

High Performance Composite Solutions



At NRC, Canada's leading research and technology organization, we support the development and commercialization of high performance composites for the automotive and ground transportation industry. We offer a complete, integrated solution, along the entire supply chain, from product formulation to processing optimization and performance evaluation.





Our Offerings

- › Process development and trials
- › Material formulation and development
- › Prototype production
- › Benchmark testing
- › Tool trials

Available Processes

- › Forming-Stamping
- › Direct Long Fibre Thermoplastic (D-LFT)
- › Resin Infusion / Light-RTM
- › Resin Transfer Moulding (HP-RTM/RTM)
- › Automated Fibre and Tape Placement (AFP/ATL)
- › Vacuum Bag / Autoclave
- › Injection and Compression Moulding

High-Performance Composites Forming Facility

- › 1250 ton hydraulic press
- › IR oven and transfer system for forming-stamping (PEEK capability)
- › Closing speed: 500 mm/s
- › 2m daylight
- › 1.1 m x 1.3 m platens size
- › T-slotted platens
- › Heated/cooled smooth platens (425°C capability)

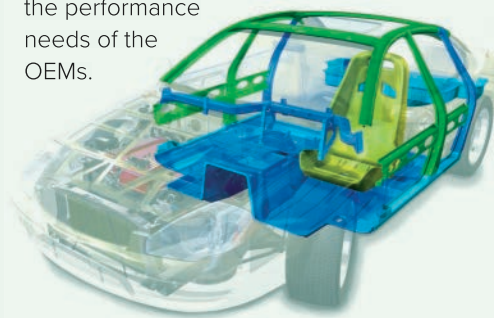
Direct Long Fibre Thermoplastic (D-LFT)

- › 2500 ton hydraulic press
- › Closing speed: 800 mm/s
- › 70 mm twin-screw extruder (D-LFT)
- › 2.5m daylight
- › 2.8 m x 1.8 m platens size
- › T-slotted platens

Automotive Composites Development

The automotive industry is under growing pressure to increase fuel efficiency and reduce emissions. The low weight, high stiffness and high strength of composites allow car manufacturers to use them in a variety of applications to meet their lightweighting targets.

NRC works with part manufacturers, material suppliers and toolmakers to ensure that these materials are cost-effective and meet the performance needs of the OEMs.



Mass Transit Composites Development

The advantages of using advanced composites in mass transit vehicles include their low weight, excellent corrosion resistance and their ability to be easily moulded into complex and large parts. This results in materials that require less maintenance and help decrease vehicle assembly time.

NRC works with bus and passenger rail manufacturers, as well as the trucking industry to help them adopt the latest high performance composites technologies.

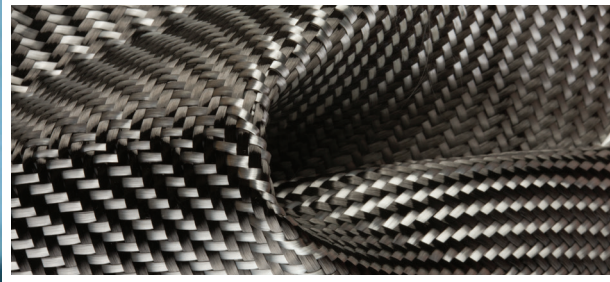
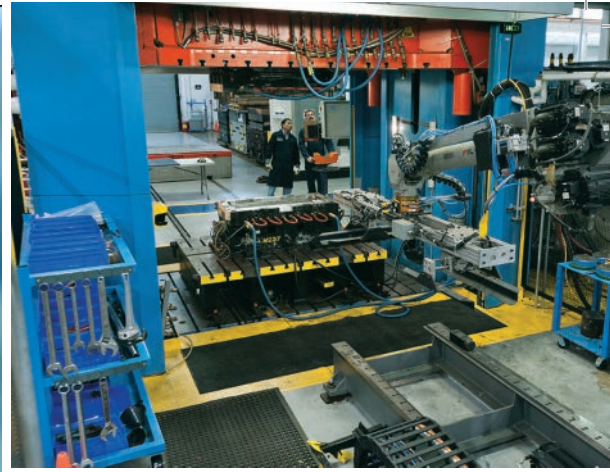
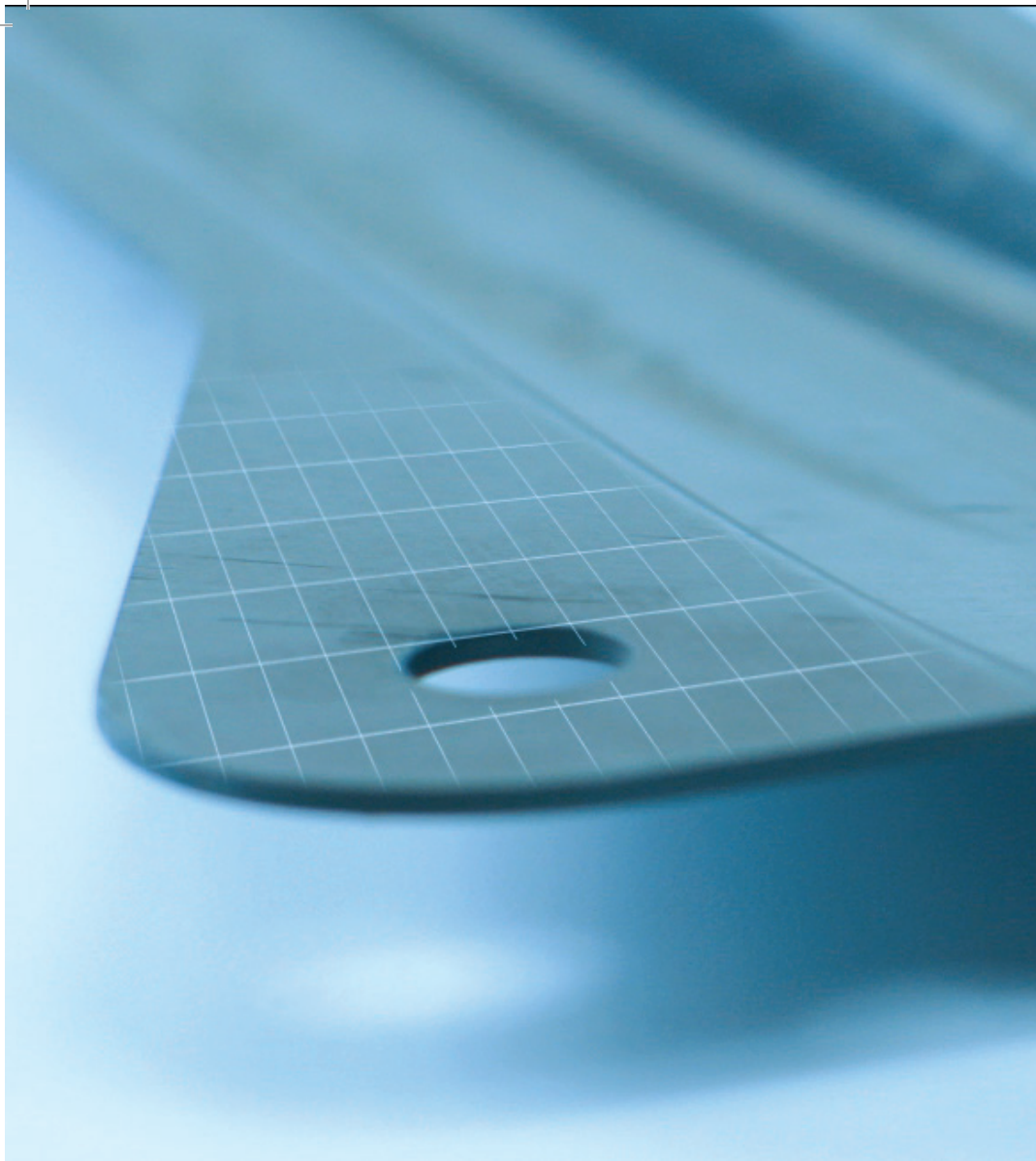


PROPERTIES AND PERFORMANCE EVALUATION

Mechanical properties	Thermal properties
Morphology	Flame, smoke and toxicity (FST)
Microstructure	Non-destructive evaluation (NDE)
Rheological properties	Long term performance evaluation

MATERIALS EXPERTISE

Reinforcements	Thermosetting matrices	Thermoplastic matrices
Carbon fibers	Epoxy	Polypropylene
Glass fibers	Unsaturated polyester	Polyamide (Nylon)
Aramid fibers	Vinylester	Polyethylene terephthalate (PET)
Basalt fibers	Polyurethane	PPS/PEEK



Why work with NRC

Increase process efficiency of high performance composites

- › by working with NRC to select the right material and process for your application

Reduce your product weight

- › by using the latest lightweighting technologies and advanced composites

Get your products to market faster

- › by using NRC's facilities for prototyping, process optimization and tool trials

Form new partnerships

- › NRC works with innovative companies throughout the automotive and ground transportation supply chain, from the raw material suppliers to part manufacturers and OEMs

Bridge your competitive gap

- › NRC can add value to all aspects of your product development process

How to work with NRC

Our services range from strategic R&D to testing, prototyping, demonstrations, scale-up and consulting. We have experienced professionals on site to help you solve immediate and potential technical problems.

NRC has lengthy experience and integrity in managing confidentiality and intellectual property at the highest standards.

You have access to our world-class experts and specialized facilities. NRC lowers the risk of developing your innovative ideas and reduces the time to get them to market.

Contact us today to get started.

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