Health and safety:

When brazing always wear appropriate personal protective equipment; gloves, flame retardant overalls, eye, head and foot protection. Working areas where brazing processes are to be performed must be well ventilated and free from fire risk. Fumes and gases detrimental to health are emitted from most brazing processes; these must be disposed of quickly, either by use of exhaust ventilation equipment or adequate circulation of fresh air throughout the working area. If necessary where these criteria cannot be assured operators should wear breathing apparatus. A full risk assessment must be completed for all the activities involved specific to the work area where the brazing is being carried out.

Assembly preparation:

1. Check sizes

- Ensure the tube and fitting sizes are compatible.

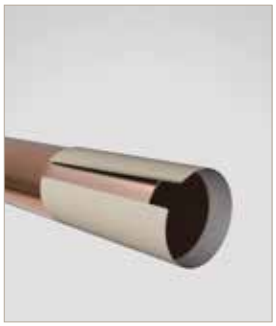
2. Cut to length

- Cut the tube end square, an electric tube cutter is recommended.
- Check the tube has retained its shape and is damage free.

3. Deburr the tube end

- Deburr the inside, and outside of the tube.

4. Clean the tube end



- Clean the tube end using a cleaning pad.
- Tube ends must be free from oxidation, dirt and debris.

5. Mark insertion depth

- Mark the correct insertion depth on the tube.
- The mark will be used as a visual aid prior to brazing.

To braze K65 fittings to K65 tubes without flux:

1. Fully insert tube

- Insert the tube fully into the socket to ensure joint integrity.
- Use the insertion depth mark as a guide.

2. Apply heat evenly

- Apply heat, keeping the flame moving to ensure that parent metals are evenly heated to a cherry-red colour.

Note: A suitable inert gas such as oxygen free nitrogen (OFN) should be passed through the pipework during the brazing process to prevent the build-up of oxides or scale on the inner surface of the tube.

3. Braze Joint

- Touch a brazing rod, strip or wire to the joint mouth and melt in the flame.
- Filler metal is drawn into the fitting socket by capillary action.
- A continuous fillet of filler metal will be visible around the joint.
- To aid development of the fillet, the flame should be kept slightly ahead of the point of the filler metal.

4. Allow joint to cool

- Once brazing is complete, heating should be discontinued.
- During cooling, do not move or twist the components.

Note: Brazing fillers such as CuP279, CuP281 and CuP284 do not require additional flux when K65 components are brazed.

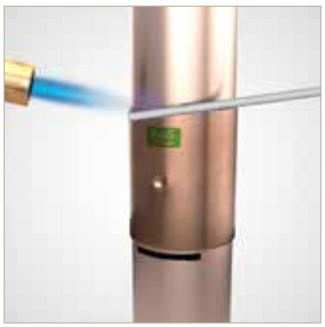
To braze K65 fittings using a flux coated brazing rod:

Follow assembly steps 1-5 under 'assembly preparation' then:

1. Fully insert tube

- Insert the tube fully into the socket to ensure joint integrity.
- Use the insertion depth mark as a guide.

2. Apply heat and flux



- Apply heat, keep the flame moving, apply flux from the outside of the rod. Be careful to avoid localised overheating which may melt the base metal and burn a hole through the tube.
- At the correct temperature, the flux should be clear and flow over the joint area.The parent metals should show a cherry-red colour.

  Note: A suitable inert gas such as oxygen free nitrogen (OFN) should be passed through the pipework during the brazing process to prevent the build-up of oxides or scale on the inner surface of the tube.

3. Braze joint

- Touch the brazing rod to the joint mouth and melt the filler metal in the flame.
- Filler metal is drawn into the fitting socket by capillary action.
- A continuous fillet of filler metal will be visible around the joint.
- To aid development of the fillet, the flame should be kept slightly ahead of the point of the filler metal.

4. Allow to cool

- Once brazing is complete, heating should be discontinued.
- During cooling, do not move or twist the components.

5. Remove flux residue

- Flux residue must be removed so the joint can be properly inspected, pressure and leak tested (eliminate early life failures), eliminate risk of corrosion through hygroscopic action and allow any protective coatings to adhere to the base metal.
- Clean the outside of the joint(s) with a wet cloth, or remove flux residue using an abrasive pad.