

Maritime and shipbuilding sector: a niche market with growth potential

The maritime industry is still a small but interesting market for composites. The main material used in boatbuilding is glass fibre, for the hulls and superstructures. The yacht building sector has started to use carbon as an ultralight material since 2012. This is how Karl Wagner started with SAY GmbH.

SAY Yachts is applying materials and processing techniques, as well as high-speed hull design, that have worked effectively in

automotive racing. CEO Karl Wagner built on his experience with his previous company CarboTech, a leading producer of carbon fibre components for the automotive industry, to raise the engineering and qual-

ity standard to the automotive level. The company's boats are not geared to the average boat driver, they are rather the "Ferraris" in boat construction. The price range of these speed boats starts at around 250,000 euros

for a 9 m boat. When it comes to 14 m, it may easily reach 1 million euros. SAY also produces in series the fastest e-boat at 50 knots (93 km/h). Perhaps recycled carbon materials will be an option in the future.



KARL WAGNER,
CEO
SAY GMBH

boat available, we use 99% carbon fibres, mainly type T300. We always apply a carbon fibre epoxy sandwich construction for the hull, not a monolithic one. According to the respective customer wishes, every boat has special features. Lightweight construction does not necessarily mean that the boat will run faster, but it will accelerate or speed up faster. This is comparable with the automotive sector: a lighter car is not always faster, but it is more dynamic. This is the same with our boats. There is another USP: our boats are extremely manoeuvrable even when running at high speed, particularly when turning.

Where is the trend going?

K.W.: Of course, there is always room for improvement. We are currently applying the vacuum infusion process. With the prepreg method, we could gain another 5-10% in weight, but this is definitively a more laborious tech-

nique. We observe a certain trend to use carbon fibres in construction, but still in a rather moderate way.

What do you expect from material producers? What developments would you like to see in the near future?

JEC Composites Magazine: What are the main composite materials used in yachting?

Karl Wagner: When we talk about boats with a dimension from 9-14 m, primarily fibreglass reinforcements are used. These are glass fibre matting/fabrics blended with polyester. Since our ambition from the very beginning was to build the lightest speed



SAY boats are the "Ferraris" in boat construction

Focus

K.W.: In general, we are quite satisfied with what is available on the market, although we would like to see material costs coming down a bit. Our major markets are the Balearic Islands and the Côte d'Azur and, for e-boats, the lakes. We are currently experiencing a growth period. In 2019, we expect to build around eight boats and in 2020, around 12-15 boats. We will continue to operate in a high-price niche market though. My vision for the future is to further develop into a high-quality shipyard within the next years, slowly increasing up to 50 or 100 units per year. □

About Karl Wagner

Karl Wagner, born in Salzburg, Austria is the founder of CarboTech Composites (1993), a high-tech company that he previously ran and sold in 2014. After an apprenticeship as a toolmaker at ROCO Modelleisenbahn GmbH, he studied plastics engineering at the HTL in Vienna. Since his teenage years, he has been interested in constructing vehicle parts. This passion determined his professional career. CarboTech produces light and strong carbon fibre parts for the automotive industry, and particularly for Formula 1 race cars. The breakthrough came in 2009, when McLaren entrusted CarboTech with developing a safety cell for the production sports cars. In 2014, Wagner sold of his stake and started to run SAY GmbH as a CEO.

<https://www.salzburger-fenster.at/2016/05/27/vom-lehrling-zum-millionaer/>

Focus

Facts & figures on the European boating industry

The European boating industry consists of approximately 32,000 companies, directly employing over 280,000 people. The current turnover is around 20 billion euros. The major part of the boating industry are small and medium-sized enterprises (97%), only a small number are large companies. The boatbuilding sector consists of 3,000 companies employing over 66,000 people. The production of recreational craft is very diverse and ranges from series to one-off boats, which are built to order. Over 6 million boats are kept in European waters, with 4,500 marinas providing 1.75 million berths. (Sources: ICOMIA Statistics Book 2010) www.icomia.com www.europeanboatingindustry.eu/facts-and-figures



SAY also produces the fastest e-boat in series

Focus

The first racing kayak manufactured from recycled reinforced composite materials

Composites are very difficult to recycle. Professor Gary Leeke, Chair in Chemical Engineering at the University of Birmingham (England), developed a process to recover super-strength fabric that can be used, among others, to produce high-performance sporting goods. A kayak enthusiast himself, he developed the first super-strength 6.5 m racing kayak from recycled high-grade carbon fibres recovered from aerospace waste. The recycling technology is based on a process called solvolysis, which uses a solvent mixture to degrade the resin and release the fibres. The kayak is only two to three millimetres thick. The material is light, extremely strong and hardwearing. The kayak only serves as a demonstrator to show that recycled carbon may be used in a number of applications for high-performance sporting goods and others. The prototype was developed in the framework of the EXHUME project, demonstrating to prospective industrial partners the potential of chemically-recycled carbon fibre materials. Gary Leeke's vision is to look deeper in the research of glass fibre recycling due to the substantive volumes in circulation. He mentions REDISCOVER, a recent initiative from the UK's Catapult centres to solve composite end-of-life issues.

<https://compositesuk.co.uk/communication/news/catapult-centres-come-together-rediscover-solve-end-life-composites-issues>



Professor Gary Leeke (in front) in his demonstrator kayak built by Kirton Kayaks ©Nick Rawle Photography