

- Combination T/P Shower Valves
- Lavatory Tempering Valves
- Master Tempering Valves
- Hi/Lo Tempering Systems
- Emergency Tempering Valves
- Surface Mounted Shower Systems
- Pressure Balancing Valves
- ASSE/CSA Listed



ASSE 1016, 1069 & 1070



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ASSE 1016 - 2005

Automatic Compensating Valves for Individual Showers and Tub/Shower Combinations

- Intended for wall-mounted showers and tub/showers
- Bather or bather's attendant has access to flow and final temperature control
- No further mixing downstream from this device





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ASSE 1016 - 1996

Previous Revision...ASSE 1016-1996

- Became a “catchall” for new products and applications (lavatories, whirlpools, baths, gang showers)
- 2005 rev. more clearly defined as wall-mounted showers & bath/showers only
- New standards introduced for new applications (ASSE 1069 and 1070)



ASSE



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ASSE 1016 - 2005

ASSE 1016-2005 vs. 1996

- **Scope:** 2005 Shower and Tub/Showers...1996 Individual Fixture Fittings
- Temperature variation test change from $\pm 3^{\circ}\text{F}$ (1996) to $\pm 3.6^{\circ}\text{F}$ (2005) across all valve types
- 2005 defines the user as the bather and bather's attendant, 1996 defines bather only



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ASSE 1016 - 2005

ASSE 1016-2005 defines three (3) types of tempering valves

- **Type P** or pressure balancing
- **Type T** or thermostatic
- **Type T/P** or Combination thermostatic/pressure balancing





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ASSE 1016 - 2005

Pressure Balancing - Type P

- Increase/decrease hot and cold water supply pressures by **50%**
- Must hold $\pm 3.6^{\circ}\text{F}/2.0^{\circ}\text{C}$ within 1 second
- **No** temperature compensation requirement
- Minimum flow 2.5 gpm
- Cold water failure ≤ 0.5 gpm





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ASSE 1016 - 2005

Thermostatic - Type T

- Increase/decrease hot and cold water supply pressures by **20%**
- Increase hot water supply temperature **25°F** (5°F per minute)
- Must hold $\pm 3.6^{\circ}\text{F}/2.0^{\circ}\text{C}$ within 5 seconds
- Minimum flow 2.5 gpm
- Cold water failure ≤ 0.5 gpm





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ASSE 1016 - 2005

Combination - Type T/P

- Increase/decrease hot and cold water supply pressures by **50%**
- Increase hot water supply temperature **25°F** (5°F per minute)
- Must hold $\pm 3.6^{\circ}\text{F}/2.0^{\circ}\text{C}$ within 1 second
- Minimum flow tested = 2.5 gpm
- Cold water failure ≤ 0.5 gpm





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ASSE 1070 & IPC

IPC - 2006

- **Section 416.5 – Tempered water for public hand washing facilities**

“Tempered water shall be delivered from public hand-washing facilities through an approved water temperature-limiting device that conforms to ASSE 1070”





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ASSE 1070 & IPC

IPC - 2006

- **Section 424.5 – Bathtub and whirlpool bathtub valves**

“The hot water supplied to bathtubs and whirlpool bathtubs shall be limited to a maximum temperature of 120°F (49°C) by a water temperature limiting device that conforms to ASSE 1070...”





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ASSE 1070 & IPC

IPC - 2006

- **Section 408.3 – Bidet water temperature**

“The discharge water temperature from a bidet fitting shall be limited to a maximum temperature of 110°F (43°C) by a water temperature limiting device conforming to ASSE 1070...”

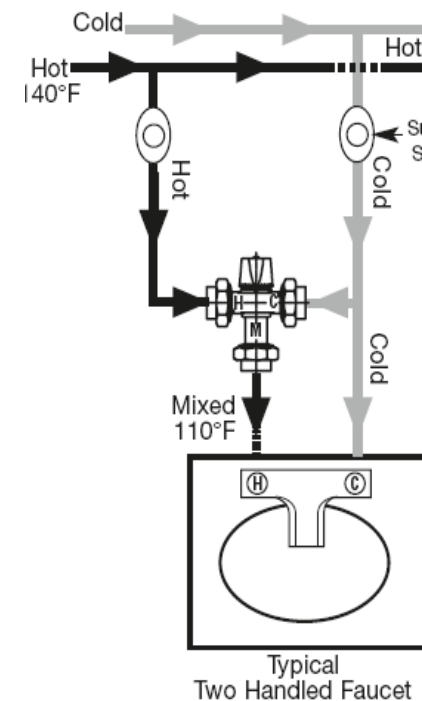




ASSE 1070 - 2004

Water Temperature Limiting Devices

- Tempers the hot side of valve to limit maximum outlet temperature, when mixed with cold water
- Sinks, lavatories and whirlpools/tubs
- May or may not be final tempering device





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ASSE 1070 - 2004

Water Temperature Limiting Devices

- Final temperature is user adjustable
- Minimize scalding risk but not thermal shock
- Single or multiple fixtures
- Must prevent cross flow





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ASSE 1070 - 2004

Performance Requirements

- **20%** pressure changes to hot and cold water supplies, **25°F** hot water increase (5°F per minute)
- Maintain **$\pm 7^{\circ}\text{F}$**
- Minimum flow “Manufacturers stated”
- Cold water failure: 0.2 gpm or 20% of minimum stated, whichever is greater





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ASSE 1069 & IPC

IPC - 2006

- **Section 424.4 – Multiple (gang) showers**

“Multiple (gang) showers supplied with a single-tempered water supply pipe shall have the water supply for the showers controlled by an approved automatic temperature control mixing valve that conforms to ASSE 1069...”





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ASSE 1069 - 2005

Automatic Temperature Control Mixing Valves

- Devices that service end-use fittings, including but not limited to gang showers and sitz baths
- Supply tempered water, at a pre-set temperature, through a single-pipe supply
- For metering or on/off showers





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ASSE 1069 - 2005

Automatic Temperature Control Mixing Valves

- Covers single and multiple fixtures
- Bather cannot adjust final temperature, only installer or facility owner
- Maximum allowable temperature 120°F w/mechanical limit stop
- Final tempering device





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ASSE 1069 - 2005

Performance Requirements

- **20%** pressure changes to hot and cold water supplies, **25°F** hot water increase (5°F per minute)
- Maintain **$\pm 3.6^{\circ}\text{F}$** after five seconds
- Minimum flow: lesser of 2.5 gpm or manufacturer's stated minimum
- Cold water failure: $0.5 \text{ gpm} \leq \frac{3}{4}''$, $1.0 \text{ gpm} \geq 1''$





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ASSE 1016 vs. ASSE 1069

1016 for individual showers with hot and cold water supply (mixing)

1069 for preset water temperature and single-pipe supply (on/off)

1016 includes three valve types (T/P, T, P)

1069 specifies one valve type, thermostatic, similar to type (T)





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ASSE 1016 vs. ASSE 1069

1016 valves can be adjusted by the bather for temperature and volume

1069 valves can only be adjusted by installer or facility owner

1016 valves are tested at a minimum of 2.5 gpm

1069 valves are tested at the lesser of 2.5 gpm or the manufacturers stated minimum flow





ASSE 1016 vs. ASSE 1070

1016 for individual showers with hot and cold water supply (mixing) and is the final tempering device

1070 for lavatories and tubs, tempering or limiting the hot-water supply side temp. of a valve and may or may not be the final tempering device

1016 includes three valve types (T/P, T, P)

1070 specifies one valve type, thermostatic, similar to type (T)





ASSE 1016 vs. ASSE 1070

1016 requires temperature control of $\pm 3.6^{\circ}\text{F}$ and is intended to minimize the risks of scalding and thermal shock

1070 requires temperature control of $\pm 7.0^{\circ}\text{F}$ and is not intended to prevent thermal shock

1016 minimum flow tested is 2.5 gpm

1070 tests to mfgs. minimum stated flow, typically 0.5 gpm





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ASSE 1069 vs. ASSE 1070

1069 provides preset water temperature to single-pipe supply (on/off) fittings like metering showers, and is the final tempering device

1070 for lavatories and tubs, tempering or limiting the hot-water supply side temp. of a valve and may or may not be the final tempering device

ASSE



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ASSE 1069 vs. ASSE 1070

1069 does not allow user adjustment of flow and temperature, installer or building owner sets temperature

1070 does allow for user adjustment

1069 requires temperature control of $\pm 3.6^{\circ}\text{F}$

1070 requires control of $\pm 7.0^{\circ}\text{F}$, hand washing and tub fills





Side by Side

Criteria	ASSE 1016	ASSE 1069	ASSE 1070
Application	Shower & Bath/Shower	Gang Showers/Sitz Baths	Lavatory/Whirlpools
Supply	Mix	Single Temp. Supply	Mix
Valve Types	T, P, T/P	T	T
Final Tempering	Yes	Yes	Either
Fittings	Individual	Indiv. or Multi	Indiv. or Multi
Temp Range	Full cold to 105, max 120	110 - 115F	Must incl. 105 - 110F
Control	±3.6°F	±3.6°F	± 7°F
Min. Flow	2.5 gpm	2.5 gpm or mfg min.	Manf. Stated min.
CWF	0.5 gpm	0.5 gpm for 1/2", 1 gpm for 3/4"	0.2 gpm or 20% of min. flow