



Copper-flo™ No.3 Copper-Phosphorus Brazing Filler Metal

Copper-flo™ No.3 is a copper-phosphorus brazing filler metal containing a nominal 6.2% phosphorus and conforming to EN 1044 1999 CP203. It is primarily used for the brazing of copper tubes and pipes in refrigeration and air-conditioning applications and is a popular choice for this type of work.

When it is used to braze copper the phosphorus within the alloy imparts a metallurgical based self-fluxing capability. If used to join copper alloys (such as brass, bronze or gun metal) a separate flux will be required because the self-fluxing action only occurs on copper (see below for details).

This filler metal should not be used to braze iron containing materials like carbon or stainless steels or nickel containing materials as the phosphorus within the filler metal will form brittle, inter-metallic, phosphide compounds at the joint interface. Copper-flo™ No.3 is not suitable for use in joints exposed to sulphurous atmospheres at elevated service temperatures.

When selecting a copper-phosphorus brazing filler metal it is necessary to understand about their flow properties and ductility. The level of phosphorus within the filler metal controls these two characteristics - the higher this is the more free flowing the filler metal and the lower its ductility.

Copper-flo™ No.3 due to its lower phosphorus content is less free flowing and slightly more ductile than Copper-flo™. It has a long melting range and a tendency to liquate. This property can be used to aid bridging of comparatively wide joint gaps. Copper-flo™ No.3 is suited for joint clearances of 0.75-0.2 mm.

Composition: 93.8Cu, 6.2%P
Conforms to: EN 1044 1999 CP203, ISO 17672:2010 CuP 179
Melting range: 714-890°C*

*The flow point for this filler metal is below the liquidus temperature.

Uses for This Product

Copper-flo™ No.3 is widely used for brazing copper pipes, tubes and fittings in the refrigeration, heating and ventilating and air conditioning systems.

Conditions for Use

Flame heating methods are most often used for brazing with Copper-flo™ No.3. When used as a ring, rapid heating to the brazing temperature is required to avoid liquation (separation of low and high melting phases in the alloy).

For brazing copper to copper no flux is needed, as Copper-flo™ No.3 is self-fluxing in this case.

For use on copper alloys a separate flux is required and Tenacity™ No.4A Flux Powder is recommended.

Product Availability

Brazing Rods Supplied in 1kg boxes of 2mm square rods

Other forms Rods, wire and rings available on request

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