

Solder ring solutions

Yorkshire general range installation instructions

The following instructions illustrate just how easy it is to make a Yorkshire integral solder ring joint. The fittings use the principle of capillary action to allow solder to fill the gap between fitting and tube to form a completely reliable joint. These instructions cover Yorkshire general range fittings. Details of how to joint General High Duty fittings can be found on page 3.

Installation tips

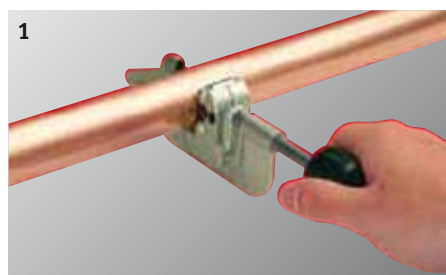
Best results are obtained when joints are heated as soon as possible after assembly. After heating and subsequent cooling, flush the system – preferably with hot water. Ensure adequate ventilation during heating. Any joints not heated during the working day should be dismantled, cleaned and refluxed prior to reassembly.

Preliminaries

Select the correct size of tube and fitting for the job. Ensure that both are clean, in good condition and free from damage and imperfections. If the tube is oval or damaged use a re-rounding tool.

Preparation

1. Cut the tube square using a rotary tube cutter wherever possible. If a hacksaw is used to cut the tube, a fine toothed blade should be used.



2. Remove any burr from the inside and outside of the tube ends using a fine toothed file or a S120 de-burring tool from the XPress accessories range.



3. Clean the inside of the fitting socket and the outside of the tube with a Yorkshire cleaning pad, fine sandpaper or steel wool.



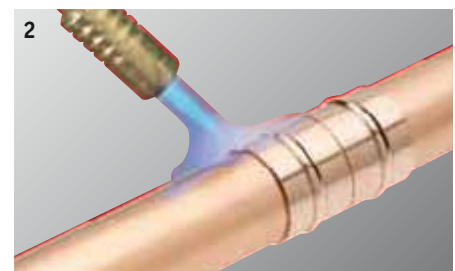
Joining

1. Using a suitable brush, apply adequate – but not excessive – flux to both the outside surface of the tube and the inside surface of the fitting socket. Do not use your finger.

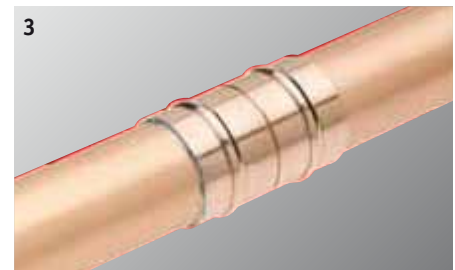
The reliability of soldered joints is greatly influenced by the type of flux used. Yorkshire flux and Traditional Craftsman's flux are specially formulated for jointing copper tubes with Yorkshire integral solder ring fittings. All fluxes are, to some extent, corrosive, but special care should be taken with so-called self cleaning fluxes. Yorkshire flux is not suitable for gas applications.



2. Insert the tube into the fitting until it reaches the tube stop, then wipe off any excess flux. Heat the assembled joint until a complete ring of solder appears at the mouth of the fitting.



3. Allow the joint to cool without disturbance. Clean the joint generally, wiping off any external flux residues. This will prevent unsightly stains or (in extreme cases) corrosion of pipework. Flush out the pipework.



Threaded connectors

A good quality jointing washer should be used when installing fittings with parallel connector threads. Male threaded connectors for jointing pipework to boilers, pumps or backplate elbows have taper male BSP threads and may require the use of jointing materials. A small quantity of inert jointing compound or PTFE tape should be applied to the male thread before installing the fittings.

Female threaded connectors have internal threads to BS EN ISO 228:2003 and should be used for general connections from male threaded fittings to copper pipework.

Jointing compounds should comply with BS 6956 Part 5 and be WRAS listed. PTFE tape for water and general applications should comply with BS 7786 and satisfy

Solder ring solutions

Chrome plated installation instructions

the requirements of BS 6920 Part 1. For gas applications, PTFE tape should comply with BS EN 751-3:1997 (formerly BS 6974).

Stopvalves

During the soldering operation, stopvalves should be half open and a damp cloth wrapped around the headwork. The headwork of stopvalves are bonded and sealed to provide maximum reliability.

Slip couplings and tees

If it is necessary to break into existing pipes for repairs or to fit new branches, slip couplings or tees which have no tube stops make the job easier and avoid disturbing the rest of the system.

Adapting imperial to metric with Yorkshire

Occasionally a Yorkshire integral solder ring fitting may need to be connected to an older installation where imperial sized copper tube has been used. If this is the case, simply use a Yorkshire imperial to metric coupling adaptor, one end of which fits on to imperial pipe, and the other on to metric pipe. Adaptors are available in several combinations.

Unmade ends

If an end of a Yorkshire general range fitting is to remain unmade, a short length of correctly sized, uncleaned tube should be inserted into the end(s) to be left unjointed. This section should be kept cool by wrapping a wet rag around it whilst heating the remaining ends.

Taking apart and remaking Yorkshire joints

The re-use of Yorkshire integral solder ring fittings is generally not recommended, as the joints are difficult to disconnect owing to the intermetallic bonding between the solder and the copper of the fitting and tube. However, in some situations, joints can be remade by fluxing the tinned portion of the tube and reinserting this into the fitting. The joint can then be heated and lead-free solder end-fed. If a new tube is to be used, clean and flux the tube before assembly. End feed lead-free solder at the mouth of the socket after reheating.

Using Yorkshire general range fittings with chrome plated copper tube

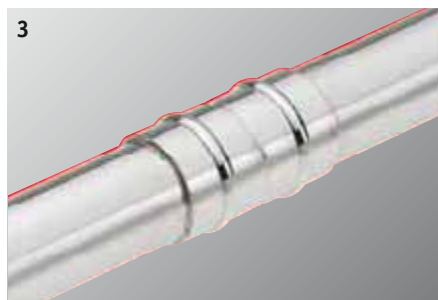
Solder will not bond to chrome plate, meaning the plating needs to be removed from copper tube before a joint is made. The same preliminaries and preparation guidelines apply.

1. For the distance the tube goes into the fitting, remove the chrome plating using a coarse emery cloth, followed by fine sandpaper or Yorkshire cleaning pad.



2. After applying flux, heat the joint in the usual manner.

3. Remove any discolouration of the chromium by washing the fitting with soap and warm water immediately after the joint has cooled.



Local water authority

It's wise to take the advice of the Local Water Authority into account when it comes to pipework accessibility.

Union fittings

Yorkshire union fittings have metal-to-metal cone joints. To avoid leaks, care should be taken to protect the jointing faces from damage. Use a WRAS listed jointing compound or apply a sufficient amount of PTFE tape to obtain completely satisfactory results. Tighten the joint with a spanner.

System testing

We recommend all systems are thoroughly tested upon completion. In hydraulic based installations the system may be tested to 1.5 times the working pressure of the system (see tables on page 48 for data). If higher test pressures are required advice should be sought from Pegler Yorkshire.

On completion, compressed air pipeline systems must be properly tested. The system designer and installation contractor must ensure safe methods are selected for system testing which will comply with all current Health and Safety regulations.

This may include testing compressed air lines with fluids or compressed air at a limited pressure, or a combination. In any event we do not recommend the maximum working pressure of the product be exceeded during this procedure.

N.B. The maximum temperature and pressure range in any system is dictated by the component with the lowest performance rating.

Solder ring solutions

General High Duty installation instructions

Making a Yorkshire General High Duty joint

The same preliminaries apply as for Yorkshire general range fittings.

Preparation

The preparation of Yorkshire General High Duty fittings differs only slightly to those for Yorkshire general range fittings. Details of these differences are as follows:

1. A hacksaw should be used to cut the tube – a rotary cutter must not be used for this application as it can reduce the diameter of the tube ends.
2. An alumina based paper or cloth can also be used to clean the fitting socket as an alternative to a Yorkshire cleaning pad or fine sandpaper. Steel wool should not be used.
3. General High Duty fittings require the use of the correct flux. We recommend Degussa "H" ready mixed paste, although satisfactory joints can be made using other suitable silver brazing alloy fluxes.

Silver brazing alloy fluxes must be used with care and always in a well ventilated area.

If powder flux is used, this should be mixed with clean water and blended into a creamy paste. Mix the required amount of flux and keep the powder in the container dry, replacing the lid immediately after use. Any excess mixed flux should be discarded.

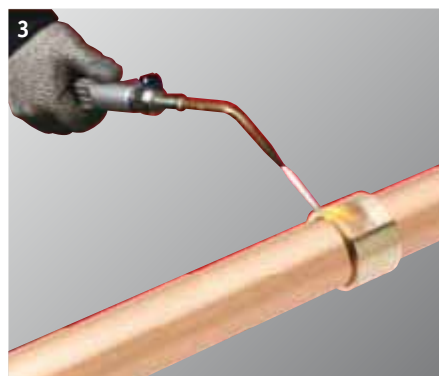
Jointing

1. Using a suitable brush, apply adequate – but not excessive – flux to both the outside surface of the tube to a length slightly greater than the socket depth and the inside surface of the fitting socket. Do not use your finger.



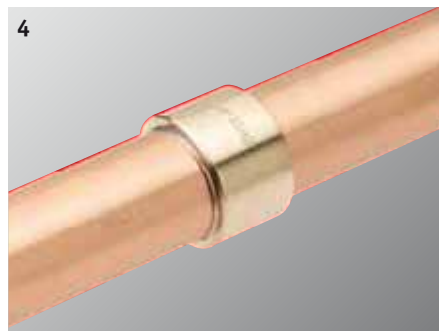
2. Insert the tube into the fitting until it reaches the tube stop, using a twisting action to ensure the spread of flux. Ensure the tubes are correctly lined up and adequately supported – otherwise distortion or cracking may occur when at brazing temperature.

3. Heat the socket and tube gently using an oxy/gas, oxy/acetylene or oxy/propane torch to approximately 700°C – a visible red heat in poor daylight. Use a large, soft, neutral or slightly reducing flame, keep the torch moving, and continue heating until a complete ring of solder appears around the socket mouth - this is proof of a sound joint. Continue to heat generally for a few seconds. Repeat this method for each joint in turn.



If the complete ring of solder does not appear on heating, apply additional flux to the mouth of the socket and end feed the joint with our N165 (Copper coloured) or N166 (Brass coloured) cadmium-free silver brazing alloy, or an equivalent to the compositional requirements of BS EN 1044 AG103 (formerly BS 1845 AG14).

4. Allow the joint to cool without disturbance. Clean the joint generally, wiping off any external flux residues. Flush out the pipework.



Permanence of GHD joints

Joints made with Yorkshire General High Duty fittings should be regarded as permanent. If the system has to be broken into, fittings such as the 11GHD union coupling should be installed at appropriate points. An alternative is the use of bi-metal Endbrazed flanges, in sizes 42mm and 54mm, which will require the end-feeding of solder.

Disconnecting GHD fittings

The use of disconnecting fittings allows sections of the installation to be completed on the workbench, avoiding the need to make joints in difficult places. This prefabrication technique is particularly recommended in sizes from 22mm to 54mm.

GHD union fittings

Union type fittings such as 11GHD, 65GHD and 69GHD have round nose-to-seal joints.

Imperial to metric

Where the layout permits, the most economical way of adapting from imperial to metric is to use the 9GHD.