

Copper.



Copper / CuNiSiCr 60 µm

Material data sheet for **Copper CuNiSiCr** parts produced by **Laser Melting**.

Additional information	Unit	As-built	Heat-treated ²
Layer thickness	µm		60
Component density ³	%		≥ 99.5

Tensile test ⁴				M	SD	M	SD
Tensile strength	R _m	MPa	H	318	4	674	20
			V	280	4	633	13
Offset yield strength	R _{p0,2}	MPa	H	249	3	584	15
			V	226	3	551	9
Elongation at break	A	%	H	37	2	18	1
			V	34	2	22	1
Reduction of area	Z	%	H	67	5	40	3
			V	85	3	71	5
Young's modulus	E	GPa	H	102	14	110	9
			V	87	4	102	2

Hardness test ⁵				M	SD	M	SD
Vickers hardness		HV10		109	3	225	1

Conductivity measurement ⁶							
Electrical conductivity		MS/m		8		22	
		%IACS		14		38	

Roughness measurement ⁷				As-built		Corundum blasted		Corundum and glass-bead blasted	
				M	SD	M	SD	M	SD
Roughness average	Ra	µm	21	1	11	2	7	1	
Mean roughness depth	Rz	µm	121	8	63	10	45	7	

SPECIAL FEATURES:

- ¹ Material density varies within the range of possible chemical composition variations
- ² Heat treatment: solution annealing at 930 °C, hold for 15 min, followed by water quenching. Ageing at 540 °C for 2 h with subsequent cooling in air.
- ³ Optical density determination by light microscopy
- ⁴ Tensile test according to DIN EN ISO 6892-1:2017 B (DIN 50125:2016 - D6x30); orientation: 0°, 90°
- ⁵ Hardness testing according to DIN EN ISO 6507-1:2018
- ⁶ Electrical conductivity measurement according to DIN EN 2004-1, ASTM E 1004
- ⁷ Roughness measurement according to DIN EN ISO 4288:1998; λc = 2,5 mm

Indicative figures only. Actual figures may change depending on part geometry and other factors.