



Screen printing **BrazeLet® Ni613P-9012**

Alloy Application BrazeLet Ni613

Naming	BrazeLet Ni613
Composition	B-Ni60CrPSi
Melting temperature	970-1030°C (1778-1886°F)
Min. brazing temperature	1090°C (1994°F)
Impurities	According to ISO 17672 and ANSI/AWS A5.8

Paste Application Screen Printing

Metal content	90%
Powder size	<106µm
Typical density	4 g/cm³
Flash point of solvent	>100°C (212°F)
Recommended drying	120-170°C (248-338°F)
Evaporation temperature of binder	Approx. 350-450°C (662-842°F)
Cleaning	Aliphatic solvents
Shelf life	12 months / 6 months in cartridges
Storage	Origin closed at 4 to 30°C (39-86°F)
Typical Viscosity, Brookfield T-spindle D with Helipath, Speed 2.5 rpm, 20°C (70°F)	300 Pas

BrazeLet Ni613, a nickel (Ni) based brazing alloy, features a best in class wetting behaviour on stainless steel material in vacuum or protective atmosphere. Its high level of alloyed chromium (Cr) results in a superior hot gas and acid corrosion resistance. The brazing alloy is best suited for brazing heat exchangers such as exhaust gas recirculation (EGR) cooler in automotive or tap water applications in home or industry.

Unlike the standardised Ni-based alloys, **BrazeLet Ni613** is able to fill gap sizes of <0.05 mm to 0.2 mm without brittle phase lines or cracks. The resulting micro hardness of the brazing area is less than half of a Ni650 brazing gap. This results in a more reliable and safe brazing.

The brazing paste **BrazeLet Ni613P-9012** is typically in use for printing thick paste layers of about 0.2 to 0.6 mm on flat parts or on top of structured parts by use of screens or stencils. A typical application is printing of paste on hole plates of tube bundled heat exchangers. The use of rubber squeegees is recommended. Reliable printing requires precise positioning fixture tool by use of vacuum table or clamping device. Typical printing speed is 100 mm/s. Thin printing lines should at least have a width twice the printing thickness and the small dots diameter should be three times the printing thickness or greater. Printing accuracy is very precise as the paste maintains its shape during drying.

The solvent based **BrazeLet Ni613P-9012** increases productivity wherever drying of the paste is an issue. It has no settlement and no stirring is needed in the equipment. However, when opening a can from stock it is always recommended to stir the paste. The printed parts can be dried with standard drying process (hot air) at 120-170°C. Here, the drying time needs to be established as it varies depending on thermal mass, parts design and the used furnace. After drying, the paste has excellent adhesion to the metal sheet.