microCELL™ TLS

On-the-Fly Cell Cutting System using Thermal Laser Separation

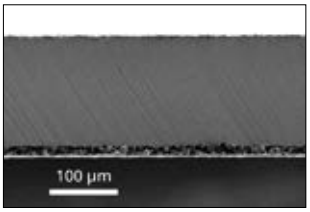
3D-Micromac's microCELL™ TLS is a highly productive laser system for separation of standard silicon solar cells into half cells. The microCELL™ TLS meets cell manufacturers' demands by retaining the mechanical strength of the cut cells. The ablation free process guarantees an outstanding edge quality. Laser processing on-the-fly and an innovative handling concept enable maximum throughput and yield in the full-scale manufacturing of crystalline half cells.

microCELL™ TLS offers:

- On-the-fly laser processing with unbeatable cost-benefit ratio
- One-pass contactless dicing process
- High throughput > 3,800 wph on single lane
- Dicing speed up to 300 mm/sec
- Low cost of ownership and CAPEX
- Inline integration into existing production lines

3D MICROMAC

microCELL™ TLS - System Configuration



TLS cleaving edge of a polycrystalline solar cell

Configuration packages

Stand-alone

- Two working areas on single lane for initial scribing and TLS cleaving
- Handler-tool-in for full cells and handler-tool-out for half cells

Inline

- Two working areas on single lane for initial scribing and TLS cleaving
- Inline system for complete integration into existing production lines

Options

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

Wafer size	• 156 x 156 mm^2 • Other sizes on request, square and pseudo-square shapes possible
Throughput	• > 7,600 half cells on single lane at 300 mm/s
Cleavage pattern	• Half cells • Quarter cells • Other pattern on request
Laser sources	• Standard setup: two laser sources • Scribe laser 1064 nm • TLS laser 532 nm
Laser processing	• On-the-fly
Beam delivery unit	• Beam delivery unit including two processing heads for initial scribing and TLS cleaving
Active alignment	• Wafer alignment via sensor system
Handling/positioning system	• Continuously running transport belt
Loading/unloading	• Automatic loading and unloading of wafer via cassette/magazine system • Inline integration possible
Dimensions	• Approx. 1,865 x 1,800 x 2,000 mm^3 (L x W x H)

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