Success Story

Optimises Five-Axis Machining at CFT Ltd

Norwich-based Carbon Fibre Technologies (CFT) Ltd is using four seats of *hyper*MILL® CAM software to help it optimise complex five-axis machining cycles on a range of high performance DMG machining centres...

...that are producing components and tooling for motorsport, telecommunications and aerospace industry clients.

Founded just 13 years ago by current managing director Arthur Woolhouse and financial director Gavin Gilliatt in a single unit on the Ashwellthorpe Industrial Estate near Norwich, Carbon Fibre Technologies today also occupies the four adjacent units and employs 50 people. In 2008 the company will relocate to a purpose-built facility nearby that will offer a further six-fold increase in floor space.

The company offers a full range of advanced composite design, engineering and manufacturing services, including concept development, detail design, structural analysis, pattern making and production. The reason for such rapid growth is partly due to the weight/stiffness properties offered by components manufactured from carbon fibre composites, which cannot be attained from more conventional engineering materials.

Five-axis machining techniques

Carbon fibre composite is not easy to machine (very stiff), particularly when the components are complex and require five-axis machining techniques. To help CFT maximise the throughput of its four five-axis machines (all acquired since 2002), the company decided to evaluate the leading CAM vendors. “At the time we already had a well known CAM package in use, but its five-axis capability was limited – it had a distinct lack of gouge protection,” explains Mr Woolhouse. “Selecting a replacement system was crucial. We were moving towards high specification, high cost, five-axis machining centres and we could not afford collisions.”

These thoughts formed the chief reason behind CFT’s decision to replace its existing CAM package and invest in *hyper*MILL® from OPEN MIND Technologies. “We needed toolpath reliability so much,” he continues, “and the gouge protection on *hyper*MILL® was the best we saw. Also, ease-of-use and speed of processing were impressive. *hyper*MILL® had a post processor that could cope with the advanced CNCs on our five-axis machines – after all, wonderful toolpaths are worthless without being able to present them to the machines in a format they can understand. The other contributing factor was that *hyper*MILL® could be integrated into our existing ‘thinkdesign’ CAD package.”

Component parts for Formula One

Two and a half years ago CFT bought its first

Multimatic

About Carbon Fibre Technologies

CFT was formed in 1994 when pre-preg laminating and autoclave curing for structural applications was in its‘ infancy. Arthur Woolhouse, MD, was Head of „Team Lotus“ composite department in the early 90’s and as the name implies, CFT specialises in pre-preg CFRP components. Gavin Gillatt, Financial Director helped set up the company and has been instrumental in developing the company.

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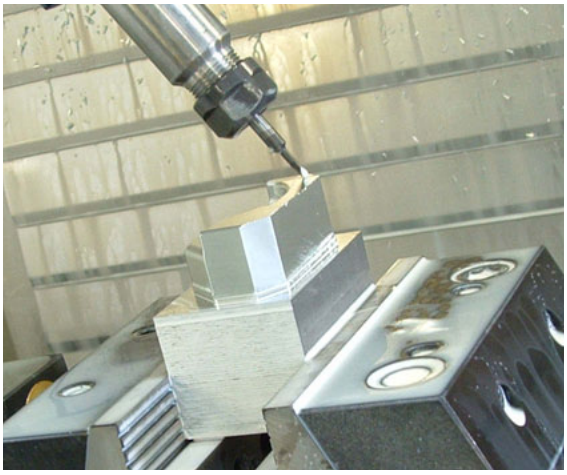
Managing director
Mr Arthur Woolhouse



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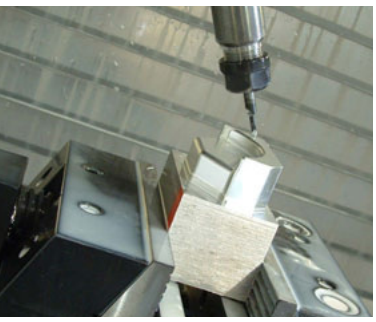
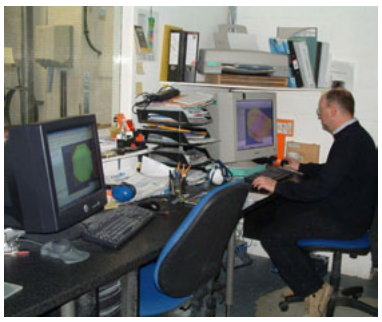
seat of *hyper*MILL® – today it has four, the number increasing in direct proportion to the amount of five-axis machining centres on site. Five CFT employees are trained to use the software.

To date CFT has used its combination of *hyper*MILL® and five-axis DMG technology to machine just about all of the component parts that make up the composite content of a modern racing car, mainly for Formula One teams – Mr Woolhouse was involved with Formula One prior to establishing CFT (he was head of Team Lotus's composites department in the early 1990s). Patterns, manufactured from aluminium, tooling block or graphite, are also a common sight on the machines at CFT. Other parts manufactured include carbon fibre dishes for satellite transmission systems.

CFT has invested heavily in the facilities needed to perform all stages of the carbon fibre component manufacturing processes, including large PC-controlled autoclaves and a prepreg fabric cutter, which guarantees precision and repeatability of material quantities – essential to ensure minimum weight and variation in finished components. Some Formula One components can feature up to 270 pieces in their lay-up.

"Acquiring *hyper*MILL® has been a good decision for us," says Mr Woolhouse. "As we have grown, so OPEN MIND has grown its presence in the UK – we have kind of evolved together. The *hyper*MILL® CAM software has delivered everything it promised since day one – put it this way, we are not planning on looking around at any other CAM packages." ■





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About OPEN MIND Technologies AG

OPEN MIND is one of the world's most sought-after developers of powerful CAM solutions for machine and controller-independent programming.

OPEN MIND designs optimized CAM solutions that include a high number of innovative features not available elsewhere to deliver significantly higher performance in both programming and machining. Strategies such as 2D, 3D as well as 5axis milling/mill turning, and machining operations like HSC and HPC are efficiently built into the *hyper*MILL® CAM system. *hyper*MILL® provides the maximum possible benefits to customers thanks to its full compatibility with all current CAD solutions and extensive programming automation.

OPEN MIND strives to be the best and most innovative CAM/CAD manufacturer in the world, helping it become one of the top five in the CAM/CAD industry according to the NC Market Analysis Report 2015 compiled by CIMdata. The CAM/CAD solutions of OPEN MIND fulfil the highest demands in the automotive, tool and mould manufacturing, production machining, medical, job shops, energy and aerospace industries. OPEN MIND is represented in all key markets in Asia, Europe and America, and is a Mensch und Maschine company.

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THE CAM FORCE

We push machining to the limit

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