



5-year warranty

Type overview

Type	DN
F780-150SHP	80

Technical data

Functional data	
Valve size [mm]	3" [80]
Fluid	chilled or hot water, up to 60% glycol
Fluid Temp Range (water)	-22...400°F [-30...204°C]
Body Pressure Rating	ANSI Class 150
Close-off pressure Δ ps	285 psi
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	228
Maximum Velocity	32 FPS
Lug threads	5/8-11 UNC
Materials	
Valve body	Carbon steel full lug (ASME B16.34)
Stem	17-4 PH stainless steel
Seat	RPTFE
Pipe connection	ASME/ANSI class 150 flange
Bearing	glass backed PTFE
Disc	316 stainless steel
Suitable actuators	
Non-Spring	(2*GMB(X)) PRB(X) GMB(X)
Electrical fail-safe	(2*GKB(X)) PKRB(X)

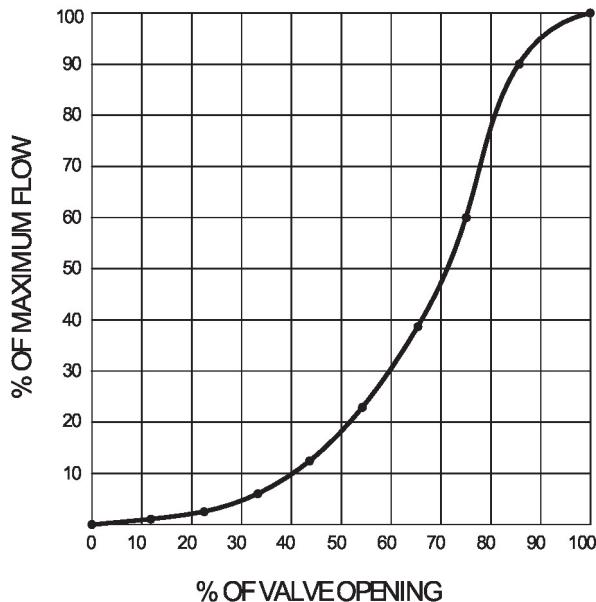
Safety notes



- 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

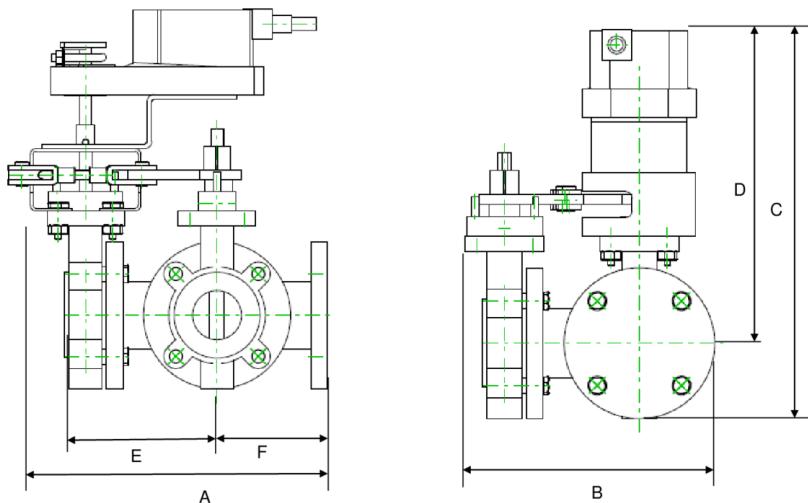
Product features

Flow/Mounting details

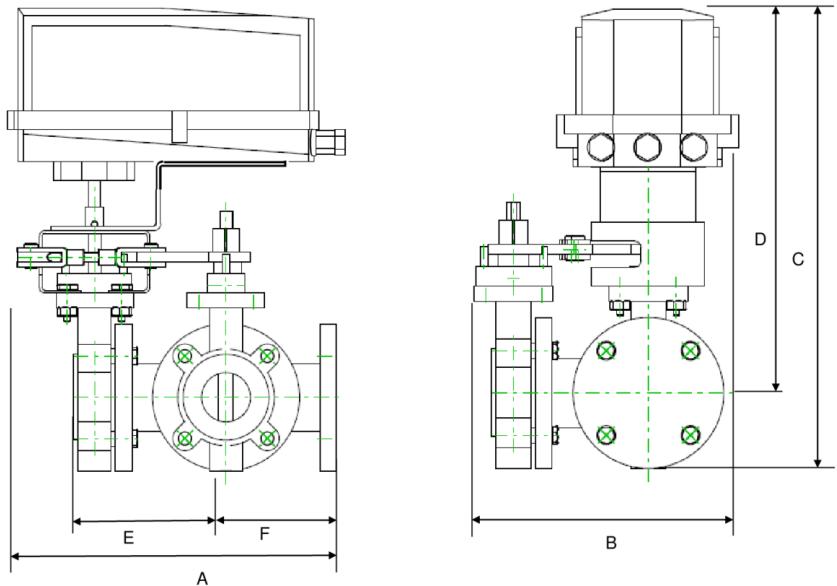


Dimensions

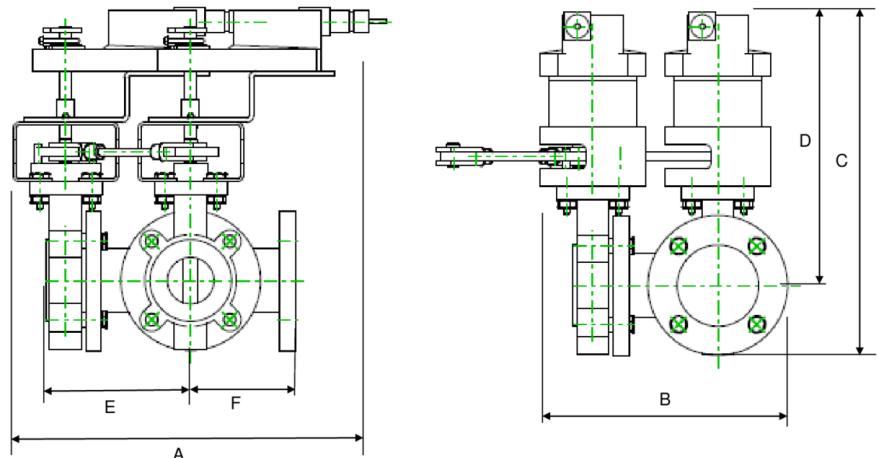
Type	DN	Weight
F780-150SHP	80	61.7 lb [28 kg]



A	B	C	D	E	F	Number of Bolt Holes
13.4" [340]	11.2" [284]	17.0" [433]	13.2" [336]	7.8" [199]	5.5" [140]	4

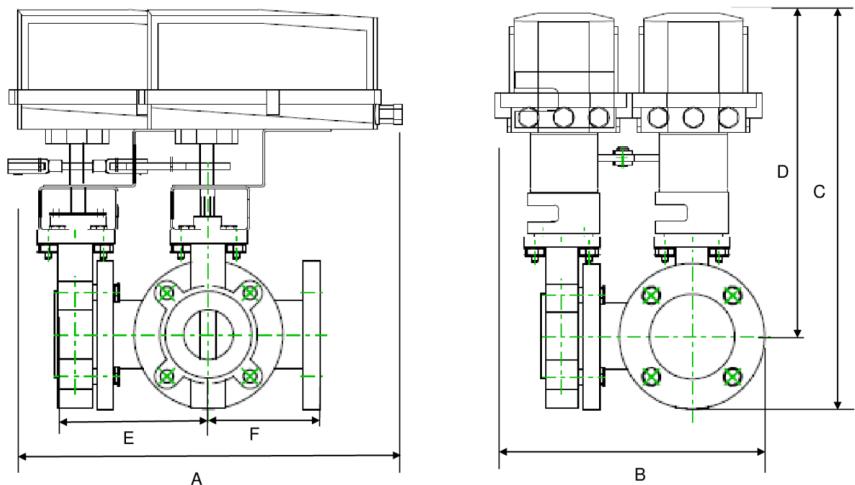


A	B	C	D	E	F	Number of Bolt Holes
17.3" [440]	11.2" [284]	16.3" [415]	12.5" [318]	7.4" [187]	5.5" [140]	4



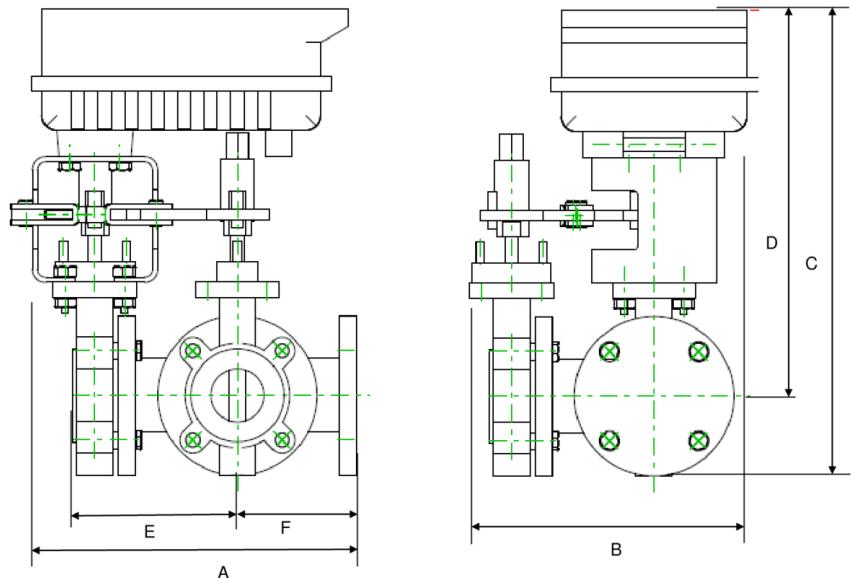
2*GM/2*GK

A	B	C	D	E	F	Number of Bolt Holes
20.6" [522]	11.2" [284]	18.3" [464]	14.5" [368]	7.4" [187]	5.5" [140]	4



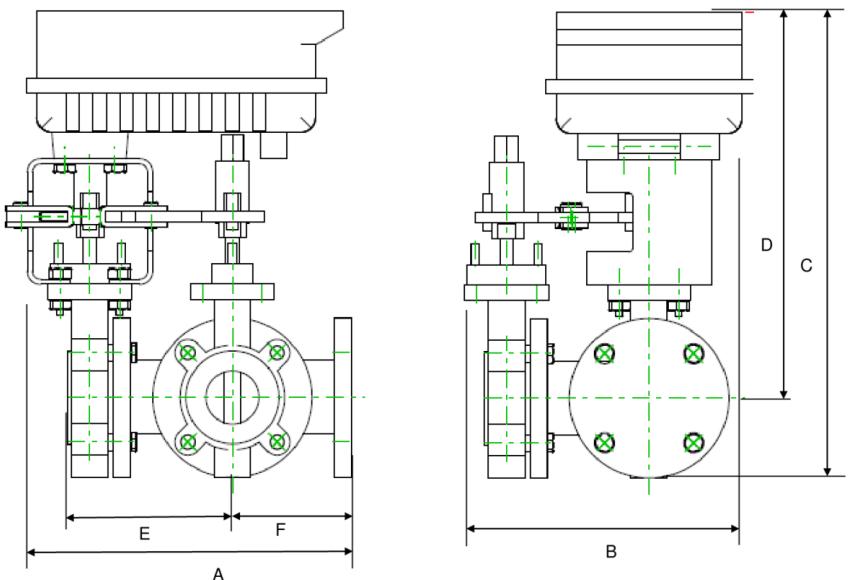
2*GM

A	B	C	D	E	F	Number of Bolt Holes
15.1" [383]	11.2" [284]	17.0" [433]	13.2" [336]	7.4" [187]	5.5" [140]	4



PR

A	B	C	D	E	F	Number of Bolt Holes
15.1" [383]	11.2" [284]	16.3" [415]	12.5" [318]	7.4" [187]	5.5" [140]	4



PK

A	B	C	D	E	F	Number of Bolt Holes
15.6" [396]	11.2" [284]	18.3" [464]	14.5" [368]	7.4" [187]	5.5" [140]	4



5-year warranty

**Technical data**

Electrical data	
Nominal voltage	AC 24...240 V / DC 24...125 V
Nominal voltage frequency	50/60 Hz
Nominal voltage range	AC 19.2...264 V / DC 19.2...137.5 V
Power consumption in operation	52 W
Power consumption in rest position	9 W
Transformer sizing	with 24 V 54 VA / with 240 V 68 VA
Auxiliary switch	2 x SPDT, 1 mA...3 A (0.5 A inductive), DC 5 V...AC 250 V (II, reinforced insulation), 1 x 10° / 1 x 0...90° (default setting 85°)
Switching capacity auxiliary switch	1 mA...3 A (0.5 A inductive), DC 5 V...AC 250 V (II, reinforced insulation)
Electrical Connection	Terminal blocks, (PE) Ground-Screw
Overload Protection	electronic throughout 0...90° rotation
Data bus communication	
Communicative control	BACnet MS/TP Modbus RTU MP-Bus
Functional data	
Operating range Y	2...10 V
Operating range Y note	4...20 mA
Input Impedance	100 kΩ for 2...10 V (0.1 mA), 500 Ω for 4...20 mA, 1500 Ω for On/Off
Operating range Y variable	Start point 0.5...30 V End point 2.5...32 V
Operating modes optional	variable (VDC, on/off, floating point)
Position feedback U	2...10 V
Position feedback U note	Max. 0.5 mA
Position feedback U variable	VDC variable
Setting Fail-Safe Position	0...100%, adjustable with Belimo Assistant App (default setting 0%)
Bridging time (PF)	2 s
Bridging time (PF) variable	0...10 s
Pre-charging time	5...20 s
Direction of motion motor	reversible with app
Direction of motion fail-safe	reversible with app
Manual override	7 mm hex crank, supplied
Angle of rotation	90°
Running Time (Motor)	35 s / 90°
Running time motor variable	30...120 s
Running time fail-safe	<30 s
Noise level, motor	68 dB(A)
Noise level, fail-safe	62 dB(A)

Functional data	Position indication	top mounted domed indicator
Safety data		
Power source UL	Class 2 Supply	
Degree of protection IEC/EN	IP66/67	
Degree of protection NEMA/UL	NEMA 4X	
Enclosure	UL Enclosure Type 4X	
Agency Listing	cULus acc. to UL60730-1A-2-14, CAN/CSA E60730-1:02, CE acc. to 2014/30/EU and 2014/35/EU	
Quality Standard	ISO 9001	
Ambient humidity	Max. 100% RH	
Ambient temperature	-22...122°F [-30...50°C]	
Servicing	maintenance-free	
Weight	Weight	14.0 lb [6.4 kg]
Materials	Housing material	Die cast aluminium and plastic casing

Product features

Default/Configuration	Default parameters for DC 2...10 V applications of the PKR..-MFT actuator are assigned during manufacturing. If required, different parameters of the actuator can be ordered. These parameters are variable and can be modified by factory pre-set, the handheld ZTH US or using the Belimo App on a smart phone with Near Field Communications (NFC) programming.
Application	PR Series valve actuators are designed with an integrated linkage and visual position indicators. For outdoor applications, the installed valve must be mounted with the actuator at or above horizontal. For indoor applications the actuator can be in any location including directly under the valve.
Operation	The PR series actuator provides 90° of rotation and a visual indicator shows the position of the valve. The PR Series actuator uses a low power consumption brushless DC motor and is electronically protected against overload. A universal power supply is furnished to connect supply voltage in the range of AC 24...240 V and DC 24...125 V. Included is a smart heater with thermostat to eliminate condensation. Two auxiliary switches are provided; one set at 10° open and the other is field adjustable. Running time is field adjustable from 30...120 seconds by using the Near Field Communication (NFC) app and a smart phone. †Use 60°C/75°C copper wire size range 12...28 AWG, stranded or solid. Use flexible metal conduit. Push the listed conduit fitting device over the actuator's cable to butt against the enclosure. Screw in conduit connector. Jacket the actuators input wiring with listed flexible conduit. Properly terminate the conduit in a suitable junction box. Rated impulse Voltage 4000 V. Type of action 1. Control pollution degree 3.
Bridging time	Electrical interruptions can be bridged up to a maximum of 10 s. In the event of a power failure, the actuator will remain stationary in accordance with the set bridging time. If the power failure is greater than the set bridging time, then the actuator will move into the selected fail-safe position. The bridging time set ex-works is 2 s. This can be modified on site in operation with the use of the Belimo service tool MFT-P. Settings: The rotary knob must not be set to the "PROG FAIL-SAFE" position! For retroactive adjustments of the bridging time with the Belimo service tool MFT-P or with the ZTH EU adjustment and diagnostic device only the values need to be entered.
Factory settings	Default parameters for DC 2...10 V applications of the PKR..-MFT actuator are assigned during manufacturing. If required, different parameters of the actuator can be ordered. These parameters are variable and can be modified by factory pre-set, the handheld ZTH US or using the Belimo App on a smart phone with Near Field Communications (NFC) programming.

Accessories

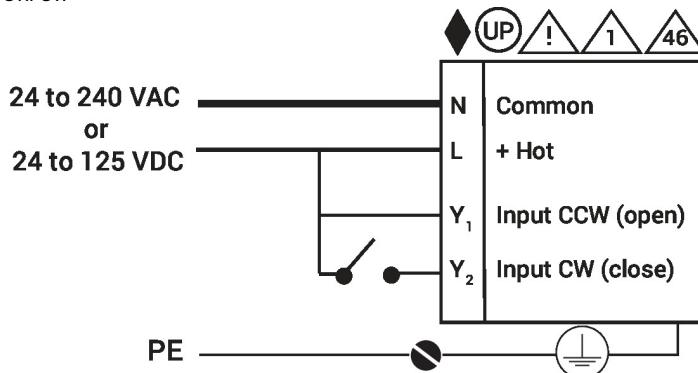
	Gateways	Description	Type
		Gateway MP to BACnet MS/TP	UK24BAC
		Gateway MP to Modbus RTU	UK24MOD
		Gateway MP to LonWorks	UK24LON
Electrical accessories		Description	Type
		Service Tool, with ZIP-USB function, for programmable and communicative Belimo actuators, VAV controller and HVAC performance devices	ZTH US
Mechanical accessories		Description	Type
		Hand crank for PR, PKR, PM	ZG-HND PR
Tools		Description	Type
		Connection 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

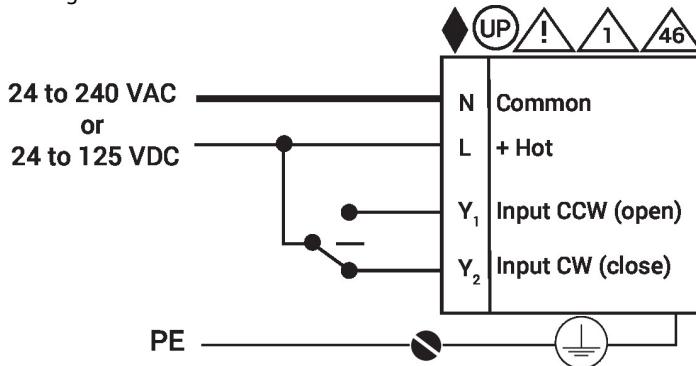
- ◆ Meets cULus requirements without the need of an electrical ground connection.
- ◆ (UP) Universal Power Supply (UP) models can be supplied with 24 V up to 240 V.
- ◆ Disconnect power.
- ◆ Provide overload protection and disconnect as required.
- ◆ Two built-in auxiliary switches (2x SPDT), for end position indication, interlock control, fan startup, etc.
- ◆ Only connect common to negative (-) leg of control circuits.
- ◆ Actuators may be controlled in parallel. Current draw and input impedance must be observed.
- ◆ **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

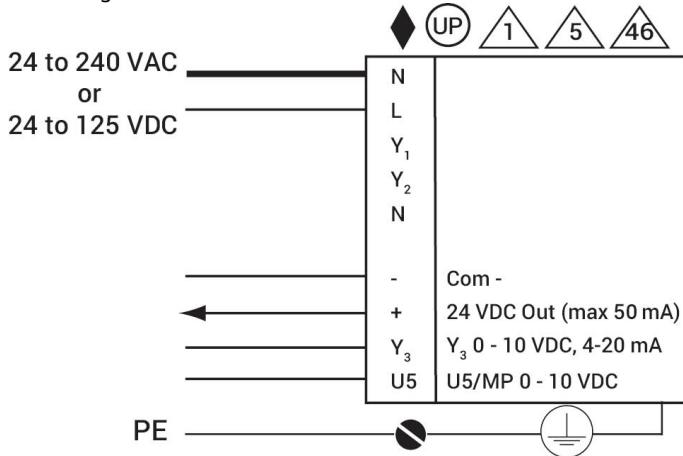
On/Off



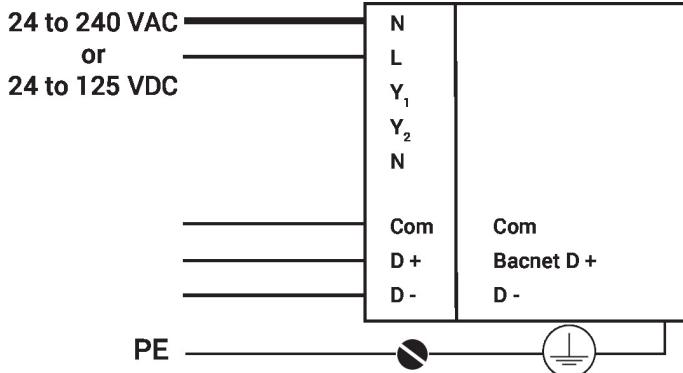
Floating Point



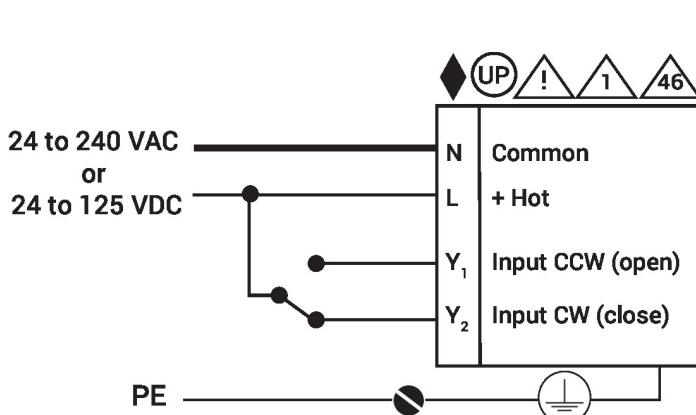
Modulating



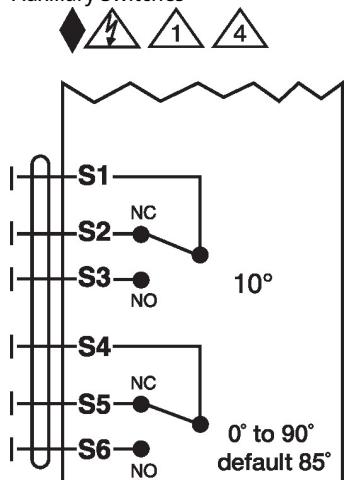
BACnet



On/Off



Auxiliary Switches



Temperature Sensors

