



### Application

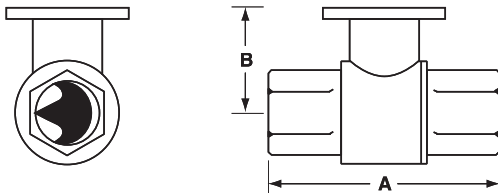
This valve is typically used in air handling units on heating or cooling coils, and fan coil unit heating or cooling coils. Some other common applications include Unit Ventilators, VAV box re-heat coils and bypass loops. This valve is suitable for use in a hydronic system with variable flow.

### Technical Data

Service	Chilled or hot water, 60% glycol
Flow characteristic	A-port equal percentage
Controllable Flow Range	75°
Sizes	½", ¾", 1", 1¼", 1½", 2", 2½", 3"
Type of end fitting	NPT female ends
<b>Materials:</b> Body Ball Stem Seats Characterizing disc Packing	Forged brass, nickel plated Stainless steel Stainless steel PTFE Tefzel® 2 EPDM O-rings, lubricated
<b>Body pressure rating</b> 600 psi 400 psi	½"-1¼" (B230) 1¼" (B231)-3"
Media temp. range	0°F to 250°F [-18°C to 120°C]
<b>Close off pressure</b> 200 psi 100 psi	½"-2" (B250) 2" (B251)-3"
Maximum differential pressure (ΔP)	50 psi for typical applications
Leakage	0% for A to AB
External leakage	According to EN 12266-1:2003
Cv rating	A-port: see product chart for values

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### Dimensions



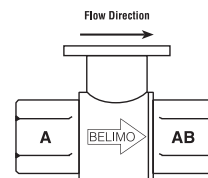
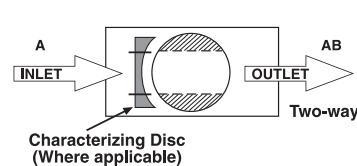
Valve Body	Valve Nominal Size		Dimensions (Inches [mm])	
	Inches	DN [mm]	A	B
B207-B211	½"	15	2.41" [61.1]	1.39" [35.2]
B212-B216	½"	15	2.38" [60.4]	1.78" [45.2]
B217-B221	¾"	20	2.73" [69.3]	1.87" [47.4]
B222-B225	1"	25	3.09" [78.4]	1.87" [47.4]
B229-B230	1¼"	32	3.72" [94.6]	1.87" [47.4]
B231-B232	1¼"	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]
B251-B254	2"	50	4.93" [125.2]	2.73" [69.5]
B261-B265	2½"	65	5.55" [140.9]	2.73" [69.5]
B277-B280	3"	80	5.82" [147.9]	2.73" [69.5]

Models	WM Part Number	Description	Vendor Part Number
SlimFit 550-750	384000368	Isolation Valve, 2" NPT	B254+ARX120-3-NC
SlimFit 1000-2000	1004907706	Isolation Valve, 3" NPT	B280+ARX120-3-NC
SVF 500-600	384000368	Isolation Valve, 2" NPT	B254+ARX120-3-NC
SVF 725-850	1004907210	Isolation Valve, 2 ½" NPT	B265+ARB-120-3-51A
SVF 1000	BP00000732	Isolation Valve, 2 ½" NPT	B265+ARB-120-3-S1A
SVF 1500-3000 S1	1004907706	Isolation Valve, 3" NPT	B280+ARX120-3-NC
SVF 1500-3000 S2	1004907706	Isolation Valve, 3" NPT	B280+ARX120-3-NC

Cv	Valve Nominal Size		Type	Suitable Actuators			
	Inches	DN [mm]	2-Way NPT	Non-Spring	Spring		
0.3	½"	15	B207	TR Series	LR Series	NR ... N4 Series	TF Series
0.46	½"	15	B208				
0.8	½"	15	B209				
1.2	½"	15	B210				
1.9	½"	15	B211				
3	½"	15	B212				
4.7	½"	15	B213				
7.4	½"	15	B214				
10	½"	15	B215				
16	½"	15	B216				
4.7	¾"	20	B217				
7.4	¾"	20	B218				
10	¾"	20	B219	AR Series	AR ... N4 Series	AF Series	LF Series
14	¾"	20	B220				
24	¾"	20	B221*				
7.4	1"	25	B222				
10	1"	25	B223				
19	1"	25	B224				
30	1"	25	B225*				
10	1¼"	32	B229				
19	1¼"	32	B230*				
25	1¼"	32	B231				
37	1¼"	32	B232*				
19	1½"	40	B238				
29	1½"	40	B239				
37	1½"	40	B240*				
29	2"	50	B248				
46	2"	50	B249				
57	2"	50	B250*				
65	2"	50	B251				
85	2"	50	B252				
120	2"	50	B253				
240	2"	50	B254*				
60	2½"	65	B261				
75	2½"	65	B262				
110	2½"	65	B263				
150	2½"	65	B264				
210	2½"	65	B265*				
70	3"	80	B277				
130	3"	80	B278				
170	3"	80	B280*				

\*Models without characterizing disc

### Flow Patterns






### Models

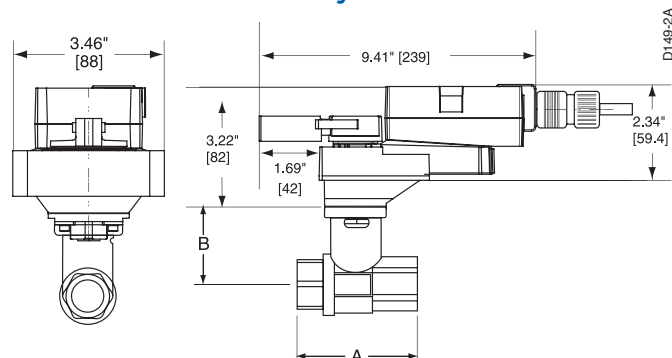
ARB120-3  
ARX120-3      Flexible Version

### Technical Data

Control	On/off, floating point
Power supply	100 to 240 VAC, 50/60 Hz (nominal) 85 to 265 VAC, 50/60 Hz (tolerance)
<b>Power consumption</b> Running Holding	3 W 0.6 W
Transformer sizing	7 VA (class 2 power source)
<b>Electrical connection</b>  ARB120-3 ARX120-3	½" conduit connector 18 GA appliance rated cable 3 ft [1m] 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  switch
Position indication	Handle
Manual override	External push button
<b>Running time</b> ARB120-3 ARX120-3	90 seconds 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)
Servicing	Maintenance free
Quality standard	ISO 9001

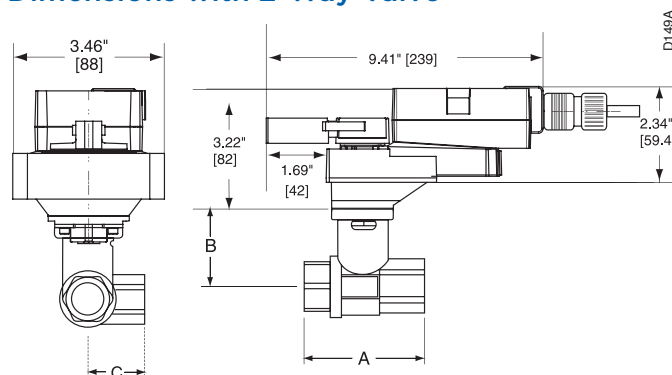
† Rated impulse voltage 4kV, Control pollution degree 3, Type of action 1

### Dimensions with 2-Way Valve



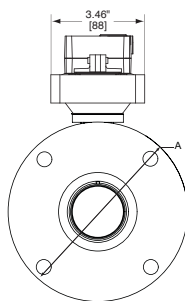
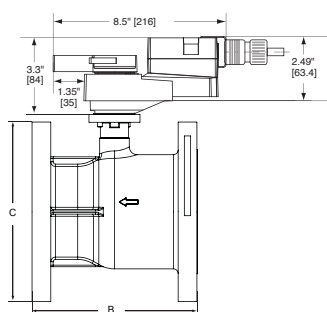
Valve Body	Valve Nominal Size		Dimensions (Inches [mm])	
	Inches	DN [mm]	A	B
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### Dimensions with 2-Way Valve



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]

### 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]

### Dimensions



#### INSTALLATION NOTES



Provide overload protection and disconnect as required.



#### **CAUTION** Equipment damage!

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



#### APPLICATION NOTES

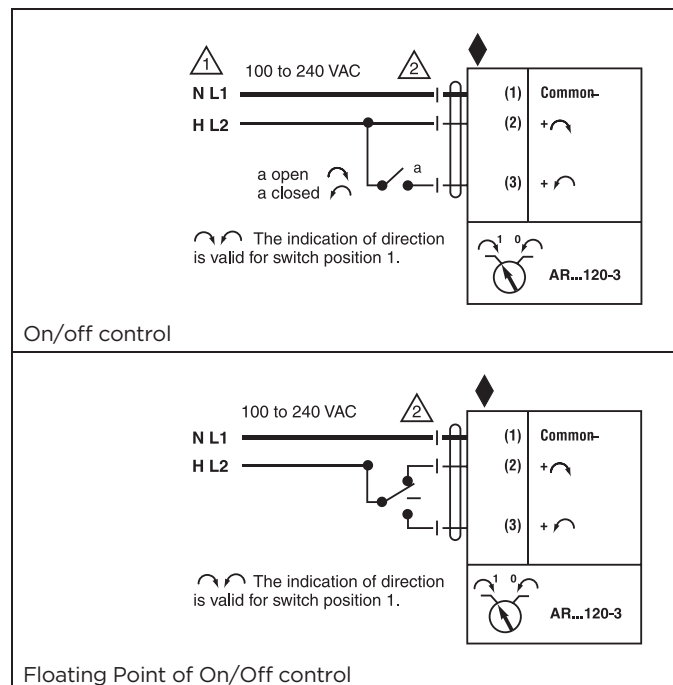


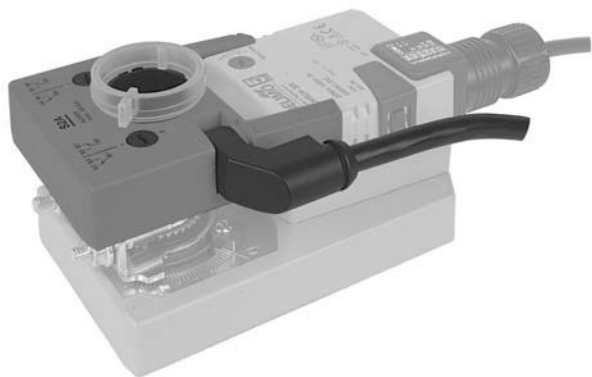
Meets cULus or UL and CSA requirements without the need of an electrical ground connection.



#### **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.





## Application

The S1A and S2A auxiliary switches are used to indicate when a desired position of a damper is reached or to interface additional controls for a specific control sequence.

## Operation

The S1A and S2A auxiliary switches are mounted onto the direct coupled actuator. The switches are modular units that mount directly onto LM, NM, AM, and GM type actuators and are locked into place by guiding grooves on the sides of the actuator. A driver disk is attached to the actuator clamp and offers direct transmission of the actuator position to the micro switch cams. The switching points can be set over the full scale of 0 to 1 simply by adjusting the slotted discs.

## Types

S1A	One SPDT   3 ft, 18 GA appliance cable
S2A	Two SPDT   3 ft, 18 GA appliance cable

## Technical Data

	S1A	S2A
Number of switches	One SPDT	Two SPDT
Weight	4.6 oz [130 g]	6.0 oz [170 g]
Switching capacity	3A (0.5A), 250 VAC	
Switching point	Adjustable over full rotation (0° to 95°)	
Pre-setting	With scale possible	
Humidity	5 to 95% RH non-condensing	
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 rating	UL94-5VA	
Servicing	Maintenance free	
Agency listings	cULus acc. to UL60730-1 CE according to 73/23/EEC	
Quality standard	ISO 9001	

## Mounting Instructions

1. Remove position indicator from actuator.
2. Press down the manual override button and rotate the actuator fully counter clockwise.
3. Turn the driver disk on the switch fully counterclockwise.
4. Slide switch onto the actuator using the actuator guiding grooves on the sides of the actuator.
5. Check for correct mating of the driver disk to the universal clamp.
6. Adjust switch dials as necessary.

## Wiring Diagrams

