Technical data sheet F680-150SHP

Butterfly Valve with ANSI Class 150 Lug types

- **Disc 316 stainless steel**
- **Bubble tight shut-off**
- **Teflon seat**
- **Valve face-to-face dimensions comply with API 609 & MSS-SP-67**
- **For use with dead-end service**
- **Completely assembled and tested, ready for installation**
- **The SHP series are Flowseal® valves manufactured by the Crane Company.**

Picture may differ from product

5-year warranty

Type overview

Type	DN
F680-150SHP	3" [80]

Technical data

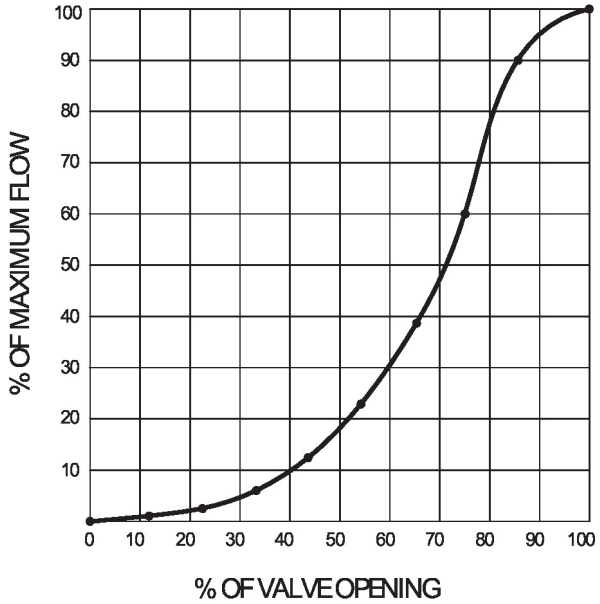
Functional data	Valve size [mm]	3" [80]
	Fluid	chilled or hot water, up to 60% glycol, steam
	Fluid Temp Range (water)	-22...400°F [-30...204°C]
	Body Pressure Rating	ANSI Class 150
	Close-off pressure Δps	285 psi
	Flow characteristic	modified equal percentage, unidirectional
	Leakage rate	0%
	Pipe connection	Flange for use with ASME/ANSI class 150
	Servicing	maintenance-free
	Flow Pattern	2-way
	Controllable flow range	quarter turn, mechanically limited
	Cv	228
	Maximum Inlet Pressure (Steam)	50 psi
	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
	Bearing	glass backed PTFE
	Disc	316 stainless steel
Suitable actuators	Non Fail-Safe	PRB(X) GMB(X)
	Spring	2*AFB(X)
	Electronic fail-safe	PKRB(X) GKRB(X)

Safety notes

- Belimo gas monitors are not suited for hazardous applications where explosion-proof or intrinsically safe equipment is required. These devices are meant for residential, commercial, and light industrial applications only. All Belimo gas monitors are meant to monitor gases that are typically not present in high concentrations in a space.

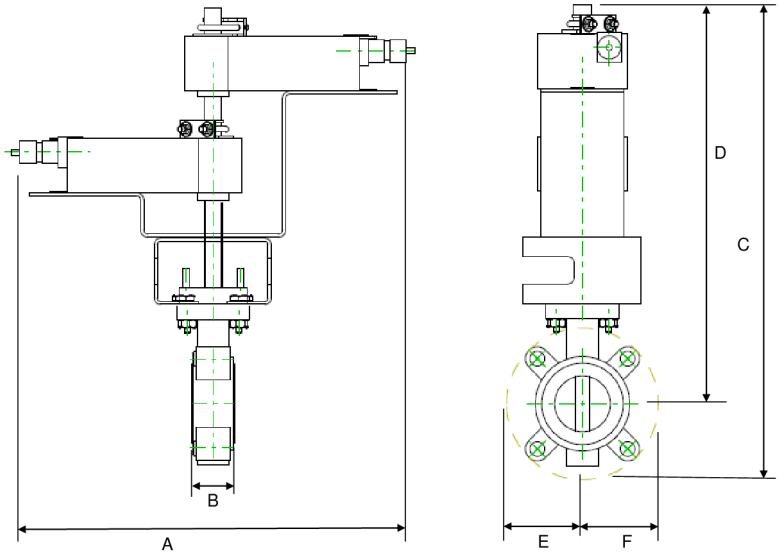
Product features

Flow/Mounting details



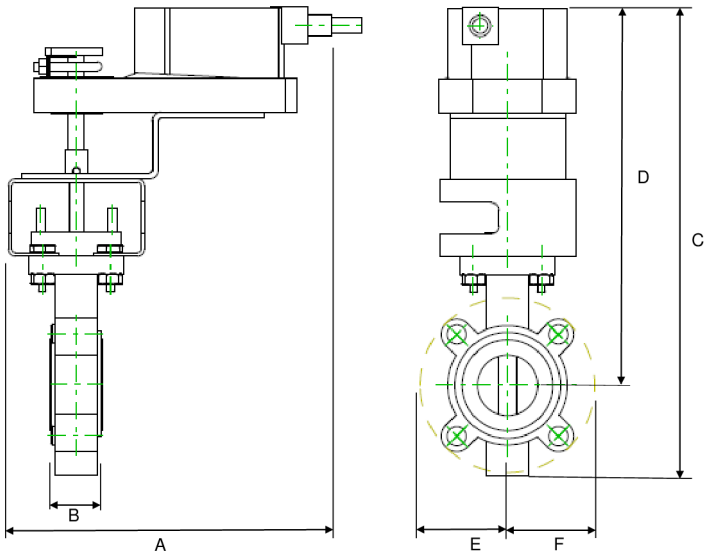
Dimensions

Type	DN	Weight
F680-150SHP	3" [80]	13 lb [5.9 kg]

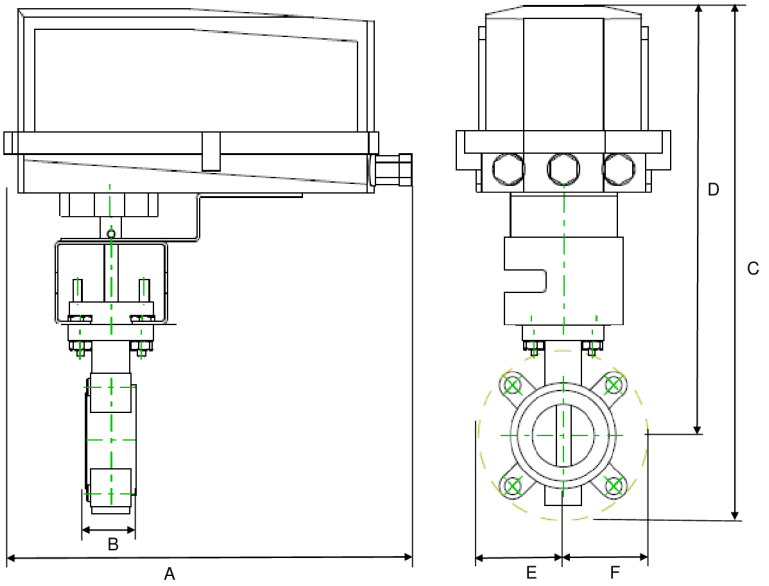


A	B	C	D	E	F	Number of Bolt Holes
18.0" [457]	1.9" [49]	20.0" [509]	17.0" [431]	3.5" [89]	3.5" [89]	4

Dimensions



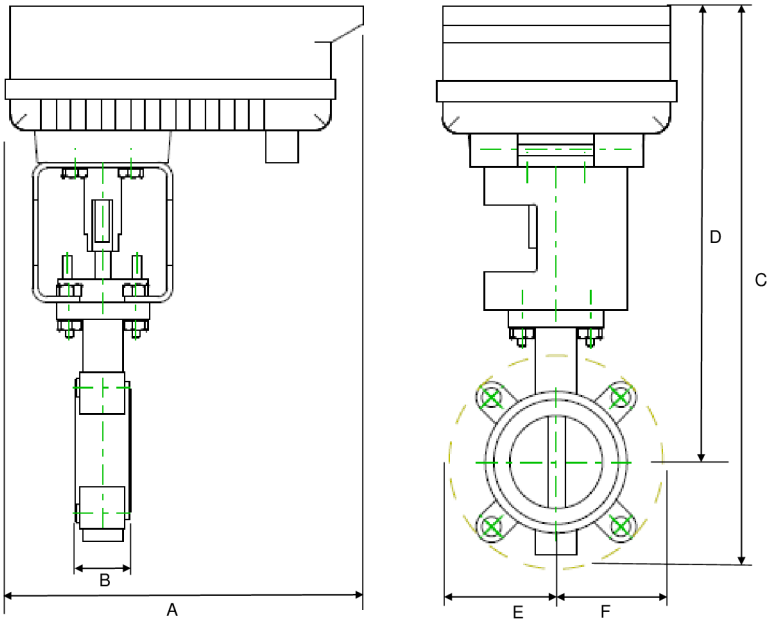
A	B	C	D	E	F	Number of Bolt Holes
10.9" [277]	1.9" [49]	17.9" [454]	13.2" [336]	4.9" [124]	4.9" [125]	4



GM N4

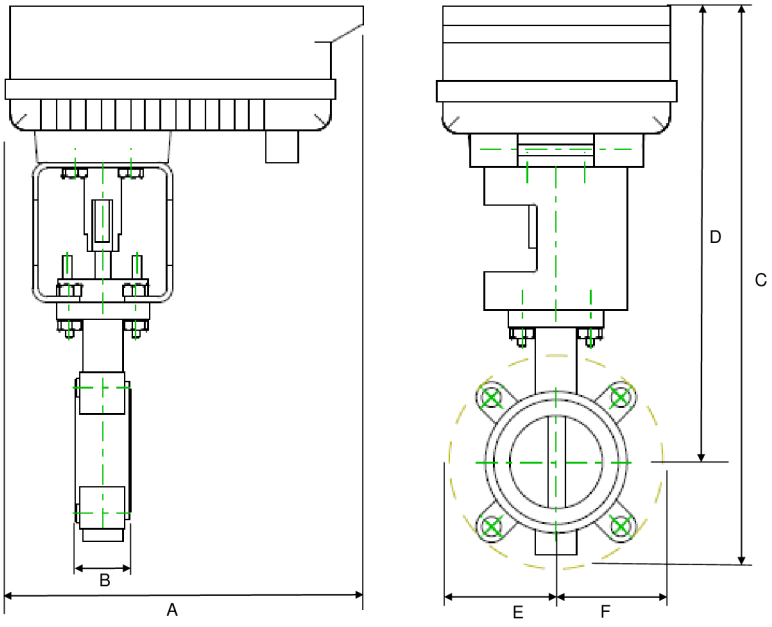
A	B	C	D	E	F	Number of Bolt Holes
9.1" [231]	1.9" [49]	13.9" [354]	10.0" [254]	3.9" [100]	3.9" [100]	4

Dimensions



PR

A	B	C	D	E	F	Number of Bolt Holes
14.1" [358]	1.9" [49]	19.8" [502]	14.5" [368]	5.2" [133]	5.2" [133]	4



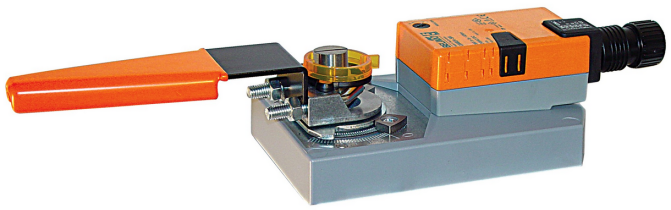
PK

A	B	C	D	E	F	Number of Bolt Holes
12.0" [304]	1.9" [49]	22.4" [570]	17.5" [445]	4.9" [124]	4.9" [125]	4
A	B	C	D	E	F	Number of Bolt Holes
11.7" [298]	1.9" [49]	18.5" [470]	15.0" [381]	3.5" [89]	3.5" [89]	4

BELIMO

Technical data sheet GMB24-MFT-X1

MFT/programmable, Non fail-safe, 24 V



Picture may differ from product

5-year warranty

Technical data

Electrical data	Nominal voltage	AC/DC 24 V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 19.2...28.8 V / DC 21.6...28.8 V
	Power consumption in operation	4 W
	Power consumption in rest position	1.5 W
	Transformer sizing	7 VA
	Electrical Connection	18 AWG plenum cable, 3 ft [1 m], with 1/2" NPT conduit connector (10 ft [3 m] and 16 ft [5 m] available)
	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 PWM, On/Off and Floating point
	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
	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	90...150 s
	Sound power level, motor	45 dB(A)
	Position indication	Mechanical, 30...65 mm stroke
Safety data	Power source UL	Class 2 Supply
	Degree of protection NEMA/UL	NEMA 2
	Housing	UL Enclosure Type 2
	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

Technical data

Safety data	UL 2043 Compliant	Suitable for use in air plenums per Section 300.22(C) of the NEC and Section 602 of the IMC
	Ambient humidity	Max. 95% RH, non-condensing
	Ambient temperature	-22...122°F [-30...50°C]
	Storage temperature	-40...176°F [-40...80°C]
	Servicing	maintenance-free
Weight	Weight	4.2 lb [1.9 kg]
Materials	Housing material	Galvanized steel and plastic housing

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

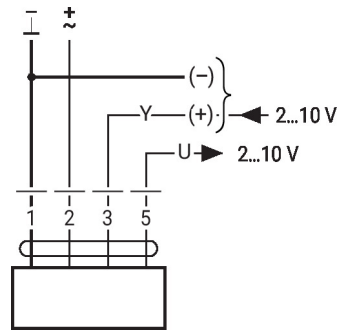
Accessories

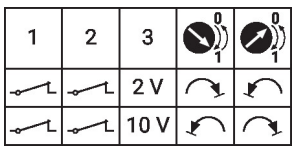
Electrical accessories	Description	Type
	Belimo PC-Tool, Software for adjustments and diagnostics	MFT-P
	Feedback potentiometer 140 Ω add-on, grey	P140A GR
	Feedback potentiometer 500 Ω add-on, grey	P500A GR
	Feedback potentiometer 1 kΩ add-on, grey	P1000A GR
	Feedback potentiometer 2.8 kΩ add-on, grey	P2800A GR
	Feedback potentiometer 5 kΩ add-on, grey	P5000A GR
	Feedback potentiometer 10 kΩ add-on, grey	P10000A GR
	Auxiliary switch 1x SPDT add-on	S1A
	Auxiliary switch 2x SPDT add-on	S2A
	Connecting cable 16 ft [5 m], A: RJ11 6/4 LINK.10, B: free wire end for connection to MP/PP terminal	ZK2-GEN
	Service tool, with ZIP-USB function, for configurable and communicative Belimo actuators, VAV controller and HVAC performance devices	ZTH US
		ZS-T

Electrical installation

Wire colors:
1 = black
2 = red
3 = white
5 = orange

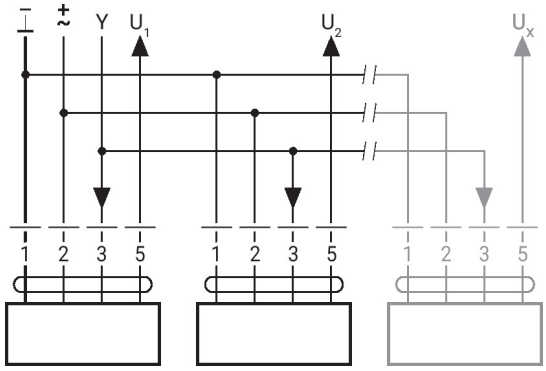
AC/DC 24 V, modulating





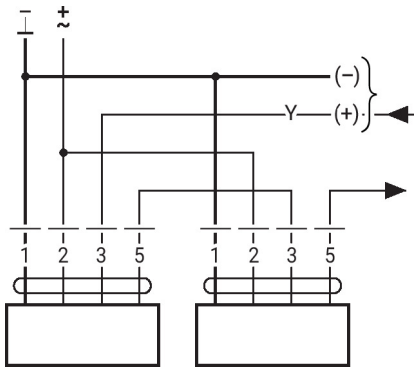
Electrical installation

Parallel operation



Max. 8 actuators in parallel
Parallel operation is permitted only on non-connected axes
Do not fail to observe performance data with parallel operation

Wiring diagram piggy-back operation (mechanically coupled actuators)

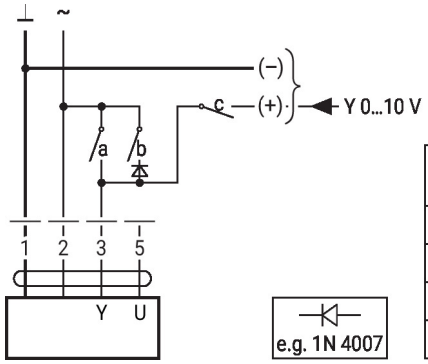


Max. 2 actuators in primary/secondary operation
Primary/secondary operation is permitted only on one fixed shaft or on two mechanically coupled shafts
The programming of the primary actuator is adopted by the secondary actuator

Further electrical installations

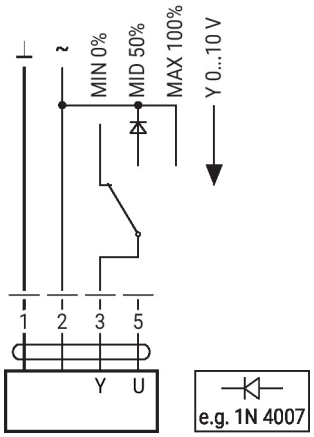
Functions with basic values (conventional mode)

Override control with AC 24 V with relay contacts



1	2	a	b	c	
					0 %
					ZS 50%
					100%
					Y

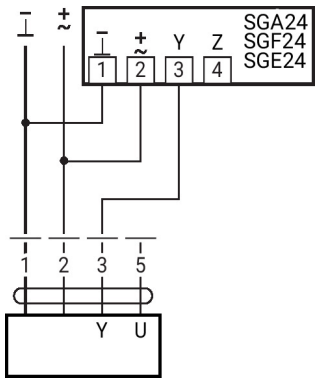
Override control with AC 24 V with rotary switch



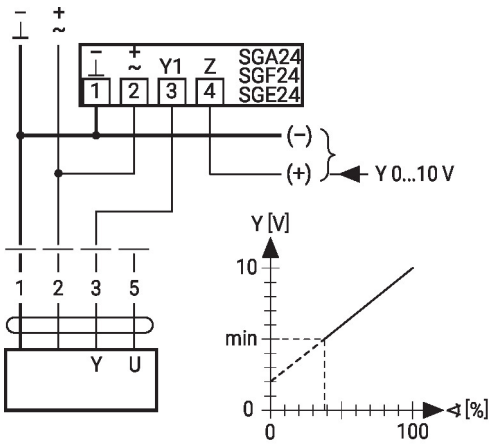
Further electrical installations

Functions with basic values (conventional mode)

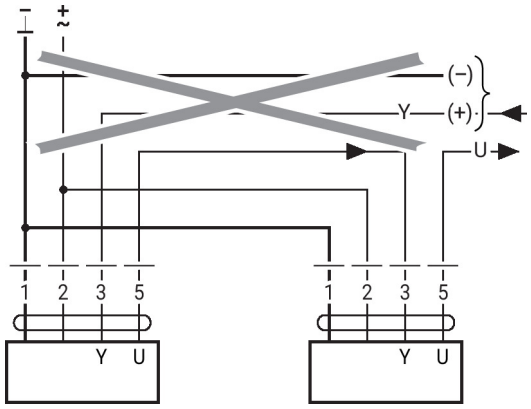
Control remotely 0...100% with positioner SG..



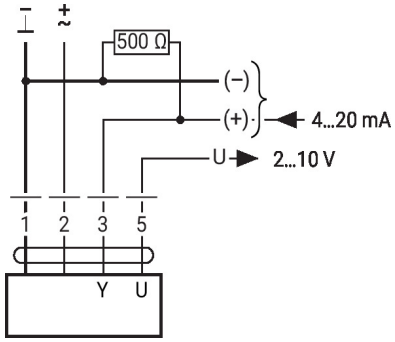
Minimum limit with positioner SG..



Primary/secondary operation (position-dependent)



Control with 4...20 mA via external resistor

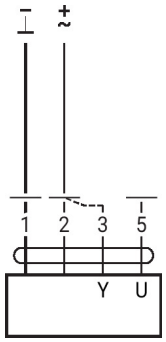


Caution:
The operating range must be set to DC 2...10 V.
The 500 Ohm resistor converts the 4...20 mA current signal to a voltage signal DC 2...10 V.

Further electrical installations

Functions with basic values (conventional mode)

Functional check

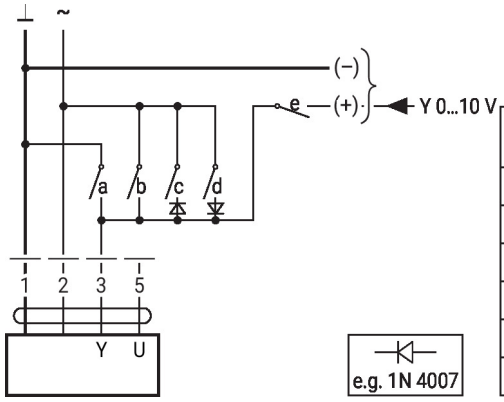


Procedure

1. Connect 24 V to connections 1 and 2
2. Disconnect connection 3:
– With direction of rotation 0: Actuator rotates to the left
– With direction of rotation 1: Actuator rotates to the right
3. Short-circuit connections 2 and 3:
– Actuator runs in opposite direction

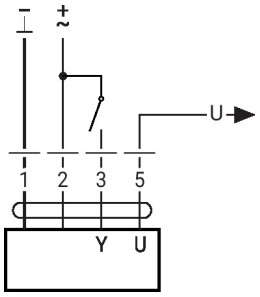
Functions with specific parameters (configuration necessary)

Override control and limiting with AC 24 V with relay contacts

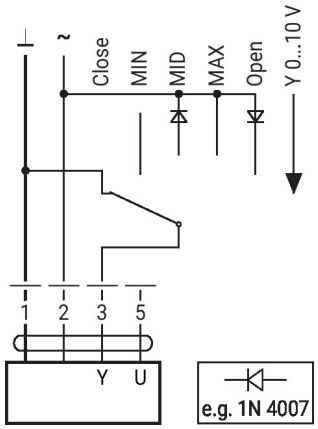


1	2	a	b	c	d	e	
⌐	⌐	⌐	_	_	_	_	Close
⌐	⌐	_	_	_	_	_	MIN
⌐	⌐	_	_	⌐	_	_	ZS
⌐	⌐	_	_	_	_	_	MAX
⌐	⌐	_	_	_	⌐	_	Open
⌐	⌐	_	_	_	_	⌐	Y

Control on/off



Override control and limiting with AC 24 V with rotary switch



Caution:
The "Close" function is only guaranteed if the start point of the operating range is defined as min. 0.5 V.

Control 3-point with AC 24 V