

Thermostatic Mixing Valve

Type 3409/3419

NSF Lead Free



High Performance Mixing Valve

Compliant with ASSE 1017*, the lead-free Type 3409/3419 thermostatic mixing valves are designed for use in hot water distribution systems and consistently deliver tempered water at the design set point with accuracy.

*When installed with check valve or combination check/stop on the hot and cold water inlets.

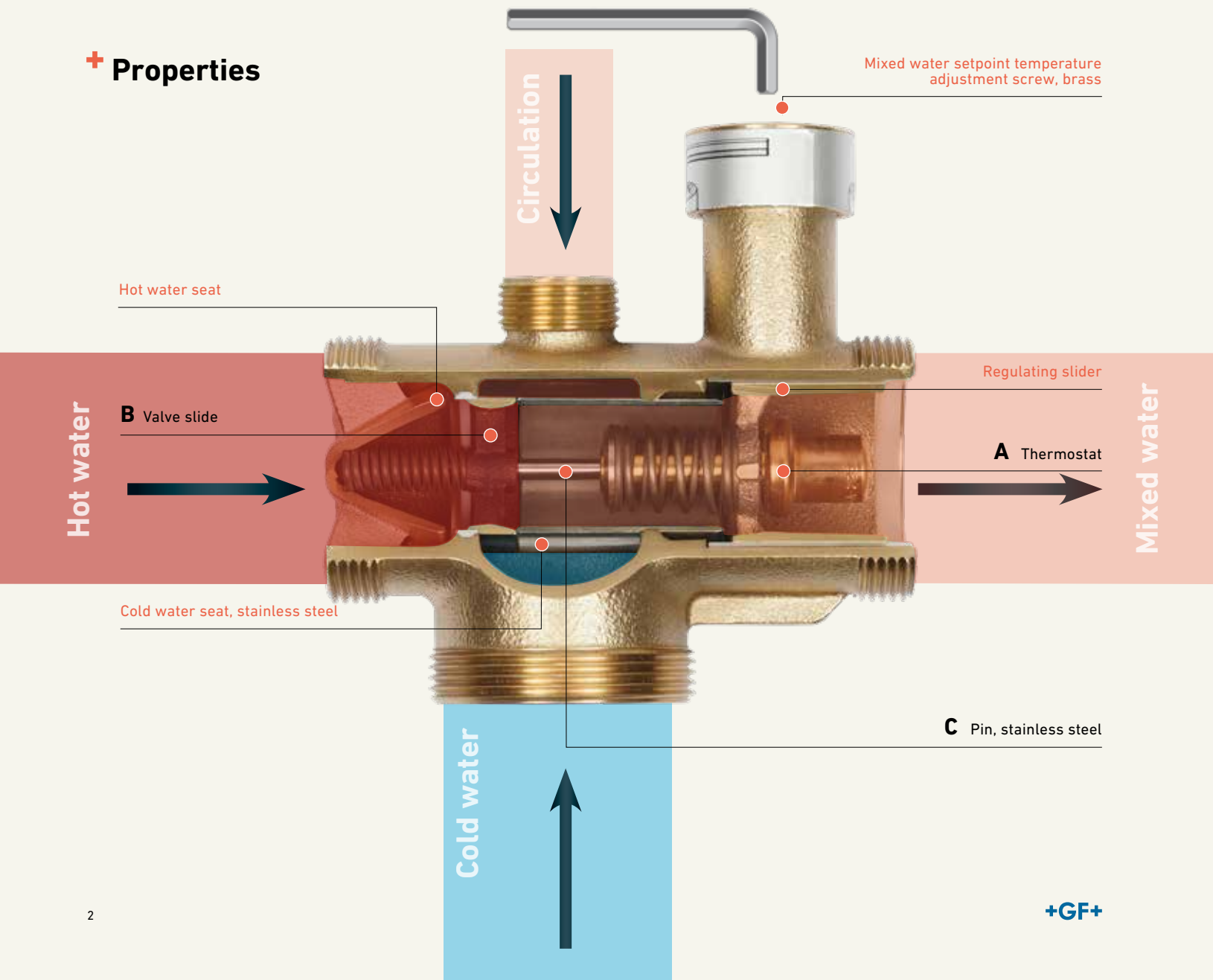
+ Benefits

- Delivers mixed water at constant temperature
- Accurate temperature control
- Operates without external power supply
- Protects from scalding
- Saves energy
- Increases comfort and safety in the hot water system
- ASSE 1017 compliant*

+ Applications

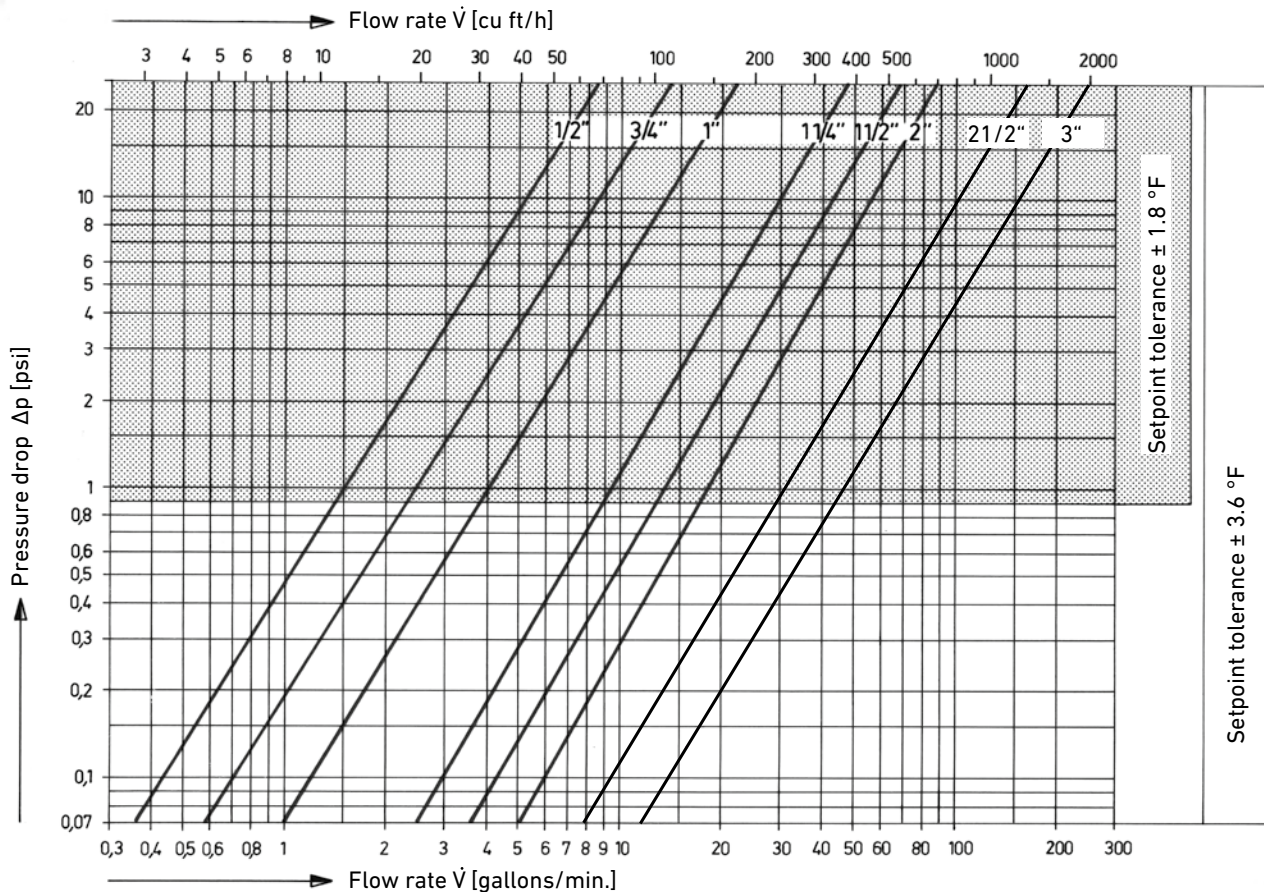
- Multi-family
- Hotels
- Hospitals
- Commercial buildings
- Sports facilities
- Industrial buildings

+ Properties



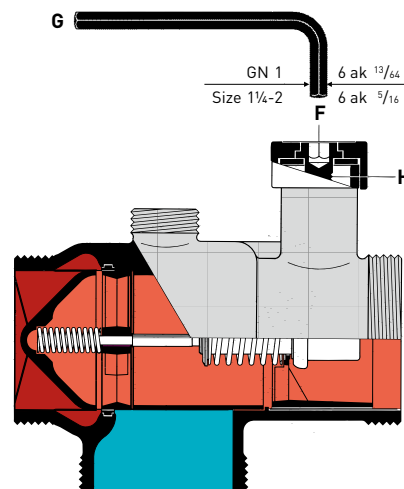
Nomogram for thermostatic mixing valves 3409 and 3419

Volume flow and pressure drop can be determined using the nomogram, below. The hatched area identifies optimal operating conditions. Select circulation flow rate within optimal operating conditions to ensure valve is operating at an ASSE 1017 min. certified flow rate.



Operating parameter recommendations

To ensure proper function of the Type 3409/3419 thermostatic mixing valve, the hot water temperature should be at least 9°F higher than the desired mixed water temperature. Furthermore, identical hydraulic conditions at the hot and cold water inlets are crucial for the mixing valve to function properly. This is ensured by installing the mixing valve in the hot water system in accordance with our installation examples.



1

Factory settings
default
temperature

131°F*

2

Mixed hot water
outlet temperature
adjustment ranges

113–149°F*

Adjustment of the mixed water temperature per
full turn of the key

NPS 1"

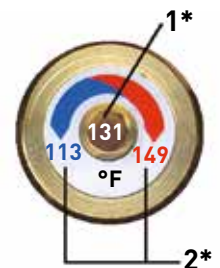
approx. 10.8°F

NPS 1 1/4"–2"

approx. 7.2°F

NPS 2 1/2"–3"

approx. 3.6°F



*Factory default temperature and adjustment ranges are based on a hot water inlet temperature of 158°F

Type 3409/3419 LF

Installation Instructions/Maintenance/ Transport Packaging

Installation instructions

Type 3409/3419 thermostatic mixing valve can be mounted in any position.

Thoroughly flush the supply line before installing the Type 3409/ 3419 thermostatic mixing valve.

To prevent the mixing valve from malfunctioning, install it side by side with the heater and provide it with a minimum 24" heat trap.

Do not apply oil or grease to the union gasket.

Do not apply thread sealant to the thread union locking nut.

Do apply thread sealant to the threaded union end connectors.

To set the valve, flow water from a downstream fixture and measure the outlet temperature and adjust valve settings as necessary.

Check valves

ASSE 1017 requires the installation of a check valve or a combination check/stop on the hot and cold water inlets to prevent crossover flow between hot and cold water systems.

Maintenance

Type 3409/3419 thermostatic mixing valves require minimal maintenance. The installation and operating instructions should be handed over to the building owner on delivery.

In case of trouble, please check your installation with the help of the installation diagrams in this brochure.

Recommended maintenance:

1. Annual maintenance inspection
2. Replace the mixing valve if it becomes clogged or the inner body becomes calcified.
3. Consider a water softener for hard water conditions

Transport packaging

After installing and commissioning the valve, the transport packaging of the Type 3409/3419 thermostatic mixing valve can be used as thermal insulation.

- Thermal conductivity $\lambda_D = 0.019 \text{ 1 Btu/ft. hour } ^\circ\text{F}$
- Application temperature $\leq 194^\circ\text{F}$



Installation Examples with Type 3409/3419 LF Thermostatic Mixing Valves

Notes

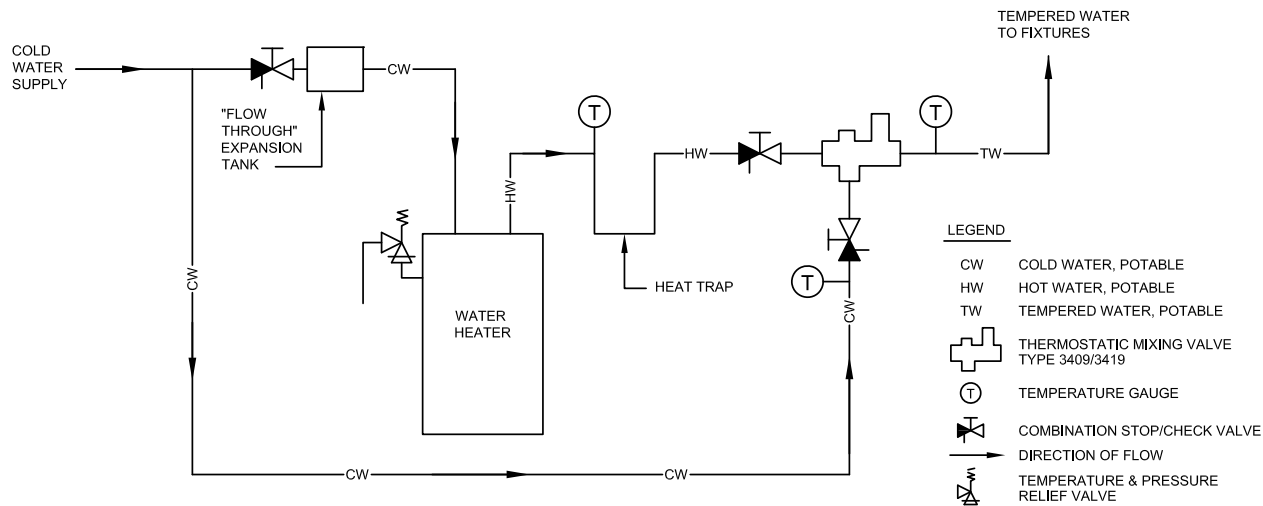
- 1–6 The installation examples are recommendations; we do not assume any responsibility for their completeness. Adhere to local standards and guidelines when installing safety devices, equipment and valves. These installation examples serve as guidelines only and should not be relied upon as a substitute for professional advice.
- 2–6 Flow path A = to avoid overheating
Flow path B = to cover the heat loss, manual balancing valve or thermostatic flow regulator Type 6320
- 5 Thermal and proportional distribution of the flow rates. Control of the flow rates for the flow paths A and B with Type 3409/3419 LF. Size of the circulation valve as a function of circulation losses.
- 6 To ensure thermal disinfection, each tapping point must be flushed. For thermal disinfection sufficient hot water must be available.

Please note: Scalding hazard during thermal disinfection. When thermostatic balancing valves are used in systems that require thermal disinfection, a bypass must be installed at each thermostatic balancing valves to allow flow of hot water during the disinfection period.

For safe and proper operation and maintenance, the valves as shown in the installation examples are required. Only properly trained personnel should work on domestic hot water systems.

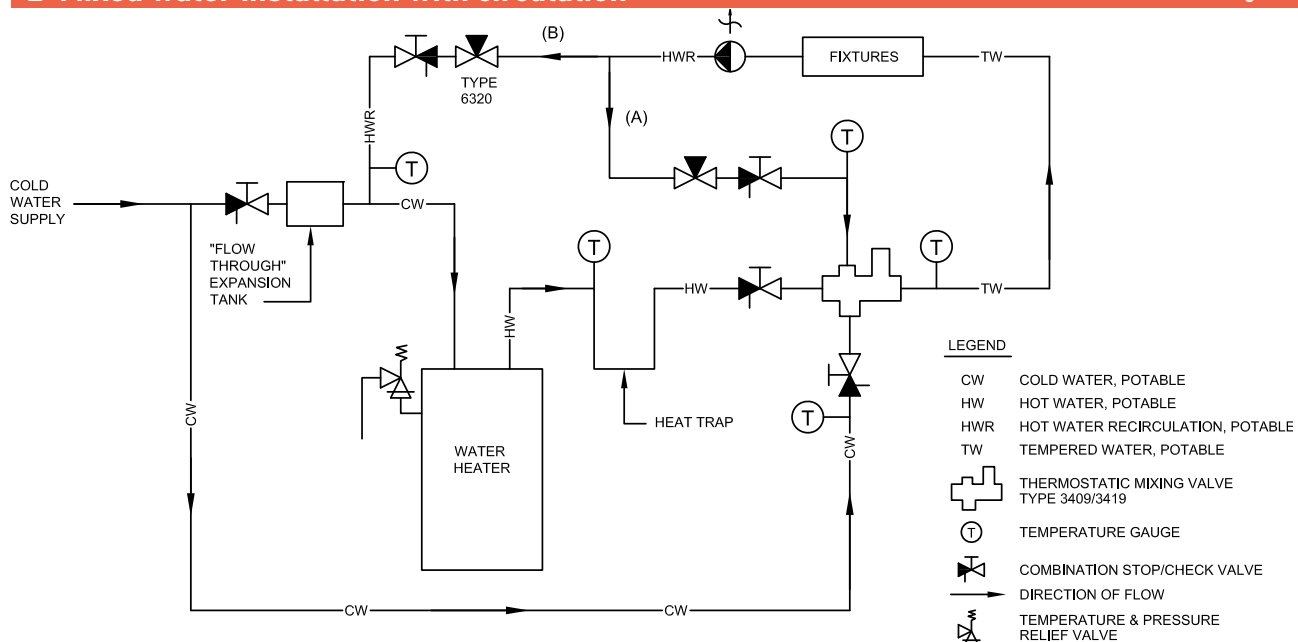
1 Mixed water installation

Observe legend/notes



2 Mixed water installation with circulation

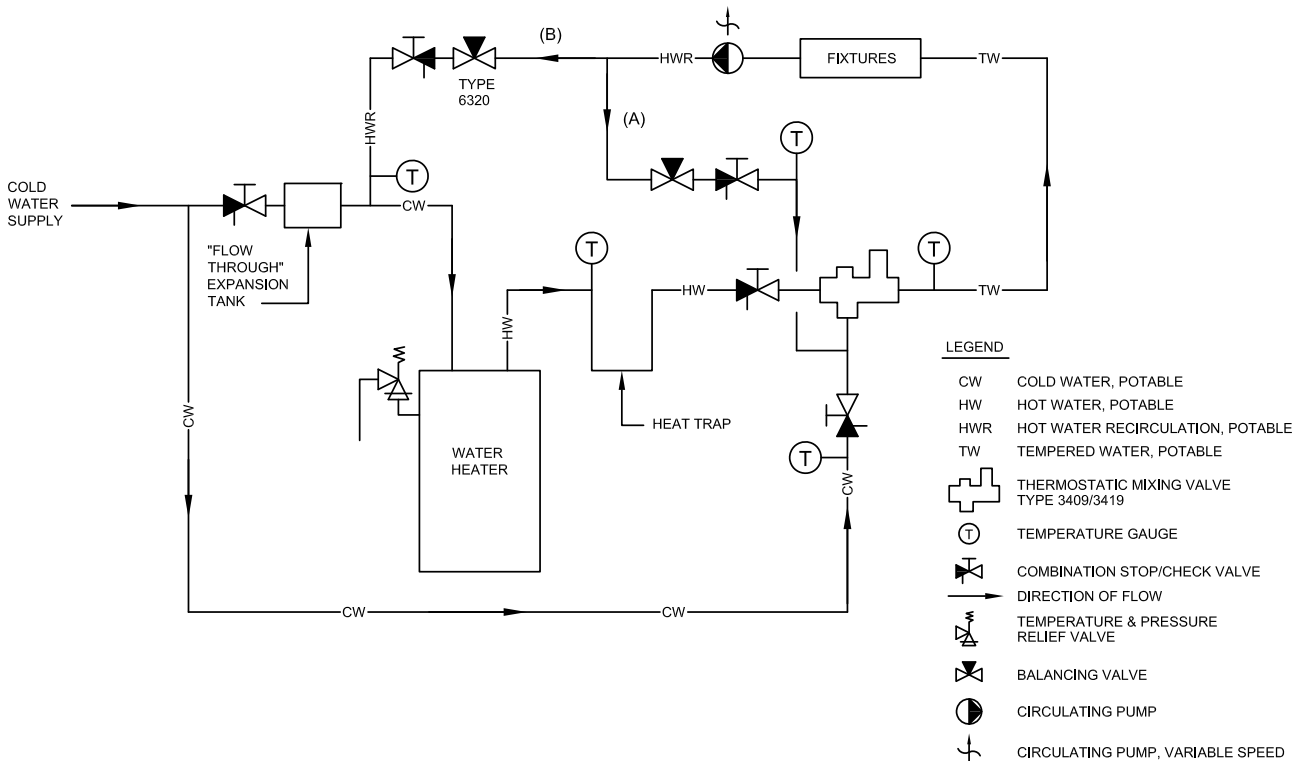
Observe legend/notes



Installation Examples with Type 3409/3419 LF Thermostatic Mixing Valves

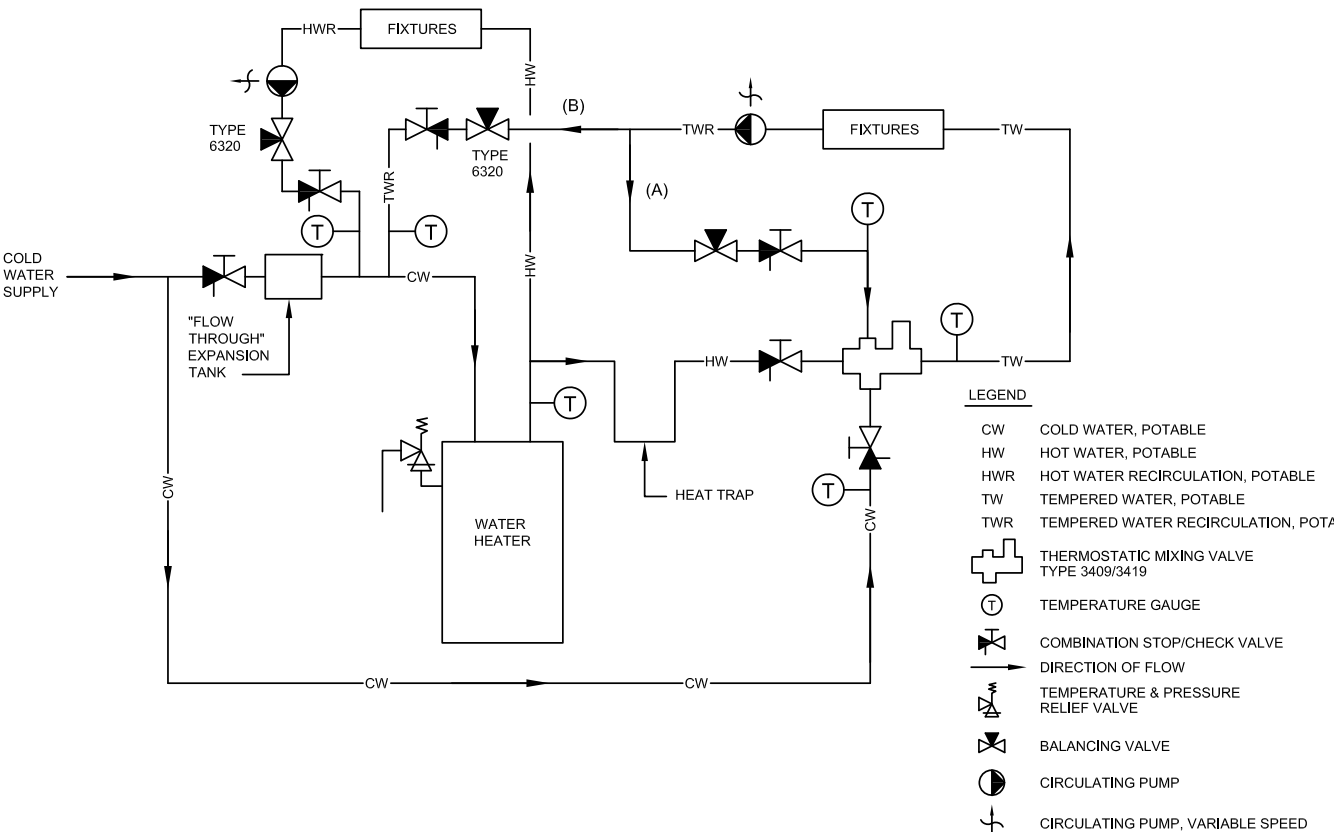
3 Mixed water installation with circulation (Flow path A via cold water inlet of the mixing valve)

Observe legend/notes



4 Mixed water installation with two circuits

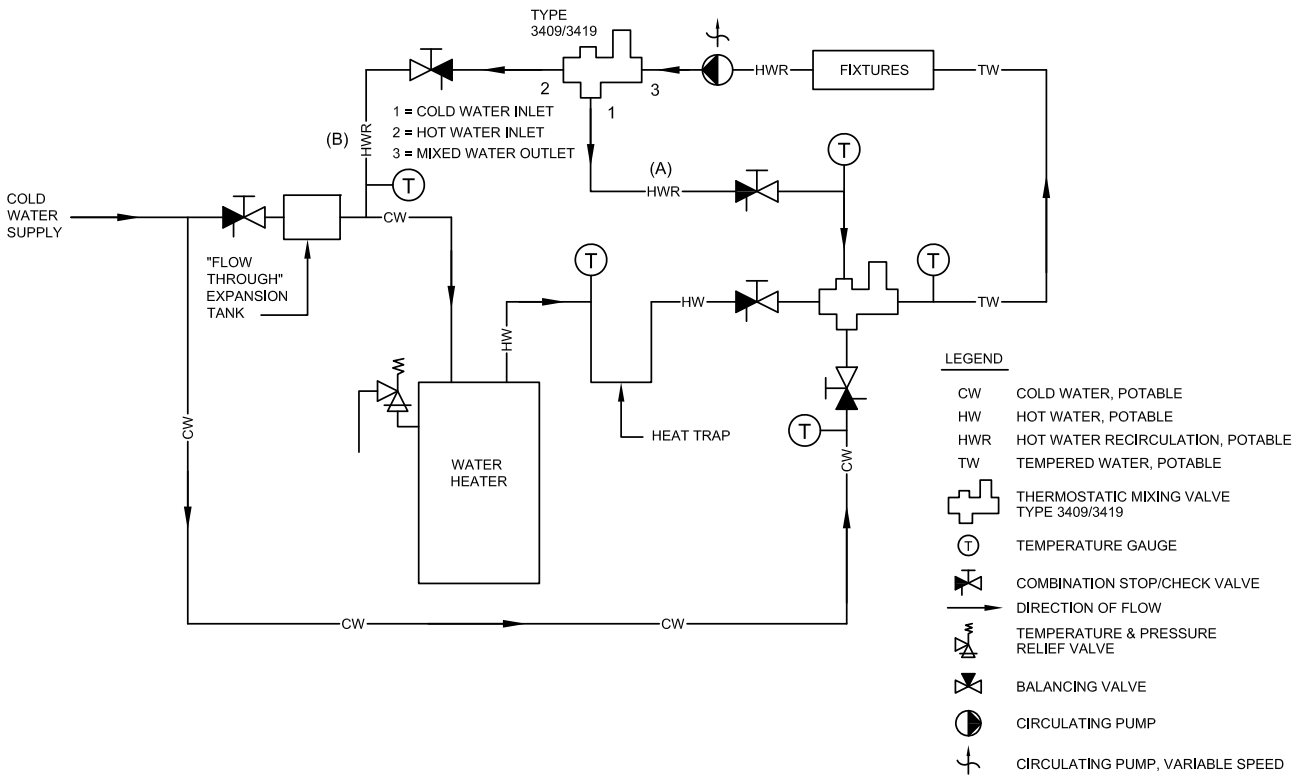
Observe legend/notes



Installation Examples with Type 3409/3419 LF Thermostatic Mixing Valves

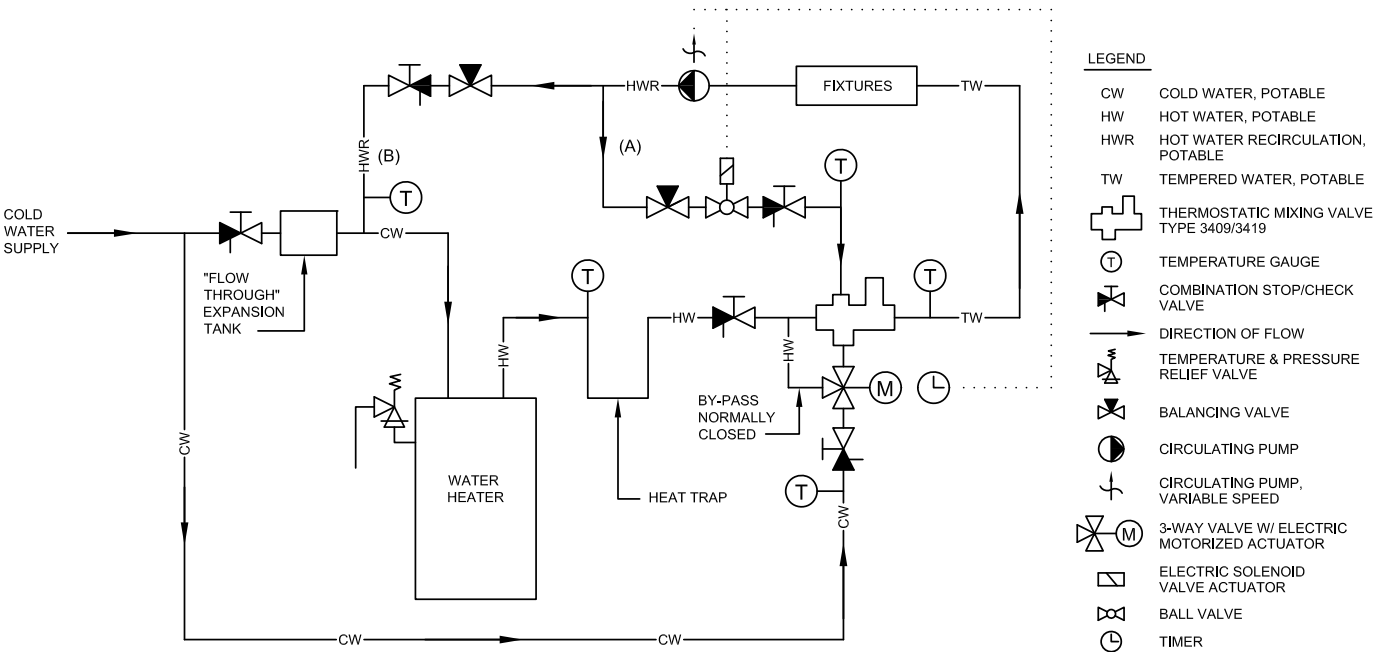
5 Mixed water installation with circulation pipe ≥ ¾"

Observe legend/notes

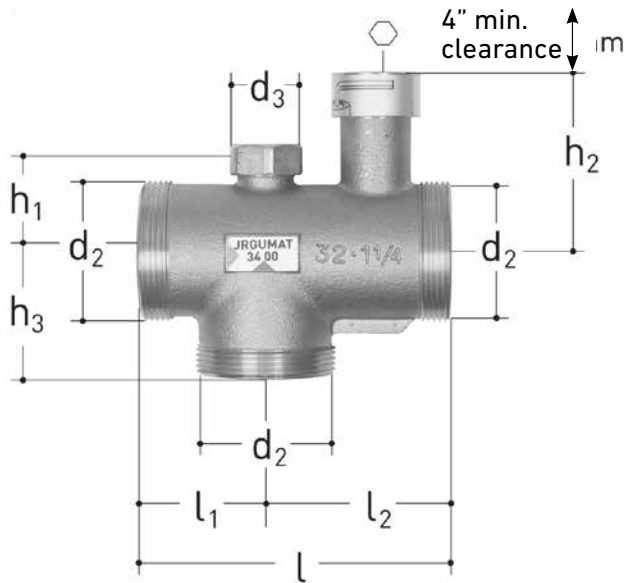


6 Mixed water installation with circulation and thermal disinfection
(Thermal disinfection not possible with Type 6320 unless a bypass is installed)

Observe legend/notes



Type 3409



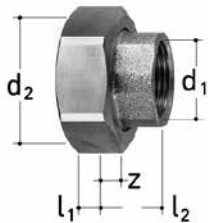
- Unions and end connectors not included
- Maximum hot water supply 194°F
- Adjustable with Allen key
- Cap for circulation connection included
- Mixed hot water temperature output range 113°–149°F*
- Factory outlet set point 131°F*
- Listing ASSE 1017, CSA B125**

* Factory default temperature and adjustment ranges are based on a hot water inlet temperature of 158°F.

** When installed with check valve or combination check/stop on the hot and cold water inlets.

Type 3409 LF thermostatic mixing valve, 150 psi

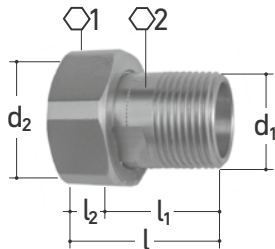
GN (inch)	Part number	Weight (lbs)	d2 G (inch)	d3 (inch)	h1 (inch)	h2 (inch)	h3	l (inch)	l1 (inch)	l2 (inch)	⬡
1	350760368	1.9	1 1/2	3/4	1 27/64	2 1/64	1 11/16	4 21/64	1 2/3	2 41/64	13/64
1 1/4	350760268	3.5	2	3/4	1 29/64	2 61/64	2 3/64	5 1/8	2	3 5/64	5/16
1 1/2	350760168	4.6	2 1/4	3/4	1 31/32	3 1/32	2 9/32	5 29/32	2 2/7	3 5/8	5/16
2	350760068	7.7	2 3/4	3/4	2 23/64	3 11/32	2 3/4	7 3/32	2 3/4	4 21/64	5/16



3409 Union and FNPT End Connector

- Made of low lead brass, with female NPT thread and gasket (3409/3419)
- 3x per valve required

GN (inch)	DN (mm)	Part number	Weight (lbs)	d1 (inch)	d2 (inch)	l1 (inch)	l2 (inch)	z (inch)
1	25	350253466	0.5	1	1 1/2	1 1/16	7/16	25/64
1 1/4	32	350253566	0.9	1 1/4	2	1 17/64	15/32	33/64
1 1/2	40	350253666	1.1	1 1/2	2 1/4	1 11/32	33/64	19/32
2	50	350253766	1.5	2	2 3/4	1 27/64	19/32	15/32

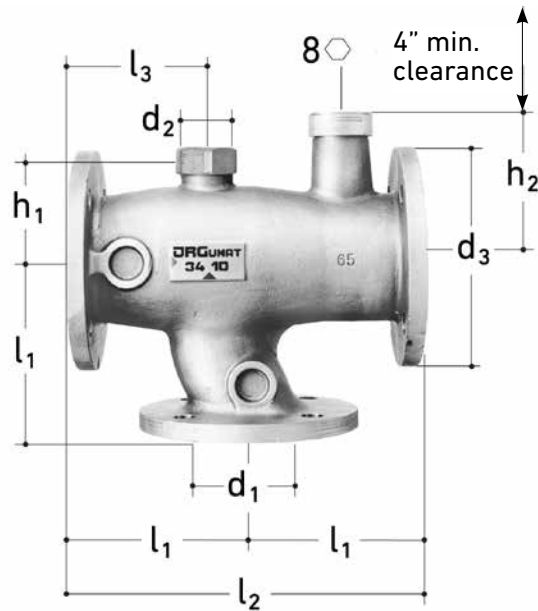


3409 Union with check valve

- Made of brass, with external thread and check valve (PSU) with EPDM seal

GN (inch)	DN (mm)	Part number	Weight (lbs)	d1 (inch)	d2 (inch)	l (inch)	l1 (inch)	l2 (inch)	⬡ 1 (inch)	⬡ 2 (inch)
1/2	—	351056067	0.418	NPT 1/2	G 1	1 49/64	1 33/64	1/4	1 3/16	3/4

Type 3419



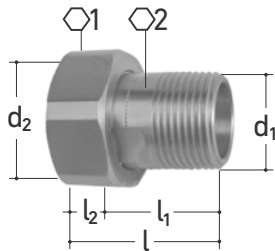
- Bolt hole dimensions same as Class 150 per ANSI B16.5
- Flange according ANSI all round, including three flange gaskets
- Maximum hot water supply 194°F
- Adjustable with Allen key
- Cap for circulation connection included
- Mixed hot water temperature output range 113°–149°F*
- Factory outlet set point 131°F*
- Listing ASSE 1017, CSA B125**

* Factory default temperature and adjustment ranges are based on a hot water inlet temperature of 158°F

** When installed with check valve or combination check/stop on the hot and cold water inlets.

Type 3419 LF thermostatic mixing valve, 150 psi

GN (inch)	Part number	Weight (lbs)	d2 G (inch)	d3 (inch)	h1 (inch)	h2 (inch)	l1 (inch)	l2 (inch)	l3 (inch)	⬡
2½	350767268	49.6	1½	7 ⁹ / ₃₂	3 ¹⁵ / ₆₄	4 ⁴⁹ / ₆₄	5 ⁴⁵ / ₆₄	11 ²⁷ / ₆₄	4 ¹³ / ₃₂	5/16
3	350767468	60.6	2	7 ⁷ / ₈	3 ⁵ / ₈	5	6 ⁷ / ₆₄	12 ¹³ / ₆₄	4 ⁷ / ₈	5/16



3419 Union with check valve

- Made of brass, with external thread and plastic check valve (PSU) with EPDM seal

GN (inch)	DN (mm)	Part number	Weight (lbs)	d1 (inch)	d2 (inch)	l (inch)	l1 (inch)	l2 (inch)	⬡ 1 (inch)	⬡ 2 (inch)
¾	–	351056066	0.286	R ¾	G 1	1 ¹¹ / ₁₆	1 ²⁹ / ₆₄	¼	1 ²⁹ / ₆₄	15/16

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