

How to Braze Lawton ACR Tube and Fittings

Brazing copper tube to fittings for refrigeration and air conditioning pipework.



Lawton ACR Tube and Fittings	Refrigerant pipework shall be brazed, not soldered. The work is carried out to BS EN 378 for refrigerating system safety.
Standards	Tube conforms to BS EN 12735-1 and fittings to BS EN 1254.
Further Detail	Characteristics not covered here are given in the relevant datasheet. The standards and the project specification take precedence over this guide.

CAUTION: the joint shall be brazed under a continuous flow of dry, oxygen-free nitrogen. Air left in the tube forms internal oxide scale that breaks away and circulates, damaging the compressor and blocking expansion valves and capillaries. The tube must be kept clean and dry throughout, and open ends recapped between operations.

Filler and Flux	See the Lawton Jointing Solutions Data Sheet, including whether flux is needed for the joint. The filler shall suit the joint and the specification.
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Safety

- Brazing shall not be carried out on a system that contains refrigerant or is under pressure. The refrigerant must be recovered and the pressure relieved first; heating refrigerant produces toxic decomposition products.
- Brazing shall be carried out in a well ventilated area. Oxygen-free nitrogen displaces air and can cause asphyxiation in confined or poorly ventilated spaces.
- Brazing goggles or a face shield and suitable gloves must be worn. Brazing produces fume, which must not be breathed; local extraction shall be used where practicable.
- Hot work precautions shall be observed. Combustible materials must be cleared from the area, a fire extinguisher kept to hand and a fire watch maintained after the work.

These are general precautions. Site rules and any permit to work may differ and shall be followed.

Procedure



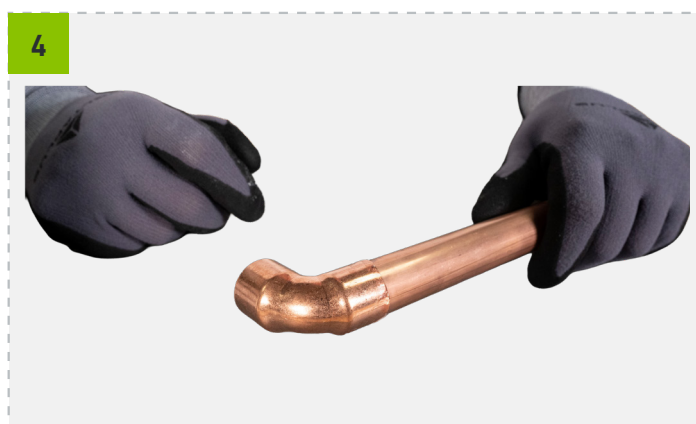
1. Cut the tube square with a tube cutter or fine hacksaw (a 32 tooth blade is recommended). Remove the burr and keep swarf out of the bore.



2. Clean the outside end of the copper tube thoroughly with sand cloth or sandpaper, to a length equal to the depth of the fitting. No dark spots shall remain.



3. Clean the inside of the fitting to the tube stop with a wire brush. Sand cloth or sandpaper may also be used. Wipe both surfaces clean.

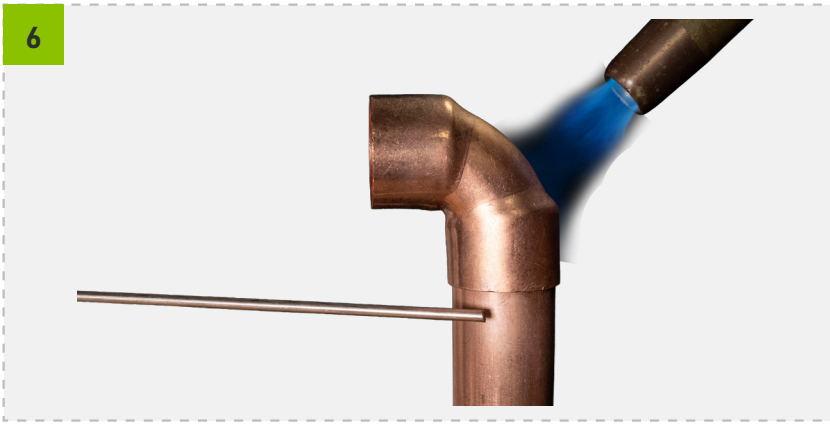


4. Assemble the tube fully into the fitting, up to the tube stop.



5. Start a continuous flow of dry, oxygen-free nitrogen through the assembly to displace air before any heat is applied. Keep the gas flowing throughout brazing and until the joint has cooled.

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6. Apply heat uniformly around the fitting with the torch. When the filler melts on contact with the heated fitting, the brazing temperature has been reached. Feed the filler slightly off centre at the bottom of the joint and work around the fitting until a complete ring of filler shows at the mouth. Remove the heat and keep the purge running. The joint must not be disturbed until it has set.

After brazing

The nitrogen shall be kept flowing until the joint has cooled. The joint must not be quenched. Wipe the joint and recap any open ends to protect the bore. On completion the system is strength and tightness tested, evacuated to remove moisture and non-condensable gases, and charged in accordance with BS EN 378 and the manufacturer's instructions.

For more details, please refer to our website or contact us by e-mail at technical@lawtontubes.co.uk