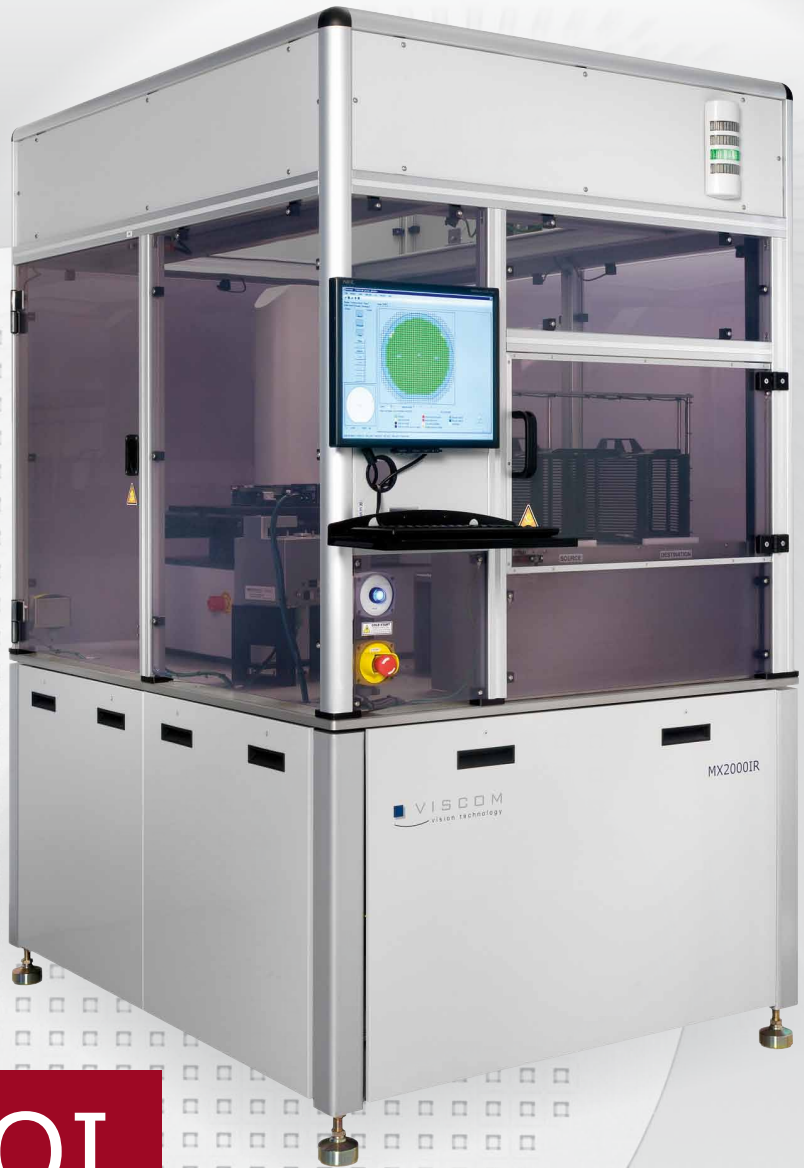
VISCOM
vision technology

MX2000IR

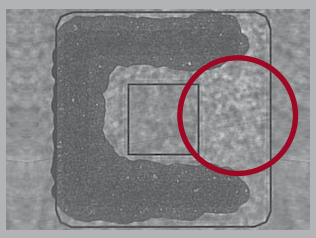
Highly Accurate
Fully Automatic Wafer Inspection
with Handling Unit



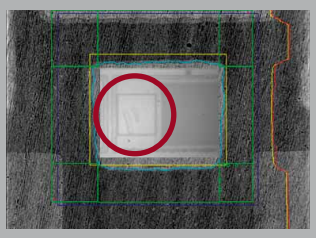
Wafer AOI

Automatic Wafer Handling

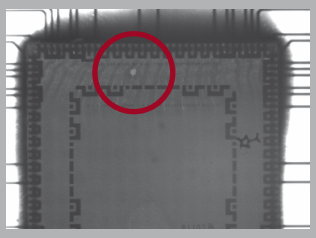
Highest Quality Surface and Interior Wafer Inspection



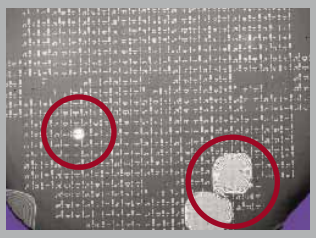
Missing seal



Defective die



FlipChip underfill void



Wafer defects

Infrared illumination – transmitted light and reflected light

Very high resolution

Higher throughput

Complete inspection of the wafer

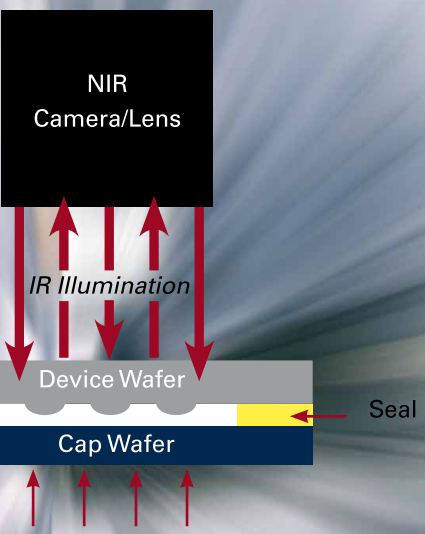
Barcode/OCR reading

Wafer pre-alignment

Automatic loading and unloading

For semiconductor assemblies, the requirement for a precise, thorough inspection for damage and defects during the production process is especially high. Wafers need non-destructive inspection for surface purity and planarity. Furthermore, inspecting for defects beneath the surface is critical, as is the measurement of the die and the sealant adhesive on MEM components (e.g., sensors). The automatic Viscom inspection system MX2000IR brings 100 % inspection to all safety-critical components, with the wafers automatically loaded and unloaded by a robotic handling unit.

Flexible and reliable wafer inspection for medium and large lot sizes

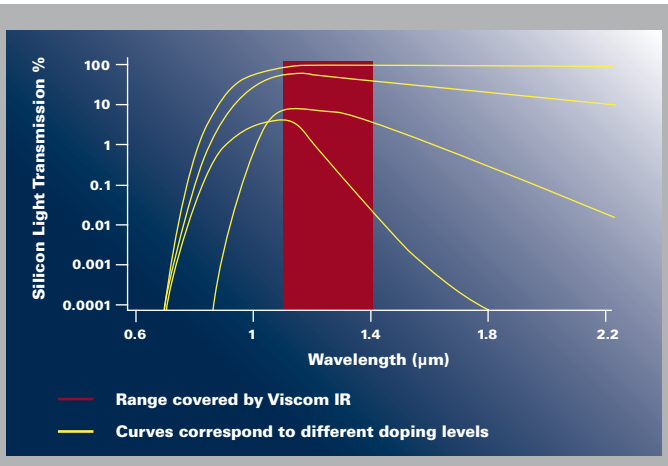


The MX2000IR is the ideal solution for the inspection of **bare wafers, chips, MEMS, wafer bonds, SOI and FlipChips, as well as applications in the photovoltaic area**. Wafers inspected can be composed of various materials: silicon, gallium arsenide, III-V materials and others. In 20 seconds to several minutes depending on wafer size and resolutions the MX2000IR can, utilizing transmitted and reflected IR light, provide structural analysis and foreign body data for MEMS devices.

The heart of the **Si-Thru technology** are the **infrared light sources (Semiconductor Light Matrix: SLM)**. These light sources emit light at a specific wavelength (around 1 µm), a highly efficient infrared light in a narrow spectrum that is superbly adapted to semiconductor inspection applications. The light sources have a **long service life**, are **scalable**, have **very high performance** and guarantee a **high resolution**. They facilitate a **unique detection of embedded defects**. The IR camera head is precisely positioned for image capture by an X/Y/Z unit.

A **robot automatically loads and unloads** the wafer for inspection. The MX2000IR system is especially well suited for inspection of medium to large lot sizes. One to four cassettes with up to 25 wafers each can be loaded automatically without any human contact. To increase efficiency, code reading and pre-alignment are done in parallel with inspection.

The **graphical user interface** makes **program generation and maintenance quick and easy**. Many different languages can be chosen on the **off-line programming station**. Evaluation is based on specialized inspection algorithms to localize defects including **voids, bond widths, delaminations** and others. Integration of code reading (barcode, data matrix code, OCR) directly identifies each individual wafer. Statistical analysis process control is also provided.



Optimal wavelength range for best transmissibility through silicon

Technical Specifications

MX2000IR

Application

Bare wafer, chips, MEMS, wafer bond, SOI, FlipChip, photovoltaics

Inspection mode

Automatic inspection algorithms using user-defined pass/fail criteria
Possibility of „Pass/Fail“ for each device and wafer, defect classification
Wafer-level scanning mode

Camera technology

High resolution near-infrared (NIR) CCD-camera

Illumination	Infrared light source (Semiconductor Light Matrix (IR-SLM))
Resolution	3.5 µm/pixel standard; 0.7 - 10 µm/pixel available depending on application and customer requirements

Die-level inspection

Device size	Typical 2 x 2 mm, up to 10 x 10 mm

Wafer

Diameter	Up to 300 mm
Thickness	Up to 2000 µm
Wafer alignment	Referencing to fiducials with adjustment for rotation and translation

Inspection speed

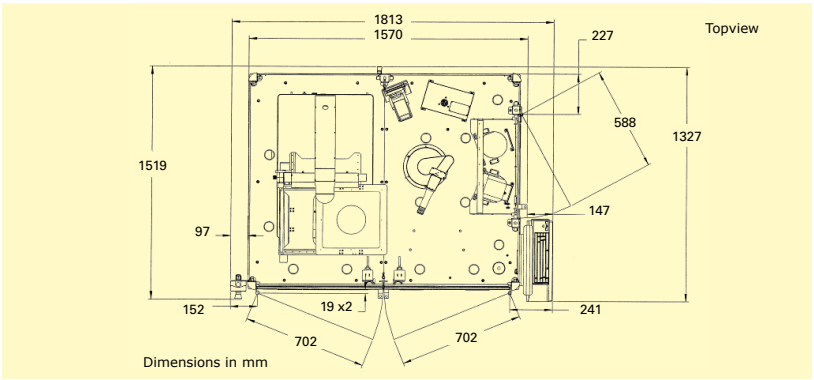
Up to 25 wafers per hour depending on resolution and wafer size

Options

Automatic wafer operation
Configurable image size
Configurable illumination, multiple options
Customer-specific vacuum chuck or other mechanical fitting
GEM/SECS communication interface

Other system data

Power requirements	100-240 VAC, 50/60 Hz
System dimensions	1813 x 1320 x 1803 mm (71.4" x 52.0" x 71.0") (W x D x H)
Weight	900 kg (1984 lbs)



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