



2-year warranty

## Type overview

Type	DN
F7250-300SHP	250

## Technical data

Functional data	
Valve size [mm]	10" [250]
Fluid	chilled or hot water, up to 60% glycol
Fluid Temp Range (water)	-22...400°F [-30...204°C]
Body Pressure Rating	ANSI Class 300
Flow characteristic	modified linear, unidirectional
Servicing	maintenance-free
Flow Pattern	3-way Mixing/Diverting
Leakage rate	0%
Controllable flow range	quarter turn, mechanically limited
Cv	3517
Maximum Velocity	32 FPS
Lug threads	1-8 UNC
Materials	
Valve body	Carbon steel full lug (ASME B16.34)
Stem	17-4 PH stainless steel
Seat	RPTFE
Pipe connection	ASME/ANSI class 300 flange
Bearing	glass backed PTFE
Disc	316 stainless steel
Suitable actuators	
Non-Spring	SY5 SY4 SY7

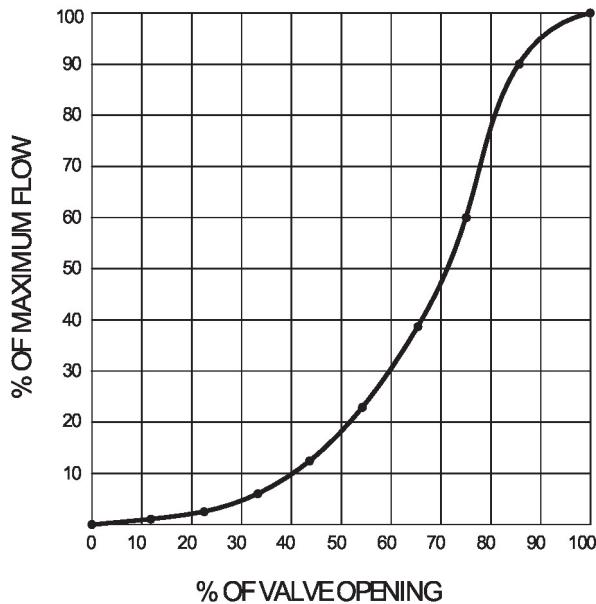
## Safety notes

- WARNING: This product can expose you to lead which is known to the State of California to cause cancer and reproductive harm. For more information go to [www.p65warnings.ca.gov](http://www.p65warnings.ca.gov)



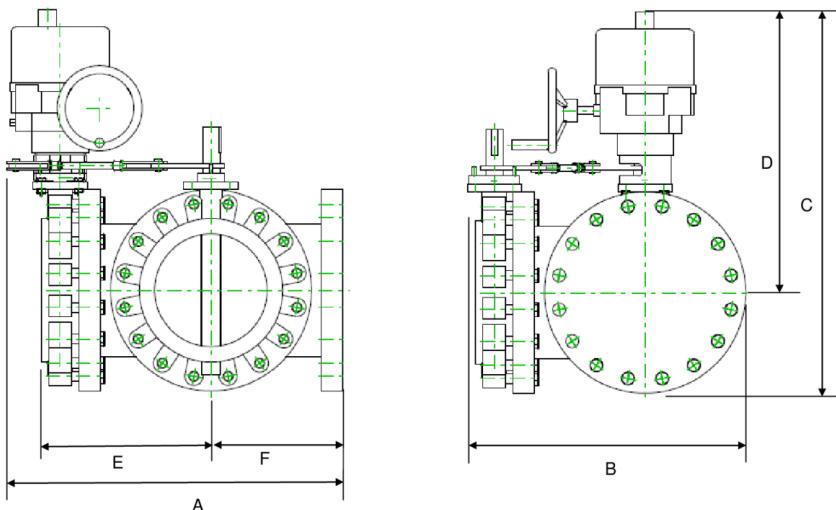
## Product features

## Flow/Mounting details



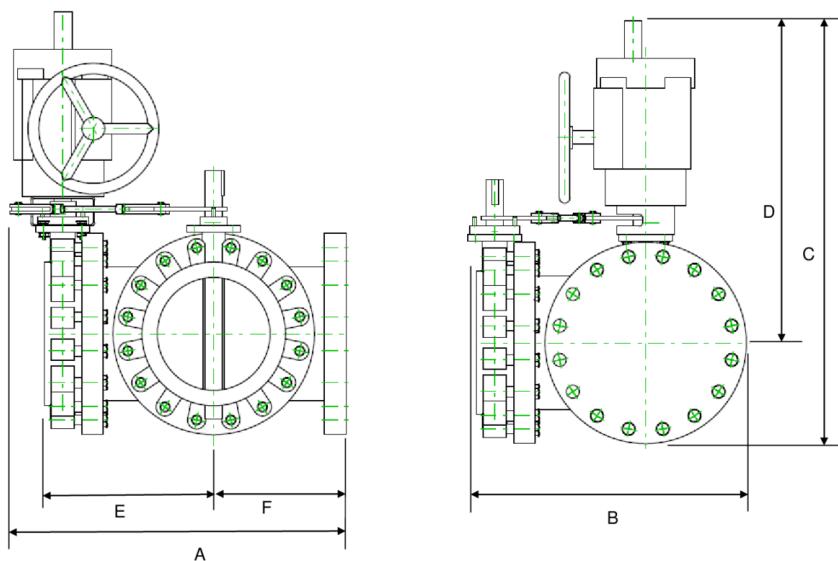
## Dimensions

Type	DN	Weight
F7250-300SHP	250	507.1 lb [230 kg]



SY4..6

A	B	C	D	E	F	Number of Bolt Holes
29.0" [737]	23.5" [597]	33.1" [842]	24.4" [620]	14.8" [375]	11.5" [292]	16



SY7..8

A	B	C	D	E	F	Number of Bolt Holes
29.0" [737]	23.5" [597]	36.7" [933]	28.0" [712]	14.8" [375]	11.5" [292]	16

MFT/programmable, Non fail-safe, 24 V



2-year warranty

## Technical data

Electrical data	
Nominal voltage	AC/DC 24 V
Nominal voltage frequency	50/60 Hz
Nominal voltage range	AC 21.6...26.4 V / DC 21.6...26.4 V
Transformer sizing	214 VA
Current consumption	8.9 A
Auxiliary switch	2x SPDT, 1 mA...5 A (3 A inductive), DC 5 V...AC 250 V, 1 x 3° / 1 x 87°
Switching capacity auxiliary switch	1 mA...5 A (3 A inductive), DC 5 V...AC 250 V
Electrical Connection	Terminal blocks
Overload Protection	thermally protected 135°C cut-out
Internal Humidity Control	resistive heating element
Functional data	
Torque motor	500 Nm
Operating range Y	2...10 V
Input impedance	100 kΩ
Position feedback U	2...10 V
Position feedback U note	Max. 0.5 mA
Position feedback U variable	VDC variable
Direction of motion motor	selectable with switch 0/1
Manual override	hand wheel
Angle of rotation	90°
Running Time (Motor)	26 s
Duty cycle value	75%
Noise level, motor	45 dB(A)
Position indication	top mounted domed indicator
Safety data	
Degree of protection IEC/EN	IP66/67
Degree of protection NEMA/UL	NEMA 4X
Enclosure	UL Enclosure Type 4X
Agency Listing	ISO, CE, cCSAus
Quality Standard	ISO 9001
Ambient humidity	Max. 100% RH
Ambient temperature	-22...149°F [-30...65°C]
Storage temperature	-40...176°F [-40...80°C]
Servicing	maintenance-free
Weight	
Weight	44 lb [20 kg]

## Technical data

Materials	Housing material	die cast aluminium
	Gear train	high alloy steel gear sets, self locking

## Product features

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).
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## Accessories

Gateways	Description	Type
Gateway MP to BACnet MS/TP		UK24BAC
Gateway MP to Modbus RTU		UK24MOD
Gateway MP to LonWorks		UK24LON
Electrical accessories	Description	Type
Battery backup system for SY4...5 series actuator, AC 24 V, MFT		EXT-NSV-B14-24
Service tool, with ZIP-USB function, for programmable and communicative Belimo actuators, VAV controller and HVAC performance devices		ZTH US
Battery backup system for SY4...6 series actuator, AC 120 V, on/off		EXT-NSV-B03-120
Battery backup system for SY4...6 series actuator, AC 120 V, MFT		EXT-NSV-B04-120
Battery backup system for SY4...5 series actuator, AC 24 V, on/off		EXT-NSV-B13-24
Tools	Description	Type
Connecting cable 10 ft [3 m], A: RJ11 6/4 ZTH EU, B: 3-pin Weidmüller and supply connection		ZK4-GEN
Service tool, with ZIP-USB function, for programmable and communicative Belimo actuators, VAV controller and HVAC performance devices		ZTH US

## Electrical installation

 **INSTALLATION NOTES**

-  Do not change sensitivity or dip switch setting with power applied.
-  Power supply Common/Neutral and Control Signal "-"wiring to a common is prohibited. Terminals 4 and 6 need to be wired separately.
-  Isolation relays must be used in parallel connection of multiple actuators using a common control signal inputs. The relays should be DPDT.
-  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

## Electrical installation

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.

## Wiring diagrams

