

Installation and Care Guide

Thermostatic Mixing Valve

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Español, página "Español-1"

THE BOLD LOOK
OF **KOHLER**®

1205551-2-D

IMPORTANT INSTRUCTIONS

READ AND SAVE FOR THE CONSUMER



WARNING: Risk of scalding or other severe injury.



WARNING: Cancer and Reproductive Harm –
www.P65Warnings.ca.gov



CAUTION: Risk of scalding hazard. This device has been calibrated at the factory to ensure a safe maximum water temperature. Any variance in settings or water inlet conditions from those used during factory calibration may raise the discharge temperature above the safe limit, and may present a scalding hazard.

- Before completing installation, the installer must set the maximum water temperature setting of this valve to minimize the risks associated with scalding hazards according to ASTM F 444.

The installer is responsible for adjusting the maximum water temperature of this valve according to instructions.

This valve meets or exceeds ASME A112.18.1/CSA B125.1 and ASSE 1016/ASME A112.18.1016/CSA B125.16.

If you do not understand any of the temperature adjustment instructions in this document, in the United States please contact our Customer Care Center at **1-800-4KOHLER**. Outside the U.S., please contact your distributor.

IMPORTANT NOTICE: Please fill in the blanks on the valve label and below, in the NOTICE TO HOMEOWNERS box. Retain this guide for future reference.

- The valve is calibrated to 104°F (40°C) at the first stop position, and the maximum temperature limit stop is positioned so the outlet water temperature does not exceed 120°F (49°C).
- Factory calibrated inlet conditions are:
Hot and cold water pressure = 43.5 psi (300 kPa)
Hot water supply temperature = 149°F (65°C)
Cold water supply temperature = 59°F (15°C)

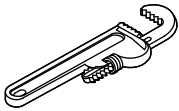
IMPORTANT INSTRUCTIONS (cont.)

- If inlet conditions differ from those used during factory calibration, it may be necessary to re-calibrate the valve after installation. **The installer must check the mixed flow temperature after installation, and adjust the valve as needed according to the instructions.**

NOTICE TO HOMEOWNERS! This device has been preset by _____ of _____ to ensure a safe maximum temperature. Any change in the setting may raise the discharge temperature above the limit considered safe, and lead to scalds.

Date: _____

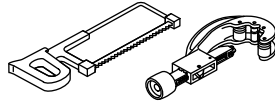
Tools and Materials



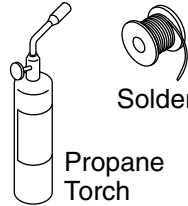
Pipe Wrench



Adjustable Wrench

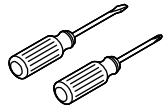


Hacksaw or Tubing Cutter



Propane Torch

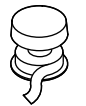
Solder



Assorted Screwdrivers



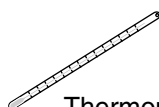
Strap Wrench



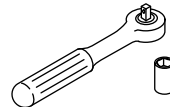
Thread Sealant



10 mm Hex Wrench



Thermometer



Wrench and 1/2" (13 mm) Hex Socket

Before You Begin



WARNING: Risk of scalding. High water temperature can cause severe burns. Set the water temperature at or below 120°F (49°C) following the adjustment procedure.



WARNING: Risk of scalding or other severe injury. Before completing this installation, adjust the maximum water temperature setting of this valve to minimize the risks associated with scalding hazards, according to ASTM F 444.



CAUTION: Risk of personal injury. If the water temperature is set too high, scalding will occur. The water temperature should never be set above 120°F (49°C).

Before You Begin (cont.)



CAUTION: Risk of scalding or other severe injury. This device has been calibrated at the factory to ensure a safe maximum water temperature. Any variance in settings or water inlet conditions from those used during factory calibration may raise the discharge temperature above the safe limit, and may present a scalding hazard. Responsibility for installation and adjustment of this device in accordance with these instructions is with the installer.

NOTICE: Risk of product damage. This valve contains plastic and rubber components. Do not sweat or braze directly to the valve body. Do not apply excessive heat to the valve body when you make solder connections. Do not apply flux or acids directly to the valve, as damage to the seals, plastic components, and trim finish may result.

NOTICE: Risk of product damage. Do not apply petroleum-based lubricants to the valve components, as damage may result.

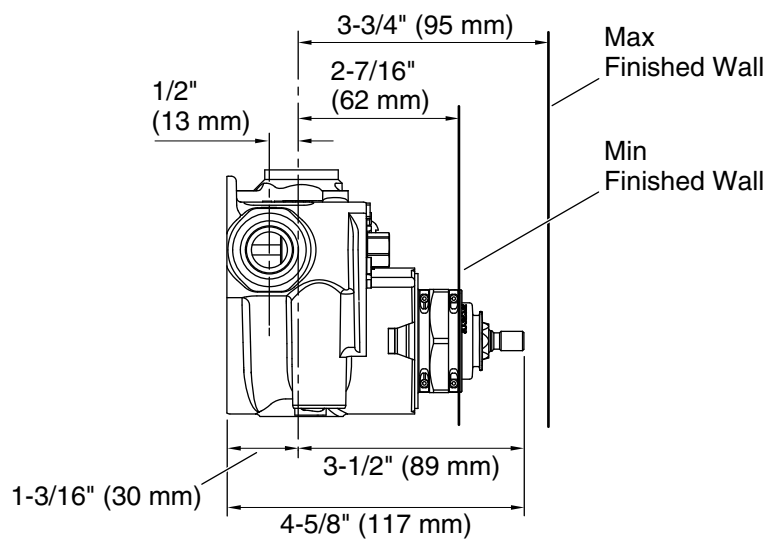
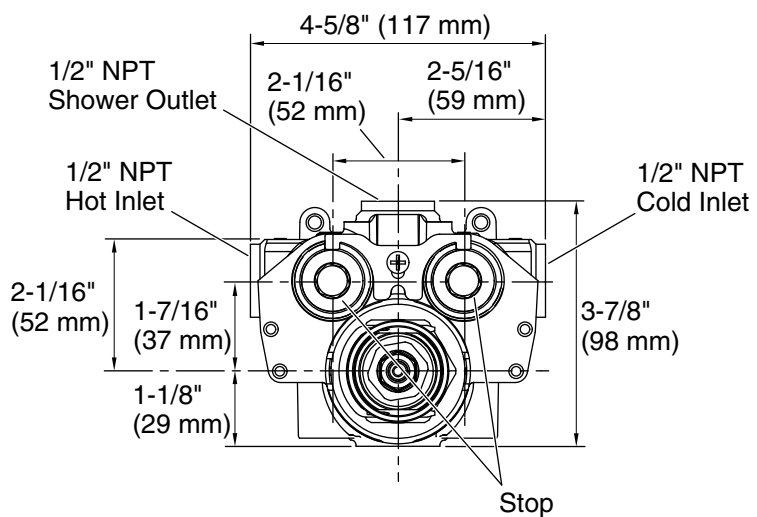
NOTICE: Risk of product damage. Inlet and outlet threaded joint connections should be made with plumbers PTFE tape or liquid sealant. Oil-based, non-setting compounds should not be used.

NOTICE: Do not force the handle in any direction. Forcing the handle will damage the valve.

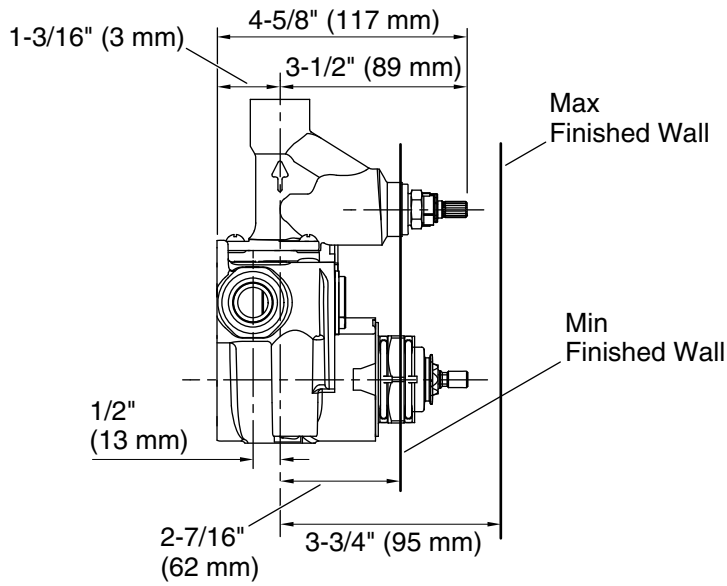
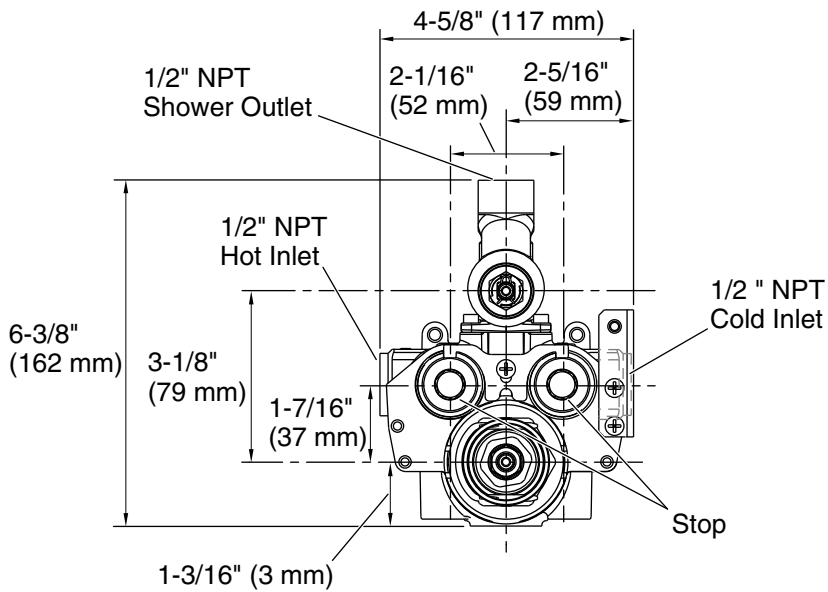
- Observe all local plumbing and building codes.
- Shut off the water supply.
- Inspect the supply piping for damage. Replace as necessary.
- The bottom port of the thermostatic mixing valve is intended for use as a bath filler only. If a bath spout is not used with this product, cap the bottom port.
- The K-2972 and K-2975 thermostatic mixing valves do not contain an integral volume control/shut-off valve. You must install a separate volume control/shut-off valve (K-2974 or K-2977) downstream of any used valve outlet.
- The K-2973 and K-2976 thermostatic mixing valves contain a single volume control/shut-off valve for controlling the water flow through the shower outlet. When plumbing to the valve's bath outlet, you must install a separate volume control shut-off valve (K-2974 or K-2977) downstream from the bath outlet.

Before You Begin (cont.)

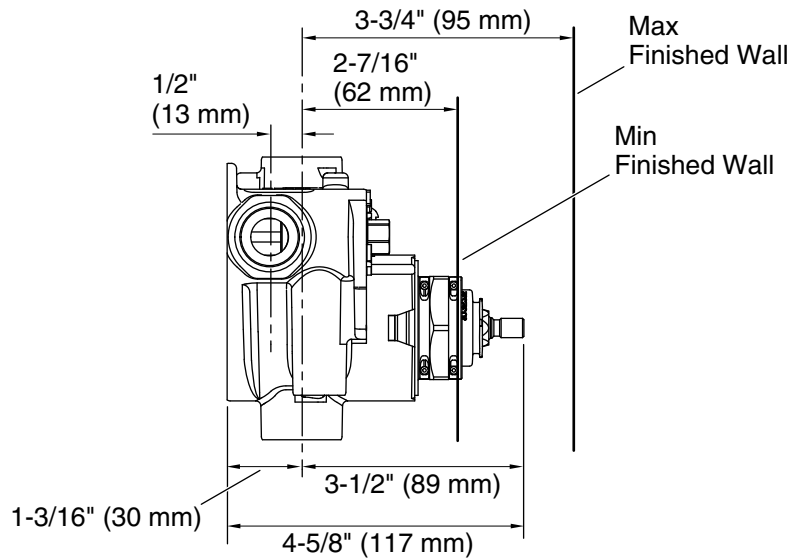
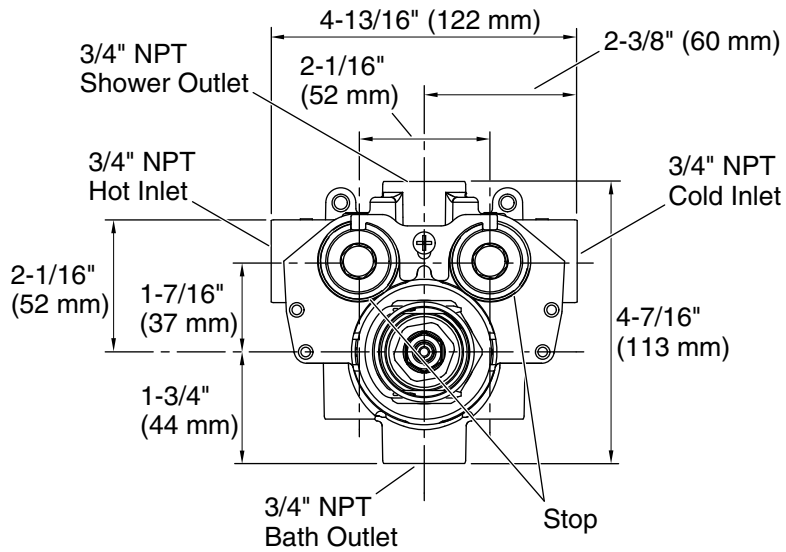
- The thermostatic mixing valves do not have an integral aspirator. For installations that use a bath diverter spout, you must install a twin ell (K-9663) with integral aspirator between the valve and the bath spout. If these thermostatic mixing valves are installed without an aspirator, it will cause water to flow from the shower and bath spout at the same time.
- Determine the correct drain size and capacity for your installation. If two thermostatic mixing valves are used together, water volumes between 18 and 30 gal/min (60 and 114 l/min) or more are possible, depending upon the water supply pressure.
- Determine the correct water heater size and capacity for your installation. A typical shower installation uses an approximate mix of 75% hot water and 25% cold. A custom shower application using three 2.5 gal/min (9.5 l/min) showerheads can use about 45 gallons (170 liters) of hot water in 8 minutes. Choose a water heater large enough for your installation.
- The valve is calibrated to 104°F (40°C) at the first stop position. The maximum temperature limit stop is positioned so the outlet water temperature does not exceed 120°F (49°C).
- The factory calibrated pressure for hot and cold water inlets is 43.5 psi (300 kPa). The factory calibrated hot water supply temperature is 149°F (65°C) and the cold water supply temperature is 59°F (15°C).
- If the inlet conditions differ from those used during factory calibration, it may be necessary to re-calibrate the valve after installation. **The installer must check the mixed flow temperature after installation and adjust the valve as needed according to the instructions.**
- If possible, flush all piping thoroughly before installing the valves to prevent early clogging of filter screens.



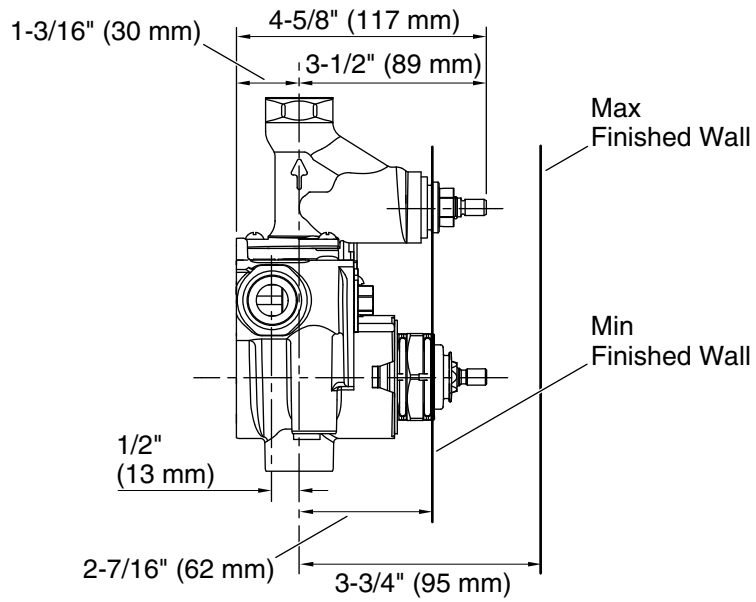
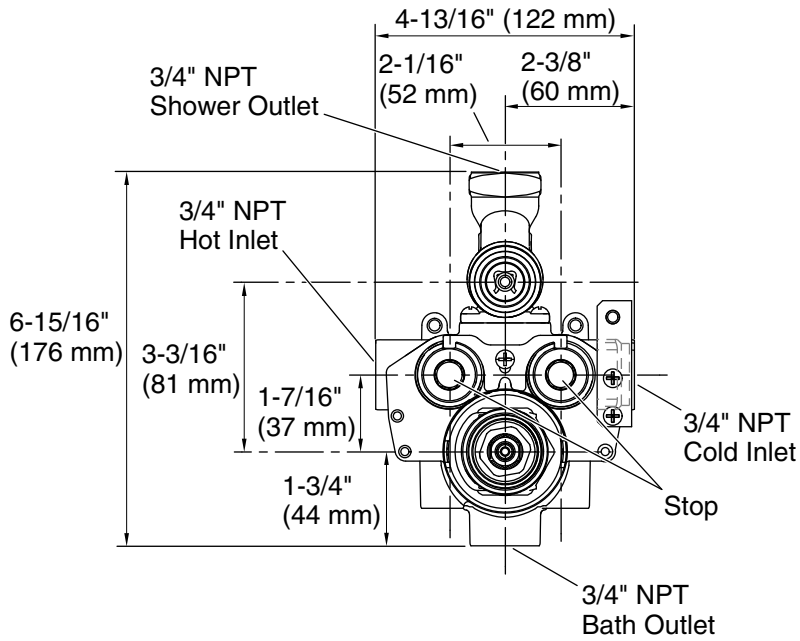
K-2972 - 1/2" Valve Roughing-In



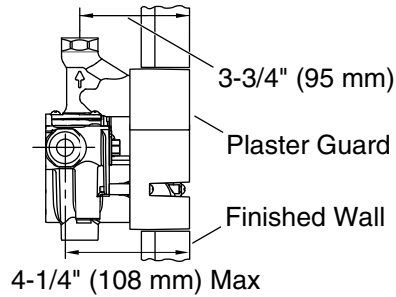
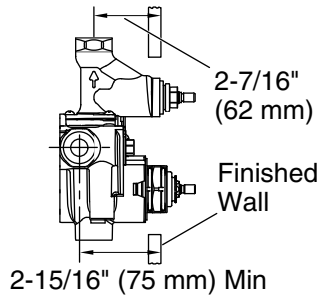
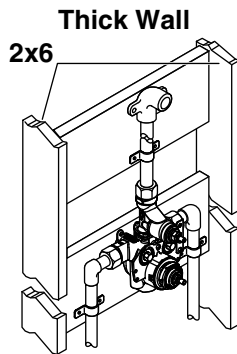
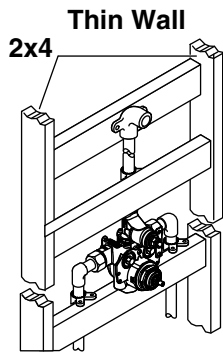
K-2973 - 1/2" Valve Roughing-In



K-2975 - 3/4" Valve Roughing-In



K-2976 - 3/4" Valve Roughing-In



1. Install the Support Framing

IMPORTANT! Make sure the valve is mounted at the correct depth so it will be properly positioned when the finished wall is installed.

NOTE: Shower only configuration is shown. Adjust the support as needed for other configurations.

NOTE: Install a backer board behind the valve for installations on 2x6 studding only.

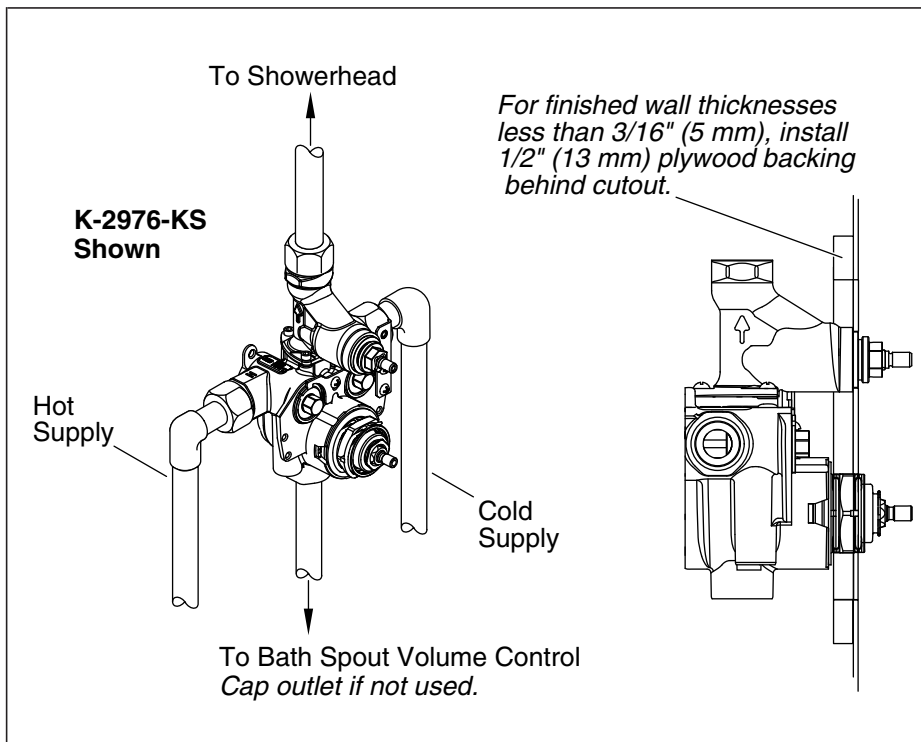
NOTE: A backer board may not fit behind the valve for installations on 2x4 studding. Support the pipes directly above and/or below the valve. This will also provide support for the valve.

NOTE: When installing the K-2972 or K-2973 valve, use 1/2" nominal copper tubing and fittings throughout this installation. Smaller diameter piping upstream or downstream of the valve will reduce performance of the valve.

Install the Support Framing (cont.)

NOTE: When installing the K-2975 or K-2976 valve, use 3/4" nominal copper tubing and fittings throughout this installation. Smaller diameter piping upstream or downstream of the valve will reduce performance of the valve.

- Determine the desired location for the valve according to the roughing-in information, and construct suitable stud and support framing for your configuration and valve.
- If the finished wall is drywall, 1/2" (13 mm) drywall or thicker should be used or the finished wall will not be strong enough.
- Determine the finished wall thickness. The finished wall should not extend beyond the outside edge of the plaster guard. The valve can be mounted with the plaster guard flush with the finished wall for maximum wall thickness. If the plaster guard is recessed, the finished wall is too thick. Refer to the diagram above.
- Install water hammer arrestors in the hot and cold water supply lines.
- Determine the desired location for the valve according to the roughing-in information, and construct suitable stud and support framing.



2. Install the Valve

NOTICE: Risk of product damage. This valve contains plastic and rubber components. Do not sweat or braze directly to the valve body. Do not apply excessive heat to the valve body when you make solder connections. Do not apply flux or acids directly to the valve, as damage to the seals, plastic components, and trim finish may result.

NOTICE: Risk of product damage. Do not apply petroleum-based lubricants to the valve components, as damage may result.

NOTICE: Risk of product damage. Inlet and outlet threaded joint connections should be made with plumbers PTFE tape or liquid sealant. Oil-based, non-setting compounds should not be used.

NOTE: A plaster guard is attached to the face of the mixing valve. Do not remove it until instructed.

- Flush the hot and cold water supply lines to remove any debris.
- Use thread sealant and connect the hot and cold water supply lines to the valve inlet ports. Ensure that the corresponding water supply lines are connected to the correct inlet ports.

Install the Valve (cont.)

NOTE: If the existing hot and cold plumbing makes this configuration inconvenient or if it is advantageous to reverse the hot and cold ports (such as back-to-back installations), see the "Reverse the Inlet Supplies" section.

- For K-2973 and K-2976 valves, make certain that the integral volume control/shut-off valve portion of the assembly is on top when installed.
- Connect the water outlet lines to the valve ports. Plug any unused outlet port.

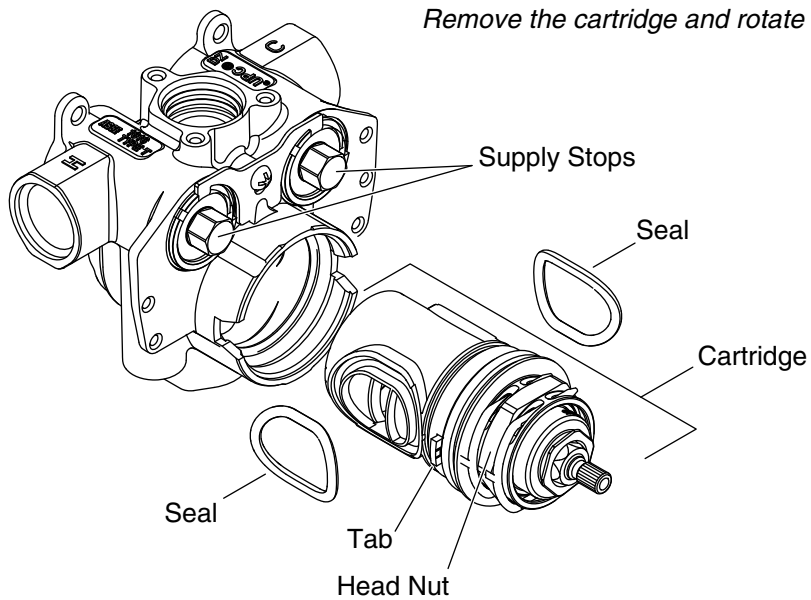
IMPORTANT! Secure the piping to the framing.

NOTE: When using the plaster guard to trace the cut-out, the tick marks located outside of the guard will assist you in identifying the spline centers.

- Use the plaster guard to determine the depth of the valve in the wall, and to trace the cut-out line in the wall material.

NOTE: The finished wall must be within the MIN-MAX depth shown on trim adapters 1, 2, and 3 of the plaster guard.

- Turn on the water supply lines to the valves.
- Run water through the mixing valve, all showers, and the spout.
- Remove the plaster guard to access and inspect the valve.



3. Reverse the Inlet Supplies

IMPORTANT! The steps in this section are optional. Only perform these steps when the hot and cold inlet supplies are reversed.

The inlet connections are indicated on the inlet ports of the thermostatic valve assembly. Left is HOT and right is COLD. If this configuration is not suitable for your installation, the cartridge may be rotated 180° to reverse the hot and cold inlet ports.

NOTE: DO NOT pull the removal clip from the cartridge assembly at any time during this procedure. The retaining clip helps hold the temperature limit stop and detent components in place and reduces or eliminates the need for temperature adjustments.

With the valve already installed and pressurized:

- Turn both integral supply stops 90° counterclockwise until they contact the stop bracket.
- Turn the volume control valve stem (not shown) fully clockwise to release the pressure.
- Slowly loosen the head nut, turning it counterclockwise. This will begin to draw the cartridge out of the valve body.

Reverse the Inlet Supplies (cont.)

NOTE: Some water may be released. Use a bucket and towels to contain the water.

- Pull the head nut with the cartridge out of the valve body.

NOTE: Two seals may fall out when the cartridge is removed. Set the seals aside.

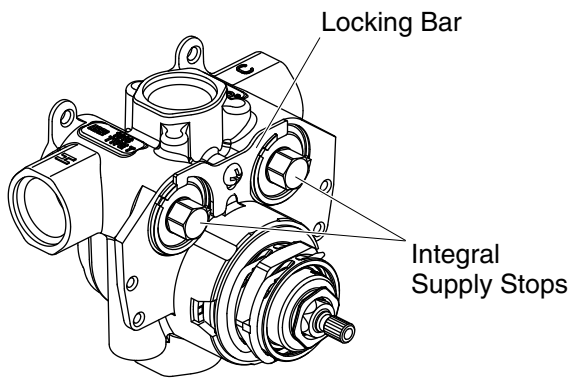
- Rotate the cartridge 180°.
- Verify the cold cartridge inlet is on the left when the valve stem adapter is facing you.

NOTE: The hot and cold cartridge inlets are identified on the top and sides of the cartridge tabs. The tabs are labeled "H" and "C" to identify hot and cold.

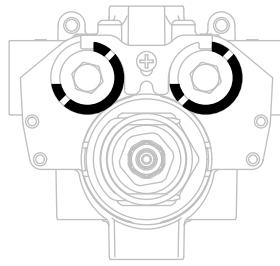
TIP: Rotating the cartridge back and forth or installing with a push-pull motion will reduce the possibility of pinching the side seals.

- Reinstall the seals onto each side of the cartridge.
- Carefully push the cartridge back into the valve body. Make sure both cartridge tabs are properly seated inside the cartridge slots of the valve body.
- Handtighten the head nut onto the valve body. **Do not overtighten.**
- Return the integral supply stops back to their original position.
- Make note of reversed inlet supplies on the valve for future servicing.

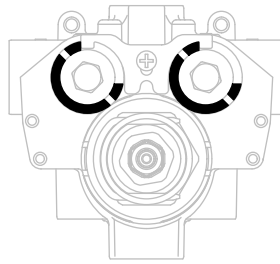
Turn integral supply stops 90°
for OPEN/CLOSE.



Supplies Closed



Supplies Open



Integral Supply Stop Operation

NOTE: Use a socket wrench with 1/2" (13 mm) socket to adjust the stops.

Turn Off the Stops

- Use a socket wrench to turn the integral stops 90° counterclockwise to close both the hot and cold water inlet supplies.

NOTE: If the inner body turns, but the outer ring does not turn, firmly tighten (clockwise) the integral stop. Then rotate counterclockwise. The outer ring should then turn with the integral stop.

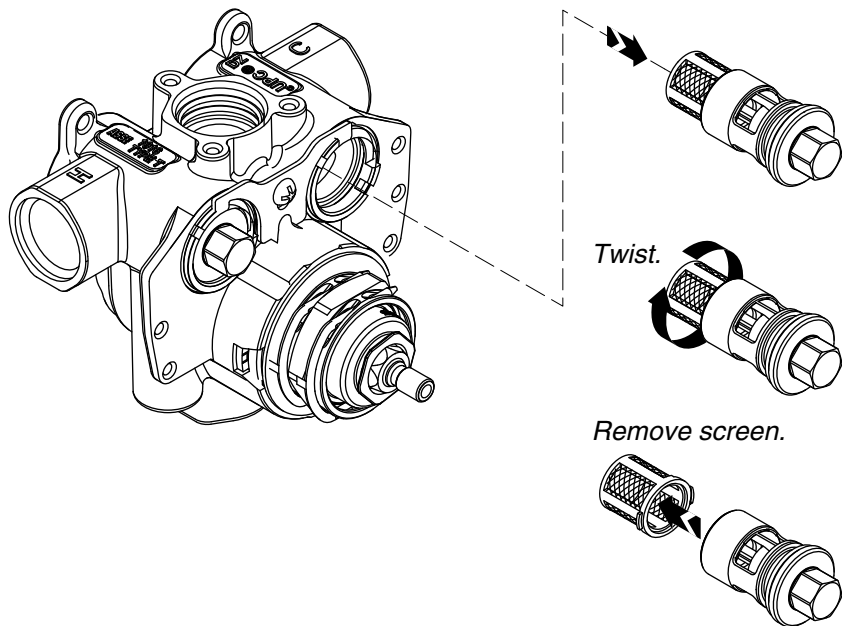
NOTE: If the outer ring still does not turn, slide the locking bar up by loosening the screw. Free the integral stops by turning them clockwise and then turn them back to their original position. Slide the locking bar back in place and secure with the screw.

- Confirm the stops are closed using the diagram above.
- Turn the volume control counterclockwise to release excess water (not shown).

Integral Supply Stop Operation (cont.)

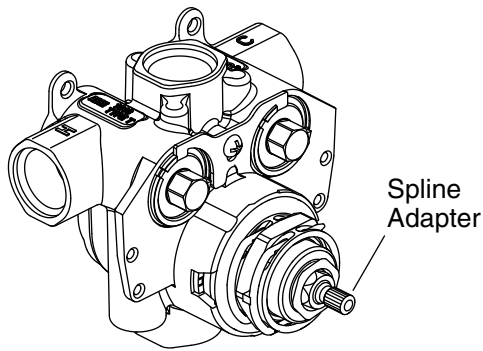
- The cartridge or check valves may now be removed for servicing or replacement.

NOTE: Keep a rag handy to catch excess water that will gradually drain when the valve cartridge is removed.

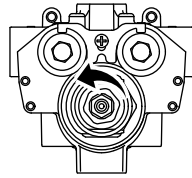


Servicing the Filters

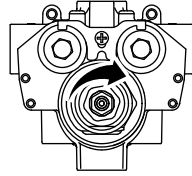
- Remove the trim.
- Close both stops following the instructions in the previous section.
- Use a socket wrench with 1/2" (13 mm) socket to remove the stop assembly (hot is left side, cold is right side).
- Remove the screen assembly by turning and pulling from the check valve body.
- Clean or replace the screen assembly as needed.
- Clean or replace the check valve body as needed.
- Reinstall the screen assembly to the check valve body by pushing in and turning 90°.
- Reinstall the check valve body by turning clockwise until it drives the stop body open.
- Open the supply stops and check for leaks.
- Reinstall the trim.



Increase Temperature



Decrease Temperature



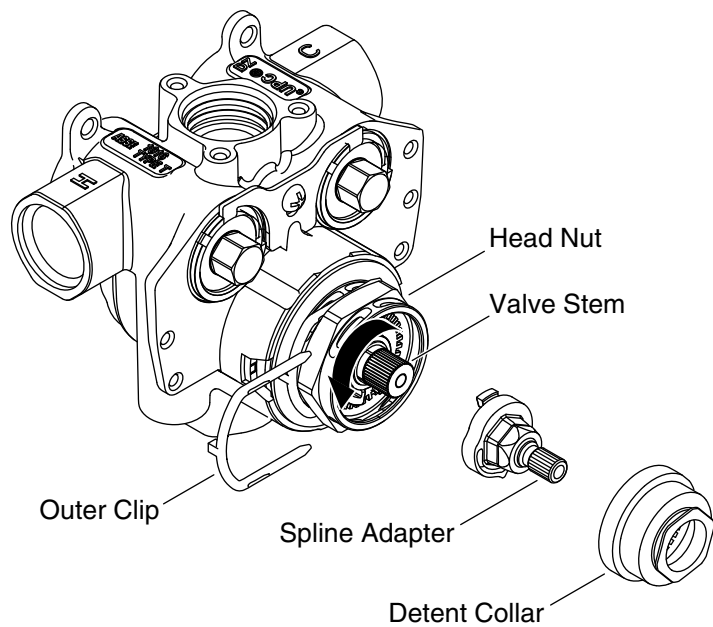
Check the Temperature Setting

NOTE: The thermostatic valve cartridge is calibrated at the factory for a shower temperature of approximately 104°F (40°C) to 105°F (41°C) and a maximum hot temperature of 120°F (49°C).

- Turn the water on.
- Attach a trim handle or plaster guard (found in volume control valve K-2974 or K-2977 or transfer valve K-728) onto the valve spline adapter.
- Turn the spline adapter fully counterclockwise so the trim handle or plaster guard can no longer move. The spline adapter is now in the full hot position.
- Allow the water to run for several minutes to stabilize the water supply temperatures.
- Position a thermometer in the water stream to check the temperature of the hot water.
- If the water temperature exceeds 120°F (49°C) or is less than desired, proceed to the "Adjust the Hot Temperature Limit" section.
- Turn the trim handle or plaster guard clockwise until you hear a click. Do not turn any further. This is the shower temperature position.
- Remove the trim handle or plaster guard from the valve spline adapter.

Check the Temperature Setting (cont.)

- Position a thermometer in the water stream to check the shower temperature.
- If the water temperature is less than 104°F (40°C) to 105°F (41°C) or is more than desired, proceed to the "Adjust the Shower Temperature" section.
- If both settings are correct, fill out the "NOTICE TO HOMEOWNERS" section in the beginning of this document.

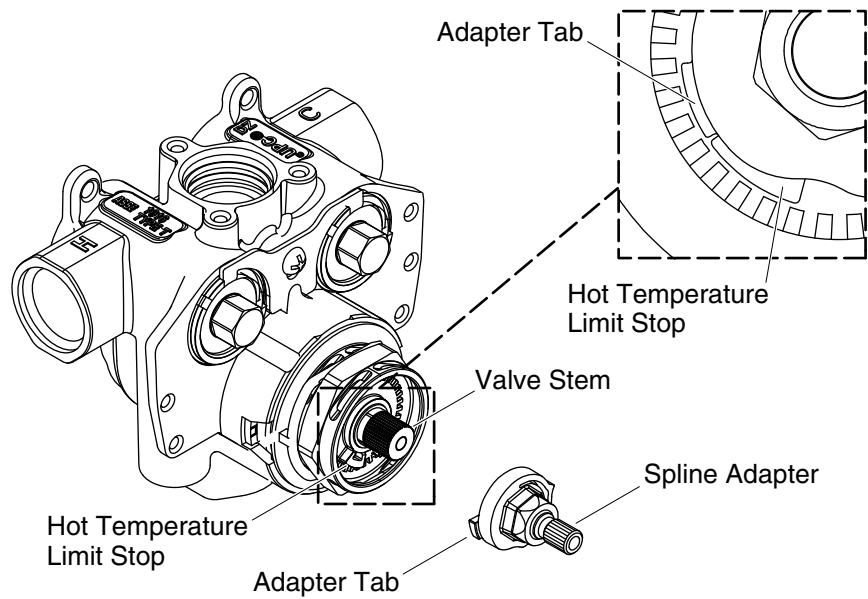


Adjust the Hot Temperature Limit

- Remove the outer clip from the head nut.
- Remove the detent collar.
- Remove the spline adapter.

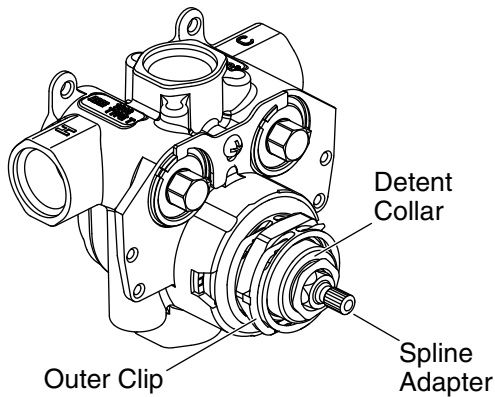
NOTE: Keep the detent collar off while making adjustments.

- Turn the valve stem fully counterclockwise.
- Using the volume control valve (not shown), turn on the water.
- Allow the water to flow for several minutes until the water temperature stabilizes.

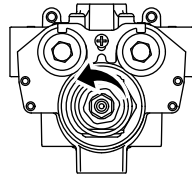


Adjust the Hot Temperature Limit (cont.)

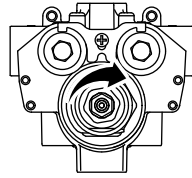
- Using a thermometer, check the temperature of the water.
- Turn the valve stem clockwise until the water temperature reaches 120°F (49°C).
- Reinstall the spline adapter with the adapter tab positioned flush with the hot temperature limit stop on the cartridge.
- Using the volume control valve (not shown), turn off the water.



Increase Temperature



Decrease Temperature



Adjust the Shower Temperature

- **If the detent collar is installed:** Remove the outer clip and disengage the detent collar from the teeth of the cartridge. Do not remove the collar; allow it to hang from the cartridge.
- **If the detent collar is not installed:** Loosely position the detent collar over the cartridge, ensuring the collar does not engage the cartridge teeth.
- Place the trim handle (not shown) or plaster guard (not shown) onto the valve spline adapter.
- Turn the spline adapter fully counterclockwise so the trim handle or plaster guard can no longer move. The spline adapter is now in the full hot position.
- Remove the trim handle or plaster guard from the valve spline adapter.
- Using the volume control valve (not shown), turn on the water.
- Allow the water to flow for several minutes until the water temperature stabilizes.
- Hold a thermometer in the water stream to check the water temperature.
- Once the water temperature reaches the set hot temperature limit (section "Adjust the Hot Temperature Limit") begin slowly rotating the detent collar and spline adapter clockwise.

Adjust the Shower Temperature (cont.)

NOTE: While rotating the detent collar, small in-and-out adjustments will be required to ensure the collar does not engage the cartridge teeth. Use the detent collar to rotate the spline adapter.

- While rotating the collar and spline adapter, monitor the water outlet temperature.
- When the temperature reaches 104-105°F (40-40.5°C), push the detent collar in until it engages the teeth of the cartridge.
- With the clip tab positioned toward the valve, reinstall the clip to the head nut.
- Using the volume control valve (not shown), turn off the water.

Troubleshooting

NOTICE: This section is for general aid only. For warranty service, call 1-800-4KOHLER from within the USA and Canada, or 001-800-456-4537 from within Mexico.

For service parts information, visit your product page at kohler.com/serviceparts.

Symptoms	Probable Cause/Recommended Action
1. Only hot or cold water from the water outlet.	A. Inlet supplies are reversed. See "Reverse the Inlet Supplies" section. B. Check filter screens for blockage. Clear if necessary.
2. Fluctuating or reduced flow rate.	A. External condition variation such as reduced pressure. B. Check filter screens for blockage. Clear if necessary. C. Make sure that the minimum flow rate is sufficient for supply conditions. D. Make sure that dynamic inlet pressures are nominally balanced and sufficient. E. Make sure that inlet temperature differentials are sufficient. F. Service stops are not fully opened. Rotate both service stops clockwise until fully open. G. Check thermostatic performance; replace the thermostatic cartridge, if necessary.

Troubleshooting (cont.)	
Symptoms	Probable Cause/Recommended Action
3. No flow from shower control water outlet.	<p>A. Filter screens are blocked. Clear filter screens.</p> <p>B. Hot or cold supply failure. Replace the supply valve.</p> <p>C. Flow control cartridge not working. Check and replace if necessary.</p> <p>D. Service stops are shut off. Rotate both service stops clockwise until fully open.</p>
4. Blend temperature drift.	<p>A. Indicates operating conditions have changed. No action is needed.</p> <p>B. Refer to symptom 2.</p> <p>C. Hot supply temperature fluctuation.</p> <p>D. Supply pressure fluctuation.</p>
5. Hot water in cold supply or cold water in hot supply.	<p>A. Indicates crossflow. Replace check valve.</p>
6. Maximum blend temperature setting too hot or too cold.	<p>A. Indicates incorrect maximum temperature setting; refer to the "Adjust the Hot Temperature Limit" section.</p> <p>B. Refer to symptom 4.</p> <p>C. Refer to symptom 5.</p>
7. Water leaking from the valve body.	<p>A. Seal(s) worn or damaged. Obtain service kit and replace seal(s).</p> <p>B. If leaking from around the temperature spindle, replace the thermostatic cartridge.</p>
8. Flow knob or temperature knob is stiff to operate.	<p>A. Impaired free movement of internal components. Replace the appropriate cartridge.</p> <p>B. Supply pressures are too high. Fit pressure reducing valve.</p>
Warranty	
KOHLER® Faucet Lifetime Limited Warranty	
<p>Kohler Co. warrants its Faucets* manufactured after January 1, 1997, to be leak and drip free during normal residential use for as long as the original consumer purchaser owns his or her home. If the Faucet should leak or drip during normal use, Kohler Co. will, free of charge, mail to the purchaser the cartridge necessary to put the Faucet in good working condition. This warranty applies only to Kohler Faucets</p>	