

L-PBF PROCESS

Layer thickness	30 µm
Laser power	400 W
Theoretical build-up rate	10,4 cm ³ /h

POWDER MATERIAL

CuCr1Zr is a thermosetting alloy with a very high thermal and electric conductivity, therefore this alloy is often used for heat exchangers or induction coils. In addition to its good conductivity CuCr1Zr offers high heat resistance and a good hardness. The Material is also better to process with LPBF than pure Copper.

PHYSICAL PROPERTIES

Particle Size	20 µm – 63 µm
Density	8,91 g/cm ³
Thermal conductivity	310-340 W/mK
Melting range	1075 °C – 1085 °C
Thermal expansion	17,0 x 10 ⁻⁶ K ⁻¹

CHEMICAL COMPOSITION

Element -	Mass fraction
Cu	Balance
Cr	0,5-1,2%
Zr	0,03-0,3%
Si	<0,1%
Fe	<0,08%
Etc.	<0,2%

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US-Dollar Account: 107877301 | Routing: 39070024
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MECHANICAL DATA

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		As built	Heat-treated
Tensile strength	R _m	230 MPa ± 8 MPa	230 MPa ± 10 MPa
Yield strength	R _{p0,2}	200 MPa ± 4 MPa	191 MPa ± 8 MPa
Elongation at break	A	15% ± 2%	17% ± 1,5%
Young's modulus	E	95 GPa ± 18 GPa	110 GPa ± 10 GPa
Vickers Hardness		105 HV 0,1 ± 5 HV 0,1	85 HV 0,1 ± 4 HV 0,1
Roughness average	R _a	5 µm – 7 µm	
Mean roughness depth	R _z	25 µm – 33 µm	

All values are subject to natural volatilities depending on applied powder material, process parameters and surrounding conditions.

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