Information

Information on Jenoptik Laser Systems.

Laser technology ensures the precise and swift processing of diverse materials. Systems to process photovoltaic modules represent a field of specialization of Jenoptik Automatisierungstechnik. The JENOPTIK-VOTAN™ Solas product family presents high-precision systems optimized for all structuring, ablation, and separation processes in the production of thin-film solar modules.

Within the JENOPTIK-VOTAN™ Solas product family, we distinguish between the JENOPTIK-VOTAN™ Solas 100/200 series for structuring PV modules. Depending on the task (which layers are to be structured), the systems in this series are equipped with a processing head for mechanical tools (e.g. needles) and/or a laser.

Laser edging is made with the JENOPTIK-VOTAN™ Solas 400 series, which ablates the thinnest previously applied layers with high quality and precision. This allows to improve the production process in the manufacture of thin-film solar modules, to reduce maintenance requirements and accordingly to save costs. The JENOPTIK-VOTAN™ Solas 400 is available as a stand-alone solution or in combination with selective edging and/or a separation module. Laser processing is superior to mechanical processes for edge deletion and opens up new possibilities for the future. The advantages of the TLS (Thermal Laser Separation) process enable the laser cutting process of the JENOPTIK-VOTAN™ Solas 500 to be integrated at various points in the production process.

The JENOPTIK-VOTAN™ Solas 600 laser system has been designed to manufacture semi-transparent thin-film solar modules for solar active building envelopes (BiPV = Building Integrated Photovoltaics). Semitransparency is produced by selective laser ablation on the entire absorptive area. The larger the ablated patterns, the higher the light throughput. The transparent structures are openly programmable, thus allowing for the production according to customer requirements.

The new JENOPTIK-VOTAN™ Solas 1800 laser system was specifically developed for drilling wafer-based solar cells. It enables new contact technologies which lead to increases in efficiency. With the use of Metal Wrap Through (MWT) or Emitter Wrap Through (EWT) technology, the electrical efficiency of the cells can be increased. To enlarge the active surface of the cells, for both technologies the contacts have been moved from the front to the back of the cells. JENOPTIK-

VOTAN™ Solas 1800 will be offered in two versions, as a stand-alone system for the development of new products and as a technology module for integration in existing inline production systems.

The JENOPTIK-VOTAN™ Compact 500 has been designed for the area of R&D. The so-called R&D systems will be used for the further development of thin-film solar cells – both on glass substrates and also, in the future, on flexible backing materials. With these systems, solar cell manufacturers are in a position to test new and specific production processes, as well as refine and thus optimize existing production lines without stoppages.

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