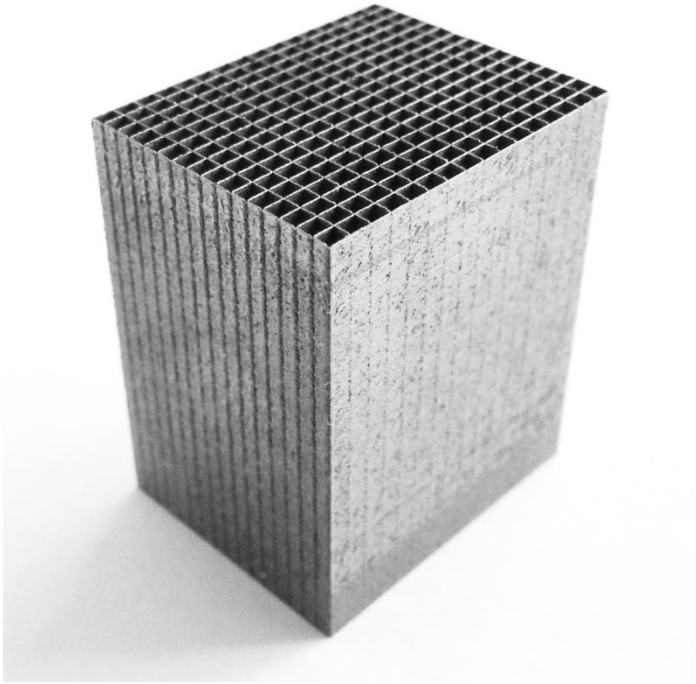
BU GTC/NL

Tungsten Powder Bed Laser Fusion Technical Datasheet



Document version management

Change History

Date	Author	Description
30 November 2014	H. Kleijnen	Creation of Document

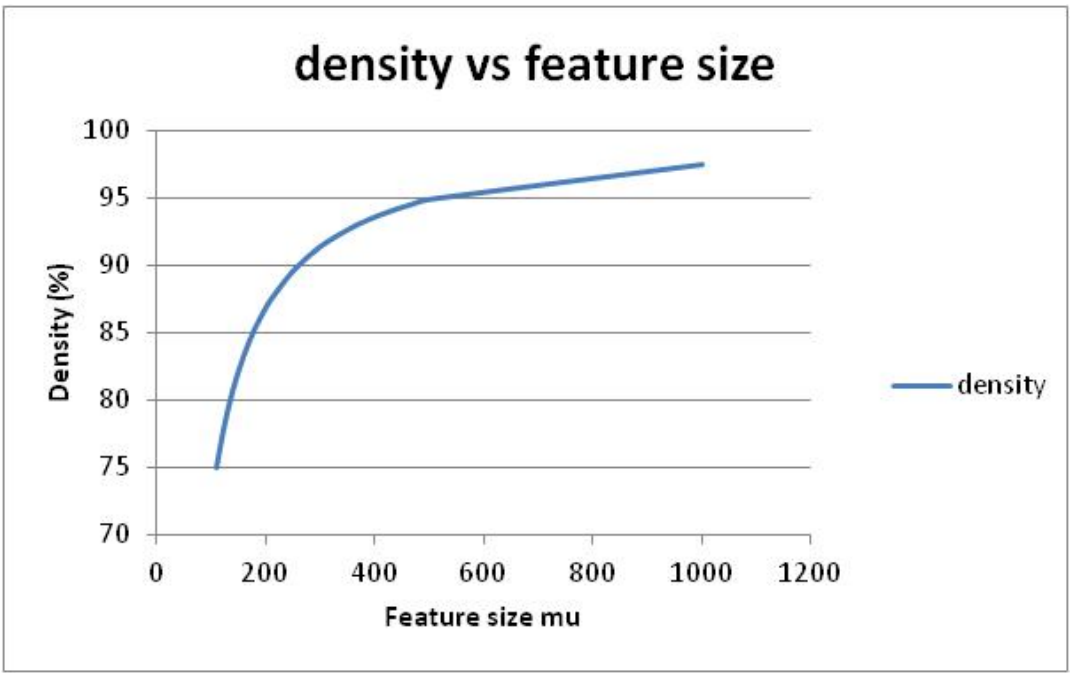
Important Notice!

Due to the nature of the powder bed laser fusion process, material chararcteristics strongly depnd on the part design. Therefore the **values below can only be used for guidance and are subject to change**.
Final values to be determined in collaboration with Suppliers Engineering team

Technical Datasheet

Technical Data:				
Typical part accuracy	(solid X-Y plane)	for parts <60mm for parts >60mm and <120mm for parts > 120mm	±25 ±35 ±50	µm µm µm
Typical part accuracy	(z- plane)	min	+100	µm
		max	+300	µm
Minimum geometry size			100	µm
Maximum build size	LxWxH	23 x 23 x 10cm Maximum height can be extended to 20cm.		cm
Mechanical Properties				
Surface roughness	As-Built	Ra	13-14	µm
	Post processed[#]	Ra	<3.2	µm
Hardness[*]		Vickers	>150	HV30
Ultimate Tensile strength[*]			>35	MPa
Young's modulus			50	GPa
Physical Properties				
Density See also graph after this datasheet See also graph at the end of this table	Relative[*] Absolute[*]		>97 >18,6	% g/cm^3
Electrical Resistivity[*]			<250	nΩm
Thermal Diffusivity[*]			40-55	mm^2/s
Heat capacity			0.16	J/(gK)

Thermal conductivity*		120-170	W/(mK)
Air Tightness	Depending on material thickness 100% air thightness can be achieved. Thin walled products can only be made airtight by sealing.		
Material Composition Powder			
W		>99	%
*Depending on layer thickness and part geometry (solid parts only) # Effect and availability of post processing depending on part geometry			
Post Processing Characteristics			
Abrasive characteristics	Solid material can be polished to specular reflection		
Machining Characteristics	Material can be milled, drilled with standard hard-metal tooling.		
Chemical Resistance	Depending on application		



Density relative to 19,25 g/cm-3