

Zero-waste carbon composite material production

Carbon Fibre Preforms launches a new tooling board and an ultra-high temperature carbon composite material produced with a revolutionary zero-waste ROCCS (Rapid Output Controllable Composite Shapes) technology.

Carbon Fibre Preforms (CFP), a new-to-the-market manufacturer of a unique range of carbon fibre composite materials produced using an extremely rapid, zero-waste automated process, recently launched two new products. The company presented its 360 carbon fibre tooling board and FR.10 ultra-high temperature carbon composites, with both materials delivering superb performance across a range of transport and industrial sectors.

Zero-waste technology

The company's revolutionary zero-waste ROCCS technology makes it possible to

produce composite materials significantly quicker and more cost effectively than existing conventional technologies, making its materials a commercially viable alternative to metal solutions. Thermoset, thermoplastic and speciality resin systems are combined with precision-chopped carbon fibres to produce a unique 3D fibre structure with fibres randomly orientated in the X, Y and Z directions.

Two high-performance composite products

Longer lasting than epoxy materials and lighter and more cost effective than Invar tooling, 360 is the ultimate composite tooling solution. It combines the precision benefits of an exceptionally low coefficient of thermal expansion

(CTE) (5.4) and a temperature resistance of 300°C in a single directly-millable tooling material.

The FR.10 lightweight industrial material blends carbon fibres and a custom resin combination to deliver exceptional performance in ultra-high temperature and fire scenarios. The material was tested under load at 1200°C for 4 hours without failure. It can be used for new applications or to upgrade or renew the protection of existing structures. Its lightweight protection improves transport and installation efficiency and makes it ideal for the industrial, civil engineering, mass transport, marine and offshore markets. □

More information:

www.carbonfibrepreforms.com

interview

SIMON PRICE,
MANAGING DIRECTOR
CFP



JEC Composites Magazine: Where did the idea of creating CFP come from?

SIMON PRICE: The CFP process is used to convert carbon fibres into a homogenous carbon fibre composite with a 3D fibre structure. It was developed

using a mix of technologies from outside the traditional composite space during our time running our previous business, Recycled Carbon Fibre Ltd., which was acquired by ELG Haniel GmbH in 2011. Having arrived at a unique, rapid, zero-waste production process for both 2D and net-shape preforms on our smaller pilot line as well as a revolutionary set of material properties, we decided to scale up the process and take the products to market ourselves.

Who invested in the company?

S. P.: The Price family, the founders

of Recycled Carbon Fibre Ltd., are the owners of Carbon Fibre Preforms.

What is your business model?

S. P.: CFP brings a combination of weight saving and material performance (impact protection, long life, highly stable tooling and ultra-high temperature resistance) to customers and in many cases, we both solve a problem and add value perhaps by replacing an existing heavy, expensive metallic solution. With our lean automated process giving much lower labour costs than existing composite technologies, we aim to make carbon fibre an economically



FR.10 materials are weather-proof and impervious to industrial solvents and chemicals. (©D.R.)

viable metal replacement in industrial applications.

What are the intended areas of application?

S. P.: We typically describe our products as being best suited to tooling, very-high temperature applications as well as applications that require impact protection.

What are the advantages of your products?

S. P.: The 360 carbon fibre tooling boards are longer lasting than epoxy, lighter, quicker and more cost effective than Invar. They offer an exceptionally low CTE and temperature resistance up to 300°C in a single directly-millable tooling material.

The FR.10 ultra-high temperature carbon composites are lightweight, easy to transport and install carbon fibre materials with exceptional fire resistance and fire/smoke/toxicity (FST) performance. They were tested under load at 1200°C for 4 hours.

The 1.2.1 carbon/aramid hybrid composites are manufactured in a single step. These 4mm-thick aramid/carbon/aramid sandwich materials are weatherproof, impervious to industrial chemicals and offer weight saving opportunities for existing metallic protection.

Who are your customers?

S. P.: We aren't currently permitted to

disclose our major clients' identities but we can say that we are active in commercial shipping, top-level motorsport, automotive manufacture and other transport applications.

You are a young company, what are your strengths?

S. P.: As a relatively young company developing a new process technology without the restrictions of an existing business, we were fortunate to be able to begin with a clean sheet. Everything about our production process was analysed and optimised to automate and streamline the production of industrial carbon fibre

materials. We produce no manufacturing waste and have a high-output production facility with considerable future upside capacity as we grow.

Where do you see the company in five years?

S. P.: In summary, we would say that in five years' time we see ourselves as a high-volume converter of carbon fibres and as a material supplier to Tier 1 and OEM manufacturers in a diverse range of market sectors such as oil and gas, commercial shipping, composite tooling, civil engineering and mass transport. □



A machined block composed of 360 tooling board