

B238 Technical Data Sheet

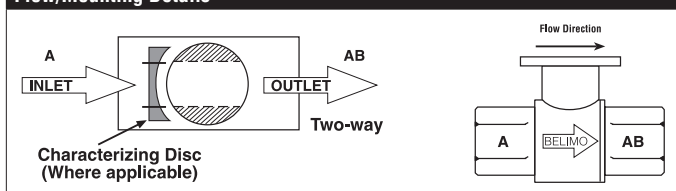
Stainless Steel Ball and Stem



Technical Data

Fluid	chilled, hot water, up to 60% glycol
Flow characteristic	equal percentage
Controllable flow range	75°
Valve Size [mm]	1.5" [40]
Pipe connection	NPT female ends
Housing	Nickel-plated brass body
Ball	stainless steel
Stem	stainless steel
Stem seal	EPDM (lubricated)
Seat	PTFE
O-ring	EPDM (lubricated)
Characterised disc	TEFZEL®
Body Pressure Rating	400 psi
Close-off pressure Δp_s	200 psi
Cv	19
Weight	1.98 lb [0.90 kg]
Fluid Temp Range (water)	0...250°F [-18...120°C]
Leakage rate	0% for A – AB
Maintenance	maintenance-free

Flow/Mounting Details



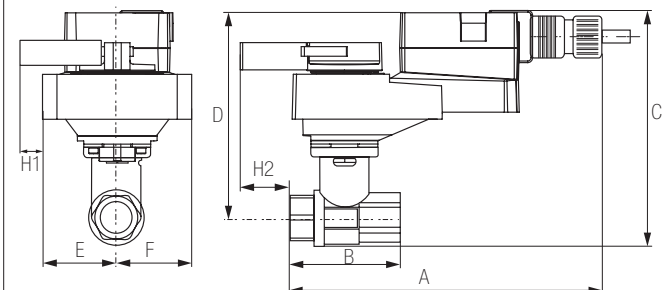
Application

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.

Suitable Actuators

	Non-Spring	Spring
B238	ARB(X), NRQB(X)	AFRB(X)

Dimensions (Inches [mm])



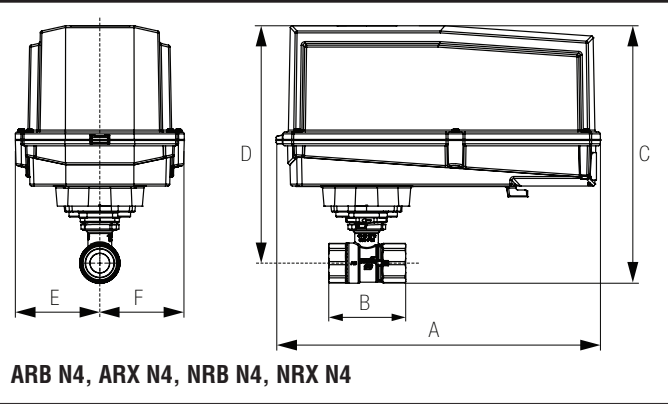
ARB, ARX

A	B	C	D	E	F	H1	H2
11.0"	3.9"	6.4"	5.3"	1.7"	1.7"	1.2"	0.6"
[280]	[100]	[163]	[134]	[44]	[44]	[30]	[15]

Safety Notes

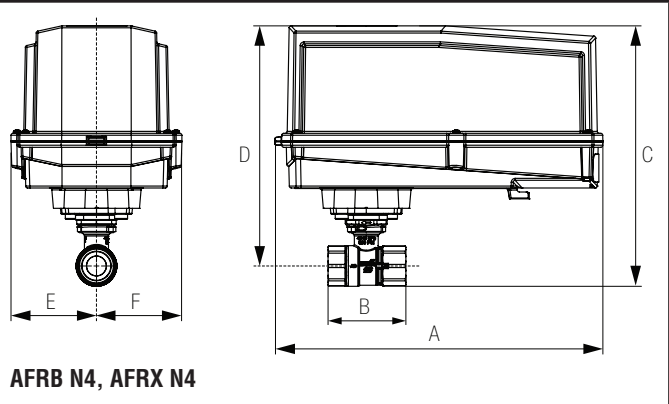
WARNING: For Belimo products sold in California: these products do or may contain chemicals which are known to the State of California to cause cancer and or birth defects or other reproductive harms. For more information see www.p65warnings.ca.gov.

Dimensions (Inches [mm])



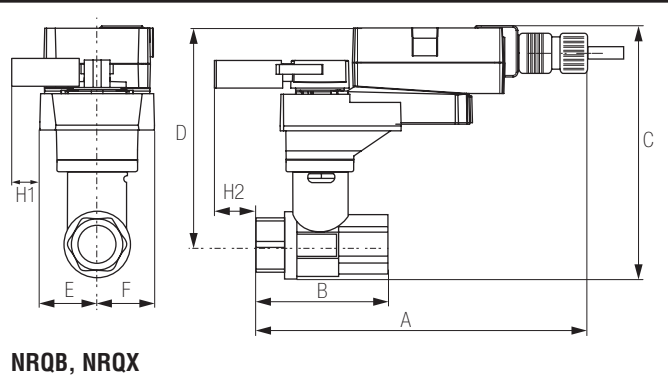
A	B	C	D	E	F
11.4" [289]	3.9" [100]	8.5" [217]	7.3" [185]	3.1" [80]	

Dimensions (Inches [mm])



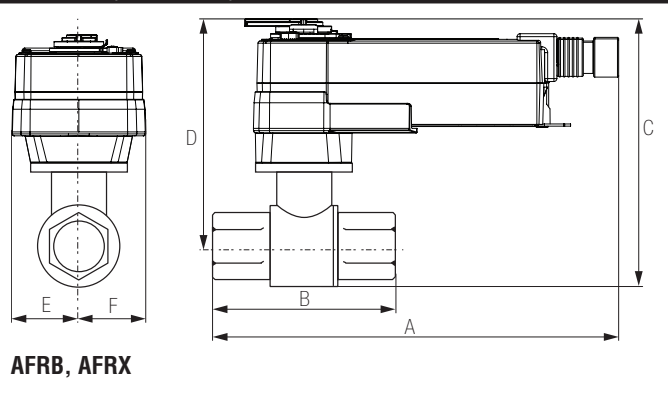
A	B	C	D	E	F
13.0" [330]	3.9" [100]	10.3" [262]	8.5" [216]	3.4" [86]	

Dimensions (Inches [mm])



A	B	C	D	E	F	H1	H2
11.0" [280]	3.9" [100]	7.1" [181]	6.0" [152]	1.7" [44]		1.4" [34]	0.6" [15]

Dimensions (Inches [mm])



A	B	C	D	E	F
10.8" [275]	3.9" [100]	9.0" [229]	7.8" [198]	2.0" [51]	

AFRX24-MFT Technical Data Sheet

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



Technical Data	
Power Supply	24 VAC, $\pm 20\%$, 50/60 Hz, 24 VDC, $\pm 10\%$
Power consumption in operation	7.5 W
Power consumption in rest position	3 W
Transformer sizing	10 VA (class 2 power source)
Electrical Connection	18 GA appliance cable, 3 ft [1 m], with 1/2" conduit connector
Overload Protection	electronic throughout 0...95° rotation
Operating Range	DC 2...10 V (default), 4...20 mA w/ ZG-R01 (500 Ω , 1/4 W resistor), variable (VDC, PWM, on/off, floating point)
Operating range Y variable	Start point DC 0.5...30 V End point DC 2.5...32 V
Input Impedance	100 k Ω for DC 2...10 V (0.1 mA), 500 Ω for 4...20 mA, 1500 Ω for PWM, On/Off and Floating point
Position Feedback	DC 2...10 V, Max. 0.5 mA, VDC variable
Angle of rotation	90°
Torque motor	180 in-lb [20 Nm]
Direction of rotation motor	reversible with switch
Direction of motion fail-safe	reversible with cw/ccw mounting
Position indication	Mechanical
Manual override	5 mm hex crank (3/16" Allen), supplied
Running Time (Motor)	default 150 s, variable 70...220 s
Running time fail-safe	<20 s
Angle Of Rotation Adaptation	off (default)
Ambient humidity	max. 95% r.H., non-condensing
Ambient temperature	-22...122°F [-30...50°C]
Storage temperature	-40...176°F [-40...80°C]
Degree of Protection	IP54, NEMA 2, UL Enclosure Type 2
Agency Listing	cULus acc. to UL60730-1A/-2-14, CAN/CSA E60730-1:02, CE acc. to 2004/108/EC and 2006/95/EC
Noise level, motor	45 dB(A)
Noise level, fail-safe	62 dB(A)
Maintenance	maintenance-free
Quality Standard	ISO 9001
Weight	4.1 lb [1.9 kg]

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

Safety Notes

WARNING: For Belimo products sold in California: these products do or may contain chemicals which are known to the State of California to cause cancer and or birth defects or other reproductive harms. For more information see www.p65warnings.ca.gov.

Wiring Diagrams

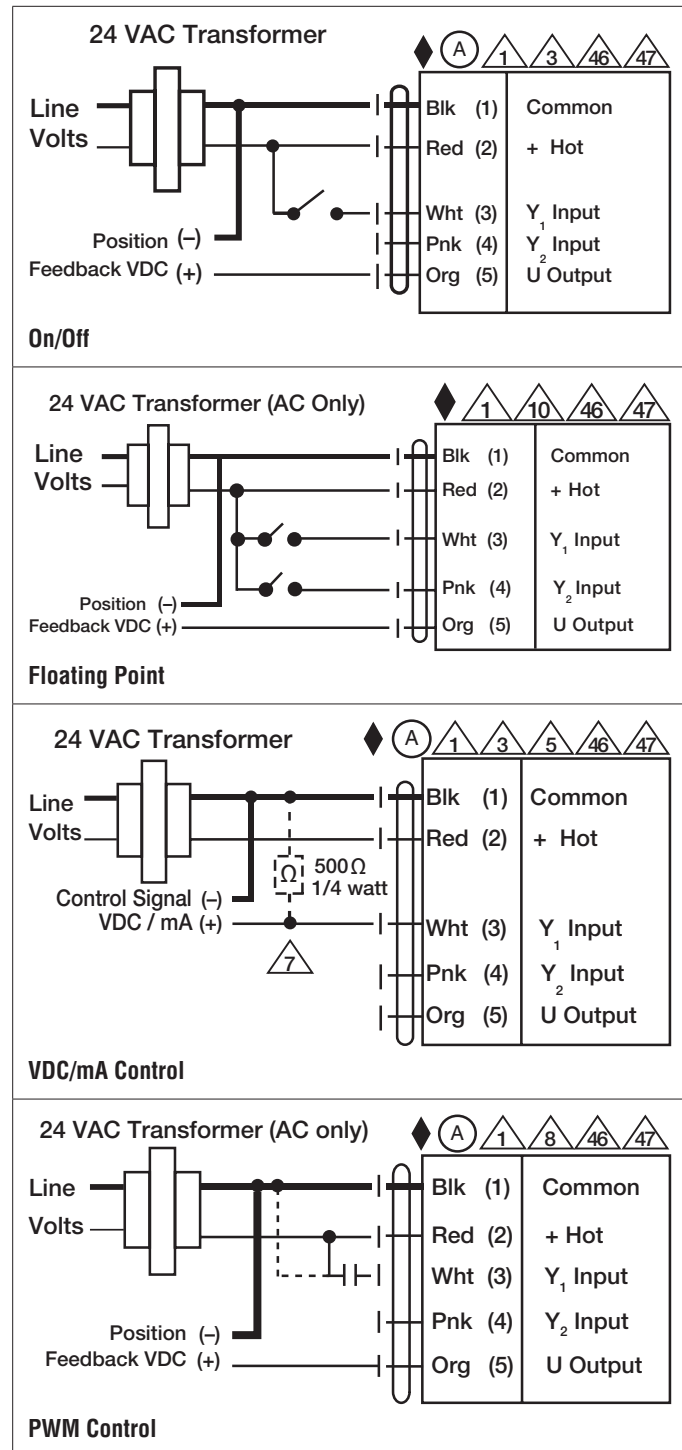
INSTALLATION NOTES

- (A) Actuators with appliance cables are numbered.
- 1 Provide overload protection and disconnect as required.
- 3 Actuators may also be powered by 24 VDC.
- 5 Only connect common to negative (-) leg of control circuits.
- 7 A 500 Ω resistor (ZG-R01) converts the 4 to 20 mA control signal to 2 to 10 VDC.
- 8 Control signal may be pulsed from either the Hot (Source) or Common (Sink) 24 VAC line.
- 10 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.
- 12 IN4004 or IN4007 diode. (IN4007 supplied, Belimo part number 40155).
- 46 Actuators may be controlled in parallel. Current draw and input impedance must be observed.
- 47 Master-Slave wiring required for piggy-back applications. Feedback from Master to control input(s) of Slave(s).
- 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.



AFRX24-MFT Technical Data Sheet
Modulating, Spring Return, 24 V, Multi-Function Technology®

