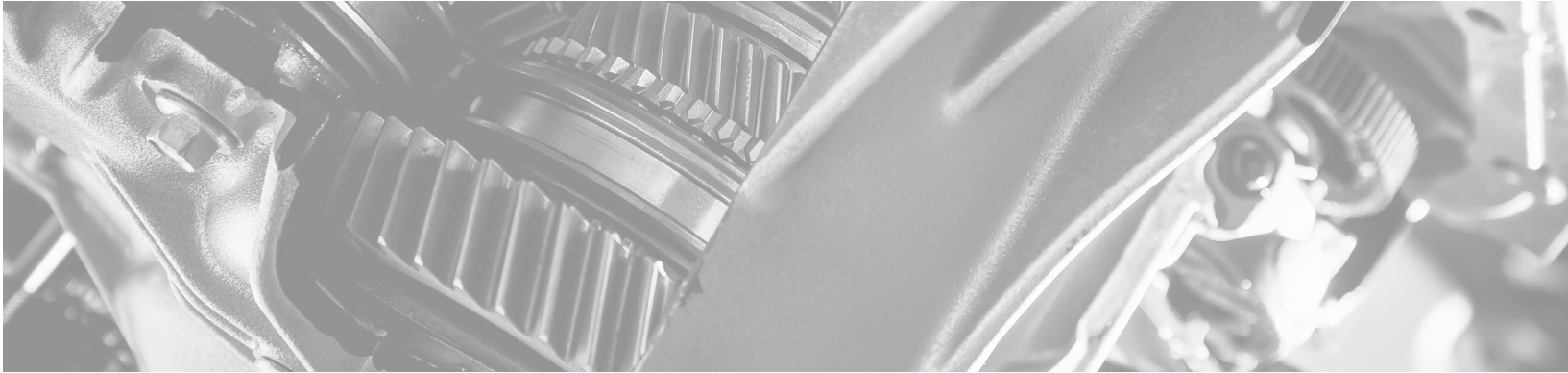


Copper CuCrZr



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 ³ theoretical density)	> 99%
Pore size	< 100 μm
Porosity rate	< 1%
Thermal Conductivity	min. 300W/m.C
Electrical Conductivity (% IACS)	75-80%

Mechanical properties¹

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

¹ 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"> • High conductivity • Good strength at high temperatures • Thermal stability 	<ul style="list-style-type: none"> • Electrical bus bars • Rocket chambers • Heat exchangers • Induction coils 	<ul style="list-style-type: none"> • Machined • Spark eroded • Micro shot-peened • Polished 	<ul style="list-style-type: none"> • Aerospace • Space • Defence