

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



5-year warranty



## Type overview

Type	DN
B251	50

## Technical data

	Functional data	Valve size [mm]	2" [50]
	Fluid	chilled or hot water, up to 60% glycol	
	Fluid Temp Range (water)	0...250°F [-18...120°C]	
	Body Pressure Rating	400 psi	
	Close-off pressure Δps	200 psi	
	Flow characteristic	equal percentage	
	Leakage rate	0% for A – AB	
	Pipe connection	Internal thread NPT (female)	
	Servicing	maintenance-free	
	Flow Pattern	2-way	
	Controllable flow range	75°	
	Cv	65	
	Materials	Valve body	Nickel-plated brass body
	Materials	Stem	stainless steel
	Materials	Stem seal	EPDM (lubricated)
	Materials	Seat	PTFE
	Materials	Characterized disc	stainless steel
	Materials	O-ring	EPDM (lubricated)
	Materials	Ball	stainless steel
	Suitable actuators	Non Fail-Safe	ARB(X) ARQB(X) ARB(X) N4
	Suitable actuators	Spring	AFRB(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](http://www.p65warnings.ca.gov)

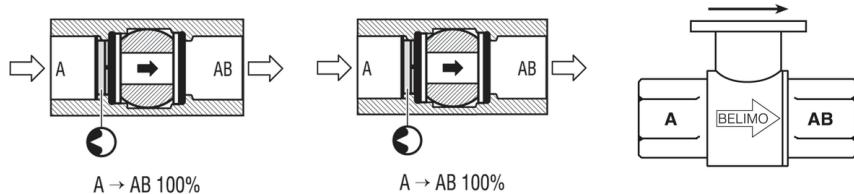
## Product features

## 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.

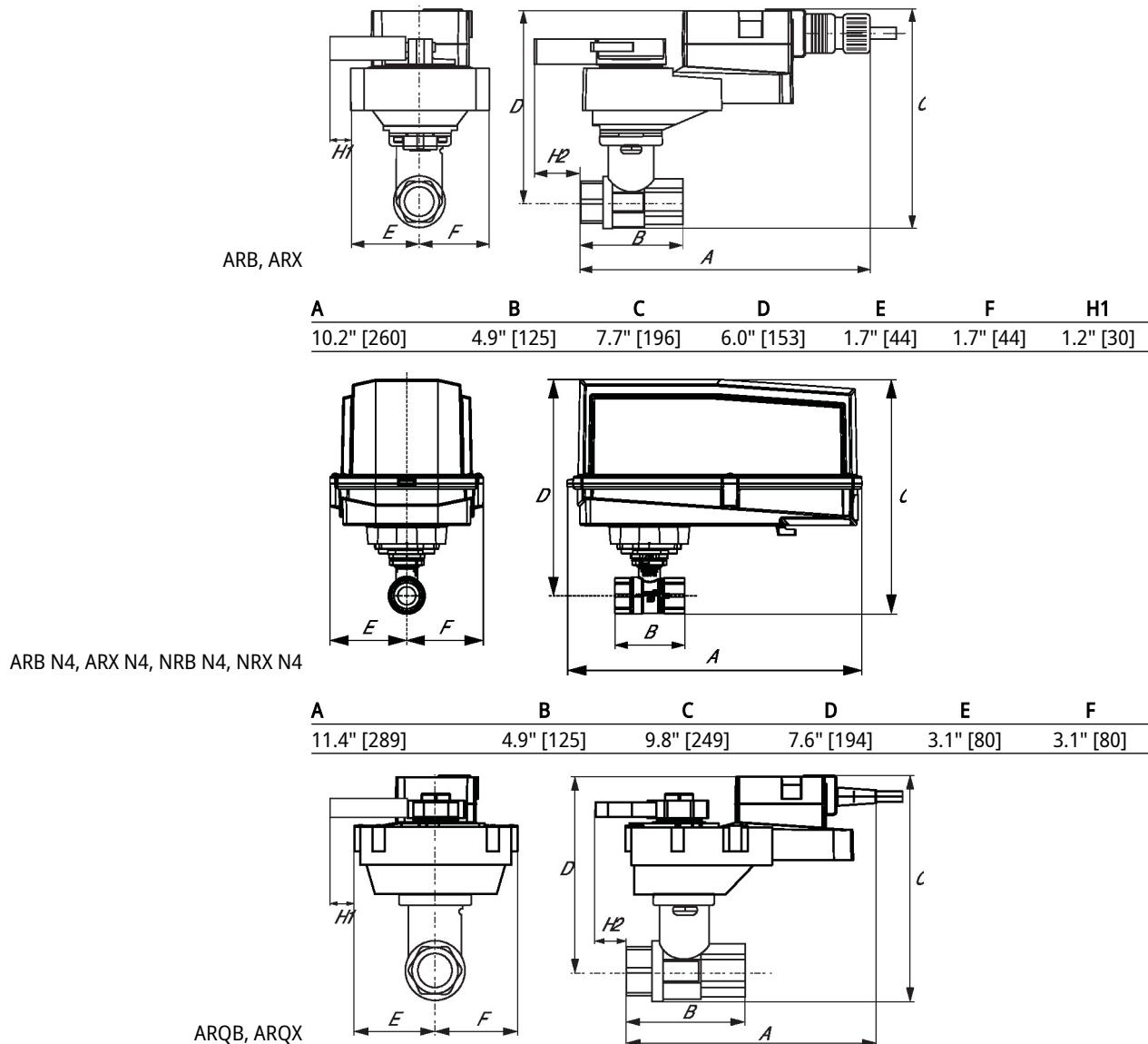
## Flow/Mounting details

Two-way valves should be installed with the disc upstream.



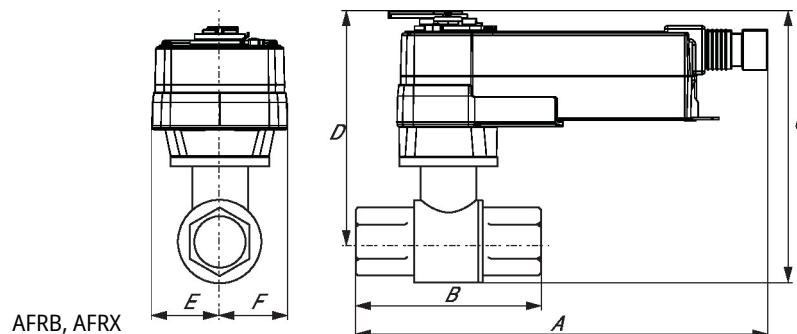
## Dimensions

Type	DN	Weight
B251	50	5.4 lb [2.4 kg]

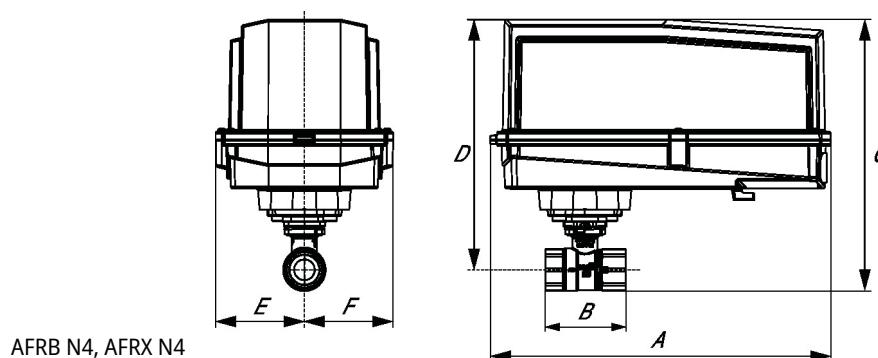


## Dimensions

A	B	C	D	E	F	H1	H2
9.9" [251]	4.9" [125]	7.5" [191]	6.1" [155]	2.3" [58]	2.3" [58]	0.8" [20]	0.6" [15]



A	B	C	D	E	F
11.3" [286]	4.9" [125]	10.6" [268]	8.9" [225]	2.0" [51]	2.0" [51]



A	B	C	D	E	F
13.0" [330]	4.9" [125]	10.3" [262]	9.3" [235]	3.4" [86]	3.4" [86]



5-year warranty

**Technical data**

<b>Electrical data</b>	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	15 W
	Power consumption in rest position	1.5 W
	Transformer sizing	26 VA
	Electrical Connection	18 GA plenum cable, 1 m, with 1/2" NPT conduit connector
	Overload Protection	electronic throughout 0...90° rotation
<b>Functional data</b>	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
	Operating modes optional	variable (VDC, on/off)
	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	90°
	Angle of rotation note	adjustable with mechanical stop
	Running Time (Motor)	10 s / 90°
	Running time motor variable	7...35 s
	Noise level, motor	52 dB(A)
	Position indication	Mechanical, pluggable
<b>Safety data</b>	Power source UL	Class 2 Supply
	Degree of protection IEC/EN	IP54
	Degree of protection NEMA/UL	NEMA 2
	Enclosure	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
	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]

<b>Safety data</b>	Storage temperature	-40...176°F [-40...80°C]
	Servicing	maintenance-free
<b>Weight</b>	Weight	3.1 lb [1.4 kg]
<b>Materials</b>	Housing material	Galvanized steel and plastic housing

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

## Accessories

	<b>Gateways</b>	<b>Description</b>	<b>Type</b>
	Gateway MP to BACnet MS/TP	UK24BAC	
	Gateway MP to Modbus RTU	UK24MOD	
	Gateway MP to LonWorks	UK24LON	
	<b>Electrical accessories</b>	<b>Description</b>	<b>Type</b>
	Battery backup system, for non-spring return models	NSV24 US	
	Battery, 12 V, 1.2 Ah (two required)	NSV-BAT	
	Service tool, with ZIP-USB function, for programmable and communicative Belimo actuators, VAV controller and HVAC performance devices	ZTH US	
	<b>Tools</b>	<b>Description</b>	<b>Type</b>
	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

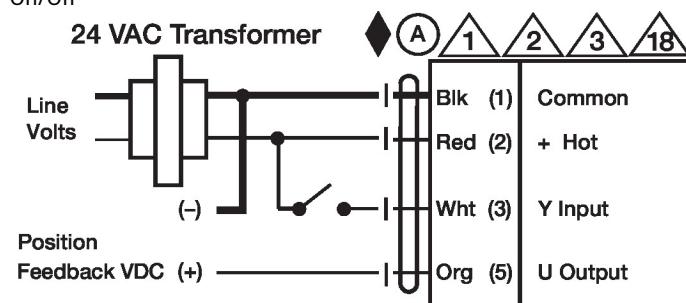
- ⚠ 1 Provide overload protection and disconnect as required.
- ⚠ 2 Actuators may be connected in parallel. Power consumption and input impedance must be observed.
- ⚠ 3 Actuators may also be powered by DC 24 V.
- ⚠ 5 Only connect common to negative (-) leg of control circuits.
- ⚠ 7 A 500 Ω resistor (ZG-R01) converts the 4...20 mA control signal to 2...10 V.
- ⚠ 12 IN4004 or IN4007 diode. (IN4007 supplied, Belimo part number 40155).
- ⚠ 18 Actuators with plenum cable do not have numbers; use color codes instead.
- ⚠ Meets cULus requirements without the need of an electrical ground connection.

### ⚠ Warning! Live electrical components!

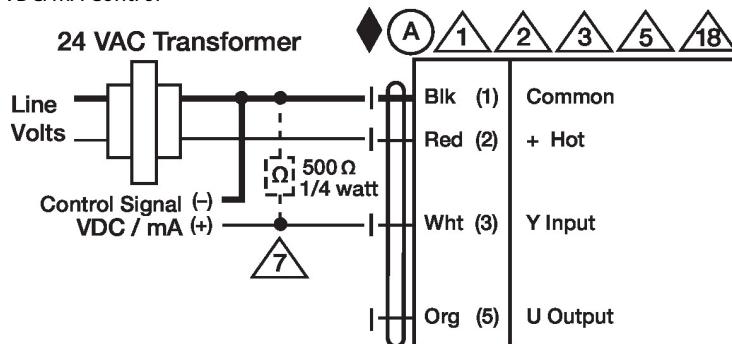
During installation, testing, servicing and troubleshooting of this product, it may be necessary to work with live electrical components. Have a qualified licensed electrician or other individual who has been properly trained in handling live electrical components perform these tasks. Failure to follow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

## Wiring diagrams

On/Off



## VDC/mA Control



## Override Control

