

**MX2000IR**

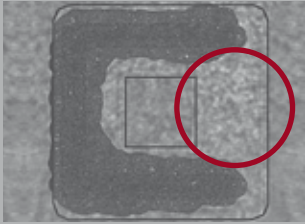
Highly Accurate  
Fully Automatic Wafer Inspection  
with Handling Unit



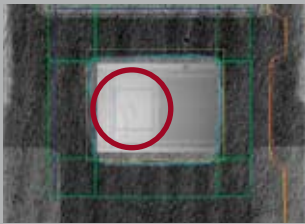
**Wafer AOI**

# Automatic Wafer Handling

## Highest Quality Surface and Interior Wafer Inspection



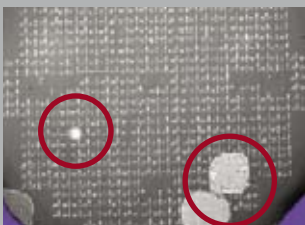
Missing seal



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**

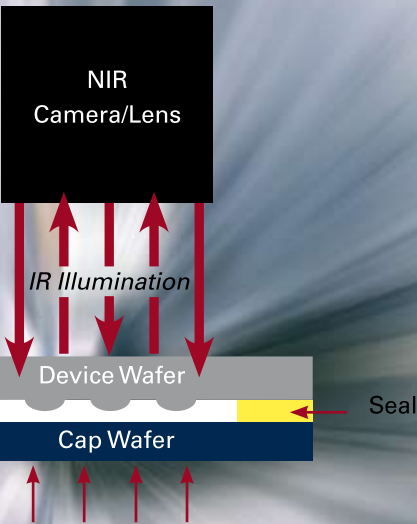
Void



*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

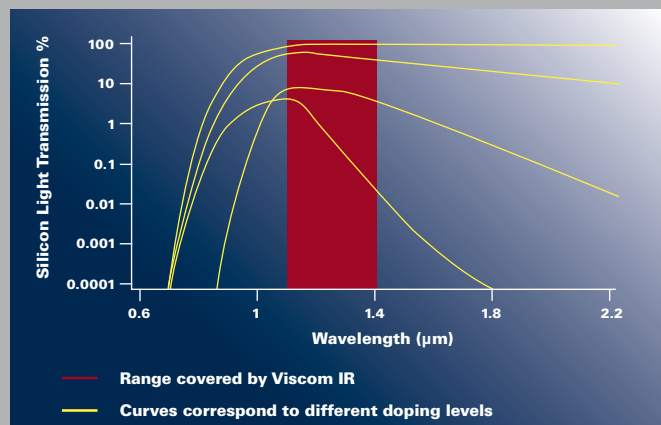
The MX2000IR is the ideal solution for the inspection of **bare wafers, chips, MEMS, wafer bonds, SOI and FlipChips, as well as applications in the photovoltaic area**. Wafers inspected can be composed of various materials: silicon, gallium arsenide, III-V materials and others. In 20 seconds to several 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  $\mu\text{m}$ ), 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.

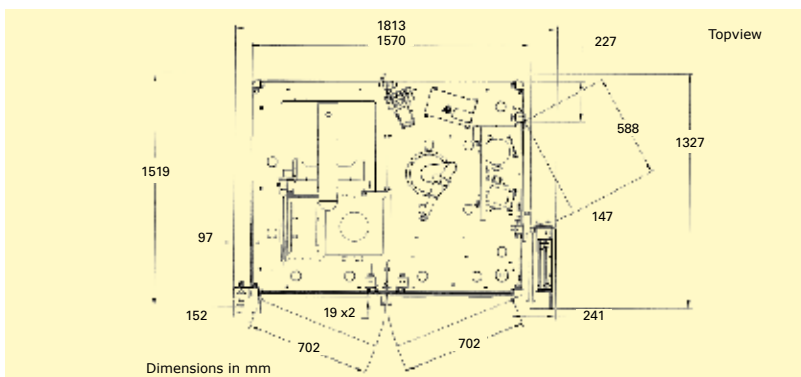


Optimal wavelength range for best transmissibility through silicon

# Technical Specifications

## MX2000IR

<b>Application</b>	Bare wafer, chips, MEMS, wafer bond, SOI, FlipChip, photovoltaics
<b>Inspection mode</b>	Automatic inspection algorithms using user-defined pass/fail criteria Possibility of „Pass/Fail“ for each device and wafer, defect classification Wafer-level scanning mode
<b>Camera technology</b>	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
<b>Die-level inspection</b>	Device size
Device size	Typical 2 x 2 mm, up to 10 x 10 mm
<b>Wafer</b>	Diameter
Diameter	Up to 300 mm
Thickness	Up to 2000 µm
Wafer alignment	Referencing to fiducials with adjustment for rotation and translation
<b>Inspection speed</b>	Up to 25 wafers per hour depending on resolution and wafer size
<b>Options</b>	Automatic wafer operation Configurable image size Configurable illumination, multiple options Customer-specific vacuum chuck or other mechanical fitting GEM/SECS communication interface
<b>Other system data</b>	Power requirements
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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