

# WIRSBO®

*Life, Safety, Comfort Systems*

## ProPEX® Battery Expander Tool Installation Guide

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Bringing  
*comfort*  
to life



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**Uponor**

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Installation Guide**

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## Overview

Wirsbo's ProPEX® Battery Expander (Part No. Q6251500), an electro-hydraulic tool, makes fast, easy connections to  $\frac{3}{8}$ ",  $\frac{1}{2}$ ",  $\frac{5}{8}$ ",  $\frac{3}{4}$ ", 1",  $1\frac{1}{4}$ " and  $1\frac{1}{2}$ " AQUAPEX® and hePEX™ plus tubing. The tool eliminates the need for air compressors, air hoses and generators — making ProPEX connections easier than ever.



## Tool Components

The ProPEX Battery Expander comes with the following components.

- ProPEX Battery Expander
- Battery charger
- Two batteries
- Tool lubricant
- Operating instructions
- Carrying case

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

## Technical Data

### ProPEX Battery Expander

Dimensions	11.8" x 12.6" x 3.3"
Weight	7 lbs. with battery
Max. tubing size	1½"
Power supply	12 V, 2.0 Ah, 20 A
Noise emission	73 decibels
Vibration	<2,5 m/s <sup>2</sup>

### Rapid Charger

Power supply	120V, 60 Hz, 2 A
Output voltage	9.6 to 18 V
Recharging time	1 hour
Weight	3 lbs.

### Battery

Output	12 VDC, 2.0 Ah
Number of cells	10
Cell construction	NiCd with thermal overcharge protection
Weight	1.5 lbs.

### Expander Head

Weight	0.3 lb. (average)
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### Working Range

¾" tubing	~125-150 fittings/charge
½" tubing	~125-150 fittings/charge
⅝" tubing	~80-100 fittings/charge
¾" tubing	~45-60 fittings/charge
1" tubing	~20-30 fittings/charge
1¼" tubing	~20-30 fittings/charge
1½" tubing	~20-30 fittings/charge



## **Battery Operation**

### **Charging the Battery**

- Charge the battery before initial operation.
- Only use the rapid charger to charge the ProPEX Battery Expander Tool.
- Remove charger from case.
- Insert battery into the charger (+pole to +pole) with minimum force.
- The flashing red light indicates the battery is charging.
- Recharge time takes about one hour (the red indicator light on the charger stops flashing and remains on when charge is complete).

### **Battery Handling**

The ProPEX Battery Expander uses rechargeable batteries containing nickel cadmium (NiCd) cells. For the most effective and proper use of the battery, keep the following in mind.

- Only recharge cool batteries.
- The battery can recharge 1,000 times, and reaches full capacity after several charges.
- Store batteries at temperatures greater than 40°F, but less than 100°F to optimize battery life.
- Only recharge after the battery is completely drained of power.
- Do not use the charger if dropped or damaged.
- Do not connect two chargers together.
- To prevent damage to the battery, do not use the charger at ambient temperatures of less than 40°F (5°C) or greater than 105°F (40°C).
- Keep the battery in a frost-free and dry place.
- It is normal for the battery and charger to become warm during the charge cycle.

- To avoid shorting the battery contacts, do not allow metal objects (e.g., screws, cutlery, nails) to come in contact.
- Only use the provided charger to charge the battery. Use of any battery other than the provided battery will void the warranty.
- Use Wirsbo-recommended charging procedures. Incorrect use can lead to short circuits, overheating or battery fluid leakage.
- To prolong the battery's life, avoid overcharging. Do not charge for more than two days.
- Replace the battery if you notice a substantially reduced operating time after proper charging.



- When this symbol appears, discharge the battery completely and dispose in accordance to local environmental regulations. Do not incinerate or dispose in common waste-removal methods.

# Expander Tool Operation and Guidelines

## Operating Instructions

- Check the cone for dirt and clean as described below (**Proper Tool Maintenance**).
- Attach the correctly sized ProPEX expander head onto the Expander Tool. Screw on the expander head snugly.
- Insert the battery into the tool.
- Use tool for expanding Wirsbo PEX tubing only.
- Refer to the **Making Proper ProPEX Connections** section.

## Proper Tool Maintenance

- Periodically remove the head and clean the cone of the ProPEX Battery Expander Tool using a dry cloth.
- Periodically clean the inside of the expander heads using a 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 lubrication to keep the tool working properly.

- Store the ProPEX Battery Expander in a dry location to prevent rust.
- Store the tool with an expander head attached to the cone to prevent damage.

## Troubleshooting

### If you experience difficulty making connections:

- Ensure the battery is fully charged.
- Do not overload the tool's capacity. (**Do not expand tubing larger than 1½".**)

- Check if the expander head needs lubrication.

**If the red light on the handle is on:**

- The battery may need to be charged.
- The expander may be overloaded.

**Note:** A continuous red light on the tool indicates a problem. Return the tool to the distributor or manufacturer for repair.

## **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 Battery Expander.

Failure to follow the instructions and installation guidelines as defined in this handbook can result in the failure of the ProPEX Battery Expander.

- Keep fingers and hands away from the moving head area.
- Remove the battery when tool is not in use, before servicing and when changing expander heads.
- Lay the tool on its side when not in use. Tool is not designed to sit upright.
- Do not operate or expose the tool and the charger to moisture, combustible fluids or gases (danger of explosion).
- Do not use the tool for any function other than expanding tubing.
- Do not obstruct or place anything in the vent holes in 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 Battery Expander. Keep away from children.
- Keep the ProPEX Battery Expander clean. Dirt and rust may hinder proper and safe tool operation.

- If the tool is not functioning properly, return the tool to the distributor or manufacturer.



**Important:** The ProPEX Battery Expander complies with relevant safety regulations. All maintenance and repair work, particularly when involving electrical systems, may only be performed by an authorized expert or by trained personnel using genuine spare parts, otherwise injuries may result. All unauthorized modifications to the equipment are prohibited for safety reasons.

## Repairs

Warranty repairs are offered by the manufacturer only. Repairs outside the warranty should only be carried out by trained personnel.

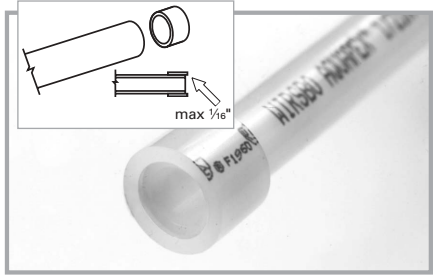
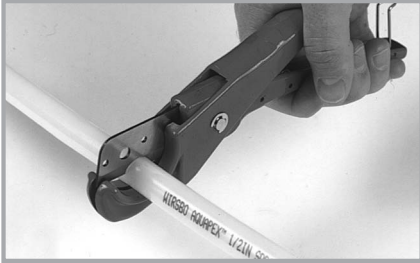
## Warranty

- The Wirsbo ProPEX Battery Expander Tool carries a two-year warranty for the tool and a six-month warranty for batteries.
- 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 Battery Expander Tool 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

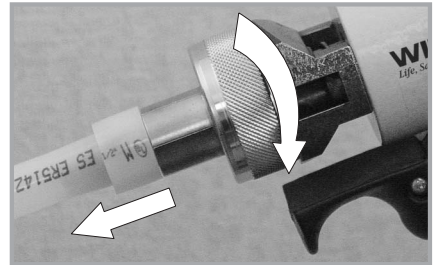
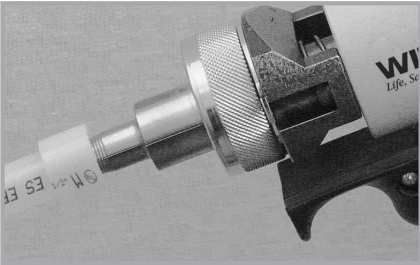
## Tools Needed

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



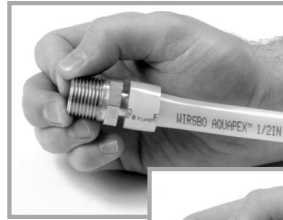
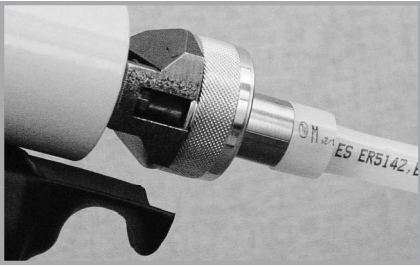
1. Square cut the PEX tubing perpendicular to the length of the tubing. Remove all excess material or burrs that might affect the fitting connection.

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  $\frac{1}{16}$ " (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.

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.

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
1 1/4"	1 1/4"	—	—	1 1/4"H	—	—	6-7H
1 1/2"	1 1/2"	—	—	1 1/2"H	—	—	6-7H

**Chart A**

### Important Tips for a Proper ProPEX Connection

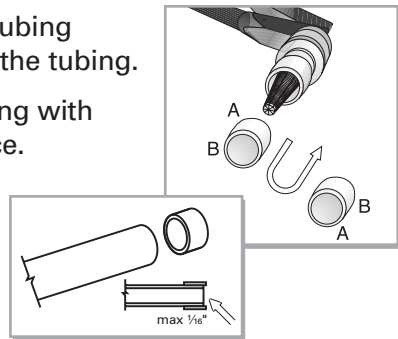
- Rotate the tool after every expansion. If the tool is not rotated after EACH expansion, the segments on the tool head may cause deep grooves in the tubing. These grooves can result in potential leak paths.
- If the fitting does not slide into the tubing all the way to the stop, immediately remove it 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  $\frac{1}{16}$ " 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.

### $\frac{3}{8}$ " AQUAPEX ProPEX Connections

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

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



Once the  $\frac{3}{8}$ " PEX ring is properly expanded and on the tubing, refer to **Steps 3-5** on **pages 8-9** for further instruction.

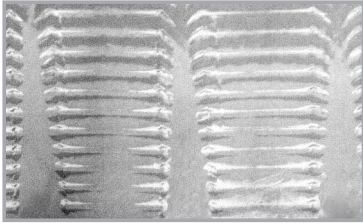
### Important Tips for a Proper $\frac{3}{8}$ " ProPEX Connection

- When the temperature is above 40°F, ProPEX connections to  $\frac{3}{8}$ " 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  $\frac{3}{8}$ " ProPEX connections shrinks over the fitting faster than other size PEX rings.

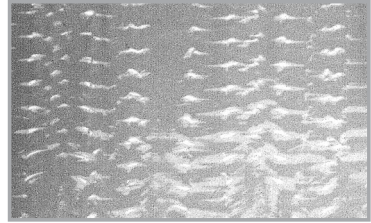


## Rotating Tool After Each Expansion

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. If the head does not completely close when the electro-hydraulic drive unit is fully retracted, replace the head.
- 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 getting into 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.

## **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.
- Operating the tool in temperatures below 40°F will reduce the number of connections that can be made per charge.
- When using the tool in temperatures below 40°F, keep the batteries warm to optimize battery life.
- 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 head comes in different sizes ranging from  $\frac{3}{8}$ " to  $1\frac{1}{2}$ ". 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" of any single wall gas appliance vent or within 12" of any uninsulated recessed light fixture.
- Do not use AQUAPEX or hePEX plus for an electrical ground.

## Notes

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