

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



5-year warranty



## Type overview

Type	DN
B218	20

## Technical data

	Functional data	Valve size [mm]	0.75" [20]
	Fluid	chilled or hot water, up to 60% glycol	
	Fluid Temp Range (water)	0...250°F [-18...120°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	7.4	
	Materials	Valve body	Nickel-plated brass body
	Materials	Stem	stainless steel
	Materials	Stem seal	EPDM (lubricated)
	Materials	Seat	PTFE
	Materials	Characterized disc	TEFZEL®
	Materials	O-ring	EPDM (lubricated)
	Materials	Ball	stainless steel
	Suitable actuators	Non Fail-Safe	TR LRB(X) LRQB(X) NRB(X) N4
	Suitable actuators	Spring	TFRB(X) 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 re-heat coils and bypass loops. This valve is suitable for use in a hydronic system with variable flow.

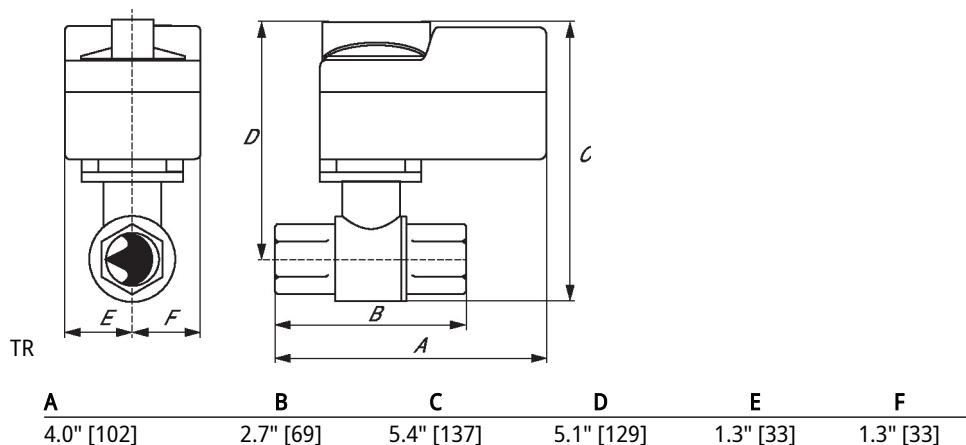
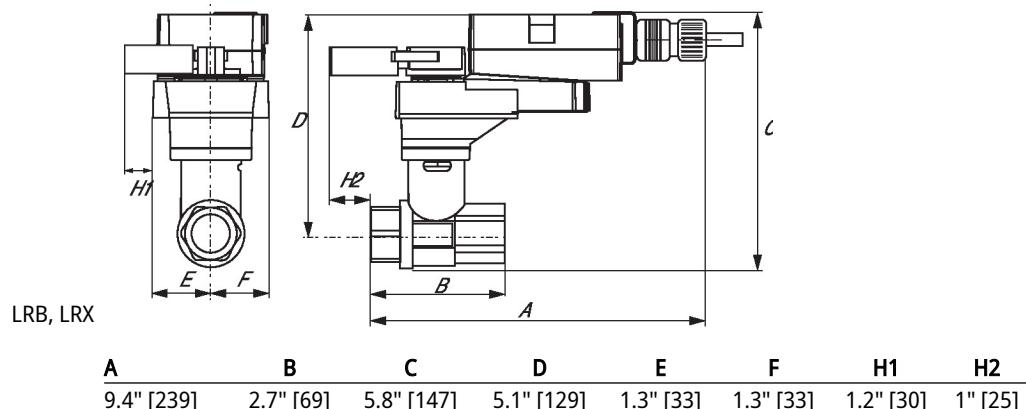
## Flow/Mounting details

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

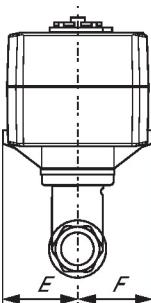
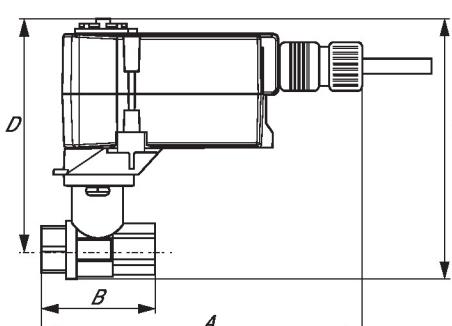
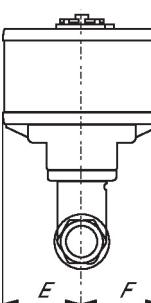
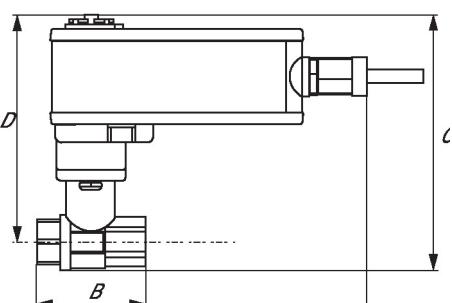
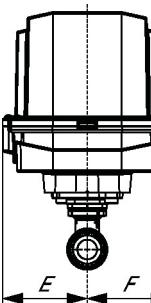
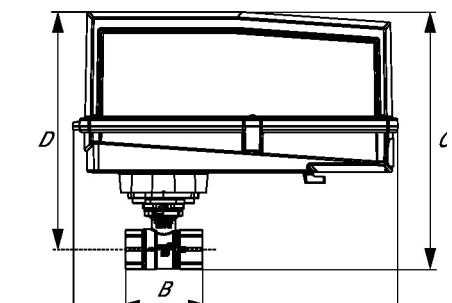


## Dimensions

Type	DN	Weight
B218	20	0.73 lb [0.33 kg]



## Dimensions

 TFRB, TFRX	 A 7.0" [178] B 2.7" [69] C 5.5" [139] D 4.8" [122] E 1.5" [39] F 1.5" [39]
 LF	 A 8.6" [218] B 2.7" [69] C 6.3" [159] D 5.6" [142] E 1.8" [46] F 1.8" [46]
 ARB N4, ARX N4, NRB N4, NRX N4	 A 11.4" [289] B 2.7" [69] C 7.8" [199] D 7.1" [181] E 3.1" [80] F 3.1" [80]



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	2 W	
Power consumption in rest position	1 W	
Transformer sizing	4 VA	
Auxiliary switch	1x SPDT, 1 mA...3 A (0.5 A inductive), DC 5 V...AC 250 V, adjustable 0...95°	
Switching capacity auxiliary switch	1 mA...3 A (0.5 A inductive), DC 5 V...AC 250 V	
Electrical Connection	(2) 18 GA appliance cables, 1 m, 3 m or 5 m, with 1/2" NPT conduit connectors	
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	
Position feedback U	2...10 V	
Position feedback U note	Max. 0.5 mA	
Direction of motion motor	selectable with switch 0/1	
Direction of motion fail-safe	reversible with cw/ccw mounting	
Angle of rotation	Max. 95°	
Angle of rotation note	adjustable with mechanical stop	
Running Time (Motor)	95 s	
Running time fail-safe	<25 s @ -10...55°C / <60 s @ -30...-10°C	
Noise level, motor	35 dB(A)	
Noise level, fail-safe	62 dB(A)	
Position indication	Mechanical	
Safety data	Power source UL	Class 2 Supply
Degree of protection IEC/EN	IP42	
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]	
Storage temperature	-40...176°F [-40...80°C]	

<b>Safety data</b>	Servicing	maintenance-free
<b>Weight</b>	Weight	1.6 lb [0.72 kg]
<b>Materials</b>	Housing material	UL94-5VA

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

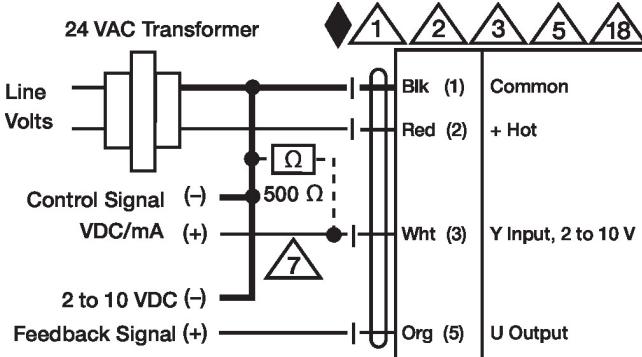
## Electrical installation

### ⚠ INSTALLATION NOTES

- Ⓐ Actuators with appliance cables are numbered.
- Ⓑ 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.
- Ⓔ Only connect common to negative (-) leg of control circuits.
- Ⓕ A 500  $\Omega$  resistor (ZG-R01) converts the 4...20 mA control signal to 2...10 V.
- Ⓖ One built-in auxiliary switch (1x SPDT), for end position indication, interlock control, fan startup, etc.
- Ⓗ Meets cULus requirements without the need of an electrical ground connection.
- Ⓘ Apply only AC line voltage or only UL-Class 2 voltage to the terminals of auxiliary switches. Mixed or combined operation of line voltage/safety extra low voltage is not allowed.
- 警惕 **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



Auxiliary Switches

