Wieland-K60

CuCr1Zr | High copper alloy

Material designation

- EN CuCr1Zr
- CW106C
- UNS C18150

Chemical composition*

- Cu balance
- Cr 0.5–1.2 %
- Zr 0.03–0.2 %

*Reference values in % by weight

Physical properties*

- Electrical conductivity MS/m ≥ 43
- %IACS ≥ 74
- Thermal conductivity W/(m·K) > 320
- Thermal expansion coefficient (0–300 °C) 10⁻⁴/K 17.6
- Density g/cm³ 8.92
- Modulus of elasticity GPa 130

*Reference values at room temperature

Material properties and typical applications

Wieland-K60 is an age hardenable copper alloy combining good electrical and thermal conductivity with high strength. Depending on the application, different tempers (solution annealed, age hardened, cold worked, etc.) can be defined. Wieland-K60 is highly suitable for use in welding technology, e.g. as welding electrode (especially at high temperatures).

Distribution of Wieland-K60 via our service company Wieland Duro GmbH.

Types of delivery

The BU Extruded Products supplies bars, wire, sections and tubes. Please get in touch with your contact person regarding the available delivery forms, dimensions and tempers.

Fabrication properties

- Machinability s a aw (CuZn39Pb3 = 100 %) 30% 40% 50%
- Capacity for being cold worked excellent good good
- Capacity for being hot worked fair

* s = solution annealed, a = age hardened, aw = age hardened + cold worked

Surface treatment

- Polishing mechanical electrolytic good fair
- Electroplating good

Joining

- Resistance welding (butt weld) fair**
- Inert gas shielded arc welding fair**
- Gas welding fair**
- Hard soldering fair**
- Soft soldering excellent

** high temperatures alter the age hardened condition

Corrosion resistance

Pure copper and high-copper alloys generally exhibit good corrosion resistance due to their inert character and are practically insensitive to stress corrosion cracking.

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Products standards

- Rod EN 12163
- Wire EN 12165
- Section EN 12166

- Heat treatment

  - Melting range 1,070–1,080 °C
  - Hot working 850–1020 °C
  - Soft annealing 600–800 °C 1–3 h
  - Thermal stress relieving –
  - Age hardening upon request
# Wieland-K60 CuCr1Zr | High copper alloy

## Mechanical properties according to EN

### Round rods / polygonal rods

<table>
<thead>
<tr>
<th>Temper</th>
<th>Diameter</th>
<th>Width across flat</th>
<th>Tensile strength $R_m$</th>
<th>Yield strength $R_p0.2$</th>
<th>Elongation %</th>
<th>Hardness</th>
</tr>
</thead>
<tbody>
<tr>
<td>M</td>
<td>all</td>
<td>all</td>
<td>as manufactured – without specific mechanical properties</td>
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<td>&gt; 50</td>
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<tr>
<td>H120</td>
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<tr>
<td>R430</td>
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<td>&gt; 25</td>
<td>430</td>
<td>350</td>
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<tr>
<td>H135</td>
<td>&gt; 30</td>
<td>&gt; 25</td>
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### Rectangular rods

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