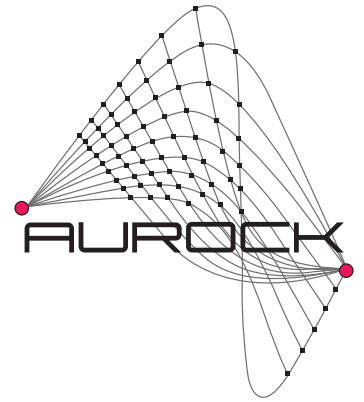
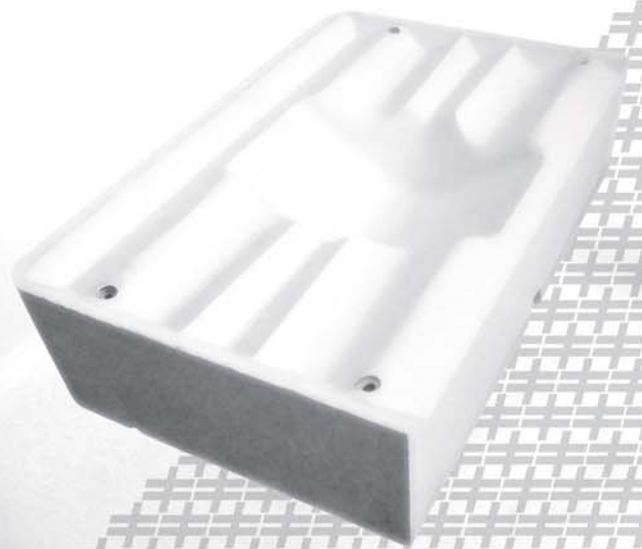


An innovative and economic solution for your superplastic forming tools



Fibre reinforced refractory castable for SPF tools

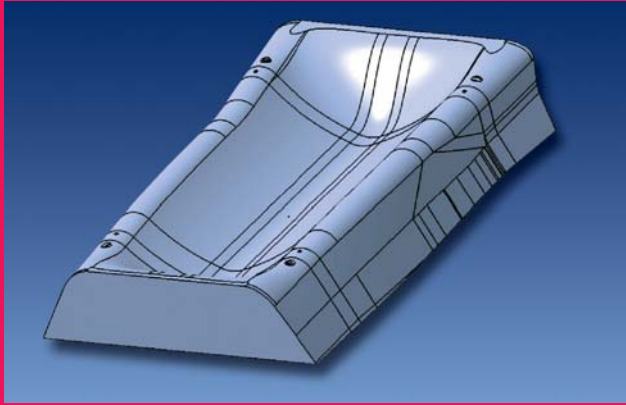


This solution using metallic fibres reinforced refractory castable (FRRC) provides large and complex SPF tools in brief delays and at a low cost for your prototypes or your pre-series.

This technology, specifically developed for SPF process, is patented. Aurock owns an exclusive license for this patent.

Characteristics of Aurock tools

- Superplastic forming of aluminium alloys at 500°C
- Superplastic forming of titanium alloys at 900°C
- Surface finish and dimensional accuracy regarding to the requirements of forming industry.
- Possibility of realizing large dimensions tools with complex shapes
- No sticking of the sheet on the bare tool



Studies

• Tool design

From the part to form and the size of the press, Aurock realizes the design of the tool (software : CATIA V5). This design includes the FRRC specificities for tools, for examples handling means and thermal expansion.

• Structures sizing

The tool design is attended with a sizing service according to thermal and mechanical loadings from specific constitutive laws. Aurock worked out a complete step of sizing and optimization concerning design and analysis of refractory castable tools performances. This step will ensure the service behaviour during the forming process.

• Process simulation

Aurock also proposes forming simulations of SPF process. These simulations allow determining pressure cycles and the final thicknesses of the sheets after forming.

The softwares used for structures sizing and process simulation are FEMAP, Code Aster and Abaqus.

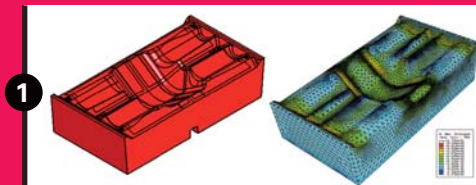
Patterns

From the FRRC tool CAD, Aurock designs the pattern and follows his realisation. This pattern is made of a wooden formwork, a pattern in resin which represents the part shape to obtain and eventually inserts for the handling or vents. The pattern can be reused to make other tool with the same geometry.

Tools

Manufacturing of forming die in FRRC for SPF :

- Surface finish checking
- Tool firing
- Grinding of faces if necessary
- Dimensional quality control if necessary



Studies

- Design
- Sizing
- Simulation



Pattern manufacturing



Tool manufacturing

Lead-time

Between 6 to 10 weeks

Services

Aurock takes in charge the tools deliveries. They are carried in a specific packaging adapted to the FRRC. The tools can be marked with the customer internal reference.

The tools service behaviour is guaranteed if the customer has chosen the sizing stage.

Aurock can also take in charge, in collaboration with the client, the validation of a new handling equipment by an certified organization.

Aurock follows the tool implementation on the press to make sensitive operators to use the FRRC tools.



Think differently !

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