

C50715 [KLF5] (CuSn2Fe0.1P)

Composition

Cu* (%)	Sn (%)	Fe (%)	P (%)	Pb (%)
rem.	1.7-2.3	0.05-0.15	0.025-0.04	0.02 max

*) Cu+Sn+Fe+P min 99.5%

Physical Properties

Temper	Melting point (liquidus)	Density	Specific heat cap. at 68 F (20 °C)	Electrical cond. Nom in black	Thermal cond. at 68 F (20 °C)	Mod. of elasticity	Coef. of therm.exp at 68 F (20 °C)
	°F °C						
All	1958 1070	0.32 8.9	0.09 0.38	35 30	75 137	18 120	9.8 17.6

Mechanical Properties

At max 0.040" (1 mm)

Temper	R _{p0.2} Yield strength ksi N/mm ²	R _m Tensile strength ksi N/mm ²	A ₅₀ Elongation 2" %	Hardness for reference HR30T HV	Min bend ratio 90°		Min bend ratio 180°	
					GW	BW	GW	BW
Soft								
H02 (1/2H)	69 476	64-78 441-538	12	166	0.0	0.0	0.0	0.5
H04 (H)	84 579	78-90 538-621	9	187	0.0	0.5	0.0	1.0
H06 (EH)	86 593	85-100 586-690	8	200	0.0	1.0	1.0	2.0
H08 (SH)								
H10 (ES)								

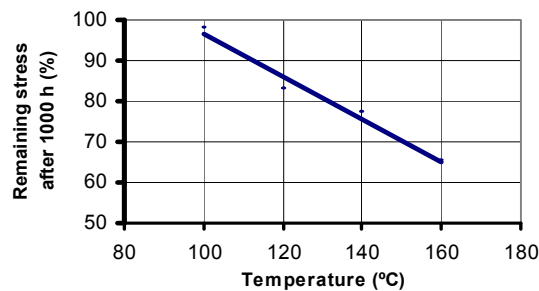
Other tempers are available upon request.

Data for information only and not for use as purchase specification.

Yield strength, Elongation and Hardness are typical values for each temper.

Stress relaxation resistance

Typical temperature for min 70 % remaining stress after 3000 h: 130 °C



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Alloy attributes

Tin bronzes are some of the most commonly used copper alloys. Typically the tin content is between 4 and 8 %. The alloys have high strength and good spring properties and are often used in computer and telecommunication applications. The electrical conductivity decreases rapidly with increasing tin content and the alloys are therefore not perfect for high current applications. The stress relaxation resistance is very good at moderate temperatures, but decreases rapidly at higher temperatures. High temperature automotive environments are therefore not suitable for these alloys.

Tin bronze with around 2 % tin and coherent precipitates has considerably improved properties. The lower tin content with small amount of elements results in an electrical conductivity of at least 30 % IACS. Precipitates of iron and phosphorus stabilize the structure, increase the strength and improve the softening characteristics. KLF-5 has the right combination of formability, conductivity, strength and stress relaxation resistance to be used for automotive applications at relatively high ambient temperatures. In addition the strength is similar as for 4 % tin bronze.

Good stress relaxation resistance
Medium conductivity
High strength
Good formability

Typical applications

Connectors and terminals for signal and power applications.

Design limitations

Applicable specifications