

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



5-year warranty

## Type overview

Type	DN
B220HT731	20

## Technical data

Functional data	Valve size [mm]	0.75" [20]
Fluid	high temperature hot water/low pressure steam, up to 60% glycol	
Fluid Temp Range (water)	60...266°F [16...130°C]	
Fluid Temp Range (steam)	250°F [120°C]	
Body Pressure Rating	600 psi	
Close-off pressure $\Delta$ ps	200 psi	
Flow characteristic	equal percentage	
Pipe connection	Internal thread NPT (female)	
Servicing	maintenance-free	
Max Differential Pressure (Steam)	15 psi	
Flow Pattern	2-way	
Leakage rate	0%	
Controllable flow range	75°	
Cv	7.31	
Maximum Inlet Pressure (Steam)	15 psi	
Materials	Valve body	Nickel-plated brass (DZR) P-CuZn35Pb2
Stem	stainless steel	
Stem seal	Viton O-ring	
Seat	ETFE	
Characterized disc	ETFE	
O-ring	EPDM (lubricated)	
Ball	stainless steel	
Suitable actuators	Non Fail-Safe	LRB(X)
Spring	LF	

## Safety notes

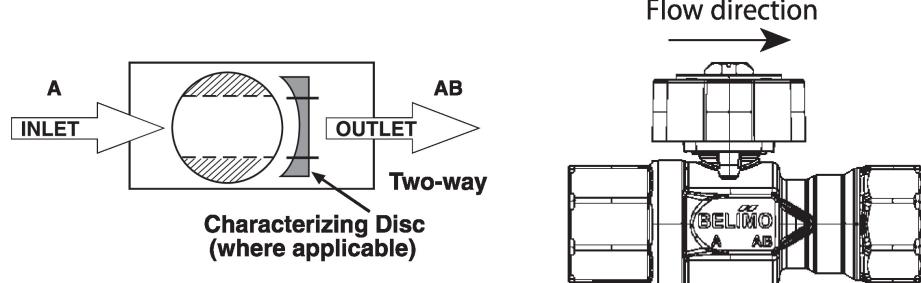


- WARNING: This product can expose you to lead which is known to the State of California to cause cancer and reproductive harm. For more information go to [www.p65warnings.ca.gov](http://www.p65warnings.ca.gov)

## Product features

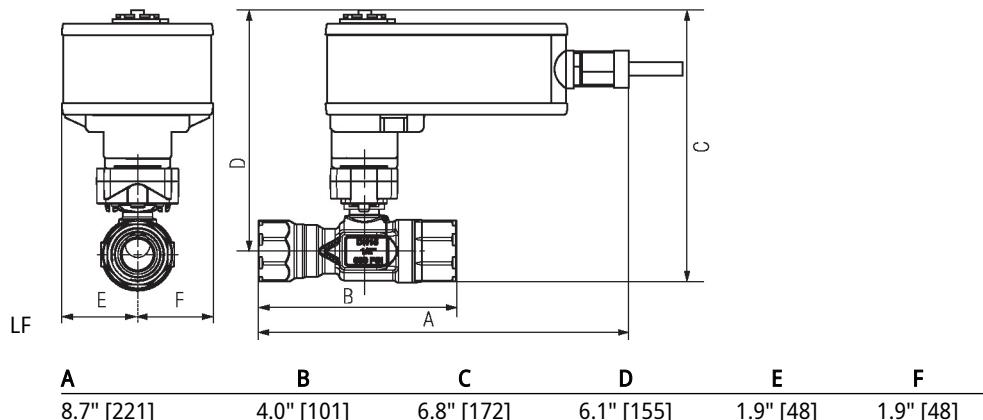
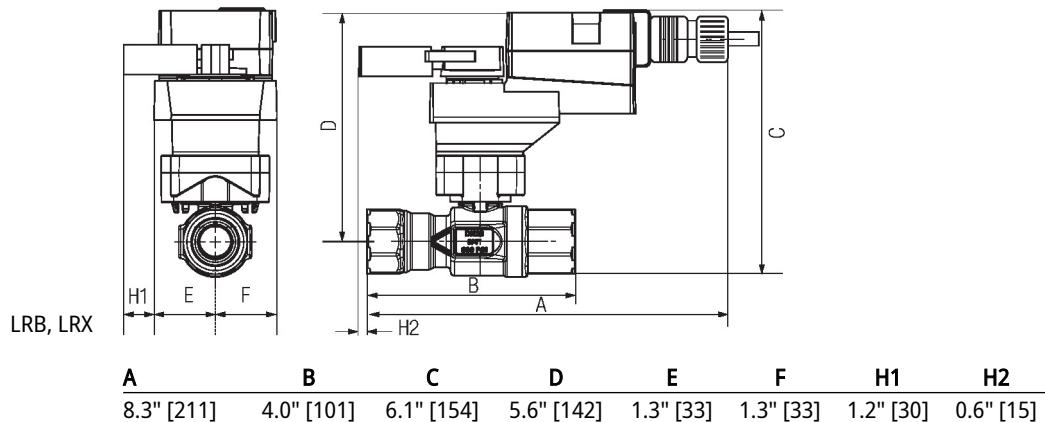
**Application** This valve is typically used in air handling units on heating or cooling coils, and fan coil unit heating or cooling coils. Some other common applications include unit ventilators, VAV box reheat coils and bypass loops. This valve is suitable for use in a hydronic system with variable flow. This valve is designed to fit in compact areas where on/off, floating point and modulating control is required using 24 VAC.

## Flow/Mounting details



## Dimensions

Type	DN	Weight
B220HT731	20	0.93 lb [0.42 kg]





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## 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	1.5 W
	Power consumption in rest position	0.4 W
	Transformer sizing	3 VA
	Electrical Connection	18 GA plenum cable, 1 m, with 1/2" NPT conduit connector
	Overload Protection	electronic throughout 0...90° rotation
	Electrical Protection	actuators are double insulated
<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
	Position feedback U	2...10 V
	Position feedback U note	Max. 1 mA
	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)	90 s / 90°
	Noise level, motor	35 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
	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]
	Storage temperature	-40...176°F [-40...80°C]
<b>Weight</b>	Servicing	maintenance-free
	Weight	1.4 lb [0.62 kg]
<b>Materials</b>	Housing material	Galvanized steel and plastic housing

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

## Accessories

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 1x SPDT add-on		S1A
Auxiliary switch 2x SPDT add-on		S2A
Feedback potentiometer 140 $\Omega$ add-on, grey		P140A GR
Feedback potentiometer 1 k $\Omega$ add-on, grey		P1000A GR
Feedback potentiometer 10 k $\Omega$ add-on, grey		P10000A GR
Feedback potentiometer 2.8 k $\Omega$ add-on, grey		P2800A GR
Feedback potentiometer 500 $\Omega$ add-on, grey		P500A GR
Feedback potentiometer 5 k $\Omega$ add-on, grey		P5000A GR

## 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  $\Omega$  resistor (ZG-R01) converts the 4...20 mA control signal to 2...10 V.
- ⚠ 18 Actuators with plenum cable do not have numbers; use color codes instead.
- ⚠ Diamond Meets cULus requirements without the need of an electrical ground connection.
- ⚠ 1 **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

2...10 V / 4...20 mA Control

