



June/July 2016

The only magazine dedicated to the UK composites industry

Composites in Manufacturing



Industry trends: Strength in numbers Page 20

INSIDE



On the world's stage

Look to the skies - the Farnborough Airshow is nearly upon us! **p.10**



A flying finish!

Smooth surface coatings allied to lightning strike protection **p.17**



Built to last

A new flatbed cutting system gets some automated robotic help **p.25**



Recycle, remake and reuse

Read how a recycler reclaims CFRP and returns it to market **p.30**

The future is light

For a company that lives and breathes motorsport, Germany's capricorn Composite demands the kinds of performance levels from its CNC machine tools that you'd expect to see from a Formula 1 car hurtling round a race track. Composites in Manufacturing reports.

The Nürburgring is renowned as a legendary race track worldwide. capricorn Composite's headquarters has been located there since the end of 2005. The company produces composite components for the motorsports industry beside the test track.

Whenever cars tear around a race track anywhere in Europe there is a good chance that capricorn's know-how is onboard. Wolfgang Lorse has been team leader for CNC machining there since 2009. Initially involved in the Toyota Formula 1 project, he looked around for a new challenge after the Japanese company withdrew from the elite class, and found it in the Eifel region.

"I was already involved in composites at Toyota," says Lorse looking back. "The planned set-up of a CNC production facility at the new Nürburgring site naturally interested me."

Since 2012 his place of work has been directly on the test track, the former venue of numerous Grand Prix races where until 2013 racing stars, such as Michael Schumacher were celebrated. Lorse has never driven on the Nordschleife himself. He and his team are more at home in the role of companion for successful lightweight constructions. In recent years increasingly more structural components have been found in the leading cars of the Le Mans 24 hour race. capricorn Composite is currently working on complex components for a WRC car. The company is also building the complete outer shell for a car that will be competing in the Paris Dakar rally.

High-performance components of aramid, carbon and glass fibre composites for this project, as well as for exclusive sports car models of leading manufacturers and prototypes, are produced in the Nürburgring works – around 2,500 units per project for series production alone every year. The process



starts with the CAD concept and continues through mould making, make-up of the parts right up to hardening and joining, and ends with the final machining in the form of component trimming. Coating and quality assurance in the dust-free measuring room are the last two steps in the process.

The freedom of choice

capricorn uses Maka's 5-axis CNC technology, particularly for component trimming. A total of five machines for model making purposes were purchased in 2012 at the time when the new production facility was set up. In addition to the machining quality, the focus was also on flexibility. In the meantime capricorn says it has gained many years of experience with Maka's technology, particularly with the uniform control concept for all the machines, which has proved to be very advantageous.

"I don't need to worry about which machine I use to produce which part," says Lorse. He can choose freely between the two MK 7 S, the MM 7 T

▲ Whether it is an exclusive series production vehicle or racing chassis – high-end quality is a given



▲ Wolfgang Lorse (centre) and his capricorn CNC team

and the two BC 570 machines. The necessary preconditions are created by the enormous working range of Maka's machines.

"On the BC machines I have a 6m x 3m x 2.5m work envelope and can produce huge moulds," states Lorse. This is important, because car parts, such as bonnets, roof shells and tailgates have to be machined. However, on the MM 7 T, carbon components, such as spoilers and rear diffusers are produced in series. The solution must be able to combine large dimensions with short lead-times.

"In this respect 2m x 2m x 2m is also fantastic," notes Lorse. With this working area it is possible to hold two to three jigs on the table and hence achieve high productivity rates.

The team leader for CNC machining also appreciates the integrated vacuum pump on all the machines that allows even self-manufactured jigs to be used without the need for major modifications. The high precision of the machines rounds off his very positive opinion of the Maka technology.

At the moment a project team of Maka technicians and capricorn's staff are working together to further optimise the production process.



▲ capricorn uses Maka's 5-axis CNC technology for component trimming and model making purposes

"A meeting on a technically equal footing," says Lorse describing the exchange between the highly-qualified specialists. He is also very satisfied with the service. Overnight deliveries of spare parts have already helped him out of difficult situations on a number of occasions.

"When it comes to trimming machines, Maka is without question the first choice for us," Lorse concludes. "We enjoy working with Maka."

www.maka.com

 AUTODESK. +  Delcam

CHANGING THE FUTURE OF MANUFACTURING

Bringing together technology, knowledge and vision



More technology sharing

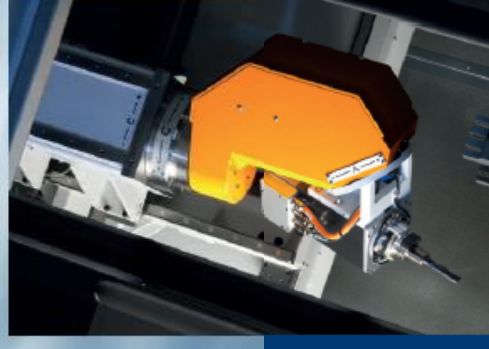


More product development



More customer support

www.delcam.com/autodesk



THERE IS SURE TO BE MAKA KNOW-HOW ON BOARD AGAIN.

MAKA – your technology partner for 5-axis CNC cutting systems from wood and composites to aluminium.

MAKA Machinery UK Ltd.

C5 Horton Park IE., Hortonwood 7, Telford Shropshire TF1 7GX

Tel: 019 52 - 60 77 00, Email: iy@makauk.com



www.maka.com

CNC Spezialmaschinen