

Installation and Care Guide

Digital Thermostatic Valve for DTV+

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THE BOLD LOOK
OF **KOHLER**®

IMPORTANT INSTRUCTIONS



WARNING: When using electrical products, basic precautions should always be followed, including the following:



WARNING: Risk of electric shock. A qualified electrician should route all electrical wiring.



WARNING: Risk of electric shock. Disconnect power before servicing.



WARNING: Unauthorized modification may cause poor performance of the valve. Do not make modifications to the valve as this could adversely affect the performance of the valve and void the warranty. Kohler Co. shall not be liable under its warranty or otherwise for personal injury or damage caused by any such unauthorized modification.



DANGER: Risk of injury or property damage. If the power cord gets damaged, it must be replaced by the manufacturer, its authorized service agent, or qualified personnel to avoid danger.



WARNING: Risk of injury. This device is not intended for use by persons (including children) with different or reduced physical, sensory, or mental abilities, or who lack experience or knowledge, unless they are under the supervision of or receive training for the use of the device by a person responsible for their safety. Children should be under supervision to ensure that they do not use devices as toys.



WARNING: Risk of injury or property damage. Please read all instructions thoroughly before beginning installation.

NOTICE: Follow all plumbing, electrical, and building codes.

NOTICE: Some electrical codes require a circuit protected by a GFCI*.

NOTICE: For K-557-K1: If a GFCI outlet is required, connect only one valve per outlet.

NOTICE: Provide unrestricted service access to the valve.

NOTICE: The minimum flow rate of this valve is 1.6 gal/min (6 l/min).

*Outside North America, this device may be known as a Residual Current Device (RCD).

Operation with DTV+

- To connect the valve to the DTV+ system, the K-99695 system controller is required.
- The provided data cable is used to connect the valve to the system controller.
- Refer to the "DTV+ System Layout" section in this guide.

Before Operating the System for the First Time:

Download and install the latest software for connected components. This may take an hour or more to complete based on system configuration and internet connection speed. **Do not disconnect the power from any components during software download and installation.**

Specifications

Pressures

Maximum Static Pressure	125 psi, 862 kPa, 8.6 bar
Supply Pressure Differential*	Max 5 psi, 34.5 kPa, 0.34 bar (Equal pressures recommended.)

Specifications (cont.)

Pressures

Minimum Flow Rate	1.6 gal/min (Less than 72 psi dynamic pressure.) 6 l/min (Less than 500 kPa maintaining pressure.)
	2.1 gal/min (Greater than 72 psi dynamic pressure.) 8 l/min (Greater than 500 kPa maintaining pressure.)

Temperatures

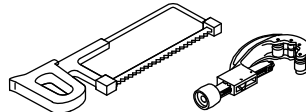
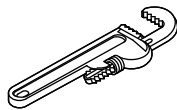
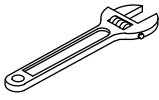
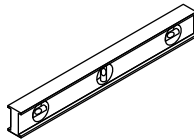
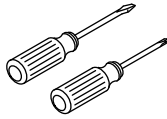
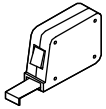
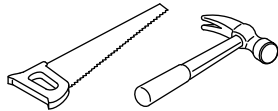
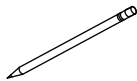
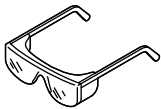
Programmable Temperature	Max 120°F (49°C) Min 86°F (30°C) <i>Full cold may also be selected.</i>
Default Temperature at Start-up	100°F (38°C)
Minimum Mixed Temperature Differential from Hot Supply	3.6°F (2°C)
Temperature Stability at Recommended Supply Conditions	+/- 1.6°F (1°C)
Ambient Temperature	Greater than 34°F (1°C), Max 104°F (40°C)
Maximum Relative Humidity	95% noncondensing

Electrical

Electrical Rating	120 V, 0.16 A, 60 Hz
Data Cable Length	25' (7.6 m)

*In commercial applications where there is a large difference in hot and cold supply pressures or frequent fluctuation in either supply line is anticipated, it is strongly recommended that pressure regulators be installed.

Tools and Materials



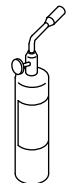
Hacksaw or Tube Cutter



Sealant Tape



Solder



Propane Torch

Plus:

- (2) 1/2" Union Connectors
- Wood and Framing Materials
- PEX Tubing, Copper Tubing, or PVC
- (2) Water Hammer Arrestors (Recommended)
- (2) Supply Shut-Off Valves

Before You Begin

NOTICE: Do not install the valve under a whirlpool surround or any location where the temperature may exceed 104°F (40°C). The valve and its integrated power supply are rated to operate in temperatures up to 104°F (40°C).

NOTICE: Do not apply excessive heat near the valve or apply flux or acids directly onto the valve. This valve contains plastic and rubber components that will melt if heat is directly applied.

NOTICE: Do not apply petroleum-based lubricants to the valve components. Doing so will damage the valve components.

NOTICE: Do not use oil-based, nonsetting compounds, such as plumbers putty, on the threaded connections.

Before You Begin (cont.)

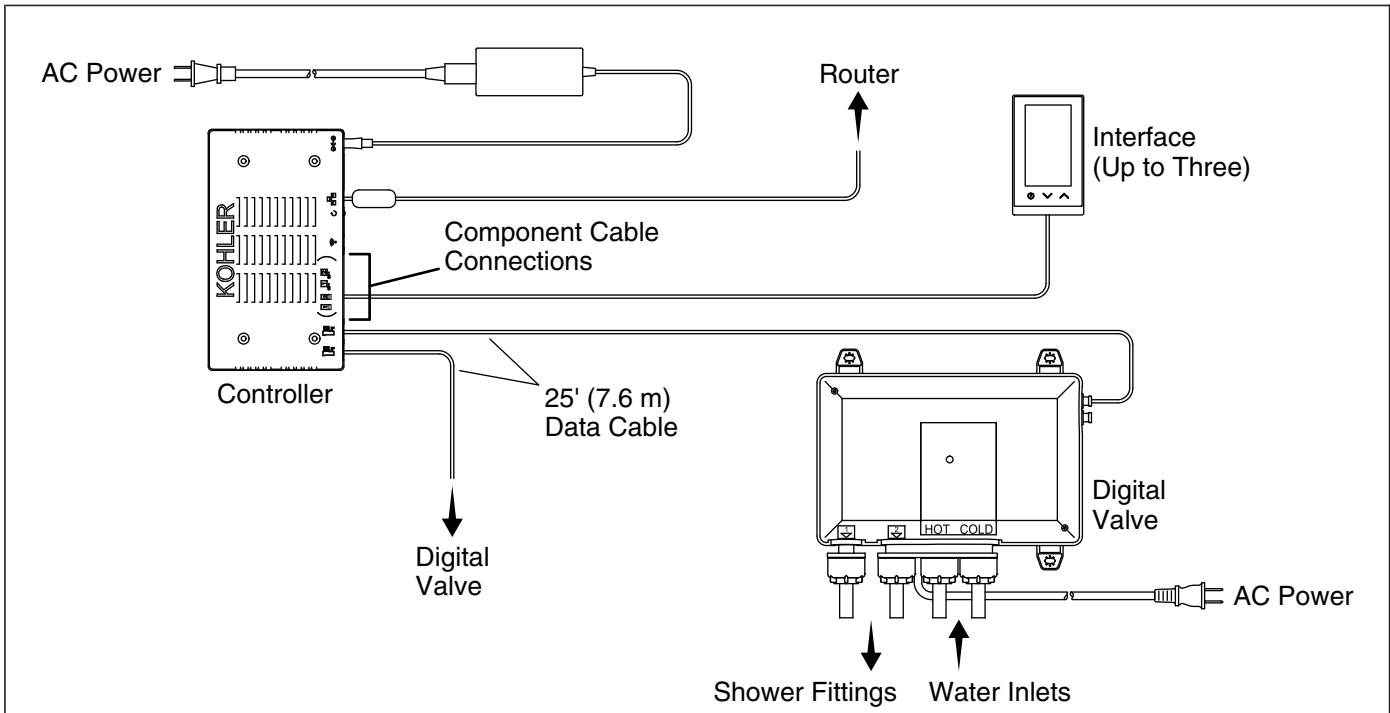
NOTICE: Do not remove the check valves from the inlets as this can damage the product.

NOTICE: If the valve will be used for a bath/shower application, the bath fill supply line must be routed from the #1 outlet port.

- Read these instructions and determine the locations of all required components before beginning installation. For shower configuration options, refer to the guide on the K-99695 controller product page at us.kohler.com.
- If possible, flush all piping thoroughly before installing the valve. If the pipes are flushed after the valve is installed, clean the inlet screens before using the system.
- A qualified electrician should install a 120 V electrical outlet, within the stud framing, close to the valve. A GFCI outlet may be required in certain applications.
- If possible, install the electrical outlet before installing the valve.

Multiple Valve Applications

- Showering configurations using large water volumes require supply piping and drain systems that will sufficiently accommodate the actual total flow rate at any one time.
- **Hot water generation:** Use a water heating system capable of handling large flow rates. Tankless (on-demand) water heaters and recirculating pumps may not be adequate for your showering configuration.



1. DTV+ System Layout

The K-99695 system controller powers the interface(s) and controls the digital valve(s) and other system components. The controller is required to configure the valve(s).

NOTICE: If the valve will be used for a bath/shower application, the bath fill supply line must be routed from the #1 outlet port.

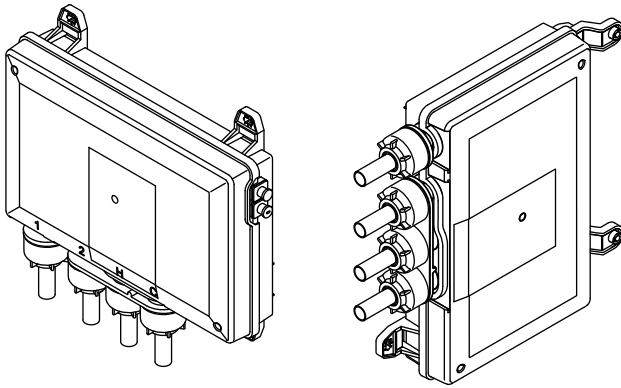
NOTICE: Custom shower configurations may not allow certain features to be enabled. For shower configuration options, refer to the guide on the K-99695 controller product page at us.kohler.com.

- Determine the locations of all required components, including shower fittings.
- A data cable is provided to connect the valve to the controller. If the valve is not within 25' (7.6 m) of the controller, obtain a longer telephone-style cable or add an extension cable.
- When routing piping, make sure that each shower fitting will connect to the appropriate valve outlet for your configuration.

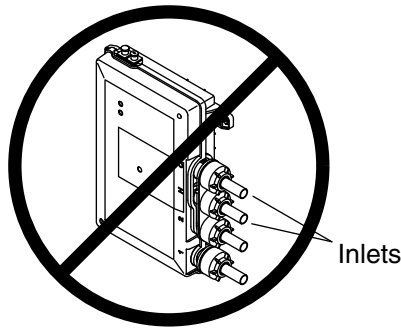
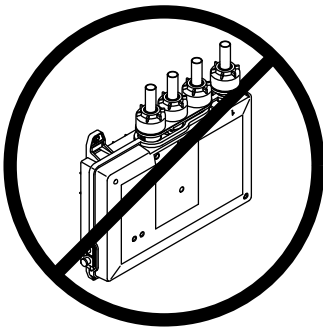
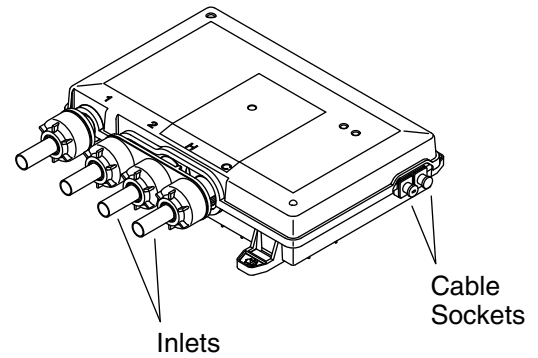
Before Operating the System for the First Time:

Download and install the latest software for connected components. This may take an hour or more to complete based on system configuration and internet connection speed. **Do not disconnect the power from any components during software download and installation.**

Mounting on a Vertical Surface



Mounting on a Horizontal Surface

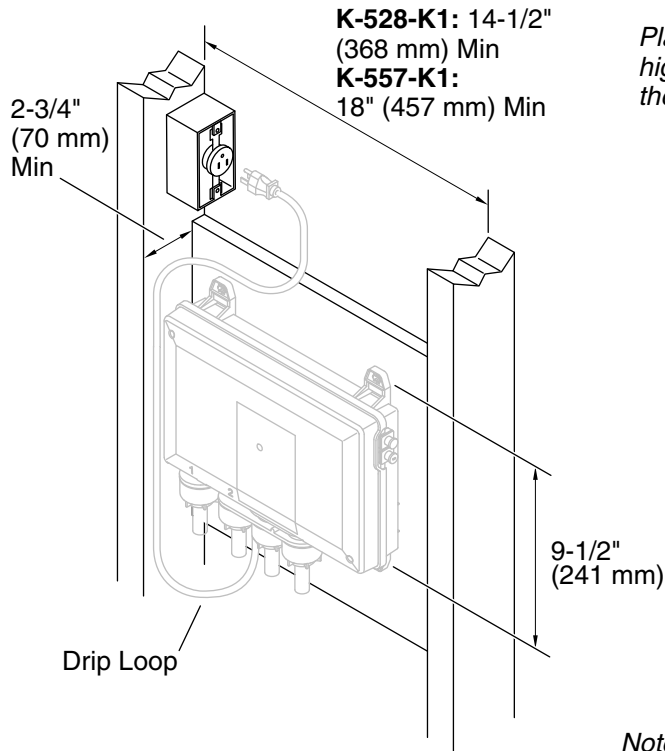


2. Mounting Configurations

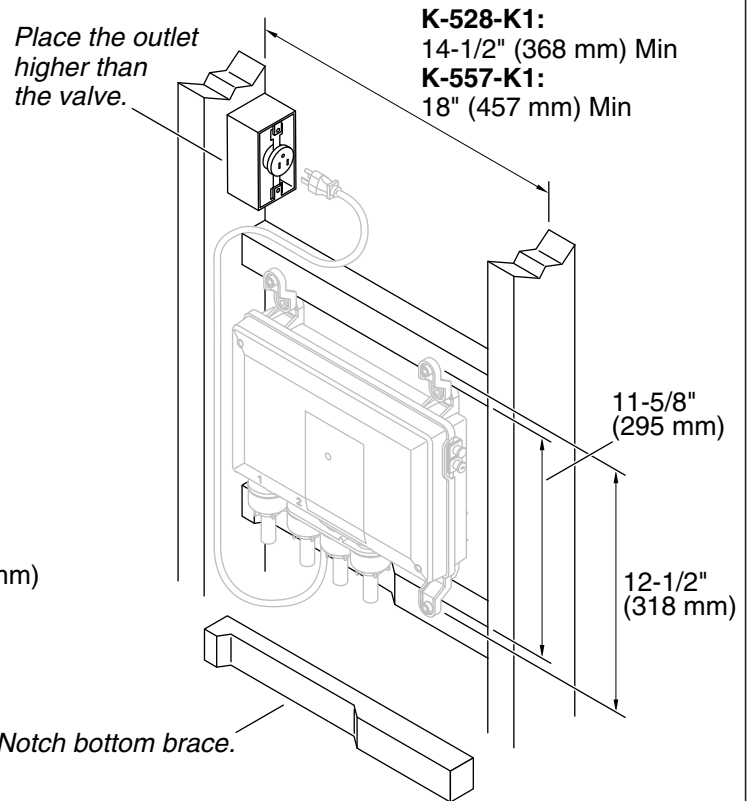
NOTICE: Do not mount the valve with the inlets pointing up or positioned above the outlet ports. Doing so will damage this product.

- The two-port valve is shown above. The same vertical or horizontal mounting configurations apply for the three-port valve.

Board Mount



Cross Brace Mount

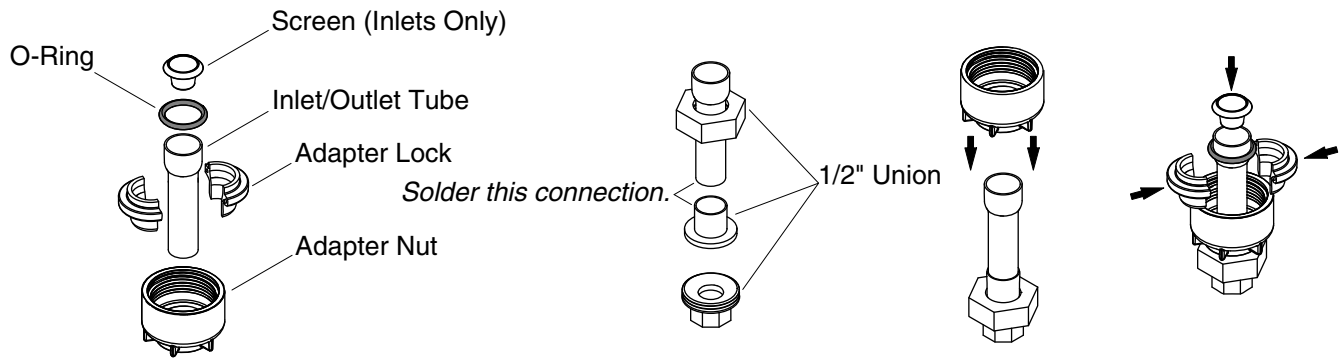


3. Prepare the Site

NOTICE: Do not install the valve under a whirlpool surround or any location where the temperature may exceed 104°F (40°C).

NOTE: Horizontal installation within a stud cavity is shown. The valve can also be mounted vertically or mounted to a horizontal surface. Refer to the "Mounting Configurations" section.

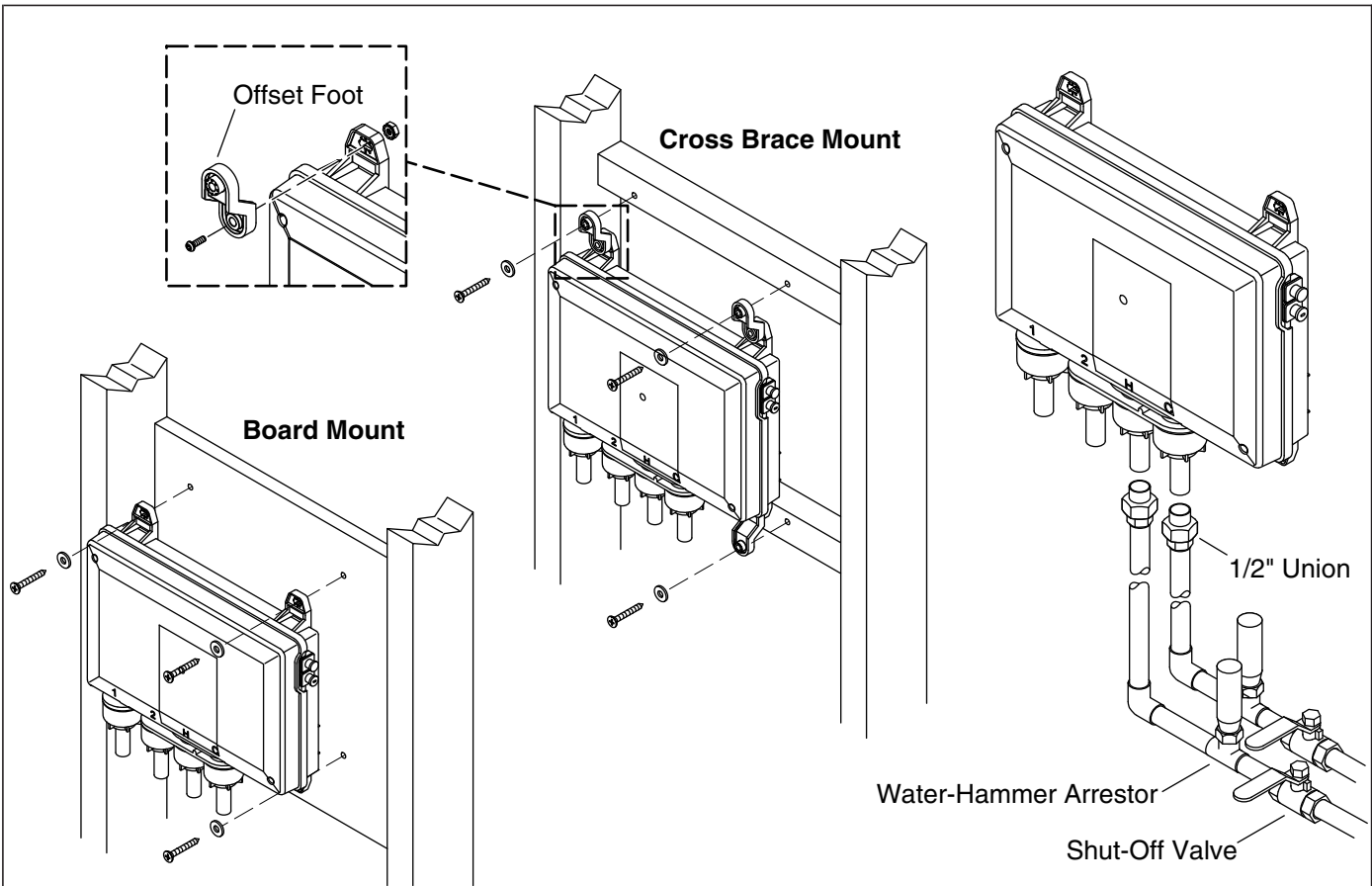
- **K-528-K1:** This product is designed to fit within a minimum 14-1/2" (368 mm) 2x4 stud cavity.
- **K-557-K1:** This product will not fit within a standard stud cavity. Construct a minimum 18" (457 mm) wide 2x4 stud cavity.
- Install adequate bracing for mounting the valve. Notch the bracing as needed to accommodate the inlets and outlets.
- Install a 120 V electrical outlet within the stud framing, close to the valve. Locate the outlet above the valve. A GFCI outlet may be required in some applications.



4. Assemble the Adapters and Unions

NOTICE: Do not apply excessive heat near the valve or apply flux or acids directly onto the valve. This valve contains plastic and rubber components that will melt if heat is directly applied.

- Disassemble the adapter. Ensure that all rubber and plastic components are removed.
- Slide the union nut onto the inlet/outlet tube.
- Solder the inlet/outlet tube to the union. Allow to cool completely.
- Assemble the union.
- Slide the adapter nut onto the inlet/outlet tube.
- Assemble the adapter lock onto the inlet/outlet tube and slide the assembly into the adapter nut.
- Slide the O-ring onto the inlet/outlet tube.
- **For inlet tubes only:** Insert the screen into the end of the inlet tube.
- Reinstall the adapter assembly to the valve.
- Repeat for all inlet/outlet tubes as required.



5. Install the Valve

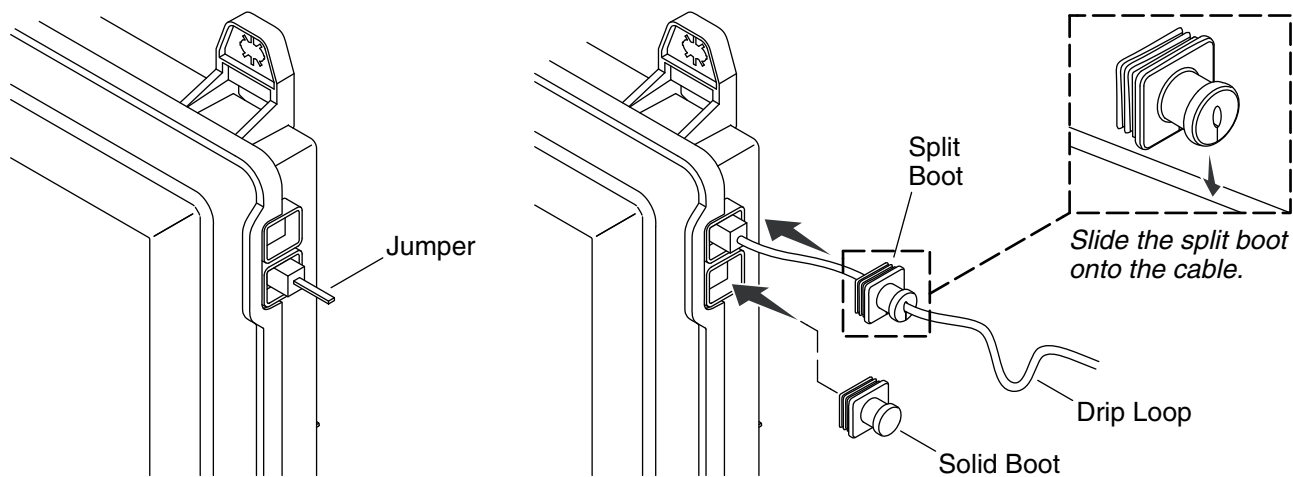
NOTICE: Do not apply excessive heat near the valve or apply flux or acids directly onto the valve. This valve contains plastic and rubber components that will melt if heat is directly applied.

IMPORTANT! If your water supply has high amounts of particulates, install wye strainers in the supply lines.

- Route the water supply lines. Use unions to install removable pipe segments to the valve inlets to allow access for periodic cleaning of the inlet screens.
- Install shut-off valves and water-hammer arrestors in the supply lines before the valve.
- Hold the valve up to the installation location. Verify fit and mark the hole locations.
- Predrill the holes.
- Secure the valve with the washers and screws. Do not overtighten.

IMPORTANT! Make sure that each shower fitting is connected to the appropriate valve outlet for your shower configuration. For shower configuration options, refer to the guide on the K-99695 controller product page at us.kohler.com.

- Route the piping from the valve outlets to the appropriate shower fitting.
- Connect the hot and cold supply lines to the appropriate valve inlets. Hot is red and marked with "HOT," cold is blue and marked with "COLD."
- Secure all piping to the framing.



6. Installation Checkout

Test for Leaks

- Turn on the water supply to the valve.
- Connect the jumper to the valve.
- Verify that there is power to the 120 V electrical outlet, then plug the power cord into the outlet.
- Wait 10 seconds for the valve to initialize; the outlets will activate.
- Check all connections for leaks.
- Disconnect the power, then remove the jumper.

Connect the Cables

NOTE: Make drip loops in all cables and cords.

- Install the K-99695 system controller according to the instructions packed with the product.
- Route the data cable in the wall between the controller and valve installation location.
- Attach a split boot to the data cable, toward the end that will connect to the valve.
- Connect the cable to the valve. Press the boot over the connection in the valve socket.
- Insert a solid boot into the unused socket.

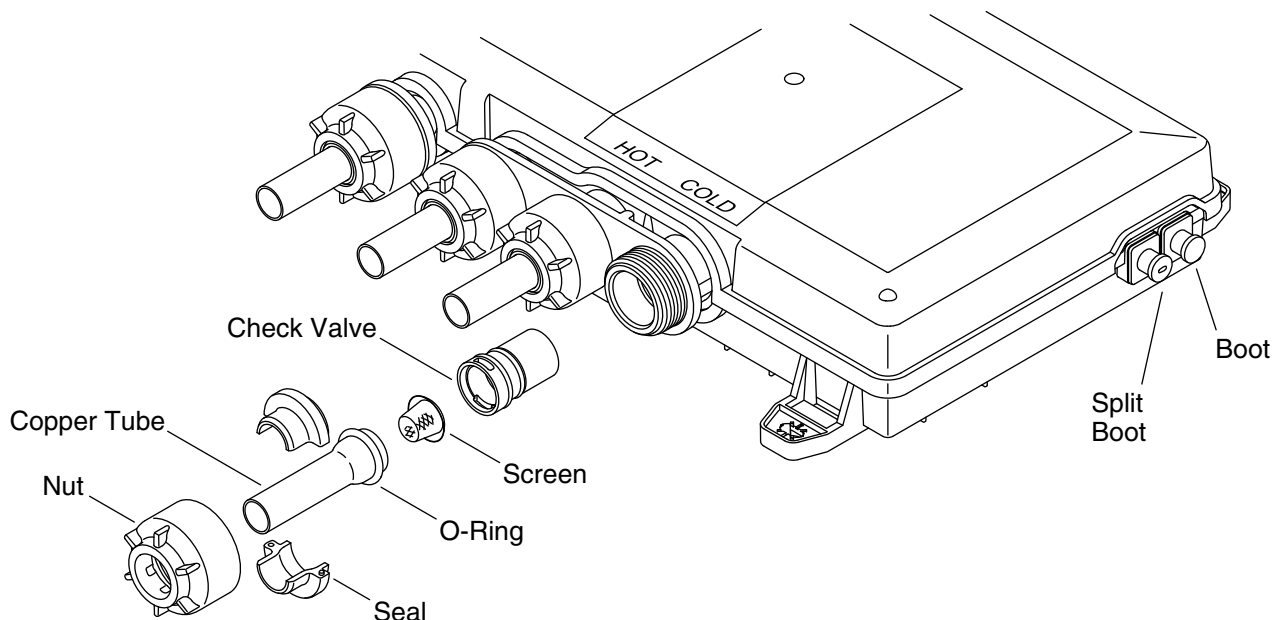
Configure the Valve (Requires an Installed Controller)

NOTE: Valves that have been recently installed, or have not been used for some time should be exercised before running tests or setting the maximum temperature.

- To configure valve setup, refer to the guide on the K-99695 controller product page at us.kohler.com.

Before Operating the System for the First Time:

Download and install the latest software for connected components. This may take an hour or more to complete based on system configuration and internet connection speed. **Do not disconnect the power from any components during software download and installation.**



7. Clean the Inlet Screens



CAUTION: Risk of personal injury. The valve may contain hot water; be careful when draining any residual water.

- Disconnect the power and turn off the water supply.
- Unthread the plastic nuts from the hot and cold inlets.
- Remove the copper tubes. The O-ring and screen may be attached to the end of the tube.
- If the screen remains in the check valve, use a small flat-blade screwdriver to gently pull the check valve from the valve inlet.
- Remove the screens from the copper tubes or check valves.
- Clean the screens to remove any dirt or debris.
- Rinse or replace the check valves and screens.
- Reassemble the inlet connections.

Troubleshooting



WARNING: Risk of electric shock. Disconnect power before servicing.

NOTICE: Valve maintenance should be performed by a KOHLER Authorized Service Representative (ASR).

NOTE: For DTV+ system troubleshooting, refer to the guide on the K-99695 controller product page at us.kohler.com.

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

This troubleshooting guide is for general aid only. For service and installation issues or concerns, call 1-800-4KOHLER.

Troubleshooting (cont.)

Troubleshooting Table

Symptoms	Probable Cause	Recommended Action
1. Valve will not turn on.	<p>A. Valve is not plugged into the outlet.</p> <p>B. Data cable connection may be loose or disconnected.</p> <p>C. Circuit breaker has been tripped.</p> <p>D. The valve memory may require resetting.</p> <p>E. If none of the recommended actions for the above issues correct the symptom, the valve or interface requires servicing.</p>	<p>A. Plug the valve into an outlet.</p> <p>B. Check the data cable connection, connect if needed.</p> <p>C. Reset the circuit breaker.</p> <p>D. Disconnect and reconnect the valve power cord from the electrical outlet.</p> <p>E. Contact your Kohler Co. Authorized Service Representative (ASR).</p>
2. The interface functions normally but no water flows from the shower fittings.	<p>A. Valve outlets may be blocked.</p> <p>B. Fittings/sprayfaces may be blocked.</p> <p>C. Hot and cold water supplies are not turned on.</p> <p>D. The valve memory may require resetting.</p> <p>E. System error.</p> <p>F. If none of the recommended actions for the above issues correct the symptom, the valve requires servicing.</p>	<p>A. Check the valve outlets for blockage or debris. Clean the outlet screens.</p> <p>B. Clean the sprayfaces and any screens in your fittings.</p> <p>C. Turn on the water supply to the valve.</p> <p>D. Disconnect and reconnect the valve power cord from the electrical outlet.</p> <p>E. Check the user interface for an error code. Refer to the guide on the K-99695 controller product page at us.kohler.com.</p> <p>F. Contact your Kohler Co. Authorized Service Representative (ASR).</p>
3. Maximum blend temperature too hot or too cold.	<p>A. Incorrect maximum temperature setting.</p> <p>B. If the above recommended action does not correct the symptom, the interface or valve requires servicing.</p>	<p>A. Set the maximum temperature. Refer to the guide on the K-99695 controller product page at us.kohler.com.</p> <p>B. Contact your Kohler Co. Authorized Service Representative (ASR).</p>
4. Continuous flow.	<p>A. System will not switch off.</p> <p>B. Flow rate exceeds 10 gal/min (45.5 l/min) from one outlet.</p>	<p>A. Turn off the water and power supply and contact your Kohler Co. Authorized Service Representative (ASR).</p> <p>B. Ensure that flow restrictors are installed in both outlets.</p>
5. Only cold water flows from the outlets.	<p>A. Hot water supply is either not turned on or not connected to the valve inlet.</p> <p>B. Hot water inlet is blocked.</p> <p>C. The hot water supply is exhausted.</p>	<p>A. Check if the hot water supply is turned on and connected to the valve inlet.</p> <p>B. Check the hot water inlet screen for blockage. Clean or replace the inlet screen.</p> <p>C. Allow time for the water heater to come up to temperature.</p>

Troubleshooting (cont.)

Troubleshooting Table

Symptoms	Probable Cause	Recommended Action
	D. If none of the recommended actions for the above issues correct the symptom, the valve requires servicing.	D. Contact your Kohler Co. Authorized Service Representative (ASR).
6. Fluctuating or reduced flow rate. Valve is functioning properly.	A. Valve inlets may be blocked. B. Fittings/Sprayfaces may be blocked. C. Water outlet pressure is low. D. Fluctuating supply pressure. E. Water supply temperatures are not within the recommended range.	A. Check the valve inlets for blockage or debris. Clean the inlet screens. Refer to the "Clean the Inlet Screens" section. B. Clean the sprayfaces and any screens in your fittings. C. Check that the flow rate is at or above the minimum rate required. Refer to "Specifications" section. D. Verify that the dynamic inlet pressures are within specifications. Refer to "Specifications" section. E. Check if inlet water temperatures are within the recommended range.
7. Blend temperature drift or temperature cycling.	A. Fluctuating water supply temperature. B. Pressure difference greater than 5 psi (34.5 kPa) between the hot and cold supply lines. C. If none of the recommended actions for the above issues correct the symptom, the valve requires servicing.	A. Check the inlet temperature differentials and verify that they are sufficient. Refer to "Specifications" section. B. Install pressure regulators to bring the supplies within 5 psi (34.5 kPa) of each other. C. Contact your Kohler Co. Authorized Service Representative (ASR).
8. Water leaking from the valve. CAUTION: Risk of personal injury or product damage. Turn off the main power and water supply.	A. Connections are not secure. B. Seals are worn or damaged. C. Internal leak.	A. Check all connections. Make adjustments as needed. B. Order a seal service pack and replace all seals. C. Unit requires overhaul. Contact your Kohler Co. Authorized Service Representative (ASR).
9. Hot water only, the valve shuts down.	A. Hot and cold lines are reversed.	A. Switch hot and cold water supply connections. Verify that the hot water supply is connected to the "Hot" inlet and the cold water supply is connected to the "Cold" inlet.

FCC, IC, and CE Compliance

Contains: Kohler Company, Model: K-528-PM-NA, FCC ID: SH6MDBT40, IC: 8017A-MDBT40

FCC Interference Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation.

FCC, IC, and CE Compliance (cont.)

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Industry Canada Statement

This device complies with Industry Canada licence-exempt RSS standard(s). Operation is subject to the following two conditions:

1. This device may not cause interference, and
2. This device must accept any interference, including interference that may cause undesired operation of the device.

CAN ICES-3(B) /NMB-3(B)

CE2200

Warranty

KOHLER® Electronic Faucets, Valves and Controls FIVE-YEAR LIMITED WARRANTY

Kohler Co. warrants that its electronic faucets, valves and controls will be free of defects in material and workmanship during normal residential use for five years from the date the product is installed. This warranty applies only to electronic faucets, valves and controls installed in the United States of America, Canada and Mexico ("North America").

If a defect is found in normal residential use, Kohler Co. will, at its election, repair, provide a replacement part or product, or make appropriate adjustment where Kohler Co.'s inspection discloses any such defect. Damage caused by accident, misuse, or abuse is not covered by this warranty. Improper care and cleaning will void the warranty*. Proof of purchase (original sales receipt) must be provided to Kohler Co. with all warranty claims. Kohler Co. is not responsible for labor charges, installation, or other incidental or consequential costs other than those noted above. In no event shall the liability of Kohler Co. exceed the purchase price of the faucet, valve or control.

If the electronic faucets, valves or controls are used commercially or are installed outside of North America, Kohler Co. warrants that the faucet, valve or control will be free from defects in material and workmanship for one (1) year from the date the product is installed, with all other terms of this warranty applying except duration.

If you believe that you have a warranty claim, contact your Home Center, Dealer, Plumbing Contractor or E-tailer. Please be sure to provide all pertinent information regarding your claim, including a complete description of the problem, the product, model number, the date the product was purchased, from whom the product was purchased and the installation date. Also include your original invoice. For other information, or to obtain the name and address of the service and repair facility nearest you, write Kohler Co., Attn: Customer Care Center, Kohler, Wisconsin 53044 USA, or by calling 1-800-4-KOHLER (1-800-456-4537) from within the USA and Canada, and 001-800-456-4537 from within Mexico, or visit www.kohler.com within the