microCELL™ OTF

On-the-Fly Laser Processing System for Silicon Solar Cells, e.g. PERC

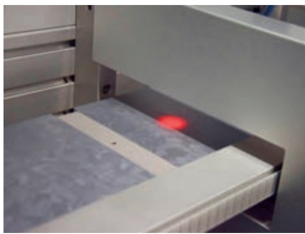
3D-Micromac's microCELL™ OTF is a highly productive laser system for processing of mono- and polycrystalline silicon solar cells. The microCELL™ OTF meets cell manufacturers' demands for increasing the efficiency, e.g. of PERC solar cells, by precise surface structuring, low operating costs, and highest availability. Laser processing on-the-fly and an innovative handling concept enable maximum throughput and yield in the mass production of crystalline solar cells. The contactless cell handling enables processing without surface defects and microcracks.

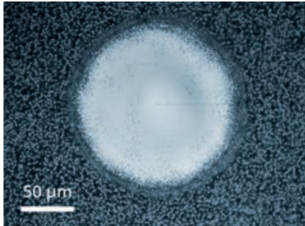
microCELL™ OTF offers:

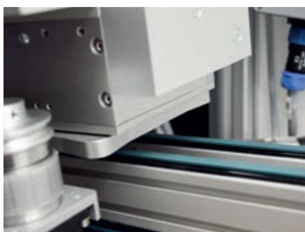
- On-the-fly laser processing with unbeatable cost-benefit ratio
- Contactless wafer handling
- High throughput and efficiency (> 3,800 wph)
- Low cost of ownership and CAPEX
- Upgrade for existing production lines or expansion

3D MICROMAC

microCELL™ OTF - System Configuration







Configuration packages

Inline

- High on duty time of the laser > 98 %
- Inline system for complete integration into existing production lines, e.g. in front of printing machine

Stand-alone

- High on duty time of the laser > 98 %
- Handler-tool-in and handler-tool-out for maximum throughput

Options

- Breakage control / NIO discharge
- RFID reader
- Data matrix reader (DMC)
- Wafer buffer system
- MES system
- Loading- and unloading handling as on customer specification

Wafer size	▪ 156 x 156 mm^2 - 165 x 165 mm^2 ▪ Square and pseudosquare shapes, different sizes on request
Throughput	▪ > 3,800 wph (depending on pattern) with single lane processing
Uptime	▪ ≥ 97 %
Pattern for PERC cells	▪ Line pattern ▪ Dot pattern ▪ Dash pattern ▪ Other pattern on request ▪ Easy read-in by dxf-file ▪ Beam diameters between 40 µm and 200 µm possible
Laser sources	▪ Standard setup: one ns laser source, 1064 nm ▪ On request: ps laser or 532 nm wavelength available
Laser processing	▪ On-the-fly
Beam delivery unit	▪ Beam delivery unit including scanner head
Alignment	▪ Self alignment system
Handling/positioning system	▪ Contactless wafer transport ▪ Continuously running
Loading/unloading	▪ Feeding of wafer via inline transport belt
Dimensions	▪ Approx. 2,200 x 1,300 x 2,500 mm^3 (L x W x H) ▪ Approx. 1.2 t
Exhaust system	▪ High particle extraction (three-stage-filter)
Standards	▪ Laser safety class 1 ▪ CE compliant

Changes in accordance to technical progress are reserved.

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