

Technical data

Silver Copper Phosphorus Brazing Filler Metal

Silbralloy™ – Silver Copper Phosphorus Brazing Filler Metal

Product description

Silbralloy™ is a 2% silver-copper-phosphorus brazing filler metal, which is used to braze copper and copper alloys. When brazing copper the phosphorus within the alloy imparts a metallurgical based self-fluxing capability. When Silbralloy™ is 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. Silbralloy™ is not suitable for use in sulphurous atmospheres at elevated service temperatures.

When selecting a brazing filler metal from the Sil-fos™ range it is necessary to understand about the flow and ductility of the different products. Phosphorus is the key element, the higher this is the more free flowing the filler metal, but the lower its ductility. Silver is used to improve the filler metal's ductility, but reduces its flow properties. Silbralloy™ is less ductile than both Sil-fos™ and Sil-fos™ 5, but more ductile than the silver free straight copper, phosphorus filler metals like Copper-flo™. It has better flow characteristics than Sil-fos™, but flows less well than Sil-fos™ 5 and Copper-flo™. Due to its low ductility, it should only be used with capillary type joints. 'Bell mouthed' joints should be avoided.

The optimum joint gap for brazing is normally 0.05-0.2mm.

Composition: 2%Ag, 91.7%Cu, 6.3%P

Conforms to: EN 1044 1999 CP105, ISO 17672:2010 CuP 279

Melting range: 644-825 °C*

*The flow point for this filler metal is approximately 740 °C

Uses for this product

Silbralloy™ is widely used in the refrigeration, heating and ventilating and air conditioning industries for the brazing of copper pipework systems. Silbralloy™ has been used for fittings of copper cylinders where greater ductility is required than the standard copper-phosphorus products used on the seams. It is also used in electrical engineering applications such as the brazing of electric motor rotor bars to end rings.

Conditions for use

Flame heating methods are most often used for brazing with Silbralloy™. 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 Silbralloy™ 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	1.5 mm, 2 mm, 2.5 mm, 3 mm
Wire	1 mm to 3 mm
Other	Braze-pastes on request

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