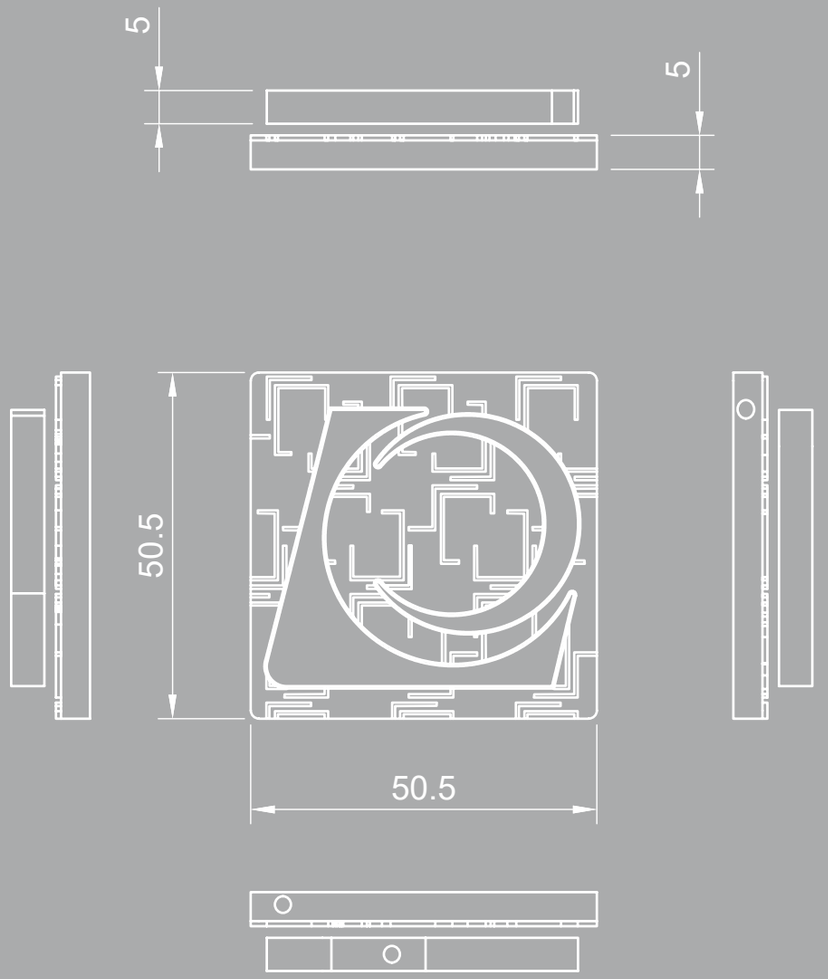
LEGOR®
Extraordinary matter

Legor 3D Metal Hub

WE PRINT YOUR IDEAS

legor.com

ENG



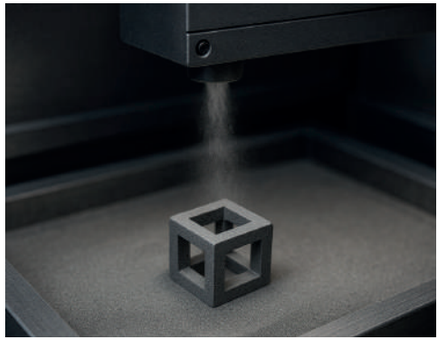
WHO WE ARE

For over 45 years, Legor has been transforming metals into innovative alloys, powders, and galvanic solutions for fine jewelry, fashion accessories, and industrial applications. Today, Legor is a Benefit Corporation driven by strong ethical values and a deep commitment to sustainable innovation.

This center of excellence, specializing in additive manufacturing through **Binder Jetting** (BJ) and **MoldJet®** technologies, was created to offer a sustainable and flexible production process capable of shaping components in **Steel**, **Silver**, **Bronze**, **Titanium**, **Gold** and **Platinum**, while overcoming the limitations of traditional manufacturing.

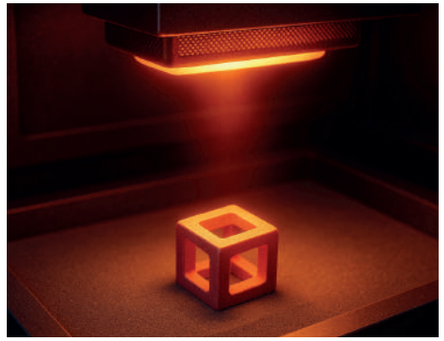
OUR SERVICES

PRINTING SERVICE



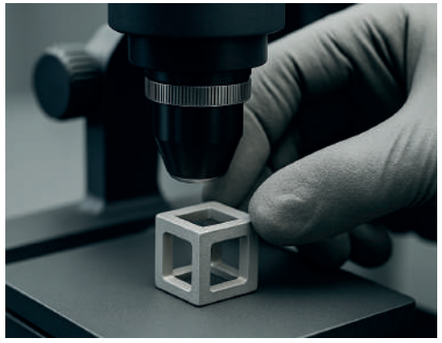
From design to final part – prototypes and production.

SINTERING SERVICE



Thermal treatment of green parts from external sources.

R&D AND CONSULTING



New material development (e.g., gold, titanium), validation, and testing.

METAL POWDER SALES

Supply of premium powders for additive manufacturing.

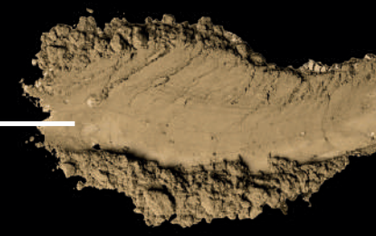
Images for illustrative purposes only.

AVAILABLE MATERIALS

- 316L STAINLESS STEEL
- 17-4PH STAINLESS STEEL
- PANACEA (NICKEL-FREE ALLOY)

- STERLING SILVER 925

- BRONZE (available upon request)



- TITANIUM

- Materials on request/projects in R&D phase
  PLATINUM 950
  GOLD

ONE HUB, MULTIPLE TECHNOLOGIES, ENDLESS POSSIBILITIES: KEY BENEFITS

Design freedom

Create complex geometries, interlocking internal channels, hollow structures, or lattice designs – all without welding

No supports required

Unlike other technologies, both printing technologies eliminate the need for additional support structures, simplifying post-processing

High productivity, optimized costs

Binder Jetting allows medium-to-large production volumes at competitive costs, optimizing production time

Wide material compatibility

The process is compatible with a broad range of powders, including **precious metals and complex alloys**

Powder reusability

Unbound powder is fully reusable, minimizing waste

Fast prototyping

Quick turnaround for prototypes and sampling

TECHNOLOGY PARTNERSHIP WITH HP

Printing Materials

Stainless steel
Silver

Technology

Binder Jetting

Thanks to its partnership with HP, the Legor 3D Metal Hub uses advanced HP Metal Jet S100 printers, ensuring high quality, production scalability, complex geometries, and efficient powder usage.

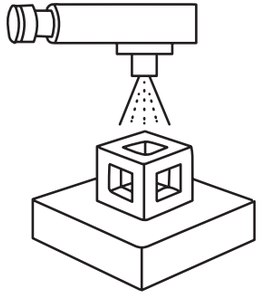
Together with HP, Legor is redefining 3D printing: faster, more advanced, more sustainable, and more customized for the fashion, luxury, and industrial sectors.

Binder Jetting Technology

Binder Jetting is a powder-bed 3D printing technology that offers unprecedented design freedom. This innovative process transforms conventional manufacturing by shortening the supply chain and significantly reducing development times. By eliminating the need for molds and tooling, it enables greater production agility and a more sustainable approach.

BINDER JETTING PRINTING PROCESS

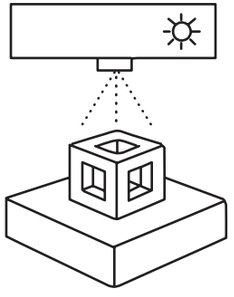
PRINTING



An inkjet printhead selectively deposits a liquid binder, layer by layer, onto a metal powder bed, creating the so-called “**green part**”.

CURING

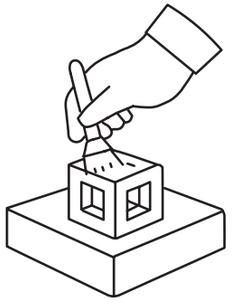
hardening



The green part is stabilized at low temperature to make it robust enough for subsequent steps.

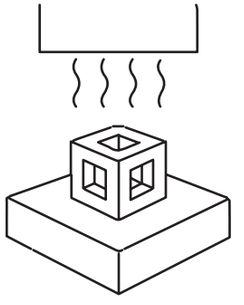
DEPOWDERING

cleaning



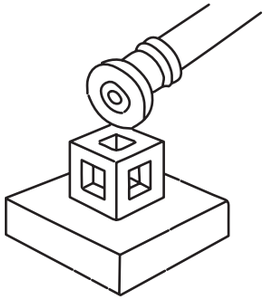
Unbound powder is removed and can be completely recycled, minimizing waste.

SINTERING



The part is heated to a temperature below the metal’s melting point. The binder burns out, particles bond, and the piece densifies with up to **20% shrinkage**. Final density can reach **99.8%**.

FINISHING



Parts can be polished, coated with galvanic or PVD treatments, or CNC machined to achieve the desired surface finish.

DESIGN GUIDELINES

- **Aspect Ratio**
  Max 10:1, ideal ≤ 5:1

- **Max part dimensions**
  50 mm (L) x 80 mm (W) x 40 mm (H)

- **Min wall thickness**
  1–1.5 mm

- **Min hole diameter**
  >1.5 mm for effective depowdering

- **Undercuts**
  from 3 mm

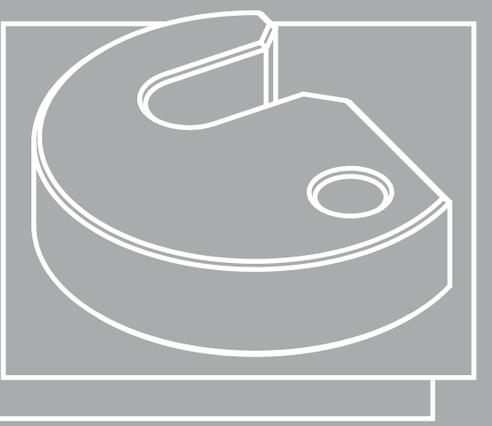
- **Min edge radius**
  0.5 mm to improve finish and strength

- **Hollow parts**
  at least two holes required for depowdering

- **Lattice/interlinked parts**
  min wall and gap of 1.5 mm

To achieve optimal results, we recommend following these basic design rules.

For more complex geometries, our technical team offers a **co-design service** to optimize your CAD file.



Tritone
Industrial Additive Manufacturing

TECHNOLOGY PARTNERSHIP WITH TRITONE

Printing Materials

- **Gold**
- **Platinum**
- **Titanium**

Technology

- **MoldJet®**

Thanks to Tritone's DIM printer and MoldJet® technology, the Legor 3D Metal Hub expands its capabilities in the 3D printing of precious and specialty metals.

The system broadens the Hub's design and production possibilities, supporting the development of innovative components and customized solutions for the jewelry, fashion, and luxury sectors.

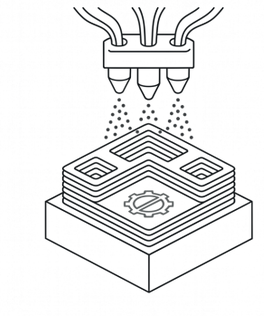
MoldJet® Technology

MoldJet® is a patented metal additive manufacturing technology that eliminates the use of loose metal powders during production.

It enables the creation of highly complex geometries with exceptional definition, excellent surface quality, and a high degree of production flexibility, making it ideal for high-value applications in the jewellery and luxury sectors.

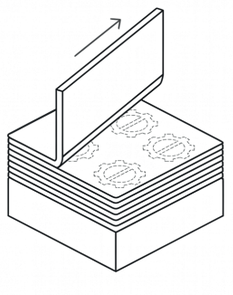
MOLDJET® PRINTING PROCESS

MOLD PRINTING



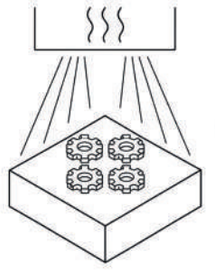
The mold material is deposited layer by layer, creating cavities that reproduce the negative geometry of the components.

MATERIAL DEPOSITION



A high-density paste made of metal powder and binder is deposited and compacted inside the mold cavities.

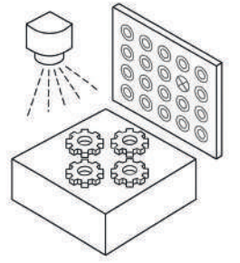
DRYING & HARDENING



Each layer is rapidly dried and hardened using hot air and vacuum, ensuring stability before the next step.

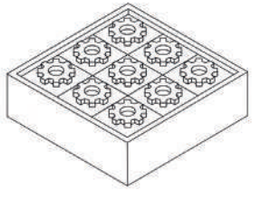
AI INSPECTION

quality control



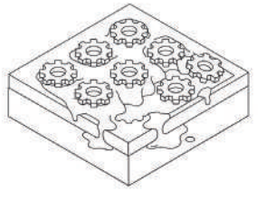
An AI-powered optical system checks the quality of each layer in real time and automatically identifies any defects.

FINISHED TRAY



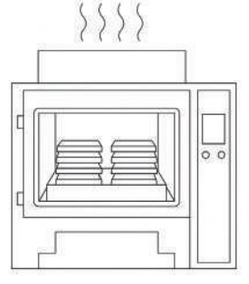
Once printing is complete, the tray contains the fully formed green parts, still supported and protected by the surrounding mold material.

DEMOLDING



The mold material is removed, releasing the green parts and preparing them for the final thermal treatment.

THERMAL DEBINDING & SINTERING



The binder is removed through a controlled heating cycle, after which the parts are sintered to achieve their final density, strength and metallic properties.

DESIGN GUIDELINES

- **Aspect Ratio**
  Maximum ratio of 10:1; staying within 5:1 is recommended

- **Maximum dimensions**
  30 mm (L) × 60 mm (W) × 25 mm (H)

- **Minimum wall thickness**
  Between 0.6 mm and 1 mm

- **Minimum hole diameter**
  0.4 mm

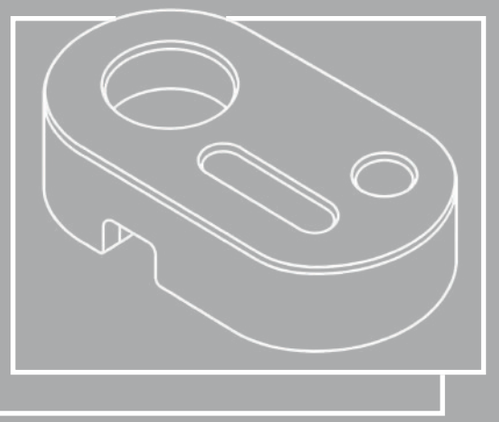
- **Sensitivity to stair-stepping**
  Minimal on vertical walls and highly curved surfaces; greatest on surfaces with a shallow inclination

- **Minimum radius for corners and edges**
  0.5 mm

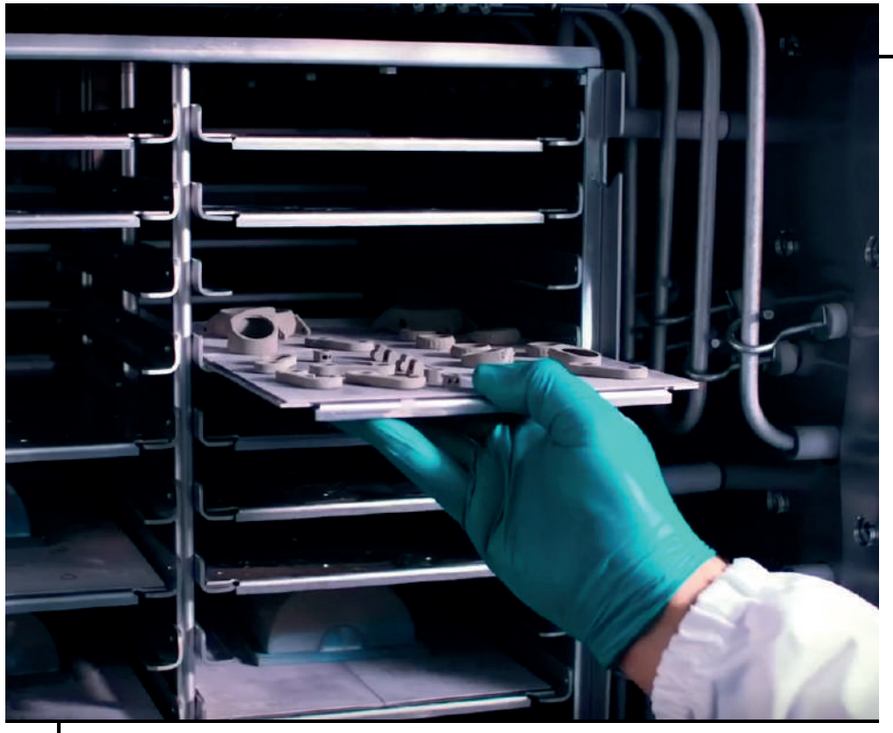
- **Hollow components**
  A single opening is sufficient to remove the internal material

- **Lattice structures and interlinked objects**
  Minimum thickness of 1 mm and a minimum clearance (L) of 1.5 mm to allow movement between the walls

For the best results, we recommend following these basic guidelines. For particularly complex geometries, our technical team offers a **co-design** service to optimize the CAD file.



OUR WORKFLOW



1. **CAD file submission**

   We accept STEP, STL, 3MF files.

2. **Analysis & Co-design**

   Technical assessment and, if needed, support in design adaptation.

3. **Production**

   We manage the full process from 3D printing to sintering.

4. **Post-processing**

   A wide range of finishing options available through our partner network.

5. **Delivery**

   From single prototypes to medium and large production batches.

MATERIAL QUALITY

Characteristics	AISI 316L
Surface roughness Ra (µm)	3.0-3.5
Density (%)	99.8
Residual porosity (%)	0.2

Characteristics	Ag925
Surface roughness Ra (µm)	3.0-3.5
Density (%)	99.7
Residual porosity (%)	0.3

Characteristics	Pt950
Surface roughness Ra (µm)	3.0-3.5
Density (%)	99.7
Residual porosity (%)	0.3

Characteristics	Au
Surface roughness Ra (µm)	3.0-3.5
Density (%)	99.7
Residual porosity (%)	0.3

Characteristics	Titanium
Surface roughness Ra (µm)	3.0-3.5
Density (%)	99.7
Residual porosity (%)	0.3

APPLICATION FIELDS

Luxury & Fashion

Jewelry, accessories, eyewear.

Medical & Biomedical

Surgical tools and custom prosthetics.

Sports & Leisure

High-performance components.

Automotive & Industrial

Functional and technical components.

Design & Consumer Goods

Furniture and lifestyle items.

Aerospace

Lightweight, complex and high-performance components.

WHY CHOOSE THE 3D METAL HUB?

EXPERIENCE

Over 45 years of metallurgical expertise

FLEXIBILITY

On-demand production, from single pieces to mid/large batches

SUSTAINABILITY

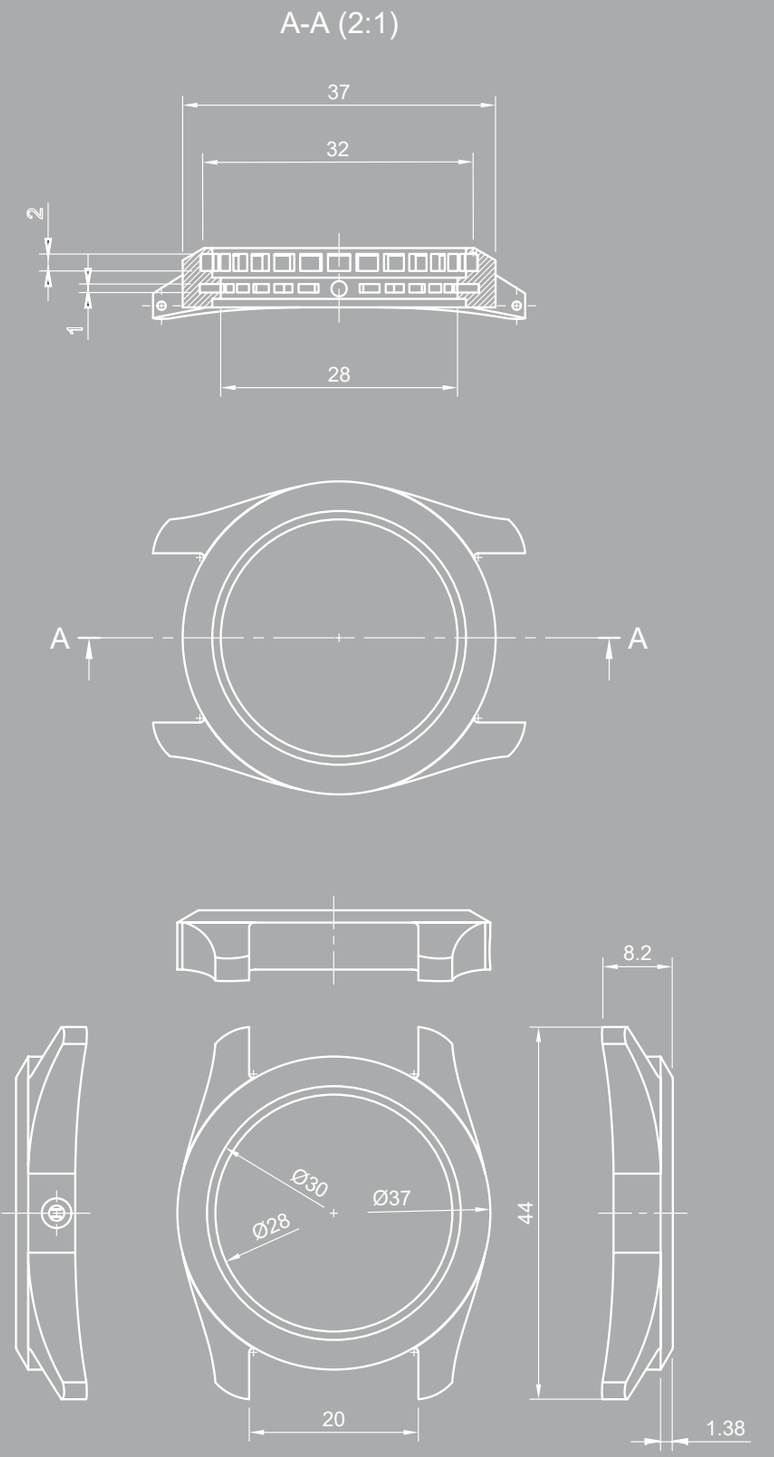
Waste reduction and full powder reusability

INNOVATION

Ongoing research in materials and processes

TECHNICAL SUPPORT

Personalized consulting at every stage of your project



COLLABORATIONS

Amano+

Highly customizable watch by Thomas Lehman (AnalogLab), printed in stainless steel 316L.

IED

Collection designed by two IED Torino students – winners of the Jewellery Design project – printed in stainless steel 316L.

Puntozero

Watch case with lattice structure, developed from a design optimized for additive manufacturing.

XYZ, LEM, Puntozero

Keyring printed in 316L steel and bronze, born from a cross-disciplinary systemic project.

Indigo Runes

A unique collection of gaming dice printed in stainless steel 316L.

Legor: your innovation partner

Legor 3D Metal Hub is your strategic partner for transforming ideas into metal parts, accelerating production and delivering exceptional quality.

Shape your ideas in metal.

Do you have a project in mind?

CONTACT US AT LEGOR.COM

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