Defect Inspection

REFLEX TT

Manual 2"-300 mm Wafer Inspection

NanoPhotonics

REFLEX TT Bare Wafer Front Side Defect Inspection

Features

- Front side defect inspection
- Sensitivity down to 0.09 µm LSE
- 2″– 300 mm Si wafers
- 3″– 8″ transparent wafers
- 2,5″x 2,5″– 8″x 8″ mask blanks
- Compound semiconductors

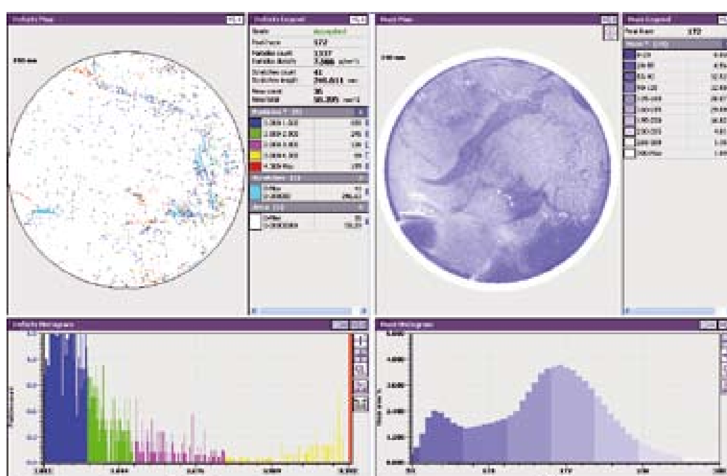
Benefits

- Very flexible tool matching various applications
- Low cost 300 mm entry
- Low cost of ownership
- User friendly operation
- Small footprint

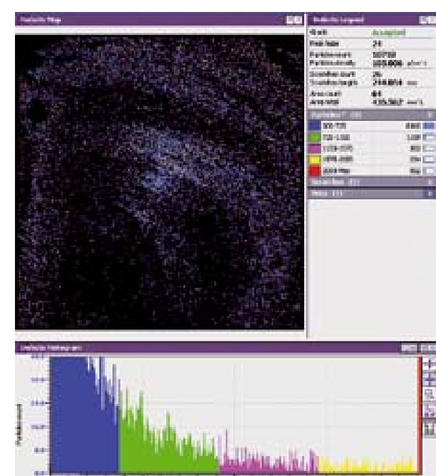
Application

Today's semiconductor and related industries are confronted with a significant challenge to monitor defects on unpatterned wafers and mask blanks. The manually operated table top REFLEX TT is the ideal system for defect inspection in an R&D and lab environment. Its laser dark field measurement technology and the user friendly software provide a wide range of applications.

A set of different substrate holders offers a unique flexibility of the system to process a wide range of applications such as silicon, compound semiconductors (GaAs, GaN, GaAIN), transparent films on silicon, metal films, amorphous silicon and polysilicon as well as glass and mask blanks with one and the same system.



Measurement of photo resist: Partice map (left) and corresponding haze map (right)



Defect map and histogram of mask blank

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Design

The defect inspection system REFLEX TT (table top) is a manually operated tool for detecting particles, scratches, area defects and micro-roughness (haze) on the front side of unpatterned wafers. A powerful Automatic Defect Classification (ADC) provides extended defect analysis. Substrates of various shape and diameter from 2'' up to 300 mm and mask blanks up to 8''x 8'' can be accommodated. The unit employs advanced diode laser illumination and a patented optical light collection system for measuring the back scattered light down to 90 nm LSE particle sensitivity.

The class 1 mini-environment makes it even more versatile and suitable in environments up to class 10000. The system incorporates an integrated minicomputer and FPD which also makes an offline analysis possible and provides a good correlation to known industry standards.

It is an ideal and cost effective tool for process characterization and contamination monitoring for R&D purposes. The unit can be connected to a LAN for off-line data analysis.

Options

- Vacuum chuck wafer tray
- Edge grip wafer tray
- Software licence for off-line data analysis

REFLEX TT Technical Specifications

Mechanical Specifications

Available substrate fixations:	Vacuum chuck system for 2″– 6″ wafers
	Vacuum chuck system for 6″– 300 mm wafers
	Edge grip system for 3″– 8″ transparent wafers
	Edge grip system for 2,5″x 2,5″– 8″x 8″ mask blanks
Dimensions W x D x H:	860 x 800 x 630 mm,
	additional signal tower height 325 mm

Technology and Metrology Specifications

Scanning times (6″ Wafers):	< 40 sec. (sensitivity 150 nm LSE)
	< 63 sec. (sensitivity 90 nm LSE)
Edge exclusion:	2 mm for vacuum chuck systems
	4 mm for edge grip systems
Repeatability:	3 % (1σ > 1000 particles)
Clean room class:	Internal: < 10 (ISO 4);
	environmental: < 10.000 (ISO 7)
System safety certification:	CE
Laser classification:	Class I

Facility Requirements

Vacuum supply:	-650 mbar + 50 mbar (30 l/min @ -600 mbar)
Electrical supply:	110 - 240 V single phase AC, 50/60 Hz
Power consumption:	< 300 W

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Specifications subject to change. Issued: 09/2008 © Ricmar Group

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