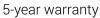


2-way, Characterized Control Valve, Stainless Steel Ball and Stem









Type overview	
Туре	DN
B220	20

# **Technical data**

Functional data	Valve size [mm]	0.75" [20]
	Fluid	chilled or hot water, up to 60% glyco
	Fluid Temp Range (water)	0250°F [-18120°C]
	Body Pressure Rating	600 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	14
	No Characterized Disc	TRUE
Materials	Valve body	Nickel-plated brass body
	Stem	stainless steel
	Stem seal	EPDM (lubricated)
	Seat	PTFE
	Characterized disc	TEFZEL®
	O-ring	EPDM (lubricated)
	Ball	stainless steel
itable actuators	Non Fail-Safe	TR
		LRB(X)
		LRQB(X)
		NRB(X) N4
	Spring	TFRB(X)
		LF

Suitab



### Safety notes



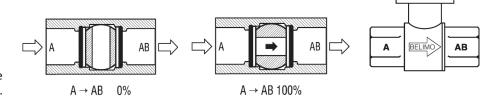
 WARNING: This product can expose you to lead which is known to the State of California to cause cancer and reproductive harm. For more information go to www.p65warnings.ca.gov

### **Product features**

### 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.

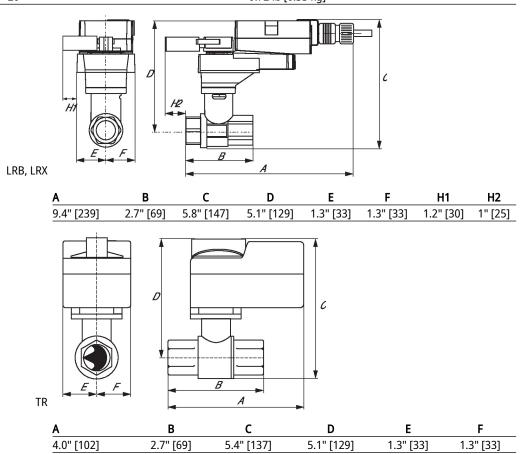
### Flow/Mounting details



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

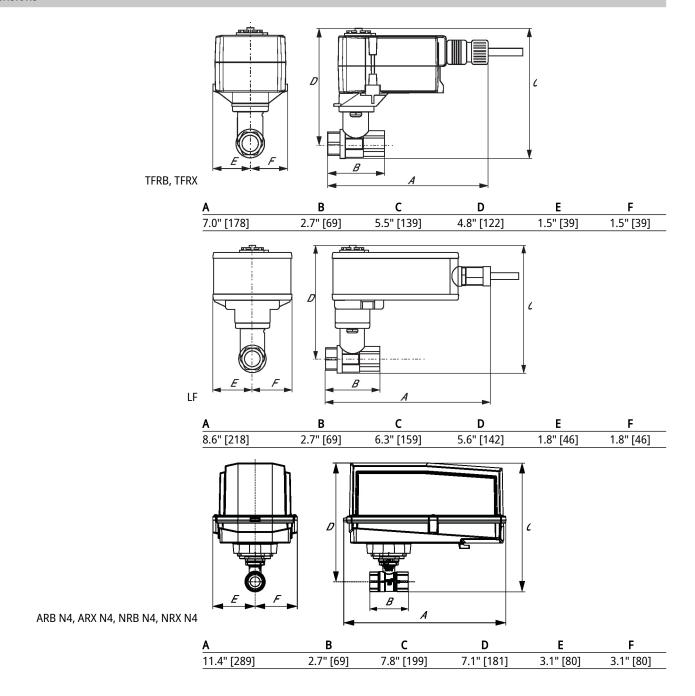
## **Dimensions**

Туре	DN	Weight
B220	20	0.72 lb [0.33 kg]





# **Dimensions**





# MFT/programmable, Non fail-safe, 24 V







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Electrical data	Nominal voltage	AC/DC 24 V
	Nominal voltage frequency	50/60 Hz
	Nominal voltage range	AC 19.228.8 V / DC 21.628.8 V
	Power consumption in operation	13 W
	Power consumption in rest position	1.5 W
	Transformer sizing	23 VA
	Electrical Connection	18 GA plenum cable, 1 m, 3 m, or 5 m with 1/2" NPT conduit connector, degree of protection NEMA 2 / IP54
	Overload Protection	electronic thoughout 090° rotation
	Electrical Protection	actuators are double insulated
Functional data	Operating range Y	210 V
	Operating range Y note	420 mA w/ ZG-R01 (500 $\Omega$ , 1/4 W resistor)
	Input impedance	100 k $\Omega$ for 210 V (0.1 mA), 500 $\Omega$ for 420 mA
	Operating range Y variable	Start point 0.530 V End point 2.532 V
	Operating modes optional	variable (VDC, on/off, floating point)
	Position feedback U	210 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)	4 s / 90°
	Running time motor variable	2.510 s
	Noise level, motor	52 dB(A)
	Position indication	Mechanical, pluggable
Safety data	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
	, ig eey =eg	E60730-1:02, CE acc. to 2014/30/EU



Saf	fety 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	-22122°F [-3050°C]
		Storage temperature	-40176°F [-4080°C]
		Servicing	maintenance-free
	Weight	Weight	1.9 lb [0.87 kg]
N	//aterials	Housing material	Galvanized steel and plastic housing

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

#### **Accessories**

Gateways	Description	Туре
	Gateway MP to BACnet MS/TP	UK24BAC
	Gateway MP to Modbus RTU	UK24MOD
	Gateway MP to LonWorks	UK24LON
Electrical accessories	Description	Туре
	Battery backup system, for non-spring return models	NSV24 US
	Battery, 12 V, 1.2 Ah (two required)	NSV-BAT
	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 k $\Omega$ add-on, grey	P5000A GR
Tools	Description	Туре
	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**

# X INSTALLATION NOTES

 $\Lambda$  Provide overload protection and disconnect as required.

Actuators may be connected in parallel. Power consumption and input impedance must be observed.

Actuators may also be powered by DC 24 V.

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

 $\Lambda$  A 500  $\Omega$  resistor (ZG-R01) converts the 4...20 mA control signal to 2...10 V.

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

Actuators with plenum cable do not have numbers; use color codes instead.

A rectactors with premain cable do not have numbers, ase 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.

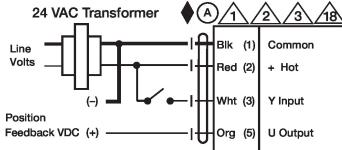


### **Electrical installation**

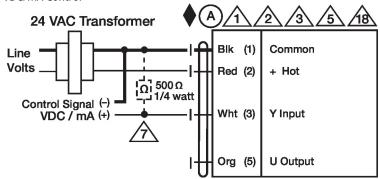
Failure to follow all electrical safety precautions when exposed to live electrical components could result in death or serious injury.

# Wiring diagrams





#### VDC/mA Control



### Override Control

