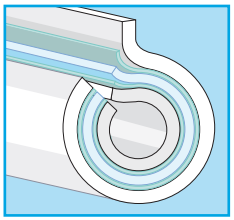
INSTALLING PIPEWORK

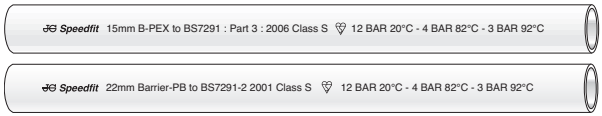
SPEEDFIT BARRIER PIPE

Speedfit Barrier Pipe is manufactured to BS 7291 Parts 1, 2 and 3 Class S and is Kitemarked.



It is made up of 5 layers, the centre of which is a blue coloured oxygen barrier which prevents the ingress of air into the system, thereby reducing the effect of corrosion on metal components.

Because of its low thermal conductivity, when carrying hot water, Speedfit Pipe is cooler and therefore safer to touch. Relatively low heat loss through radiation means that a system retains its heat longer and delivers hot water more quickly and with less wastage than a metal system.



The pipe is available in coils and straight lengths. See page 19. Pipe markings are spaced to aid the making of a good connection when using a Superseal Pipe Insert.

PIPEWORK SIZING

For general guidance on pipework sizing, please refer to BS6700 or the Institute of Plumbing Engineering Services Design Guide. Speedfit Fittings are suitable for pipes within ±0.1mm of nominal size. They can be used with copper pipe to BS EN 1057 or Speedfit Plastic Pipe.

The Product Range List shows the fittings available for reducing pipe diameters within the system.
Speedfit Pipe is available in straight lengths and coils.

PIPE BENDING

Gentle bends can be made with pipe clips on either side of the curve, positioned to maintain the bend radius.

Tighter bends can be achieved by using the cold forming bends shown on page 35.

Internal Bending Springs are available in 10mm to 22mm sizes. See page 35.

It is also possible to bend Speedfit Pipe using a standard pipe bender. The pipe should not be heated with a blowlamp or hot air gun.

Minimum bend radii for Speedfit Pipe are as follows:

Min Radius	***Pipe Diameter***			
	10mm	15mm	22mm	28mm
with Cold Forming Bends	30mm	75mm	110mm	-
with Clips	100mm	175mm	225mm	300mm

For bends of radii smaller than those shown, standard elbow fittings are recommended.

PIPE SUPPORT AND CLIPPING

There are two types of pipe clip in the Speedfit Range.

Firstly, a nail clip is used for fixing to timber when running concealed pipe work i.e. underfloor or in a roof space . This clip takes less time to fit and is compact which allows pipework to be fixed close together when space is at a premium.

The second type uses a screw and therefore takes a little longer to fix. When pipes are required to cross over, it is possible to add a spacer to the clip. This will give room between the pipe and the wall to allow the pipes to cross over. If pipework needs to be insulated, using the spacer will give room for the lagging to be applied.

Pipe clips should not be fitted any closer than 60mm from the end of the fitting to allow for expansion. Pipes should always be adequately supported to prevent undue stress or side load on the fittings.

RECOMMENDED CLIP SPACING

For surface mounted pipes.

Pipe Diameter	*Clip Spacing*	
	Horizontal Run	*Vertical Run*
10 - 15mm	300mm	500mm
22mm	500mm	800mm
28mm	800mm	1,000mm

PIPE SIZING

For general guidance on pipework sizing, please refer to BS6700 and BS5449 or the Institute of Plumbing Engineering Services Design Guide. Speedfit Fittings are suitable for connection to pipe sizes within ± 0.1mm of nominal size.

The maximum heat carrying capacity and flow of Speedfit Pipe, based on 1.2m/s velocity and an 11°C temperature drop is shown in the table below.

Pipe size	*Max Capacity KW*	*Max Flow litres/sec*	*Headloss m/m pipe*
10mm	1.948	0.042	0.283
15mm	5.941	0.129	0.139
22mm	13.604	0.295	0.084
28mm	21.991	0.478	0.062

PIPEWORK INSULATION

The insulation requirements for Speedfit Pipe are the same as those for copper and should comply with BS6700 and BS5422.

CONCEALED PIPEWORK

The flexibility of Speedfit Pipe gives it the ability to be threaded through concealed or inaccessible spaces without disruption to surrounding structures, making major savings in installation time.

Pipework can be “cabled” through drilled holes in joists and rafters. Therefore, pipework can be installed after floorboards have been laid, working below the floor before the ceiling is installed.

This makes site work far safer as the installer does not have to balance on open joists with the risk of dropping tools or equipment on other people below.

This will also eliminate the risk of damage by floorboard nails. There is no need for dry runs since pipe can be cut and connections made in-situ.

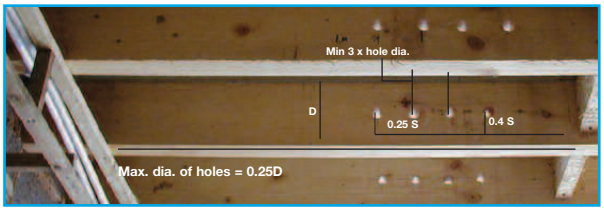
Rigid pipe, such as copper, can only be fed under floor in short lengths. However, Speedfit Pipe, being flexible, can run from one fitting to another without having to install a connector in between.

Speedfit needs no jointing materials, eliminating the risk of fire from the use of a blowlamp, solder and flux.

TRADITIONAL JOISTS

Instructions on the drilling of joists is given in the Building Regulations Approved Document A, and summarised as follows:

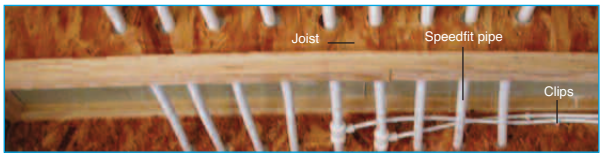
1. Holes should be no greater than 0.25 of the depth of the joist.
2. Holes should be drilled at the neutral axis.
3. Holes should not be less than 3 diameters (centre to centre) apart.
4. Holes should be located between 0.25 and 0.4 times the span from the support.



TIMBER I BEAM JOISTS

Several types of joists are available and Speedfit recommends that specific manufacturers details are consulted. However, the following can be used for general guidance.

- Holes may be located vertically anywhere in the web, but leave 3mm web at the top and/or bottom of hole. Do not cut into joist flanges when cutting the web.
- If more than one hole is to be cut in the web, the distance between the edges of the holes must be at least 2x diameter of the largest hole.
- Generally joists are manufactured with 38mm perforated knockouts in the web at approximately 300mm centres along the length of the joist.



CROSS WEB JOISTS

Unlike I beam joists, pipe can be cabled anywhere within the open Web as no drilling is required. However, the top and bottom flanges must not be notched. Avoid damaging the outside diameter of the pipe as you cable through the metal cross web members.

TIMBER FRAMED CONSTRUCTION

Speedfit is well suited for timber frame construction. Ensure that the structural integrity is not compromised when installing the pipework.

If the pipe passes through an external wall, care must be taken not to damage the vapour barrier and should be installed on the inside of the thermal insulation layer.

If this is not possible, the use of conduit should be specified at the design stage.

STEEL FRAMED CONSTRUCTION

Speedfit is well suited for steel frame construction and care should be taken when installing the pipework.

All runs should be installed through preformed holes in the structure and protected by a rubber or plastic grommet.

Where clipping of pipework is restricted, cable ties may be used to secure the pipe.

As with all installations, make sure that any pipework passing through walls and floors does not affect the fire resistant properties of the structure.

DRY LINED WALLS

Speedfit Pipework can be easily cabled through studwork and within wall systems as well as behind “dot and dab” plasterboard installations. Speedfit 10mm Barrier Pipe is most commonly used to feed radiators.

If incorporating fittings in this way, collet covers or collet clips must be used with the **Standard** Range of Fittings.

WET PLASTER

To prevent surface damage to the plaster caused by expansion and contraction of Speedfit Pipes, it is important to ensure that all Speedfit Pipework is channelled into the wall and protected with appropriate sleeving. Alternatively, the pipework can be surface mounted and boxed in if required for aesthetic appearance.

LAYING OF PIPE IN CONCRETE AND MASONRY

Speedfit Pipe and Fittings can be laid in concrete and masonry providing they are installed in conduit pipe with access boxes for the fittings. As stated in Water Regulation Schedule 2.7 and BS 8000 : Part 15, fittings and pipe should be removable for possible replacement. Insulation is also recommended to protect against heat loss and the effects of frost.

Speedfit Conduit Pipe is supplied in either 15mm or 22mm in coil lengths of 25m or 50m. The flexible convoluted pipe has an outside diameter of 24mm and 30mm.

EXPOSED PIPEWORK

On long exposed runs of pipework, the expansion of Speedfit Pipe when warm (1% on length between 20 to 82°C) can cause it to sag between clip fixings. When this is undesirable, pipework can be boxed in or replaced with rigid copper pipe.

Speedfit Pipe and Fittings are stabilised to withstand limited exposure to ultra-violet radiation in sunlight but are not designed for permanent direct exposure. Under such conditions painting or lagging is required. Pipe and fittings should also be lagged to prevent frost damage.

CHEMICAL EFFECTS

Only water or oil based paints should be used. Do not allow Speedfit Fittings to come into contact with cellulose based paints, paint thinners or strippers, solder flux or acid based descalents or aggressive cleaning products. If there is a risk of any chemical treatments coming into contact with Speedfit, please contact the Technical Advisory Service first to check compatibility.

FLUXES AND SPEEDFIT

JG Speedfit does not recommend that fluxes of any type come into contact with our pipe and fittings. However, if fluxes are to be used in an environment where Speedfit is installed then we recommend installers use non-acidic and zinc chloride free fluxes such as Fernox Flux.

ACOUSTIC

Properly installed, Speedfit Pipes are virtually silent in operation and do not resonate; they absorb the acoustic vibrations and pressure waves created by cavitations, water hammer, float operated valve oscillation and other hydraulic effects. The inherent flexibility of Speedfit Pipe effectively eliminates these troublesome problems, including those that occur when, due to thermal expansion, metal pipes rub against structural members and where long, straight runs of rigid pipe amplify water borne noise.

PROTECTION AGAINST RODENTS

When used in locations vulnerable to rodent attack, all plastic pipes and fittings should be adequately protected within sealed ducts.

Speedfit Products along with other materials such as electrical cables may be damaged if rodents are present. If vermin infestation is suspected then a rodent exterminator should take appropriate action.

BIOLOGICAL

No taste, colour, odour or toxicity is imparted to water by Speedfit Components, nor do they promote microbiological growth.

In accordance with BS7291: Part 1 requirements, the opacity of both pipes and fittings allows insufficient light to pass for the growth of algae.

Tests within the Water Regulations Advisory Scheme, have approved Speedfit Pipe and Fittings to BS 6920 for water quality.

SYSTEM TESTING

On completion of the plumbing and heating system it is essential that system checking and a hydraulic wet test takes place. Connections to boilers, radiators and sanitary ware should first be capped or plugged.

Testing Should be carried out at 2 bar for 10 minutes followed by 10 bar for 10 minutes.

This testing combined with other relevant checks, should reveal most system problems. Any components within the system not designed to take these pressures should be disconnected.

Before carrying out a pressure test ensure all Speedfit Pipe and fittings are installed correctly. Speedfit Barrier Pipe is printed with insertion marks to help ensure full insertion has been achieved.

Remember pressure testing is NOT a substitute for making sure fittings are clean and free of any grit, dirt or swarf and the pipe is correctly inserted (see Making a Good Connection).

SYSTEM COMMISSIONING AND FLUSHING

With existing systems, flushing prior to the use of Speedfit is essential to remove any harmful contamination or chemical residues from elsewhere in the system.

For the installation of central heating systems flushing procedures must be in line with BS7593 code of practice for treatment of water in domestic hot water heating systems.

Flux residues used in the soldering of capillary fittings are very corrosive. Dirt and grit, which can enter the system when Speedfit Pipe is being pushed through underfloor or across a roof space, must be removed.

During the commissioning of a heating system, all air must be removed from the system before the boiler is allowed to fire. This will ensure pockets of air do not cause localized overheating within the system as this could have a detrimental affect on the pipework and boiler.

For further advice on chemical flushing agents and inhibitor treatments, the following manufacturers should be contacted: Fernox Manufacturing Ltd., 01799 550811 or Sentinel Betz Dearborn Ltd., 0151 420 9595.

TECHNICAL ADVISORY SERVICE

The JG Speedfit Technical Advisory Service is available to assist and advise on all aspects of using the Speedfit system. The service is available between 8.00am and 5.00pm, Monday to Friday on Telephone No. 01895 425333 and Fax No. 01895 425350. Products within this Product Guide are designed for use within UK plumbing and heating installations or in other countries where similar installation requirements apply. For information on products suitable for use in other countries please consult our Technical Advisory Service.

We take pride in the quality of our products and all complaints are investigated thoroughly. If you have a problem with a Speedfit Product please return both fitting and pipe to us for investigation. We will need at least 50mm of pipe to ensure an accurate analysis. If there is a suspicion that the pipe is faulty, please provide marking details from the pipe.

METAL FOIL TAPE

JG Speedfit aluminium Foil Tape can be used to fulfil the NHBC requirements for the identification of location of plastic pipes in or behind a wall surface by a metal detector. It features a bright aluminium finish, rubber/resin high-tack adhesive and quality siliconised backing paper to allow the easy handling of short, cut lengths.

DO NOT stick the tape to the Speedfit pipe or fittings or those of any other manufacturer.

COMMON PROBLEMS AND IDENTIFICATION

Problem : Burst or melted pipe.

Pipe will be distorted showing either a ‘Parrot beak’ look or a long opening with the edges of the pipe melted in a wave shape.

Identification : A ‘Parrot beak’ will have been formed by the pipe bursting due to the water freezing. If the Pipe has a melted appearance it will have been subject to a temperature in excess of 128˚C. This will have been caused by direct contact with a heat source such as a blowtorch or flue pipe or by water or steam within the system rising above safety levels.

Problem : A fitting or part of a fitting dissolved - the fitting may have blown off the pipe and may have missing component parts.

Identification : The fitting will have failed because of a chemical attack. The most common attack is from acid based solder flux running down into the fitting during soldering of a nearby copper fitting or flux coming into contact with the fitting in some other way.

Problem : Weep from fitting.

Identification : The pipe has not been fully inserted up to the pipe stop or one or both of the ‘O’ rings have been damaged by burrs or sharp edges on the end of pipe. See ‘What Not to Do’ on page 09.

Problem : The fitting has blown off the pipe. Fitting is missing the collet, the pipe insert is still inside the fitting after the pipe has come out.

Identification : If this happens on first fix, the most likely reason is that the pipe has not been fully inserted into the fitting, up to the pipe stop, and the system has not been pressure tested.

If the collet (gripping device) is missing everything will blow out. If the collet is there and the pipe support is still inside the connector but the pipe has still blown out, this means that full insertion had not been accomplished.