

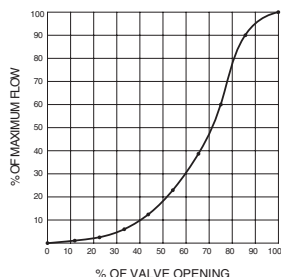
# F6400-150SHP, 16", 2-Way ANSI Class 150 Butterfly Valve

## Reinforced Teflon Seat, 316 Stainless Steel



Technical Data	
Service	chilled or hot water, up to 60% glycol, steam
Flow Characteristic	modified equal percentage, unidirectional
Controllable Flow Range	Quarter turn, mechanically limited
Size [mm]	16" [400]
End Fitting	ASME/ANSI Class 150 flange
Body	carbon steel full lug (ASME B16.34)
Seat	RPTFE
Shaft	17-4 PH stainless steel
Bushings	glass backed PTFE
Disc	316 stainless steel
Body Pressure Rating [psi]	ASME/ANSI Class 150
ANSI Class	ANSI 150
Number of Bolt Holes	16
Lug Threads	1-8 UNC
Maximum Steam Inlet (Rotary actuators)	50 psi (345 kPa)
Media Temperature Range (Water)	-22°F to 400°F [-30°C to 204°C]
Close-Off Pressure	285 psi
Ambient Temperature Range	-22°F to 122°F [-30°C to 50°C]
Rangeability	100:1
Maximum Velocity	32 FPS
Cv	9287
Weight	257.5 lb [116.8 kg]
Leakage	0%
Servicing	maintenance free

### Flow Pattern



### 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.

### 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°
139	557	1300	2340	3529	4865	6965	9008	9287

### Suitable Actuators

	Non-Spring
F6400-150SHP	SY7

### Dimensions (Inches [mm])

A	B	C	D	E	F	J
13.39" [340]	4" [102]	53.82" [1367]	37.5" [952]	16.32" [414]		62.68" [1592]

# SY7-120MFT

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
Transformer sizing	240 VA
Current consumption	2 A
Electrical Connection	terminal blocks
Overload Protection	thermally protected 135°C cut-out
Operating Range	DC 2...10 V (default), ,
Input Impedance	100 k $\Omega$
Position Feedback	DC 2...10 V
Angle of rotation	90°
Torque motor	8900 in-lbs [1000 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	59 sec
Internal Humidity Control	resistive heating element
Ambient humidity	5 to 95% RH non-condensing
Ambient temperature	-22...150 °F [-30...65 °C]
Non-operating temperature	-40...176 °F [-40...80 °C]
Degree of Protection	IP66/67, NEMA 4X, UL Enclosure Type 4X
Housing material	die cast aluminum alloy
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	79.5 lb [36 kg]
Auxiliary switch	2 x SPDT, 3A resistive (0.5A inductive) @ 250 VAC, one set at 10°, 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.

