

microCELL™ TLS

Solar Cell Cutting System or Half Cells

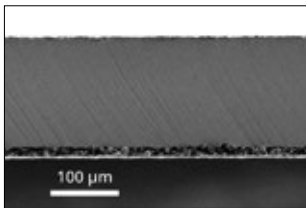
3D-Micromac's microCELL™ TLS is a highly productive laser system for separation of standard silicon solar cells into half cells. The microCELL™ TLS meets cell manufacturers' demands by retaining the mechanical strength of the cut cells. The ablation free process guarantees an outstanding edge quality. 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 > 5,000 wph on single lane
- Dicing speed > 300 mm/sec
- Low cost of ownership and CAPEX
- Inline system for complete integration into existing production lines



microCELL™ TLS - System Configuration



TLS cleaving edge of a polycrystalline solar cell

Benefits of the TLS-Technology™

Our microCELL™ TLS system offers half cell cutting (on single lane) for initial scribing and TLS cleaving. The TLS-Technology™ has gained importance in contrast to conventional separation techniques for the reason of clean, micro-fissured free edgings:

- No crystal damage is experienced at the separation edge in the form of the previous usual displacement of resolidified silicon in the ablation areas
- No discharge and no particle formation occurs, as the substrate is only heated and not vaporized
- Higher mechanical stability of processed solar cells
- Routine leaves no residues
- 2D surface (rather 3D topography) causes less recombination

Wafer size	<ul style="list-style-type: none"> • 156 x 156 mm² up to 165 x 165 mm² • Other sizes on request, square and pseudo-square shapes possible
Throughput	<ul style="list-style-type: none"> • > 10,000 half cells on single lane > 300 mm/s
Cleavage pattern	<ul style="list-style-type: none"> • Half cells
Laser sources	<ul style="list-style-type: none"> • Two integrated long lifetime, low maintenance fiber laser sources
Laser processing	<ul style="list-style-type: none"> • On-the-fly
Beam delivery unit	<ul style="list-style-type: none"> • Beam delivery unit including two processing heads for initial scribing and TLS cleaving
Active alignment	<ul style="list-style-type: none"> • Wafer alignment via sensor system
Handling/positioning system	<ul style="list-style-type: none"> • Continuously running transport belt
Loading/unloading	<ul style="list-style-type: none"> • Automatic loading and unloading of wafer via cassette/magazine system • Inline integration possible
Options	<ul style="list-style-type: none"> • Breakage control / NIO discharge • RFID reader • Data matrix reader (DMC) • Wafer buffer system • Loading- and unloading handling
Dimensions	<ul style="list-style-type: none"> • Approx. 2,150 x 1,250 x 2,312 mm³ (L x W x H)
Standards	<ul style="list-style-type: none"> • Laser safety class 1 • CE compliant

Changes in accordance to technical progress are reserved.