

VALVE for General Application

BUTTERFLY VALVE & ACTUATOR



WAFER TYPE BUTTERFLY VALVE

SPECIFICATION

SUITABLE TO MULTI STANDARD
FACE-TO-FACE DIMENSION TO BS 5155/ BS EN 558-1 Sr.20
LEVER/WORM GEAR OPERATOR

PRESSURE / TEMPERATURE RATINGS

Working Pressure	16 bar
Testing Pressure	Shell : 1.5 times Seat : 1.1 times
Working Temperature	-20°C to 110°C (EPDM Seat) -10°C to 80°C (NBR Seat)
Suitable Media	Water & Oil

MATERIALS

Part	Material	BS EN *
Body	Cast Iron Ductile Iron	1561 GJL-250 1563 GJS- 400-18
Disc	Ductile Iron Aluminium Bronze Stainless Steel 304 Stainless Steel 316	1563 GJS- 400-18 1982 CC491K 10283 GX5CrN 19-10 10283 GX5CrNiMo19-11-2
Sear Ring	EPDM NBR	
Shaft	Stainless Steel 410 Stainless Steel 431	10088-3 X12Cr13 10088-3 X17CrNi16-2
O-Ring	NBR	
Bushing	Resin	

* Indicates the corresponding equivalent standard material for ASTM.

DIMENSIONS

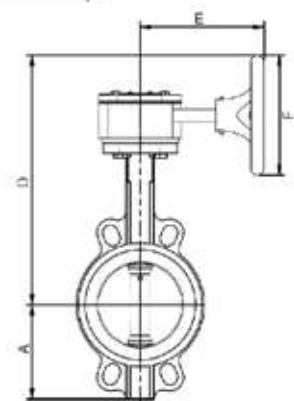
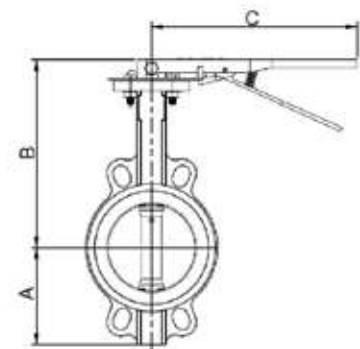
Unit: mm

Size	L	A	B	C	D	E	F
50	43	66	183	215	270	150	145
65	46	78	193	215	280	150	145
80	46	99	201	215	288	150	145
100	52	115	226	235	310	150	145
125	56	131	242	260	323	150	145
150	56	145	257	260	338	150	145
200	60	173	301	355	450	210	280
250	68	210	342	355	491	210	280
300	78	242	387	355	536	200	280
350	78	270	-	-	561	200	280

BFV-W

PN16

DN50~DN350



WAFER TYPE BUTTERFLY VALVE

SPECIFICATION

SUITABLE TO MULTI STANDARD

FACE-TO-FACE DIMENSION TO BS 5155 / BS EN 558-1 Sr.20

DOUBLE-STAGE WORM GEAR OPERATOR

PRESSURE / TEMPERATURE RATINGS

Working Pressure	16 bar (400mm ~ 600mm) 10 bar (700mm ~ 1200mm)
Testing Pressure	Shell : 1.5 times Seat : 1.1 times
Working Temperature	-20°C to 110°C (EPDM Seat) -10°C to 80°C (NBR Seat)
Suitable Media	Water & Oil

DIMENSIONS

Unit: mm

Size	L	A	D	E	F
400	102	307	680	243	280
450	114	336	706	243	280
500	127	373	747	243	280
600	154	429	885	296	385
650	165	468	880	296	385
700	165	523	1016	336	420
750	190	546	1032	336	420
800	190	581	1057	336	420
900	203	638	1108	357	420
1000	216	705	1196	357	420
1100	254	780	1285	450	420
1200	254	846	1397	450	420

Note:

1. Size 50mm~500mm are suitable for JIS10K, PN10, PN16 & ANSI Class 125, size 600mm & above are available for PN10/PN16 & ANSI Class 125.
2. Actuator mounting flange conforms to ISO 5211 drilling.
3. The butterfly valve can be supplied with electric actuator.
4. Micro switch / limit switch box are available upon request.
5. Gear operated with chain wheel are available upon request.
6. Design and specifications are subject to change without prior notice.

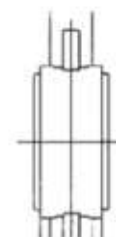
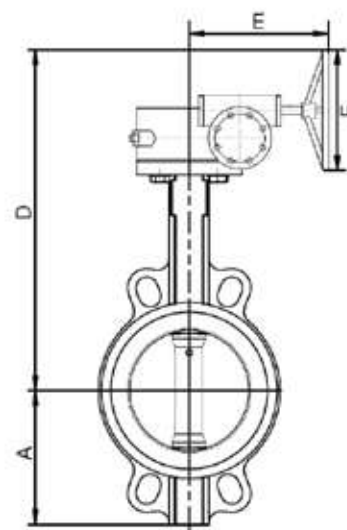
BFV-W

PN16

DN400~DN600

PN10

DN700~DN1200



WAFER TYPE BUTTERFLY VALVE

SPECIFICATION

FOR BS EN 1092-2 (BS4504) PN25 FLANGE MOUNTING
FACE-TO-FACE DIMENSION TO BS 5155 / BS EN 558-1 Sr.20
LEVER / WORM GEAR OPERATOR

PRESSURE / TEMPERATURE RATINGS

Working Pressure	25 bar
Testing Pressure	Shell : 1.5 times Seat : 1.1 times
Working Temperature	-20°C to 110°C (EPDM Seat) -10°C to 80°C (NBR Seat)
Suitable Media	Water & Oil

MATERIALS

Part	Material	BS EN *
Body	Ductile Iron	1563 GJS-500-7
Disc	Ductile Iron Aluminium Bronze Stainless Steel 304 Stainless Steel 316	1563 GJS 400-18 1982 CC491K 10283 GX5CrNi19-10 10283 GX5CrNiMo19-11-2
Seal Ring	EPDM NBR	
Shaft	Stainless Steel 304	10088-3 X17CrNi16-2
Taper Pins	Stainless Steel 316	10088-3 X5CrNiMo17-12-2
O-Ring	NBR	
Bushing	Resin	

* Indicates the corresponding equivalent standard material for BS EN.

DIMENSIONS

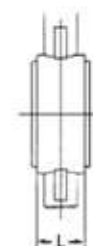
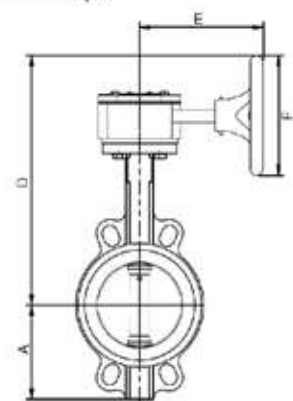
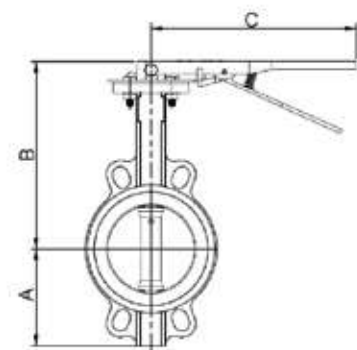
Unit: mm

Size	L	A	B	C	D	E	F
50	43	80	186	215	270	150	145
65	46	93	196	215	280	150	145
80	46	99	204	215	288	150	145
100	52	115	226	235	310	150	145
125	56	135	242	260	323	150	145
150	56	154	257	260	338	150	145
200	60	182	301	355	450	207	280
250	68	212	342	355	491	207	280
300	78	248	387	355	536	203	280
350	78	289	-	-	561	203	280

BFV-WB-25

PN25

DN50~DN350



WATER TYPE BUTTERFLY VALVE

SPECIFICATION

FOR BS EN 1092-2 (BS4504) PN25 FLANGE MOUNTING
FACE-TO-FACE DIMENTIONTO BS 5155 / BS EN 558-1 Sr.20
DOUBLE-STAGE WORM GEAR OPERATOR

PRESSURE / TEMPERATURE RATINGS

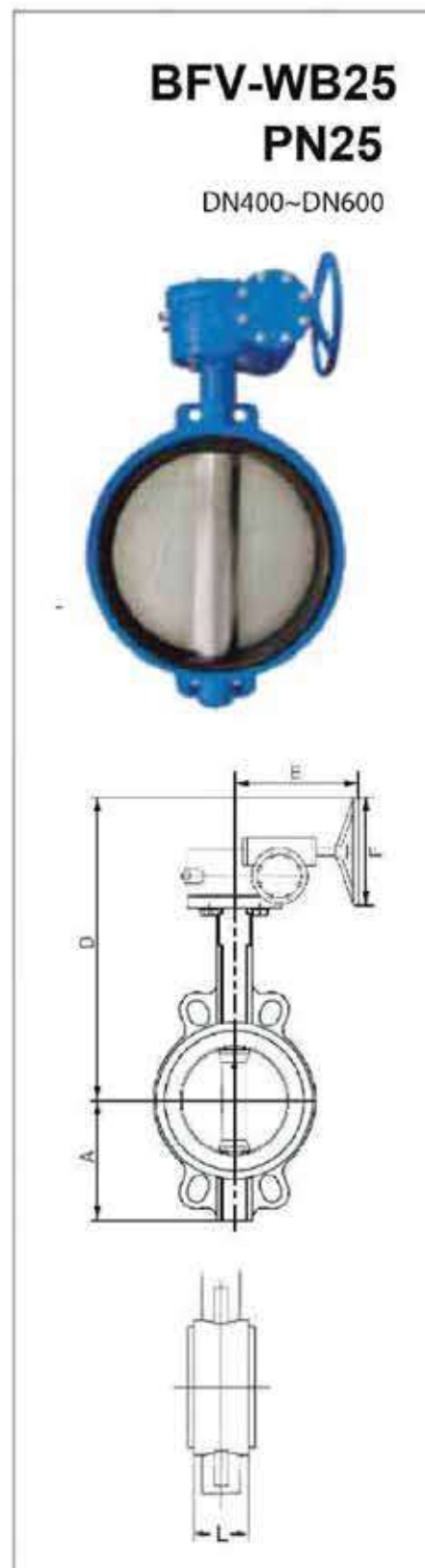
Working Pressure	25 bar
Testing Pressure	Shell : 1.5 times Seat : 1.1 times
Working Temperature	-20°C to 110°C (EPDM Seat) -10°C to 80°C (NBR SEAT)
Suitable Media	Water & Oil

DIMENSIONS

Size	L	A	D	E	F
400	102	328	680	243	280
450	114	358	724	243	280
500	127	393	759	243	280
600	154	445	888	296	385

Note:

1. Actuator mounting flange conforms to ISO 5211 drilling.
2. The butterfly valve can be supplied with electric actuator.
3. Micro switch / limit switch box are available upon request.
4. Gear operated with chain wheel are available upon request.
5. Design and specifications are subject to change without prior notice.



LUG TYPE BUTTERFLY VALVE

SPECIFICATION

FOR ANSI CLASS 125 FLANGE MOUNTING
FACE-TO-FACE DIMENSION TO ISO 5752 / BS 5155 / BS EN 593
LEVER / WORM GEAR OPERATOR

PRESSURE / TEMPERATURE RATINGS

Working Pressure	16 bar
Testing Pressure	Shell : 1.5 times Seat : 1.1 times
Working Temperature	-20°C to 110°C (EPDM Seat) -10°C to 80°C (NBR SEAT)
Suitable Media	Water & Oil

MATERIALS

Part	Material	ASTM
Body	Cast Iron Ductile Iron	A126 Class B A536 Gr.65-45-12
Disc	Ductile Iron Aluminium Bronze Stainless Steel 304 Stainless Steel 316	A536 Gr.65-45-12 B 148-97 C95400 A351 CF-8 A351 CF-8M
Seat Ring	EPDM NBR	
Shaft	Stainless Steel 410 Stainless Steel 431	S41000 S43100
O-Ring	NBR	
Bushing	PTFE	

DIMENSIONS

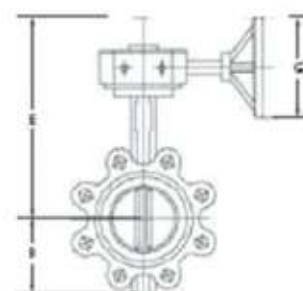
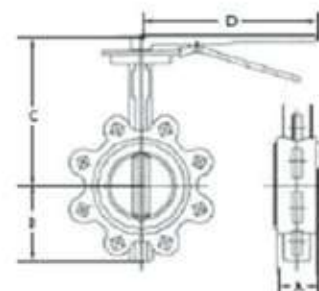
Unit : mm

Size	A	B	C	D	E	G
50	43	66	183	215	270	145
65	46	78	193	215	280	145
80	46	103	201	215	288	145
100	52	115	226	235	310	145
125	56	126	242	260	323	145
150	56	139	257	260	338	145
200	60	173	301	355	445	280
250	68	210	342	355	486	280
300	78	242	387	355	533	280
350	78	270	-	-	558	280
400	102	307	-	-	676	385
450	114	336	-	-	702	385

BFV-LA

PN16

DN50~DN450



LUG TYPE BUTTERFLY VALVE

FOR ANSI CLASS 125 FLANGE MOUNTING
FACE-TO-FACE DIMENSION TO ISO 5752 / BS 5155 / BS EN 593
DOUBLE-STAGE WORM GEAR OPERATOR

PRESSURE / TEMPERATURE RATINGS

Working Pressure	16 bar
Testing Pressure	Shell : 1.5 times Seat : 1.1 times
Working Temperature	-20°C to 110°C (EPDM Seat) -10°C to 80°C (NBR SEAT)
Suitable Media	Water & Oil

Unit : mm

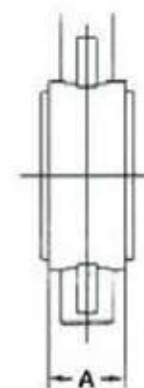
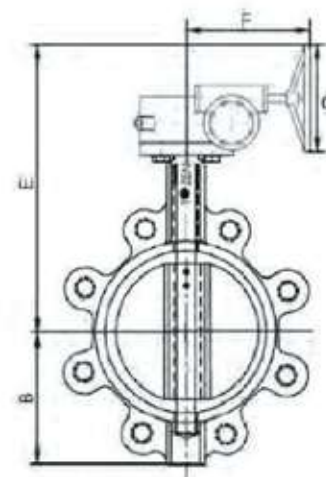
Size	A	B	E	F	G
500	127	373	733	260	280
600	154	429	877	300	385

1. Actuator mounting flange conforms to ISO 5211 drilling.
2. The butterfly valve can be supplied with electric actuator.
3. Micro switch / limit switch box are available upon request.
4. Others flange standard available upon request.
5. Design and specifications are subject to change without prior notice.

BFV-LA

PN16

DN500~DN600



DOUBLE FLANGE BUTTERFLY VALVE (CONCENTRIC TYPE)

SPECIFICATION

FLANGED TO BS EN 1092-2 (BS4504) PN16 OR ANSI150#
FACE-TO-FACE DIMENSION TO BS 5155 / BS EN558-1 Sr. 20
LEVER / WORM GEAR OPERATOR

PRESSURE / TEMPERATURE RATINGS

Working Pressure	16 bar
Testing Pressure	Shell : 1.5 times Seat : 1.1 times
Working Temperature	-20°C to 110°C (EPDM Seat) -10°C to 80°C (NBR Seat)
Suitable Media	Water & Oil

MATERIALS

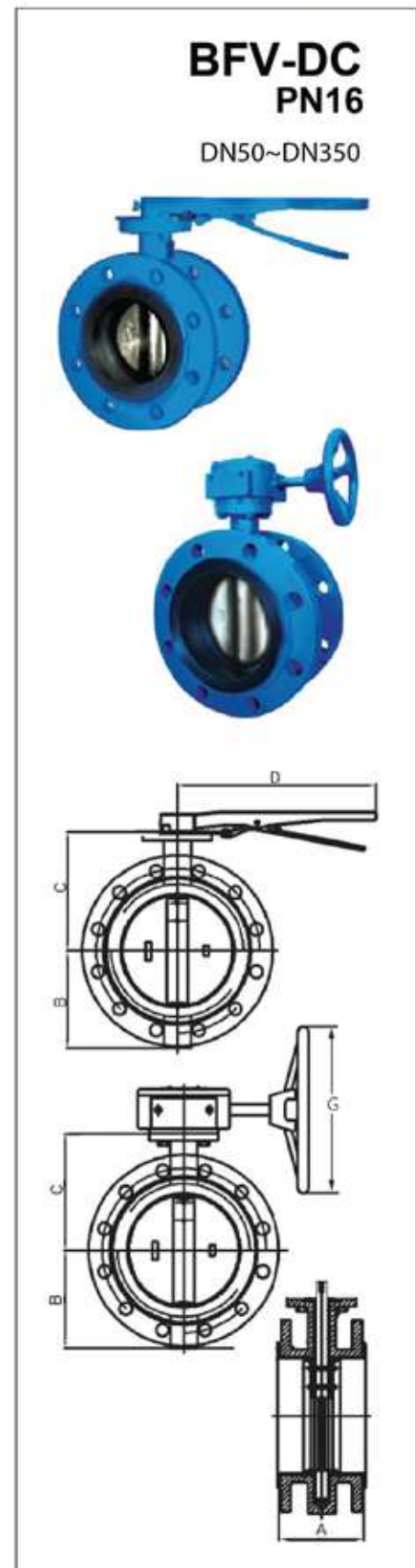
Part	Material	BS EN *
Body	Ductile Iron	1563 GJS- 400-18
Disc	Ductile Iron Aluminium Bronze Stainless Steel 304 Stainless Steel 316	1563 GJS- 400-18 1982-CC333G 10283 GX5C1Ni19-10 10283 GX5CrNiMo19-11-2
Seal Ring	EPDM NBR	
Shaft	Stainless Steel 410	10088 X12Cr13
Taper Pins	Stainless Steel 304	10088 X5CrNi18-10
O-Ring	NBR	
Bushing	Resin	

* Indicates the corresponding equivalent standard material for BS EN.

DIMENSIONS

Unit: mm

Size	A	B	C	D	G
50	108	69	126	215	150
65	112	72	136	215	150
80	114	88	146	215	150
100	127	96	158	235	150
125	140	115	179	260	150
150	140	151	210	260	150
200	152	161	230	355	300
250	165	199	271	355	300
300	178	215	305	355	300
350	190	261	353	-	300



DOUBLE FLANGE BUTTERFLY VALVE (CONCENTRIC TYPE)

SPECIFICATION

FLANGED TO BS EN 1092-2 (BS 4504) PN16 OR ANSI150#
FACE-TO-FACE DIMENSION TO BS 5155 / BS EN 558-1 Sr.20
DOUBLE-STAGE WORM GEAR OPERATOR

PRESSURE / TEMPERATURE RATINGS

Working Pressure	16 bar (DN400~DN700) 10 bar (DN800 ~ DN1200)
Testing Pressure	Shell: 1.5 times Seat: 1.1 times
Working Temperature	-20°C to 110°C (EPDM Seat) -10°C to 80°C (NBR Seat)
Suitable Media	Water & Oil

DIMENSIONS

Unit: mm

Size	A	B	C	G
400	216	290	381	360
450	222	326	392	360
500	229	358	441	360
600	267	413	509	360
700	292	521	568	360
750	308	530	580	360
800	318	568	641	360
900	330	612	692	450
1000	410	665	735	450
1100	450	743	830	450
1200	470	792	917	570

Note:

1. Actuator mounting flange conforms to ISO 5211 drilling.
2. The butterfly valve can be supplied with electric actuator.
3. Micro switch / limit switch box are available upon request.
4. Gear operated with chain wheel are available upon request.
5. Design and specifications are subject to change without prior notice.

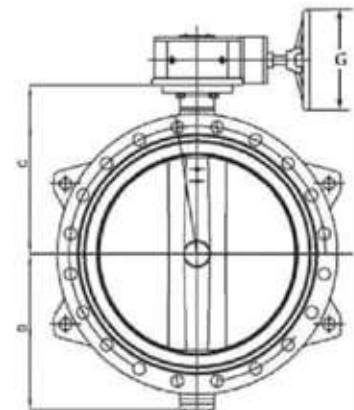
BFV-DC

PN16

DN400~DN700

PN10

DN800~DN1200



LUG TYPE BUTTERFLY VALVE

SPECIFICATION

FOR BS EN 1092-2 (BS4504) PN25 FLANGE MOUNTING
FACE TO FACE DIMENSION TO ISO 5752 BS 5155 / BS EN 593
LEVER / WORM GEAR OPERATOR

PRESSURE / TEMPERATURE RATINGS

Working Pressure	25 bar
Testing Pressure	Shell : 1.5 times Seat : 1.1 times
Working Temperature	-20°C to 110°C (EPDM Seat) -10°C to 80°C (NBR Seat)
Suitable Media	Water & Oil

MATERIALS

Part	Material	BS EN*
Body	Ductile Iron	1563 GJS-400
Disc	Ductile Iron Aluminium Bronze Stainless Steel 304 Stainless Steel 316	1563 GJS- 400-18 1982 CC491K 10283 GX5CrNi19-10 10283 GX5CrNiMo19-11-2
Sear Ring	EPDM NBR	
Shaft	Stainless Steel 410	10088-3 X17CrNi16-2
Taper Pins	Stainless Steel 304	10088-3 X5CrNiMo17-12-2
O-Ring	NBR	
Bushing	Resin	

* Indicates the corresponding equivalent standard material for BS EN.

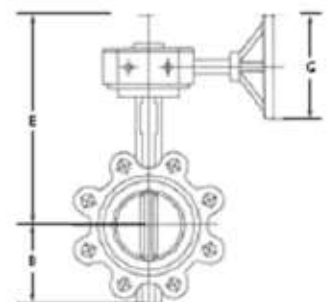
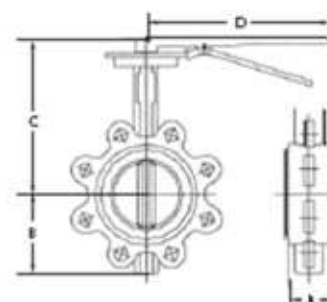
DIMENSIONS

Unit: mm

Size	A	B	C	D	E	G
50	43	80	186	235	270	145
65	46	93	196	235	280	145
80	46	99	204	235	288	145
100	52	115	226	235	310	145
125	56	135	242	260	323	145
150	56	154	257	260	338	145
200	60	182	301	355	450	280
250	68	212	342	355	491	280
300	78	248	387	355	536	280
350	78	289	-	-	561	280

BFV-LB25 PN25

DN50~DN350



LUG TYPE BUTTERFLY VALVE

SPECIFICATION

FOR BS EN 1092-2 (BA4504) PN25 FLANGE MOUNTING
FACE-TO-FACE DIMENSION TO ISO 5752 / BS 5155 / BS EN 593
DOUBLE-STAGE WORM GEAR OPERATOR

PRESSURE / TEMPERATURE RATINGS

Working Pressure	25 bar
Testing Pressure	Shell : 1.5 times Seat : 1.1 times
Working Temperature	-20°C to 110°C (EPDM Seat) -10°C to 80°C (NBR SEAT)
Suitable Media	Water & Oil

DIMENSIONS

Unit : mm

Size	L	A	D	E	F
400	102	328	680	260	280
450	114	358	724	260	280
500	127	393	759	260	280
600	154	445	888	300	385

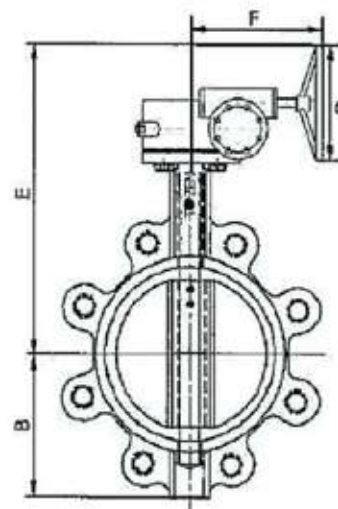
Note:

1. Actuator mounting flange conforms to ISO 5211 drilling.
2. The butterfly valve can be supplied with electric actuator.
3. Micro switch / limit switch box are available upon request.
4. Others flange standard available upon request.
5. Design and specifications are subject to change without prior notice.

BFV-LB25

PN25

DN500~DN600



“NEUMAX” QT Series Quarter Turn Electric Actuator

‘QT’ series electric actuators are designed & engineered for robust, reliable and for high performance duty onto quarter turn valves. The unique reliable motor module, adjustable cam plate limit switch, self locking mechanism, precision gearing system and ball bearings, the auto declutching mechanism, light force load on the hand-wheel, the adapter drive bushing and bottom ISO 5211 mounting dimension, are added advantages against others in the field of valves automation. CE approved. FM & UL pending.

1. **ENCLOSURE**
Standard enclosure to water jet proof & water tight proof IP 67, NEMA 4 & 6.
2. **MOTOR**
Squirrel cage motor is of encapsulated type, on high stall torque and low inherent force for seating & unseating of valves. All motors are integrated with build-in thermal protection.
3. **TERMINAL CONNECTION & WIRING**
Terminal connections are of “WAGO” push on type, making wiring connection very easy & without fuss. Electrical wiring circuit is standardized for single & three phase voltage. Addition termination is available on request.
4. **INTERNAL COMPONENTS ARRANGEMENT**
Internal mechanical and electrical components are designed in modular mounting arrangement, and can be easily removed for maintenance purposes, Addition optional accessories are also possible.
5. **LIMIT SWITCHES**
A pair of limit switches are activated by means of simple, reliable & adjustable cam plates, mounted directly onto, and driven by center column, The unique cam plate design dose not allow over travel of limit switches.
6. **TORQUE SWITCHES**
Electric actuators on 100 Nm and above. are installed with torque switches for over-load protection.
7. **HEATER**
For prevention of condensation due to weather & temperature changes, and also keeps internal components clean & dry, a 20 watt space heater is provided inside all the electric actuators.
8. **SELF LOCKING MECHANISM**
Because of the worm gear design system, all the electric actuators are self locking.
9. **HANDWHEEL**
Correct size of hand-wheel on the electric actuator ensure adequate strength for safe and efficient emergency operation.
10. **MANUAL OVER-RIDE**
Engage by pulling the lever & turning the hand-wheel. Lever is auto declutch when power supply is switched on, and hand-wheel dose not turn as extra safety feature.
11. **VISUAL POSITION INDICATOR**
The visual position indicator is directly mounted onto the center drive column to provide the visual position of the valve.
12. **END STOPPERS**
1 each for open & close position (adjustable), are for over travel protection.
13. **POTENTIOMETER - optional**
Is available on request, is to provide & transmit remote indication of valves position.
14. **MOUNTING & ADAPTATION**
Bottom flange mounting dimension conform to ISO 5211. A adaptor drive bushing is provided for every electric actuator, is removable and for machining to suite valve stem size.



Modulating Service
with TCM



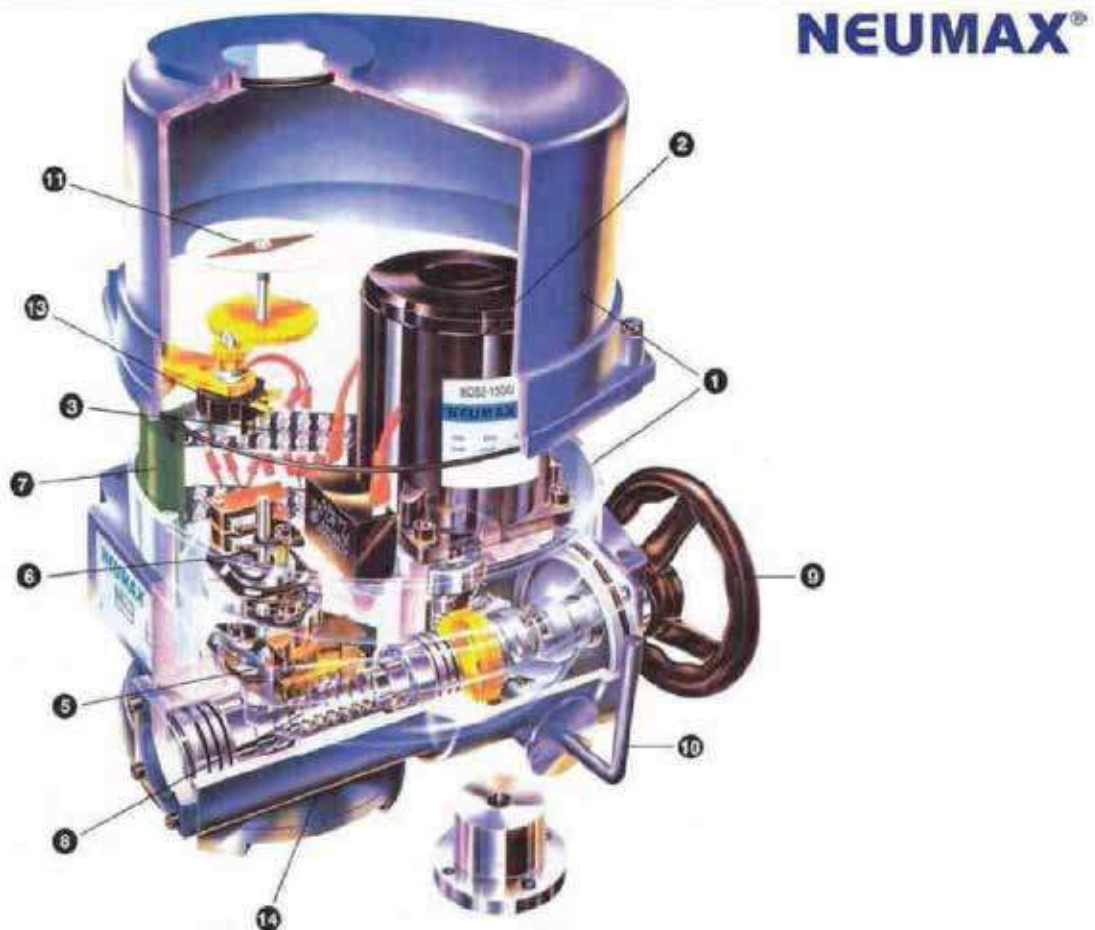
Actuator with Ball Valve
for On/Off Service



Application

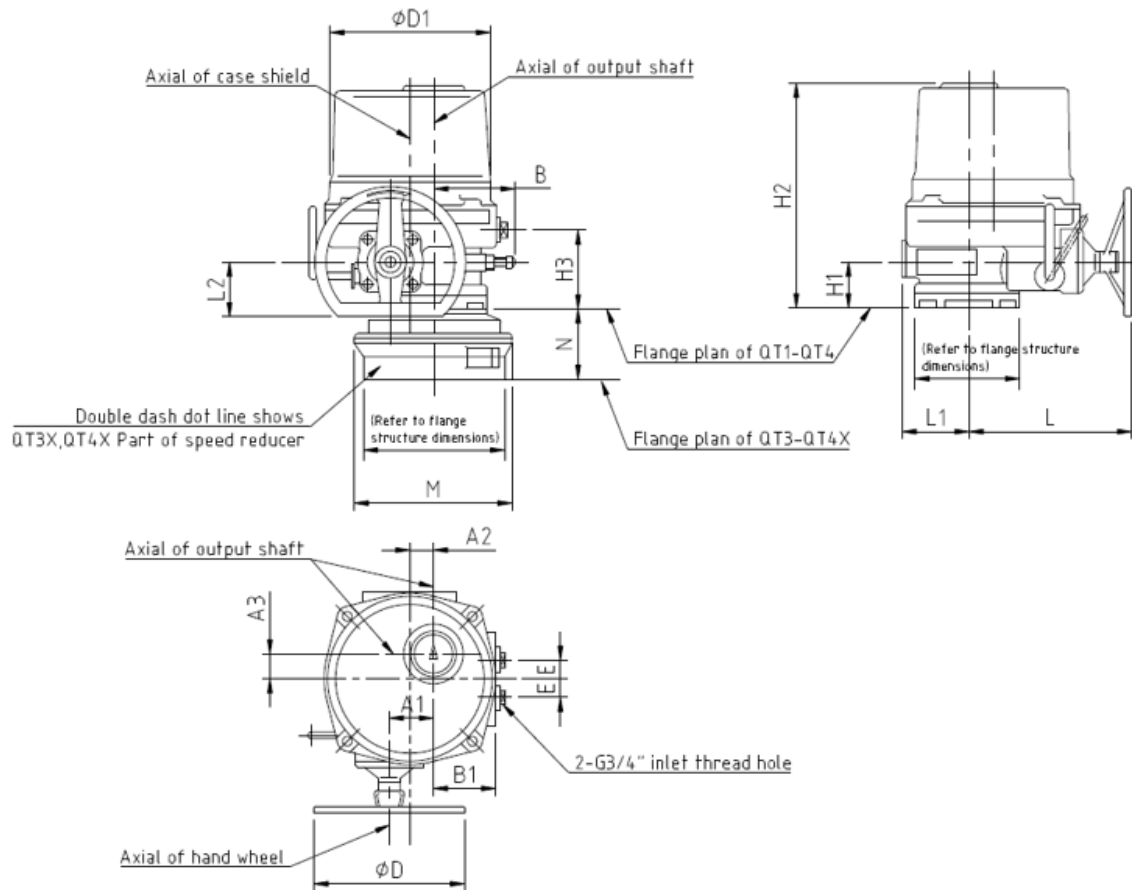
For quarter turn valves automation used in heating & ventilation, air-conditioning, water treatment works, power generation, petrochemical plants, oil storage facilities, chemical plants, effluent treatment work, pulp & paper mills and shipbuilding industry.

Structure



Technical parameters

Item Type	Model	Output Turque (N.m)	Output Speed (r/min)	Rate current (A)	Operation time for 90 Deg (Sec)	Weight (kg)
QT1	QT04-0.9	40	0.9	0.4	17.5	12
	QT06-0.9	60				
	QT09-0.9	90				
QT2	QT10-0.7	100	0.7	0.9	20.6	15
	QT15-0.7	150				
	QT19-0.7	190				
QT3	QT28-0.6	280	0.6	0.9	26.3	20
	QT38-0.6	380		1.25		
	QT50-0.6	500		1.7		
QT4	QT60-0.5	600	0.5	2.3	29.4	30
	QT80-0.5	800		2.7		
	QT100-0.5	1000		2.7		
QT3X	QT120-0.2	1200	0.2	2.3	45	50
QT4X	QT150-0.2	1500	0.2	2.7	50	60
	QT200-0.2	2000		2.7		
	QT250-0.2	2500		2.7		

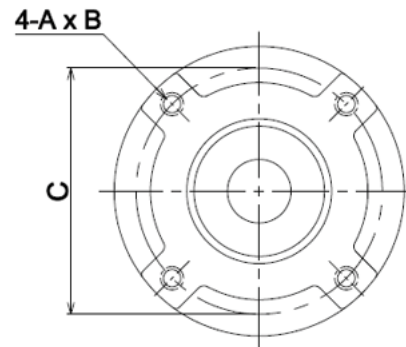


QT Dimention (mm)

Code	A1	A2	A3	B	B1	$\phi D1$	$\phi D2$	E	H1	H2	H3	L	L1	N	M
QT1	44	17	36	75	68	102	170	27.5	60	256	109	179	62		
QT2	49.5	22.5	30	85	77.5	200	200		64	263	113	187	85		
QT3	60	33	35	100	77	250	220		70	298	119	202	88		
QT4	70	43	38	115	87		260		78	342	127	225	106		
QT3X	60	33	35	100	77	250	220		70	298	119	202	88	125	$\phi 216$
QT4X	70	43	38	115	87		260		78	342	127	225	106	135	$\phi 258$

Type	Model	Mounting Flange Code	
QT1	QT04-0.9	F05	
	QT06-0.9	F05	
	QT09-0.9	F07	
QT2	QT10-0.7	F07	F10
	QT15-0.7	F07	F10
	QT19-0.7	F07	F10
QT3	QT28-0.6	F07	F10
	QT38-0.6	F10	F12
	QT50-0.6	F10	F12
QT4	QT60-0.5	F10	
	QT80-0.5	F10	F14
	QT100-0.5	F10	F14
QT3X	QT120-0.2	F10	F14
QT4X	QT150-0.2	F10	F14
	QT200-0.2	F14	
	QT250-0.2	F14	

Mounting Flange Code	A	B (depth)	C
F05	M6	12	50
F07	M8	14	70
F10	M10	18	102
F12	M12	20	125
F14	M16	26	140



Standard Specification

Housing & Cover	Aluminium, Anodized
Enclosure	Waterlight IP67, Nema4 and 6
Ambient Temp	-30°C to +70°C
Power Supply (60Hz/50Hz)	110/220VAC, 1 Phase 380/440VAC, 3 Phase
Control Power	110/220VAC, 1 Phase, 60/50Hz
Torque Switches	2 x SPDT for QT15 and above
Limit Switches	2 x SPDT 15A
Stall Protection	Built-in Thermal Protection
Travel Angle	90°C ± 5°C
Indicator	Continuous Position Indicator
Manual Override	HAND/AUTO Decoupling Mechanism
Self Locking	Provide by means of worm Gearing
End Stopper	External Adjustable Screws
Space Heater	20W for Anti-Condensation
Conduit Entries	Two G3/4"
Lubrication	MoS2 Lithium Base Grease
Materials	Steel, Aluminium Alloy, Al Bronze
External Coating	Dry Powder, Epoxy-Polyester Munsell No. FJ-002

Optional Items

ALS	Additional 2 x SPDT Auxiliary Limit Switches
EXT	Travel Angle 120°, 135°, 180°, 270°
LCB	Local Control Box (1) Local/Remote Selector Switch (2) Open/Stop/Close Selector Switch
POT	Potentiometer 1k Ohm
CPT	Current Position Transmitter Output; 4-20mA DC
PCM	Proportional Control Module Input signal: 4-20mA, 1-5V DC Output signal: 4-20mA DV
EXP	Explosion & Water Proof Enclosure Exd II BT4 IP67



TOZEN INDUSTRIAL CO., LTD.

3388/62 18TH FLOOR, SIRINRAT BLDG.,
RAMA IV RD., BANGKOK 10110 THAILAND
TEL : (66) 0-2029-0100
FAX : (66) 0-2029-0111
URL : www.tozen.co.th

TOZEN CORPORATION

8-4, ASAHI YOSHIKAWA
SAITAMA 342-008 JAPAN
TEL : 048-993-1030
FAX : 048-993-1038

VLV-0126
BFV&ACT