Battery Show: TRUMPF shows laser solutions for the complete battery production process chain

Efficient production, from battery cells to battery packs // Numerous laser applications in battery production // The laser as a crucial tool for battery manufacturers

Ditzingen / Stuttgart, 28 Juni 2022 – The high-tech company TRUMPF is showcasing laser applications for the complete process chain of lithium-ion battery production at the Battery Show Europe trade show in Stuttgart. "From electrode production to contacting the cells into larger units to the finished battery pack - we serve the entire spectrum," says Johannes Bührle, Head of Mobility at TRUMPF. Over many years, the high-tech company has already gained a great deal of experience with laser applications, working with Chinese and Korean battery manufacturers and being now a partner to all the major battery producers in Asia, Europe and the USA.

E-mobility picks up speed – and laser technology benefits from this

TRUMPF is benefiting from the trend toward electromobility. In the past fiscal year alone, the high-tech company sold more than 1000 lasers for battery production. "E-mobility is now really taking off worldwide. The political and economic framework conditions are giving e-mobility a further boost. Battery factories with multi-gigawatt capacities are now also being built in Europe. All these factories need lasers for their production," explains Bührle.

Today, the majority of applications are in the area of high-power lasers - in other words, lasers with at least 3 kW of power. To increase productivity, manufacturers tend to use lasers with higher power.

Disk laser welding system speeds up battery cell production

One example of the numerous laser applications in battery production is busbar welding, the contacting of individual battery cells. For this, TRUMPF offers a system consisting of the six and more kW TruDisk disk lasers, processing optics,
process sensors - for example, for checking the welding depth - as well as the corresponding software and control system. The interaction of these components and the comprehensive application knowledge speeds up the production of the battery cells and reduces scrap.

**TRUMPF is a specialist for can-cap welding**

Another application is the so-called “can-cap welding” - i.e., the media-tight sealing of the cover (cap) with the battery housing (can). TRUMPF lasers seal, with neither pores nor cracks, the aluminum housings, which are equipped with electrode packs, to the cap. High quality is particularly important here. Even the smallest cracks could lead to dangerous battery malfunctions. TRUMPF’s BrightLine Weld technology ensures low-spatter welding and maximum process stability. At the heart of this system is a two-in-one laser light cable with an inner and an outer fiber core.

**Gas-tight welding of aluminum heat exchangers possible with lasers**

The gas-tight welding of heat exchangers for battery packs is particularly demanding. Heat exchangers are made of special aluminum alloys. So far, their manufacturers have often produced them using soldering technology. "The laser will replace soldering technology in the medium term. But to do so, it must weld particularly quickly," explains Bührle. TRUMPF has developed multi-focus optics that enable welding speeds of more than 15 meters per minute.

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**Battery pack**

The laser is essential for the production of battery packs. There are numerous applications. TRUMPF masters all of these applications. (Image source: TRUMPF)
About TRUMPF

TRUMPF is a high-tech company offering manufacturing solutions in the fields of machine tools and laser technology. The Company drives digital connectivity in the manufacturing through consulting, platform products and software. TRUMPF is a technology and market leader in highly versatile machine tools for sheet metal processing and in the field of industrial lasers.

In 2020/21, the company employed some 14,800 people and generated sales of about 3.5 billion euros. With over 80 subsidiaries, the TRUMPF Group is represented in nearly every European country as well as in North America, South America and Asia. The company has production facilities in Germany, France, the United Kingdom, Italy, Austria, Switzerland, Poland, the Czech Republic, the United States, Mexico and China.

Find out more about TRUMPF at www.trumpf.com

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