C12200 STANDARDS & USES

Some of the following data is available from the copper data center at copper.org. The information below is also from that website as well as public knowledge about this alloy.

Chemical Composition						
Cu	Ag	As	Sb	P	Te	Other Named Elements
99.99min	-	-	-	.015-.040	-	-

Physical Properties

	US Customary	Metric
Melting Point – Liquidus	1981 F	1083 C
Density	0.323 lb/in^3 at 68 F	8.94 gm/cm^3 @ 20 C
Specific Gravity	8.94	8.94
Electrical Resistivity	12.2 ohms-cmil/ft @ 68 F	2.03 microhm-cm @ 20 C
Electrical Conductivity	85 %IACS @ 68 F	0.497 MegaSiemens/cm @ 20 C
Thermal Conductivity	196.0 Btu · ft/(hr · ft2·^{o}F)at 68F	339.2 W/m · ^{o}K at 20 C
Coefficient of Thermal Expansion	9.4 ·10^{-6} per ^{o}F (68-212 F)	16.9 ·10^{-6} per ^{o}C (20-100 C)
Coefficient of Thermal Expansion	9.5 ·10^{-6} per ^{o}F (68-392 F)	17.1 ·10^{-6} per ^{o}C (20-200 C)
Coefficient of Thermal Expansion	9.8 ·10^{-6} per ^{o}F (68-572 F)	17.6 ·10^{-6} per ^{o}C (20-300 C)
Specific Heat Capacity	0.092 Btu/lb/^{o}F at 68 F	393.5 J/kg · ^{o}K at 293 K
Modulas of Elasticity in Tension	17000 ksi	117000 MPa
Modulus of Rigidity	6400 ksi	44130 MPa

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Fabrication Properties

Joining Technique	Suitability
Soldering	Excellent
Brazing	Excellent
Oxyacetylene Welding	Good
Gas Shielded Arc Welding	Excellent
Coated Metal Arc Welding	Not Recommended
Spot Weld	Not Recommended
Seam Weld	Not Recommended
Butt Weld	Good
Capacity for Being Cold Worked	Excellent
Capacity for Being Hot Formed	Excellent
Forgeability Rating	65
Machinability Rating	20

Typical Uses

INDUSTRY	APPLICATION
Automotive	• Oil lines • Air lines • Hydraulic lines
Building	• Heater lines • Gas lines • Air conditioner tubes • Condensers • Heater units • Oil Burner Tubes
Consumer	• Refrigeration tubing • Air conditioners
Marine	• Gasoline lines • Oil coolers
Industrial	• Oil, Hydraulic, Gasoline, & Air Lines in Airplanes • Tanks, Water, Steam, Paper, & Pulp Lines, Distiller Tubes • Dairy Tubes • Heat Exchanger Tubes, Evaporator Tubes, Condenser Tubes • Brewery Tubes, Sugar House Refinery Lines • LP Gas Service Tubing • Heat Exchanger Shells

Applicable Specifications

Product	Specification
Tube	ASTM B698, B903
Tube, Capillary	ASTM B360
Tube, Coils	ASTM B743
Tube, Condenser	ASME SB111 ASTM B111
Tube, Drainage (DWV)	ASTM B306
Tube, Finned	ASME SB359 ASTM B359 MILITARY MIL-T-22214
Tube, Seamless	ASME SB75 ASTM B75, B641 MILITARY MIL-T-24107 SAE J461, J463
Tube, Seamless (Water)	ASTM B88
Tube, Seamless Bright Annealed	ASTM B68
Tube, Seamless for Air Conditioning and Refrigeration Field Service	ASTM B280 SAE J461, J463
Tube, Seamless for Torpedo Use	MILITARY MIL-T-3235
Tube, U-Bend	ASME SB395 ASTM B395
Tube, Welded	ASME SB543 ASTM B641, B447, B716, B543
Tube, Welded for Air Conditioning and Refrigeration Service	ASTM B640
Wire, Flat	ASTM B272