

Plumbing & Heating Systems

The Total Plumbing Solution...

POLYFIT
The **FAST** and **DEMOUNTABLE** system



PUSH FIT

POLYPLUMB
The **FAST** and **PERMANENT** system



PUSH FIT

POLYSURE
The **SLIM** and **PERMANENT** system



PRESS FIT



Product Guide February 2012

Polypipe Plumbing & Heating Systems:



Polypipe is the UK's leading and fastest growing manufacturer of plastic plumbing products for hot and cold plumbing and heating systems. Our products serve the domestic market, providing installers and end users with easy to install, reliable products.

At Polypipe we have a commitment to delivering products that meet every conceivable need within our chosen market sectors, with each range designed to provide outstanding innovation, performance and value.



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In this Product Guide any references to generic terms such as "the products", "our plumbing systems", or similar terms, are intended to refer to Polyplumb, Polyfit and Polysure systems.

The Manufacturer of Choice

Polypipe is a key player in the UK plumbing market with an unrivalled reputation for innovation, service and value.

In recent years, Polypipe has consistently outstripped the overall market growth of plastic plumbing & heating systems as a growing number of merchants, developers, installers and consumers recognise the benefits of the company's product offering.

At the heart of the Polypipe range is a firm belief in creating products suited to specific applications. Long since recognised for our Polyplumb and Polyfit ranges, we have now added Polysure as the first radial press fit plumbing system available in UK sizes. All three ranges are fully described in this product guide.

Backing up our versatile collection of fitting types is our commitment to polybutylene pipe, which combines to create the most flexible and efficient plumbing and heating solutions available.

Polypipe is also recognised for its innovative channel support initiatives, which provide merchants, developers and installers with access to a wide range of market support, including literature, point of sale materials and technical information.

With great products, great service and great value, backed by outstanding channel support and a track record for product and market innovation, Polypipe is increasingly becoming the plumbing sector's manufacturer of choice.



About Polypipe

With an enviable reputation for a broad product range, reliability and value, Polypipe is one of Europe's largest and most innovative manufacturers of plastic piping systems for residential, commercial and infrastructure sectors. People trust Polypipe to deliver tried and tested, cost effective system solutions across the spectrum of construction projects and market sectors.

Operating 17 manufacturing and operations sites, Polypipe manufactures over 16,000 SKUs across multiple product sectors for the residential, commercial and infrastructure markets - the widest range available in its market sector.

Polypipe meets, and strives to exceed, the changing regulations governing our operations and products. We are proud of our record in introducing new product systems to meet changing environmental and regulatory issues.

Polypipe at a glance

- 2000 employees across UK, Europe and the Middle East
- 17 manufacturing and operational sites
- 30 principal brands
- 16,000 products
- 100 worldwide patents and designs
- 550 trademarks registered or pending
- 40 UK and European product approvals
- 20 sustainable product systems



Plastic Plumbing & Heating Systems: Outstanding Performance & Value

The development of plastic plumbing solutions has been a significant feature of the building products market for more than 20 years.

Copper is, by its very nature, a fixed and inflexible material that requires time consuming joint processes during installation.

As a traded metal, copper prices are also subject to the fluctuations of commodity markets with resulting instability in manufacturing costs and product prices. A further consequence of price volatility is the tendency for copper, and other metals, to be the target of theft.

By contrast, modern manufacturing technology and ongoing material development allow innovative solutions in plastic that are faster to install, highly durable and secure in use.

Plastic systems offer greater flexibility and choice, both in pipe and fittings, and provide high standards of performance alongside great value.

**EVERY
JOB IS
COVERED!**

Application Driven Product Solutions

Plumbers know that no two jobs are the same. You choose your product solution to fit the application. This is why Polypipe has developed a Total Plumbing Solution. You assess your job, select the most appropriate Polypipe system, match it with the correct Polypipe pipe, and install the system with confidence. Every job is covered.

Use the overview below as a quick guide to our product systems and consult the individual product sections within this product guide for more detailed product information. Or visit our dedicated plumbing systems website at www.totallyplumbing.com.



POLYFIT

The **FAST** and **DEMOUNTABLE** system

**PUSH
FIT**



Choose Polyfit when you need speed and demountability

- The "push-click, that's it" feature of our Polyfit system makes it the market leader in speed to fit
- With its unique one-step operation, with no need for a quarter locking turn, Polyfit will lock tight for a secure fit and to prevent accidental release
- Polyfit systems can be easily demounted and re-used if required

POLYPLUMB

The **FAST** and **PERMANENT** system

**PUSH
FIT**



Choose Polyplumb for a fast, reliable and permanent fitting

- Our original plumbing system, using technology tried and tested for over 30 years, Polyplumb provides a superb combination of fast fitting with a permanent, reliable fix
- Polyplumb offers a one-step joint process, with joint integrity assured by a high performance, stainless steel grab ring within the fitting
- Only demounted by dis-assembly, reducing the risk of tampering
- Polyplumb fittings are also used extensively in our underfloor heating systems

POLYSURE

The **SLIM** and **PERMANENT** system

**PRESS
FIT**



Choose Polysure when you want a slim and secure fitting

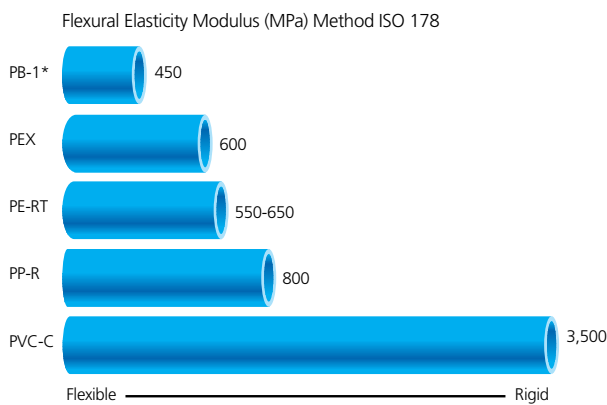
- Polysure is the first plumbing fitting to bring you the best in emerging radial press fit technology in UK sizes
- Polysure fittings are slim profile and are applied using a specialist pressing tool to ensure the most secure and permanent fix, making it the ideal system for applications where a tamper proof solution is important
- Polysure provides an enhanced joint to pipes via a visual pipe socket depth indicator and double "O" ring seal

Polybutylene Pipe: Flexible & Sustainable

At the heart of our systems is our commitment to polybutylene pipe. Unlike a number of other plumbing manufacturers, we choose polybutylene to create the most flexible and efficient pipes and plumbing systems available. Polybutylene pipe is ideal for both domestic hot and cold water plumbing and heating systems, offering exceptional durability and long-term performance, which has seen it become the preferred material choice for today's building projects.

The most important characteristic of polybutylene is its natural flexibility, allowing you to bend, curve and manipulate the pipe into even the tightest of spaces. Polybutylene is the most malleable plastic used in the manufacture of piping systems.

The table below shows the modulus of elasticity or rigidity of polybutylene compared with a range of piping systems:

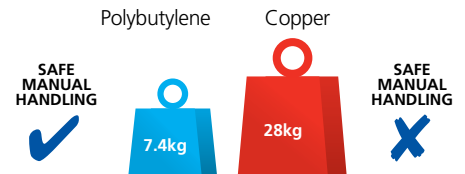


*PB-1 is the chemical name for Polybutylene

Within the manufacturing cycle polybutylene doesn't require chemical or radiation cross linking, which reduces the number of production processes, leading to faster and more efficient manufacturing.

Another key advantage of polybutylene pipe is that it is extremely lightweight, particularly when compared with copper piping systems. For example, 15mm copper tube will weigh approximately 0.28kg/m, whereas 15mm polybutylene pipe weighs only 0.074kg/m, a significant difference of 75% on consignment weight when transporting materials to site.

Weight comparison of 100m of 15mm tube

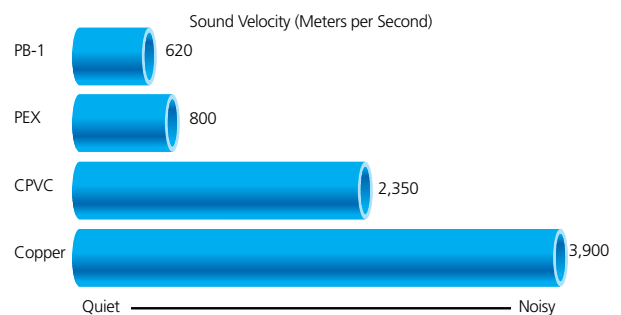


Polybutylene pipe has good resistance to freezing temperatures, maintaining long-term durability in heating and water applications. This, combined with the pipe's elasticity, means that if water is subjected to freezing temperatures, the result will be a reduced possibility of burst pipes (for special precautions to be taken in surface / underfloor heating systems see page 30).

Polybutylene pipe has low thermal conductivity. Its co-efficient of thermal expansion is $1.3 \times 10^{-4} \text{m/m}^\circ\text{C}$. It accommodates expansion by its natural flexibility.

Our plumbing systems give better performance than rigid pipe systems in terms of low noise transmission and low water hammer effect.

The table below highlights the sound velocity of polybutylene pipe compared with other materials:



Polypipe Building Products is a member of the Polybutylene Piping Systems Association (PB.PS.A), which is a recognised association of companies whose aim is to promote the features, benefits and best practice installation techniques of polybutylene pipe systems, as well as providing a wide range of technical information and support

Pipe selection

Cut length or "Plumb straight"

Although "Plumb Straight" coiled pipe is designed to effectively straighten when un-coiled, where the visual appearance of pipe is important, i.e. short visible sections of 22mm pipe in cylinder cupboards, pipe cut from straight lengths may be preferred.

NOTE: Polybutylene pipe must not be used for long permanently exposed runs of pipe where appearance is important. Both straight and coiled pipes are flexible.

Standard or Barrier

As barrier pipes contain an EVOH barrier layer to reduce oxygen ingress into the system through the pipe wall it is our opinion that these pipes must be used on central heating systems. When tested to DIN 4726 and DIN 4727 barrier pipes give an oxygen permeability less than the value of 0.1g (m³d) specified in DIN 4726. British Gas now accept central heating systems containing standard polybutylene pipes onto their maintenance and service contracts but this may result in additional checks and maintenance being carried out. The use of corrosion inhibitor in central heating systems is acceptable provided that the inhibitor is specifically designed for plastic piping systems and guidance on their suitability should be sought from the inhibitor manufacturer prior to adding to the system.

Both barrier and standard pipes can be used in hot and cold water supplies.

		PIPE SIZE							
		10mm		15mm		22mm		28mm	
		white	grey	white	grey	white	grey	white	grey
PIPE LENGTH	2m			●		●			
	3m			●	●	●	●	●	●
	6m			●	●	●	●	●	●
	25m	●		●	●	●	●	●	●
	50m	●	●	●	●	●	●	●	●
	100m	●	●	●	●				
	120m			●					
150m			●	●					

Pipe in pipe is available in grey only in the following variants:

- 10mm x 50m • 15mm x 25 and 50m • 22mm x 25m

Plain conduit pipe is available for 15mm and 22mm pipes in 25m and 50m lengths in black, red and blue.



Polypipe Pipe options

Polypipe offers a range of pipe options and sizes to complement each of our fitting systems and to suit every project:



Grey Polyplumb polybutylene pipe, available in standard 'monolayer' and barrier versions.



White Polyfit polybutylene pipe, available in barrier versions only.



Polysure can be used with either white or grey polybutylene pipe.



Polyplumb pipe in pipe systems consist of a polybutylene barrier pipe encased within a black conduit pipe. The conduit provides protection for the polybutylene pipe during the installation process, as well as allowing easy withdrawal for future alteration or maintenance.

The conduit pipe coils allow 15mm and 22mm Polyplumb pipe to be laid in a floor screed, conforming to water regulations. When conduit pipe is used in conjunction with conduit boxes, it provides a cost effective and practical solution, as an alternative to other ducting systems.

Red and blue conduit pipes are also available should an identifiable conduit be preferred.



POLYPLUMB

The **FAST** and
PERMANENT system



Polyplumb is an integrated flexible plumbing system, incorporating polybutylene pipes and a complementary range of push-fit fittings. It can be used in hot and cold water supply, and radiator and floor heating installations.

The system offers a high degree of reliability, achieved through a product design that has been tried and tested over the past 30 years.

The system offers a number of benefits, including:

- Time efficient, no nonsense one step joint process
- High performance stainless steel grab ring ensures superb joint integrity
- Demountable only by dis-assembling, reducing potential for tampering
- The original Polypipe pushfit plumbing system used and relied on by customers throughout the world
- Polyplumb fittings are also used extensively in our underfloor heating systems.

POLYPLUMB

The **FAST** and **PERMANENT** system

**PUSH
FIT**



Approvals and applications

- WRAS Listed in the WRAS Water Fittings and Materials Directory 
- **Standards Manufacturing Quality Assurance** - in accordance with BS EN ISO 9002 (BSI registered firm Certificate FM00318) 
- **Installation Standard** - to follow the requirements of BS5955 - PART 8 2001 Plastic pipework (Thermoplastic Materials)
- **British Standard** - Class S rated to BS7291 Part 1 and Kitemark Licence Number 38148 to BS7291 Part 1 & 2 
- **British Gas** - has accepted the Polyplumb Class S Polybutylene pipe system as being acceptable for open vented and sealed central heating systems and are eligible for acceptance onto Home Care Central Heating System Cover
- **BBA** - Polyplumb Polybutylene barrier pipe, fittings and accessories are covered by BBA Certificate No 00/3699 
- **AENOR** - The Spanish Association for Standardisation and Certification
- Suitable for use in hot and cold water and heating systems in domestic properties

- Polyplumb fittings should be used with grey Polyplumb pipes and other Polypipe specialist pipe systems such as conduit pipe
- All installation practices must be observed. See this guide and our website at www.totallyplumbing.com for more information





Jointing

There are five vital stages to successfully jointing the Polyplumb system.

Step 1a: Cutting Polyplumb pipes

Firstly check that the pipe is not scored or scratched in any way and if it is so cut back to a point where there is no damage present.

Always use one of the approved pipe cutters (code PB781 or PB778).

Ensure pipes are always cut squarely and cleanly and that no dirt, dust or material fragments are present around the pipe end.

A slight rotation of the pipe when cutting will help make cutting easier. Never use a hacksaw and always cut on a depth insertion mark. These "K" shaped marks are equally spaced along the pipe and indicate the depth required for full insertion in to a Polyplumb socket fitting.



Insertion depth markers on fittings

Each fitting now has an insertion depth marker on the fitting body to aid with installation. The only way of being certain that a joint has been completed successfully is by using the insertion depth marks on the pipe for cutting and insertion purposes.

Step 1b: Cutting copper pipe for insertion in a Polyplumb fitting

Wherever possible, use a rotational pipe cutter when cutting copper pipe. Ensure that all cut ends have a rounded lead in, with burrs removed. Never use a hacksaw. You will need to mark the insertion depth on the pipe as below.

Insertion Depth				
Pipe diameter (mm)	10	15	22	28
Insertion depth (mm)	22	27	30	35

Step 2: Use of pipe stiffener

Pipe stiffeners are an integral part of the joint when using Polyplumb pipe with either Polyplumb fittings or compression fittings and need to be fully inserted in to the pipe end. They are not required when using copper pipe.



Step 3: Visual check of fitting and fitting components

Although every single socket is visually checked during the manufacturing process to ensure that all components are present and in the correct order, a further visual check must be carried out as tampering by others can take place on site or during distribution.

CAUTION - Do not insert fingers into the Polyplumb fittings, as the grab ring is sharp and designed to grip.

NOTE: Components shown in dismantling section.

Lubricants

All Polypipe fittings are supplied with pre-lubricated EPDM 'o' rings. If for any reason further lubrication is required only Polypipe silicone lubricant should be used. Substances such as solder flux must not be used.

Step 4: Insert pipe fully into fitting

Check to ensure that the pipe and socket are clean and free from any contamination. The pipe should be inserted into the fitting to full socket depth such that the insertion depth mark aligns with the outer end of the cap nut on the fitting.



Step 5: Grab ring check

A quick tug on the pipe will confirm that the pipe is inserted past the grab ring and that a grab ring was present in the fitting. It does not however ensure that the pipe is fully inserted as this can only be confirmed by using the depth insertion mark.

IMPORTANT NOTE: Avoidance of re-jointing

On no account should a pipe be removed from a jointed Polyplumb fitting by removing the cap-nut and withdrawing the pipe end complete with all the socket components from the fitting to be re-jointed without removing and replacing the grab-ring into the fitting and re-making the joint in accordance with the normal Polyplumb jointing procedure.

If the pipe end complete with all the socket components is subsequently re-jointed into the body of a fitting, there is a risk that the outer edge of the grab-ring could catch on the outer end or the inside surface of the socket of the fitting which forces the grab-ring into an angled position on the pipe. Forcing the grab-ring into an angled position on the pipe in this way, seriously damages the grab-ring teeth and will reduce the pull-out performance of the joint when subjected to pressure, such that premature failure will almost certainly occur with the potential for serious injury.

WARNING

All jointing instructions must be followed at all times with particular attention being paid to correct insertion depths. If a pipe is not inserted fully into a fitting through both the O ring seal and the grab ring then the incorrect assembly will come apart. The pipe will then have an open end which will result in water discharging un-intentionally. As our products can be used on hot water and heating systems there is the potential for serious injury should this situation occur with hot water.

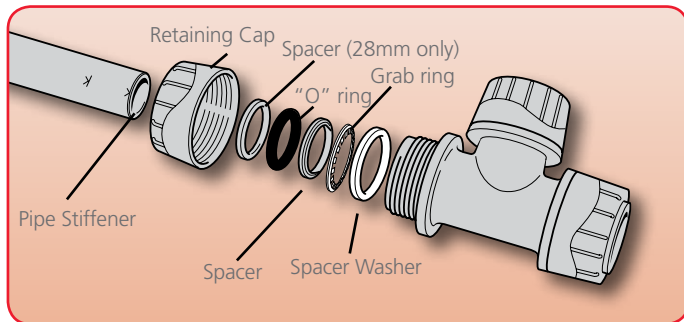


Dismantling a Polyplumb joint

Polyplumb fittings must not be dismantled for any reason prior to jointing.

Step 1: Procedure for using the component pack of spares Dismantling the joint

If it is necessary to remove a jointed pipe from a fitting, the cap-nut should be unscrewed and the pipe with all the socket components present on the pipe end should be pulled out of the socket of the fitting. The pipe end complete with all the socket components should be cut off and discarded. A complete component pack of socket spares should be fitted to the socket as described below and pipe jointing should be carried out as described left.



Polyplumb fittings general arrangement

Step 2: Replacement components

The component pack (Code: PB95XX) is supplied as a cap-nut with all the socket components present in the correct order and retained by a retaining cap.

Step 3: Preparing components

Completely remove the retaining cap, ensuring that the socket components remain within the cap-nut.

Step 4: Replacing the components

Without removing any of the socket components from the cap-nut, introduce the cap-nut and socket components to the socket of the fitting and tighten up the cap-nut by hand ensuring that the components enter the socket without snagging.

Step 5: Checking the fitting

Carry out a visual check to ensure that all socket components are present in the correct order as shown in the diagram and that the rubber 'O'ring is lubricated. If in doubt, the 'O'ring should be re-lubricated using Polyplumb silicone lubricant.

Step 6: Fitting the joint

Carry out pipe jointing as described on page 10 from step 3 onwards.

Reduced component fittings

Changes have been made to 15mm Polyplumb couplers, elbows and tees and 22mm Polyplumb elbows and tees, which need to be considered when using Polyplumb spares kits with these fittings, as follows:

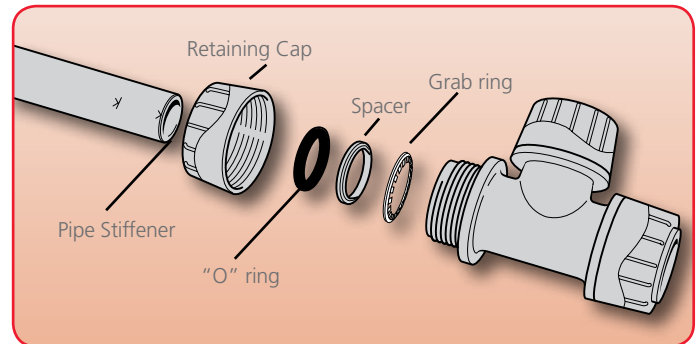
Original Polyplumb fittings

If the bottom white washer is present in the fitting below the grab-ring, then the spares kit can be used as supplied without making any changes.

New Polyplumb fittings

If there is no bottom white washer present below the grab-ring with one of the five listed fittings then this is one of the fittings which has been modified.

Before the spares kit is used, the carrier moulding should be carefully removed from the cap-nut and the bottom white washer should be removed and discarded without changing the order of any of the other components. After this has been done, the spares kit should be offered up to the socket of the fitting, inserting the components into the socket in the order they are within the kit and then screwing down the cap-nut onto the outside of the socket.



15mm couplers, elbows and tees and 22mm elbows and tees

System testing

Prior to completing installation it is necessary to fully test the installed system. Please refer to the section on page 30 of this Product Guide for system testing guidance.





POLYFIT The **FAST** and **DEMOUNTABLE** system



Polyfit is the one step, fully demountable and reusable pushfit plumbing product, which combines with white polybutylene pipe to create a truly flexible, yet highly secure, plumbing system that is demountable and reusable when required.

The Polyfit system brings extensive benefits:

- One step operation, for quick and easy installation
- Flexible polybutylene pipe, for even the most difficult locations
- Fittings lock tight, preventing accidental release
- Fully demountable and re-usable when required

'Push click', that's it

The polybutylene pipe is simply inserted into the Polyfit fitting to engage. There's no need to make a quarter locking turn, just 'push click', that's it.

Locked tight

Polyfit fittings lock tight in one click and can only be released when required, providing both installers and consumers with total piece of mind. Once engaged into the fitting it is completely secure against accidental release.

Fully demountable

Polyfit fittings have been designed to be completely secure once installed. However, there will always be times when they need to be removed or adjusted, so they are also fully demountable when required.



POLYFIT

The **FAST** and **DEMOUNTABLE** system

**PUSH
FIT**



Approvals and applications

- **WRAS** Listed in the WRAS Water Fittings and Materials Directory 
- **Standards Manufacturing Quality Assurance** - in accordance with BS EN ISO 9002 (BSI registered firm Certificate FM00318)  FM00318
- **Installation Standard** - to follow the requirements of BS5955 - PART 8 2001 Plastic pipework (Thermoplastic Materials)
- **British Standard** - Class S rated to BS7291 Part 1 and Kitemark Licence Number 38148 to BS7291 Part 1 & 2 
- **British Gas** - has accepted the Polyfit Class S Polybutylene pipe system as being acceptable for open vented and sealed central heating systems and are eligible for acceptance onto Home Care Central Heating System Cover
- Suitable for use in hot and cold water and heating systems in domestic properties

- Polyfit fittings should be used with white Polyfit pipes and other Polypipe specialist pipe systems such as conduit pipe
- All installation practices must be observed. See this guide and our website at www.totallyplumbing.com for more information





Jointing

There are four stages to successfully jointing the Polyfit system.

Step 1: Cutting Polyfit pipes

Firstly check that the pipe is not scored or scratched in any way and if it is so cut back to a point where there is no damage present.

Ensure pipes are always cut squarely and cleanly and that no dirt, dust or material fragments are present around the pipe end.

Using an approved pipe cutter cut the pipe squarely using the "K" marks on the pipe as a guide.



Step 2: Use of pipe stiffener

Insert a pipe stiffener into the pipe (not required on copper pipes).



Step 3: Inserting pipe into fitting

Check to ensure that the pipe and socket are clean and free from any contamination. Push pipe into the fitting, ensuring it is inserted to the full socket depth denoted by the next "K" mark on the pipe.

Lubricants

All Polypipe fittings are supplied with pre-lubricated EPDM 'o' rings. If for any reason further lubrication is required only Polypipe silicone lubricant should be used. Substances such as solder flux must not be used.

Insertion depth markers on fittings

Each fitting now has an insertion depth marker on the fitting body to aid with installation. The only way of being certain that a joint has been completed successfully is by using the insertion depth marks on the pipe for cutting and insertion purposes.



Visual check on Polyfit

Prior to fitting pipes into Polyfit fittings a visual check should be carried out on all fittings to ensure all components are present within the fitting socket. Polyfit fittings contain; a blue bottom washer; an EPDM 'o' ring; a blue top washer and a collet all held in place by a cap nut. All cap nuts are torqued to ensure that the cap nuts cannot unscrew easily. There is no need to undo cap nuts and remove any components prior to jointing Polyfit fittings.

Step 4: Checking the joint security

Tug back on pipe to check it is inserted fully.



Step 5: Connecting Polyfit to copper pipes

Cut the copper pipe using a rotational pipe cutter. Mark the copper pipe insertion depth as shown in the table below. Follow steps 3 and 4 using the mark as a socket depth guide.

Insertion Depth				
Pipe diameter (mm)	10	15	22	28
Insertion depth (mm)	25	35	42	44

Demounting a Polyfit joint

Polyfit fittings are fully demountable and re-usable. To demount a Polyfit fitting simply depress the collet squarely towards the fitting and pull the pipe out of the fitting. Care should be taken that the collet is pushed all the way back to the fitting squarely to avoid scratching or scoring the pipe when it is pulled from the fitting. When systems have been pressurised the collet is designed to grip into the pipe therefore using a fitting release aid (product code FITAID) will assist in demounting fittings.



System testing

Prior to completing installation it is necessary to fully test the installed system. Please refer to the section on page 30 of this Product Guide for system testing guidance.



Polyfit Flexible Connectors

Flexible hose connectors are the latest great addition to the Polyfit product range. This versatile collection comes in a wide range of length and connection end combinations to suit every need. Many of our flexible connectors include the Polyfit one step joint feature, which are quick and easy to install and are ideal for use in tricky to reach or tight locations.

- All Polyfit hoses which have a tap connector nut now contain captive rubber seals ensuring that seals are not lost or damaged on site.

- All Polyfit flexible connectors are listed under the Water Regulations Advisory Scheme. Look out for the black thread that is wound into each hose, which denotes a WRAS quality product. Each EPDM hose is suitable for use in domestic hot and cold water applications and must not be used for heating applications.
- Polyfit flexible hoses come in a packaging design which aids quick and easy product selection and all hoses come in pairs.



Selecting your Polyfit Flexible Connector

Polyfit Fitting 15mm and 22mm

Polyfit push fit connections. Just push, click, Polyfit ends are secure in use but also fully demountable and reusable.



Polyfit Chrome Plated Valve 15mm and 22mm

Connectors incorporating service valves to reduce the number of joints within a system. Incorporates the Polyfit push fit feature.



Tap Connection Nut 1/2" and 3/4"

These "wing nut" style tap connector nuts will only require hand tightening.



Compression Fitting 15mm and 22mm

Our compression end connectors use the same high quality components as the rest of the Polyfit push fit range.





POLYSURE

The **SLIM** and
PERMANENT system



Polysure is a range of radial press fit fittings, the first in UK sizes, for use with Polyplumb or Polyfit pipes in domestic applications. Choosing Polysure combines the benefits of flexible polybutylene pipe systems with emerging press fit fitting technology.

Polysure offers a number of benefits, including:

- Flexible plastic piping eases the installation process and speeds up time to install
- Reduced risk of theft because of low re-sale value of plastics
- Reduced wastage as all pipes used are also compatible with Polyplumb and Polyfit push fit fittings
- Press fit fittings reduce the risk of tampering, an important factor in some projects such as social housing
- The slim profile brass fittings are easily accommodated into existing buildings including boxing designed for copper systems
- Polysure provides an enhanced joint to pipes via a visual pipe socket depth indicator and double 'O' ring seal
- Polysure fittings are designed specifically for Polypipe's UK sized pipes
- A location washer for pressing ensures jaws are correctly positioned for pressing onto grey Polyplumb and white Polyfit pipes
- Safe, heat-free jointing with no more jointing consumables to buy such as flux and solder saving cost

POLYSURE

The **SLIM** and **PERMANENT** system

**PRESS
FIT**



Approvals and applications

- **WRAS** Listed in the WRAS Water Fittings and Materials Directory
- **Installation Standard** - to follow the requirements of BS5955 - PART 8 2001 Plastic pipework (Thermoplastic Materials)
- **British Standard** - Class S rated to BS7291 Part 1 and Kitemark Licence Number 38148 to BS7291 Part 1 & 2
- Suitable for use in hot and cold water and heating systems in domestic properties



- Polysure fittings can be used with Polyfit and Polyplumb pipes and systems can contain a mix of fittings
- All installation practices must be observed. See this guide and our website at www.totallyplumbing.com for more information





Joining

There are six stages to completing a joint using Polysure fittings.

Unlike the other Polypipe systems, Polyplumb and Polyfit, the Polysure system requires some specialist pressing tools which can be purchased directly from Polypipe or via the manufacturers stockists. Polypipe recommends using REMS pressing equipment who have a reputation for manufacturing durable products that can stand up to today's site conditions. For full details of products, instructions, servicing requirements and warranties please visit www.rems.de

Step 1: Cutting pipes

Firstly check that the pipe is not scored or scratched in any way and if it is so cut back to a point where there is no damage present.

Pipes should be cut squarely using an approved Polypipe cutter.

Ensure pipes are always cut squarely and cleanly and that no dirt, dust or material fragments are present around the pipe end.

There is a visual indicator on each fitting which is used to check that the pipe has been inserted into the fitting correctly, therefore, it is not essential that pipes are cut on the K marks. It is however essential that pipes are cut squarely as this may affect chamfering.



Step 2: Chamfering the pipes

Polysure fittings use press fit technology which seals on the pipe bore so it is necessary to provide an internal lead in on the pipe end so the square edge of the pipe does not damage the 'O' ring seals. On push fit fittings this lead in is provided by the pipe stiffener. Polypipe offer specific pipe chamfering tools for our Polyplumb and Polyfit pipes and these must always be used. The chamfering tools are available in either individual tools or as a block of four dependent on the installers preference however all work in the same way.

The chamfer tool spigot should be inserted into the bore of the pipe until contact is made with the blades then the chamfer tool should be twisted gently to provide a lead in as shown. Any debris should be removed from the pipe end and the chamfer tool. Check that the pipe has been cleanly chamfered around the full diameter of the pipe. If not repeat the chamfering process again.



Step 3: Insert pipe into fitting

Check to ensure that the pipe and socket are clean and free from any contamination. Polysure pipes have a visual indicator to assist in joining pipes and fittings together. The chamfered Polyplumb or Polyfit pipe should be inserted into the Polysure fitting and pushed in until the pipe can be seen through the hole in the stainless steel pressing sleeve. When this has been achieved the joint is ready for pressing.

Lubricants

All Polypipe fittings are supplied with pre-lubricated EPDM 'o' rings. If for any reason further lubrication is required only Polypipe silicone lubricant should be used. Substances such as solder flux must not be used.



Step 4: Preparing the pressing tools

There are three types of pressing tool recommended for joining Polysure fittings. The REMS Eco Press is a manual pressing tool which can be used on 10mm, 15mm and 22mm joints only but provides the installer with a light weight, low cost entry pressing tool which can be used in most situations. Alternatively the battery operated tools (mini or standard version) can be used where a high volume of joints needs to be done in a short space of time. The battery operated tools must be used for 28mm fittings.

The 10mm, 15mm and 22mm Polypipe TH pressing jaws have been designed to fit both the manual and standard battery operated pressing tools. The mini pressing jaws are only compatible with the mini pressing gun and can not be used with the manual or standard battery operated guns. All jaws are specifically designed to press Polysure press fit fittings and should only be used for these fittings. Likewise no other pressing jaw should be used for Polysure fittings.



Step 4a: Manual pressing tool

Secure the jaw in the tool by firstly removing the locking pins from the Eco Press, lining up the holes in the Eco Press with those in the jaw and re-inserting the locking pins.



Step 4b: Battery operated pressing tool

To insert a Polypipe TH jaw into the battery operated gun, press the release catch on the locking pin on the gun. Slide the jaw into the gun aligning the centre hole in the jaw with the locking pin and push the locking pin back into position until locked.

Once the jaws are locked in the respective machine the pressing tools are now ready to complete the joint process.



Step 5: Securing the joint

Whether using the manual or battery operated press gun the jaws are located on to the fitting in exactly the same manner.

Do a final check to ensure that the pipe is still inserted fully into the fitting then using the white washer as a location point fix the jaws over the fitting in the un-pressed condition.



Step 5a: Manual pressing tool

The levers can now be closed completely ensuring that the two stops on the press tool are touching. Extension pieces are included with the Eco Press if extra leverage is required to completely close the tool. Only when the tool has been completely closed with the two stops touching is the joint fully secured. The levers can then be opened and the fitting will be released from the jaws.



Step 5b: Battery operated pressing tool

The trigger can now be pressed on the tool to start the pressing process. Keep the trigger depressed until the jaws have closed completely and the pressing machine clicks to denote the end of the process.

NOTE: once the process is underway it must be completed before the safety catch can be pressed to allow the jaws to be released.



Step 6: Checking the joint

Finally check that the fitting has been pressed successfully by ensuring that the TH pressing profile has been indented consistently around the full circumference of the fitting. Check that the pipe end is still visible through the hole in the sleeve. The white washer should not be damaged or have moved in any way, if so discard the fitting and re-press a replacement fitting. Spare pressing sleeves and washers are available to purchase if required. Once Polysure fittings have been pressed they are not demountable.

System testing

Prior to completing installation it is necessary to fully test the installed system. Please refer to the section on page 30 of this Product Guide for system testing guidance.



DESIGN APPLICATION & INSTALLATION INFORMATION



The following information is designed to provide basic guidance for installers and specifiers when designing, planning and installing hot and cold water and heating systems using Polypipe products. The information is not exhaustive and guidance may change dependent on site conditions and applications. This document should be read in conjunction with all other installation and application instructions available. If in doubt please contact our technical services department on 01709 770000.

Service Conditions

Polyplumb, Polyfit and Polysure are suitable for the following Class S service conditions in a normal domestic operation (subject to the exceptions referred to in note² below):

(Continuously operated re-circulating systems are excluded from these applications)

Application	Nominal system flow temperature Tf °C <small>(see explanatory note 1 below)</small>	Maximum system service temperature Ts °C <small>(see explanatory note 1 below)</small>	System malfunction temperature Tm °C <small>(see explanatory note 1 below)</small>	System maximum working pressure bar <small>(see explanatory note 1 below)</small>
Indirect cold water systems	20	20	—	3½
Direct mains-fed cold water systems	20	20	—	12½
Subsurface heating systems (including Underfloor)	60	83	100	3½
Vented hot water supply systems	65	83	100	3½
Unvented hot water supply systems including instantaneous heaters and/or incorporating storage	65	95	100	6
Vented central heating systems	82	95	100	3½
Sealed central heating systems	82	105	114	3

Note¹:

- nominal system flow temperature Tf is the intended maximum flow temperature of a system for a particular application as recommended in codes of practice and other guidance documents
- maximum system service temperature Ts is the maximum service temperature that can occur intermittently during normal operation
- system malfunction temperature Tm is the maximum temperature likely to be applied to pipes and fittings in the event of control thermostat failure or malfunction

Note²:

- Certain fittings in the Polyplumb and Polyfit ranges are not suitable for all the Class S service conditions. The limitations are indicated against every applicable fitting in the Trade Price List eg "Cold Water Only".
- Barrier pipe must be used for Subsurface heating systems (including Underfloor)

Connections to other materials*

Connection to Imperial Copper using Polyplumb

Imperial ¾" copper pipe is of significantly different size to its metric 22mm counterpart and therefore requires a different 'O' ring to that supplied in the 22mm fitting. The 22mm 'O' ring should be replaced with a ¾" 'O' ring (PB9034). Standard 15mm fittings can be connected to Imperial ½" copper pipe, and 28mm fittings can be connected to 1" copper pipe.

Connection to Irish copper pipe

Irish copper pipe to IS238:1980 can be connected to Polyplumb fittings which incorporate the ¾" or 1" adaptor set. Using a standard 22mm or 28mm Polyplumb fitting, remove the nut and socket components and discard. Replace these parts with the relevant adaptor set, ¾" - PB7034 or 1" - PB701. The adaptor sets are distinguishable by the black cap nut.



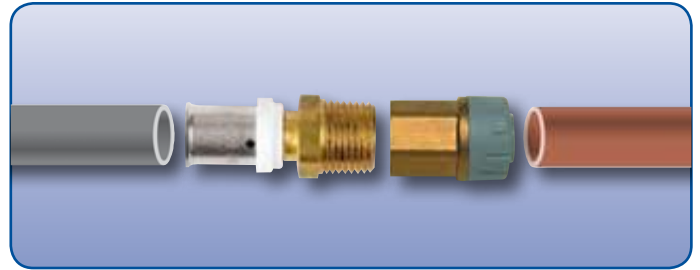
Polyplumb, Polyfit and Polysure fittings are suitable for use with copper pipe to EN1057

Connections to chrome plated and stainless steel pipework

Polyplumb and Polyfit fittings should not be connected directly to chrome plated copper pipes or stainless steel pipes. To connect to these pipes we recommend the use of a compression coupler. A pipe stiffener should be used when connecting Polyplumb and Polyfit pipe to a compression fitting.

Connecting Polysure press fit fittings to copper

Polysure press fit fittings have been designed specifically to fit to Polyplumb and Polyfit polybutylene pipes. To connect to copper pipes we advise the use of a Polysure press fit x BSP male or female adaptor, with the corresponding adaptor being used on the copper side from the Polyplumb or Polyfit range. PTFE tape should be used to seal the mating brass components.



Connections close to capillary fittings

Capillary fittings should preferably be completed prior to the use of Polypipe fittings. Where this is not possible, care should be taken to ensure that flux or solder does not come into contact with plastic pipes or fittings. A damp cloth should be wrapped around the copper pipe close to the nearest plastic pipe or fitting to ensure against damage by conductive heat. Pipework should be flushed to clear flux before active use.

Connections to incoming cold water supply

There are two options for connecting incoming MDPE mains water service pipe to Polyplumb and Polyfit pipe systems. Firstly the push fit x compression adaptors provide a one piece transition fitting covering connections from 20mm, 25mm and 32mm MDPE service pipes to 15mm, 22mm and 28mm polybutylene pipes and most sizes are available in both Polyplumb and Polyfit versions. Secondly, as there is a requirement for a stopcock on the incoming main there is also a combined stopcock and adaptor which reduces the number of fittings required in a position where there is often limited space e.g. under a kitchen sink. These products allow connections from 20mm or 25mm MDPE pipe via a compression end to 15mm or 22mm polybutylene using a push fit connection.



Pushfit x compression adaptor



Combined stopcock and pushfit x compression adaptor

Gas, oil and compressed air

Polypipe systems are suitable for domestic plumbing and heating systems. Pipes and fittings must not be used for gas and oil supply pipework or compressed air pipework.

In all the above instances metal pipework should be installed.

Continuously operated re-circulating systems (Secondary Hot Water Circulation / Ring main installations)

A continuously operated re-circulating system is a water-replenished circulating system which is maintained at a constant high temperature to provide a constant source of hot water. Continuously operated re-circulating systems are used to distribute constant hot water to wards or rooms that may be distant from the heat source or hot water storage vessel. Locations where continuously operated re-circulating systems are used include, but are not limited to, residential care homes, hospitals and hotels. Continuously operated re-circulating systems are very different from conventional hot water supply and central heating systems found in domestic properties, for which our products have been tested to, under either BS 7291 Class S or WRAS approval standards, and for this reason Polyplumb, Polyfit or Polysure must not be used on any continuously operated re-circulating systems. Some secondary hot water circulation systems are used intermittently, controlled by time and/ or temperature thermostats. This application is also unsuitable for products manufactured to BS 7291.

Re-cycled rainwater systems

Polypipe products can be used in systems conveying re-cycled or harvested rainwater within domestic properties. All pipe work used in this type of system should be clearly identifiable and this should be carried out in accordance with WRAS Information and Guidance Note No 9-02-05; Marking and Identification of Pipework for Reclaimed (Greywater) Systems. If self adhesive labels are to be used, these should not be applied directly to the pipe.

Chlorine and other additives

The polybutylene material used in Polyplumb, Polyfit and Polysure pipes and fittings is WRAS approved. It is resistant to the buildup of scale. Normal levels of chlorine in UK domestic water supplies will not have an adverse effect on Polyplumb, Polyfit and Polysure.

However Polyplumb, Polyfit and Polysure are not suitable for systems in which any further additives are ever added, periodically added, or regularly dosed in to or additional to the normal UK mains water supply, for example chlorine for swimming pools or those used for bacteria control or legionella prevention. Systems must not be flushed through with anything other than water from the normal UK mains water supply or a cleaning product at the correct concentration that is specifically recommended for plastic piping systems.

The use of corrosion inhibitor in central heating systems is acceptable provided that the inhibitor is specifically designed for plastic piping systems and guidance on their suitability should be sought from the inhibitor manufacturer prior to adding to the system.

Light

Polyplumb & Polyfit pipe and fittings should be protected from UV light. Standard decorating paints form adequate protection. Pipe insulation forms adequate protection for external use. Polypipe products are delivered in light protective packaging.

Compatibility with other substances

For details of compatibility with building and cleaning substances, and treatments (eg filler foam and wood worm treatments) please consult the relevant manufacturers to confirm suitability with Polybutylene. Polyplumb, Polyfit and Polysure pipes and fittings can be painted using emulsion or undercoat and gloss. Cellulose based paints, strippers or thinners must not be used.

Vermin

There is no evidence to suggest that Polyplumb, Polyfit or Polysure attract vermin. Where vermin are present they can cause damage to other services, building fabric and pipes and fittings, and therefore a qualified pest controller should be employed to remove vermin from the affected area.

Connections to other equipment

Boilers and appliances:

All boilers and appliances must have safety devices such as thermostatic controls, cut-outs and pump over-run protection to make sure that they cannot operate above the Class S working temperature and pressure limits set out in the table of Class S service conditions on page 21. Exposure to conditions in excess of those specified could result in failure of the pipes or fittings with the potential for serious injury.

Gas Boilers:

Pipe should only be connected to gas boilers where the pipe connection is outside the boiler casing and where the boiler incorporates a high limit thermostat and pump over-run facility. The pipe connections should be 350mm from the heat source. In all other situations, a section of metal pipe should be at least 1m in length. In addition for back boilers metal pipe work should be used within the fire opening extending out of the chimney brickwork.

Combination Boilers:

Where system connections are made to an incoming water supply pipe from a water meter or any other device which contains a check valve a suitable expansion vessel must be fitted to prevent the expansion of heated water back down the supply pipe. This is especially important where a water meter is fitted retrospectively.

Solid Fuel Boilers & Cooking Ranges:

Pipes and fittings must not be used for primary or gravity circuits from solid fuel boilers, cooking ranges or other uncontrolled heat sources.

Solar Panels / Systems

Pipes and fittings must not be used for connection of solar panels or any part of solar distribution that operates above the Class S working temperature and pressure limits set out in the table of Class S service conditions on page 21.



Oil Fired Boilers

Open Vented Central Heating Systems:

The use of plastic pipe and fittings is acceptable when used in oil fired installations where the boiler is connected to an open vented system, however the first metre of primary pipework from the boiler connections must be installed using metal pipe. The boiler must be suitable for this type of application and all relevant safety features as supplied and fitted to the boiler must be checked for correct operation. The system must also be commissioned in accordance with the boiler manufacturers instructions.

Plastic pipe and fittings can also be used in the hot and cold water and underfloor central heating systems with the exception of continuously operated re-circulating systems (see page 22) where plastic pipe and fittings should not be used.

For further information regarding the suitable applications for our plastic pipe and fittings please refer to the Class S Service Conditions table as shown on page 21 of this publication.

Sealed Central Heating Systems:

Where a sealed system oil fired boiler is to be used all primary boiler pipework to and from the hot water cylinder (if fitted) and any radiator or towel rail circuits must be installed using metal pipe and fittings.

Plastic pipes can be used on underfloor central heating systems where the plastic pipes are fitted after the UFCH control unit and manifold arrangement which must contain a correctly operating thermostatic mixing valve.

Plastic pipe and fittings can also be used in the hot and cold water system with the exception of continuously operated re-circulating systems (see page 22) where plastic pipe and fittings should not be used.

All relevant safety features as supplied and fitted to the boiler such as the boiler temperature control thermostat, high limit thermostat, pump overrun facility and the pressure and temperature relief valve must be checked for correct operation at both installation stage and at any subsequent boiler service intervals. The system must also be commissioned in accordance with the boiler manufacturers instructions.

For further information regarding the suitable applications for our plastic pipe and fittings please refer to the Class S Service Conditions table as shown on page 21 of this publication.

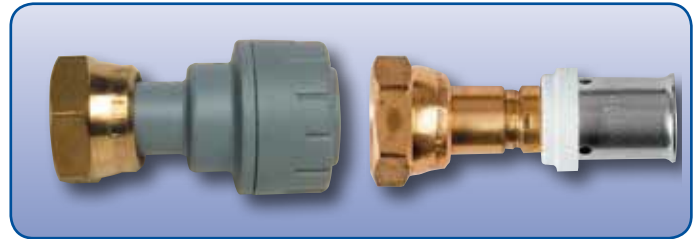
Cylinders:

All pipework in the cylinder cupboard should be from cut lengths rather than coils and should be clipped to a pipe board rather than the wall using screw clips at 300mm centres. Pipe clip spacers should be used to achieve crossovers where necessary.

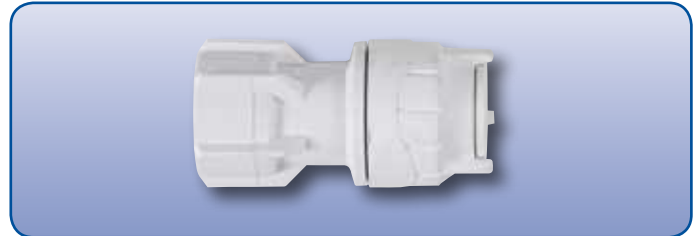
Connections to sanitary appliances:

The connection to sanitary appliances such as baths, basins, sinks and WC's is easy with the Polypipe product ranges. With a wide range of fitting types to choose from every eventuality is covered. Swivel tap connectors with brass connecting nuts are available in Polyplumb, Polyfit and Polysure versions. There are hand tighten tap connectors available in Polyplumb and Polyfit for those difficult to access places. A number of specialist products are also available which incorporate valves into appliance connectors. Both straight and bent valved connectors are available as well as versions in both plastic and chrome plated brass.

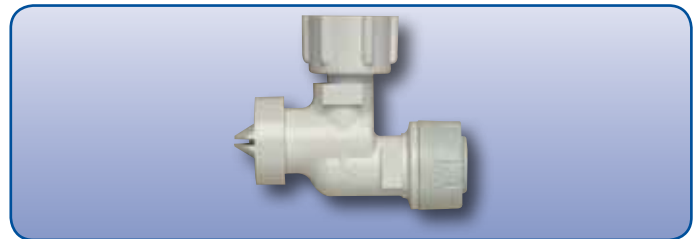
Polypipe supply both a conical seal (attached to the connector) and a flat seal (supplied loose with each individually packed tap connector) with each swivel style brass nut tap connector. As we do not know what type of tap is being installed it is the installers responsibility to ensure that the seal supplied is compatible with the tap to ensure a water tight seal is made.



Polyplumb and Polysure swivel tap connector with brass nut



Polyfit hand tighten tap connector



Polyplumb bent valved tap connector



Polyfit straight valved tap connector

Finally the Polyfit range contains one of the widest ranges of flexible connectors on the market with products of varying lengths and connection type. Connections to $\frac{1}{2}$ " and $\frac{3}{4}$ " taps are covered as well as products which include built in service valves. There are also specialist products which are available for connection to monobloc mixer taps and a space saving elbow pattern connector.

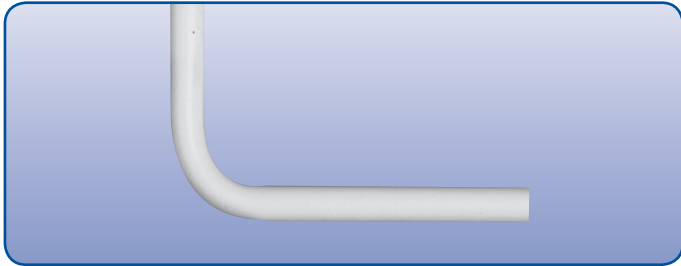
Polyplumb terminal fitting:

Where wall mounted taps are being utilised the use of a conduit terminal box is recommended. The fitting consists of a 15mm x $\frac{1}{2}$ " female elbow which is housed in a plastic terminal box allowing the hot and cold water supply pipes to be hidden in a wall cavity. The terminal elbow can also be mounted onto a backing plate which assists installation and centring the taps. Once installed, taps can be screwed into the female threaded elbow and the wall finish applied to give a neat cleanly designed environment.



Connecting to radiators:

As with connections to sanitary appliances there are a number of options for connecting pipes to radiators. Available within the ranges are spigot elbows for 10mm and 15mm connections as well as a 10mm x 15mm version which allows 10mm pipes to be connected directly into a 15mm radiator valve with out the need for additional reducers. The Radiator Connector Bend "RCB" provides installers with an attractive method of connecting 10mm or 15mm Polypipe pipe from walls or floors to radiators. The rigid white 100mm x 150mm bend can be cut to length and connects directly to Polypipe fittings and radiator valves and requires pipe stiffeners in each end.



Use of aluminium tape

To comply with the NHBC guidelines regarding detection of pipes in wall cavities Polypipe recommends the use of aluminium tape. This tape should be applied directly to the wall sub-structure and pipes should be clipped on top of the tape. The tape must not be applied directly to the pipes.

"Dot and dab" walling

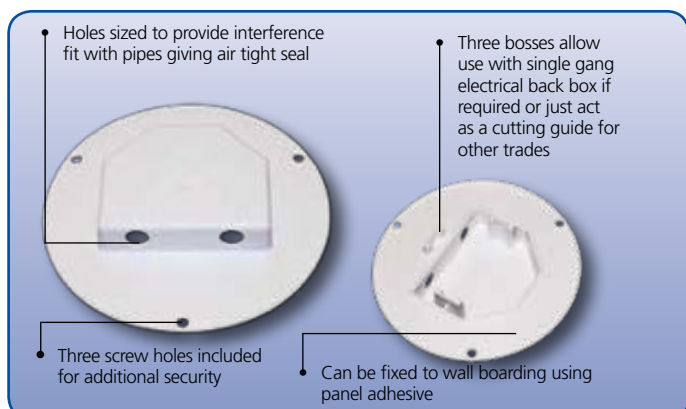
Dry lined or "dot and dab" walls are commonly used to speed up the build process and Polypipe systems are compatible with these types of constructions. Board adhesive or plaster should not be applied to Polypipe pipe and fittings especially around the area where the pipes pass through the wall to feed radiators and appliances. Pipes and fittings must remain accessible should future maintenance be required.

Radiator terminal plate

The new Polypipe Radiator Terminal Plate is a multi functional product for use in Polyplumb and Polyfit piping systems.

- It provides an air tight seal around pipework entering rooms from wall cavities to feed radiators helping developers to achieve air tightness levels required by Building Regulations
- Gives a neat and secure entry point for pipes serving radiators.
- Ensures pipes are not damaged by rough edges of wall boards or plaster boards
- Can be fitted with or without a single gang electrical back box (supplied by others)

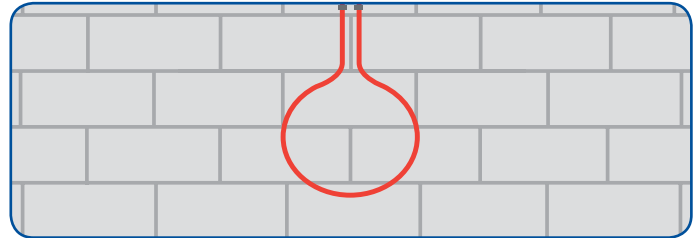
Product features



Radiator Terminal Plate Installation instructions

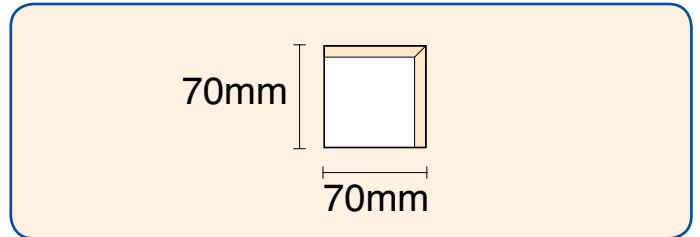
Step 1: Installing flow and return pipework

Install 10mm flow and return pipework down sub-wall with continuous loop long enough for radiator feeds through wall. Pressure testing of the heating system must be carried out at this stage.



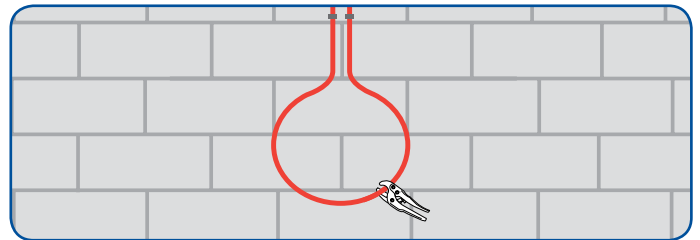
Step 2: Preparing the wall boarding

Cut a hole the size of a standard electrical back box in the wall boarding. For guidance use the three bosses on the reverse side of the Polypipe Radiator Terminal Plate.



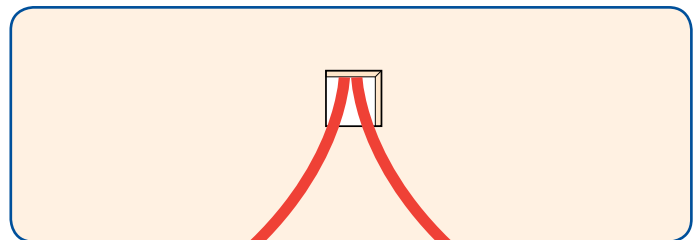
Step 3: Cutting the pipes

Cut pipes at appropriate point to allow for wall board to be installed ensuring enough pipe is left to reach valves at each end of the radiator.



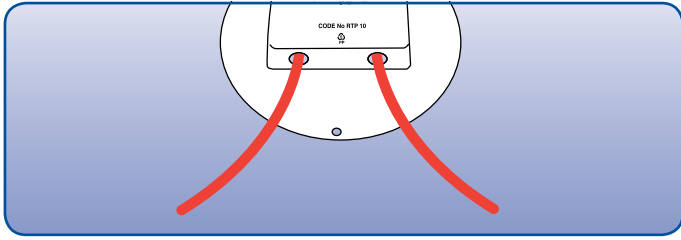
Step 4: Pipe threading

Thread pipes through hole cut in wall board taking care not to scratch or damage pipes.



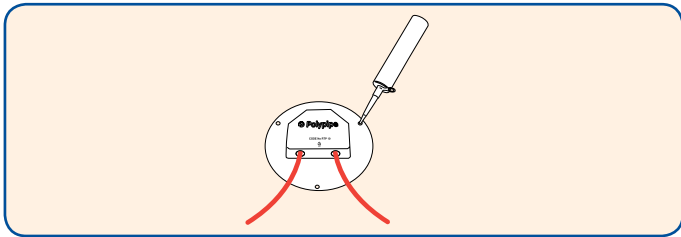
Step 5: Fit Radiator Terminal Plate on to pipes

Pass the pipes through the radiator terminal plate from back to front using the pipe guides to aid routing. They should be a tight interference fit through the holes which provides the seal. Cutting the ends of the pipes at an angle may help to thread pipes through the hole but remember to cut pipes square again before connecting into a fitting.



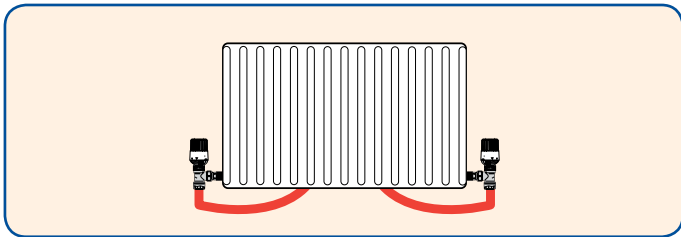
Step 6: Securing the Radiator Terminal Plate

Use panel adhesive to seal the Polypipe Radiator Terminal Plate to the wall board and if necessary use tape or three countersunk screws to hold the plate in position whilst the adhesive sets.



Step 7: Fitting the Radiator

Fit radiator and valves and connect the pipes as per normal installation instructions.



Pipework installation

Minimum bending radius

The minimum bending radius of unsupported Polybutylene pipe is 12 times the pipe diameter. Bends can either be supported at each end of the bends using pipe clips where possible. Alternatively, bends can be supported by a bend former (PB6315 or PB6322) where only one screw hole is required, and the minimum bend radius is 8 times the diameter.



Bend former

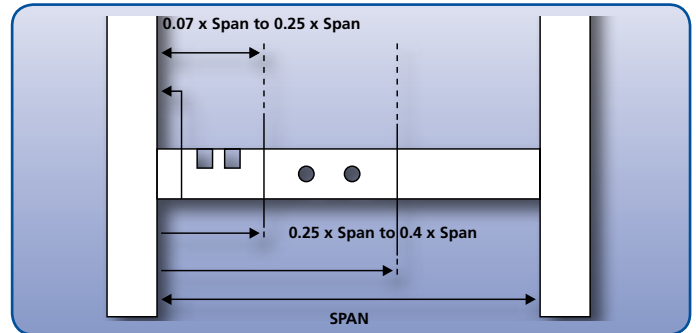
Minimum bending radius				
Pipe diameter (mm)	10	15	22	28
Unsupported (mm)	120	180	264	336
Supported (mm)	80	120	176	224

Pipe cabling

The main benefit of using Polypipe polybutylene pipes is that the pipe flexibility allows pipe to be cabled through the fabric of the building offering the following advantages.

New build applications

- Allows 1st floors to be laid before plumbing is installed. Plumbing can be installed through holes drilled in joists.
- Site safety is enhanced as pipework can therefore be installed from below.
- Post installation repair work is reduced, as expansion noise due to trapped pipes does not occur, and leaks due to nailed pipes are avoided.

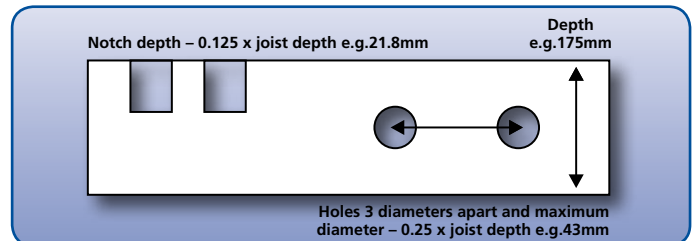


Position of notches and holes

Alterations to existing systems

- Less disruption to property as floors and carpets may not have to be removed in some rooms.
- Kinder to building structure, as existing joists may not allow further notching.
- Pipes can be cabled around existing obstructions.
- Safety is enhanced as no naked flames are required.

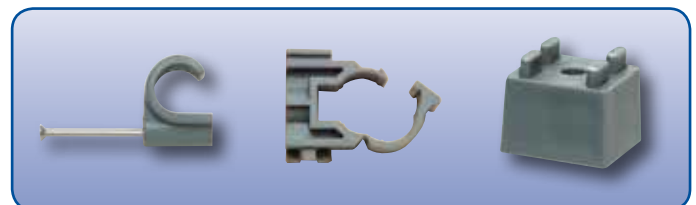
Polybutylene pipe provides installers with the flexibility of installing pipes through both holes and notches in joists, choosing the most appropriate method. Building Regulations provide instructions on the drilling and notching of floor joists however an example is shown below.



Size of notches and holes

Pipe supports

All pipes should be correctly supported using either nail-in, snap-fit or bulldog clips. Where required spacer pieces are available for the snap-fit clips. All pumps and valves must be correctly supported to prevent unnecessary strain on the pipework.



Nail-in clip and snap-fit with spacer

Minimum support centres	Minimum support centres	
	Horizontal Pipes	Vertical Pipes
10mm & 15mm	0.3m	0.5m
22mm	0.5m	0.8m
28mm	0.8m	1.0m

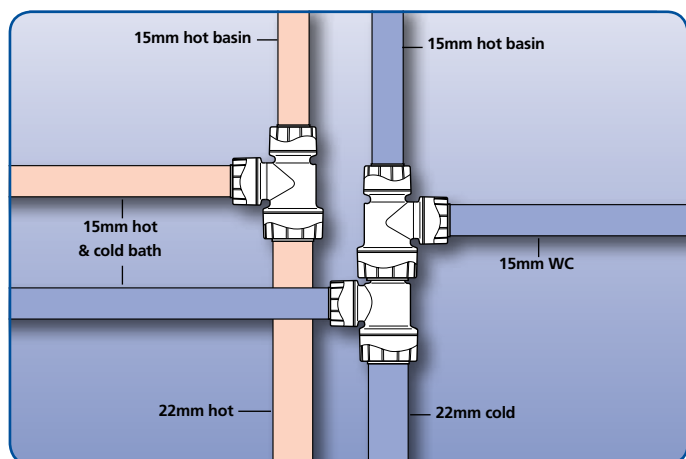
In instances where pipes have alternative adequate means of support or are run within concealed spaces (eg through floors or joists), the number of clips can be significantly reduced under the following conditions:

- There is absolutely no risk of the pipes or fittings coming into contact with potentially damaging surfaces (eg abrasive, sharp or destructive surfaces)
- Hot and cold pipes do not come into contact with each other.
- Pipe distribution does not form a circuit where effective air venting could potentially be impaired by poor pipe alignment.
- The pipe does not come into contact or close proximity with any material which may be affected by transmitted heat.

System design

Although flexible systems can be used in exactly the same way as rigid systems, the flexibility of the pipe allows more design options which may benefit the installer, the building, or during future maintenance.

The general theory of designing water systems in Polypipe products is to use the flexibility of the pipe to its best advantage and therefore using fewer fittings. This not only ensures the most cost-effective use, but also allows fewer joints and hence improved flow around changes of direction. The flexibility of the pipe allows jointing to be made in fewer locations and joint locations can more easily be made accessible.



Example water system design

Use of 10mm pipe for heating applications

Use of 10mm pipe for heating applications. As 10mm pipe is so flexible and can easily be positioned behind dry lining, its use offers many installation advantages. As it is the smallest of the pipe diameters offered in the Polypipe ranges, restrictions on the use of 10mm pipe should be considered. The table opposite gives a guide on the restrictions of using 10mm pipes with Polyfit and Polyplumb fittings. When using 10mm Polysure fittings we recommend that the length of 10mm branch pipe runs are as short as possible and preferably no longer than 3 metres (6 metres for flow and return) and radiator outputs are restricted to a maximum of 1kW.

EXAMPLE: 10m of pipe prior to 10mm connection (5m flow, 5m return) used with 1.25kW Radiator. Maximum length of 10mm = 13m (6.5m flow, 6.5m return).

Max length of pipe prior to 10mm connection e.g. 10m = 5m flow and 5m return	Maximum length of 10mm pipe total e.g. 13m - 6.5m flow and 6.5m return		
	1 kW Rad	1.25 kW Rad	1.5kW Rad
5	24	15	11
6	23	15	11
7	22	15	10
8	22	14	10
9	21	14	10
10	20	13	10
11	20	13	9
12	19	13	9
13	19	12	9
14	18	12	8
15	17	11	8
16	17	11	8
17	16	10	8
18	15	10	7
19	15	10	7
20	14	9	7

Polyplumb manifold system

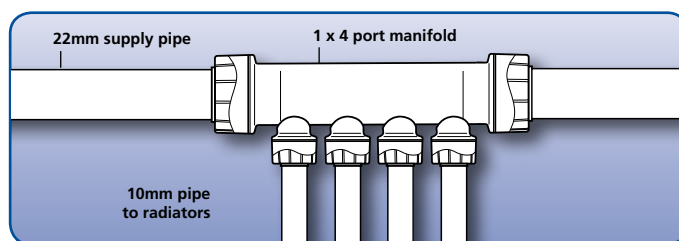
For use in most domestic hot and cold water supply and radiator heating projects, Polypipe manifold systems provides a central connection point for water distribution.

Manifold plumbing which is ideally suited for use with Polyplumb "pipe-in-pipe" technology (where screed embedded pipework is used with minimal joints) is employed in a similar way to simple electrical circuits in that all services are supplied from an easily accessible central distribution unit that can be either wall mounted, placed in an unobtrusive void or housed within an inspection box and subsequent supply pipework cabled through wall, floor or ceiling voids. Although manifolds are available in various port configurations they can be close coupled together to create manifolds with any number of outlets.

Application of manifolds in central heating

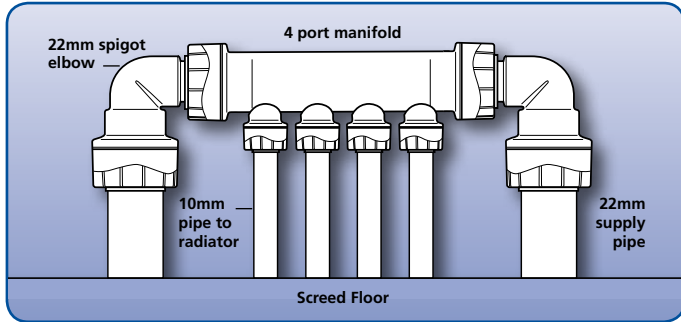
Polypipe manifolds are dimensionally compact and can be used in joisted floors or ceiling voids for in-line distribution. They are normally used unvalved, as each radiator has valves on for isolation purposes.

There are both single and double sided versions with 10mm ports and in-line side versions with 15mm ports. Being lightweight they can be simply used inline without bracketed support as long as the pipework is adequately supported.



Polyplumb 4-port manifold for radiator supply

When heating supply is to be used with a screeded floor, (where no joints are allowed below the floor surface) a 22mm pipe-in-pipe main supply is used. This supply would exit the floor, pass through the manifold system above the floor surface, and re-enter the floor to the next manifold supply point elsewhere in the building.



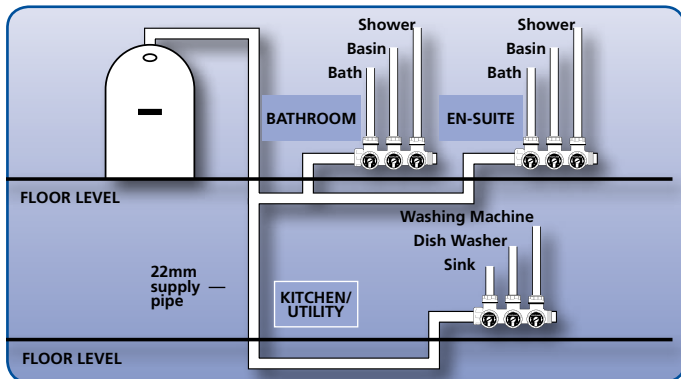
Manifold used above a screeded floor

The supply to each radiator would then be taken off the manifold, these single sided unvalved manifolds are available in both brass with 15mm ports or plastic with 10mm or 15mm ports (10mm pipe for small radiators or short runs and 15mm for longer runs or larger radiators).

Application of manifolds for hot and cold water supply

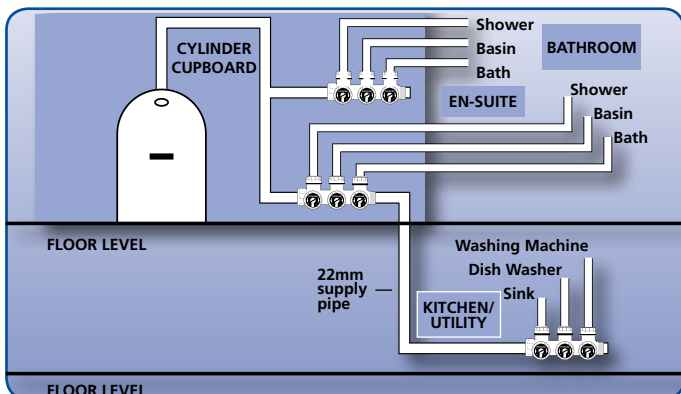
There are two ways that the manifold system can be employed in hot and cold water supply, the benefits of which are that all pipework is concealed but fittings are above floor level and can be hidden away in cupboards and voids. Services can be isolated where needed using the valved manifolds.

Localised supply is where the manifold is placed unobtrusively within a void or cupboard or under the bath in the area supplied, i.e. bathroom, en-suite or kitchen area. The 22mm supply pipe is fed through the house to the manifold and then secondary supply pipes are taken out of the ports to feed each appliance, e.g. basin, bath or shower.



Localised supply design layout

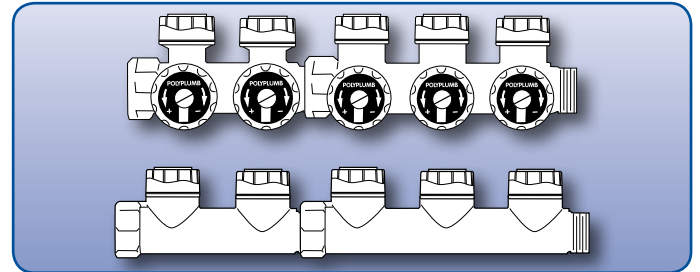
Centralised manifold supply is where the manifold distributes water to each appliance directly from a central cylinder cupboard, where a series of valved manifolds are dedicated to each area, i.e. bathroom, en-suite, kitchen or utility room.



Centralised supply design layout

Using manifolds to create extra ports

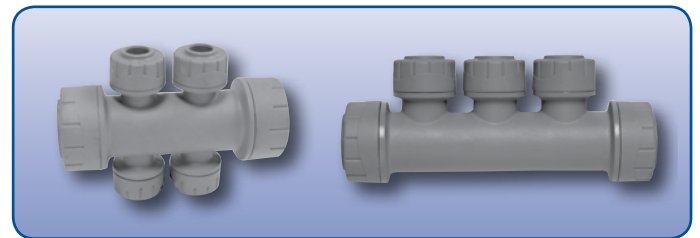
One clever design feature of the Polyplumb Manifold Range is that both polybutylene and brass manifolds can be joined together to create extra ports where required.



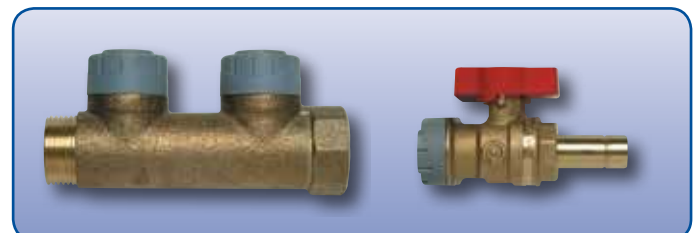
Joining together of manifolds increases number of ports

Manifolds options

There are three distinct variations of manifolds that can be employed. Both brass and plastic non-valved (with separate push-fit ball valves if required) or brass integrally valved manifolds can be used. Manifold brackets are also available for brass products.



Polybutylene double sided manifold - 4 port and Polybutylene single sided manifold - 3 port



Brass single sided manifold unvalved - 2 port and Ball valve brass



Brass single sided manifold valved - 3 port and manifold bracket

Conduit Pipe and Pipe-in-Pipe

The conduit pipe coils (CPC15XX and CPC22XX) provide a conduit pipe which allows 15mm and 22mm pipes to be laid in a floor screed whilst conforming to Water Regulations.

The installation and application of the system is described in the following section. The conduit pipe used in conjunction with the conduit boxes (JIB1 and JIB3) which house fittings, provides a cost effective and practical pipework solution.

Polyplumb Pipe-in-Pipe consists of a polybutylene barrier pipe encased within a black conduit pipe.

The conduit provides protection for the polybutylene pipe in the installation process as well as allowing easy withdrawal for future alteration or maintenance.

Installing conduit systems

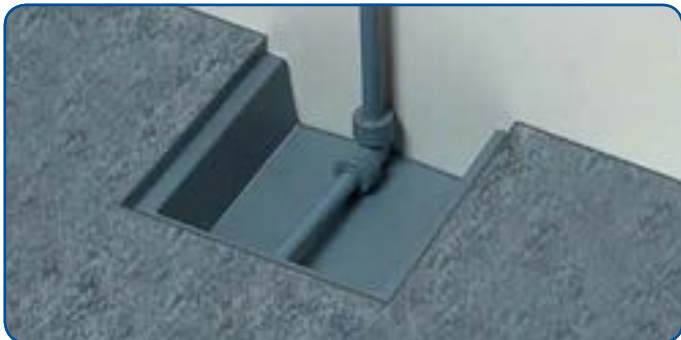
Step 1: Positioning the conduit box

Loosely position conduit boxes where required.

Step 2: Assembling fittings

Assemble fittings in boxes

HANDY TIP: Where boxes abut a wall, i.e. elbows beneath radiators or sanitary appliances, boxes can be cut in two with the open end abutting the wall, this reduces the number of boxes required.



Step 3: Positioning drill holes

Drill conduit box using fitting assembly to determine hole position.

Step 4: Fixing the conduit box

Fix conduit box to floor.

HANDY TIP: Use round drilled out sections of conduit box as washers.

Step 5: Preparing the pipe

Make joint at one end of pipe to be installed and cut pipe to length required.

Step 6: Cutting conduit pipe

Cut conduit to length required before threading conduit over pipe and through hole in box to 2 or 3 corrugations.

Step 7: Securely fitting conduit pipe

Push away pipe from end yet to be connected to allow grip onto the pipe and push the pipe into the fitting before allowing conduit to cover pipe.

Push conduit through hole in box to 2 or 3 corrugations.





Joins in screeded floors due to accidental damage

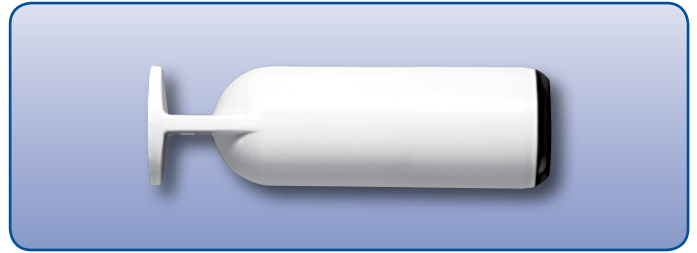
Where it is necessary to have joints in screeded floors, these joints must be accessible. For example, where accidental damage to a pipe has occurred, the damaged section of pipe must be removed and replaced. The section containing the joints must be installed within a Junction Inspection Box. Junction Inspection Boxes are manufactured to suit two screed depths; 65mm (Product Code JIB3) - black in colour and 75mm (Product Code JIB1) - grey in colour. Both accept the 12mm plywood lid (Product Code JIB2) to provide future access should it be required.

Pipe and Fitting Blanking

Pipes and fittings may need to be temporarily or permanently blanked for testing, avoidance of construction debris or for future connections.

There are a number of options for blanking pipes in the Polyplumb and Polyfit ranges. For example for permanent capping off of pipes we would recommend the use of a Polyplumb socket blank (product code PB19XX) or where blanking off is only a temporary measure then either a Polyplumb demountable cap end (PB69XX) or Polyfit socket blank end (FIT19XX) is ideal.

Fittings can be blanked off using either a Polyplumb blank end (PB9XX) for permanence or a Polyfit version (FIT9XX) which features handy finger slots for gripping when demounting when used in temporary situations.



Polyfit Spigot Blank End

Painting

Pipes and fittings can be painted using emulsion or undercoat and gloss. Cellulose based paints, strippers or thinners must not be used.

Electrical safety

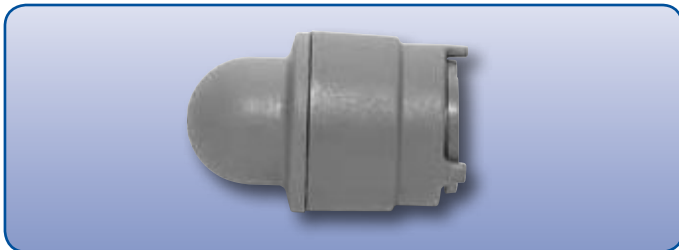
Where Polypipe pipes break the continuity of existing metal pipe, which may be used for earthing, or bonding this continuity must be re-instated by affixing permanent earth clips and a section of earth cable between the copper ends on either side of the plastic sections.

Equipotential bonding

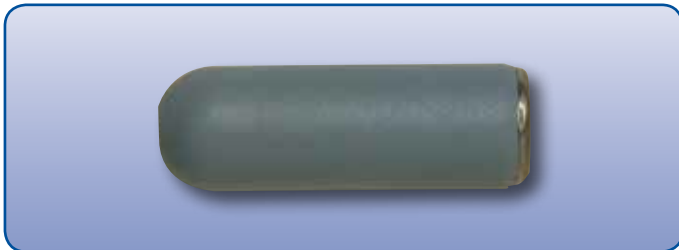
Both the IEE and the Chartered Institute of Plumbing and Heating Engineers now give guidance on the Earth Bonding requirements of Plastic Pipe systems. As plastic pipes do not conduct electricity, installations generally require less equipotential bonding than metal systems although if in doubt exact guidance should be sought.



Polyplumb Socket Blank End



Polyplumb Demountable Socket Blank End



Polyplumb Spigot Blank End



Polyfit Socket Blank End

Handling and storage of products

The packaging of both pipes and fittings is designed to protect from ultraviolet light and environmental contamination. Pipes and fittings should therefore be retained in their packaging as long as possible, and should be stored in a cool dry area.

When on site, fittings should be stored to prevent dust and debris from entering the fitting and sticking to the pre-lubricated 'O' ring. Care should be taken to avoid scratching the pipe surface during the handling, storage and installation processes.

Insulation of pipework

If pipe and fittings are installed in an environment that is not heated or alternatively outside, they should be protected from potential frost damage in accordance with BS6700 and BS5422.

System testing

Pressure testing of the pipe system is essential however a successful pressure test using the following steps is not a guarantee of complete and correct installation and only ensures that pipes have been inserted into fittings passed both the 'o' ring and the grab ring. If pipes have been scored or scratched during the installation process a high pressure test as below may not highlight these issues.

Step 1: 1st fix Installations

Pipe and fittings only should be tested. The system should be filled completely using water not more than 20°C at a test pressure of 18 bar which should be applied for not less than 15 minutes and no longer than 1 hours. Joint security can be checked visually and by tugging at joints.

Step 2: 2nd fix Installations

Complete installations including appliances should be tested with water to the maximum pressure allowed by the manufacturers of the appliances and fittings. Please note, due to health and safety reasons pipework installations must not be air tested.

Pressure testing in sub zero temperatures

Special precautions are necessary if the pressure testing is to take place in sub-zero temperatures.

This applies particularly in under floor central heating systems using the screeded floor system where most of the pipe is encased in concrete. Due to the contact between pipe and floor panel on screeded installations, where the screed does not completely surround the pipe, there may be points where strain is created on the pipe in freezing conditions which is not normally present.

Therefore it is advisable to drain the under floor central heating system once testing and screeding has been completed.

Precautions should also be taken where installations contain large quantities of fittings which due to the rigidity of their construction may put undue pressure on the pipe.



EXTENSIVE SUPPORT SERVICES



An underlying ethos of the Polypipe Group is a recognition of the importance of our distribution channels and a commitment to customer support.

Standards

Polypipe meets, and constantly strives to exceed, the changing laws and regulations governing our operations and products.

We have invested in extensive testing and development facilities to ensure the products we supply are of the highest quality. Our plumbing systems conform to a number of 3rd party accredited standards which are listed below.



- British Standard Class 5 rated to BS7291 Part 1 and Kitemark Licence Number 38148 to BS7291 Part 1 & 2.



- Polyplumb polybutylene barrier pipe, fittings and accessories are covered by BBA Certificate No 00/3699.



- Listed in the WRAS Water Fittings and Materials Directory.



- Standards Manufacturing Quality Assurance - in accordance with BS EN ISO 9002 (BSI registered firm Certificate FM00318).

At Polypipe we pride ourselves on offering the highest quality products, and wherever possible our products and processes are covered by independent third-party accreditation, so you can rest easy knowing that you are buying from the UK's market leading manufacturer. We have invested significantly in our quality control procedures, have our own fully-equipped modern laboratory for development and analysis, and also have our own tooling and extrusion processes.

- Installation Standard must follow the requirements of BS5955 - PART 8 2001 Plastic Pipework (Thermoplastic Materials).

Guarantee

Polypipe guarantees for 25 years against defects in materials or manufacture of the Polyplumb and Polyfit hot and cold water supply and heating systems from the date purchased.

This guarantee only applies if the products are installed in accordance with the manufacturers recommendations and are used in a normal domestic operation.

A normal domestic operation is defined as a residential property and excludes commercially run residential properties e.g. care homes and is also defined as being part of an open vented or sealed central heating system, direct or indirect single pipe hot water supply or mains or tank fed cold water supply system.

The system must be designed, installed and operated within the temperature and pressure ratings as defined in BS 7291 Class S which are also published in the manufacturer's literature and must also take account of all the other exclusions and limitations as defined in the design, application and installation guidance provided by the manufacturer.

Exclusions apply, please contact the manufacturer for further details.



Customer service

Our friendly customer service team are dedicated to offering a quality service and can help you through every stage of the job. Our technical support team can provide installation assistance support, both before, during and after projects. This support also includes design and estimating services, to ensure you get the right product for your job. Site support engineers are also available to help with any queries or problems on site.

This extensive range of products is backed up by the dedicated service and support provided by our customer service team and throughout the supply chain: from initial order through to post installation site support. This service and support ensures that all our customers' projects are completed successfully, and is the reason why we are seen as the manufacturer of choice and why many of our customers come back time and time again.

Distribution

Polypipe's distribution network is a crucial aspect of our business. In order to maintain a quality delivery service, we have a dedicated fleet of 150 commercial vehicles and 300 trailers, which between them travel over 13.5 million miles per year.

We hold an extensive stock of products, enabling us to provide merchants with a fast and efficient delivery service. We ensure Polypipe stocking merchants always have a wide range of products available.

Our sales team are always on hand for product advice and technical support is available for our head office technical team.

Merchant support

- Events
- Point of sale material
- Literature
- Promotions
- Stock profiling

Installer support

- Dedicated trade websites
- Technical support
- Literature
- Training

Builder and developer support

- Technical support
- Design and scheduling service
- Literature
- On site training



Plumbing & Heating Systems

POLYFIT

The **FAST & DEMOUNTABLE** system

POLYPLUMB

The **FAST & PERMANENT** system

POLYSURE

The **SLIM & PERMANENT** system

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