IRT M2P

Institut de Recherche Technologique
Matériaux Métallurgie et Procédés

C-RTM PROCESS

With Compression Resin Transfer Molding process, the resin mixture is fed into the mold when it is slightly open allowing partial impregnation. Then a compression stroke presses the resin through the preform for complete impregnation. By this way, an high-pressure resin injection allows the use of fast-curing systems.

Process overview	
Fully automated RTM process	✓
High Pressure Injection	✓
Net-shape	✓
C-RTM	✓
Thermoset resins (TS)	✓
Thermoplastic resins (TP)	✓
Production rate	Up to 30 parts/h
Part dimensions	Up to 3 m²
On-line NDT	✓
Process parameters monitoring and recording	✓
Process simulation / Numerical optimisation	✓

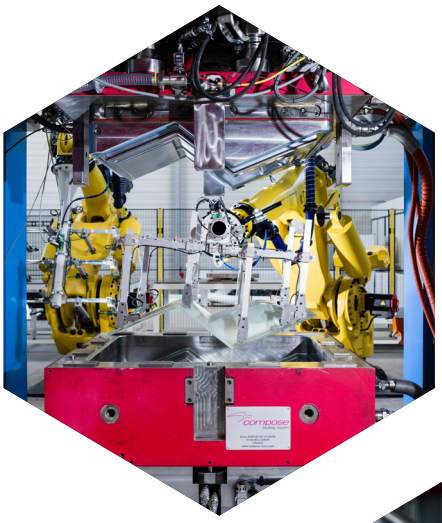
EQUIPMENTS

Eco Compact Sustainable Press (ECS PRESS)
- Press tonnage: 1500 Tons
- Opening and closing speed: 800 mm/s
- Platen size: 2 m x 1,5 m with parallelism control

RTM equipments and toolings
- Innovative modular toolings (net-shape, thermally optimised)
- Optimised temperature control system (current flow tube technology)
- TP and TS high pressure injection machines (30-250 cc/sec)

Automatisation
- Dedicated control room
- 6 axis robots (x2) - 700 kg capacity
- Modular prehensors (for preforms and composite parts)

Online monitoring, data saving and post-processing
- Online controls (preform and part)
- Centralised acquisition and archiving of process parameters
- Energy consumption measurement



TECHNICAL SERVICES

- **Scale-up:** Validate process/materials at an industrial scale
- **Pre-industrialisation:** Validate robustness and production rate of RTM/C-RTM processes in an industrial context
- **Manufacturing cost reduction:** Production cost reduction - Quantifiy economical advantages of RTM/C-RTM processes
- **Materials development:** Maturation and industrialisation of new materials (resins or reinfocements)
- **Process development:** Optimisation of RTM/C-RTM processes and development of new processes
- **Injection process optimisation:** Development and/or optimisation of injection configuration (experimental and/or simulation)

PLATFORM AVAILABILITY

- Multi-partner research projects with public co-funding
- Research studies/services for dedicated companies
- 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