

Material Data Sheet - Scalmalloy®

Material Description

Scalmalloy® material is designed to be processed using Laser Powder Bed Additive Layer Manufacturing (ALM) processes. Due to the high cooling rates and rapid solidification, a unique microstructure is achieved which rivals the performance of the highest grade aluminium foundry products. Coupling these material properties with the design freedom provided by ALM processes can enable high performance parts with a level of functionality previously impossible to achieve.

General Properties

| Properties | Values |
|------------------------------------|-----------------|
| Density (g/cm ³) | 2.70 |
| Typical tolerance (µm) | ± 100 |
| Smallest wall thickness (mm) | 1.0 |
| Surface roughness, as built (µm) * | Ra 10 / Rz 80 * |

Mechanical Properties

| Properties | Values |
|---------------------------------|--------|
| Young's Modulus (GPa) | 65 |
| Yield Strength (MPa) | 450 |
| Ultimate Tensile Strength (MPa) | 490 |
| Elongation at Break (%) | 8 |
| Vickers Hardness (HV0,3) | 177 |

Values stated in the datasheet refer to the minimum properties that are reached using Additive Layer Manufacturing in the least strong direction of the material.

The values of the mechanical properties are generated from tests conducted at room temperature, according to DIN EN 2002-001 standards, from specimens that have been heat treated and machined.

* The surface roughness values depend on the measurement method used and the orientation of the surface. The values quoted here give an indication of what can be achieved for certain surfaces.

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