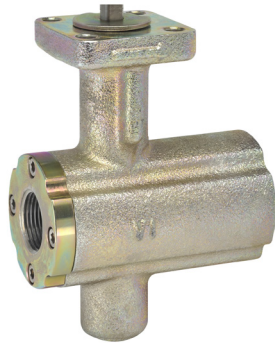


# B2100VB-024, 1", V Ball Control Valve

## Hardened Chrome Plated Carbon Steel Body, Stainless Steel Ball and Stem



### Product Features

Fast quarter turn open or closed operation, Stainless steel ball and stem, Positive shut-off, Two piece body construction

### Application

Water-side control of air handling apparatus in ventilation and air-conditioning system.

Water/Steam control in heating system.

300:1 rangeability.

The dimensions and drilling of end flanges conform to the American cast iron flange standard, Class 150 (ANSI B16.1).

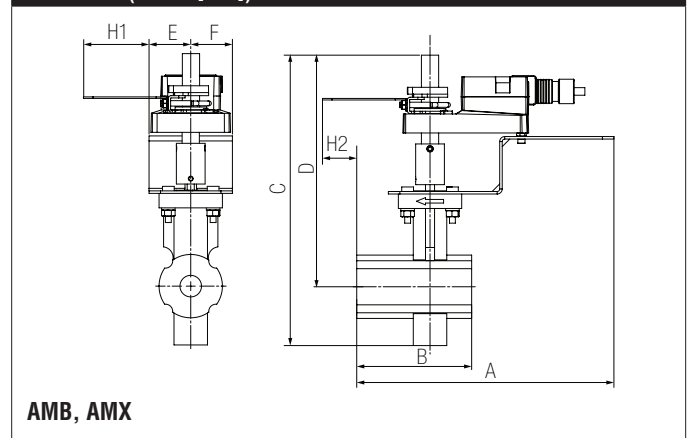
### Suitable Actuators

	Non-Spring	Spring
B2100VB-024	SY1, SY2, AMB(X)	NFB(X)

### Technical Data

Service	chilled or hot water, up to 60% glycol, steam
Flow Characteristic	equal percentage
Controllable Flow Range	75°
Size [mm]	1" [25]
End Fitting	NPT female ends (1" to 2"); ISO flange (3" to 6")
Body	WCC Grade Carbon steel
Ball	stainless steel
Stem	stainless steel
Stem Packing	spring loaded Teflon® V-ring
Ball Seat	Teflon®
Packing	spring loaded Teflon® V-ring
Body Pressure Rating [psi]	ASME/ANSI Class 300
Max Inlet Pressure (Steam)	200 psi
Media Temperature Range (Water)	-22°F to 380°F [-30°C to 193°C]
Media Temperature Range (Steam)	-22°F to 380°F [-30°C to 193°C]
Maximum Differential Pressure (Steam)	100 psi
Max Differential Pressure (Water)	150 psi
Maximum Differential Pressure Steam (Rotary Actuator)	100 psi
Close-Off Pressure	150 psi
Close-Off Pressure (Steam)	200 psi
Rangeability	300:1
Cv	24
Weight	9 lb [4.1 kg]
Leakage	ANSI Class IV

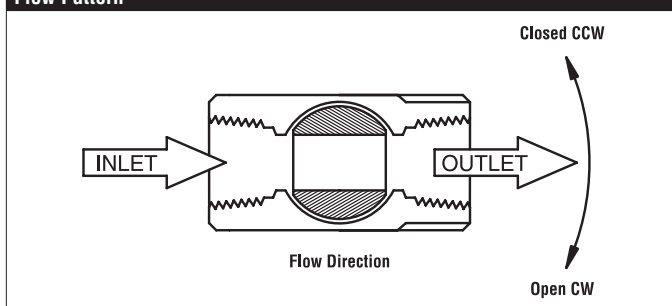
### Dimensions (Inches [mm])



AMB, AMX

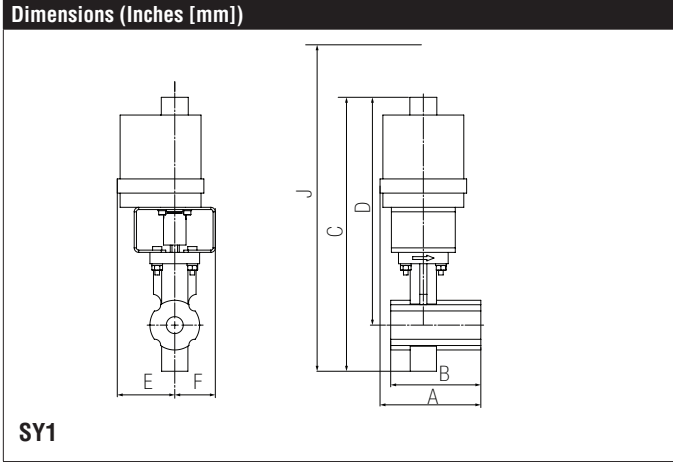
A	B	C	D	E	F	H1	H2
11.8" [300]	5" [127]	12.6" [320]	10.07" [256]	1.81" [46]		1.18" [30]	0.5" [15]

### Flow Pattern

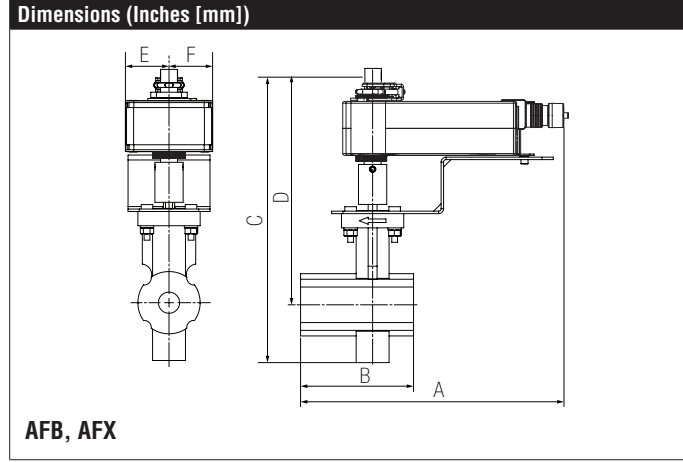


## B2100VB-024, 1", V Ball Control Valve

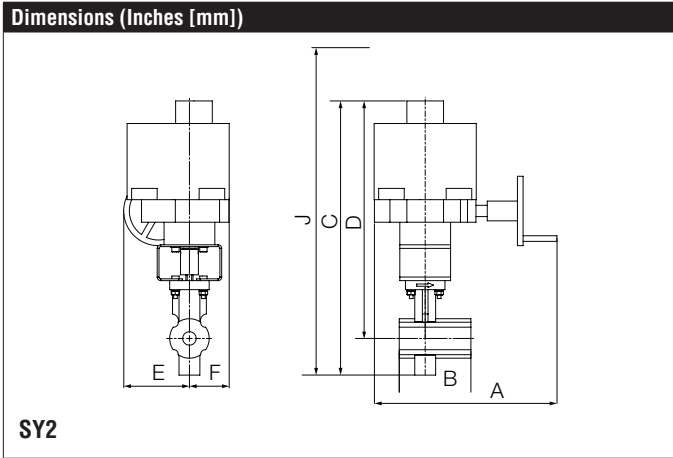
Hardened Chrome Plated Carbon Steel Body, Stainless Steel Ball and Stem



A	B	C	D	E	F	J
5.58" [142]	5" [127]	14.94" [380]	12.64" [321]	2.4" [61]		20.44" [519]



A	B	C	D	E	F
11.74" [298]	5" [127]	12.6" [320]	10.07" [256]	1.95" [49]	



A	B	C	D	E	F	J
12.6" [320]	5" [127]	19.17" [487]	16.57" [421]	4.48" [114]	3.56" [90]	27.67" [703]

# NFX24-MFT-S-X1

Modulating, Spring Return, 24 V, Multi-Function Technology®



## Technical Data

Power Supply	24 VAC ± 20%, 50/60 Hz, 24 VDC ± 10%
Power Consumption Running	6.5 W
Power Consumption Holding	3 W
Transformer Sizing	9 VA (class 2 power source)
Shaft Diameter	1/2" to 1.05" round, centers on 1/2" and 3/4" with insert, 1.05" without insert
Electrical Connection	(2) 3 ft [1 m], 18 GA appliance cables with 1/2" conduit connectors
Overload Protection	electronic throughout 0° to 95° rotation
Operating Range Y	2 to 10 VDC, 4 to 20 mA w/ ZG-R01 (500 Ω, 1/4 W resistor)
Feedback Output U	2 to 10 VDC, 0.5 mA max, VDC variable
Angle of Rotation	95° (adjustable with mechanical end stop, 35° to 95°)
Torque	90 in-lbs [10 Nm] minimum
Direction of Rotation (Motor)	reversible with built-in switch
Direction of Rotation (Fail-Safe)	reversible with CW/CCW mounting
Position Indication	visual indicator, 0° to 95° (0° is full spring return position)
Manual Override	5 mm hex crank (3/16" Allen), supplied
Running Time (Motor)	150 sec (default), variable (40 to 150 sec)
Running Time (Fail-Safe)	<20 sec @ -4°F to 122°F [-20°C to 50°C], < 60 sec @ -22°F [-30°C]
Override Control	min. position = 0% , mid. Position = 50% , max. position = 100% (Default)
Humidity	max. 95% RH non-condensing
Ambient Temperature Range	-22°F to 122°F [-30°C to 50°C]
Storage Temperature Range	-40°F to 176°F [-40°C to 80°C]
Housing	NEMA 2, IP54, UL enclosure type 2
Agency Listings†	UL 873 listed, CSA C22.2 No. 24 certified
Noise Level (Motor)	<50 dB (A)
Noise Level (Fail-Safe)	<62 dB (A)
Servicing	maintenance free
Quality Standard	ISO 9001
Weight	4.4 lb [2 kg]
Auxiliary Switch	2 x SPDT, 3A resistive (0.5A inductive) @ 250 VAC, one set at +10°, one adjustable 10° to 90°

\*Variable when configured with MFT options.

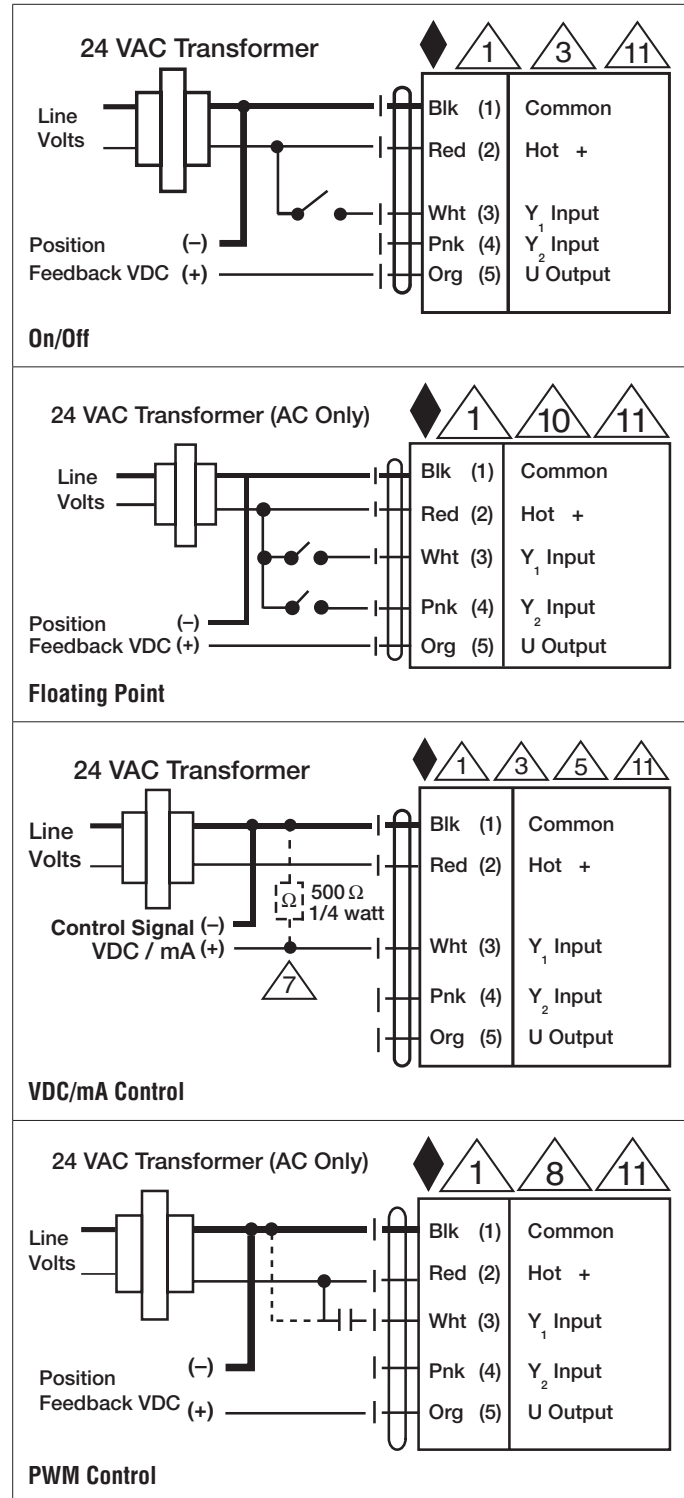
†Rated Impulse Voltage 800V, Type of action 1.AA, Control Pollution Degree 3

Date created, 07/22/2016 - Subject to change. © Belimo Aircontrols (USA), Inc.

**Wiring Diagrams**
**INSTALLATION NOTES**

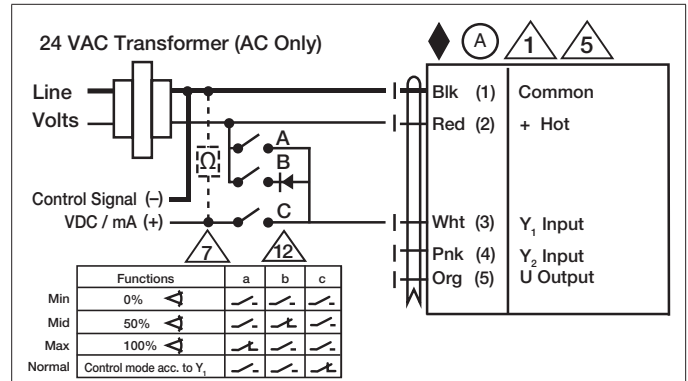
- Actuators with appliance cables are numbered.
- Provide overload protection and disconnect as required.
- Actuators may also be powered by 24 VDC.
- Two built-in auxiliary switches (2x SPDT), for end position indication, interlock control, fan startup, etc.
- Only connect common to negative (-) leg of control circuits.
- A 500 Ω resistor (ZG-R01) converts the 4 to 20 mA control signal to 2 to 10 VDC.
- Control signal may be pulsed from either the Hot (Source) or Common (Sink) 24 VAC line.
- For triac sink the Common connection from the actuator must be connected to the Hot connection of the controller. Position feedback cannot be used with a triac sink controller; the actuator internal common reference is not compatible.
- Actuators may be connected in parallel if not mechanically linked. Power consumption and input impedance must be observed.
- IN4004 or IN4007 diode. (IN4007 supplied, Belimo part number 40155).
- 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.
- Meets cULus 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.

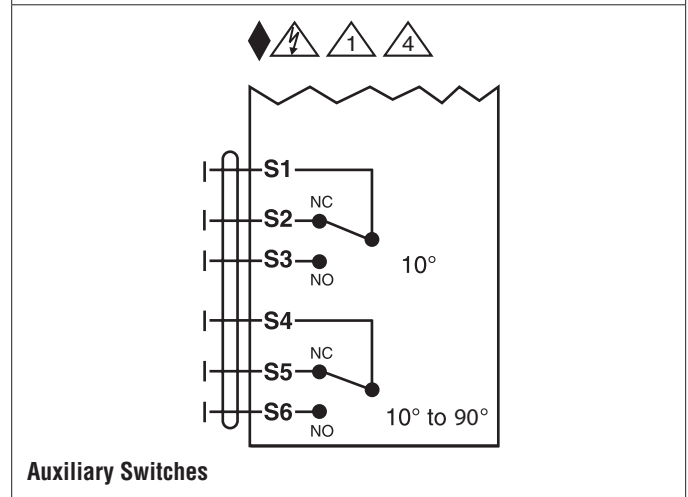


# NFX24-MFT-S-X1

Modulating, Spring Return, 24 V, Multi-Function Technology®



## Override Control



## Auxiliary Switches