

F6 Series 2-Way, Victaulic Butterfly Valve



Technical Data

Service	chilled, hot water, 60% glycol
Flow characteristic	modified equal percentage
Controllable flow range	82°
Sizes	2" to 12"
Type of end fitting	grooved ANSI/AWWA (C606)
Valve materials*	
Body	ductile iron ASTM A536, grade 65-45-12
Body finish	black alkyd enamel
Disc	electroless nickel coated ductile iron
Seat	EPDM
Shaft	416 stainless steel
Bearing	fiberglass with TFE lining
Body pressure rating	300 psi
Media temperature range	-30°F to 250°F [-34°C to 120°C]
Rangeability	100:1
Maximum close-off pressure	200 psi
Maximum velocity	20 FPS

*VIC®300 Masterseal™ as manufactured by Victaulic Company

- 200 psi (2" to 12") bubble tight shut-off
- Long stem design allows for 2" insulation
- Completely assembled and tested, ready for installation

Application

These valves are designed to meet the needs of HVAC and commercial applications requiring bubble tight shut-off for liquids. Typical applications include chiller isolation, cooling tower isolation, change-over systems, large air handler coil control, bypass and process control applications. The large C_v values provide for an economical control valve solution for larger flow applications.

Jobsite Note

Valves should be stored in a weather protected area prior to construction.

		2-way		Suitable Actuators	
		Valve Nominal Size		Type	Spring Return
		IN	DN [mm]	2-way	Non-Spring Return
C _v 90°	C _v 60°				
115	36	2"	50	F650VIC	AF Series
260	80	2½"	65	F665VIC	
440	140	3"	80	F680VIC	
820	250	4"	100	F6100VIC	
1200	370	5"	125	F6125VIC	
1800	560	6"	150	F6150VIC	AM Series
3400	1050	8"	200	F6200VIC	
5800	1800	10"	250	F6250VIC	
9000	2790	12"	300	F6300VIC	GM Series
					SY Series

Valve	Size	C _v	30°	40°	50°	60°	70°	90°
F650VIC	2"	115	7	14	23	36	60	115
F665VIC	2-1/2"	260	16	30	50	80	140	260
F680VIC	3"	440	26	50	90	140	230	440
F6100VIC	4"	820	50	100	160	250	430	820
F6125VIC	5"	1200	70	140	240	370	620	1200
F6150VIC	6"	1800	110	220	360	560	940	1800
F6200VIC	8"	3400	200	410	670	1050	1770	3400
F6250VIC	10"	5800	350	700	1150	1800	3020	5800
F6300VIC	12"	9000	540	1080	1780	2790	4680	9000

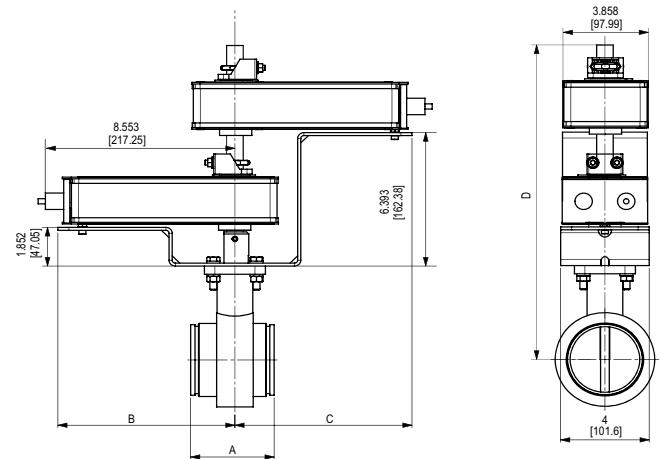
Maximum Dimensions (Inches)								
Valve	Size	C _v 90°	A(Max)	B (Max)	C (Max)	D(Max)	Actuator	Close-Off (PSI)
F650VIC	2"	115	3.21	2.00	8.60	14.00	AF...	200
F665VIC	2½"	260	3.77	2.00	8.60	14.50		50
F665VIC	2½"	260	3.77	8.60	8.60	18.70	2*AF...	200
F680VIC	3"	440	3.77	8.60	8.60	18.70		50
F650VIC	2"	115	3.21	4.70	8.00	13.20	AM...	200
F665VIC	2½"	260	3.77	4.70	8.00	13.60		50
F665VIC	2½"	260	3.77	7.00	8.00	14.00	GM...	200
F680VIC	3"	440	3.77	7.00	8.00	14.30		50
F6100VIC	4"	820	4.63	8.60	8.00	19.60	2*GM	200
F650VIC	2"	115	3.21	3.20	2.40	15.70	SY1...	200
F665VIC	2½"	260	3.77	3.20	2.40	16.20		200
F680VIC	3"	440	3.77	3.20	2.40	16.40		50
F680VIC	3"	440	3.77	4.60	9.20	26.00	SY2...	200
F6100VIC	4"	820	4.63	4.60	9.20	26.70		200
F6125VIC	5"	1200	5.88	4.60	9.20	27.70	SY2.../ SY3...	50/200
F6150VIC	6"	1800	5.88	4.60	9.20	28.20		50/200
F6200VIC	8"	3400	5.33	7.30	10.90	33.30	SY4...	200
F6250VIC	10"	5800	6.40	7.30	10.90	35.00	SY4.../ SY5...	50/200
F6300VIC	12"	9000	6.50	7.30	10.90	36.00	SY6...	200

†SY6 and larger available in 110/220 VAC versions only.
SY... maximum actuator ambient temperature is 150°F.

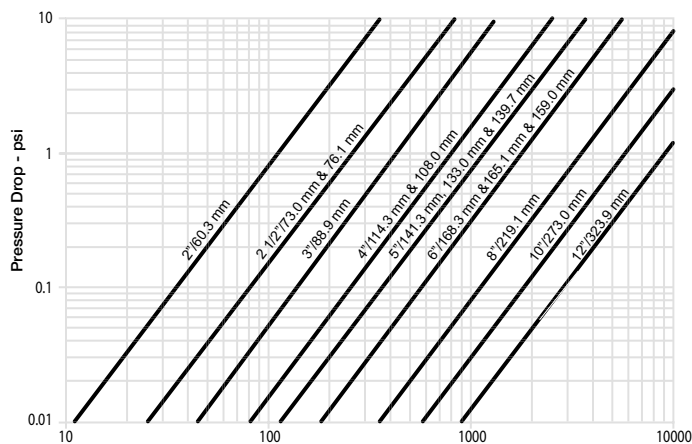
Application Notes

1. Valves are rated at 200 psi differential pressure in the closed position
2. 2-way assemblies are furnished assembled and tested, ready for installation.
3. Dimension "D" allows for actuator removal without the need to remove the valve from the pipe.
4. Belimo SY Series actuators are NEMA 4X rated.
5. Provide support for the actuator if it is mounted at any angle other than 90° vertical.
6. Installer is to use rigid type couplings for connecting the valve to the piping.

Dimensions



Flow Rate (GPM)



AFBUP(-S)-X1, AFXUP(-S)-X1, AFRBUP(-S), AFRXUP(-S) Actuators, On/Off



Models

AFBUP-X1	AFRBUP-5
AFBUP-S-X1	AFRXUP
AFXUP-X1	AFRBUP-S-5
AFXUP-S-X1	AFRXUP-S

Technical Data

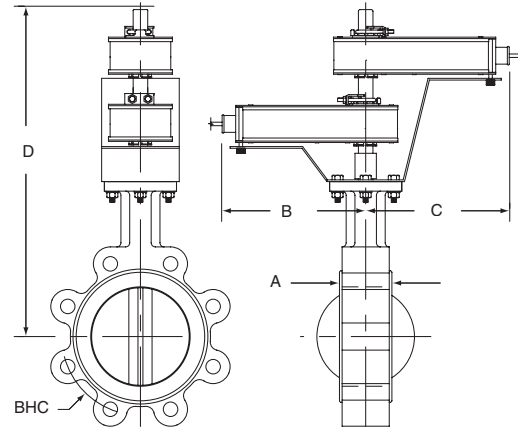
Power supply	24...240 VAC -20% / +10%, 50/60 Hz 24...125 VDC ±10%
Power consumption	running 7 W holding 3.5 W
Transformer sizing	7 VA @ 24 VAC (class 2 power source) 8.5 VA @ 120 VAC 18 VA @ 240 VAC
Electrical connection	AFBUP.../ AFRBUP... 3 ft, 18 GA appliance cable, 1/2" conduit connector -S models: Two 3 ft, 18 gauge appliance cables with 1/2" conduit connectors AFXUP.../ AFRXUP... 3 ft [1m], 10 ft [3m] or 16 ft [5m] 18 GA appliance cable, with or without 1/2" conduit connector -S models: Two 3 ft [1m], 10 ft [3m] or 16 ft [5m] appliance cables with or without 1/2" conduit connectors
Overload protection	Electronic throughout 0 to 95° rotation
Control	On/Off
Torque	180 in-lb [20 Nm] minimum
Direction of rotation	spring reversible with CW/CCW mounting
Mechanical angle of rotation	95° (adjustable with mechanical end stop, 35° to 95°)
Running time	motor < 75 sec spring 20 sec @ -4°F to 122°F [-20°C to 50°C]; < 60 sec @ -22°F [-30°C]
Position indication	visual indicator, 0° to 95° (0° is full spring return position)
Manual override	5 mm hex crank (3/16" Allen), supplied
Humidity	max. 95% RH non-condensing
Ambient temperature	-22°F to 122°F [-30°C to 50°C]
Storage temperature	-40°F to 176°F [-40°C to 80°C]
Housing	Nema 2, IP54, Enclosure Type2
Housing material	Zinc coated metal and plastic casing
Agency listings †	cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE acc. to 2004/108/EC & 2006/95/EC
Noise level	<50dB(A) motor @ 75 seconds ≤62dB(A) spring return
Servicing	maintenance free
Quality standard	ISO 9001
Weight	4.6 lbs (2.1 kg), 4.9 lbs (2.25 kg) with switches

† Rated Impulse Voltage 4kV, Type of action 1.AA (1.AA.B for -S version), Control Pollution Degree 3.

AFBUP-S-X1, AFXUP-S-X1, AFRBUP-S-5, AFRXUP-S

Auxiliary switches	2 x SPDT 3A (0.5A) @ 250 VAC, UL Approved one set at +10°, one adjustable 10° to 90°
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Dimensions with 2-Way Valve

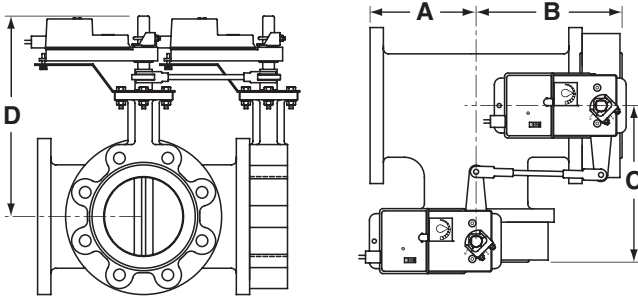


BF2WUDIM_A

Valve	Size	Dimensions (Inches)				Fail Safe (psi)	
		A	B	C	D(Max)	BHC	2*AF
F650HD	2"	1.65	9.00	9.00	19.50	4.75	200
F650H DU	2"	1.65	9.00	9.00	19.50	4.75	50
F665HD	2½"	1.76	9.00	9.00	20.00	5.50	200
F665H DU	2½"	1.76	9.00	9.00	20.00	5.50	50
F680HD	3"	1.78	9.00	9.00	20.50	6.00	200
F680H DU	3"	1.78	9.00	9.00	20.50	6.00	50
F6100H DU	4"	2.05	9.00	9.00	21.00	7.50	50
F6125H DU	5"	2.14	9.00	9.00	22.00	8.50	50
F650-150SHP	2"	1.75	9.00	9.00	19.50	4.75	150
F665-150SHP	2½"	1.88	9.00	9.00	20.00	5.50	150
F680-150SHP	3"	1.92	9.00	9.00	20.50	6.00	150
F6100-150SHP	4"	2.13	9.00	9.00	21.00	7.50	150
F650-300SHP	2"	1.75	9.00	9.00	19.50	5.00	150
F665-300SHP	2½"	1.88	9.00	9.00	20.00	5.88	150
F680-300SHP	3"	1.92	9.00	9.00	20.50	6.63	150
F6100-300SHP	4"	2.13	9.00	9.00	21.00	7.88	150
F650VIC	2"	3.21	9.00	9.00	18.50	-	200
F665VIC	2½"	3.77	9.00	9.00	19.75	-	50
F665VIC	2½"	3.77	9.00	9.00	20.50	-	200
F680VIC	3"	3.77	9.00	9.00	20.50	-	50

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Dimensions with 3-Way Valve



Valve	Size	Dimensions (Inches)					Fail Safe (psi)	
		A	B	C	D(Max)	BHC	AF	2* AF
F750HD	2"	4.50	6.15	6.15	15.50	4.75	200	
F750HDU	2"	4.50	6.15	6.15	15.50	4.75	50	
F765HD	2½"	5.00	6.76	6.76	16.00	5.50		200
F765HDU	2½"	5.00	6.76	6.76	16.00	5.50		50
F780HDU	3"	5.50	7.28	7.28	16.25	6.00		50
F750VIC	2"	4.50	6.85	6.85	15.00	-	50	
F750VIC	2"	4.50	6.85	6.85	15.00	-		200
F765VIC	2½"	5.00	7.46	7.46	15.50	-		50

Typical Specification

On/Off spring return damper actuators shall be direct coupled type which require no crank arm and linkage and be capable of direct mounting to a jackshaft up to a 1.05" diameter. The actuators must be designed so that they may be used for either clockwise or counterclockwise fail-safe operation. Actuators shall be protected from overload at all angles of rotation. If required, two SPDT auxiliary switch shall be provided having the capability of one being adjustable. Actuators with auxiliary switches must be constructed to meet the requirements for Double Insulation so an electrical ground is not required to meet agency listings. Actuators shall be cULus approved and have a 5 year warranty, and be manufactured under ISO 9001 International Quality Control Standards. Actuators shall be as manufactured by Belimo.

Wiring Diagrams

INSTALLATION NOTES

- 1 Provide overload protection and disconnect as required.
- 2 **CAUTION Equipment Damage!**
Actuators may be connected in parallel.
Power consumption and input impedance must be observed.
- 3 No ground connection is required.
- 4 For end position indication, interlock control, fan startup, etc., AFBUP-S-X1 and AFXUP-S-X1 incorporates two built-in auxiliary switches: 2 x SPDT, 3A (0.5A) @250 VAC, UL Approved, one switch is fixed at +10°, one is adjustable 10° to 90°.

APPLICATION NOTES

Meets cULus requirements without the need of an electrical ground connection.

WARNING Live Electrical Components!

During installation, testing, servicing and troubleshooting of this product, it may be necessary to work with live electrical components. Have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components perform these tasks. Failure to follow all electrical safety precautions when exposed to live electrical components could result in death or serious injury.

