

F765HD, 2.5", 3-Way Butterfly Valve

Resilient Seat, 304 Stainless Steel Disc



Technical Data

Service	chilled, hot water, up to 60% glycol
Flow Characteristic	modified linear
Controllable Flow Range	90° rotation
Size [mm]	2.5" [65]
End Fitting	For use with ANSI Class 125/150 flanges
Body	ductile iron ASTM A536
Body Finish	epoxy powder coated
Seat	EPDM standard
Shaft	416 stainless steel
Bushings	RPTFE
Disc	304 stainless steel
Body Pressure Rating [psi]	200 psi at -20°F to +150°F
Number of Bolt Holes	4
Lug Threads	5/8-11 UNC
Media Temperature Range (Water)	-22°F to 250°F [-30°C to 120°C]
Close-Off Pressure	200 psi
Rangeability	10:1 (for 30° to 70° range)
Maximum Velocity	12 FPS
Cv	196
Weight	41.9 lb [19 kg]
Leakage	0%
Servicing	maintenance free

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.

Jobsite Note

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

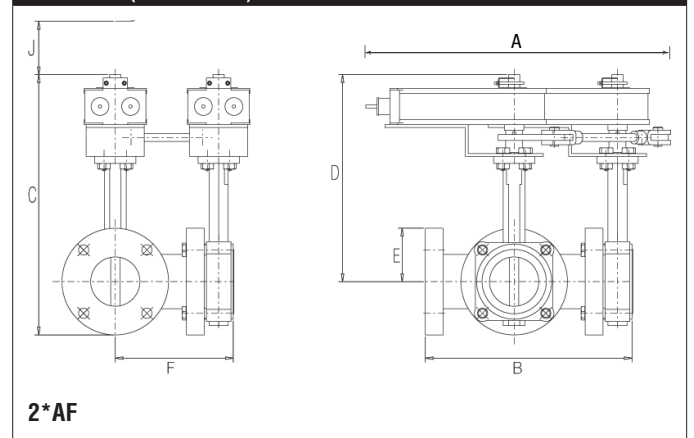
Flow/Cv

Cv 10°	Cv 20°	Cv 30°	Cv 40°	Cv 50°	Cv 60°	Cv 70°	Cv 80°	Cv 90°
0.1	6	12	25	45	75	119	178	196

Suitable Actuators

	Non-Spring	Spring	Electronic Fail-Safe
F765HD	GMB(X)	2*AFB(X)	GKB(X)

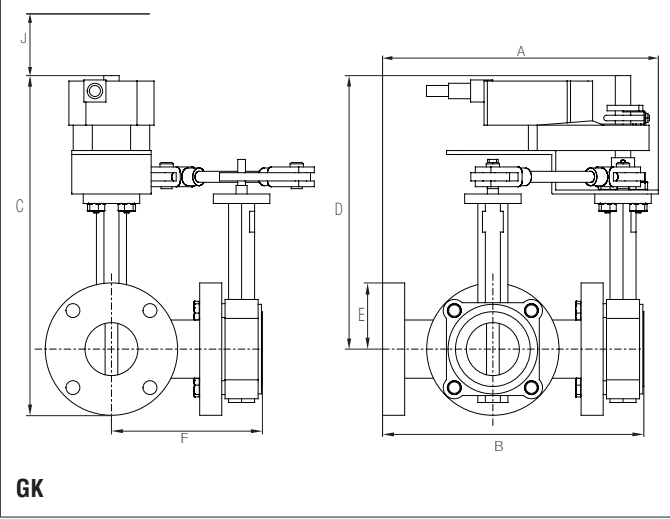
Dimensions (Inches [mm])



A	B	C	D	E	F	J
17.9" [454]	11.75" [298]	13.47" [342]	10.47" [266]	3" [76]	6.8" [172]	3.9" [100]

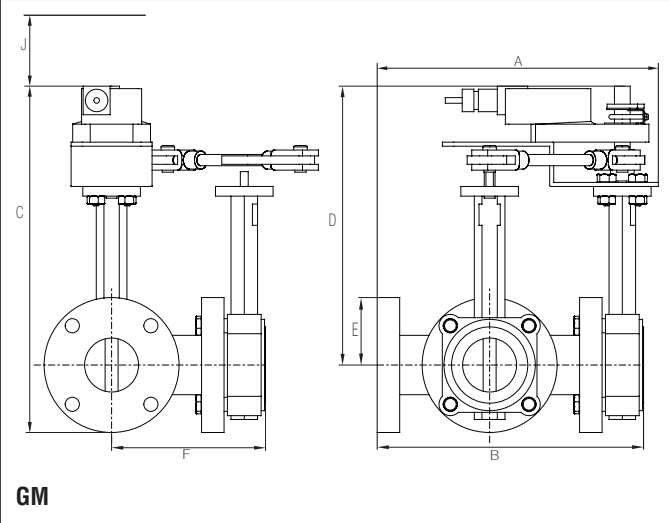
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Dimensions (Inches [mm])



A	B	C	D	E	F	J
12.46" [316]	11.75" [298]	13.1" [333]	10.07" [256]	3" [76]	6.8" [172]	3.9" [100]

Dimensions (Inches [mm])

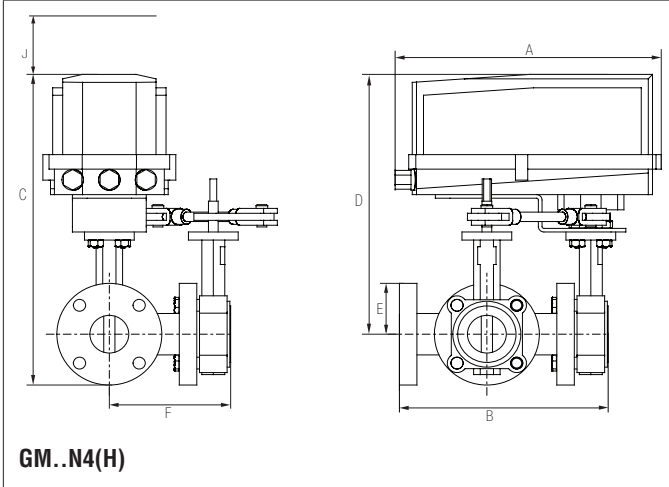


A	B	C	D	E	F	J
12.46" [316]	11.75" [298]	13.1" [333]	10.07" [256]	3" [76]	6.8" [172]	3.9" [100]

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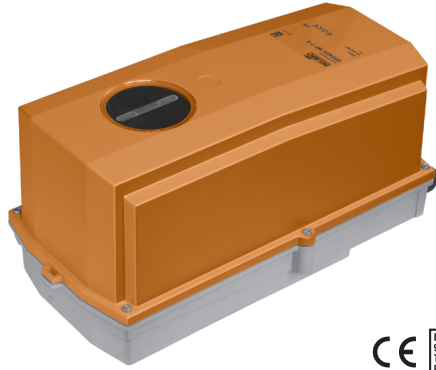
Resilient Seat, 304 Stainless Steel Disc

Dimensions (Inches [mm])



A	B	C	D	E	F	J
14.92" [379]	11.75" [298]	17.03" [433]	13.8" [342]	3" [76]	6.8" [172]	7.8" [198]

GMX24-MFT-T-X1 N4
NEMA 4, Modulating Control, Non-Spring Return, Direct Coupled, 24
V, Multi-Function Technology®



Technical Data	
Power Supply	24 VAC, ±20%, 50/60 Hz, 24 VDC, ±10%
Power Consumption Running	8 W
Power Consumption Holding	2.5 W
Transformer Sizing	11 VA (class 2 power source)
Electrical Connection	terminal blocks
Overload Protection	electronic throughout 0° to 95° rotation
Operating Range Y	2 to 10 VDC, 4 to 20 mA w/ ZG-R01 (500 Ω, 1/4 W resistor), variable (VDC, floating point, on/off)
Input Impedance	100 k Ω for 2 to 10 VDC (0.1 mA), 500 Ω for 4 to 20 mA, 1500 Ω for PWM, floating point and On/Off
Feedback Output U	2 to 10 VDC, 0.5 mA max, VDC variable
Angle of Rotation	Max. 95°, adjustable with mechanical stop
Nominal Torque	Min. 360 in-lbs [40 Nm]
Direction of Rotation (Motor)	reversible with built-in switch
Position Indication	dial
Manual Override	under cover
Running Time (Motor)	default 150 sec, variable 90...150 sec
Ambient Humidity	5 to 100% RH (UL Type 4)
Ambient Temperature Range	-22°F to 122°F [-30°C to 50°C]
Storage Temperature Range	-40°F to 176°F [-40°C to 80°C]
Housing	NEMA 4, IP66, UL Enclosure Type 4
Agency Listings†	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)
Servicing	maintenance free
Quality Standard	ISO 9001
Weight	9.9 lb [4.5 kg]
Degree of Protection IEC/EN	IP66

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

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Wiring Diagrams

✂ INSTALLATION NOTES

- (A)** Actuators with appliance cables are numbered.
- 1** Provide overload protection and disconnect as required.
- 3** Actuators may also be powered by 24 VDC.
- 5** Only connect common to negative (-) leg of control circuits.
- 7** A 500 Ω resistor (ZG-R01) converts the 4 to 20 mA control signal to 2 to 10 VDC.
- 8** Control signal may be pulsed from either the Hot (Source) or Common (Sink) 24 VAC line.
- 10** For triac sink the Common connection from the actuator must be connected to the Hot connection of the controller. Position feedback cannot be used with a triac sink controller; the actuator internal common reference is not compatible.
- 12** IN4004 or IN4007 diode. (IN4007 supplied, Belimo part number 40155).
- 16** Actuators are provided with a numbered screw terminal strip instead of a cable.
- 46** Actuators may be controlled in parallel. Current draw and input impedance must be observed.
- 47** Master-Slave wiring required for piggy-back applications. Feedback from Master to control input(s) of Slave(s).
- ◆** 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.

On/Off

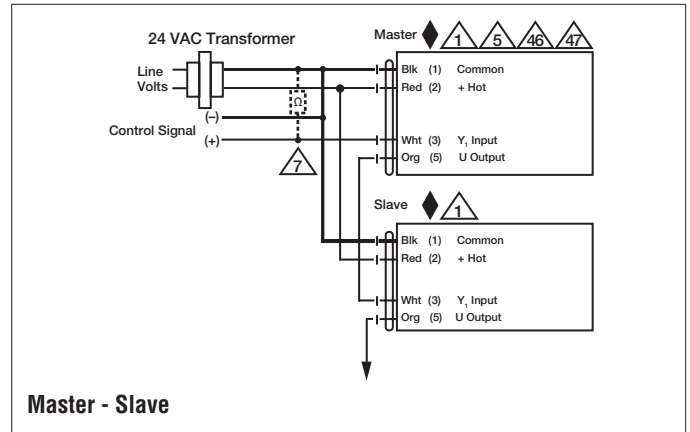
Floating Point

VDC/mA Control

PWM Control

Functions	a	b	c
Min	0% \triangleleft	—	—
Mid	50% \triangleleft	—	—
Max	100% \triangleleft	—	—
Normal	Control mode acc. to Y ₁	—	—

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