IRT M2P

Institut de Recherche Technologique
Matériaux Métallurgie et Procédés

COMPACT FIBER PLACEMENT ROBOT

The Automated Fiber Placement (AFP) is a process with continuous fibers functionalized with thermoset or thermoplastic binder/resin. Flexible, compact, versatile, fiber placement cells adapt easily to different geometries and ranges. It enables the manufacturing of complex parts and is suitable for industrial applications.

Process overview	
Glass, carbon, natural fibers	✓
Dry or prepreg materials	✓
Thermoset or thermoplastic binder/resin	✓
Process parameters monitoring and recording	✓
Raw material yield	Up to 97 %
Various widths	¼ '' to 1 ½ ''
Production speed	Up to 1000 mm/s
Preforms size	Up to 1750 x 3000 mm
Preforms	2D/3D

EQUIPMENTS

AFP PROCESS SPECIFICATIONS

Coriolis CSolo general features
- Single material from ¼ '' to 1 ½ ''
- Compaction force range 150 to 1000 N
- Maximum lay-up speed: up to 1,0 m/s
- Tolerance between courses laid up on separate tapes: +2,5/-0 mm
- Dynamic head compliance: ± 5 mm

Heating device
- Infrared lamp: thermoset materials (up to ~ 140° C)
- Laser: thermoplastic materials (up to ~ 500° C)

Monitoring & traceability
- Temperature controls for the fiber placement
- HMI for advanced production management
- Material traceability
- Online monitoring, data saving and post-processing

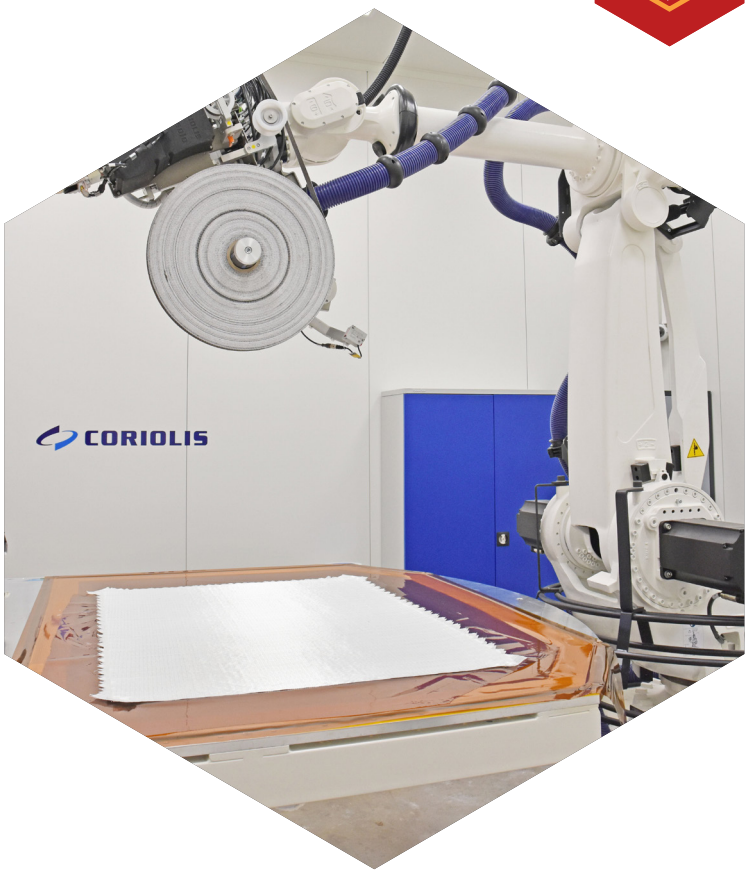
Lay-up
- 2D shape
- 3D shape

OUT OF AUTOCLAVE CONSOLIDATION

M2P thermostamping equipments
- 2D or in shape consolidation (up to 450° C)
- Up to 1 sqm

TECHNICAL SERVICES

- **Scale-up:** Validate process/materials at an industrial scale
- **Pre-industrialisation:** Validate robustness and production rate of AFP processes in an industrial context
- **Manufacturing:** Management of lay-up parameters and consolidation (material development/selection)
- **Material development:** Dry materials, prepregs, process consumables
- **Consolidation:** Out of autoclave, sample production, business case validation, material validation



PLATFORM AVAILABILITY

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

CONTACT

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Further information on this activity scan this Code QR

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:

> Advanced Foundry
> Life Cycle Assessment & Recycling
> Metal Powders
> Surface Treatment & Coatings
> Mechanical Surface Treatment
> Heat & Thermochemical Treatment
> Composite Materials
> Multimaterials Joining
> Analysis & Characterization

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