3-Way Diverting Ball Valves

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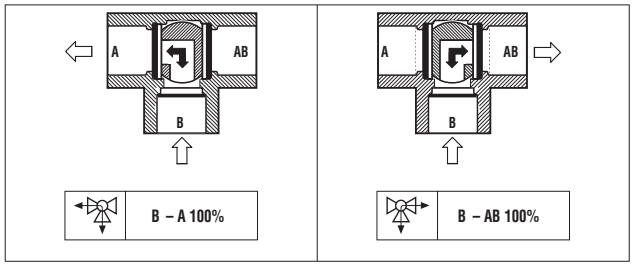
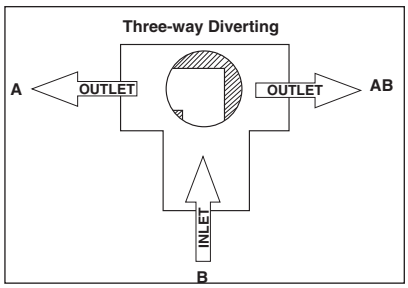
Three-way valve with chrome plated brass ball and nickel plated stem and NPT female ends

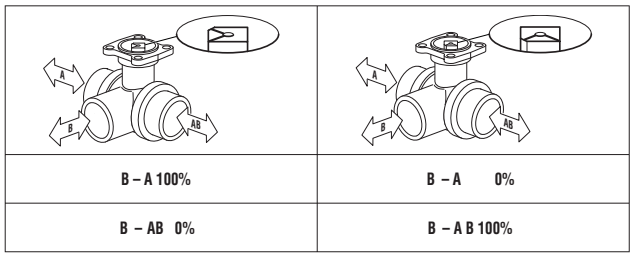
Technical Data	
Service	chilled or hot water, 60% glycol
Flow characteristic	modified equal percentage
Media temp range	0°F to 250°F [-18°C to 120°C]
Maximum differential pressure (ΔP)	50 psi max
Leakage	0%

Flow Pattern

Three-way Diverting Ball Valve



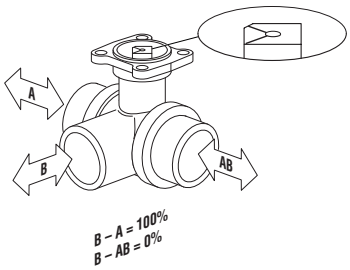


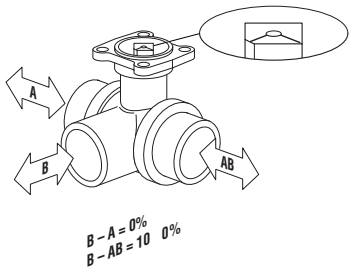


B – A 100%	B – A 0%
B – AB 0%	B – A B 100%

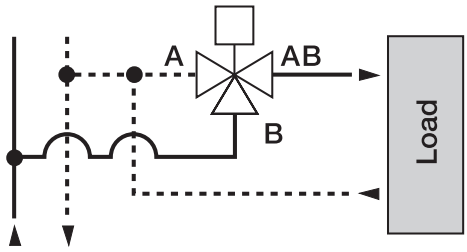
Operation/Installation

Ensure that the balls are in the correct position (marking on the stem).





Normally Open Actuator

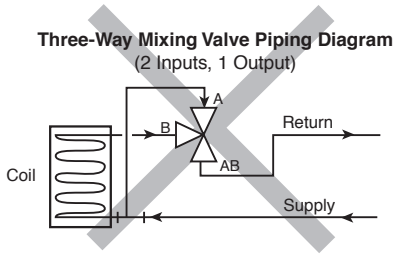


3-Way Diverting Ball Valves

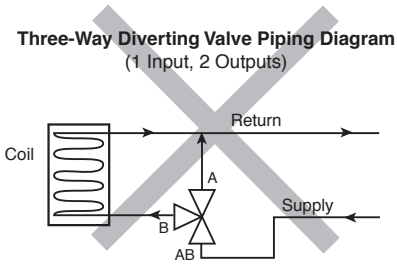
Instruction Manual

BELIMO

Three-Way Mixing Valve Piping Diagram
(2 Inputs, 1 Output)



Three-Way Diverting Valve Piping Diagram
(1 Input, 2 Outputs)



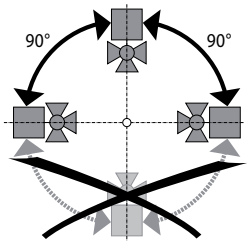
Incorrect Piping

WARNING! Do Not Pipe in this manner! Note Valve Porting!

Flow is not possible from A to AB. If B port is not piped as the common port, the valve must be re-piped. These valves are intended for closed loop systems. Do not install in an open loop system or in an application that is open to atmospheric pressure.

Mounting

The valves can be mounted in any position, except stem below horizontal.



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.

Three-way Valves Mounting

The B port is always the common inlet port. The A and AB ports are outlets.

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.
- Install and tighten the hold down screw not more than 1/2 turn beyond the point where resistance is felt.

Installation

1. Inspect shipping package, valve, linkage, and actuator for physical damage. If shipping damage has occurred notify appropriate carrier. Do not install.
2. Install valve with the proper ports as inlets and outlets. See drawings on page 1. Check that inlet and outlet of 2-way valves are correct; check that the "A", "B", and "AB" ports of three-way valves are piped correctly. Check tag marking for correct flow direction.
3. Blow out all piping and thoroughly clean before valve installation.
4. 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.
5. 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.
6. Valve must be installed with the stem towards the vertical, not below horizontal.
7. 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.
8. 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.
9. Two-way valve Normally Open or Closed configurations must be verified by examining both the mechanical drawings and the valve and actuator. See details on page 1.
10. Three-way valve Normally Open or Closed configurations for the Control Port and the Bypass Port must be verified by examining both the mechanical drawings and the valve and actuator. See details on page 1.

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.

WARNING:
This product can expose you to lead which is known to the State of California to cause cancer and reproductive harm.
For more information go to

www.P65Warnings.ca.gov