



10 Questions

on **ASSE 1016-2005**

Automatic Compensating Valves for Individual Showers and Tub/Shower Combinations

What is the scope of ASSE 1016-2005?

The revised ASSE 1016-2005 covers both wall-mounted shower valves and tub/shower combination valves that are supplied by both hot and cold water. They are designed to “reduce the risk scalding and thermal shock by protecting the user from exposure from excessive changes in water temperature”.

What are the three valve types defined by the standard?

Type P valves or pressure balancing, Type T valves or thermostatic and Type T/P valves known as combination thermostatic/pressure balancing.

What are the differences between these three valve types?

Type P valves must maintain temperature ($\pm 3.6^\circ\text{F}/2.0^\circ\text{C}$) when 50% pressure changes occur to the incoming hot and/or cold water supply to the valve. Type P valves cannot compensate for changes to incoming supply temperatures. Type T valves must hold temperature while accounting for 20% pressure changes to the hot and cold water supplies, as well as a 25°F hot water temperature increase (5°F per minute). Type T/P valves must account for both 50% pressure changes and the 25°F (5°F per minute) hot water increases while maintaining $\pm 3.6^\circ\text{F}/2.0^\circ\text{C}$.

Why was ASSE 1016-1996 revised in 2005?

ASSE 1016-1996 became the “catchall” standard for new tempering products and applications (lavatories, whirlpools, gang showers, etc.). Manufacturers tested and listed their products to 1016 because it was the most applicable point-of-use standard available. As new standards were developed and published (ASSE 1069-2005 and 1070-2004) to address new products, ASSE 1016-2005 was retooled to become strictly an individual, wall-mounted shower and bath/shower combination standard. Different applications require varying levels of product performance.

How does ASSE 1016-2005 differ from ASSE 1016-1996?

Entitled Individual Thermostatic, Pressure Balancing, and Combination Pressure Balancing/Thermostatic Control Valves for Individual Fixtures, the 1996 revision’s name alone suggests a broader application than the 2005 revision. Beyond the standard’s title, other differences include:

- The temperature variation test changed slightly from $\pm 3^\circ\text{F}/1.78^\circ\text{C}$ (1996) to $\pm 3.6^\circ\text{F}/2.0^\circ\text{C}$ (2005) across all valve types.
- The 2005 revision defines the user as not only the bather himself or herself but also the bather’s attendant (nursing facilities, etc.)
- The 2005 revision has added a flow test of 2.25 gpm (must be equal or greater), absent from the 1996 revision
- The 2005 revision calls out a mechanical means for limiting the outlet water temperature to 120°F maximum

What is the minimum flow requirement for the standard?

The minimum flow tested to maintain temperature control is 2.5 gpm, the typical flow for most common showerheads. That didn’t change from the 1996 revision.

What is the allowable flow rate upon loss of cold-water pressure?

An ASSE 1016 listed device can flow no more than 0.5 gpm upon cold-water failure within a plumbing system.

Is an ASSE 1016 device considered the final tempering device?

Yes, no further mixing can occur downstream for the device.

What are the differences between ASSE 1016 and ASSE 1069?

ASSE 1016 covers three valve types (P – pressure balancing, T – thermostatic and T/P – combination). It is intended for *individual* showers or individual tub/shower combinations.

ASSE 1069 covers only one valve type, which is essentially equivalent to an ASSE 1016 Type T or thermostatic valve. An ASSE 1069 valve supplies pre-tempered water to a single-pipe fitting, like a metering shower, and cannot be adjusted by the user. Typical applications involve multiple fittings like gang showers although individual fixtures, like a sitz bath also fall under the standard.

An ASSE 1016 valve mixes hot and cold water to individual showers and *can* be adjusted by the bather or the bather's attendant.

What are the differences between ASSE 1016 and ASSE 1070?

ASSE 1016 covers three valve types (P – pressure balancing, T – thermostatic and T/P – combination). ASSE 1070 covers a single valve type, which is very similar to an ASSE 1016 type T valve, with a couple of exceptions. The temperature control requirement is not as stringent for a 1070 device ($\pm 7^{\circ}\text{F}$ allowable) versus a 1016 valve ($\pm 3.6\text{F}$) due to the less critical nature of the application (showering versus hand washing or bathing).

Another important difference, and where 1070 is more stringent than 1016, is minimum tested flow. ASSE 1016 devices are tested for temperature control at a minimum flow of 2.5 gpm, the standard showerhead rating. ASSE 1070 devices are tested at the "manufacturers stated minimum flow". Because public restroom facilities require faucets outfitted with low flow aerators, most manufacturers rate their valves at a minimum flow of 0.5 gpm. This is important because accurate control at low flows is critical to a users safety.

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