

钛铜

Titanium Copper Alloys

- 比磷青铜拥有更强的强度、为微型端子提供足够接触力的材料。
Titanium copper has a higher strength than phosphor bronze, thus showing a higher contact force when used as a small contact terminal.
- 拥有与铍铜相同的强度, 可以代替铍铜的使用。
Titanium copper has the same strength as beryllium copper.
So, It can be used as an alternative material for beryllium copper.
- 拥有铜合金中最好的耐应力缓和特性, 高温环境下也可以保持良好的接触力。
Titanium Copper possesses excellent Stress Relaxation Resistance among copper alloys. Hence, high contact force can be maintained even in a high temperature environment.

化学成分和物理特性

Chemical composition and physical properties

Alloy	Chemical composition (%)	Modulus of elasticity (GPa)	Electrical conductivity (%IACS)
C1990(HP)	Cu-3.0Ti	127	12
NKT322	Cu-3.2Ti-0.2Fe	120	12

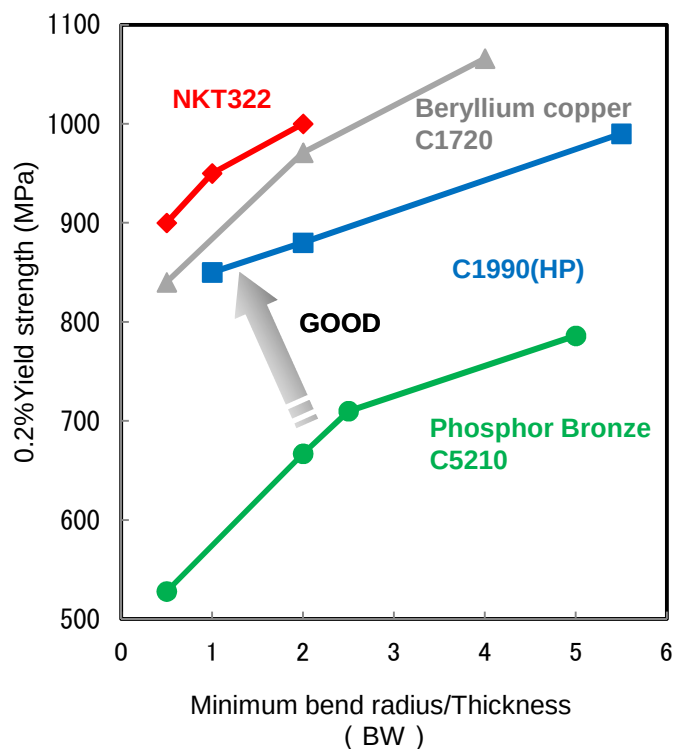
机械特性

Mechanical properties

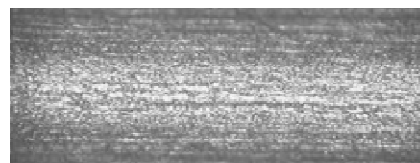
Alloy	Temper	0.2% Yield strength (MPa)	Elongation (%)	Vickers Hardness	MBR/t (BW) 0.15t
C1990(HP)	EH	860	17	300	1.0
	SH	890	14	320	2.0
	ESH	1030	3	340	≥ 5.0
NKT322	H	850	18	300	0
	EH	900	15	310	0.5
	SH	950	10	330	1.0
	ESH	1000	5	340	2.0

屈服强度和折弯特性

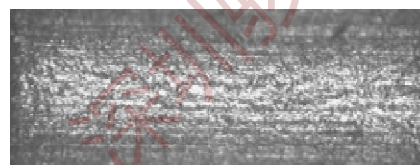
Relationship between 0.2% Yield strength and bend formability



W折弯表面
W-bend surface



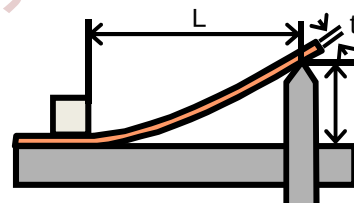
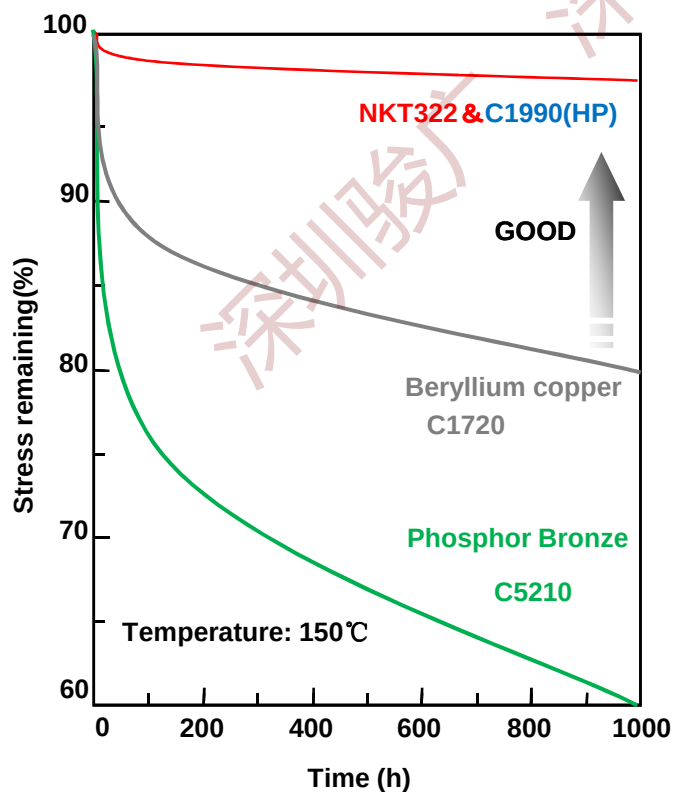
NKT322-SH, BW, R/t=1.0
(Sample size 0.1mm^t × 1mm^w)



C1990(HP)-EH, BW, R/t=1.0
(Sample size 0.1mm^t × 1mm^w)

耐应力缓和特性

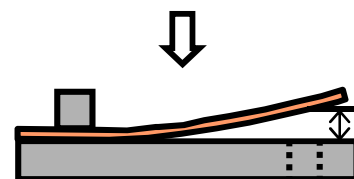
Stress relaxation resistance



y_0 : 初期的弯曲
Initial deflection

$$y_0 = 2L^2\sigma / (3Et)$$

E: 弹性率 Elastic modulus
 σ : 荷重 Load stress



y : 永久的弯曲
Permanent deflection

应力缓和率

$$\text{Stress relaxation ratio}(\%) = y/y_0 \times 100$$

残留应力

$$\text{Stress remaining}(\%) = (1 - y/y_0) \times 100$$



试验外观
The shape of testing

应力缓和良好 → 适合高温环境中使用