2-way, Characterized Control Valve, Stainless Steel Ball and Stem



Picture may differ from product

5-year warranty

Type overview

Type	DN	Cv	Body Pressure Rating
B6500S-290	5" [125]	290	ANSI Class 125, standard class B

Technical data

Functional data	Valve size [mm]	5" [125]
	Fluid	chilled or hot water, up to 60% glycol
	Fluid Temp Range (water)	0...250°F [-18...120°C]
	Close-off pressure	Δps 175 psi
	Flow characteristic	equal percentage
	Leakage rate	0% for A–AB
	Pipe connection	Flange for use with ASME/ANSI class 125
	Servicing	maintenance-free
	Flow Pattern	2-way
	Controllable flow range	75°
Materials	Valve body	Cast iron - GG 25
	Stem	stainless steel
	Stem seal	EPDM (lubricated)
	Seat	PTFE
	Characterized disc	Stainless steel
	O-ring	EPDM (lubricated)
	Ball	stainless steel
Suitable actuators	Non Fail-Safe	GRB(X)
	Electronic fail-safe	GKRB(X)

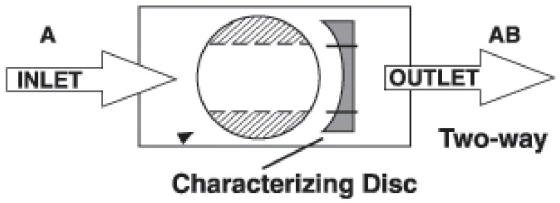
Product features

Application

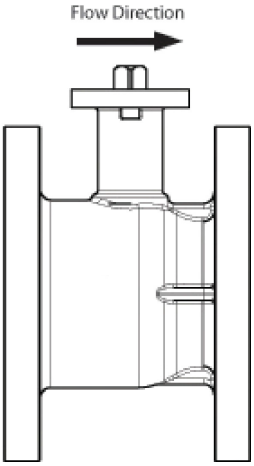
This valve is typically used in air handling units on heating or cooling coils, and fan coil unit heating or cooling coils. Some other common applications include Unit Ventilators, VAV box re-heat coils and bypass loops. This valve is suitable for use in a hydronic system with variable flow.

Product features

Flow/Mounting details

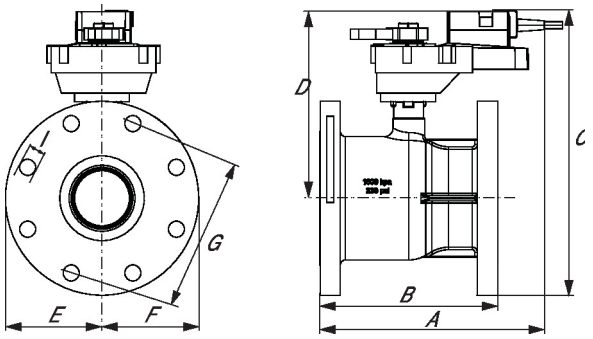


Upstream A
Downstream AB

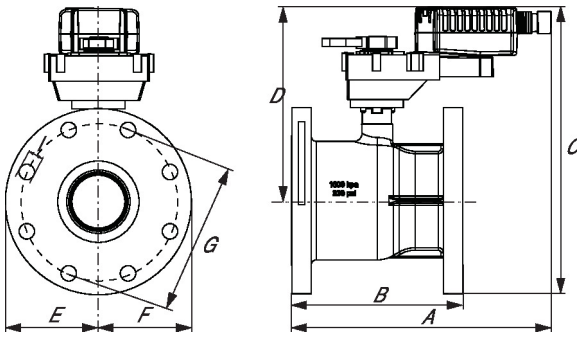


Dimensions

Type	DN	Weight
B6500S-290	5" [125]	67 lb [31 kg]



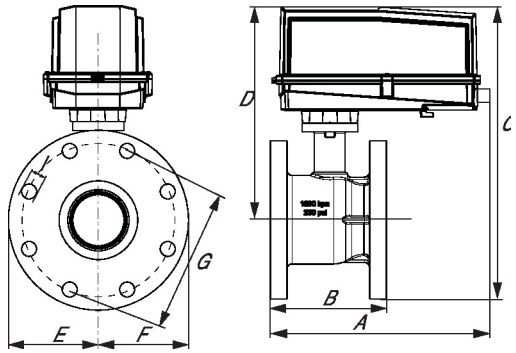
A	B	C	D	E	F	G	I	Number of Bolt Holes
13.3" [338]	10.3" [262]	14.4" [366]	9.4" [239]	5.0" [127]	5.0" [127]	8.5" [216]	0.9" [22]	8



A	B	C	D	E	F	G	I	Number of Bolt Holes
13.5" [343]	10.3" [262]	14.4" [366]	9.7" [246]	5.0" [127]	5.0" [127]	8.5" [216]	0.9" [22]	8

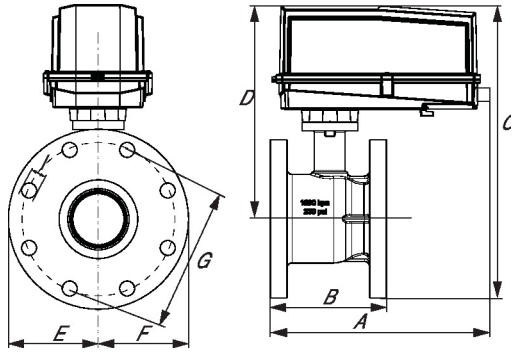
Dimensions

GRX, GKRX



A	B	C	D	E	F	G	I	Number of Bolt Holes
17.5" [444]	10.3" [262]	17.0" [433]	13.6" [345]	5.0" [127]	5.0" [127]	8.5" [216]	0.9" [22]	8

GRX, GKRX



A	B	C	D	E	F	G	I	Number of Bolt Holes
17.5" [444]	10.3" [262]	17.0" [433]	13.6" [345]	5.0" [127]	5.0" [127]	8.5" [216]	0.9" [22]	8

MFT/programmable, Non fail-safe, 24 V



5-year warranty

Please note: Due to a supplier issue, certain NEMA 4 actuator covers will be supplied in gray instead of orange until further notice. This change ensures uninterrupted shipping and the same protective properties and product specifications.

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	8 W
	Power consumption in rest position	2.5 W
	Transformer sizing	11 VA
	Overload Protection	electronic thoughout 0...90° 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	600 Ω
	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	under cover
	Angle of rotation	90°
	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 IEC/EN	IP66/67
	Degree of protection NEMA/UL	NEMA 4X
	Housing	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]
	Ambient temperature note	-40...122°F [-40...50°C] for actuator with integrated heating

Technical data

Safety data	Storage temperature	-40...176°F [-40...80°C]
	Servicing	maintenance-free
Weight	Weight	6.9 lb [3.1 kg]
Materials	Housing material	Die cast aluminium and plastic casing

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

Accessories

	Description	Type
Tools	Connecting cable 10 ft [3 m], A: RJ11 6/4 LINK.10, B: 3-pin Weidmüller and supply connection	ZK4-GEN
	Service tool, with ZIP-USB function, for configurable and communicative Belimo actuators, VAV controller and HVAC performance devices	ZTH US

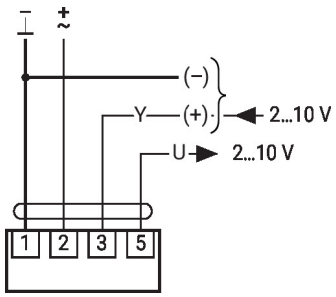
	Description	Type
Electrical accessories	Auxiliary switch 1x SPDT add-on	S1A
	Auxiliary switch 2x SPDT add-on	S2A
	Feedback potentiometer 140 Ω add-on, grey	P140A GR
	Feedback potentiometer 1 kΩ add-on, grey	P1000A GR
	Feedback potentiometer 10 kΩ add-on, grey	P10000A GR
	Feedback potentiometer 2.8 kΩ add-on, grey	P2800A GR
	Feedback potentiometer 500 Ω add-on, grey	P500A GR
	Feedback potentiometer 5 kΩ add-on, grey	P5000A GR

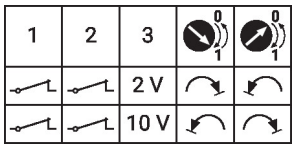
	Description	Type
Gateways	Gateway MP to BACnet MS/TP	UK24BAC
	Gateway MP to Modbus RTU	UK24MOD
	Gateway MP to LonWorks	UK24LON

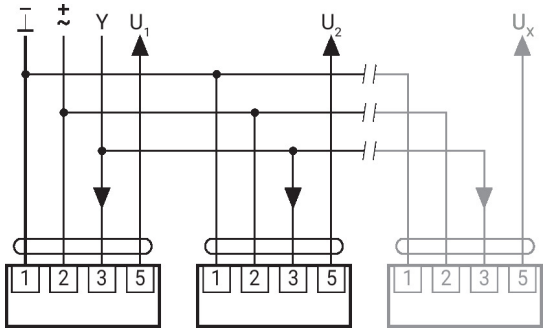
	Description	Type
Factory add-on option only	Heater, with adjustable thermostat	ACT_PACK_H

Electrical installation

AC/DC 24 V, modulating



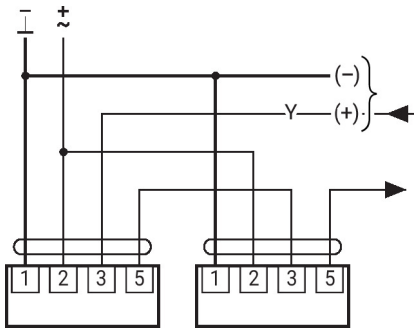




Max. 8 actuators in parallel
Parallel operation is permitted only on non-connected axes
Do not fail to observe performance data with parallel operation

Electrical installation

Wiring diagram piggy-back operation (mechanically coupled actuators)

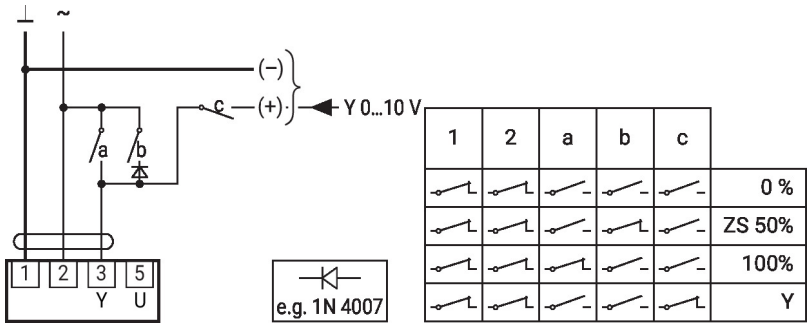


Max. 2 actuators in primary/ secondary operation
Primary/secondary operation is permitted only on one fixed shaft or on two mechanically coupled shafts
The programming of the primary actuator is adopted by the secondary actuator

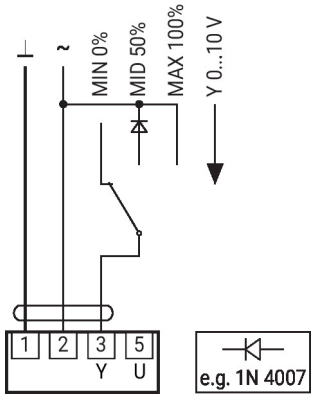
Further electrical installations

Functions with basic values (conventional mode)

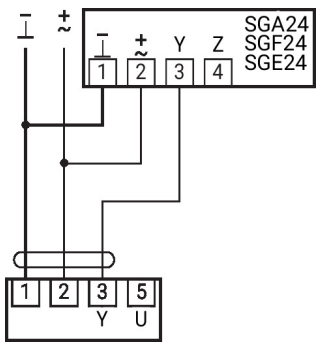
Override control with AC 24 V with relay contacts



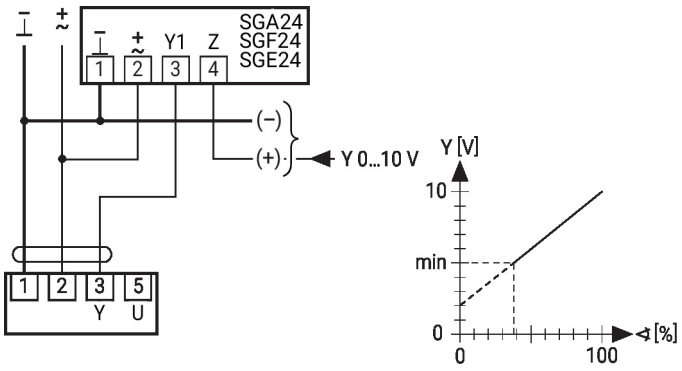
Override control with AC 24 V with rotary switch



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



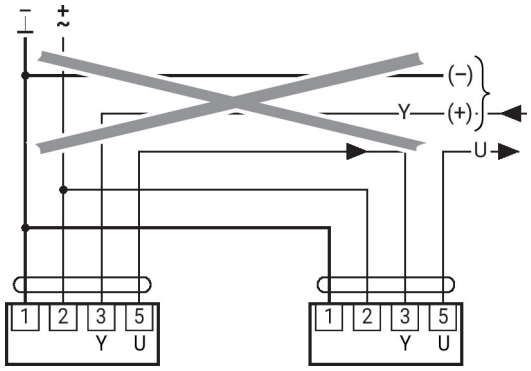
Minimum limit with positioner SG..



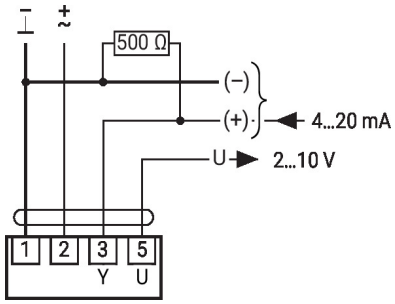
Further electrical installations

Functions with basic values (conventional mode)

Primary/secondary operation (position-dependent)

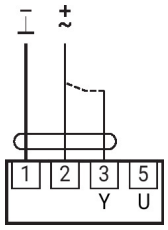


Control with 4...20 mA via external resistor



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.

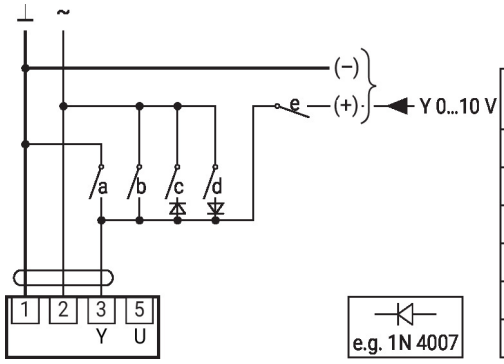
Functional check



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

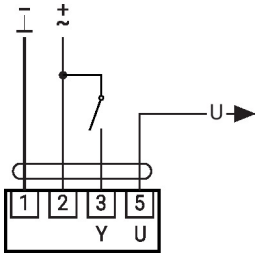
Functions with specific parameters (configuration necessary)

Override control and limiting with AC 24 V with relay contacts



1	2	a	b	c	d	e	
⊥	⊥	⊥	–	–	–	–	Close[1)]
⊥	⊥	⊥	–	–	–	–	MIN
⊥	⊥	–	–	⊥	–	–	ZS
⊥	⊥	⊥	–	⊥	–	–	MAX
⊥	⊥	–	–	–	⊥	–	Open
⊥	⊥	–	–	–	–	⊥	Y

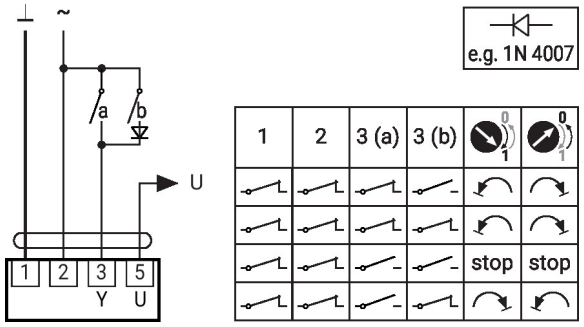
Control on/off



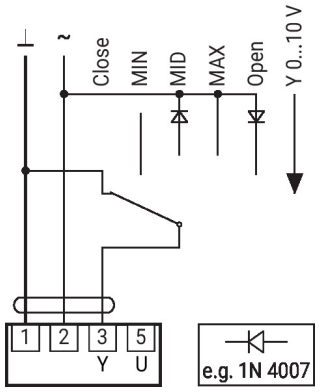
Further electrical installations

Functions with specific parameters (configuration necessary)

Control 3-point with AC 24 V



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.