

# Flexible Lab Scale Laser Scribing LPKF Presto



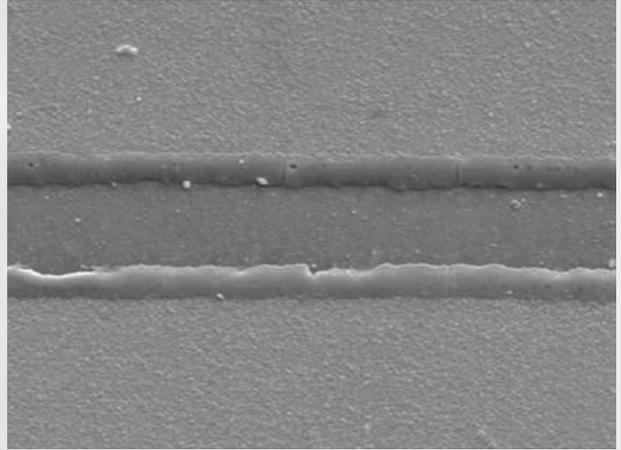


## Flexible Process Evaluation for Optimum Efficiency

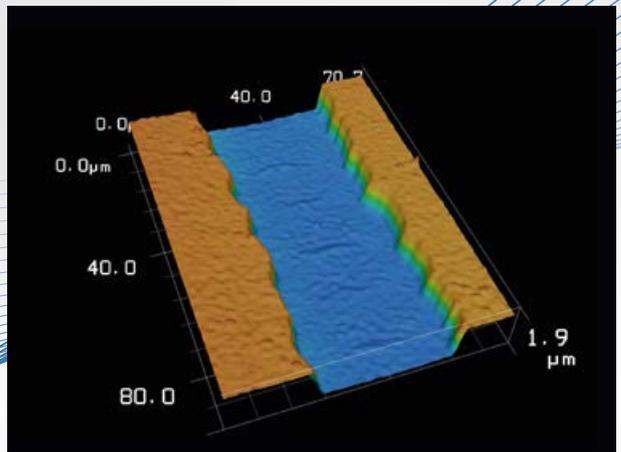
Flexibility built-in: the LPKF Presto laser scribe can handle just about anything the large Allegro production systems do, on compact glass formats. It can be adapted to various requirements using a small footprint.

Even fractions of a percentage are crucial in the efficiency factor of thin-film solar modules. Only the ideal combination of laser and machine parameters yields optimal results. LPKF offers a system for Research & Development with the Presto laser scribe. It was developed specifically to check and optimize promising parameter combinations on existing and new thin-film technologies for suitability for series production.

Presto is a laser system based on the design and components of the LPKF Allegro high performance production system. The two have much in common so that Presto results can easily be transferred to series production.



Ultra-short pulse processing CIGS P2



Selective TCO removal in CIGS P3

### The Swiss Pocket Knife for Evaluation

The LPKF Presto laser scriber unites series production and application development experience. This system is flexible in meeting all the requirements of process development and optimization.

This approach is evident in the design of the machine. Flexible frames allow Presto to machine various substrate sizes. The axes' dynamics (material and working head movement) corresponds to that of the Allegro series. Depending on the material type and layer composition the laser scribes from the film side or through the glass. Built-in extraction removes ablation products from both sides, safely filtering them.

Presto can be equipped with lasers with wave lengths down to UV and pulse lengths down to the picosecond range. Up to three laser sources can be installed in parallel. Lenses can be easily exchanged and the optical path can be configured in a variety of ways. Integrated power measurement provides information on laser output active on the material. Existing patterns are referenced. Optionally, a mechanical working head will handle P2/P3 scribing for CIGS layers.

The easy-to-use graphical user interface SolarMaster controls all the system functions on the LPKF Presto and facilitates determining optimal processing parameters by special supporting functions. The same GUI is also used in the Allegro system.

LPKF SolarQuipment GmbH provides highly sophisticated products. It combines specialized skills in laser technology, control and drive technology with extensive experience in micromachining materials by laser.

The company is part of the LPKF network with branches and agencies throughout the world. Four production plants in Europe, additional subsidiaries in the USA, China, Hong Kong and Japan as well as efficient partners in various countries ensure the company is able to provide customers with technical support worldwide.

### Technical Data: LPKF Presto

<b>Substrate dimensions</b>	Up to 470 mm x 370 mm
<b>Laser wavelength</b>	355 nm, 532 nm and/or 1064 nm
<b>Mechanical working head</b>	Pressure adjustable
<b>Scribing line width</b>	20 µm – 100 µm, depending on optical configuration
<b>Processing</b>	From film and non-film side of glass
<b>Substrate thickness</b>	2 mm – 6 mm
<b>Substrate material</b>	Float glass
<b>Particle extraction</b>	From film and non-film side of glass
<b>Thin-film technologies</b>	CdTe, aSi, aSi/µSi, CIS/CIGS
<b>Alignment</b>	Fiducial recognition
<b>System dimensions (W x H x D)</b>	Approx. 1600 mm x 1700 mm x 2100 mm
<b>Control cabinet</b>	Approx. 1200 mm x 1940 mm x 800 mm
<b>Weight</b>	Approx. 3500 kg

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