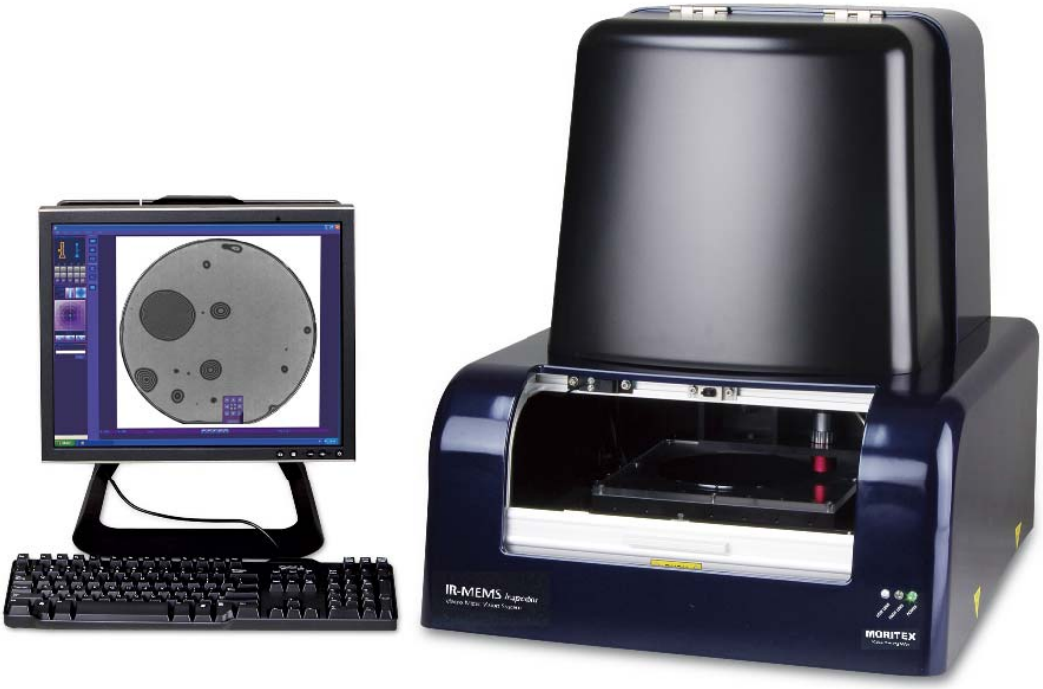
IR-MEMS Inspector

New perspective for bonded silicon wafers inspection

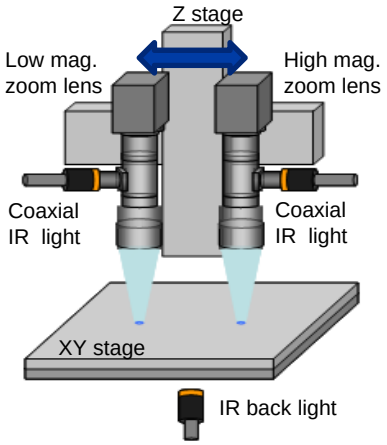


Product Characteristics

The **IR-MEMS Inspector** is an infrared inspection system for internal structures and defects in a bonded silicon wafer used in MEMS and semiconductor market.

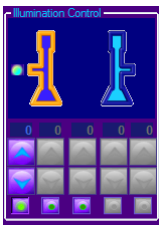
- Si-Si bonded wafer internal inspection
- Stage control with wafer map
- Wide range of FoV through twin zoom lens
- Full image for 200 mm wafer by stitching
- Zooming on stitched image after stitching
- For MEMS device development, process control
- Cost effective inspection

System setup



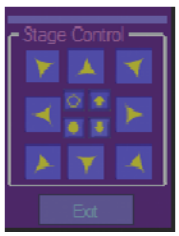
Software interface

Function icons



Lens & illumination controller

Wafer map & stage indicator



Stage & Zooming controller

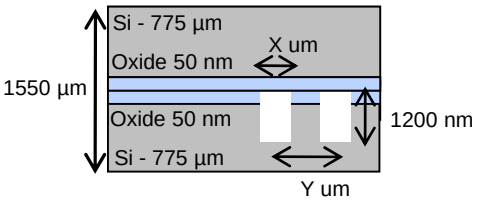
Micromechanical devices (MEMS) are today widely used. Detection of defects and process control are required for a successful production. Inspection is typically realized employing sophisticated metrology equipment adapted from the semiconductor industry or by human inspection (sampling). The IR-MEMS Inspector provides a solution in between. The IR-MEMS Inspector inspects none destructively a complete 200mm wafer within 4 minutes at low cost of owner ship. Its high sensitivity to a wide range of defects provides intermediate feedback on the defect level and the process itself.

Version 02.2017

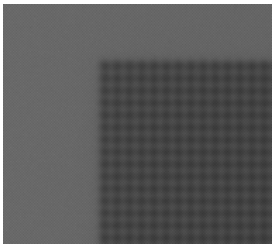
Technical Data

Product Name	IR-MEMS Inspector	
Max. Wafer Size	200 mm (8 inch)	
Functions	Twin zoom lens control Multi illumination control X Y Z stage control with wafer map Image processing Image stitching Distance and Area measuring	
Oputical zoom range	Low mag.	x0.75 – x4.5
	High mag.	x7 – x40
Feild of View	Low mag.	7.51 x 9.39 mm – 1.25 x 1.56 mm
	High mag.	0.80 x 1.01 mm – 0.14 x 0.18 mm
Illumination	Coaxial IR Light	
	IR Back Light	
	Visible dark field Light	
Stage	X stroke	200 mm
	Y stroke	200 mm
	Z stroke	100 mm
	Wafer Positioning Stage (for 4', 6' and 8')	
Dimensions	W 625 x D 705 x H 735 mm	
Weight	85 kg	
Suitable Materials	Si-Si / Si-Glass / Si-Au / Si-GaAs / Si-GaP / Si-GaAsP / Si-LiNbO3 / Si-LiTaO3 / Si-Au-PZT / Si-Au-PLZT / Si-polymer-Si	
Detectable Defects	Chipping, Particles, Bond-Defects, Voids, Micro voids, Sealing integrity defects	
Stitching throughput	4 minutes (200 mm / x0.75)	

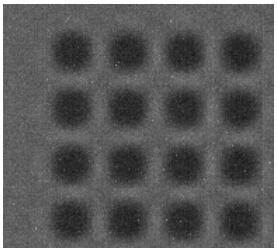
Actual optical rezolution



Sample wafer structure
X : pattern size Y : pattern pitch

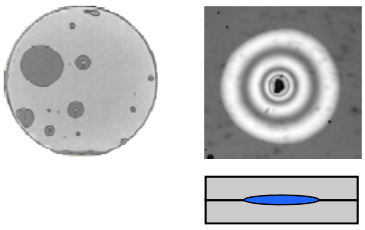


Low mag. x4.5
X=5 um Y=10 um

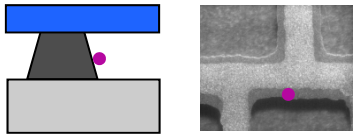


High mag. x40
X=2.5 um Y=5 um

Void Detection

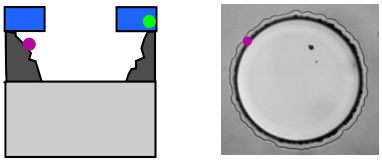


3D structure



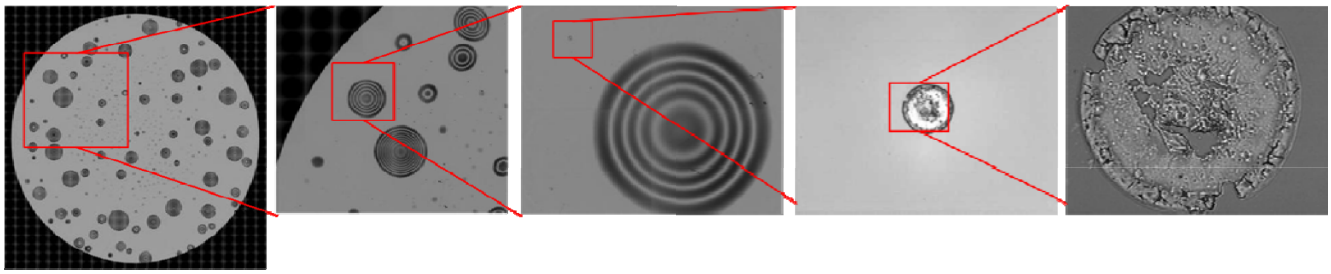
● Projection of the sealing's sidewall

Sacrificial Oxide Layer



● Device Layer
● Sacrificial Oxide Layer below device layer

Wide zooming range



Version 02.2017

Contact

MORITEX CORPORATION
3-13-45 Senzui, Asaka-shi
351-0024 Saitama
Japan
TEL: +81 (0)48-218-2535
FAX: +81 (0)48-462-6713