

# TECHNICAL CHECKLIST - PLUMBING AND HEATING FITTINGS

## Fittings and pipe should be kept clean and undamaged before use.

- **Sizes.** 10mm to 28mm diameter.
- **Pipes.** Speedfit fittings can be used with:
  - Copper pipe to BS EN 1057
  - Speedfit Barrier Pipe to BS7291

Speedfit fittings cannot be used on stainless steel pipe.

- **Standards.** Speedfit products are designed and manufactured under a fully integrated system assessed by B.S.I. to BS EN ISO9001 and are approved by the Water Regulations Advisory Scheme. Speedfit 'PEM', 'PSE' and 'SFM' Fittings and Speedfit Barrier Pipe are Kitemarked to BS7291 Parts 1, 2 and 3 Class S (Licence No. KM39767).

- **Applications**
  - Mains fed and indirect cold water systems
  - Vented and unvented hot water systems
  - Vented and sealed central heating systems

- **DO NOT USE FOR Gas, fuel oil or compressed air applications.**

- **Working Temperatures and Pressures.**

Application	Usual working temperature, °C	Maximum working temperature, °C	Maximum working pressure, bar
<b>Cold Water</b> (indirect and direct mains)	20	20	12
<b>Central Heating</b>	82	105, short term malfunction at 114	3
<b>Hot Water</b> (including unvented cylinders)	65	95	6

- **Burst Pressure (fittings).** With copper or plastic pipe at 20°C: Speedfit fittings used with copper or Speedfit Barrier Pipe will withstand pressures well in excess of normal service conditions.

- **High Temperatures.** Can withstand 114°C intermittently for short periods. The Speedfit system should not be used on an uncontrolled heat source.

- **Insulation.** Should comply with BS EN 806 and complimentary guidance document BS 8558, and BS5422, as for copper.

- **Minimum Bend Radii (BPEX)**

Pipe Diameter	10mm	15mm	22mm	28mm
Min radius with clips	100mm	175mm	225mm	300mm
Min radius with cold forming bend	30mm	75mm	110mm	-

- **Minimum Bend Radii (BPP)**

Pipe Diameter	10mm	15mm	22mm	28mm
Min radius with clips	80mm	120mm	176mm	-
Min radius with cold forming bend	30mm	75mm	110mm	-

- **Clip Spacing (in mm) For Surface Mounted Pipes**

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

Where pipe is concealed, clipping may only be required where necessary.

- **Expansion (PEX pipe).** 1% on length between 20°C and 82°C.

- **Flow Rates.** Comparable with metal systems.

- **Cleaners, Inhibitors and Descalents.** For advice on the replenishment of additives such as corrosion inhibitors, the following manufacturers should be contacted: Fernox Manufacturing Limited on 0330 100 7750, Sentinel BetzDearborn Limited on 0151 424 5351 or Adey Innovations LLP on 01242 546717.

- **Paint and Chemicals.** Use only water or oil based paint. **DO NOT ALLOW CONTACT WITH** jointing compounds, cellulose based paints, paint thinners or strippers, solder flux, acid based descalents or aggressive cleaning products, including those below pH4, high in hypochlorite (e.g. bleach) or containing hydrogen peroxide. (See the DISINFECTION OF HOT AND COLD WATER SYSTEMS section of the Product Guide installation advice for specifically permitted disinfection procedures).

- **Solder Flux.** No fluxes of any types should come into contact with JG Speedfit Pipe and Fittings. If fluxes are to be used in an environment where Speedfit is installed, then (1) extreme care should be taken to ensure that no such contact takes place and (2) JG recommend installers only use fluxes tested and approved in writing in advance by JG. At the date of this publication, the only such approved flux is Fernox Flux.

- **Chlorine.** Speedfit is not suitable for use in systems where the water contains high levels of chlorine. e.g. swimming pools, fountains etc.

- **Exposure to Sunlight.** Speedfit products, when used indoors, are not affected by sunlight. When used outdoors protect from ultra violet light by lagging or painting.

- **Pipe Clips.** Pipe clips should not be fitted any closer than 60mm from the end of the fitting. Pipe should be adequately supported by pipe clips to prevent undue stress (side load) on fittings.

- **Pipe Inserts.** Must be used on all installations when using plastic pipe and should be fully inserted. Only use a Speedfit Insert with Speedfit Pipe.

- **Metal Joists.** When 'cabling' plastic pipe through metal joists ensure rubber grommets are in place to prevent damage to pipe. Use of collet covers or collet clips on fittings recommended.

- **Connection to Boilers.** A minimum 1 metre run of copper pipe must be installed between the boiler and the Speedfit system, as per BS5955: Part 8.

- **Connection to Copper Pipe.** 450mm is the minimum distance to make a solder connection on copper pipe inserted into a Speedfit Fitting. Ensure that any residual flux and solder does not come into contact with the fitting.

- **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. This is to enable the pipe to expand and to provide accessibility for both pipe and fitting. As stated in Water Regulation Schedule 2.7 and BS8000: 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.

- **Electrical Continuity.** If Speedfit is used in an existing metal system which may have been used for earthing, electrical continuity should be reinstated.

- **Valves and Taps.** Plastic 15mm and 22mm valves and taps available from JG Speedfit Ltd are not suitable for central heating installations.

- **1/4 Turn Valves.** These valves have been designed to allow temporary servicing of downstream equipment and must only be used in the fully open or fully closed position.

### Do Not use these Valves:

- In a partially open position to control flow.
- To provide a permanent termination.
- Without tubing assembled or plugged (or threaded connections sealed).
- As a tap or "faucet".

- **Collet Covers.** Collet covers provide added security against pipe disconnection, e.g. the fittings coming into contact with rigid surfaces and behind dry-lining walls. They are offered in white as standard and in red or blue to provide colour coding of pipe.

- **Collet Clips.** White and Grey collet clips are used with standard fittings to prevent accidental pipe disconnection. Red or blue clips provide colour coding of pipe. Red and blue clips should not be used to prevent accidental release of pipe.

- **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 draw off points that may be distant from the source or hot water storage vessel. 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 BS7291 2010 Class S or WRAS approval standards, and for this reason Speedfit products must not be used on any continuously operated re-circulating systems as they are not approved under the current version of these standards.

- **System Testing.** To ensure the pipework and fittings have been installed correctly, whether it be on a new or extended system, it is essential that the system is checked and hydraulically wet tested. Testing should be at 2 bar for 10 minutes and 10 bar for 10 minutes. This testing, combined with other relevant checks, should reveal installation problems and is regarded as good plumbing practice. Speedfit Stop Ends and Plugs are particularly useful during this operation, enabling all outlets and any fittings to be easily plugged. However, system testing should not be regarded as a substitute for correct installation. See also "Making a Good Connection".

- **System Flushing.** As is usual practice for any plumbing installation, flushing of the system prior to the use of Speedfit is recommended to remove any contaminants/chemical residue from elsewhere in the system.

- **British Gas Service has accepted the John Guest Speedfit fittings as being suitable for open vented and sealed central heating systems and as eligible for acceptance onto its service contracts.**

- Products within this Price List 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.

- **Vermin.** Speedfit products should not be used in vermin infested areas.

- **Maximum Torque Figures (BSP & BSPT).** Plastic threads are not generally as strong as brass threads. Customers and end users should be aware of this when choosing products for their applications. Overtightening of plastic threads will cause undue stress and eventual cracking and leakage. The maximum torque figures for BSP and BSPT threads used on Speedfit plumbing products in mating threads conforming to relevant BS or International thread standards are shown below.

Threads	Size	Maximum Torque
Plastic	1/2"	3.0 Nm
	3/4"	4.0 Nm
Brass	1/2"	4.0 Nm
	3/4"	5.0 Nm

It is recommended that all installations are checked prior to use to determine that a seal has been made.

- **Side Loads.** John Guest products are not designed to be used whilst under side load as this may adversely affect their ability to function long-term. Always ensure tubes have good alignment with the fitting. They must also not be subjected to any form of impact or other damage, such as being hit or dropped, even accidentally. If fittings have been damaged or suffered an impact, they should be replaced immediately. John Guest warranty does not cover loss caused by any form of damage.

## TECHNICAL CHECKLIST - UNDERFLOOR HEATING

- **Applications.** Underfloor Heating Installations in solid or timber floors.
- **Pipes.** 15mm JG Speedfit Barrier Pipe to BS 7291, Parts 1, 2 and 3 Class S.
- **DO NOT USE Speedfit UFH Products for Gas, Fuel Oil or Compressed Air Applications.**
- **Floor Insulation.** Should be a suitable material and thickness to comply with current regulations.
- **Minimum Bending Radii.** For Speedfit B-PEX Pipe is 175mm.
- **Expansion (PEX - Pipe).** 1% on length between 20°C and 82°C.
- **Cleaners, Inhibitors and Descalents.** For advice on the replenishment of additives such as corrosion inhibitors, the following manufacturers should be contacted Fernox Manufacturing Limited on 01799 550811 or Sentinel, BetzDearborn Limited on 0151420 9595.
- **Paint and Chemicals.** Only use water or oil based paint. DO NOT ALLOW CONTACT WITH cellulose based paints, paint thinners or strippers, solder flux or acid based descalents or aggressive household cleaning products.
- **Exposure to Sunlight.** Speedfit products, when used indoors, are not affected by sunlight. When used out doors protect from ultra violet light by lagging or painting.
- **Pipe Inserts.** Must be used on all installations when using plastic pipe and should be fully inserted.
- **Electrical Components.** Electrical products in the Speedfit Underfloor Heating System are designed only to be used in U.K. Electrical Supply situations.
- **Electrical Continuity.** If Speedfit is used in an existing metal system which may have been used for earthing, electrical continuity should be reinstated.
- **Collet Clips.** White and Grey collet clips are used with standard fittings to prevent accidental pipe disconnection. Red or blue clips provide colour coding of pipe. Red and blue clips should not be used to prevent accidental release of pipe.
- **Pre-Screed System Testing.** To ensure the pipework has been installed correctly and prior to the screed being laid, it is essential that the system is checked and hydraulically wet tested.  
**Testing should be carried out at 2 bar for 10 minutes and 10 bar for 10 minutes.**  
This testing, combined with other relevant checks, should reveal installation problems and is regarded as good plumbing practice.
- **Pressurisation During Screed Laying & Curing.** In accordance with BS1264-4, the system should be left under pressure at a minimum of 6 bar for the duration of the laying and curing of the screed.  
**Under NO circumstances should the UFH System be used to quicken the screed drying process.**
- **System Flushing.** As is usual practice for any plumbing installation, flushing of the system prior to the use of JG Speedfit is recommended to remove any contaminants/chemical residue from elsewhere in the system.
- **Vermin.** Speedfit products should not be used in vermin infested areas.
- **Frost Protection.** During the installation process it is important that pipe containing water be protected from frost.

## TECHNICAL CHECKLIST - FITTINGS FOR COLD WATER SERVICES

- **Applications.** Speedfit Fittings for Cold Water Services are designed to connect MDPE pipes (MRS-PE80) used above or below ground, to convey potable water from distribution mains to individual properties.
- **Pipes.** The Fittings can be used with:-  
- Blue MDPE pipe to BS6572.  
- Black MDPE pipe to BS6730.  
- Blue pipe to BS EN 12201-2, 20mm PN16, 25mm and 32mm PN12.5.
- **Adaptors.** Are available for:-  
- Copper to BS EN1057 and PEX or PB to BS7291.  
- Screwed pipe.  
- LDPE to BS1972 Class C and Class D in 1/2" and 3/4" sizes.
- **Fittings for PEX and Copper Pipe.** Must not be buried into ground, soil, concrete or other substrates.
- **Working Temperatures and Pressures.** Maximum working pressure 16 Bar @ 20°C.
- **Standards.** The Fittings are approved by the Water Regulations Advisory Scheme.
- **Performance.** The fittings are manufactured from tough plastic material well able to meet the stringent requirements of the water industry. They have been approved by the WRAS and, as such, have passed the 'pull out test' where a force shown below is applied to a connection between MDPE pipes and a fitting for 5 minutes without the connection failing.
- **Chemical Effects.** For below ground applications the fittings require no additional preparations - coating etc. When used above ground, avoid contact with aggressive chemical compounds. Protect from frost where necessary. In the United Kingdom, potable water does not contain high levels of chemicals (eg chlorine etc) that would adversely affect Speedfit Underground Fittings.
- **Paint and Chemicals.** Use only water or oil based paint. **DO NOT ALLOW CONTACT WITH** jointing compounds, cellulose based paints, paint thinners or strippers, solder flux, acid based descalents or aggressive cleaning products, including those below pH4, high in hypochlorite (e.g. bleach) or containing hydrogen peroxide. (See the DISINFECTION OF HOT AND COLD WATER SYSTEMS section of the Product Guide installation advice for specifically permitted disinfection procedures).
- **Exposure to Sunlight.** Permanent exposure to direct sunlight will necessitate lagging the fittings.
- **Pipe Inserts.** Pipe inserts must be used and fully inserted on all connections to MDPE, LDPE, PEX or PB pipe.
- **System Testing.** Pressure test to 1.5 times working pressure for 10 minutes before connecting to the mains supply. It is recommended that all pipe and fitting installations are pressure tested after installation before handing over to the final user
- **Maximum Torque Figures.** The maximum torque figures for BSP and BSP threads used on Speedfit products are as follows:-

Test Force	Size		
	20mm	25mm	32mm
Newtons	1900	2500	4100
lbs	427	562	921

Size	Maximum Torque
1/2	3.0 Nm
3/4	4.0 Nm

It is recommended that all installations are checked prior to use to determine that a seal has been made.

The maximum torque figures quoted for use with Speedfit fittings are dependent on the mating thread conforming to the relevant British International thread standards.