



## 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 Fast RTM

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 3m <sup>2</sup>
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 - Quantify economical advantages of RTM/C-RTM processes
- **Materials development** : Maturation and industrialisation of new materials (resins or reinforcements)
- **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

## ABOUT IRT M2P

IRT M2P is a mutualised research center bringing together skills of industrial and public research, based on public-private co-investment and partnerships. IRT M2P accelerates innovation and growth for industrial companies, develops key technologies (shared amongst major industrial sectors) and provides technological platforms for industrial companies (processing of metallic materials, life cycle assessment and recycling, mechanical surface treatment, surface treatment and coating, thermal and thermochemical treatments, composites, forging, mechanical processes for multi-material assembly).

## CONTACT

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