

Lumina AT2 Defect Scanner

FOUR DETECTION CHANNELS:

- Polarization (Stains, Film Non-uniformity)
- Slope (Scratches, Surface Topography)
- Reflectivity (Internal Stress, Striations)
- Dark Field (Particles, Inclusions)

EFFECTIVE

Full-surface scan with sub-nanometer sensitivity

COMPATIBLE

Scan any shape as large as 450 X 450mm

EFFICIENT

Scan a 300 x 300mm sample in under 2 minutes

RESILIENT

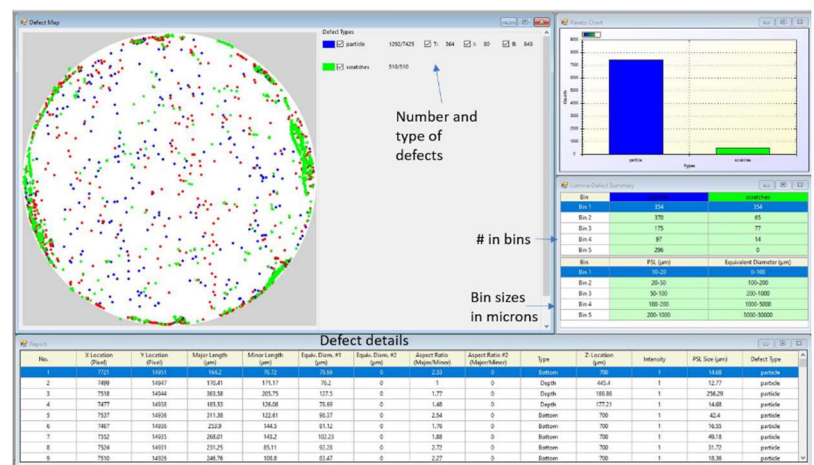
Capable of scanning fragile and thin glass



- Enables full surface scan and imaging of sub-nanometer film coatings, nanometer size particles, scratches, pits, bumps, stress points and other defects.
- Scan and displays a 300mm wafer in under 2 minutes.
- Capable on transparent, silicon, compound semiconductor and metal substrates.
- Accommodates non-circular and fragile substrates up to 450 x 450mm.
- Able to separate top/bottom features on transparent substrates with a single scan.
- Dynamically compensate for surface bow & warp
- Can scribe locations of defects for further analysis.

Using data from any combination of the multiple detectors the AT2 software generates the defect map and report:

- Map and location
- Color coded defects
- Size of defects
- Quantity of defects
- Image of defects



LUMINA
INSTRUMENTS

Defects on Transparent Substrates

GLASS DEFECT DETECTION

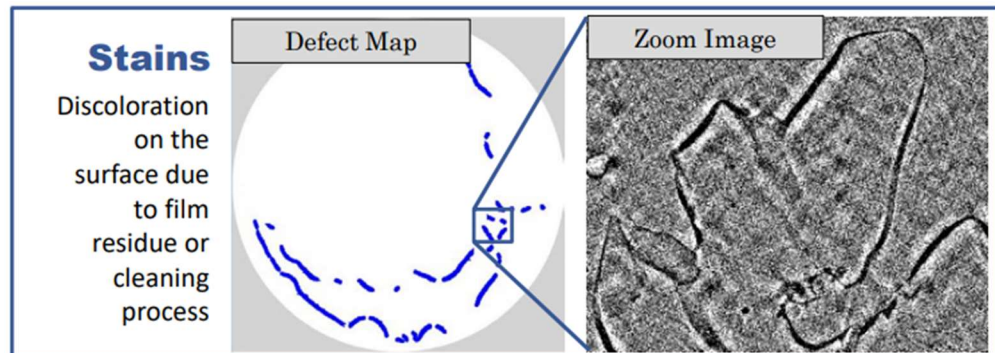
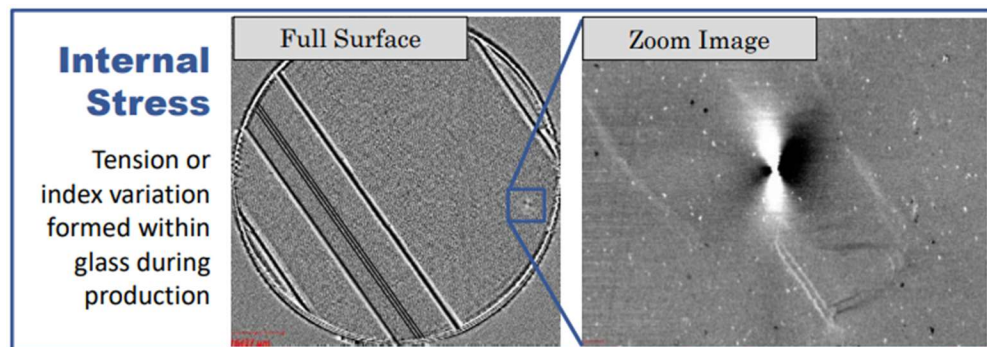
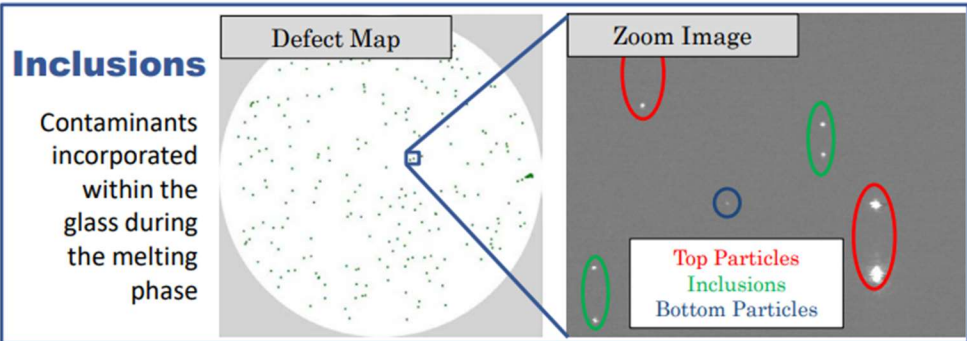
- Both exterior and interior
- Film residue and water marks from cleaning or other processes
- Internal stress or refractive index variation
- Work with thin glass without backside interference

CLEAN AND GENTLE HANDLING

- No need for vacuum
- Edge contact
- Scan any shape
- Work with fragile samples
- High immunity to vibration

EFFICIENT

- Detect defects on top surface, bottom surface, and inclusions with one scan
- Report depth of internal defects



REVOLUTIONARY SENSITIVITY IN THIN- FILM DEFECT SCANNING

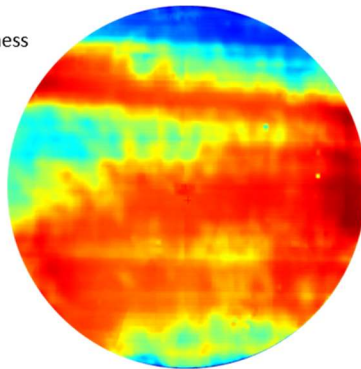
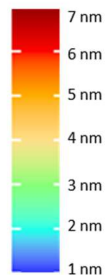
Sub-nanometer sensitivity in full
surface scanning of thin-film
contamination

Ellipsometry sensitivity at full
surface scanning speed

VERSATILE

- All defect types
- Thin and thick substrates
- Transparent and opaque substrates
- Dielectric coated
- Metallic coated
- Bonded wafers
- Development and inline production

Coating Thickness

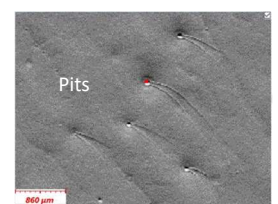
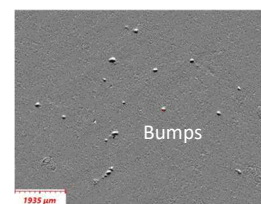
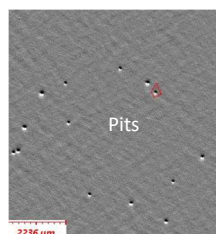
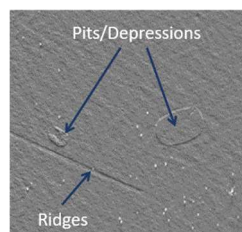
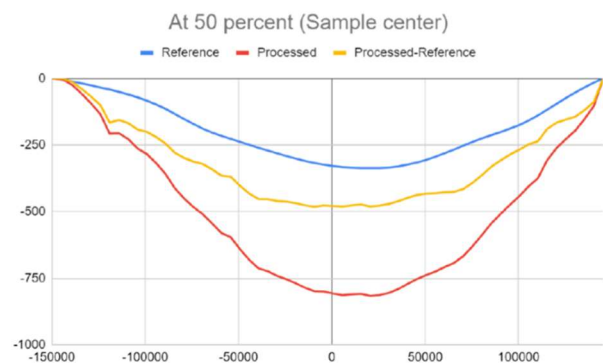


Monolayer stains or thin-film non-uniformity

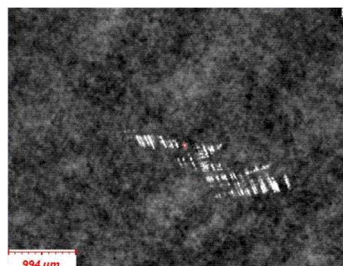
- Stains
- Water marks
- Voids
- Bubbles
- Fingerprints

Bow/warp measurement on

- Si & compound semiconductor wafers
- Glass wafers
- Glass panels



Various defects on Si wafers



Scratches
from oxide
CMP

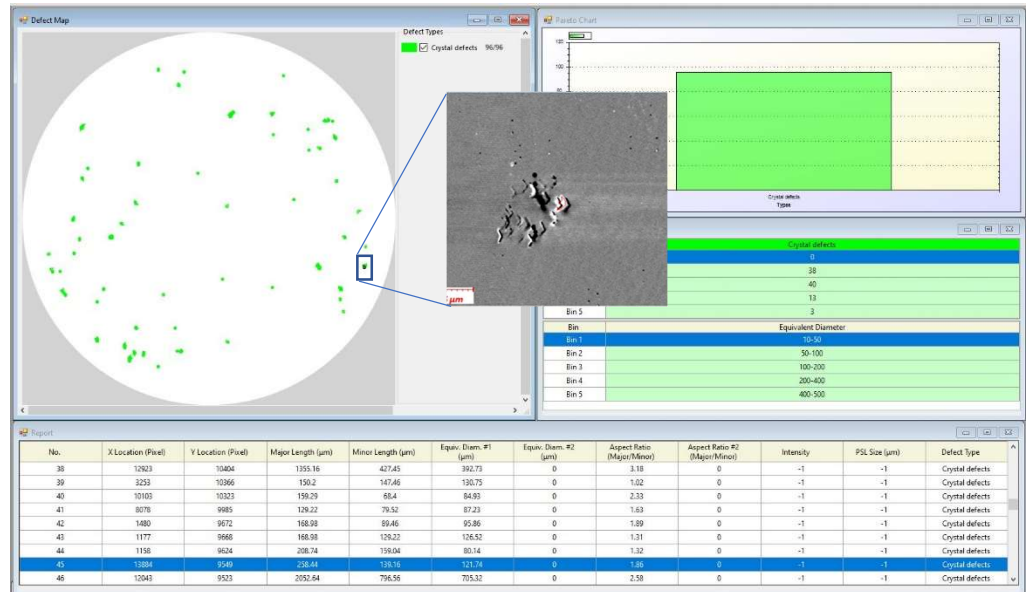


Scratches from
Si wafer
backside
thinning

Crystal Defects on Compound Semiconductor

CRYSTAL DEFECTS

Detect and classify many types of crystal defects on compound semiconductor substrates and epitaxial growth layer



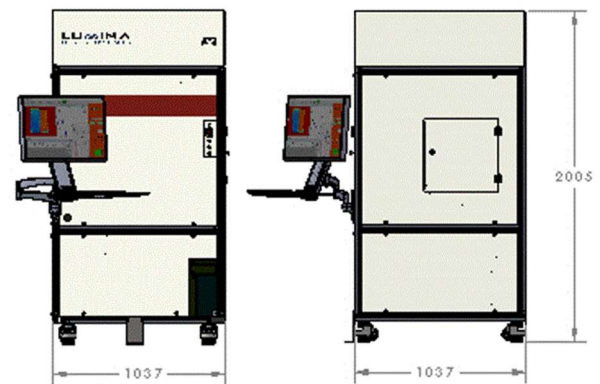
NEED MORE AUTOMATION?

AT2-EFEM - Fully automated production systems for 300mm wafers with factory automation capability



System Specifications

Scan time	300mm wafer in 2 minutes
Scan area	450 x 450mm
Sensitivity	Film defects < 0.5nm Particles, 200nm PSL on Si Particles, 300nm PSL on glass
Scribe	Diamond scribe
Bow/Warp	Range up to 800um +/- 5um repeatability
Temp	18 – 30 °C
Voltage	120 / 230VAC
Current	8A / 4A
Weight	480Kg (1058lbs)
Dimension	1037 x 1037 x 2005mm (40.8 x 40.8 x 79 inches)



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