ACS MATERIAL®
Advanced Chemicals Supplier

TECHNICAL DATA SHEET

# Metal 3D Printing Service

*Large-format metal additive manufacturing — Laser Powder Bed Fusion (LPBF / SLM)*

*Precision metal parts produced by laser powder bed fusion — complex geometries that cannot be machined or cast.*

CONTENTS




ACS MATERIAL, LLC
959 E Walnut St., Suite 100
Pasadena, CA 91106, USA
Phone +1 (866) 227-0656
Fax +1 (781) 518-0284
**contact@acsmaterial.com**



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SECTION I

## Service Overview

ACS Material offers industrial metal 3D printing (metal additive manufacturing) built on XDM laser powder bed fusion (LPBF / SLM) technology. A high-power laser selectively melts fine metal powder one thin layer at a time, fusing each layer to the one below to build a fully dense metal component directly from a digital model. Because the part is grown rather than cut, the process produces geometries that are difficult or impossible to machine — internal cooling channels, conformal passages, lattice and topology-optimized structures, and consolidated assemblies.

From functional prototypes to end-use production parts, the service is engineered and quoted to each project. With build volumes up to 2000 × 2000 × 650 mm, ACS Material can produce large metal components as a single, seamless print — a scale well beyond the roughly 600 mm envelope of most industrial metal 3D printers. Please contact us with your design for materials, feasibility, and pricing.

SECTION II

## Capabilities

| Parameter | Specification |
|---|---|
| Process | Laser Powder Bed Fusion (LPBF / SLM) |
| Build Volume (W × D × H) | Customizable, from 120 × 120 × 100 mm (4 × 4 × 3 in) to 2000 × 2000 × 650 mm (78 × 78 × 25 in) |
| Equipment Models | XDM 120, XDM 250, XDM 300, XDM 420, XDM 500, XDM 750, XDM 2000 |
| Materials | Stainless steel, tool steel, titanium, aluminum, cobalt-chrome, nickel-based, and copper alloys |
| Part Density | > 99% (typical) |
| Layer Thickness | 20–60 µm (typical) |
| Post-Processing | Heat treatment, machining, and surface finishing (as required) |

*Process-typical values are shown for orientation; the exact build volume, tolerances, and finish achievable for a given part are confirmed at the time of quotation.*

SECTION III

## Materials

| Alloy | Key properties & typical use |
|---|---|
| Stainless steel | Corrosion resistance and strength; general prototypes, fluid-handling, medical and industrial parts |
| Tool & maraging steel | High hardness and strength; tooling, molds, dies, and inserts |
| Titanium alloys | High strength-to-weight, corrosion resistance, biocompatibility; aerospace and medical implants |
| Aluminum alloys | Lightweight with good thermal conductivity; heat exchangers, brackets, automotive and aerospace |
| Cobalt-chrome | Wear and corrosion resistance, high-temperature strength, biocompatibility; medical, dental, turbine |

| Alloy | Key properties & typical use |
|---|---|
| Nickel-based alloys | Strength and oxidation resistance at high temperature; combustion, aerospace, energy hardware |
| Copper alloys | High thermal and electrical conductivity; heat exchangers, induction coils, thermal management |

*Additional alloys and material grades are available depending on the project.*

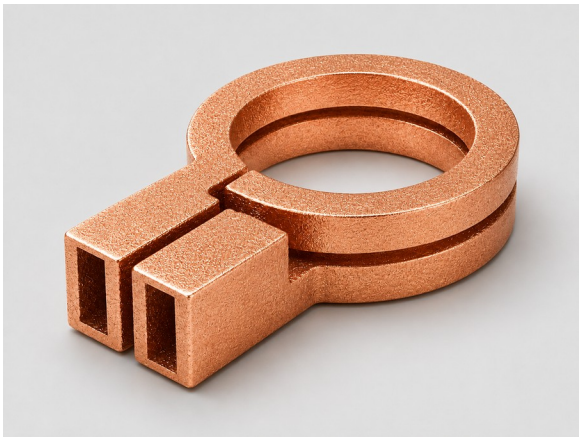
SECTION IV

## Applications

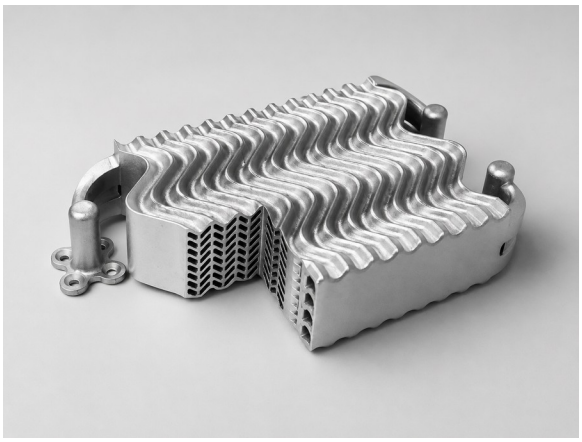
- **Aerospace & Defense**
- **Automotive & Motorsport**
- **Medical & Dental**
- **Energy & Thermal Management**
- **Industrial Tooling & Molds**
- **Electronics & Induction**
- **Research & Education**

### Sample parts

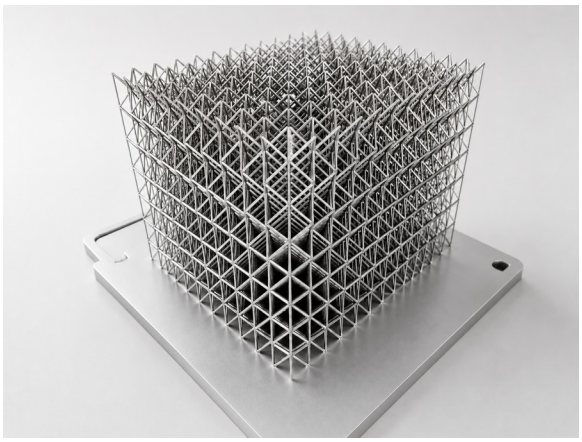
*Sample of 3D-printed medical implant*



*Sample of 3D-printed induction coil*



*Sample of 3D-printed heat exchanger*



*Sample of 3D-printed lattice structures*

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