

C71000

CuNi20

Cupro-Nickels are among the most attractive, durable and versatile copper alloys manufactured. Offering unique properties that include excellent resistance to biological fouling, corrosion and stress corrosion cracking, these alloys are used in a range of applications from heat exchangers, naval components and condenser tubes of power plants to coinage and touch surfaces in healthcare. Varying nickel additions in these alloys allow designers to benefit from attractive colors ranging from rose gold to silver.

Chemical composition (Reference)

Ni	20 %
Cu	remainder

Physical properties (Reference values at room temperature)

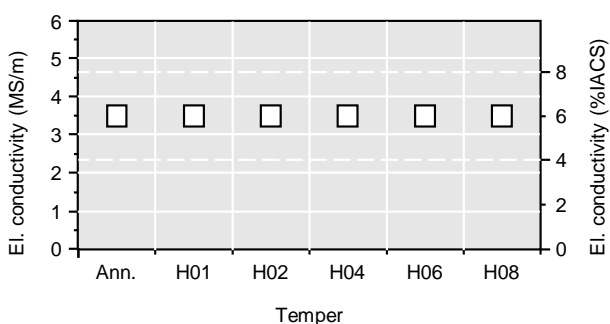
Electrical conductivity	3.8 MS/m	6.5 %IACS
Thermal conductivity	36 W/(m·K)	21 Btu·ft/(ft ² ·h·°F)
Coefficient of electrical resistance*	0.3 10 ⁻³ /K	0.2 10 ⁻³ /°F
Coefficient of thermal expansion*	16.4 10 ⁻⁶ /K	9.1 10 ⁻⁶ /°F
Density	8.94 g/cm ³	0.323 lb/in ³
Modulus of elasticity	138 GPa	20,000 ksi
Specific heat	0.380 J/(g·K)	0.091 Btu/(lb·°F)
Poisson's ratio	0.34	0.34

* Between 0 and 300 °C

Mechanical properties (values in brackets are for information only)

Temper	Tensile strength R _m		Yield strength R _{p0.2}		Elongation A ₅₀ / A ₂ ¹
	MPa	ksi	MPa	ksi	
Annealed	295-365	43-53	(145)	(21)	(40)
H01	325-435	47-63	(275)	(40)	(15)
H02	385-485	56-70	(395)	(57)	(5)
H04	460-545	67-79	(485)	(70)	(2)
H06	495-580	72-84	(515)	(75)	(≥ 1)
H08	540-600	78-87	(545)	(79)	(≤ 2)

Electrical conductivity



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Fatigue strength

The fatigue strength is defined as the maximum bending stress amplitude which a material withstands for 10^7 load cycles under symmetrical alternate load without breaking. It is dependent on the temper tested and is about 1/3 of the tensile strength R_m .

Types and formats available

- Standard coils with outside diameters up to 1,400 mm
- Traverse-wound coils with drum weights up to 1.5 t
- Multicoil up to 5 t
- Hot-dip tinned strip
- Contour-milled strip

Dimensions available

- Strip thickness from 0.10 mm, thinner gauges on request
- Strip width from 3 mm, however min. 10 x strip thickness

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