INTAMSYS

Automotive

MCT Engineering Accelerates Production with Additive Manufacturing Investment

How MCT Engineering Solved Shrinkage, Improved Design Flexibility, and Streamlined Tooling with Industrial 3D Printing

Customer Experience

About MCT Engineering

Founded in 1997, MCT Engineering has been a leading name in British carbon-fiber manufacturing for nearly three decades. The company works with major brands including Aston Martin, BMW, Cosworth, JLR, McLaren and Mercedes-Benz.

From engine parts to body panels for hyper cars and F1 vehicles, MCT operates on a foundation of precision and ongoing technical investment. Based in Daventry, Northamptonshire, the company runs five autoclaves and employs over 100 specialists, including technicians, CAD operators and design engineers.

The Additive Manufacturing Journey

The Need: Material Control, Design Agility, and Faster Turnaround

MCT Engineering first explored additive manufacturing in 2019 via external partners, using 3D printed components in brake ducts, plenums, bodywork and mirrors for high-performance vehicles.

"We have a culture of continuous improvement, and invested in 3D laser scanning in 2023," explains Gwyn Roberson, innovation and futures director at MCT Engineering, "We wanted to bring 3D printing in-house, to gain more design control and allow ourselves a wider range of material choices. We began researching industrial 3D printers to explore which materials could be printed and how they would perform in comparison to our existing methods."

To meet internal production goals, MCT aimed to bring 3D printing capabilities in-house. The decision was driven by three key factors:

- Greater design control and broader material compatibility
- Improved dimensional consistency, especially for jigs and fixtures
- Reduced dependency on external providers and wet lay-up processes

The Search: Testing Materials, Accuracy, and Reliability

MCT Engineering carried out structured trials to assess industrial 3D printing platforms. Engineers tested a range of high-temperature filaments including fiber-reinforced PEEK, PEI 1010 and fiber-reinforced nylon, evaluating material shrinkage and performance under autoclave conditions (130–150°C).

At a trade show, the team reviewed parts produced on the INTAMSYS FUNMAT PRO 610HT and was impressed by their accuracy and surface finish. This led to a more in-depth evaluation of the printer's thermal capabilities, material range and reliability in day-to-day use.

The open-material platform also aligned well with MCT's interest in managing costs and ensuring long-term supply flexibility.

> ***We chose the 610HT because it is open source, which allows us to lower the cost of materials. It also offered higher levels of accuracy than other printers,*** states Felix Schwarz, Production Engineer at MCT Engineering.

The Solution

FUNMAT PRO 610HT Integrated into Daily Workflow

MCT Engineering selected the INTAMSYS FUNMAT PRO 610HT for itshigh-temperature printing capabilities, large build volume, open material access and consistent part accuracy.

The system was deployed across multiple departments, allowing engineers to gain hands-on experience and produce both functional parts and tooling directly from CAD.

Internal teams also received training to better understand how to work with high-performance materials such as fiber-reinforced PEEK.

Use Cases: Real-World Applications and Measurable Results

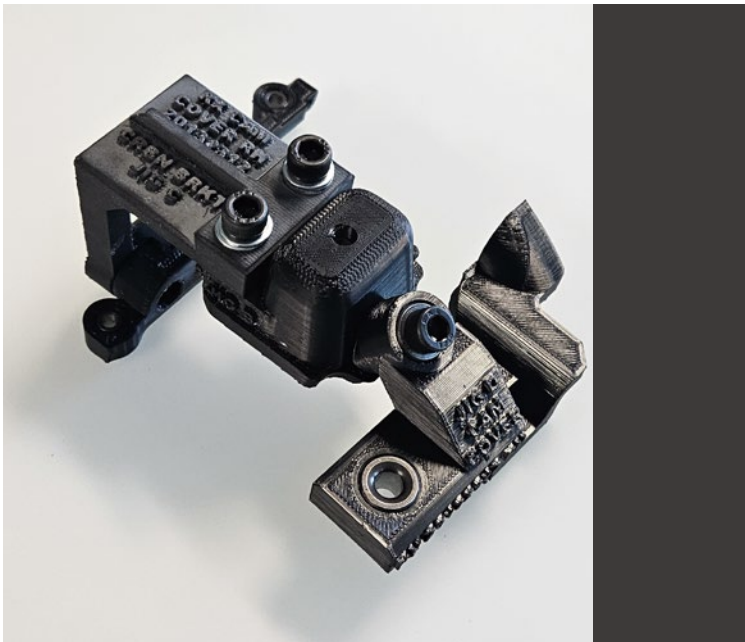
INTAMSYS FUNMAT PRO 610HT is now integrated across MCT Engineering's daily operations, used for printing jigs, fixtures, molds, and prototypes. Specific applications include:

- **High-precision jigs and fixtures:** Used in hyper car engine assembly, replacing wet lay composite methods. The printed tools offer improved consistency and faster production, reducing turnaround from days to hours.
- **Autoclave-resistant molds:** Printed in materials like fiber-reinforced PEEK and PEI 1010, these molds withstand 130–150°C curing cycles and maintain structural integrity.
- **Extractable cores for carbon fiber ducts:** 3D printing enables smooth internal surfaces, improving airflow and thermal performance - difficult to achieve with traditional methods.
- **Rapid tooling and low-volume production:** Parts that previously took up to a week can now be produced in under 24 hours. Smaller component molds are often completed within 8 hours.

Results at a glance:

- Reduced cost per part by eliminating outsourcing
- Improved accuracy and reliability through CAD-driven design
- Greater speed and agility in prototyping and development

The 610HT has helped MCT move from test-phase adoption to full production use, integrating additive manufacturing as a core part of its engineering capabilities.

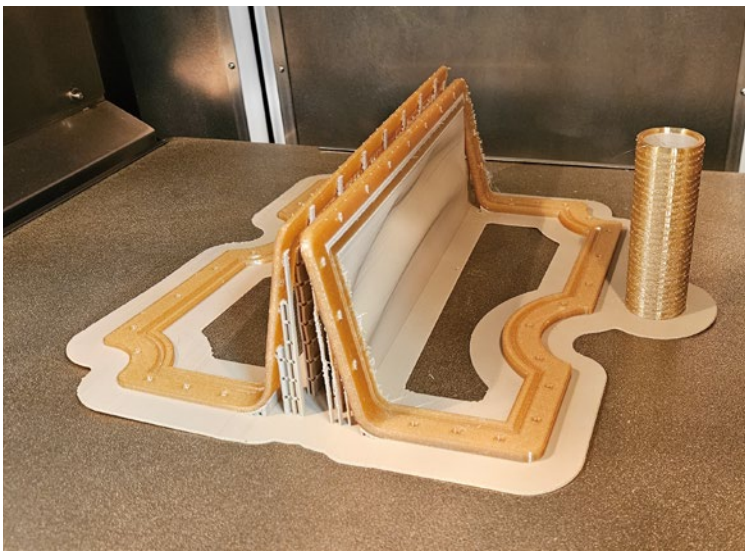


Looking Ahead: From Innovation to Scalable Growth

“Investing in our own industrial 3D printer, with CDG 3D Tech's training and support, saves time and allows MCT Engineering to print components more economically and undertake a de-risking study on new projects which opens up opportunities for us to grow our business,” concludes Gwyn Roberson.

Bringing the FUNMAT PRO 610HT in-house has enabled MCT Engineering to scale up its use of advanced materials, streamline internal workflows, and shorten lead times across development projects.

Additive manufacturing is now embedded in MCT’s operations—not only as a tooling method, but as a strategic production tool that supports broader business growth and responsiveness to customer demand.



INTAMSYS is proud to support MCT with industrial 3D printing solutions that transform how carbon-fiber parts are designed, developed, and delivered.

Learn more about
INTAMSYS FUNMAT PRO 610HT at
www.intamsys.com.

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