

ProPEX® Air Expander Tool Installation Guide



**ProPEX® Air Expander Tool
Installation Guide**

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Overview

The Wirsbo ProPEX® Air Expander Tool (Part No. Q6301000) makes fast, easy connections to $\frac{3}{8}$ ", $\frac{1}{2}$ ", $\frac{5}{8}$ ", $\frac{3}{4}$ " and 1" AQUAPEX® and hePEX™ plus tubing. The ProPEX Air Expander Tool eliminates the need for manual expansions, making ProPEX connections as easy as pulling the trigger.

**Wirsbo ProPEX®
Air Expander Tool**



Tool Components

Wirsbo's ProPEX Air Expander Tool set includes:

- ProPEX Air Expander Tool
- $\frac{1}{2}$ " Expander Head (Q6310500)
- Hexagonal wrench
- Tool Lubricant (Q5590028)
- Air Expander Tool Oil (Q6301010)
- Carrying case
- Instruction manual

Keep all tool components in the carrying case, which can store three additional expander heads. To protect the internal driver, store the tool with an expansion head in place.

Note: Purchase $\frac{3}{8}$ ", $\frac{5}{8}$ ", $\frac{3}{4}$ " and 1" expander heads separately.

The ProPEX Air Expander Tool is NOT designed for 1 $\frac{1}{4}$ " and 1 $\frac{1}{2}$ " Wirsbo ProPEX Expander Heads.

Technical Data

Wirsbo's ProPEX Air Expander Tool is rated for use at 90 to 100 psi. Do not operate the tool above 100 psi as high pressures can be dangerous and will shorten the life of the tool.

Working Pressure: 90 to 100 psi

Consumption: 4 CFM

Capacity: 3/8" to 1" AQUAPEX and hePEX plus tubing

Connection Size: 1/4" male quick connect fitting

Tool Weight: 4.1 lbs.

Tool Kit Weight: 5.6 lbs.

Expander Head Weight: 0.3 lb. (average)

Air Tool Operation and Guidelines

Operating Instructions

1. Prior to each use, make sure the oil reservoir is filled with fluid. Refer to **page 5** in this section for detailed instructions.
2. Attach the correctly sized expander head onto the ProPEX Air Expander Tool. Screw the expander head on snugly.
3. Make sure the air compressor regulator is set between 90 and 100 psi. (Do not exceed 100 psi.)
4. Attach the air supply.
5. Prior to each use, check the cone for dirt and clean as described below (Proper Tool Maintenance). To lubricate the tool, add one to two drops of oil to the inlet of the ProPEX Air Expander Tool.
6. Refer to the Making Proper ProPEX Connections section.

Note: Use tool for expanding Wirsbo PEX tubing only.

Proper Tool Maintenance

- Periodically remove the head and clean the cone of the ProPEX Air Expander Tool using a clean, dry cloth.
- Periodically clean the inside of the expander heads using a clean, dry cloth. This will remove any debris trapped between the head and cone.
- Apply a small amount of lubricant to the expander cone before use or daily to ensure a good connection.



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

- Store the tool with an expander head attached to the cone to prevent damage.
- The ProPEX Air Expander Tool requires regular maintenance. Under normal usage (approximately 125 to 150 fittings per day), it may be necessary to add a small amount of oil to the oil reservoir every three weeks. The maintenance schedule should be adjusted according to usage.

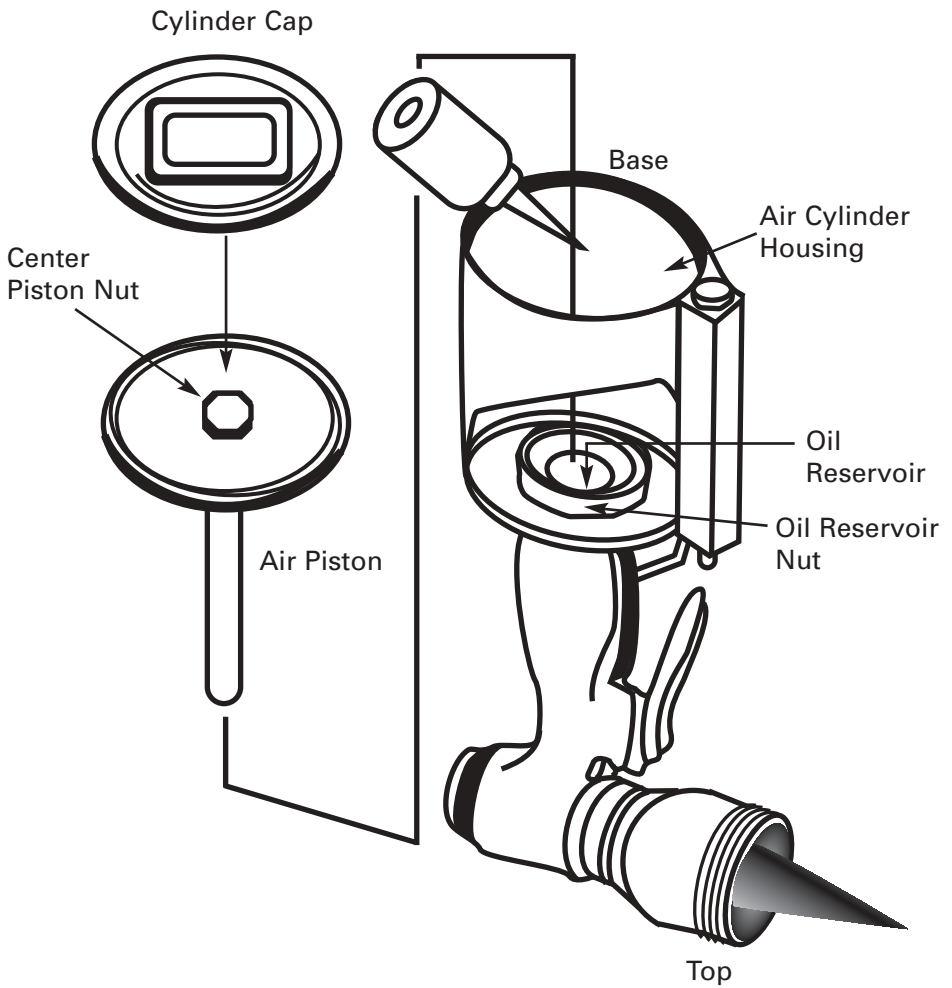


Figure 3-1

Checking the Tool For Proper Expansion

Prior to attaching the air hose — and with the expander head attached to the tool — grasp the expander head segments and spin them. They should spin with ease. This indicates that the oil reservoir is not filled to excess. If the reservoir is over filled, the segments will bind.

Once the air hose is attached, slide a piece of tubing onto the expander head. Press the trigger and hold in the expanded position. All the segments should press against the inside of the expander head retaining nut. No gap should be apparent. This indicates that the oil reservoir is full.

If there is a gap between the head segments and the expander head retaining ring, add a small amount of oil to the reservoir.

Refer to **Figure 3-1** for tool parts referenced in this section.

Removing the Cylinder Cap from the Air Cylinder Housing

For proper operation, the air cylinder housing must be airtight. However, this can dry the cap gasket and make removal difficult. To remove the cylinder cap from the air cylinder housing, follow these steps.

1. Mount the tool upside down (as illustrated) in a vice to hold in place. Ensure the top (chrome) of the tool is level to prevent air bubbles from becoming trapped in the tool.
2. Use a piece of cloth or cardboard to protect the tool's finish.
3. Use the provided hexagonal wrench to remove the cylinder cap by inserting the large end of the wrench in the rectangular slot on the cap.
4. Remove the cap by applying slow, constant force to the wrench.

Filling the Oil Reservoir

1. To remove any trapped air bubbles, grasp the center piston nut with a pair of pliers and move the piston up and down three to four times.
2. Remove the entire piston assembly by grasping the center piston nut with a pair of pliers and pulling the assembly straight out.
3. After the piston is removed, fill the oil reservoir with 30-weight oil to the top of the oil reservoir nut. Oil should never enter the air cylinder housing.
4. Replace piston assembly.
5. Replace the bottom plate. Hand-tighten the plate first and use the wrench for the last $\frac{1}{4}$ to $\frac{1}{2}$ turn.

Safety and Operational Guidelines

For your safety and proper tool operation, please read the following guidelines before using the ProPEX Air Expander Tool. Failure to follow the instructions and installation guidelines as defined in this handbook can result in the failure of the ProPEX Air Expander Tool.

- Always wear protective eyewear and clothing when operating the tool.
- Always disconnect the air supply before changing expander heads, servicing the ProPEX Air Expander Tool, or when the tool is not in use.
- Lay the tool on its side when not in use. Tool is not designed to sit upright.
- Do not use the tool for any function other than expanding tubing.
- Do not use oxygen or combustible gas as a power source for the ProPEX Air Expander Tool. Only use filtered compressed air.
- The ProPEX Air Expander Tool is rated for 90 to 100 psi. Do not exceed 100 psi as high pressures can be dangerous and will shorten the life of the tool.
- Keep the ProPEX Air Expander Tool lubricated. Apply a small amount of lubricant to the cone of the tool before each use or daily. Tools that are not lubricated properly will impede a good connection.
- Keep the ProPEX Air Expander Tool dry and clean. Dirt and rust may hinder proper and safe tool operation.
- Use an inline air filter to keep dust and dirt from entering the ProPEX Air Expander Tool.
- Only professional contractors should operate the ProPEX Air Expander Tool. Keep the tool and air hose away from children.
- Use the correctly sized expander head for the tubing you are expanding.
- Handle the ProPEX Air Expander Tool with care. If it is dropped, damaged or misused, improper operation may result.
- Store the ProPEX Air Expander Tool with the expander head in place to prevent damage to the expander cone.
- Use original replacement parts only.
- If the tool is not functioning properly, return the tool to the distributor or manufacturer.

Note: Ensure that air compressors used to supply air to the ProPEX Air Expander Tool comply with the requirements of the American National Standards Institute Standard B19.3, a, b — 1991, Safety Standard for Process Industries.

Repairs and Replacement Parts

The manufacturer offers warranty repairs. Only trained personnel should carry out repairs outside this warranty. To inquire about replacement parts, contact your distributor or Wirsbo Customer Service at (888) 594-7726.

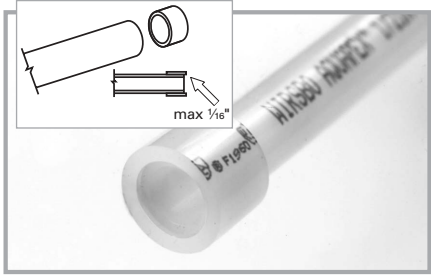
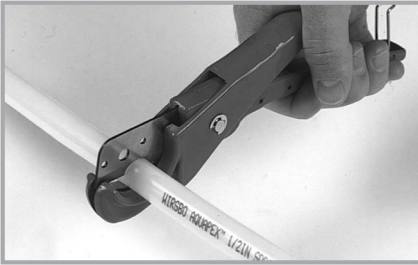
Warranty

- The Wirsbo ProPEX Air Expander Tool carries a two-year warranty for the tool.
- All warranties are effective from delivery date (proven by invoice or delivery note).
- Damage due directly or indirectly to misuse, abuse and negligence, or lack of proper maintenance, is not included in this warranty.
- Damage caused by material or manufacturing faults will be covered by this warranty, and the product should be returned to the manufacturer for repairs.
- Claims are only acceptable if the complete ProPEX Air Expander Tool (assembled) is returned to Wirsbo or to the distributor.
- If a warranty claim is necessary, return the product to Wirsbo with transportation charges prepaid.
- Include proof-of-purchase date and an explanation of the complaint with the product.

Making ProPEX Connections

Tools Needed

- ProPEX Air Expander Tool
- Properly sized expander head, hand-tightened on the tool
- Tubing cutter designed for plastic tubing



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 PEX ring over the end of the tubing. Extend the end of the ring over the end of the tubing no more than $\frac{1}{16}$ of an inch (1mm).



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.

Important: Rotate the tool $\frac{1}{8}$ turn 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.

4. Repeat the expansion process until the tubing and ring are snug against the shoulder on the expander head. See **Chart A** for the recommended number of expansions for each tubing size.

Tubing Size	Ring Marking	Head Marking			# of Expansions		
		Manual	Air Exp	Battery Exp	Manual	Air Exp	Battery Exp
3/8"	3/8"	3/8"	3/8"	—	4-5	4-5	6-7
1/2"	1/2"	1/2"	1/2"	—	3-4	3-4	3-4
3/4"	3/4"	3/4"	3/4"	3/4"H	7-9	7-9	6-7H
1"	1"	1"	1"	1"H	12-14	12-14	6-7H

Chart A

5. 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 PEX ring should seat against the shoulder of the fitting for a proper connection.



Important Tips for a Proper ProPEX Connection

- Rotate the tool after every expansion. If the tool is not rotated after each expansion, the segments on the tool head may cause deep grooves in the tubing. These grooves can result in potential leak paths.
- 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. To avoid over-expanding the tubing, do not hold the tubing in the expanded position.
- The number of expansions in **Chart A** 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 PEX ring rests snugly against the stop of the ProPEX fitting shoulder. If there is more than 1/16 of an 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 PEX ring.

3/8" AQUAPEX ProPEX Connections

The 3/8" PEX ring is smaller and thicker than the PEX rings used for other tubing sizes. The 3/8" PEX ring must expand once on each side to properly fit over the tubing. Expansion of the PEX ring is only necessary for 3/8" AQUAPEX.

1. Square cut the 3/8" AQUAPEX tubing perpendicular to the length of the tubing.
2. Expand each side of 3/8" PEX ring with the ProPEX Expander Tool once.
3. Slide the expanded 3/8" ring over the end of the tubing. Extend the end of the ring over the end of the tubing no more than 1/16" (1mm).

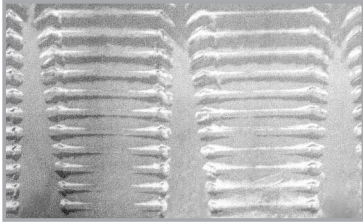
Once the 3/8" PEX ring is properly expanded and on the tubing, refer to Steps 3 - 5 on **pages 8 and 9** (Making ProPEX Connections) for further instruction.

Important Tips for a Proper 3/8" ProPEX Connection

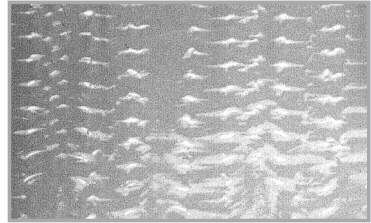
- When the temperature is above 40°F, ProPEX connections to 3/8" AQUAPEX tubing require four to five expansions. When the temperature is below 40°F, only four expansions are necessary.
- The thicker PEX ring used for 3/8" ProPEX connections shrinks over the fitting faster than other size PEX rings.

Rotating Tool After Each Expansion

Rotate the tool $\frac{1}{8}$ turn 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 could result in potential leak paths.



Expansion without proper rotation



Expansion with proper rotation

Note: The photos above show enlarged views inside expanded tubing.

Improper Connections

In the event of an improper connection, square cut the tubing 2 inches from the PEX ring, and begin the steps for making a ProPEX connection.

ProPEX Connection Troubleshooting Guide

Trouble-free ProPEX installations begin with a ProPEX Expander 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. The following troubleshooting guide is designed to assist with problems in the field.

For Fittings That Will Not Seal:

- Make sure the expander head is securely screwed onto the tool (hand-tightened).
- Make sure the segment fingers are not bent.
- Examine the tool for excess grease on the segment fingers. Remove excess grease prior to making ProPEX connections.
- Examine the fitting for any damage. Nicks and gouges on the fitting will cause the fitting to leak.
- Make sure the internal driver is not damaged or bent.
- 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 the chance for a leak.
- Be sure to rotate the tool $\frac{1}{8}$ turn after EACH expansion.

If Expansion is Difficult:

- Make sure the internal cone is properly greased.

If the Expansion Head Slips out of the Tubing When Making Expansions:

- Ensure the tubing and ring are dry.
- Make sure that grease is not entering the tubing.
- Examine the segment fingers to make sure that none are bent.

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

- Make sure that the head is hand-tightened to the expander tool.
- Examine the segment fingers to make sure that none are bent.
- Be sure to completely cycle the tool on each expansion.
- Ensure the air pressure supplied to the tool is between 90 to 100 psi.

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.
- Warming ProPEX fittings and ProPEX Rings reduces contraction time. Put fittings and rings in your pockets prior to installation to keep them warm.
- In temperatures below 40°F, do not hold the tubing in the expanded position after the final expansion.
- ProPEX connections must be made at temperatures above 5°F (-15°C).

Cleaning the ProPEX Expander Tool Head

The ProPEX Expander Tool heads come in different sizes ranging from $\frac{3}{8}$ " to 1". All heads contain six segment fingers, one attachment ring and one spring. It is very important to keep the heads on the tool or in the tool case at all times as dirt and other debris can affect the connection process.

1. Remove and clean the segment fingers once a week. 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.
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 the remaining segment fingers are inserted.

4. Once the expander head is cleaned and reassembled, apply a light coat of graphite grease to the expander cone prior to making any ProPEX connections.

Product Information

- Do not install Wirsbo AQUAPEX and hePEX plus tubing where temperatures and pressure exceed their ratings.
- Store AQUAPEX and hePEX plus in their original boxes. Exposure to direct sunlight for more than 30 days can cause damage to the tubing.
- Do not weld or glue AQUAPEX or hePEX plus.
- Do not apply an open flame to AQUAPEX or hePEX plus tubing.
- Do not install AQUAPEX or hePEX plus within 6 inches of any single wall gas appliance vent or within 12 inches of any uninsulated recessed light fixture.
- Do not use AQUAPEX or hePEX plus for an electrical ground.

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Life, Safety, Comfort Systems

ProPEX® Air Expander Tool Installation Guide

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