

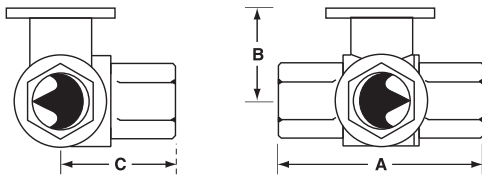
# B3 Series, Three Way, Characterized Control Valve Stainless Steel Ball and Stem



Technical Data	
Service	chilled or hot water, 60% glycol
Flow characteristic	A-port equal percentage B-port modified for constant common port flow
Controllable Flow Range	75°
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 250°F [-18°C to 120°C]
Close off pressure	
200 psi	½" - 2"
Maximum differential pressure (ΔP)	50 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-B316	½"	15	2.38" [60.4]	1.78" [45.2]	1.29" [32.8]
B317-B321	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

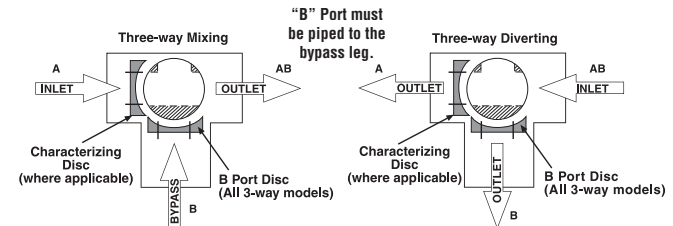
This valve is typically used in air handling units on heating or cooling coils, and fan coil unit heating or cooling coils. Some other common applications include Unit Ventilators, VAV box re-heat coils and bypass loops. This valve is suitable for use in a hydronic system with variable or constant flow.

\* (Not for use in change over applications)

C <sub>v</sub>	Valve Nominal Size		Type	Suitable Actuators	
	Inches	DN [mm]		Non-Spring	Spring
0.3	½"	15	B307	TR Series	TF 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		
16	½"	15	B316		
4.7	¾"	20	B317		
7.4	¾"	20	B318		
14	¾"	20	B320		
24	¾"	20	B321		
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		
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...24-3 Actuators, On/Off, Floating Point



## Models

ARB24-3	
ARB24-3-S	w/built-in Aux. Switch
ARX24-3	Flexible
ARX24-3-S	Flexible w/built-in Aux. Switch
ARB24-3-5-14	
ARX24-3-5-14	

## Technical Data

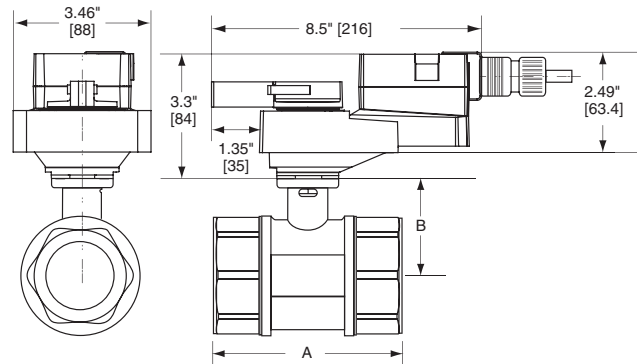
Control	on/off, floating point
Power supply	24 VAC ± 20% 50/60 Hz 24 VDC ± 10%
Power consumption	running 2.5 W holding 0.2 W
Transformer sizing	5.5 VA (class 2 power source)
Electrical connection	1/2" conduit connector 18 GA plenum rated cable ARB24-3... 3 ft. [1m] ARX24-3... 3 ft. [1m] 10 ft. [3m] 16 ft. [5m]
Overload protection	electronic throughout 0° to 95° rotation
Input impedance	600 Ω
Angle of rotation	90°, adjustable with mechanical stop
Direction of rotation	reversible with protected $\curvearrowright$ / $\curvearrowleft$ switch
Position indication	handle
Manual override	external push button
Running time	ARB24-3... 90 seconds ARX24-3... 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

## AR...24-3-S

Auxiliary switch (-S models)	1 x SPDT, 3A (0.5A) @ 250 VAC, UL Listed, adjustable 0 to 90°
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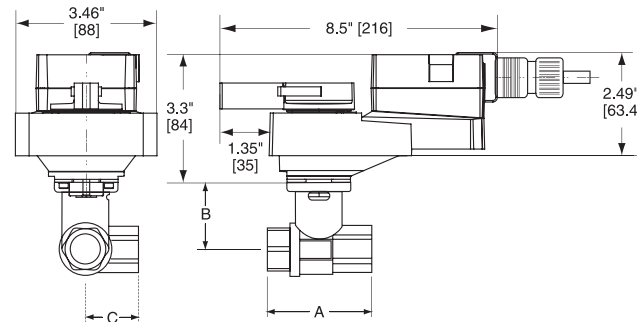
† Rated impulse voltage 800V, Control pollution degree 3, Type of action 1  
(1.B for -S models)

## Dimensions with 2-Way Valve



Valve Body	Valve Nominal Size		Dimensions (Inches [mm])	
	Inches	DN [mm]	A	B
B231-B232	1 1/4"	32	3.72" [94.6]	1.98" [50.4]
B238-B240	1 1/2"	40	3.88" [98.5]	1.98" [50.4]
B248-B250	2"	50	4.21" [107.0]	2.21" [56.2]
B251-B254	2"	50	4.93" [125.2]	2.68" [68.0]
B261-B265	2 1/2"	65	5.55" [140.9]	2.68" [68.0]
B277-B280	3"	80	5.82" [147.9]	2.68" [68.0]

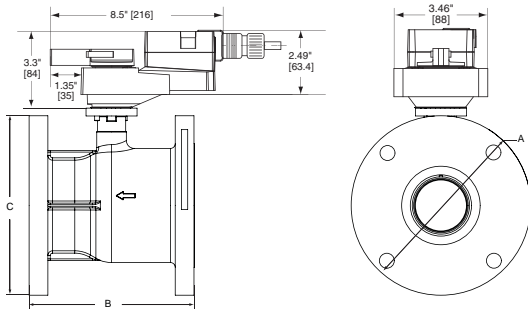
## Dimensions with 3-Way Valve



Valve Body	Valve Nominal Size		Dimensions (Inches [mm])		
	Inches	DN [mm]	A	B	C
B329-B331	1 1/4"	32	3.96" [100.6]	2.21" [56.2]	2.14" [54.3]
B338-B341	1 1/2"	40	4.39" [111.6]	2.45" [62.2]	2.33" [59.1]
B347-B352	2"	50	4.90" [124.5]	2.68" [68.0]	2.60" [66.0]

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### Dimensions



Valve Body	Nominal Pipe Size	Top Flange Design	Flange Diameter	Face-to-Face Length	Height
			A	B	C
B6250	2½" [65]	F05	7.50" [190.5]	5.50" [139.7]	8.10" [205.4]
B6300	3" [80]		8.00" [203.2]	6.60" [167.6]	8.40" [213.1]
B6400	4" [100]		9.00" [228.6]	8.30" [210.8]	9.30" [235.9]

### Wiring Diagrams

#### ✂️ INSTALLATION NOTES

- ⚠️ **CAUTION Equipment damage!**  
Actuators may be connected in parallel.  
Power consumption and input impedance must be observed.  
For end position indication, interlock control, etc.,
- ⚠️ ARB24-3-S incorporates one built-in auxiliary switches:  
1 x SPDT, 3A (0.5A) @250 VAC, UL listed, adjustable 0° to 95°.
- ⚠️ Actuators may also be powered by 24 VDC.

#### 📄 APPLICATION NOTES

- ◆ Meets cULus or UL and CSA 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.

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