

## Motorized Butterfly Valve

### Actuated butterfly valves

# DRAFT

#### PRODUCT DATA



### FEATURES

- Wide size range (DN 50...500)
- For On-Off Control with feedback signal
- Manual override Hand-Wheel design. Manual operation can be operated without any lever, clutch or brake upon power voltage.
- Irreversible worm gear.
- Continuous position indicator for accurate visual reference of valve position.
- Anti-condensation heater and limit switches on standard model
- Over-torque protection function(except EM-0050 and EM-0090)
- Enclosure IP67

### SPECIFICATIONS

#### Valve

Sizes	DN50...500
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, 50/60Hz
Running time	See table (1)
Power Consumption	See table (4)
Travel Angle	90° ± 5°
Input	On-Off
Feedback	Dry contact
Outdoor protection	IP67 Waterproof
Temperature	-30°C to +70°C
Operating environment	no strong corrosion media, no explosive mixture of gases, no strong vibration
Indicator	Continuous Position Indicator
Manual Override	Hand-Wheel
Worm Gear	Permanently lubricated and self locking
Space Heater	Yes
Material	Aluminum Alloy
External Coating	Dry powder coating
Stall Protection	135 ± 10°C
Weight	See table (4)

### GENERAL

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

The V4 series is equipped with standard On-Off control quarter-turn electric actuator.

The V4 series can also provide feedback output signal: Dry contact for On-Off version

**Table (1) Control Type and Valve Size Data**

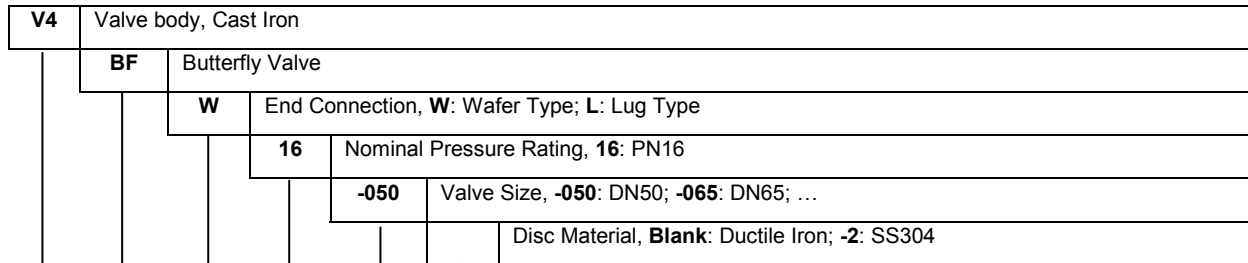
The below table is based on differential pressure of 10 bar.

Valve Size	Valve OS# (Wafer)	Actuator OS#	Max Torque (Nm)	Run Time at 60Hz (sec)	Kvs (m <sup>3</sup> /h)
DN50	V4BFW16-050	EM-0050	50	18	109
DN65	V4BFW16-065	EM-0050	50	18	177
DN80	V4BFW16-080	EM-0050	50	18	243
DN100	V4BFW16-100	EM-0050	50	18	483
DN125	V4BFW16-125	EM-0090	90	17.5	822
DN150	V4BFW16-150	EM-0090	90	17.5	1,270
DN200	V4BFW16-200	EM-0150	150	20	2,550
DN250	V4BFW16-250	EM-0400	400	26	4,342
DN300	V4BFW16-300	EM-0400	400	26	6,708
DN350	V4BFW16-350	EM-1000	1,000	26	9,793
DN400	V4BFW16-400	EM-1500	1,500	90	13,467
DN450	V4BFW16-450	EM-2000	2,000	90	17,836
DN500	V4BFW16-500	EM-2500	2,500	90	22,933

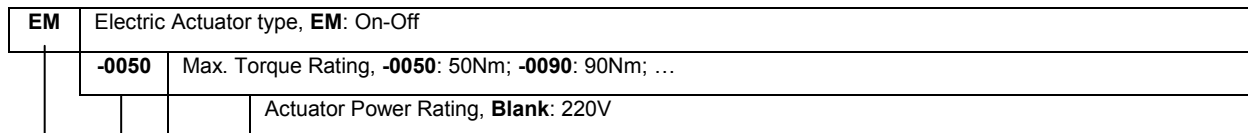
**Note: More OS# Please refer to Figure (1) or contact Honeywell.**

**Figure (1) Product Identification System**

Ordering Data — the labeling system for Honeywell butterfly valve and actuator:



**V4 BF W 16 -050** ..... Butterfly valve



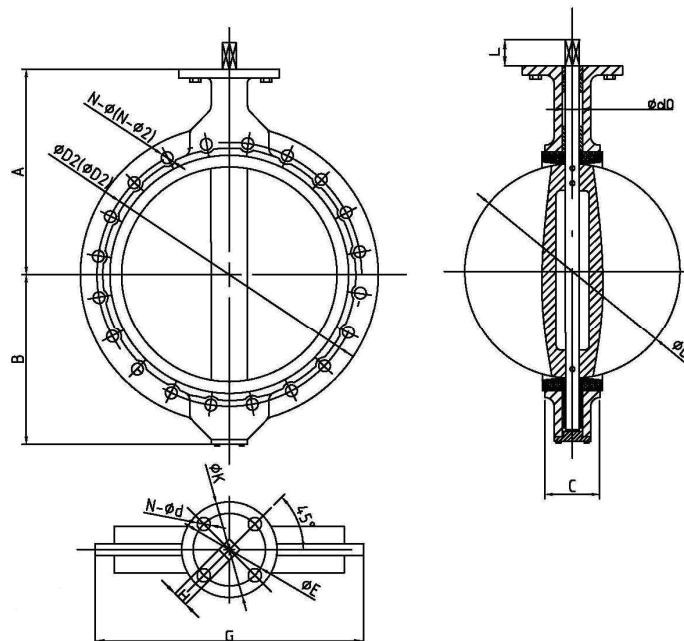
**EM -0050** ..... Actuator

e.g.: **V4BFW16-050**.....Butterfly Valve, Cast Iron Valve Body, Wafer End Connection, PN16 Nominal Pressure, DN50 Size, Ductile Iron Disc.

**EM-0050**..... 220Vac Actuator, On-Off Control, Max Torque is 50 Nm.

Table (2) Valve Dimensions (mm) and Weight

PN	Size		A	B	C	D	L	H	Ø K	Ø E	n-Ø d	Ø d0	G		Ø D2	N-Ø 2		Weight (Kg)	
	DN	Inch											Wafer	Lug		Wafer	Lug	Wafer	Lug
16	50	2"	130.5	67	43	52.7	15	11	65	50	4-7	14.3	118	159	125	4-Ø18	4-M16	2.5	3.8
	65	2.5"	140	71	46	64.3	15	11	65	50	4-7	14.3	137	184	145	4-Ø18	4-M16	3.2	4.2
	80	3"	150	83	46	78.6	15	11	65	50	4-7	14.3	143	197	160	8-Ø18	8-M16	3.6	4.7
	100	4"	183	95	52	104	15	11	65	50	4-7	15.8	156	222	180	8-Ø18	8-M16	4.9	9
	125	5"	178	110	56	123	29	14	90	70	4-10	18.9	190	254	210	8-Ø18	8-M16	7	10.9
	150	6"	191	124	56	155	29	14	90	70	4-10	18.9	212	292	240	8-Ø22	8-M20	7.8	14.2
	200	8"	239	163	60	202	29	17	90	70	4-10	22.1	268	349	295	12-Ø22	12-M20	13.2	18.2
	250	10"	285	227	68	250	39	22	125	102	4-12	28.5	325	413	355	12-Ø26	12-M24	19.2	26.8
	300	12"	315	252	78	301	39	22	125	102	4-12	31.6	403	483	410	12-Ø26	12-M24	32.5	40
	350	14"	368	267	78	333	45	22	175	140	4-18	31.6	436	527	470	16-Ø26	16-M24	41.3	56
	400	16"	400	309	102	356	45	27	175	140	4-18	33.2	488	584	525	16-Ø30	16-M27	61	96
	450	18"	422	328	114	440	45	27	210	165	4-22	38	539	635	585	20-Ø30	20-M27	79	122
500	20"	450	361	127	491	45	36	210	165	4-22	41.2	591	705	650	20-Ø33	20-M30	128	202	
600	24"	562	459	154	592	45	36	210	165	4-22	50.7	816	832	770	20-Ø36	20-M33	188	270	
25	50	2"	130.5	67	43	52.8	15	11	90	70	4-10	14.3	165	-	125	4-Ø18	-	3.5	-
	65	2.5"	140	71	46	64.4	15	11	90	70	4-10	14.3	185	-	145	8-Ø18	-	4.5	-
	80	3"	150	83	46	78.7	15	14	90	70	4-10	15.8	200	-	160	8-Ø18	-	5.1	-
	100	4"	183	95	52	104.1	15	14	90	70	4-10	18.9	235	-	190	8-Ø23	-	6.8	-
	125	5"	178	110	56	123.1	29	17	90	70	4-10	22.1	270	-	220	8-Ø27	-	9.8	-
	150	6"	191	124	56	155.1	29	17	90	70	4-10	22.1	300	-	250	8-Ø27	-	10.9	-
	200	8"	239	163	60	202.2	29	22	125	102	4-12	28.5	360	-	310	12-Ø27	-	18.5	-
	250	10"	285	227	68	250.2	39	22	125	102	4-12	31.6	425	-	370	12-Ø30	-	26.9	-
300	12"	315	252	78	301.2	39	27	150	125	4-14	33.2	485	-	430	16-Ø30	-	45.5	-	



**Table (3) Hydraulic Characteristics**

The below table shows the Kvs at different opening angles:

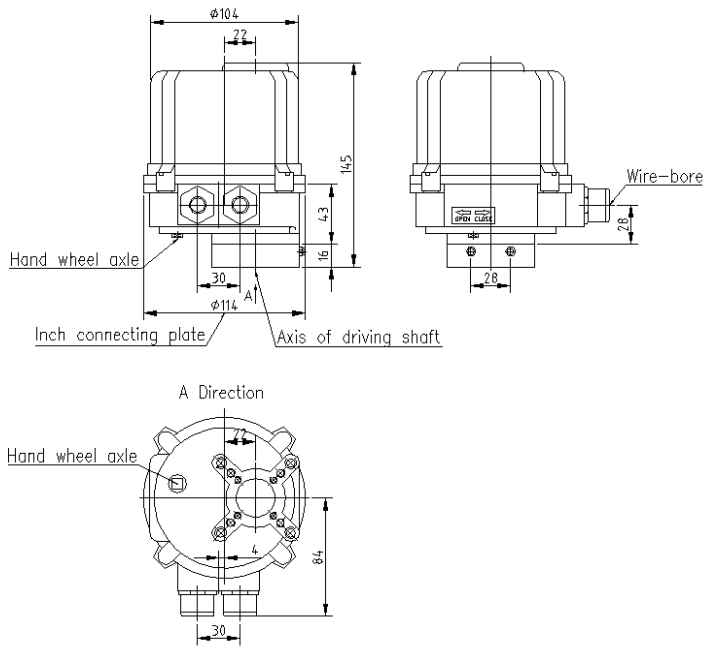
Size	Kvs at Disk Opening Angle								
	10°	20°	30°	40°	50°	60°	70°	80°	90°
50	0.08	4.0	10	19	36	51	72	101	109
65	0.16	6.4	16	30	52	79	116	164	177
80	0.24	9.7	18	31	56	93	147	221	243
100	0.40	14	29	63	112	185	293	439	483
125	0.64	23	49	107	191	315	499	748	822
150	1.6	36	76	165	294	487	771	1,156	1,270
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

**Table (4) Actuator Data**

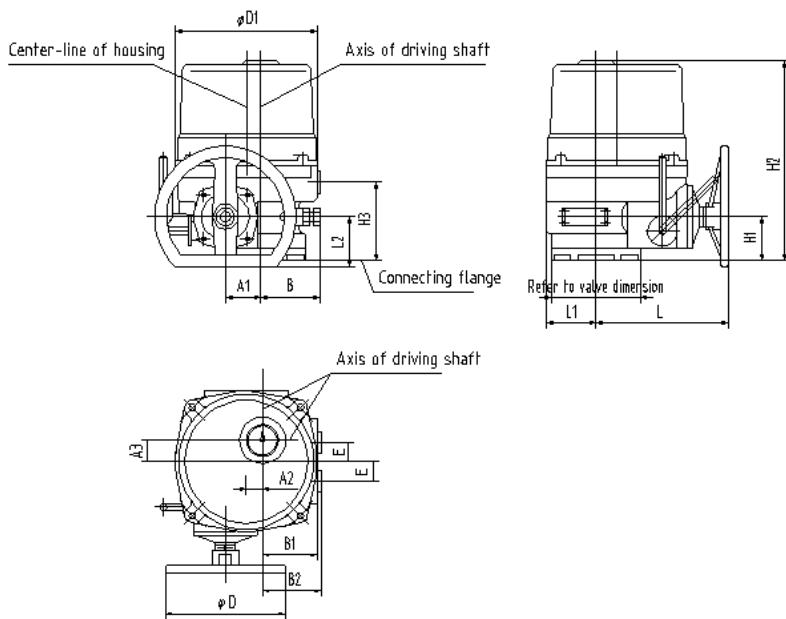
OS# On-Off	Max Torque (Nm)	Speed (r/min)	Run Time at 60Hz (sec)	Power Consumption (Watts)	Manual Override	Weight (Kg)
EM-0050	50	0.8	18	10		2
EM-0090	90	0.86	17.5	25	Hand-wheel	10
EM-0150	150	0.73	20	40	Hand-wheel	12
EM-0400	400	0.57	26	60	Hand-wheel	18
EM-1000	1000	0.57	26	200	Hand-wheel	25
EM-1500	1500	0.17	90	90	Hand-wheel	48
EM-2000	2000	0.17	90	180	Hand-wheel	50
EM-2500	2500	0.17	90	200	Hand-wheel	50

Table (5) Actuator Dimensions (mm)

EM-0050



EM-0090 ~ EM-2500



Model	A1	A2	A3	B	B1	B2	D	D1	E	H1	H2	L	L1	L2
EM-0090	44	17	36	75	68	0	200	170	27.5	62	257	181	62	50
EM-0150	49.5	22.5	30	85	77.5		200	200		64	263	190	85	76
EM-0400	60	33	35	100	77		200	220		70	304	205	88	76
EM-1000	70	43	38	115	92		250	260		78	342	228	106	110
EM-1500 EM-2000 EM-2500	70	43	38	165	92		250	260		185	450	228	106	110

## 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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**Honeywell**

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