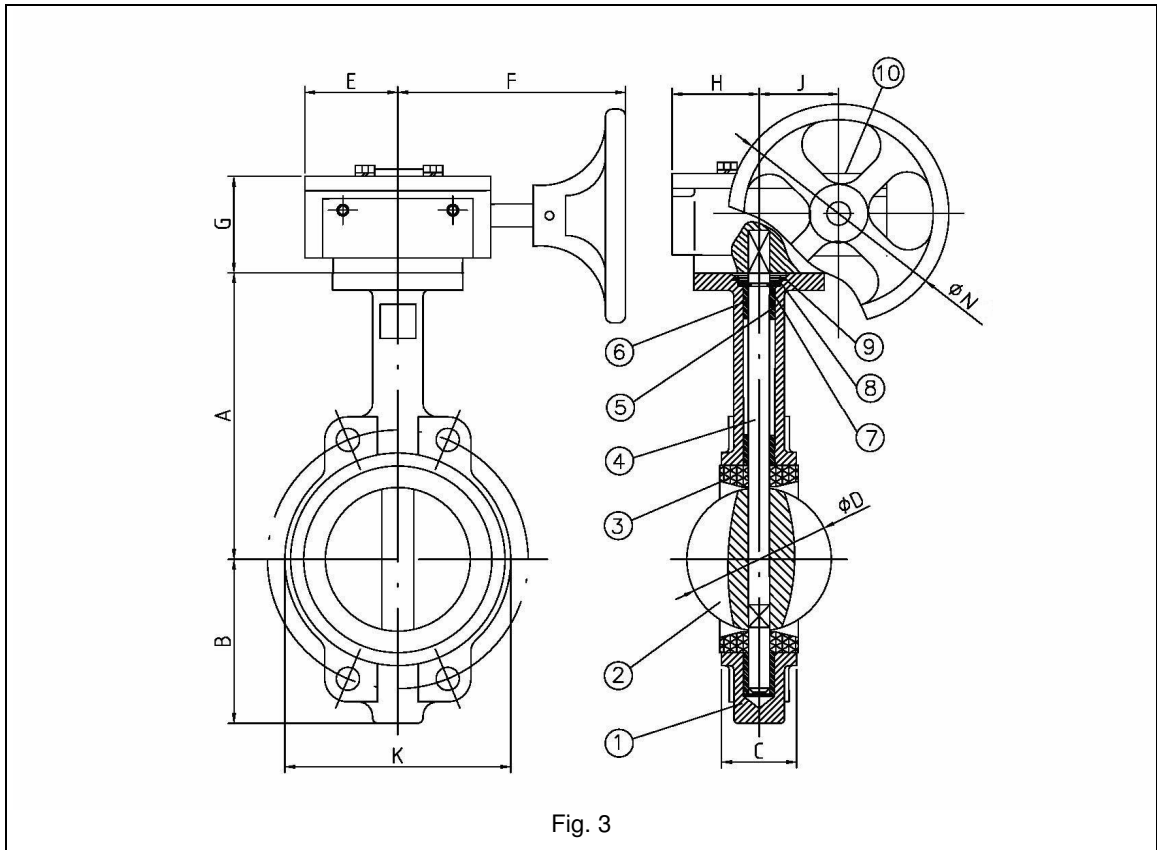


Fig. 3

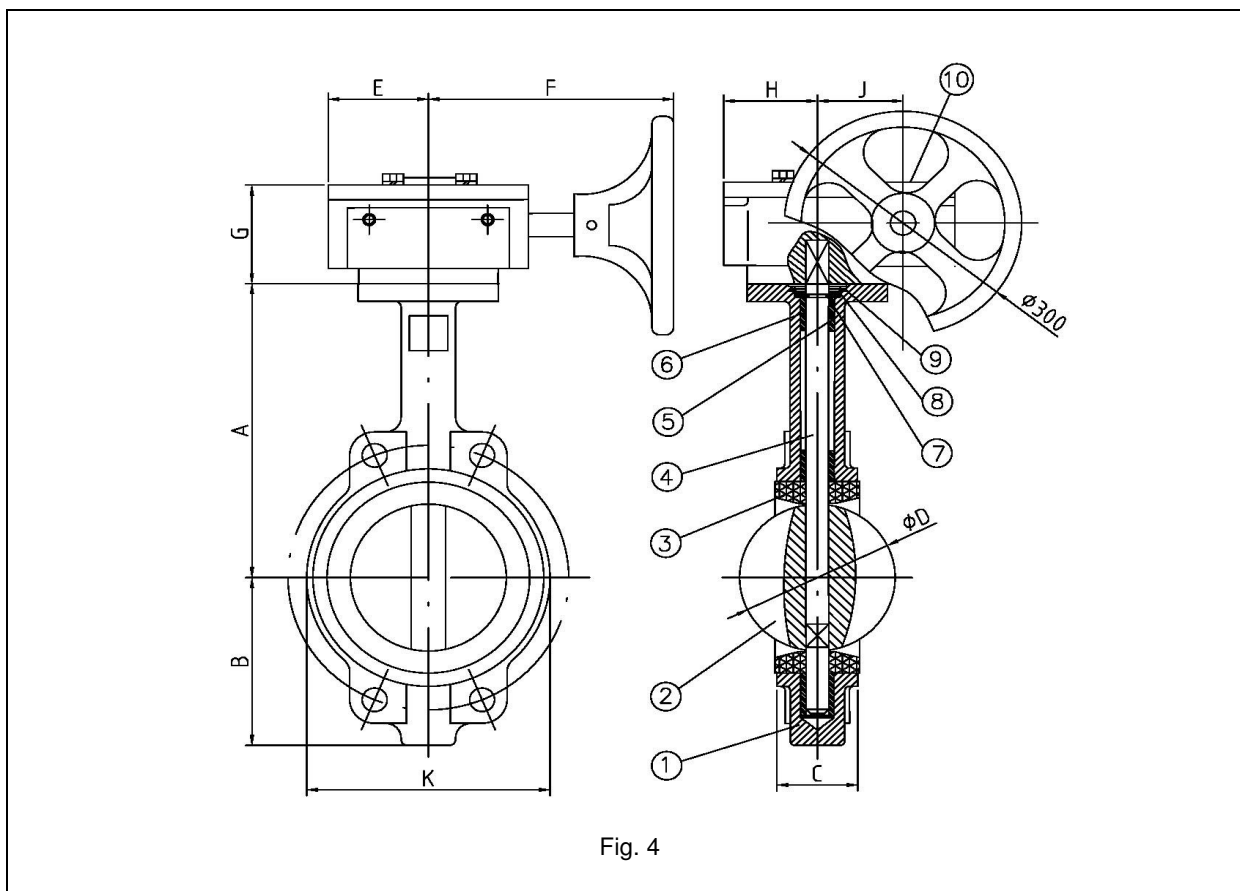
• Part Descriptions

Part No.	1	2	3	4	5	6	7	8	9	10
Description	Body	Disc	Liner	Stem	Bushing	O-ring	Split Washer	Washer	Circlip	Gear Box
Material	GG25/40	GGG40	EPDM	SS416	PTFE	EPDM	ASTM 1020	SS304	SS304	Cast Iron

• Outside Dimension (mm)

Valve Size	A	B	C	D	H	F	J	K (Wafer)	K (Lug)	G	N
DN50	130.5	66.5	43	52.7	54	147	45	118	159	68	150
DN65	140	71	46	64.3	54	147	45	137	184	68	150
DN80	150	83	46	78.6	54	147	45	143	197	68	150
DN100	183	95	52	103.8	54	147	45	156	222	68	150
DN125	178	110	56	123.1	54	147	45	190	254	68	150
DN150	191	124	56	155.4	54	147	45	212	292	68	150
DN200	239	163	60	202.3	76.5	213	66	268	349	76	300

c. Valve size DN250...350 with Gear Box Operator



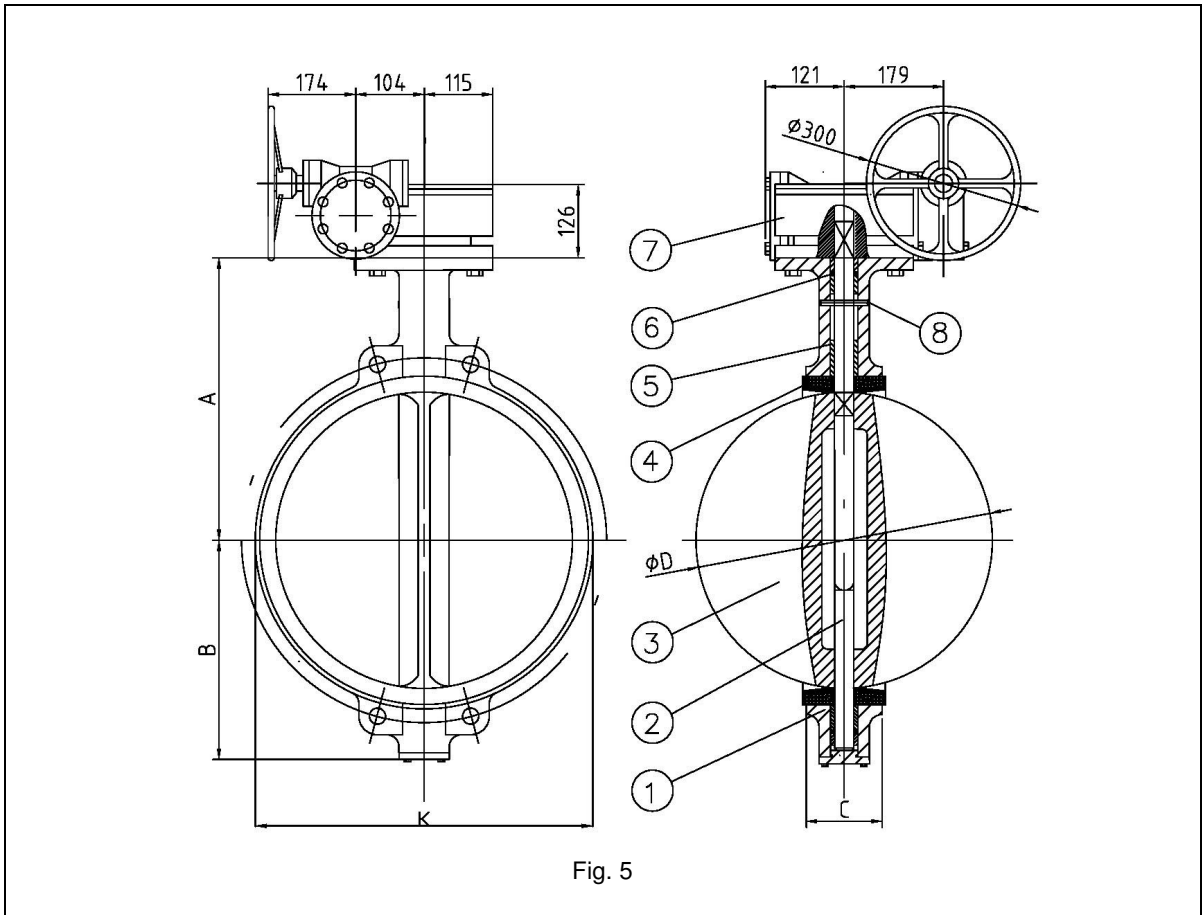
• Part Descriptions

Part No.	1	2	3	4	5	6	7	8	9	10
Description	Body	Disc	Liner	Stem	Bushing	O-ring	Split Washer	Washer	Circlip	Gear Box
Material	GGG40	GGG40	EPDM	SS416	PTFE	EPDM	ASTM 1020	SS304	SS304	Cast Iron

• Outside Dimension (mm)

Valve Size	A	B	C	D	E	F	G	H	J	K (Wafer)	K (Lug)
DN250	285	227	68	250.3	102	250	86	75	63	325	413
DN300	315	252	78	301.3	102	227	83	81	80	403	483
DN350	368	267	78	333.3	81	227	83	81	80	436	527

d. Valve size DN400...500 with Gear Box Operator



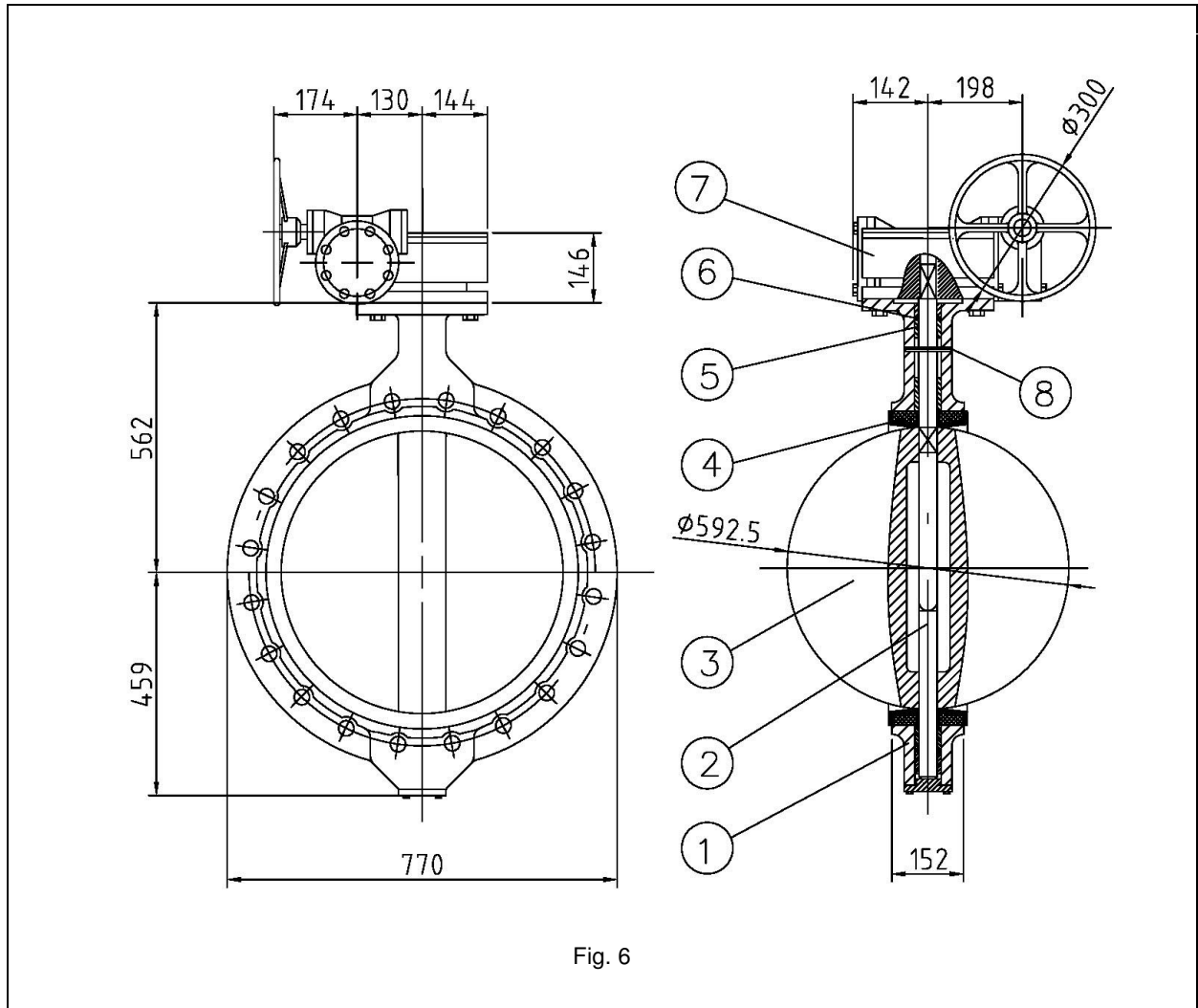
• Part Descriptions

Part No.	1	2	3	4	5	6	7	8
Description	Body	Disc	Liner	Stem	Bushing	O-ring	Gear Box	Pin
Material	GGG40	GGG40	EPDM	SS416	PTFE	EPDM	Cast Iron	SS304

• Outside Dimension (mm)

Valve Size	A	B	C	D	K (Wafer)	K (Lug)
DN400	400	309	86.5	389.6	488	584
DN450	422	321	105.6	440.5	539	635
DN500	480	368	131.8	491.6	591	705

e. Valve size DN600 with Gear Box Operator



• Part Descriptions

Part No.	1	2	3	4	5	6	7	8
Description	Body	Disc	Liner	Stem	Bushing	O-ring	Gear Box	Pin
Material	GGG40	GGG40	EPDM	SS416	PTFE	EPDM	Cast Iron	SS304

Table (2) Hydraulic Characteristics

The below table shows the Kvs at different opening angles:

Size	Kvs at Disk Opening Angle								
	10°	20°	30°	40°	50°	60°	70°	80°	90°
50	0.08	4.0	10	19	36	51	72	101	109
65	0.16	6.4	16	30	52	79	116	164	177
80	0.24	9.7	18	31	56	93	147	221	243
100	0.40	14	29	63	112	185	293	439	483
125	0.64	23	49	107	191	315	499	748	822
150	1.6	36	76	165	294	487	771	1,156	1,270
200	2.4	72	153	332	591	977	1,547	2,321	2,550
250	3.3	123	260	564	1,006	1,664	2,634	3,951	4,342
300	4.1	190	402	872	1,554	2,571	4,070	6,104	6,708
350	4.7	278	588	1,273	2,269	3,754	5,941	8,911	9,793
400	6.2	381	808	1,750	3,120	5,162	8,170	12,255	13,467
450	8.6	505	1,070	2,319	4,132	6,837	10,821	16,231	17,836
500	11	650	1,376	2,981	5,313	8,791	13,913	20,869	22,933
600	17	1,004	2,126	4,606	8,209	13,582	21,495	32,242	35,431

Automation and Control Solutions

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Subject to change without notice.

Motorized Butterfly Valve

Actuated Wafer type butterfly valves

PRODUCT DATA



FEATURES

- Wide size range (DN 50...DN600)
- For On-Off or Modulating Control
- Manual override non-clutch design. Manual operation can be operated without any lever, clutch or brake upon power voltage.
- Irreversible worm gear.
- Visual mechanical position indicator for accurate visual reference of valve position.
- Anti-condensation heater and 2 aux. limit switches on standard model
- Enclosure IP67

SPECIFICATIONS

Valve

Sizes	DN50...DN600 (Wafer Type)
Nominal pressure	PN16
Tightness	Bubble tight
Medium Temperature	-10°C ~ +90°C Maximum
Body Material	GG25 (for DN50...DN150) GGG40 (for DN200...DN600)
Stem Material	SS416
Disc Material	Epoxy coated ductile iron GGG40
Liner Material	EPDM
Medium Type	Chilled and Hot water
Pipe Connection	ISO7005-2

Actuator

Power Supply	220Vac, 50/60 Hz
Running time	See table (1)
Travel Angle	90° ± 5°
Input (Modulating)	4~20mA, 1~5V, or 0(2)~10V select by DIP-switch
Enclosure	IP67 Waterproof
Ambient Temperature	-5°C to +65°C
Indicator	Continuous Position Indicator
Manual Override	Non-clutch design
Worm Gear	Permanently lubricated and self locking
Space Heater	15W 220V Anti-condensation
Material	Aluminum Alloy
External Coating	Dry powder coating
Stall Protection	Built-in thermal protection Cut off at 125 ± 5°C Reset at 95 ± 5°C

GENERAL

The V4 Actuated Wafer Type Butterfly Valves are suitable for heating and cooling applications.

The V4 series is equipped with standard On-Off or modulating (4~20mA, 1~5V, or 0(2)~10V select by DIP-switch) control quarter-turn electric actuator.

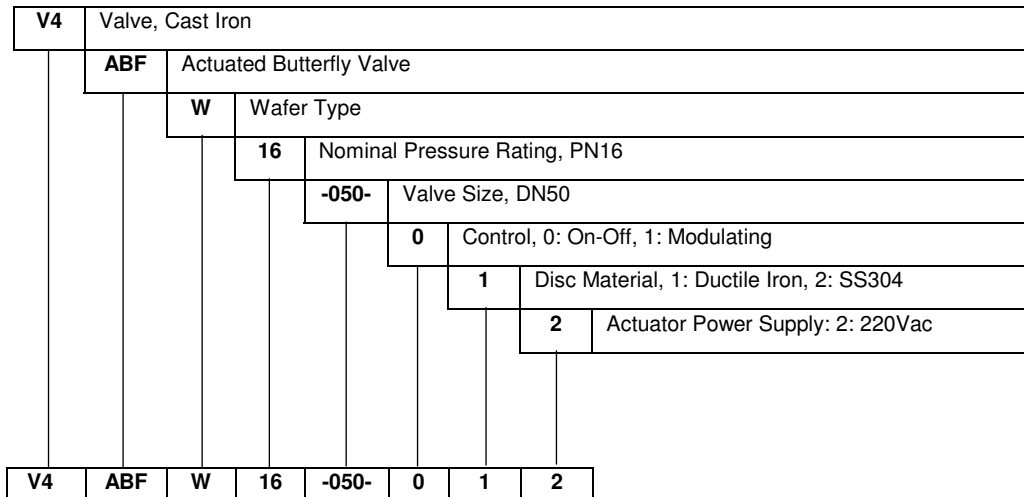
Table (1) Control Type and Valve Size Data

The below table is based on differential pressure of 10 bar.

Valve Size	OS# (On-Off)	Actuator OS#	OS# (Modulating)	Actuator OS#	Max Torque (Nm)	Run Time at 60Hz (sec)	Power (Watts)	Manual Override	Kvs (m ³ /h)
DN50	V4ABFW16-050-012	OM-1	V4ABFW16-050-112	OM-P1	35	12	10		109
DN65	V4ABFW16-065-012	OM-1	V4ABFW16-065-112	OM-P1	35	12	10		177
DN80	V4ABFW16-080-012	OM-1	V4ABFW16-080-112	OM-P1	35	12	10		243
DN100	V4ABFW16-100-012	OM-1	V4ABFW16-100-112	OM-P1	35	12	10		483
DN125	V4ABFW16-125-012	OM-2	V4ABFW16-125-112	OM-P2	90	15	40	Hand-wheel	822
DN150	V4ABFW16-150-012	OM-2	V4ABFW16-150-112	OM-P2	90	15	40	Hand-wheel	1,270
DN200	V4ABFW16-200-012	OM-3	V4ABFW16-200-112	OM-P3	150	22	40	Hand-wheel	2,550
DN250	V4ABFW16-250-012	OM-4	V4ABFW16-250-112	OM-P4	400	16	120	Hand-wheel	4,342
DN300	V4ABFW16-300-012	OM-4	V4ABFW16-300-112	OM-P4	400	16	120	Hand-wheel	6,708
DN350	V4ABFW16-350-012	OM-7	V4ABFW16-350-112	OM-P7	1,000	46	180	Hand-wheel	9,793
DN400	V4ABFW16-400-012	OM-8	V4ABFW16-400-112	OM-P8	1,500	46	220	Hand-wheel	13,467
DN450	V4ABFW16-450-012	OM-9	V4ABFW16-450-112	OM-P9	2,000	58	180	Hand-wheel	17,836
DN500	V4ABFW16-500-012	OM-10	V4ABFW16-500-112	OM-P10	2,500	58	220	Hand-wheel	22,933
DN600	V4ABFW16-600-012	OM-12	V4ABFW16-600-112	OM-P12	3,500	58	300	Hand-wheel	35,431

Figure (1) Product Identification System

The labeling system for Honeywell butterfly valves is as follows:



e.g.: Butterfly Valve, Cast Iron Valve Body, Wafer End Connection, PN16 Nominal Pressure, DN50 Size, On-Off Control, Ductile Iron Disc, 220Vac Actuator.

Table (2) Valve Dimensions (mm) and Weight

Size		A	B	C	D	L	H	Ø K	ØE	N- Ød	Ød0	G	PN16		Weight (Kg)
DN	inch												(ØD2)	(N- Ø2)	
50	2"	130.5	66.5	43	52.7	14.5	11	65	50	4-7	14.3	118	120.6	4-23	2.5
65	2.5"	140	71	46	64.3	14.5	11	65	50	4-7	14.3	137	145	4-19	3.2
80	3"	150	83	46	78.6	14.5	11	65	50	4-7	14.3	143	160	4-22	3.6
100	4"	183	95	52	103.8	14.5	11	65	50	4-7	15.77	156	180	4-19	4.9
125	5"	178	110	56	123.1	29	14	90	70	4-10	18.92	190	215	4-25	7
150	6"	191	124	56	155.4	29	14	90	70	4-10	18.92	212	241	4-23	7.8
200	8"	239	163	60	202.3	29	17	90	70	4-10	22.10	268	295	4-23	13.2
250	10"	285	227	68	250.3	39	22	125	102	4-12	28.45	325	355	4-26	19.2
300	12"	315	252	78	301.3	39	22	125	102	4-12	31.60	403	410	4-26	32.5
350	14"	368	267	78	333	45	22	140	102	4-12	31.60	436	470	4-26	41.3
400	16"	400	309	102	356.3	45	27	197	140	4-18	33.15	488	525	4-30	61
450	18"	422	328	114	440.2	45	27	197	140	4-18	38	539	585	4-30	79
500	20"	450	361	127	491.3	45	36	197	140	4-18	41.15	591	650	4-33	128
600	24"	562	459	154	592.2	45	36	276	165	4-23	50.65	816	770	20-36	188

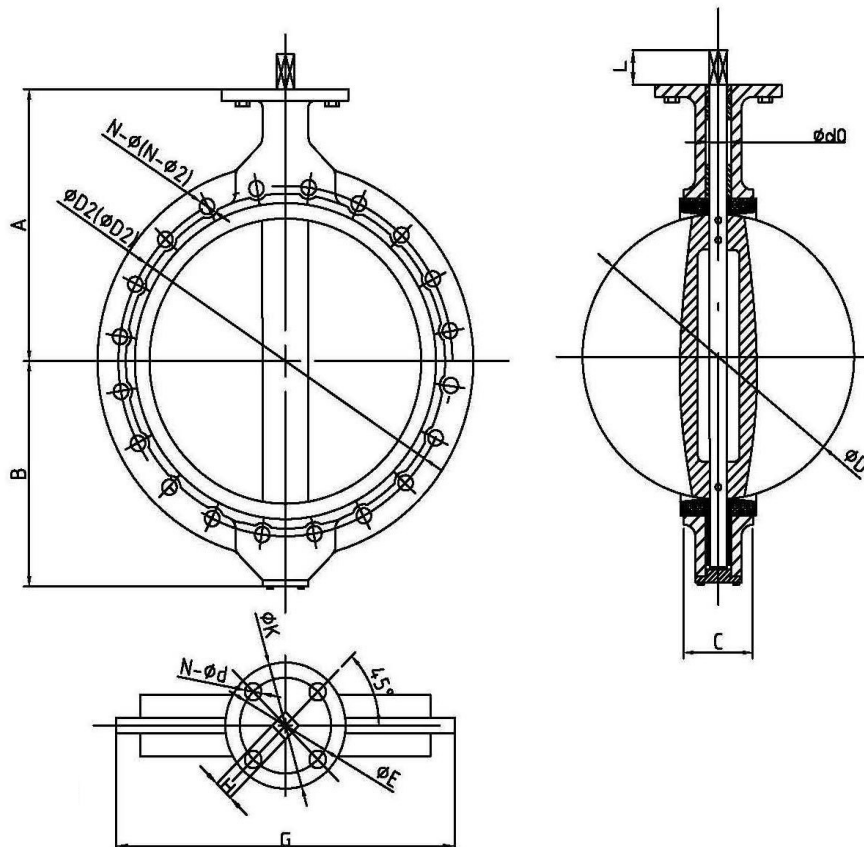


Table (3) Hydraulic Characteristics

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65	0.16	6.4	16	30	52	79	116	164	177
80	0.24	9.7	18	31	56	93	147	221	243
100	0.40	14	29	63	112	185	293	439	483
125	0.64	23	49	107	191	315	499	748	822
150	1.6	36	76	165	294	487	771	1,156	1,270
200	2.4	72	153	332	591	977	1,547	2,321	2,550
250	3.3	123	260	564	1,006	1,664	2,634	3,951	4,342
300	4.1	190	402	872	1,554	2,571	4,070	6,104	6,708
350	4.7	278	588	1,273	2,269	3,754	5,941	8,911	9,793
400	6.2	381	808	1,750	3,120	5,162	8,170	12,255	13,467
450	8.6	505	1,070	2,319	4,132	6,837	10,821	16,231	17,836
500	11	650	1,376	2,981	5,313	8,791	13,913	20,869	22,933
600	17	1,004	2,126	4,606	8,209	13,582	21,495	32,242	35,431

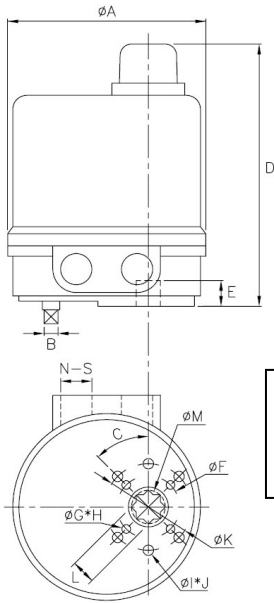
Table (4) Actuator Data

OS# On-Off	OS# Modulating	Max Torque (Nm)	Run Time at 60Hz (sec)	Power Consumption (Watts)	Manual Override	Weight (Kg)
OM-1	OM-P1	35	12	10		2
OM-2	OM-P2	90	15	40	Hand-wheel	11
OM-3	OM-P3	150	22	40	Hand-wheel	11
OM-4	OM-P4	400	16	120	Hand-wheel	22
OM-5	OM-P5	500	22	120	Hand-wheel	22
OM-6	OM-P6	650	28	120	Hand-wheel	22
OM-7	OM-P7	1000	46	180	Hand-wheel	36
OM-8	OM-P8	1500	46	220	Hand-wheel	36
OM-9	OM-P9	2000	58	180	Hand-wheel	56
OM-10	OM-P10	2500	58	220	Hand-wheel	56
OM-11	OM-P11	3000	58	250	Hand-wheel	56
OM-12	OM-P12	3500	58	300	Hand-wheel	56

Table (5a) Actuator Dimensions (mm)

OM-1

OS#	A	B	C	D	E	F	G	H	I	J	K	L _{max}	M	N	S	Flange Type
OM-1	114	8	45°	155	15	36	m5	4	m6	6	50	14	19	2	1/2 PS	F03/ F05



- ◆ Option: (1) L=11, M=15
(2) L=9, M=12
- ◆ With Modulating Card D=185
- ◆ No mechanical stops

Table (5b) Actuator Dimensions (mm)

OM-2 to OM-6

OS#	A	B	C	D	E	F	G _{Max}	H	I	M	N	S	Flange Type
OM-2&3	203	326	180	255	30	123	22	70	m8	4	2	1/2 PS	F07
OM-4,5,6	290	394	217	317	40	194	35	102	m10	4	2	1/2 PS	F10

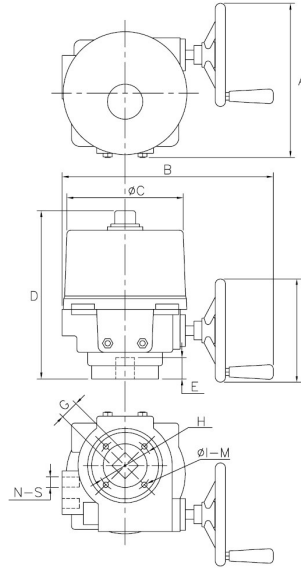


Table (5c) Actuator Dimensions (mm)

OM-7 to OM-8

OS#	A	B	C	D	E	F	G	H	I	J	K	L*2	M _{max}	N	S	Flange Type
OM-7 OM-8	385	340	217	420	60	295	140	45°	m16	4	180	10	35	2	1/2 PS	F14

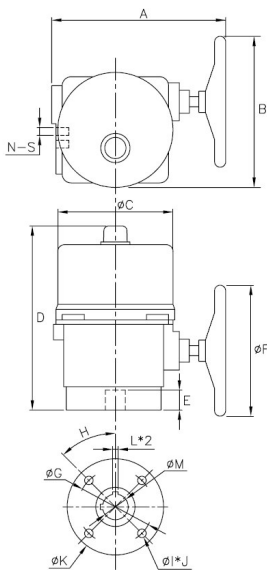
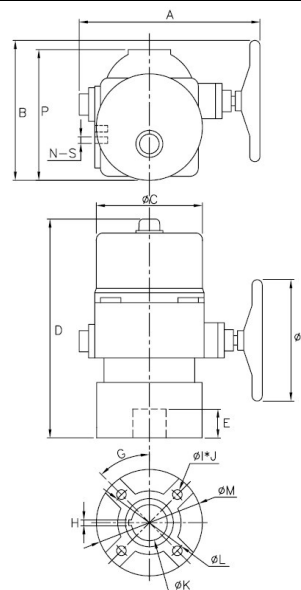


Table (5d) Actuator Dimensions (mm)

OM-9 to OM-12

OS#	A	B	C	D	E	F	G	H	I	J	K	L	M	P	N	S	Flange Type
OM-9 to OM-12	470	350	260	590	100	395	45°	12	m20	4	75	165	221	360	2	1/2 PS	F16



INSTALLATION

WARNING!

***Remove power before the cover is dismantled!
The actuator must be handled with the utmost care when the cover is removed and the power connected!***

MOUNTING ON VALVE

Operate the valve manually to fully opened or fully closed position before the actuator is mounted.

Operate the actuator and valve stem to fully opened or fully closed position.

Check that the actuator and valve stem are in correct position. Please note, valve and actuator must be in the same mode (fully opened/fully closed) prior to the assembly.

Mount the actuator on the valve and check that the actuator and valve stem are centered and aligned.

Operate the valve manually with the aid of the actuator hand-wheel and check that the valve moves with normal resistance.

Check that all screws are correctly tightened.

ELECTRIC WIRING

Note:

Electric wiring must be carried out by qualified personnel only!

Wiring diagram is also shown on the label of top cover.

Loosen the screws on the cover and lift it off.

Check the voltage marked on the actuator label.

Connect according to the enclosed wiring diagram or if the actuator is of standard design, according to the wiring diagram below. The wiring diagram is drawn in unaffected position (the valve in the intermediate position).

Test run the actuator from intermediate position checking that the actuator turns in the correct direction.

Test run the actuator and check that the limit switches work correctly.

Check that the cable entries and possible blind plug are sealed.

Mount the cover.

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