



## ETP (C110) and OF (C102) Copper – High Performance Copper

ETP Copper is the most widely used copper grade with universal use in electronic applications. ETP copper is rated at 100% minimum conductivity making it the primary choice for applications requiring lower resistance. OF copper offers a higher purity and will be used in applications where resistance to hydrogen embrittlement is a consideration.

IWG High Performance Conductors plated ETP and OF conductors have decades of reliable service in a variety of industries such as:

- High performance electronics
- Medical equipment applications
- High Performance Military and Commercial Aerospace applications

| <b>MATERIAL PROPERTIES</b>                                |   |  |
|---|---|--|
| Composition   | ETP: 99.90 Purity, inc. silver (Refer to ASTM B49)<br>OF: 99.95% Purity, inc. silver (Refer to ASTM B49)  |  |
| Unified Number  | ETP: C11000, OF: C10200   |  |
| Density   | 0.323 lbs/in <sup>3</sup> @68F (8.941 gm/cm <sup>3</sup> @20C)  |  |
| Thermal Conductivity                                      | 226 BTU-ft/(h-ft <sup>2</sup> -F) [(391 watt/meter-K)]  |  |
| <b>PHYSICAL PROPERTIES</b>                                |   |  |
| Tensile   | <i>Soft Temper (nom)</i><br>35,000 PSI (241 MPa)  | <i>Hard Temper (min)</i><br>60,000 PSI (414 MPa)   |
| <b>ELECTRICAL PROPERTIES</b>                              |   |  |
| Resistivity, max  | <i>Soft Temper</i><br>10.37 cmil-Ω/ft (1.72 mΩ-cm)  | <i>Hard Temper</i><br>10.69 cmil-Ω/ft (1.78 μΩ-cm) |
| Conductivity  | 100 % IACS  | 97% IACS   |
| <b>AVAILABILITY</b>                                       |   |  |
| Coatings <sup>1</sup><br>Constructions <sup>2, 3, 4</sup> | Silver - ASTM B298, Nickel - ASTM B355, Tin - ASTM B33<br>Solid: 11 - 54 AWG<br>Stranded: 10 - 42 AWG (7, 19, 37 Unilay and Conc.)<br>Rope Stranded: 4/0 - 8 AWG<br>Flat: 17 - 38 (Equivalent round AWG size) |  |

1 – Strand sizes less than 44 AWG will not meet 40 micro-inches per ASTM B298

2 – Some sizes do not apply to nickel and tin plated ETP/OF

3 - 37 strand options are unidirectional concentric (UDC), 2-pass conc.(2PC), or 3-pass conc.(3PC)

4 – Alternative constructions available for quote upon request

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