The finest markings with utmost quality – marking lasers meet medical technology

Christoph Miethke GmbH & Co. KG is a Potsdam-based family company, founded in 1992, which develops neurosurgical implants with a focus on the treatment of hydrocephalus (water on the brain) This disease produces more cerebral fluid in the brain than the body is able to reabsorb. For operative treatment, a so-called shunt – a drainage system comprising a cerebral ventricle catheter, a valve and a draining catheter that runs throughout the body – is fitted. Miethke produces the tubes as well as the delicate valve with which the drainage of the cerebral fluid is regulated. With this high-tech medical technology, Miethke helps improve the quality of life for people – a very special motivating factor for all employees in the company. "Hearing how much better life is for people thanks to our products is a fantastic motivation to give our very best each and every day," says Christian Gleumes, who works as a mechanical engineer in the Research & Development department at Miethke.

Christoph Miethke GmbH & Co. KG

www.miethke.com

Christoph Miethke GmbH & Co. KG is a Potsdam-based medical technology company developing innovative, neurosurgical implants for patients with hydrocephalus. What started as a good idea at the beginning of the 1990s has since become a company that operates globally today. Within a historical, 19th Century building, each implant is produced individually with care, using state-of-the-art manufacturing technology. They are also consistently scrutinized and developed further.

NUMBER OF EMPLOYEES	INDUSTRY	SALES
200	Medical technology	EUR 15 million

APPLICATIONS

- Black marking
- Laser precision cutting of metals
- Marking of metals (e.g. titanium, stainless steel, aluminum), brittle materials (e.g. sapphire), as well as plastic

Challenges

Smallest products which must satisfy stringent specifications for precision, curved surfaces, high batch numbers, legal requirements – the medical technology industry faces immense challenges. Miethke must apply permanently legible, corrosion-resistant markings to its titanium valves for reasons of traceability. An important requirement: no foreign matter may be introduced into the material so that the biocompatibility of the implant is not impaired. Even the size and shape of the valves present a challenge to the laser marking systems. Only very few systems on the market are able to consistently apply high-quality markings to the extremely delicate valves which usually have a curved surface. The high quantity of valves which must be marked with a unique traceable UDI marking (Unique Device Identification) place heavy demands on Miethke as well. For the laser must be able to automatically and reliably mark whole pallets of products.

"If you want to produce high-quality results, you need to purchase premium tools which can create that high quality. And that's why we came straight to TRUMPF."

JÖRG KNEBEL

HEAD OF QUALITY MANAGEMENT, CHRISTOPH MIETHKE GMBH & CO. KG

Solutions

The laser - that much became clear very quickly - is the tool that can optimally meet Miethke's many challenges. Black marking proved to be ideal as a concrete procedure. This is due to the fact that the extreme peak pulse power changes only the surface structure, and there is no material ablation. As processing is contact-free with only a small heat-affected zone, the component does not change its shape and its metallic structure remains virtually unchanged. This retains the biocompatibility of the titanium. Black marking creates deep-black, high-contrast markings on Miethke valves, such as the implant's direction in the form of an arrow, which remains legible even under highly reflective surgery lamps. Miethke utilizes the ultrashort pulses of the TRUMPF marking lasers not just for marking, but also for laser precision cutting of the valve's microtechnology components. The company has found the ideal solution for both production tasks in the TruMicro Mark.

Implementation

"A dialog between equal partners" – is how Miethke summarizes the partnership with TRUMPF. An application engineer from TRUMPF together with Miethke "tinkered" in the Laser Application Center (LAC) in Ditzingen until they found the perfect sample part and the optimum process. During this phase, the TRUMPF application engineer passed on a great deal of helpful expertise to Miethke, which the company can use to further develop and optimize processes by itself in the future. Furthermore, TRUMPF also visited the customer in its in-house application lab for laser fine tuning and for detailed parameter setting.

Forecast

The collaboration, the trust, and the knowledge that TRUMPF technology is not a "flash in the pan" – reason enough for Miethke to say, "Okay, TRUMPF could be the partner for the future, and that is exactly what happened." The medical technology manufacturer aims to produce top quality in the long-term. This is why, by their own account, the decision makers knew that quality had to be the decisive factor in the purchase. Futhermore, the Potsdam-based company believes that TRUMPF is a pace setter with the ability to grow with the future requirements in medical technology and to drive the development of Miethke's portfolio with new technologies. In future the company would like to integrate data processing for the marking process, for example. TRUMPF is already offering solutions for this and continues to develop them further in order to satisfy customer requirements in the best possible way.

"TRUMPF provided us with a detailed application consultation, which was crucial as it meant the laser configuration is tailored to our needs and we were able to build up considerable expertise."

CHRISTIAN GLEUMES

F & E PROJECT LEADER, CHRISTOPH MIETHKE GMBH & CO. KG

Learn more about our marking lasers and laser marking systems

TruMicro Mark 2000

Learn more about the specialists for medical technology! With our turnkey complete solution, the TruMicro Mark 2000, you can create deep-black, corrosion-free laser markings (black marking) with ultrashort pulses.

Zum Produkt □

TruMark Station 5000

This laser marking system is a genuine allround talent. Due to its ergonomic design, the station can be used for medium and large lot sizes as both a standing or seated workstation.

Zum Produkt □

TruMark Series 3000

The all-round talent for laser marking with all common wavelengths (IR/infrared, green, and UV/ultraviolet) is excellently suited for marking metals and plastics.

Zum Produkt □