

# High Temperature Characterized Control Valves

## B2 (B) Series Characterized Control Valves

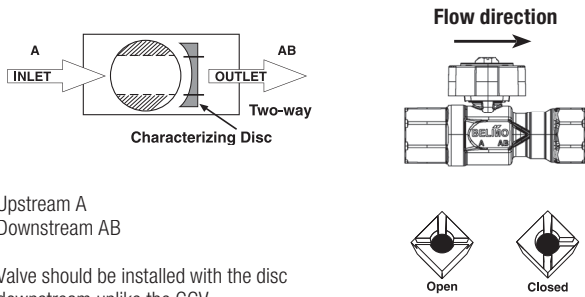
Two-way Valve with Stainless Steel Ball and Stem,  
(B) 1/2", 3/4" and 1", NPT female ends

### Technical Data

Service	hot water, 60% glycol, steam
Flow characteristic	A-port equal percentage
Media temp range	60°F to 266°F [15.6°C to 130°C] Water max 250°F (120°C) Steam
Maximum differential pressure (ΔP)	60 psi typical application 116 psi full open only (Model # B215HT455) steam: 15 psi
Maximum inlet	steam: 15 psi
Leakage	0% for A to AB

### Flow Pattern

#### 2-way High Temperature Characterized Control Valves™

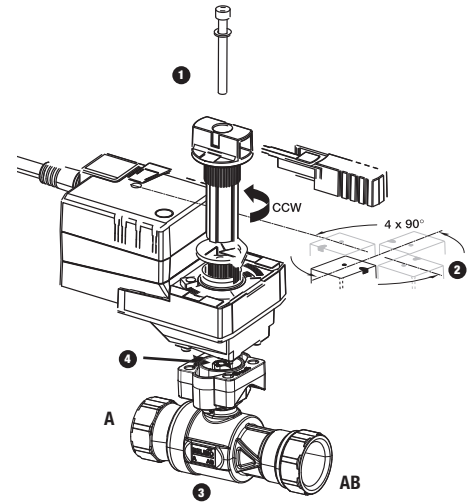


Upstream A  
Downstream AB

Valve should be installed with the disc downstream unlike the CCV.

### Assembly

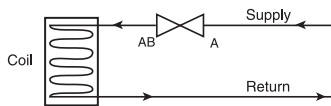
- 1 One screw attaches to valve
- 2 Four actuator mounting positions
- 3 2-way flow pattern
- 4 Top of valve stem indicates direction of flow (Flow A to AB shown)



### Operation/Installation

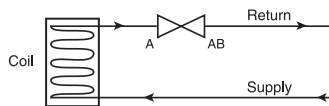
#### For Steam

2-way Valve Piping Diagram  
(1 Input, 1 Output)

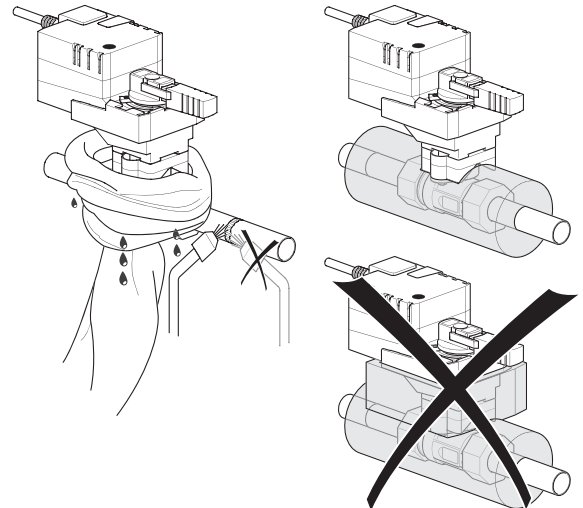
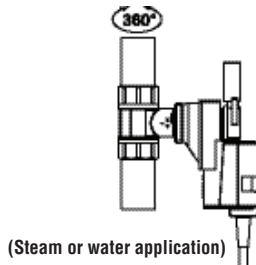
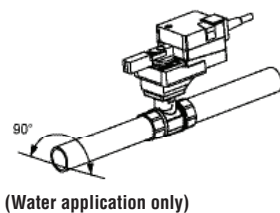


#### For Hot Water

2-way Valve Piping Diagram  
(1 Input, 1 Output)



Assembly can be mounted horizontally or vertically for water applications. For steam applications the valve can be mounted vertically but if mounted horizontally the valve must be 90° off center of the pipe. Do not install with actuator below pipe.



### Installation

1. Inspect shipping package, valve, linkage, and actuator for physical damage. If shipping damage has occurred notify appropriate carrier. Do not install.
2. If a replacement, remove existing valve, linkage and actuator from the piping system.
3. If actuator and linkage are removed, they must be reinstalled correctly. The actuator must be rotated so that the valve seats properly for close off.
4. Install valve with the proper ports as inlets and outlets. See drawings on page 2 and 4. Check that inlet and outlet of 2-way valves are correct; check that the "A" and "AB" ports of three-way valves are piped correctly. Flow direction arrows must be correct.
5. Blow out all piping and thoroughly clean before valve installation.
6. Clean male pipe threads with wire brush and rag. If threads have been damaged or exposed to weather, running a tap or die over the threads may straighten them. Clean pipes, threads, and valve threads before installation; check for any foreign material that can become lodged in trim components. Strainers should be cleaned after initial startup.
7. Pipe sealing compound should be applied sparingly after cleaning and may not be applied to the two lead threads of a screwed pipe, which are innermost inside the valve. Sealing compound is to be placed on male threads only. The purpose is to lubricate the pipes when tightening.
8. Valve must be installed with the stem towards the vertical, not below horizontal.
9. Start the connection by turning the valve or pipe by hand as far as possible. Be certain the threads mate by the "feel" of the connection.
10. Use wrenches to tighten the valve to the pipe. Do not over tighten or strip the threads. Two wrenches are necessary to avoid damaging the valve.
11. Normally Open or Closed configurations must be verified by examining both the mechanical drawings and the valve and actuator. [See details on page 2.](#)

### Warning!

**Valve should not be used for combustible gas applications. Gas leaks and explosions may result. Do not install in systems, which exceed the ratings of the valve.**

- Avoid installations where valve may be exposed to excessive moisture, corrosive fumes, vibration, high ambient temperatures, elements, or high traffic areas with potential for mechanical damage.
- Valve assembly location must be within ambient ratings of actuator. If temperature is below -22°F a heater is required.
- The valve assembly will require heat shielding, thermal isolation, or cooling if combined effect of medium and ambient temperatures – conduction, convection, and radiation – is above 122°F for prolonged time periods at the actuator.
- Following standard procedure, a strainer should be installed before the coil and valve or in another appropriate place in the system.
- Visual access must be provided. Assembly must be accessible for routine schedule service. Contractor should provide unions for removal from line and isolation valves.
- Avoid excessive stresses. Mechanical support must be provided where reducers have been used and the piping system may have less structural integrity than full pipe sizes.
- Sufficient upstream and downstream piping runs must be provided to ensure proper valve capacity and flow response. Five diameters in each direction are recommended.
- Life span of valve stems and O-rings is dependent on maintaining non-damaging conditions. Poor water treatment or filtration, corrosion, scale, other particulate can result in damage to trim components. A water treatment specialist should be consulted.
- Normal thread engagement between male pipe thread and valve body should be observed. Pipe run that is in too far will damage the valve.

### Mounting

The flange allows the actuator to be either parallel or perpendicular to the pipe; there are four orientations possible.

If field installing a spring return actuator, disconnect power and allow actuator to spring closed. Flip actuator over if necessary to achieve proper rotation direction. **DO NOT USE THE REVERSING SWITCH TO DO THIS.**

### Two-Way Valves Mounting

#### For NORMALLY CLOSED operation:

The ball of the valve must be rotated so that the ball is CLOSED to flow. The actuator should be mounted with the clamp fully rotated CW (R). Spring return actuators will show the CW (R) symbol near the clamp and position indicator. Depressing the gear release to move the clamp rotates non-spring return actuators.

#### For NORMALLY OPEN operation:

The ball of the valve must be rotated so that the ball is OPEN to flow. The actuator should be mounted with the clamp fully rotated CCW (L). Spring return actuators will show the CCW (L) symbol near the clamp and position indicator. Depressing the gear release to move the clamp rotates non-spring return actuators. There are marks on the top of the valve stem, which indicate the port directions. [See the drawings on the following pages.](#)

**Do not force. Do not use the actuator to turn the pipe or the stem. Do not use any toothed tool such as pliers, which may damage the stem.**

- Check that the actuator rotates so that the valve seats for close off and also rotates open to achieve full Cv. Use the gear release or the AF crank to verify. For LF or NF models apply power and control signal if necessary.
- Verify that CCW (L) rotation of the actuator will open the ball to flow.
- Install and tighten the hold down screw not more than 1/2 turn beyond the point where resistance is felt.