VSR2010 Series
Motor-Driven On-Off Zone Valves

- Provides economical control of hot or chilled water for zone, fan coil, baseboard radiator and VAV reheat applications
- Actuator screws in place for quick and simple assembly and removal during installation and provides for quick replacement during service
- Forged brass body and stainless steel stem
- Bubble-tight shutoff conserves energy and accurately controls zone temperature for increased comfort
- 2-way normally-closed and 3-way mixing only
- On/Off control from a 2-wire thermostat
- 1,600 kPa system operating pressure
- 1/2", 3/4" and 1" line size
- BSP end connections are standard; NPT optional
- Actuator can be field installed after piping

The motor-driven zone valves are designed for 2-position (on-off), spring-return control of chilled water and hot water flow through coils and heat exchanges of all types in a variety of Heating, Ventilation and Air Conditioning (HVAC) applications.

All valves feature a hysteresis synchronous motor, and a spring-return mechanism to return the valves to a power fail-safe position. A selection of motor voltages is available for use of valves in different countries.

Specifications

Valve Body Pressure Rating	PN16 (230 psig) system operating pressure			
Fluid / Ambient Temperature Limits	2 to 94°C (36 to 200°F) water at an ambient temperature of 0 to 60°C (32 to 140°F)			
Shipping & Storage Temperature Limits	-20 to 60°C (-4 to 149°F)			
Body Sizes	See Fig. 1: Valve code number selection guide			
Service	Chilled and hot water, up to 50% Glycol solutions			
Motor Voltages	24, 120 or 230 V 50/60 Hz ±10% available			
Motor Leads	6" 22 AWG wires, with 3/4" conduit provision			
Power Consumption	6 W, 8.0 VA			
Motor Speed	4 rpm at 50 Hz / 4.8 rpm at 60 Hz			
Stroke Speeds	Power Stroke: 11 seconds at 50 Hz Spring Return Stroke: 5 seconds			
	Flow Coefficients & Maximum Close-Off Pressures:			
	Cv (Kv)		Close-Off ΔP PSI (kPa)	
Valve Size	2-way	3-way	2-way	3-way
1/2"	2.3 (2.0)	2.3 (2.0)	44 (300)	44 (300)
3/4"	3.3 (2.8)	3.3 (2.8)	22 (150)	22 (150)
1"	5.4 (4.6)	5.4 (4.6)	9 (60)	9 (60)
Flow Characteristic	Quick Opening			
Seat Leakage	Zero leakage (100% bubble-tight shut-off)			
Body Materials	Body	Forged brass		
	Stem	Stainless steel		
	Seat	Brass		
	Seal Material	NBR		
Actuator	Enclosure	Fire-retardant ABS (UL94V-0)		
	Hysteresis Syn-chronous Motor	CSA certified and CE Mark compliant		
	Protection Class	IP20		
Agency Approval	CE Mark compliant pending			
Dimensions	See Fig. 2: Dimensions in mm			
Shipping Weight	1360 g (3.0 lb) maximum for complete assembly			

The performance specifications above are nominal and subject to tolerances and application variables of generally acceptable industry standards. The Manufacturer shall not be liable for damages resulting from misapplication or misuse of its products.

Fig. 1: Valve Code Number Selection Guide

Valve Body Type	Configuration	Separator	Valve Size	Separator	Valve Actuator Type	Separator	Motor Voltage	Separator	Options
VSR2	210	-	20	-	SRA2110	-	230	-	N

Valve Code Number Designations

Valve Body Type

VSR2 = VSR2010 Series zone valve body

Configuration

210 = 2-way normally-closed
310 = 3-way mixing

Valve Size

15 = 1/2” (15 mm)
20 = 3/4” (20 mm)
25 = 1” (25 mm)

When ordering the body and actuator unassembled, enter the body and actuator code numbers as two separate items, example: VSR2210-20 and SRA2110-230.

Valve Actuator Type

SRA2110 = SRA2110 Series zone valve actuators

Motor Voltage

24 = 24 V 50/60 Hz ±10%
120 = 120 V 50/60 Hz ±10%
230 = 220 V 50/60 Hz ±10%

Options

Omitted = With standard BSP pipe connections
N = with NPT pipe connections

Application Overview

The VSR2010 Series motor-driven zone valves accurately control the flow of chilled water and hot water through coils and heat exchanges of all types, in a wide range of Heating, Ventilating and Air Conditioning (HVAC) applications. Each zone valve is operated by a hysteresis synchronous motor, proven to be reliable in millions of installation worldwide. When the thermostat is satisfied, a spring returns the valve to its normal position. The actuator can be removed from the valve body quickly and easily, simplifying installation and servicing. No special linkage kit or commissioning is required.

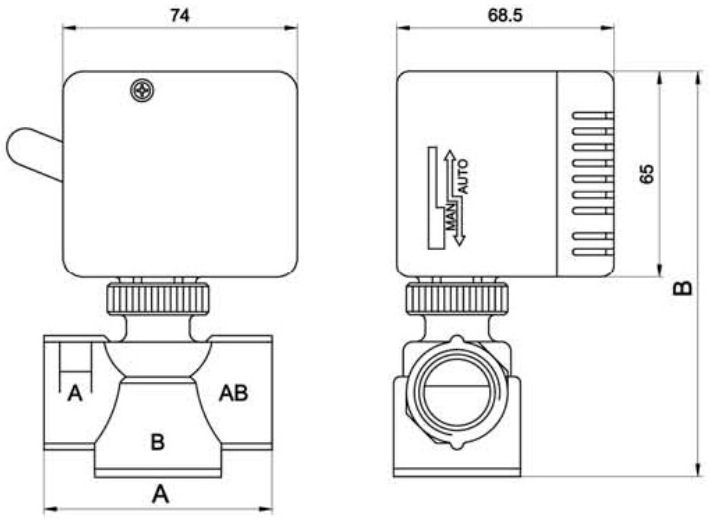
To Order

Specify the code number from the Valve Code Number Selection Guide.

Repair Parts

Available repair parts for VSR2010 Series motor-driven zone valves include replacement valve bodies and replacement motors. No other field repairs should be attempted.

Fig. 2: Dimensions in mm



	A				B			
Valve Size	2-Way		3-Way		2-Way		3-Way	
1/2" BSP	66	(2-5/8”)	66	(2-5/8”)	125	(4-15/16”)	142	(5-5/8”)
3/4” BSP	72	(2-13/16”)	72	(2-13/16”)	128	(5-1/32”)	147	(5-25/32”)
1” BSP	89	(3-1/2”)	89	(3-1/2”)	133	(5-15/64")	154	(6-1/16”)

Mounting

The valves can be mounted in horizontal or vertical piping. When installed in horizontal piping, the actuator must be above the valve body and can be tilted left or right but it must not be tilted below 85° from vertical. **Notes:**

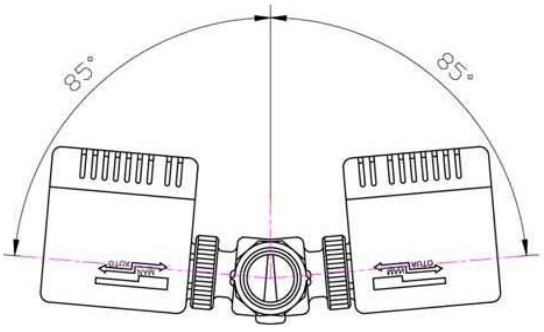
- Make certain there is no overhead water source that may drip onto valve actuator.
- In normal service, as some condensation may occur on or around the valve, the valve must be installed over a drip pan.
- For maintenance purposes, install the valve with sufficient headroom to allow complete valve actuator removal.

Manual Operating Lever

All VSR2010 Series motor-driven zone valves are equipped with a manual operating lever. This lever:

- allows the valve to be opened for system flushing before it is put into operation
- resets to normal position the first time the valve is powered up.

Mounting Orientation



In horizontal piping applications, mount the valve within 85º of the upright position.

PIPING & INSTALLATION

The zone valves must be piped so that the plug always closes against the direction of flow. Refer to Fig.3 to Fig.5. The valves are designed for application in closed hydronic heating and cooling systems and are not recommended for use in systems requiring high amounts of make-up water (open systems). High levels of dissolved oxygen and chlorine found in open systems may attack the valve materials and result in premature failure.

Notes:

- 2-way and 3-way valves are always closed at Port “A” when no power is applied to the motor.
- On power-up, the valve closes to Port “B” on 3-way valves.
- Orient the 3-way valve body as needed for normally-closed or normally-open flow through coil.

Fig.3: 2-Way Valve Piped Normally-Closed to the Coil

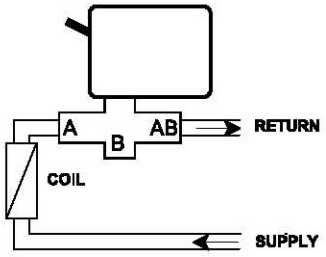


Fig.4: 3-Way Valve in Mixing Configuration Normally-Closed to the Coil

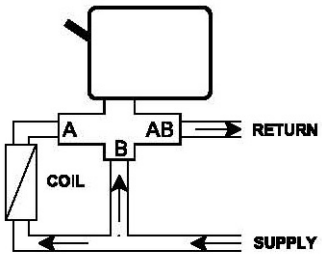


Fig.5: 3-Way Valve in Mixing Configuration Normally-Open to the Coil

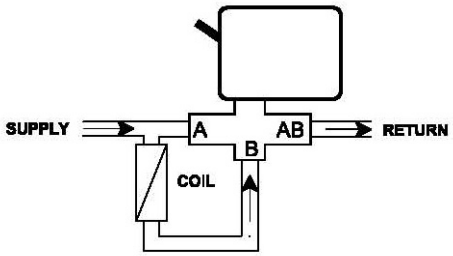
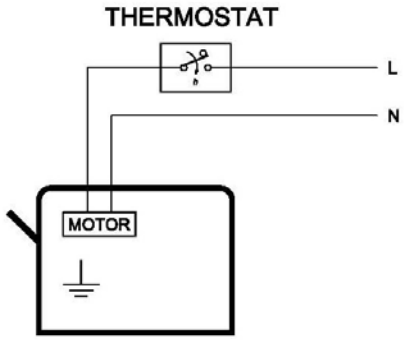


Fig. 4: Actuator Wiring



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