



Qual-PEX Pipe-in-Pipe

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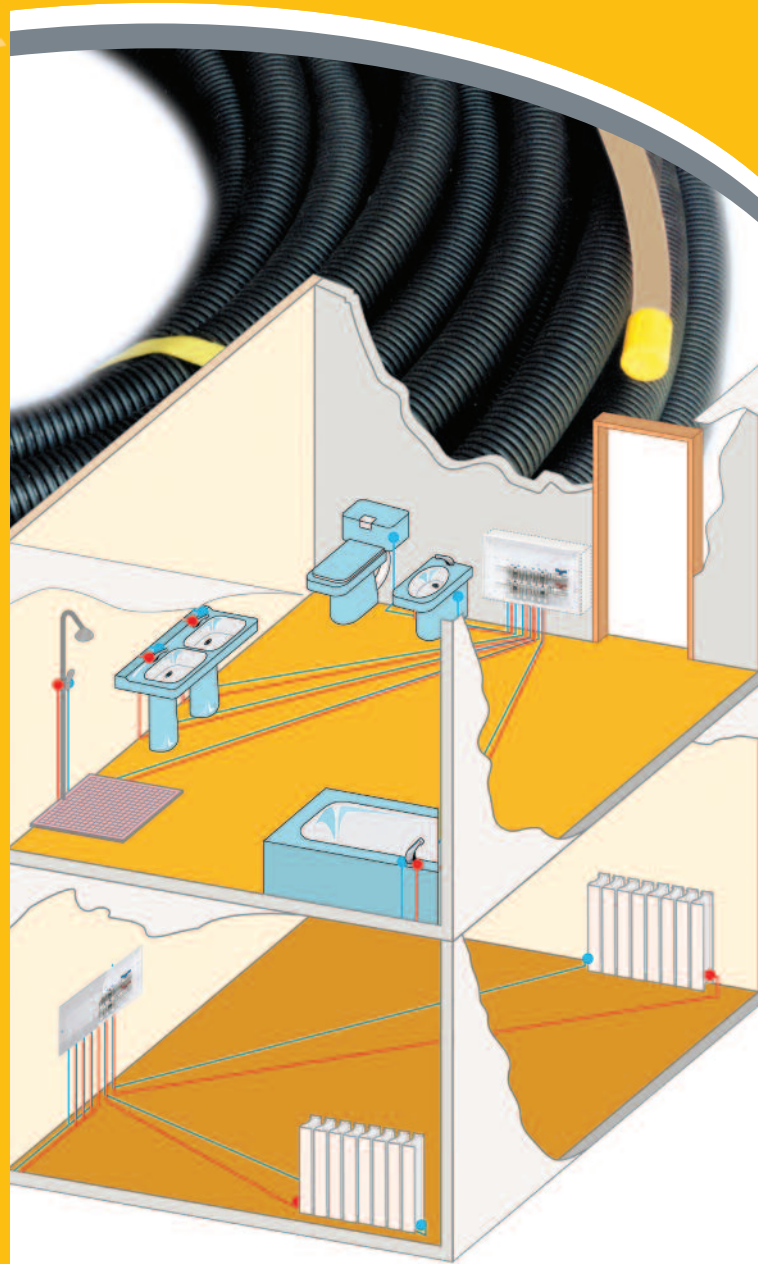
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Installation Overview

The manifold plumbing concept is relatively simple. Each radiator or water connection is fed by its own dedicated line which runs from a central manifold.

The pipe used in all Qual-PEX Pipe-in-Pipe products is Qual-PEX Barrier Pipe which is certified to BS 7291 Class "S".

The Qual-PEX Pipe-in-Pipe system makes use of an outer protective conduit pipe into which, the Qual-PEX plumbing/heating pipe is pre-installed. The Qual-PEX Pipe-in-Pipe system is developed for concealed installations within the structures of either the floor screed, or the walls. The Qual-PEX Pipe-in -Pipe system eliminates joints within structural elements of the building.

If, for example, mechanical damage occurs to the Qual-PEX pipe, then any leaking water will be conducted in a controlled manner along the conduit pipe, back to a visible location either at the manifold or the radiator/appliance.

BY PROVIDING EACH OUTLET WITH ITS OWN DISTRIBUTION LINE, QUAL-PEX MANIFOLD SYSTEMS COUPLED WITH QUAL-PEX PIPE-IN-PIPE OFFER:

- Quieter water flow.
- More balanced water pressure.
- A reduction in the number of fittings required.
- The ability to save both water and energy, versus traditional system designs.
- Faster installation saves time and money.
- Increased protection against water damage, as the outer conduit provides early indication of damaged pipe.
- Replaceable, an accidentally damaged pipe can be replaced. The old pipe is simply pulled out as a new one is pulled in.

50 YEAR GUARANTEE



The Qual-PEX Pipe in Pipe system is guaranteed against any material or manufacturing defect for a period of 50 years under normal service conditions.

Guidelines for laying Qual-PEX Pipe-in-Pipe

- Qual-PEX pipe shall be run continuously and as directly as possible between fixture and manifold locations.
- Install Qual-PEX Pipe-in-Pipe cautiously to avoid binding, kinking, or abrasion.
- The recommended maximum "circuit length" for radiators is 30 metres.
- Plumbing supply pipes should comply with the requirements of WRAS in respect to the maximum length of dead legs.
- Mark the end of each run with a permanent marker to identify the fixture it supplies (hot or cold water).
- Leave excess Qual-PEX at the beginning and end of runs for connection to fixtures and the manifolds.
- Qual-PEX Pipe-in-Pipe should not be pulled tight. Leave slack to allow for expansion and contraction.
- At all times the recommended clipping distances must be observed.

Clipping Distances

Average Service Temperature

	20°C	60°C	80°C
1/2" Qual-PEX			
Horizontal	500mm	400mm	300mm
Vertical	800mm	600mm	500mm
3/4" Qual-PEX			
Horizontal	800mm	600mm	500mm
Vertical	1200mm	1000mm	800mm

- Building regulations and requirements of local building authorities must be complied with in the planning and installation of the pipe system.
- Although Qual-PEX is resistant to frost burst to -20 degrees C all pipe work in exposed areas must be insulated to prevent water from freezing and to conserve energy.
- Insulate all hot water pipe runs where the code requires.

As a general rule, all service pipes should be installed within the insulating envelope of the building.

The Qual-PEX Pipe-in-Pipe system should be installed in such a way that the inner Qual-PEX pipe can be easily replaced inside the corrugated conduit without breaking the structures. For reasons of replacement, it is necessary, when bending the piping, to take into account a minimum bending radius for Pipe-in-Pipe systems, $(R) = 8 \times \text{conduit diameter}$ (200 mm for ½" (15mm) Pipe-in-Pipe, and 250mm for ¾" (22mm) Pipe-in-Pipe).

To facilitate ease of replacement, it is recommended that bends of 90 degrees - corresponding to the minimum bending radius (R) should total four (4) at most in each connecting pipe, and that the maximum length of the connecting pipe should be 15 metres. Also, the conduit must be supported at both sides of the bends (when fitted in a ceiling void) to make it immobile at these points.

Fixing



The Qual-PEX Pipe-in-Pipe system can be fixed directly onto a concrete sub-floor or rigid insulating system using the appropriate fixing hooks. The minimum depth of cover above pipes placed in a floor screed should be 35mm. To prevent pipes from "floating up" during the concrete pour fixing hooks should be spaced at one metre intervals. Where pipes enter or exit the floor structure the minimum bending radius relative to the bore of the Qual-PEX inner pipe must be adhered to.

Connections to radiators and plumbing appliances. Pipe in Pipe Conduit Elbow and Guide Piece

Cut back the end of the corrugated conduit (150 - 200 mm), to expose the inner Qual-PEX pipe.

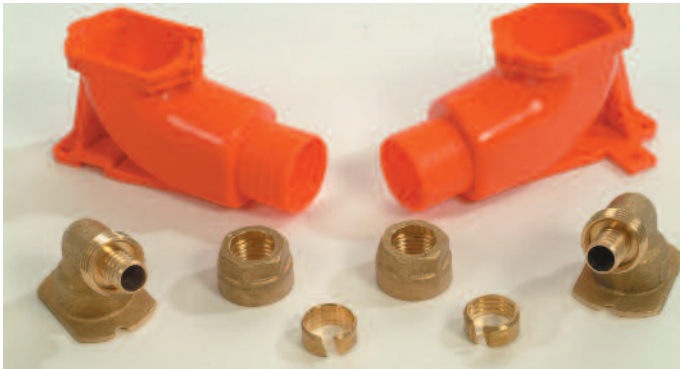
- Take care not to damage the inner Qual-PEX pipe, while cutting conduit, by using the correct conduit cutting tool.
- Thread the inner Qual-PEX pipe end through the Plastic parts of the elbow set, in the correct sequence, until the conduit reaches the top of the main plastic housing.
- It is advisable to provide 300-500 mm excess length at the manifold end of the pipe, because it will be moved back and forth when the connections are being made.

- With the Qual-PEX pipe extended through the top of the elbow, carefully form the bend and secure the Pipe-in-Pipe to the lower end of the Elbow set with the plastic collet ring.
- Place the bend support former into the housing and fix the housing firmly with screws to the structure below. This is necessary to prevent the pipe from kinking with thermal expansion and contraction.
- The Qual-PEX pipe is ready to be cut and connected to the radiator valve.
- This fitting can be installed in the wall behind the radiator valve or plumbing appliance or in the floor underneath the radiator valve.
- Cut back the end of the corrugated conduit, to expose the inner Qual-PEX pipe.
- The end of the inner Qual-PEX pipe is pushed through the protective plastic housing; the corrugated outer conduit terminates within the housing.
- The plastic housing is then secured to the wall or subfloor.
- If used vertically on a wall, the conduit should be fixed firmly to the wall below the housing using a pipe fastening hook or standard pipe fixing clip.
- The brass elbow, compression nut and split ring are fitted onto the pipe end, compressed tight, and eased back into place (carefully pushing the pipe back through the conduit) inside the housing.
- The elbow is locked in place by tightening the two brass screws into the housing.

A standard braided flexible plumbing connector with ½" Male BSP Thread or ½" (15mm) compression x ½" BSP Male Coupling is fitted to the brass elbow connector and connected to the plumbing appliance or radiator.

Guidelines to Positioning of Manifolds

- The manifolds should be located so they can be easily installed and serviced.
- Manifolds can be installed in a horizontal or vertical position.
- In larger installations, a number of remote manifolds may be used to handle groups of outlets.
- The manifold should ideally be located in a central position relative to the group of outlets it serves.
- Primary connections: Manifolds are connected to the main water supply, water heater or Heating boiler with larger bore pipe, ¾" (22mm) or 1" (28mm).
- Secondary connections: Each radiator or water outlet is fed by its own dedicated line from the manifold, usually ½" (15mm) or 12mm.
- Approved fittings may be used to repair kinked or damaged Qual-PEX Pipe-in-Pipe distribution lines, but these need to be made accessible (for retractability purposes).



Connections to Manifolds

- The Manifolds should be installed at a sufficient Height (about 250mm-400mm) above the floor, so that the pipes can be installed straight and without tension.
- Manifolds are fixed to the wall, using the wall bracket
- Cut and connect Primary pipes to the manifold headers using Manifold Header connectors ¾" (22mm) or 1" (28mm).
- The Qual-PEX pipe is not normally connected to the manifold until the other end of the pipe is connected to the radiator or plumbing appliance, which has been fitted in place.
- Clear markings at the end of each run with a permanent marker that identifies the fixture it supplies (hot or cold water) will reduce the risk of cross connections.
- When connecting pipes to manifolds, do not cut the Qual-PEX to the exact length.

Allow extra slack (S) to account for some slight reversion of Qual-PEX after the initial heating. (S) = 10% of Height of the manifold header above the floor.

- Qual-PEX should be cut square using the appropriate wratchet pipe cutters
- Ensure the joint area is free from damage or abrasions
- Push correct sized Qual-PEX thermoplastic insert into the pipe.
- Place the manifold connector - compression nut and ring on the pipe.
- Insert the pipe into the relevant manifold port and tighten fully to secure the joint.

Note: The conduit sleeve does not negate the requirement to insulate pipes when they pass through unheated spaces.

System Pressure Testing



(Mandatory for guarantee to be valid.)

The purpose of system testing is to identify any points where leakages occur at a time when they can be repaired as easily as possible, regardless of their causes. Testing takes place immediately after first fix installation, and before the pipe work is completely covered over. For systems with Mechanical connectors, high and low pressure testing is mandatory.

Low-pressure test = 3 Bar (air or water) for 15 minutes.

High-pressure test = 6 Bar (air or water), or a pressure of 1.5 times the pressure relief valve setting (whichever is the greater) for 1 hour.

N.B. When testing is complete, the test pressure is discharged from the system, where there is a risk of freezing conditions.

