



Emilian Heart

Product Presentation

Who we are

We are a metalworking factory specialized in **precision iron-sheet** production, custom fabrication and industrial prototyping. Our cutting and bending departments are fully equipped with AMADA systems/machinery, allowing us to achieve reliable accuracy, clean edges and consistent tolerances across every project. From single artistic pieces to small series production, we transform ideas into tangible objects, all of them shaped by engineering, experience, and the mechanical culture that defines our territory.

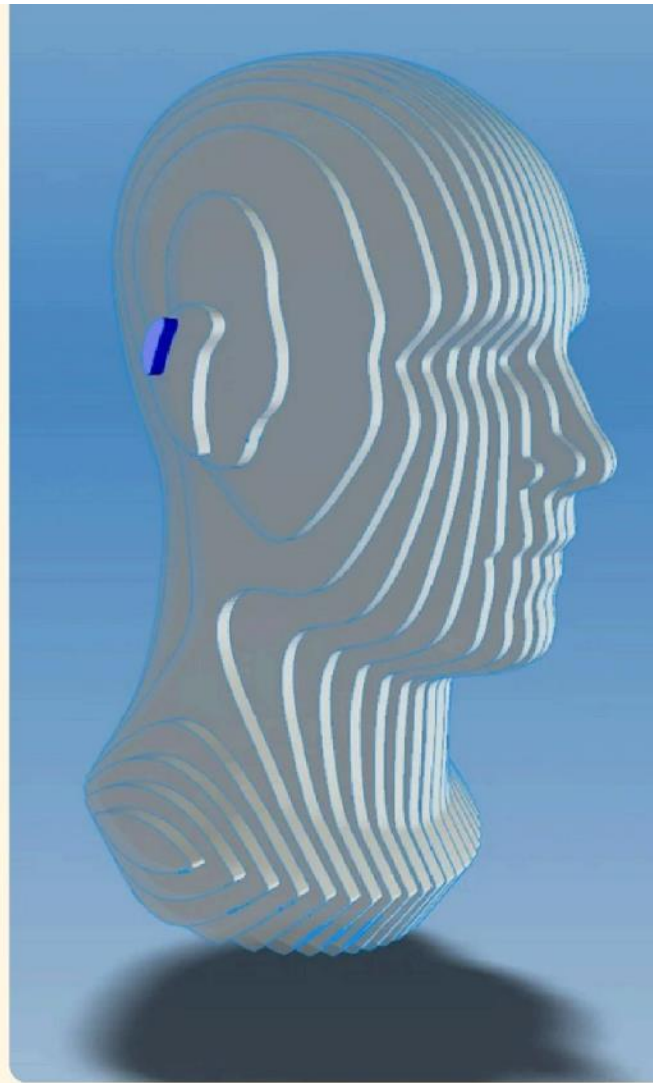


Inspiration

We used the same 3D slicing technique found in modern additive manufacturing to recreate the iconic *Emilian Tortellino* as a layered sculpture.

Emilian Heart represents the soul of *Emilia-Romagna*, where traditional food and mechanical craftsmanship live side by side.

A small tribute to our land, shaped by both innovation and tradition.





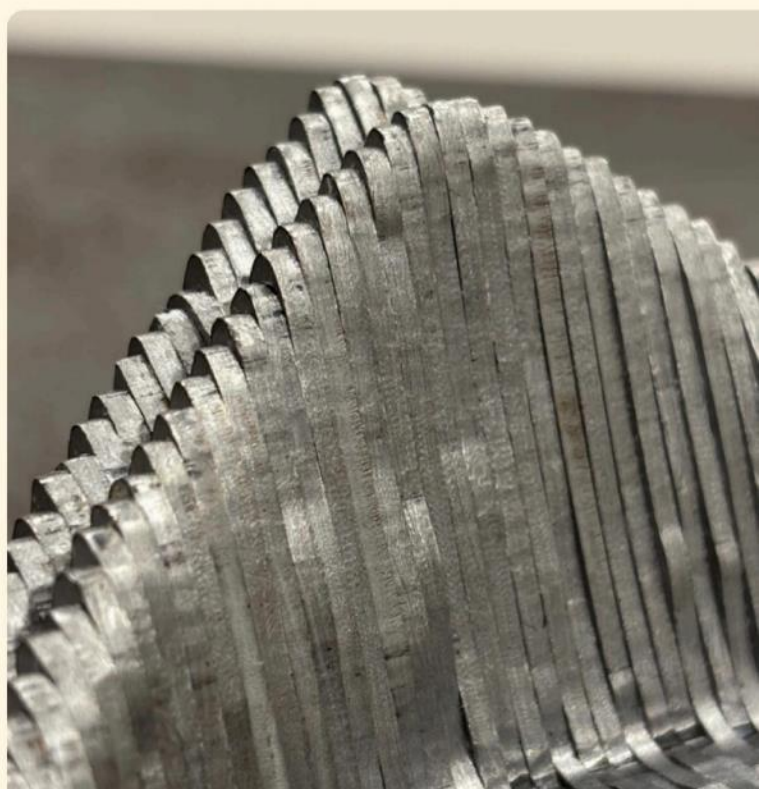
Specifications

The piece is crafted from **iron**, **laser-cut** with ± 0.1 mm precision on 2 mm thick iron sheet.

Each layer is cut individually and then stacked, forming the final solid object.

Although the full composition fits inside a cube with a 150 mm side, the total surface area of all plates combined reaches 575565 mm² (or 0.5756 m²).

Once assembled, the object weighs approximately 9 kg, compact in size, yet industrial in strength and mechanical accuracy.



Prototype

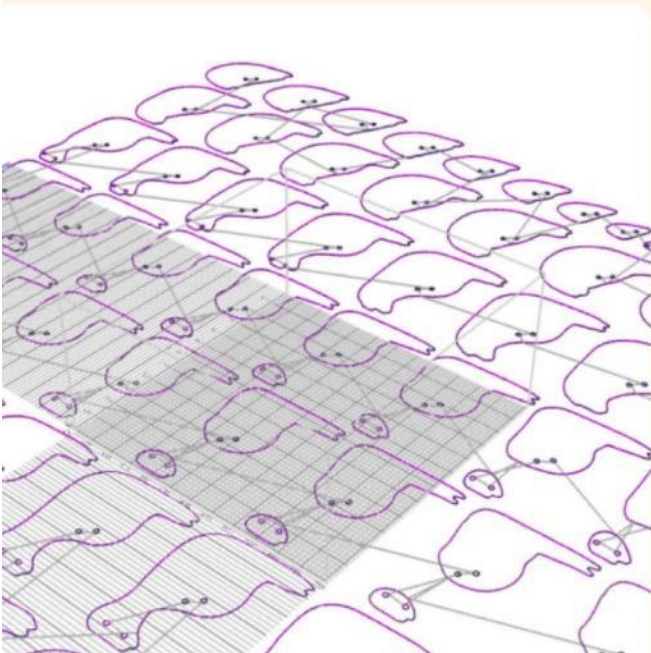
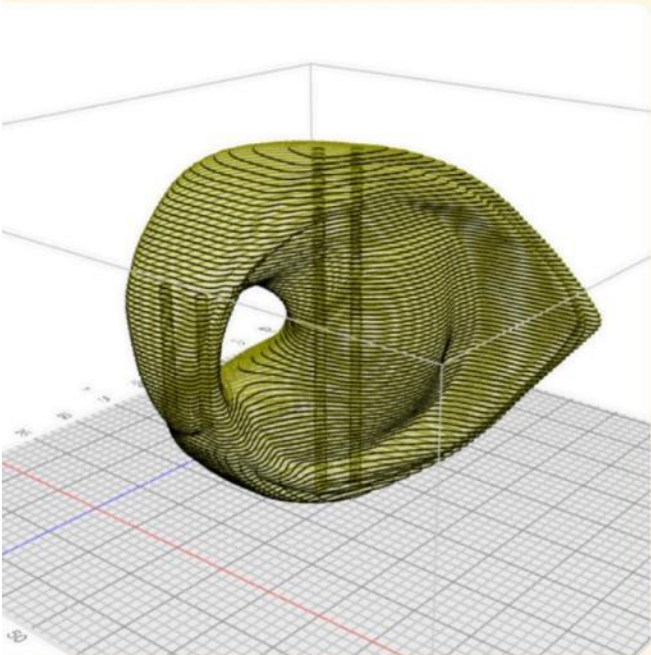
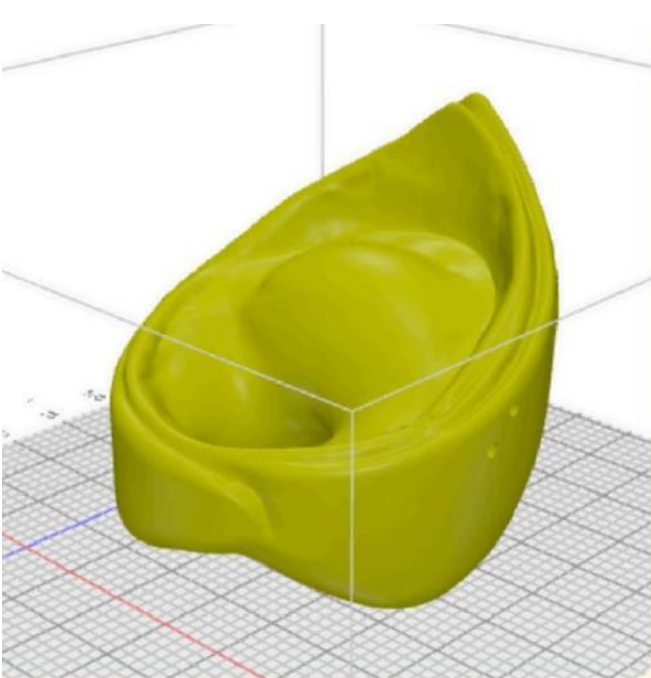
The first assembled prototype provided valuable feedback for the refinement phase.

Some plates showed slight darkening from laser heat, a natural effect during early trials, which helped us optimize post-processing and finishing.

We also tested different assembly engineering solutions, experimenting with tolerances, spacers, and alignment methods to achieve an even cleaner result.

These tests guided the optimizations applied to the final model.





Production

The final piece was produced through a structured industrial and design-driven workflow that blends digital modeling with traditional metalworking techniques. Every member of our reality, from our main departments, was directly involved, making this object truly ours.

The production followed this exact sequence:

- Creation of the 3D model, **supported by modern AI-assisted tools**
- Slicing the model to translate the geometry into layered iron plates
- CAD modification to introduce precision holes for mechanical inserts
- Laser cutting each layer
- Manual cleaning and deburring of every plate
- Surface treatment to prevent rust
- Full assembly of the stacked layers
- **Spot welding** to secure the structure
- Grinding and polishing for a smooth, uniform finish



Machinery

All iron layers were produced on a **single Amada ENSIS-3015AJ**, whose fiber-laser accuracy was able to reproduce the naturally imperfect geometry of a *tortellino*.

Even with its organic curves, every plate was cut with consistent tolerances, allowing the mechanical inserts to align perfectly without force or adjustment. It's proof that one advanced machine can turn a handmade culinary shape into a precise and elegant iron sculpture.



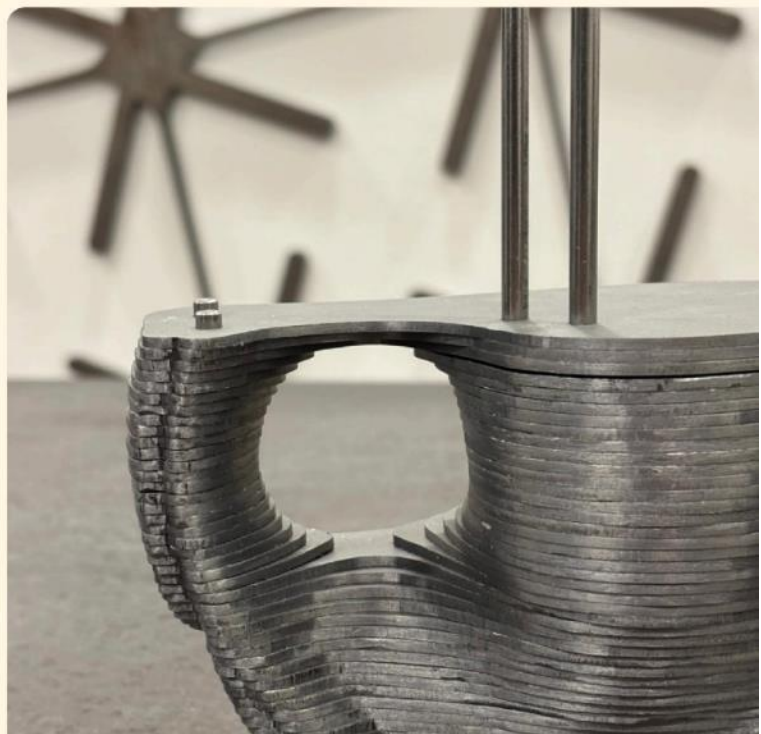
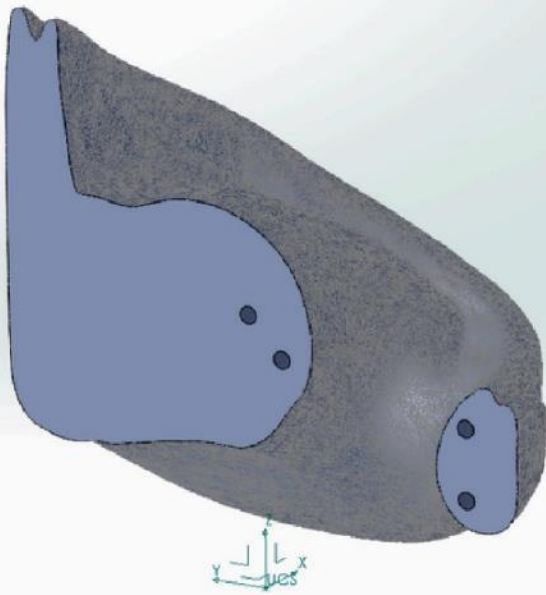
Engineering

To build the sculpture without visible joints, we engineered an internal system with **four precision inserts**.

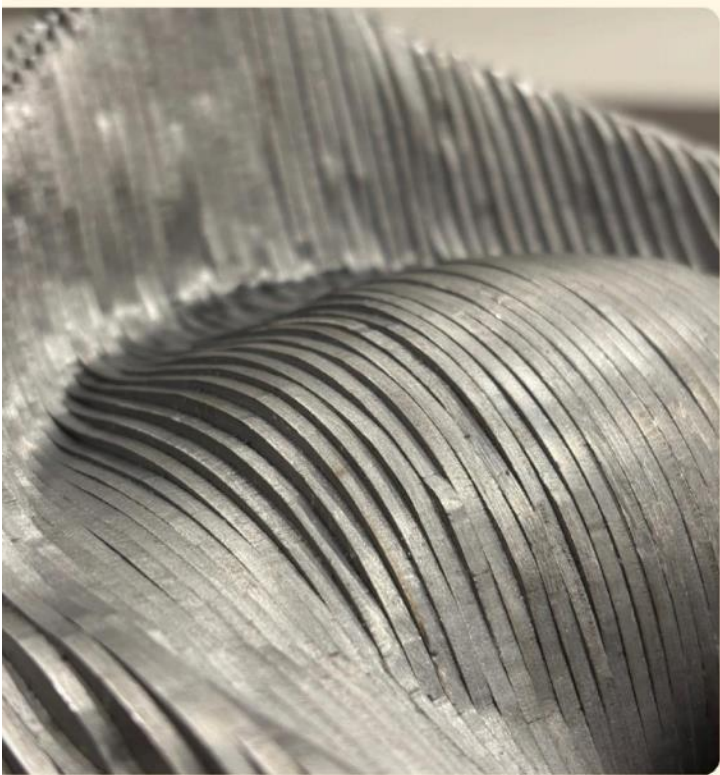
Because the final shape includes a central hollow, two of these inserts are held in place solely by the compression of the stacked layers, **without welding**.

The entire structure is then locked with just two hidden weld points per side, keeping all plates perfectly aligned.

This allows the object to remain rigid and compact, while preserving a perfectly clean, seamless exterior.



Details



Why Iron, and Why Imperfections Matter

We deliberately chose iron, our primary raw material and the essence of our factory, even knowing it carries small surface marks, scratches or oxidation during processing.

We could have eliminated these imperfections by changing material or applying full cosmetic finishes, but that would have removed the identity of the object and the identity of who made it.

This sculpture reflects what we are: authentic, mechanical, industrial, rooted in iron.

Every plate carries a trace of its production, and that's part of the story, not a defect.

And just like the object, we are made of layers: people, skills, stories, experience.

Every member of the team leaves a mark, just as every plate leaves a sign of its journey.

What you see below are the hands, minds and faces behind this piece.

This sculpture is not only the product of our machines, but of our identity, our territory, and the people who keep this reality alive every day.

