

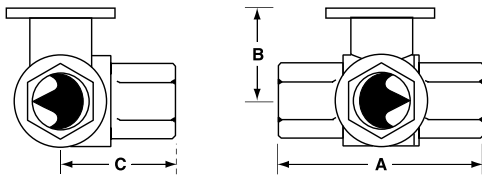
# B3 Series, Three Way, Characterized Control Valve Stainless Steel Ball and Stem



Technical Data	
Service	chilled or hot water, 60% glycol
Flow characteristic	A-port equal percentage B-port modified for constant common port flow
Action	90° rotation
Sizes	½", ¾", 1", 1¼", 1½", 2"
Type of end fitting	NPT female ends
Materials:	
Body	forged brass, nickel plated
Ball	stainless steel
Stem	stainless steel
Seats	PTFE
Characterizing disc	Tefzel®
Packing	2 EPDM O-rings, lubricated
Body pressure rating	
600 psi	½" - 1"
400 psi	1¼" - 2"
Media temp. range	0°F to 212°F [-18°C to 100°C]
Close off pressure	
200 psi	½" - 2"
Maximum differential pressure (ΔP)	30 psi for typical applications
Leakage	0% for A to AB <2.0% for B to AB
External leakage	according to EN 12266-1:2003
C <sub>v</sub> rating	A-port: see product chart for values B-port: 70% of A to AB C <sub>v</sub>

Tefzel® is a registered trademark of DuPont

## Dimensions



3Way Valve-B307-B320

Valve Body	Valve Nominal Size		Dimensions (Inches [mm])		
	Inches	DN [mm]	A	B	C
B307-B311	½"	15	2.41" [61.1]	1.39" [35.2]	1.20" [30.6]
B312-B315	½"	15	2.38" [60.4]	1.78" [45.2]	1.29" [32.8]
B317-B320	¾"	20	2.73" [69.3]	1.87" [47.4]	1.47" [37.3]
B322-B325	1"	25	3.09" [78.4]	1.87" [47.4]	1.59" [40.3]
B329-B331	1¼"	32	3.96" [100.6]	2.27" [57.7]	2.14" [54.3]
B338-B341	1½"	40	4.39" [111.6]	2.51" [63.7]	2.40" [61.1]
B347-B352	2"	50	4.90" [124.5]	2.73" [69.5]	2.74" [69.7]

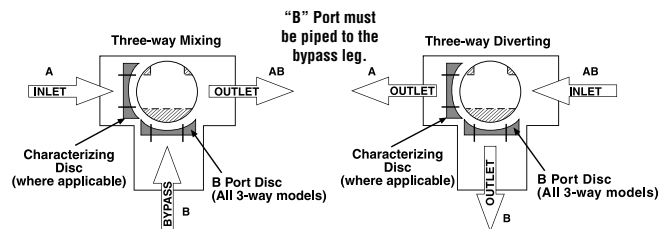
## Application

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 or constant flow.

C <sub>v</sub>	Valve Nominal Size		Type	Suitable Actuators		
	Inches	DN [mm]	3-Way NPT	Non-Spring	Spring	
0.3	½"	15	B307	TR Series	LR Series	NR...M4 Series
0.46	½"	15	B308			
0.8	½"	15	B309			
1.2	½"	15	B310			
1.9	½"	15	B311			
3	½"	15	B312			
4.7	½"	15	B313			
10	½"	15	B315*			
4.7	¾"	20	B317			
7.4	¾"	20	B318			
24	¾"	20	B320*	TF Series	LF Series	
7.4	1"	25	B322			
10	1"	25	B323			
30	1"	25	B325*			
10	1¼"	32	B329			
19	1¼"	32	B330			
25	1¼"	32	B331			
19	1½"	40	B338			
29	1½"	40	B339			
37	1½"	40	B340			
46	1½"	40	B341	AR Series	AR...M4 Series	
29	2"	50	B347			
37	2"	50	B348			
46	2"	50	B349			
57	2"	50	B350			
68	2"	50	B351			
83	2"	50	B352			

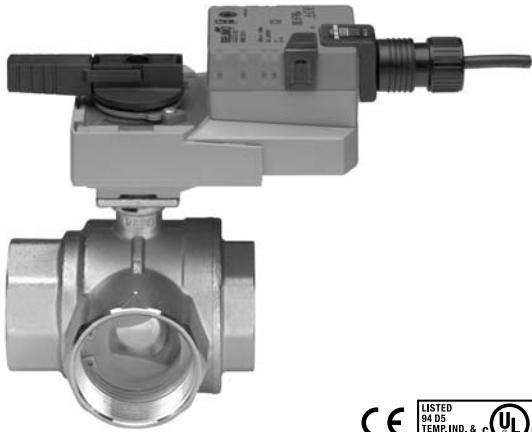
\*Models without characterizing disc

## Flow Patterns



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# AR...24-SR Actuators, Proportional



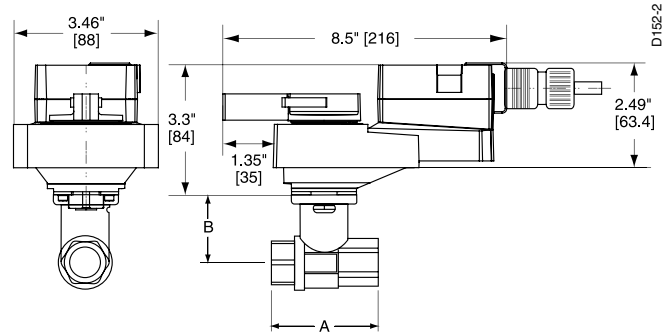
## Models

ARB24-SR  
ARX24-SR Flexible Version

Technical Data	
Power supply	24 VAC ± 20% 50/60 Hz 24 VDC ± 10%
Power consumption	running 2.5 W holding 0.4 W
Transformer sizing	5 VA (class 2 power source)
Electrical connection	½" conduit connector 18 GA plenum rated cable 3 ft [1m], 10 ft [3m], 16 ft [5m]
Overload protection	electronic throughout 0° to 95° rotation
Operating range Y	2 to 10 VDC, 4 to 20 mA
Feedback output U	1 to 10 VDC, max 0.5 mA
Input impedance	100 kΩ (0.1 mA), 500 Ω
Angle of rotation	90°, adjustable with mechanical stop
Torque	180 in-lb [20 Nm]
Direction of rotation	reversible with protected  switch
Position indication	handle
Manual override	external push button
Running time	ARB24-SR... 90 seconds ARX24-SR... 300, 150, 90 seconds, constant independent of load
Humidity	5 to 95% RH non-condensing (EN 60730-1)
Ambient temperature	-22°F to +122°F [-30°C to +50°C]
Storage temperature	-40°F to +176°F [-40°C to +80°C]
Housing	NEMA 2/IP54
Housing material	UL94-5VA
Agency listings†	cULus according to UL 60730-1A/-2-14, CAN/CSA E60730-1:02, CE according to 2004/108/EC and 2006/95/EC for line voltage and/or -S versions
Noise level	<45 dB(A)
Quality standard	ISO 9001

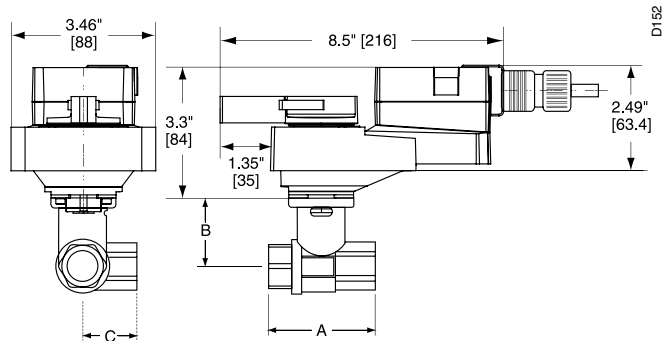
† Rated impulse voltage 800V, Control pollution degree 3, Type of action 1  
(1.B for -S models)

## Dimensions with 2-Way Valve



Valve Body	Valve Nominal Size		Dimensions (Inches [mm])	
	Inches	DN [mm]	A	B
B231-B232	1¼"	32	3.72" [94.6]	2.04" [51.9]
B238-B240	1½"	40	3.88" [98.5]	2.04" [51.9]
B248-B250	2"	50	4.21" [107.0]	2.27" [57.7]

## Dimensions with 3-Way Valve



Valve Body	Valve Nominal Size		Dimensions (Inches [mm])		
	Inches	DN [mm]	A	B	C
B329-B331	1¼"	32	3.96" [100.6]	2.27" [57.7]	2.14" [54.3]
B338-B341	1½"	40	4.39" [111.6]	2.51" [63.7]	2.40" [61.1]
B347-B352	2"	50	4.90" [124.5]	2.73" [69.5]	2.74" [69.7]

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### Wiring Diagrams

#### ✂️ INSTALLATION NOTES

- ⚠️ **CAUTION Equipment damage!**  
Actuators may be connected in parallel.  
Power consumption and input impedance must be observed.
- ⚠️ Actuators may also be powered by 24 VDC.
- ⚠️ Only connect common to neg. (-) leg of control circuits.

#### 📄 APPLICATION NOTES

- ◆ The ZG-R01 500 Ω resistor converts the 4 to 20 mA control signal to 2 to 10 VDC, up to 2 actuators may be connected in parallel.

⚠️ **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.

