C422 (CuZn11.5Sn1)

Composition

Cu* (%)	Fe (%)	Pb (%)	P (%)	Sn (%)	Zn (%)
86.0-89.0	0.05 max	0.05 max	0.35 max	0.8-1.4	rem

*) Cu + sum of named elements min 99.7 %

Physical Properties

Temper	Melting point (liquidus) °F °C	Density lb/in^3 g/cm3	Specific heat cap. at 68 F (20 °C) Btu/lb°F kJ/(kg°K)	Electrical cond. Nom in black % IACS	Thermal cond. at 68 F (20 °C) Btu/ft h °F W/(m°K)	Mod. of elasticity X1000 ksi GPa	Coef.of therm.exp at 68 F (20 °C) 10^{-6}/°F 10-6/°C
All	1905 1041	0.318 8.8	0.09 0.38	31 31	75 130	16 110	10.2 18.4

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	19 131	41-49 283-338	45		0.0	0.0	0.0	0.0
H02 (1/2H)	55 379	54-65 373-448	16	64 120	0.0	0.0	0.5	1.0
H04 (H)	71 490	67-79 462-545	4	70 145	0.5	2.0	2.0	
H06 (EH)	77 531	75-85 517-586	3	72 160	1.5		2.5	
H08 (SH)	83 573	82-92 566-635	2	73 170	3.0			
H10 (ES)	min 84 min 579	min 88 min 607	2	74 175				

Other tempers are avaliable upon request.
Data for information only and not for use as purchase specification.
Yield strength, Elongation and Hardness are typical values for each temper.

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Alloy attributes

AMBRONZE – 422 alloy with a nominal composition of 87.5% copper, 1.1% tin and 11.4% zinc has strength and formability similar to Low Brass, 80% - 240 alloy in combination with the excellent corrosion resistance of Commercial Bronze, 90% - 220 alloy. The fatigue characteristics and wear resistance are superior to 240 alloy which makes the alloys valuable for electrical springs and bushings, especially those requiring quite severe forming. The addition of tin greatly improves the resistance in acid waters as compared to 220 or 226 alloy. The very high resistance to both dezincification and stress-corrosion cracking allows the use of this alloy under severe and exacting service conditions.

High ductility
Good spring properties
Good electrical and thermal conductivity
Good wear resistance

Typical applications

Sash chain, electrical terminals and connectors, fuse clips, spring washers, contact springs, bushings (light loads), weather strip.

Design limitations

Applicable specifications

ASTM B591, B888