

# F7100HD, 4", 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]	4" [100]
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	8
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	600
Weight	85.8 lb [38.9 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

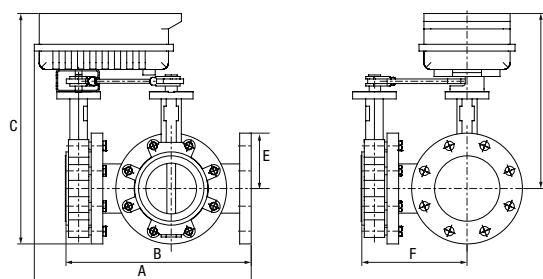
Valve assembly should be stored in a weather protected area prior to installation. Reference the butterfly valve installation instruction for additional information.

Flow/Cv								
Cv 10°	Cv 20°	Cv 30°	Cv 40°	Cv 50°	Cv 60°	Cv 70°	Cv 80°	Cv 90°
0.3	17	36	78	139	230	364	546	600

### Suitable Actuators

	Non-Spring
F7100HD	PRB(X)

### Dimensions (Inches [mm])



PRB, PRX

A	B	C	D	E	F
17.63"	15.05"	18.72"	14.22"	4.5" [114]	8.55"
[447.8]	[382.3]	[475.5]	[361.2]		[217.2]

# SY3-120MFT

Modulating, Non-Spring Return, 120 V, for 2 to 10VDC or 4 to 20 mA



## Application

SY Series actuators are fractional horsepower devices, and utilize full-wave power supplies. Observe wire sizing and transformer sizing requirements. Proportional models CANNOT be connected to Belimo direct coupled (AF, AM, GM...etc) actuator power supplies or any type of half-wave device. You MUST use a separate, dedicated transformer or power supply to power the SY actuator. Please do not connect other automation equipment to the dedicated SY supply source. You MUST use four wires (plus a ground) to control a proportional control SY actuator (See SY Wiring Section).

Technical Data	
Power Supply	120 VAC $\pm$ 10%, 50/60 Hz
Power Consumption Running	71 W
Transformer Sizing	84 (class 2 power source)
Electrical Connection	terminal block
Overload Protection	thermally protected 135°C cut-out
Operating Range Y	2 to 10 VDC, 4 to 20 mA w/ ZG-R01 (500 $\Omega$ , 1/4 W resistor) between 0% and 100%
Input Impedance	100 k $\Omega$ for 2 to 10 VDC (0.1 mA), 500 $\Omega$ for 4 to 20 mA
Feedback Output U	2 to 10 VDC
Angle of Rotation	90°
Torque	1335 in-lbs [150 Nm] minimum
Duty cycle	75%
Direction of Rotation (Motor)	reversible with built-in switch
Position Indication	top mounted domed indicator
Manual Override	hand wheel
Running Time (Motor)	22 sec
Internal Humidity Control	resistive heating element
Humidity	5 to 100% RH (UL Type 4)
Ambient Temperature Range	-22F to 122F [-30C to 50C]
Storage Temperature Range	-40°F to +176°F [-40°C TO +80°C]
Housing	NEMA 4X, IP66/67, UL enclosure type 4
Housing Material	die cast aluminum alloy
Gear Train	high alloy steel gear sets, self locking
*del* Agency Listings	ISO, CE, cCSAus
Noise Level (Motor)	<45 dB (A)
Servicing	maintenance free
Quality Standard	ISO 9001
Weight	24.2 lb [11 kg]
Auxiliary Switch	2 x SPDT 3A resistive (0.5A inductive) @ 250 VAC, one set at +10° and one set at 85°

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

- 60** Do not change sensitivity or dip switch setting with power applied.
- 61** Power supply Common/Neutral and Control Signal “-” wiring to a common is prohibited. Terminals 4 and 6 need to be wired separately.
- 62** Isolation relays must be used in parallel connection of multiple actuators using a common control signal inputs. The relays should be DPDT.
- 63** Isolation relays are required in parallel applications. The reason parallel applications need isolation relays is that the motor uses two sets of windings, one for each direction. When one is energized to turn the actuator in a specific direction a voltage is generated in the other due to the magnetic field created from the first. It's called back EMF. This is not an issue with one actuator because the voltage generated in the second winding isn't connected to anything so there is no flow. On parallel applications without isolation, this EMF voltage energizes the winding it is connected to on the other actuators in the system, the actuators are trying to turn in both directions at once. The EMF voltage is always less than the supply voltage due to the resistance of the windings, so while the actuator still turns in the commanded direction, the drag from the other reduces the torque output and causes overheating.


**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.

