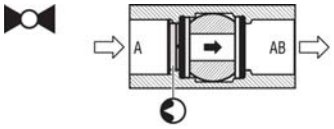
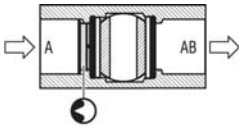
FLOW PATTERNS

2-way Characterized Control Valves™ **(Belimo B2 Series)**

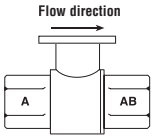


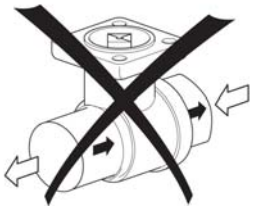
A→AB 100%



A→AB 0%

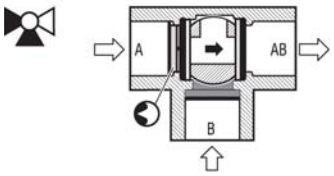
Two-way valves should be installed with the disc upstream.



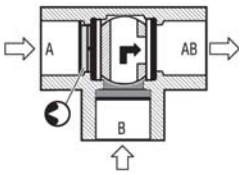


3-way Characterized Control Valves™ **(Belimo B3 Series)**

MIXING



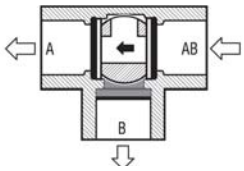
A→AB 100%
B→AB 0%



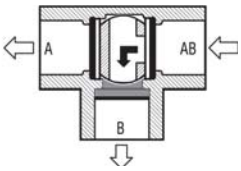
A→AB 0%
B→AB 70%

The A-port must be piped to the coil to maintain proper control.

DIVERTING



AB→A 100%
AB→B 0%

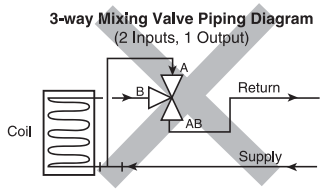


AB→A 0%
AB→B 70%

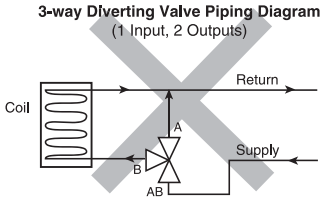
INCORRECT PIPING

The A-port must be piped to the coil to maintain proper control.

3-way Mixing Valve Piping Diagram
(2 Inputs, 1 Output)



3-way Diverting Valve Piping Diagram
(1 Input, 2 Outputs)



WARNING! Do Not Pipe in this manner!
Note Valve Porting!
The A-port must be piped to the coil, not the B-port!

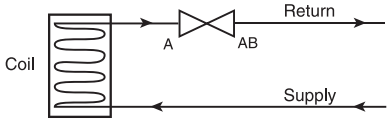
Flow is not possible from A to B. If AB-port is not piped as the common port, the valve must be re-piped. It is good practice to install a balancing valve in the bypass line. These valves are intended for closed loop systems. Do not install in an open loop system or in an application that is open to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

OPERATION/INSTALLATION – CORRECT PIPING

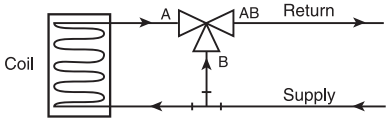
2-way valves should be installed with the disc upstream. If installed with disc downstream, flow curve will be deeper. If installed "backwards" it is NOT necessary to remove and change. No damage or control problems will occur.

3-WAY VALVES MUST BE PIPED CORRECTLY. They can be mixing or diverting. Mixing is the preferred piping arrangement.

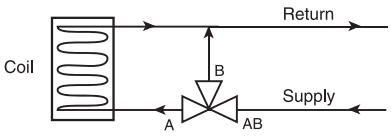
2-way Valve Piping Diagram
(1 Input, 1 Output)



3-way Mixing Valve Piping Diagram
(2 Inputs, 1 Output)



3-way Diverting Valve Piping Diagram
(1 Input, 2 Outputs)



Not for use in change over applications.
Please consider industrial valves in section 13.

The BELIMO Characterized Control Valve is a CONTROL valve, not a manual valve adapted for actuation. The control port is the A-port. It is similar to the globe valve in that the middle port is the B or bypass port. The common port AB is on the main opposite the A-port. These diagrams are for typical applications only. Consult engineering specification and drawings for particular circumstances.

REDUCED B-PORT FLOW

Note: The B-port flow of the 3-way CCV is lower than that of the A-port. In most applications this is beneficial since the reduced flow compensates for the inexistent pressure drop across the coil in the bypass mode. Therefore, proper sizing is important to avoid flow noise in particular when the system is designed with constant speed pumps. Please refer to our valve sizing and selection guidelines.

The flow velocity in the pipe upstream and downstream of the valve should be considered as well. The typical HVAC design maximum flow is 4 to 8 ft./s to avoid noise issues.

Also, the pipe reduction factor must be considered. Pipe reducers decrease the C_V value of a valve and consequently increase the pressure drop across the valve creating a situation that could lead to noise or a lower than designed flow.