F650HD, 2”, 2-Way Butterfly Valve

Resilient Seat, 304 Stainless Steel Disc

Application

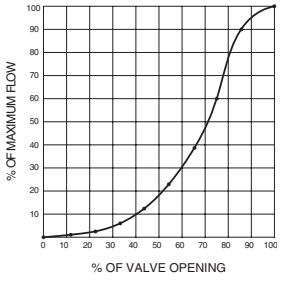
Valve is designed for use in ANSI flanged piping systems to meet the needs of bi-directional high flow HVAC hydronic applications with 0% leakage. Typical applications include cooling tower bypass, primary flow change-over systems, and large air handler coil control. Valve face-to-face dimensions comply with API 609 & MSS-SP-67, Completely assembled and tested, Ready for installation.

Jobsite Note

Valve assembly should be stored in a weather protected area prior to installation. Reference the butterfly valve installation instruction for additional information.

Technical Data	
Media	chilled, hot water, up to 60% glycol
Flow characteristic	modified equal percentage
Controllable flow range	90° rotation
Valve Size	2 “ [50]
Type of End Fitting	for use with ANSI class 125/150 flanges
Housing	ductile iron ASTM A536
Surface treatment	epoxy powder coated
Stem seal	EPDM (lubricated)
Seat	EPDM
Stem	416 stainless steel
Bearing	RPTFE
Disc	304 stainless steel
Body Pressure Rating	ANSI Class 125, standard class B
ANSI Class	125
Number of Bolt Holes	4
Lug threads	5/8-11 UNC
Closing pressure Δps	200 psi
Rangeability Sv	10:1 (for 30° to 70° range)
Maximum Velocity	12 FPS
kvs	115
Weight	5.3 lb [2.4 kg]
Leakage rate	0%
Maintenance	maintenance free

Flow Pattern



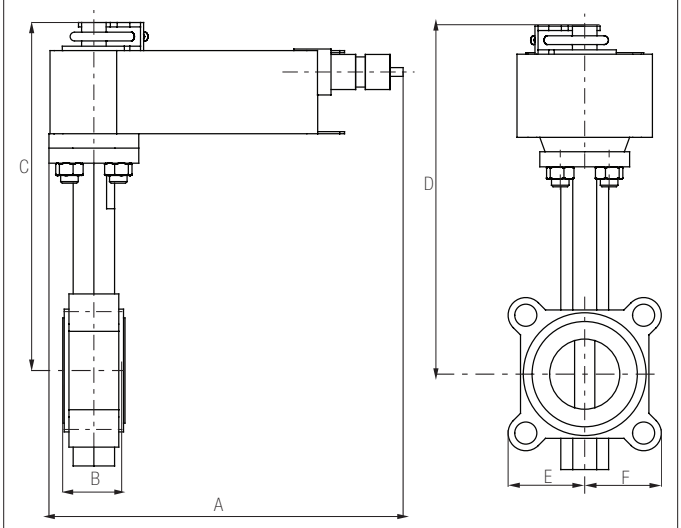
Flow/Cv

kv 10%	kv 20%	kv 30%	kv 40%	kv 50%	kv 60%	kv 70%	kv 80%	kv 90%
0.06	3	7	15	27	44	70	105	115

Suitable Actuators

	Non-Spring	Spring
F650HD	ARB(X), GRB(X)	AFRB(X)

Dimensions (Inches [mm])



AFR

A	B	C	D	E	F
10.6” [270]	1.72” [43.7]	12.6” [320]	9.87” [251]	2.78” [71]	

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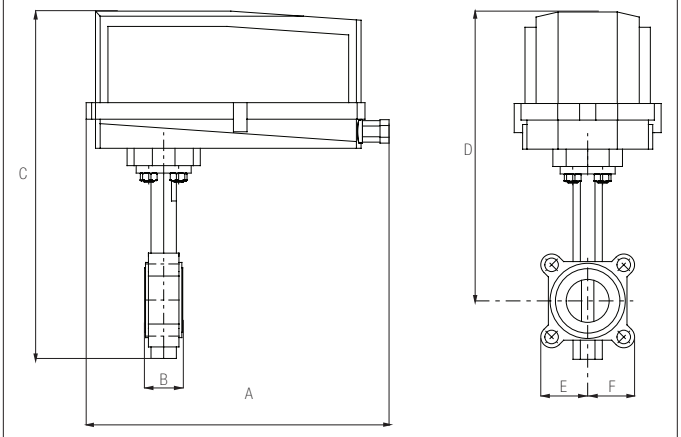
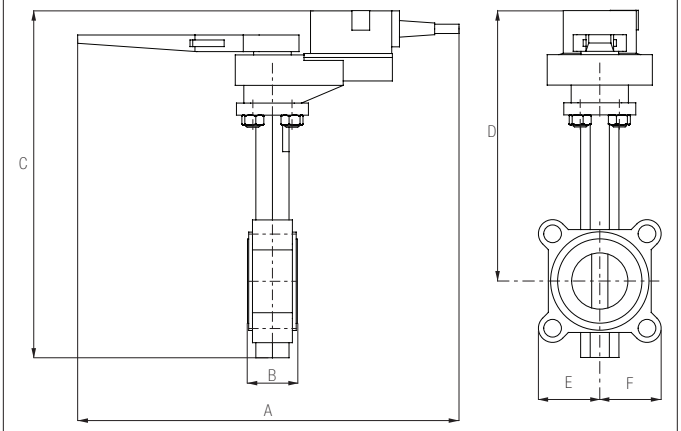
Dimensions (Inches [mm])



GR/AFR N4(H)

A	B	C	D	E	F
14.1” [358]	1.72” [43.7]	16.1” [375]	13.60” [345]	2.78” [71]	

Dimensions (Inches [mm])

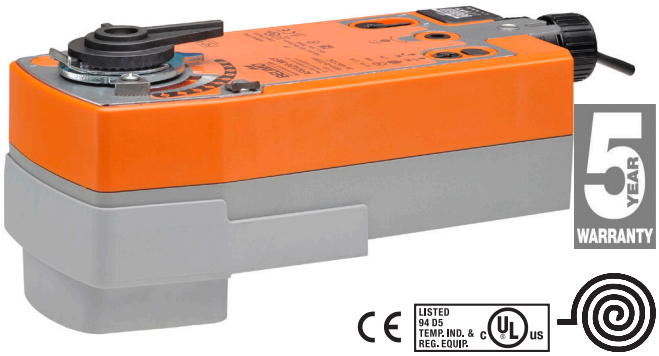


ARB/GRB

A	B	C	D	E	F
12.7” [323]	1.39” [35.3]	12.38” [314.4]	9.57” [243.1]	2.78” [71]	

AFRXUP

On/Off, Spring Return, 24 to 240 VAC



Technical Data	
Power Supply	24...240 VAC, -20% / +10%, 50/60 Hz, 24...125 VDC, ±10%
Power consumption in operation	7 W
Power consumption in rest position	3.5 W
Transformer sizing	7 VA @ 24 VAC (class 2 power source), 8.5 VA @ 120 VAC, 18 VA @ 240 VAC
Electrical Connection	3ft [1m], 18 GA appliance cable with 1/2" conduit connector
Overload Protection	electronic throughout 0° to 95° rotation
Angle of rotation	90°
direction of rotation motor	reversible with CW/CCW mounting
direction of rotation spring-return	reversible with CW/CCW mounting
Position indication	visual indicator, 0° to 95° (0° is full spring return position)
Manual override	5 mm hex crank (3/16" Allen), supplied
Running time motor	<75 sec
Running time emergency control position	<20 sec
Ambient humidity	5 to 95% RH non condensing (EN 60730-1)
Ambient temperature	-22...122 °F [-30...50 °C]
Non-operating temperature	-40...176 °F [-40...80 °C]
Degree of Protection	IP54, NEMA 2, UL Enclosure Type 2
Agency Listing	cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE acc. to 2004/108/EC and 2006/95/EC
Noise level, motor	<45 dB (A)
Noise Level (Fail-Safe)	<62 dB (A)
Maintenance	maintenance free
Quality Standard	ISO 9001
Weight	{733}

†Rated Impulse Voltage 800V, Type of action 1.AA, Control Pollution Degree 3

Wiring Diagrams

INSTALLATION NOTES

(A) Actuators with appliance cables are numbered.

(UP) Universal Power Supply (UP) models can be supplied with 24 VAC up to 240 VAC, or 24 VDC up to 125 VDC.

1 Provide overload protection and disconnect as required.

45 Actuators may be powered in parallel. Power consumption must be observed.

48 Parallel wiring required for piggy-back applications.

◆ 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.