



# IRT M2P

Institut de Recherche  
Technologique

Matériaux Métallurgie  
et Procédés

## MULTI- PROCESSES PREFORMING PLATFORM

### Platform overview

#### Automation

- Robotic
- Workflow management
- Traceability
- Process parameters monitoring and recording

#### Pre-heating system

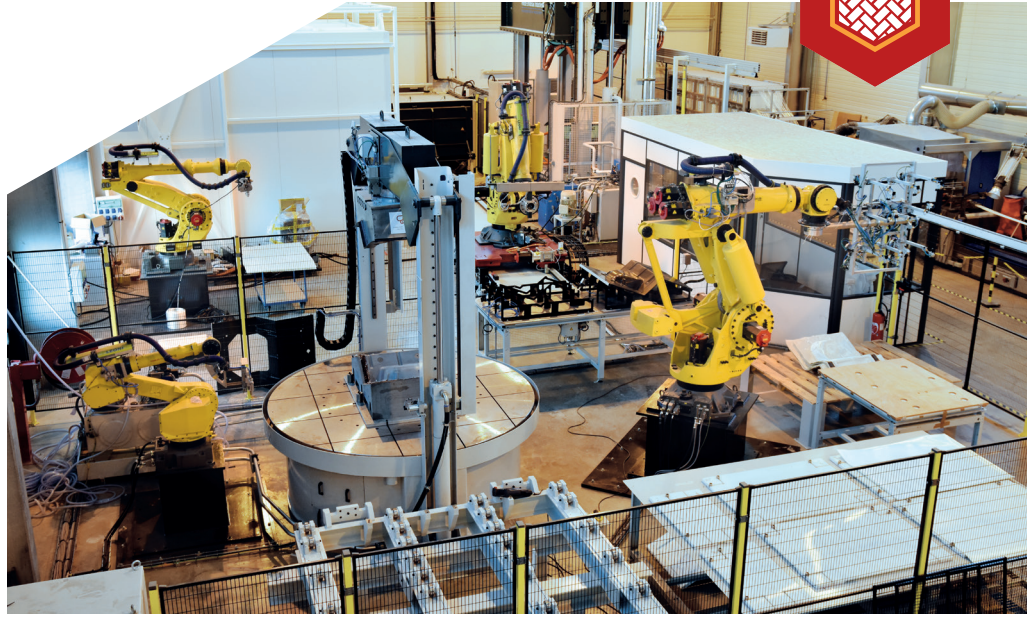
- Robotic loader
- Up to 200 °C (for thermoplastic or thermoset binder)

#### Stamping press

- Hot/ cold preforming
- Closing force 30 to 300T
- Opening max 3000 mm
- Plattens size: 4000 mm x 2500 mm

#### Trimming

- 30 shape
- Ali textile materials cutting
- Up ta 3 sqm
- Oscillating pneumatic blade on robotic system



The M2P preforming platform is able to manufacture a complex hybrid preform in one single production cycle (30/hour) by the implementation of a range of reinforcements structures with three processes: chopped fiber, automated fiber placement and plies stamping.

### OPTIMIZED WAY TO MANUFACTURE TAILORMADE PREFORMS

#### Hybrid preform

- Mono or multi materials preform
- Mono or multi processes preform
- Up to 3 sqm preform
- Net-shape

#### Materials

- Glass, carbon and/or natural fibers
- Dry or prepreg materials
- Continuous/Chopped fibers
- Thermoset or thermoplastic binder
- Material yield optimization

	Plies stamping	Chopped fibers	AFP	Hybrid preform
Time cycle	✓	✓✓✓	✗	✓✓
Raw material yield	✗✗	✓✓	✓	✓✓
Mechanical resistance	✓✓	✗✗	✓✓✓	✓✓

### PROCESSES SPECIFICATIONS

#### Plies stamping

- Up to 5 sqm
- Multi material automatic stacking
- Up to 24 plies

#### Projection of chopped fibers

- 10 to 50 mm fibers
- Thermoset/thermoplastic binder
- 120 kg/hour production rate

#### Automated Fiber Placement (AFP)

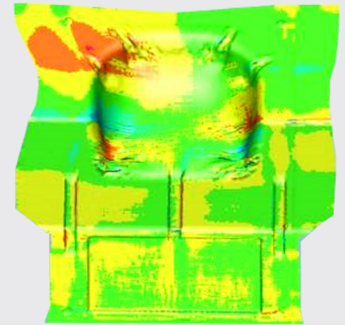
- Single fiber from 1/4" to 1 1/2"
- Heating device: infrared lamp/laser





## TECHNICAL SERVICES

- **Scale-up:** Validate process/materials at an industrial scale
- **Pre-industrialisation:** Validate robustness and production rate of preforming processes in an industrial context
- **Manufacturing cost reduction:** Production cost reduction - Quantify economical advantages of preforming processes - Technical and economical analysis
- **Materials development:** Materials benchmarking (preforming/injectability) - Materials characterization (incoming/outcoming)
- **Process development:** Optimisation of performing processes and development of new processes - Stamping simulation (simple/sequential)



## PLATFORM AVAILABILITY

- Multi-partner research projects with public co-funding
- Research studies/services
- Platform rental with technical support
- Training

## CONTACT

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### About IRT M2P

The Institute of Research and Technology for Materials, Metallurgy & Processes (IRT M2P) is your partner for developing innovative products and processes to accelerate your company's growth.

We bring our expertise, a wide array of state-of-the-art semi-industrial technological platforms and a network of academic labs to the R&D projects we carry out with our more than 120 industrial partners.

Contact us to discover our 9 areas of technological expertise:

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- > Life Cycle Assessment & Recycling
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- > Surface Treatment & Coatings
- > Mechanical Surface Treatment
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- > Analysis & Characterization



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