

# F780HDU, 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]	3" [80]
End Fitting	for use with ANSI Class 125/150 flanges
Body	ductile iron ASTM A536
Body Finish	Epoxy powder coated
Seat	EPDM
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	50 psi
Rangeability	10:1 (for 30° to 70° range)
Maximum Velocity	12 FPS
Cv	302
Weight	50.5 lb [22.9 kg]
Leakage	0%
Servicing	maintenance free

### Product Features

50 psi bubble tight shut-off, Long stem design allows for 2" insulation, Valve face-to-face dimensions comply with API 609 & MSS-SP-67, Completely assembled and tested, ready for installation, Tees comply with ASME/ANSI B16.1 Class 125 flanges

### 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 insulation, cooling tower isolation, change-over systems, large air handler coil control, bypass and process control applications. The large Cv values provide for an economical control valve solution for larger flow applications. Designed for use in Victaulic piping systems.

### Jobsite Note

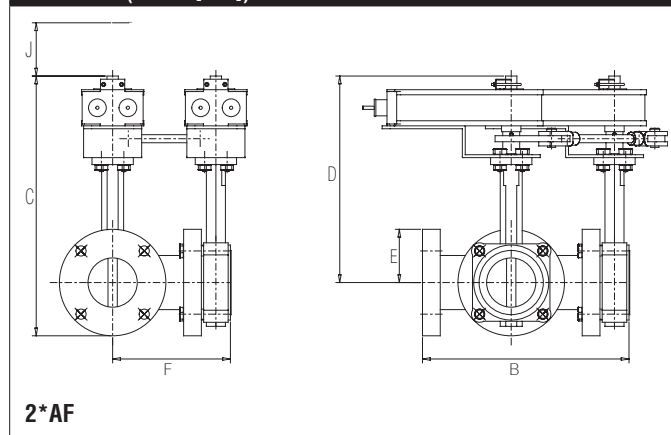
Valves should be stored in a weather protected area prior to construction. Complete installation recommendations can be found in Belimo's Installation and Maintenance Instructions for F6/F7... Butterfly Valves.

Flow/Cv								
10°	20°	30°	40°	50°	60°	70°	80°	90°
0.2	9	18	39	70	116	183	275	302

### Suitable Actuators

	Non-Spring	Spring
F780HDU	GMB(X), SY2	2*AFB(X)

### Dimensions (Inches [mm])

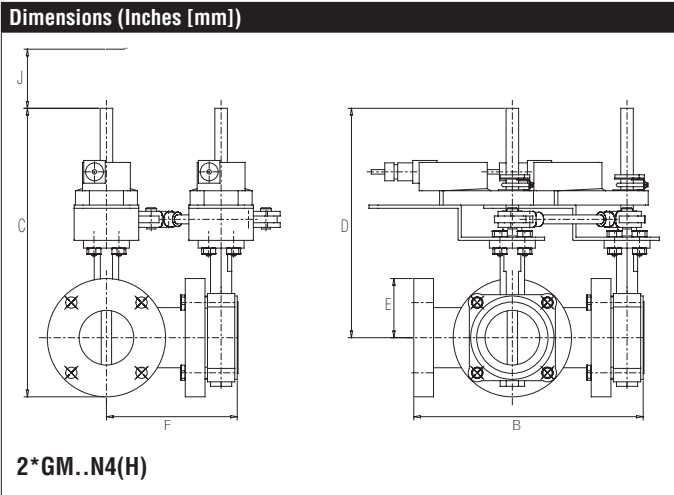


A	B	C	D	E	F
18.98" [482]	12.87" [326.9]	13.81" [350.7]	10.5" [267]	3.34" [85]	7.38" [187]

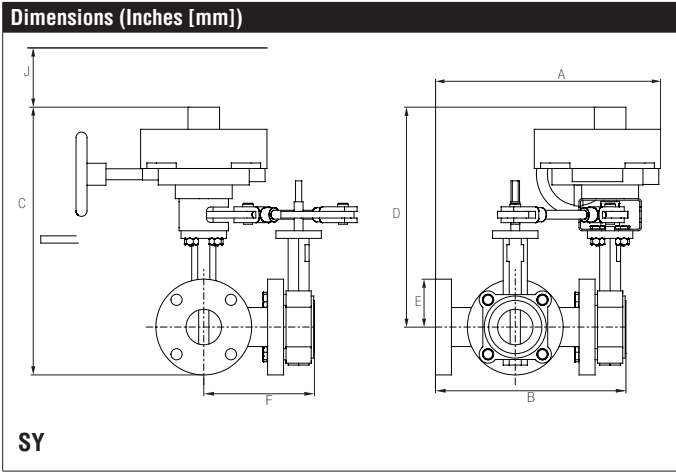
### Application Notes

These valves are designed to meet the needs of HVAC and commercial applications requiring 0% leakage 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 Cv values provide for an economical control valve solution for larger flow applications. Designed for use in ANSI flanged piping systems.

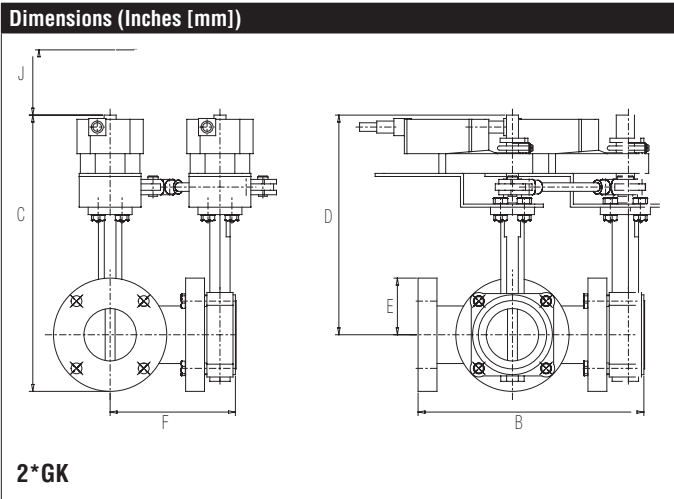
**F780HDU, 3-Way Butterfly Valve**  
Resilient Seat, 304 Stainless Steel Disc



A	B	C	D	E	F
13.8" [350]	12.87" [326.9]	14.75" [374.6]	10.28" [261.1]	3.34" [85]	7.38" [187]



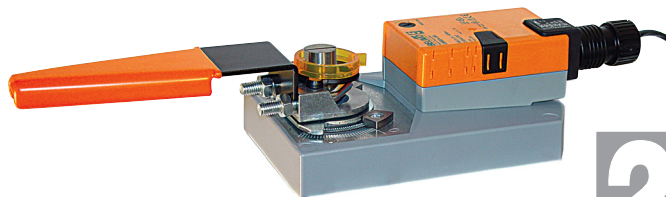
A	B	C	D	E	F	J
14.4" [365.8]	12.87" [326.9]	22.00" [559]	18.70" [475]	3.34" [85]	7.38" [187]	7.8" [198]



A	B	C	D	E	F
13.8" [350]	12.87" [326.9]	14.75" [374.6]	11.5" [292]	3.34" [85]	7.38" [187]

# GMX24-MFT-X1

Modulating, Non-Spring Return, 24 V, Multi-Function Technology®














Technical Data	
Power Supply	24 VAC $\pm$ 20%, 50/60 Hz, 24 VDC $\pm$ 10%
Power Consumption Running	4.5 W
Power Consumption Holding	1.5 W
Transformer Sizing	7 VA (class 2 power source)
Shaft Diameter	1/2" to 1.05" round, centers on 1/2" and 3/4" with insert, 1.05" without insert
Electrical Connection	3 ft, 18 GA plenum rated cable with 1/2" conduit connector (10 ft [3m] and 15 ft [5m] avail.)
Overload Protection	electronic throughout 0° to 95° rotation
Operating Range Y	2 to 10 VDC, 4 to 20 mA w/ ZG-R01 (500 $\Omega$ , 1/4 W resistor), variable (VDC, floating point, on/off)
Input Impedance	100 k $\Omega$ for 2 to 10 VDC (0.1 mA), 500 $\Omega$ for 4 to 20 mA, 1500 $\Omega$ 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
Torque	360 in-lbs [40 Nm] minimum
Direction of Rotation (Motor)	reversible with built-in switch
Position Indication	reflective visual indicator (snap on)
Manual Override	external push button
Running Time (Motor)	150 sec (default), variable (90 to 150 sec)
Humidity	5 to 95% RH non-condensing
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 2, IP54
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	4.9 lb [2.2 kg]

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

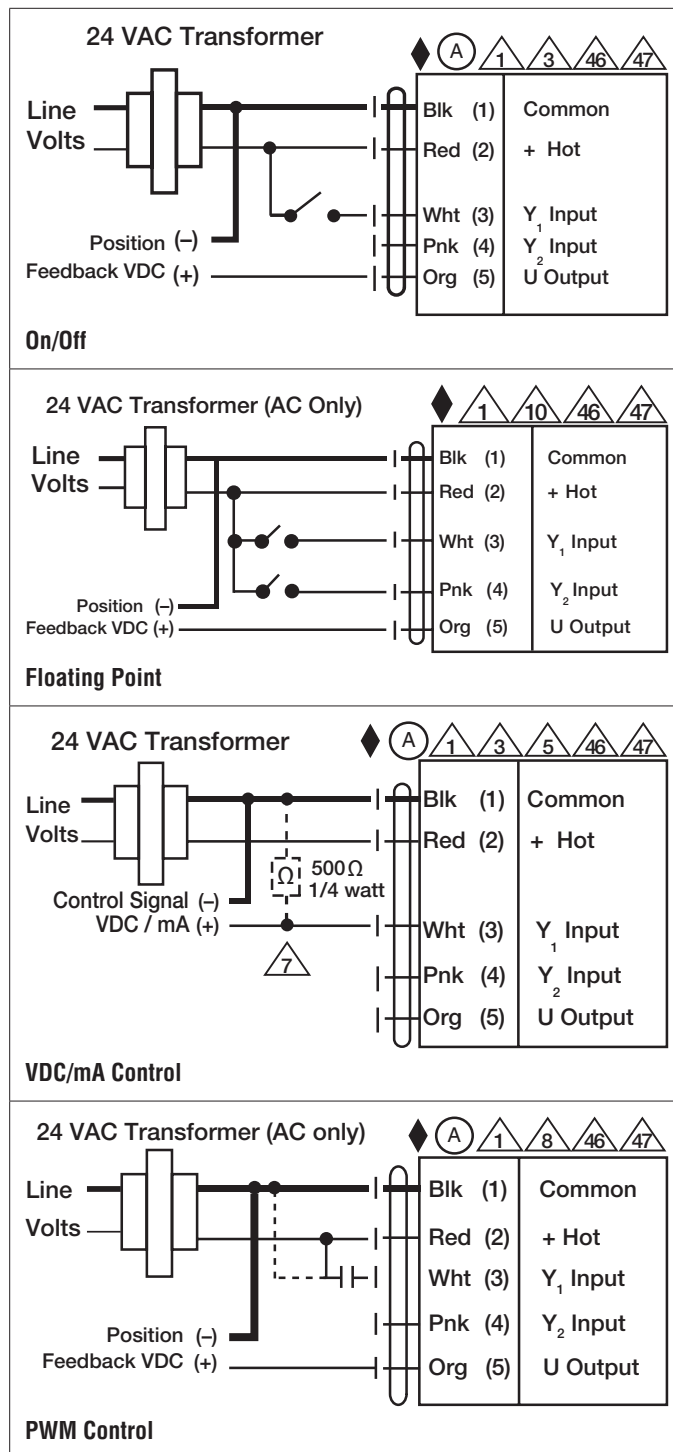
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**Wiring Diagrams**
**INSTALLATION NOTES**

-  **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  $\Omega$  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).
-  **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.



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