



PEX PLUMBING

F1960 Expansion PEX System

Installation Instructions





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⚠ **WARNING:** Cancer and Reproductive Harm - www.P65Warnings.ca.gov
⚠ **ADVERTENCIA:** Cáncer y daño reproductivo - www.P65Warnings.ca.gov
⚠ **AVERTISSEMENT:** Cancer et effets néfastes sur la reproduction - www.P65Warnings.ca.gov

Zurn F1960 Expansion PEX System

Zurn PEX® pipe is a relatively inert material, and therefore is joined by mechanical connections. One of Zurn's mechanical connections consists of a fitting that is larger than the inside diameter of the Zurn PEX pipe. The Zurn Expansion PEX system consists of Zurn Non-Barrier PEX pipe, Zurn Expansion PEX reinforcing rings and Zurn Expansion PEX CR fittings or Zurn Expansion PEX XL brass fittings. The pipe and ring are expanded, so the fitting can be inserted into the pipe. The pipe and ring shrink down onto the fitting to form a strong, leak-free connection.

Zurn F1960 Expansion PEX CR Fittings

Zurn Expansion PEX CR fittings are molded from a highly engineered polymer. The inherent qualities of the polymer make the fittings very resistant to chlorine and other chemicals present in potable water systems. Zurn Expansion PEX CR fittings are a superior alternative to metallic fittings in areas with localized aggressive water conditions.



STANDARDS LISTINGS

Qualified by third-party certifiers, includes:

- ASTM F1960
- CSA B137.5
- NSF/ANSI Standard 14
- NSF/ANSI Standard 61
- NSF/ANSI Standard 372 (Low Lead)

INSTALLATION PRECAUTIONS

When working with Zurn Expansion PEX CR fittings, we recommend following the practices listed below to maximize the life of the system.

Note: The Zurn PEX recommendation is intended to provide customers with knowledge for the safe handling, storage, and installation of the Zurn Expansion PEX CR fittings. While this list is not comprehensive, an understanding of the strengths and limitations of the Zurn Expansion PEX CR fittings will help to ensure that they maintain optimum performance characteristics throughout the life of the system.

- Zurn Expansion PEX CR fittings **should only be used in operating conditions that are consistent with the temperature and pressure ratings of the pipe**, as well as applicable standards.
- Zurn Expansion PEX CR fittings **should not be painted**.
- Zurn Expansion PEX CR fittings **should not be exposed to direct ultraviolet light**. When possible, protect fittings with an opaque covering.
- Zurn Expansion PEX CR male pipe threads **must only have PTFE tape**, as a thread sealant.
- Zurn Expansion PEX CR fittings **should not be exposed to cleaners, chemicals, solvents, or glues**, as they can be damaged by contact with these substances.
- Zurn Expansion PEX CR fittings **should always be stored in clean, preferably lined, bins or containers**.
- Zurn Expansion PEX CR fittings **must be protected from contact with spray foam insulation or sealants**.
- Zurn Expansion PEX CR fittings are for use with Zurn Non-Barrier PEX piping for potable water applications. **They are not for use in hydronic heating applications**.

Zurn F1960 Expansion PEX XL Brass Fittings

Zurn Expansion PEX XL brass fittings are manufactured from a low lead alloy called ECO BRASS¹. It is compliant with low lead legislation in the states of California and Vermont, as well as Federal Low Lead Requirements.



STANDARDS LISTINGS

Qualified by third-party certifiers, includes:

- ASTM F1960
- CSA B137.5
- NSF/ANSI Standard 61
- NSF/ANSI Standard 372 (Low Lead)

INSTALLATION PRECAUTIONS

When working with Zurn Expansion PEX XL brass fittings, we recommend following the practices listed below to maximize the life of the system.

Note: The Zurn PEX recommendation is intended to provide customers with knowledge for the safe handling, storage, and installation for the Zurn Expansion PEX XL brass fittings. While this list is not comprehensive, an understanding of the strengths and limitations of the Zurn Expansion PEX XL brass fittings will help to ensure that they maintain optimum performance characteristics throughout the life of the system.

- Zurn Expansion PEX XL brass fittings **should only be used in operating conditions that are consistent with temperature and pressure ratings of the pipe**, as well as applicable standards.
- Zurn Expansion PEX XL brass fittings **should not be used in reverse osmosis systems**.
- Zurn Expansion PEX XL brass fittings **should not be used in areas with known localized aggressive water chemistries**.
- Zurn Expansion PEX XL brass fittings are for use with Zurn Non-Barrier PEX piping.

¹ ECO BRASS is a trademark of the Mitsubishi Shindoh Co. Ltd.

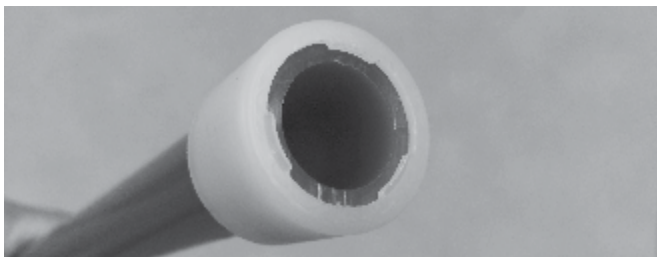


Making an Expansion PEX Connection with the Zurn PEX Manual Expansion Tool

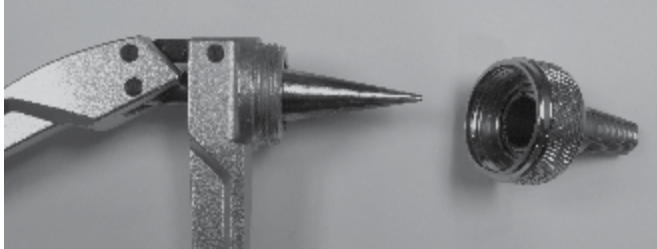


1. Cut pipe at 90 degrees. Be sure you have a square, burr-free cut. An uneven or jagged cut may cause an improper connection. Do not crush OD of piping with the cutter.

PEX Tip: Slightly rotate the cutter during blade engagement.

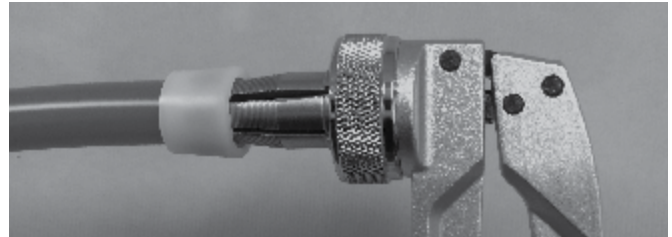


2. Slide the PEX ring onto the PEX piping until you reach the stop tabs on the ring.



3. Before installing the appropriate size expansion head on the tool, add lubricant lightly to the cone of the tool if needed. Do not allow lubricant to coat the inside of the pipe.

PEX Tip: Lubrication between the expanding cone of the tool and the expansion head is necessary to prevent excessive wear.

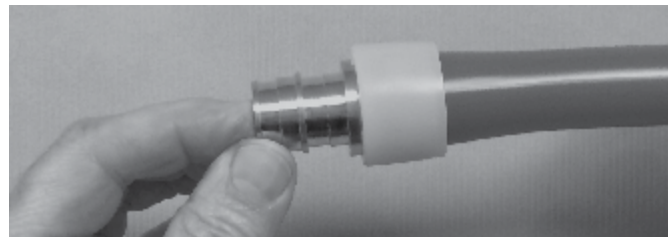


4. Slide the pipe/ring onto the tapered end of the expansion head as far as it will go without forcing it. Expand the pipe/ring by closing the handles of the tool. Release the handles and allow the head to contract. Rotate the tool about 1/8 turn, push the pipe/ring farther onto the expansion head and expand again by closing the handles.

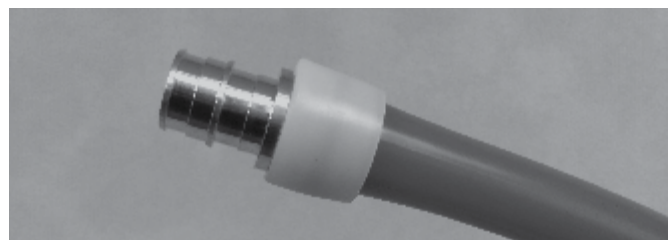
Repeat this process until the pipe/ring touch the shoulder of the expansion head and then cycle the tool one more time.

PEX Tip: The number of expansion cycles will vary with the size of the connection and installation temperature. To limit the amount of time for pipe compression onto the fitting in cold environments, expand the pipe/ring slowly and only enough to fully insert the fitting. Keeping the rings warm will speed retraction and inhibit unequal expansion.

Failure to rotate the tool between expansions may cause uneven expansion of the pipe and ring and create a leak path.



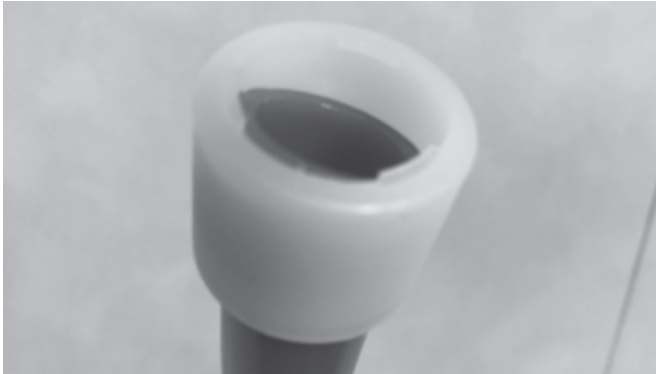
5. Quickly insert fitting into the expanded pipe/ring until the fitting shoulder or stop is touching the pipe/ring. Hold fitting in place until the pipe/ring memory contract annularly around the fitting.



6. Verify the connection is complete and visibly secure.
7. Test completed installation according to procedures described in the Zurn PEX Residential Plumbing Installation Guide. Leaking connections should be cut out and replaced.

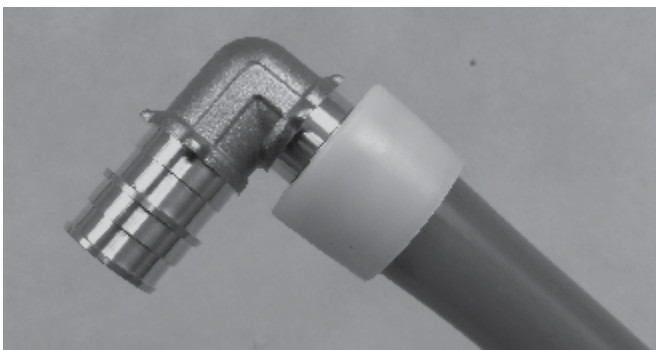
Common Expansion PEX Connection Errors

If the pipe is not cut squarely, the ring and pipe need to be mated evenly and installed fully over F1960 barb for a viable seal.



Pipe not cut squarely

As you can see, the fitting is not inserted completely into expanded pipe/ring.



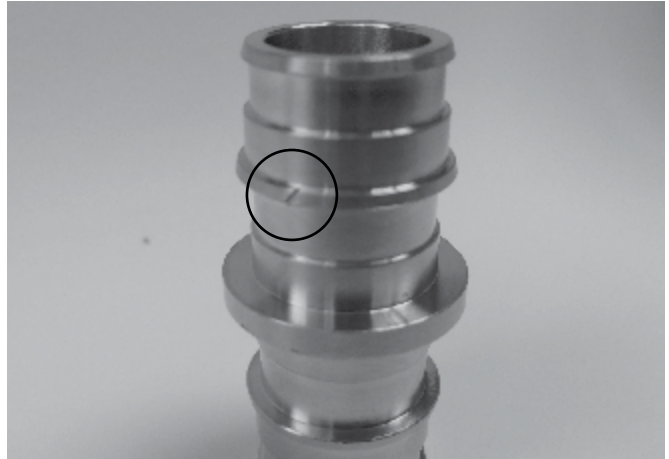
Improperly inserted fitting

This example shows that the expansion tool was not rotated between multiple expansions, leaving a groove or leak path past the fitting barb. This may also be caused by damaged expansion head.



Cut away of PEX piping after proper and improper expansion

Damaged, cut or grooved sealing barb will not seal.



Damaged sealing barb, will not seal

Rings should be kept around 55° F or greater to assure expansion is uniform. Do not install or complete any connection when a pipe/ring displays unequal expansion.

PEX Tip: Failure to rotate the tool in the pipe between expansion cycles may cause unequal expansion of the pipe/ring.



Uneven expansion

Elements to Consider

Sunlight: PPSU and polymer fittings, PEX pipe and reinforcing rings should be protected from UV exposure.

Glue/Primers/Chemicals: PPSU and polymer fittings should be protected from harmful chemical exposure.

Flame: PPSU and polymer fittings should be at least 18" from any soldering. Do not allow flux from soldering to come in contact with PPSU or polymer fittings. Do not expose PPSU or polymer fittings to flame or excessive heat.



Making an Expansion PEX Connection with a Power Expansion Tool

Zurn PEX does not sell power expansion tools, but they are readily available in the market. When using a power expansion tool, be sure to follow the safety and operating instructions provided by the manufacturer.

The same basic requirements discussed for the manual tool apply to the power tool. The power tools typically have a recommended number of cycles for the tool to go through to expand the pipe enough to make a connection. We have found that the Zurn Expansion PEX typically requires a fewer number of cycles before the pipe/ring are expanded enough to fully insert the fitting. A good guide is to expand the pipe/ring until the pipe/ring reach the shoulder of the expansion head and allow the tool to cycle one more time. This should give a reasonable time to insert the fitting into the pipe and yet not cause the pipe/ring to be unnecessarily slow in contracting onto the fitting.

Making a 3/8" Connection

So far, the installation techniques we have discussed apply to 1/2" - 2" sizes. The 3/8" connection is slightly different. The ID of the 3/8" reinforcing ring is smaller than the OD of 3/8" PEX pipe. This means that the ring has to be expanded before it is pushed onto the end of the pipe. To expand the ring, simply push it onto the 3/8" expansion head and expand it a couple of cycles. Then, place the ring on the end of the pipe. After that, the connection is the same as the larger sizes.

Connection Precautions

- If the fitting **does not go into the expanded pipe all the way to the fitting shoulder, immediately remove the fitting** and expand the pipe one more cycle.
- Avoid over expanding the pipe by holding it in the expanded position on the tool.
- If there is more than 1/16" between the pipe stops on the fitting and the end of the reinforcing ring, the connection should be cut out and replaced.
- When cutting out an Expansion PEX connection, it is important to **cut the pipe at least 2" away from the fitting** so that you start with unexpanded pipe for the next connection.
- **Always replace the expansion ring when redoing a connection.**
- Good expansion connections cannot be made with poorly maintained tools. Always be sure there is adequate, but not excessive, lubrication between the expansion head and the cone on the tool. **Always be sure that the fingers of the expansion head are not damaged or bent.**
- Cold temperature increases the amount of time required for the pipe/ring to shrink back onto the fitting. In cold weather, try to keep the rings and fittings in pockets near your body or in warm, but not hot, containers. **Do not attempt to make Expansion PEX connection with components that are colder than 5° F.**

Problem Solving the Connection

If you are having leaking connections, check the following items:

- Be sure the fitting barb is not damaged. Particularly, be sure that the largest sealing rib on the fitting is not nicked or damaged.
- Be sure that the expansion head is not bent or damaged.
- Be sure the tool cone is not bent or damaged.
- Be sure that the tool was rotated 1/8 turn between expansion cycles. If the tool has an auto rotate feature, be sure it is functioning properly.
- Be sure that the pipe/ring was not held in the expanded condition for longer than needed. This can cause over expansion and slow the shrinking back onto the fitting.
- Be sure that grease from the expander head is not coating the inside of the pipe.

General Care for Expansion Tools

Regardless if your tool is manual or power, there are some common areas of maintenance.

- Be sure the cone surface is not scored or gouged. If you have a power tool, it should be returned to an authorized service center. If you have a manual tool, it should be replaced.
- Examine the segments of each expansion head for signs that they are bent or that the exterior surface has gouges or other damage. These gouges or other damage to the surface of the head segments make marks on the inside surface of the PEX pipe and may be the source of leaks.
- On tools with an auto rotate feature, be sure the engaging teeth on the tool and expansion head are not damaged or broken.
- If you have more than one type of tool, be sure that the expansion heads are not mixed up. Many heads can be physically interchanged but features such as auto rotate may not work.
- Clean the segments of the expansion head and the cone on the tool of grease and dirt. Then re-lubricate for smooth operation. Do not use excessive lubrication. It will not extend the life of the tool because it attracts dirt.
- Keep tools in the cases that were provided when purchased.
- Protect the tools from water and dirt.

Minimum Fitting Spacing

The expansion connection causes the PEX pipe to remain stretched beyond the end of the fitting barb. It is important that there is a sufficient length of pipe between fittings, so the pipe is not in a stretched condition when starting the adjacent connection. There also must be sufficient pipe length, so the expansion head can be fully inserted into the pipe when making the second connection. If the pipe is too short, the expansion head cannot be fully inserted into the pipe. That means that the pipe will not be fully expanded to the proper length to make a good expansion connection.

PIPE SIZE	MIN. LENGTH
3/8"	2"
1/2"	2-1/2"
3/4"	3-1/2"
1"	4-1/2"
1-1/4"	5-1/2"
1-1/2"	6-1/2"
2"	7-1/2"

Zurn recommends the following minimum lengths of pipe between fittings.



Zurn PEX® Plumbing and Radiant Heating Systems Fire Protection Systems - Professional Installation Limited Warranty

Subject to the terms and conditions of this Limited Warranty, and relating to Zurn PEX Plumbing and Radiant Heating and Fire Protection Systems, Zurn PEX, Inc. warrants only to the owner of the real property when installed by licensed professional contractors or authorized distributors who purchase and properly install in a potable plumbing system and/or radiant heating system and/or fire protection system its:

1. Zurn PEX Non-Barrier cross-linked polyethylene piping (PEX) and Zurn PEX CR poly expansion fittings, and Zurn PEX XL brass expansion fittings, when installed as a system with Zurn PEX Non-Barrier cross-linked polyethylene piping (PEX), for a period of twenty-five (25) years, and
2. Zurn PEX Non-Barrier and Performa® Barrier cross-linked polyethylene piping (PEX) and Zurn PEX CR poly insert fittings, and Zurn PEX XL brass insert fittings, and Zurn PEX copper crimp rings when installed as a system with Zurn PEX Non-Barrier and Barrier cross-linked polyethylene piping (PEX), for a period of twenty-five (25) years, and
3. Zurn PEX Non-Barrier and Performa Barrier cross-linked polyethylene piping (PEX) and Zurn PEX CR poly insert fittings, and Zurn PEX XL brass insert fittings, and Zurn PEX QuickClamp™ crimp rings when installed as a system with Zurn PEX Non-Barrier and Barrier cross-linked polyethylene piping (PEX), for a period of twenty-five (25) years, and
4. Zurn PEX Non-Barrier cross-linked polyethylene piping (PEX) and Zurn Z-Bite™ Fittings when installed as a system with Zurn PEX Non-Barrier cross-linked polyethylene (PEX) piping, for a period of twenty-five (25) years, and
5. Zurn PEX hy-PE-RTube™ PE-RT tube for a period of twenty-five (25) years, and
6. Zurn PEX Non-Barrier and Performa Barrier cross-linked polyethylene piping (PEX) and Zurn PEX XL brass insert fittings, and Zurn PEX CR poly insert fittings, and stainless steel clamps when installed as a system with Zurn PEX Non-Barrier and Barrier cross-linked polyethylene piping (PEX), for a period of fifteen (15) years, and
7. Zurn Z-Bite fittings when installed with copper pipe meeting ASTM B88 or CPVC pipe meeting ASTM D2846 or PEX pipe meeting ASTM F876 from another manufacturer for a period of five (5) years, and
8. Zurn PEX Performa Barrier cross-linked polyethylene piping (PEX), for a period of thirty (30) years, and
9. Zurn PEX Alumicor® PEX-AL-PEX (cross-linked polyethylene-aluminum-crosslinked- polyethylene) piping for a period of twenty-five (25) years, and
10. Zurn PEX Non-Barrier and Barrier cross-linked polyethylene piping (PEX) for a period of twenty-five (25) years, and
11. Zurn PEX XL brass insert, and Zurn PEX CR poly insert fittings when not installed with Zurn PEX Non-Barrier and Barrier cross-linked polyethylene piping (PEX) and installed with PEX piping that meets the ASTM F876 requirements for a period of five (5) years, and
12. Zurn PEX XL brass expansion fittings, and Zurn PEX CR poly expansion fittings when not installed with Zurn PEX Non-Barrier cross-linked polyethylene piping (PEX) and installed with PEX piping that meets the ASTM F1960 requirements for a period of five (5) years, and
13. QuickClamp crimp rings when not installed with Zurn PEX Non-Barrier and Barrier cross-linked polyethylene piping (PEX) and installed with PEX piping that meets the ASTM F876 requirements, for a period of five (5) years, and
14. Zurn PEX Alumicor PEX-AL-PEX brass compression fittings when used with another manufacturer's piping that meets the requirements of ASTM F1281 for a period of ten (10) years, and
15. QuickPort® plumbing manifolds, under normal conditions of use, for a period of ten (10) years, and
16. Zurn PEX riser pipes and supplies, if installed properly, for a period of one (1) year from the date of installation, and
17. The associated hardware and accessories, including manifolds, distribution headers, valves, electrical controls, and miscellaneous fittings, for a period of two (2) years from the date of installation, and
18. Zurn PEX Crimp Tools, if properly used under normal conditions, for a period of six (6) months from date of purchase.

In order for this Limited Warranty to apply, the above referenced products must be installed by a licensed professional meeting all applicable code requirements and good plumbing practices.

FAILURE TO INSTALL ZURN PEX PRODUCTS ACCORDING TO MANUFACTURER'S

INSTRUCTIONS WILL VOID ALL APPLICABLE WARRANTIES AND MAY RESULT IN SEVERE WATER DAMAGE. Under this warranty, you only have a right reimbursement if the alleged failure is determined to be a direct result of the product(s) as covered in this warranty and occurred during the warranty period. This warranty does not apply and you do not have a right of reimbursement if the failure or resulting damage is caused by:

- I. freezing during or after the installation or inadequate freeze protection;
- II. damage due to tear, breaks, or other external damages before, during or after installation;
- III. components not manufactured or sold by Zurn PEX, Inc.;
- IV. exposure to temperatures and pressures beyond the specified range for Zurn PEX products as specified on the product in the Zurn PEX Design Manual and Installation Guide;
- V. any form of corrosion;
- VI. exposure to ultraviolet light;
- VII. damage or wear from abnormal operating conditions, accident, abuse, misuse, or unauthorized alterations or repair or damage attributable to water discharged as part of a system's normal operating process;
- VIII. exposure to harmful, unauthorized, or unanticipated chemicals or substances;
- IX. failure to install, inspect, or test Zurn PEX Fire Protection Systems in accordance with applicable code requirements, Zurn PEX Residential Fire Protection Systems Installation Guide instructions at the time of installation, and accepted industry practices including, but not limited to, NFPA13D.
- X. malfunction or otherwise improper function of sprinkler(s) installed with a Zurn PEX Fire Protection System, which are not manufactured by Zurn PEX, Inc.

THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES OR OBLIGATIONS, EXPRESS OR IMPLIED, INCLUDING ANY IMPLIED WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE. ZURN PEX DOES NOT GUARANTEE OR IN ANY WAY WARRANT THE INSTALLATION OF ZURN PEX PRODUCTS DUE TO THE WIDE VARIANCE IN INSTALLATION PRACTICES AND OTHER CONDITIONS BEYOND OUR CONTROL. IN NO EVENT SHALL ZURN PEX, INC. BE LIABLE IN TORT OR CONTRACT OR UNDER ANY OTHER LEGAL OR EQUITABLE THEORY OF LAW FOR ANY INCIDENTAL SPECIAL, INDIRECT OR CONSEQUENTIAL DAMAGES.

If you believe that a product fails to meet the above Limited Warranty, you should notify us in writing within 30 days of an alleged failure and prior to expiration of the applicable warranty period set forth above, at the following address:

Zurn PEX, Inc.
116 Maple Street
Commerce, TX 75428
Attention: Product Claims

Notification should include a description of the product, the failed part, model number (if available), date of purchase and/or date of installation, and how the product fails to meet the above warranty. Upon receipt of a written claim under this Limited Warranty and evidence/identification of the date of manufacture of product, and after inspection by an authorized Zurn PEX representative and determination of a manufacturing defect, Zurn PEX, Inc. will reimburse the property owner for reasonable repair or replacement charges, to include drywall and painting as well as damages to real property and the premises within which the product is installed, resulting from the failure or leak. At our option, and in our sole discretion, we will either repair or replace the product with a Zurn PEX product of the same or similar type, size, and like quantity. THESE REMEDIES ARE THE EXCLUSIVE REMEDIES FOR BREACH OF WARRANTY. UNDER NO CIRCUMSTANCES WILL ZURN PEX, INC. BE LIABLE FOR ANY OTHER INJURY, LOSS, DAMAGE OR EXPENSE WHETHER DIRECT, INDIRECT, CONSEQUENTIAL, EXEMPLARY OR PUNITIVE; INCLUDING BUT NOT LIMITED TO LOSS OF USE, INCOME, PROFIT, PRODUCTION OR INCREASED COST OF OPERATION, SPOILAGE OR DAMAGE TO MATERIAL, OR CHANGE OUT COSTS. In order to qualify for a labor allowance to repair or replace defective material, you must contact Zurn PEX in advance and receive written authorization for this allowance. Except as specified above, we will not pay any costs (labor or otherwise) associated with removing previously installed product(s), installing replacement product(s) or return of a product. If, as determined by Zurn PEX, Inc. in its sole discretion, that repair or replacement of the product is not commercially practicable, or cannot be completed in a timely manner, we may refund the ultimate purchase price paid for the product upon verification by providing a copy of your purchase order, invoice, receipt, or bill of sale. No action on the part of Zurn PEX, Inc. under this warranty shall be construed as an admission of liability or that the product is not fit for its intended use.



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