



Flexible as a laser pocketknife

Reutlingen, Germany, May 30, 2017. Manz AG stands for high-tech engineering for the growth markets of the future. Today's focus: the *Flexible Laser System FLS 1800*, a platform designed for a variety of laser applications for producing lithium-ion batteries. Manz is going to present the tool from May 31st – June 2nd at the Intersolar / EES Europe in Munich on booth A2.130.

With the FLS 1800, Manz has developed a flexible laser platform that is designed for different laser processes in the manufacture of lithium-ion cells as well as modules and packs. Structured on a standardized machine base, customers can assemble powerful laser equipment that is matched to individual requirements and processes, in just six steps. In doing so, Manz combines the advantages of a standard system with those of a customized solution.

What distinguishes the FLS 1800? Regardless of whether it is a stand-alone system with manual work piece loading or a component of a fully integrated production line: the FLS 1800 is always the right choice when it comes to the highest degree of flexibility and performance in the manufacture of lithium-ion batteries. Thanks to its configurable laser processing unit, the FLS 1800 is just as suitable for high precision laser welding as it is for laser cutting, drilling or partial removal of materials and coatings. This is made possible by laser beam sources with varying wavelengths and a power of up to 6 kW.

What options do users of the FLS 1800 have, beyond the processing unit? Manz has consistently implemented the modular principle. After the selection of the desired machine base and the laser processing unit required for the specific production step, a variety of integrated optical control systems, physical measurement systems and integrated analytical instruments are available. Additional configuration options include a variety of attachments for manual or automatic transport or different laser protection housings and exhaust, cooling or monitoring systems. As a result, the FLS 1800 can be seamlessly integrated into existing



production lines, or operated as an individual system for small production series or pilot projects.

In focus: Manz laser welding! Laser welding is one of the standard processes of the FLS 1800. Manz uses welding methods that are optimized for materials and requirements and that offer advantages over conventional resistance and ultrasound welding. For example, reflective materials or bi-metals with very different properties can be processed with high weld seam strength and stable, repetition-accurate welding depths.

The highlights of the FLS 1800 from Manz:

- The system's modular design provides the user with a high degree of flexibility and versatility, in addition to attractive overall operating costs.
- Machine platform in standard width of 1800 mm, individual widths upon request.
- Controls a variety of laser applications depending on laser processing unit: welding same or different metals, welding reflective materials, marking, drilling, cutting and removing materials or coatings
- Modular design with standardized components for process, measurement technology, transport attachments, housing and monitoring options enables short delivery times
- System can be used for small series and pilot projects as well as integrated into an automated manufacturing line for mass production.



Illustrations:



Image 1: New in the Manz catalog: the Flexible Laser System FLS 1800 for manufacturing lithium-ion cells as well as modules and packs is individually configurable. It is based on the standardization of a variety of modules.



Image 2 & 3: The FLS 1800 is the Swiss Army laser knife of high-tech equipment manufacturing: laser welding of same or different as well as reflective materials; technological leaps or new material combinations require maximum flexibility in the production of lithium-ion batteries.



You can watch a video about Manz's laser process technology expertise here:

<https://www.manz.com/media/downloads/videos/laser-prozessloesungen-kurze-version-96/>

We are happy to send print resolution photos upon request.



Company profile:

Manz AG – passion for efficiency

As one of the world's leading high-tech equipment manufacturers, Manz AG, based in Reutlingen, Germany, is a pioneer for innovative products in fast-growing markets. Founded in 1987, the company has expertise in six technology sectors: automation, laser processing, screen printing, measurement technology, wet chemical and roll-to-roll processing. Manz deploys and continuously develops these technologies in three strategic business segments: Electronics, Solar and Energy Storage.

The company is headed by its founder, Dieter Manz, and has been listed on the stock exchange in Germany since 2006. It currently develops and produces in Germany, China, Taiwan, Slovakia, Hungary and Italy. It also has sales and service branches in the United States and India. Manz AG currently employs around 1,800 people, about half of which are in Asia. Manz's claim "passion for efficiency" offers the promise of production systems of the highest efficiency and innovation to its customers in dynamic, future-oriented industries. With its comprehensive expertise in developing new production technologies and related machines, the company contributes substantially to reducing production costs for end products and making them accessible to large groups of buyers the world over.

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