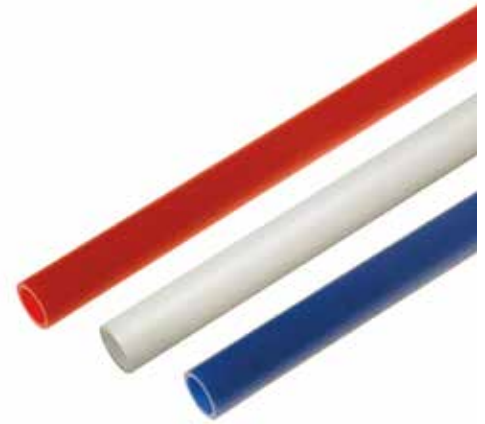


## PEX-B Pipe

PEX-B pipe is cross-linked, high-density polyethylene. It's available in white, red, or blue colors for easy identification of hot and cold water lines.

Pure PEX pipe is type PEX-B (PE-Xb, PEXb). The silane method, also called the "moisture cure" method, results in PEX-B. In this method, cross-linking is performed in a secondary post-extrusion process, producing cross-links between a cross-linking agent. The process is accelerated with heat and moisture. The cross-linked bonds are formed through silanol condensation between two grafted vinyltrimethoxysilane (VTMS) units, connecting the polyethylene chains with C-C-Si-O-Si-C-C bridges.<sup>1</sup>

PEX pipe is for use in hot and cold potable water distribution systems as well as hydronic radiant heating systems. PEX pipe can also be used in "continuously recirculating" plumbing systems up to 140°F while maintaining chlorine resistance.



### Features:

- Tough
- Flexible
- Less expensive than other plumbing materials
- Copper tube size dimensions (CTS)
- Available in white, red, or blue
- 25-Year warranty

### Standards / Certifications:

- PEX 5106 - SDR 9
- Meets ASTM F876/F877
- cNSFus-pw
- ANSI/NSF Standards 61 & 14
- cUPC
- CSA B137.5

### Pressure & Temperature:

- 160 psi @ 73° F, 100 psi @ 180° F

### Installation:

To cut PEX pipe, use a PEX pipe cutter and cut at a 90° angle. Clear the cut end of any burrs or debris. PEX pipe can be run through holes drilled into the center of studs or by using straps and hangers. Bend supports can be used to make bends and angles instead of having to cut the pipe and use fittings. A variety of barb fittings or push type fittings can be used with PEX pipe. Do not expose PEX pipe to direct sunlight.

**It is recommended to insulate hot water lines with standard foam polyethylene pipe insulation to prevent heat loss. If installing in an area that experiences harsh winters, it's recommended to insulate both hot and cold water lines to prevent freezing.**

<sup>1</sup> [http://en.wikipedia.org/wiki/Cross-linked\\_polyethylene](http://en.wikipedia.org/wiki/Cross-linked_polyethylene)

Fluid Capacity of Pure PEX Pipe	
Nominal Size	Gallons/100' of PEX Pipe
3/8"	0.53
1/2"	0.96
3/4"	1.40
1"	3.10

## **Do Not Use with PEX**

Liquid-based leak detectors, adhesive tape, pipe dope, linseed oil, threading compound, putty, mineral oil, petroleum products, metal pipe hangers.

## **Leave Excess Pipe**

Leave extra pipe at the beginning and end of runs to simplify connection to manifolds and end points and to make connections without straining the pipe or connection. Immediate connection to a manifold or transition fittings and then making the run reduces the chance of cutting pipe too short.

## **Identify Pipe Runs**

Clearly and permanently mark each run at each end to identify the fixture it supplies (hot or cold water, bathroom sink, kitchen sink, basement toilet, etc). Do not apply adhesive labels to PEX pipe.

## **Thermal Expansion**

Because PEX tube expands and contracts at about 1" per 100' of pipe for every 10°F change in temperature you must allow for expansion and contraction in long runs. This can be accomplished with an offset or expansion loop.

## **PEX and Concrete**

Pipe installed within or under concrete slabs should be continuous lengths of PEX tube. Do not install fittings beneath concrete.

## **Minimum Bend Radius**

Do not bend tube too tightly. The minimum recommended bend radius is six times the tube size (i.e. ½" tube = 3" bend radius). When making a 90° turn, use bend supports.

## **Pipe Hangers**

Plastic hangers are recommended for use with Pure PEX pipe. To prevent noise transfer, only use hangers that keep the tube off of the nailing surface. Hangers should be used every 32" on horizontal runs and every 4' on vertical runs. Allow the tube to dip between hangers and never over tighten. To prevent stress on the crimp joints, always support pipe before and after the fitting.



## **Tube Through Studs**

Grommets should be used when running pipe through studs to prevent damage and reduce noise transfer. Pipe that is run within 2" of a stud nailing surface must be protected with a metal stud guard.



## **Stubouts**

A copper stubout may be used to exit a branch from a wall. If a stubout is used, take care not to rotate the connection when cutting the end off. Always check local codes on the use of copper stubouts.



## **Trenching**

If PEX pipe is placed in a trench, leave sufficient excess to allow for expansion and contraction when temperatures change in the pipe.

## **PEX Pipe at Expansion Joints**

Add a protective layer of insulation or place the pipe into the material underneath if installing PEX pipe under expansion joints.

## **PEX Pipe and Water Heater Installation**

PEX water lines must not come within 18 in. of the water heater, nor less than 6 in. to the side or less than 12 in. above the water heater metal vent.

## Temperature and Sunlight

Keep PEX pipe away from extreme temperatures - 12" away from recessed lighting and 6" away from gas vents. Also, keep away from attics, crawl spaces, outside walls, or insulate per plumbing codes. Keep out of direct sunlight.

## Excessive Pressure and Temperature

Pure PEX and Pure Link pipe is rated up to 160 psi at 73° F or 100 psi at 180° F. Exceeding these ratings will void the warranty.

## Excessive Heat

Soldering - Do not solder near PEX pipe.

Water Heaters and Boilers - Use a minimum of 18" of metal pipe to transition between PEX pipe and the water heater/boiler.

## Freeze Protection

PEX is resistant to freeze damage, but freeze protection is recommended that is typical to the area where installing. Fittings and connections can be damaged if the plumbing system freezes.

## Thawing a Frozen System

Do not send electrical currents through a PEX plumbing system. Do not use an open flame to thaw a PEX plumbing system. A hot air gun may be used as long as the temperature does not exceed 300°F (149°C). Do not use a hot air gun on one spot for more than five minutes at a time. Do not heat pipe until it changes color.

## Damaged Pipe

Do not splice PEX pipe in inaccessible locations. If a splice is necessary at a point underground, insulate the coupling and splice point to protect it from corrosion and stress. Always perform a leak and pressure test after making a splice.

## Bundling Lines

Run hot and cold lines in separate groups to avoid transferring heat between hot and cold lines.

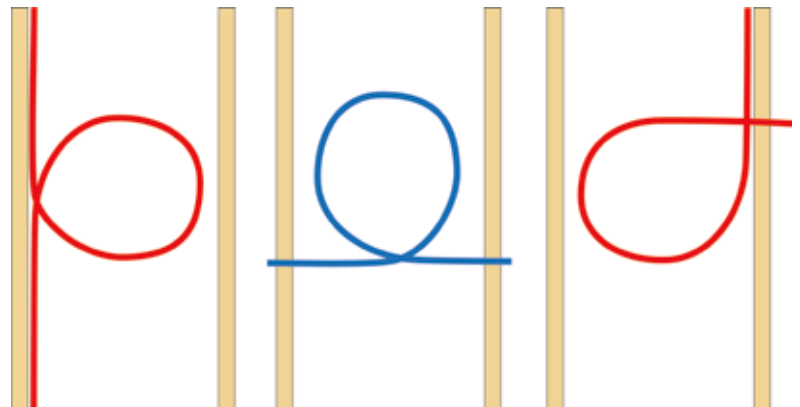
## Inspection

Always inspect PEX pipe for damage and proper fastening prior to testing. Also, check all fitting and manifold connections. Repair or replace as needed. Pressure test the system with air or water at completion.

## Expansion Loops

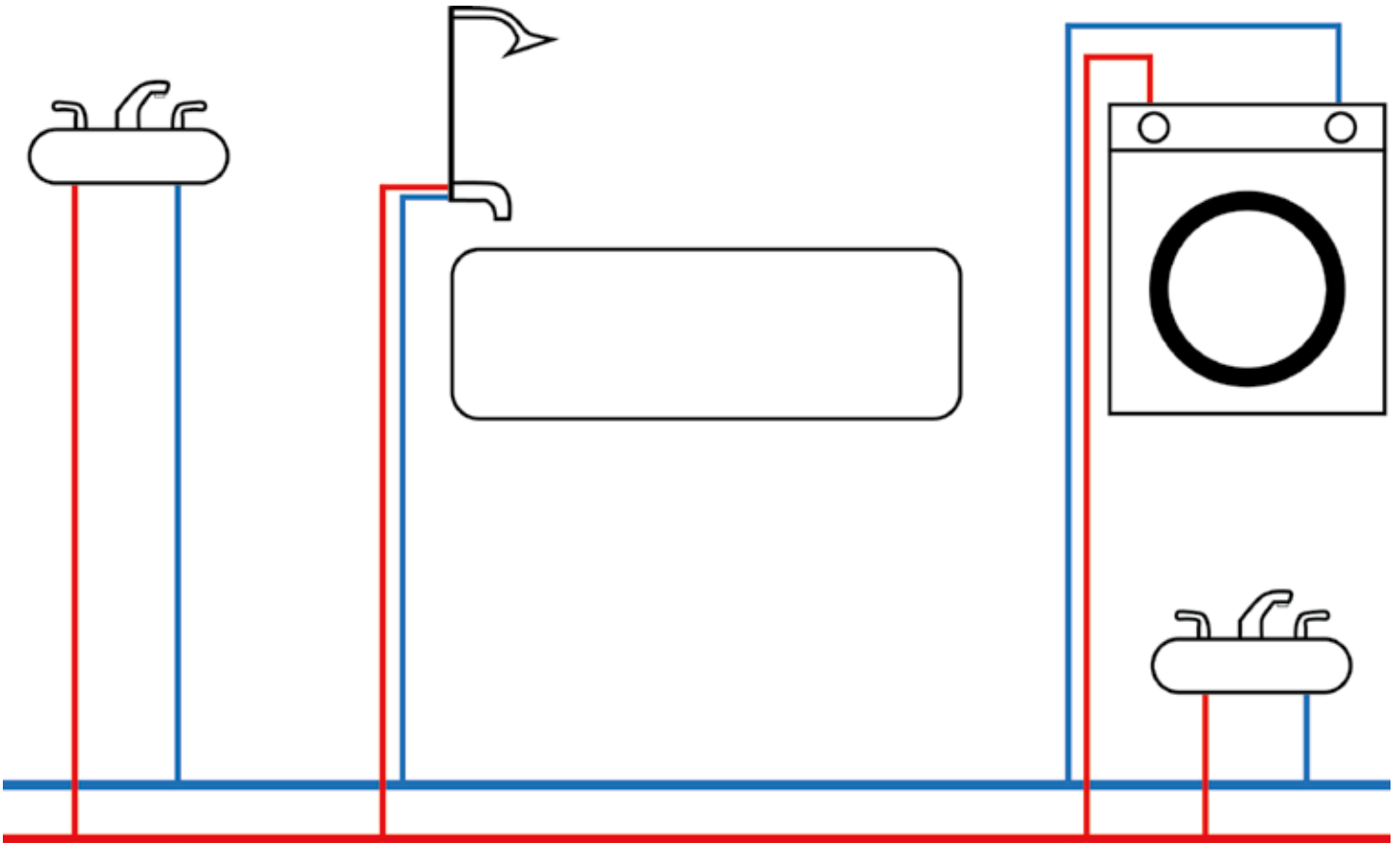
PEX pipe expands and contracts approximately 1" per 100' of pipe for every

10°F change in temperature. Because of this expansion and contraction, expansion loops should be installed to compensate for these changes without damage to the plumbing system. When creating an expansion loop, make sure there is adequate space for the loop to expand and contract. Do not install the loop so it's touching studs or joists on both sides. These loops will expand when the pipe is heated and contract when the pipe cools or the building is unheated.



## Conventional Plumbing Method

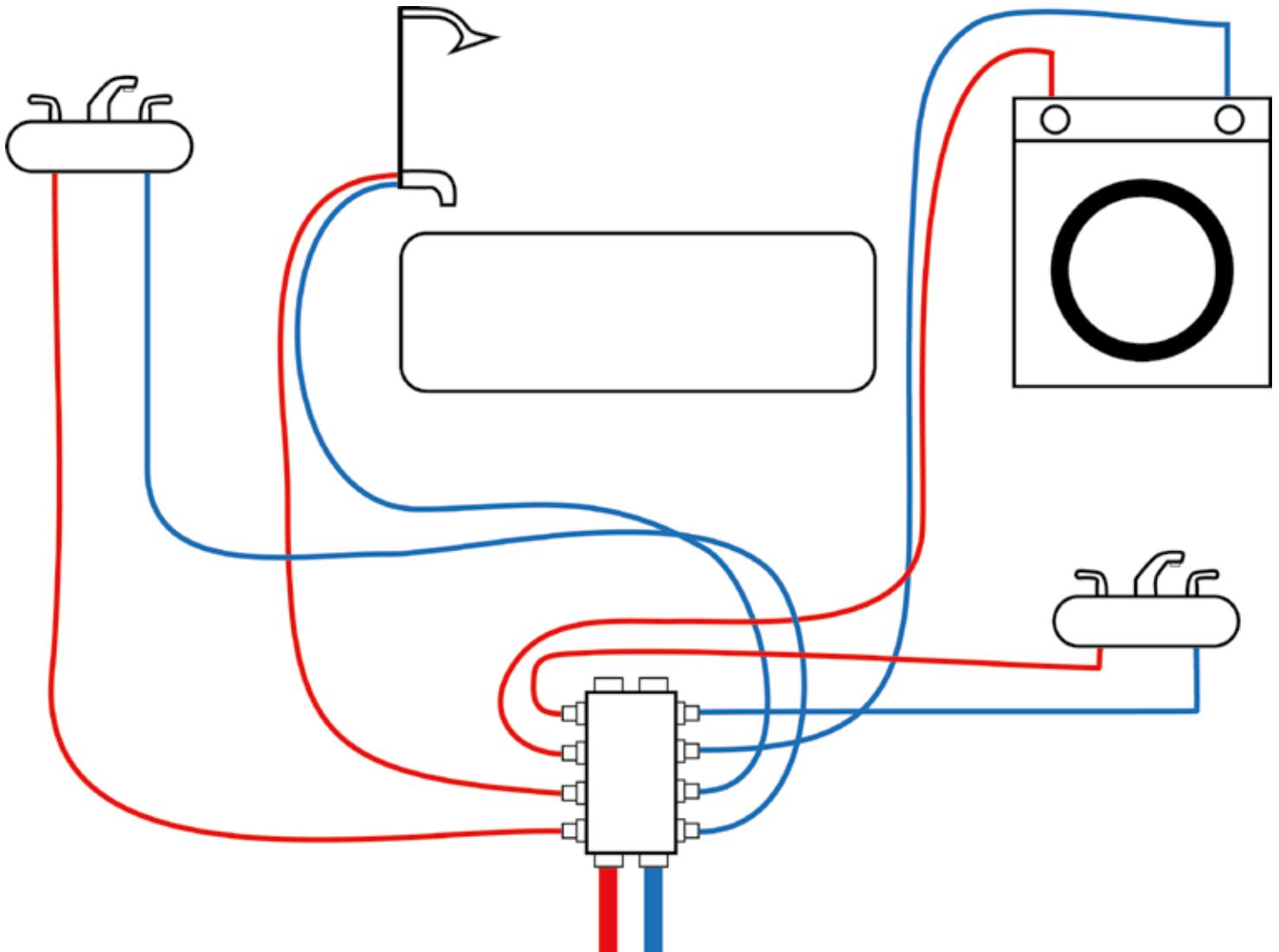
The conventional (or trunk and branch) method has one main trunk line with smaller branch lines delivering water to various fixtures. This method uses PEX pipe with push or barb fittings and is the fastest, easiest way to get water from meter to fixtures. However, long waits for hot water often occur.



## Manifold or Home-Run Plumbing Method

The manifold or home-run plumbing method provides a distribution point to all fixtures. This method uses PEX pipe with a manifold consisting of the same number of ports as fixtures available, and push or barb fittings. Manifolds offer a variety of benefits:

- Control water at one central location.
- Faster delivery of hot water.
- Save Time and Money - Manifolds allow you to make longer continuous runs of PEX pipe, meaning you buy fewer fittings and spend less time installing.
- Fewer Possible Leaks - Longer continuous runs with fewer crimp connections means fewer chances of leaks and avoiding the possibility of thousands of dollars in water damage.
- Controls Scalding - When plumbed so that each branch line feeds only one fixture, the manifold greatly reduces pressure fluctuations and temperature swings that cause scalding.
- Quiet Plumbing - Longer runs of pipe using fewer fittings means smoother bends and turns which reduces line noise and “water hammer”.



## Manifolds

Each manifold has a galvanized back plate for easy mounting to any structure. The cover plate, for labeling purposes, is constructed of 1/4" ABS. All manifolds are bolted to the back plate, rather than screwed. Each manifold consists of two inlet ports that supply the dual chambers. Typically one inlet is used for cold water supply, and the other inlet is used for hot water supply. However, both inlets may be used for either hot or cold water. The inlets are not temperature specific. The water inlets connections are 3/4" PEX Barb, The outlets are 1/2" MPT. 1/2" FPT Swivel x Barb valves are included.

Each manifold is individually boxed, and includes red and blue labels for indicating the destination fixtures. Keep the manifold in it's carton until ready for installation. Protect the manifold from dust and debris until plumbing system is fully installed.

### How To Install:

1. Count the number of cold and hot water locations in the house. Be sure to include outside hose bibs and the refrigerator ice maker.
2. Make sure the manifold has as many ports as the house has hot and cold locations.
3. Find an accessible location near the water heater, but not closer than 18" from the water heater outlet, to place the manifold.
4. Attach the shut off valves.
5. Position the manifold in the desired location and nail or screw the mounting bracket to the studs. Make sure all valve handles have room for operation.
6. Attach 1/2" PEX pipe to the inlets and outlets and crimp or clamp securely. Close and cap all unused manifold ports.
7. Label each connection to the water location it supplies. Labels are included with each manifold.



### Manifold Installation Warnings:

- Before and after installation, ensure manifold is kept in a location with limited exposure to chemicals, paint, hazardous materials, debris, excessive heat, direct flame, or moving objects that could cause damage.
- The manifold should be located in an area that will not be covered permanently with sheetrock, plywood, or paneling.
- Manifolds should not be installed or kept in a location exposed to freezing temperatures.
- Do not allow water to freeze in the manifold.
- Do not use pipe dope or tape to seal any fittings on the manifold.
- Care should be taken not to over or under tighten fittings.
- Distribution lines must connect to the connecting valves in a straight line perpendicular to the manifold as to avoid bending stress on the valves.
- Manifolds should be installed per all local and national building/plumbing codes. Where a conflict exists between installation instructions and local requirements, the local codes shall take precedence.
- The installer must also meet all qualifications required by the state and/or local administrative authority administering the provisions of the code where PEX piping is installed.
- The Mosack Group, Inc. is not responsible for leaks and property damage caused by failure to follow the installation instructions.