

# MOTORIZED BUTTERFLY VALVE

## ACTUATED BUTTERFLY VALVES



- Wide size range (DN 50...DN500) for PN16 type
- For On-Off 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

### General

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

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

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

### Technical Specification

#### Valve

Sizes	DN50...DN500 (Wafer Type)
Nominal pressure	PN16
Medium Temperature	-10 <sub>i</sub> ~ +110 <sub>i</sub> Maximum
Body Material	IS: 210, FG 220 CI
Tightness	Bubble tight
Stem Material	ASTM A276, GR SS 410
Disc Material	Epoxy coated ductile iron Disc
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°
Feedback	2 Aux Switches
Ambient Temperature	4~20mA or 0(2)~10V select by DIP-switch
Enclosure	IP67 Waterproof
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 Reset at 95 ± 5

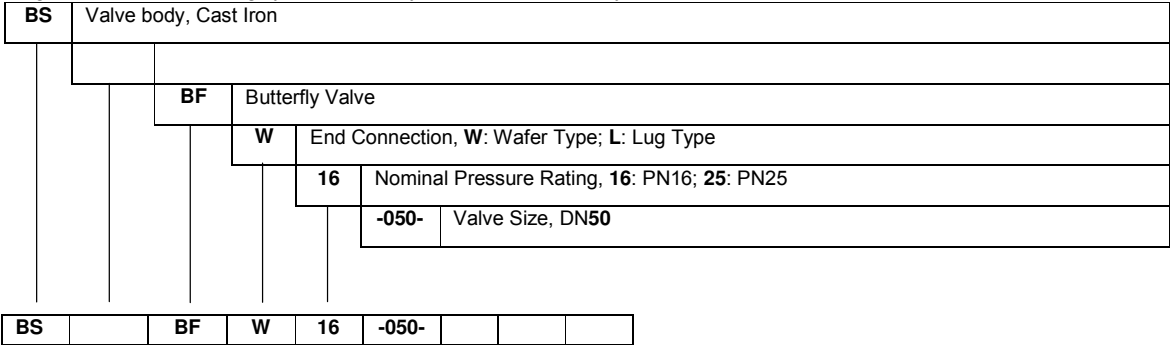
Table (1) Control Type and Valve Size Data

Valve Size	Actuator OS#	Valve OS#	Max Torque (Nm)	Run Time at 60Hz (sec)	Kvs (m³/h)
DN50	EM-0050	BSBFW16-050U	50	18	109
DN65	EM-0050	BSBFW16-065U	50	18	177
DN80	EM-0050	BSBFW16-080U	50	18	243
DN100	EM-0050	BSBFW16-100U	50	18	483
DN125	EM-0090	BSBFW16-125U	90	17.5	822
DN150	EM-0090	BSBFW16-150U	90	17.5	1,270
DN200	EM-0150	BSBFW16-200U	150	20	2,550
DN250	EM-0400	BSBFW16-250U	400	26	4,342
DN300	EM-0400	BSBFW16-300U	400	26	6,708
DN350	EM-1000	BSBFW16-350U	1,000	26	9,793
DN400	EM-1500	BSBFW16-400U	1,500	90	13,467
DN450	EM-2000	BSBFW16-450U	2,000	90	17,836
DN500	EM-2500	BSBFW16-500U	2,500	90	22,933

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

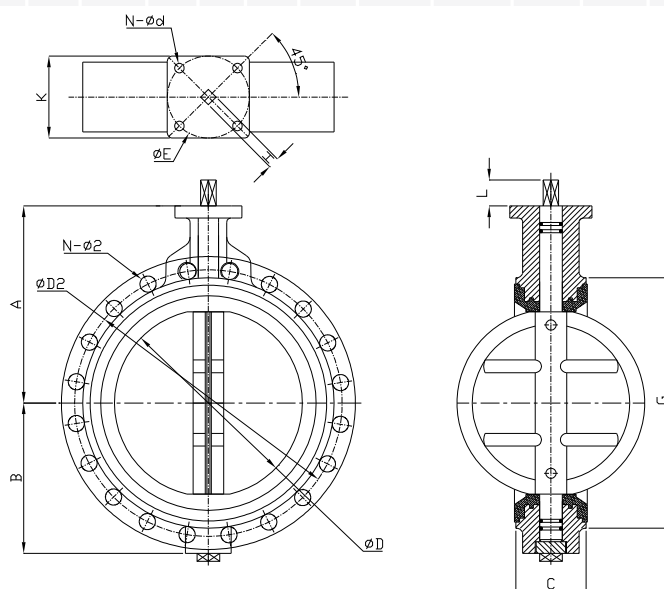
Figure (1) Product Identification System

Ordering Data — the numbering system for Honeywell motorized butterfly valves:



**Table (2) Valve Dimensions (mm) and Weight**

PN	Size		A	B	C	Ø D	L	H	Ø K	Ø E	n-Ød	G		ØD2	N- Ø2		Weight (Kg)	
	DN	Inch										Wafer	Lug		Wafer	Lug	Wafer	Lug
16	50	2"	110	67	43	50.5	15	11	65	50	4-7	94	159	125	4-Ø18	4-M16	2.5	3.8
	65	2.5"	118	75	46	65	15	11	65	50	4-7	110	184	145	4-Ø18	4-M16	3.2	4.2
	80	3"	130	82	46	80	15	11	65	50	4-7	127	197	160	8-Ø18	8-M16	3.6	4.7
	100	4"	145	100	52	100	15	11	65	50	4-7	150	222	180	8-Ø18	8-M16	4.9	9
	125	5"	156	114	56	123	29	14	90	70	4-10	175	254	210	8-Ø18	8-M16	7	10.9
	150	6"	176	135	56	148.5	29	14	90	70	4-10	205	292	240	8-Ø22	8-M20	7.8	14.2
	200	8"	220	161	60	197	29	17	90	70	4-10	265	349	295	12-Ø22	12-M20	13.2	18.2
	250	10"	280	220	68	250.5	39	22	125	102	4-12	325	413	355	12-Ø26	12-M24	19.2	26.8
	300	12"	305	230	78	299.5	39	22	125	102	4-12	376	483	410	12-Ø26	12-M24	32.5	40
	350	14"	370	280	92	351	45	22	175	140	4-18	445	527	470	16-Ø26	16-M24	41.3	56
	400	16"	412	315	102	403	45	27	175	140	4-18	495	584	525	16-Ø30	16-M27	61	96
	450	18"	425	348	114	453	45	27	210	165	4-22	550	635	585	20-Ø30	20-M27	79	122
	500	20"	470	380	127	503	45	36	210	165	4-22	610	705	650	20-Ø33	20-M30	128	202
	600	24"	550	445	154	603	45	36	210	165	4-22	705	832	770	20-Ø36	20-M33	188	270
25	50	2"	110	67	43	50.5	15	11	90	70	4-10	94	-	125	4-Ø18	4- M16	3.5	-
	65	2.5"	118	75	46	65	15	11	90	70	4-10	110	-	145	8-Ø18	8- M16	4.5	-
	80	3"	130	82	46	80	15	14	90	70	4-10	127	-	160	8-Ø18	8- M16	5.1	-
	100	4"	145	100	52	100	15	14	90	70	4-10	150	-	190	8-Ø23	8- M20	6.8	-
	125	5"	156	114	56	123	29	17	90	70	4-10	175	-	220	8-Ø27	8- M24	9.8	-
	150	6"	176	135	56	148.5	29	17	90	70	4-10	205	-	250	8-Ø27	8- M24	10.9	-
	200	8"	220	161	60	197	29	22	125	102	4-12	265	-	310	12-Ø27	12- M24	18.5	-
	250	10"	280	205	68	250.5	39	22	125	102	4-12	325	-	370	12-Ø30	12- M27	26.9	-
	300	12"	305	230	78	299.5	39	27	150	125	4-14	376	-	430	16-Ø30	16- M27	45.5	-



The below table shows the Kvs at different opening angles:

**Table (3) Hydraulic Characteristics**

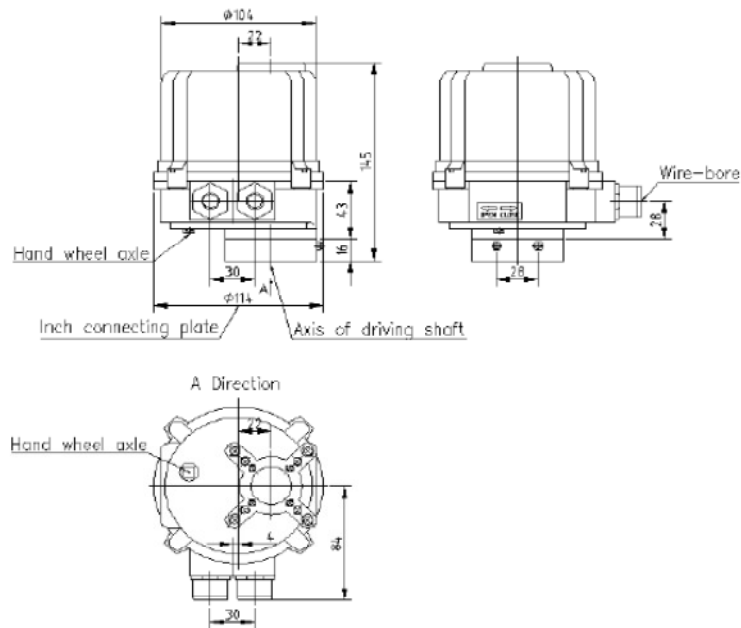
Size	Kvs at Disk Opening Angle								
	10°	20°	30°	40°	50°	60°	70°	80°	90°
50	0.08	4.0	10	19	36	51	72	101	109
65	0.16	6.4	16	19	52	79	116	164	177
80	0.24	9.7	18	31	56	93	147	221	243
100	0.40	14	29	63	112	185	293	439	483
125	0.64	23	49	107	191	315	499	748	822
150	1.6	36	76	165	294	487	771	1,156	1,270
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	4,070	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**

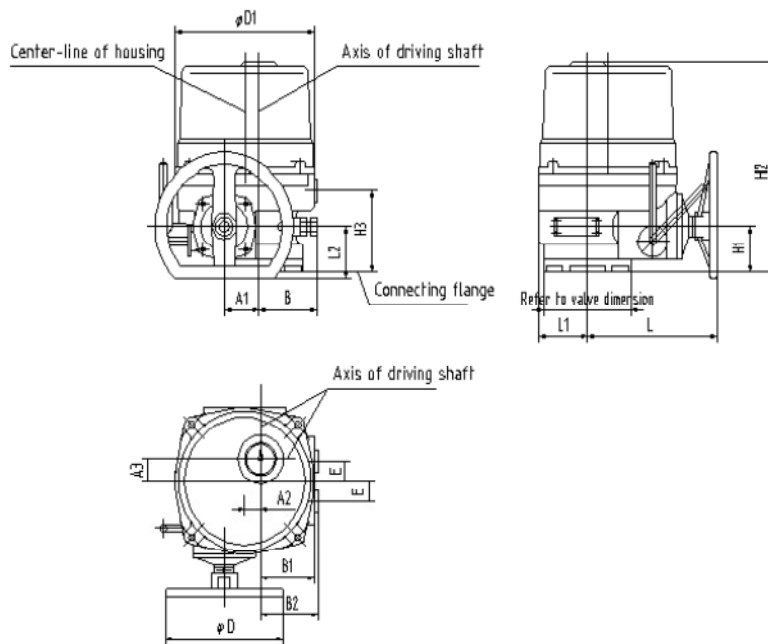
OS# On-Off	Max Torque Nm)	Speed (r/min)	Run Time at 60Hz sec)	Power Consumption Watts)	Manual Override	Weight Kg)
EM-0050	50	0.8	18	10		2
EM-0090	90	0.86	17.5	25	Hand-wheel	10
EM-00150	150	0.73	20	40	Hand-wheel	12
EM-0400	400	0.57	26	60	Hand-wheel	18
EM-1000	1000	0.57	26	200	Hand-wheel	25
EM-1500	1500	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 open 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. The wiring diagram is drawn in unaffected position (inside of the actuator cover in the intermediate position).

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

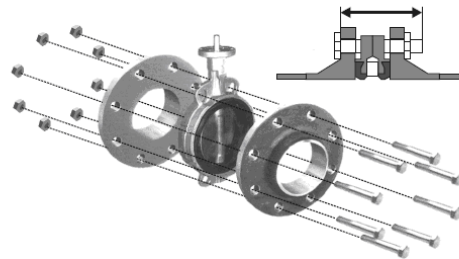
Test run the actuator and check that the limit switches work correctly.

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

Mount the cover.

## Bolting

Number of bolts and nuts depends on nominal pressure PN. Please refer to Table (2) for more



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