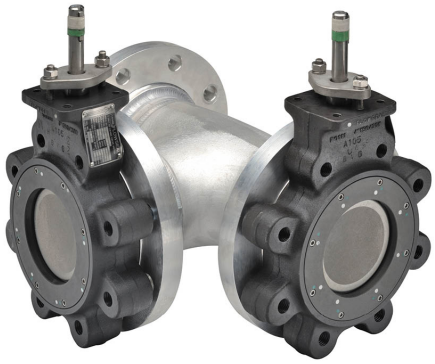
BELIMO

Reinforced Teflon Seat, 316 Stainless Steel

Technical data sheet F765-150SHP



5-year warranty

Type overview

Type	DN
F765-150SHP	65

Technical data

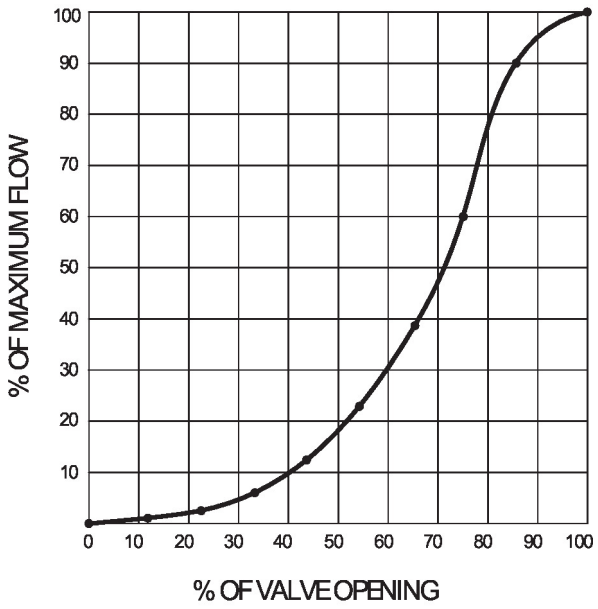
Functional data	Valve Size	2.5" [65]
	Fluid	chilled or hot water, up to 60% glycol
	Fluid Temp Range (water)	-22...400°F [-30...204°C]
	Body Pressure Rating	ANSI Class 150
	Close-off pressure Δps	285 psi
	Flow characteristic	modified linear, unidirectional
	Servicing	maintenance-free
	Flow Pattern	3-way Mixing/Diverting
	Leakage rate	0%
	Controllable flow range	quarter turn, mechanically limited
	Cv	146
	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
	Gland Seal	TFE
Suitable actuators	Non-Spring	GMB(X) (2*GMB(X)) PRB(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

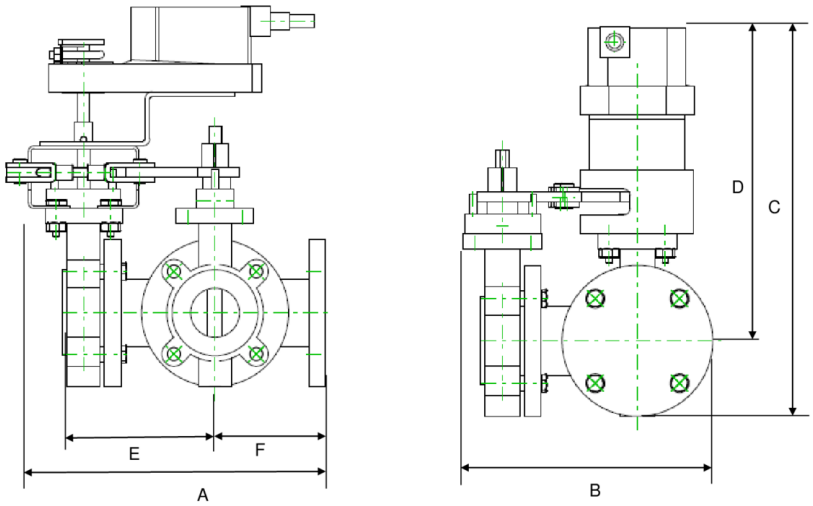
Product features

Flow/Mounting details

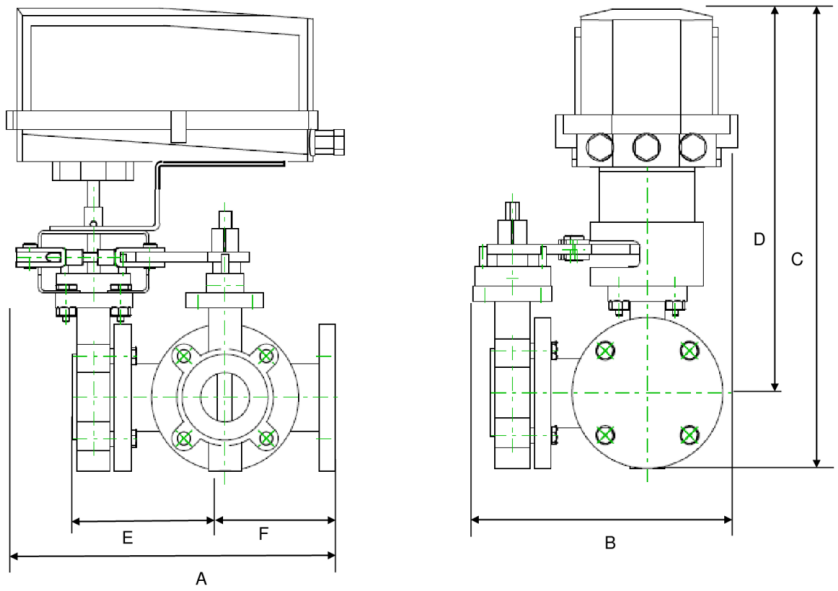


Dimensions

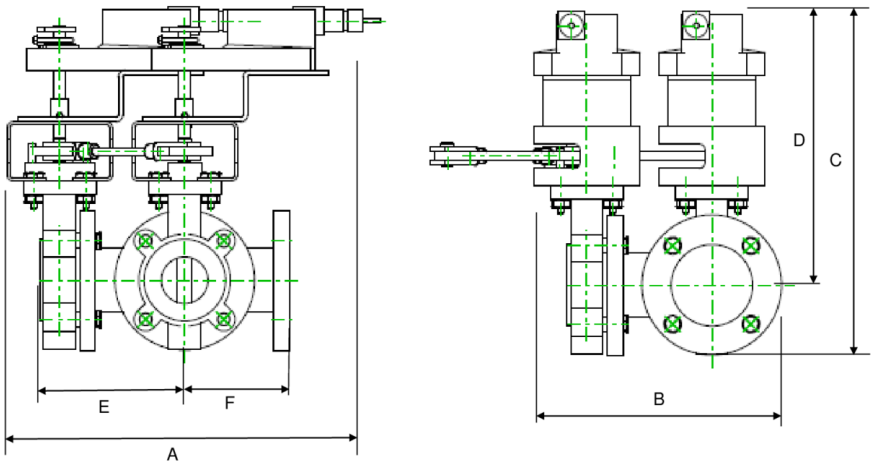
Type	DN
F765-150SHP	65



A	B	C	D	E	F	Number of Bolt Holes
12.4" [316]	10.4" [264]	15.3" [389]	11.8" [300]	6.8" [172]	5.0" [127]	4

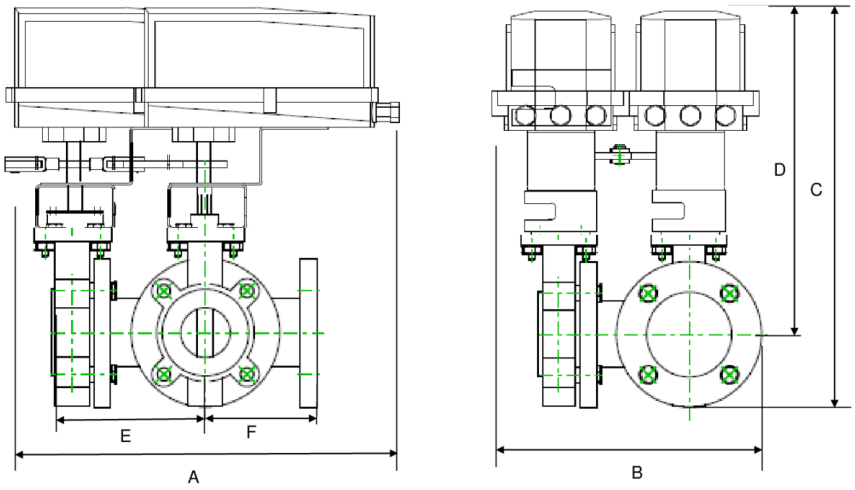


A	B	C	D	E	F	Number of Bolt Holes
20.1" [510]	10.4" [264]	17.4" [443]	13.8" [350]	6.8" [172]	5.0" [127]	4



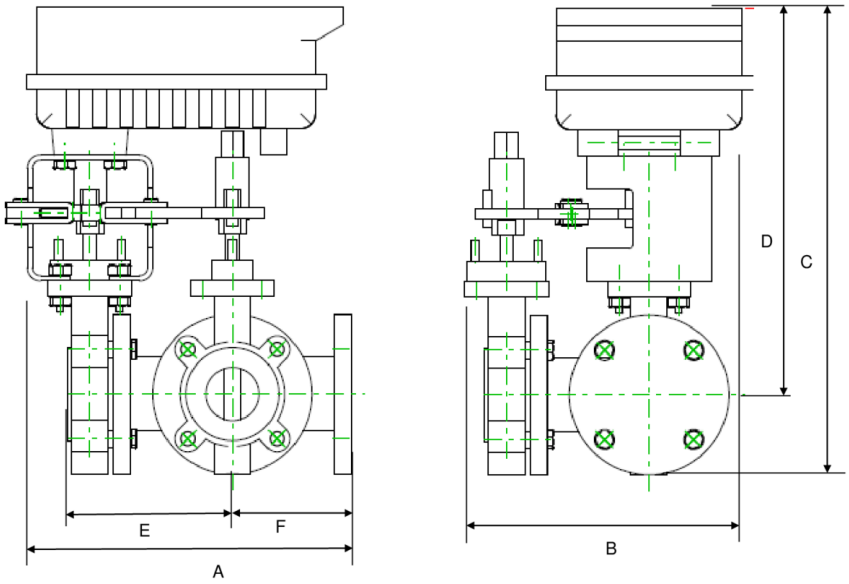
2*GM/2*GK

A	B	C	D	E	F	Number of Bolt Holes
16.8" [426]	10.4" [264]	15.3" [389]	11.8" [300]	6.8" [172]	5.0" [127]	4



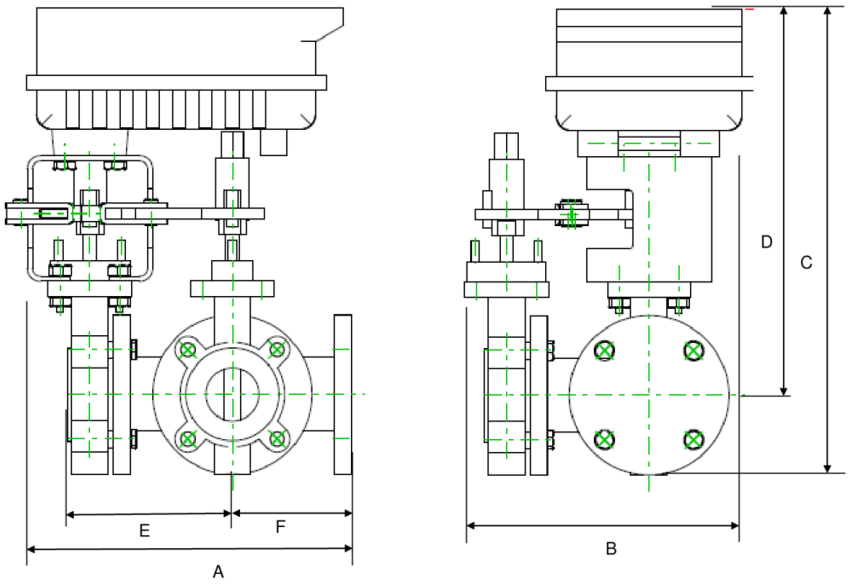
2*GM

A	B	C	D	E	F	Number of Bolt Holes
14.1" [358]	10.4" [264]	13.1" [333]	9.6" [243]	6.8" [172]	5.0" [127]	4



PR

A	B	C	D	E	F	Number of Bolt Holes
14.1" [358]	10.4" [264]	17.8" [451]	14.3" [363]	6.8" [172]	5.0" [127]	4



PK

A	B	C	D	E	F	Number of Bolt Holes
14.6" [370]	10.4" [264]	17.4" [443]	13.8" [350]	6.8" [172]	5.0" [127]	4

BELIMO

NEMA 4, Modulating Control, Electrical Fail-Safe, Direct Coupled, 24 V, Multi-Function Technology®

Technical data sheet 2*GMX24-MFT-T-X1 N4

2-year warranty

Technical data

Electrical data	Nominal voltage	AC/DC 24 V
	Nominal voltage frequency	50/60 Hz
	Power consumption in operation	8 W
	Power consumption in rest position	2.5 W
	Transformer sizing	22 VA (class 2 power source)
	Electrical Connection	Terminal blocks
	Overload Protection	electronic throughout 0...95° rotation
Functional data	Operating range Y	2...10 V
	Operating range Y note	4...20 mA w/ ZG-R01 (500 Ω, 1/4 W resistor)
	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
	Options positioning signal	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
	Direction of motion motor	selectable with switch 0/1
	Manual override	external push button
	Angle of rotation	Max. 95°
	Angle of rotation note	adjustable with mechanical stop
	Running Time (Motor)	150 s / 90°
	Running time motor variable	95...150 s
	Noise level, motor	45 dB(A)
	Position indication	Mechanically, 5...20 mm stroke
Safety data	Degree of protection IEC/EN	IP66
	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 temperature	-22...122°F [-30...50°C]
	Ambient temperature note	-40...50°C for actuator with integrated heating
	Storage temperature	-40...176°F [-40...80°C]
	Ambient humidity	Max. 100% RH
	Servicing	maintenance-free
Materials	Housing material	Die cast aluminium and plastic casing

Footnotes †Rated Impulse Voltage 800V, Type action 1, Control Pollution Degree 3.

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 non-spring return models	NSV24 US
	Battery, 12 V, 1.2 Ah (two required)	NSV-BAT
	Auxiliary switch 1 x SPDT add-on	S1A
	Auxiliary switch 2 x SPDT add-on	S2A
	Feedback potentiometer 140 Ω add-on, grey	P140A GR
	Feedback potentiometer 1 kΩ add-on, grey	P1000A GR
	Feedback potentiometer 10 kΩ add-on, grey	P10000A GR
	Feedback potentiometer 2.8 kΩ add-on, grey	P2800A GR
	Feedback potentiometer 500 Ω add-on, grey	P500A GR
	Feedback potentiometer 5 kΩ add-on, grey	P5000A GR

Service 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

INSTALLATION NOTES

A Actuators with appliance cables are numbered.

1 Provide overload protection and disconnect as required.

3 Actuators may also be powered by DC 24 V.

5 Only connect common to negative (-) leg of control circuits.

7 A 500 Ω resistor (ZG-R01) converts the 4...20 mA control signal to 2...10 V.

8 Control signal may be pulsed from either the Hot (Source) or Common (Sink) 24 V line.

10 For triac sink the Common connection from the actuator must be connected to the Hot connection of the controller. Position feedback cannot be used with a triac sink controller; the actuator internal common reference is not compatible.

12 IN4004 or IN4007 diode. (IN4007 supplied, Belimo part number 40155).

16 Actuators are provided with a numbered screw terminal strip instead of a cable.

46 Actuators may be controlled in parallel. Current draw and input impedance must be observed.

47 Master-Slave wiring required for piggy-back applications. Feedback from Master to control input(s) of Slave(s).

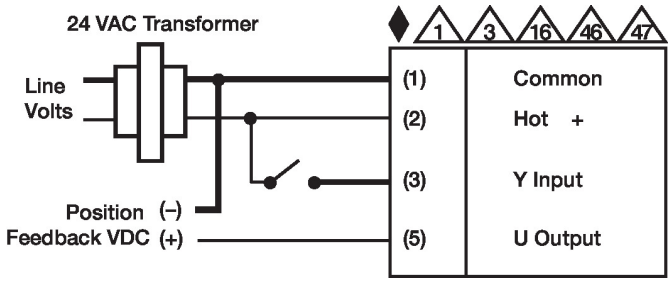
Meets cULus requirements without the need of an electrical ground connection.

Warning! Live electrical components!

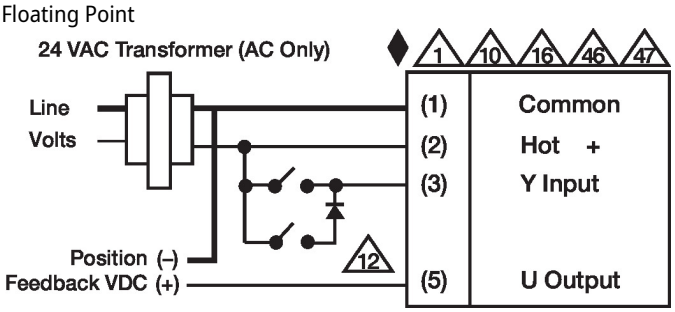
During installation, testing, servicing and troubleshooting of this product, it may be necessary to work with live electrical components. Have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components perform these tasks. Failure to follow all electrical safety precautions when exposed to live electrical components could result in death or serious injury.

Wiring diagrams

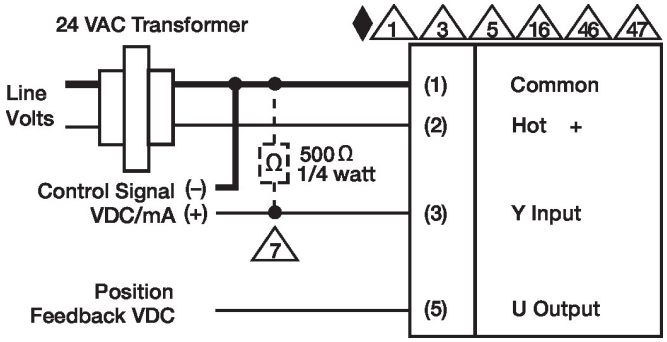
On/Off



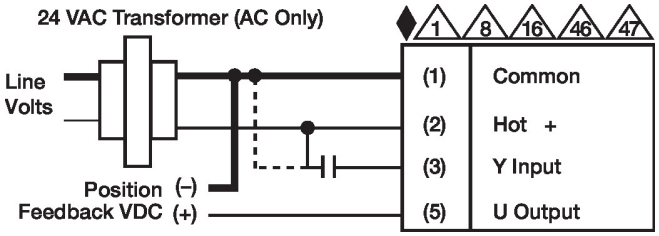
Floating Point



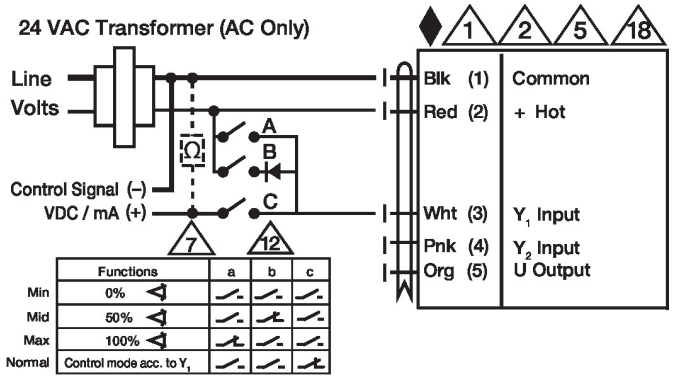
VDC/mA Control



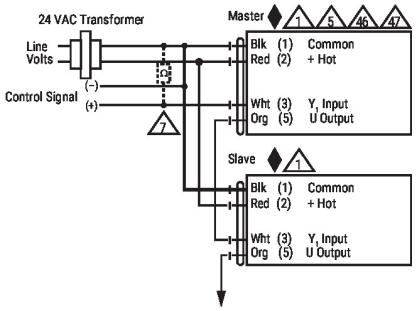
PWM Control



Override Control



Master - Slave



Dimensions