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BEAMA UNDERFLOOR HEATING – GUIDE TO TYPES OF UFH PIPEWORK

GUIDANCE FOR SPECIFIERS AND INSTALLERS

- Types of pipe
- Where best to use different types of pipe

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DISCLAIMER

Published in Great Britain in 2019 by BEAMA Underfloor Heating (the UK's underfloor heating trade association), Rotherwick House, 3 Thomas More Street, London E1W 1YZ

askforunderfloor.org.uk

www.beama.org.uk/underfloorheating.html

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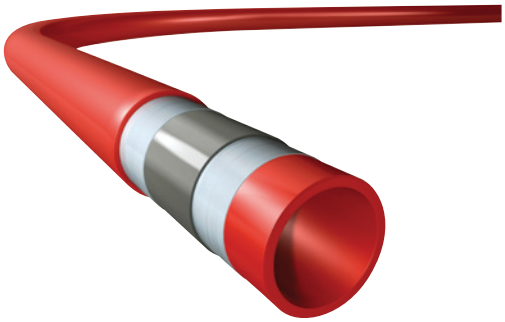
INTRODUCTION

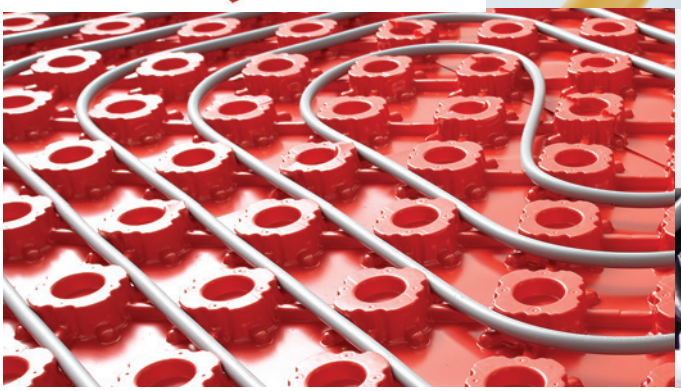
Cross Linked Polyethylene Pe-X, Polybutylene PB, and Multilayer Pe-X / Al / Pe-x are the three most widely used types of UFH pipework. Each has its own individual characteristics, and has an appropriate place in the UFH market. All must have an oxygen barrier and be approved to the following standards detailed below.

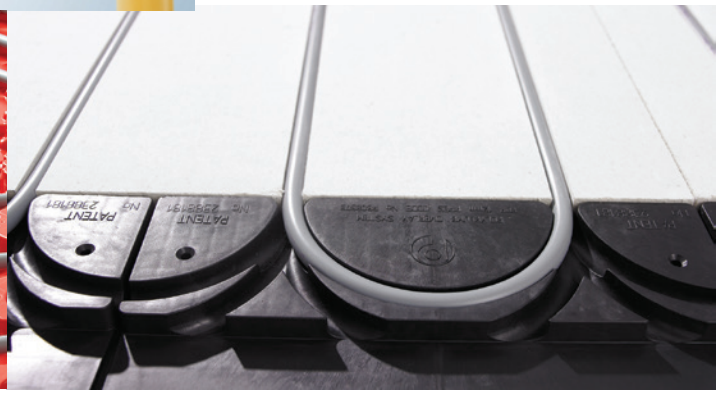
The oxygen barrier can be either a chemical layer, as in the Pe-X and PB pipes, or as a solid aluminium barrier as in the Pe-X/Al /Pe-X Multilayer pipe.

It is important that an approved underfloor heating pipe that will last the lifetime of the building is utilised. Plastic Underfloor Heating Pipes **MUST** comply with the following Standards:

- PE-X: EN ISO 15875 (parts -1, -2, -3 and -5)
- PB EN ISO 15876 (parts -1, -2, -3 and -5)
- Multilayer Piping Systems EN ISO 21003 (parts -1, -2, -3 and -5)







1.
PE-X (CROSS LINKED POLYETHYLENE) PIPE

Pe-X systems are very cost effective due to competitive purchase costs, the ability to be reformed if kinked by applying a little heat, and also being very good at transmitting heat. This type of pipe is best suited to being installed in a traditional screeded floor.

Pe-X pipe does have a high coefficient of thermal expansion so is not particularly suitable for "dry" systems where expansion may result in a noise issue with the pipe creaking when expanding/ contracting. In a "wet" system, the screed grips the pipe so linear expansion is prevented and any expansion is found in a minuscule change of internal diameter.

Although PEX pipe is very robust, it can be relatively stiff and when taken from the coil retains a 'spring' like quality, which can make it difficult to work when installing through joists or floors, or in cold conditions.

PE-RT pipe is also available for 'Raised Temperature' applications and has the NSF-rfh rating for radiant heat systems

HIGH LINEAR COEFFICIENT THERMAL EXPANSION CIRCA 0.14mm/mK

2.
PB (POLYBUTYLENE) PIPE

PB systems are not quite as good at conducting heat as Pe-X pipes, and cannot be reformed if kinked. It will generally have a heat output some 6% less than a Pe-X or Multilayer pipe.

PB pipe does have a high coefficient of thermal expansion so is not particularly suitable for "dry" systems where expansion may result in a noise issue with the pipe creaking when expanding/ contracting. In a "wet" system, the screed grips the pipe so linear expansion is prevented and any expansion is found in a minuscule change of internal diameter.

Polybutylene pipe is more flexible than Pe-X pipe and when you uncoil it is lays flatter so it may be easier to work with than Pe-X in some applications.

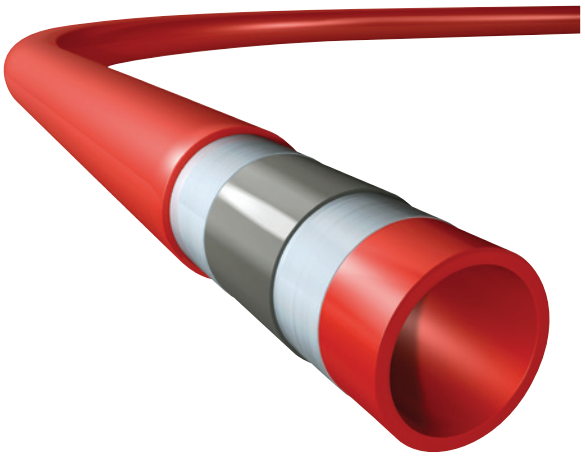
HIGH LINEAR COEFFICIENT THERMAL EXPANSION CIRCA 0.14mm/mK

3.
MULTI LAYER PE-X/AL/PE-X PIPE

Multilayer pipes are a little more expensive that the other two types of pipes and again, cannot be reformed if kinked, They are however very good at transmitting heat.

This type of pipe is easy to install due to its outstanding flexibility and is equally suited to screeded or dry floor systems. When handling, this pipe is very stable in form, and does not spring back to its previous shape.

This pipe has a very small amount of linear expansion so creaks are not heard during heat up/cool down times. This pipe is therefore particularly suited to "dry" applications where its minimal expansion contraction qualities ensure that expansion/contraction noises are avoided.



LOW THERMAL EXPANSION CIRCA 0.026mm/mK

MORE INFORMATION

For more information about BEAMA, the Ask for Underfloor campaign and underfloor heating, please visit www.askforunderfloor.co.uk.

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