



PLUMBING SYSTEMS

**ENGINEERED POLYMER
(EP) VALVED MANIFOLDS**

INSTALLATION GUIDE



Uponor Engineered Polymer (EP)
Valved Manifolds Installation Guide

Uponor Engineered Polymer (EP) Valved Manifolds Installation Guide

Published by Uponor, Inc.

5925 148th Street West

Apple Valley, MN 55124 USA

800.321.4739

www.uponorpro.com

© 2013 Uponor, Inc.

All Rights Reserved.

Third Edition, April 2013

First Printing October 2002

Printed in the United States of America

Table of Contents

Section 1 – The Engineered Polymer (EP) Clean Water Management System

EP Valved Manifold System Standards, Ratings and Certifications	1
---	---

Section 2 – Important Product Information 3

Section 3 – EP Valved Manifold Sizing Guidelines

General Guidelines	5
------------------------------	---

Section 4 – EP Valved Manifold Installation

Tools Required	7
Materials Required	7
EP Valved Manifold Assembly	7
EP Valved Manifold Placement	9
Guidelines	9
Tips for Mounting EP Valved Manifolds	9
Using the Drill Guide	11
Connecting Uponor AquaPEX to the EP Valved Manifold	12
Filling and Testing the EP Valved Manifold System	13
System Test	13
Filling the System	13
System Disinfection	13
EP Valve Replacement	14

Section 5 – ProPEX® Fitting System

Making ProPEX Connections	15
Important Tips for a Proper ProPEX Connection	17
Disconnecting a ProPEX Brass Fitting	18
Troubleshooting ProPEX Connections	19
Fittings Won't Seal	19
Expansion is Difficult	19
Expansion Head Slips Out of Tubing When Making Expansions	19
More Than the Recommended Number of Expansions are Needed to Make a Connection	19
Cold-weather Expansions	20
Proper Expander Tool and Head Maintenance	20
Handling Guidelines for EP Fittings	21

Section 6 – Plumbing Inspector’s Checklist

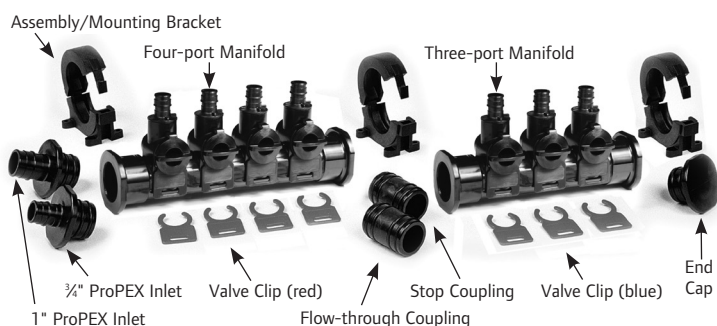
Tubing and Fittings.	23
Manifolds	23
Tubing Limitations	24
Joints and Connections.	24
ProPEX Fittings.	24
Tubing Supports	24
General Recommendations	25
Pressure Testing	25

Note: For additional sizing, design and installation guidelines, please refer to the Uponor Professional Plumbing Installation Guide.

Section 1

The Engineered Polymer (EP) Clean Water Management System

Uponor's Engineered Polymer (EP) Valved Manifold brings manifold plumbing systems to a new level. Uponor AquaPEX® tubing is run directly to each fixture from the manifold, reducing the number of required fittings.



Uponor AquaPEX tubing, which is crosslinked polyethylene or PEX, has been used in plumbing systems around the world for more than 40 years, longer than any other polymer plumbing system available. The EP Valved Manifold is made of advanced engineered polymer (EP) materials proven in harsh plumbing applications for more than 15 years. Together, Uponor AquaPEX tubing and the EP Valved Manifold provide a clean water management system.

EP Valved Manifold System Standards, Ratings and Certifications

- Uponor's EP Valved Manifold is tested to ASTM F877 as certified by NSF International.
- The EP Valved Manifold is listed to NSF International Standards 14 and 61 that define requirements for performance and toxicity.
- The EP Valved Manifold is listed to IAPMO IGC 109-2003, file no. 3946.

Section 2

Important Product Information

Failure to follow the instructions and installation guidelines in this manual can result in the failure of the Uponor EP Valved Manifold Clean Water Management System.

- Do not subject the EP Valved Manifold to impact.
- Distribution lines should exit the EP Valved Manifold in straight lines perpendicular to the length of the EP Valved Manifold.
- Supply lines should enter or exit the EP Valved Manifold in a straight line parallel to the length of the EP Valved Manifold.
- Do not expose the PEX tubing or the EP Valved Manifold to open flame.
- Do not allow solder, flux, solvents or urethane foams to come into contact with the EP Valved Manifolds, as immediate damage may result.
- Do not assemble or disassemble the EP Valved Manifold while pressurized. Be sure that the water supply is turned off and that pressure has been relieved from the system.
- Do not conceal the EP Valved Manifold behind permanent walls, floors or ceilings.
- Keep the Valve-turning Tool in an accessible location near the EP Valved Manifold.
- Hang or fasten the manifold kit supplied with the EP Valved Manifold nearby for future reference.
- Always inform the homeowner where the EP Valved Manifold is located if fixture stops are omitted.
- Do not spray on or allow organic chemicals, strong acids or strong bases to come into contact with EP Valved Manifolds.
- Do not use petroleum or solvent-based paints on EP Valved Manifolds.
- Do not allow rodents, insects or other pests to come into contact with EP Valved Manifolds.

Section 3

EP Valved Manifold

Sizing Guidelines

The general sizing information shown below is appropriate for many EP Valved Manifold installations. For additional sizing information, refer to the Uponor Professional Plumbing Installation Guide. Please consult local code for the proper sizing information.

General Guidelines

Fixture	Minimum Tubing Size (in.)	Flow Rate (gpm)	Flow Pressure (psi)
Bathtubs (60" x 32" and smaller)*	1½	4	8
Bathtubs (larger than 60" x 32")	1½	4	8
Bidet	¾	2	4
Combination sink and tray	1½	4	8
Dishwasher, domestic*	1½	2.75	8
Drinking fountain	¾	0.75	8
Hose bibs	1½	5	8
Kitchen sink*	1½	2.5	8
Laundry, 1, 2 or 3 compartments*	1½	4	8
Lavatory	¾	2	8
Shower, single head*	1½	3	8
Sinks, flushing rim	1½	N/A	N/A
Sinks, service	1½	3	8
Urinal, flush tank	1½	1.6	15
Urinal, flush valve	¾	15	15
Wall hydrant	1½	N/A	N/A
Water closet, flush tank	¾	1.6	15
Water closet, flushometer valve	1	35	25
Water closet, flushometer tank	¾	1.6	15
Water closet, one piece*	1½	6	20

For SI: 1 inch = 25.4 mm; 1 gal = 3.79 l; 1 psi = 6.895 kPa

*Where the developed length of the distribution line is 60 feet or less, and the available pressure at the meter is a minimum of 35 psi, the minimum size of an individual distribution line supplied from a manifold and installed as part of a parallel water distribution system should be one nominal tubing size smaller than the sizes indicated.

Section 4

EP Valved Manifold Installation

Before you begin, gather appropriate tools and materials.

Tools Required

- Screw gun or electric drill
- Milwaukee M12™ ProPEX® Expansion Tool or Uponor ProPEX Hand Expander Tool (Q6275075 or Q6295075)
- ProPEX Expander Tool Heads
- Tube Cutter (E6081125 or E6081128)
- $\frac{3}{4}$ " and $1\frac{1}{4}$ " wood drill bits

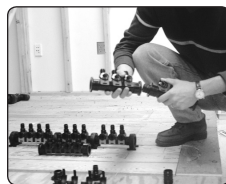
Materials Required

- 1" wood screws (for valved manifold mounting)
- $\frac{1}{2}$ " or $\frac{3}{4}$ " plywood (only required when mounting between studs)
- Uponor AquaPEX tubing
- EP Valved Manifold Kit (includes Valve-turning Tool and hot/cold labels)

EP Valved Manifold Assembly

The EP Valved Manifold can either be assembled prior to or while it is being mounted.

1. Determine the total number of outlets required for both the hot and cold manifold assemblies and the appropriate inlet/end cap arrangement.



2. EP Valved Manifolds are assembled with Flow-through Couplings (Q2121313) or Stop Couplings (Q2121251).



Flow-through Coupling

Stop Coupling

3. Insert the coupling into the end of the manifold until it stops. Attach the next manifold to the coupling and install the Assembly/Mounting Bracket (Q2120020).



Assembly/Mounting Bracket

4. Insert the $\frac{3}{4}$ " ProPEX Inlet (Q2120750) or 1" ProPEX Inlet (Q2121000) into the appropriate end of the manifold assembly. Install the Assembly/Mounting Bracket.



$\frac{3}{4}$ " ProPEX Inlet

1" ProPEX Inlet

5. Insert the End Cap (Q2121250) into the other end of the manifold assembly. Install the Assembly/Mounting Bracket.
6. Ensure that all Assembly/Mounting Brackets are fully locked, and the release tabs are located on the front (valve) side of the manifold.



End Cap

7. For hot-water distribution, install the Red Valve Clips (Q2120001) prior to the manifold installation. Remove the Blue Valve Clips (Q2120002) by grasping the clip and pulling up and away from the outlet. Rotating the clip away from the tab on the valve while pulling may simplify removal.



Red and Blue Valve Clips

Note: If insertion of components is difficult, lubricate the o-rings with a soapy water solution.

EP Valved Manifold Placement

Before installing the EP Valved Manifold, review the following guidelines and the local plumbing and building codes.

Guidelines

1. Install the EP Valved Manifold in a fully accessible location. The opening should be large enough to allow complete servicing of the manifold (mounting screws, distribution lines, etc.).
2. When local code requires, mount the EP Valved Manifold unit in a fire-rated wall, provided that the access door meets the same rating requirements as the wall and is installed over the access opening.
3. To maximize potential water and energy savings, mount the EP Valved Manifold as close as is practical to the hot-water source.
4. Do not install the EP Valved Manifold within a continuously recirculating hot-water plumbing loop. The EP Valved Manifold, however, may be supplied from a recirculating hot-water loop.
5. If a home requires multiple EP Valved Manifolds to service numerous fixtures in the home, consider dividing high-demand fixtures between the units.
6. When the home requires more than one unit due to the number of fixtures or size of the home, consider sub-manifolds and locating a remote EP manifold near an outlying group of fixtures.

Tips for Mounting EP Valved Manifolds

1. Always mount manifolds in locations that are easily accessible, and allow valves to face outward.
2. Ensure the release tab on the Assembly/Mounting Brackets is accessible.
3. Provisions must be made to support the tubing as it exits the EP Valved Manifold. Any bend within 6 inches of a ProPEX connection to ½" Uponor AquaPEX tubing requires the use of a tubing talon, bend support or stud. For ¾" and 1" tubing, support is required for bends within 10 inches of a ProPEX connection.
4. Do not overtighten mounting screws. Overtightening may cause the Assembly/Mounting Brackets to fail.

5. When mounting on a stud, center the Assembly/Mounting Brackets on the stud to allow the bracket to open sufficiently.
6. When surface-mounting, mount the manifolds with fasteners appropriate for the wall surface. If surface-mounting to sheetrock, brackets should align with as many studs as practical.
7. Extended driver bits simplify Assembly/Mounting Bracket installation and allow mounting of the manifold in a fully assembled configuration.
8. To run distribution lines through studs, the drill guide provided may be helpful.



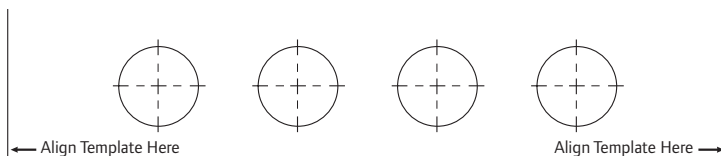
Using the Drill Guide

The drill guide, included with each EP Valved Manifold, is used to mark locations of distribution holes that are drilled through the studs. The distribution lines may pass through these holes as they are attached to the EP Valved Manifold ports. Use one drill guide to mark all studs.

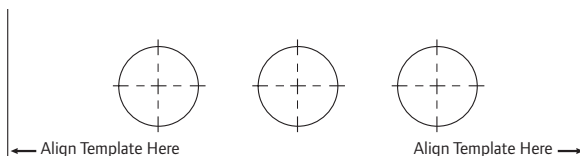
1. Fasten the drill guide template so that the holes are in the center of the stud.
2. Mark the appropriate number of holes on the stud by lancing a pencil through the crosshairs of the drill guide.
3. Remove the guide and drill holes.



Caution: When installing the EP Valved Manifolds prior to wall-finishing operations, protect the unit from paint, texture compounds and drywall dust.



EP Valved Manifold Four-port Outlet Pattern



EP Valved Manifold Three-port Outlet Pattern

Connecting Uponor AquaPEX to the EP Valved Manifold

1. The manifold is available with $\frac{3}{4}$ " or 1" ProPEX supply connections and direct $\frac{1}{2}$ " ProPEX outlet connections.
2. Please refer to **Section 5** on **page 15** for instructions on making a proper ProPEX connection.



Valves Open



Valves Closed

3. Open all valves after completing all connections.

Note: Valves are one-quarter turn only. Turn valves counterclockwise to open and clockwise to close. Do not turn past the valve stop. Use the EP Valved Manifold Valve-turning Tool (Q2120010) to open and close valves.



EP Valved Manifold
Valve-turning Tool



Caution: Turning the valves past the stop will cause the valve body to blow off under pressure.

4. Label each valve handle with the hot and cold fixture labels supplied with the EP Valved Manifold.
5. Cap any unused outlet and turn it to the off position.
6. Attach the manifold supply tubing to the appropriate end using proper ProPEX connection procedures.

Filling and Testing the EP Valved Manifold System

System Test

Air-pressure testing of an EP Valved Manifold is acceptable and preferred to hydrostatic testing in areas where cold temperatures could freeze the system or where water is not available. Uponor recommends that the installer pressurize the system with compressed air after installing and capping distribution lines.

Note: EP Valved Manifold valves must be in the open position prior to and during the test, which should use a pressure of not less than working system pressure. Test the system for a minimum of 15 minutes. During the test, system pressure should drop no more than 8 psi in a one-hour period.

Filling the System

- Open all connected port valves before filling the system with water and pressurizing.
- Take care when opening a port valve to an empty or unpressurized line. Ensure the line connected to the fixture is in the OFF position. Open the valve slowly until water starts to flow into the line.
- Valve Cylinders (Q2120050) are replaceable.

Note: Test the system to a minimum of working system pressure.



Warning: Pressures used in testing can blow unmade or incomplete connections apart with tremendous force. This force is many times greater when air is used as the test media. To reduce the risk of personal injury, ensure all connections are completed before testing. Use only the pressure and time required to determine that the system is leak-free.

System Disinfection

EP manifolds and Uponor AquaPEX tubing should be disinfected in accordance with AWWA C651-86, Standard for Disinfecting Water Mains, or in accordance with local codes.



Warning: To prevent reduced service life of system components, disinfection solutions should not stand in the system longer than 24 hours. Flush the system with potable water after disinfection. Do not allow fluids to freeze in the EP Valved Manifold System.

EP Valve Replacement



Caution: Make sure there is no pressure on the EP Valved Manifold System prior to repair or replacement of any system components. All EP Valved Manifolds come complete with assembled valves and their necessary o-rings. O-rings are required for proper valve operation.

1. Shut off water to manifold and bleed.
2. Remove the Red or Blue Valve Clip by hand or using a small flat-head screwdriver.
3. Push the valve down (into manifold) as far as it will go and turn clockwise past the indent on the manifold.
4. Use pliers to grip the handle of the valve if removal is difficult.
5. Pull the valve out of the manifold.
6. Place a small amount of soap and water solution on the o-rings on the replacement valve.
7. Locate the tab on the valve so that it clears the indent on the manifold, and completely push in the valve.
8. Turn the valve past the indent on the manifold and pull up until it hits the stop.
9. Slide a Red or Blue Valve Clip with the appropriate label between the manifold and the valve until the clip snaps into place.



Caution: Failure to install the Valve Clip could result in the valve blowing off when the system is pressurized.



Section 5

ProPEX Fitting System

Uponor ProPEX fittings, manufactured to ASTM F1960, are designed for use with Uponor AquaPEX ASTM F876 and F877 tubing. Make connections by sliding a ProPEX Ring over the PEX tubing and expanding them simultaneously. The expanded tubing and ProPEX Ring then slide over the fitting. The connection is made as the PEX tubing shrinks over the fitting because of the unique shape memory of Uponor AquaPEX tubing.

Uponor offers ProPEX fittings made from EP or lead-free (LF) brass. Both are NSF-61 certified.

Making ProPEX Connections

Make strong, reliable connections using an expander tool. The steps are virtually the same for all tools — with a slight variation in step 3.

1. Square-cut the PEX tubing perpendicular to the length of the tubing. Remove all excess material or burrs that might affect the fitting connection.



2. Slide the ProPEX Ring over the end of the tubing.

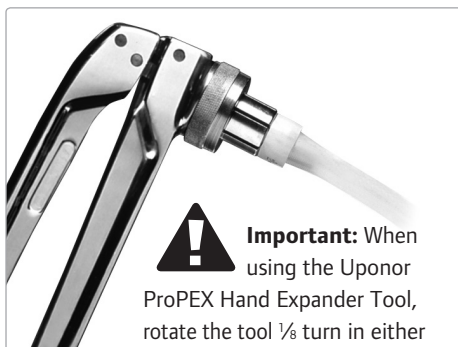


3. When using the ProPEX Hand Expander Tool, brace the free handle of the tool against your hip, or place one hand on each handle. Fully separate the handles and slide the expander head into the tubing until it stops.

Full expansions are necessary to make a proper connection. Bring the handles together to expand. Separate the handles, remove the head from the tubing and rotate it one-eighth turn. Slide the tool head into the tubing in the newly rotated position and expand again.

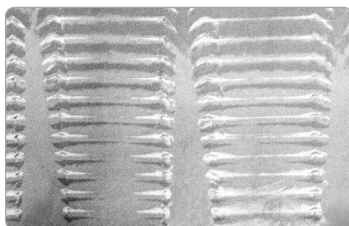


4. When using the Milwaukee M12 ProPEX Expansion Tool, slide the expansion head into the tubing until it stops. Press the trigger to expand. Full expansions are necessary to make a proper connection.
5. Repeat the expansion process until the tubing and ring are snug against the shoulder on the expander head. See **Table 5-1** for the recommended number of expansions for each tubing size.

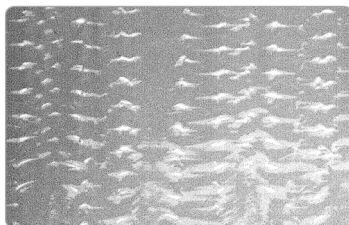


Important: When using the Uponor ProPEX Hand Expander Tool, rotate the tool $\frac{1}{8}$ turn in either direction after each expansion to provide smooth and even expansion of the tubing. If the head is not repositioned after each expansion, the segments on the tool head may cause deep grooves in the tubing. These grooves can result in potential leak paths.

Note: It is not necessary to rotate the tool in only one direction. Alternating the turning direction will ease expansion in confined spaces. The photos to the right show enlarged views inside expanded tubing.



Expansion without proper rotation



Expansion with proper rotation

Tubing Size	Milwaukee ProPEX Tool		Uponor ProPEX Tool	
	M12	M18	Manual	100 & 150
1/2"	5	6	4	4
3/4"	9	8	9	9
1"	13	5	14	7

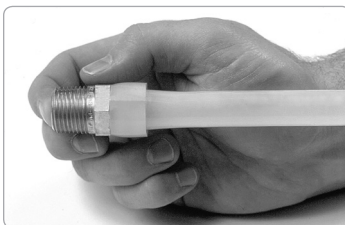
Table 5-1: Recommended Number of Expansions for 1/2" to 1" Tubing at 73.4°F (23°C)

6. Immediately remove the ProPEX expander tool. As you slide the tubing over the fitting, you should feel some resistance. If the tubing reaches the shoulder of the fitting without any resistance, the tubing may be over-expanded and may require additional time to fully shrink over the fitting. The tubing and ProPEX Ring should seat against the shoulder of the fitting for a proper connection.



Important Tips for a Proper ProPEX Connection

- If the fitting does not slide into the tubing all the way to the stop, immediately remove it from the tubing and expand the tubing one final time.



Note: To avoid over-expanding the tubing, do not hold the tubing in the expanded position.

- The number of expansions in **Table 5-1** is the recommended number of expansions. Experience, technique and weather conditions influence the actual number of expansions. Fewer expansions may be necessary under certain conditions. The correct number of expansions is the amount necessary for the tubing and the shoulder of the fitting to fit snugly together.
- Good connections result when the ProPEX Ring rests snugly against the stop of the ProPEX fitting shoulder. If there is more than 1/16 inch between the ring and the shoulder of the fitting, square-cut the tubing 2 inches away from the fitting, and make another connection using a new ProPEX Ring.



Disconnecting a ProPEX Brass Fitting

ProPEX LF brass and EP fittings are manufactured connections that can be concealed in walls, ceilings and floors. When necessary, ProPEX LF brass fittings can be disconnected.

Important! EP fittings cannot be reclaimed.

Refer to the following guidelines for disconnecting a ProPEX LF brass fitting.

1. Ensure the system is not pressurized.
2. Use a utility knife to carefully cut through the ProPEX Ring.



Important! Do not heat the ring prior to cutting it. Take care to cut only the ring and not the tubing or fitting. Gouges in the fitting may result in leaks. If you accidentally damage the fitting, you must discard it.



3. Remove the ProPEX Ring from the tubing.
4. After removing the ring, apply heat directly around the fitting and tubing connection. Gently work the tubing back and forth while pulling slightly away from the fitting until the tubing separates from the fitting.



5. After removing the fitting, measure 2" (minimum) from the end of the tubing.
6. Square cut the tubing at the 2" marking.
7. Allow the fitting to cool before making the new connection.
8. Use a new ProPEX Ring and follow the steps to make a new connection (see **page 15**).



Troubleshooting ProPEX Connections

Trouble-free ProPEX installations begin with a tool that is maintained in proper working condition. If the tool or segment fingers are damaged, it is very difficult to make a proper connection. Refer to the following guidelines to assist with challenges in the field.

Fittings Won't Seal

- Make sure the expander head is securely tightened onto the tool.
- Ensure the segment fingers are not bent. If the head does not completely close when the drive unit is fully retracted or the handles of the manual tool are open, replace the head.
- Examine the tool for excess grease on the segment fingers. Remove excess grease prior to making connections.
- Check the fitting for damage. Nicks and gouges will cause the fitting to leak.
- Make sure the internal driver cone is not damaged or bent.
- Make sure the last expansion is not held in the expanded position before inserting the fitting. You should feel some resistance as the fitting goes into the tubing. If you do not feel any resistance, the tubing may be over expanded and will require additional time to shrink over the fitting.
- When using the ProPEX Hand Expander Tool, rotate the expander head $\frac{1}{8}$ turn after each expansion to avoid deep grooves in the tubing which can result in potential leak paths.

Expansion is Difficult

- Make sure the internal cone is properly greased.

Expansion Head Slips Out of Tubing When Making Expansions

- Ensure the tubing and ProPEX Ring are dry.
- Make sure that grease is not getting into the tubing.
- Examine the segment fingers to ensure they are not damaged or bent.

More Than the Recommended Number of Expansions are Needed to Make a Connection

- Ensure the head is hand-tightened to the expander tool.
- Examine the segment fingers for damage.
- Be sure to completely cycle the tool on each expansion (i.e., close the manual tool handle or release the trigger).

Cold-weather Expansions

- Temperatures affect the time required for the tubing and ring to shrink onto the fitting. The colder the temperature, the slower the contraction time.
- Warming ProPEX fittings and ProPEX Rings reduces contraction time. Put fittings and rings in your pockets prior to installation to keep them warm.
- Make ProPEX connections at temperatures above 5°F (-15°C).
- Fewer expansions are necessary in temperatures below 40°F (4.4°C).

Proper Expander Tool and Head Maintenance

The ProPEX expander tools are sturdy, but must be handled with care to prevent possible damage to the cone and the expander heads.

- Remove and clean the segment fingers as needed.
- Remove the segments from the attachment ring by pushing the segment finger down toward the opening in the ring. Once the first segment is removed, the rest follow easily.
- Place the segments on a flat surface with the ridges facing up. The fingers should lay flat without any curve in the middle. If the segments are bent, replace the head immediately.
- To reassemble, replace the segment fingers one at a time to the attachment ring by sliding the grooved portion of the segment fingers over the spring in the attachment ring. The narrow end of the segment fingers point away from the solid side of the attachment ring. Hold these segment fingers in place with your thumb as the remaining segment fingers are inserted.
- Once the expander head is cleaned and reassembled, use a lint-free cloth to apply a light coat of lubricant to the cone prior to making any ProPEX connections.
- Apply the lubricant daily if used regularly.
- Keep all other parts of the tool free from lubricant.
- The Hand Expander Tool handles will open and close smoothly if the tool is properly lubricated.
- Failure to properly lubricate the tool may result in improper connections.



Caution: Excessive lubrication may result in improper connections. Only use a small amount of lubrication to keep the tool working properly.

- Once a month, soak the heads in degreasing agent to remove any grease from between the segments. Clean the cone using a clean, dry cloth.
- Store the tool and expander heads in the case. Store the tool with an expansion head in place to protect the cone.
- Store the tool in a dry location to prevent rust.

Handling Guidelines for EP Fittings

Although not comprehensive, the following highlights the most common guidelines to use when handling EP fittings:

- Do not solder within 18 inches of any EP fittings in the same water line. Sweat connections must be made prior to making the ProPEX connection.
- Do not subject EP fittings to impact.
- Do not use adhesives or adhesive tape with EP fittings.¹
- Do not expose EP fittings to open flame.
- Do not allow solder, flux, pipe dope, solvents or urethane foams to come in contact with EP fittings as immediate damage may result.
- Never pull or drag tubing by the installed EP fittings.
- Do not expose EP fittings to excessive bending loads (greater than 100 lbs.).
- Do not use EP fittings where temperatures and pressures exceed ratings.
- Do not spray on or allow organic chemicals, strong acids or strong bases to come into contact with EP fittings.
- Do not use petroleum or solvent-based paints on EP fittings.
- Do not allow rodents, insects or other pests to come into contact with EP fittings.

¹ You may temporarily affix adhesive tape to EP fittings during installation. However, to protect the integrity of the system, the tape should not be permanent. Remove the tape and residual adhesive after completing the installation.

Section 6

Plumbing Inspector's Checklist

This checklist is only intended to serve as a guideline to the local authority. It is not intended to include all applicable requirements. Please review the complete Uponor Professional Plumbing Installation Guide as well as local code for additional guidelines and restrictions. Where any conflict exists between this Installation Guide and local code, the local code takes precedence.

Tubing and Fittings

- ☐ Uponor AquaPEX tubing — ASTM F876, ASTM F877, CSA B137.5, NSF-pw.
- ☐ ProPEX fittings — Manufactured and listed to ASTM F1960 and CSA B137.5.

Manifolds

- ☐ EP Valved Manifolds are NSF certified to NSF-pw.
- ☐ An EP Valved Manifold system, which has valves on all the outlet ports, does not require stop valves at the fixtures. However, the code official may require stop valves at some fixtures.
- ☐ Provide access to the EP Valved Manifold and its mounting screws, the port valves, distribution-line connections and supply-line connections.
- ☐ The main service line to the EP Valved Manifold should include a main shut-off valve.
- ☐ When the EP Valved Manifold is mounted above the water heater, install a minimum of 36 inches of connecting tubing between the water heater and the EP Valved Manifold due to possible heat stacking.
- ☐ When the EP Valved Manifold is mounted beside the water heater and is connected with tubing incorporating a horizontal flow, connect with at least 18 inches of tubing.
- ☐ Individual fixture shut-off valves at the manifold should identify the fixture being supplied.

Tubing Limitations

- ☐ Do not expose Uponor AquaPEX White tubing to direct sunlight for more than 30 days.
- ☐ Do not expose Uponor AquaPEX Red or Blue tubing to direct sunlight for more than 90 days.
- ☐ Do not install Uponor AquaPEX tubing within 6 inches of any gas appliance vents or within 12 inches of recessed light fixtures.
- ☐ Do not install Uponor AquaPEX tubing within 12 inches of recessed light fixtures, unless the PEX line is protected with suitable insulation.

Joints and Connections

- ☐ Square-cut all tubing ends and ensure they are free of burrs or debris before a connection is made.
- ☐ Ensure fittings and connections comply with the manufacturers' recommendations.
- ☐ Make transition joints with manufacturer-approved fittings.

ProPEX Fittings

- ☐ Fully seat the Uponor AquaPEX tubing and ProPEX Ring against the shoulder of the fitting. The maximum gap should be no more than the thickness of a credit card.
- ☐ If an improper connection is made, cut 2 inches from the tubing and use a new ProPEX Ring.

Tubing Supports

- ☐ Use plastic or metal supports designed for use with PEX tubing.
- ☐ Place horizontal support every 32 inches for $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{3}{4}$ " and 1" PEX tubing.
- ☐ Provide vertical support every 4 to 5 feet with a mid-story guide placed between floors.
- ☐ Bends within 6 inches of a ProPEX connection to $\frac{3}{8}$ " to $\frac{1}{2}$ " tubing and within 10 inches of a ProPEX connection to $\frac{3}{4}$ " to 1" tubing require support.
- ☐ Allow $\frac{1}{8}$ to $\frac{3}{16}$ inches of slack per foot of run on installed Uponor AquaPEX tubing for expansion and contraction.
- ☐ Do not rigidly anchor Uponor AquaPEX tubing. Anchor the tubing to allow freedom of movement for expansion and contraction.

General Recommendations

- ☐ Protect Uponor AquaPEX tubing passing through hollow masonry walls or metal studs with sleeves or grommets.
- ☐ Protect Uponor AquaPEX tubing from damage (e.g., nail, screw, etc.) with suitable steel-plate protectors.
- ☐ The minimum bend radius of Uponor AquaPEX is six times the outside diameter of the tubing.

Pressure Testing

- ☐ Open the valves on the EP Valved Manifold prior to pressure testing. These valves are to remain open until the pressure test is complete.
- ☐ Pressure-test the system with air or water to the system working pressure (40 to 60 psi) at the current ambient temperature. Pressure testing should not exceed 100 psi. Slight fluctuations of pressure are normal due to ambient temperature changes.



Caution: If using water to pressure-test the system, purge all water from the system prior to ambient air temperatures nearing 32°F (0°C). Failing to remove the water from the system can result in damage to the tubing and associated equipment.

Notes

Uponor, Inc.

5925 148th Street West
Apple Valley, MN 55124 USA
Tel: 800.321.4739
Fax: 952.891.2008

Uponor Ltd.

2000 Argentia Rd., Plaza 1, Ste. 200
Mississauga, ON L5N 1W1 CANADA
Tel: 888.994.7726
Fax: 800.638.9517

uponor
www.uponorpro.com