LEGEND
PLUMBING • INDUSTRIAL • COMMERCIAL • HYDRONICS

T-45NL & T-46NL

THERMOSTATIC MIXING VALVES

Installation Guide

Application

Legend thermostatic mixing valves are designed for applications requiring temperature control, scald prevention and reduction of thermal shock in domestic potable water distribution (Model T-45NL) and radiant heating installations (Model T-46NL). The three-way thermostatic mixing design permits controlled water temperatures to individual or multiple fixtures, gang showers or hydronic heating loops.

Before beginning, check your local code requirements. Select the correct model for your application, as it pertains to at-the-source, individual or multiple fixtures, point-of-use or heating systems applications:

Model T-45NL: Certified in compliance with ASSE 1017, 1069, 1070, and ANSI/NSF 61

Model T-46NL: Certified in compliance with ASSE 1017 and ANSI/NSF 61

CAUTION!

PLEASE READ THESE INSTRUCTIONS BEFORE INSTALLING AND OPERATING!

Note: Both models feature optional union-connection types in MNPT, compression, press-fit, push-fit, PEX barb (F 1807), and sweat:

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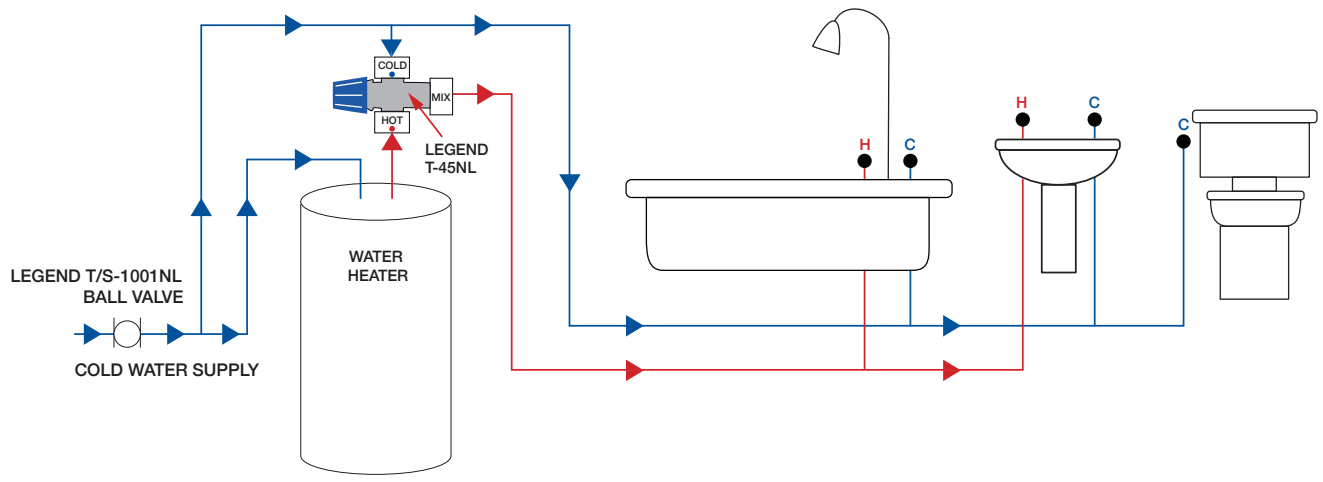
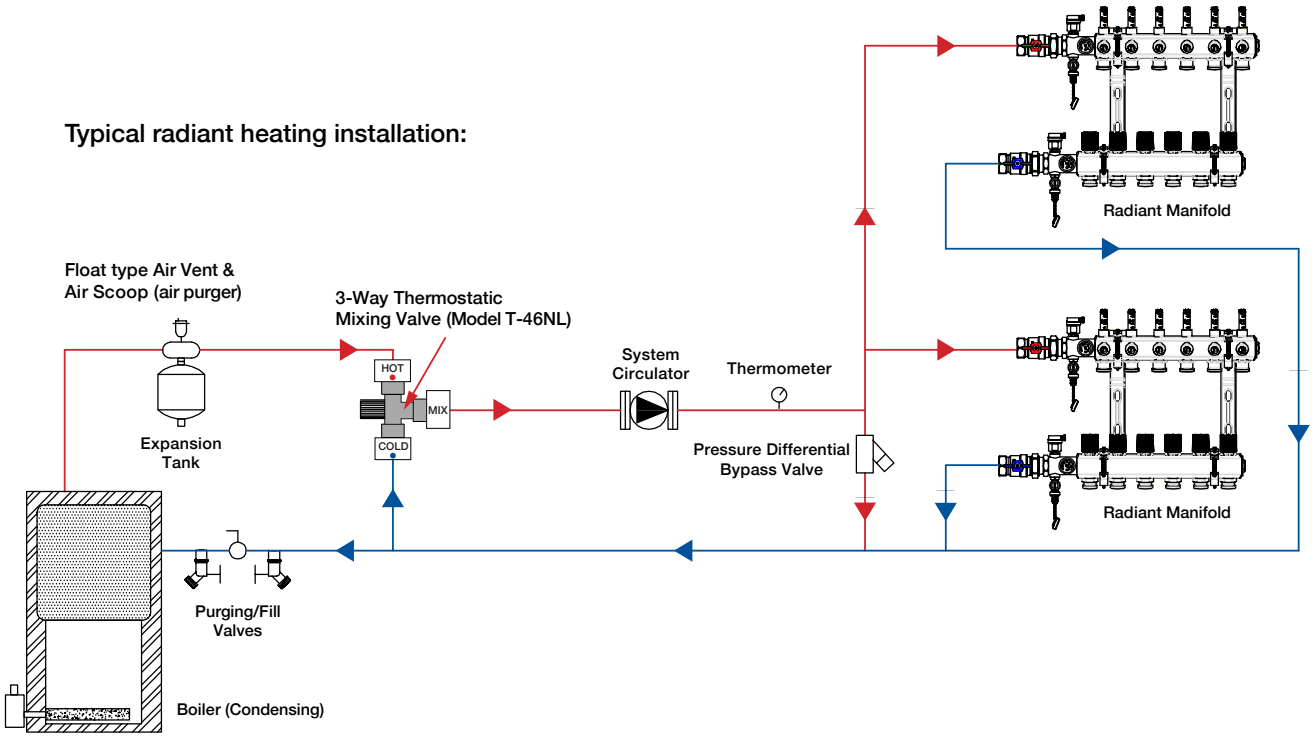
1. Valves must be installed in an accessible location, to permit adjustment, servicing and cleaning procedures. It is strongly recommended that ball valves are installed upstream of the hot and cold inlet connections, to allow for the removal and servicing of the mixing valve:

Typical domestic water distribution installation:



Typical radiant heating installation:



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1. Select the correct connection types to be used, at each of the three connections: HOT inlet, COLD inlet and MIX outlet. Verify that the line lengths are correct, to permit union attachment of the valve's body to each connection:

2. Install the union nuts onto the tubing or pipe first, in the correct orientation. For copper press and PEX crimp (F 1807) connections, install onto the tubing in accordance with the tool manufacturer's instructions. For threaded pipe, copper tubing sweat, compression and Insta-Loc II™ push-fit connections, apply the correct industry installation practice.

Note: Insta-Loc II™ push-fit connections' insertion depths are as follows: ½" tubing: 15/16" ¾" tubing: 1-1/8".

3. Verify that the union gaskets are in-place and install the body onto the three union connections. Tighten the union nuts firmly.

4. Pressurize the system and check for leaks. Leakage at a union connection may occur if the union nut is over-tightened.

Adjustment: T-45NL

All adjustments should be performed by a licensed, qualified contractor. Adjustments must be made while the valve is pressurized.

1. Using the forked tool (included) pry upward, at the base of the setting knob until the brass bonnet is exposed: **(See photos A & B)**

2. Turn the knob **CLOCKWISE** to **INCREASE** the cold water flow to the mixed outlet, **LOWERING** the delivered water temperature. Turn the knob **COUNTER-CLOCKWISE** to **INCREASE** the hot water flow to the mixed outlet, **RAISING** the delivered water temperature. **(See photo C)**

3. Using a thermometer placed in the water flow, verify the mixed water temperature. Adjust the knob until the desired temperature is reached. The factory pre-set temperature is 107.6°F

4. Lock the setting by pushing the setting knob downward until it seats. Verify that the knob is locked into place by attempting to turn it. It should not rotate. **(See photo D)**

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Adjustment: T-46NL

All adjustments should be performed by a licensed, qualified contractor. Adjustments must be made while the valve is pressurized.

1. Using a Phillips-head screwdriver, loosen and remove the screw at the top center of the setting knob. Remove the setting knob. **(See photo E)**

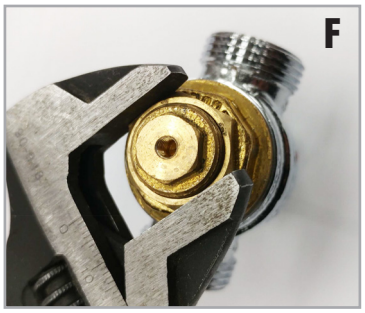
2. Using a 21 MM wrench or adjustable wrench, loosen the stem locknut by turning it counter-clockwise at least one complete revolution. **(See photo F)**

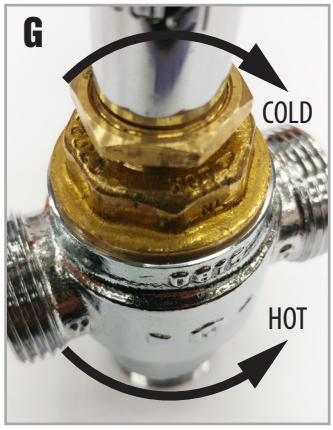
3. Using a 12 MM socket and ratchet, turn the stem **CLOCKWISE** to **INCREASE** the cold water flow to the mixed outlet, **LOWERING** the delivered water temperature.
   Turn the stem **COUNTER-CLOCKWISE** to **INCREASE** the hot water flow to the mixed outlet, **RAISING** the delivered water temperature. **(See photo G)**

4. Using a thermometer placed in the water flow, verify the mixed water temperature. Adjust the stem until the desired temperature is reached. The factory pre-set temperature is 107.6°F

5. Lock the setting by turning the 21 MM stem locknut clockwise, until it's tightened against the bonnet.

6. Replace the setting knob. Tighten the screw.





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Operation

When properly installed, under the correct operating parameters and properly adjusted, both models will operate automatically.

The correct operating parameters must be present:

Factory pre-set: 107.6°F

T-45NL

Temperature adjustment range: 86°F to 120°F
Cold water supply temperature range: 41°F to 68°F
Hot water supply temperature range: 132.8°F to 149°F
Accuracy of mixed water temperature: +/- 3.8°F
Minimum temperature differential between hot supply and MIX outlet: 21.6°F
Supply pressure: Static: 145 psi
Dynamic: 72.5 psi
Maximum allowable imbalance: 2:1 ratio
Minimum flow rate: 0.5 gpm @ 0.8 psi **(see note A)**
Maximum flow rate: 15 gpm @ 125 psi **(see note A)**

T-46NL

Temperature adjustment range: 86°F to 130°F
Cold water supply temperature range: 41°F to 68°F
Hot water supply temperature range: 132.8°F to 149°F
Accuracy of mixed water temperature: +/- 3.8°F
Minimum temperature differential between hot supply and MIX outlet: 21.6°F
Supply pressure: Static: 145 psi
Dynamic: 72.5 psi
Maximum allowable imbalance: 2:1 ratio
Minimum flow rate: 0.5 gpm @ 0.8 psi **(see note A)**
Maximum flow rate: 15 gpm @ 125 psi **(see note A)**

Note A: Should not be used for valve selection or system sizing. The Cv valve listed on the product submittal sheet should be used for valve selection.

Maintenance

Annually inspect the unit for any leakage. Correct as necessary. Annually check the mixed temperature supply. Over time, performance could diminish due to hard water conditions or pipe scale causing binding of the internal piston. Shut off the water supply and remove the unit by loosening and detaching the union ends. Inspect the internal waterways. If they're clogged with debris, it is likely that the unit's piston is binding. Immersion and soaking of the unit in the appropriate de-scaling formula should restore function. **DO NOT DISASSEMBLE** the unit! If after soaking the unit continues to malfunction, **REPLACE** the entire unit.

Questions? Please contact Legend Technical at 800-752-2082