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TOGGLE SCREW
ACCESSORY INSTALLATION INSTRUCTIONS

TOWEL BAR

Drilling points depend on the size towel bar purchased. (18" center to center, 24" center to center, or 30" center to center.)

1. Drill two 1/8" holes on the wall and make sure that they are in a straight line. The distance of the drilling points depends upon the length of the bar which is any of the given dimensions above.

2. Toggle screws are provided with unit since bar dimensions do not coincide with standard framing dimensions. Drill 1/2" holes to accommodate the toggle screws. (Wood screws are available on request.)

3. Push the toggle screws into the holes and tighten by turning the escutcheon or accessory piece clockwise while pulling it slightly against the wall.

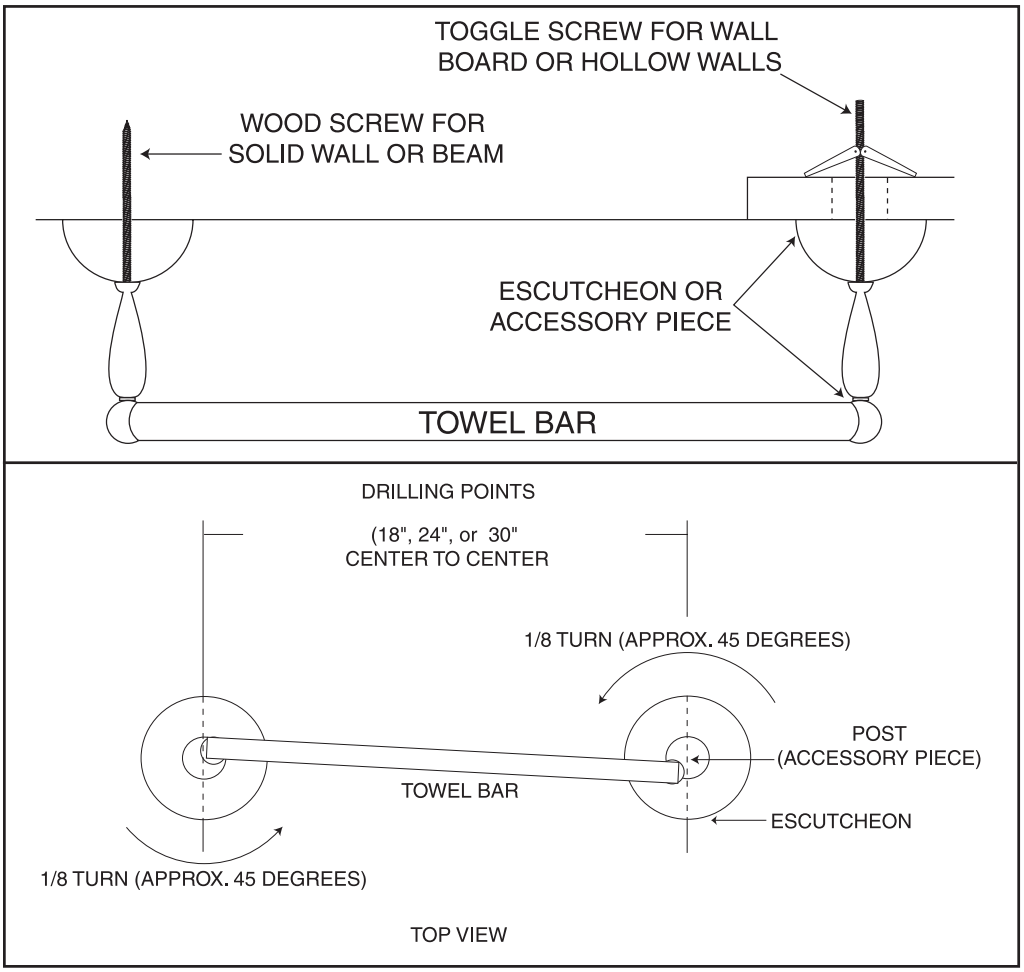
4. For towel bars, tighten both escutcheon or accessory pieces without the bar. Make sure that the holes on the posts are facing each other. Turn the right post an 1/8 of a turn counterclockwise downwards, and the left post an 1/8 of a turn counterclockwise upwards. Insert the bar to the left hand post and hold the other end of the bar against the hole on the right hand post. Return each post to its fully tightened position. The bar will slip into the holes as the posts are turned.

OTHER ACCESSORIES

1. Follow steps 1, 2, & 3 less the towel bar.

2. For paper holders, tighten both escutcheon or accessory pieces making sure that the holes of the posts are facing each other. Insert the paper holder and the spring inside will make it fit snugly.

3. For other accessories, follow the same steps less the towel bar.



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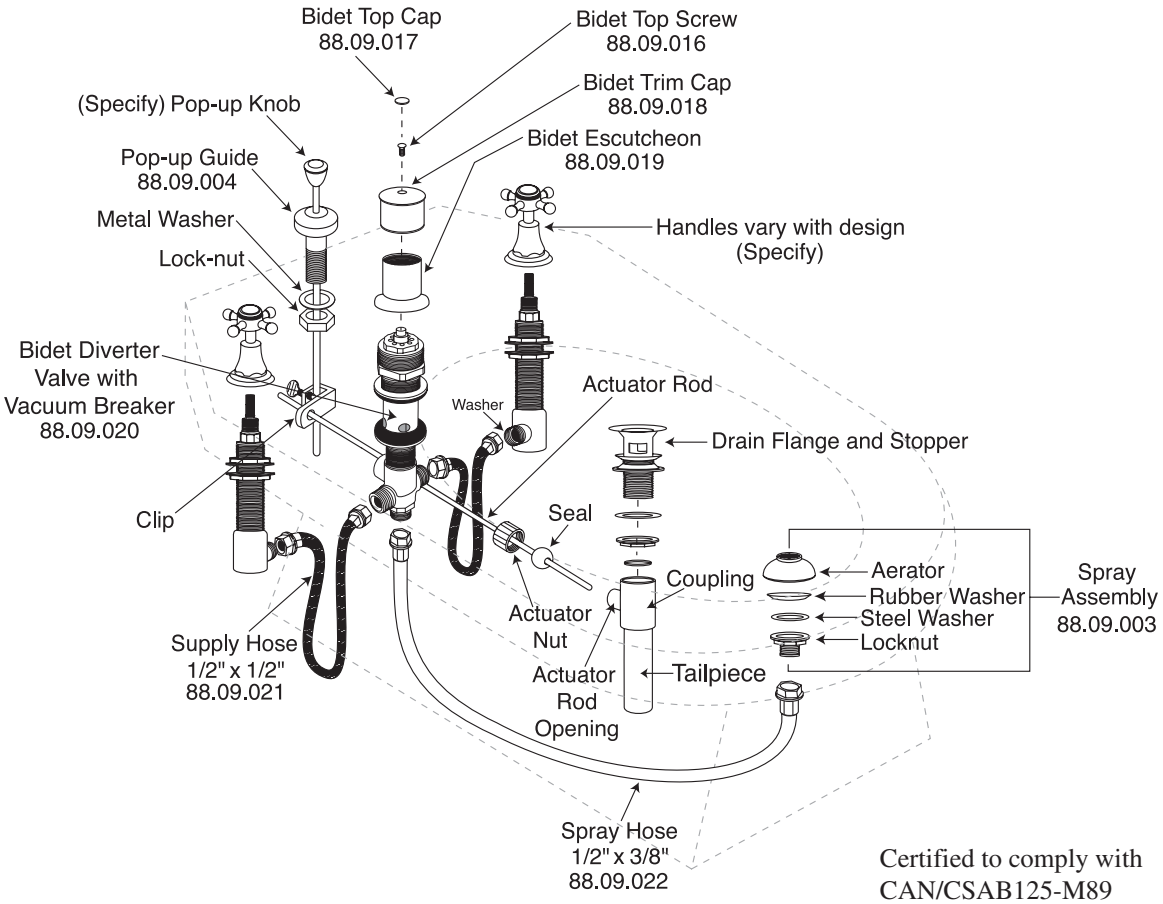
Deck Mount Bidet Fitting Universal

PLEASE INSPECT YOUR PRODUCT PRIOR TO INSTALLING.

Carefully review all pre-assembled parts. It will be necessary for the various parts to be reassembled exactly as shown.



Certified to comply with
CAN/CSAB125-M89

NOTICE: These instructions do not represent step-by-step directions. They are a product supplement only to be used by a qualified/licensed plumber. We recommend all plumbing fixtures be installed by a professional.

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Simply Safe®

Thermostatic Installation Instructions

The valve with a higher purpose! ™

Please read the complete thermostatic instructions and cautions contained in this booklet before attempting installation. It is recommended that only a licensed, professional plumber install this product. Leave booklet for homeowner's future reference.

FEATURES:

- Complete serviceability from front of all units.
- 3/4" NPT inlets and outlets.
- 9.7 gpm @ 50 psi
- Systems come with 1/4 turn ceramic disc cartridges for volume controls.
- Extension kits are available through dealer at an extra charge.
- The wax sensitivity cartridge constantly monitors temperature and re-adjusts within 3° Fahrenheit of set temperature when supply pressure fluctuates. Re-adjustment occurs in less than 2 seconds.
- A dual exit valve can be adapted to single exit. Please contact dealer for Part #88.30.157.

CARE INSTRUCTIONS:

The product you have just purchased is designed to provide long lasting beauty and dependability. When installing, we recommend you lay all finished parts on a soft cloth or towel to avoid scratching or damaging the product. To insure your product's longevity, wipe with a clean, soft, damp cloth and blot dry as often as possible. Never use abrasive cleansers, sponges, or acidic cleaning products as these may damage the finish and may VOID THE WARRANTY.

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INSTALLATION INSTRUCTIONS

Simply Safe® **THERMOSTATIC SYSTEMS**

CAUTIONS!

⚠

NO HEAT, NO TORCH ... Shall be applied to the valve assembly. Cartridge and ceramic seats cannot withstand heat from soldering torch.

⚠

Use teflon tape thread sealer at all joints. **DO NOT USE PLUMBERS PUTTY. USE OF ANY CAUSTIC MATERIAL MAY HARM THE FINISH AND/OR INTERFERE WITH PROPER FUNCTION OF THE CARTRIDGE.**

⚠

Prior to installing the thermostatic valve, **flush all water lines** to free up all solder, sand, silt and debris that have accumulated in plumbing lines. The lines should be flushed long enough to remove any sediment that may come from any new additional installation such as a water heater.

Reminders Prior to Starting:

- Water pressure comes from your local water supplier and can be measured at the source on the street.
- Pressure or water velocity is not a function of the valve.
- Water heater must be operational.
- Failure to flush all water lines properly as stated above may damage internal parts. Serviceable spring check valves are provided with the valve and may be blocked by initial failure to flush lines or by heavy sediment. An in-line water filter may be recommended in certain situations such as well water.
- Do not attempt installation of the product if you do not understand these instructions. **Qualified plumbers should be used for all installation procedures.**

Begin Installation:

STEP 1 Read complete instructions and prints from start to finish before beginning.

STEP 2 Install male adapters at each port with the required length of copper pipe (minimum 8") already soldered to the adapter. Then connect the hot water to the side stamped HOT and the cold water to the side stamped COLD. **DO NOT REVERSE CONNECTIONS**: the valve will not work properly! **(PRINT #2)**

⚠

REMEMBER NO HEAT NO TORCH APPLIED DIRECTLY TO VALVE!!

STEP 3 The depth of the valve should be determined using mud guard **(PRINT #3 & 4)**. Stem Adapter with Square Tube will then be 1-1/2" from finished wall. Do not cut part. Extensions are available for an extra charge through dealer. Volume Control Stem cannot be cut. Extensions are available for volume controls also.

STEP 4 Connect the exit(s) required to copper pipe using same precautions mentioned in Step #2. The volume controls are 1/4 turn ceramic disc cartridges. Any debris in the cartridges may cause exits to drip. It is possible to plug one of two exits in the field with use of special part #88.30.157 ordered through dealer.

STEP 5 Remove cartridge by rotating counter-clockwise before removing **(PRINT #5)** and flush lines one last time. Replace cartridge, pushing straight into body and rotating clockwise until tight. Replace the locknut, stem adapter, threaded tube, and square tube **(PRINT #1)**. Open both screw driver inlet ports and pressure test all connections with water. Check for flow and leaks before closing wall. Wall cut-out should be 5-1/4" diameter. **(Print #6)**

STEP 6 Be sure hot water heater is connected, clean and operational and set to approximately 130 degrees - 140 degrees Fahrenheit. **If there is no hot water, valve cannot be calibrated or system tested for proper performance.** Install all trim pieces except brass pointer (#9) and handle or lever.

STEP 7 The center cartridge affects only the mixed water temperature and must be "calibrated" to protect the end user while bathing. Calibration is simple and takes only a few additional minutes. The temperature range of mixed water is controlled through calibration setting the hot and cold limits.

⚠ **CALIBRATION OF VALVE PROVIDES SAFETY TO END USER. PLEASE READ CAREFULLY** ⚠

CALIBRATION BY FEEL: Rotate the Stem Adapter with Square Tube located on the thermo cartridge **(Print #4)** all the way to the right (clockwise) to obtain the maximum cold water using either a flat screwdriver inserted into the square tube or wrench on swivel bushing. Reverse (counter-clockwise) to obtain the maximum incoming hot water. Return right again (clockwise) until the mixed water at the exit point feels correct to the end user. Let water run for 2 or 3 minutes to confirm comfort level. Set the pointer dial at the 115 mark on the dial and carefully fix the set screw. That is the location of the hard stop that cannot be overridden. It will be possible to move the temperature below this point but not above this point, thus protecting children or elders from damaging temperatures.

BY THERMOMETER: Rotate the Stem Adapter with Square Tube located on the thermo cartridge **(Print #4)** all the way to the right (clockwise) to obtain the maximum cold water using either a flat screwdriver inserted into the square tube or a wrench on the swivel bushing. Reverse (counter-clockwise) to obtain the maximum incoming hot water. Return again to the right (clockwise) until the mixed water at the exit point registers 105 degrees on an instant read thermometer. Let water run for 2 or 3 minutes to confirm comfort level. Set the pointer dial at the 115 mark on the dial and carefully fix the set screw. That is the location of the hard stop that cannot be overridden. NOTE: An end user who wishes the mixed water to actually reach 115 degrees (the real temperature) may do so by placing the pointer dial at the 115 mark on the dial, but it is not recommended for children or elders.

After installing other system trim parts, valve is ready to enjoy.

STEP 8 ## Maintenance:

Occasionally, rinse debris and hard water build-up on cartridge filter screen with a toothbrush. **Never take the thermostatic cartridge itself apart.** Doing so will damage this precise instrument, generally make the cartridge inoperable, and void any warranty. (See Print #5 to remove cartridge and Print #5-A to service the check valve.)

Frequency of maintenance varies with many factors, such as mineral content (hardness) of water supply, new construction/changes affecting any home water lines, age of property, use of well water, etc.

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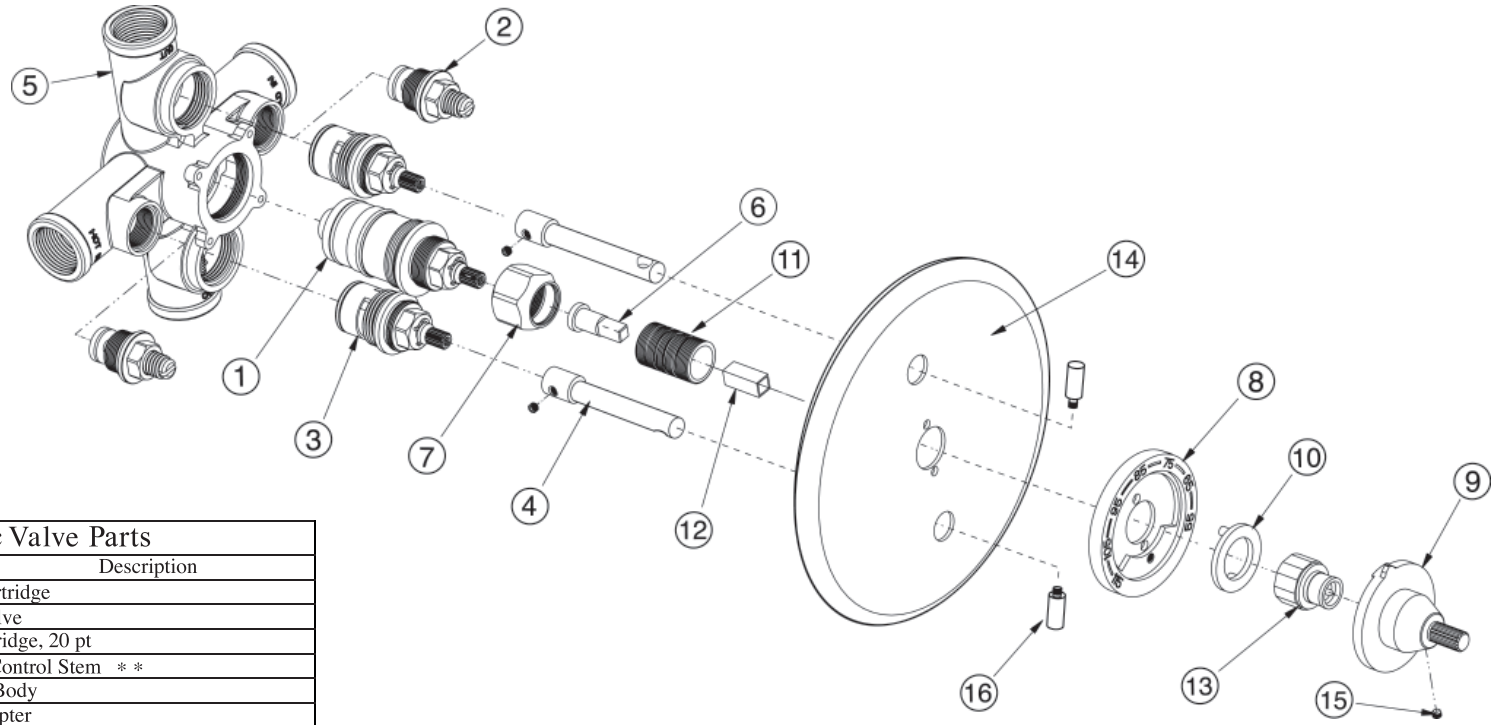
Simply Safe® Thermostatic Valve Exploded View

The valve with a higher purpose! ™

PRINT 1



Simply Safe Thermostatic Valve Parts		
Item	Part Number	Description
1	88.30.155	Valve Cartridge
2	88.30.156	Check Valve
3	88.30.011	3/4" Cartridge, 20 pt
4	88.12.037	Volume Control Stem **
5		Thermal Body
6	88.30.153	Stem Adapter
7	88.30.154	Cartridge Lock Nut
8	88.12.022	Mini ETL Dial **
9	88.12.036.20	Small Thermo Brass Pointer – 20pt **
10	88.12.003	Anchor for Mini ETL Dial
11	88.30.152	Threaded Tube
12	88.30.151	Square Tube
13	88.12.016	Bushing
	88.12.209	Thermo Trim Plate – One Volume – 6" **
14	88.12.223	Thermo Trim Plate – Two Volume – 6" **
15	88.01.001	Set Screw
16	88.12.038	Volume Control Lever **
	R30.053	*Simply Safe* Complete Valve – One Exit
*	R30.054	*Simply Safe* Thermostatic Valve – Two Exits
*	88.30.157	Exit/Shut Off Plug
*	88.30.158	Valve Mud Guard
* Not Shown		** Finished Parts

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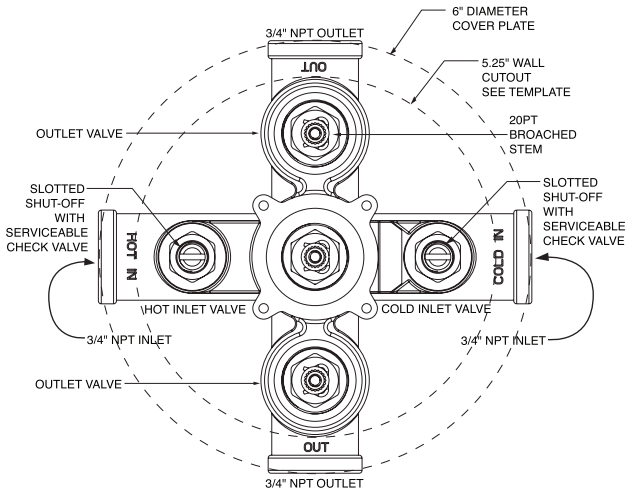
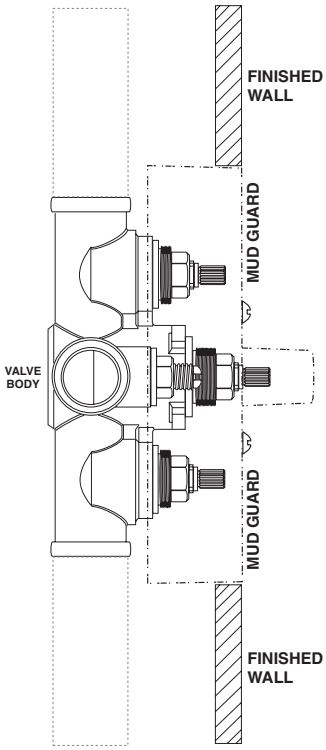
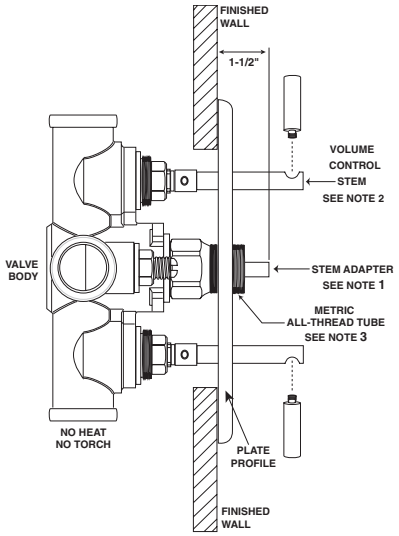
PRINT 2
FULL FACE



PRINT 3
INSTALLED ROUGH VALVE ONLY



PRINT 4
INSTALLED ROUGH WITH PARTIAL TRIM



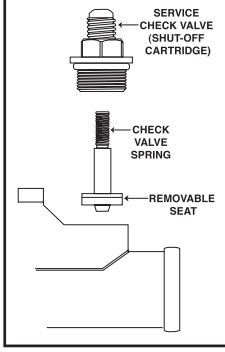
INSTALLER NOTES: THIS VALVE MUST BE INSTALLED AS SHOWN ABOVE

(1) INSTALL VALVE SO MUD GUARD IS EVEN WITH FINISHED WALL. STEM ADAPTER AND SQUARE TUBE WILL THEN BE 1-1/2" FROM FINISHED WALL. DO NOT CUT PART -- EXTENSIONS ARE AVAILABLE.

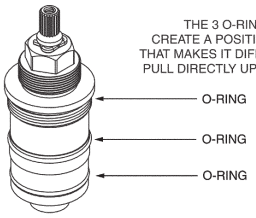
(2) VOLUME CONTROL STEM CANNOT BE CUT -- EXTENSIONS ARE AVAILABLE.

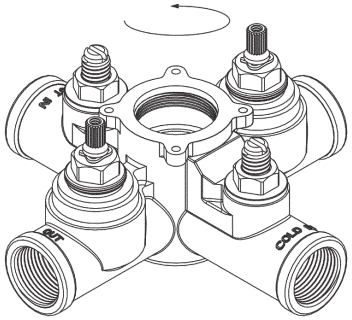
(3) SPECIAL ALL-THREAD METRIC TUBE -- **CAUTION** ONLY ONE END CAN BE CUT -- **DO NOT CUT** INTERIOR THREADS AND CUT BETWEEN THREADS ONLY.

PRINT 5-A



PRINT 5
MAINTENANCE





To remove cartridge from body: Rotate cartridge counter clockwise only.
To re-set: (re-seal -- Push straight into body and rotate clockwise until tight.

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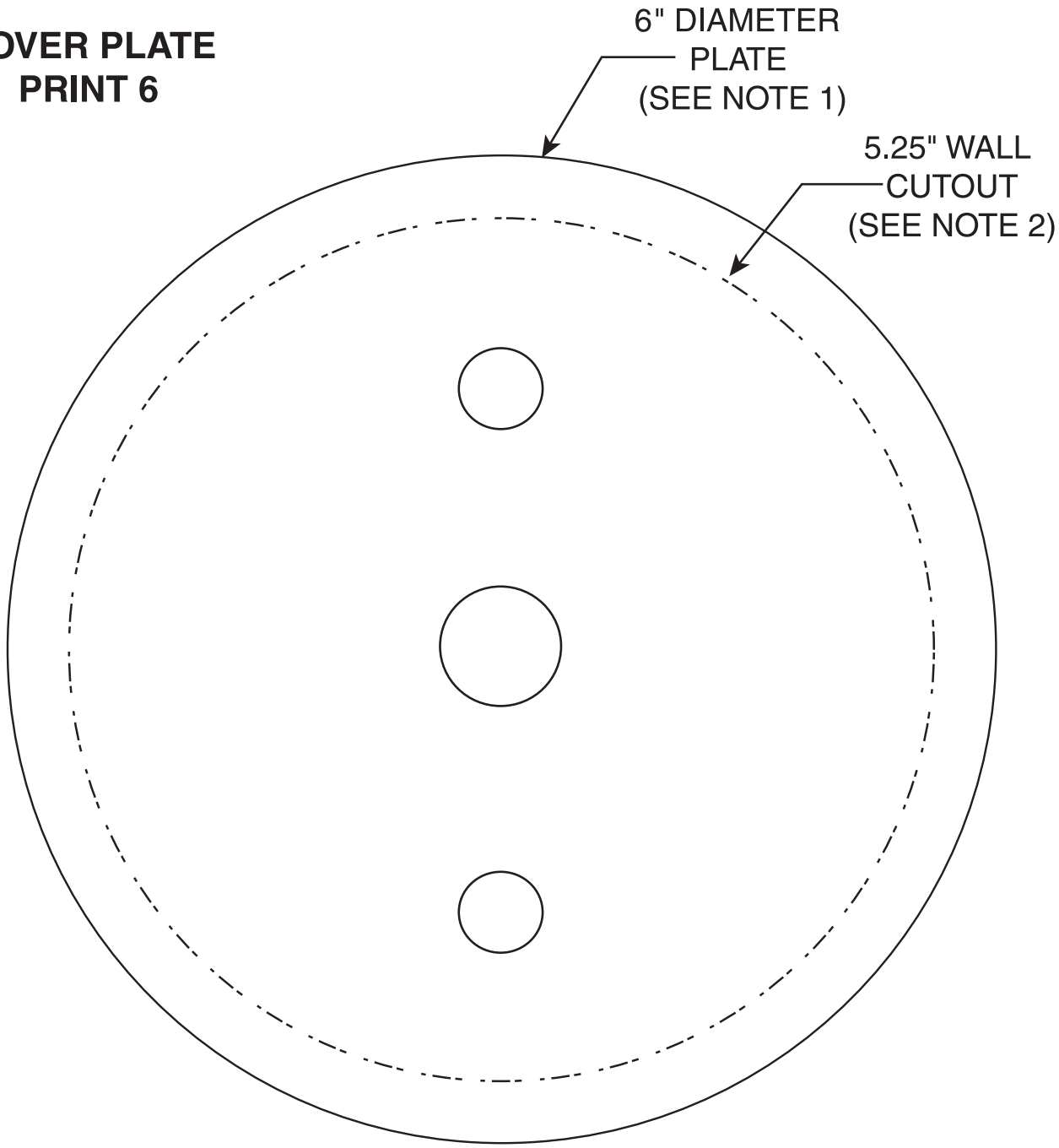
Simply Safe® THERMOSTATIC VALVE

- FULL SCALE (1:1) CUTOUT TEMPLATE

COVER PLATE
PRINT 6



NOTES:

1. THE SOLID LINE REPRESENTS THE ACTUAL OUTLINE OF THE TRIM PLATE
2. THE DASHED LINE REPRESENTS THE WALL CUTOUT.

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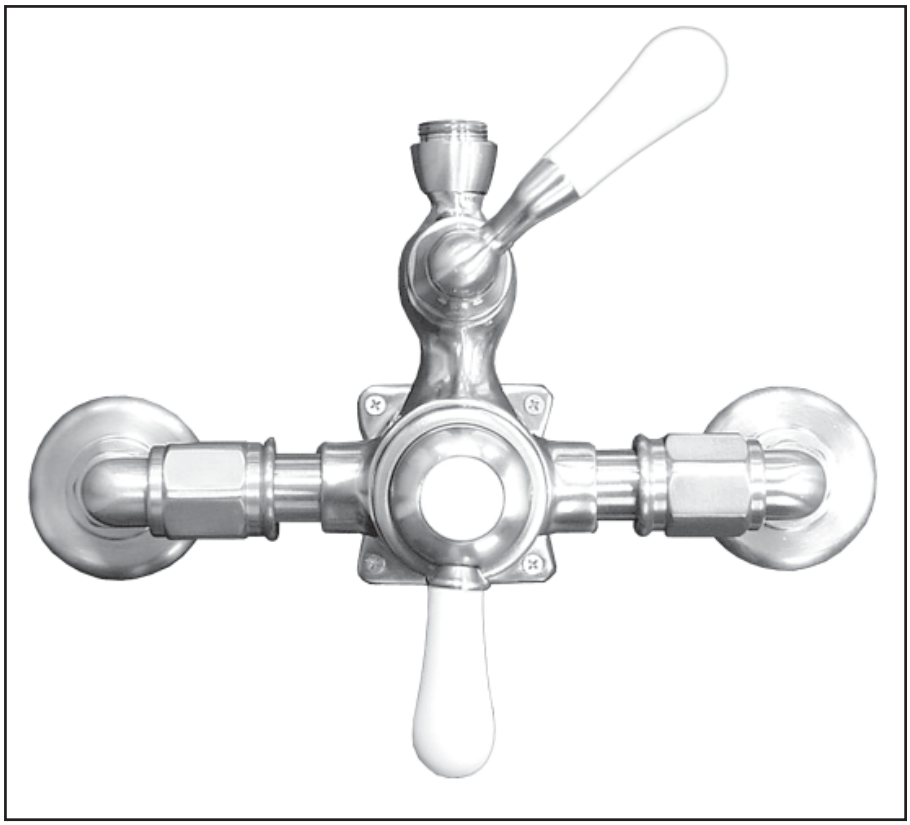
Exposed 1/2” Thermostatic Valve General Installation Instructions



LEAVE FOR HOME OWNER

Care Instructions:

The product you have just purchased is designed to provide you with long lasting beauty and dependability. To ensure your product’s longevity, please follow the following care instructions.

When installing, we recommend you lay all parts on a soft cloth or towel to avoid scratching or damaging the product. To care for your fitting, wipe with a clean, soft, damp cloth and blot dry as often as possible. Never use abrasive cleansers, sponges, or acidic cleaning products as these may damage the finish and may VOID THE WARRANTY.

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Welcome to the World of Thermostatic Systems Both Exposed and Concealed Valves

Please read ALL instructions, cautions, and care recommendations before beginning installation.

These products comply with Section 9 of NSF 61 criteria concerning lead content.

! CAUTIONS !

1. **APPLY NO HEAT/NO TORCH TO THE VALVE ASSEMBLY.**

2. Take special care to protect all components during the construction and installation.

3. Open all boxes carefully. The products are heavy and damage can occur after you open the contents.

4 We suggest all products be set on a soft work surface like an old blanket for review before installation. Cement floors are too hard.

5. Always turn off water at the source before beginning installation.

6 Go slowly - A cautious installation creates a beautiful finished result.

Caution 7. Use no pliers, vice grips or channel locks on this finished trim - you will scratch or mar the surface.

Caution 8. Use a crescent wrench on all nuts - be deliberate and patient - no damage will happen.

9. If you have the factory installation tool kit, follow the instructions enclosed.

10. Concealed thermostatic systems are the norm in the USA today. Valves are usually installed inside the frame construction and there is no danger from exposed pipes.

11. All of the Exposed Thermostatic Systems are state of the art and meet or exceed all codes for approved products in the USA and Canada.

12. All systems are fail safe and will not allow hot water to exceed 120° degrees Fahrenheit during any showering or bathing experience if properly installed.

13. Each individual bather can adjust the temperature at will while using the shower. Our thermostatic systems have separate temperature controls from the exit controls.

14. Exposed hot water pipes are potentially dangerous to the unsuspecting person. We are used to concealed plumbing pipes inside the walls of a typical home.

15. Be advised that exposed thermostatic systems have a **HOT** water line that can be too hot to touch! **Beware of burns!**

16. Exposed piping means you can touch the cold and hot water lines.

17. Exposed piping means you can see if anything is wrong with your plumbing.

18. Exposed piping means you can service your system easily.

19. Exposed piping means you don't have to remove your walls if a problem occurs.

20. We have labeled the hot side as a preliminary caution for the homeowner. Please leave the attached label in place for the homeowner to remove when the installation is complete.

21. **1/2" copper water lines are required for the hot and cold inlets.**

22. Remember the exposed piping is **not a grab bar** and we do not imply in any way that our installation procedures are for any other purpose than to support the exposed pipes on the prepared surfaces of your walls.

23. You must provide wood backing inside the walls to mount the various units correctly (see the attached installation print #2).

24. Be sure the supplied screws will be long enough to reach the interior wood blocking or that the screws supplied with the alligator clips are going to fit in your tile or stone walls (see diagram of suggested framing).

25. The system comes with both metal and teflon ferrules. The 2 supplied 1/2" metal ferrules are for the 1/2"copper inlets only. The teflon ferrules are for the risers on the exposed pipes only.

26. All systems have been water tested at the factory to 90 lbs of static and dynamic water pressure. Thus you may find residual water inside the thermostatic valve from this testing.

27. The exposed thermostatic valve has been factory calibrated to deliver a maximum Fahrenheit temperature of 110° to confirm proper operation. In the absence of a thermometer, the maximum water temperature should feel slightly uncomfortable to the hand.
NOTE: It is important that the valve be properly calibrated to preserve its anti-scald feature. For recalibration procedures, **(See Page 8)**.

28. Prior to installing the thermostatic body, **flush all water lines** to free up debris. The lines should be flushed long enough to remove any sediment that may come from any new installations including a water heater. It is recommended you flush lines for at least 15 minutes before connecting the new fitting, let water run from the HOT and COLD copper connecting pipe in the shower wall.

29. **Failure to flush thoroughly may damage internal parts!** An in-line water filter is recommended to remove harmful sediments.

30. Plumber's putty is not recommended. Use of caustic substances or acidic curing products for installation purposes may harm the finish or cause the product to not function properly. Please read the cautions printed on any product purchased for use during installation. It is recommended you use teflon tape approved for water application.

31. Inlet check valves are provided with the system. If factory provided check valves are removed, a qualified plumbing contractor MUST install check valves up stream of the valve.

32. Water pressure comes from your local water supplier and can be measured at the source. Pressure and water velocity are not functions of the valve.

33. Do not attempt installation of product if you do not understand these instructions. **Qualified plumbers should be used for all installation procedures.**

34. Call the factory if you have any questions.

Water Supply

Exposed Thermostatic valves can be supplied from any hot water production system, even by instantaneous domestic production, as far as the generator is capable of supplying very small quantities of hot water (about 0.8 gal/min).

- Maximum working pressure	145 PSI
- Minimum working pressure	14 PSI
- Recommended working pressure	29 to 58 PSI
- Maximum test pressure	224 PSI
- Maximum hot water temperature	185°F

Shower Heads:

All showerheads and hand showers comply with the approved water flow rate as required by US plumbing codes. We have installed flow restrictors in the heads.

These flow restrictors can clog from lime scale buildup, silt, sand, or debris in the water line caused from or during the construction process. If you wish to clean or service the restrictor, simply use a Phillips screwdriver and back out the plastic part - clean and reinstall.

Always keep your showerheads level and perpendicular to your floor. If any head is tilted you may not receive a satisfactory shower.

The showerheads are intentionally designed as Rain Heads. The water exits the 8" and 12" size heads like wonderful soft rain. Increased velocity does not come from the shower valve but from several other factors.

The velocity of the water is dependant on your existing street water pressure, the size of the pipes, the water meter and the design of your pipe system.

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Note: This fitting has been factory assembled, tested and is ready for installation. See the tag attached to the valve to verify factory readiness.

Recommended Instructions:
Read all instructions completely before proceeding!

The Exposed Thermostatic Valve is a controlled shower mixing valve. Temperature is thermostatically controlled by a wax cartridge thermostat that maintains a constant temperature while automatically adjusting and compensating for changes in HOT and COLD inlet pressures. Should COLD supply fail, the valve will immediately shut down to avoid any risk of scalding. Keep in mind that the distance the shower head or other exit is from the valve will determine how fast you feel the instantaneous correction in temperature. The water flow is controlled by a simple quarter turn ceramic lever. The Exposed Thermostatic Valve is suitable, without modification, for all types of installations. This includes pumped gravity systems, main pressure water systems and combination boilers.

MEETS AND EXCEEDS I.A.P.M.O. ASSE 1016 STANDARDS AND UNIFORM PLUMBING CODES

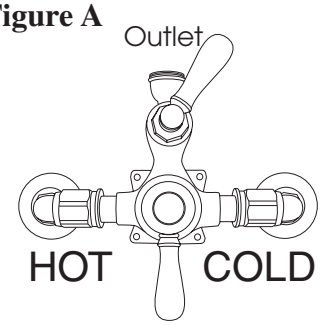
PRODUCT CARE:

The Exposed Thermostatic Valve is incredibly easy to maintain. The temperature and flow are controlled by one piece cartridges which are easily removed for cleaning and replacement. To remove the thermostatic cartridge, see Calibration Instructions to demonstrate how to properly remove the handle. To ensure full water flow, periodically clean the cartridge screens of any debris using a small brush. Rinse thoroughly before returning to the fixture. Push cartridge into place and reassemble handle pieces as shown on calibration instructions. Soaking the cartridge in a 50/50 solution of clear household vinegar and water will remove lime scale. Regular cleaning each year will extend the life of the cartridge. **Never use a screwdriver on a thermostatic cartridge and NEVER take a thermostatic cartridge apart as you will damage the precise instrument.** Call your dealer or the factory for answers to your questions.

INSTALLATION:

The Exposed Thermostatic Valve must be installed with the outlet pointing upwards, so that the HOT water enters on the left, and the COLD water on the right, as shown in **Figure A**. **THE VALVE WILL NOT FUNCTION IF REVERSED!** The inlet elbows are fitted with compression nuts. Be sure to **flush thoroughly all new plumbing for up to 15 minutes** before connecting the valve to clear out all debris in your water lines. The valve should be screwed to the wall with the stainless steel screws provided.

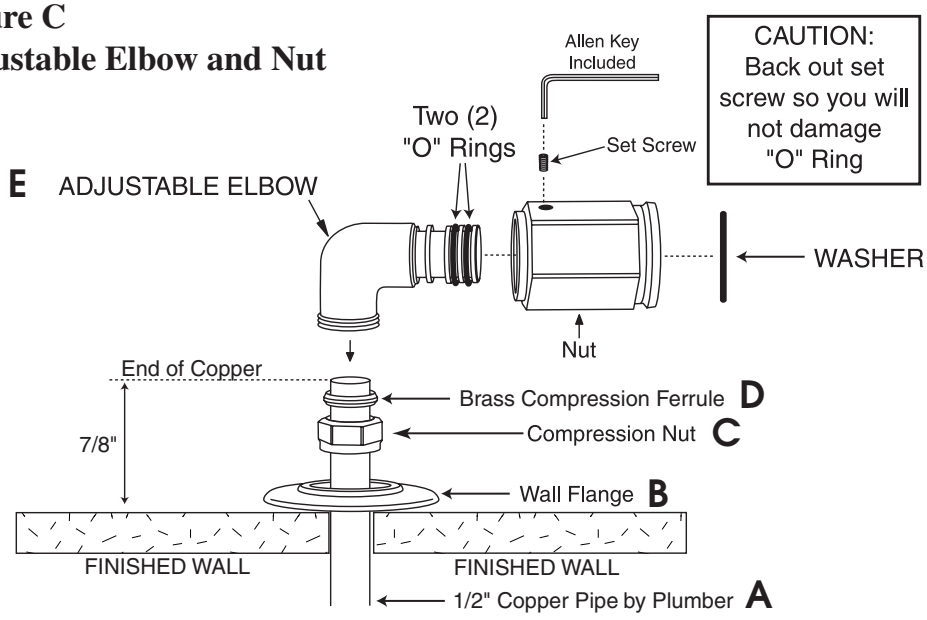
Figure A



INSTALLATION:

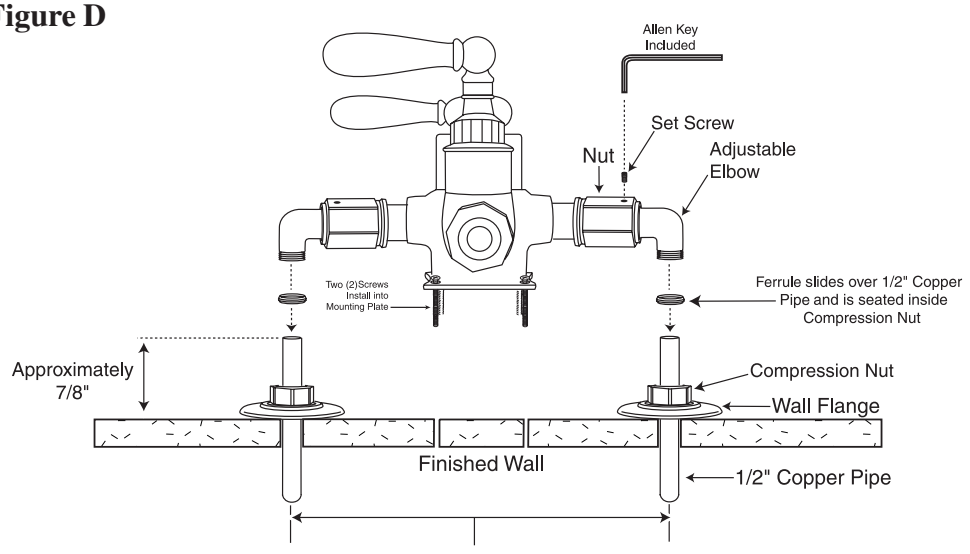
Next, cut the 1/2" copper pipes so that they extend approximately 7/8" from the finished wall. **(See Figure C below)** Slip the wall flange over the pipe. Next, slide on the compression nut so that the bottom fits into the wall flange. Slide the ferrule down the pipe. It will pinch into the copper securing the elbow when you tighten the nut onto the elbow. After elbows on both sides are in place, slip the large nuts over the elbow on each side of the fitting. Next, secure the nuts to the elbows by tightening the set screws with the allen key.

Figure C
Adjustable Elbow and Nut



Please Note: The entire valve body must be installed over the copper pipes **- at one time -** you may loosen the set screw on the Large Hex Nut to allow flexibility in the installation, but do not separate the components. **See Figure D below.**

Figure D



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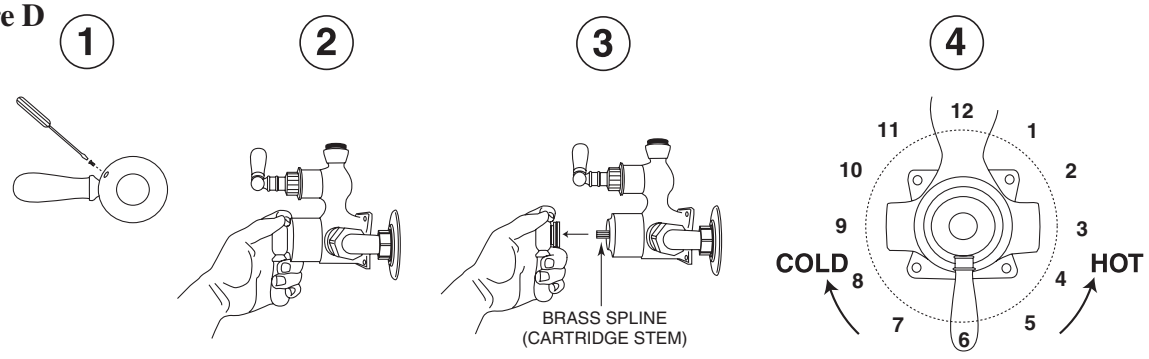
CALIBRATION INSTRUCTIONS:
FOR TEMPERATURE SETTING AND ADJUSTMENTS

Calibration is the simple process by which you control the temperature range of mixed water. The Exposed Thermostatic Valve has been tested to perform correctly at the factory, and the maximum temperature of 110° F has been set. If you desire a hotter or colder temperature range, you may recalibrate the valve after installation, when both HOT and COLD lines are 100% operational, and all installation debris has been flushed from the water lines.

TO CALIBRATE TEMPERATURE SETTING:

Begin by using a small screwdriver to loosen the screw located at the base of the large handle lever. Grasp firmly the center of the large handle lever and pull carefully upwards. To increase factory set temperature, rotate slowly cartridge stem (Brass Spline) counterclockwise. To reduce the temperature from factory setting, rotate cartridge stem clockwise. **See Figure D** for a full labeled diagram to assist in calibration. ***Under no circumstances is the thermostatic cartridge to be dismantled. Doing so will VOID THE WARRANTY and possibly make the cartridge inoperable. Use your hand to test temperature of running water before you bathe.***

Figure D



CALIBRATION PROCEDURE

1. To increase temperature (HOT) Turn counterclockwise.
2. To decrease temperature (COLD) turn clockwise.
   After installation, the thermostatic valve may need the Maximum Temperature Reset.
3. Undo the screw in the temperature control knob and pull it off its spline.
   (See Figure D1 thru D3)
4. With the shower running, turn the brass splined thermostatic cartridge with your fingers and rotate counterclockwise until a maximum HOT temperature required is reached. This should be 102° F to 108° F, or slightly uncomfortable to the hand.
   DO NOT USE PLIERS ON THE BRASS SPLINES!
5. Now, without turning the spindle, push the knob back onto the spindle with the handle pointing to an approximate 3 O'clock position. In this position it will be close to its stops, and when fully on will not move any further in a counterclockwise direction. Retighten the set screw, and the shower should now be set so that the user can adjust the temperature from cold to a secure and comfortable hot temperature. It is important that this calibration is carried out properly to preserve the anti-scald feature of this shower valve.

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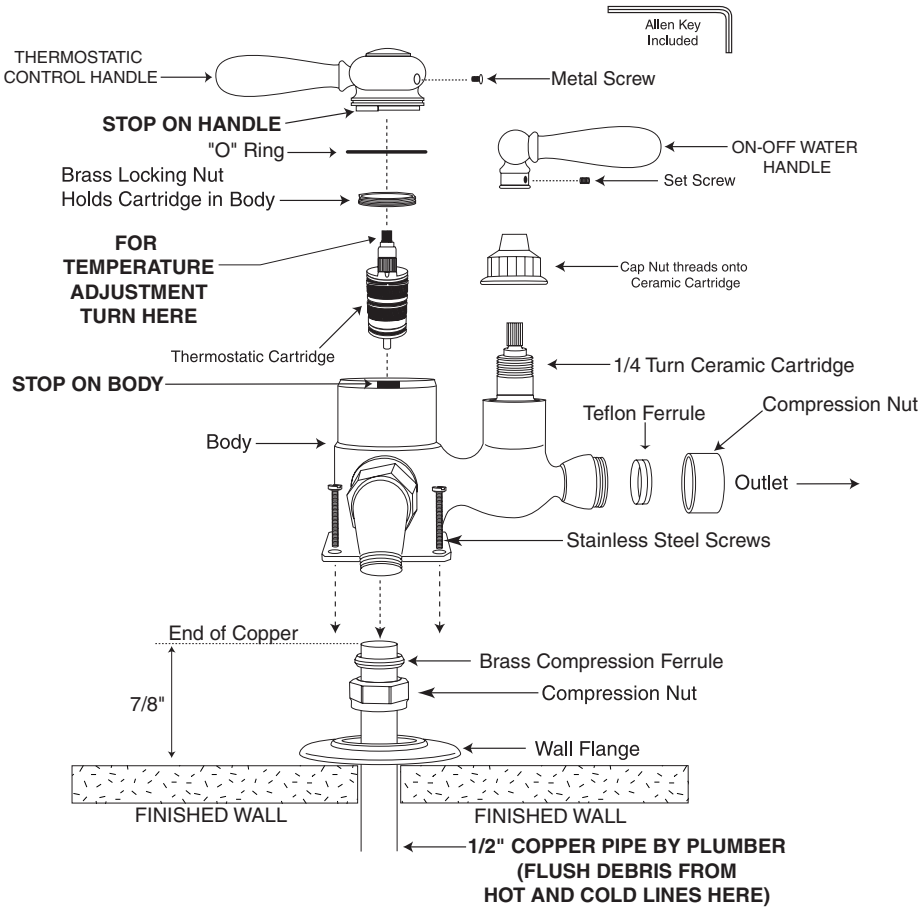
EXPOSED 1/2" THERMOSTATIC VALVE

EXPLODED VIEW

PRINT 1



TROUBLE SHOOTING:

The Exposed Thermostatic valve is remarkably dependable and reliable, providing you with a lifetime of service and beauty. The following three problems, and the simple solutions to each, have accounted for nearly all difficulties with this valve.

1.) After Installation the shower only runs HOT or COLD water, and will not mix.

SOLUTION: *You have the HOT and COLD plumbed the wrong way around. The correct plumbing is HOT on the LEFT, and COLD on the RIGHT.*

2.) The shower will not run hot enough when first installed.

SOLUTION: *First verify that the water heater is set at 135° F or more. If such is the case, then maximum temperature of the cartridge needs to be set at a higher set point. To readjust the temperature range, follow* ***CALIBRATION INSTRUCTIONS***.

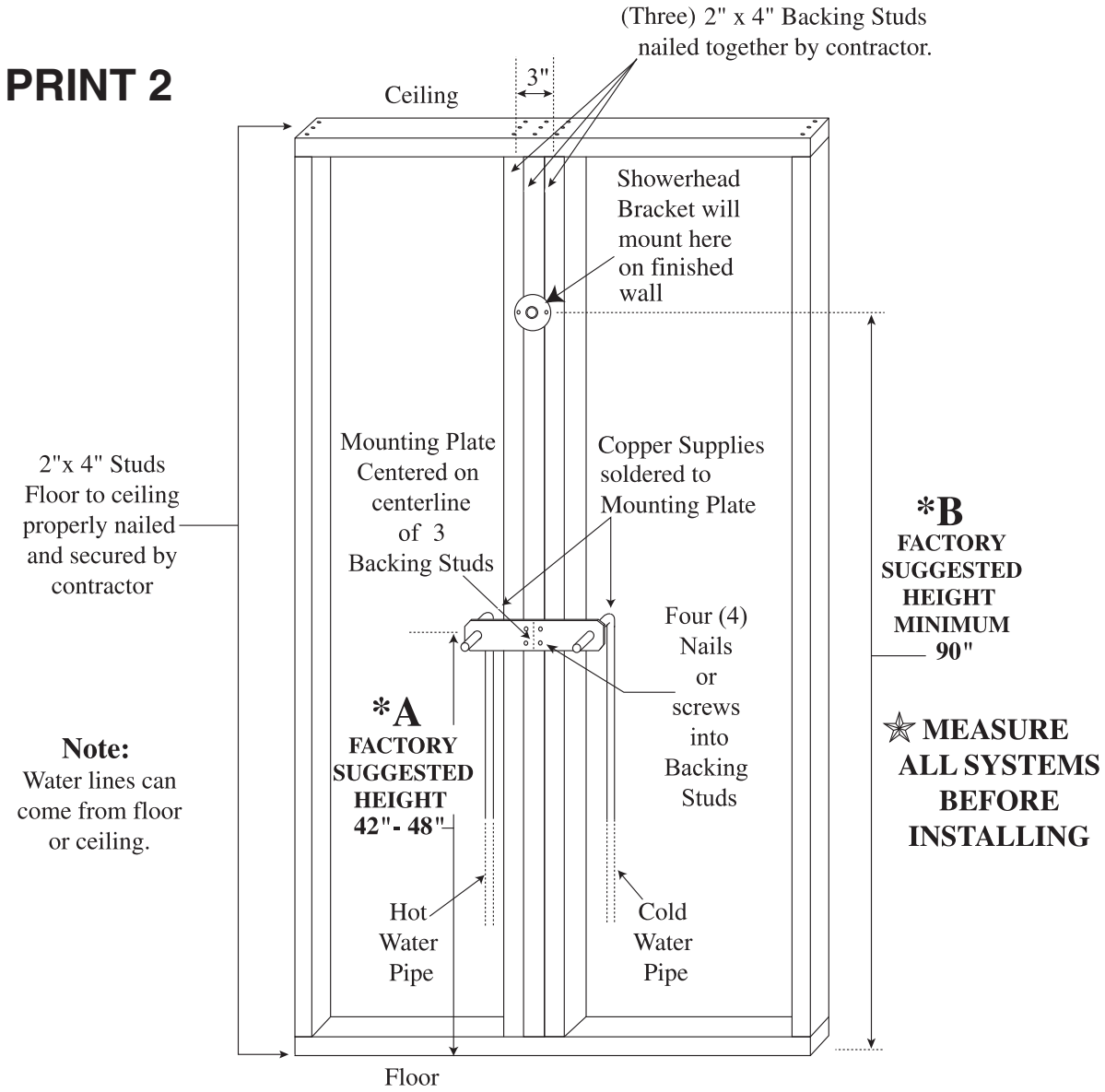
3.) Cold water tracking through the valve into the hot system on combination boiler systems.

SOLUTION: *This is prevented in the Exposed Thermostatic Valve by built-in check valves in the inlets. Check and clean the built-in valves.*

Installation begins by selecting the centerline of 2"x 4" backings studs at the factory suggested location of 42"to 48"as shown in **(Print 2)**. The mounting plate is secured through the use of four metal screws. **Note:** The wall surface must be level on all sides of the centerline, otherwise the thermostatic system will not look level and straight when installed.

RECOMMENDED
TYPICAL WALL FRAMING CONCEPT

PRINT 2



*** Note: These are factory suggestions only - The 90" Height at *B will allow a 6'5" tall person to walk underneath without bending.**

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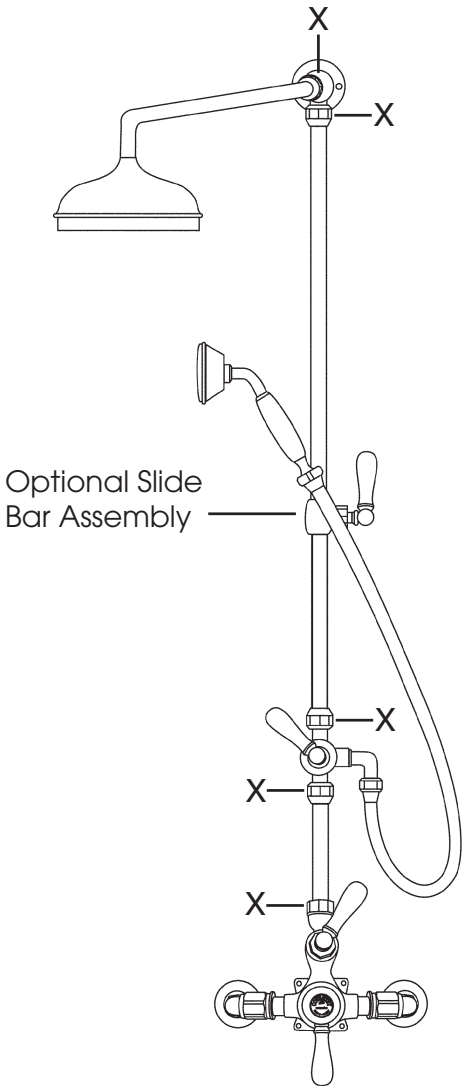
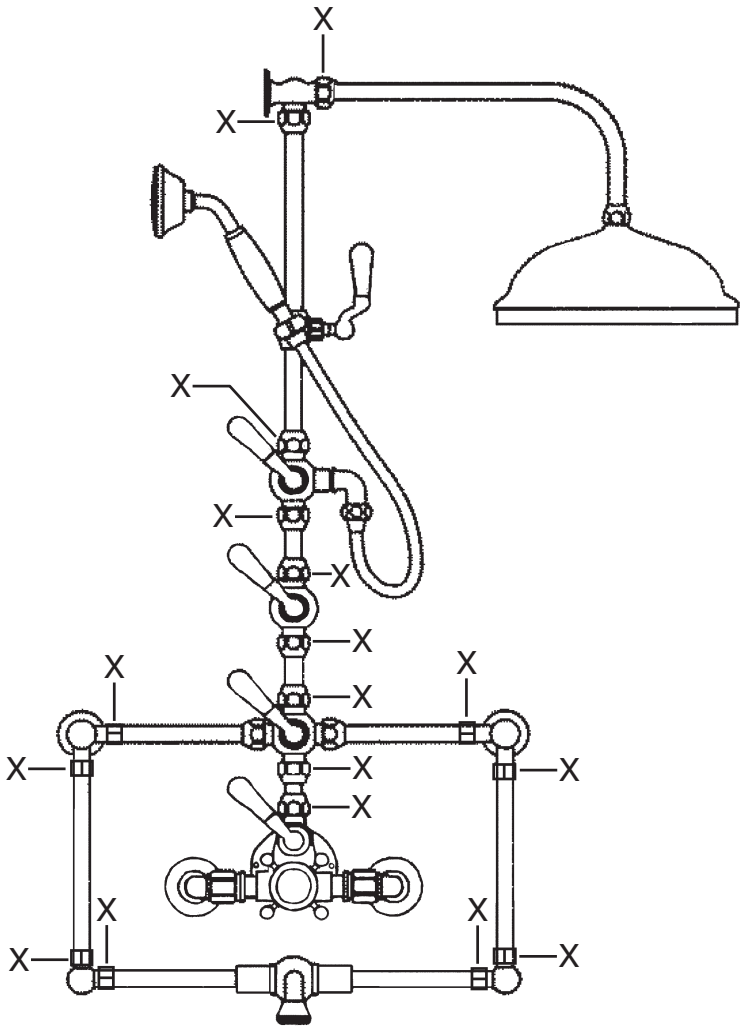
Typical Finished Installation of Exposed Thermostatic Wall Units

PRINT 3



1/2" THERMOSTATIC VALVE



3/4" THERMOSTATIC VALVE

Note:

1. All Supplied Piping may be cut shorter provided there are no threads on the end you wish to cut!
2. All **"X" designated points** are **Teflon Compression Fittings** and the pipe can be cut by the installer to fit particular bath requirements.

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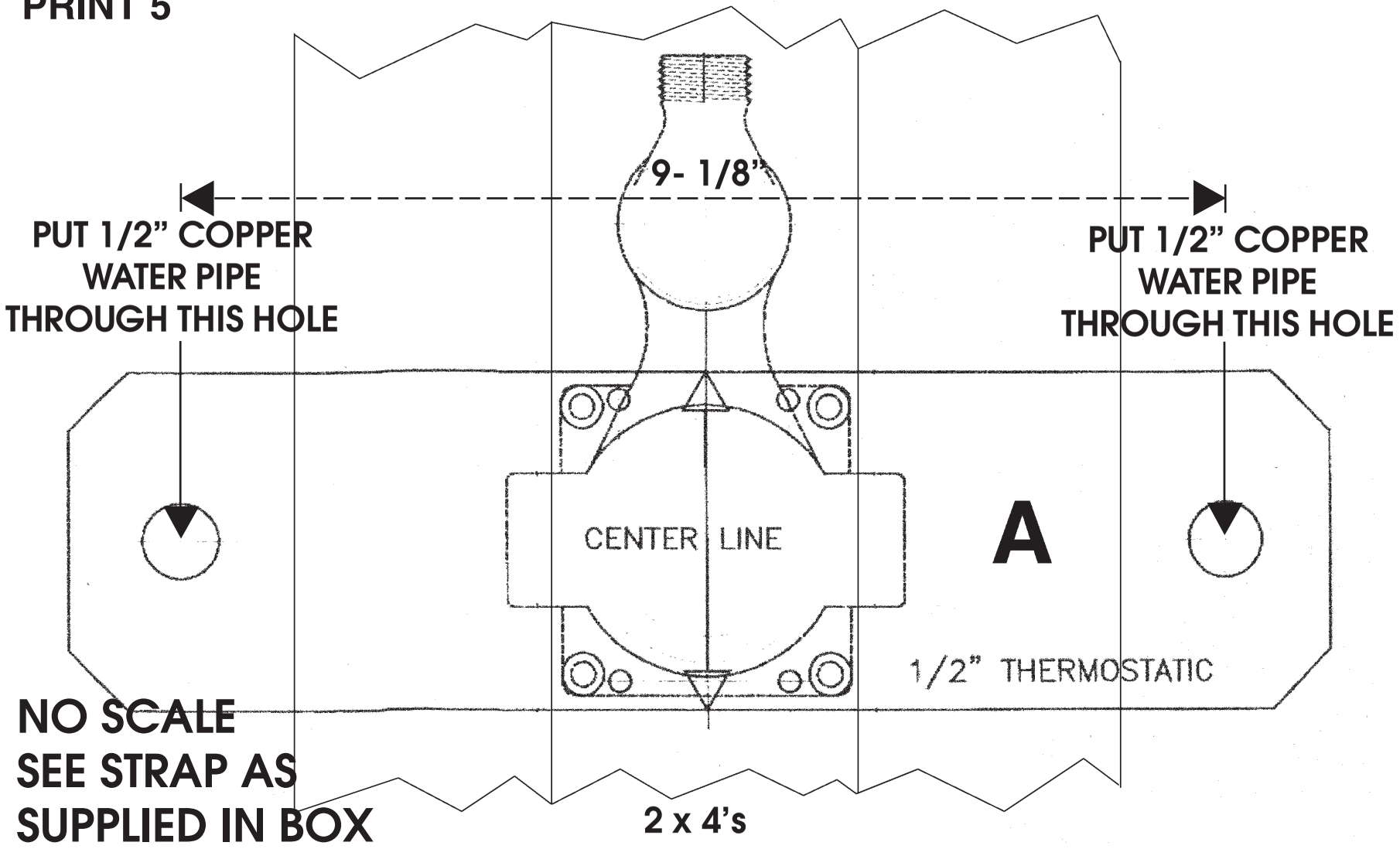
SUGGESTED INSTALLATION OF MOUNTING FOR 1/2" EXPOSED THERMOSTATIC SYSTEM.

THIS PLATE IS INSTALLED ON THE WOOD BACKING DESIGNATED ON **PRINT 2**.

PRINT 5



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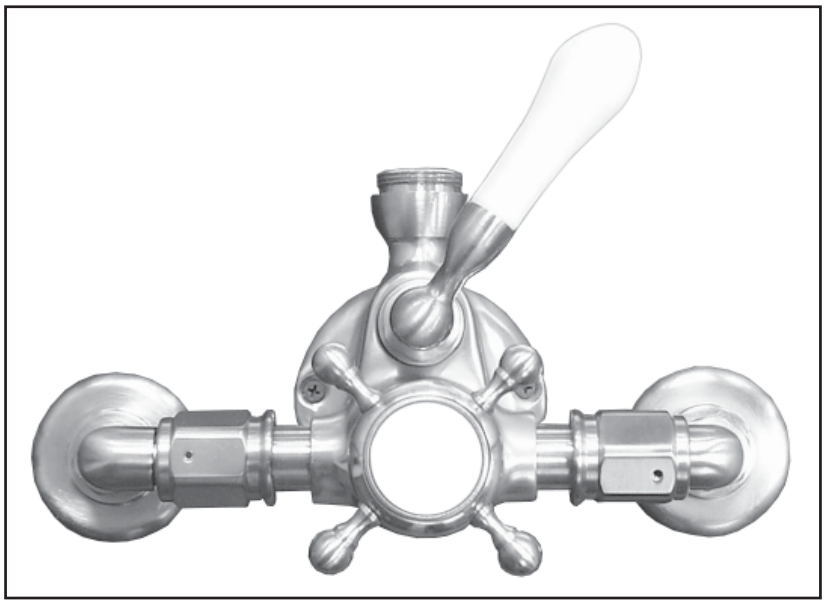
Exposed Thermostatic Valve General Installation Instructions



LEAVE FOR HOME OWNER

Care Instructions:

The product you have just purchased is designed to provide you with long lasting beauty and dependability. To ensure your product's longevity, please follow the following care instructions.

When installing, we recommend you lay all parts on a soft cloth or towel to avoid scratching or damaging the product. To care for your fitting, wipe with a clean, soft, damp cloth and blot dry as often as possible. Never use abrasive cleansers, sponges, or acidic cleaning products as these may damage the finish and may VOID THE WARRANTY.

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Welcome to the World of Thermostatic Systems Both Exposed and Concealed Valves

Please read ALL instructions, cautions, and care recommendations before beginning installation.

These products comply with Section 9 of NSF 61 criteria concerning lead content.

! CAUTIONS !

1. **APPLY NO HEAT/NO TORCH TO THE VALVE ASSEMBLY.**

2. Take special care to protect all components during the construction and installation.

3. Open all boxes carefully. The products are heavy and damage can occur after you open the contents.

4. We suggest all products be set on a soft work surface like an old blanket for review before installation.Cement floors are too hard.

5. Always turn off water at the source before beginning installation.

6. Go slowly - A cautious installation creates a beautiful finished result.

Caution 7. Use no pliers, vice grips or channel locks on this finished trim - you will scratch or mar the surface.

Caution 8. Use a crescent wrench on all nuts - be deliberate and patient - no damage will happen.

9. If you have the factory installation tool kit, follow the instructions enclosed.

10. Concealed thermostatic systems are the norm in the USA today. Valves are usually installed inside the frame construction and there is no danger from exposed pipes.

11. All of the Exposed Thermostatic Systems are state of the art and meet or exceed all codes for approved products in the USA and Canada.

12. All systems are fail safe and will not allow hot water to exceed 120° degrees Fahrenheit during any showering or bathing experience if properly installed.

13. Each individual bather can adjust the temperature at will while using the shower. Our thermostatic systems have separate temperature controls from the exit controls.

14. Exposed hot water pipes are potentially dangerous to the unsuspecting person. We are used to concealed plumbing pipes inside the walls of a typical home.

15. Be advised that exposed thermostatic systems have a **HOT** water line that can be too hot to touch! **Beware of burns!**

16. Exposed piping means you can touch the cold and hot water lines.

17. Exposed piping means you can see if anything is wrong with your plumbing.

18. Exposed piping means you can service your system easily.

19. Exposed piping means you don't have to remove your walls if a problem occurs.

20. We have labeled the hot side as a preliminary caution for the homeowner. Please leave the attached label in place for the homeowner to remove when the installation is complete.

21. **1/2" copper water lines are required for the hot and cold inlets.**

22. Remember the exposed piping is **not a grab bar** and we do not imply in any way that our installation procedures are for any other purpose than to support the exposed pipes on the prepared surfaces of your walls.

23. You must provide wood backing inside the walls to mount the various units correctly (see the attached installation print #2).

24. Be sure the supplied screws will be long enough to reach the interior wood blocking or that the screws supplied with the alligator clips are going to fit in your tile or stone walls (see diagram of suggested framing).

25. The system comes with both metal and teflon ferrules. The 2 supplied 1/2" metal ferrules are for the 1/2"copper inlets only. The teflon ferrules are for the risers on the exposed pipes only.

26. All systems have been water tested at the factory to 90 lbs of static and dynamic water pressure. Thus you may find residual water inside the thermostatic valve from this testing.

27. The exposed thermostatic valve has been factory calibrated to deliver a maximum Fahrenheit temperature of 110° to confirm proper operation. In the absence of a thermometer, the maximum water temperature should feel slightly uncomfortable to the hand. **NOTE:** It is important that the valve be properly calibrated to preserve its anti-scald feature. For recalibration procedures, **(See Page 8)**.

28. Prior to installing the thermostatic body, **flush all water lines** to free up debris. The lines should be flushed long enough to remove any sediment that may come from any new installations including a water heater. It is recommended you flush lines for at least 15 minutes before connecting the new fitting, let water run from the HOT and COLD copper connecting pipe in the shower wall.

29. **Failure to flush thoroughly may damage internal parts!** An in-linewater filter is recommended to remove harmful sediments.

30. Plumber's putty is not recommended. Use of caustic substances or acidic curing products for installation purposes may harm the finish or cause the product to not function properly. Please read the cautions printed on any product purchased for use during installation. It is recommended you use teflon tape approved for water application.

31. Inlet check valves are provided with the system. If factory provided check valves are removed, a qualified plumbing contractor MUST install check valves up stream of the valve.

32. Water pressure comes from your local water supplier and can be measured at the source. Pressure and water velocity are not functions of the valve.

33. Do not attempt installation of product if you do not understand these instructions. **Qualified plumbers should be used for all installation procedures.**

34. Call the factory if you have any questions.

Water Supply

Exposed Thermostatic valves can be supplied from any hot water production system, even by instantaneous domestic production, as far as the generator is capable of supplying very small quantities of hot water (about 0.8 gal/min).

- Maximum working pressure	145 PSI
- Minimum working pressure	14 PSI
- Recommended working pressure	29 to 58 PSI
- Maximum test pressure	224 PSI
- Maximum hot water temperature	185°F

Shower Heads:

All showerheads and hand showers comply with the approved water flow rate as required by US plumbing codes. We have installed flow restrictors in the heads.

These flow restrictors can clog from lime scale buildup, silt, sand, or debris in the water line caused from or during the construction process. If you wish to clean or service the restrictor, simply use a Phillips screwdriver and back out the plastic part - clean and reinstall.

Always keep your showerheads level and perpendicular to your floor. If any head is tilted you may not receive a satisfactory shower.

The showerheads are intentionally designed as Rain Heads. The water exits the 8" and 12" size heads like wonderful soft rain. Increased velocity does not come from the shower valve but from several other factors.

The velocity of the water is dependant on your existing street water pressure, the size of the pipes, the water meter and the design of your pipe system.

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Note: This fitting has been factory assembled, tested and is ready for installation. See the tag attached to the valve to verify factory readiness.

Recommended Instructions:

Read all instructions completely before proceeding!

The Exposed Thermostatic Valve is a controlled shower mixing valve. Temperature is thermostatically controlled by a wax cartridge thermostat that maintains a constant temperature while automatically adjusting and compensating for changes in HOT and COLD inlet pressures. Should the COLD supply fail, the valve will immediately shut down to avoid any risk of scalding. Keep in mind that the distance the shower head or other exit is from the valve will determine how fast you feel the instantaneous correction in temperature. The water flow is controlled by a simple quarter turn ceramic lever. The Exposed Thermostatic Valve is suitable, without modification, for all types of installations. This includes pumped gravity systems, main pressure water systems and combination boilers.

MEETS AND EXCEEDS I.A.P.M.O. ASSE 1016 STANDARDS AND UNIFORM PLUMBING CODES

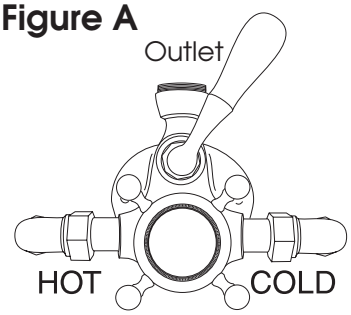
PRODUCT CARE:

The Exposed Thermostatic Valve is incredibly easy to maintain. The temperature and flow are controlled by one piece cartridges which are easily removed for cleaning and replacement. To remove the thermostatic cartridge use a crescent wrench. See Calibration Instructions to demonstrate how to properly remove the handle. To ensure full water flow, periodically clean the cartridge screens of any debris using a small brush. Rinse thoroughly before returning to the fixture. Thread cartridge into place and reassemble handle pieces as shown on calibration instructions. Soaking the cartridge in a 50/50 solution of clear household vinegar and water will remove lime scale. Regular cleaning each year will extend the life of the cartridge. **Never use a screwdriver on a thermostatic cartridge and NEVER take a thermostatic cartridge apart as you will damage the precise instrument.** Call your dealer or the factory for answers to your questions. **Remember, after removing the cartridge, you must recalibrate.**

INSTALLATION:

The Exposed Thermostatic Valve must be installed with the outlet pointing upwards, so that the HOT water enters on the left, and the COLD water on the right, as shown in Figure A. **THE VALVE WILL NOT FUNCTION IF REVERSED!** The inlet elbows are fitted with compression nuts. Be sure to **flush thoroughly all new plumbing for up to15 minutes** before connecting the valve to clear out all debris in your water lines. The valve should be screwed to the wall with the stainless steel screws provided.

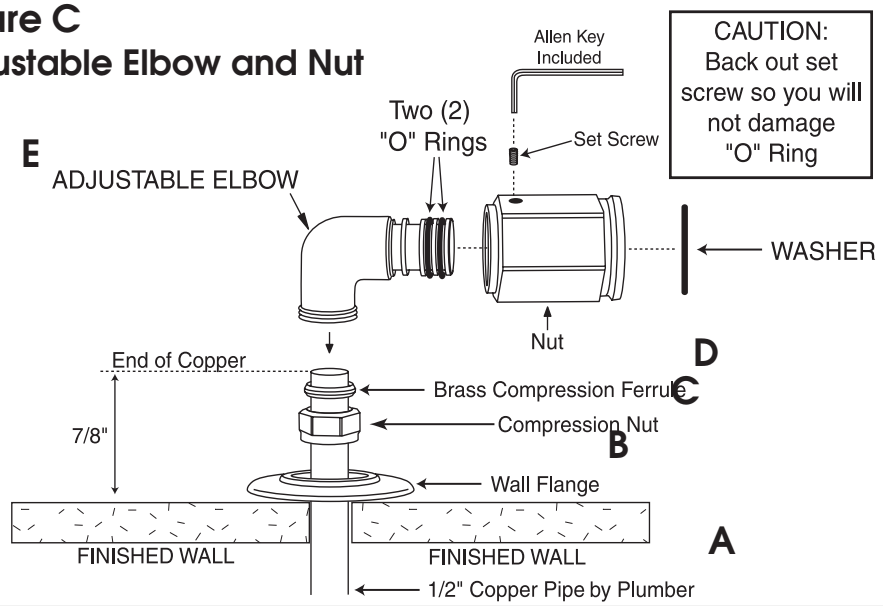
Figure A



INSTALLATION:

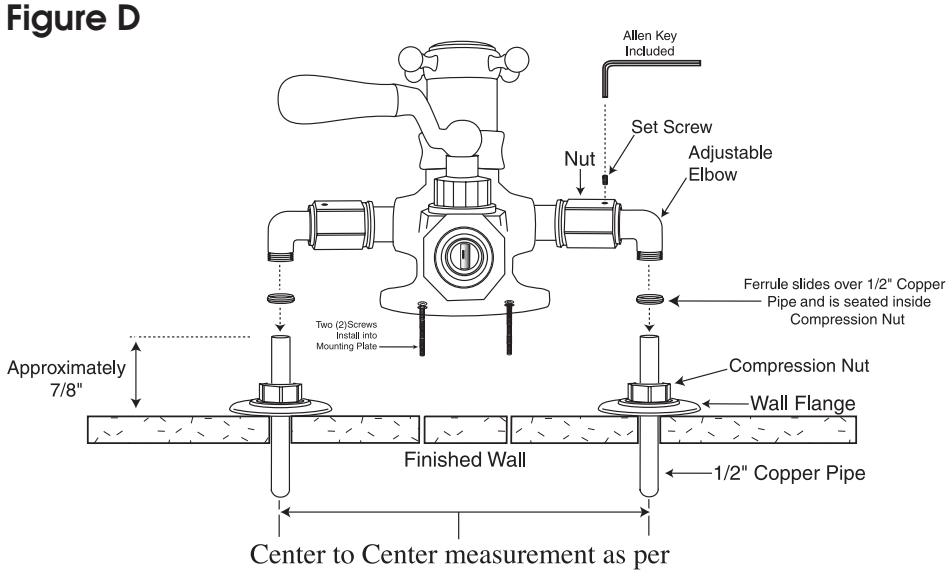
Next, cut the 1/2"copper pipes so that they extend approximately 7/8" from the finished wall. **(See Figure C below)** Slip the wall flange over the pipe. Next, slide on the compression nut so that the bottom fits into the wall flange. Slide the ferrule down the pipe. It will pinch into the copper securing the elbow when you tighten the nut onto the elbow. Next, secure the nuts to the elbows by tightening the set screws with the allen key.

Figure C
Adjustable Elbow and Nut



" Please Note" : The entire valve body must be installed over the copper pipes **- at one time -** you may loosen the set screw on the Large Hex Nut to allow flexibility in the installation, but do not separate the components. **See Figure D below.**

Figure D



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CALIBRATION INSTRUCTIONS:

FOR TEMPERATURE SETTING AND ADJUSTMENTS

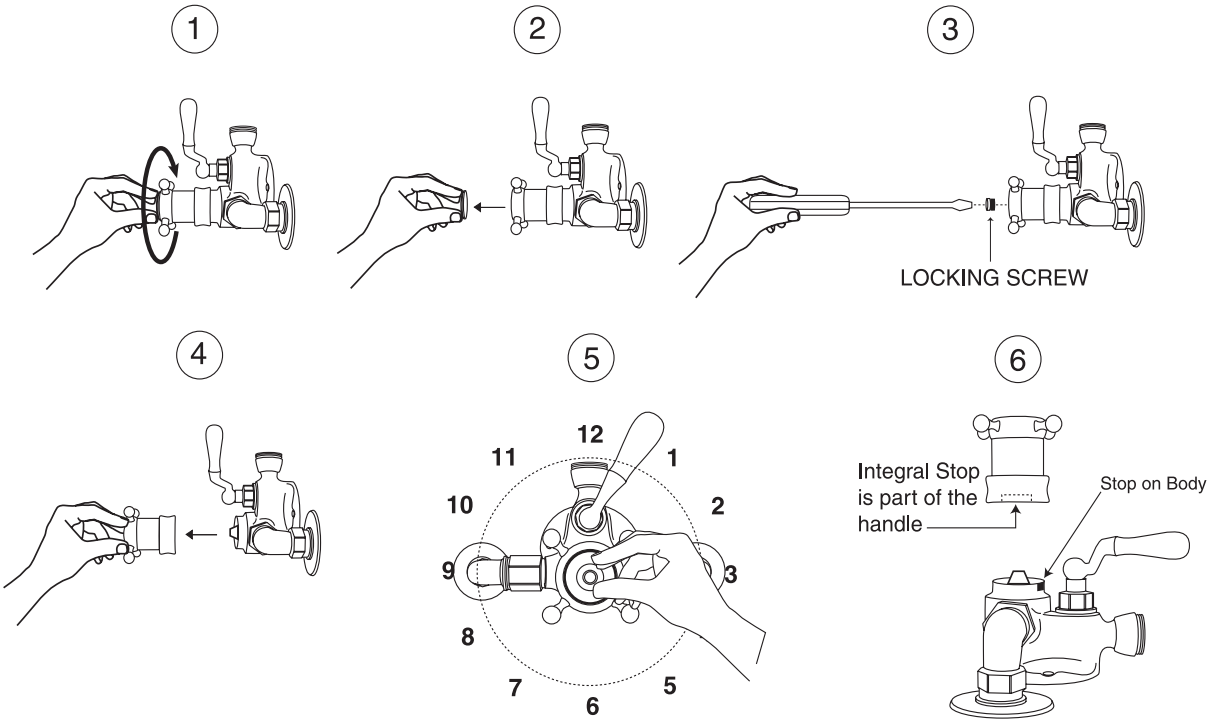
Calibration is the simple process by which you control the temperature range of mixed water. The Exposed Thermostatic Valve has been factory tested and calibrated to preserve its anti-scald feature when installed in your home. If you desire a hotter or colder temperature range, you can recalibrate the valve after installation, when both HOT and COLD lines are 100% operational, and all installation debris have been flushed from the water lines and the valve body. The factory has preset the valve at 110° F maximum. You may feel a 2 or 3 degree variance but turning the temperature handle will be the simple way to change the temperature.

TO CALIBRATE TEMPERATURE SETTING: (SEE FULL TEXT ATTACHED)

Begin by unscrewing the button in the center of the temperature control knob with your thumb and forefinger , as shown in **Figure E**. Then use a large screwdriver to loosen and remove the large screw in the center which secures the handle onto the thermostatic cartridge. **(See Figure E-3)**

When the screw is removed, turn the cartridge slightly counterclockwise to increase the maximum temperature, or slightly clockwise to decrease the maximum temperature. Push the handle back on and check water temperature. Remount the handle, tighten the large screw into the center of the handle and then tighten the button. ***Under no circumstances is the thermostatic cartridge to be dismantled. Doing so will VOID THE WARRANTY and possibly make the cartridge inoperable. (SEE FULL TEXT)***

Figure E



SEE FULL TEXT PAGE 8

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Calibration Instructions for the Exposed Thermostatic Valve Only

This is the full text of the installation and application procedures required to re-calibrate this particular cartridge as it comes from the factory.

The Exposed Thermostatic Valve has been factory calibrated to allow a maximum water temperature of 110° F to be set. This is an important safety feature. In some circumstances, and after the thermostatic cartridge has been removed for servicing, it will be necessary to recalibrate the valve. It is important that this calibration is carried out properly to preserve the anti-scald function of the valve.

Calibration is nothing more than the proper mixture of hot and cold water that is entering the valve. The proper mixture is nothing more than the end bather's perception of a proper shower. When we calibrate we simply adjust the incoming hot and cold water to a normal balance so that the bather has a comfortable and secure shower.

1. Reviewing the figure "E" print, the diagram shows how to remove the white ceramic button. This button is installed simply using your finger and thumb to remove or install the button.

2. If you next go to **(Print #1 PAGE 10)** you will see the exploded view of the exposed thermostatic valve. We would ask you to note several things; (1) at the very top of the page is the locking screw. As it shows, you will need a large screwdriver. Do not attempt this with a small screwdriver as brass is soft and you will strip the head out of the screw, therefore making it difficult to resecure the handle body in place.

3. Now, look at the handle body. If you remove it you will notice that built inside as an integral part of the body is a stop. This stop is important because depending on how you line it up on the stop, shown down on the body, you may or may not be able to adjust the handle for its full range of motion. The exploded view is important and it's simple. It gives you a visual point of view on how all the parts go together and come apart.

4. After you have removed the button and have used a large screwdriver to remove the center screw holding the handle onto the assembly, the next step is to actually run the water so you can set the range of temperature for your convenience. When the water is running, turn the center of the thermostatic cartridge as shown in print #1. **For colder water rotate the cartridge clockwise. For warmer water rotate the cartridge counterclockwise only slightly in either direction.**

5. After you have balanced the hot side and cold side while the water is running, you will determine whether this is the proper water temperature for your shower. We recommend that it be only slightly hotter than what you would shower at, so you can turn the handle after it is reinstalled to a cooler or hotter temperature.

6. Reinstall the handle so that the integral stop inside the sleeve lines up to the left side of the stop on the body. Rotate the handle counterclockwise until it hits the stop point.

7. In this position, reinstall the center screw (with the large screwdriver), tighten securely, and check this temperature setting. When complete you will have set the maximum temperature for this valve.

8. Now rotate this temperature handle with the water running 2 or 3 times. You will see how simple it is to increase or decrease your bathing water temperature.

9. Reinstall the center cap using your thumb and forefinger and you are ready to take a safe, secure and comfortable shower.

PRINT 1

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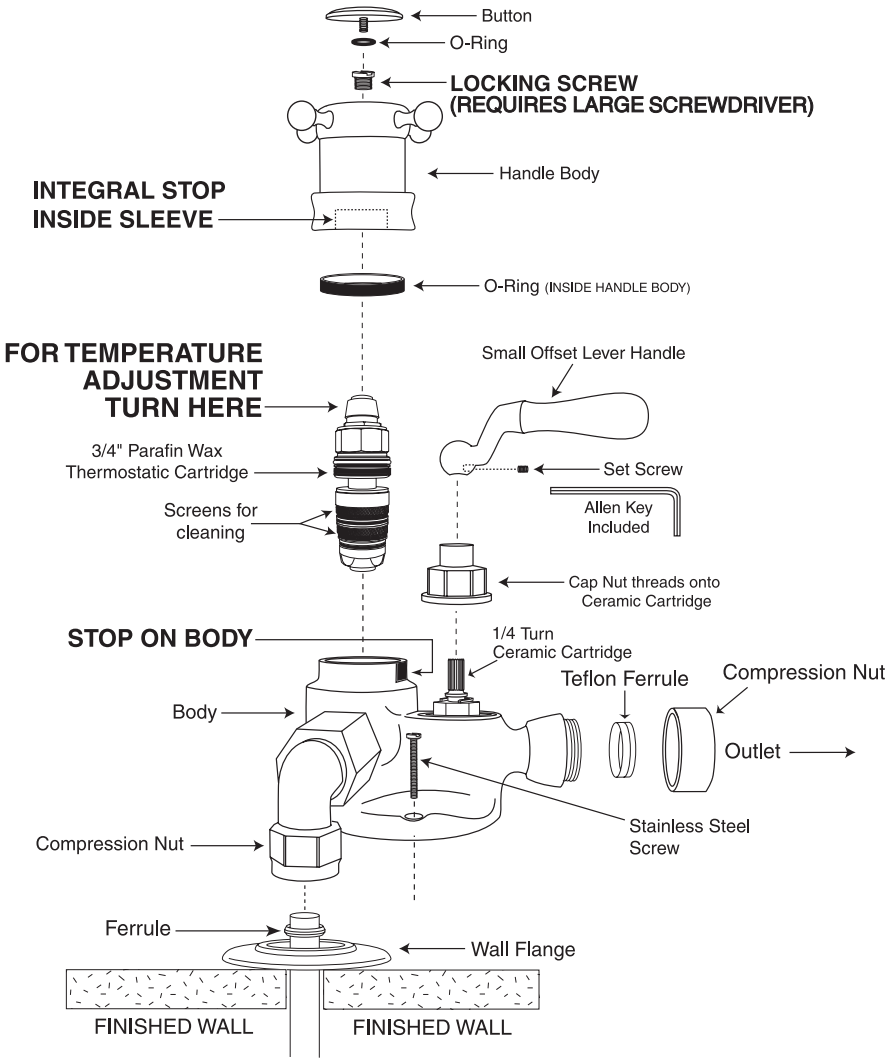
EXPOSED THERMOSTATIC VALVE

EXPLODED VIEW



TROUBLE SHOOTING:

The Exposed Thermostatic valve is remarkably dependable and reliable, providing you with a lifetime of service and beauty. The following three problems, and the simple solutions to each, have accounted for nearly all difficulties with this valve.

1.) After Installation the shower only runs HOT or COLD water, and will not mix.

SOLUTION: *You have the HOT and COLD plumbed the wrong way around. The correct plumbing is HOT on the LEFT and COLD on the right.*

2.) The shower will not run hot enough when first installed.

SOLUTION: *First verify that the water heater is set at 135°F or more. If such is the case, then maximum temperature of the cartridge needs to be set at a higher set point. To readjust the temperature range, follow* ***CALIBRATION INSTRUCTIONS*** .

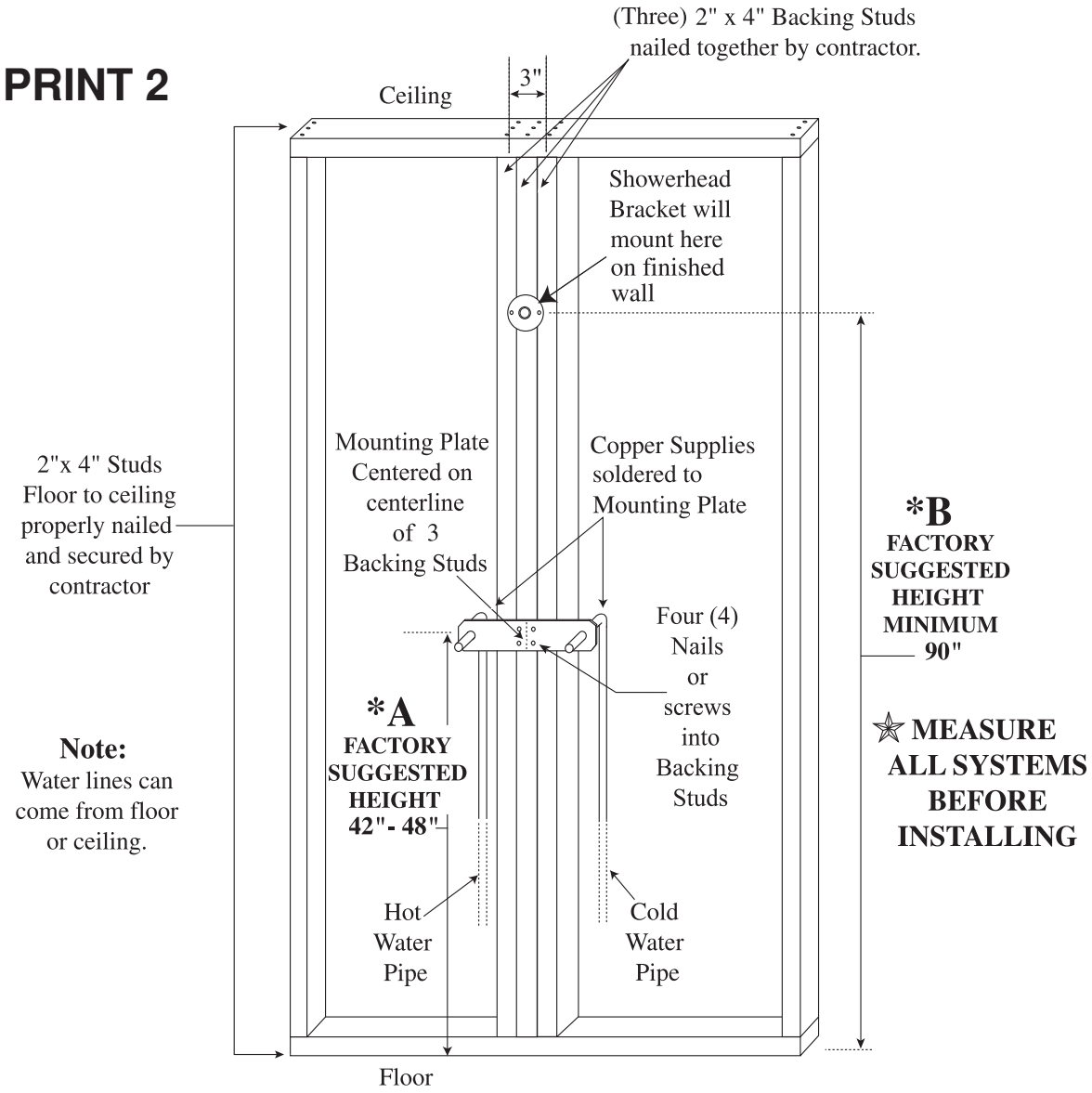
3.) Cold water tracking through the valve into the hot system on combination boiler systems.

SOLUTION: *This is prevented in the Exposed Thermostatic Valve by built-in check valves in the inlets. Check and clean the built-in valves. There may be debris in the plastic check valve.*

Installation begins by selecting the centerline of 2" x 4" backings studs at the factory suggested location of 42"to 48"as shown in **(Print 2)**. The mounting plate is secured through the use of four metal screws. **Note:** The wall surface must be level on all sides of the centerline, otherwise the thermostatic system will not look level and straight when installed.

RECOMMENDED
TYPICAL WALL FRAMING CONCEPT

PRINT 2



*** Note: These are factory suggestions only - The 90" Height at *B will allow a 6'5" tall person to walk underneath without bending.**

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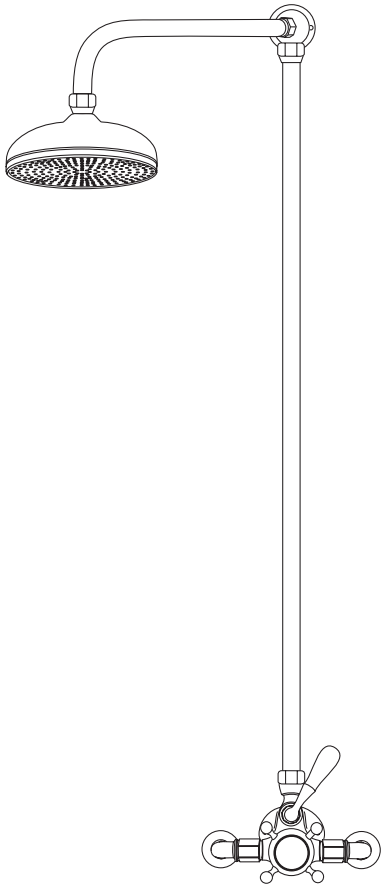
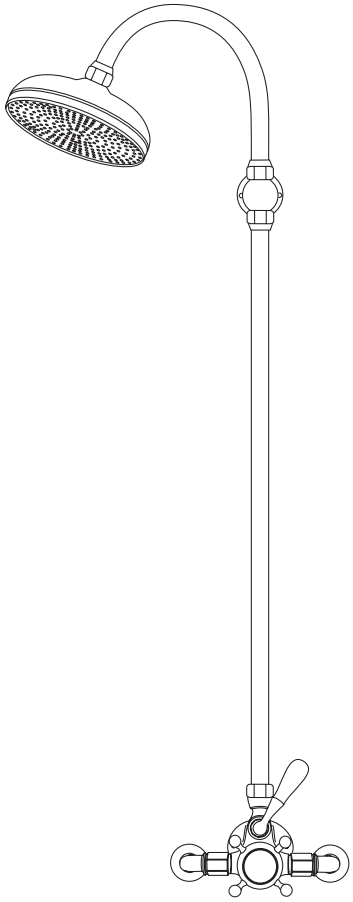
Typical Finished Installation of Exposed Thermostatic Wall Units

PRINT 3

MODEL # 41



MODEL # 46



Note:

1. All Supplied Piping may be cut shorter provided there are no threads on the end you wish to cut!
2. All **"X" designated points** are **Teflon Compression Fittings** and the pipe can be cut by the installer to fit particular bath requirements.

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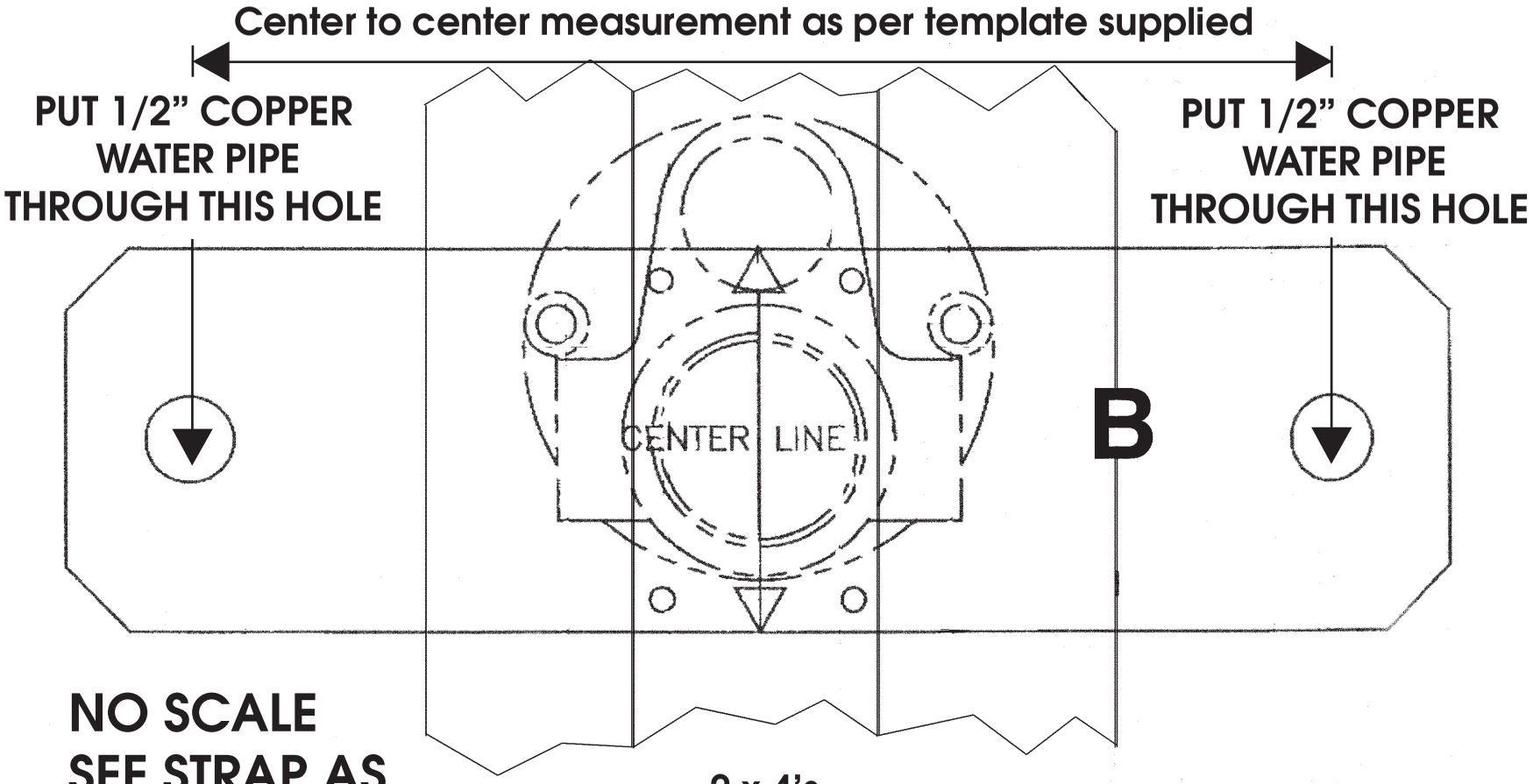
SUGGESTED INSTALLATION OF MOUNTING FOR EXPOSED THERMOSTATIC SYSTEM.

THIS PLATE IS INSTALLED ON THE WOOD BACKING DESIGNATED ON **PRINT 2**.



NO SCALE
SEE STRAP AS SUPPLIED IN BOX

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EXPOSED VALVE ASSEMBLY

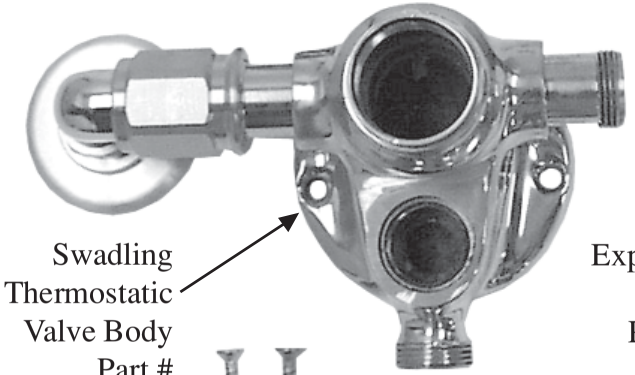
PRINT 4

Swadling Thermo-static Cartridge
Part # 88.30.301

Swadling Cross Handle Body
Part # 88.01.300

Porcelain Button
Swadling Cross Handle Cap Nut
Cross Handle Cap Nut
All one assembly as Part # 88.01.301

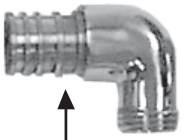
Thermostatic O-Ring
Part # 77.12.225



Swadling Thermostatic Valve Body
Part # 77.30.200-01

Exposed Thermostatic Check Valve
Part # 88.30.104

Thermostatic Elbow Adapter
Part # _____



Thermostatic "D" Elbow
Part # 88.12.224

Thermostatic Elbow Nut # 2
Part # 88.12.228

Thermostatic Elbow Flange
Part # 88.12.208

Stainless Steel Screws
Part # 88.30.118

Thermostatic Adapter
____" - 1/2" Tube
See Valve Body
Part Number

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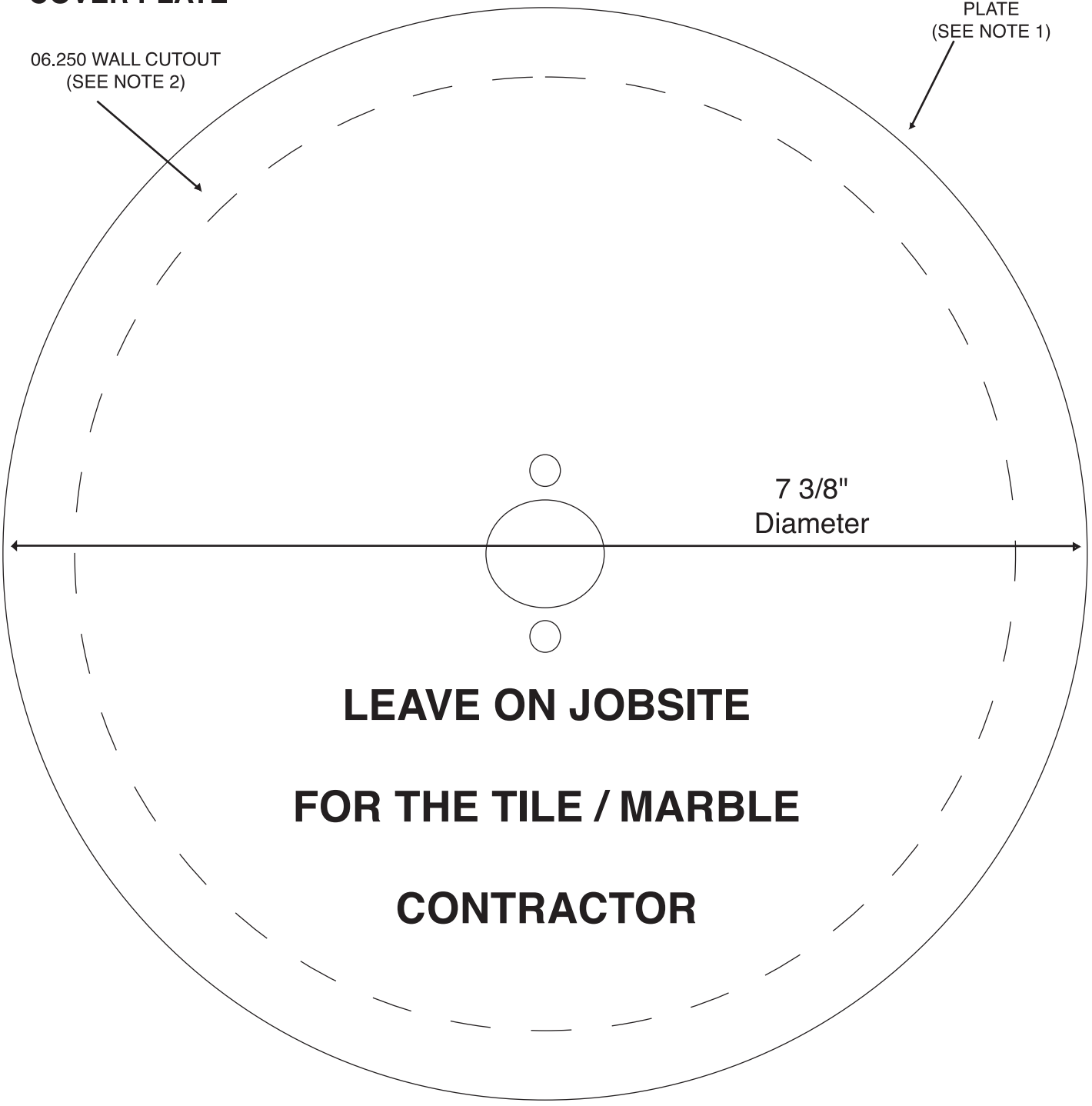
STANDARD THERMOSTATIC VALVE

-FULL SCALE (1:1) CUTOUT TEMPLATE-

COVER PLATE



LEAVE ON JOBSITE

FOR THE TILE / MARBLE

CONTRACTOR

NOTES:

1. SOLID LINE REPRESENTS THE ACTUAL OUTLINE OF THE TRIM PLATE.
2. DASHED LINE REPRESENTS THE TYPICAL WALL CUTOUT FOR STANDARD THERMOSTATIC VALVE INSTALLATION FOR 3/4" AND 1" SIZE VALVES.

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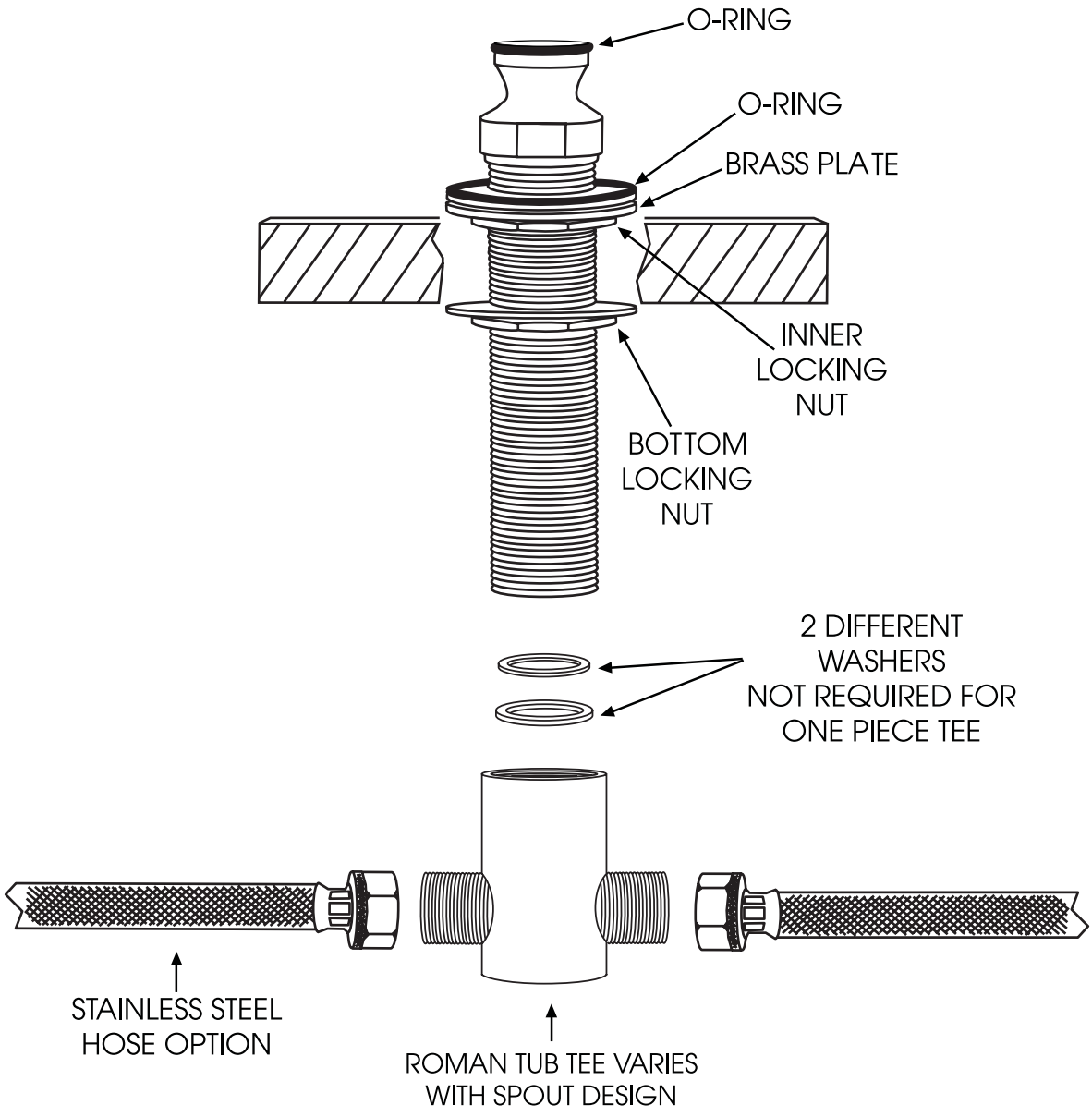
ROMAN TUB
INJECTOR/QUICK DISCONNECT
ROUGH ASSEMBLY



NOTE: Access to hoses are required or we suggest soft copper for permanent application

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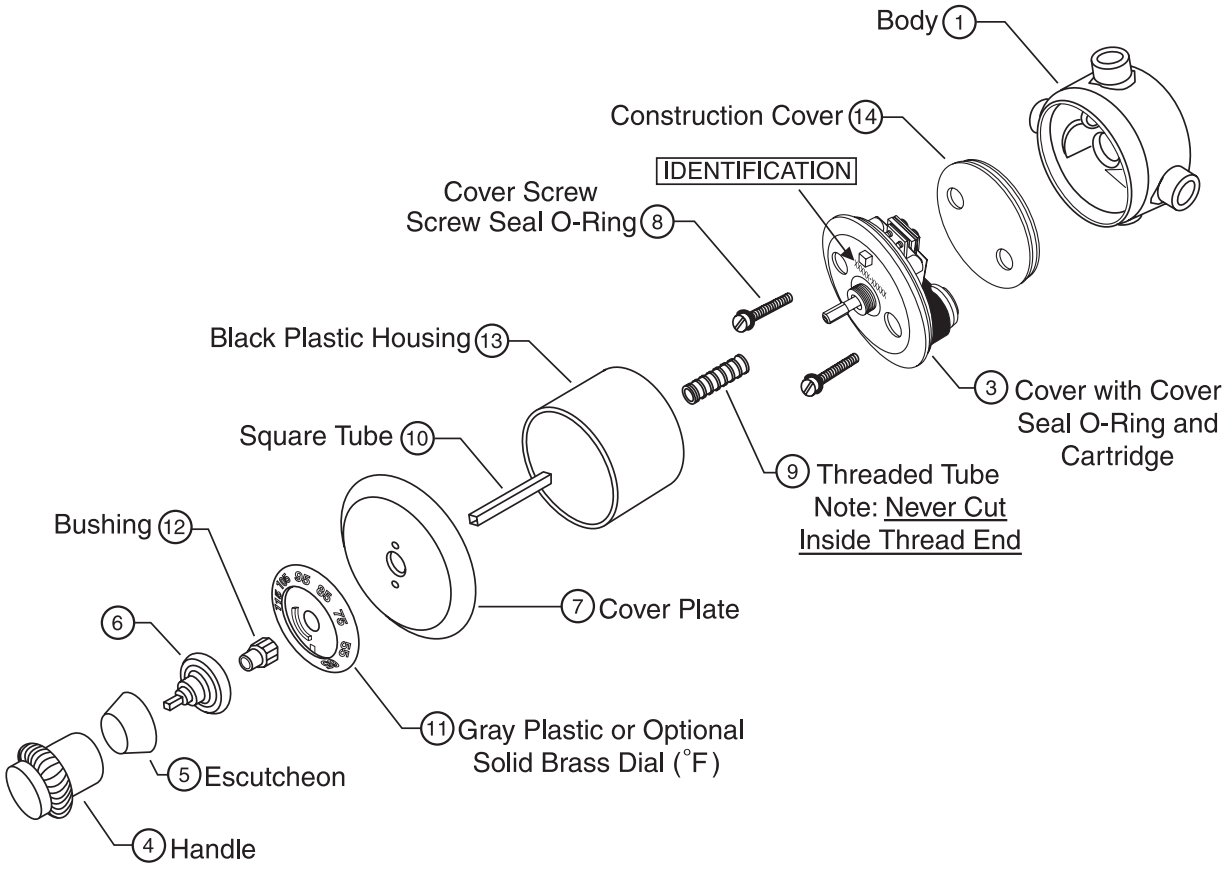
INSTALLATION INSTRUCTIONS

1" & 1-1/4" Thermostatic Mixing Valve Single Exit
For use with 1" and 1-1/4" Copper Pipe Only



This valve is single exit only. (Top Exit)
Bottom outlet is for draining valve only and is supplied with a plug.

Installation

Please Note: The first step in installation, removal of the cartridge, has already been done at the factory. The cartridge has been packaged separately from the valve body to prevent clogging the cartridge during installation. Install the cartridge only when the hot and cold water lines are flushed and fully operational. The water heater must be working or the unit will not work.

We recommend the installation of in-line plumber supplied shut-off valves close to the hot and cold inlets. Please remember the cartridge should be removed and cleaned annually for optimum useful life of the system.

The following parts may be ordered to extend stem:
4-1/2" Threaded Tube (Part #88.30.087)
5" Square Tube (Part #88.30.088)

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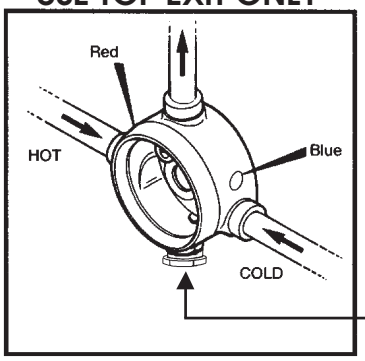
Installation Instructions
For 1" and 1-1/4" Valves

Connections

USE TOP EXIT ONLY



VALVE SIZE PORTS TO MATCH COPPER SIZE

Plug on bottom of valve for draining body in case of severe cold temperature.

-Important-

Connect the hot water to the side with the red mark and the cold water to the side with the blue mark.

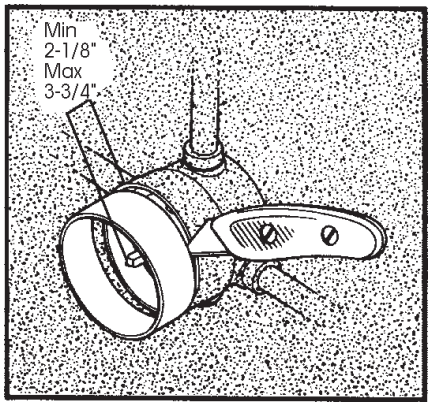
The black housing should act as a depth guide for the plumber. Install the valve so the housing extends beyond the finish wall 1/2".

Cut the plastic housing flush with the FINISH wall. The black housing is to remain with the valve body always for maintenance reasons.

Valve is shipped with standard extensions.

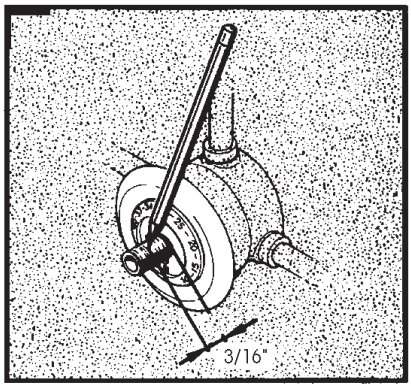
Flushing Lines

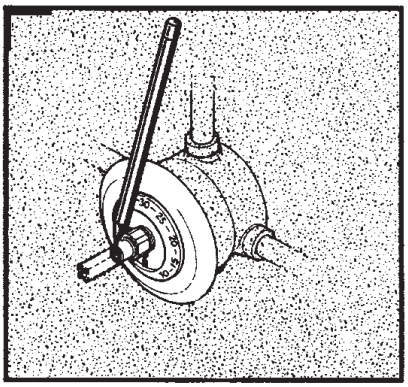
Flush the supply pipes completely and carefully by closing the body with the cover and its screws without the cartridge. **Keep foreign matter OUT of the cartridge.**



Assembly

Reverse steps performed when removing the cartridge to re-install the cartridge (see p. 3 for diagram). Assemble the cartridge (2), the cover (3) with its screws, fit the threaded tube (9), and screw home. Place the escutcheon (7) and the dial (11) onto the assembly. Make a cutting mark 3/16" from the dial face. Remove the tube, cut it, and debur the cut carefully. Screw the tube home again.





- Screw the bushing onto the threaded tube. Slide the square tube into the bushing and drive it completely into the control spindle.

- Make a cutting mark on the square tube flush with the bushing. Remove the square tube, cut it, and debur carefully. Replace the tube into the bushing and push it all the way into its recess.

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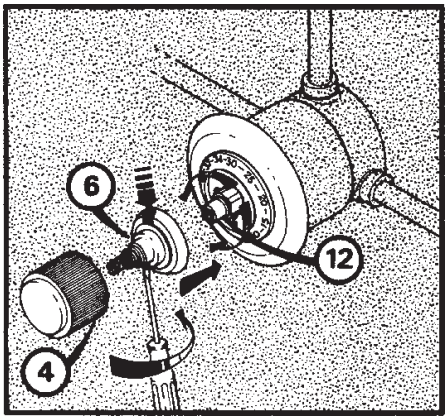
Temperature Calibration



Let the water flow and bring this to a mean temperature by actuating the bushing (12). Note this temperature. Place the cap (6) on the bushing and position the "red" index opposite the graduation corresponding to the temperature noted.

Tighten up the cap set screw and fit the knob (4) again.

When in use, if a water above 104°F is desired, press the "red" index and turn the knob to the left.

Maintenance

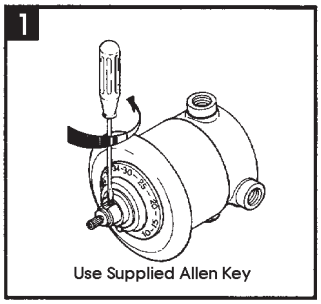
Filter Cleaning

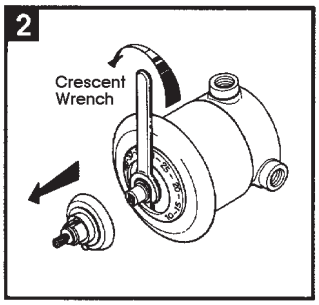
If the cartridge is installed prior to flushing the lines you may inadvertantly clog the filters. Dirty filters may lead to a reduction in the flow rate. It is then necessary to clean them with a brush after removing the cartridge (2) from the body of the appliance (see "Cartridge Removal Guide"). Brush the outsides of the filters ONLY. **NEVER undo the brass screws, as doing so will VOID THE WARRANTY.**

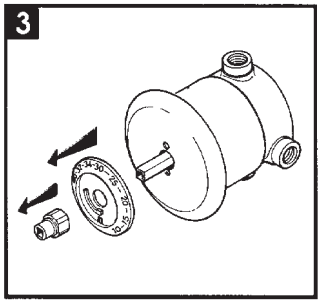
D. Cleaning the Cartridge

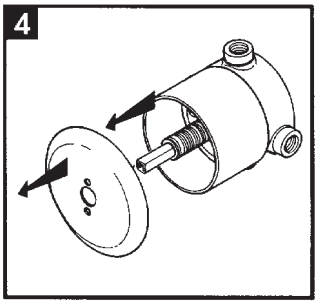
If the cartridge is installed prior to flushing the lines you may inadvertantly clog the filters. It will be necessary to remove the cartridge from the mixing valve - never take the cartridge apart or you will void all warranties . Simply soak the entire cartridge in plain vinegar for 1 to 3 hours and reinstall the valve. 90% of the time the valve will then work normally. See Operating Incidents for further details.

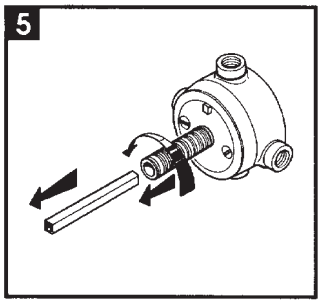
Cartridge Removal Guide (Future reference ONLY)

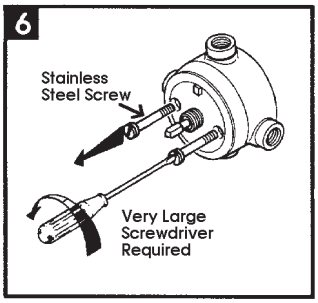


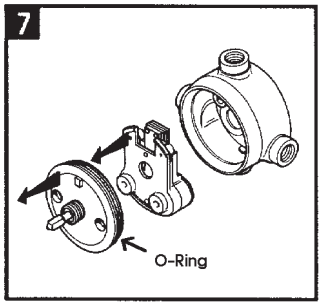












Emptying in case of Frost

When the appliance is exposed to freezing conditions it is ESSENTIAL to empty it:

- either by turning on a tap at the bottom outlet
- or by opening the cover (3) of the appliance.

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GENERAL THERMOSTATIC INFORMATION FOR HOME OWNER

Please read the complete Thermostatic instructions and cautions contained in this booklet before attempting to install the Thermostatic Valve System.

Please be sure the Homeowner is provided the booklet for future reference for regular maintenance.

FEATURES:

- 1/2" systems come with 1/4 turn ceramic disc cartridges for both the shut-off valves and volume controls. Other sizes may have **optional shut-offs**, ask dealer for details.
- The 1/2" full-flow Thermostatic uses a parafin wax sensitivity cartridge.
- The 1/2" cartridge constantly monitors temperature and re-adjusts within 2° Fahrenheit of set temperature when supply pressure fluctuates, re-adjustment occurs in less than 2 seconds.
- This thermostatic valve has been in use worldwide for over fifty years.
- Complete serviceability from front of all units.
- Sizes vary from 1/2" - 3/4" - 1", 1-1/4", 1-1/2". and 2" for residential use.
- All other units are Bi-Metal Strip with Built-in Check Valves in the cartridge.
- Extension kits are available through your dealer at an extra charge.
- The Bi-Metallic cartridge delivers the highest flow rate in the industry today.
- The Bi-Metallic cartridge has the fastest response time plus + (or) minus -1 second, and 1° Fahrenheit when fluctuation in supply pressure occurs.
- Keep in mind that the distance the shower head or other exit is from the valve will depend on how fast you feel the instantaneous correction in the temperature.
- Uniform dials and push-button over-rides are interchangeable on all sizes of valves.
- 1/2" and 3/4" size valves come with dual exits as a standard feature. You may decide to plug one exit if you don't need both.

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FAILURE TO FOLLOW INSTRUCTIONS MAY CAUSE DAMAGE OR IMPROPER OPERATION AND VOID THE WARRANTY.

1. Flush all rough-in piping thoroughly to remove sediment, flux and other debris.

2. Hot and cold inlets are clearly marked. **DO NOT REVERSE CONNECTIONS, THE UNIT WILL NOT WORK CORRECTLY.**

3. **DO NOT USE DIRECT HEAT, OR ANY TORCH ON 1/2" ROUGH VALVES.**

4. If unit comes with a black or gray plastic outer ring -- read directions and be sure you keep above ring installed even after the trim is installed.

5. Minimum and maximum finished wall tolerances are clearly marked. (SEE EXPLODED VIEW OF VALVE)

6. It is extremely important that the rough mixing chamber be free of all debris before installation of the thermostatic cartridge. Read all instructions on boxes, valves and cartridges.

7. Under no circumstances should the thermostat cartridge be dismantled. Doing so will void any warranty and generally make the cartridge inoperable.

MAINTENANCE

The Bi-Metallic strip cartridge has two filter screens and a simple cleaning with a toothbrush will remove surface debris.

Soaking the cartridge in a 50/50 solution of clear household vinegar and water will remove lime scale, and lime deposits caused from your water.

Regular cleaning each year will extend the life of the cartridge. Never use a screwdriver on any thermostatic cartridge. **Never take a thermostatic cartridge apart as you will damage this precise instrument.** Call your dealer or the factory for answers to your questions.

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Technical Information

The thermostatic valve is designed to operate at water pressures as low as 14 psi and as high as 140 psi. If you have lower or higher pressure please consult the factory representative for suggestions or solutions.

1/2", 3/4", and 1" units are most commonly used for the deluxe shower, suite, or residential bath. Two or three bath components are often combined (i.e. hall bath, kids' bath, and guest all combined). These units all use the same size decorative wall plate & are available in any of our handle and finish trims. For more details contact your sales representative.

1-1/4", 1-1/2", and 2" units do not come with decorative trim, as these valves are very large and require easy access to install and use. Call for further details.

Important: All main lines must be the same size or larger than the supplied valve or the flow rates will not work. Therefore, if you use a 1-1/4" valve your water system should be based on a minimum 1-1/4" line--absolutely no smaller restriction should be allowed.

Water Supply
The thermostatic valve can be supplied from any hot water production system, even by instantaneous domestic production, as far as the generator is capable of supplying very small quantities of hot water (about 0.8 gal/min).

- Maximum working pressure	145 PSI
- Minimum working pressure	14 PSI
- Recommended working pressure	29 to 58 PSI
- Maximum test pressure	224 PSI
- Maximum hot water temperature	185°F

Options
'Reverse' cartridges are available to correct improper installation (this special order is an extra charge and takes 12 weeks for delivery).

Shut-Off Valves
The mixer itself determines the proportions of hot and cold water required for the mixture. **The mixer however regulates the temperature only and not the output; one shut-off valve (or more) must therefore be provided at the outlet(s) to control water flow.**

Non-Return Valves and Filters
Non-return valves are incorporated into the cartridge. This valve incorporates easily accessible stainless steel filters at the inlets of the cartridge. However, in order to access the cartridge, we recommend the installation of in-line plumber supplied shut-off valves close to the hot and cold inlets. Please remember the cartridge should be removed and cleaned annually for optimum useful life of the system.

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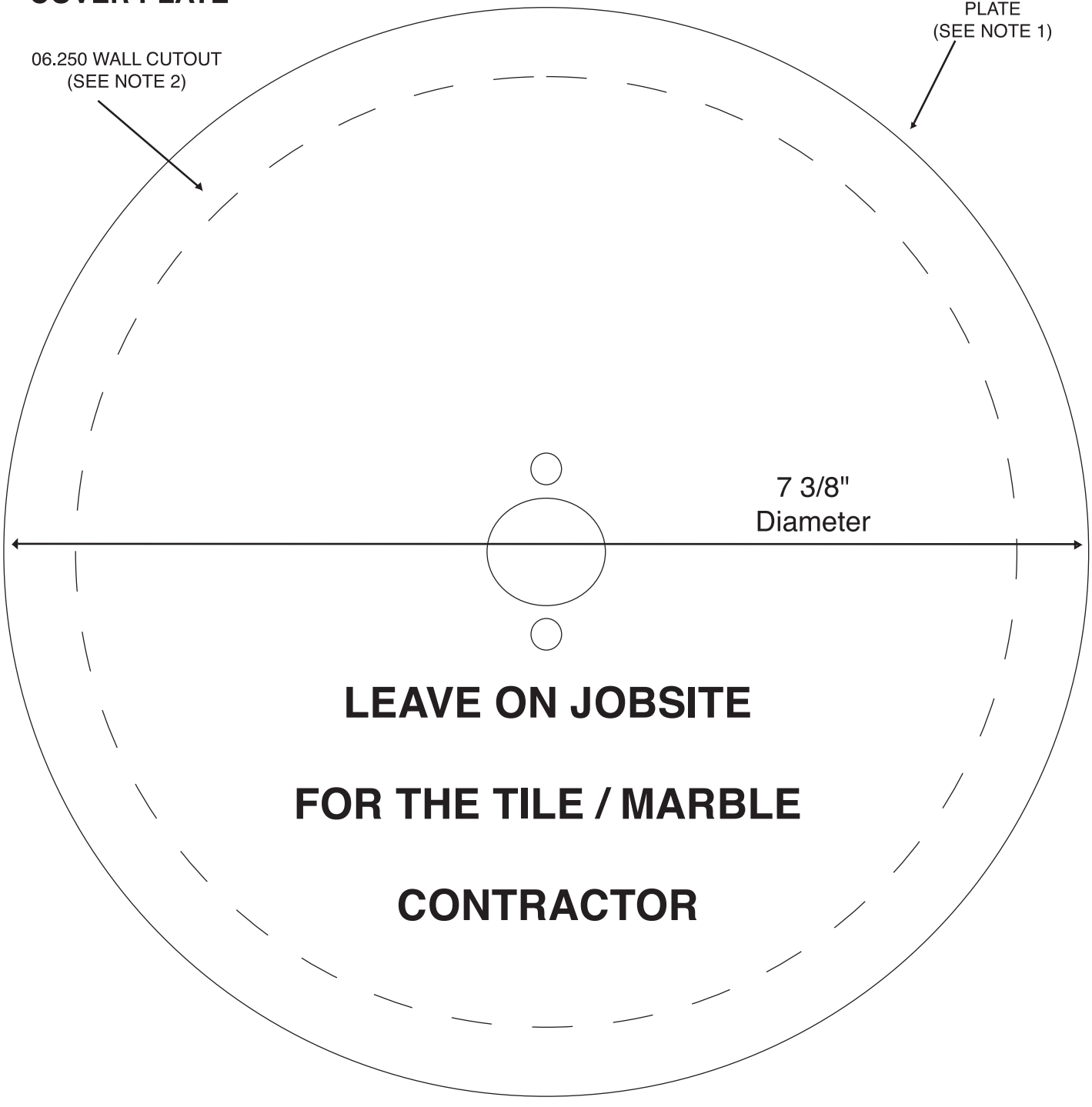
STANDARD THERMOSTATIC VALVE

-FULL SCALE (1:1) CUTOUT TEMPLATE-

COVER PLATE



LEAVE ON JOBSITE

FOR THE TILE / MARBLE

CONTRACTOR

NOTES:

1. SOLID LINE REPRESENTS THE ACTUAL OUTLINE OF THE TRIM PLATE.
2. DASHED LINE REPRESENTS THE TYPICAL WALL CUTOUT FOR STANDARD THERMOSTATIC VALVE INSTALLATION FOR 3/4" AND 1" SIZE VALVES.

Bluewater Manufacturing Corporation Phone # 877-890-8006 Fax # 877-373-0649

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OPERATING SOLUTION FOR THERMOSTATIC MIXERS
USING 3/4", 1", 1-1/4", 1-1/2", AND 2" BI-METAL CARTRIDGES

In the event of an operating problem with a thermostatic mixer, review the following information. Make sure hot and cold inlets are correctly connected to the marked hot and cold side of the mixer. Be sure there is sufficient water pressure and that you have calibrated the mixer valve correctly. Check whether the screens are clean of debris. The main operating problems, their causes and remedies are described below. If the problem is caused by the mixer, return the replaceable mechanism or the complete mixer (industrial models) to the factory.

OPERATING DEFECTS	REASON	REMEDIES
1 - When first using a new appliance, only hot or cold water is delivered.	- The water inlets are reversed. - The bimetal strip is not properly centered, - The distributing valve is not free.	**1** **5** **7**
2 - The mixed water temperature follows the position of the graduated regulator but with a certain delay.	- The control system is incorrectly calibrated	**2** **6**
3 - The appliance does not deliver mixed water or only when the regulator is turned up all the way.	- One of the water inlets doesn't work.	**3**
4 - The mixed water is delivered in spurts and the flow rate is low except at one temperature or the limited temperatures.	- One of the water supplies doesn't provide sufficient water.	**4**
5 - From time to time the appliance only delivers hot or cold water.	The bimetal strip is not properly centered, - The distributing valve is not free,	**5** **7** **8**
6 - The water is always supplied at the same temperature hot or cold.	- The bimetal strip does not move the distributing valve : a) Because the distributing valve is not free. b) Because the regulating screw does not act on the mechanism.	**7** **10** **8**
7 - The temperature is irregular, especially when flow rates are low.	- There are foreign particles beneath the membrane. - The membrane is damaged.	**8**
8 - Insufficient mixed water is supplied.	- Pressure is too low. - One of the water supplies is insufficient.	**3** **9**
9 - The different water supplies intercommunicate in the mixer.		**6**

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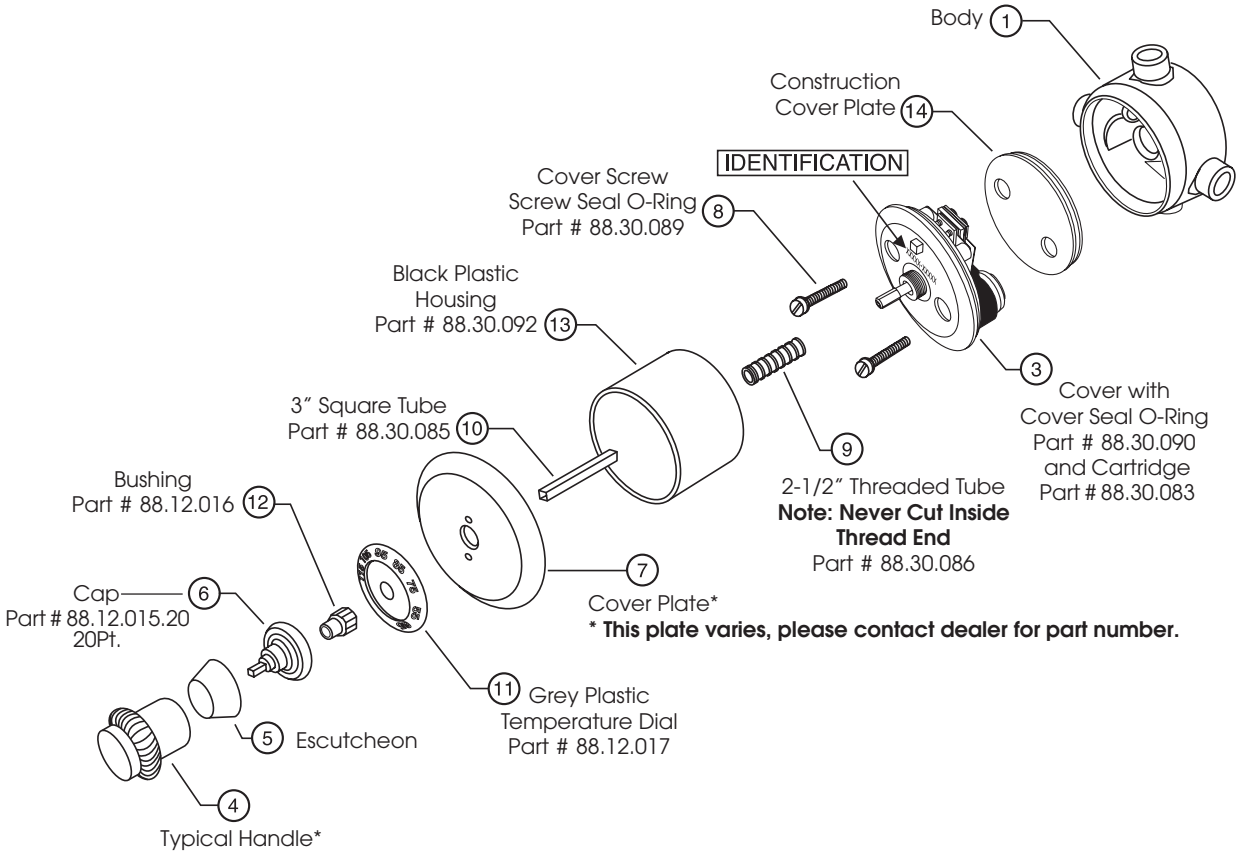
INSTALLATION INSTRUCTIONS

Thermostatic Mixing Valve

3/4" Valve with Dual Exits

Part # 88.30.071



The 3/4" Rough Valve is Dual Exit Ready
Use 3/4" Copper Pipe Only

Extended

4-1/2" Threaded Tube Part #88.30.087
5" Square Tube Part #88.30.088

Other Parts

3/4" Reverse Cartridge Part #88.30.084
Cover Seal O-Ring Only Part #88.30.091

Installation

Please Note: The first step in installation, removal of the cartridge, has already been done at the factory. The cartridge has been packaged separately from the valve body to prevent clogging the cartridge during installation. Install the cartridge only when the hot and cold water lines are flushed and fully operational. The water heater must be working or the unit will not work.

We recommend the installation of in-line plumber supplied shut-off valves close to the hot and cold inlets. Please remember the cartridge should be removed and cleaned annually for optimum useful life of the system.

Bluewater Manufacturing Corporation Phone # 877-890-8006 Fax # 877-373-0649

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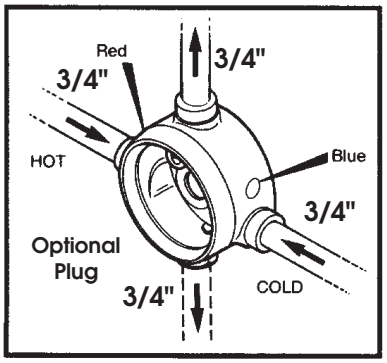
Installation Instructions For 3/4" Valves

Connections



-Important-

Connect the hot water to the side with the red mark and the cold water to the side with the blue mark.

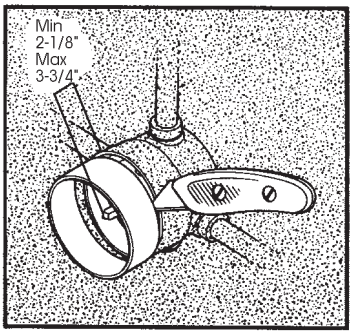
The black housing should act as a depth guide for the plumber. Install the valve so the housing extends beyond the finish wall 1/2".

Cut the plastic housing flush with the FINISH wall. The black housing is to remain with the valve body always for maintenance reasons.

Valve is shipped with standard extensions.

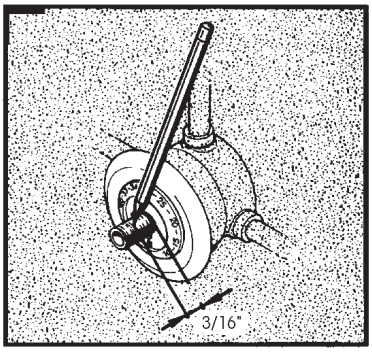
Flushing Lines

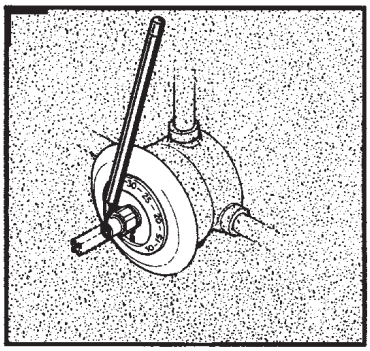
Flush the supply pipes completely and carefully by closing the body with the cover and its screws without the cartridge. **Keep foreign matter OUT of the cartridge. Install cartridge only after hot water heater is working.**



Assembly

Reverse steps performed when removing the cartridge to re-install the cartridge (see p. 3 for diagram). Assemble the cartridge (2), the cover (3) with its screws, fit the threaded tube (9), and screw home. Place the escutcheon (7) and the dial (11) onto the assembly. Make a cutting mark 3/16" from the dial face. Remove the tube, cut it, and debur the cut carefully. Screw the tube home again.





- Screw the bushing onto the threaded tube. Slide the square tube into the bushing and drive it completely into the control spindle.

- Make a cutting mark on the square tube flush with the bushing. Remove the square tube, cut it, and debur carefully. Replace the tube into the bushing and push it all the way into its recess.

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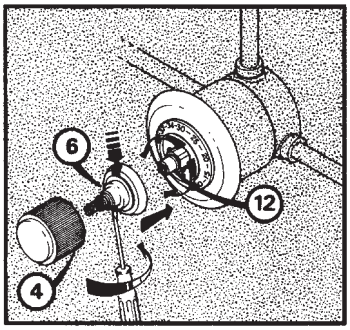
Temperature Calibration



Let the water flow and bring this to a mean temperature by actuating the bushing (12). Note this temperature. Place the cap (6) on the bushing and position the "red" index opposite the graduation corresponding to the temperature noted.

Tighten up the cap setscrew and fit the knob (4) again.

When in use, if a water above 104°F is desired, press the "red" index and turn the knob to the left.

Maintenance

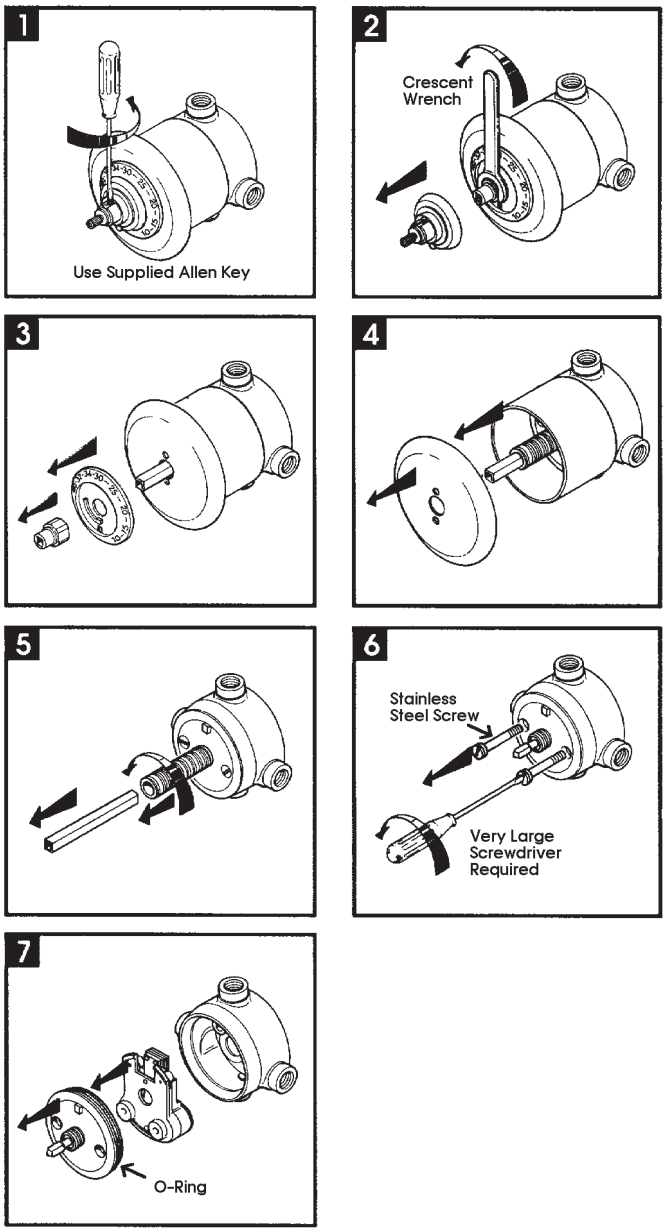
Filter Cleaning

If the cartridge is installed prior to flushing the lines you may inadvertantly clog the filters. Dirty filters may lead to a reduction in the flow rate. It is then necessary to clean them with a brush after removing the cartridge (2) from the body of the appliance (see "Cartridge Removal Guide). Brush the outsides of the filters ONLY. **NEVER undo the brass screws, as doing so will VOID THE WARRANTY.**

D. Cleaning the Cartridge

If the cartridge is installed prior to flushing the lines you may inadvertantly clog the filters. It will be necessary to remove the cartridge from the mixing valve - never take the cartridge apart or you will void all warranties . Simply soak the entire cartridge in plain vinegar for 1 to 3 hours and reinstall the valve. 90% of the time the valve will then work normally. See Operating Incidents for further details.

Cartridge Removal Guide (Future reference ONLY)



Emptying in case of Frost

When the appliance is exposed to freezing conditions it is ESSENTIAL to empty it:

- either by turning on a tap at the bottom outlet
- or by opening the cover (3) of the appliance.

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GENERAL THERMOSTATIC INFORMATION FOR HOME OWNER

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FEATURES:

- 1/2" systems come with 1/4 turn ceramic disc cartridges for both the shut-off valves and volume controls. Other sizes may have **optional shut-offs**, ask dealer for details.
- The 1/2" full-flow Thermostatic uses a parafin wax sensitivity cartridge.
- The 1/2" cartridge constantly monitors temperature and re-adjusts within 2° Fahrenheit of set temperature when supply pressure fluctuates, re-adjustment occurs in less than 2 seconds.
- This thermostatic valve has been in use worldwide for over fifty years.
- Complete serviceability from front of all units.
- Sizes vary from 1/2" - 3/4" - 1", 1-1/4", 1-1/2". and 2" for residential use.
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- Extension kits are available through your dealer at an extra charge.
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- Uniform dials and push-button over-rides are interchangeable on all sizes of valves.
- 1/2" and 3/4" size valves come with dual exits as a standard feature. You may decide to plug one exit if you don't need both.

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INSTALLATION CAUTIONS!

1. State of the art CNC Machining and 1/4 turn ceramic disc cartridges mean precision made product. **NO HEAT, NO TORCH ...** Shall be applied to the valve assembly.

2. Install adapters at each port, seal the joint, and then run the required copper lengths to the in-coming water. Solder the copper connection a minimum of 8"away from valve body.

3. Use approved thread sealers at all joints. **DO NOT USE PLUMBERS PUTTY, USE OF ANY CAUSTIC MATERIAL MAY HARM THE FINISH AND OR INTERFERE WITH PROPER FUNCTION OF THE CARTRIDGE.**

4. Prior to installing the thermostatic cartridge, flush all water lines to free up all solder, sand, silt, and debris that have loosened up from the installation process. The lines should be flushed long enough to remove any sediment that may come from any new additional installation such as a water heater.

5. Failure to flush all water lines properly may damage internal parts. An In-Line water filter is recommended to remove harmful sediment.

6. Inlet check valves are provided with the 1/2"full-flow system. If factory provided check valves are removed for any reason, a qualified plumbing contractor must install check valves upstream of the valve. All other thermostatic valves that come equipped with the Bi-Metallic strip cartridge have built-in check valves to protect cross-connection.

7. All valves that are not tooled with NPT connectors come with conversion adapters. (Metric and NPT)

8. For proper flow rates and multiple exit installations check with your authorized dealer for installation assistance. When installing body sprays with 1/2" systems (Custom or System 30), no more than three sprays should be plumbed out of the top outlet for maximum flow in conjunction with a pressure balancing loop.

9. Remember water pressure comes from your local water supplier and can be measured at the source on the street.

10. Pressure or water velocity is not a function of the valve.

11. The water meter that is supplied for your home should be 25% larger than the water line supply on your recirculation loop for maximum flow rates from the valve.

12. Do not attempt installation of the product if you do not understand these instructions.

13. **Qualified plumbers should be used for all installation procedures.**

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FAILURE TO FOLLOW INSTRUCTIONS MAY CAUSE DAMAGE OR IMPROPER OPERATION AND VOID THE WARRANTY.

1. Flush all rough-in piping thoroughly to remove sediment, flux and other debris.

2. Hot and cold inlets are clearly marked. **DO NOT REVERSE CONNECTIONS, THE UNIT WILL NOT WORK CORRECTLY.**

3. **DO NOT USE DIRECT HEAT, OR ANY TORCH ON 1/2" ROUGH VALVES.**

4. If unit comes with a black or gray plastic outer ring -- read directions and be sure you keep above ring installed even after the trim is installed.

5. Minimum and maximum finished wall tolerances are clearly marked. (SEE EXPLODED VIEW OF VALVE)

6. It is extremely important that the rough mixing chamber be free of all debris before installation of the thermostatic cartridge. Read all instructions on boxes, valves and cartridges.

7. Under no circumstances should the thermostat cartridge be dismantled. Doing so will void any warranty and generally make the cartridge inoperable.

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The Bi-Metallic strip cartridge has two filter screens and a simple cleaning with a toothbrush will remove surface debris.

Soaking the cartridge in a 50/50 solution of clear household vinegar and water will remove lime scale, and lime deposits caused from your water.

Regular cleaning each year will extend the life of the cartridge. Never use a screwdriver on any thermostatic cartridge. **Never take a thermostatic cartridge apart as you will damage this precise instrument.** Call your dealer or the factory for answers to your questions.

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Technical Information

The thermostatic valve is designed to operate at water pressures as low as 14 psi and as high as 140 psi. If you have lower or higher pressure please consult the factory representative for suggestions or solutions.

1/2", 3/4", and 1" units are most commonly used for the deluxe shower, suite, or residential bath. Two or three bath components are often combined (i.e. hall bath, kids' bath, and guest all combined). These units all use the same size decorative wall plate & are available in any of our handle and finish trims. For more details contact your sales representative.

1-1/4", 1-1/2", and 2" units do not come with decorative trim, as these valves are very large and require easy access to install and use. Call for further details.

Important: All main lines must be the same size or larger than the supplied valve or the flow rates will not work. Therefore, if you use a 1-1/4" valve your water system should be based on a minimum 1-1/4" line--absolutely no smaller restriction should be allowed.

Water Supply
The thermostatic valve can be supplied from any hot water production system, even by instantaneous domestic production, as far as the generator is capable of supplying very small quantities of hot water (about 0.8 gal/min).

- Maximum working pressure	145 PSI
- Minimum working pressure	14 PSI
- Recommended working pressure	29 to 58 PSI
- Maximum test pressure	224 PSI
- Maximum hot water temperature	185°F

Options
'Reverse' cartridges are available to correct improper installation (this special order is an extra charge and takes 12 weeks for delivery).

Shut-Off Valves
The mixer itself determines the proportions of hot and cold water required for the mixture. **The mixer however regulates the temperature only and not the output; one shut-off valve (or more) must therefore be provided at the outlet(s) to control water flow.**

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Non-return valves are incorporated into the cartridge. This valve incorporates easily accessible stainless steel filters at the inlets of the cartridge. However, in order to access the cartridge, we recommend the installation of in-line plumber supplied shut-off valves close to the hot and cold inlets. Please remember the cartridge should be removed and cleaned annually for optimum useful life of the system.

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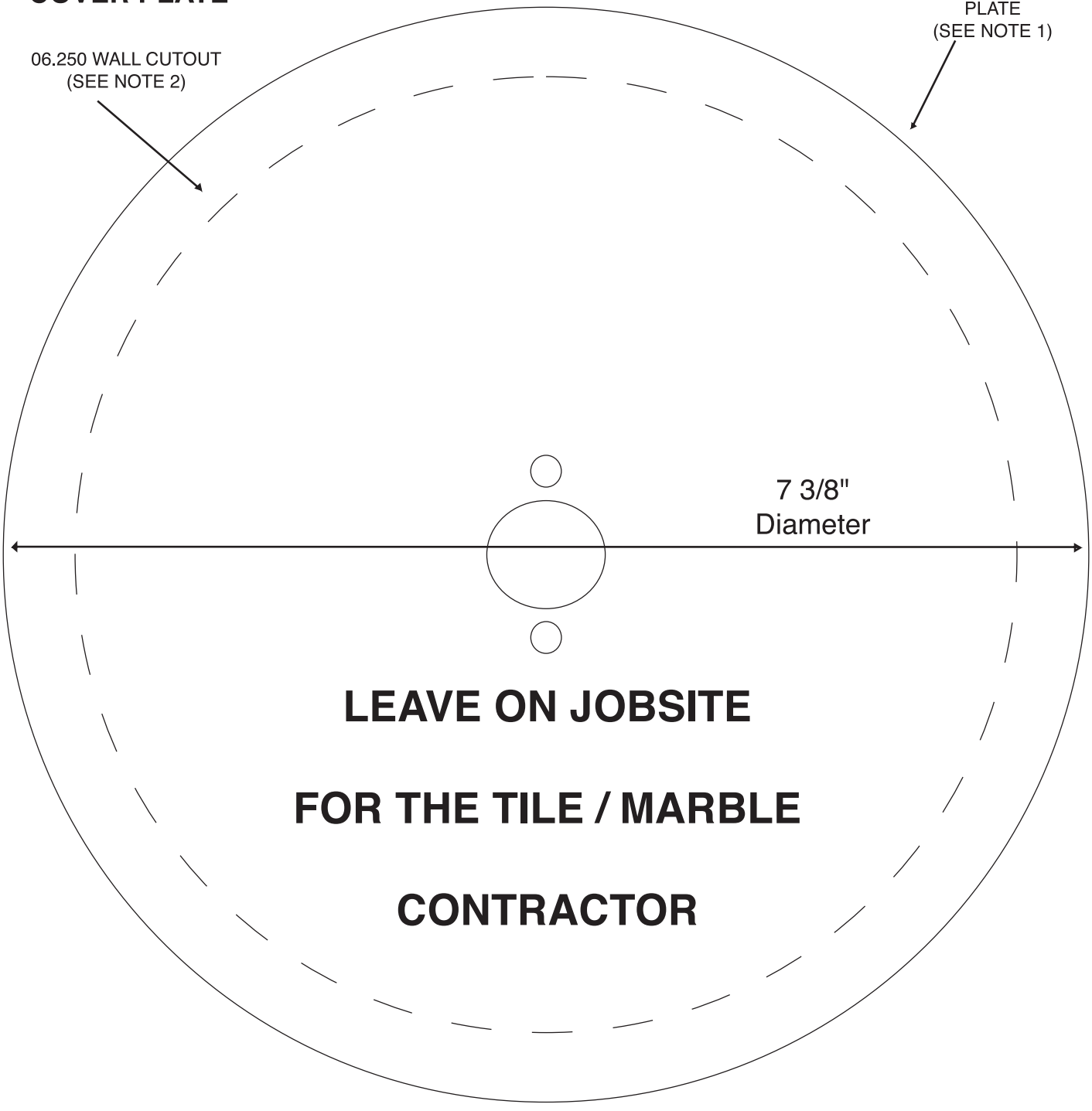
STANDARD THERMOSTATIC VALVE

-FULL SCALE (1:1) CUTOUT TEMPLATE-

COVER PLATE



LEAVE ON JOBSITE

FOR THE TILE / MARBLE

CONTRACTOR

NOTES:

1. SOLID LINE REPRESENTS THE ACTUAL OUTLINE OF THE TRIM PLATE.
2. DASHED LINE REPRESENTS THE TYPICAL WALL CUTOUT FOR STANDARD THERMOSTATIC VALVE INSTALLATION FOR 3/4" AND 1" SIZE VALVES.

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OPERATING SOLUTION FOR THERMOSTATIC MIXERS
USING 3/4'', 1'', 1-1/4'', 1-1/2'', AND 2'' BI-METAL CARTRIDGES

In the event of an operating problem with a thermostatic mixer, review the following information. Make sure hot and cold inlets are correctly connected to the marked hot and cold side of the mixer. Be sure there is sufficient water pressure and that you have calibrated the mixer valve correctly. Check whether the screens are clean of debris. The main operating problems, their causes and remedies are described below. If the problem is caused by the mixer, return the replaceable mechanism or the complete mixer (industrial models) to the factory.

OPERATING DEFECTS	REASON	REMEDIES
1 - When first using a new appliance, only hot or cold water is delivered.	- The water inlets are reversed. - The bimetal strip is not properly centered. - The distributing valve is not free.	**1** **5** **7**
2 - The mixed water temperature follows the position of the graduated regulator but with a certain delay.	- The control system is incorrectly calibrated.	**2** **6**
3 - The appliance does not deliver mixed water or only when the regulator is turned up all the way.	- One of the water inlets doesn't work.	**3**
4 - The mixed water is delivered in spurts and the flow rate is low except at one temperature or the limited temperatures.	- One of the water supplies doesn't provide sufficient water.	**4**
5 - From time to time the appliance only delivers hot or cold water.	The bimetal strip is not properly centered. - The distributing valve is not free.	**5** **7** **8**
6 - The water is always supplied at the same temperature hot or cold.	- The bimetal strip does not move the distributing valve: a) Because the distributing valve is not free. b) Because the regulating screw does not act on the mechanism.	**7** **10** **8**
7 - The temperature is irregular, especially when flow rates are low.	- There are foreign particles beneath the membrane. - The membrane is damaged.	**8**
8 - Insufficient mixed water is supplied.	- Pressure is too low. - One of the water supplies is insufficient.	**3** **9**
9 - The different water supplies intercommunicate in the mixer.		**6**

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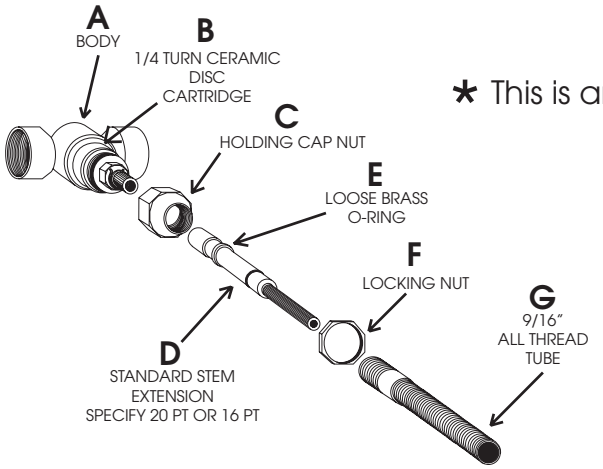
TO INCREASE TORQUE TENSION ON HEAVY HANDLE

Heavy lever handles require special torque tightening instructions for the spline adapter **Part D**.

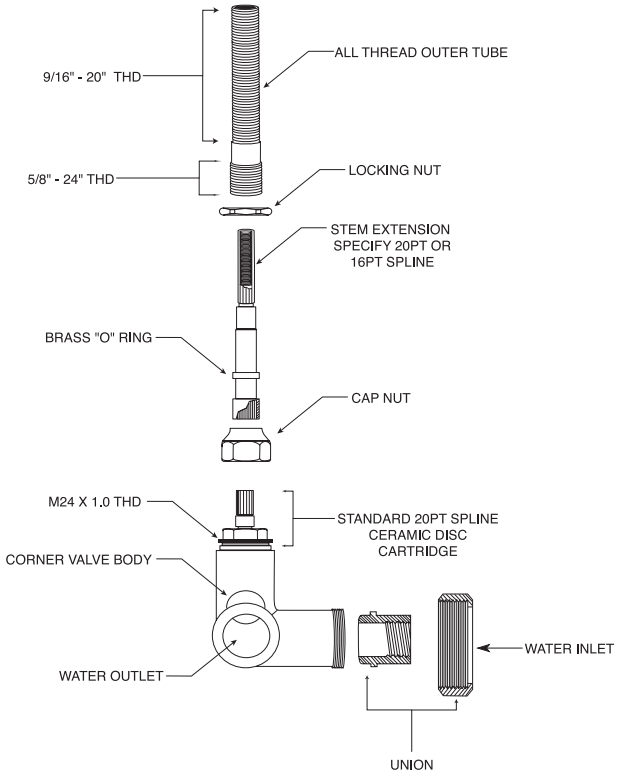


✱ This is an easy Task

The design of our faucet allows the Qualified Plumbing Contractor to set the torque on each valve that uses the standard assembly **B** through **G** as shown above i.e. shut-offs - 2 valve - 3 valve, Pressure Balanced valves and all other valves with the above shown components.
Note: **Part E** is a loose brass O-ring that is compressed inside **Item G**. The all-thread tube has a shoulder that through normal adjustment can be tightened or secured at the desired rate of the user.

INDEPENDENT CORNER VALVE

EXPLODED VIEW



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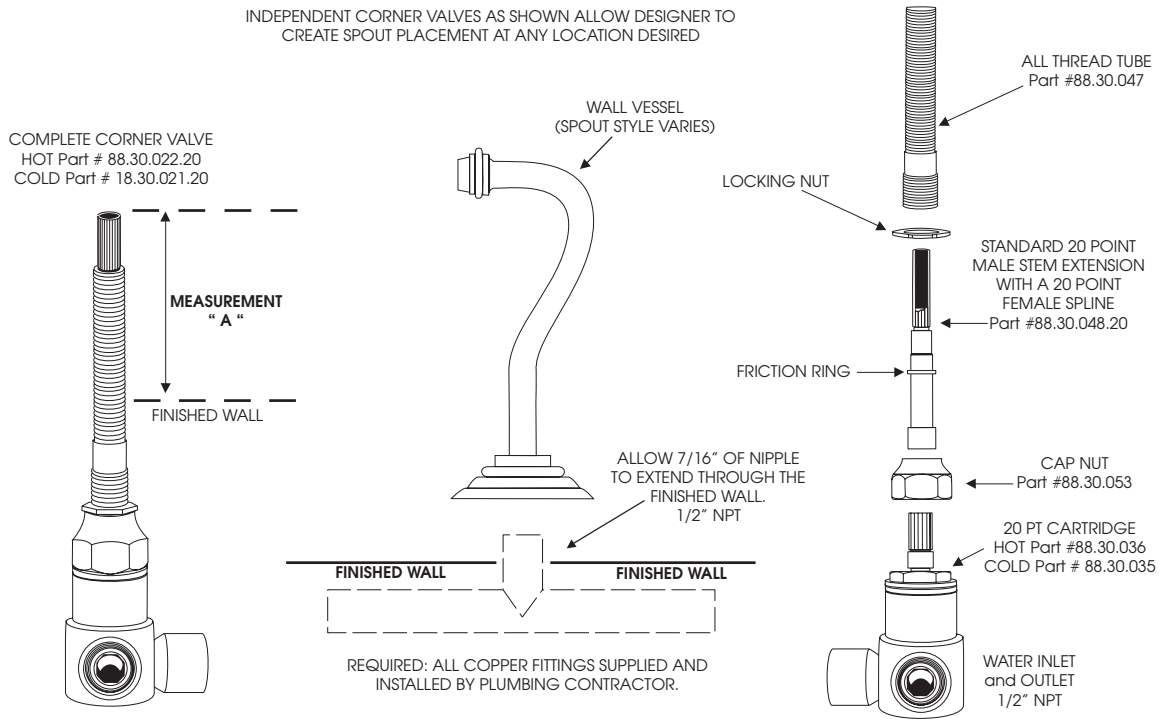
Wall Valve/ Vessel Lav Set

NOTICE: These instructions do not represent step-by-step directions. They are a product supplement only to be used by a qualified/licensed plumber. We recommend all plumbing fixtures be installed by a professional.



HANDLE DESIGN	A DIMENSION
500	1-3/4"
501	2"
502	2-1/4"
503	2"
504	2-1/4"
505	2-1/8"
506	1-1/2"
507	1-1/2"
508	2-1/8"
509	2"
510	2"
511	2-1/4"
512	2"
515	2-1/8"
516	2-1/4"

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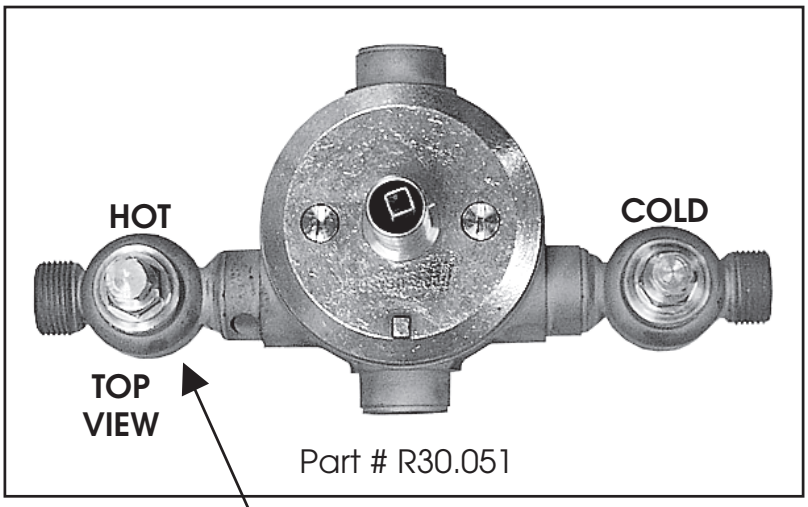
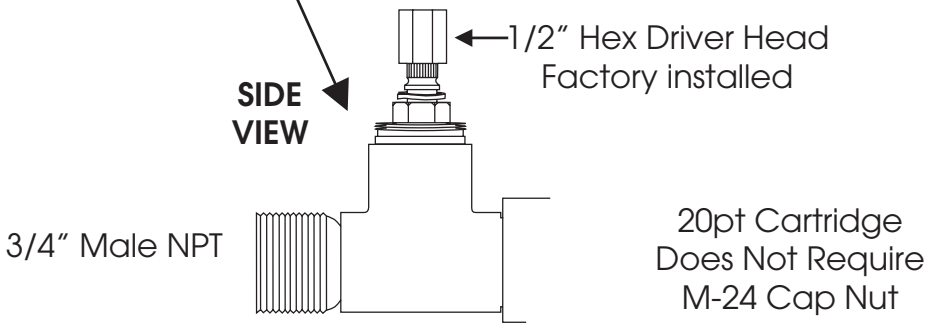
NEW INTEGRAL ENTRY SHUT-OFF

3/4" THERMOSTATIC VALVE

FULL FLOW 1/4 TURN CERAMIC DISC CARTRIDGE





Note: The Standard 7-1/4"Cover Plate does not provide proper access to these shut offs.

Requires 9-1/4" Cover Plate Part # 88.12.010

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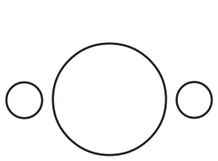
9-1/4” PLATE / PART #_____
FULL SCALE (1:1) CUTOUT TEMPLATE



LEAVE ON JOBSITE FOR TILE / MARBLE CONTRACTOR

NOTES:
1. THE SOLID LINE REPRESENTS THE ACTUAL OUTLINE OF THE TRIM PLATE
2. THE DASHED LINE REPRESENTS THE TYPICAL WALL CUTOUT FOR THERMOSTATIC VALVE INSTALLATION FOR 3/4” AND 1” SIZES

FORM BW 012

Revised 7-20-04

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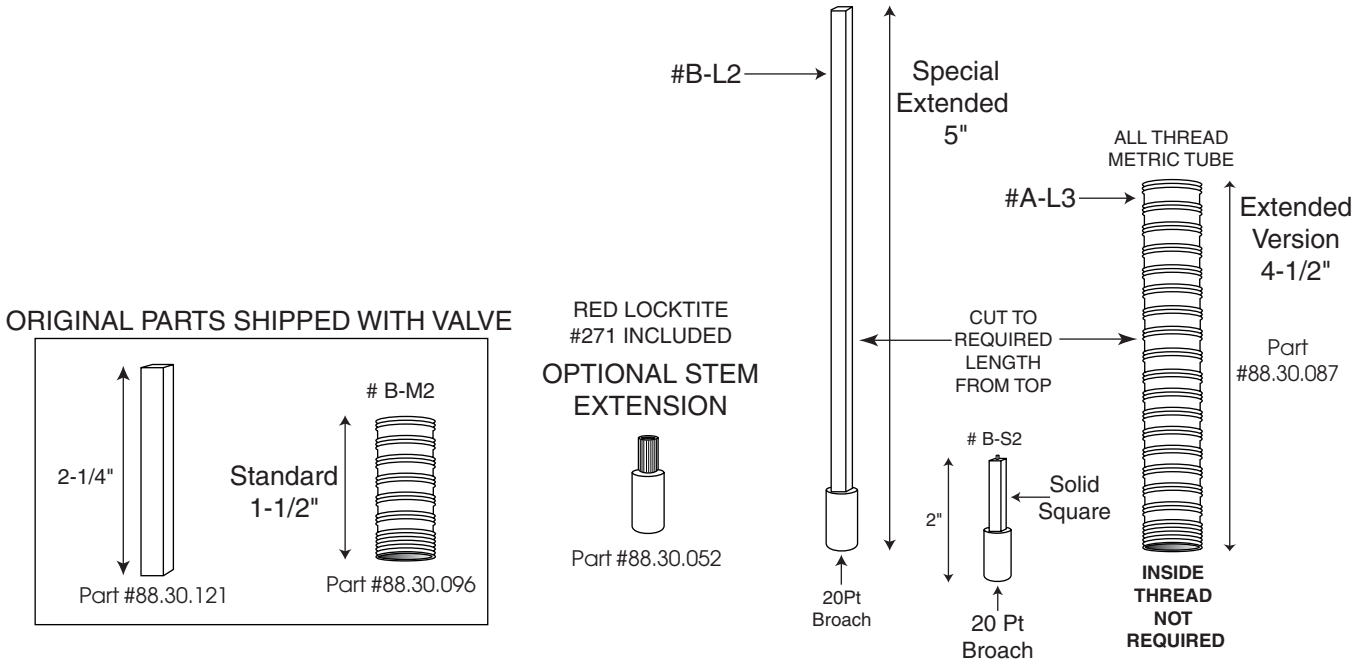
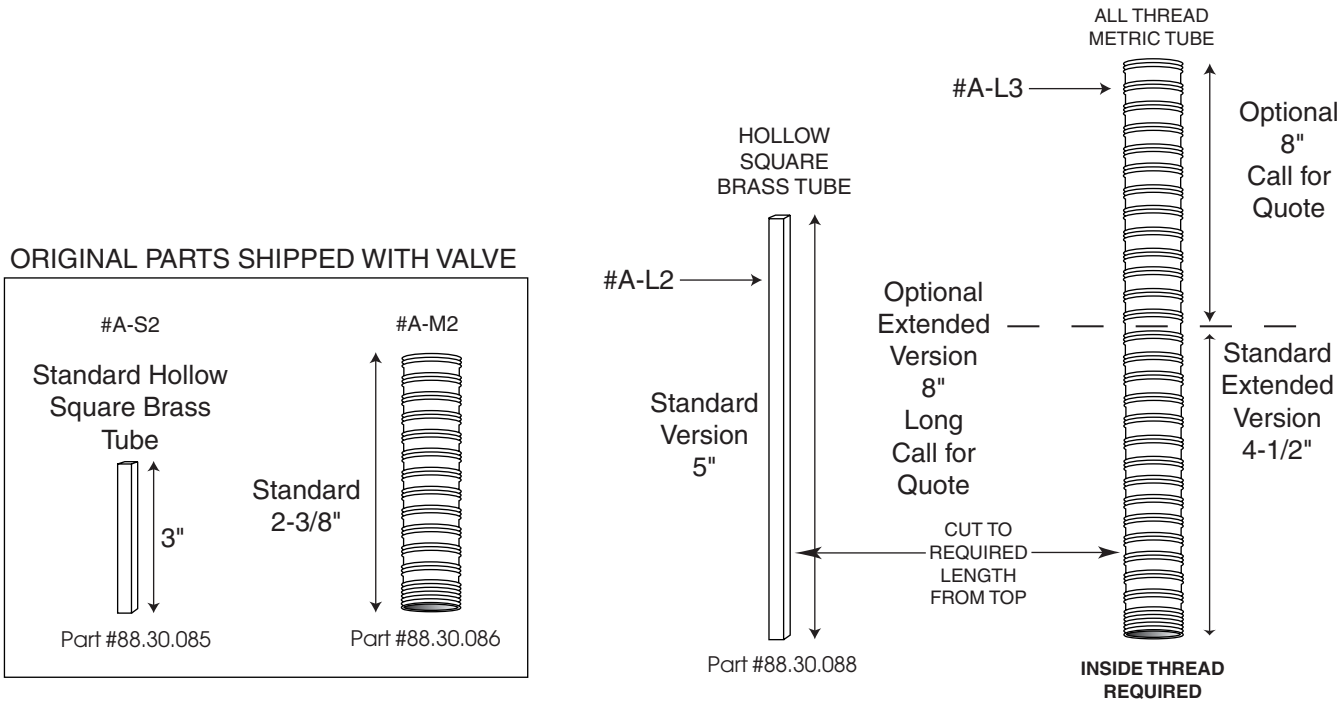
THERMOSTATIC STEM EXTENSION KITS

1/2" FULL-FLOW THERMOSTATIC VALVE
EFFECTIVE 7-01-01



3/4", 1", 1-1/4", 1-1/2", and 2" THERMOSTATIC VALVE



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Step 5

Using 1/2¾" IPS pipe and connections (supplied by others) plumb supply lines to the valve bodies and to the spout tee connection Fig. 3.

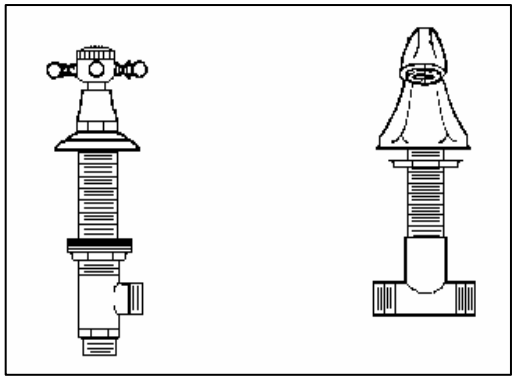

Fig. 3

☐ Caution ☐

High heat can damage internal parts or the roman tub valve. Please take care when sweating connections to the Roman tub valves. Stay 3" to 6" away from valve.

When installation is complete, turn on water slowly and check the installation for any leaks

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To register your new faucet for warranty claims go to www.bluewaterfaucet.com or call customer service and ask for a warranty registration form to be sent to you.

For replacement parts, please contact Bluewater Manufacturing Corporation @ 877-890-8006 or fax your request to 877-373-0649

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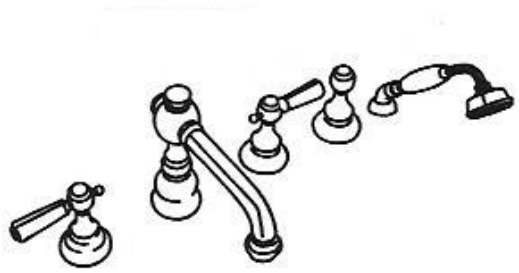


Roman Deck Bath Set Installation Instructions

The Bluewater product line is solidly based on a rich American heritage of craftsmanship and historic design. Our promise is to honor that tradition of hand made faucets and fittings that your family will treasure for generations.

Revised 2-4-04
FORM BW 014

Please read these instructions and cautions contained in this booklet before installation.

Bluewater products meet or exceed all ANSI/ASME standards.
Tested to ASME A112.18.1M/ASSE 1016

Bluewater products comply with Section 9 of NSF 61
Flow rates:
Showerheads 2.5 GPM/9.5 LPM
Aerators 2.2 GPM/8.3 LPM

☐ Cautions ☐

- Care should be taken during installation to protect all components during construction.

- Before removal of old faucet, always turn off water. Open faucet handles to alleviate water pressure and to insure that complete water shut off has been accomplished.

- Carefully flush all water lines before installation.

- After faucet installation, remove aerator and flush all water lines again. *FAILURE TO DO SO MAY RESULT IN DAMAGE TO INTERNAL PARTS.*

- Plumbers putty is not recommended. Use of caustic substances or acidic curing products for installation may harm or cause the faucet or fitting to not function properly.

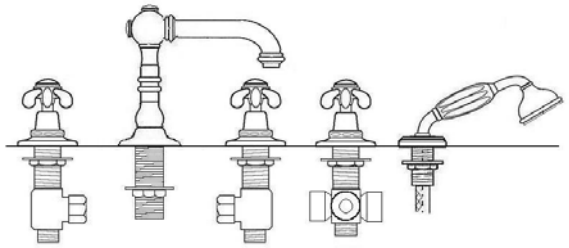
- Failure to follow all instructions may cause damage or improper operation and nullify the warranty.

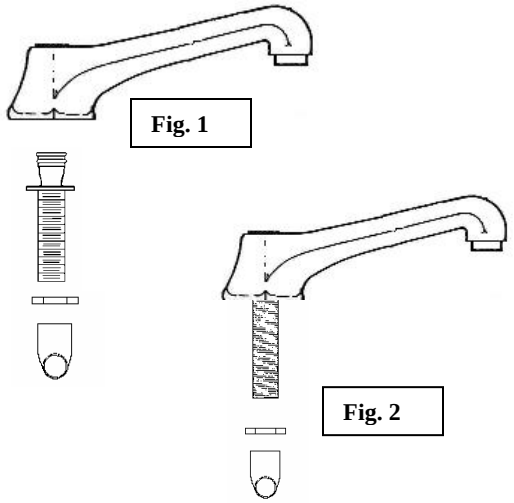
Step 1
Carefully review all preassembled parts. It will be necessary for the various parts to be reassembled exactly as shown.

Step 2
Remove the nut from the spout shank. Place the spout shank through the hole in the center of the deck and secure by reapplying the nut to the shank and tightening from the underside. Fig. 1 shows the Quick connect feature and Fig. 2 shows the standard connection installation.

Step 3
The valve marked BLUE is the Cold side. The valve marked RED is the HOT side. Spin the bottom valve-mounting nut all the way down the valve and remove the top nut. Insert the valves up through the bottom of the holes in the deck, then drop on the top-mounting nut (if required). Make sure that the valve outlets are facing the spout. Thread on the nuts while adjusting the valve height to accommodate the faucet handles.

Step 4
Test the height of the valve by temporarily placing the handle over the valve. After you have checked the fitting, test the smooth turn feature of the handle first. Remove handle pieces and tighten the mounting nuts with a basin wrench.





Valve Care
Your 1/4 turn ceramic valve will provide you a lifetime of service when cared for properly. The most common valve problem is a result of debris in the water line, such as sand, silt, solder, metal shavings, lime deposits or other foreign particles. Debris can become lodged between the ceramic discs and result in improper functioning of the open and close action of the valve. Particles can even cause cracks in the ceramic discs and render the cartridge useless.

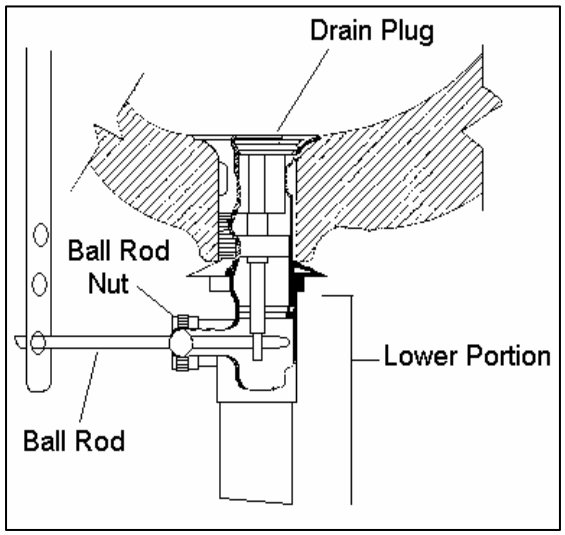
For further information, please contact Bluewater Manufacturing Corporation @ 877-890-8006 or fax your request to 877-373-0649

Revised 2-4-04
FORM BW 014

Step 7
Disassemble the drain parts. Remove all washers and nuts. Place the upper portion of the main drain body through the drain hole in the fixture, then secure using nuts and washers.

Step 8
Attach the lower portion of the drain body to the upper portion, making sure that the ball rod opening faces the rear of the sink. Carefully insert the ball so that it goes through the hook in the plunger. Hand tighten the ball rod nut. Insert the other end of the ball rod through the bottom of the pop-up strap as shown.

Step 9
After placing the pop-up rod through the top of the spout, insert the end into the top of the pop-up strap. Adjust the rise and seal of the drain plug before tightening the screw on the strap.



When installation is complete, turn on water slowly and check the installation for any leaks

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To register your new faucet for warranty claims go to www.bluewaterfaucet.com or call customer service and ask for a warranty registration form to be sent to you.

For replacement parts, please contact Bluewater Manufacturing Corporation @ 877-890-8006 or fax your request to 877-373-0649

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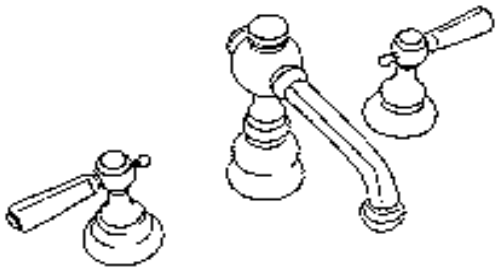


Lav Basin Set Installation Instructions

The Bluewater product line is solidly based on a rich American heritage of craftsmanship and historic design. Our promise is to honor that tradition of hand made faucets and fittings that your family will treasure for generations.

Revised 2-4-04
FORM BW 015

Please read these instructions and cautions contained in this booklet before installation.

Bluewater products meet or exceed all ANSI/ASME standards.
Tested to ASME A112.18.1M/ASSE 1016

Bluewater products comply with Section 9 of NSF 61
Flow rates:
Showerheads 2.5 GPM/9.5 LPM
Aerators 2.2 GPM/8.3 LPM

☐ Cautions ☐

- Care should be taken during installation to protect all components during construction.

- Before removal of old faucet, always turn off water. Open faucet handles to alleviate water pressure and to insure that complete water shut off has been accomplished.

- Carefully flush all water lines before installation.

- After faucet installation, remove aerator and flush all water lines again. *FAILURE TO DO SO MAY RESULT IN DAMAGE TO INTERNAL PARTS.*

- Plumbers putty is not recommended. Use of caustic substances or acidic curing products for installation may harm or cause the faucet or fitting to not function properly.

- Failure to follow all instructions may cause damage or improper operation and nullify the warranty.

Step 1
Carefully review all preassembled parts. It will be necessary for the various parts to be reassembled exactly as shown.

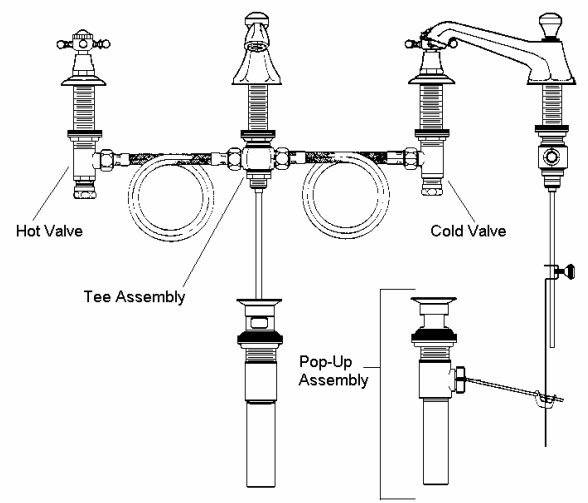
Step 2
Disassemble both the tee assembly and the nut from the spout shank. Place the spout shank through the hole in the center of the deck or sink and secure by reapplying the nut to the shank and tightening from the underside.

Step 3
Reassemble the tee assembly to the bottom of the spout shank. Make sure it is secure.

Step 4
The valve marked BLUE is the Cold side. The valve marked RED is the HOT side. Spin the bottom valve-mounting nut all the way down the valve and remove the top nut. Insert the valves up through the bottom of the holes in the deck or fixture, then drop on the top-mounting nut (if required). Make sure that the valve outlets are facing the spout. Thread on the nuts while adjusting the valve height to accommodate the faucet handles.

Step 5
Test the height of the valve by temporarily placing the handle over the valve. After you have checked the fitting, test the smooth ¼ turn feature of the handle first. Remove handle pieces and tighten the mounting nuts with a basin wrench.

Step 6
Plumb the inlets of the valves to the water supply using supply tubes and angle stops (supplied by others). Connect each outlet to the connection tee using the stainless steel hoses. The hoses are self-sealing and should not be over tightened.



Valve Care
Your 1/4 turn ceramic valve will provide you a lifetime of service when cared for properly. The most common valve problem is a result of debris in the water line, such as sand, silt, solder, metal shavings, lime deposits or other foreign particles. Debris can become lodged between the ceramic discs and result in improper functioning of the open and close action of the valve. Particles can even cause cracks in the ceramic discs and render the cartridge useless.

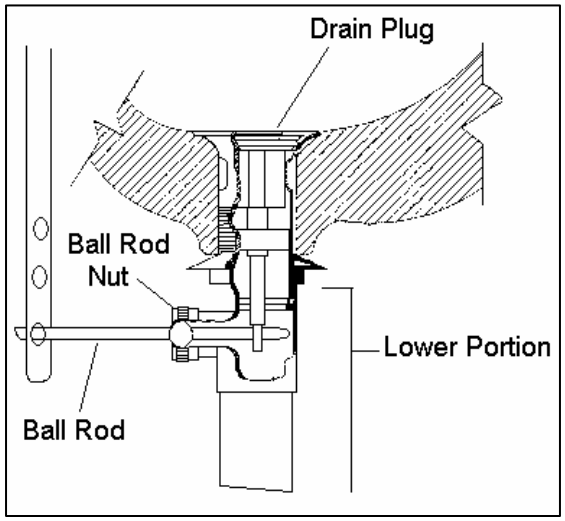
For further information, please contact Bluewater Manufacturing Corporation @ 877-890-8006 or fax your request to 877-373-0649

Revised 2-4-04
FORM BW 015

Step 7
Disassemble the drain parts. Remove all washers and nuts. Place the upper portion of the main drain body through the drain hole in the fixture, then secure using nuts and washers.

Step 8
Attach the lower portion of the drain body to the upper portion, making sure that the ball rod opening faces the rear of the sink. Carefully insert the ball so that it goes through the hook in the plunger. Hand- tighten the ball rod nut. Insert the other end of the ball rod through the bottom of the pop-up strap as shown.

Step 9
After placing the pop-up rod through the top of the spout, insert the end into the top of the pop-up strap. Adjust the rise and seal of the drain plug before tightening the screw on the strap.



When installation is complete, turn on water slowly and check the installation for any leaks

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To register your new faucet for warranty claims go to www.bluewaterfaucet.com or call customer service and ask for a warranty registration form to be sent to you.

For replacement parts, please contact Bluewater Manufacturing Corporation @ 877-890-8006 or fax your request to 877-373-0649

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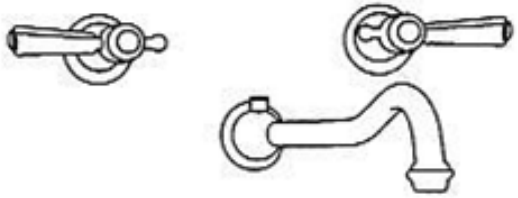


Wall-Mount Basin Set Installation Instructions

The Bluewater product line is solidly based on a rich American heritage of craftsmanship and historic design. Our promise is to honor that tradition of hand made faucets and fittings that your family will treasure for generations.

Revised 2-4-04
FORM BW 016

Please read these instructions and cautions contained in this booklet before installation.

Bluewater products meet or exceed all ANSI/ASME standards.
Tested to ASME A112.18.1M/ASSE 1016

Bluewater products comply with Section 9 of NSF 61
Flow rates:
Showerheads 2.5 GPM/9.5 LPM
Aerators 2.2 GPM/8.3 LPM

☐ Cautions ☐

- Care should be taken during installation to protect all components during construction.

- Before removal of old faucet, always turn off water. Open faucet handles to alleviate water pressure and to insure that complete water shut off has been accomplished.

- Carefully flush all water lines before installation.

- After faucet installation, remove aerator and flush all water lines again. *FAILURE TO DO SO MAY RESULT IN DAMAGE TO INTERNAL PARTS.*

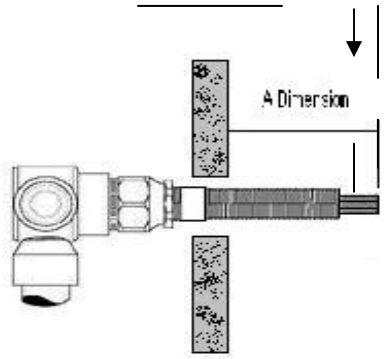
- Plumbers putty is not recommended. Use of caustic substances or acidic curing products for installation may harm or cause the faucet or fitting to not function properly.

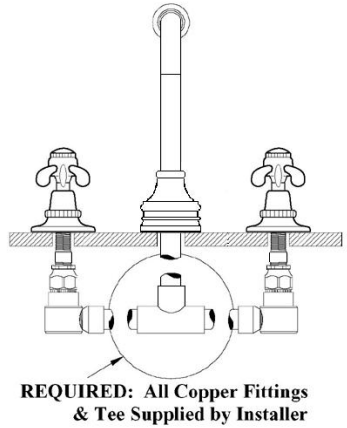
- Failure to follow all instructions may cause damage or improper operation and nullify the warranty.

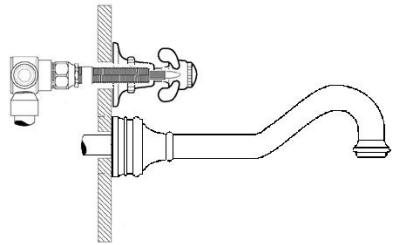
Step 1
Carefully review all preassembled parts. It will be necessary for the various parts to be reassembled exactly as shown.

Step 2
Install rough plumbing in desired location within the wall. All copper fittings including TEE supplied by others. Valve stem must be set so as the tip of the stem is at the specified distance from the finished wall (see roughing-in chart below for the trim design on this fitting.

Handle Design	A Dimension
500	1 ¾”
501	2”
502	2 3/8”
503	2”
504	2 3/8”
505	2 1/8”
508	2 1/8”
509	2”
510	2”
512	2”
515	2 1/8”







Valve Care
Your 1/4 turn ceramic valve will provide you a lifetime of service when cared for properly. The most common valve problem is a result of debris in the water line, such as sand, silt, solder, metal shavings, lime deposits or other foreign particles. Debris can become lodged between the ceramic discs and result in improper functioning of the open and close action of the valve. Particles can even cause cracks in the ceramic discs and render the cartridge useless.

For further information, please contact Bluewater Manufacturing Corporation @ 877-890-8006 or fax your request to 877-373-0649

Revised 2-4-04
FORM BW 016

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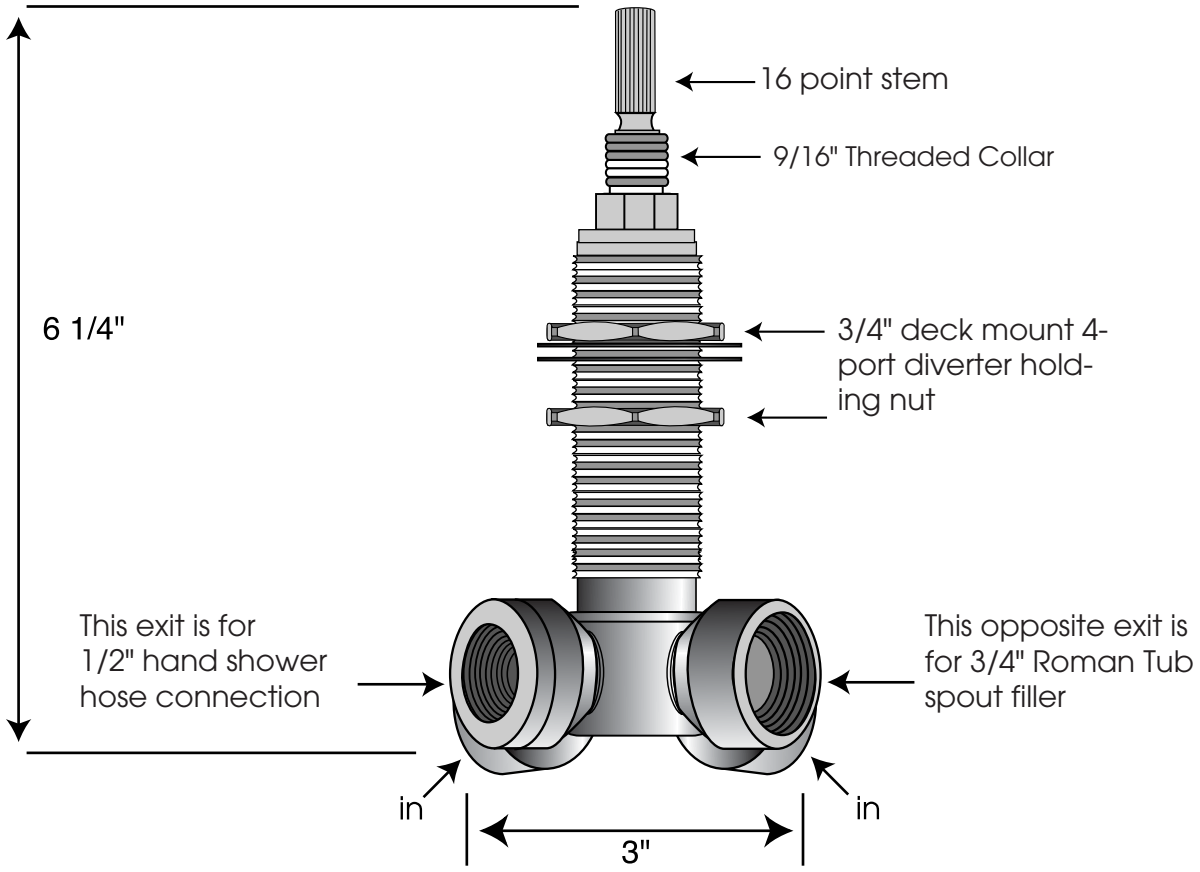
Deck Mount 4 Port Diverter

This system uses F.D.A. approved teflon to divert and control the water direction.



1. Both inlets are 3/4" female I.P.
2. One inlet maybe plugged if not required.
3. Never use an exit as an inlet.
4. Never use an inlet as an exit.
5. Ports are marked for inlets and exits
6. All connections are I.P. fittings
7. No heat
8. No torch

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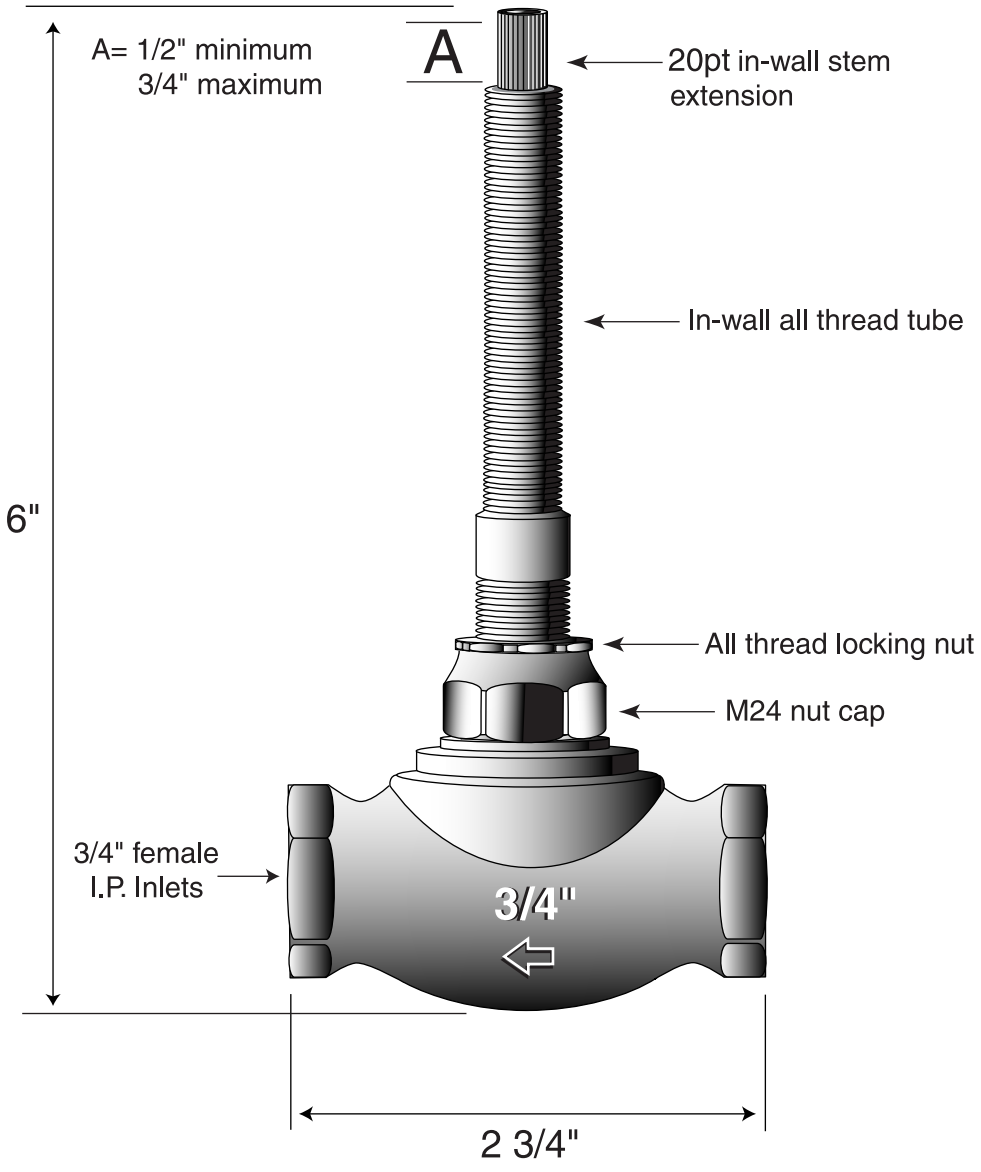
3/4" Shut-off Valve



1. Follow arrow marked on body for water flow direction.
2. No heat - No torch
3. A 1/4 turn 20pt 3/4" ceramic disc cartridge is used for positive flow control.

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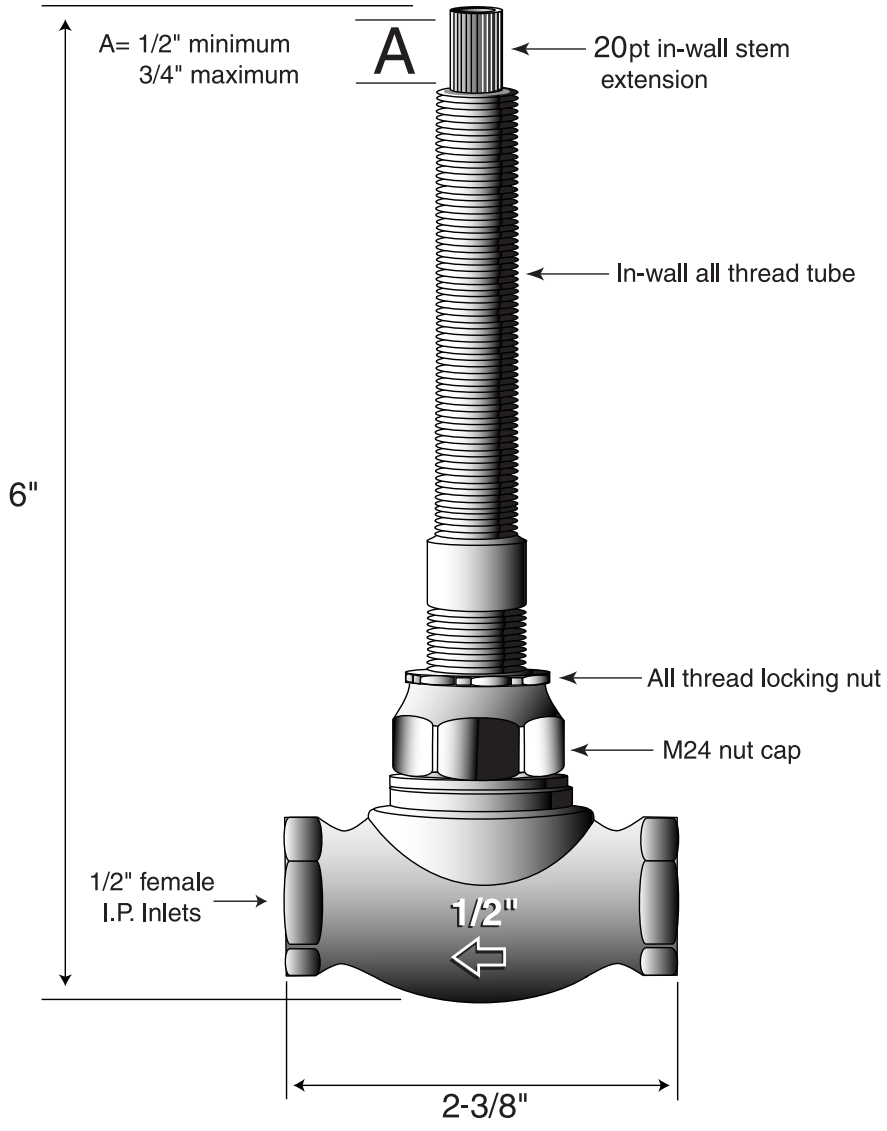
1/2" Shut-off Valve



1. Follow arrow marked on body for water flow direction.
2. No heat - No torch
3. A 1/4 turn 20pt 1/2" ceramic disc cartridge is used for positive shutoff.

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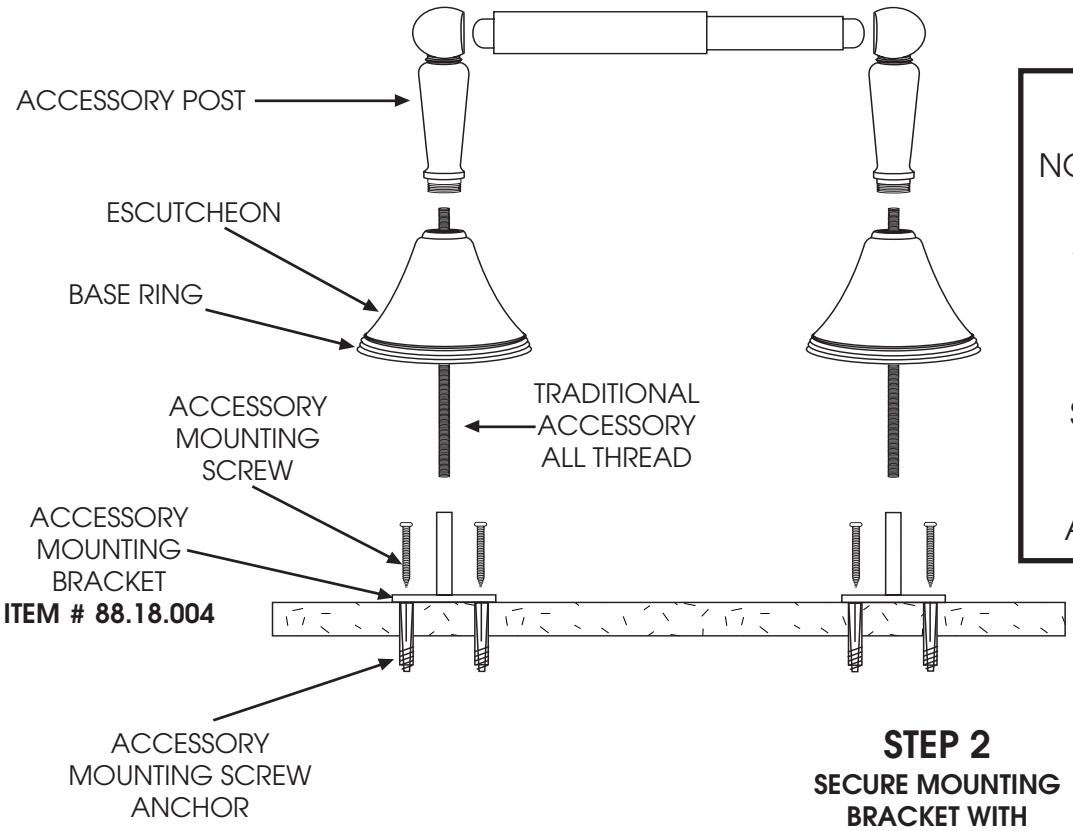
ACCESSORY MOUNTING ASSEMBLY USING WALL MOUNT BRACKET



CAUTION:

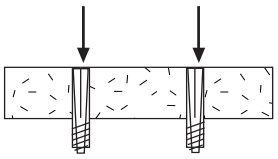
NOT APPLICABLE FOR ALL ACCESSORY DESIGNS.

CONTACT CUSTOMER SERVICE FOR ALL DESIGN SERIES ACCEPTABLE.

STEP 1

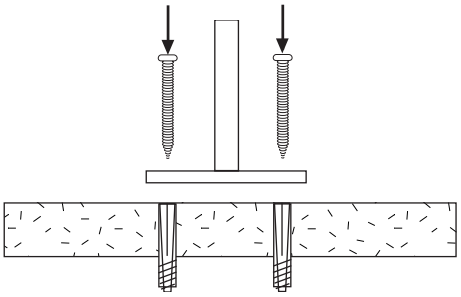
WALL ANCHOR

(SECURE ANCHORS TO DRY WALL)



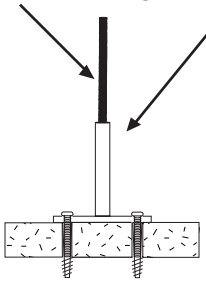
STEP 2

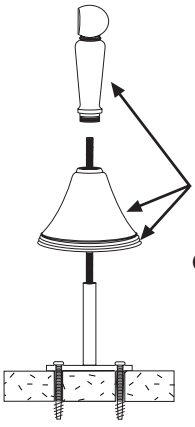
SECURE MOUNTING BRACKET WITH SUPPLIED SCREWS



STEP 3

INSTALL ACCESSORY ALL THREAD INTO BRACKET.





STEP 4

USE ESCUTCHEON (BASE RING IF APPLICABLE) AND ACCESSORY POST TO DETERMINE LENGTH OF ACCESSORY ALL THREAD TO BE CUT.

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SLIDEBAR MOUNTING INSTRUCTIONS FOR DELUXE 24" SLIDEBAR ASSEMBLY

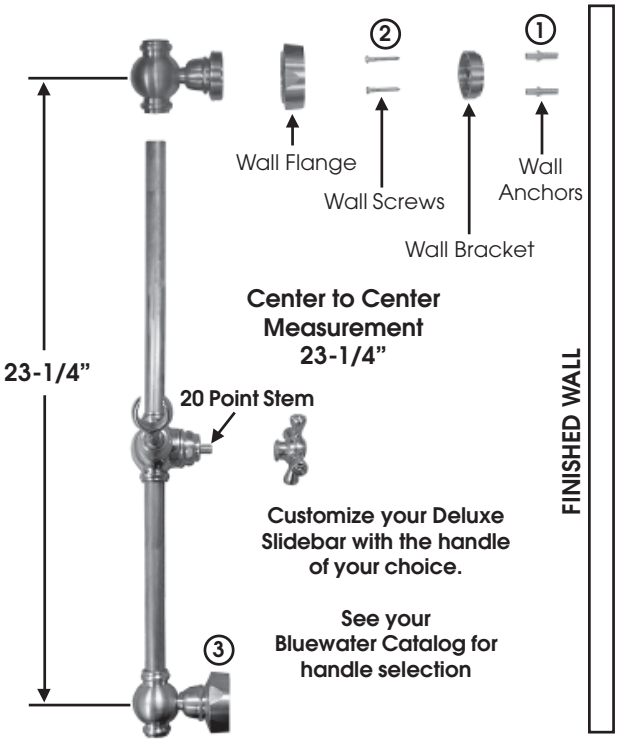
Installation Instructions:

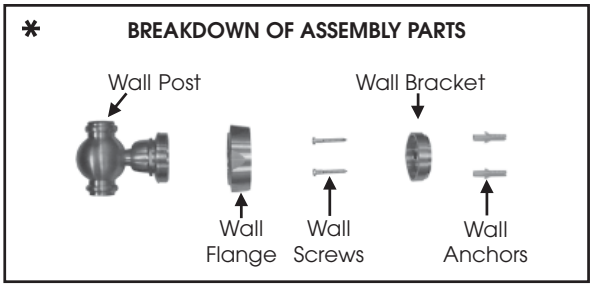
Step 1 Drill holes for supplied wall anchors according to Center to Center measurement specifications as shown below.

Step 2 After placing wall anchors into finished wall, mount wall brackets using wall screws provided.

Step 3 When wall brackets are mounted onto finished wall, you may now mount the slidebar assembly.

DELUXE SLIDEBAR 24" Model # 88.10.123





*** All slidebar assemblies come pre-assembled for easy mounting onto a finished wall surface.**

NOTE TO USER:
This unit is not ADA Certified for use as a grab bar.

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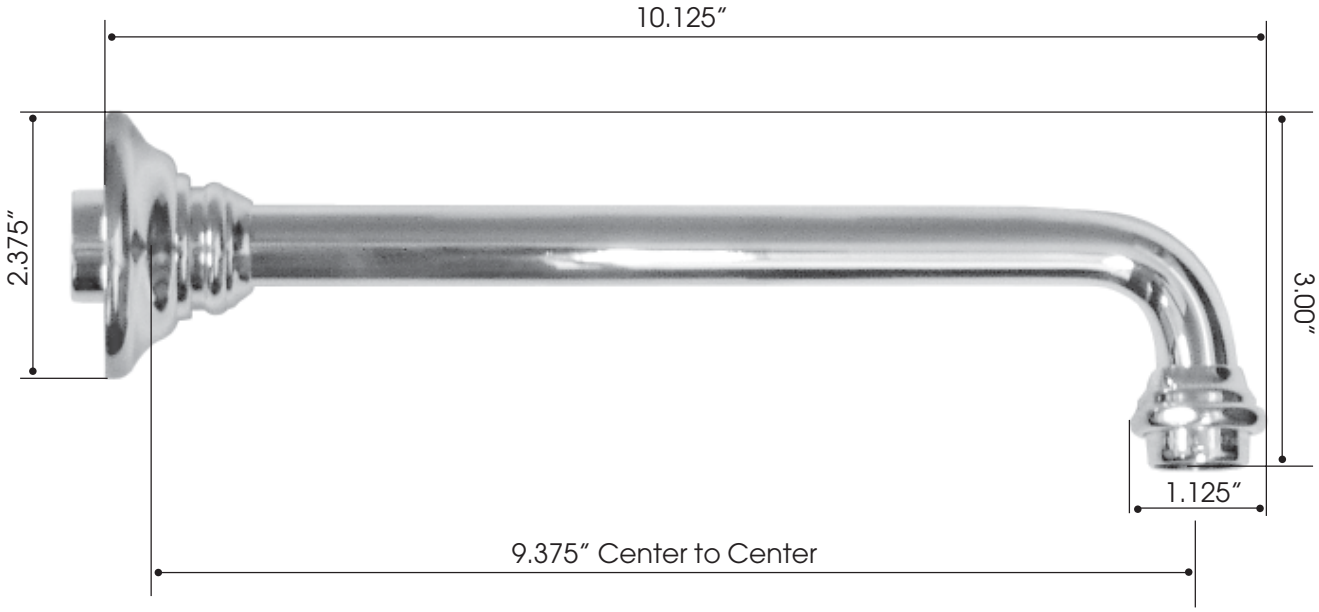
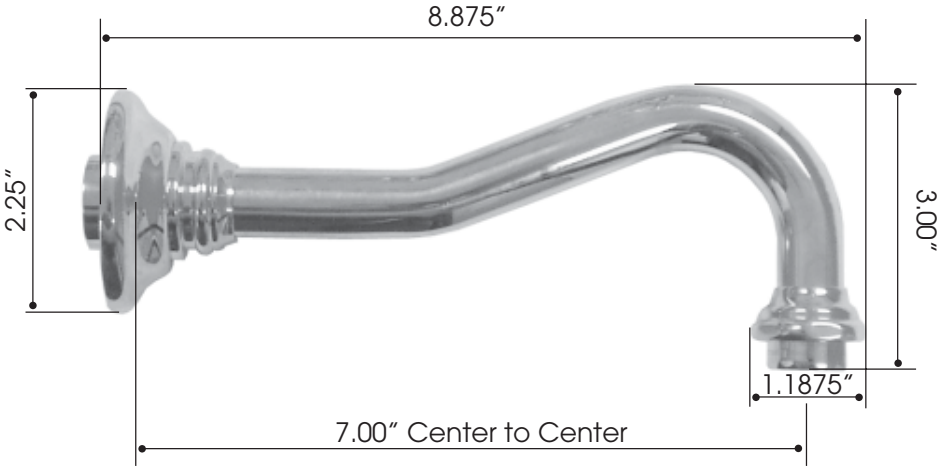
NEMO

STRAIGHT WALL LAV VESSEL SPOUT



NEMO

OPTIONAL WALL LAV VESSEL SPOUT CURVED



ALL CONNECTIONS 1/2" NPT

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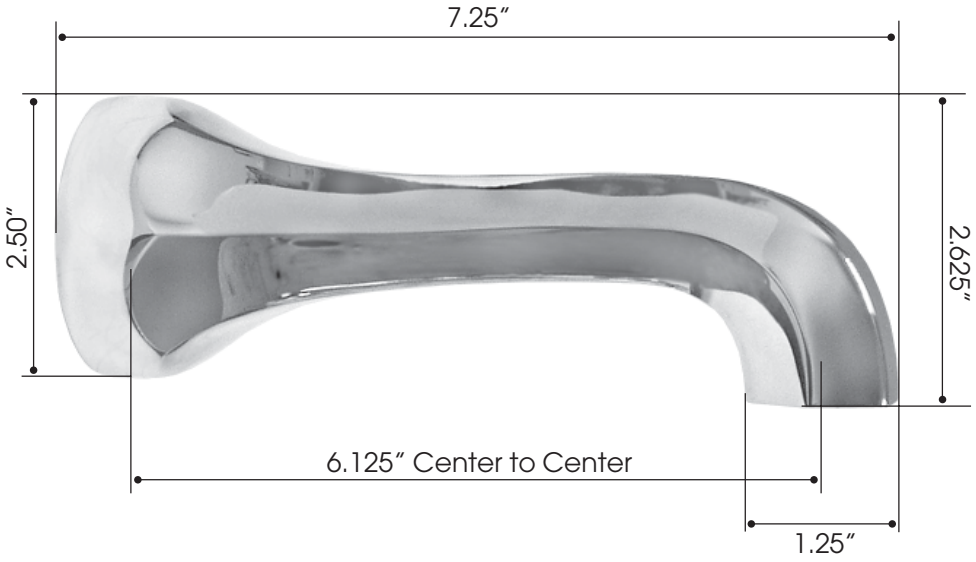
VELA/XESS

* WALL-MOUNT TUB/VESSEL SPOUT



* MUST SPECIFY FOR LAV OR TUB APPLICATION

ALL CONNECTIONS 1/2” NPT

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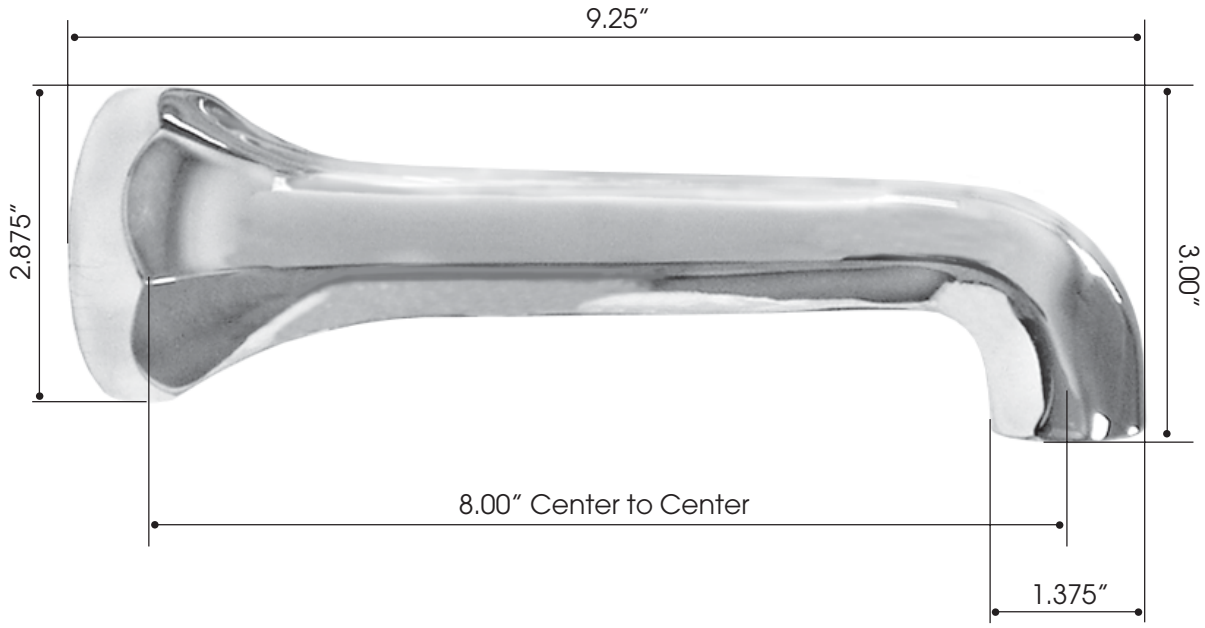
VELA/XESS GRAND

* WALL-MOUNT TUB/VESSEL SPOUT



* MUST SPECIFY FOR LAV OR TUB APPLICATION

ALL CONNECTIONS 1/2” NPT

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KORL

WALL-MOUNT VESSEL SPOUT

ALL CONNECTIONS 1/2” NPT

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IDRO

WALL-MOUNT VESSEL SPOUT

ALL CONNECTIONS 1/2” NPT

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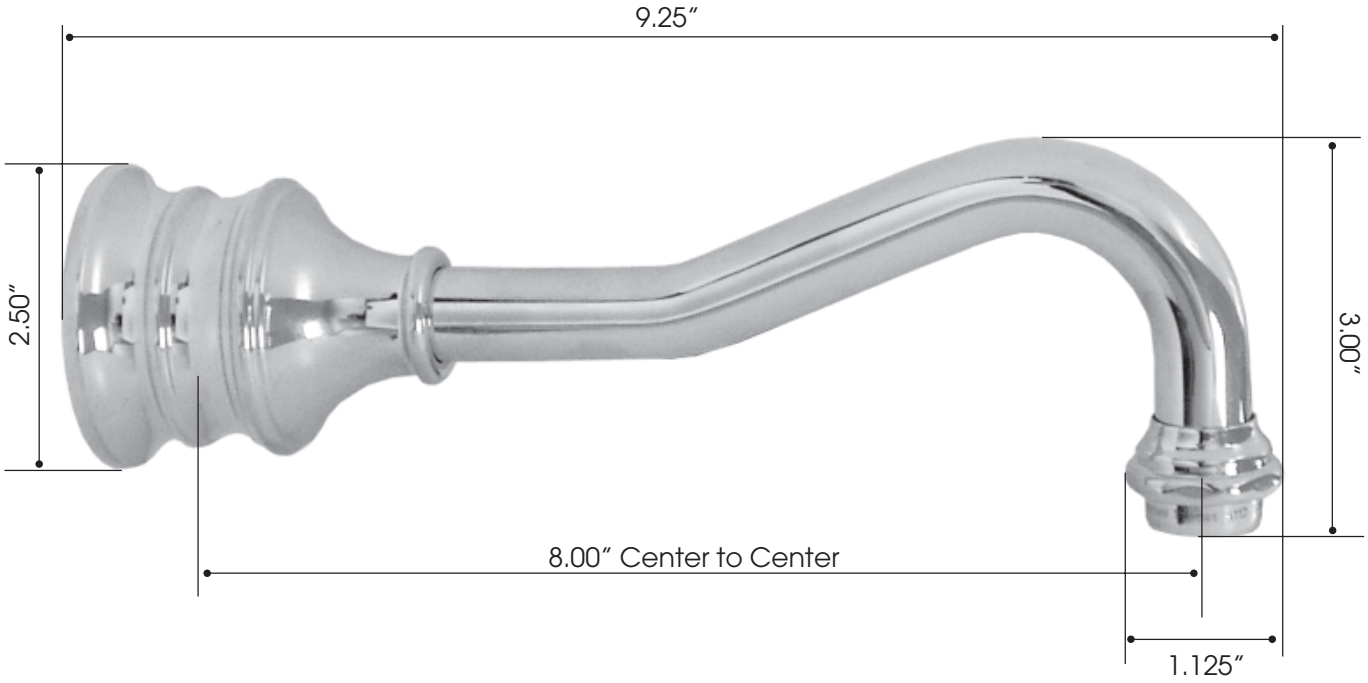
NEW NISI GRAND

WALL-MOUNT VESSEL SPOUT



ALL CONNECTIONS 1/2” NPT

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Spout Specifications

Illustration #1

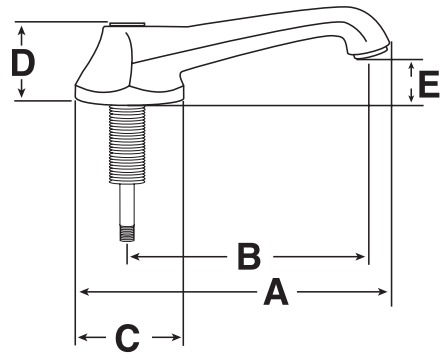

Illustration # 1 represents all dimensions for Bluewater spouts. Dimension "A" will always represent the overall length of the spout. Dimension "B" will always represent the distance from the center of the spout base to the center of the spout outlet regardless of whether the spout is a basin set or deck tub set. Dimension "C" will always represent the diameter of the spout base. Dimension "D" will always represent the overall height of the spout without including the pop-up knob. Dimension "E" will always represent the distance between the deck surface and the bottom of the aerator.

Note: Dimensions are in inches and are subject to change without notice.

Spout Description	A	B	C	D	E
Basin Spouts					
Nemo Basin Spout	7-1/2"	5-3/4"	2-3/8"	6-5/8"	
Kyma Basin Spout	7"	5-1/4"	2"	3"	1-1/2"
Idro Basin Spout	7-3/4"	6-1/2"	2-1/2"	13-1/4"	8-1/4"
Korl Basin Spout	5-1/2"	4"	2-1/4"	6-1/2"	4-1/4"
Vela Basin Spout	8-1/4"	6-1/2"	2-5/8"	3-1/4"	1-3/4"
Nisi Basin Spout	9"	7-1/4"	2-1/2"	5"	1-3/4"
Xess Basin Spout	7-1/8"	5-1/2"	1-3/4"	5-5/8"	4"
Wall-mount Basin Spouts					
Idro Wall-mount Basin Spout	10"		3-5/8"		
Korl Wall-mount Basin Spout	8-1/4"		2-1/2"		
Nisi Wall-mount Basin Spout	9-1/4"		2-1/2"		
Wall-mount Spouts					
Nemo Wall-mount Spout	10-1/2"		2-3/8"		
Single Hole Basin Spouts					
Idro Single Hole Basin Spout	7-3/4"	6-1/2"	2-1/2"	13-1/4"	8-1/4"
Bridge Basin Spouts					
Kyma Bridge Basin Spout	7"	5-1/4"	2"	12-1/4"	7-5/8"
Deck Spouts					
Nemo Deck Spout	10-1/4"	8"	2-3/8"	7-1/2"	3-1/2"
Idro Deck Spout	8-1/2"	6-1/2"	2-1/2"	11-1/2"	7-1/4"
Korl Deck Spout	7-1/2"	6"	2-1/2"	6-1/4"	4-3/4"
Nisi Deck Spout	12-3/4"	10-3/4"	2-3/4"	9-7/8"	2-3/4"
Vela Deck Spout	10-3/4"	8-3/4"	2-3/4"	4"	1-7/8"
Xess Deck Spout	10-1/2"	8-1/4"	2-1/2"	7"	5"

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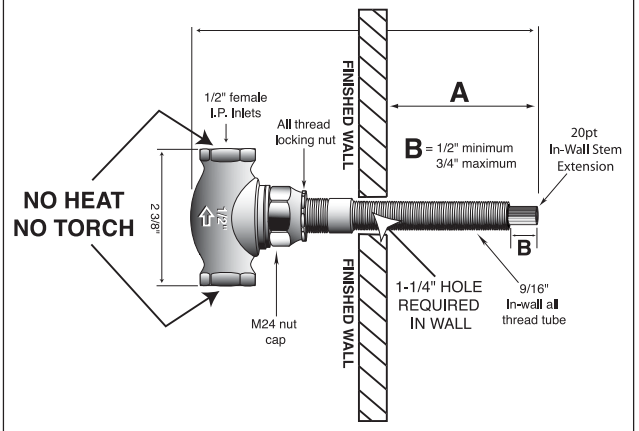
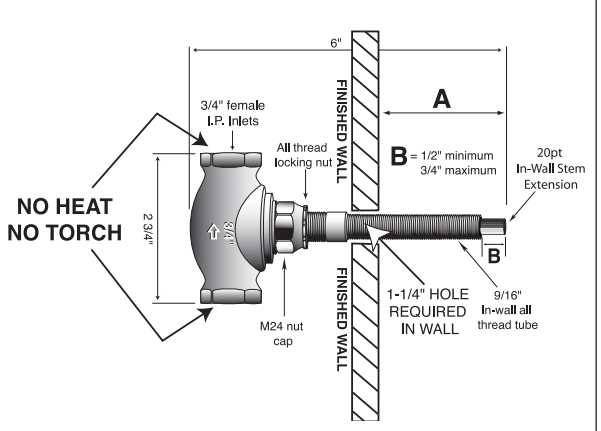
IN-WALL VALVE ROUGH-IN SPECIFICATIONS

1/2" & 3/4" IN-LINE SHUT-OFF VALVE

1/2" IN-LINE SHUT-OFF VALVE



3/4" IN-LINE SHUT-OFF VALVE



1. Rough-in Measurement A is from tip of valve stem to finished wall.
2. For extra wall thickness, such as ceramic tile, place the in-wall valve body as necessary to maintain Measurement A.
3. Never use an exit as an inlet; Never use an inlet as an exit.
4. Follow arrow marked on body for water flow direction.
5. All connections are female NPT fittings.
9. Trim stem and threads as necessary.
6. No heat-No torch.
7. FLUSH LINES OF DEBRIS.
8. TEST UNIT BEFORE CLOSING WALL.
10. UPC REQUIRES ACCESS TO MECHANICAL JOINTS.

BLUEWATER HANDLE SELECTION

A Measurement	1-1/2”	1-3/4”	2”	2-1/8”	2-1/4”
Handle #	506	500	*501	505	502
	507		*503	515	504
			*509	508	511
			*510		516
			512		

Special Bushing

*** Requires Special Bushing for Installation**

NOTICE: These instructions do not represent step-by-step directions. They are a product supplement only to be used by a qualified/licensed plumber. We recommend all plumbing fixtures be installed by a professional.

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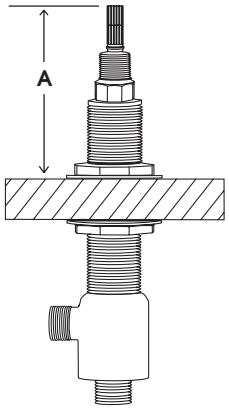
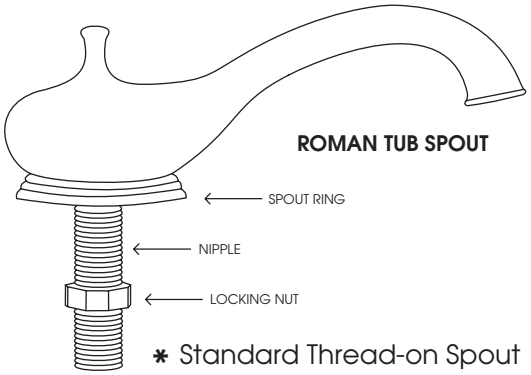
Deck Mount Rough-In Specifications

3/4" Valve, Diverter & Roman Tub Spout





* Standard Thread-on Spout

NOTICE: These instructions do not represent step-by-step directions. They are a product supplement only to be used by a qualified /licensed plumber. We recommend all plumbing fixtures be installed by a professional.

1. ALWAYS flush lines of debris; ALWAYS provide an access panel for later service.
2. Provide 1-1/4" hole size for valve and spout. Apply teflon tape to threaded areas of tee assembly. It is suggested that tee be secured permanently in place by solder. Plumber to provide lines to valves; tee not provided with spout unless requested due to frequency of diverter/handshower installations.
3. Thread spout approximately 1/2" onto the nipple (3 turns minimum). Note: some designs provide for a quick-connect application.
4. Install trim after completion to avoid damage from following trades.
5. WARRANTY IS INVALID if iron pipe is used to connect spouts or house is improperly grounded.
6. TEST VALVES AND LINES BEFORE CLOSING DECK.

BLUEWATER HANDLE SELECTION

Special Bushing

A Measurement	**1-1/4”**	**1-3/4”**	**1-1/2”**
Handle #	507	500	501
	•516	505	•502
		512	503
		515	•504
			506
			*508
			509
			510
			•511

Stem Extension

• Requires Special Bushing and Stem Extension

*** Requires Special Bushing**

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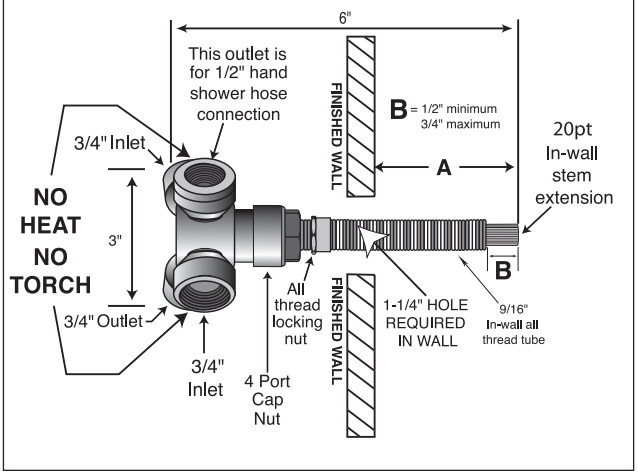
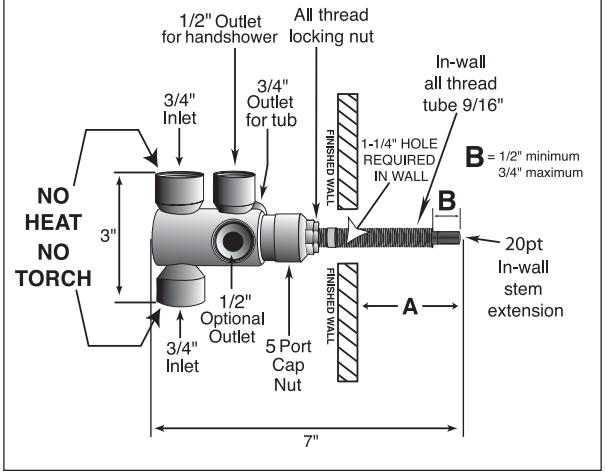
IN-WALL VALVE ROUGH-IN SPECIFICATIONS

4 PORT & 5 PORT IN-WALL DIVERTER

4 PORT IN-WALL DIVERTER



5 PORT IN-WALL DIVERTER



1. Rough-in Measurement A is from tip of valve stem to finished wall.
2. For extra wall thickness, such as ceramic tile, place the in-wall valve body as necessary to maintain Measurement A.
3. Never use an exit as an inlet; Never use an inlet as an exit.
4. One inlet or exit may be plugged if not required.
5. Check ports for markings. **Note:** 3/4" outlet for Roman Tub.
6. All connections are female NPT fittings.
7. No heat-No torch.
8. FLUSH LINES OF DEBRIS.
9. TEST UNIT BEFORE CLOSING WALL.
10. Trim stem and threads as necessary.
11. UPC REQUIRES ACCESS TO MECHANICAL JOINTS.

BLUEWATER HANDLE SELECTION

A Measurement	1-1/2"	1-3/4"	2"	2-1/8"	2-1/4"
Handle #	506	500	*501	505	502
	507		*503	515	504
			*509	508	511
			*510		516
			512		

Special Bushing

*** Requires Special Bushing for Installation**

NOTICE: These instructions do not represent step-by-step directions. They are a product supplement only to be used by a qualified/licensed plumber. We recommend all plumbing fixtures be installed by a professional.

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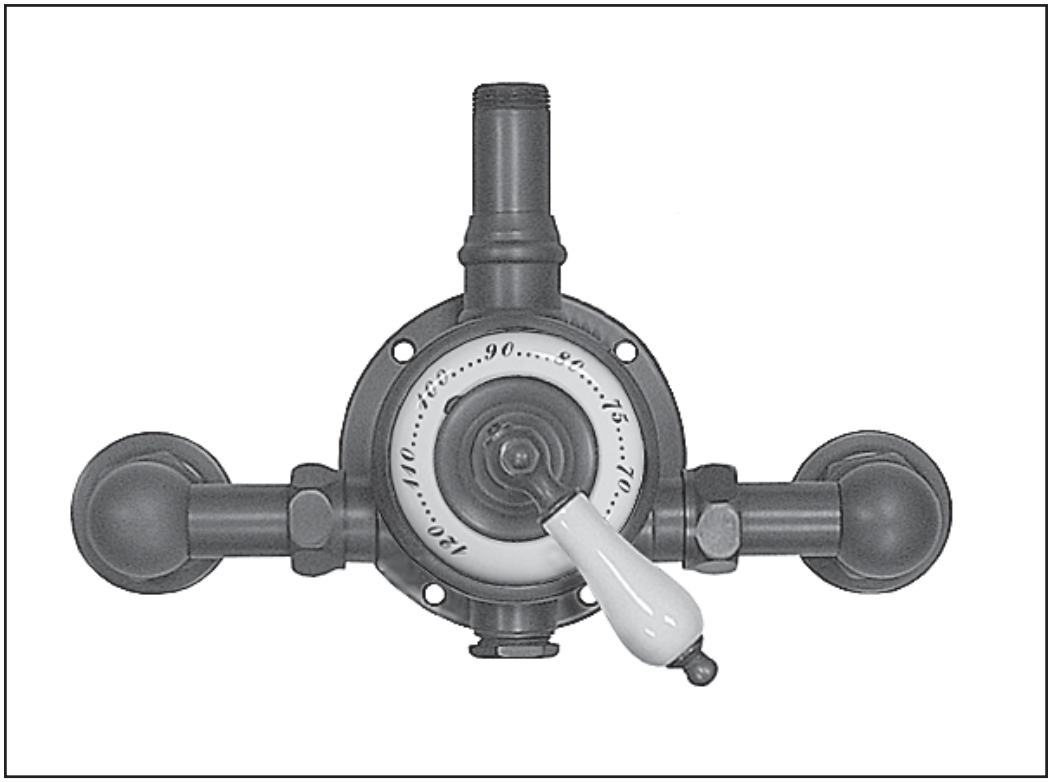
Grand Exposed Thermostatic Valve Installation Instructions



LEAVE FOR HOME OWNER

Care Instructions:

The product you have just purchased is designed to provide you with long lasting beauty and dependability. To ensure your product's longevity, please follow the following care instructions.

When installing, we recommend you lay all parts on a soft cloth or towel to avoid scratching or damaging the product. To care for your fitting, wipe with a clean, soft, damp cloth and blot dry as often as possible. Never use abrasive cleansers, sponges, or acidic cleaning products as these may damage the finish and VOID THE WARRANTY.

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Welcome to the World of Thermostatic Systems Both Exposed and Concealed Valves

Please read ALL instructions, cautions, and care recommendations before beginning installation.

! CAUTIONS !

1. **APPLY NO HEAT/NO TORCH TO THE VALVE ASSEMBLY.**

2. Take special care to protect all components during the construction and installation.

3. Open all boxes carefully. The products are heavy and damage can occur after you open the contents.

4 We suggest all products be set on a soft work surface like an old blanket for review before installation. Cement floors are too hard.

5. Always turn off water at the source before beginning installation.

6 Go slowly - A cautious installation creates a beautiful finished result.

Caution 7. Use no pliers, vice grips or channel locks on this finished trim - you will scratch or mar the surface.

Caution 8. Use a crescent wrench on all nuts - be deliberate and patient - no damage will happen.

9. If you have the factory installation tool kit, follow the instructions enclosed.

10. Concealed thermostatic systems are the norm in the USA today. Valves are usually installed inside the frame construction and there is no danger from exposed pipes.

11. All of the Exposed Thermostatic Systems are state of the art and meet or exceed all codes for approved products in the USA and Canada.

12. All systems are fail safe and will not allow hot water to exceed 120° degrees Fahrenheit during any showering or bathing experience if properly installed and calibrated.

13. Each individual bather can adjust the temperature at will while using the shower. Our thermostatic systems have separate temperature controls from the exit controls.

14. Exposed hot water pipes are potentially dangerous to the unsuspecting person. We are used to concealed plumbing pipes inside the walls of a typical home.

15. Be advised that exposed thermostatic systems have a **HOT** water line that can be too hot to touch! **Beware of burns!**

16. Exposed piping means you can touch the cold and hot water lines.

17. Exposed piping means you can see if anything is wrong with your plumbing.

18. Exposed piping means you can service your system easily.

19. Exposed piping means you don't have to remove your walls if a problem occurs.

20. We have labeled the hot side as a preliminary caution for the homeowner. Please leave the attached label in place for the homeowner to remove when the installation is complete.

21. **3/4" copper water lines are required for the hot and cold inlets.**

22. Remember the exposed piping is **not a grab bar** and we do not imply in any way that our installation procedures are for any other purpose than to support the exposed pipes on the prepared surfaces of your walls.

23. You must provide wood backing inside the walls to mount the various units correctly (see the attached installation print #2).

24. Be sure the supplied screws will be long enough to reach the interior wood blocking or that the screws supplied with the alligator clips are going to fit in your tile or stone walls (see diagram of suggested framing).

25. The system comes with metal ferrules. The 2 supplied 3/4" metal ferrules are for the 3/4"copper inlets only.

26. All systems have been water tested at the factory to 90 lbs of static and dynamic water pressure. Thus you may find residual water inside the thermostatic valve from this testing.

27. The exposed thermostatic valve has been factory calibrated to deliver a maximum Fahrenheit temperature of 110° to confirm proper operation. In the absence of a thermometer, the maximum water temperature should feel slightly uncomfortable to the hand.
NOTE: It is important that the valve be properly calibrated to preserve its anti-scald feature. For recalibration procedures, **(See Page 8)**.

28. Prior to installing the thermostatic body, **flush all water lines** to free up debris. The lines should be flushed long enough to remove any sediment that may come from any new installations including a water heater. It is recommended you flush lines for at least 15 minutes before connecting the new fitting, let water run from the HOT and COLD copper connecting pipe in the shower wall.

29. **Failure to flush thoroughly may damage internal parts!** An in-line water filter is recommended to remove harmful sediments.

31. Water pressure comes from your local water supplier and can be measured at the source. Pressure and water velocity are not functions of the valve.

32. Do not attempt installation of product if you do not understand these instructions. **Qualified plumbers should be used for all installation procedures.**

33. Call the factory if you have any questions.

- Maximum working pressure	145 PSI
- Minimum working pressure	14 PSI
- Recommended working pressure	29 to 58 PSI
- Maximum test pressure	224 PSI
- Maximum hot water temperature	185°F

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Shower Heads:

All showerheads and hand showers comply with the approved water flow rate as required by US plumbing codes when we have installed flow restrictors in the heads.

These flow restrictors can clog from lime scale buildup, silt, sand, or debris in the water line caused from or during the construction process. If you wish to clean or service the restrictor, simply use a Phillips screwdriver and back out the plastic part - clean and reinstall.

Always keep Deluxe showerheads level and perpendicular to your floor. If any head is tilted you may not receive a satisfactory shower.

Some showerheads are intentionally designed as Rain Heads. The water exits the 8" and 12" size heads like wonderful soft rain. Increased velocity does not come from the shower valve but from several other outside factors.

The velocity of the water is dependant on your existing street water pressure, the size of the pipes, the water meter and the design of your pipe system.

Consult with the Factory Sales Representative or a Factory Trained Plumbing Contractor when issues occur.

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<u>Note:</u> This fitting has been factory assembled, tested and is ready for installation. See the tag attached to the valve to verify factory readiness.

Recommended Instructions:
Read all instructions completely before proceeding!

The Exposed Thermostatic Valve is a controlled shower mixing valve. Temperature is thermostatically controlled by a bi-metal cartridge thermostat that maintains a constant temperature while automatically adjusting and compensating for changes in HOT and COLD inlet pressures and temperatures. Should the COLD supply fail, the valve will immediately shut down to avoid any risk of scalding. Keep in mind that the distance the shower head or other exit is from the valve will determine how fast you feel the instantaneous correction in temperature. The water flow is controlled by a simple quarter turn ceramic cartridge. The Exposed Thermostatic Valve is suitable, without modification, for all types of installations. This includes pumped gravity systems, main pressure water systems and combination boilers.

MEETS AND EXCEEDS I.A.P.M.O. ASSE 1016 STANDARDS AND UNIFORM PLUMBING CODES

PRODUCT CARE:

The Exposed Thermostatic Valve is incredibly easy to maintain. The temperature and flow are controlled by one piece cartridges which are easily removed for cleaning and replacement. See Calibration Instructions to demonstrate how to properly remove the handle. To ensure full water flow, periodically clean the cartridge screens of any debris using a small brush. Rinse thoroughly before returning to the fixture. Drop cartridge into place and reassemble handle pieces as shown on calibration instructions. Soaking the cartridge in a 50/50 solution of clear household vinegar and water will remove lime scale. Regular cleaning each year will extend the life of the cartridge. **Never use a screwdriver on a thermostatic cartridge and NEVER take a thermostatic cartridge apart as you will damage the precise instrument.** Call your dealer or the factory for answers to your questions. **Remember, after removing the cartridge, you must recalibrate.**

INSTALLATION:

The Exposed Thermostatic Valve must be installed with the outlet pointing upwards, so that the HOT water enters on the left, and the COLD water on the right, as shown in Figure A. **THE VALVE WILL NOT FUNCTION IF REVERSED!** The inlet elbows are fitted with compression nuts. Be sure to **flush thoroughly all new plumbing for up to15 minutes** before connecting the valve to clear out all debris in your water lines. The valve should be screwed to the wall with the screws provided.

Figure A

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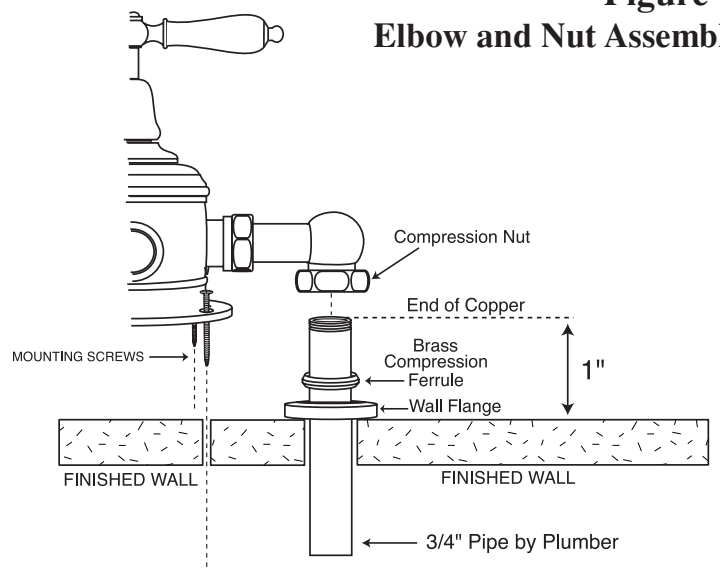
INSTALLATION:

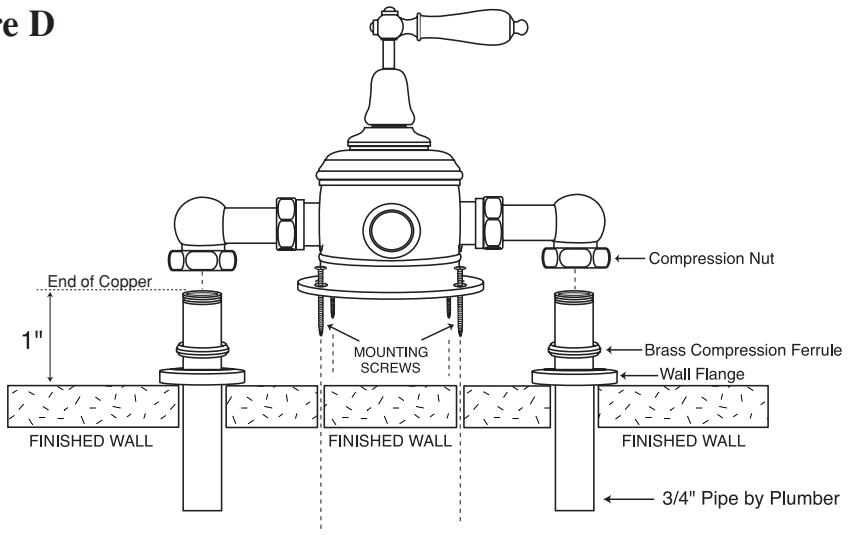
Next, cut the 3/4"copper pipes so that they extend approximately 1" from the finished wall.
(See Figure C below) Slip the wall flange over the pipe. Next, slide on the compression nut so that the bottom fits into the wall flange. Slide the ferrule down the pipe. It will pinch into the copper securing the elbow when you tighten the nut onto the elbow.

Figure C
Elbow and Nut Assembly



" <u>Please Note</u> ": The entire valve body must be installed over the copper pipes **- at one time -** <u>do not</u> separate the components. **See Figure D below.**

Figure D



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CALIBRATION INSTRUCTIONS:

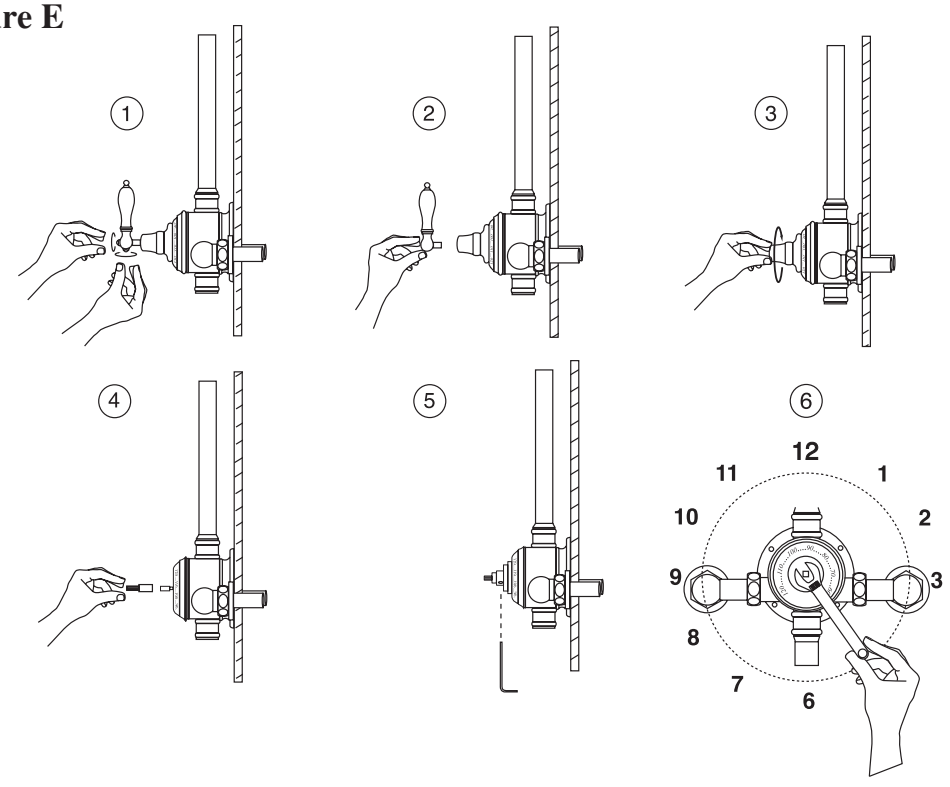
FOR TEMPERATURE SETTING AND ADJUSTMENTS

Calibration is the simple process by which you control the temperature range of mixed water. The Exposed Thermostatic Valve has been factory tested and calibrated to preserve its anti-scald feature when installed in your home. If you desire a hotter or colder temperature range, you can recalibrate the valve after installation, when both HOT and COLD lines are 100% operational, and all installation debris have been flushed from the water lines and the valve body. The factory has preset the valve at 110°F maximum. You may feel a 2 or 3 degree variance but turning the temperature handle will be the simple way to change the temperature.

TO CALIBRATE TEMPERATURE SETTING: (SEE FULL TEXT ATTACHED)

Under no circumstances is the thermostatic cartridge to be dismantled. Doing so will VOID THE WARRANTY and possibly make the cartridge inoperable. (SEE FULL TEXT)

Figure E



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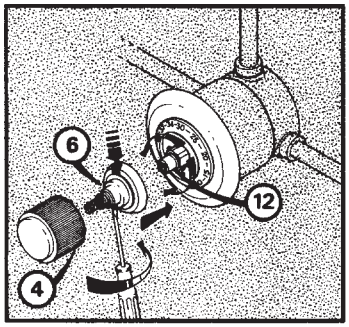
Temperature Calibration



ALL 3/4" EUROTHERM VALVES CALIBRATE THE SAME.

Let the water flow and bring this to a mean temperature by actuating the bushing **("A" PRINT# 1)**. Note this temperature. Place the pointer assembly **("B" PRINT# 1)** on the bushing and position the "red" index opposite the graduation corresponding to the temperature noted.

Tighten up the pointer assembly **("B" PRINT# 1)** set screw and fit the handle **("C" PRINT# 1)** again.

When in use, if a water above 104°F is desired, press the "red" index and turn the knob to the left.

Maintenance

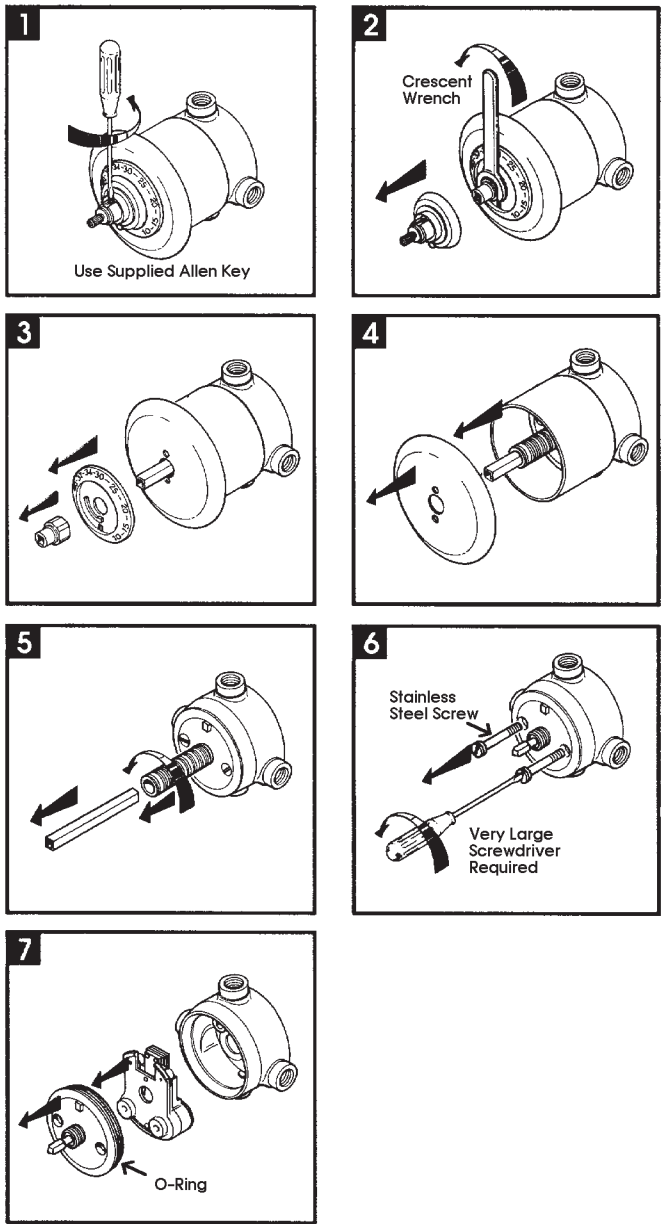
Filter Cleaning

If the cartridge is installed prior to flushing the lines you may inadvertantly clog the filters. Dirty filters may lead to a reduction in the flow rate. It is then necessary to clean them with a brush after removing the combination cover cartridge **("D" PRINT# 1)** from the body of the appliance (see "Cartridge Removal Guide). Brush the outsides of the filters ONLY.

D. Cleaning the Cartridge

If the cartridge is installed prior to flushing the lines you may inadvertantly clog the filters. It will be necessary to remove the cartridge from the mixing valve - never take the cartridge apart or you will void all warranties . Simply soak the entire cartridge in (vinegar and water solution 50/50) for 1 to 3 hours and reinstall the valve. 90% of the time the valve will then work normally. See Operating Incidents for further details.

Cartridge Removal Guide (Future reference ONLY)



Emptying in case of Frost

When the appliance is exposed to freezing conditions it is ESSENTIAL to empty it:

- either by turning on a tap at the bottom outlet
- or by opening the cover (3) of the appliance.

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OPERATING SOLUTION FOR EUROTHERM THERMOSTATIC MIXERS

In the event of an operating problem with a Eurotherm thermostatic mixer, review the following information. Make sure hot and cold inlets are correctly connected to the marked hot and cold side of the mixer. Be sure there is sufficient water pressure and that you have calibrated the mixer valve correctly. Check whether the screens are clean of debris. The main operating problems, their causes and remedies are described below. If the problem is caused by the mixer, return the replaceable mechanism or the complete mixer (industrial models) to the factory.

OPERATING DEFECTS	REASON	REMEDIES
1 - When first using a new appliance, only hot or cold water is delivered.	- The water inlets are reversed. - The bimetal strip is not properly centered. - The distributing valve is not free.	**1** **5** **7**
2 - The mixed water temperature follows the position of the graduated regulator but with a certain delay.	- The control system is incorrectly calibrated.	**2** **6**
3 - The appliance does not deliver mixed water or only when the regulator is turned up all the way.	- One of the water inlets doesn't work.	**3**
4 - The mixed water is delivered in spurts and the flow rate is low except at one temperature or the limited temperatures.	- One of the water supplies doesn't provide sufficient water.	**4**
5 - From time to time the appliance only delivers hot or cold water.	The bimetal strip is not properly centered. - The distributing valve is not free.	**5** **7** **8**
6 - The water is always supplied at the same temperature hot or cold.	- The bimetal strip does not move the distributing valve: a) Because the distributing valve is not free. b) Because the regulating screw does not act on the mechanism.	**7** **10** **8**
7 - The temperature is irregular, especially when flow rates are low.	- There are foreign particles beneath the membrane. - The membrane is damaged.	**8**
8 - Insufficient mixed water is supplied.	- Pressure is too low. - One of the water supplies is insufficient.	**3** **9**
9 - The different water supplies intercommunicate in the mixer.		**6**

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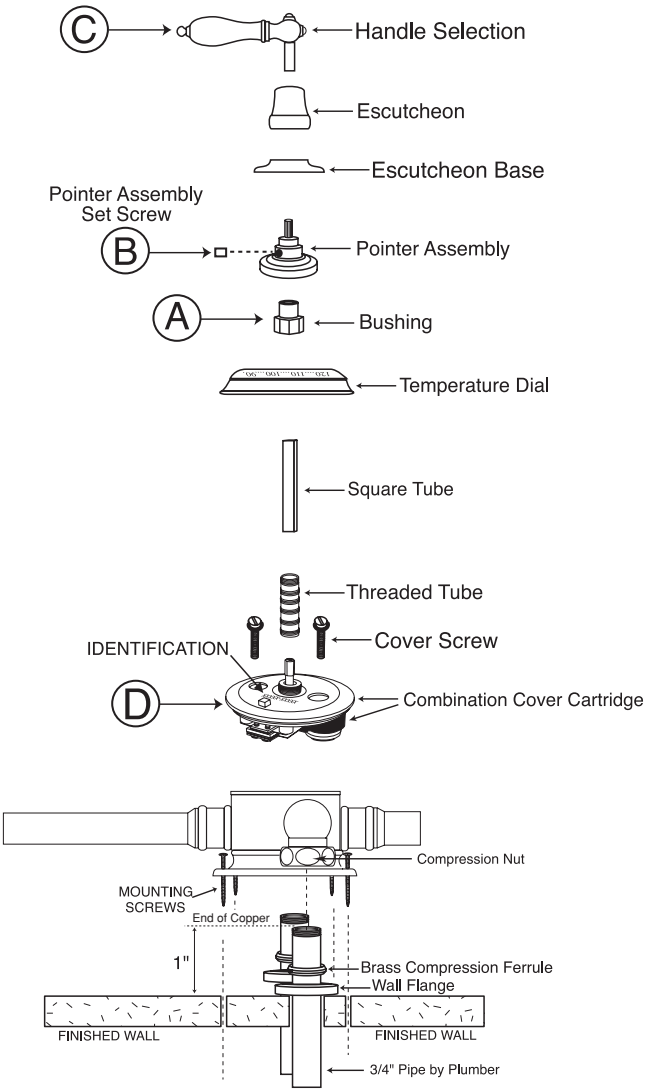
PRINT 1



TROUBLE SHOOTING:

The Exposed Thermostatic valve is remarkably dependable and reliable, providing you with a lifetime of service and beauty. The following three problems, and the simple solutions to each, have accounted for nearly all difficulties with this valve.

1.) After Installation the shower only runs HOT or COLD water, and will not mix. ***SOLUTION:*** *You have the HOT and COLD plumbed the wrong way around. The correct plumbing is HOT on the LEFT and COLD on the right.*

2.) The shower will not run hot enough when first installed. ***SOLUTION:*** *First verify that the water heater is set at 135°F or more. If such is the case, then maximum temperature of the catridge needs to be set at a higher set point. To readjust the temperature range, follow* ***CALIBRATION INSTRUCTIONS*** .

3.) Cold water tracking through the valve into the hot system on combination boiler systems. ***SOLUTION:*** *This is prevented in the Exposed Thermostatic Valve by built-in check valves in the inlets. Check and clean the built-in valves. There may be debris in the plastic check valve.*

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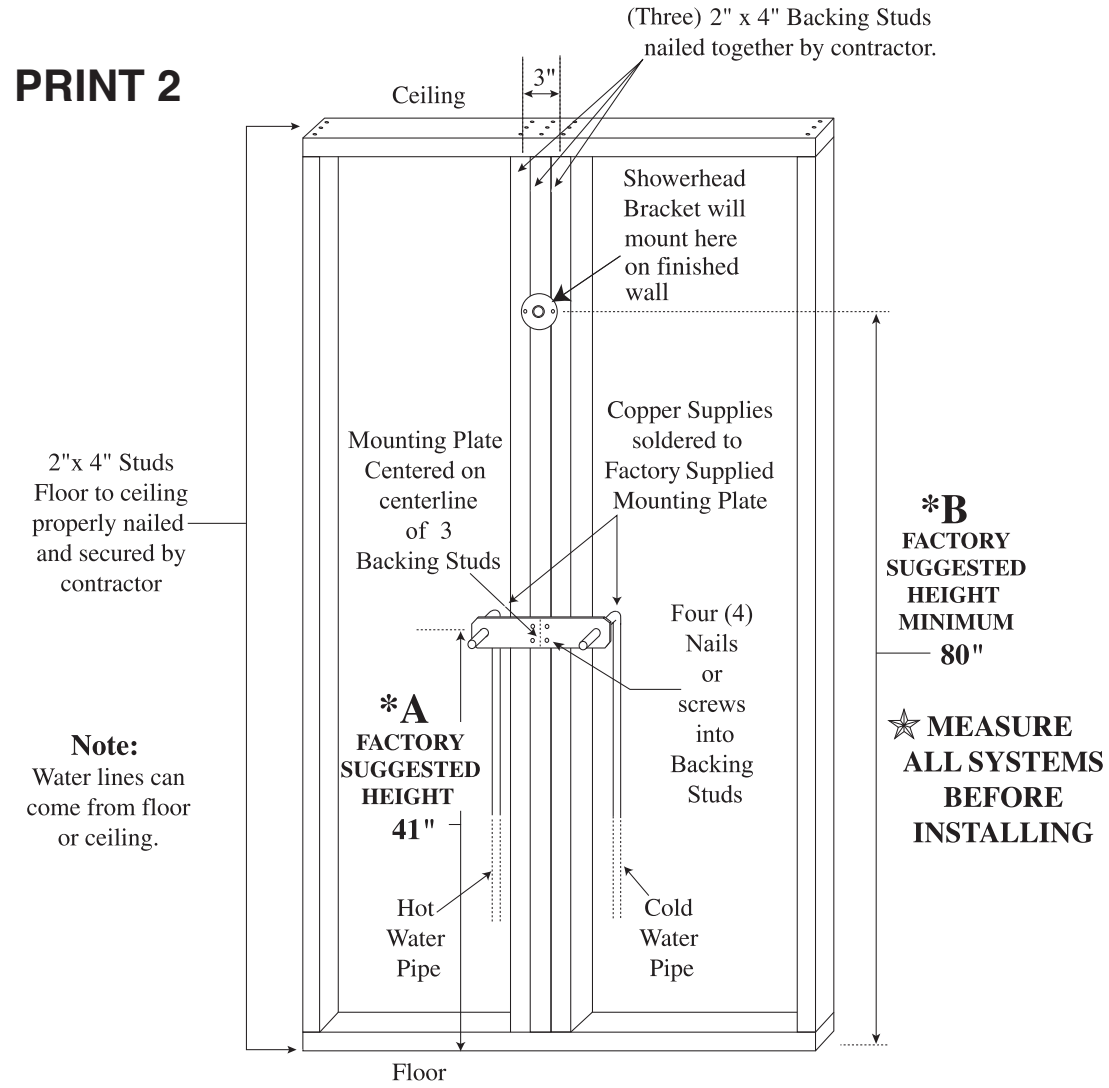
Installation begins by selecting the centerline of 2" x 4" backings studs at the factory suggested location of 41"as shown in **(Print 2)**. The mounting plate is secured through the use of four metal screws. **Note:** The wall surface must be level on all sides of the centerline, otherwise the thermostatic system will not look level and straight when installed.

RECOMMENDED
TYPICAL WALL FRAMING CONCEPT

PRINT 2



*** Note: These are factory suggestions only - The 80" Height at *B will allow a 6'5" tall person to walk underneath without bending.**

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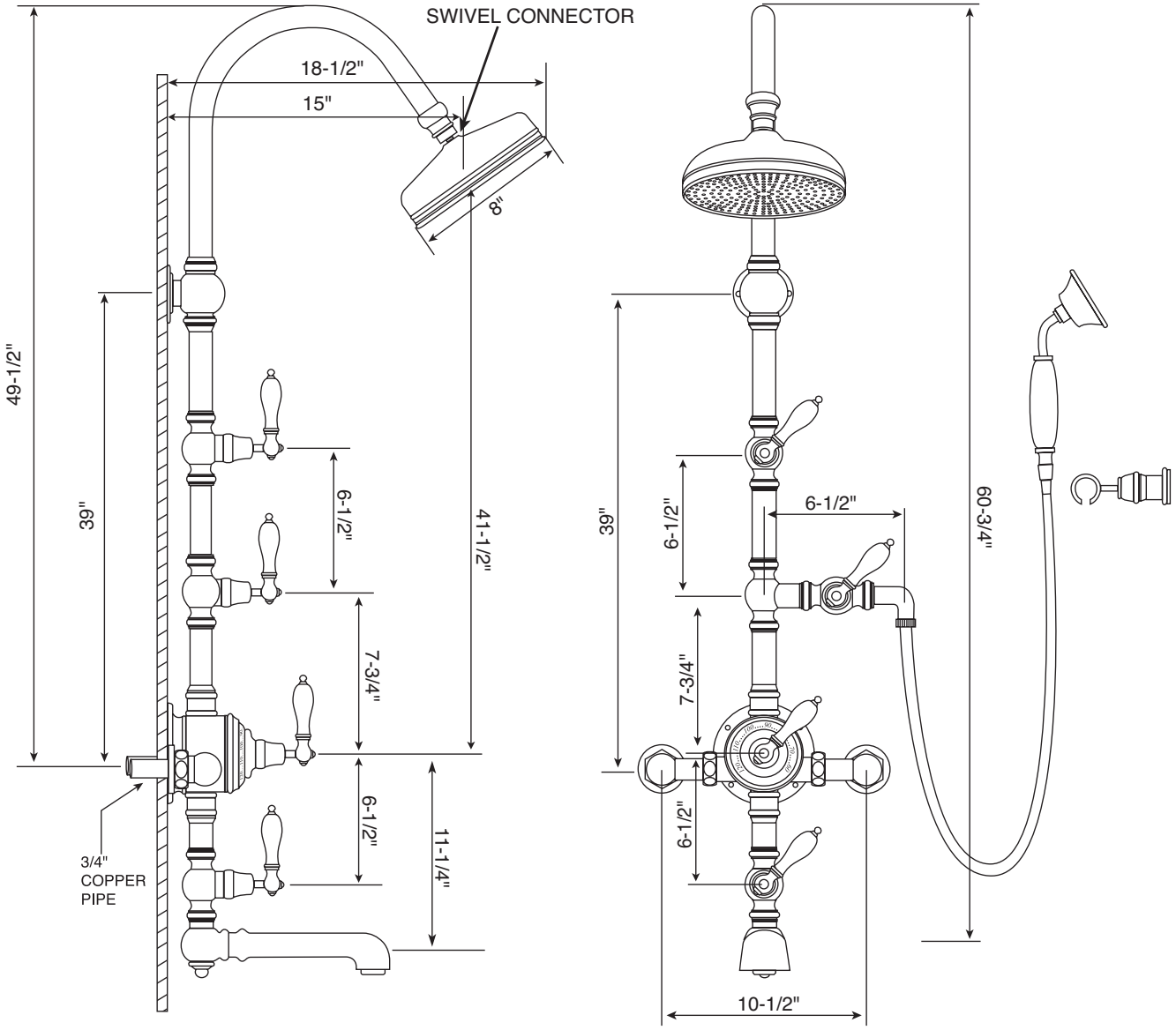
Typical Finished Installation of Exposed Thermostatic Wall Units Tub and Shower with Handshower

PRINT 3A



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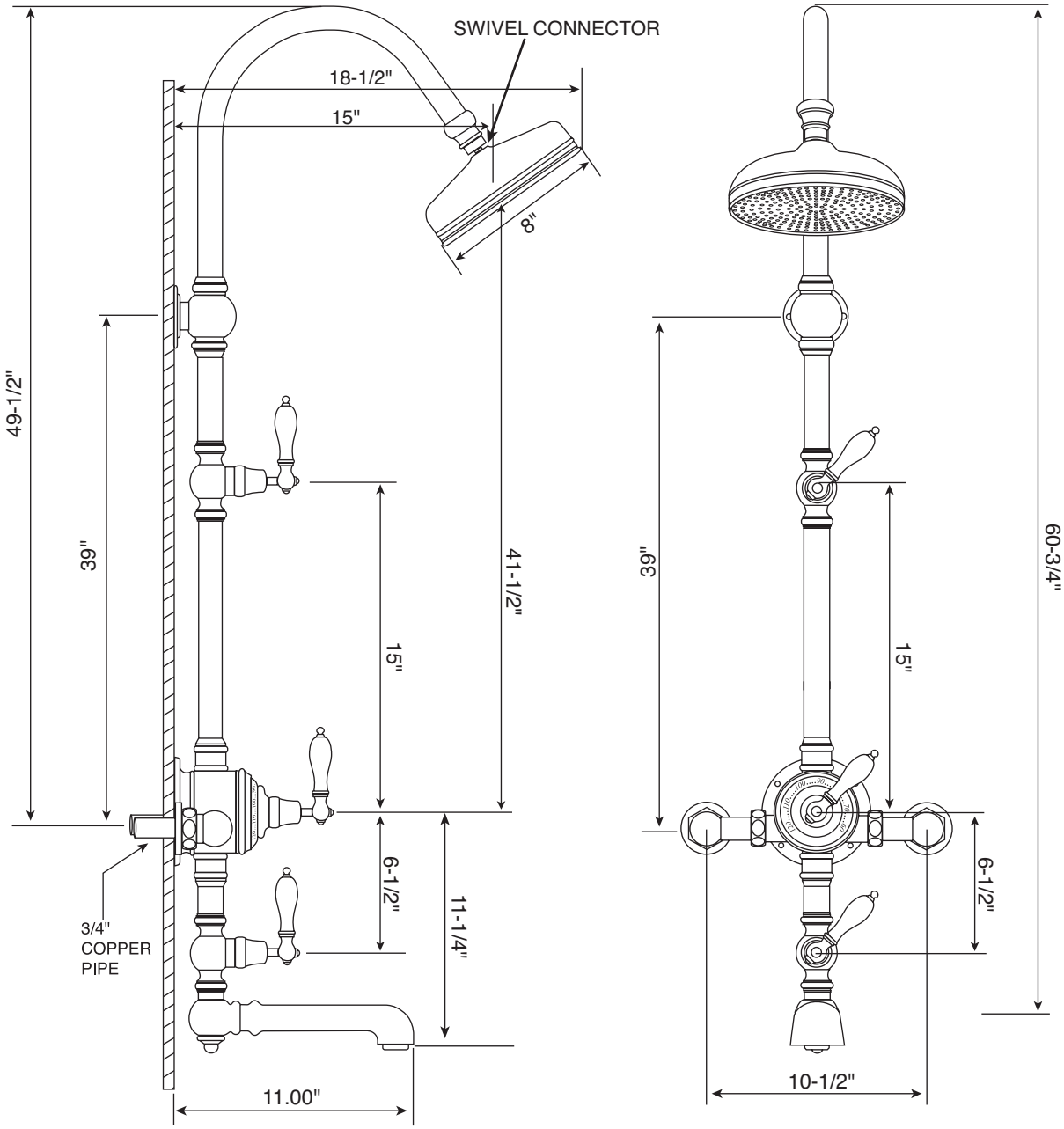
Typical Finished Installation of Exposed Thermostatic Wall Units Tub and Shower

PRINT 3B



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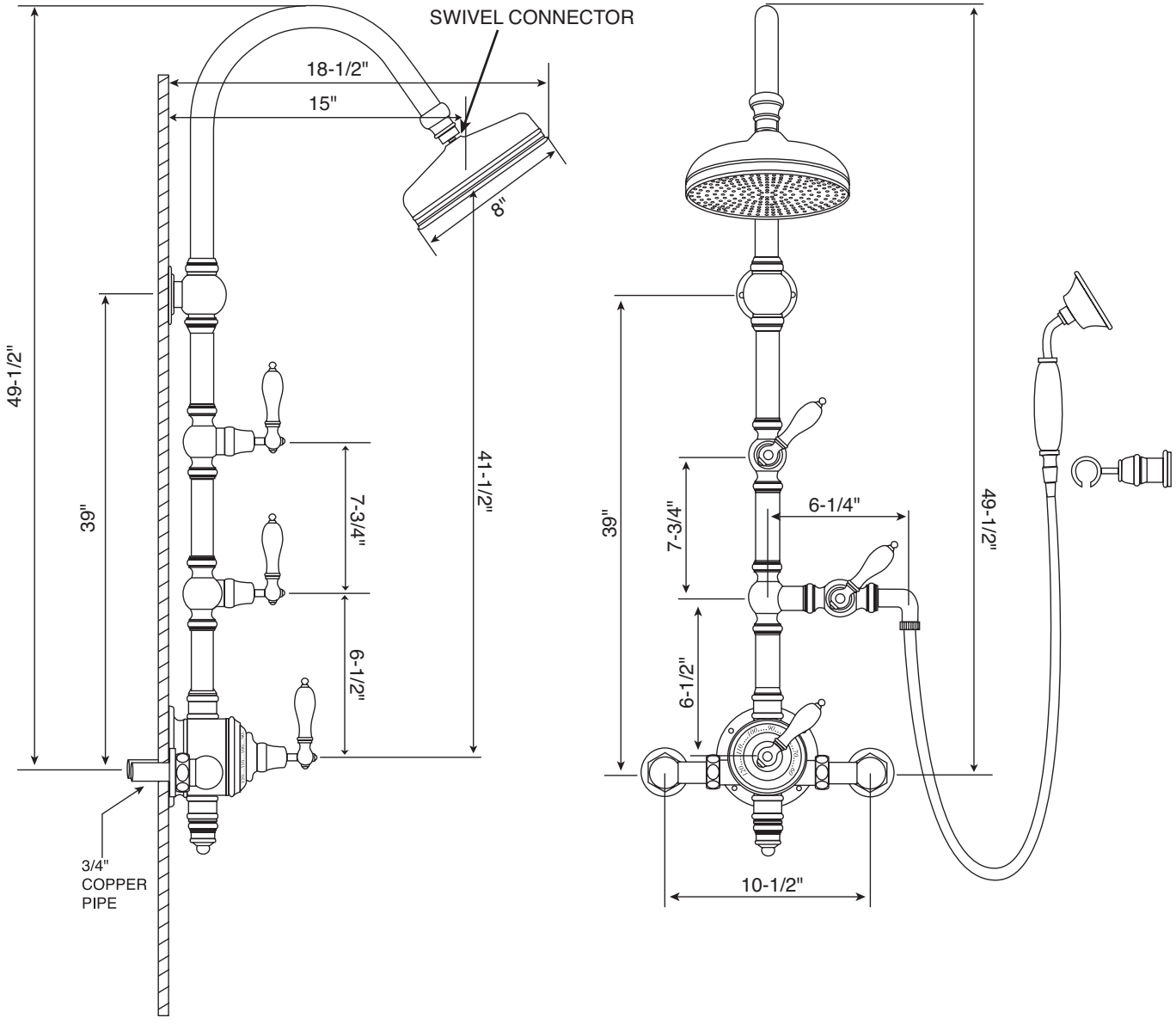
Typical Finished Installation of Exposed Thermostatic Wall Units Shower with Handshower

PRINT 3C



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SUGGESTED INSTALLATION OF MOUNTING FOR EXPOSED THERMOSTATIC SYSTEM.

THIS PLATE IS INSTALLED ON THE WOOD BACKING DESIGNATED ON **PRINT 2**.

"SEE ACTUAL PART"