

Ball Valves Versus Globe Valves: What's the Difference?

Picking the right components can make a significant difference in how well an HVAC system runs. Among these components, globe valves and ball valves often play a key role. Globe valves are especially useful when precise flow control is required, whereas ball valves are ideally suited for applications requiring quick opening and tight close-off. In this writeup, we shall break down the differences between these two types of valves, how they work, and where they are commonly found in HVAC systems.

cost-effectiveness, and easy installation. The ball valves integrate the robust close-off functions with a specialized disc, ensuring an equal percentage flow characteristic for consistently accurate flow control. Less expensive ball valves are a common choice for shut-off valves due to their ability to provide a quick and tight seal with a low pressure drop.

BALL VALVES



A ball valve controls the flow of water using a rotary ball with a hole running through its centre. When the valve is fully open, the hole is aligned with the pipeline, which allows the full flow to pass. The ball valve is equipped with a characterized constricted channel in the ball in which choked flow is used to control the flow rate of water. This characterized constricted channel design provides very high rangeability and excellent equal percentage flow characteristics.

When it is fully closed, the hole or channel is perpendicular to the flow, stopping the passage of water. A ball valve uses the rotation of the ball (increasing and decreasing its opening) to control the flow.

Most of the time, ball valves are used for chilled or hot water with up to 50% glycol concentration. They are used for water-side control of air handling units in HVAC systems.

A range of sizes from 25 to 200 mm of commercial grade 2-way & 3-way ball valves is usually available with non-spring return actuators, offering high close-off capabilities. The actuators operate using a standard voltage, allowing for on/off, modulating, or floating-point control, which moves the valve to the position specified by the control system.

Ball valves are specially designed for their reliability,

GLOBE VALVES



A globe valve consists of a linear travel plug which fits into a seat enclosed within a spherical body, which is where it gets its name. The flow is adjusted by moving the plug up or down, in proximity to the seat. When fully closed, the plug seals off the flow. Globe valves are used in HVAC systems to regulate, throttle, or isolate flow. They are especially useful when precise flow control is needed, such as in hot water heating systems, steam systems, or in chillers where modulating flow is important for system performance.

Globe valves are offered in a range of sizes from 20 to 200 mm, which meet with both ANSI 125 and ANSI 250 standards. They are available with bronze or stainless-steel trim options and are equipped with non-spring return actuators. Globe valves are ideally suited for HVAC systems, including air handling units, terminal equipment, and hydronic systems operating in primary and secondary loops for water or steam service.

The choice between a globe valve and a ball valve depends on the specific needs of the application, but in general, for precise flow control, a globe valve is preferable, while for on/off operations or where a minimal pressure drop is desired, a ball valve is more suitable. Globe valves can be more expensive than ball valves, which is also a consideration.