



Uponor

PLUMBING AND
RADIANT HEATING AND
COOLING SYSTEMS

**ProPEX® 201 CORDED
EXPANDER TOOL**

OPERATION MANUAL

ProPEX 201 Corded Expander Tool
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Uponor ProPEX® 201 Corded Expander Tool Operation Manual

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This Operation Manual is provided for plumbing professionals and building officials interested in Uponor plumbing and radiant heating and cooling systems. This manual describes general installation recommendations that use Uponor AQUAPEX® and hePEX™ plus tubing products. Be sure to follow local code requirements.

Uponor has used reasonable efforts in collecting, preparing and providing quality information and material in this manual. However, system enhancements may result in modification of features or specifications without notice. For the most current technical information, go to the Uponor website at www.uponor-usa.com.

Uponor is not liable for installation practices that deviate from this manual or are not acceptable practices within the mechanical trades. Refer to the Uponor AQUAPEX Professional Plumbing Installation Guide to install Uponor AQUAPEX tubing in plumbing systems. Refer to the Uponor Radiant Heating Installation Guide to install Uponor hePEX plus tubing.

Please direct any questions regarding the suitability of an application or a specific design to your local Uponor representative. For the name of your local representative, please call toll free (800) 321-4739.

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Section 1

Overview

The Uponor ProPEX® 201 Corded Expander Tool (Q6272000) meets the need for reliable, cost-effective solutions to commercial-sized 2" PEX installations. This 110v, electro-hydraulic tool makes fast, easy connections for 2" Uponor AQUAPEX® and hePEX™ plus tubing. The ProPEX 201 Corded Expander Tool uses the same 2" expander heads currently in use with other Uponor tools.

Tool Features

The ProPEX 201 Corded Expander Tool features include:

- A self-contained, pistol-grip design for easy transport and use
- 110v cord for uninterrupted power
- Adaptable to existing 2" Uponor expander heads
- Backed by the Uponor Tool Depot

Tool Kit Components

The ProPEX 201 Corded Expander Tool Kit includes:

- ProPEX 201 Corded Expander Tool
- ProPEX 2" H-series Expander Head
- Tool Lubricant (Molykote G-n Plus)
- Operation Manual
- Carrying Case

Note: Please contact your local Uponor sales representative or distributor for any damaged or missing items.



Important:

- For safety reasons, always start the tool with the expander head attached.
- Keep all tool components in the carrying case provided.
- To protect the internal driver, Uponor recommends storing the tool with an expansion head in place.
- Tool does not function properly below 40°F (5°C). If working in temperatures below 40°F (5°C), keep the tool in a warm location when not in use.
- This is a hydraulic activated machine. Under normal conditions and use, small amounts of residual oil can leak from seal areas. This amount is typically less than one ounce over the life of the tool. If needed, wipe off any residual oil prior to use.

Section 2

Technical Data

ProPEX 201 Corded Expander Tool

Dimensions	16.57" x 9.25" x 3.19" (421mm x 235mm x 81mm)
Weight	11.57 lbs. (5.25 kg.)
Maximum Tubing Size	2"
Rated Pressure	5,076 psi (350 bar)
Operating Range	32° to 130°F (0° to 55°C)
Storage Range	50° to 86°F (10° to 30°C)
Protection Level	IP21
Certification	Pending: CB certification w/UL deviation
Power Requirements	110v @ 60 hz
Rated Force	7,643 foot-pounds

Expander Head

Weight	0.3 lb. (average)
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Section 3

Expander Tool Operation and Guidelines

Operating Instructions

1. Check the cone for dirt and clean as described in the Expander Tool and Head Maintenance section.
2. Attach the 2" expander head onto the expander tool. Ensure that you securely screw the expander head to the tool.
3. Plug in the 110v power cord of the tool.
4. Use the ProPEX 201 Corded Expander Head Tool for expanding 2" Uponor AQUAPEX or hePEX plus tubing only.

Refer to **Section 4** for detailed instructions about how to make a proper ProPEX connection.

Expander Tool and Head Maintenance

The ProPEX 201 Corded Expander Tool head comes in one size (2") and contains:

- Six segment fingers
- One attachment ring
- One spring

It is important to keep the head on the tool or in the case at all times as dirt and other debris can affect the connection process.

1. 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 you remove the first segment, the rest follow easily.
2. 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.

3. 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 points away from the solid side of the attachment ring. Hold these segment fingers in place with your thumb as you insert the remaining segment fingers.
4. Once the expander head is cleaned and reassembled, use a clean, lint-free cloth to apply a light coat of Molykote G-n Plus lubricant to the expander cone prior to making any ProPEX connections.
5. Apply the lubricant daily if used regularly. If the tool is not used regularly apply lubricant prior to use.
6. Keep all other parts of the tool free from lubricant.

Note: Improper connections may result if you do not properly lubricate the tool.



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

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

Troubleshooting

Difficulty Making Connections

To troubleshoot connection problems, perform the following steps.

1. Do not overload the tool's capacity. In this case, do not expand tubing larger than 2".
2. Check the expander head to see if it needs lubrication. Lubricate the head with Uponor-recommended Molykote G-n Plus lubricant only.

Troubleshooting Table

Refer to **Table 3-1** for troubleshooting the ProPEX 201 Corded Expander Tool.

Problem	Cause	Remedy
Tool fails to start	No power to tool	Ensure tool is plugged into a working power source.
Tool fails to advance, advances slowly or only intermittently	External or internal leak	Return the tool to the Tool Depot.
Tool advances but does not maintain pressure	External or internal leak	Return the tool to the Tool Depot.

Table 3-1: Tool Troubleshooting

Safety Guidelines

To reduce the risk of electric shock, personal injury and fire, always follow basic safety precautions. Read and comply with all these guidelines before operating the ProPEX 201 Corded Expander Tool.

Failure to follow the instructions and installation guidelines as defined in this manual can result in the failure of the ProPEX 201 Expander Tool to work correctly.

- Always start the tool with an expander head in place.
- Keep fingers and hands away from the moving head area.
- Do not operate or expose the tool to moisture, combustible fluids or gases (danger of explosion).
- Do not use the tool for any function other than expanding PEX tubing.
- Do not obstruct or place anything in the vent holes of the tool housing.
- Always wear protective eyewear and clothing when operating the tool.
- Use original replacement parts only.
- Only professional contractors should operate the ProPEX 201 Corded Expander Tool. Keep this tool away from children.
- Keep the ProPEX 201 Corded Expander Tool clean. Dirt and rust may hinder proper and safe tool operation.



Important: The ProPEX 201 Corded Expander Tool complies with relevant safety regulations. To avoid injuries, only authorized experts or trained personnel should perform all maintenance and repair work using genuine replacement parts, particularly when involving electrical systems. All unauthorized modifications to the equipment will void the warranty.

Repairs

Send all warranty repairs to the Tool Depot. The Tool Depot is a convenient way to repair or replace tools quickly and easily. For more information, contact Uponor Technical Services toll-free at (888) 594-7726 or go to www.uponor-usa.com, and click on Online Services.

In Online Services, for access to the Tool Depot, enter the following login information:

Username — tool

Password — depot

First-time users must complete a registration form. Please note that contractors with existing accounts do not need to re-register.

Warranty

For warranty information, go to www.uponor-usa.com, and click on Online Services. Login using your username and password and click on User Tools. Go to Documents and Files, click on Warranties and select Uponor Plumbing Systems Limited Warranty. Send all warranty repairs to the Tool Depot (refer to Repairs section). Note that we accept warranty claims only if the complete ProPEX 201 Corded Expander Tool with all hardware, parts and accessories are returned to the Tool Depot.

Section 4

Making ProPEX Connections

Tools Needed

- ProPEX 201 Corded Expander Tool
- ProPEX 2" Expander Head, hand-tightened onto the tool
- Tubing cutter designed for PEX tubing

The following steps outline how to make ProPEX connections properly:

1. Square-cut PEX tubing perpendicular to the length of tubing. Remove all excess material or burrs that might affect the fitting connection. Refer to **Figure 4-1**.



Figure 4-1: Square-cut the PEX Tubing

2. Slide the ProPEX Ring over the end of the tubing. Extend the end of the ring over the end of the tubing no more than $\frac{3}{8}$ " (9mm). See **Figure 4-2**.

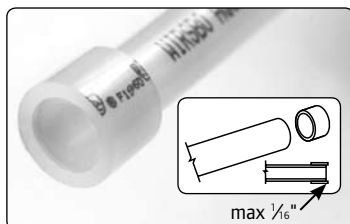


Figure 4-2: Slide ProPEX Ring over End of Tubing

3. Slide the expander head into the tubing until it stops. Full expansions are necessary to make a proper connection. Press the trigger to expand. Release the trigger, remove the head from the tubing and rotate it $\frac{1}{8}$ turn. Slide the tool head into the tubing in the newly rotated position and expand again. See **Figure 4-3**.



Figure 4-3: Slide Expander Head into Tubing



Important: Rotating the tool $\frac{1}{8}$ turn expands the tubing smoothly and evenly. Reposition the head after each expansion to prevent potential leak paths in the tubing. Otherwise, the segments on the tool head may cause deep grooves in the tubing, resulting in potential leak paths. See **Figure 4-4**.

Note: It is not necessary to rotate the tool in only one direction. Alternating the turning direction will ease expansion in confined spaces. See **Figure 4-5** and **Figure 4-6** for enlarged views inside expanded tubing.

4. Repeat the expansion process until the tubing and ring are snug against the shoulder on the expander head. The recommended number of expansions for the 2" H head is five.

Note: Only use the 2" H-series Expander Head on the ProPEX 201 Corded Expander Tool.

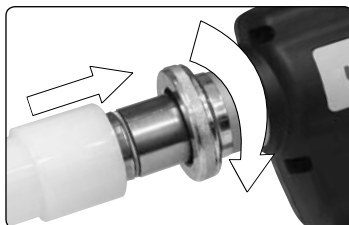


Figure 4-4: Reposition Head after Each Expansion

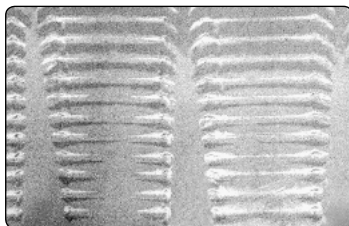


Figure 4-5: Expansion Without Proper Rotation

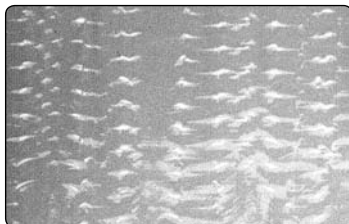


Figure 4-6: Expansion With Proper Rotation



Figure 4-7: Repeat Expansions Until Completed

5. Immediately remove the ProPEX 201 Corded 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 could be over-expanded and may require additional time to completely shrink over the fitting. The tubing and ProPEX Ring should seat against the shoulder of the fitting for a proper connection. See **Figure 4-8**.



Figure 4-8: Remove the Expander Tool

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.



- 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.
- When the ProPEX Ring rests snugly against the stop of the ProPEX fitting shoulder, the connection is good.

Note: You will need to make another connection if there is more than $\frac{1}{8}$ " between the ring and the shoulder of the fitting. Square-cut the tubing 2" away from the fitting; then make another connection using a new ProPEX Ring.

Disconnecting a ProPEX Brass Fitting

ProPEX brass fittings are manufactured connections and can be concealed in walls, ceilings and floors. However, when necessary, ProPEX Brass Fittings can be disconnected.

Note: EP fittings cannot be reclaimed or reused.

To disconnect a brass fitting:

1. Make sure the system is not pressurized.
2. Use a heat gun to heat one side of the ProPEX Ring. When the ring is clear, use a utility knife to carefully cut through the ring. Use extra care to cut only the ring and not the tubing. This will protect the fitting from being gouged by the knife. Remove the ProPEX Ring from the tubing with pliers or another tool to avoid touching the hot ring.

Note: Do not gouge the fitting when cutting the ProPEX Ring. Nicks and gouges in the fitting may result in leaks. If nicked, discard the fitting.

3. When you remove the ProPEX 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.
4. When the tubing is removed from the fitting, square cut the tubing 2" (minimum) from the end of the tubing.
5. Use a new ProPEX Ring and follow the steps to make a new ProPEX connection. Allow the fitting to cool before attempting to make another connection.

ProPEX Connection Troubleshooting Guide

Trouble-free ProPEX installations begin with a properly maintained ProPEX 201 Corded Expander Tool. If the tool or segment fingers are damaged, it is very difficult to make proper connections. To avoid problems in the field, use the following troubleshooting guidelines.

Fittings Do Not Seal

For fittings that do not seal, follow the steps below.

1. Ensure the expander head is securely hand-tightened onto the tool.
2. Make sure the segment fingers are not bent. If the head does not completely close when the electro-hydraulic drive unit is fully retracted, replace the head.
3. Remove any excess grease on the segment fingers.
4. Examine the fitting for damage. Nicks and gouges on the fitting will cause the fitting to leak.
5. Ensure the internal driver is not bent or damaged.
6. Make sure the last expansion is not held in the expanded position for more than three seconds before the fitting is inserted. The longer the tubing and ring are held in the expanded position, the greater chance for a leak.
7. Be sure to rotate the tool $\frac{1}{8}$ turn after each expansion.

Expansion is Difficult

If it is difficult to make an expansion, check that the internal cone is properly greased with Uponor-recommended Molykote G-n Plus.

Expansion Head Slips Out of Tubing

If the expansion head slips out of the tubing while making expansions, follow the steps below.

1. Ensure the tubing and ring are dry.
2. Check that grease is not getting into the tubing.
3. Ensure none of the segment fingers are bent.

ProPEX Ring Slides Down the Tubing During Expansion

If the ProPEX Ring slides down the tubing during expansion, follow the steps below.

1. Ensure hands are clean when handling the tubing. Any sweat or oils on hands can act as a lubricant. Due to the smoothness of PEX, any form of lubricant can cause the ProPEX Ring to slide down the tubing during expansion.
2. If the ring could possibly slide down, position the ProPEX Ring slightly farther over the end of the tubing and make the first couple of expansions slowly. Once the ring and the tubing begin to expand together, continue with the normal number and type of expansions.
3. Place thumb against the ProPEX Ring to help support it and feel for any movement. If caught early, slide the ring up the tubing and expand as described in **Step 2**.

Too Many Expansions Needed to Make a Connection

If making several more expansions on the tubing than is recommended, follow the steps below.

1. Ensure the head is hand-tightened to the expander tool.
2. Check that the segment fingers are not bent.
3. Be sure to completely cycle the tool on each expansion (i.e., release the ProPEX 201 Corded Expander Tool trigger).

Cold-weather Expansions

Temperature affects the time required for the tubing and ring to shrink onto the fitting — the colder the temperature, the slower the contraction time. Follow the steps below when working in cold temperatures.

1. Put ProPEX fittings and rings in warm location prior to installation to keep them warm. Warming the fittings and rings reduces contraction time.
2. Do not hold the tubing in the expanded position after the final expansion in temperatures below 40°F (5°C).
3. Fewer expansions are necessary in temperatures below 40°F (5°C).
4. ProPEX connections must be made at temperatures above 5°F (-15°C).

Notes

Notes

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