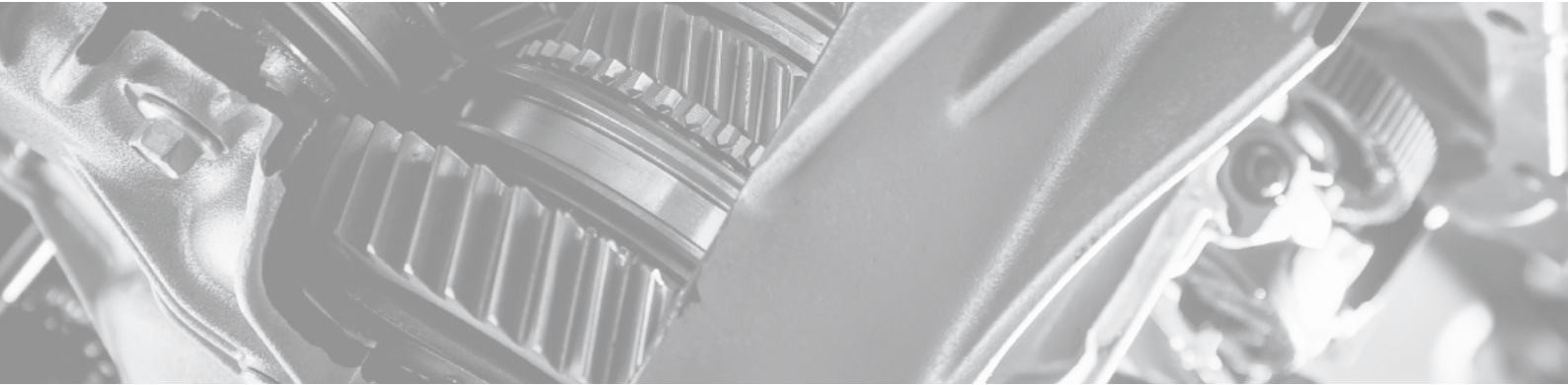


# Copper CuCrZr



## Material description

CuCrZr (C18150, CW106C) is a Copper alloy used in many applications for high thermal and electrical conductivity. Due to its higher strength and creep resistance, CuCrZr applications are usually for more harsh environments where Pure Copper would not be used. The use of CuCrZr in metal additive manufacturing has been a major step in the performance of rocket chambers.

## Physical properties

Density (based on 8.9 g/cm <sup>3</sup> theoretical density)	> 99%
Pore size	< 100 μm
Porosity rate	< 1%
Thermal Conductivity	min. 300W/m.C
Electrical Conductivity (% IACS)	80-90%

## Mechanical properties<sup>1</sup>

	Heat Treated
<b>Tensile strength</b> Horizontal (XY) Vertical (Z)	250 MPa ± 30 MPa 250 MPa ± 30 MPa
<b>Proof strength (Rp 0.2%)</b> Horizontal (XY) Vertical (Z)	140 MPa ± 30 MPa 140 MPa ± 30 MPa
<b>Modulus of elasticity</b> Horizontal (XY) Vertical (Z)	110 ± 10 GPa 110 ± 10 GPa
<b>Elongation at break</b> Horizontal (XY) Vertical (Z)	25 ± 10% 25 ± 10%

<sup>1</sup> All data gathered using ASTM E8M round machined specimens with a 5mm diameter cross section in the gauge region.

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## Chemical properties

Material composition wt%	Cu	Balance	Zr	0.03-0.30	Si	0.1 max
	Cr	0.50-1.20	Fe	0.08 max	Others	0.20 max

Material Properties	Applications	Finishes	Industries
<ul style="list-style-type: none"> <li>• High conductivity</li> <li>• Good strength at high temperatures</li> <li>• Thermal stability</li> </ul>	<ul style="list-style-type: none"> <li>• Electrical bus bars</li> <li>• Rocket chambers</li> <li>• Heat exchangers</li> <li>• Induction coils</li> </ul>	<ul style="list-style-type: none"> <li>• Machined</li> <li>• Spark eroded</li> <li>• Micro shot-peened</li> <li>• Polished</li> </ul>	<ul style="list-style-type: none"> <li>• Aerospace</li> <li>• Space</li> <li>• Defence</li> </ul>