



**A HIGH-TECH SOLUTION FOR THE  
DEVELOPMENT AND MANUFACTURING OF CASTINGS.**

**A GLOBAL ANSWER FOR MAKING QUALITY  
FOUNDRY PARTS IN OPTIMIZED DEADLINES**



**RM Technologies**



## WHO ARE WE?



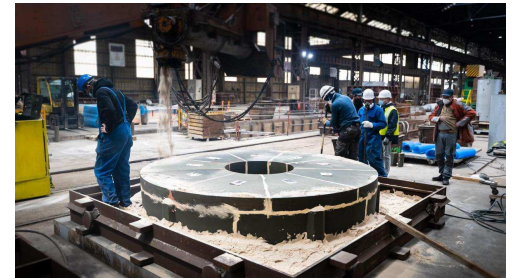
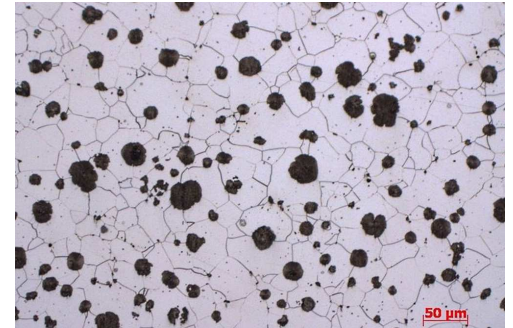
- Consulting, formation, metallurgy expertise, technology transfer



- 3d sand printing, foundries



- Innovative hydro electric turbines





Ardennes, historically linked to foundry, the company **3D METAL INDUSTRIE** was created in May 2019.

A unique approach in France: 6 foundries and an engineering office supported by:

- The French State
- The Grand Est Region
- The UIMM Champagne-Ardenne
- Private investors

gathered to invest in a 3D printer.

This cutting-edge technology machine allows to reduce costs and manufacturing delays of molds and cores for foundry. These molds have technical specifications that are much more complex than classical ones.

Therefore, such equipment is an essential factor to develop the foundry of the future, in a traditionally dedicated area.



**The only place in Europe with such a proximity among:**

**Technologies, Skills & Foundries**



RM Technologies



6 ASSOCIATED FOUNDRIES & METALLURGY EXPERTISE

And:

- A collaborative network of foundries:

[www.fonderie-ca.fr/](http://www.fonderie-ca.fr/)

- An additive manufacturing platform dedicated to research and technology transfer:

[www.platinum3d.com/fr/](http://www.platinum3d.com/fr/)

- An engineering school : EISINe - School of Engineering in Industrial and Digital Sciences:

[www.univ-reims.fr/eisine/](http://www.univ-reims.fr/eisine/)

- A partner university laboratory: iTheMM – Institute of Thermics, Mechanics and Materials
- Expertise laboratories: CRITT MDTs, Laboratoire Forges Ardennes Nord...
- Professional and continuing education: AFPI / CFAI







## A DYNAMIC SOLUTION TO PRODUCE FOUNDRY PARTS

### ENGINEERING :

- Foundry design
- Scanning, retro design
- Design and optimization of molding solutions
- Solidification simulation and filling simulation



### 3D PRINTING :

- Sand based 3D printing
- Molds and cores supplies
- Integration in molding processes
- Hybrid solutions



### MANUFACTURING :

- Manufacturing in partner foundries
- Parts control and expertise
- Finishing and machining

## TECHNICAL ELEMENTS

### CONTROL AND EXPERTISE:

- Metallurgical control and material health
- Dimensional control
- Radiography
- Mechanical tests

### MACHINE FEATURES:

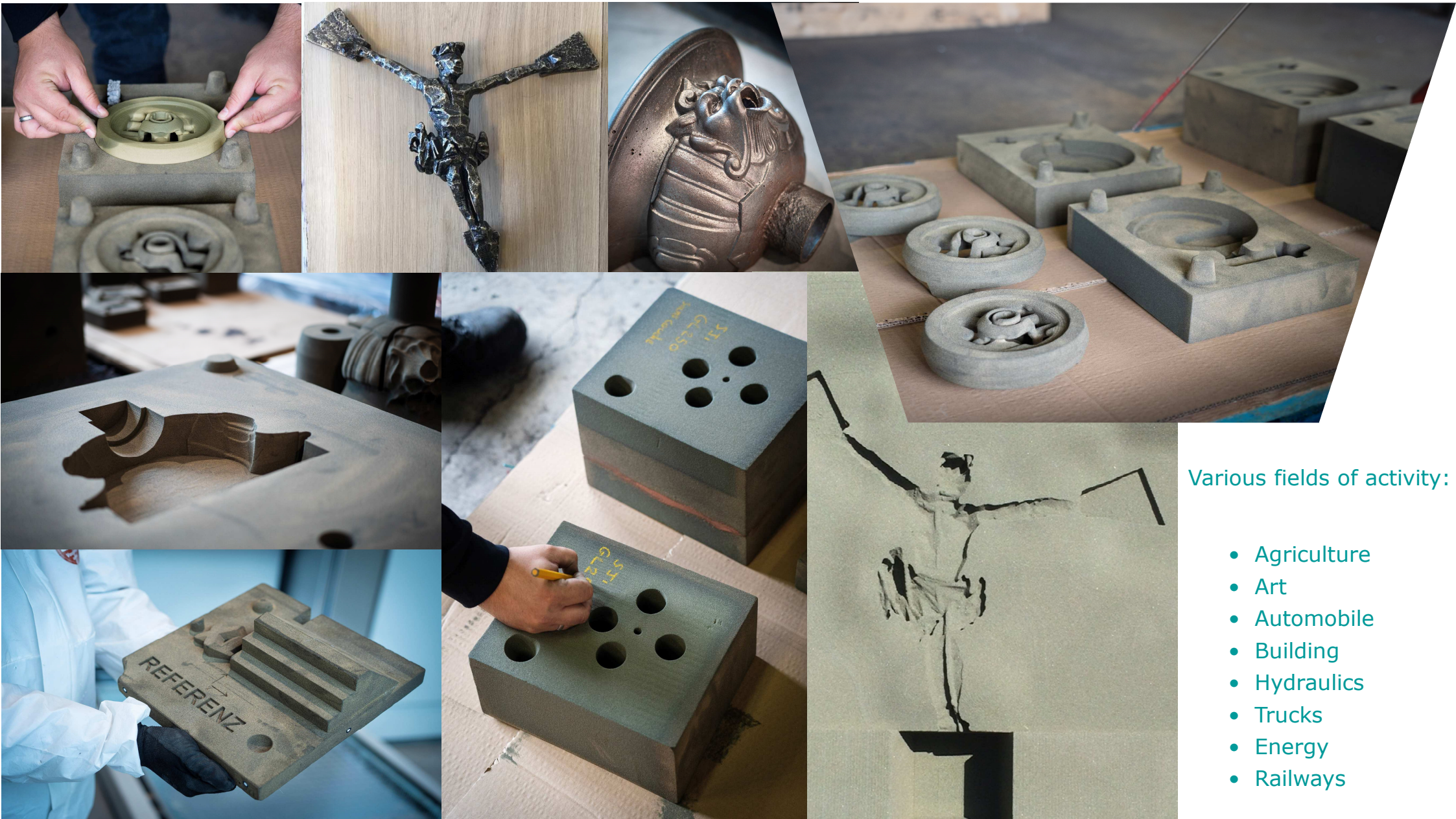
- ExOne SMAX
- Printing capacity: 1800 X 1000 X 700 mm<sup>3</sup>
- 18 hours for printing a full box
- Furanic resin
- Thickness of layer: 0.28 mm
- Possible addition of adjuvants

### ALLOYS:

- Lamellar graphite cast iron
- Spheroidal graphite cast iron
- Aluminium
- Unalloyed and alloyed steels (stainless steel, refractory steel, special steels ...)
- Copper alloys (Bronze, Brass ...)
- Zinc



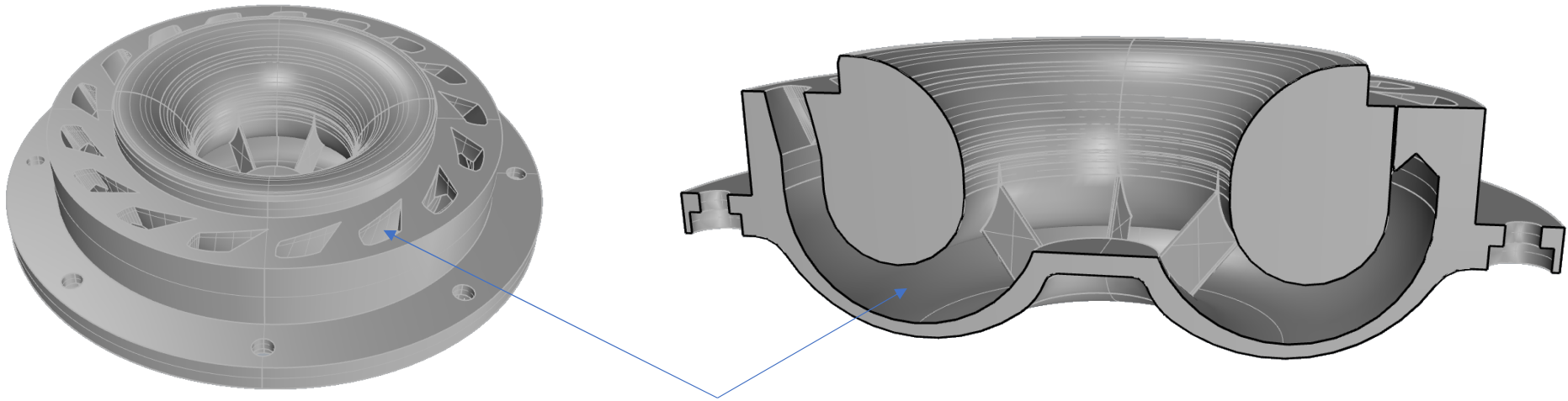




Various fields of activity:

- Agriculture
- Art
- Automobile
- Building
- Hydraulics
- Trucks
- Energy
- Railways

## POSSIBLE APPLICATIONS OF ELASTOMERS IN FOUNDRY



Molding solution for internal geometries : sand core destroyed after pouring

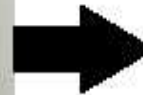
Method for making cores:

- Conventional cores toolings
- 3D sand printing
- **Elastomer toolings?**





## ELASTOMER TOOLS BENCHMARKS



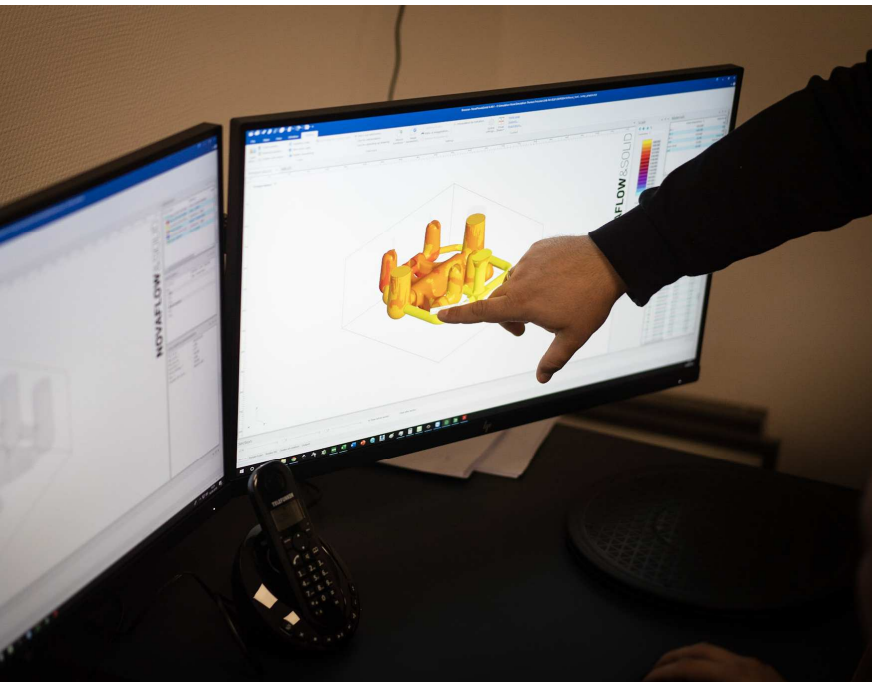
## ELASTOMER TOOLS ADVANTAGE



Complex cores  
application with  
elastomers







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