



## Alpine Laser

www.alpinelaser.com

Alpine Laser was founded in 2019 by Joe Kempf and a colleague. After gaining decades of experience in the medical technology industry, they founded Alpine Laser: the start-up's goal is to produce better and faster machines for the industry. After the first year of development, the demand for their innovative tube cutting machines has since increased exponentially. The first machines were delivered to customers in 2022. They produce small flexible tubes for medical uses. The modular design ensures that a wide variety of tools, lasers and attachments can be used and changed quickly depending on the production order.

### INDUSTRY

Medical  
technology



### NUMBER OF EMPLOYEES

Five - and one  
dog

### SITE

Bloomington,  
Minnesota (USA)

### TRUMPF PRODUCTS

- TruMicro 2000
- Hollow-core fiber LLK-U

### APPLICATIONS

- Laser cutting
- Laser tube processing

### Challenges: Market forces and modular machines

Joe Kempf wants to build micromachining machines and sell them to manufacturers of stents and similar tubes. The demand for these tubes is high and manufacturers cannot keep pace with their machines. However, market entry is strictly controlled by regulatory authorities worldwide. This is why the major manufacturers of stent cutting machines are splitting the market among themselves, thus creating a bottleneck because production and products are becoming outdated. Alpine Laser is working on machines that can meet demand faster and better than the established companies can. The design of such machines always involves a crucial compromise: on the one hand, the machine should be easily scalable and therefore affordable and fast to produce. On the other hand, it must remain individually customizable. Kempf: "We realized that only a modular system design could satisfy both objectives." And only a USP laser can achieve the quality and time savings required for this.



"Ultrashort pulse lasers generate cut edges so clean that our customers produce parts that no longer require post-processing with harsh chemicals."

**JOE KEMPF**

FOUNDER AND CEO OF ALPINE LASER



### **Solutions: laser light cable and femtoseconds**

Alpine Laser reaches out to TRUMPF. The two companies then work together to develop the Medicut Pro from Alpine Laser - the world's first machine to use a USP laser with hollow-core fiber feed for industrial-scale production. A particular advantage: The beam quality of the TruMicro produces cut edges that require virtually no post-processing. For tubes measuring 0.25 millimeters in diameter and with a wall thickness of just 0.5 millimeters, it is not possible without a femtosecond laser. The modular system that Alpine Laser designs for this purpose now processes the complex components two to five times faster than conventional machines. And thanks to highly flexible tools, setting up the part holder and aligning the optics takes less than five minutes - which is really fast. The world's smallest stent machine achieves all this with a footprint of just 1.2 by 0.7 meters. This is made possible by the laser light cable. It enables compact and flexible beam guidance from the laser source to the workpiece.

### **Implementation: USP laser only with this partner**

The more Joe Kempf's team focused on the necessary applications, the more often the name TRUMPF came up. With the specifications of the TruMicro series and the new laser light cable, it was clear to Alpine that there was nothing comparable on the market. Along with their contacts at TRUMPF, they rethink their product design. At the same time, this is also TRUMPF's first large-scale application for the new fiber guidance system for USP lasers. Exciting! While the first machines are now being delivered to customers, Kempf is already thinking about further collaborations with TRUMPF: "We believe that our work is far from done - we are just getting started."



## **Outlook: All systems go**

Kempf is just getting started and is already thinking about new USP flat sheet cutting systems for complex laser-cut catheter insertion systems. He says: "We have a long list of products in the pipeline that could benefit from an overhaul - by updating old industrial designs with new, more advanced technologies."

