

## OFE-OK

Oxygen-free, High Conductivity Copper (OFE) –101 alloy (99.99 % minimum Cu) offers the advantages of both Electrolytic Tough Pitch Copper (ETP) –110 and Phosphor Deoxidized Copper (DHP) – 122 alloy. The high purity and absence of deoxidisers accounts for electrical conductivity of 101 % IACS as well as no susceptibility for hydrogen embrittlement. Due to the absence of oxides in the structure, OFE-OK is capable of withstanding critical electrical, electronic and communication applications

### Properties

- Highest possible electrical conductivity min. 101 % IACS
- Highest possible thermal conductivity
- Good formability
- Excellent corrosion resistance
- Resists hydrogen embrittlement
- Low metal volatility in vacuum
- High scrap value

### Composition

- Cu min 99,99 %
- Oxygen free (O<sub>2</sub> max 5 ppm), high conductivity copper

### Typical applications

Printed circuits, bonding applications, electrical and electronic conductors, magnetrons, vacuum interrupters and tubes



**OFE-OK**

European standard number CW009A  
 UNS code C10100  
 Manufacturing location Pori

**Chemical properties**

0 max 5 ppm

**Physical Properties**

Density  
 g/cm<sup>3</sup> 8.9  
 lb/in<sup>3</sup> 0.323  
 Electrical Conductivity\*\*\*\*  
 (Nominal value in black) min 101  
 %IACS min 101  
 Thermal Conductivity  
 W/(m °K) min 391  
 Btu/ft h °F min 226  
 Modulus of Elasticity  
 GPa 117  
 X1000 ksi 17  
 Coef. of Thermal Exp.  
 at 20 °C (68 °F)  
 10<sup>-6</sup>/°C 17.6  
 10<sup>-6</sup>/°F 9.8

**Tempers**

**Mechanical Properties**

EN H040 / R200  
 Tensile Strength Rm N/mm<sup>2</sup> 200 - 250  
 Yield Strength (0.2 %) N/mm<sup>2</sup> max 100  
 Elongation % A50 / A min - / 42  
 Hardness (HV) 40 - 65  
 Thickness mm (Pori) 0.2 - 20

EN H040 / R220  
 Tensile Strength Rm N/mm<sup>2</sup> 220 - 260  
 Yield Strength (0.2 %) N/mm<sup>2</sup> 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/mm<sup>2</sup> 240 - 300  
 Yield Strength (0.2 %) N/mm<sup>2</sup> 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/mm<sup>2</sup> 290 - 360  
 Yield Strength (0.2 %) N/mm<sup>2</sup> 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/mm<sup>2</sup> min 360  
 Yield Strength (0.2 %) N/mm<sup>2</sup> min 320  
 Elongation % A50 / A min 2 /  
 Hardness (HV) min 110  
 Thickness mm (Pori) 0.2 - 20

EN R  
 Tensile Strength Rm N/mm<sup>2</sup> min  
 Yield Strength (0.2 %) N/mm<sup>2</sup> min  
 Elongation % A50 / A min  
 Hardness (HV) min

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.