

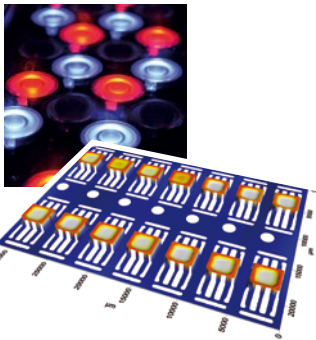
PRODUCT

cyberSCAN CT 300

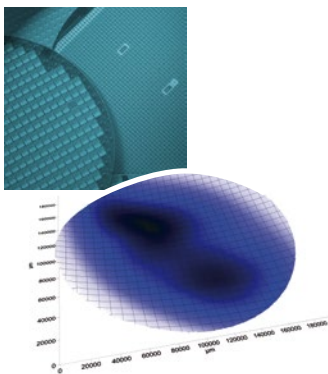
- FAST, PRECISE AND ACCURATE MEASUREMENT ON SMALL AND LARGE SAMPLES
- LARGE 315 MM x 315 MM SCANNING AREA
- USER FRIENDLY CONCEPT
- SOPHISTICATED ANALYSIS AND AUTOMATION SOFTWARE



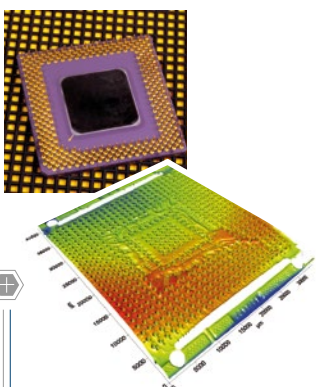
Geometry of LED devices



Flatness of a silicon wafer



Warpage of electronic components



OVERVIEW

The cyberSCAN CT 300 is a non-contact profilometer with a 315 mm x-, y-motion system. It can scan up to 12" wafers or other large substrates and parts. It is ideal for measuring flatness with submicron accuracy over the complete 315 mm travel. Using a chromatic white light sensor and a data rate of up to 4 kHz the inspection time is minimized. The sensors are available with a z-resolution down to 3 nm and a measurement range up to 25 mm. With our multi-sensor technology several sensor heads can be mounted simultaneously including infrared interferometers for measuring wafer thickness.

APPLICATIONS

Typical applications are the analysis and quality control of printing processes, such as for PV solar cells, incoming inspection of substrate materials, thick-film measurement on a variety of substrates, volume measurement of paste depots, epoxy-film, dots or other printed and dispensed features. Geometry and position measurement of highly contoured objects like solder bumps, micro-lenses, and MEMS devices, as well as flatness and coplanarity analysis are other popular applications. Since the CT 300 maintains high accuracy across the entire travel, larger parts such as wafers, gaskets, or glass lenses are inspected fast and precisely.

- Printed products, systems or devices
- Device packaging
- Printed circuits
- MEMS
- Fuel cell elements
- Lenses, gaskets, larger mechanical parts
- Soft and transparent materials or coatings
- Medical devices
- Wafer Thickness, Bow, TTV

SOFTWARE

The proprietary cyberTECHNOLOGIES, Windows-based software package SCAN SUITE combines system control, data collection and data analysis in a user friendly interface. Comprehensive profile, 3D and roughness analyses conforming to DIN ISO are included. The software can handle up to 10.000 x 10.000 data points in one scan.

An outstanding feature is the ASCAN Software:

- Automation of measurement routines
- Easy programming using tasks and templates
- Offset and fiducial correction
- Built-in SPC Charts with reporting function
- Flexible, user defined data output format
- Barcode or user field input
- Step & Repeat function

TECHNOLOGY

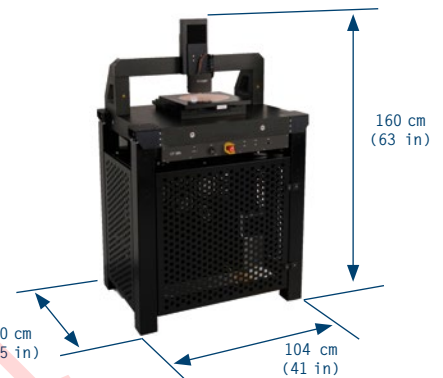
- Fast and accurate magnetic linear stage
- Measurement speed: 2 kHz (4 kHz and 14 kHz optional)
- 315 mm travel in x- and y-direction, lateral resolution 0.05 µm, optional motorized z-axis
- 2D profiles and 3D topographical maps
- Large scanning area, up to the maximum travel of 315 mm at maximum x-, y-, z-resolution
- Laser confocal and chromatic white light sensors
- Resolution down to 3 nm, measurement range up to 25 mm
- On-axis camera or high resolution off-axis camera

SYSTEM INCLUDES

- CT 300 base unit with manual z- and motorized x- and y-stage
- One sensor of choice (see sensor specifications)
- Integrated system controller with USB interface
- PC Workstation (current version)
- Factory installed Windows 7 64-bit and cyberTECHNOLOGIES SCAN SUITE license
- 23" widescreen monitor, keyboard, mouse
- Reference manuals and user guides

OPTIONS

- ASCAN Software for automation of measurement tasks and analyses, 2D and 3D, Step & Repeat
- Motorized z-axis
- High speed sensor and controller (4 kHz and 14 kHz)
- Additional sensors including infrared interferometers
- Traceable calibration tools and certification targets
- Vacuum chucks (porous ceramics)



SPECIFICATIONS

DIMENSIONS
(L X W X H)

900 x 1040 x 1600 [mm] standing workstation
(35 x 41 x 63 [in])

WEIGHT

400 kg (880 lbs)

SYSTEM CONTROLLER

Includes Motion Control, Sensor Controller (2 kHz), Power Supplies, USB Interface to Workstation

WORKSTATION PC

Inquire about current specifications, 22" widescreen monitor

CONNECTIONS

Ethernet, DVD Drive, USB (front and back side), Parallel Port, Keyboard, Mouse, DVI and Analog Video Output

POWER REQUIREMENTS

100-240V AC, 50-60 Hz, 2 amps (240 V), 5 amps (100 V)

OPERATING TEMPERATURE

20°-30° C (68-86 F)

MEASUREMENT SURFACE SIZE

400 x 400 [mm] (16 x 16 [in])

LINEAR ENCODER RESOLUTION

0.05 µm (2 µin)

MINIMUM LATERAL RESOLUTION

1 micron

TRAVEL LIMITS IN X AND Y (MOTORIZED)

315 x 315 [mm] (12 x 12 [in])

TRAVEL LIMIT IN Z (MANUAL)

50 mm (2 in)
(adjustable level to 100 mm)

MOTORIZED Z-AXIS

100 mm travel, 0.1 µm resolution

MAXIMUM LOAD ON PLATFORM

10 kg

AVAILABLE SENSORS

Confocal White Light Sensors
Confocal Laser Sensors
Laser Triangulations Sensors
Interferometers (white light and infrared)

SCAN SUITE 8

SCAN CT - PROFILE AND 3D ANALYSIS SOFTWARE

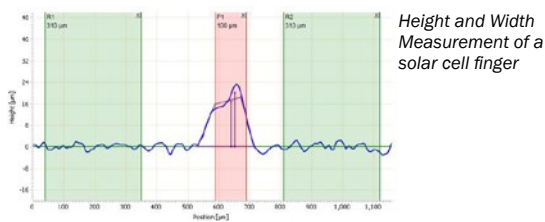
SCAN CT is a software package for measuring and analyzing 2D profiles and 3D raster maps.

It offers complete 2D and 3D surface measurement parameters as well as sophisticated filter and compensation methods.

All combined in an operator friendly user interface.

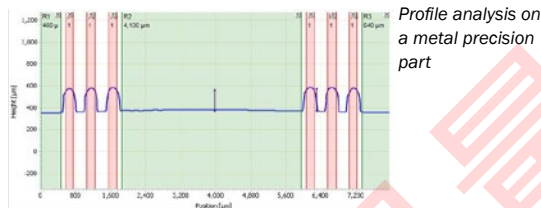
2D PROFILE MEASUREMENTS

- Step Height (avg., max. and min. height)
- Flatness and Warpage
- Width and Length
- Cross Section Area
- Angle, Radius, Contour Analysis



Height and Width Measurement of a solar cell finger

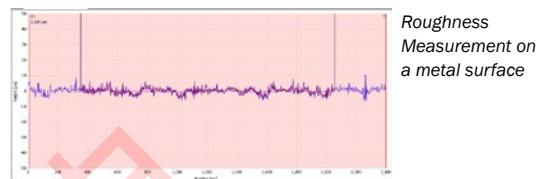
Define base line and measurement areas using reference and measurement cursors. Select analysis from dropdown menu.



Profile analysis on a metal precision part

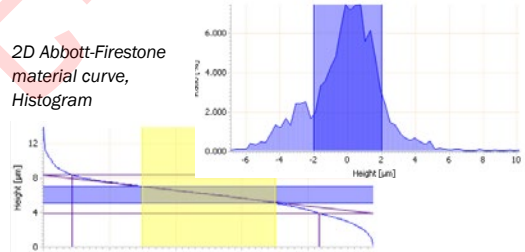
PROFILE ROUGHNESS MEASUREMENTS

- DIN EN ISO conform Roughness Parameters
- Shape Removal Algorithm
- Abbott-Firestone Material Curve
- Histogram
- Tip Simulation for Non-Contact Systems



Roughness Measurement on a metal surface

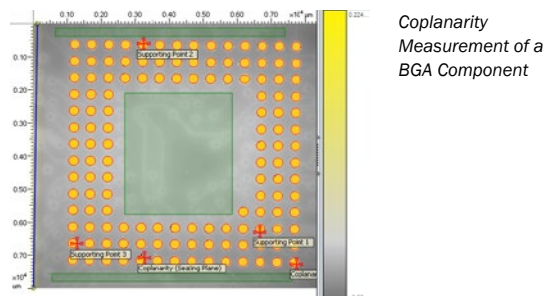
Advanced roughness analysis, even on round or angled surfaces using shape compensation. Display waviness and roughness profile.



2D Abbott-Firestone material curve, Histogram

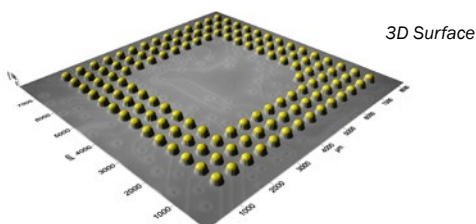
3D COPLANARITY MEASUREMENTS

- 3D Height (avg., max. and min. height)
- Flatness and Warpage
- Coplanarity



Coplanarity Measurement of a BGA Component

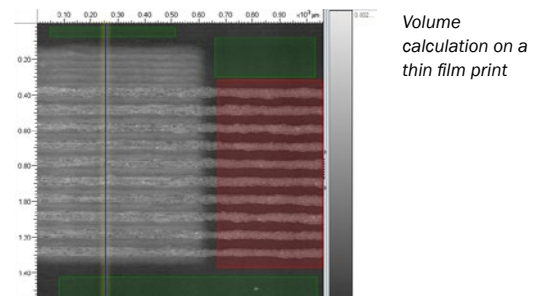
Draw rectangle, round or polygon cursors to define base plane and measurement areas.



3D Surface

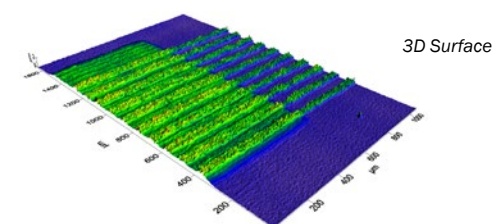
3D VOLUME MEASUREMENTS

- Volume (Cuts, Fills, Net Volume)
- Planar area
- Surface area



Volume calculation on a thin film print

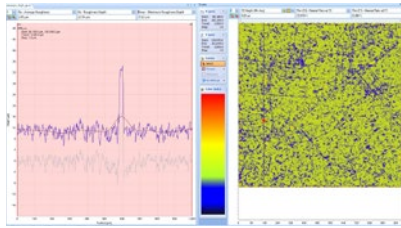
Measures cuts and fills and uses height threshold. Accurate areal and planar surface calculations



3D Surface

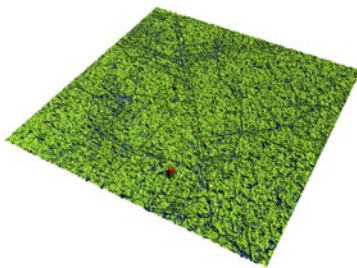
3D ROUGHNESS MEASUREMENTS

- New DIN EN ISO 25178 Parameters
- 3D Waviness Filters
- 3D Abbott-Firestone material curve, Histogram



Roughness Measurement on a solar wafer

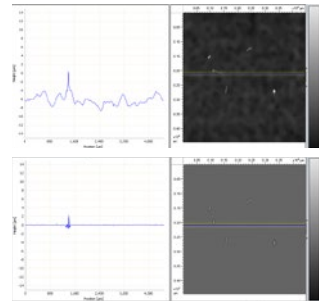
Use advanced DIN /TS 16610 Filters. 3D Roughness Analysis even on warped or uneven surfaces.



3D Surface

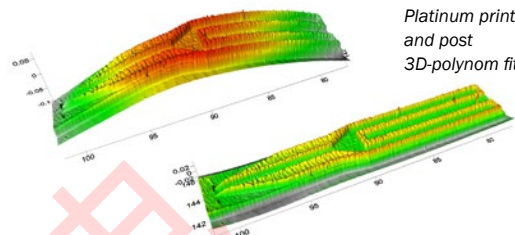
2D AND 3D SURFACE COMPENSATIONS

- 2D and 3D Polynom Fit
- Pre- and after measurements
- Areal Waviness Compensation



Copper surface defect with areal waviness filter

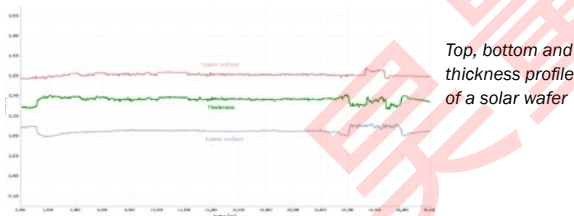
Surface compensation is only applied based on the data in the reference cursors.



Platinum print pre and post 3D-polynom fit

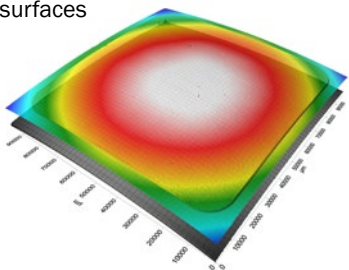
PARALLEL DATA COLLECTION

- Parallel scanning with up to 4 sensors
- Collect Top, Bottom and Thickness data
- Average Thickness, Bow and Curvature
- Total Thickness Variation
- Parallel Intensity Masking



Top, bottom and thickness profile of a solar wafer

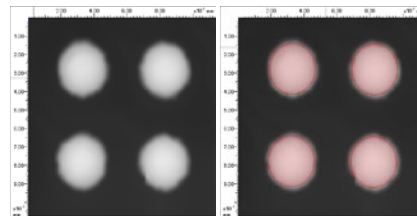
Graphical display of thickness maps and top/bottom surfaces



Top and bottom surface of a fuel cell component

MORE FEATURES AND HIGHLIGHTS

- x-, y-, z-data stitching capability
- 2D and 3D edge detection algorithm
- Windows 7 64 bit Version available
- Raster up to 200,000,000 data points
- Integrated user management



Automatic detection of BGA bumps

Compare geometry by overlaying profiles.



Profiles across a fuel cell component

SUMMARY

SCAN CT is a complete, unique and easy to use surface analysis software. It offers outstanding features and includes the following highlights:

- Complete 2D and 3D surface analysis
- Profile and 3D roughness measurements according to DIN ISO EN Standards
- Comprehensive profile and surface compensations

- Advanced filter technologies
- Uni- / bi-directional scanning
- Linear, circular and ellipsoidal scanning
- Simultaneous data collection of up to 4 sensors
- Dedicated user management
- Up to 200 Mio. data points per raster
- Fast multithread technology