SQ3000 3D CMM

Automated Optical Inspection

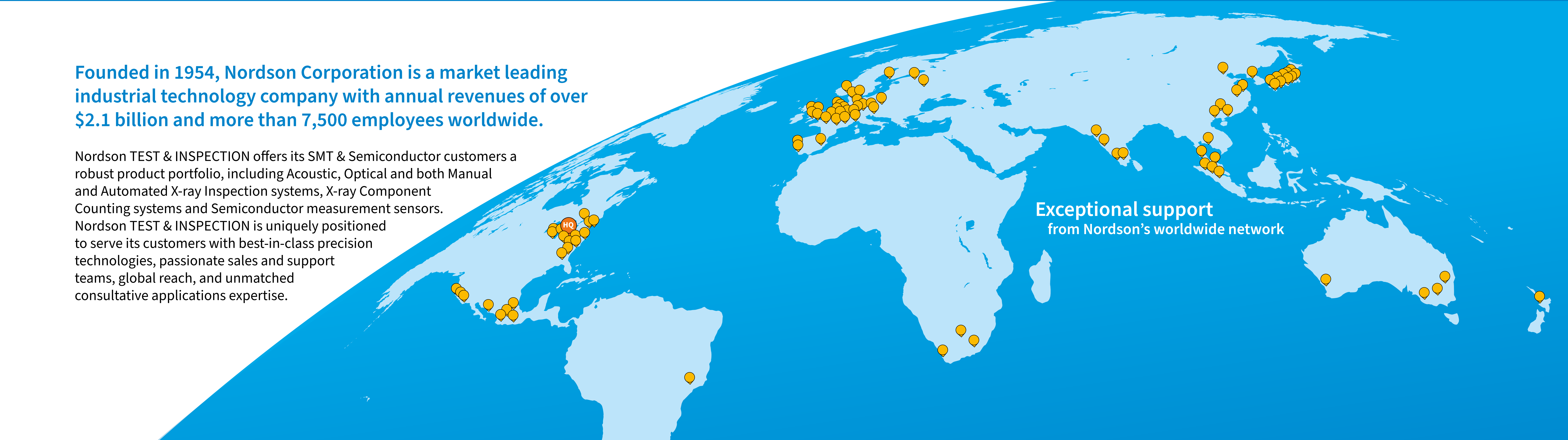
www.nordson.com/TestInspect

Nordson
TEST & INSPECTION

Nordson TEST & INSPECTION

Founded in 1954, Nordson Corporation is a market leading industrial technology company with annual revenues of over $2.1 billion and more than 7,500 employees worldwide.

Nordson TEST & INSPECTION offers its SMT & Semiconductor customers a robust product portfolio, including Acoustic, Optical and both Manual and Automated X-ray Inspection systems, X-ray Component Counting systems and Semiconductor measurement sensors. Nordson TEST & INSPECTION is uniquely positioned to serve its customers with best-in-class precision technologies, passionate sales and support teams, global reach, and unmatched consultative applications expertise.

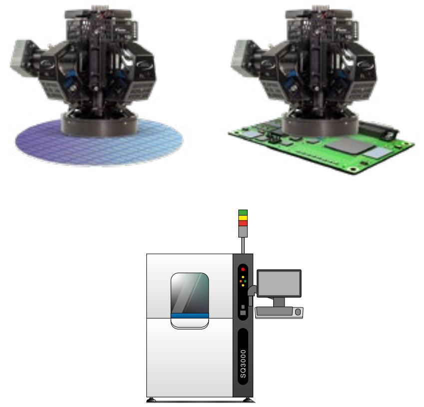


Exceptional support
from Nordson's worldwide network

AOI Products

Proprietary Advanced Technology

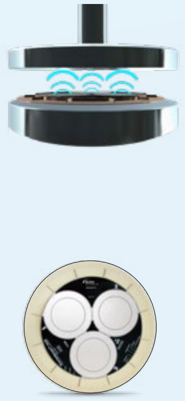
Optical Inspection
& Metrology



WS Products

Improve Your Yields

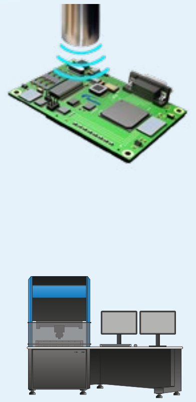
Semiconductor
Metrology Sensors



AMI Products

Qualify Your Design

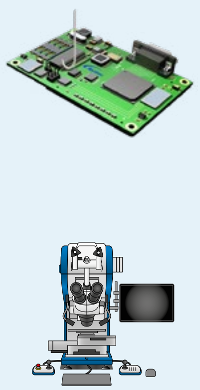
Acoustic
Inspection



BT Products

Test Your Design

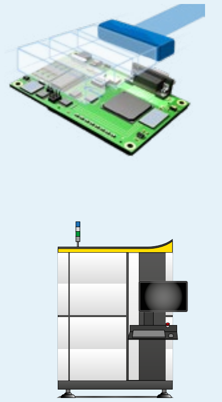
Bondtesters



AXI Products

**High Speed
High Flexibility**

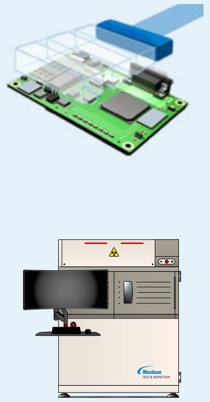
Automated
X-ray Inspection



MXI Products

Making the Invisible, Visible

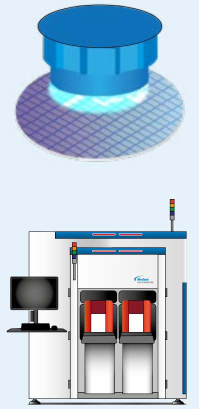
Manual
X-ray Inspection



AXM Products

Measuring the Invisible

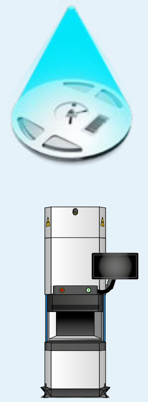
Automated
X-ray Metrology



CC Products

Maximize Efficiency

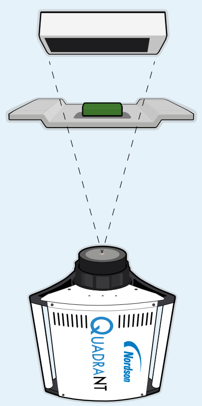
X-ray Component
Counting



XRT Products

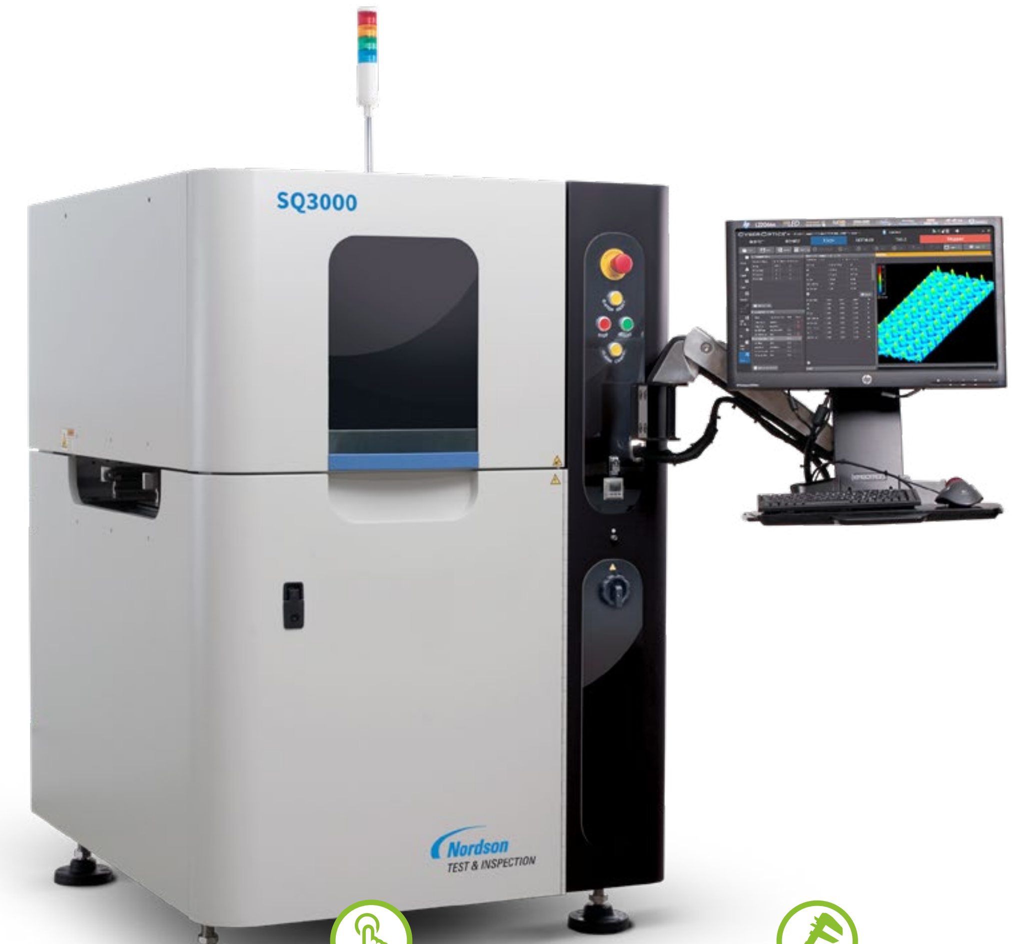
**High Speed
High Resolution**

X-ray
Technologies



The World’s First In-Line CMM

The World’s First In-Line CMM - Ultimate in Speed and Accuracy for SMT, Semiconductor, Microelectronics and Metrology Applications



Fastest – Seconds, not Hours

Significantly speeds attaining coordinate measurements vs. traditional CMMs

Reduces engineering resource time

Easy-to-use Interface

Simplifies process with award-winning, intuitive, touch screen experience

Quick programming for complex applications

Multi-process capable AOI, SPI, AOM, CMM

Metrology-grade Accuracy

Achieve metrology-grade accuracy with MRS-enabled technology

Repeatable and reproducible measurements for SMT, Semiconductor, Microelectronics and Metrology Applications

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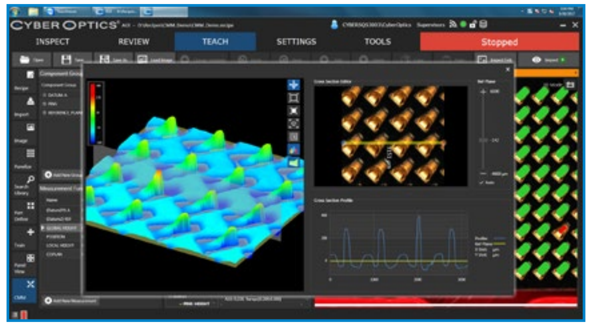
Multi-Award Winning

The SQ3000™ 3D CMM is a Multi-Award Winning MRS® Enabled Inspection and Measurement System.

Multi-Reflection Suppression (MRS) Technology

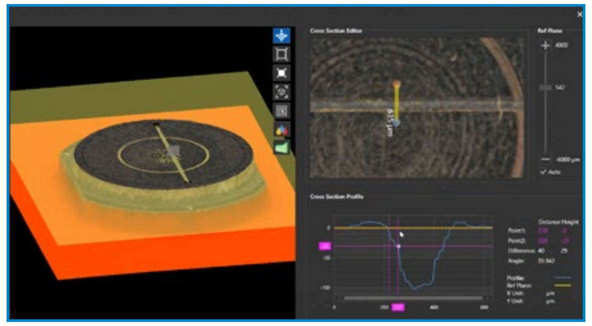
The Ultra-High Resolution MRS sensor enhances the SQ3000 3D CMM platform, delivering superior inspection performance, ideally suited for socket metrology, machined parts inspection, microelectronics and SMT applications where an even greater degree of accuracy and inspection reliability is critical.



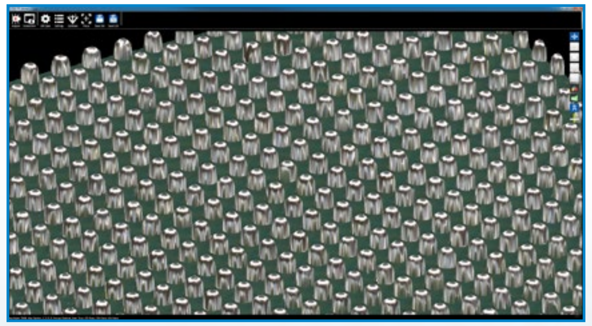
Socket Metrology.

Large Board Capability

SQ3000™ X supports large boards up to 710 x 610 mm, and is capable of inspecting the most demanding assemblies at production speed without compromising on measurement accuracy and repeatability.



Industrial/ Machined Parts.



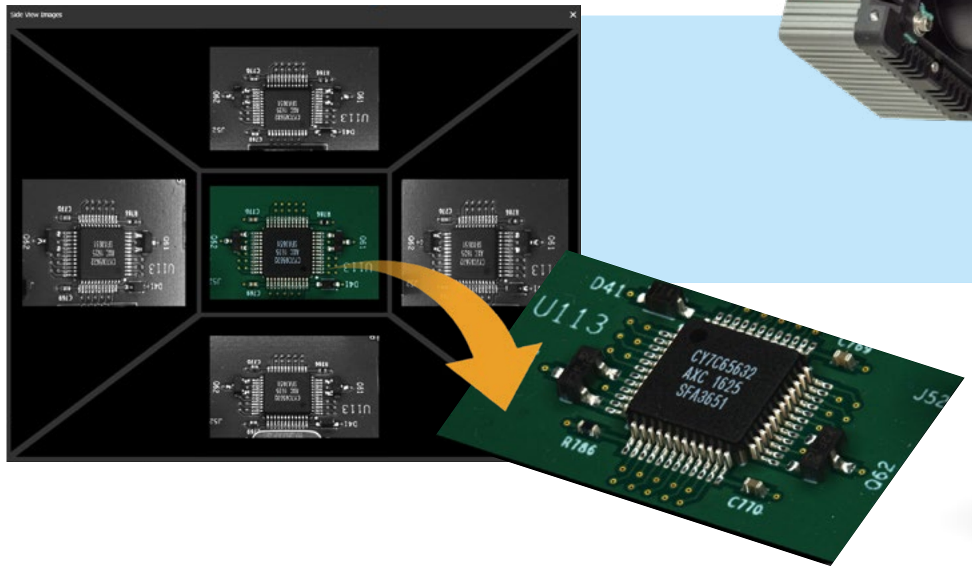
Solder Ball and Bump.

Multi-Reflection Suppression® (MRS®) Sensor Technology

The SQ3000 CMM is powered by Nordson TEST & INSPECTION's breakthrough 3D sensing technology comprising four multi-view 3D sensors and a parallel projector delivering metrology grade accuracy at production speed.

Reflection based distortions

MRS is designed to Inhibit reflection-based distortions from shiny and specular surfaces.



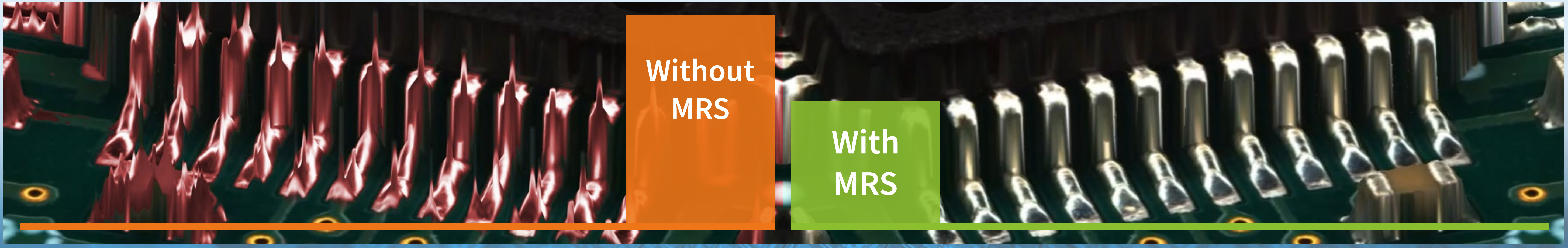
Nordsons' unique sensor architecture simultaneously captures and transmits multiple images in parallel while the proprietary 3D fusing algorithms merge the images together. The result is ultra-high quality 3D images and high-speed inspection.

SQ3000 CMM offers unmatched accuracy with the revolutionary MRS technology by meticulously identifying and rejecting reflections caused by shiny components and reflective solder joints.

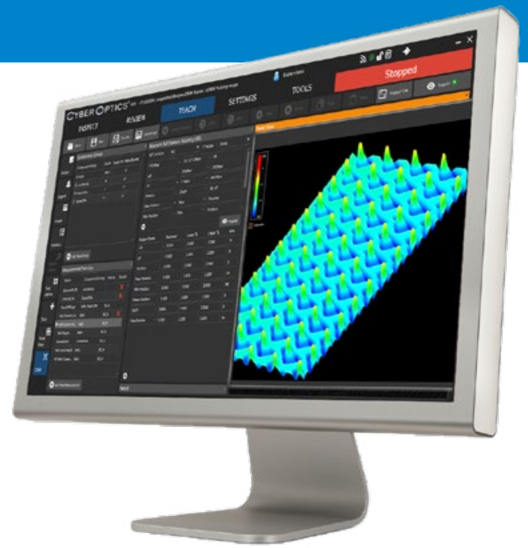
MULTIPLE MRS SENSOR OPTIONS

- Standard MRS Sensor
- High Speed
- High Resolution
- Ultra High Resolution

Effective suppression of multiple reflections is critical for accurate measurement making MRS an ideal technology solution for a wide range of applications including those with very high quality requirements.



Enable Smarter, Faster Inspection



The multi-award winning SQ3000 AOI software is a more powerful yet extremely simple software suite designed with an intuitive interface and multi-touch control with 3D image visualization tools.

Ultra-fast programming capabilities

Bring the ease-of-use to a completely new level and significantly speed setup, simplifie the process, reduce training efforts and minimize operator interaction – all saving time and cost.

Enable smarter, faster inspection

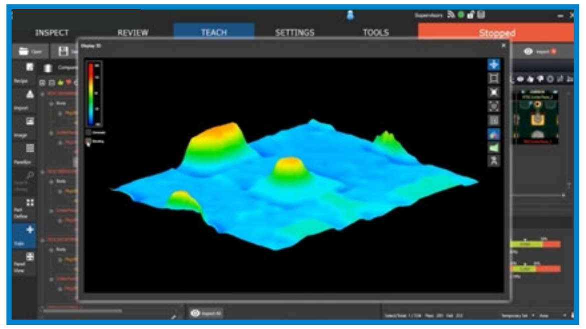
Speed programming and performance with AI^2 (Autonomous Image Interpretation) technology for set-up in <13 minutes with a data-rich, pre-loaded library and automated scripts that collect and update models all on their own.

Inspect the most comprehensive list of features and identify the widest variety of defects. AI^2 offers precise discrimination with just one panel inspection making it the perfect solution for high-mix and high-volume applications.

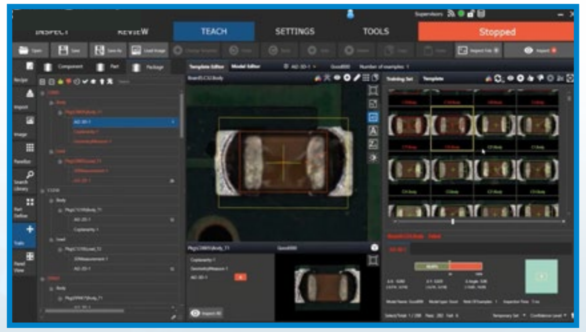
AI^2

AI^2 technology is all about keeping it simple - no parameters to adjust or algorithms to tune. You don't need to anticipate defects or pre-define variance. AI^2 does it all for you. Powered by a data-rich, pre-loaded library and automated scripts that collect and update models all on their own.

With AI^2 , you have the power to inspect the most comprehensive list of features and identify the widest variety of defects. AI^2 offers precise discrimination with just one panel inspection making it a perfect solution for high-mix and high volume applications.



AOI & SPI Inspection Measurement Tools - Detect even the most subtle defects, insufficent & excess solder, Solder Meniscus measurment. Additional tools include, Height, Volume, Area, XY Offset, Blob Analysis, Bridging & more.



Powerful 3D image vizualisation with ultra-fast programming capabilities that brings ease-of-use to a completely new level.

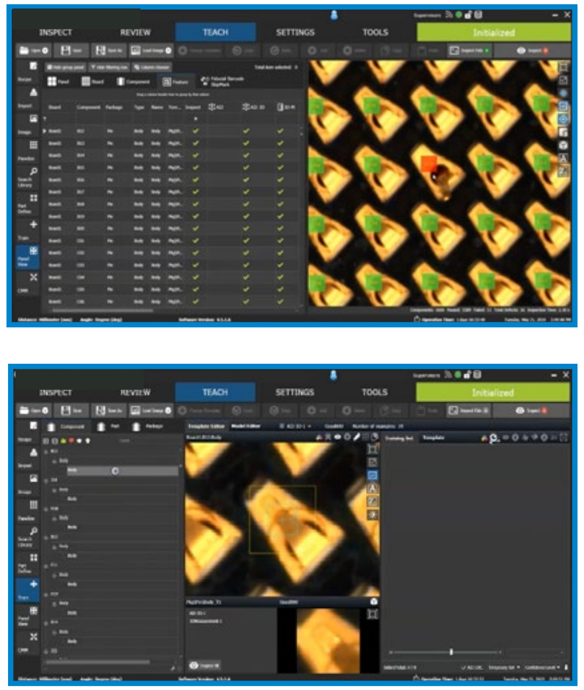
Faster, Highly Accurate CMM Suite

Nordson Software Solution provides our customers and partners the best added-value for inspection and measurement in electronics manufacturing.

CYBERCMM

Seconds, not Hours - Faster, Highly Accurate Coordinate Measurement (CMM) Suite

CyberCMM™, a comprehensive software suite of coordinate measurement tools, provides highly accurate, 100% metrology-grade measurement on all critical points much faster than a traditional CMM, including coplanarity, distance, height and datum X, Y to name a few. A fast and easy set-up can be performed with the world's first in-line CMM system for programming complex applications as compared to slow, engineering resource-intensive set-ups that typically requires multiple adjustments with traditional coordinate measurement machines (CMMs).

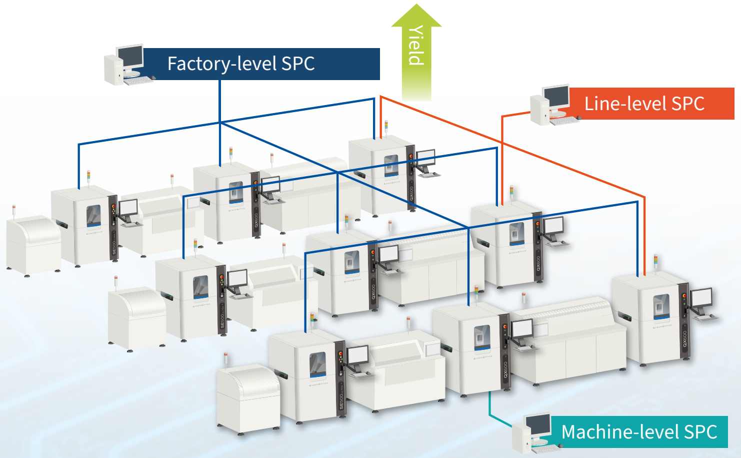


Measure critical points faster than traditional measurement systems.

Fast, scalable SPC solution

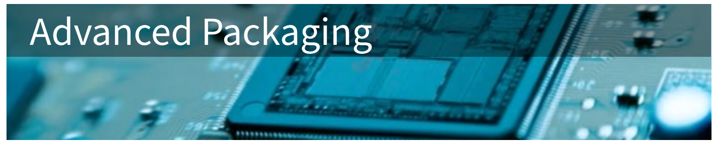
CyberReport™ offers full-fledged machine to factory level SPC capability with powerful historical analysis and reporting tools. The software delivers complete traceability for effective process verification and yield improvement.

CyberReport is designed for simple set-up and intuitive use, while simultaneously delivering scalability, fast charting, and an extremely compact database size.



High End Applications

The SQ3000 3D CMM offers unmatched accuracy with the revolutionary Multi-Reflection Suppression (MRS) technology. An ideal technology solution for a wide range of applications including those with very high quality requirements.



Advanced Packaging

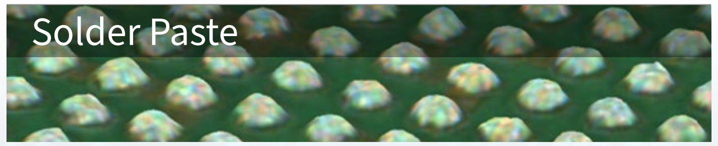
Fine pitch component inspection. BGA solder ball inspection, diameter measurement, uniformity. BGA coplanarity inspection.

LED

Backlight. Five point & solder paste inspection. Pad Gap inspection. Warpage corpenarity, Illumination Intensity & Adhesive Squeeze out measurements. Dye chip out.

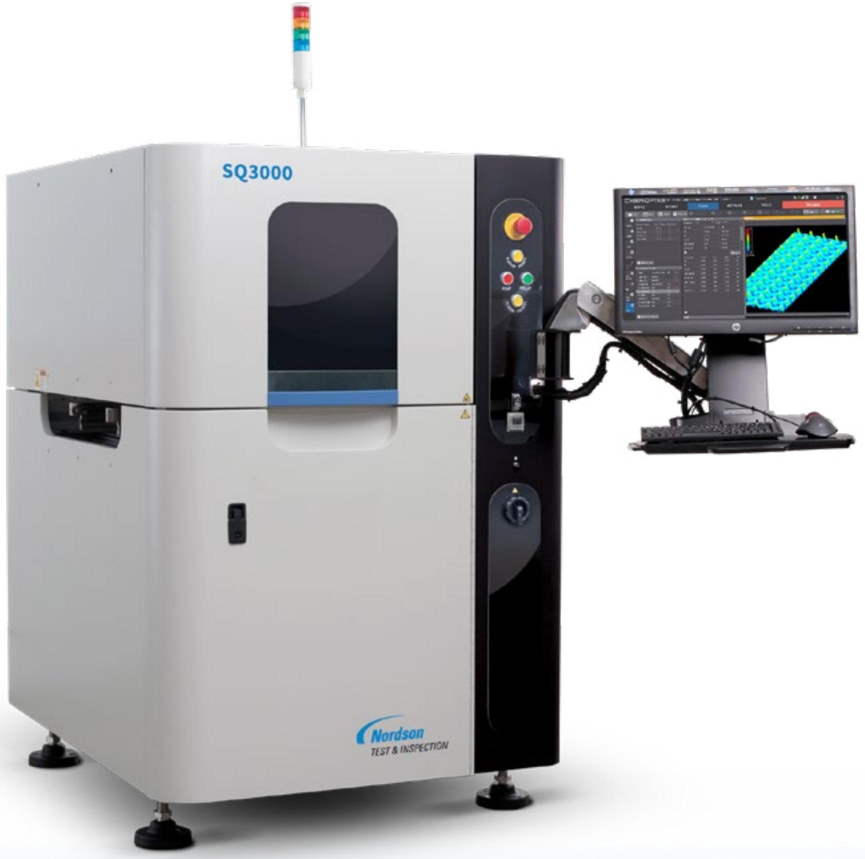
Advanced Socket Metrology

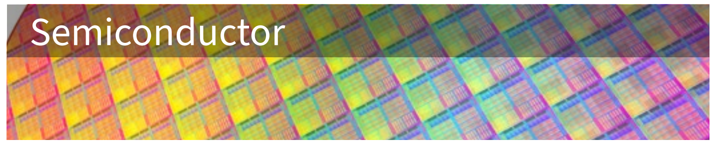
Pin inspection, True position, Inspection on dispensed material, Inspecting dispensed patterns.



Solder Paste

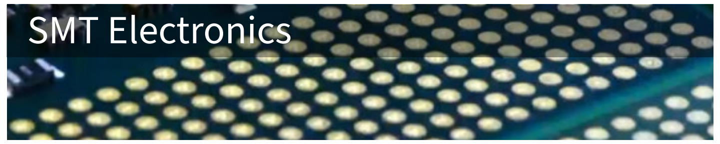
Tight area, Off water bridging, Speed and accuracy, Jet print paste, Type 4 paste.





Semiconductor

Highly reflective dye, Wirebond, Ribbons, Ball bond, Wirebonding and wedgebond inspection, Wirebond loop height of wire bond, Cornerfill/Underfill inspection.

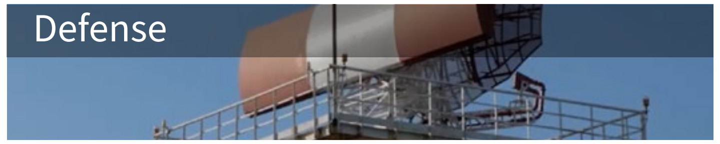


SMT Electronics

Microelectronics, Fast and accurate inspection with low false calls, Fast programming, Speed and Accuracy, Quick programming.

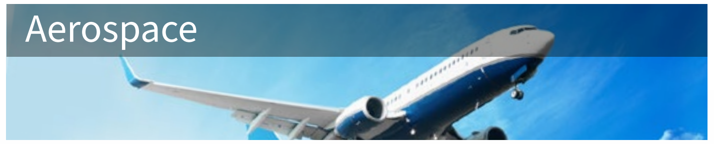
Medical

Tighter tolerance, Higher demand for accuracy, Small components, More micro electronics, Conformal coating, Life Critical.



Defense

Component Verification, Counterfeit part detection, High map & Point cloud output capabilities, Adhesive & epoxy inspection.



Aerospace

Metal modules that have cavities, Suberate & Critical inspection on highly reflective material, Wire bond and ribbon inspection.

Automotive

Tuning forks, connector, True position for key features, True position for key component for high precision placement, Smaller Modules, Critical pin inspection

Specifications

Inspection Capabilities	Standard MRS Sensor	High-Speed MRS Sensor	High-Resolution MRS Sensor	Ultra-High Resolution MRS Sensor
Inspection Speed	40 cm^2/sec (2D+3D)	50 cm^2/sec (2D+3D)	20 cm^2/sec (2D+3D)	15 cm^2/sec (2D+3D)
XY Resolution	10 µm		7 µm	
Z Resolution	0.5 µm			
Minimum Feature Size	100 µm		70 µm	
Maximum Feature Size	SQ3000: 510 x 510 mm (20 x 20 in.), SQ3000-X: 710 x 610 mm (27.9 x 24 in.)			
Minimum Feature Height	50 µm			
Maximum Feature Height	24 mm		8 mm	
XY R&R	< 3 µm 1 sigma		< 2 µm 1 sigma	
Z R&R	< 2 µm 1 sigma			
Accuracy XY	6 µm		5 µm	
Accuracy Z	2 µm			
Height Clearance	Top: 50 mm ; Bottom: 30mm			
Carrier Thickness	0.3 - 5 mm (10 mm Option)			
Coordinate Measurement Capability	Line / Distance / X,Y / Mid Line, Inter Point / Regression Shifted, Datum X,Y / LSF X,Y Offset, X,Y Offset / Value / Location / List of X,Y Values, Height / Local Height / Regression / Radius, Coplanarity/ Distance to plane / 2nd Order fitting, Difference / Absolute / 2sqrt / VC, Max / Min / Ave / Sigma / Plus / Minus / Multiple			

Vision System & Technology				
Imagers	Multi-3D sensors			
Resolution	Sub 10 µm		7 µm	
Field of View (FOV)	36 x 30 mm	36 x 36 mm	26 x 26 mm	21 x 21 mm
Image Processing	Autonomous Image Interpretation (AI^2) Technology, Coplanarity and Lead Measurement			
Programming Time	<13 minutes (for established libraries)			
CAD Import	Any column-separated text file with ref designator, XY, Angle, Part no info; Valor process preparation			

System Specifications	
Machine Interface	SMEMA, RS232 and Ethernet
Power Requirements	100-120 VAC or 220-240 VAC, 50/60 hz, 10-15 amps
Compressed Air Requirements	5.6 Kgf/cm^2 to 7.0 Kgf/cm^2 (80 to 100 psi @ 4 cfm)
System Dimensions	SQ3000: 110 x 127 x 139 cm (W x D x H) • SQ3000-X: 134 x 139 x 139 cm (W x D x H)
Weight	SQ3000: ≈965 kg (2127 lbs.) • SQ3000-X: ≈1242 kg (2738 lbs.)

Options	
	Barcode Reader, Rework station, SPC Software, Alignment Target SQ3000™ D (Dual Lane), and SQ3000™ DD (Dual Lane - Dual Sensor) models available

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

Nordson Test & Inspection Europe, SEA, Africa
ti-sales-eu@nordson.com

Nordson Test & Inspection Americas
ti-sales-us@nordson.com

Nordson Test & Inspection China
ti-sales-cn@nordson.com

Nordson Test & Inspection Japan
ti-sales-jp@nordson.com

Nordson Test & Inspection Singapore
ti-sales-eu@nordson.com

Nordson Test & Inspection Taiwan
ti-sales-tw@nordson.com

Nordson Test & Inspection Korea
ti-sales-korea@nordson.com

CERTIFIED ISO 9001 UKAS MANAGEMENT SYSTEMS 001

THE QUEEN'S AWARDS FOR ENTERPRISE: INTERNATIONAL TRADE 2020

Nordson Test & Inspection products are patent protected and covered by the patent listed at www.nordson.com.

BR-SQ3000-CMM 27/02/2024-V1

www.nordson.com/TestInspect

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