

Cu-ETP

Electrolytic Tough Pitch Copper (ETP) – 110 alloy is the most widely used of the coppers because of its' combination of electrical and thermal conductivity, corrosion resistance and good workability. ETP is an adequate copper grade for numerous electric applications. The absence of deoxidisers accounts for an electrical conductivity of 100 %.

Properties

- Good electrical and thermal conductivity
- Excellent corrosion resistance
- Good formability
- Recyclable
- Prone to hydrogen embrittlement in reducing atmosphere

Composition

- Oxygen content max 400 ppm,
- Cu min 99,90 %

Electrical conductivity

- min 100 % IACS

According to EN

- H040 min 100 % IACS, H065-90 min 98,3 % IACS, H110 min 96,6 % IACS

Typical applications

Power distribution systems, distribution transformers, telecommunication cables, electrical and electronic applications



Cu-ETP

European standard number CW004A
 UNS code C11000
 Manufacturing location Pori

Chemical properties

0 max 400 ppm

Physical Properties

Density
 g/cm³ 8.9
 lb/in³ 0.323
 Electrical Conductivity****
 (Nominal value in black) min 100
 %IACS min 100
 Thermal Conductivity
 W/(m °K) min 386
 Btu/ft h °F min 223
 Modulus of Elasticity
 GPa 117
 X1000 ksi 17
 Coef. of Thermal Exp.
 at 20 °C (68 °F)
 10⁻⁶/°C 17.6
 10⁻⁶/°F 9.8

Tempers

Mechanical Properties

EN H040 / R200
 Tensile Strength Rm N/mm² 200 - 250
 Yield Strength (0.2 %) N/mm² max 100
 Elongation % A50 / A min - / 42
 Hardness (HV) 40 - 65
 Thickness mm (Pori) 0.2 - 20

EN H040 / R220
 Tensile Strength Rm N/mm² 220 - 260
 Yield Strength (0.2 %) N/mm² max 140
 Elongation % A50 / A min 33 / 42
 Hardness (HV) 40 - 65
 Thickness mm (Pori) 0.2 - 20

EN H065 / R240
 Tensile Strength Rm N/mm² 240 - 300
 Yield Strength (0.2 %) N/mm² min 180
 Elongation % A50 / A min 8 / 15
 Hardness (HV) 65 - 95
 Thickness mm (Pori) 0.2 - 6, 12 - 25

EN H090 / R290
 Tensile Strength Rm N/mm² 290 - 360
 Yield Strength (0.2 %) N/mm² min 250
 Elongation % A50 / A min 4 / 6
 Hardness (HV) 90 - 110
 Thickness mm (Pori) 0.2 - 25

EN H110 / R360
 Tensile Strength Rm N/mm² min 360
 Yield Strength (0.2 %) N/mm² min 320
 Elongation % A50 / A min 2 /
 Hardness (HV) min 110
 Thickness mm (Pori) 0.2 - 20

Data for information only and not for use as purchase specification.
 Other tempers - as ASTM - are available upon request.
 Yield strength, Elongation and Hardness are typical values for each temper.
 Elongation: The first value is for thickness up to and incl. 0.25 mm / next is > 0.25 mm
 *) Pori: Electrical conductivity according to EN 13599
 Pori: Thicknesses up to 100 mm available in hot roller temper. For strips in coils max. thickness 4 mm. Material thicknesses for building purposes typically 0.5 -2 mm.