



WAFER SAWMARKS AND THICKNESS MEASUREMENT SYSTEM

The Solar Cell Wafer Sawmarks and Thickness Measurement System measures wafers with low noise, high sensitivity, high repeatability and high resolution.

Unique shadow measurement techniques, cancelling the effects of the crystal pattern combined with Scorpion Vision Software® are the clue elements of this world class system.

APPLICATION AREA

Quality control of Solar Cell Wafers

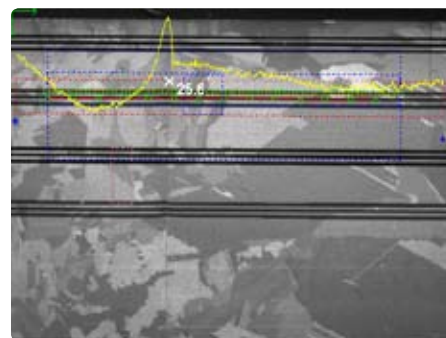


TO BE MEASURED

- Sawmarks on both sides of wafer
- Wafer Thickness

ENVIRONMENT

- Wafer sizes from 100 to 300 mm
- Continuous or stopped movement of wafer
- Wafer rate up to one wafer per second
- Wafer speed 200 mm/second
- Classifies wafer in A, B and Recycle categories with user defined limits
- Scanning with user defined output



Screen image showing typical sawmark changes across a solar cell wafer. A 25.6 µm sawmark is found.

WAFER SAWMARKS

The Sawmarks measurement system measures wafers using a patent pending and unique shadow measurement technique, cancelling the effects of the crystal pattern.

The operator can verify how the sawmarks develop over the wafer. Large sawmarks will often have a large gradient towards the edge of the wafer.

Presented for the first-time September 2007 is a combined Sawmarks and TTV Measurement System with a resolution of 1 micrometer.

The wafer measurement system can easily adapt to be part of a production line system.

SAWMARKS MEASUREMENT SPECIFICATION

- Sawmarks are measured with a profile resolution of 45 µm. This means that narrow marks with a width of 140 µm are measured.
- The maximum sawmarks detected with a 1 mm window is measured from 2 - 120 µm with 1 µm repeatability.

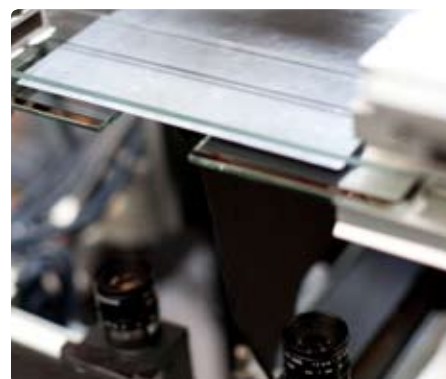
WAFER THICKNESS (TTV)

The wafer thickness is measured using an angled lighting and shadowing technique. The shadow position is measured simultaneously on both sides of the wafer.

The thickness is calculated from the shadow positions both at the wafer centre and 10 mm from the edges. The system handles slightly warped wafers.

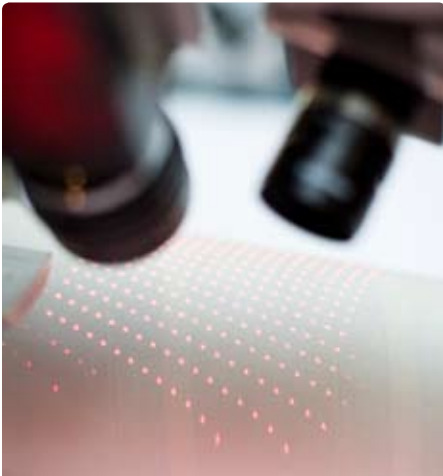
THICKNESS MEASUREMENT SPECIFICATION

- Thickness is measured on the middle of the wafer and 10 mm from the edges.
- Accuracy 1 µm
- Range 1 µm to 1000 µm





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TECHNICAL DATA

Computer System

- 19" Sony TFT 1280 x 1024
- Industrial IPC, P4 3.0 GHz
- 2 Gbyte memory
- Raid 1 - Dual SATA 160 Gbyte HD

Software

- Windows XP SP2
- Scorpion Vision Software® with Sawmarks and Thickness module
- Solar cell wafer Profile

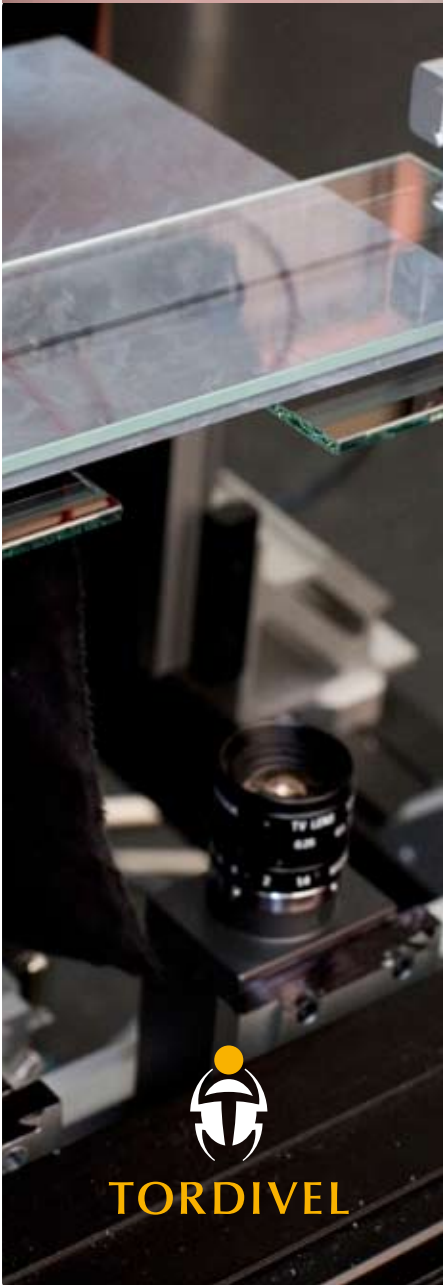
Measurement Accuracy

- Sawmark: 1 μm (repeatability)
- Thickness (TTV): 1 μm

Language Support

- English and Norwegian

Specifications might change without any notification.



COMPLETE WAFER INSPECTION SYSTEMS

The solutions are built on Scorpion Vision Software® for user friendliness, configurability, reliability and ease of maintenance. Off-the-shelf world class hardware components including area- and line scan camera technology are used.



TORDIVEL AS

A complete supplier of Optical Wafer Measurement Systems and Components

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