



MATERIALS FOR 3D PRINTING

ALUMINIUM



**DANISH
TECHNOLOGICAL
INSTITUTE**

AlSi10Mg

Aluminium alloy

AlSi10Mg is one of the most commonly used aluminum alloys in industrial 3D printing, allowing for thin walls, complex geometries, and low weight.

We print aluminum using Laser Powder Bed Fusion technology, which works with powder and uses a laser to weld the powder layers together. This technology requires a support structure to attach the part to the build platform. The support is mechanically removed after printing.

The technology can produce parts that comply with ISO 2768-m 1; however, the tolerances depend significantly on the geometry of the part. At the Danish Technological Institute, our 3D printing production is also ISO 9001 certified.

MATERIAL PROPERTIES

TENSILE STRENGTH [Rm]	415 ±35 MPa
YIELD STRENGTH [Rp0,2]	251 ±6 MPa
ELONGATION AT BREAK [A]	4 ±2 %
VICKERS HARDNESS [HV10]	120 ±6
PART DENSITY	>99,5 %
MATERIAL MASS DENSITY	2,67 g/cm ³

SURFACE TEXTURE

	Media blasted	Deburred	Processed
Average roughness [Ra]	8 ±2	3 ±1	0,8

Technology:

- Laser Powder Bed Fusion

Printer:

- SLM Solutions - SLM280

Build volume:

- 280 x 280 x 365 mm

Application:

- Industrial use

Possible post-processing:

- De-stressing
- Heat treatment
- Deburring
- Media blasting
- Conventional processing

Customization:

Contact us if you have specific requests for surface roughness and material properties.

Design features:

- Minimum feature size 0,6 mm
- Minimum channel size Ø2 mm
- Minimum wall thickness 1 mm
- Support for overhangs less than 45°
- Hole for emptying powder Ø5 mm

Examples of use

- Lightweight grippers for robotic handling and industrial machinery
- Advanced cooling fins and evaporators for the electronics industry
- Engine components such as manifolds and suspensions for the automotive industry
- Molding tools for the manufacturing industry
- Drones for the aerospace and defense industries

Danish Technological Institute - Industrial 3D-printing

Email: 3dprint@dti.dk

Phone: 7220 1701

www.dti.dk/3dprinting



Visit our
website to
see our AM
services



**DANISH
TECHNOLOGICAL
INSTITUTE**