

# Installation instructions

## Kuterlite 600/900



### INSTALLATION TIPS

1. Ensure the jointing surfaces and threads remain clean and free from grit.
2. If there is a slight weep from the joint, this will be readily corrected by the application of PTFE tape or a smear of an approved jointing compound to the sealing faces.
3. For advice on avoidance of stress corrosion cracking see page 19.
4. A few drops of light oil on the threads will assist the joint making operation, particularly for sizes 35mm and above.
5. More torque is required to tighten the compression nuts of 42mm and 54mm fittings, so spanners no shorter than 750mm (30") should be used.

### TAKING APART AND REMAKING KUTERLITE JOINTS

Kuterlite fittings can be easily dismantled and remade without the loss of joint efficiency, providing the components are kept clean and undamaged. No sealing compound is usually needed to remake a Kuterlite joint, but care should be taken not to trap particles of foreign matter when reassembling. When re-tightening the coupling nut use just enough torque to "nip" the ring. Do not over tighten. Kuterlite fittings can replace union fittings where an infrequent disconnection facility is required.

The following instructions illustrate just how easy it is to make a Kuterlite joint. These cover Kuterlite 600, Kuterlite 900 and waste fittings in sizes up to and including 54mm. Details of how to joint large size Kuterlite 900 fittings can be found on page 4.

### 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.

Copper tube should be of half-hard (R250) or hard (R290) temper. Annealed soft temper tube (R220) may be jointed using Kuterlite fittings.

### 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 deburring tool from the XPress accessories range.

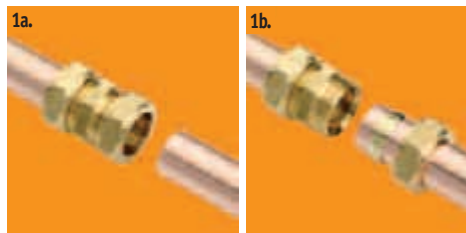


### Jointing copper tube

There are two methods of assembling a Kuterlite joint.

- 1a. Insert the tube firmly into the compression fitting, ensuring that the compression ring seats centrally and that the tube makes firm contact with the tube stop in the body of the fitting.

- 1b. Remove the compression nut and compression ring, then put the nut and then the ring on the tube. Insert the tube end up to the fitting's tube stop. Slide the ring and the nut down to the fitting body.



2. Tighten the nut using your fingers until tight.



3. Tighten the nut further using high quality open ended or adjustable spanners. Spanner flats are incorporated into the design of Kuterlite fitting bodies. The second spanner must be used to prevent the fitting rotating as the nut is tightened. For normal joint making, tighten the nut 1 turn (360°) for fittings in sizes from 6mm to 12mm, or ¾ turn (270°) for fittings in sizes from 15mm to 54mm. A few drops of light oil on the threads will assist, especially on sizes 35mm and above. When jointing stainless steel or R220 copper tube some variation may be needed – the nut may be tightened further if necessary. Take care not to over tighten the compression nut, as this will not result in a stronger joint and could lead to problems in service.



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## Kuterlite 600/900



### Jointing half-hard thick walled R250 copper tube

This copper tube is significantly thicker than other varieties – refer to Table 1 on page 8 for specifications. Special care needs to be taken during installation. Follow steps one to three opposite, but with the following additional precautions:

1. Ensure pipework is supported during and after installation, as thick-walled copper tube is less tolerant of stress on the joints. The pipework should be clipped as close as possible to the fittings, particularly where long runs are involved.
2. Use spanners of the correct size and length. More torque is required to tighten Kuterlite fittings with thick walled copper tube, and care should be taken to ensure neighbouring joints are not disturbed.
3. Apply a light oil to the threads and chamfers where possible. This will reduce assembly torque and minimise the risk of damage. This is essential on sizes above 28mm.
4. If a sealant is required, use a suitable PTFE based compound, eg Loctite 577 or PTFE tape.

### Jointing imperial copper tube

Selected Kuterlite 600 and Kuterlite 900 fittings can be used in maintenance applications to connect copper tube to former imperial sizes, such as BS 3931. For  $\frac{3}{8}$ " use 12mm,  $\frac{1}{2}$ " use 15mm, 1" use

28mm, 2" use 54mm,  $2\frac{1}{2}$ " use 67mm. For other Kuterlite sizes up to and including 42mm, the use of an imperial by metric adaptor ring (K978C) will convert any metric compression fitting to be used with imperial tube. A K910IM can be used to convert sizes 22mm, 76mm and 108mm.

### Jointing PEX and PB pipe

Part 2 can be jointed using Kuterlite 600 or Kuterlite 900 fittings in sizes up to 28mm. To achieve sound joints, ensure the pipe is cut square, and is not damaged or scored in any way. The correct sized pipe support liner must be fully inserted into the PEX or PB pipe before jointing commences. Use the appropriate liner as recommended by the pipe manufacturer.

### Jointing carbon steel and stainless steel tube

XPress Stainless System tube or other stainless steel tube to BS EN 10312 (formerly BS 4127), DVGW GW541; and XPress Carbon steel System tube or other carbon steel tube to DIN 2394/ NEN 1982, can be jointed in sizes up to and including 28mm using Kuterlite 600 or Kuterlite 900 compression fittings. Carbon steel tubes are for use on non potable closed circuit systems only. To achieve sound joints, the following precautions should be taken:

1. Ensure no flats or score marks are visible on the outside surface of the tube. The weld bead should not be visible.
2. A suitable jointing compound should be applied to the sealing faces prior to tightening of the compression nuts. Sealants with PTFE fillers are preferred, with PTFE tape as an alternative.



### 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 9 for data). If higher test pressures are required advice should be sought from Yorkshire Fittings.

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.

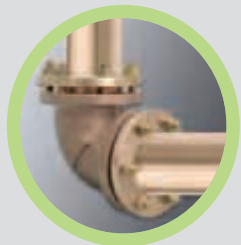
This may include testing compressed air lines with fluids or compressed air at a limited pressure, or a combination. In any event we do not recommend the maximum working pressure of the product be exceeded during this procedure.

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

### THREADED CONNECTORS

Kuterlite threaded connectors have taper male or parallel female BSP threads, and the most popular sizes have parallel male BSP threads. These are for jointing pipework to boilers, pumps or backplate elbows. For taper male threads, a small amount of inert jointing compound or PTFE tape should be applied before installation. When installing parallel male threads, for example to cisterns and cylinders, a good quality jointing washer should be used.

# Installation underground and using reducers



## JOINTING CHROME PLATED COPPER TUBE

Kuterlite chrome plated fittings can be used on chrome plated copper tube without the need for any additional preparation. Assemble the joint in the usual way – refer to instructions on page 14.

## TYPE A & B FITTINGS

### TYPE A COMPRESSION FITTINGS

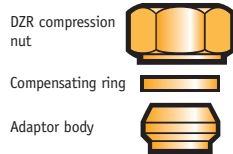
Type A, or non-manipulative fittings enable the installer to make a compression joint without carrying out any work on the tube ends other than ensuring that they are clean, burr free, and cut square.

### TYPE B COMPRESSION FITTINGS

Type B, or manipulative fittings are used with soft (R220) copper tube and require the installer to flare the tube end before the joint is assembled.

### TYPE B ADAPTORS

If soft copper is found in existing installations, the use of an 1870 Kufit adaptor allows conversion of the standard Kuterlite 900 Type A fitting to a Type B connection. The adaptor consists of an adaptor body, compensating ring and a DZR compression nut.



## Jointing R220 soft copper tube.

Kuterlite 600 and 900 fittings can be used to joint R220 soft copper tube in the applications in Table 1.

## Using K900 fittings underground

Kuterlite 900 fittings can be used underground in conjunction with soft copper tube (R220) and an 1870 Kufit adaptor. A hacksaw should be used to cut the tube – a tube cutter must not be used for this application. All jointing surfaces must be kept clean throughout the process. Following preparation of the fitting and tube, assembly is carried out as follows:

1. Slip the compression nut and compensating ring over the tube.
2. Flare the end of the tube using a clean K1822 forming tool of the correct size by dealing a few blows with a hammer. This operation can be made easier with the use of a few drops of light oil.



3. Insert the parallel end of the adaptor piece in the fitting socket and locate the flared tube end onto the tapered face of the adaptor piece.



4. Slide the ring and the nut down to the fitting body and first tighten by hand. Then, using spanners, tighten the nut one full turn. This is generally sufficient to provide a sound, leakproof joint.



## R220 soft copper tube applications compatible with K600/K900

Application	K600 fittings	K900 fittings
Above ground water and heating	In sizes up to 15mm, no pipe support liner is required. In sizes 15mm and above, use a K690 pipe support liner.	In sizes up to 15mm, no pipe support liner is required. In sizes 15mm and above, use a K690 pipe support liner.
Above ground fuel oil	Use a K690 pipe support liner.	Use a K690 pipe support liner.
Below ground water and oil	Not suitable.	In sizes 15mm to 42mm in conjunction with an 1870 Kufit adaptor.
Fuel oil below ground in access chambers as per BS 5410 Part 1	Not suitable.	In sizes 15mm to 42mm in conjunction with an 1870 Kufit adaptor. In sizes 6mm to 22mm in conjunction with a K690 pipe support liner.

## Jointing K947 and K948 reducers

Reducing sets can be used to convert the size of a socket in the fitting. Kuterlite K947 one-piece reducers and Kuterlite K948 reducing sets are used as follows:

1. The use of a suitable PTFE based compound or PTFE tape between the fitting body and reducing set is required when assembling the reducer into the fitting.



- 2a. **K947 only.** Tighten the nut until sufficient force is achieved to snap the reducer. This can be confirmed by an audible click, which is part of the design and does not indicate a fault.

- 2b. **K948 only.** Tighten the nut slowly until the tube is just prevented from rotating.

3. Tighten the nut a further  $\frac{1}{8}$  to  $\frac{3}{8}$  of a turn.

An arrowhead stamped on the bottom of the nut provides a reference point for this.



Only one reducing set can be used per end. For multiple diameter reductions (eg 54mm x 28mm) or double diameter reductions (eg 35mm x 22mm), use only the correct reducing sets.



# Installation instructions

## Kuterlite 900 large size



### Making a large size Kuterlite 900 joint 67mm to 108mm

The same preliminaries and preparation guidelines as Kuterlite 600 and Kuterlite 900 in sizes up to 54mm apply.

1. Place the flange and compression ring onto the tube.



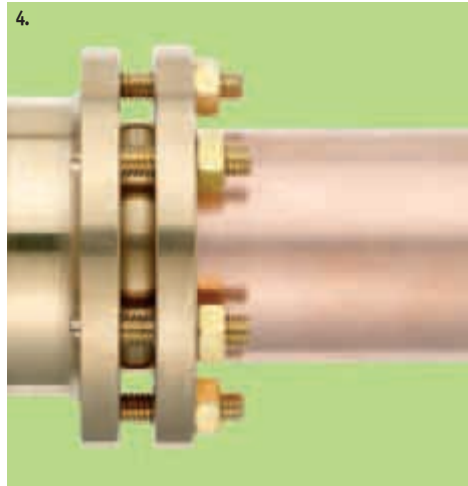
2. Insert the tube firmly into the compression fitting, ensuring that the compression ring seats centrally in the fitting body and that the tube makes firm contact with the tube stop.



3. Bring up the compression flange, and tighten the nuts by hand. Using a spanner, continue to tighten the nuts diagonally in increments of  $\frac{1}{2}$  turn, to a total minimum of 2 turns and maximum of  $2\frac{1}{2}$  turns. DO NOT OVERTIGHTEN THE NUTS as this may distort the flange or shear the nuts.



4. The compression flange should be parallel to the face of the body to indicate that a sound joint has been made.



5. If after assembling the joint in accordance with the instructions above a slight weep is experienced - as occasionally may happen - it will readily be corrected by the application of a smear of an approved sealing compound to the sealing faces.



### EXTENDED RANGE

The Kuterlite 900 range now includes large size fittings in sizes 67mm, 76mm and 108mm.

