ATHANASSIOS KALIUDIS

All-round talent

Having proved its capabilities in cutting, the TruLaser Cell 3000 now demonstrates its welding skills, too.

There is no question that the TRUMPF laser cell cuts through thick and thin with equal ease. It demonstrated this very impressively during recent months at LICOS Trucktec GmbH in the town of Markdorf, not far from Lake Constance. The cell is equipped with a two-kilowatt TruDisk laser and has been more than satisfactory when cutting mild steel 6.5 millimeters thick. It is just as good when cutting delicate structures. And now the 3D laser cell—even though it is quite modest in size—shows that it is great for welding, too.

Not faster, but far simpler

LICOS Trucktec manufactures unique water pump clutches for trucks. In recognition of this design, the firm was awarded the Innovation Prize by the state of Baden-Württemberg. "Our clutch makes it possible to regulate the speed of the water pump to meet the engine's needs, bringing about a one percent fuel savings. And on average that works out to 500 liters per vehicle per year," explains Franz Biegert, plant manager and supply chain head at LICOS. Demand among both domestic and foreign truck builders is strong. The company now turns out about 120,000 units per year. Their manufacture demands quality and safety, of course, but trouble-free processes are of decisive importance.

It seems as though the TruLaser Cell 3000 was built to meet these needs. The system was installed at the end of 2011 and has held up even under the most extreme conditions. "Our water pump clutches have logged zero PPM for field failures! That's a great achievement and demonstrates the system's process reliability," Biegert explains. This background and the machine's flexibility have made him a believer. "The first few months convinced us of the laser cell's superior cutting performance. Now we are also using it to weld our water pump clutch," he explains.

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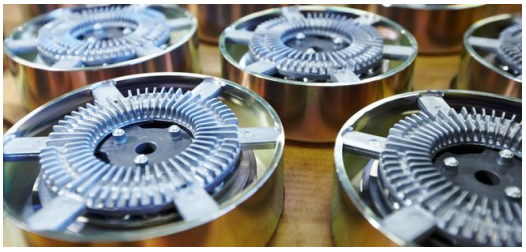
>
> Franz Biegert | LICOS Trucktec

The specific geometry of the product requires that it be manufactured in two stages. In the past, LICOS welded the two rotating parts on a TruLaser 7040 made by TRUMPF. "That worked just fine, but we had to transfer the parts from one line to another," Franz Biegert explains. "The TruLaser Cell, despite its tall profile, is extremely compact, with a footprint of barely 16 square meters. That includes the peripheral components such as the vapor exhaust and the beam source itself. This makes it possible to simply place it between the lathes and makes for a decisive simplification in the process flow."

One for all

Precision cutting, 3D cutting, and welding. That is all possible without time-consuming retooling. The TruLaser Cell 3000 has many talents. The system's flexibility lets it work differing batch sizes, component designs, and materials. Depending on the application, the company may choose the TruFiber, TruDisk, TruDiode or TruPulse solid-state laser, with up to eight kilowatts of output. "The quality of the edge produced with the solid-state laser, even when cutting thicker materials, is just as good as with the CO2 laser," Franz Biegert emphasizes.

The TruLaser Cell 3000 also shows its strengths whenever part geometries change frequently. The variable beam formation feature makes it possible to automatically match the focal diameter and focal position to a variety of metal alloys and thicknesses. "With the dual-lens zoom optics, and using parameters defined in the TRUMPF technology tables, the focus spot can be expanded to four times the fiber diameter. And that can be done without manual intervention," explains Thomas Kirchhoff, product manager at TRUMPF.



The LICOS clutch has won the Baden-Württemberg Innovation Award for its fuel-saving capabilities. Picture: Florian Bilger Fotodesign

"The quality of the edge produced with the solid-state laser, even when cutting thicker materials, is just as good as with the CO2 laser," Franz Biegert emphasizes. Picture: Florian Bilger Fotodesign

Automation made easy

The modular workpiece table can be fitted with a cutting support, a clamping plate or a rotary axis, and can quickly and easily be adjusted to any required part. The system can be adapted to suit every component in just a few steps. But Franz Biegert is planning to take the system one step further. "Following our positive experiences with cutting and welding using the TruLaser Cell 3000, we are now planning to introduce automation equipment so that we can run the machine around the clock," he explains. He has no doubts that the machine will be able to handle the load.

The company

LICOS Trucktec GmbH located in Markdorf near Lake Constance 70 ermployees Development and production of electromagnetic fan clutches and water pump clutches for heavy duty trucks. For its new development the company received the innovation award by the state of Baden-Württemberg: On average the water pump clutch saves up to 500 liters of fuel per truck, because it is only in operation when necessary.

The TruLaser Cell 3000

The TruLaser Cell 3000 from TRUMPF is currently the only standard 5-axis laser machine for two- and three-dimensional cutting and welding operations that offers this much flexibility. Whatever the scale of the manufacturing job, from one-off prototypes to high-volume production, this all around talent always delivers convincing results.
Photo: Florian Bilger More Information about the TruLaser Cell 3000 at the TRUMPF website.

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