

BELIMO



Service	chilled, hot water, 60% glycol, steam to 50 psi
Flow characteristic	modified equal percentage, unidirectional
Controllable flow range	82°
Sizes	2" to 12
Type of end fitting	ANSI 300 flanges
Materials	
Body	carbon steel full lug
Disc	316 stainless steel
Seat	RPTFE
Shaft	17-4 PH stainless
Gland seal	PTFE
Bushings	glass backed PTFE
Media temperature range	-20°F to 400°F [-30°C to 204°C]
Body pressure rating	ANSI Class 300
Close-off pressure	740 psi
Rangeability	100:1 (for 30 deg to 70 deg range)
Maximum velocity	32 FPS
Leakage	bubble tight

- ## Application

These valves are designed to meet the needs of HVAC and Commercial applications requiring positive shut-off for liquids at higher pressures and temperatures. Typical applications include chiller isolation, cooling tower isolation, change-over systems, large air handler coil control, bypass and process control applications. The large C_v values provide for an economical control valve solution for larger flow applications.

Utilizes larger retainer ring set screws to allow the valve to be placed at the end of the line without a down stream flange in either flow direction while still holding full pressure.

		3-way Valves		Suitable Actuators					
		Valve Nominal Size		Non Fail-Safe				Electronic Fail-Safe	
C _V 90°	C _V 60°	Inches	ANSI 300 3-way			300			300
102	56	2	F750-300SHP			GM Series	PR Series		GK Series
146	80	2½	F765-300SHP						
228	125	3	F780-300SHP						
451	248	4	F7100-300SHP						
714	392	5	F7125-300SHP				SY Series (2 Year Warranty)		
1103	607	6	F7150-300SHP						
2064	1135	8	F7200-300SHP						
3517	1934	10	F7250-300SHP						
4837	2660	12	F7300-300SHP						

								MOD		ON/OFF	
Valve	Size	C _v	10°	20°	30°	40°	50°	60°	70°	80°	90°
F750-300SHP	2"	102	1.50	6.10	14	26	39	56	77	99	102
F765-300SHP	2½"	146	2.20	8.80	20	37	55	80	110	142	146
F780-300SHP	3"	228	3.40	14	32	57	87	125	171	221	228
F7100-300SHP	4"	451	6.80	27	63	114	171	248	338	437	451
F7125-300SHP	5"	714	11	43	100	180	271	393	536	693	714
F7150-300SHP	6"	1103	17	66	154	278	419	607	827	1070	1103
F7200-300SHP	8"	2064	31	124	289	520	784	1135	1548	2002	2064
F7250-300SHP	10"	3517	53	211	492	886	1336	1934	2638	3411	3517
F7300-300SHP	12"	4837	73	290	677	1219	1838	2660	3628	4692	4837

Maximum Dimensions (Inches)

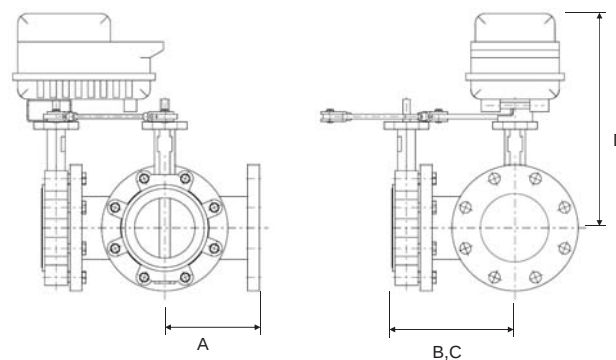
Valve	Size	C _v 90°	A	B	C	D(Max)	BHC	No. of Holes	Lug Bolt	Actuator	Close-Off (PSI)	
F750-300SHP	2"	102	5.00	6.75	6.75	15.50	5.00	8	5/8-11 UNC	2*GK	285	Electronic Fail-Safe
F765-300SHP	2½"	146	5.50	7.38	7.38	16.00	5.88	8	3/4-10 UNC		285	
F780-300SHP	3"	228	6.00	7.92	7.92	16.25	6.63	8	3/4-10 UNC		285	
F7100-300SHP	4"	451	7.00	9.13	9.13	18.00	7.88	8	3/4-10 UNC		150	
F750-300SHP	2"	102	5.00	6.75	6.75	15.50	5.00	8	5/8-11 UNC	2*GM	285	Non-Spring Return Electronic Fail-Safe (K)
F765-300SHP	2½"	146	5.50	7.38	7.38	16.00	5.88	8	3/4-10 UNC		285	
F780-300SHP	3"	228	6.00	7.92	7.92	16.25	6.63	8	3/4-10 UNC		285	
F7100-300SHP	4"	451	7.00	9.13	9.13	18.00	7.88	8	3/4-10 UNC		150	
F750-300SHP	2"	102	5.00	6.75	6.75	14.00	4.75	8	5/8-11 UNC	PR/PK	600	
F765-300SHP	2½"	146	5.50	7.38	7.38	14.50	5.50	8	3/4-10 UNC	PR/PK	600	
F780-300SHP	3"	228	6.00	7.92	7.92	15.00	6.00	8	3/4-10 UNC	PR/PK	600	
F7100-300SHP	4"	451	7.00	9.13	9.13	16.00	7.50	8	3/4-10 UNC	PR/PK	400	
F7125-300SHP	5"	714	8.00	10.25	10.25	24.25	8.50	8	3/4-10 UNC	SY4...	600	
F7150-300SHP	6"	1103	8.50	10.79	10.79	24.75	9.50	12	3/4-10 UNC	SY4...	600	
F7200-300SHP	8"	2064	10.00	12.88	12.88	32.00	11.75	12	7/8-9 UNC	SY4...	400	
										SY5...	600	
										SY7...	600	
F7250-300SHP	10"	3517	11.50	14.75	14.75	33.00	14.25	16	1-8 UNC	SY4...	150	
										SY7...	400	
F7300-300SHP	12"	4837	13.00	16.62	16.62	35.00	17.00	16	1 1/8-8 UNC	SY7...	400	
										SY8...	600	

Dimensions "A, B and C" do not include flange gaskets. (3 required per valve)

Application Notes

- Valves are rated at 725 psi differential pressure in the closed position @ 100°F media temperature.
- Valves are furnished with lugs tapped for use between ANSI Class 250/300 flanges conforming to ANSI B16.5 Standards.
- 3-way assemblies are furnished assembled with Tee, calibrated and tested, ready for installation. All 3 way assemblies require the customer to specify the 3-way configuration code prior to order entry to guarantee correct placement of valves and actuator(s) on the assembly.
- Dimension "D" allows for actuator(s) removal without the need to remove the valve from the pipe.
- Weather shields are available, dimensional data furnished upon request.
- Dual actuated valves have single actuators mounted on each valve shaft.
- Flange gaskets (3 required, not provided with valve) MUST be used between valve and ANSI flange.
- Flange bolts are not included with the valve. These are furnished by others.

Dimensions



D104



2-year warranty



Technical data

Electrical data	Nominal voltage	AC 120 V
	Nominal voltage frequency	50/60 Hz
	Transformer sizing	504 VA
	Current consumption	4.2 A
	Auxiliary switch	2 x SPDT, 3 A resistive (0.5 A inductive) @ AC 250 V, one set at 10°, one set at 85°
	Switching capacity auxiliary switch	3 A resistive (0.5 A inductive) @ AC 250 V
	Electrical Connection	Terminal blocks
	Overload Protection	thermally protected 135°C cut-out
	Internal Humidity Control	resistive heating element
Functional data	Direction of motion motor	selectable with switch 0/1
	Manual override	hand wheel
	Angle of rotation	90°
	Running Time (Motor)	50 s
	Duty cycle value	30%
	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 temperature	-22...149°F [-30...65°C]
	Storage temperature	-40...176°F [-40...80°C]
	Ambient humidity	Max. 100% RH
Weight	Servicing	maintenance-free
	Weight	81 lb [37 kg]
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

Electrical accessories	Description	Type
	Local electric disconnect for SY4...12 series actuator, AC 120 V, on/off	HOA-120V

Electrical installation

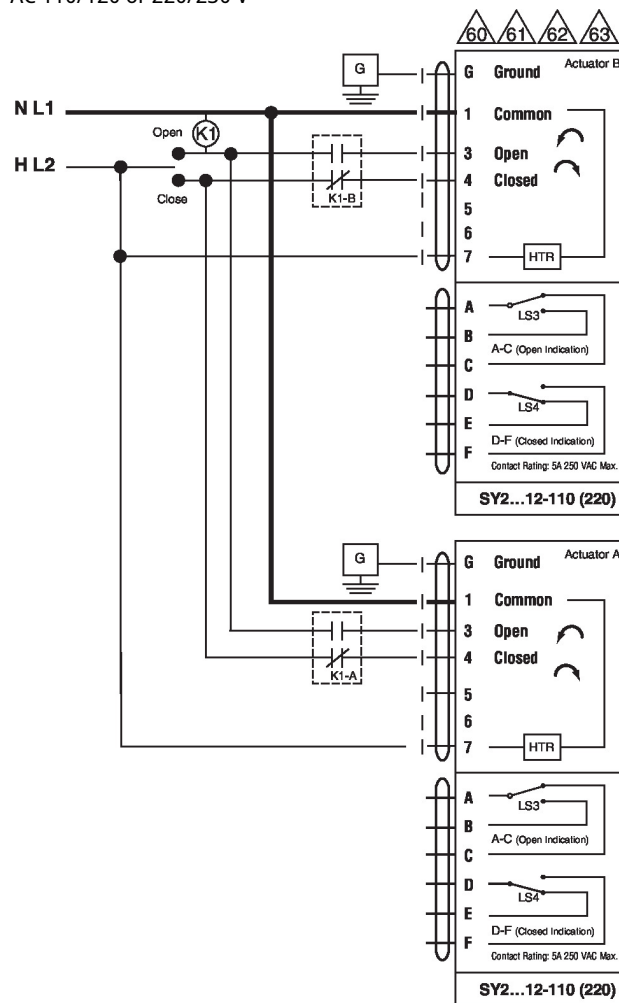
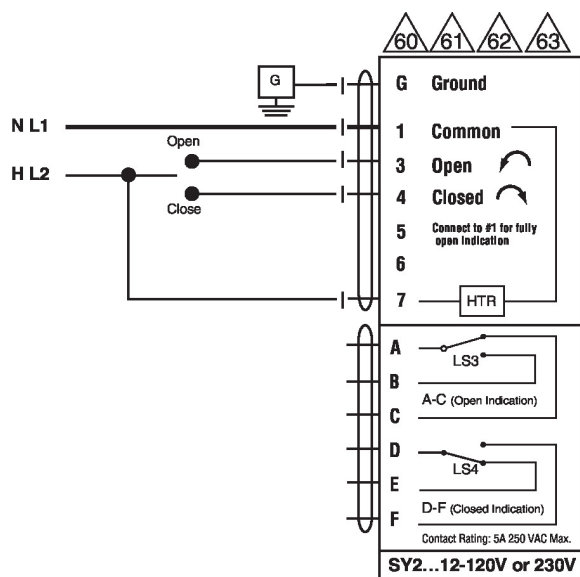
 INSTALLATION NOTES

-  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 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

AC/DC 110/120 or 220/230V

AC 110/120 or 220/230 V


Installation notes
Servicing