

## L-PBF PROCESS

<b>Layer thickness</b>	30 µm
<b>Laser power</b>	370 W
<b>Theoretical build-up rate</b>	9,72 cm <sup>3</sup> /h

## POWDER MATERIAL

Scalmalloy® material is specifically developed and designed to be processed using Laser Powder Bed Fusion (LPBF).

A unique microstructure compared to other aluminum alloy powders is achieved due to high cooling rates and rapid solidification. The microstructure is stable at high temperatures up to 250°C and also demonstrates excellent characteristics for conventional machining. Parts produced using Scalmalloy® show very good weldability and corrosion resistance.

## PHYSICAL PROPERTIES

<b>Particle Size</b>	25 µm – 65 µm
<b>Density</b>	2,67 g/cm <sup>3</sup>
<b>Thermal conductivity</b>	99 W/mK -126 W/mK
<b>Melting range</b>	580 °C – 780 °C
<b>Thermal expansion</b>	24,2 x 10 <sup>-6</sup> K <sup>-1</sup>

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## CHEMICAL COMPOSITION

Element -	Mass fraction
<b>Mg</b>	3,82%
<b>Sc</b>	0,82%
<b>Zr</b>	0,3%
<b>Mn</b>	0,4%
<b>Cu</b>	<0,01%
<b>Fe</b>	0,12%
<b>Si</b>	0,6%
<b>V</b>	0,26%
<b>Ti</b>	0,01%

## MECHANICAL DATA

### Heat-treated

<b>Tensile strength</b>	R <sub>m</sub>	516 MPa ± 1 MPa
<b>Yield strength</b>	R <sub>p0,2</sub>	503 MPa ± 1 MPa
<b>Elongation at break</b>	A	13,64 % ± 0,67 %
<b>Young's modulus</b>	E	70,9 GPa ± 0,3 GPa
<b>Vickers Hardness</b>		180 HV 0,3
<b>Roughness average</b>	R <sub>a</sub>	10 µm
<b>Mean roughness depth</b>	R <sub>z</sub>	80 µm

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

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