

LASER World of PHOTONICS

www.world-of-photonics.net

Optical technologies maintaining growth course in photovoltaics

Innovative manufacturing methods for photovoltaics at LASER World of PHOTONICS 2011

The current growth trend in optical technologies (the cross-technology of photonics) is also being confirmed for manufacturers of means of production for photovoltaics: Optoelectronic systems are being used to an increasing extent in machines for the manufacture of photovoltaics modules, thus increasing production efficiency. In particular, laser technology is proving its superiority in processes such as material removal, fusion, soldering, welding and drilling. Lasers have become indispensable tools, especially in the manufacture of thin-layer solar cells. Manufacturers are therefore profiting directly from the continuing positive trend in the photovoltaics industry: Trade associations and research institutes are predicting a growth rate of between 10 and 20 percent in 2011. LASER World of PHOTONICS 2011 will therefore also examine the area of photovoltaics manufacturing as part of the focus topic of "Green Photonics" from May 23 to 26, 2011.

LASER World of PHOTONICS, the world's leading trade fair for photonics, will also purposefully emphasize the key role of optical technologies in coping with social and ecological challenges. During the focus topics of "Lasers and laser systems for production engineering", "Green photonics" and "Biophotonics and life sciences", the trade fair and the World of Photonics Congress will both be devoted to the future topic of resource efficiency and will address the growth markets in the industry. Photovoltaics manufacturing will therefore be one of the areas looked at in the focus topics.

Quick, careful and effective processes

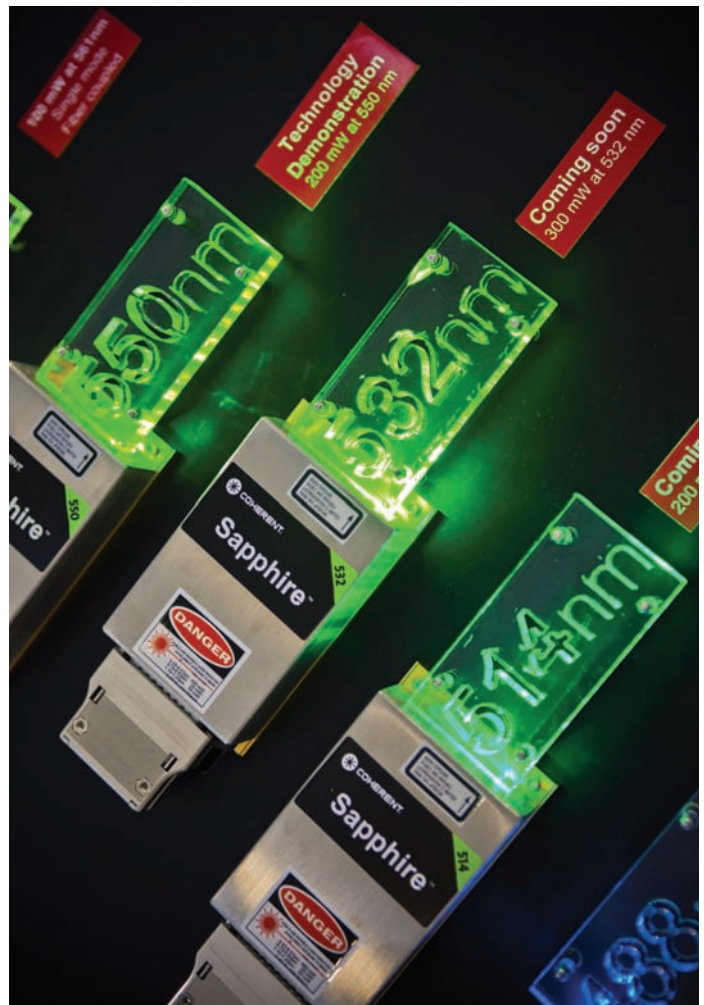
In future laser technology will make it possible to carry out an increasing number of processes in the manufacture of photovoltaics modules more efficiently and more precisely. Production steps such as edge coating removal on solar modules are now already a standard process in laser technology. However, other processes such as soldering and welding of solar modules or edge

insulation of solar cells using ultra-short pulsed lasers are already normal. Solutions in these areas will be presented at LASER World of PHOTONICS by exhibitors such as 3D-Micromac AG, Chemnitz, InnoLas Systems GmbH, Krailing, LIMO Lissotschenko Mikrooptik GmbH, Dortmund, Newport Spectra-Physics GmbH, Darmstadt, Schott AG, Mainz, and Umicore Thin Film Products, Balzers, Liechtenstein.

Future of photovoltaics manufacturing

Lasers with nanosecond laser pulses have been used on a wide scale to date. However, they are not suitable for some production steps because they overheat the material even with this extremely short pulse frequency. Picosecond and femtosecond lasers are therefore being utilized more frequently in order to develop other production steps in future. Thanks to "cold" material processing, the still young laser generation will in future also permit, for example, so-called "patterning" of highly sensitive CI(G)S modules which are made of the elements copper, indium, gallium and selenium. Due to the different properties of the various constituent parts, these modules present special challenges for material processing.

The exhibitors at LASER World of PHOTONICS will include manufacturers of picosecond and femtosecond lasers, for example Trumpf Laser GmbH + Co. KG, Schramberg, and Rofin Sinar Laser GmbH, Hamburg. Leading research institutes



such as the Fraunhofer Institute for Laser Technology (ILT), Aachen, will complement the exhibitors by presenting the latest findings from applied research and will provide detailed information on production and machining methods from thin-layer structuring through to high-speed drilling of silicon wafers.

Photovoltaics manufacturing in the World of Photonics Congress

The World of Photonics Congress from May 22 to 26, 2011 will accompany the trade fair with both scientific contributions and practical talks on the latest applications. The program will also include conferences and events on material processing topics such as the "Lasers in Manufacturing" Conference (LIM 2011), which is being organized by the German Scientific Laser Society (Wissenschaftliche Gesellschaft für Lasertechnik e.V. (WLT)).

The practical talk entitled "Photovoltaics and Lasers" at 10.00 on May 24, 2011 will be primarily devoted to the topic of photovoltaics manufacturing.

The speakers in this event will be Dr. Ulrich Hefter from Rofin Sinar and Arnold Gillner from the Fraunhofer Institute for Laser Technology. Another practical talk on this topic will be "Energy and Lightweight Construction: Laser Enables Productivity & Quality", which will take start at 14.00 on May 23, 2011. The speakers here will be Dipl.-Ing. Rüdiger Daub from the Institute for Machine Tools and Industrial Management (iwb) at Munich Technical University and Dipl.-Ing. Florian Albert from Bayerisches Laserzentrum GmbH, Erlangen.

You can find all you need to know about the World of Photonics Congress in the Internet at: www.photonics-congress.com.

Ref. N° 1103888