



Laser cutting technology from Manz now also available for medical industry

Reutlingen, July 9, 2018. Manz AG, a German high-tech equipment manufacturer, has transferred its expertise in laser cutting of glass into the medical technology sector. The DLC 820 laser cutting system was specially developed for the fully automated production of wafer-thin microscope glass. The technology is based on Manz's M-Cut laser cutting process, which has proven itself e.g. in the production of cover glass for smartphones and tablet computers as being particularly material friendly and clean.

The fully automated laser cutting system DLC 820 is currently the top model in the new DLC series of freely configurable laser cutting systems from Manz. The M-Cut laser cutting process used is suitable for the highest demands in terms of precision and purity in medical technology. M-Cut stands for *modification cut*. An ultra-short pulsed picosecond laser thinly modifies the glass substrate to be processed along a line that is only two microns thick – similar to a perforation. Microscope slides and cover glasses can then be separated mechanically in variable geometries. The DLC 820 operates fully automatically around the clock and can be tool-free adjusted to new cutting-geometries just by software control. The cutting speed is up to 1.8 meters per second compared to about 0.4 meters in traditional mechanical cutting processes.

The quality of the DLC 820 also sets highest standards: With the use of the M-Cut process, a cutting edge whose quality is significantly higher than with conventional mechanical scoring with a diamond wheel can be realized. The mechanical solution can cause chippings, that affect the glass substrate's break resistance. Compared to other laser cutting processes, where the glass is either melted or evaporated, the M-Cut process offers further tremendous advantages: The edge roughness is less than 0.5 microns; M-Cut also prevents micro cracks or slight discolorations of the material caused by the high temperature of the laser.

Microscope slides and cover glass for medical research and practice are usually mechanically cut with traditional methods. The variety is quite high. Around the world, dozens of different dimensions in up to ten different glass thicknesses between 6 and 60 micrometers are in demand and used in quantities in the billions by the medical and



pharmaceutical sector. "With the DLC 820 laser cutting machine, manufacturers can significantly increase the efficiency of their production, not just because the throughput is more than four times higher than with mechanical cutting processes," says Anders Pennekendorf, Product Manager for DLC laser cutting systems at Manz. "In addition, complex setup times are no longer necessary with our systems, and all processes can be configured using the software alone."

In addition to microscope slides, the production spectrum of the entire DLC line also includes display glasses made of chemically strengthened glass and sensor-based biochips for automated, high-frequency analyses in molecular biology.

Technological highlights of the DLC 820 laser cutting system from Manz:

- Processes glass substrates with dimensions of up to 1.5 by 1.5 meters
- Laser cutting speed up to 1.8 meters per second, making it four times faster than mechanical cutting processes
- Roughness of the cutting edge of less than 0.5 micrometers, so re-polishing the edges is not necessary
- Very low *chipping*, resulting in high breakage resistance of microscope slides
- Fully automated, tool-free, configurable through software control: no setup times with production stops, fast format changes in small batches
- Freeform cutting possible
- Inline measurement technology can be easily integrated - automatic corrections during the process, resulting in consistently high quality and output

Photos:



Image 1: DLC 820 for highest demands in terms of precision and purity in medical technology

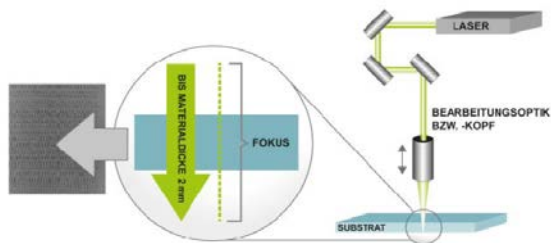


Image 2: With the M-Cut laser cutting process, the material is “perforated” linearly – with a diameter of just 2 micrometers.



Image 3: Microscope slides, lenses and displays: The M-Cut laser cutting process knows no limits when it comes to workpiece geometry.



Company profile:

Manz AG – passion for efficiency

As a leading global high-tech equipment manufacturer, Manz AG, based in Reutlingen, Germany, is a pioneer of innovative products in fast-growing markets. Founded in 1987, the company has expertise in five technology sectors: automation, laser processing, and measurement technology, as well as wet chemical and roll-to-roll processes. These technologies are deployed and continuously developed by Manz in three strategic business segments: "Electronics," "Solar," and "Energy Storage."

The company has been listed on the stock exchange in Germany since 2006 and currently develops and manufactures in Germany, China, Taiwan, Slovakia, Hungary, and Italy. It also has sales and service branches in the USA and India. Manz AG currently has around 1,700 employees, about half of which are located in Asia. With its claim "passion for efficiency", Manz makes the following service promise to its customers active in dynamic future-oriented industries: offering production equipment with the highest degree of efficiency and innovation. The company's comprehensive expertise in the development of new production technologies, along with the equipment required for this, make a significant contribution to reducing the production costs for end products and making these accessible to a broad range of buyers around the world.

Public relations contact

Manz AG

Axel Bartmann

Phone: +49 (0)7121 – 9000-395

Fax: +49 (0)7121 – 9000-99

E-Mail: abartmann@manz.com

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