

LASER PROJECTORS FOR CARBON FINS PRODUCTION

SPORTS & LEISURE



Photo by Jacques de Vos

LAP CAD-PRO PROJECTION SYSTEM REFINES PRODUCTION OF
HIGH-END CARBON FINS FOR FREEDIVING & SPEARFISHING





“We are extremely satisfied with the result. The laser projection system is exactly what we needed to proceed with our constructions to a complete new level. Installation was simple and the accuracy and ease of use exceeded our expectations”.

Dimitrios G. Pantazis,
owner/manager of alchemy, Greece

THE PROJECT

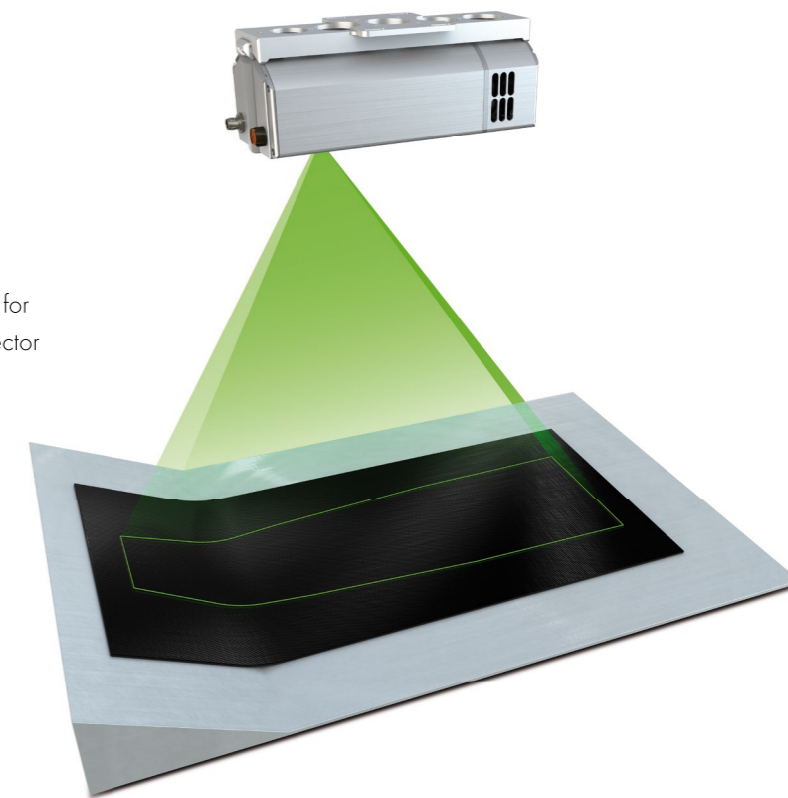
alchemy, a small Greek company, specializes in developing and manufacturing high-end carbon freediving and spearfishing equipment. Being at the forefront of innovative diving technologies not only the company's products but also their production tools have to be state-of-the-art. **alchemy** decided for the LAP CAD-PRO projection system to optimize lay-up tasks in the production of carbon fiber fins. Thanks to the projection accuracy and the simple operation of the system, the company can now take their composite production to a complete new level.

THE APPLICATION

The 100 percent carbon fiber fins for freediving & spearfishing are **alchemy**'s top product. The design of these high-end products consists of eleven to fifteen carbon fiber layers depending on the model. The entire lay-up process requires maximum precision to guarantee the correct central alignment of each layer. Formerly used manual measurement procedures were very complex. Thus, **alchemy** utilizes the LAP CAD-PRO projection system to ensure that all dry carbon fiber fabric pieces are stacked in the correct places. Before a new layer is placed, a stabilizing factor is applied between the layers to avoid fabric moving.

THE SYSTEM

The system includes a CAD-PRO laser projector, laser targets for calibration, and LAP's PRO-SOFT TP software. The laser projector is mounted overhead under the roof of the working area. From a height of about two meters CAD-PRO projects true size outlines onto the work surface. The data for generating the projection is imported from AutoCAD 3D, the tool for drawing digital construction plans. This means that the worker knows where to place the layers and he can precisely center them with the laser lines. Due to the different file formats supported by the PRO-SOFT TP software the system is easy to connect with the CAD software of **alchemy**. The company uses a CAD-PRO laser projector with green laser beams. As in the aerospace industry green laser beams are widely used for lay-up tasks as they are best visible on carbon fiber parts.



Laser lines projected by the CAD-PRO system ensure that the fabric pieces are stacked in the correct places.



THE BENEFITS

alchemy can benefit from optimized lay-up processes due to the accuracy and digital workflow of the laser projection system. Complexity within the process is reduced while production efficiency is improved significantly. The company achieves an increased throughput by tripling the number of fiber fins produced per cycle. Due to this success the manufacturer is already thinking about a system for other constructions.

The key advantages of the laser projection system for lay-up applications

- SIMPLE
Start the system, calibrate, and follow the lines
- ACCURATE
No visible deviations during parts placement
- EFFICIENT
Digital workflow replaces manual measurement procedures and increases throughput

ABOUT ALCHEMY

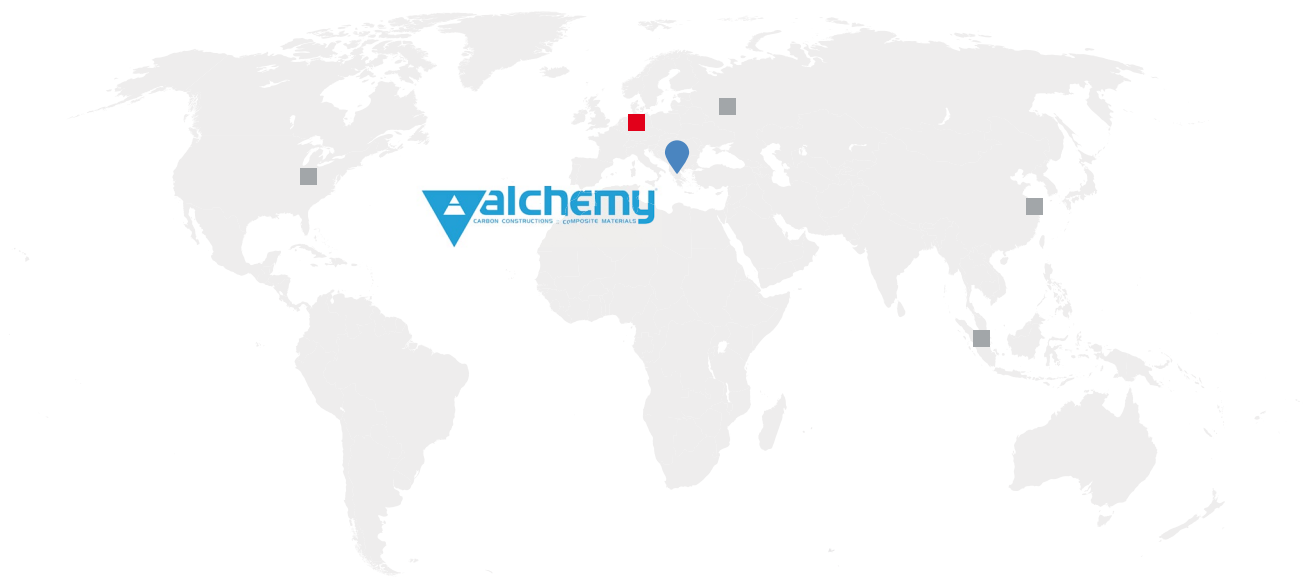
In 2006, Dimitris Pantazis designed and manufactured his first pair of carbon fiber fins. At its birth, in early 2010, **alchemy** was just one small constructions lab in Ano Liosia. Today, the Athens based company is a worldwide leader in the manufacturing and distribution of state-of-the-art freediving and spearfishing equipment.

www.alchemy.gr

ABOUT LAP

For more than 30 years, LAP has been developing, manufacturing and distributing laser measurement systems, line lasers and laser template projectors for industrial and medical applications. LAP products are high-precision devices Made in Germany. Using LAP laser systems, our customers improve performance and increase the quality of their products as well as the effectiveness of their processes.

www.lap-laser.com



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