



EVERLOC+™ COMPRESSION-SLEEVE SYSTEM
SISTEMA DE CASQUILLOS DE COMPRESIÓN EVERLOC+™
SYSTÈME DE MANCHON À COMPRESSION EVERLOC+^{MC}

Product Instructions / Instrucciones del producto / Instructions relatives au produit



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For updates to this publication and the most current technical instructions, safety information and manufacturer's recommendations, visit www.na.rehau.com/resourcecenter

1. SCOPE

Thank you for your purchase. These instructions contain information about the assembly and use of the EVERLOC+™ compression-sleeve system with RAUPEX® UV shield pipe (PEXa Pipe) intended for use in hot- and cold-water potable systems and RAUPEX O₂ Barrier pipe for hydronic heating and cooling systems.

For professional use only. Persons using this guide must be experienced and appropriately licensed professional contractors who understand the principles and practices associated with the proper installation of hot- and cold-water potable and hydronic systems.

The information presented in this product instruction manual is intended to demonstrate the proper assembly method and installation recommendations for the EVERLOC+ compression-sleeve system. Allow only persons who fully understand this manual to participate in the assembly and use of the EVERLOC+ compression-sleeve system with RAUPEX PEXa pipe.

It is the responsibility of the licensed contractor to check the prevailing local codes and to verify that the technical information presented in this guide is appropriate for a particular installation.

Nothing in this manual supersedes national or local code requirements or the recommendations of other manufacturers regarding their components. Observe all applicable national, state and local laws, regulations, standards, codes and ordinances. If you believe REHAU product information conflicts with applicable code requirements, industry standards, or the recommendations of other manufacturers regarding their components, contact the REHAU distributor in your area and consult with the building authority having jurisdiction before installing the EVERLOC+ compression-sleeve system.

Before starting the installation process, read the REHAU *PEXa Limited Warranty*, available at www.na.rehau.com/warranties. It can also be obtained from your authorized REHAU distributor or by writing to REHAU Construction LLC, 1501 Edwards Ferry Road NE, Leesburg VA 20176 US.

Proper installation is the responsibility of the installing contractor. Review the REHAU *Technical Guidelines* prior to installation of the REHAU crosslinked polyethylene (PEXa) piping system. REHAU *Technical Guidelines* are defined in the REHAU *PEXa Limited Warranty* as: The most current and applicable versions of all the technical literature available on the REHAU North America website at www.na.rehau.com/resourcecenter, including, but not limited to, technical manuals, instruction guides, technical bulletins, submittals and REHAU Academy training presentations. Check the REHAU Resource Center (www.na.rehau.com/resourcecenter) for the latest updates.

Contact the EVERLOC+ distributor in your area if you do not understand the information in this manual or if you have questions about the REHAU *Technical Guidelines*.

This manual contains safety-related information that requires your special attention. It is indicated with the safety alert symbol and the signal words described below :

 DANGER	Indicates a hazardous situation which, if not avoided, will result in death or serious injury.
 WARNING	Indicates a hazardous situation which, if not avoided, could result in death or serious injury.
 CAUTION	Indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
NOTICE	Indicates a risk of property damage, including damage to the power tool or its individual components.

Only trained personnel should be engaged in the installation process. Follow the instructions in this manual and other REHAU *Technical Guidelines* and use common sense to reduce the risk of injury or property damage.

WARNING



Read the instruction manual for the EVERLOC+ compression-sleeve tools before use and follow all safety precautions - improper use can cause serious personal injury

WARNING



EVERLOC+ compression-sleeve tools use a strong hydraulic force to expand PEXa pipe and compress components of the REHAU EVERLOC+ compression-sleeve system.

To reduce the risk of crush and laceration injury, keep fingers, hands and all parts of your body away from the expander head, hydraulic slide and compression jaws during operation. Remove the battery before attempting to change or adjust the expander head or compression jaws.

2. SYSTEM OVERVIEW

Applications

The EVERLOC+ compression-sleeve system is designed for use with RAUPEX PEXa pipe, specifically RAUPEX UV shield pipe for potable plumbing system applications and RAUPEX O₂ barrier pipe for hydronic radiant heating and cooling system applications.

The REHAU PEXa plumbing system is intended for use in hot- and cold-water potable systems as defined by the following national codes:

- ICC International Plumbing Code (IPC)
- ICC International Residential Code (IRC)
- IAPMO Uniform Plumbing Code (UPC)
- National Plumbing Code of Canada (NPCC)

The REHAU PEXa radiant system is intended for use in hydronic heating and cooling systems as defined by the following national codes:

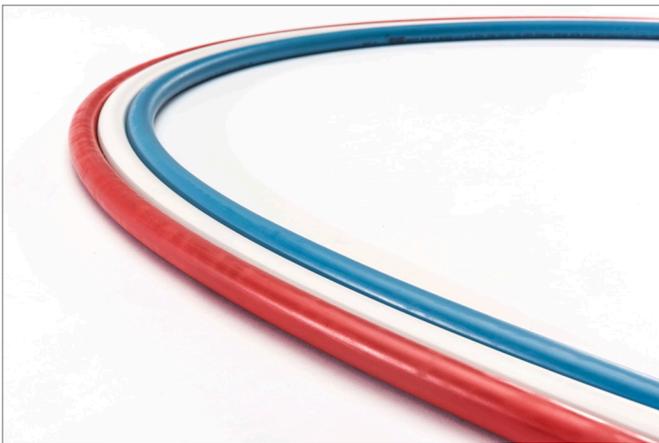
- IMC International Mechanical Code (IMC)
- International Building Code (IBC)
- International Residential Code (IRC)
- Uniform Mechanical Code (UMC)
- National Building Code of Canada (NBCC)
- CSA B214 Installation Code for Hydronic Heating Systems



RAUPEX O₂ barrier crosslinked polyethylene (PEXa) pipe



EVERLOC+ compression-sleeve fittings and sleeves



RAUPEX UV shield crosslinked polyethylene (PEXa) pipe



EVERLOC+ compression-sleeve tools

3. SYSTEM COMPONENTS

The EVERLOC+ compression-sleeve system is a cold-expansion PEXa fitting system that is available in polymer and lead-free (LF) brass and is assembled with a specially designed PEXa compression sleeve. The fitting is designed specifically for use with RAUPEX pipe and should only be assembled with the EVERLOC+ compression-sleeve tools.

For a detailed description of the REHAU system components, refer to the REHAU *Sustainable Building Technology Product Catalog* (855.312).

Product Range

EVERLOC+ fittings are available in 3/8, 1/2, 5/8, 3/4, 1, 1 1/4, 1 1/2 and 2 in. sizes and are intended for use with RAUPEX SDR9 copper tube size (CTS) pipe manufactured in accordance with ASTM F876.

Fitting Features

EVERLOC+ polymer and lead-free (LF) brass fittings have the following features:

1. Four sealing edges
2. Pipe stop
3. Fitting collar
4. Tool jaw body



Fitting and Sleeve Markings

All polymer fittings include the following marks for identification



Fitting size (3/4" for example)



Batch code for production date

All LF brass fittings are marked "REHAU"

All sleeves include the following marks for identification



- Sleeve size (1/2" for example)
- Batch code for production date



Polymer Fittings

EVERLOC+ polymer fittings are available in couplings, tees, elbows, multi-port tees and plugs. All polymer fittings are produced from a polyphenylsulfone (PPSU) material that meets the requirements of NSF61 for health effects of drinking water system components and complies with the lead-free requirements of the U.S. Safe Drinking Water Act. See also REHAU *Technical Bulletin TB265 EVERLOC+ Polymer Fitting Material - PPSU*.



Lead Free (LF) Brass Fittings

EVERLOC+ LF brass fittings are available as couplings, tees, elbows, plugs and transition fittings to NPT thread and copper solder connections. All metal fittings are produced from ECO BRASS® (UNS69300 or CW724R) that meets the requirements of NSF61 for health effects of drinking water system components and complies with the lead-free requirements of the U.S. Safe Drinking Water Act. See also REHAU *Technical Bulletin TB264 EVERLOC+ Lead-free Brass Fitting Material*.



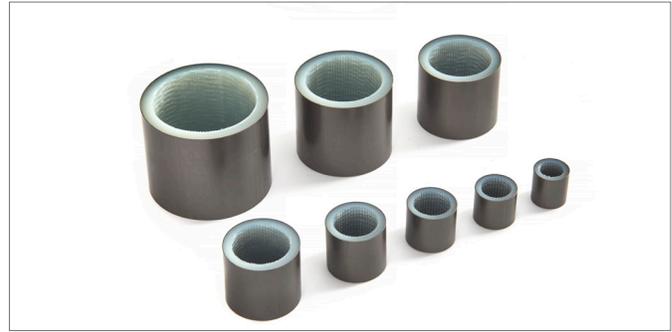
Metal Manifolds

Manifolds are 1 in. Type L copper with EVERLOC+ LF brass fittings brazed into the header.

PEXa Compression Sleeves

EVERLOC+ compression sleeves are produced using a specially formulated PEXa material and are designed specifically for use with EVERLOC+ fittings and RAUPEX pipe. EVERLOC+ compression sleeves have the following features:

- Co-extruded platinum-colored PE coating
- Squarely cut ends that can be slid over the pipe in either direction
- Grooved and roughened inside surface for locking the sleeve into place once slid over the pipe and fitting



Packaging, Handling, Storage

EVERLOC+ fittings and sleeves are shipped in cardboard boxes to protect them from sunlight, rain, dirt and other hazards. Keep the products in the original packaging until they are required for installation. Return unused products to the packaging for storage.

Fittings and sleeves must be handled with care. At a minimum, avoid the following:

- Storing loose fittings in tool boxes
- Contact with oil or petroleum-based products, adhesives, paints, solvents, oxidizing agents or other aggressive chemicals or products
- Exposure of polymer fittings and PEXa sleeves to soldering or any open flame
- Excessive or permanent exposure to sunlight of polymer fittings and PEXa sleeves

NOTICE

Exposing the EVERLOC+ compression-sleeve system to oil or petroleum-based products, adhesives, paints, solvents, oxidizing agents or other aggressive chemicals or products can damage the compression-sleeve system and result in leaking and property damage. See Installation Considerations for further information.

Certifications

The EVERLOC+ compression-sleeve system is certified to the following standards:

- ASTM F877 Standard Specification for Crosslinked Polyethylene (PEX) Hot- and Cold-Water Distribution Systems
- NSF/ANSI 14 Plastic Piping System Components and Related Materials
- NSF/ANSI 61 Drinking Water System Components – Health Effects
- NSF/ANSI 372 Drinking Water System Components – Lead Content
- CSA B137.5 Crosslinked polyethylene (PEX) Tubing Systems for Pressure Applications

4. ASSEMBLY

Fitting Assembly

Assembling and installation of the EVERLOC+ compression-sleeve system requires the use of the EVERLOC+ compression-sleeve tools. These tools are battery-operated, hand-held tools. Only make EVERLOC+ compression-sleeve joints with these tools.

Refer to the EVERLOC+ *Power Tool Product Instruction Manual* (855.725), *EVERLOC+ XL Power Tool Product Instruction Manual* (855.728) and the *EVERLOC+ XL Expander Tool Product Instruction Manual* (855.729) for a complete understanding of operation, care and use of the EVERLOC+ compression-sleeve tools.

⚠ WARNING



Read the instruction manual for the EVERLOC+ compression sleeve tools before use and follow all safety precautions – improper use can cause serious personal injury or property damage.

⚠ WARNING



To reduce the risk of permanent eye injury, always wear close-fitting protective eyewear with side protection. Eyewear must be impact-rated and marked as complying with ANSI Z87.1.

NOTICE

Use only EVERLOC+ compression-sleeve tools for assembly and installation. Use of other tools will result in an improperly assembled joint, which may result in leaking and property damage.

The basic process of assembling an EVERLOC+ compression-sleeve joint is as follows:

- Make a clean, square cut of the RAUPEX pipe using a REHAU pipe cutter
- Slide the EVERLOC+ compression sleeve over the RAUPEX pipe ensuring the sleeve is a minimum of two times the length of the sleeve from the end of the cut pipe to allow for expansion of the pipe only
- Expand the RAUPEX pipe twice, ensuring the expander head is rotated 1/2 of one expander head segment between expansions, using the EVERLOC+ compression-sleeve tools
- Insert the EVERLOC+ compression-sleeve fitting into the expanded end of the RAUPEX pipe so that the pipe is touching the pipe stop on the fitting
- Compress the EVERLOC+ compression sleeve over the RAUPEX pipe and EVERLOC+ compression-sleeve fitting using the EVERLOC+ compression-sleeve tools

Required assembly tools include:

- REHAU RAUPEX pipe cutter
- EVERLOC+ compression-sleeve tools
- EVERLOC+ expander heads and compression jaws

EVERLOC+ Compression-sleeve Tool Assembly

The EVERLOC+ compression jaws and expander heads are color-coded per each size to provide a visual confirmation that the correct jaws and expander head are assembled onto the tool. Prior to making a compression joint, ensure the correct size of jaws and heads are being used.

Diameter	Color		Tool
3/8 in.	Yellow		EVERLOC+ Power Tool
1/2 in.	Red		EVERLOC+ Power Tool
5/8 in..	Orange		EVERLOC+ Power Tool
3/4 in.	White		EVERLOC+ Power Tool
1 in.	Green		EVERLOC+ Power Tool
1 1/4 in.	Magenta		EVERLOC+ XL Power Tool EVERLOC+ XL Expander Tool
1 1/2 in.	Blue		EVERLOC+ XL Power Tool EVERLOC+ XL Expander Tool
2 in.	Gray		EVERLOC+ XL Power Tool EVERLOC+ XL Expander Tool

NOTICE

For use only with RAUPEX PEXa pipe and the EVERLOC+ compression-sleeve fitting system. Other materials or fittings may crack or otherwise fail which could result in leaking and property damage.

Use only REHAU or REHAU-approved expander heads and compression jaws that match the dimension of the RAUPEX PEXa pipe being installed (e.g., 1/2 in. expander head and compression jaws for 1/2 in. pipe). Use of unauthorized attachments or REHAU attachments that are the wrong size may result in faulty joints, which can lead to leaking and property damage.

4.1 EVERLOC+ TOOL SAFETY WARNINGS

WARNING



To reduce the risk of electric shock, fire or serious personal injury, read the instruction manual for your EVERLOC+ power tool, along with all warnings and instructions for the battery and charger before operation

- **Risk of electric shock.** Never operate the power tool in damp or wet conditions – never expose to rain or submerge in water or other liquids. Never operate the power tool near wires or cables carrying electric current.
- **Always wear close-fitting protective eyewear that is impact-rated with side protection to reduce the risk of permanent eye injury.**
- **Always check your power tool and its attachments for proper condition before starting work.** Using a power tool that is modified, damaged, improperly adjusted or maintained, or not completely and securely assembled can increase the risk of severe personal injury or a faulty connection and property damage.
- **The EVERLOC+ Power Tool and EVERLOC+ XL Expander tool are designed for one-handed operation. Wrap your fingers tightly around the control handle as shown in this manual and keep a secure grasp on the tool during work.** Loss of control can lead to injuries.
- **The EVERLOC+ XL Power Tool is designed for two-handed operation. Wrap your fingers tightly around the control handle and the support handle as shown in this manual. Keep a secure grasp on both tool handles during work.** Loss of control can lead to injuries.
- **Always mount the support handle on the EVERLOC+ XL Power Tool before starting work.** The support handle helps the operator maintain control of the power tool and helps reduce the risk of crush or cut injuries. Never operate the power tool without the support handle securely in place.
- **Use only your index finger to trigger the tool.** Using other fingers to trigger the tool may cause you to lose control of the power tool or increase the risk of personal injury, including pinch injuries.
- **Moving parts can crush and cut. Keep hands and fingers clear of the compression jaws, hydraulic slide and expander head while operating.** Always keep hands and fingers away from the hydraulic slide and compression jaws to avoid trapping your fingers in moving parts. The hydraulic slide and compression jaws are potential pinch points.
- **Keep hands and other parts of your body away from the expander head, hydraulic slide and compression jaws during operation to reduce the risk of injury.** Avoid wearing bulky gloves that may become caught in the compression jaws or make handling the tool awkward or difficult.
- **To reduce the risk of unintended activation, remove the battery before changing or adjusting the expander head or compression jaws.** Pinching fingers or trapping other parts of your body in the expander head, hydraulic slide or compression jaws can result in serious crush and cut injuries.
- **For use only with REHAU or REHAU-authorized accessories or attachments.** Although certain unauthorized accessories and attachments may fit onto the power tool, their use may, in fact, be extremely dangerous and result in personal injury and faulty connections, which can lead to leaking and property damage.
- **For proper installation, the expander head and compression jaws must match the dimension of the RAUPEX PEXa pipe being installed.** Failure to mount the proper size expander head or compression jaws before installing a connection may be dangerous and also result in a faulty connection, which can lead to leaking and property damage.
- **For use only with RAUPEX PEXa pipe and the EVERLOC+ compression-sleeve fitting system.** Other materials or fittings may crack or otherwise fail, which could result in leaking and substantial property damage.
- **If your power tool or any part is damaged or does not function properly, have it repaired by an authorized REHAU service center.** There are no user-authorized repairs for the battery, charger or power tool. Do not use the power tool until the problem has been corrected.
- **To reduce the risk of personal injury from accidental activation of the power tool, always remove the battery pack before changing attachments, inspecting, cleaning, lubricating or performing any other type of maintenance, inspection, repair or cleaning.**
- **Follow all charging instructions and do not charge the battery pack or tool outside the temperature range specified in the instructions.** Charging improperly or at temperatures outside the specified range may damage the battery and increase the risk of fire.
- **Do not expose the battery pack or tool to fire or excessive temperature.** Exposure to fire or temperature above 265°F (130°C) may cause explosion.
- **Do not use a battery pack or tool that is damaged or modified.** Damaged or modified batteries may exhibit unpredictable behavior, resulting in fire, explosion or risk of injury.
- **Never service damaged battery packs.** Service of battery packs should only be performed by the manufacturer or authorized service providers.
- **Do not operate the power tool while under the influence of any substance (drug, alcohol, medication, etc.) that might impair vision, balance, dexterity or judgment.**
- **Working with a power tool can be strenuous.** The operator must be in good physical condition. To reduce the risk of injury from loss of control, be alert. Do not operate the power tool when tired. Take a break if you become tired. Always hold the tool firmly while working as directed in the instruction manual.
- **Make sure you have good balance and secure footing at all times.** Use caution when working from a ladder or other elevated platform. Do not overreach.

4.2 FITTING ASSEMBLY 3/8 TO 1 IN.

Assembling the EVERLOC+ compression-sleeve system with diameters of 3/8 to 1 in. require the use of the EVERLOC+ Power Tool. Refer to the *EVERLOC+ Power Tool Product Instruction Manual* (855.725) for a complete understanding of operation, care and use of the tool.



Cold Expanding RAUPEX Pipe

The expansion process consists of the following steps:

1. Squarely cut the RAUPEX pipe.
 - Using the pipe cutter, cut the pipe to the desired length. Prior to cutting the pipe, ensure the pipe cutter is in good condition with a sharp blade.
 - The cut must be clean and square (i.e., forming a 90° angle with side of pipe) and must be free of burrs, nicks and jagged ends.

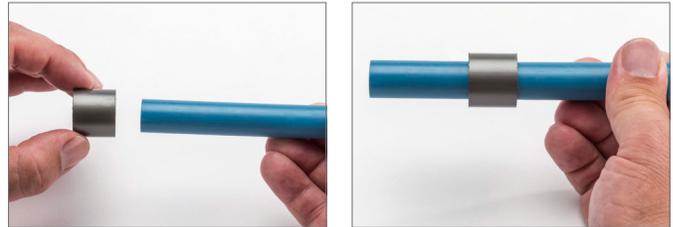


NOTICE

Not having a clean, square cut of the pipe could cause leakage of the finished joint.

2. Slide the EVERLOC+ compression sleeve onto RAUPEX pipe.
 - Slide the properly-sized sleeve onto the pipe. The sleeve is omnidirectional so either end of the compression sleeve can slide on the pipe first.

- Slide the sleeve down the pipe at least two times the length of the sleeve so the expander head can be inserted.
- The compression sleeve must not be expanded with the tool.



⚠ WARNING

To reduce the risk of serious personal injury from accidental activation of the power tool:

- Always remove the battery pack before mounting or changing the expansion adapter, expander head or compression jaws, and before performing any other type of inspection, maintenance or cleaning.

3. Place expander head on tool expander adapter.

- Select the properly sized expander head for the pipe diameter (e.g., 1/2 in. expander head for 1/2 in. pipe).
- Each expander head has six separate segments. Inspect each expander head to ensure no segments are broken or chipped. Do not use if the expander head is damaged.



NOTICE

Do not use damaged expander tools or expander heads, as these may produce faulty joints that could leak.

⚠ WARNING

Improper handling of the power tool can increase the risk of pinch or crush injury. The tool is designed for one-handed operation and there are no gripping surfaces outside of the control handle. To reduce the risk of serious personal injury:

- Wrap your fingers tightly around the control handle as shown in this manual and keep a secure grasp on the tool during work.
- Use only your index finger to trigger the tool. Using other fingers to trigger the tool may cause you to lose control of the power tool or increase the risk of personal injury, including pinch injuries.
- Keep hands away from the expander head, hydraulic slide and compression jaws during operation.

4. Insert expander head into end of RAUPEX pipe.

- Fully insert the expander head into the end of the pipe ensuring the sleeve is slid past the end of the expander segments.
- Ensure the end of the pipe makes contact with the first step of the expander head.
- Ensure the compression sleeve is a minimum of two times the length of the sleeve from the end of the pipe. The compression sleeve must not be in the expansion zone.



⚠ WARNING

Moving parts can crush and cut. This power tool uses a strong hydraulic force to expand RAUPEX PEXa pipe and compress components of the REHAU EVERLOC+ compression-sleeve system. To reduce the risk of serious personal injury during operation:

- Never touch the expander head, hydraulic slide or compression jaws during operation.
- Keep hands and other parts of your body away from the expander head, hydraulic slide and compression jaws during operation.

5. Expand RAUPEX pipe twice.

- Once the expander head is fully inserted into the pipe, press the trigger button on the power tool.
- Ensure the expander head is rotated 1/2 of one expander head segment between expansions.
- Remove the expander head from the pipe.



NOTICE

Do not expand the pipe and sleeve together. This could cause leakage of the finished joint.

6. Insert EVERLOC+ compression-sleeve fitting into expanded RAUPEX pipe.

- Push the fitting into the pipe so that the end of the pipe is contacting the pipe stop of the fitting.
- If the fitting does not insert far enough, remove the fitting and repeat the expansion process so that the fitting can be properly inserted.



Compressing the Sleeve Onto the Fitting

The EVERLOC+ Power Tool has interchangeable compression jaws to pull the compression sleeve over the pipe and fitting to complete the assembly. This step completes the fitting installation process.

The compression process consists of the following steps:

1. Place the EVERLOC+ compression jaws onto fitting and pipe.
 - The compression jaws are color coded. For each size, there is a black jaw and a chrome-plated jaw. The black jaw is to be inserted onto the fitting collar and the chrome-plated jaw is to be inserted onto the pipe with contact to the end of the sleeve.



2. Compress sleeve onto fitting.

- Once the jaws are placed firmly against the fitting and sleeve, press the trigger on the power tool and the sleeve will slide over the fitting. Allow the power tool to completely cycle through so the sleeve meets the front of the collar on the fitting. When completed, remove the tool from the fitting.
- If necessary to make installation easier, the tool head can be rotated, the compression jaws can be mounted on the side or the compression jaws can be swapped and flipped.

⚠ WARNING

To reduce the risk of crush or cut injury, remove index finger from trigger before rotating the tool head.



⚠ WARNING

In the event of a pinch or unintended compression, release the hydraulic pressure with the release button.

3. Inspect completed EVERLOC+ compression-sleeve joint.

- The EVERLOC+ compression sleeve should close tightly against the collar of the fitting. A maximum gap of up to 0.030 in (0.75 mm), or about the thickness of a credit card, is acceptable. This applies to all sizes of fittings. If the gap is more than 0.030 in (0.75 mm) and the joint has just been completed, use the power tool to slide the sleeve further onto the fitting.

Once complete, the fitting is immediately ready for system pressure testing.



4.3 FITTING ASSEMBLY 1 1/4 TO 2 IN.

Assembling the EVERLOC+ compression-sleeve system with diameters of 1 1/4 to 2 in. requires the use of the EVERLOC+ XL Power Tool. Refer to the *EVERLOC+ XL Power Tool Product Instruction Manual* (855.728) for a complete understanding of operation, care and use of the tool.



Cold Expanding RAUPEX Pipe

The expansion process consists of the following steps:

1. Squarely cut the RAUPEX pipe.
 - Using the pipe cutter, cut the pipe to the desired length. Prior to cutting the pipe, ensure the pipe cutter is in good condition with a sharp blade.
 - The cut must be clean and square (i.e., forming a 90° angle with side of pipe) and must be free of burrs, nicks and jagged ends.



NOTICE

Not having a clean, square cut of the pipe could cause leakage of the finished joint.

2. Slide the EVERLOC+ compression sleeve onto RAUPEX pipe.

- Slide the properly-sized sleeve onto the pipe. The sleeve is omnidirectional so either end of the compression sleeve can slide on the pipe first.
- Slide the sleeve down the pipe at least two times the length of the sleeve so the expander head can be inserted.
- The compression sleeve must not be expanded with the tool.



⚠ WARNING

To reduce the risk of serious personal injury from accidental activation of the power tool:

- Always remove the battery pack before mounting or changing the expansion adapter, expander head or compression jaws, and before performing any other type of inspection, maintenance or cleaning.

3. Place expander head on tool expansion adapter

- Select the properly sized expander head for the pipe diameter (e.g., 1 1/2 in. expander head for 1 1/2 in. pipe).
- Each expander head has eight separate segments. Inspect each expander head to ensure no segments are broken or chipped. Do not use if the expander head is damaged.



NOTICE

Do not use damaged expander tools or expander heads, as these may produce faulty joints that could leak.

⚠ WARNING

Improper handling of the power tool can increase the risk of pinch or crush injury. The tool is designed for two-handed operation and there are no gripping surfaces outside of the control handle and the support handle. To reduce the risk of serious personal injury:

- Wrap the fingers of your trigger hand tightly around the control handle and the fingers of your other hand around the support handle as shown in this manual.
- Keep a secure grasp with both hands during work.
- Use only your index finger to trigger the tool. Using other fingers to trigger the tool may cause you to lose control of the power tool or increase risk of personal injury, including pinch injuries.
- Keep hands away from the expander head, hydraulic slide and compression jaws during operation.

4. Insert expander head into end of RAUPEX pipe.

- Fully insert the expander head into the end of the pipe ensuring the sleeve is slid past the end of the expander segments.
- Ensure the end of the pipe makes contact with the first step of the expander head.
- Ensure the compression sleeve is a minimum of two times the length of the sleeve from the end of the pipe. The compression sleeve must not be in the expansion zone.



NOTICE

Do not expand the pipe and sleeve together. This could cause leakage of the finished joint.

⚠ WARNING

Moving parts can crush and cut. This power tool uses a strong hydraulic force to expand RAUPEX PEXa pipe and compress components of the REHAU EVERLOC+ compression-sleeve system. To reduce the risk of serious personal injury during operation:

- Never touch the expander head, hydraulic slide or compression jaws during operation.
- Keep hands and other parts of your body away from the expander head, hydraulic slide and compression jaws during operation.

5. Expand RAUPEX pipe twice.

- Once the expander head is fully inserted into the pipe, press the trigger on the power tool.
- Ensure the expander head is rotated 1/2 of one expander head segment between expansions.
- Remove the expander head from the pipe.



⚠ WARNING

Rotating the tool too quickly after the first expansion can dislodge the expander head from the expander adapter, causing it to fall off the tool, which may result in damage to the expander head or personal injury.

6. Insert EVERLOC+ compression-sleeve fitting into expanded RAUPEX pipe.

- Push the fitting into the pipe so that the end of the pipe is contacting the pipe stop of the fitting.
- If the fitting does not insert far enough, remove the fitting and repeat the expansion process so that the fitting can be properly inserted.



Compressing the Sleeve Onto the Fitting

The EVERLOC+ XL Power Tool has interchangeable compression jaws to pull the compression sleeve over the pipe and fitting to complete the assembly. This step completes the fitting installation process.

The compression process consists of the following steps:

1. Place the EVERLOC+ compression jaws onto fitting and pipe.
 - The compression jaws are color coded. For each size, there is a black jaw and a chrome-plated jaw. The black jaw is to be inserted onto the fitting collar and the chrome-plated jaw is to be inserted onto the pipe with contact to the end of the sleeve.



2. Compress sleeve onto fitting.

- Once the jaws are placed firmly against the fitting and sleeve, press the trigger button on the power tool and the sleeve will slide over the fitting. Allow the power tool to completely cycle through so the sleeve meets the front of the collar on the fitting. When completed, remove the tool from the fitting.
- If necessary to make installation easier, the tool head can be rotated, the compression jaws can be mounted on the side or the compression jaws can be swapped and flipped.

⚠ WARNING

To reduce the risk of crush or cut injury, remove index finger from trigger before rotating the tool head.



⚠ WARNING

In the event of a pinch or unintended compression, release the hydraulic pressure with the release button.

3. Inspect completed EVERLOC+ compression-sleeve joint.

- The EVERLOC+ compression sleeve should close tightly against the collar of the fitting. A maximum gap of up to 0.030 in (0.75 mm), or about the thickness of a credit card, is acceptable. This applies to all sizes of fittings. If the gap is more than 0.030 in (0.75 mm) and the joint has just been completed, use the power tool to slide the sleeve further onto the fitting.

Once complete, the fitting is immediately ready for system pressure testing.



Using the EVERLOC+ Expander Tool for Expansion

In addition to the EVERLOC+ XL Power Tool, the EVERLOC+ XL Expander Tool can be used for the expansion steps of the 1 1/4 to 2 in. fitting assembly process.

Refer to the *EVERLOC+ XL Expander Tool Product Instruction Manual* (855.729) for a complete understanding of operation, care and use of the tool.



Cold Expanding RAUPEX Pipe

The expansion process consists of the following steps:

1. Squarely cut the RAUPEX pipe.
 - Using the pipe cutter, cut the pipe to the desired length. Prior to cutting the pipe, ensure the pipe cutter is in good condition with a sharp blade.
 - The cut must be clean and square (i.e., forming a 90° angle with side of pipe) and must be free of burrs, nicks and jagged ends.



NOTICE

Not having a clean, square cut of the pipe could cause leakage of the finished joint.

2. Slide the EVERLOC+ compression sleeve onto RAUPEX pipe.
 - Slide the properly-sized sleeve onto the pipe. The sleeve is omnidirectional so either end of the compression sleeve can slide on the pipe first.
 - Slide the sleeve down the pipe at least two times the length of the sleeve so the expander head can be inserted.
 - The compression sleeve must not be expanded with the tool.



⚠ WARNING

To reduce the risk of serious personal injury from accidental activation of the power tool:

- Always remove the battery pack before mounting or changing the expander head, and before performing any other type of inspection, maintenance or cleaning.
3. Place expander head on tool expander adapter
 - Select the properly sized expander head for the pipe diameter (e.g., 1 1/2 in. expander head for 1 1/2 in. pipe).
 - Each expander head has eight separate segments. Inspect each expander head to ensure no segments are broken or chipped. Do not use if the expander head is damaged.



NOTICE

Do not use damaged expander tools or expander heads, as these may produce faulty joints that could leak.

⚠ WARNING

Improper handling of the power tool can increase the risk of pinch or crush injury. The tool is designed for one-handed operation and there are no gripping surfaces outside of the control handle. To reduce the risk of serious personal injury:

- Wrap your fingers tightly around the control handle as shown in this manual.
- Keep a secure grasp on the tool during work.
- Use only your index finger to trigger the tool. Using other fingers to trigger the tool may cause you to lose control of the power tool or increase risk of personal injury, including pinch injuries.
- Keep hands away from the expander head during operation..

4. Insert expander head into end of RAUPEX pipe.

- Fully insert the expander head into the end of the pipe ensuring the sleeve is slid past the end of the expander segments.
- Ensure the end of the pipe makes contact with the first step of the expander head.
- Ensure the compression sleeve is a minimum of two times the length of the sleeve from the end of the pipe. The compression sleeve must not be in the expansion zone.



⚠ WARNING

In the event of a pinch or unintended compression, release the hydraulic pressure with the release button.

⚠ WARNING

Rotating the tool too quickly after the first expansion can dislodge the expander head from the expander adapter, causing it to fall off the tool, which may result in damage to the expander head or personal injury.

NOTICE

Do not expand the pipe and sleeve together. This could cause leakage of the finished joint.

⚠ WARNING

Moving parts can crush and cut. This power tool uses a strong hydraulic force to expand RAUPEX PEXa pipe and compress components of the REHAU EVERLOC+ compression-sleeve system. To reduce the risk of serious personal injury during operation:

- Never touch the expander head during operation.
- Keep hands and other parts of your body away from the expander head during operation..

5. Expand RAUPEX pipe twice.

- Once the expander head is fully inserted into the pipe, press the trigger on the power tool.
- Ensure the expander head is rotated 1/2 of one expander head segment between expansions.
- Remove the expander head from the pipe.

6. Insert EVERLOC+ compression-sleeve fitting into expanded RAUPEX pipe.

- Push the fitting into the pipe so that the end of the pipe is contacting the pipe stop of the fitting.
- If the fitting does not insert far enough, remove the fitting and repeat the expansion process so that the fitting can be properly inserted.



Compressing the Sleeve Onto the Fitting

To pull the compression sleeve over the pipe and fitting to complete the assembly process, refer to Section 4.2 Fitting Assembly 1 1/4 to 2 in. under the heading *Compressing the Sleeve Onto the Fitting*. This step completes the fitting installation process.

5. ASSEMBLY CONSIDERATIONS

Fitting Size

Prior to assembly, verify that the fitting and sleeve are the proper size to be connected with the pipe. The size (i.e. 1/2 or 1 1/4 in.) is marked on each fitting and each sleeve.

Fitting and Sleeve Inspection

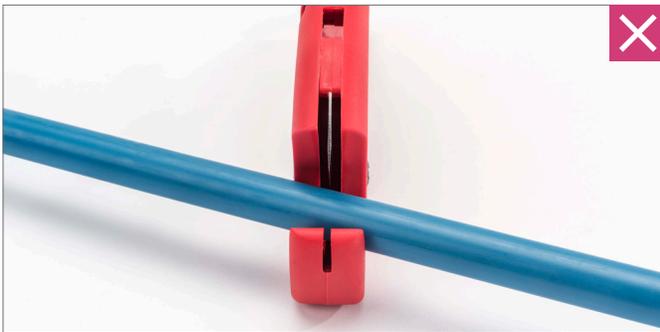
Carefully inspect all fittings and sleeves for damage prior to assembly. Do not use fittings or sleeves if there is any doubt about their integrity.

Sleeve Direction

The sleeve is omnidirectional and can be slid on the pipe in either direction.

Pipe Cutting

When cutting the pipe to length, the cut must be clean and at a right angle (90°) to the pipe wall. Ensure there are no burrs or debris inside the pipe.



- Ensure the compression sleeve is a minimum of two times the length of the sleeve from the end of the pipe. Do not expand the sleeve and the pipe together.



- Expand the RAUPEX pipe twice, ensuring the expander head is rotated 1/2 of one expander head segment between expansions. This ensures that the fitting can be properly inserted.



Expansion of Pipe

- Verify that the RAUPEX pipe is placed completely onto the properly sized expander head. The pipe should be fully inserted to the first step of the expander head.



Fitting Insertion

Verify that the RAUPEX pipe is inserted completely onto the fitting and is touching the pipe stop. If the end of the pipe is not touching the pipe stop of the fitting, the fitting should be removed and the pipe expanded again for proper insertion.



Finished Joint

- A properly completed EVERLOC+ joint requires the compression sleeve to be flush with the fitting collar. A small gap of 0.030 in (0.75 mm) is acceptable.

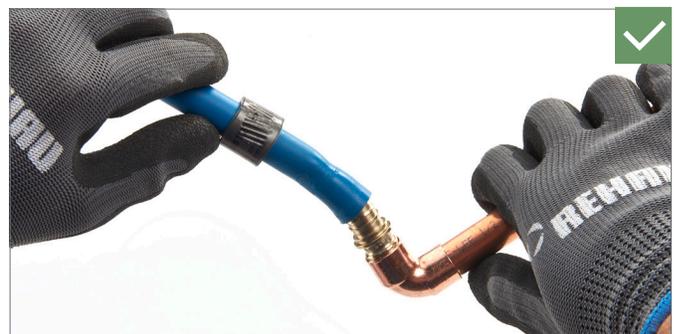


- A finished EVERLOC+ joint should appear aligned when visually inspecting the pipe in relation to the fitting and sleeve.
- To avoid putting unnecessary stress on the pipe, fitting or sleeve, ensure that the transition of the pipe into the EVERLOC+ fitting is not at an angle.
- A finished joint can be visually inspected. There are no calibration tools or go/no-go gauges required to inspect a finished joint.

6. INSTALLATION CONSIDERATIONS

Some precautions and additional considerations that should be taken when installing the system.

- EVERLOC+ LF brass fittings **CAN** be reused, as long as the rib area was not damaged during removal.
- EVERLOC+ polymer fittings **CANNOT** be reused and should be discarded immediately.
- EVERLOC+ compression sleeves **CANNOT** be reused and should be discarded immediately.



Removal time is typically 90 to 120 seconds.
 Note: Do not use open flames to disassemble the joint.

For re-assembly of a new joint, the following should be considered:

- The end of the pipe where the previous fitting had been installed must be completely cut off prior to making a new joint. Cutting off a minimum of 3 in (approximately 75 mm) is recommended.



Fitting Removal for Completed Joint (LF brass ONLY)

If it is required to remove the fitting or disassemble the compression-sleeve joint, use the following procedure:

If the fitting has been inserted into the pipe and the sleeve has been compressed, heat the sleeves with a heat gun. Support the pipe while keeping hands and other body parts away from the heat. Be careful not to damage the fitting with the tool.

1. Heat the sleeve directly using a hot air gun.
2. Rotate the joint several times while heating.
3. Remove heat and use pliers to pull the sleeve off the fitting, then immediately pull the fitting out of the pipe.

Fitting Removal for Partially Completed Joint (LF brass ONLY)

If the fitting has been inserted into the pipe, but the sleeve has not been compressed, attempt to remove it without damaging the fitting. If fitting cannot be easily removed, heat 1 to 1 1/2 in (25 to 38 mm) of the pipe that covers the fitting and then follow procedures 2 and 3 under *Fitting Removal for Completed Joint*.

Protecting EVERLOC+ Joints

REHAU permits EVERLOC+ compression-sleeve joints (polymer and LF brass) to be buried or concealed. REHAU recommends that threaded connections never be buried or concealed as they must be accessible for periodic inspection, per building codes.

The requirement to wrap an EVERLOC+ joint can depend on many factors including location and the presence of other materials that contact or can come in contact with the joint. In general, REHAU recommends the following:

Concealed in inaccessible locations (e.g. behind drywall):

When EVERLOC+ joints are concealed but are still in open air space, it is not necessary to wrap the joint. However, the installer should ensure that the fitting does not come in contact with chemicals (e.g. PVC glues, solvents, cements) that could damage the fitting material. Use only Linerless Rubber Tape, Black (Art. 241002) also available at most distributors and retailers (Scotch™ 2242).

Buried directly in a concrete slab:

When burying an EVERLOC+ joint directly in a concrete slab, it is not necessary to wrap the joint. However, there are some additives in concrete that could potentially damage the fitting material, and in this case, wrapping is recommended. Use only Linerless Rubber Tape, Black (Art. 241002) also available at most distributors and retailers (Scotch™ 2242).

Buried in a sub-base or underground in soil:

In these instances, the joint must be wrapped. Use only Linerless Rubber Tape, Black (Art. 241002) also available at most distributors and retailers (Scotch™ 2242).

With foaming agents:

Foaming agents and solvents in closed-cell foam insulation kits can damage the PPSU fitting material. Therefore, it is necessary to wrap polymer fittings in a protective tape to protect from polyurethane foams. Use only REHAU Protective Tape, Red (Art. 246869-001) or Linerless Rubber Tape, Black (Art. 241002).



When wrapping an EVERLOC+ joint, the following is required:

- Wrap the joint, ensure minimum of 50% overlap of the tape.
- Avoid wrinkles or kinks in the tape and ensure the joint is completely covered, extending on to the pipe as necessary.
- Indicate the location of each joint as required on the “as-built” drawings.

NOTICE

Use only REHAU recommended protective tapes for wrapping EVERLOC+ joints. Do not use other types of tapes (e.g. duct tape, standard electrical tape) to wrap the joint, as chemicals in the adhesive may not be compatible with the PPSU fitting material or the PEX pipe.

NOTICE

Never use heat shrink tubing (e.g. RAUCROSS) to wrap the joint, as the extremely high temperatures produced from a heat gun will soften the pipe and may cause it to pull away from the fitting. See also REHAU *Technical Bulletin TB266: Protecting EVERLOC+ Joints*.



Pressure Testing

The compression-sleeve joint is ready for immediate pressure test and use after completion of the assembly process. There is no wait time for the system to be put into service. See also REHAU *Technical Bulletin TB211 Pressure Testing of REHAU PEXa Piping Systems*.

Pressure and Temperature Ratings

The maximum temperature and pressure ratings of the EVERLOC+ compression-sleeve fitting system is in accordance with ASTM F877 and CSA B137.5 for SDR9 PEX, see REHAU pipe product submittals for ratings.

Ultraviolet Resistance

The fittings and sleeves must never be stored in direct sunlight or stored outside of the original cardboard packaging. In addition, the system is not intended for permanent outdoor applications or in areas with continuous exposure to UV.

Freeze Break Resistance

The flexibility of the RAUPEX pipe allows it to expand as water freezes in the pipe as long as the pipe has room to expand. However, this does not ensure the integrity of the joint. Therefore, installers must take precautions to ensure that pipes and fittings do not freeze. This may result in leaks and operational failures.

Chlorine Resistance

EVERLOC + compression-sleeve joints have the same chlorine resistance ratings as the RAUPEX pipe. Refer to REHAU *Technical Bulletin TB135 Chlorine Resistance of RAUPEX Pipe* for permitted operating conditions.

Stress Corrosion Resistance

EVERLOC+ LF brass fittings have been tested in accordance with NSF/ANSI 14 and comply with the requirement for stress corrosion resistance. However, fittings should not be exposed to harmful chemicals or aggressive water conditions that could result in operational failures.

Chemical Compatibility

There are certain chemicals that can damage the EVERLOC+ compression-sleeve system. This applies to external exposure of chemicals and to the transport of such chemicals by the piping system.

Chemicals that may damage the compression-sleeve system include (but are not limited to):

- Adhesives and tapes other than those recommended by REHAU
- Oil/petroleum-based products
- Paints, solvents
- Oxidizing agents (e.g., bleach)
- Disinfectants (e.g., separate dosing unit integrated into building distribution system)
- PVC glues, solvents, cements



Ensure that the employed sealants, cleaning agents, building foams, insulation, protective tape, adhesive tape or thread sealant do not contain any components which cause stress cracking or corrosion, such as ammonia, ammonia-bearing, aromatic and oxygenated solvents (e.g., ketone and ether), chlorinated hydrocarbons or chloride ions which can leach.

Protect systems against contact to chemicals and damage. Only use leak detection agents (e.g., foaming agents) approved by the respective manufacturer for PPSU materials. Only use sealants, thread sealants, cleaning agents, building foams, insulation, protective tape, adhesive tape and flux approved by the respective manufacturer for the PPSU materials. Check the compatibility of materials for the corresponding area of application.

Contact with aromatic and oxygenated solvents (e.g., ketone and ether) as well as halogenated hydrocarbons (e.g., chlorinated hydrocarbons) is not permitted. Contact with water-based acrylic paints and adhesive/protective primers is not permitted.

Copper Soldering

Proper soldering techniques must be followed when soldering all compression-sleeve fittings according to the Copper Development Association (CDA) Handbook:

- The surface of the fitting soldering area must be properly cleaned for a good solder connection. Applying flux is not considered sufficient cleaning for the soldering area. Using a proper sanding or brush technique is necessary to remove the surface oxides. In order to prevent further formation of oxides, the flux should be applied immediately after the cleaning process. A proper flux that is compatible with the brass alloy must be used.
- Care must be taken to not overheat the soldering surface as this can lead to the formation of oxides preventing good adhesion of the solder material. It is imperative that the fitting is heated evenly around the entire surface so as to not overheat one particular area.
- All completed solder joints must be tested for joint integrity following the procedures prescribed by local applicable codes.

When soldering an EVERLOC+ fitting:

- When using an EVERLOC+ copper adapter fitting, the fitting must be soldered onto the copper first.
- Allow the solder joint to cool to ambient room temperature prior to making an EVERLOC+ connection.
- Never solder after EVERLOC+ connection has been made.



⚠ WARNING

Use gloves and a holding tool. Heated pipe and fittings can cause burns.

7. SYSTEM TESTING AND MAINTENANCE

A pressure test must be performed on the system to ensure the RAUPEX pipe and EVERLOC+ joints are leak free.

In addition, a visual inspection of all joints is recommended to ensure all connections have been properly assembled.