Olin Brass Alloy C18080 is a Cu Cr Ag Fe Ti Si system developed jointly by Olin Brass and Wieland-Werke. This alloy provides engineers a unique combination of properties. It incorporates very high electrical and thermal conductivity, excellent formability, good plateability and extremely high resistance to stress relaxation up to 200° C. These unique properties have been validated in applications from under-hood automotive connectors to smart grid power distribution components.

### Chemical Composition

<table>
<thead>
<tr>
<th>Element</th>
<th>Mass Fraction</th>
</tr>
</thead>
<tbody>
<tr>
<td>Copper¹</td>
<td>Remainder</td>
</tr>
<tr>
<td>Chromium</td>
<td>0.20-0.70%</td>
</tr>
<tr>
<td>Silver</td>
<td>0.01-0.30%</td>
</tr>
<tr>
<td>Iron</td>
<td>0.02-0.20%</td>
</tr>
<tr>
<td>Titanium</td>
<td>0.01-0.15%</td>
</tr>
<tr>
<td>Silicon</td>
<td>0.01-0.10%</td>
</tr>
</tbody>
</table>

¹ Cu plus Named Elements, 99.8%

### Physical Properties

- **Density**
  - English Units: 0.320 lb/in³ @ 68°F
  - Metric Units: 8.90 g/cm³
- **Thermal Conductivity**
  - English Units: 185 BTU-ft/ft²-hr-°F
  - Metric Units: 320 W/m°K
- **Electrical Resistivity**
  - English Units: 12.96 ohm circ mils/ft
  - Metric Units: 2.155 microhm-cm
- **Electrical Conductivity (annealed)**
  - English Units: 80% IACS
  - Metric Units: 0.46 megahmo/cm
- **Modulus of Elasticity**
  - TM04: 20,300,000 psi
  - TM08: 18,500,000 psi
- **Thermal Capacity (Specific Heat)**
  - English Units: 0.090 Btu/lb/°F @ 68°F
  - Metric Units: 377.1 J/kg · °K at 293 K
  - English Units: 8.90 PPM/°F
  - Metric Units: 16.0 PPM/°C
  - English Units: 9.20 PPM/°F
  - Metric Units: 16.6 PPM/°C
  - English Units: 9.80 PPM/°F
  - Metric Units: 17.6 PPM/°C

### Magnetic Permeability

*International Annealed Copper Standard

### Mechanical Properties

<table>
<thead>
<tr>
<th>Temper¹</th>
<th>Tensile Strength</th>
<th>Minimum Yield Strength²</th>
<th>% Elongation</th>
<th>Typical 90° Bend Formability³</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ksi</td>
<td>N/mm²</td>
<td>ksi</td>
<td>N/mm²</td>
</tr>
<tr>
<td>TM04</td>
<td>70-81</td>
<td>480-560</td>
<td>65</td>
<td>450</td>
</tr>
<tr>
<td>TM08</td>
<td>78-91</td>
<td>540-600</td>
<td>75</td>
<td>520</td>
</tr>
<tr>
<td>TR08⁴</td>
<td>75-91</td>
<td>520-620</td>
<td>72</td>
<td>500</td>
</tr>
</tbody>
</table>

¹ Mechanical properties subject to change. Tensile strength and elongation are for reference only.

² C18080 is manufactured to a yield strength.

³ DATA FOR REFERENCE ONLY. R/T = Bend Radius/Material Thickness < 0.016” (0.4mm) thick, 11/16 (17.5mm) wide.

⁴ TR08 available above 0.018” (0.4mm). TM08 is limited in thickness.

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