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Technical data

Copper Phosphorus Brazing Filler Metal

Copper-flo™ - Copper-Phosphorus Brazing Filler Metal

Product description

Copper-flo™ is a copper-phosphorus brazing filler metal containing a nominal 7.8% phosphorus. It is primarily used for the brazing of copper, although it can also be used for brazing copper alloys. When brazing copper the phosphorus within the alloy imparts a metallurgical based self-fluxing capability. Copper-flo™ does not contain a flux core or flux coating. 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, intermetallic, phosphide compounds at the joint interface. Copper-flo™ is not suitable for use in 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™ is the most free flowing copper-phosphorus filler metal. However, due to its high phosphorus content it is one of the least ductile. The low ductility of the alloy imparts it with glass like properties, making it both 'notch' sensitive and sensitive to impact type loadings. This filler metal should therefore not be used in applications involving exposure to strong vibration, impact loads or where some deformation of the joint might be expected in service. In such circumstances the use of the more ductile Sil-fos™ or Sil-fos™ 5 filler metals should be considered. Copper-flo™ is best suited for making copper joints that are of the true capillary type and where tight joint clearances of 0.025-0.075 mm are used. The use of 'bell mouthed' type joints should be avoided. Copper-flo™ can be used to braze copper alloys, but its lack of ductility can be exposed in such applications.

Composition: 92.2Cu, 7.8%P

Conforms to: EN 1044 1999 CP201, ISO 17672:2010 CuP 182

Melting range: 714-770˚C*

*The flow point for this filler metal is approximately 720˚C

Uses for this product

Copper-flo™ is widely used in the refrigeration, heating and ventilating and air conditioning industries for the brazing of copper pipe-work systems.

Conditions for use

Flame heating methods are most often used for brazing with Copper-flo™. 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™ 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

Rod	1.5mm, 2mm, 2.5mm, 3mm
Wire	1mm to 3mm
Other forms	Rings, braze pastes, on request

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