

F7450HD, 18", 3-Way Butterfly Valve

Resilient Seat, 304 Stainless Steel Disc



Technical Data	
Media	chilled, hot water, up to 60% glycol
Flow characteristic	modified linear
Controllable flow range	90° rotation
Valve Size [mm]	18" [450]
Pipe connection	for use with ANSI class 125/150 flanges
Housing	Ductile cast iron ASTM A536
Body finish	epoxy powder coating (blue RAL 5002)
Stem	416 stainless steel
Seat	EPDM
Bearing	RPTFE
Disc	304 stainless steel
Body Pressure Rating	232 psi CWP
ANSI Class	Consistent with 125
Number of Bolt Holes	16
Close-off pressure Δps	200 psi
Rangeability Sv	10:1 (for 30° to 70° range)
Maximum Velocity	12 FPS
Cv	21705
Weight	1080.27 lb [490 kg]
Media Temp Range (water)	-22...250°F [-30...120°C]
Leakage rate	0%
Maintenance	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. Valve face-to-face dimensions comply with API 609 & MSS-SP-67, Completely assembled and tested, Ready for installation.

Jobsite Note

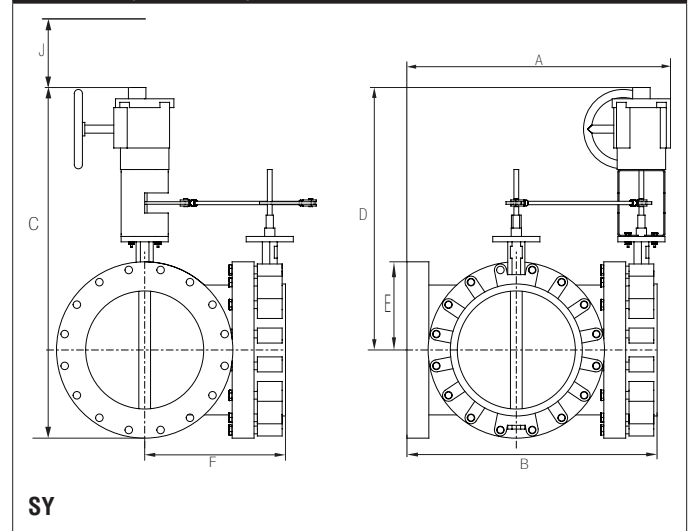
Valve assembly should be stored in a weather protected area prior to installation. Reference the butterfly valve installation instruction for additional information.

Flow/Cv								
Cv 10°	Cv 20°	Cv 30°	Cv 40°	Cv 50°	Cv 60°	Cv 70°	Cv 80°	Cv 90°
11	615	1302	2822	5028	8320	13168	19752	21705

Suitable Actuators

	Non-Spring
F7450HD	SY8

Dimensions (Inches [mm])



A	B	C	D	E	F	J
39.2" [995]	36.4" [924]	53.8" [1367]	39.3" [997]	12.9" [327]	21.5" [546]	8.9" [225]

Safety Notes

⚠ WARNING: For Belimo Products sold in California, these Products do or may contain chemicals which are known to the State of California to cause cancer and or birth defects or other reproductive harms. For more information see www.p65warnings.ca.gov.

SY8-120MFT

Modulating, Non-Spring Return, 120 V, for 2 to 10VDC or 4...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
Transformer sizing	336 VA
Current consumption	2.8 A
Electrical Connection	Terminal blocks
Overload Protection	thermally protected 135°C cut-out
Operating Range	DC 2...10 V (default), ,
Input Impedance	100 k Ω
Position Feedback	DC 2...10 V
Angle of rotation	90°
Torque motor	13350 in-lb [1500 Nm]
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)	79 s
Internal Humidity Control	resistive heating element
Ambient humidity	max. 95% r.H., non-condensing
Ambient temperature	-22...150°F [-30...65°C]
Storage temperature	-40...176°F [-40...80°C]
Degree of Protection	IP66/67, NEMA 4X, UL Enclosure Type 4X
Housing material	die cast aluminium
Gear train	high alloy steel gear sets, self locking
Agency Listing	ISO, CE, cCSAus
Noise level, motor	45 dB(A)
Maintenance	maintenance-free
Quality Standard	ISO 9001
Weight	79 lb [36 kg]
Auxiliary switch	2 x SPDT, 3 A resistive (0.5 A inductive) @ AC 250 V, one set at 10°, one set at 85°

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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.

