

Data Sheet: LPBF-Scalmalloy® AlMgSc

CHEMICAL COMPOSITION

Element	Al	Mg	Sc	Zr	Mn	Si	Fe	Zn	Ti	V	O
Percentage	Bal.	4.00 - 4.90	0.60 - 0.80	0.20 - 0.50	0.30 - 0.80	0.00 - 0.40	0.00 - 0.40	0.00 - 0.25	0.00 - 0.15	0.00 - 0.05	0.00 - 0.05

TOLERANCES FOR 1 – 4

Property	Unit	Value As Built
Achievable Part Accuracy ⁱ	mm %	+/- 0.3 mm for parts up to 100 mm +/- 0.3 % for parts beyond 100 mm
Min. Wall Thickness	mm	0.8

AVAILABLE FINISHES WITH SPECIFIC MECHANICAL PROPERTIES

1 | HEAT TREATED

As built with support structure removal and media blasting with additional annealing.

Annealing definition for Scalmalloy® ALMGSC: The alloy is heated to 350°C for 4 hours and cooled rapidly with air. The strength of the part is substantially increased by this process.

Property	Yield Strength Rp 0.2 % [MPa] ⁱⁱ	Ultimate Tensile Strength Rm [MPa] ⁱⁱ	Elongation at Break [%] ⁱⁱ	Young's Modulus [GPa] ⁱⁱ	Relative Density [%]
Value	449-479	490-520	5-13	65-75	>99.5%

For other custom heat treatment options please select "custom" in the "finish" dropdown on the MakerVerse platform and specify your requirements to request a quote.

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AVAILABLE FINISHES FOR SURFACE REQUIREMENTS

2 | POLISHED

As built with support structure removal and media blasting with additional manual polishing to achieve a homogeneous, smooth surface roughness. Surfaces that require polishing should be specified on the technical drawing or in the comment field on the MakerVerse platform. Includes additional annealing as well.

3 | TUMBLED

As built with support structure removal and media blasting with additional mechanical tumbling to achieve a smoother surface roughness across all exposed surfaces of the part. Includes additional annealing as well.

AVAILABLE FINISHES FOR COLOR REQUIREMENTS

4 | PAINTED

As built with support structure removal and media blasting with a color of choice applied to the part. Surfaces that require painting and the RAL color code should be specified on the technical drawing or in the comment field on the MakerVerse platform. Includes additional annealing as well.

AVAILABLE FINISHES FOR ADDITIONAL REQUIREMENTS

5 | CNC MACHINED

As built with support structure removal and media blasting with additional CNC Machining to the required tolerances. The required tolerances should be specified on the technical drawing. Includes additional annealing as well.

AVAILABLE COMBINATIONS OF FINISHES

Many finishes can be combined or tuned to specific requirements. Please select "custom" in the "finish" dropdown on the MakerVerse platform and specify your requirements to request a quote for alternative finishing options.

MAXIMUM BUILD CHAMBER SIZE

400 MM X 400 MM X 360 MM

Warranty/Disclaimer: The data from finished parts can deviate from above values depending on the manufacturing process and the component geometry. The data represents our present empirical values. It is incumbent on the person placing the order to examine whether it is suitable for its intended purpose, before using the product.

- ⁱ As a result of the part's geometry, strong tensions may cause distortion in the part which may lead to greater deviation.
- ⁱⁱ Depending on build direction.