

# FE Series Automated Butterfly Valves

## Product Data Sheet



### < STANDARDS >



ASTM D1784



ANSI B16.5

IPEX FE Series Automated Butterfly Valves incorporate many features of our industrial FK valve, yet the all PVC construction and EPDM liner make this valve the perfect choice for water and light industrial applications. This versatile valve features double self-lubricating seals, and a special shaped liner and body cavity guaranteeing a bubble tight seal while keeping break-away torque at an absolute minimum. Inserting stainless steel lugs into special molded features in the body allows for end of line installation. FE Series Automated Butterfly Valves are part of our complete systems of pipe, valves, and fittings, engineered and manufactured to our strict quality, performance, and dimensional standards.

#### Valve Availability

Body Material:	PVC
Disc Material:	PVC
Size Range:	1-1/2" through 12"
Pressure:	232psi (1-1/2" to 2"), 150psi (2-1/2" to 8"), 75psi (10" to 12")
Seats:	EPDM
Seals:	EPDM
Body Style:	Wafer
End Connections:	Flanged (ANSI 150)
Actuator Control:	Double Acting Pneumatic, Spring Return Pneumatic, Electric

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# FE Series Automated Butterfly Valves

## Sample Specification



### 1.0 Butterfly Valves – FE

#### 1.1 Material

- The valve body and disc shall be made of PVC compound which shall meet or exceed the requirements of cell classification 12454 according to ASTM D1784.
- The valve shaft shall be made of zinc plated steel (sizes 1-1/2" to 8").
- The valve shaft shall be made of 420 stainless steel (sizes 10" and 12").

#### 1.2 Seats

- The disc liner shall be made of EPDM

#### 1.3 Seals

- The o-ring seals shall be made of EPDM.

- 1.4 All wetted parts of the valves shall comply with standards that are equivalent to NSF Standard 61 for potable water.

### 2.0 Connections

#### 2.1 Flanged style

- The ANSI 150 flanged connections shall conform to the dimensional standard ANSI B16.5.

### 3.0 Design Features

- The valve shall be of wafer design.
- The shaft shall have standard ISO square dimensions for direct mounting of actuators.
- The disc seat shall be a trapezoidal elastomeric liner and provide a bubble tight seal.
- The liner shall completely isolate the valve body from the process flow.
- The liner shall function as a flange gasket on both sides of the valve.
- The body cavity shall feature special channeling to prevent liner slippage and compression.
- The disc, seats, and seals shall be the only wetted parts.
- Teflon<sup>®</sup> seated o-ring seals shall prevent the shaft from becoming wetted.

# FE Series Automated Butterfly Valves

## Sample Specification (cont'd)



### 3.1 Pressure Rating

- All valves sizes 1-1/2" through 2" shall be rated at 232psi at 73°F.
- All valves sizes 2-1/2" through 8" shall be rated at 150psi at 73°F.
- All valves sizes 10" through 12" shall be rated at 75psi at 73°F.

### 3.2 Markings

- All valves shall be marked to indicate size, material designation, and manufacturers name or trade mark.

### 3.3 Color Coding

- All valves shall be color-coded dark gray.

**4.0** All valves shall be Xirtec® PVC by IPEX or approved equal.

### 5.0 Actuators

- All Actuators shall be factory installed by IPEX

#### Pneumatic Actuator:

- Shall be sized for 80 psi control air pressure
- Shall be dual piston rack and pinion design with linear torque output.
- Body shall be Technopolymer UT series or Anodized Aluminum MT series with standard position indicator and NAMUR VDI/VDE 3845 and ISO 5211 mounting dimensions.
- All models shall be operable using air, water, nitrogen or compatible hydraulic fluids from 40 – 120psi.
- Aluminum body models shall feature dual travel stops that provide +/- 10° stroke rotation on both the opening and closing phases.
- All external fasteners shall be stainless steel.

#### Electric Actuator:

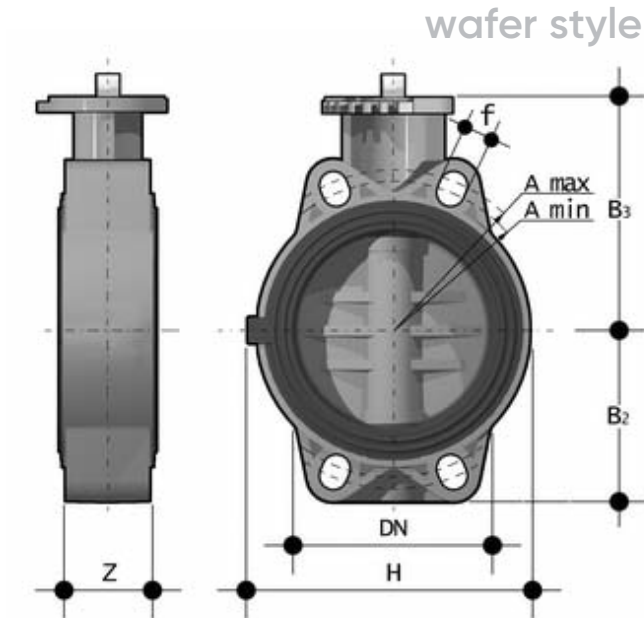
- Shall have 100VAC – 240VAC reversing motors with torque limiters, thermal protection, auxiliary limit switches, NEMA 4X enclosure\*, manual override, and position indicator as standard.
- or Shall have 24VDC reversing motors with torque limiters, thermal protection, auxiliary limit switches, NEMA 4X enclosure\*, manual override, and position indicator as standard.
- 4-20mA positioner, battery backup, and 180° rotation models shall be available in 100 – 240VAC and 24VDC
- All models shall have ISO 5211 mounting dimensions

\* Type 4X Indoor Use Only Enclosure

# FE Series Automated Butterfly Valves

## Technical Data

### dimensions



Dimensions (inches)

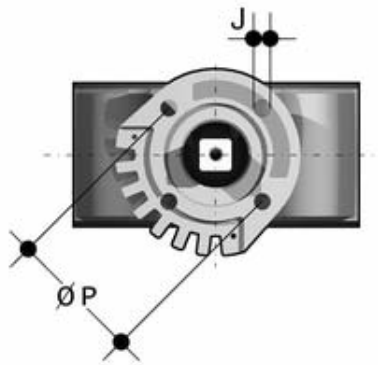
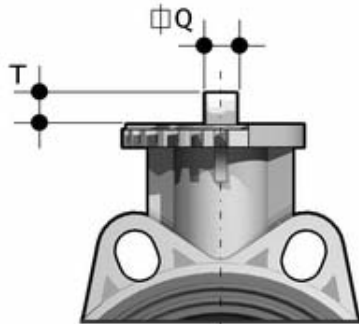
Size	DN	Z	B <sub>2</sub>	B <sub>3</sub>	H	A <sub>min</sub>	A <sub>max</sub>	f	# holes	Pattern
1-1/2	1.57	1.30	2.36	4.17	5.20	3.68	4.29	0.75	4	square
2	1.97	1.69	2.76	4.45	5.79	4.25	4.88	0.75	4	square
2-1/2	2.56	1.81	3.15	4.84	6.50	5.04	5.67	0.75	4	square
3	3.15	1.93	3.54	5.59	5.12	5.71	6.26	0.75	4	rectangular
4	3.94	2.20	4.13	5.98	5.91	6.50	7.48	0.75	4	rectangular
5	4.92	2.52	4.76	6.93	7.28	8.03	8.46	0.91	4	rectangular
6	5.91	2.76	5.20	7.44	8.27	9.06	9.53	0.91	4	rectangular
8	7.87	2.80	6.34	8.46	12.80	11.02	11.73	0.91	8	square
10	9.84	4.49	8.27	9.76	15.94	14.25	14.25	1.00	12	square
12	11.81	4.49	9.65	12.01	18.70	17.00	17.00	1.00	12	square

# FE Series Automated Butterfly Valves

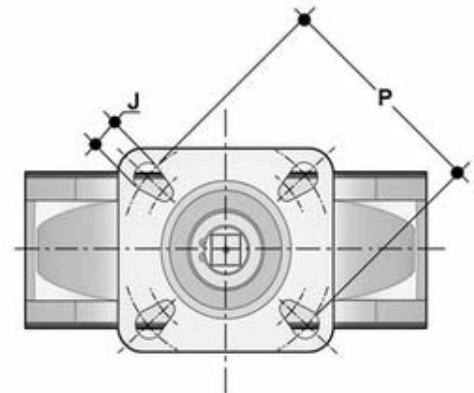
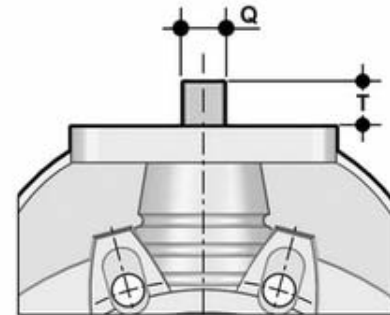
## Technical Data (cont'd)

### dimensions (cont'd)

sizes 1-1/2" to 8"



sizes 10" and 12"



Dimensions (inches)

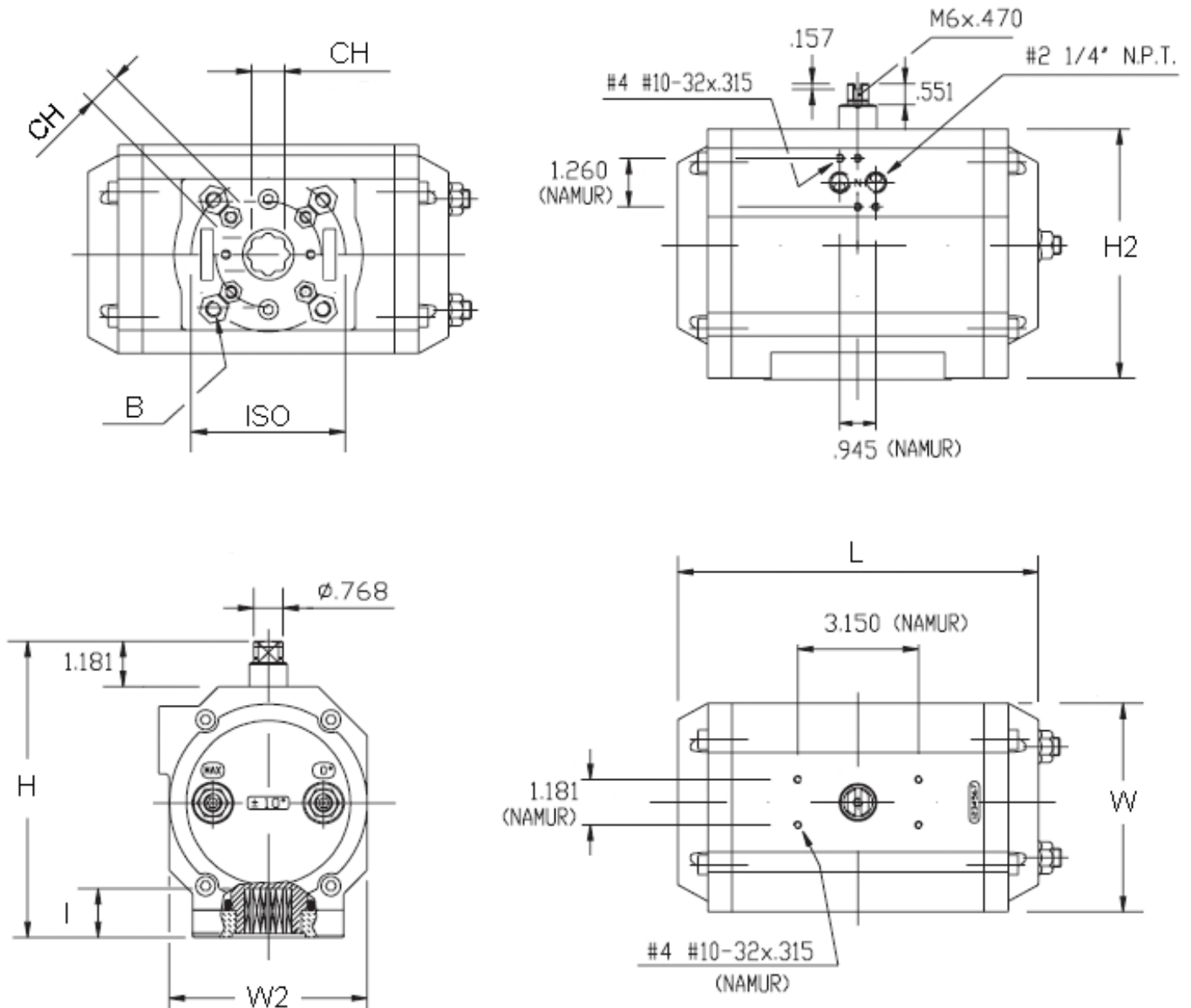
Size	T	Q	ISO	P	J
1-1/2	0.47	0.43	F05	1.97	0.28
2	0.47	0.43	F05	1.97	0.28
2-1/2	0.47	0.43	F05 / F07	1.97 / 2.76	0.28 / 0.35
3	0.63	0.55	F07	2.76	0.35
4	0.63	0.55	F07	2.76	0.35
5	0.75	0.67	F07	2.76	0.35
6	0.75	0.67	F07	2.76	0.35
8	0.94	0.87	F10	4.02	0.43
10	0.94	0.87	F10 / F12 / F14	4.02 / 4.92 / 5.51	0.43 / 0.51 / 0.67
12	0.94	0.87	F10 / F12 / F14	4.02 / 4.92 / 5.51	0.43 / 0.51 / 0.67

# FE Series Automated Butterfly Valves

## Technical Data (cont'd)

### pneumatic actuator dimensions

models MT16, MT21, MT26, MT31, MT36, MT41, MT46, MT51, MT61



# FE Series Automated Butterfly Valves

## Technical Data (cont'd)

### pneumatic actuator dimensions (cont'd)

Dimensions (inches)

Valve Size	Double Acting Model	ISO	CH	L	W	W <sub>2</sub>	H	H <sub>2</sub>	I	B
1-1/2	MT16DA	F05 / F07	0.55	6.50	3.19	2.44	4.37	3.19	0.75	1/4-20 UNC x 0.51
2	MT16DA	F05 / F07	0.55	6.50	3.19	2.44	4.37	3.19	0.75	1/4-20 UNC x 0.51
2-1/2	MT16DA	F05 / F07	0.55	6.50	3.19	2.44	4.37	3.19	0.75	1/4-20 UNC x 0.51
3	MT21DA	F05 / F07	0.67	6.97	3.78	3.01	5.04	3.86	0.75	5/16-18 UNC x 0.51
4	MT21DA	F05 / F07	0.67	6.97	3.78	3.01	5.04	3.86	0.75	5/16-18 UNC x 0.51
5	MT26DA	F05 / F07	0.67	9.41	3.78	3.01	5.04	3.86	0.75	5/16-18 UNC x 0.51
6	MT31DA	F05 / F07	0.67	9.06	4.49	3.56	5.79	4.61	0.91	5/16-18 UNC x 0.51
8	MT36DA	F07 / F10	0.87	9.69	5.10	3.76	7.24	6.06	1.18	3/8-16 UNC x 0.71
10	MT51DA	F10 / F12	1.06	14.21	7.13	4.33	9.13	7.95	1.57	1/2-13 UNC x 0.79
12	MT51DA	F10 / F12	1.06	14.21	7.13	4.33	9.13	7.95	1.57	1/2-13 UNC x 0.79

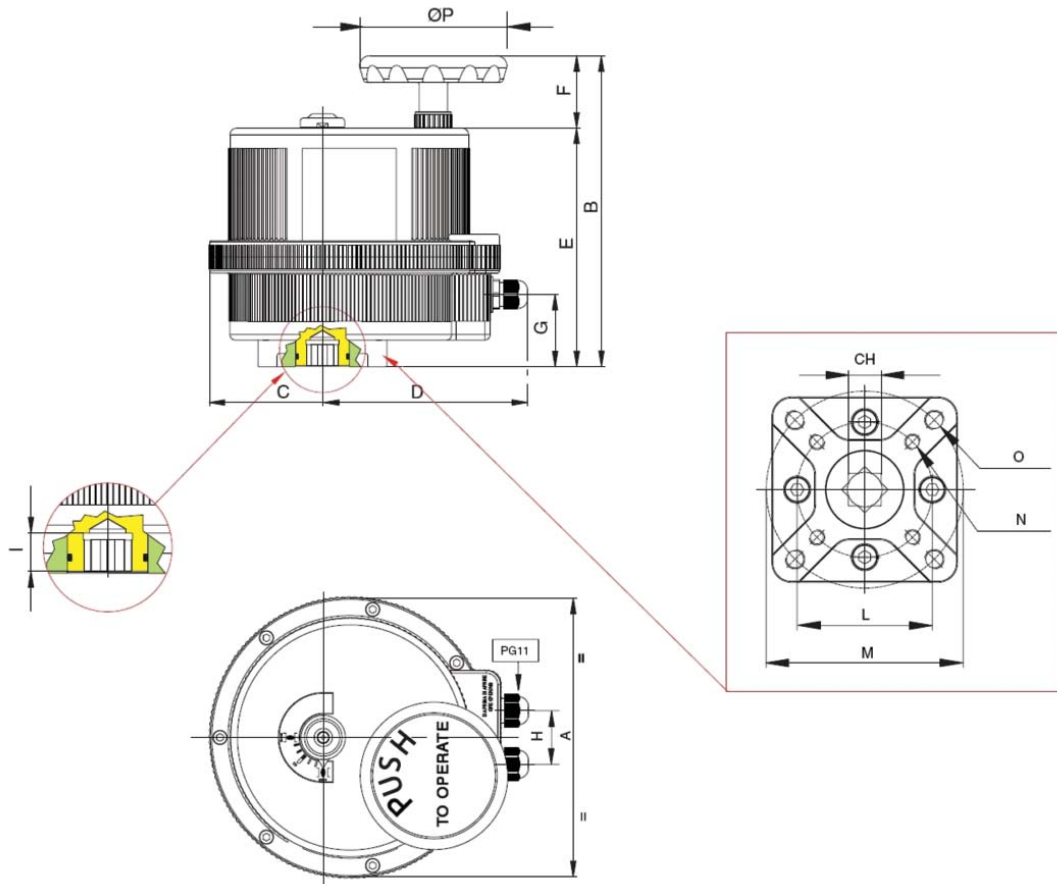
Dimensions (inches)

Valve Size	Spring Return Model	ISO	CH	L	W	W <sub>2</sub>	H	H <sub>2</sub>	I	B
1-1/2	MT21S5	F05 / F07	0.67	6.97	3.78	3.01	5.04	3.86	0.75	5/16-18 UNC x 0.51
2	MT26S4	F05 / F07	0.67	9.41	3.78	3.01	5.04	3.86	0.75	5/16-18 UNC x 0.51
2-1/2	MT26S4	F05 / F07	0.67	9.41	3.78	3.01	5.04	3.86	0.75	5/16-18 UNC x 0.51
3	MT31S4	F05 / F07	0.67	9.06	4.49	3.56	5.79	4.61	0.91	5/16-18 UNC x 0.51
4	MT36S4	F07 / F10	0.87	9.69	5.10	3.76	7.24	6.06	1.18	3/8-16 UNC x 0.71
5	MT41S4	F07 / F10	0.87	11.42	5.16	3.76	7.24	6.06	1.18	3/8-16 UNC x 0.71
6	MT46S4	F07 / F10	0.87	13.82	5.71	3.88	7.81	6.63	1.18	3/8-16 UNC x 0.71
8	MT51S4	F10 / F12	1.06	14.21	7.13	4.33	9.13	7.95	1.57	1/2-13 UNC x 0.79
10	MT61S5	F14	1.42	17.48	9.13	6.32	11.30	10.12	1.97	5/8-11 UNC x 0.98
12	MT61S5	F14	1.42	17.48	9.13	6.32	11.30	10.12	1.97	5/8-11 UNC x 0.98

# FE Series Automated Butterfly Valves

## Technical Data (cont'd)

### electric actuator dimensions



Dimensions (inches)

Valve Actuator Size	Model	ISO	CH	A	B	C	D	E	F	G	H	I	L	M	N	O	ØP
1-1/2	VB015	F03/F05	0.43	4.84	5.57	1.67	4.74	4.96	0.61	4.06	1.26	0.55	1.42	1.97	10-24 UNC 2BX0.47	1/4-20 UNC 2BX0.55	2.68
2	VB030	F03/F05	0.43	6.18	7.40	2.38	5.12	5.75	1.65	1.30	1.42	0.47	1.42	1.97	10-24 UNC 2BX0.47	1/4-20 UNC 2BX0.55	2.56
2-1/2	VB030	F03/F05	0.43	6.18	7.40	2.38	5.12	5.75	1.65	1.30	1.42	0.47	1.42	1.97	10-24 UNC 2BX0.47	1/4-20 UNC 2BX0.55	2.56
3	VB060	F05/F07	0.55	7.28	8.46	2.66	5.77	6.81	1.65	2.01	1.42	0.63	1.97	2.76	1/4-20 UNC 2BX0.59	5/16-18 UNC 2BX0.67	2.56
4	VB060	F05/F07	0.67	7.28	8.46	2.66	5.77	6.81	1.65	2.01	1.42	0.63	1.97	2.76	1/4-20 UNC 2BX0.59	5/16-18 UNC 2BX0.67	2.56
5	VB110	F07/F10	0.67	8.31	9.14	3.31	6.02	7.01	2.13	2.13	1.58	0.75	2.76	4.02	5/16-18 UNC 2BX0.79	3/8-16 UNC 2BX0.79	4.33
6	VB110	F07/F10	0.67	8.31	9.14	3.31	6.02	7.01	2.13	2.13	1.58	0.75	2.76	4.02	5/16-18 UNC 2BX0.79	3/8-16 UNC 2BX0.79	4.33
8	VB270	F07/F10	0.87	8.74	9.19	3.03	6.69	7.17	2.03	2.13	1.58	0.95	2.76	4.02	5/16-18 UNC 2BX0.79	3/8-16 UNC 2BX0.79	4.33



# FE Series Automated Butterfly Valves

## Technical Data (cont'd)



**Note:**  
Pneumatic actuator performance is based on 80 psi available control air pressure.

### actuator technical data

Valve Size (inches)	Dimensions		
	Double Acting Pneumatic	Actuator Model Spring Return Pneumatic	Electric
1-1/2	MT16DA	MT21S5	VB015
2	MT16DA	MT26S4	VB030
2-1/2	MT16DA	MT26S4	VB030
3	MT21DA	MT31S4	VB060
4	MT21DA	MT36S4	VB060
5	MT26DA	MT41S4	VB110
6	MT31DA	MT46S4	VB110
8	MT36DA	MT51S4	VB190
10	MT51DA	MT61S5	-
12	MT51DA	MT61S5	-

### pneumatic actuator torque data

Valve Size (inches)	Dimension				Spring Return			
	Double Acting		Spring Set (standard)	Spring Torque (in-lbs) Start	Spring Torque (in-lbs) End	Air Torque (in-lbs)		
	Model	Torque (in-lbs)				Model	Start	End
1-1/2	MT16DA	275	UT21S5	S5	307	230	270	193
2	MT16DA	275	UT26S4	S4	392	247	503	358
2-1/2	MT16DA	275	UT26S4	S4	392	247	503	358
3	MT21DA	500	UT31S4	S4	502	374	626	498
4	MT21DA	500	UT36S4	S4	824	614	986	776
5	MT26DA	750	UT41S4	S4	1011	741	1259	989
6	MT31DA	1000	UT46S4	S4	1779	1120	2005	1346
8	MT36DA	1600	UT51S4	S4	2203	1738	2762	2297
10	MT51DA	4500	UT61S5	S5	5366	4277	4823	3734
12	MT51DA	4500	UT61S5	S5	5366	4277	4823	3734

### pneumatic actuator weights and air consumption

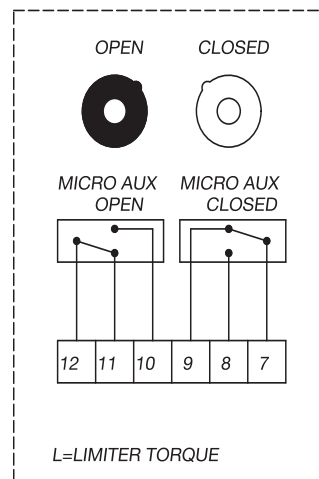
Valve Size (inches)	Dimension					
	Model	Double Acting Weight (lbs)	Air Cons. (in <sup>3</sup> )	Spring Return Model	Spring Return Weight (lbs)	Spring Return Air Cons. (in <sup>3</sup> )
1-1/2	MT16DA	4.03	25.6	MT21S5	7.16	18.1
2	MT16DA	4.03	25.6	MT26S4	9.88	30.0
2-1/2	MT16DA	4.03	25.6	MT26S4	9.88	30.0
3	MT21DA	6.33	44.4	MT31S4	12.28	40.6
4	MT21DA	6.33	44.4	MT36S4	19.88	75.0
5	MT26DA	8.82	68.7	MT41S4	23.61	100.0
6	MT31DA	10.67	88.9	MT46S4	33.11	115.6
8	MT36DA	16.71	153.1	MT51S4	49.89	181.3
10	MT51DA	39.24	425.0	MT61S5	101.19	343.8
12	MT51DA	39.24	425.0	MT61S5	101.19	343.8

# FE Series Automated Butterfly Valves

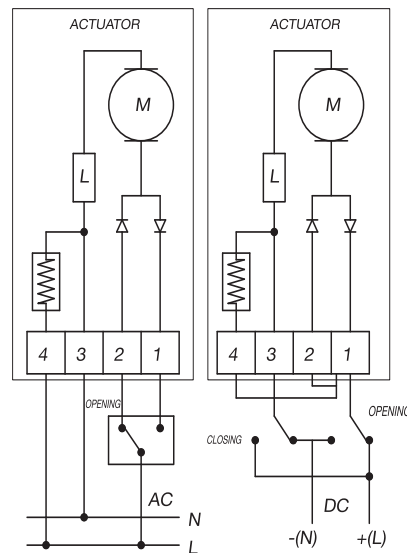
## Technical Data (cont'd)

### electrical actuator

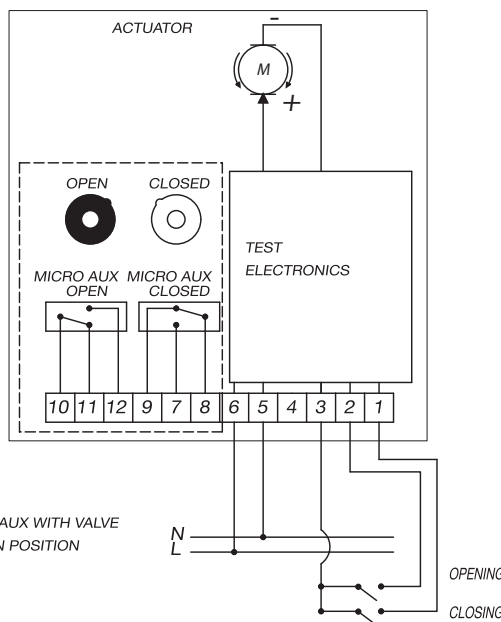
model VB015 24V AC/DC



MICRO AUX WITH VALVE  
IN OPEN POSITION

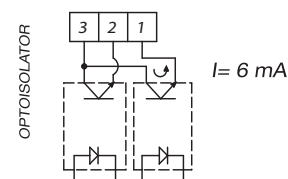


model VB015 100V – 240V AC



MICRO AUX WITH VALVE  
IN OPEN POSITION

STATIC IMPULSE DRIVE OPTOISOLATED BY PLC

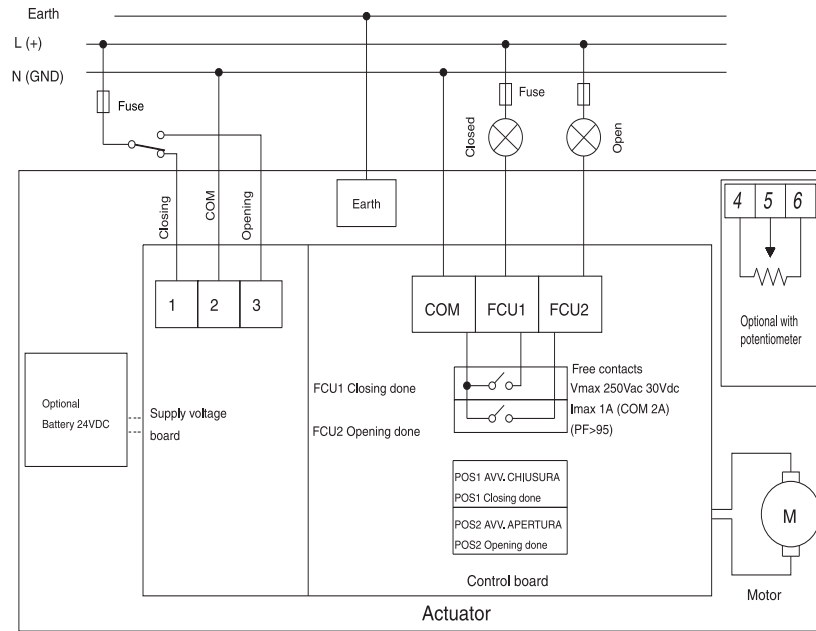


# FE Series Automated Butterfly Valves

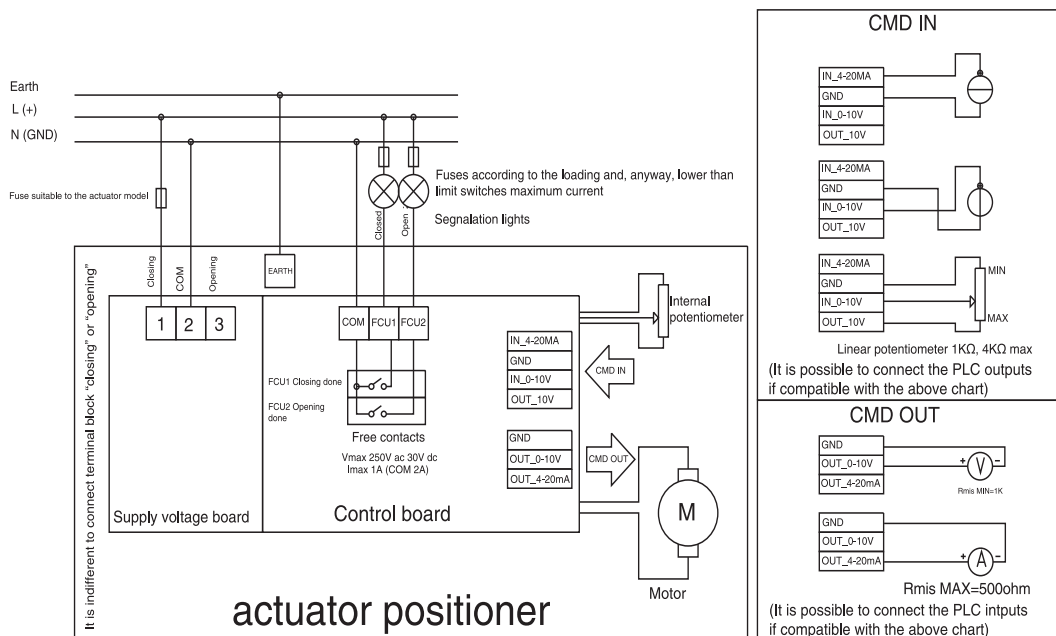
## Technical Data (cont'd)

### electrical actuator

model VB30 to VB350 24V AC/DC, 110 – 240V AC



### VB30 to VB350 24V AC/DC, 110 – 240V AC with Positioner



# FE Series Automated Butterfly Valves

## Technical Data (cont'd)

MODEL		VB015	VB030	VB060	VB110	VB270
Max Working Torque (in-Lbs)		133	266	530	975	2390
Voltage (V)	Low Voltage	24V AC/DC	24V AC/DC	24V AC/DC	24V AC/DC	24V AC/DC
	High Voltage Multitension	100-240V AC	100-240V AC	100-240V AC	100-240V AC	100-240V AC
Working Time (sec)		10	8	9	27	50
Torque Limiter		STD	STD	STD	STD	STD
Duty Rating		50%	75%	75%	75%	75%
Protection		IP65 ** NEMA 4X*	IP65-67 NEMA 4X*	IP65-67 NEMA 4X*	IP65-67 NEMA 4X*	IP65-67 NEMA 4X*
Rotation		90°	90°	90°	90°	90°
Upon Request		180°	180° or 270°	180° or 270°	180° or 270°	180° or 270°
Manual Intervention		STD	STD	STD	STD	STD
Position Indicator		STD	STD	STD	STD	STD
Working Temperature		-4F +131F	-4F +131F	-4F +131F	-4F +131F	-4F +131F
Heater		STD	STD	STD	STD	STD
Additional Free Limit Switches		2 STD	2 STD	2 STD	2 STD	2 STD
Drilling ISO 5211 PAD		F03 – F05	F03 – F05	F05 – F07	F07 – F10	F07 – F10
Square Drive		0.43	0.43	0.55	0.67	0.87
Positioner (4~20mA or 0~10 VDC)		Not Available	Upon Request	Upon Request	Upon Request	Upon Request
Electrical Connections		PG11	PG11	PG11	PG11	PG 11
Weight (LBS)		3.09	5.07	7.28	10.80	13.23

\* Type 4X Indoor Use Only Enclosure

\*\* UL pending

### Electric Actuator Power Consumption

MODEL		VB015		VB030	VB060	VB110	VB270
VERSION H	Nominal Voltage	100V AC	240V AC	100 – 240V AC			
	Absorbed Current	75mA	25mA	0.3 – 0.2A	0.6 – 0.3A		
	Absorbed Power	6.6 VA	6 VA	30 – 48VA	60 – 72 VA		
VERSION L	Nominal Voltage	24V AC/DC		24V AC/DC	24V AC/DC	24V AC/DC	24V AC/DC
	Absorbed Current	0.6A		1.0A	1.8A	1.0A	1.8A
	Absorbed Power	15 VA		24 VA	44 VA	24 VA	44 VA
Frequency		50/60 HZ					

# FE Series Automated Butterfly Valves

*About IPEX*

## About the IPEX Group of Companies

As leading suppliers of thermoplastic piping systems, the IPEX Group of Companies provides our customers with some of the world's largest and most comprehensive product lines. All IPEX products are backed by more than 50 years of experience. With state-of-the-art manufacturing facilities and distribution centers across North America, we have established a reputation for product innovation, quality, end-user focus and performance.

Markets served by IPEX group products are:

- Electrical systems
- Telecommunications and utility piping systems
- Industrial process piping systems
- Municipal pressure and gravity piping systems
- Plumbing and mechanical piping systems
- PE Electrofusion systems for gas and water
- Industrial, plumbing and electrical cements
- Irrigation systems
- PVC, CPVC, PP, PVCO, ABS, PEX, FR-PVDF, NFRPP, FRPP, HDPE, PVDF and PE pipe and fittings (1/2" – 48")

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