

PEX TUBING FAQ

WHAT IS PEX? Pex is cross-linked polyethylene. Through one of several processes, links between polyethylene macromolecules are formed to create bridges between PE molecules (thus the term “cross-linked”). This resulting molecule is more durable under temperature extremes, chemical attack, and resists creep deformation, making PEX an excellent material for hot water applications (up to 200° F).

HOW LONG HAS PEX BEEN USED? PEX developed in the 1960's. PEX tubing has been in use in many European countries for plumbing, radiant heating and snow melt applications since that time. PEX was introduced in the USA in the 1980's and has seen significant growth in market demand and production.

WHAT ARE RECOMMENDED USES FOR PEX? PEX's flexibility and strength at temperatures ranging from below freezing up to 200 degrees Fahrenheit makes it an ideal piping material for hot and cold water plumbing systems, hydronic radiant heating systems, snow melting applications and even ice rinks and refrigeration warehouses.

WHY IS PEX AN EXCELLENT PIPING MATERIAL FOR PLUMBING? PEX is ideally suited for potable water plumbing applications. It is flexible, making it easy to install and service. PEX is able to withstand the high and low temperatures found in plumbing and heating applications, and is highly resistant to chemicals found in the plumbing environment. Although not freeze proof, PEX also provides the homeowner with many useful benefits. Flexible systems are quieter than rigid piping. The smooth interior resists scale buildup and corrosion that can affect long term pipe flow characteristics. PEX is also very freeze-break resistant. Finally, PEX systems have attractive installation costs when compared with rigid materials. PEX is the best piping material for many plumbing applications, but not for outdoor or UV exposed applications.

HOW CAN I BE SURE THAT PEX IS A SAFE PRODUCT FOR PLUMBING? PEX is manufactured and tested according to stringent national consensus standards: STM F 876 and F 877. Both the product manufacturer and independent third party testing agencies conduct routine quality control and quality assurance evaluations to insure the product meets ASTM and NSF Standards. Compliance with the standards ensures the end user of safety and quality. Additionally, PEX is included in all of the major model plumbing codes used in the USA and Canada, CSA, IAPMO, SBCCI, BOCA, ICBO, IPC and NSPC, and approved by HUD for hot and cold potable water plumbing use.

WHERE IS PEX APPROVED FOR USE? PEX is an approved material in all the current edition national model-plumbing codes; however, some jurisdictions using older versions of these codes may not have amended the code to include PEX tubing. Contact the local authority with jurisdiction over plumbing to verify the acceptance of PEX tubing for plumbing applications in your area.

CAN PEX BE USED UNDER THE SLAB? Yes. The flexibility of PEX allows it to be supplied in coils meaning installations under the slab can be made with a single, continuous length without the need for fittings under the slab. PEX is not affected by concrete or chemicals in concrete (it is commonly encased in concrete for radiant floor heating). PEX, however, must be sleeved when penetrating a concrete slab.

CAN PEX BE USED FOR ABOVEGROUND OUTDOOR APPLICATIONS? No. PEX is designed for indoor and buried applications only and is not recommended for outdoor, aboveground use. Short exposures to sunlight are permissible, not to exceed 30 - 60 days. When storing PEX, it must be stored under cover, shielded from direct sunlight.

WILL PEX SYSTEMS HELP SAVE ON UTILITY BILLS? Yes. Home run or manifold plumbing systems utilizing PEX tubing can substantially reduce water and energy consumption in a home. The home-run concept provides dedicated direct lines from the manifold to the fixtures, reducing the amount of water that must be purged from the lines to get hot water at the fixture. Direct lines can be sized to the fixture requirements, further reducing the amount of time to water for hot water. Faster hot water delivery reduces water waste and the amount of times the water heater must cycle to supply hot water.

WHAT IS THE EXPECTED PERFORMANCE OF PEX WATER DISTRIBUTION SYSTEMS? PEX is designed and tested to perform as well or better than any other material approved for hot and cold water distribution systems. For indoor plumbing applications, PEX is expected to perform as long as copper, CPVC or any other approved plumbing distribution materials.

WHAT JOINING SYSTEMS ARE AVAILABLE? There are several methods of connecting PEX, all of which involve mechanical fittings. There are two approved standard specifications for PEX connections: ASTM F 1807 and ASTM F 1960. Both reference mechanical insert fittings. The crimp fittings specified in ASTM F 1807 are the most widely used. Other fitting systems, including insert and outside diameter compression fittings, are also available. PEX cannot be joined by solvent cement or heat fusion methods.

WHICH MANUFACTURING METHOD FOR PEX IS RECOMMENDED FOR HOT AND COLD POTABLE WATER? There are currently three methods for producing PEX tubing, the Engle or Peroxide method, the E-beam or radiation method and the Silane method. All three processes produce tubing cross-linked to varying degrees that result in a product acceptable for potable water distribution applications. All PEX that has been tested and certified for potable applications carries the mark(s) of nationally recognized third-party certification agencies such as NSF, IAPMO, ICBO-ES, Warnock Hersey or UL.

HOW LONG CAN PEX BE EXPOSED TO SUNLIGHT? PEX tubing is not intended for outdoor applications and must be stored in a covered environment not exposed to direct sunlight. Maximum UV exposure is no more than 60 days.

WHAT ARE TEMPERATURE LIMITATIONS FOR PEX? PEX tubing can be used up to 200°F for heating applications. For plumbing, PEX is limited to 180°F. Temperature limitations are always noted on the print line of the PEX tubing. Recommended 140 max for safety and conservation.

HOW ARE PEX SYSTEMS TESTED FOR LEAKS? PEX plumbing and radiant heating systems can be pressure tested using either water or air to check for leaks. Follow manufacturer's instructions.

HOW SOON AFTER INSTALLATION CAN YOU PRESSURE TEST A PEX TUBING INSTALLATION? PEX plumbing systems can generally be tested immediately after the installation is complete. There is no wait time for glue to dry or joint to cool off. Weather should be considered the manufacturer's instructions followed in cold weather.

WHAT SIZES, LENGTHS AND PACKAGING OPTIONS OF PEX ARE AVAILABLE? PEX is available in 1/4" through 1" CTS (Copper Tubing Size) and is packed in coils or 20' straight lengths. Some manufacturers' tubing is color-coded for easy identification of hot and cold lines. Coil lengths generally run to a maximum of 1000' and are available in a variety of shorter lengths.

IS FLEXIBLE PEX PLUMBED DIFFERENTLY THAN RIGID MATERIAL PLUMBING SYSTEMS? Yes. The flexibility of PEX allows many directional changes to be made without fittings; but, PEX systems are sized in the same fashion as copper or CPVC plumbing systems.

WHAT ARE MANIFOLD PLUMBING SYSTEMS? Manifold or home run plumbing systems are much like a breaker box for the electrical system in the home. The manifold provides a common location from which all the plumbing fixtures are supplied. Some high-end manifolds also feature fixture shut-off valves allowing the user to shut off the water to individual fixtures from one location. Others are semi-home run manifolds or terminatit manifolds, which may feed the plumbing requirements for a room or set of rooms and reduce the number of fittings required in the plumbing system.

HOW ARE PEX SYSTEMS SIZED? PEX systems are sized just like other plumbing materials such as copper or CPVC when used in a branch-and-main installation. To take advantage of utility savings and system performance issues of branch-and-main systems, PEX can be sized in manifold systems to meet the specific demans of each fixture, reducing water and energy waste in the home.

IS THE THERMAL EXPANSION/CONTRACTION OF PEX A PROBLEM? No. While PEX expands more than other plumbing materials, directional changes made with the tubing and some slack in the tubing during installation accommodate the expansion and contraction of the system if properly installed.

IS PEX FREEZE-BREAK RESISTANT? PEX piping is freeze damage resistant and can expand and contract as water freezes and thaws within the tubing. No tubing amterial is freeze-break proof, however, and PEX should be installed using the same locally-prescribed insulation requirements to prevent freezing of any plumbing system.

HOW DO I THAW PEX LINES? When water freezes inside PEX tubing, it can be thaws using a hair dryer, warm wet rags or heat tape, taking care not to overheat the tubing beyond it's maximum recommended temperature.

CAN PEX BE JOINED WITH SOLVENT CEMENT? No. PEX cannot be joined with solvent cement, or heat fusion. PEX is installed using only mechanical fittings either inserted in or around the tubing or by compression fittings.