

Tellurium Copper

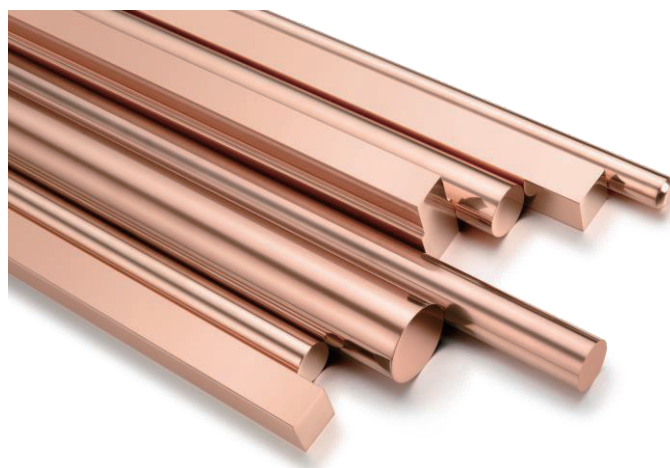
bedra 14500

Material Designation*

| | |
|-----|------------------|
| UNS | C14500 |
| EN | CuTeP (CW 118 C) |
| JIS | / |
| GB | TTe0.5 |

Chemical Composition

| | | |
|-------|-------------|---|
| Cu | Balance | % |
| Te | 0.4-0.7 | % |
| P | 0.004-0.012 | % |
| Other | ≤0.1 | % |



Characteristics

Tellurium copper alloy material has good free cutting performance and excellent electrical and thermal conductivity. And it has good anti-corrosion and anti-electric ablative properties. It has good cold and hot working performance, and can be forged, casted, extruded and drawn, punched and moulded. Tellurium copper is a widely used high conductivity free cutting alloy.

Physical Properties

| | | |
|---|------|---------------------|
| Density ¹ | 8.94 | g/cm ³ |
| Electrical conductivity ¹ | ≥85 | %IACS |
| Thermal conductivity ¹ | 355 | W/(m·K) |
| Coefficient of thermal expansion ² | 17.1 | 10 ⁻⁶ /K |
| Modulus of elasticity | 117 | GPa |

Note1: Temperature for testing is 20°C

Note2: Temperature range for testing is 20-300°C

Typical Applications

It is mainly used in connector terminals, charging piles, nozzles of plasma cutting machines and power modules of communication base stations for new energy vehicles.

Fabrication Properties

| | |
|------------------------------------|-----------------|
| Cold workability | Good |
| Hot workability | Good |
| Brazing | Good |
| Resistance welding | Not recommended |
| Hot forging compared with C37700 | 65% |
| Machinability compared with C36000 | 85% |

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Mechanical Properties

| Diameter | Temper | Tensile Strength | Yield Strength | Elongation |
|---------------|--------|------------------|----------------|------------|
| mm | | MPa min. | MPa min. | % min. |
| 1.5 ≤ Φ < 6.5 | H02 | 260 | 205 | 8 |
| | H04 | 330 | 275 | 4 |
| 6.5 ≤ Φ < 67 | H02 | 260 | 205 | 12 |
| 6.5 ≤ Φ < 32 | H04 | 305 | 260 | 8 |
| 32 ≤ Φ < 76 | H04 | 275 | 240 | 8 |

Tolerance and Delivery Form

| Straight Bar | | | | |
|--------------|------------|---------|---------|--------------|
| Diameter | Tolerance* | Ovality | Length | Straightness |
| mm | mm | mm max. | mm max. | mm/m max. |
| 1.5 ≤ Φ < 6 | 0.05 | 0.02 | 3000 | 0.5 |
| 6 ≤ Φ < 10 | 0.06 | 0.03 | 3000 | 0.5 |
| 10 ≤ Φ < 18 | 0.08 | 0.04 | 3000 | 0.5 |
| 18 ≤ Φ < 30 | 0.10 | 0.05 | 3000 | 0.5 |
| 30 ≤ Φ < 50 | 0.16 | 0.08 | 3000 | 0.5 |
| 50 ≤ Φ < 60 | 0.20 | 0.10 | 3000 | 0.5 |
| 60 ≤ Φ < 76 | 0.40 | 0.20 | 3000 | 2.0 |

* The tolerance listed in the table are specified as all plus or all minus. When tolerances are specified as plus and minus (±), half the values given.

*Composition ASTM B301-2013
 Conductivity ASTM B301-2013
 Mechanical Properties ASTM B301-2013
 Fabrication Properties CDA
 Other Physical Properties CDA

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