

Type overview





Гуре			DN
7125-300SHP			125
echnical data			
ecililical uata			
Fu	ınctional data	Valve size [mm]	5" [125]
		Fluid	chilled or hot water, up to 60% glycol
		Fluid Temp Range (water)	-22400°F [-30204°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	714
		Maximum Velocity	32 FPS
		Lug threads	3/4-10 UNC
	Materials	Valve body	Carbon steel full lug (ASME B16.34)
		Stem	17-4 PH stainless steel

Safety notes



Suitable actuators

Seat

Disc

Bearing

Non-Spring

Pipe connection

• 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

RPTFE

SY4

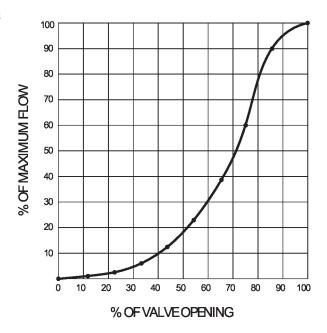
ASME/ANSI class 300 flange

glass backed PTFE

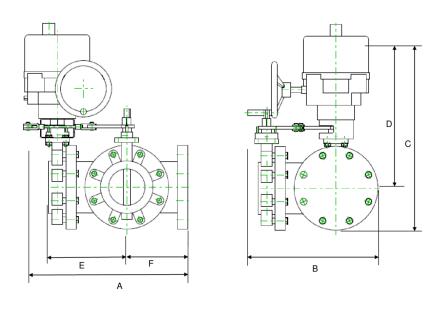
316 stainless steel



Flow/Mounting details



Dimensions			
Туре	DN	Weight	
F7125-300SHP	125	165.4 lb [75 ka]	_







MFT/programmable, Non fail-safe, 230 V





Participate			
Nominal voltage frequency Nominal voltage range AC 207253 V Transformer sizing Current consumption 1.1 A Auxiliary switch Switching capacity auxiliary switch Electrical Connection Terminal blocks Overload Protection Internal Humidty Control Torque motor Operating range Y Input impedance Position feedback U Position feedback U toote Direction of motion motor Ranual override Angle of rotation Spiece value Angle of rotation Running Time (Motor) Degree of protection IEC/EN Degree of protection IEC/EN Degree of protection IEC/EN Quality Standard Ambient temperature L100 RA Desicon Gel Desicon feedback U Position feedback U Running Time (Motor) Degree of protection IEC/EN Degree of protection IEC/EN Quality Standard Ambient temperature L22149°F [-4080°C] Storage temperature L22149°F [-4080°C]	Technical data		
Nominal voltage frequency Nominal voltage range AC 207253 V Transformer sizing Current consumption 1.1 A Auxiliary switch Switching capacity auxiliary switch Electrical Connection Terminal blocks Overload Protection Internal Humidty Control Torque motor Operating range Y Input impedance Position feedback U Position feedback U toote Direction of motion motor Ranual override Angle of rotation Spiece value Angle of rotation Running Time (Motor) Degree of protection IEC/EN Degree of protection IEC/EN Degree of protection IEC/EN Quality Standard Ambient temperature L100 RA Desicon Gel Desicon feedback U Position feedback U Running Time (Motor) Degree of protection IEC/EN Degree of protection IEC/EN Quality Standard Ambient temperature L22149°F [-4080°C] Storage temperature L22149°F [-4080°C]	Electrical data	Nominal voltage	AC 230 V
Nominal voltage range			50/60 Hz
Transformer sizing 253 VA Current consumption 1.1 A Auxiliary switch 2x SPDT, 1 mA5 A (3 A inductive), DC 5 VAC 250 V, 1 x 3° / 1 x 87° Switching capacity auxiliary switch 1 mA5 A (3 A inductive), DC 5 VAC 250 V, 1 x 3° / 1 x 87° Switching capacity auxiliary switch 1 mA5 A (3 A inductive), DC 5 VAC 250 V Electrical Connection Terminal blocks Overload Protection thermally protected 135°C cut-out Internal Humidty Control resistive heating element Functional data Torque motor 400 Nm Operating range Y 210 V Input impedance 100 kΩ Position feedback U 210 V 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) 22 s Duty cycle value 75% Noise level, motor 45 dB(A) Position indication top mounted domed indicator Safety data Degree of protection IEC/EN 1P66/67 Degree of protection NEMA/UL NEMA 4X Enclosure UL Enclosure Type 4X Agency Listing 150, CE, cCsAus Quality Standard 150 9001 Ambient temperature -22149°F [-3065°C] Storage temperature -22149°F [-3065°C]			AC 207253 V
Current consumption 1.1 A Auxiliary switch 2x SPDT, 1 mA5 A (3 A inductive), DC 5 VAC 250 V, 1x 3" / 1x 87" Switching capacity auxiliary switch 1 mA5 A (3 A inductive), DC 5 VAC 250 V Electrical Connection Terminal blocks Overload Protection thermally protected 135°C cut-out Internal Humidty Control resistive heating element Functional data Torque motor 400 Nm Operating range Y 210 V Input impedance 100 kΩ Position feedback U 210 V Position feedback U 100 Max. 0.5 mA Position feedback U 100 Max. 1			253 VA
Switching capacity auxiliary switch 1 mA5 A (3 A inductive), DC 5 VAC 250 V Electrical Connection Terminal blocks Overload Protection thermally protected 135°C cut-out Internal Humidty Control resistive heating element Functional data Torque motor 400 Nm Operating range Y 210 V Input impedance 100 kΩ Position feedback U 210 V Position feedback U 100 kΩ Po		Current consumption	1.1 A
Electrical Connection Terminal blocks Overload Protection thermally protected 135°C cut-out Internal Humidty Control resistive heating element Functional data Torque motor 400 Nm Operating range Y 210 V Input impedance 100 kΩ Position feedback U 210 V Position feedback U onte 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) 22 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 humidity Max. 100% RH Ambient temperature -22149°F [-3065°C]		Auxiliary switch	
Overload Protection thermally protected 135°C cut-out Internal Humidty Control resistive heating element Functional data Functional data Torque motor 400 Nm Operating range Y 210 V Input impedance 100 kΩ Position feedback U 210 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) 22 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 -22149°F [-3065°C] Storage temperature -40176°F [-4080°C]		Switching capacity auxiliary switch	1 mA5 A (3 A inductive), DC 5 VAC 250 V
Internal Humidty Control resistive heating element Functional data Torque motor 400 Nm Operating range Y 210 V Input impedance 100 kΩ Position feedback U 210 V Position feedback U 100 Nm Position Posit		Electrical Connection	Terminal blocks
Functional data Torque motor Operating range Y Input impedance Position feedback U Position feedback U ote Position feedback U variable Direction of motion motor Manual override Angle of rotation Running Time (Motor) Duty cycle value Noise level, motor Position indication Safety data Degree of protection IEC/EN Degree of protection NEMA/UL Enclosure Agency Listing Quality Standard Ambient humidity Max. 100% RH Ambient temperature -22149°F [-3065°C] Storage temperature -40176°F [-4080°C]		Overload Protection	thermally protected 135°C cut-out
Operating range Y Input impedance Position feedback U Position feedback U orte Position feedback U orte Position feedback U variable Oirection of motion motor Manual override Angle of rotation Position indication Oreside indication Safety data Degree of protection NEMA/UL Enclosure Quality Standard Ambient temperature Ambient Menades Angle of cotage it and success of the succ		Internal Humidty Control	resistive heating element
Input impedance 100 kΩ Position feedback U 210 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) 22 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 -22149°F [-3065°C] Storage temperature -40176°F [-4080°C]	Functional data	Torque motor	400 Nm
Position feedback U Position feedback U note Position feedback U variable VDC variable Direction of motion motor Selectable with switch 0/1 Manual override Angle of rotation Running Time (Motor) Duty cycle value Noise level, motor Position indication Safety data Degree of protection IEC/EN Degree of protection NEMA/UL Enclosure Agency Listing Quality Standard Ambient humidity Ambient temperature -22149°F [-3065°C] Storage temperature -40176°F [-4080°C]		Operating range Y	210 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) 22 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 -22149°F [-3065°C] Storage temperature -40176°F [-4080°C]		Input impedance	100 kΩ
Position feedback U variable Direction of motion motor Selectable with switch 0/1 Manual override Angle of rotation Running Time (Motor) Duty cycle value Noise level, motor Position indication Safety data Degree of protection IEC/EN Degree of protection NEMA/UL Enclosure Agency Listing Quality Standard Ambient humidity Ambient temperature VDC variable		Position feedback U	210 V
Direction of motion motor Manual override Angle of rotation Running Time (Motor) Duty cycle value Noise level, motor Position indication Safety data Degree of protection IEC/EN Degree of protection NEMA/UL Enclosure Agency Listing Quality Standard Ambient humidity Ambient temperature -22149°F [-3065°C] Storage temperature Selectable with switch 0/1 hand wheel han		Position feedback U note	Max. 0.5 mA
Manual override hand wheel Angle of rotation 90° Running Time (Motor) 22 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 -22149°F [-3065°C] Storage temperature -40176°F [-4080°C]		Position feedback U variable	VDC variable
Angle of rotation 90° Running Time (Motor) 22 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 -22149°F [-3065°C] Storage temperature -40176°F [-4080°C]		Direction of motion motor	selectable with switch 0/1
Running Time (Motor) Duty cycle value 75% Noise level, motor 45 dB(A) Position indication top mounted domed indicator Safety data Degree of protection IEC/EN Degree of protection NEMA/UL Enclosure Agency Listing Quality Standard Ambient humidity Ambient temperature Storage temperature V22 s 75% NEMA 4X IP66/67 DEGREE of protection NEMA/UL NEMA 4X ISO, CE, cCSAus Quality Standard ISO 9001 Ambient demperature -22149°F [-3065°C] Storage temperature -40176°F [-4080°C]		Manual override	hand wheel
Duty cycle value Noise level, motor Position indication Degree of protection IEC/EN Degree of protection NEMA/UL Enclosure Agency Listing Quality Standard Ambient humidity Ambient temperature Duty cycle value 75% Noise 176/67 176/67 NEMA 4X NEMA 4X ISO, CE, cCSAus ISO, CE, cCSAus VIL Enclosure Type 4X ISO 9001 Ambient Max. 100% RH Ambient femperature -22149°F [-3065°C] Storage temperature -40176°F [-4080°C]		Angle of rotation	90°
Noise level, motor Position indication Safety data Degree of protection IEC/EN Degree of protection NEMA/UL Enclosure Agency Listing Quality Standard Ambient humidity Ambient temperature Storage temperature NEMA 4X IP66/67 UL Enclosure Type 4X ISO, CE, cCSAus ISO, CE, cCSAus ISO 9001 Ambient Max. 100% RH -22149°F [-3065°C]		Running Time (Motor)	22 s
Position indication top mounted domed indicator Safety data Degree of protection IEC/EN Degree of protection NEMA/UL Enclosure UL Enclosure Type 4X Agency Listing ISO, CE, cCSAus Quality Standard ISO 9001 Ambient humidity Max. 100% RH Ambient temperature -22149°F [-3065°C] Storage temperature -40176°F [-4080°C]		Duty cycle value	75%
Safety data Degree of protection IEC/EN Degree of protection NEMA/UL Enclosure Agency Listing Quality Standard Ambient humidity Ambient temperature Storage temperature P66/67 NEMA 4X UL Enclosure Type 4X ISO, CE, cCSAus ISO 9001 Max. 100% RH -22149°F [-3065°C]		Noise level, motor	45 dB(A)
Degree of protection NEMA/UL Enclosure UL Enclosure Type 4X Agency Listing ISO, CE, cCSAus Quality Standard ISO 9001 Ambient humidity Max. 100% RH Ambient temperature -22149°F [-3065°C] Storage temperature -40176°F [-4080°C]		Position indication	top mounted domed indicator
Enclosure UL Enclosure Type 4X Agency Listing ISO, CE, cCSAus Quality Standard ISO 9001 Ambient humidity Max. 100% RH Ambient temperature -22149°F [-3065°C] Storage temperature -40176°F [-4080°C]	Safety data	Degree of protection IEC/EN	IP66/67
Agency Listing ISO, CE, cCSAus Quality Standard ISO 9001 Ambient humidity Max. 100% RH Ambient temperature -22149°F [-3065°C] Storage temperature -40176°F [-4080°C]		Degree of protection NEMA/UL	NEMA 4X
Quality Standard ISO 9001 Ambient humidity Max. 100% RH Ambient temperature -22149°F [-3065°C] Storage temperature -40176°F [-4080°C]		Enclosure	UL Enclosure Type 4X
Ambient humidity Ambient temperature -22149°F [-3065°C] Storage temperature -40176°F [-4080°C]		Agency Listing	ISO, CE, cCSAus
Ambient temperature -22149°F [-3065°C] Storage temperature -40176°F [-4080°C]		Quality Standard	ISO 9001
Storage temperature -40176°F [-4080°C]		·	Max. 100% RH
		Ambient temperature	-22149°F [-3065°C]
Servicing maintenance-free		Storage temperature	-40176°F [-4080°C]
		Servicing	maintenance-free

44 lb [20 kg]

Weight Weight



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).

Accessories

Gateways	Description	Туре
	Gateway MP to BACnet MS/TP	UK24BAC
	Gateway MP to Modbus RTU	UK24MOD
	Gateway MP to LonWorks	UK24LON
Electrical accessories	Description	Туре
	Local electric disconnect for SY412 series actuator, AC 120 V, MFT	HOA-120VMFT
	Service tool, with ZIP-USB function, for programmable and	ZTH US
	communicative Belimo actuators, VAV controller and HVAC performance devices	
	Battery backup system for SY46 series actuator, AC 120 V, on/off	EXT-NSV-B03-120
	Battery backup system for SY46 series actuator, AC 120 V, MFT	EXT-NSV-B04-120
	Battery backup system for SY45 series actuator, AC 24 V, on/off	EXT-NSV-B13-24
	Battery backup system for SY45 series actuator, AC 24 V, MFT	EXT-NSV-B14-24
Tools	Description	Туре
	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.



1 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 tying 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!



Electrical installation

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

