

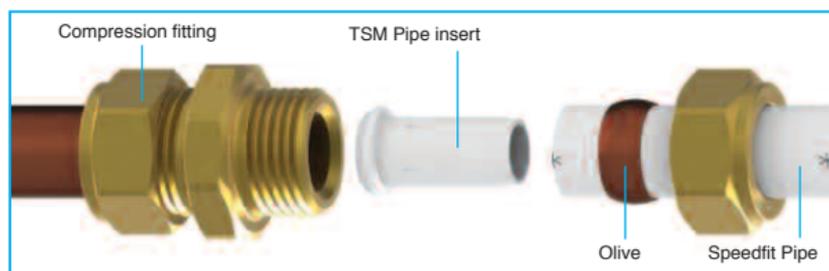
## SYSTEM CONNECTIONS

### CONNECTION TO COMPRESSION FITTING

Many but not all compression fittings are suitable for use with plastic fittings and pipe. Users should therefore check for compatibility. Compression fittings with short tube stop depth or brass olives should not be used with plastic fittings or pipe.

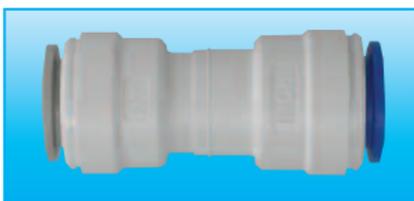
When using compression fittings with Speedfit pipe, a Standard Pipe Insert (prefix TSM) must be used to withstand the compressive pressure of the olive. The olive must be located within the length of the pipe insert and the pipe fully inserted into the fitting. The connection should not need more than 2 full turns after the olive has gripped the pipe. JG Speedfit recommend the use of soft copper olives.

Ensure nut and olive are in place before inserting pipe insert.



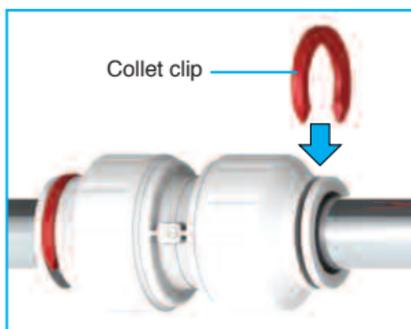
### CONNECTION TO IMPERIAL PIPE AND FITTINGS

The Speedfit Range includes couplers to connect Speedfit Pipe to 1/2" to 1" BSP and BSPT. See page 25 of the Speedfit Product Guide.



Fittings to connect imperial pipe to metric are shown on page 28 of the Speedfit Product Guide.

### CONNECTION TO CHROME-PLATED COPPER PIPE



Speedfit fittings can be connected onto chromium plated copper pipe if the chromium plating is completely removed to the full depth of the fitting. To ensure maximum grip, the fitting of a collet clip is recommended.

It is not possible to connect Speedfit fittings to Stainless Steel Pipe.

## CONNECTION TO MAINS SUPPLY

In modern properties, water enters a building usually in blue MDPE (medium density polyethylene) pipe. In order to comply with Water Regulation Schedule 2.10, the internal plumbing system should be connected via a Speedfit Stop Tap from our Cold Water Services Range, Part No.'s UGSTV2515, 25mm x 15mm or UGSTV2522, 25mm x 22mm.

Connection of Speedfit Pipe to supply pipe of other materials should be via a stop tap with a 15mm or 22mm compression outlet.

## CONNECTION TO BOILERS

**Speedfit pipe should never be connected directly to a boiler.**

Although most modern boilers have a high limit thermostat, residual heat can be conducted by the heat exchanger. Therefore, Speedfit recommend a minimum of 1 metre from the boiler casing should be run in copper pipe unless otherwise stated in the boiler manufacturer's installation literature.

A gravity primary circuit operating on an uncontrolled cooking range or solid fuel boiler should be run entirely in copper and the heating circuit run in copper for the first metre.

Refer to BS 5955: Part 8 for further clarification.

All appliances should have safety devices to make sure they cannot operate above the working temperature and pressure range set out in our Technical Checklist (on page 71 of the Speedfit Product Guide). If safety devices are not incorporated within the appliance then external controls will be needed.

Water meters (and other devices) can contain check valves that prevent the expansion of heated water back down the main supply from a combi boiler. If plastic pipe is to be used, a suitable expansion vessel must be fitted. This is especially important to consider if a water meter is fitted retrospectively. Speedfit do not recommend the use of plastic pipe on the main supply between a water meter and a combi boiler if an expansion vessel is not fitted.

Speedfit Products should not be fitted to a sealed system oil boiler, a back fired boiler or other uncontrolled heat source.

Please also see **Drop-Pipe Systems** on (page 44 of the Speedfit Product Guide or page 4 of this document) and **System Commissioning and Flushing** (on page 54 in the Speedfit Product Guide).

## **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.

## **UNVENTED PRESSURISED CYLINDERS**

Unvented Pressurised Cylinders can be installed using Speedfit pipe and fittings. However if the safety parameters of the cylinder exceed those of the pipe and fittings it is possible to fit a pressure reduction valve on the out going hot supply pipe. This will not interfere with any other cylinder safety devices demanded by regulations as they are all fitted in the incoming side of the cylinder. Run a short length of copper pipe from the cylinder connection (about 150mm - 300mm) then fit a Honeywell DO5F pressure reduction valve. This will protect the pipe and fittings from excessive pressure in the event of boiler / cylinder malfunction. The factory fitted temperature / pressure relief valve on the cylinder will discharge below 100°C therefore protecting the pipe from excessive temperature.

## **CONNECTION TO CYLINDERS & WATER HEATERS**

Speedfit can be used on sealed and open vented heating systems, where boilers are either heating a hot water storage cylinder or instantaneous hot water such as a combination boiler. The temperature and pressure limits of the system must not exceed the maximum values stated under the heading 'Working Temperatures and Pressures'.

When using a traditional copper vented cylinder Speedfit Pipe and Fittings can be installed with direct connections to the cylinder.

Unvented pressurised cylinders can be installed using Speedfit Pipe and Fittings. However, insertion depths on compression joints that form part of the cylinder must be checked prior to installation and the use of standard pipe inserts (Prefix TSM) is recommended.

In accordance with current U.K. Building Regulations (Part G), discharge pipes from temperature and/or pressure relief valves must be run in metal pipework.

Speedfit connections to combined Cylinder/Boiler units and Thermal Storage Units must be made outside the casing unless otherwise stated in manufacturers installation literature.

## DROP-PIPE SYSTEMS

Care should be taken when designing and installing a central heating system where radiators are supplied by pipe work which drops from an upper floor.

With this kind of system it is possible to trap air in the upper floor pipe work. When the boiler is fired the increase in pressure within the pipe caused by expanding air could cause the pipe to burst.

It is therefore essential that the system be designed so that any air can be removed from the system either automatically or manually by installing automatic or manual air vents at the highest points of the system.

## CONNECTION TO PUMPS AND VALVES

Speedfit Pipe should be connected to circulating pumps and motorised valves in accordance with the section in this book headed, "Connecting Plastic Pipe To Compression Fittings". If Speedfit Pipe is not mounted on a supporting structure, the pipe must be clipped close to the component's connections to ensure adequate support and to assist in the reduction of vibration.

For heavier equipment, ensure that appropriate metal brackets provide full and independent support of the components and that it does not rely solely on the pipework for support.

## CONNECTION TO COPPER PIPE

The minimum distance to make a solder connection on copper pipe inserted into a Speedfit Fitting is 450mm (18 inches). Ensure that any residual flux solder is not allowed to come in contact with the fitting. That same measurement is the safe distance to use a freezer kit to Speedfit Pipe.

## CONNECTING TO COLD WATER STORAGE TANK

To install the Speedfit Tank Connector, unscrew the nut and push the body of the fitting through the tank hole with the washer on the inside of the tank.

Hand tighten the nut onto the body. Push the pipe into the connector.

Note: Hand tightening the nut onto the body is all that is required. Further mechanical tightening will damage the fitting.

Maximum wall thickness of tank 4mm



## PREVENTING BACK FLOW

The Speedfit Range includes a Double Check Valve (Part No 15DCV) to enable installers to comply with Water Regulation



Schedule 2.15, thus preventing contamination of water arising from back siphonage, backflow or cross connection.

## RADIATOR CONNECTIONS

The most common way of running pipework to a radiator is to run both flow and return pipes central to the radiator position.



The pipes exit a single gang box (fitted with rubber grommets) located at the mid height of the finished radiator position. This also provides a fixed point for other trades to work to and reduces the risk of damage to the pipework.

Once the plasterboard is installed the pipes are passed through the Speedfit Radiator Outlet Plate to exit plasterboard without the need of unsightly holes.

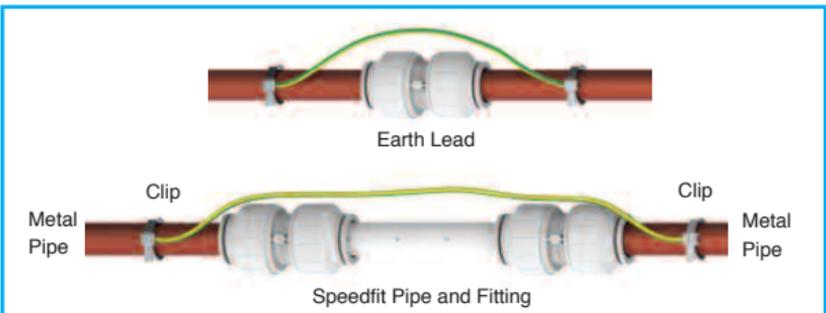
Metal reducing sets which convert radiator valves from 15mm to 10mm are not suitable for use with Speedfit Fittings or Pipe as they can cause damage to the plastic.

## ELECTRICAL CONTINUITY

The plumbing or heating system installer should have these aspects checked to ensure compliance with current IEE Regulations. If in doubt please contact the Speedfit Technical Advisory Service or consult your local Electricity Authority.

IEE Guidance Note 7 provides useful guidance on the design of electrical installations where there is increased risk of electric shock. It recognises that the requirement for supplementary bonding may be relaxed where metal taps and plastic pipes supply other bathroom fittings.

Similarly a metal bath or radiator not connected to an extraneous-conductive-part is not required to be connected to the local supplementary conductors.



## SUPPLEMENTARY BONDING TO BATHROOMS

| Pipe Material |           |                 | Supplementary Bond Required Between  | Comments  |
|---------------|-----------|-----------------|--|---|
| Cold Water    | Hot Water | Central Heating |  |   |
| <b>P</b>      | <b>P</b>  | <b>P</b>        | Earth terminals of protective conductors of class I and of class II equipment and accessible exposed conductive parts of the building structure.                                     | Bonding of metal taps metal radiators or metal baths is not required unless the bath is connected to the metallic building structure. |
| <b>P</b>      | <b>M</b>  | <b>M</b>        | Hot water pipe, central heating pipes, earth terminals of protective conductors of class I and class II equipment and accessible exposed conductive parts of the building structure. | A bond is not required to the taps either hot nor cold, or to metal baths unless connected to the metallic building structure.        |
| <b>P</b>      | <b>P</b>  | <b>M</b>        | Central heating pipes, the earth terminals of protective conductors of class I and class II equipment and access to exposed conductive parts of the building structure.              | Bonding of metal water taps is not required, nor metal baths unless connected to the metallic building structure.                     |
| <b>M</b>      | <b>M</b>  | <b>M</b>        | All metal pipes, earth terminals of protective conductors class I and class II equipment, and accessible exposed conductive parts of the building structure.                         | Metal pipes themselves can be used as bonding conductors if joints are metal to metal and electrically continuous.                    |
| <b>M</b>      | <b>M</b>  | <b>P</b>        | All metal pipes, earth terminals of protective conductors of class I and class II equipment, and accessible exposed conductive parts of the building structure.                      | Metal central heating radiator does not require bonding.  |

**P = Plastic M = Metal NB: All Waste Pipes are plastic.**

1. Supplementary bonding is carried out to the earth terminal of protective conductors of class I and class II equipment within the bathroom. A supplementary bond is not run back to the main earth.
2. Metal window frames are not required to be supplementary bonded unless they are electrically connected to the metallic structure of the bonding.
3. Metal baths supplied by metal pipes do not require supplementary bonding if all the pipes are bonded and there is no other connection of the bath to earth.
4. All bonding connections must be accessible and labelled "Safety Electrical Connection - Do Not Remove".

## **CONNECTING TO OTHER PLUMBING FIXTURES**

As shown in the Product Range List, the Speedfit Range of fittings includes valves, taps, adaptors and connectors for the plumbing of all typical domestic appliances and fittings.

## **DISCHARGE PIPES**

Speedfit Pipe should not be used to provide the discharge from unvented cylinders, unvented water heaters and sealed systems via the temperature relief and pressure relief valves.

## **WATER HEATERS**

Speedfit recommend that mains supply pipework to unvented water heaters (up to 15ltr capacity), be run in metal pipes.