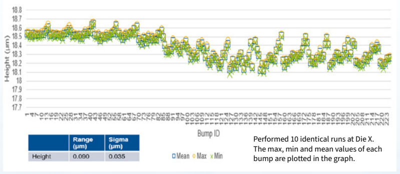
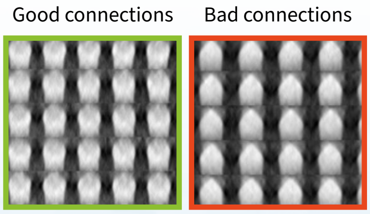


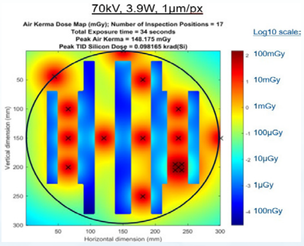
	Range (µm)	Sigma (µm)
Height	0.090	0.035

Performed 10 identical runs at Die X. The max, min and mean values of each bump are plotted in the graph.

Fast, Accurate, Repeatable Measurements


Good connections
Bad connections

AI / ML Enhanced Defect Detection Reducing False Calls



Radiation Dose Management Protecting Sensitive Products

AXM

XM8000-7 Pro

Automated X-ray Metrology

Semiconductor Advanced Packaging

The best just got better! For over a decade, the Nordson XM8000™ has been the tool of choice for semiconductor advanced packaging x-ray metrology. Building upon that solid platform and a wealth of real-world customer experience, the Nordson XM8000 Pro range represents a comprehensive improvement to address future semiconductor metrology needs.

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Nordson
Test & Inspection

XM8000-7 Pro Automated X-ray Metrology

Unbeatable X-ray Technology

Nordson Test & Inspection produces every major component in the X-ray imaging chain including high voltage power supply, microfocus X-ray source and low-noise flat panel detector. This unrivaled level of vertical integration enables us to achieve the very best metrology results for the smallest of features. Our systems use world-leading technologies to achieve ever higher resolution and shorter inspection times. Benefiting our customers by ensuring product quality, whilst minimizing dose, maximizing return on investment and reducing long term costs.

Improve Your Yields

The Nordson XM8000-7 Pro builds upon the XM8000-7 with not only high repeatability and high accuracy 3D reconstruction, but also with enhanced imaging and speed. This enables precise measurements, with sub-micron repeatability. Multiple angle projections at up to 45° ensure the quality of interconnects and guarantee ultimate wafer level package (WLP) or panel level package (PLP) performance.

Best In Class

In the established X-ray portfolio Nordson XM8000 Pro is top of the range. Producing the most reliable and repeatable measurements at the highest speeds. It is also able to improve throughput and reduce false calls with a combination of hardware, Artificial Intelligence (AI) and machine learning (ML). This makes it a crucial investment for any Semiconductor IDM, Foundry or OSAT. If you want to stay ahead of the competition, boost your bottom line, and ensure customer satisfaction, investing in an XM8000 Pro Automated X-ray Metrology system is a wise decision.

Applications

TGV & TSV diameter, height, volume, fill level and taper. µ-bump diameter, height and volume. Voiding number, size, position (x,y,z) and volume. Chip gap height / die planarity, die shift, solder bump bridges and missing bumps. It can also identify cold joints, head-in-pillow and other defects.

For more information, speak with your Nordson representative or contact your Nordson regional office

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Nordson Onyx 1412 Detector	
Effective Pixel Size	50 µm
Frame Rate	25 fps
Pixel Count	6.5 MP
Active Area	16000 mm^2
Image Bit Depth	16-bit
Nordson Brighthawk NT4D X-ray Tube	
Technology	Sealed Transmission
Tube kVp Range	30 - 160 kV
Maximum Tube Power	10 W
Min. Feature Recognition	0.1 µm (Power Mode)
Min. Feature Recognition	< 0.1 µm (Resolution Mode)
Cooling Type	Fanless
Lifetime	Minimum 5000 X-ray ON Hours
Dose Filtering (Optional)	Integrated Solution
Application Details	
2D Metrology	High Speed Top-Down Analysis
2.5D Metrology	High Speed Oblique View Analysis
3D Metrology	High Accuracy Full 3D Model Analysis
Key Attribute	High Accuracy Full 3D Metrology of Semiconductor Advanced Packaging
Accurate, Repeatable Measurement of TSVs / TGVs / TIVs	Position (x,y), Diameter (x,y), Height (z) and Volume / Fill %
Accurate, Repeatable Measurement of C2 µ-Bumps / C4 Bumps	Position (x,y), Diameter (x,y), Height (z) and Volume
Accurate, Repeatable Measurement of Voiding	Position (x,y,z), Diameter (x,y), Height (z) and Volume / Void %
Accurate, Repeatable Measurement of Misalignment / Die Shift / Chip Gap	Shift (x,y), Gap Height (z)
Accurate, Repeatable AI/ML Driven Detection of Cold Joints / Missing or Extra Features	Die ID, Bump ID, Defect Classification Type:- Opens, HIPs, Bridges etc.
Maximum Throughput (3D)[1]	30s per FoV

Manipulator / Inspection	
Height Sensor	Confocal
Anti Vibration	Active X-ray Image Stabilization
ISO Vibration Curve	VC-B; 25 µm/s / 3 µm Detail Size
X, Y Axes Motor	Dual Linear
X, Y Axes Repeatability (12 hrs)	+/- 3 µm
Z Axes Motor	Dual Rotary
Z Axes Repeatability (12 hours)	+/- 5 µm
Maximum Oblique Angle View	45° +/- 0.005°
Maximum Inspection Area	510 x 515 mm
Field of View (FoV)	0.5 - 25 mm
Minimum Resolution	0.15 µm/pixel
Geometric Magnification	330x (@ 0.15 µm/pixel)
Min. Feature Measurement[2]	1.5 µm Voids
Contamination / ESD Control	ISO-3 / ULPA Filter FFUs / Ionisers
Safety / Environment	
X-ray Leakage Dose	< 1 µSv / hour
Temperature	22 °C +/- 3 °C
Relative Humidity	50 % +/- 20 % Non Condensing
Installation	
Footprint Cabinet Only	2388(W) x 1895(D) x 2086(H) mm
Footprint Including EFEM	2388(W) x 3131(D) x 2086 (H) mm
Weight of Cabinet	4562 kg (10058 lbs)
Weight of EFEM	543 kg (1196 lbs)
Power Supply	Single Phase 200-230 VAC 50/60Hz 32A
Average Power Consumption	< 1.5kW
Air Supply	0.7 - 0.8 Mpa (7-8 bar) CDA
Vacuum Supply	-65 kPa (9 PSI) / 6 l/min
Factory Host (SECS/GEM)	RJ45 / Ethernet (min. Cat5e cable)

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[1] Continuous CT Mode
[2] Repeatable

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Test & Inspection