

Heraeus AlSi:Bond CuNiSi

Roll Clad High Performance Materials

Heraeus AlSi:Bond in Combination with CuNiSi

High Performance Alloys

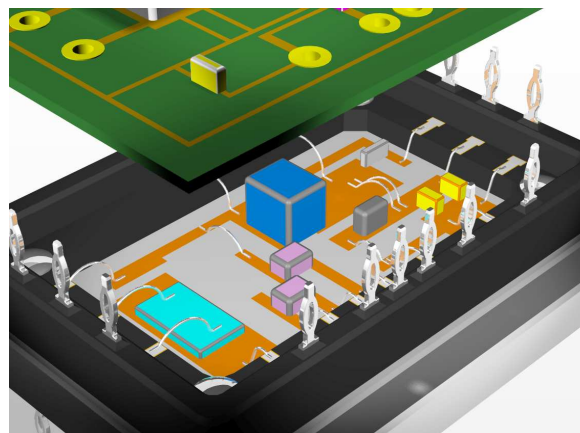
New Possibilities in Joining Technology

Heraeus is extending the product range of high performance alloys with **Heraeus AlSi:Bond CuNiSi** for the manufacture of bondable leadframes, which are additionally equipped with a press-fit zone and for other electro-mechanical components.

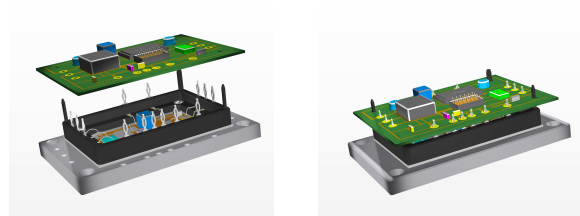
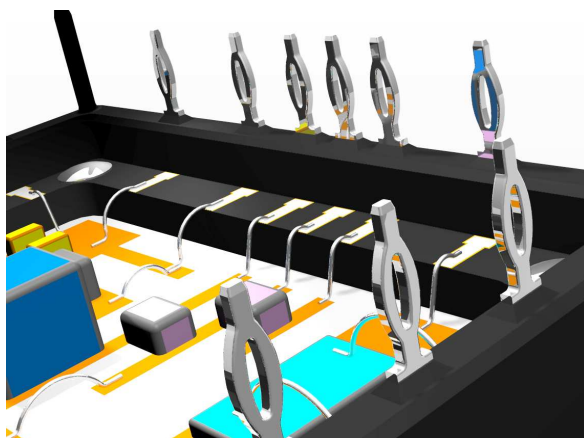
CuNiSi high performance alloys are characterized by an optimized pairing of very different physical properties, such as high conductivity, high strength and good formability. The high relaxation stability of the precipitation hardened CuNiSi materials is outstanding.

With the development of **Heraeus AlSi:Bond CuNiSi**, Heraeus has opened up new creative options in the area of packaging technology. For the first time it is possible to have a combination of two tried and proven joining technologies which are also stable as regards temperature. Leadframes can be designed with a bondable AlSi zone and a flexible press-fit zone.

Possible applications for **Heraeus AlSi:Bond CuNiSi** can be found for example in components for power electronics. Use the safe **Heraeus AlSi:Bond** surface for reliable and robust bonding on ceramic hybrids or LTCC substrates. Moreover, you can use the advantages of **Heraeus AlSi:Bond CuNiSi** to achieve safe and simple bonding on classical FR4 circuit boards.



Heraeus AlSi:Bond CuNiSi with its possibilities for new creative options enables you to increase safely and simply the component density of your entire system.



Heraeus AlSi:Bond CuNiSi

Our High Performance Alloys and their Technical Basis

The alloys K55 and Stol76M extend the current product portfolio for **Heraeus AlSi:Bond CuNiSi**. Both alloys can be produced as roll clad strip with the well-known **Heraeus AlSi:Bond**. Naturally, they retain their material specific performance in this product, in particular with regard to the very good and temperature stable stress relaxation.

	Stol76M	K55
Cu	Balance	Balance
Ni	0.8 – 1.7	3
Si	0.15 – 0.34	0.65
Sn	0.1 – 0.14	-
Zn	0.35 – 0.4	-
Mg	-	0.15
Others	≤0.4	-

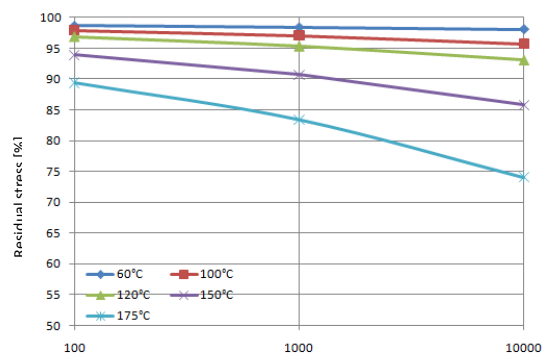
The following conditions and strip thicknesses can be achieved:

	Unit	Stol76M	K55
Tensile strength	N/mm ²	≥ 480	≥ 580
		≥ 520	
		≥ 580	
thickness	mm	≤ 0,8	≤ 0,8
Bending radius r/t		≥ 1,5	≥ 1,5
electrical resistivity	MS/m	25	25

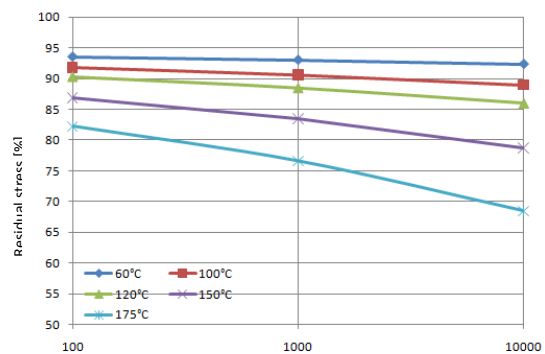
An important characteristic of the CuNiSi high performance alloys is the very good stress relaxation. The results of the **Heraeus AlSi:Bond CuNiSi** materials produced by Heraeus with K55 and Stol76M are shown below. What is significant here is the comparably high level of the stress relaxation, which can be

transferred to roll clad strips using Heraeus expertise.

Stress relaxation K55 ($R_m \geq 580$)



Stress relaxation Stol76M ($R_m \geq 580$)



Details for the measurement of the stress relaxation:

The initial stress is 50% R_m . Residual stress depending on operating temperature and load duration. Measured on thermally relaxed strip samples by the ring method. Values extrapolated according to F. R. Larsen, J. Miller, Trans ADME74 (1952) 765-755. The total relaxation is dependent on the stress applied.

W. C. Heraeus GmbH

Engineered Materials Division

Packaging Technology

Heraeusstr. 12-14

63450 Hanau, Germany

Phone +49 (0) 6181.35-5644

packaging-technology@heraeus.com

www.walzplattieren.de