ETI Series

Motor-Driven Zone Valves

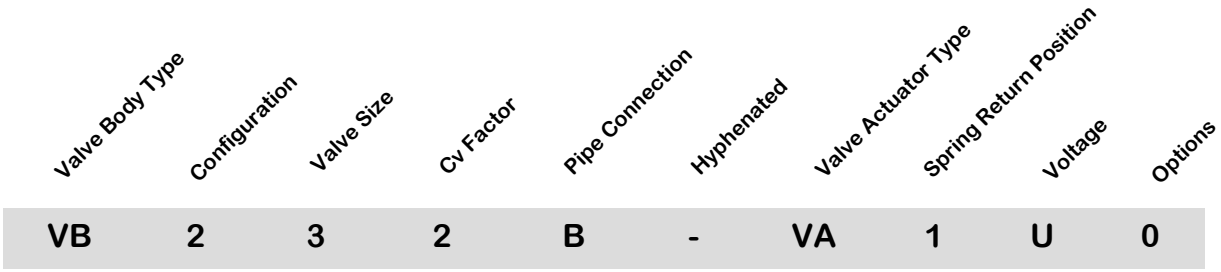
- Provides economical control of hot or chilled water for fan coil, baseboard radiator and VAV reheat applications
- Actuator snaps in place for quick and simple assembly and removal during installation and provides for quick replacement during service
- Forged brass body and hard chrome-plated brass stem
- Bubble-tight shutoff conserves energy and accurately controls zone temperature for increased comfort
- High close-off pressure actuator satisfies demanding requirements of high-rise buildings and high-pressure pumping systems
- Interchangeable actuators allow field conversion from normally-closed to normally-open without re-piping
- Choice of end connections provides increased versatility and replacement capability
- On/Off control from a 2-wire thermostat
- 300 PSI system operating pressure
- 1/2”, 3/4” and 1” line size
- NPT or BSP end connections
- Actuator can be factory or field installed

Specifications

Valve Body Pressure Rating	300 psig (PN20 or 2,100 kPa) System Operating Pressure			
Fluid / Ambient Temperature Limits	0 to 94 °C water at an Ambient Temperature of 40 °C (32 to 200 °F at 104 °F)			
Shipping & Storage Temperature Limits	-40 to 70 °C (-40 to 158 °F)			
Body Sizes	See Fig. 1: Valve Code Number Selection Guide			
Service	Chilled and Hot Water, up to 50% Glycol Solutions			
Motor Voltages	See Fig. 1: Valve Code Number Selection Guide			
Motor Leads	6” 22 AWG wires, with 3/4” conduit provision			
Power Consumption	5 W, 6.8 VA			
End Switch	5A, 250 V 50/60 Hz			
Stroke Times	Power Stroke: 30 to 32 seconds Spring Return Stroke: 6 to 7 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" & 3/4" Threaded	2.5 (2.2)	3.0 (2.6)	58 (400)	55 (380)
1/2” & 3/4” Threaded	3.5 (3.0)	4.0 (3.4)	48 (330)	35 (243)
3/4" & 1” Threaded	5.0 (4.3)	5.0 (4.3)	27.5 (190)	27.5 (190)
3/4” & 1” Threaded	7.5 (6.5)	7.5 (6.5)	20 (138)	20 (138)
Flow Characteristic	Quick Opening			
Seat Leakage	Zero Leakage (100% Bubble-Tight Shut-off)			
Body Materials	Body	Forged Brass		
	Stem	Hard Chrome-Plated Brass		
	Seat	Brass		
	Paddle	Buna N Rubber		
Actuator	Enclosure	Stainless Steel Base and Bearing Plates, Aluminum Cover		
	Motor	UL Recognized and CE Mark Compliant		
Agency Approval	UL Listing Pending, CE Mark Compliant			
Shipping Weight (Actuator+Valve Assembly)	1360 g (3.0 lb) Maximum for Complete Assembly			
Dimensions	See Fig. 2: Dimensions in inches (mm)			

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 Code Number Designations

Valve Body Type

VB = ETI Series zone valve body

Configuration

2 = 2-way
3 = 3-way

Valve Size

2 = 1/2”
3 = 3/4”
4 = 1”

Cv Factor

	2-way	3-way
2 =	2.5	3.0
3 =	3.5	4.0
5 =	5.0	5.0
7 =	7.5	7.5

See Specifications on various Cv factors available to different valve sizes

When ordering the body and actuator unassembled, drop the “-” and enter the code numbers as two separate items, example: VB232B and VA1U0.

Pipe Connection

B = BSP
N = NPT

Valve Actuator Type

VA = ETI Series zone valve actuator

Spring Return Position

1 = Normally Closed
2 = Normally Open
3-way is available in designation "1" only and configured as N.C. to port "1" and N.O. to port "2". For N.O. configuration to the water coil, connect the coil to port "2".

Motor Voltage

A = 24 V 50/60 Hz ±10%
B = 120 V 50/60 Hz ±10%
U = 230 V 50/60 Hz ±10%

Options

0 = No Options
1 = End switch with 6” leads
2 = With 18” motor leads
3 = With 18” motor leads and end switch with 6” leads
4 = With 1 m cordset, 3-core
5 = With 1 m cordset, 5-core with end switch
6 = With 1 m cordset, 5-core

Application Overview

The ETI Series Electrically Operated 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.

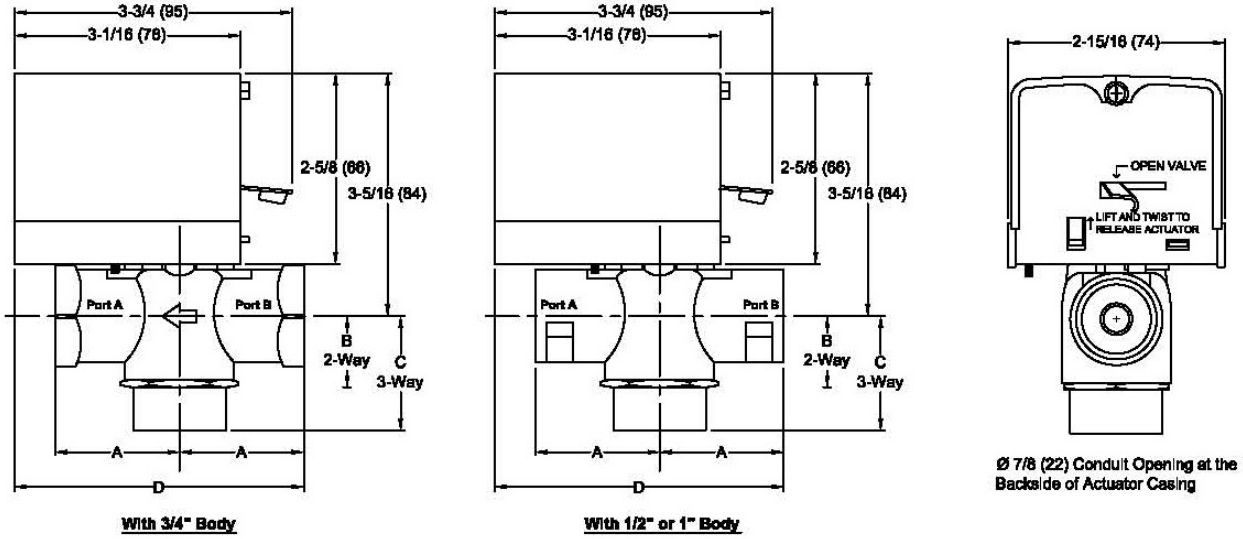
To Order

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

Repair Parts

Available repair parts for ETI Series Electrically Operated Zone Valves include replacement valve bodies and replacement actuators. No other field repairs should be attempted.

Fig. 2: Dimensions in inches (mm)



VALVE SIZE	A	B	C	D
3/4" Sweat	1-3/8" (35)	15/16" (24)	1-1/2" (38)	3-5/8" (92)
1" Sweat	1-9/16" (40)	15/16" (24)	1-1/2" (38)	3-25/32" 96)
1/2" NPT, BSP	1-3/8" (35)	15/16" (24)	1-1/2" (38)	3-5/8" (92)
3/4" NPT, BSP	1-9/16" (40)	15/16" (24)	1-1/2" (38)	3-25/32" (96)
1" NPT, BSP	1-7/8" (47)	1" (25)	1-11/16" (43)	4-1/16" (103)

Manual Operating Lever

All ETI Series Electrically Operated Zone Valves (except normally-open 2-way 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
- Prevents damage to the seating paddle on 3-way valves, and allows flushing of the system by maintaining the valve in the mid-position
- Resets to normal position the first time the valve is powered up

Note: The manual lever cannot be used to close the bypass port on 3-way valves.

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.

PIPING & INSTALLATION

The zone valves must be piped so that the seating paddle always closes against the direction of flow, except in 3-way diverting configurations. Refer to Fig.3 to Fig.8. 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:

- 3-way valves always require a normally-closed actuator.
- 3-way valves are always closed at Port “1” when no power is applied to the motor.
- On power-up, the valve closes to Port “2” 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 with Normally-Closed Actuator

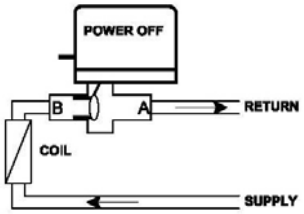


Fig.4: 2-Way Valve with Normally-Open Actuator

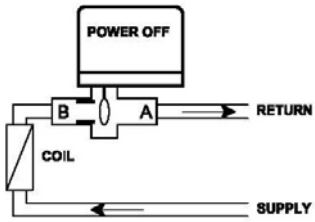


Fig.5: 3-Way Valve in Mixing Configuration Normally-Closed to the Coil

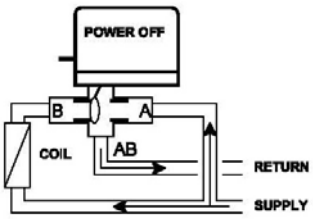


Fig.6: 3-Way Valve in Mixing Configuration Normally-Open to the Coil

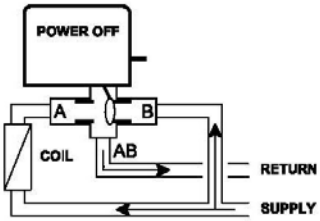


Fig.7: 3-Way Valve in Diverting Configuration Normally-Closed to the Coil

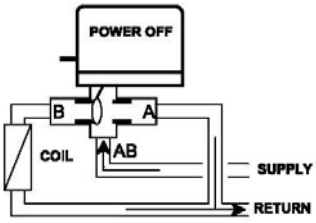
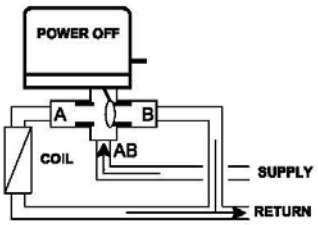


Fig.8: 3-Way Valve in Diverting Configuration Normally-Open to the Coil



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