

C42500 (CuZn9.5Sn2) 18 08 US

Comparable standards: UNS C42500 • JIS C4250
 Aurubis designations: C425 • PNA 330

Description AMBRONZE combines the strength and ductility of Cartridge Brass with spring properties, corrosion resistance and wear resistance. It is the most widely used of the tin brasses, finding extensive use as current-carrying contacts, terminals, springs and connectors in the transportation field, especially automotive, as well as in electronic and electrical wiring devices. The alloy fills an important gap in properties between CuZn30 and CuSn5 and is utilized where an engineer previously had to over-design with CuSn5 or under-design with CuZn30. Where cost is an important factor, this alloy is one of the least expensive of the high performance copper base spring alloys. The very high resistance to both dezincification and stress-corrosion cracking together with excellent resistance against corrosion and stress relaxation permits the use of this alloy under severe and exacting service conditions.

Composition

Cu*	Fe	Pb	P	Sn	Zn
[%]	[%]	[%]	[%]	[%]	[%]
87.0 – 90.0	0.05 max	0.05 max	0.35 max	1.5 – 3.0	rem.

*) Cu + sum of named elements min 99.7%

Physical properties

Melting point	Density	Specific heat cap. at 20°C	Electrical cond.	Thermal cond. at 20°C	Mod. of elasticity	Coef. of therm exp. at 20°C
[°F] [°C]	[lb/in ³] [g/cm ³]	[Btu/lb°F] [kJ/kgK]	[%IACS] [MS/m]	[Btu/ft h °F] [W/mK]	x1000 ksi [GPa]	[10 ⁻⁶ /°F] [10 ⁻⁶ /K]
1890 1032	0.316 8.75	0.09 0.38	28 16	69 119	16 110	10.2 18.4

Mechanical properties

Temper	Tensile strength Rm	Yield strength Rp0.2 nominal	Elongation 2" nominal	Hard-ness nominal HR30T HV	min bend ratio 90°		min. bend ratio 180°	
					GW	BW	GW	BW
Soft	41-47 283-324	17 117	48		0.0	0.0	0.0	0.0
H02 (1/2H)	57-69 393-476	56 386	20	68 130	0.0	0.0	0.0	0.5
H04 (H)	70-82 483-566	74 510	6	73 155	0.0	1.0	0.5	2.0
H06 (EH)	76-88 524-607	80 552	4	74 165	0.0	1.0	0.5	2.5
H08 (SH)	84-94 579-648	86 593	3	76 175	1.0	2.0	2.5	
H10 (ES)	92 min 635 min	88 min 607 min	2	76 185				

Other tempers are available upon request.
 GW bend axis transverse to rolling direction. BW bend axis parallel to rolling direction

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Fabrication properties	Electrical and thermal conductivity	good
	Stress relaxation resistance	excellent
	Wear resistance	good
	Spring properties	good
	Formability	good

Stress relaxation resistance

Typical temperature for min 70 % remaining stress after 3000 h: 125 °C

Typical uses

Electrical contacts, springs, and switches. Terminals, connectors, fuse clips, pen clips, weather strip, thermostat element cups.