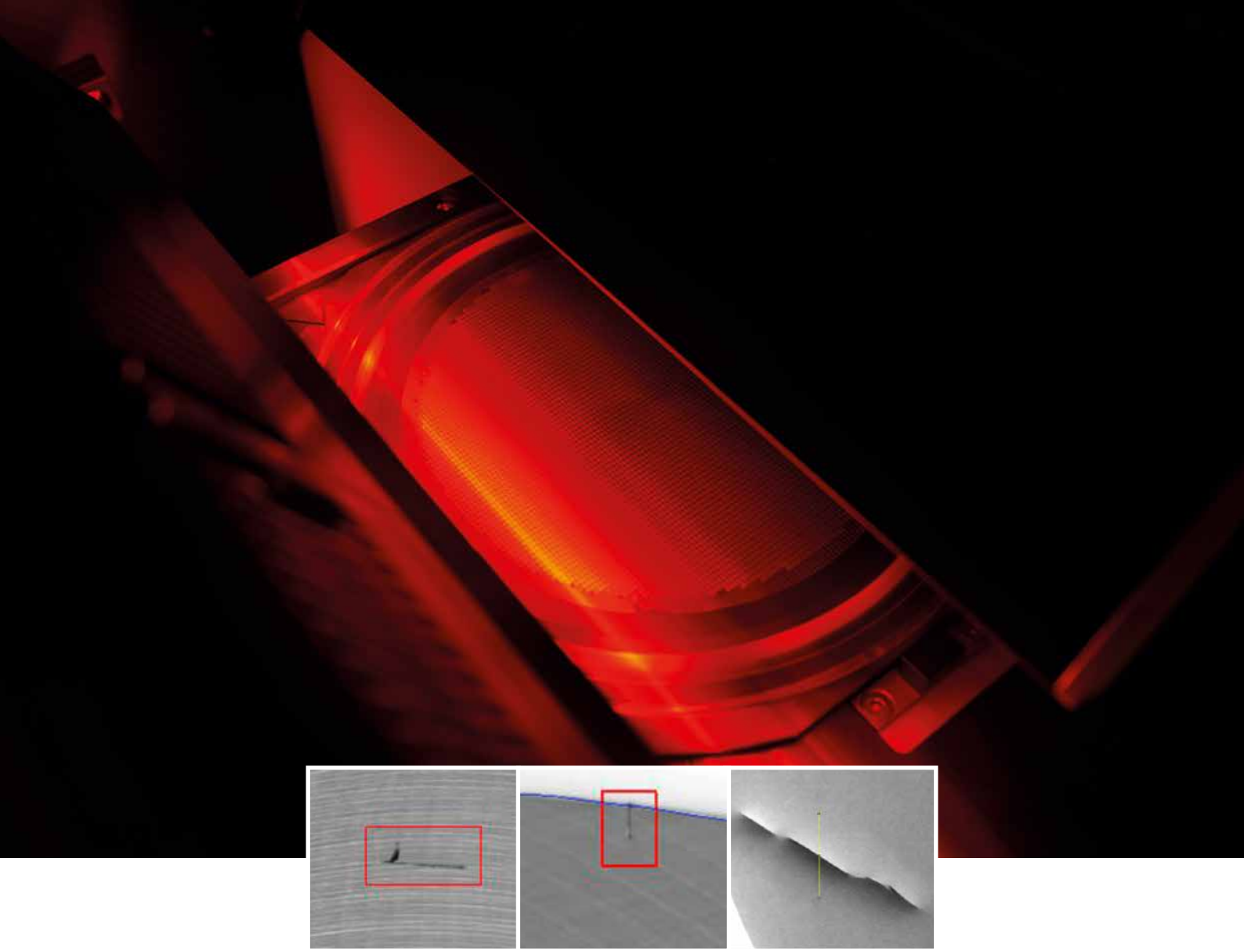


Modular Optical Wafer Inspection for High-Speed Quality Control

CrackScan

100 % Detection Rate – Reliable Yield Increase

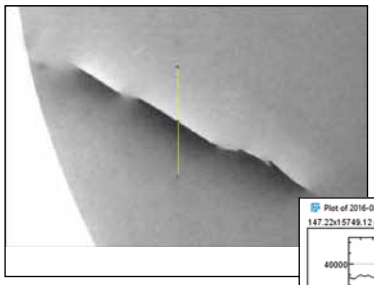
ISRA VISION

High-Speed Throughput for Su

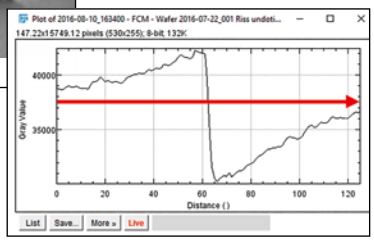
Compact Design – Small Fo

High-precision inspection in semiconductor electronics – modular optical wafer inspection for micro crack detection

Semiconductor materials, especially compound materials, are known to be brittle and sensitive to cracks. Either introduced during the wafering process, front-end or back-end process, invisible micro cracks pose a high risk of interrupting the process chain, reducing yield or can result in low customer satisfaction when shipping defective parts. ISRA's multiview technology, along with patent pending light coupling into wafer materials, enables a safe, quick and cost efficient way of avoiding those risks.



Typical appearance of a micro-crack in bulk wafer material

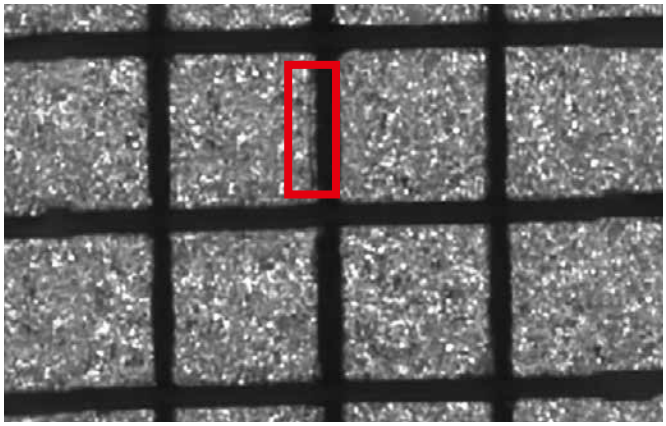


Micro crack signature, suitable for automated detection and classification

On bare wafer materials, separated dies on a dicing frame, top or bottom side, also through carrier like foil or substrate: The system detects micro cracks precisely and classifies between cracks, scratches and other defects.

Standardized interfaces according to SEMI standards in hard- and software for fast and reliable integration

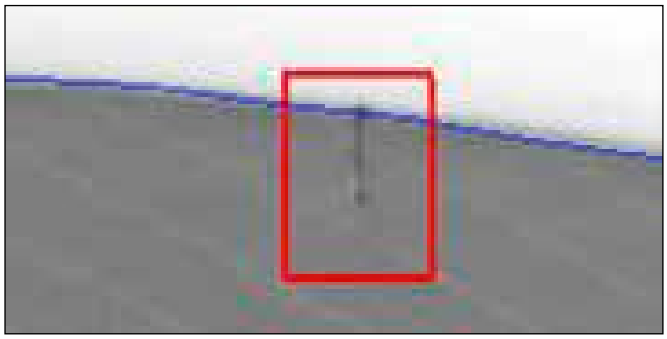
Along with tools for optical layer thickness uniformity and 3D inspection tools, ISRA covers a wide range of semiconductor applications. Available in various configurations, from manual desktop unit up to parallel processing units on wafer handling modules, all throughput requirements can be met.



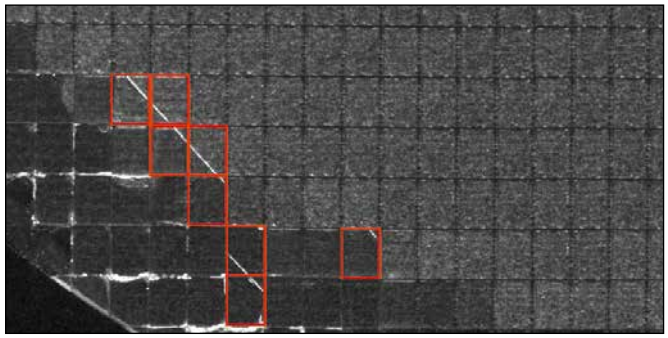
Typical chipping / cracking defect after dicing

Application

- Micro crack detection with < 5 µm crack width
- Suitable for FEOL and BEOL process stages
- Applicable for 75 - 300 mm (3 - 12") wafers
- Multiple cameras allow simultaneous scanning of top and bottom sides
- Works for all wafer materials (Silicon, Perovskites, Sapphire)
- Handles bare & laminated wafers, also after dicing
- Integrated adjustment of thresholds and crack characteristics for sensitive optimization of detection result
- High-speed with image acquisition on-the-fly
- Different illumination modes like bright field, dark field in transmission and reflection mode
- Up to 6 fully synchronized images of one sample
- Data processing with optimized algorithms
- No "over-rejection" due to safeguard regions around crack areas, granting higher yield
- High resolution line scan cameras, with state-of-the-art LED line illumination using different wavelengths, allow capturing several images in one scan



Micro-crack at the wafer edge



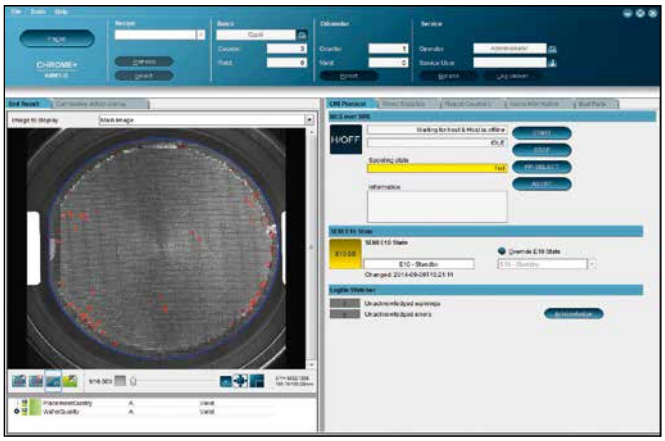
Electronic inked dies with detected micro-cracks after dicing process

bstantial Cost Saving Potential

otprint – Easy to Integrate

Features

- Wafer materials: Si, Sapphire, GaAs, InP, CdTe, LiTa, etc.
- Wafer size: 75 - 300 mm (3 - 12”)
- Bare wafers or carrier mounted (e.g. dicing frame)
- Typ. resolution: 20 µm, optional down to 1,5 µm
- Cleanroom class 1000 compatible
- Speed: > 100 WpH with 100 % inspection for 8” wafers
- Wafer mapping / 2D coordination map
- Unique and adjustable illumination system
- Motorized XYθ axis system



GUI according to SEMI E94 / E95 standard

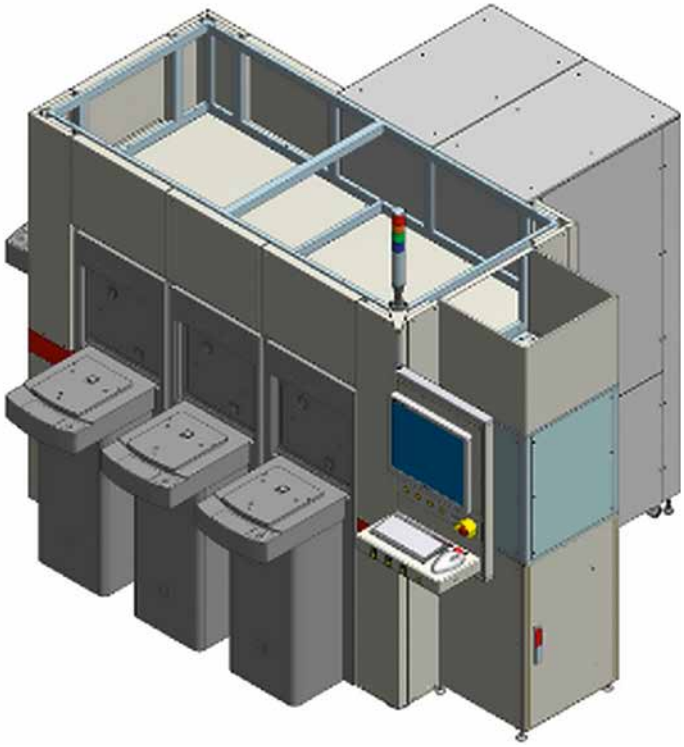
Benefits at a glance

- Seamless integration into existing process lines
- Detection of natural and artificial micro cracks in high-speed
- Tailor-made optical setup allows significant increase in detection performance
- Flexible integration into high volume wafer handling systems, as well as existing systems
- SEMI-compliant construction for clean room operation in FEOL

Options

- Chuck with vacuum fixation for 75 - 300 mm (3 - 12”) wafers
- Housing for clean room class 1 (ISO 3)
- IR setup with IR cam & IR illumination
- Granite stand
- DMC / Barcode reader

Manual inspection tool



Possible configuration of a fully automated tool with 2 inspection modules

Innovation for Semicon Inspection

We Are the Innovators in Optical Inspection. Best Practice. Best System. Best Service.

ISRA VISION has been a leading supplier of high-performance quality inspection systems for more than 30 years. Today, our completely automated and highly accurate solutions set the standard for the detection of material defects and total process control in numerous markets.

For the semiconductor industry, ISRA has combined leading-edge technologies to provide high-speed and high-precision quality controls along the production chain – universally applicable and intuitively easy-to-use.

Customers choose ISRA for its ability to develop products consistent to their requirements. Benefits are the identification of high efficiency enhancements including cost saving potentials. To achieve this goal, more than 900 ISRA employees worldwide work to contribute to your success.

Your Global Partner for Surface Inspection.

We offer our extensive experience and a highly qualified team of experts to design and implement solutions for advanced applications.

We ensure that our mission continues beyond our shipping dock – just contact our Customer Support and Service Center.

We guarantee excellence to our customers – from consulting to service, from tailored solutions to worldwide support.

We can help to make your business more competitive.

Challenge Us. Inspect to Control – with ISRA VISION

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