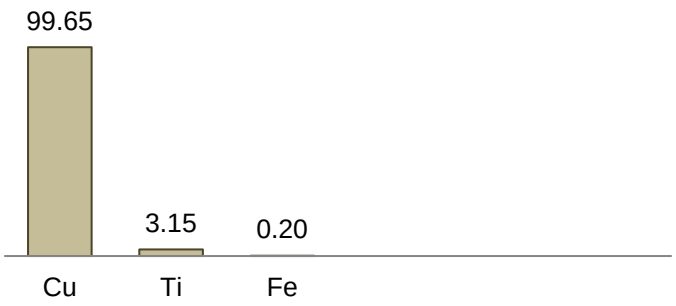
NKT322

GIGALLOY®

Chemical composition



Alloy denomination

N° Robert Laminage SA :	135
EN :	
EN Designation :	CuFeTi
UNS* :	C19910

*Unified Numbering System (USA)

Properties and main applications

NKT322 GIGALLOY® is a titanium copper developped independently. By adding Fe to C1990, a conventional titanium copper, and optimizing process conditions, this alloy shows dramatically improved mechanical properties and bend formability. The excellent balance of its mechanical properties allows it to be widely used for switches, connectors and other electronic components. The NKT322 GIGALLOY is recongnizes as one of the best substitute for beryllium copper alloys.

Main features:

- A beryllium-free ultrahigh-strength copper alloy
- Excellent strength and bend formability equal of superiror to those of mill-hardened CuBe, widely used as alternative alloy
- The highest level of stress relaxation resistance among copper alloys, keeps contact force at high temperatures

Physical properties

		Units
Density 20° C	8.7	Kg/dm^3
Melting point	-	°C
Modulus of elasticity, longitudinal	120	GPa/mm^2
Thermal Conductivity	66.79	W/m•K
Electrical Conductivity	10-13	M/Ω•mm^2
Electrical resistivity	132-172	µΩ•cm
Coefficient of linear expansion	-	10^{-6}•K^{-1}
Magnetic properties	-	µ
Poisson ratio		

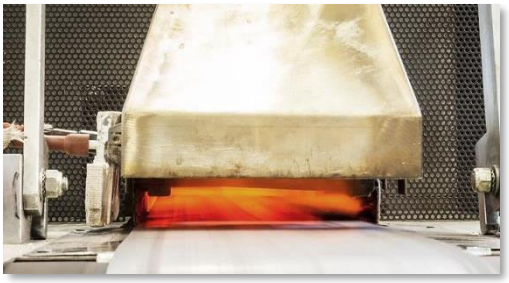
Workability

	Grade
Corrosion resistance	+++
Hot working	+++
Cold working	++++
Plating	++++
Diamond cutting	+++
Surface Nitruration	-
Polishing	+++
Welding	+++
Brazing	+++
Machining	+++

+	bad
++	medium
+++	good
++++	excellent
-	no information
N/A	not-applicable for this alloy

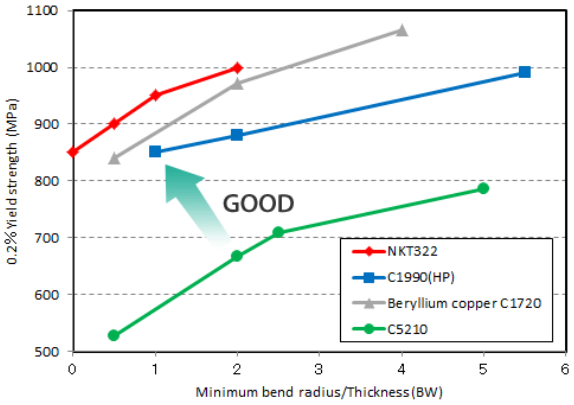
Thermal treatment / Hardening

Annealing temperature	-°C
Stress relieving heat treatment temperature	-°C
Mill hardened as delivered	-°C
Age hardened by customer	-



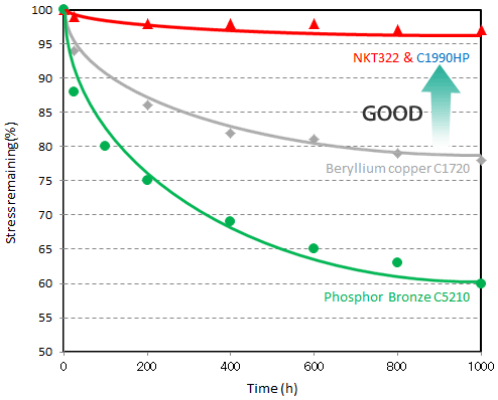
Mechanical Properties:

Rp0.2% and Bend Formability evaluated by 90°W-bend test



90° W-bend test is carried out in the transverse direction, bad way. Sample size 0.2x10x30mm. These results for bend formability are typical values as measured by the melter and are in anyway guaranteed values

Stress relaxation resistance



Test temperature: 150°C
Applied stress: 80% of Rp0.2%
These results for stress relaxation resistance are typical values as measured by the melter and are in anyway guaranteed values

Hardness Range [HV] :
280-380

Tensile Strength Range [MPa] :
950 - 1200

	Hardness (HV : Vickers)		**Rm** (MPa)		**Rp 0.2** (MPa)		**Elongation** (%) avec L_0 = 50mm	**Grain Size** (µm)	
	min	max	min	max	min	max		min	max
H	280	320	900	1000	800	900	>= 12	-	-
EH	290	330	920	1020	850	950	>= 10	-	-
SH	300	350	970	1100	900	1000	>= 6	-	-
ESH	310	380	970	1100	950	1050	>= 3	-	-

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