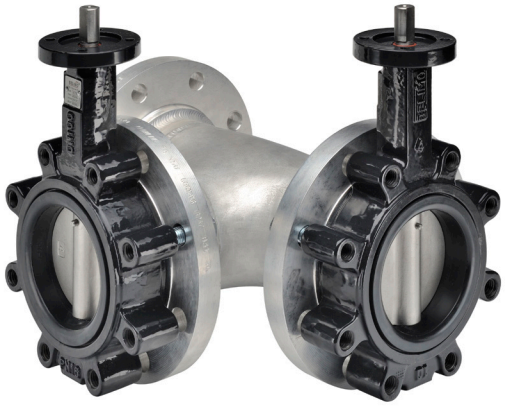
# F780HDU, 3”, 3-Way Butterfly Valve

**Resilient Seat, 304 Stainless Steel Disc**



## 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 insolation, 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.

## Jobsite Note

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

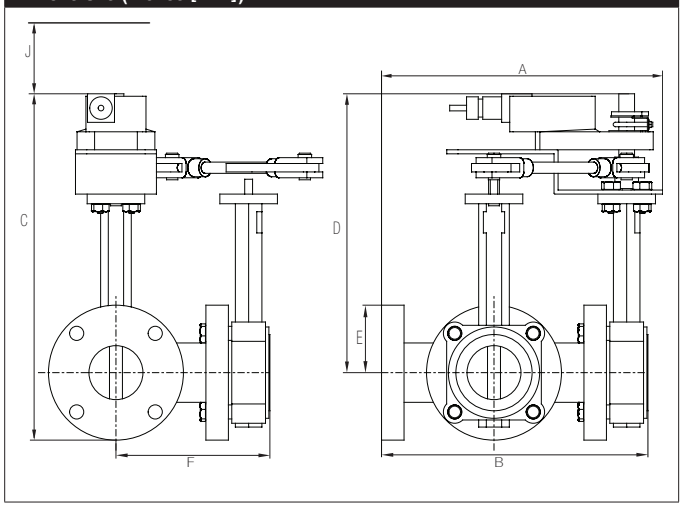
| Technical Data | |
|---|---|
| Service | chilled, hot water, up to 60% glycol |
| Flow Characteristic | modified linear |
| Controllable Flow Range | 90° rotation |
| Size [mm] | 3” [80] |
| End Fitting | for use with ansi class 125/150 flanges |
| Body | ductile iron ASTM A536 |
| Body Finish | epoxy 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 |

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

### Suitable Actuators

| | Non-Spring |
|---|---|
| F780HDU | GMB(X) |

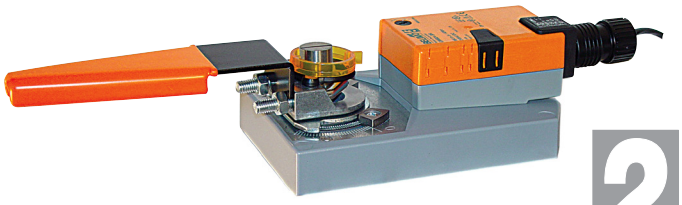
**Dimensions (Inches [mm])**




| A | B | C | D | E | F | J |
|---|---|---|---|---|---|---|
| 13.8” [350] | 12.87” [326.9] | 14.75” [374.6] | 11.5” [292] | 3.34” [85] | 7.38” [187] | 3.9” [100] |

# GMX24-MFT-X1

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



2 YEAR WARRANTY

BRUSHLESS dc motor

| Technical Data | |
|---|---|
| Power Supply | 24 VAC, ±20%, 50/60 Hz, 24 VDC, ±10% |
| Power Consumption Running | 4.5 W |
| Power Consumption Holding | 1.5 W |
| Transformer Sizing | 7 VA (class 2 power source) |
| Electrical Connection | 3ft [1m], 18 GA plenum rated cable with 1/2" conduit connector (10ft [3m] and 15ft [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 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 | reflective visual indicator (snap on) |
| Manual Override | external push button |
| Running Time (Motor) | default 150 sec, variable 90...150 sec |
| Ambient 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] |
| Degree of Protection IEC/EN | IP54 |

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

## 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).

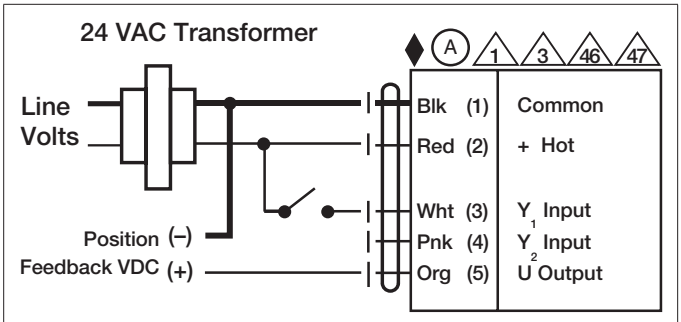
46 — Actuators may be controlled in parallel. Current draw and input impedance must be observed.

47 — Master-Slave wiring required for piggy-back applications. Feedback from Master to control input(s) of Slave(s).

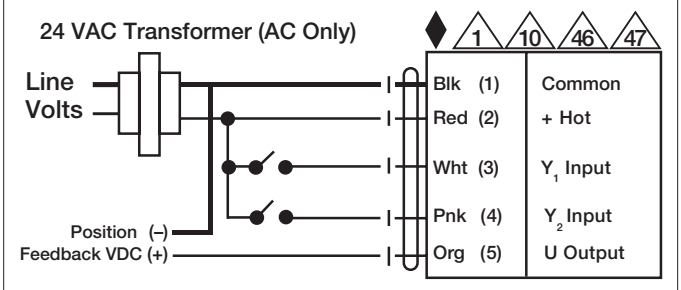
◆ — Meets cULus requirements without the need of an electrical ground connection.

### WARNING! LIVE ELECTRICAL COMPONENTS!

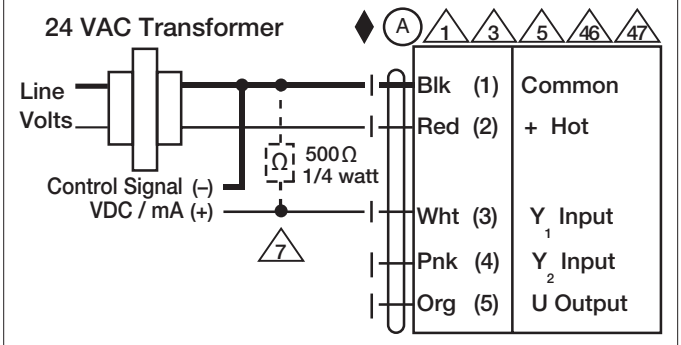
During installation, testing, servicing and troubleshooting of this product, it may be necessary to work with live electrical components. Have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components perform these tasks. Failure to follow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



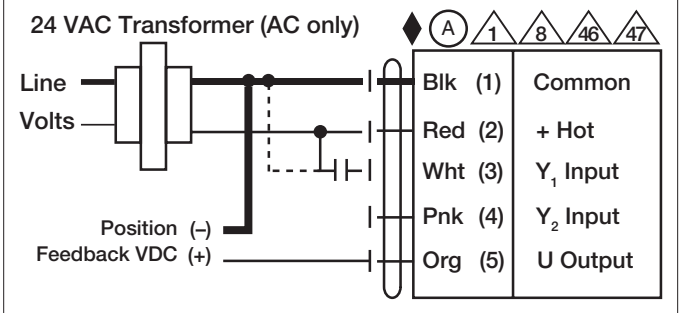

**On/Off**



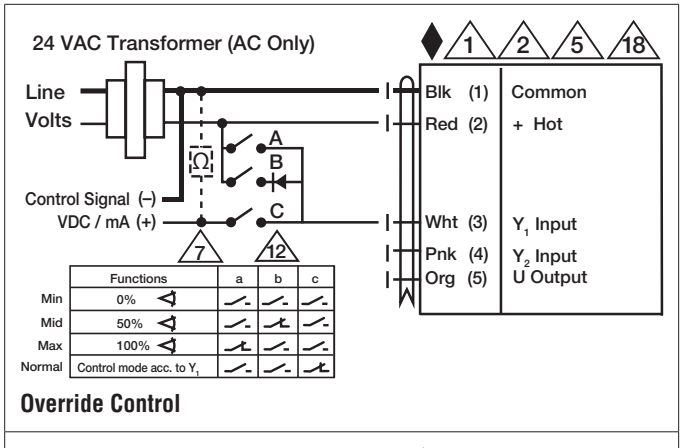

**Floating Point**



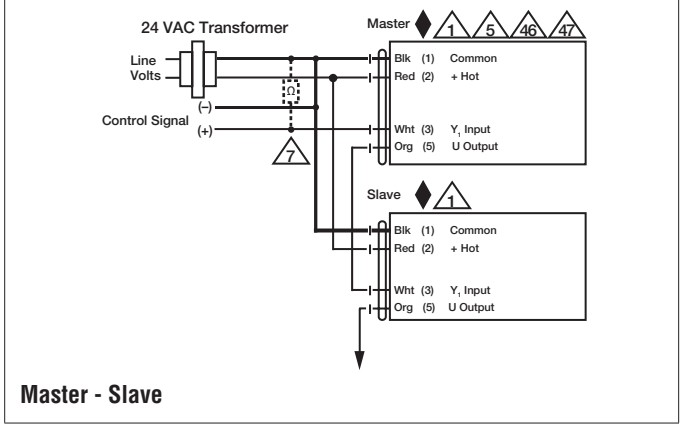

**VDC/mA Control**




**PWM Control**




**Override Control**




**Master - Slave**