



SQ3000 DD 3D AOI

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.

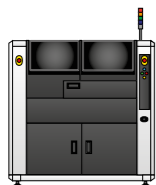
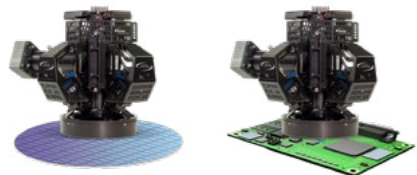


Exceptional support
from Nordson's worldwide network

AOI Products

Proprietary Advanced Technology

Optical Inspection & Metrology



WS Products

Improve Your Yields

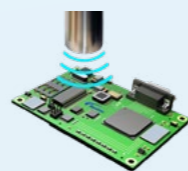
Semiconductor Metrology Sensors



AMI Products

Qualify Your Design

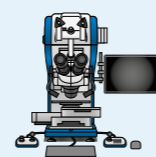
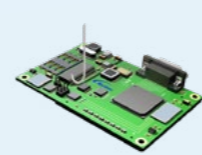
Acoustic Inspection



BT Products

Test Your Design

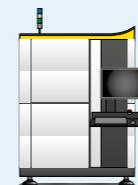
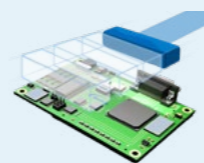
Bondtesters



AXI Products

High Speed High Flexibility

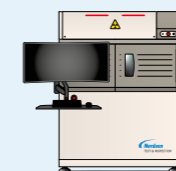
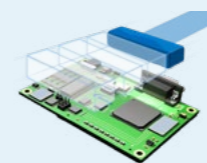
Automated X-ray Inspection



MXI Products

Making the Invisible, Visible

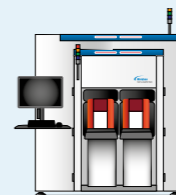
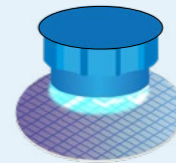
Manual X-ray Inspection



AXM Products

Measuring the Invisible

Automated X-ray Metrology



CC Products

Maximize Efficiency

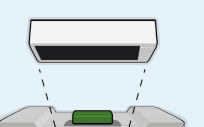
X-ray Component Counting



XRT Products

High Speed High Resolution

X-ray Technologies



The Ultimate in Speed & Accuracy

Powered by 2 MRS[®] Sensors

SQ3000 DD is The Ultimate in Speed and Accuracy Dual Lane - Dual Sensor Inspection System, powered by 2 MRS[®] Sensors.



Multi-Reflection Suppression[®] (MRS[®]) Technology

The SQ3000 DD is powered by Nordson TEST & INSPECTION's breakthrough 3D sensing technology comprising of two MRS Sensors delivering metrology grade accuracy at production speed. Nordsons' unique sensor architecture simultaneously captures and transmits multiple images in parallel while proprietary 3D fusing algorithms merge the images together. The result is ultra-high quality 3D images and high-speed inspection. The SQ3000 D (dual lane, single sensor) is also available.

Flexibility At Its Best

The SQ3000 DD 3D Automated Optical Inspection (AOI) System is an extension of the award-winning SQ3000 3D AOI platform. The dual lane, dual sensor system maximizes flexibility catering to varying PCB widths. This unique design provides the ability to inspect high volume assemblies, the convenience of inspecting different assemblies and board sizes simultaneously on different lanes, or even switching from dual lane to single lane mode to inspect very large boards.

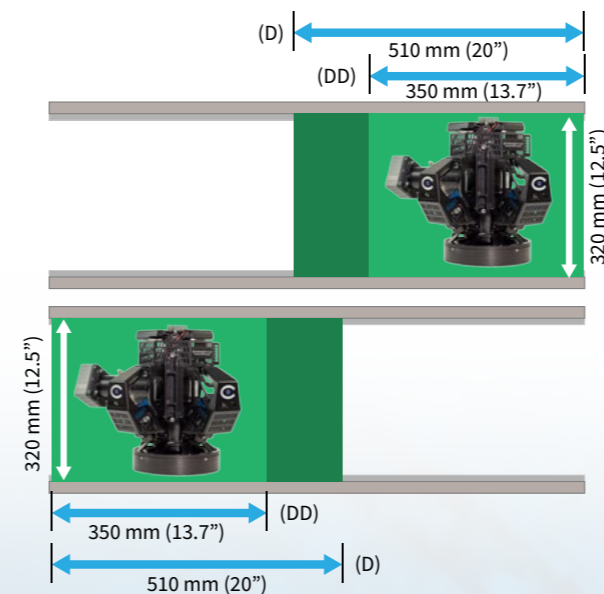
Not only does the SQ3000 DD provide PCB flexibility, it also provides the flexibility to choose two of the same or two different proprietary MRS sensors.


Shorter Inspection Times

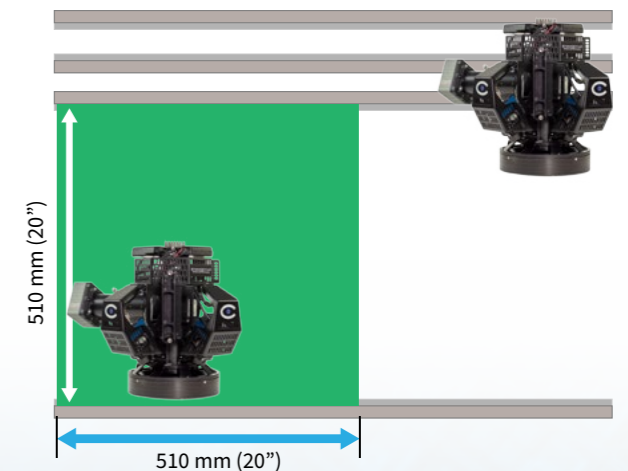

Unmatched Accuracy and Resolution with MRS Technology


Versatility for Applications with High Quality Requirements

Dual lane



Largeboard

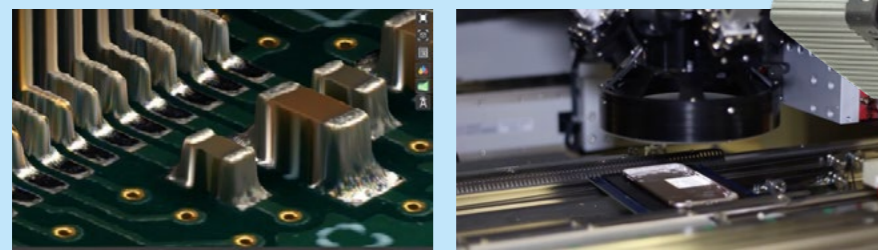


Multi-Reflection Suppression[®] (MRS[®]) Sensor Technology

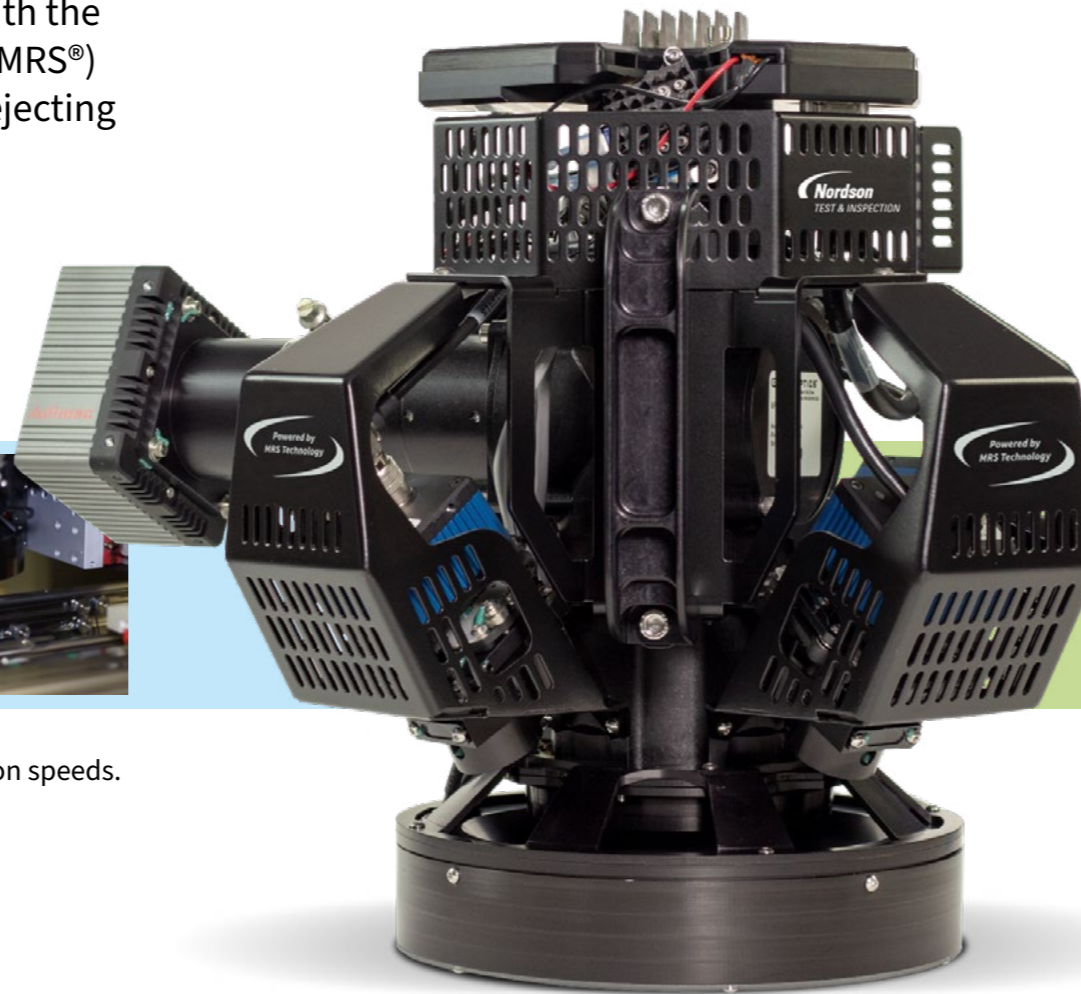
The SQ3000 DD offers unmatched accuracy with the revolutionary Multi-Reflection Suppression[®] (MRS[®]) technology by meticulously identifying and rejecting reflections caused by shiny components.

Reflection based distortions

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



Enabling the highest possible inspection accuracy at production speeds.

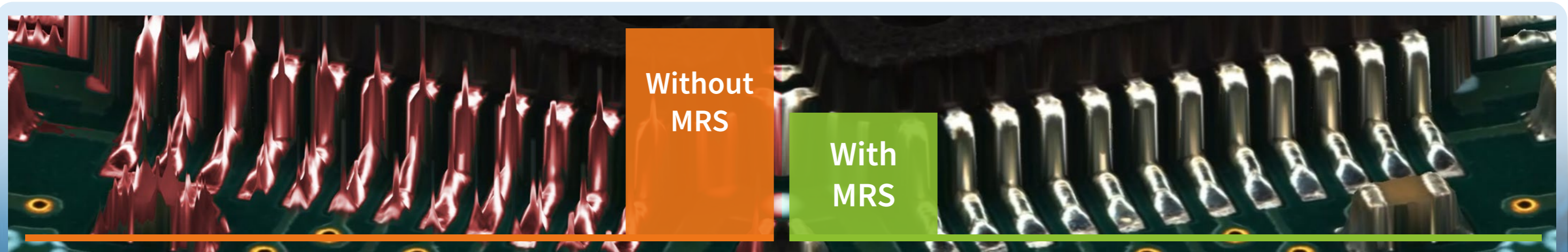


Nordson's MRS Sensor for SQ3000 DD 3D AOI, SPI and CMM's breakthrough 3D sensing technology comprising four multi-view 3D sensors and a parallel projector delivering metrology grade accuracy at production speed.

Nordsons' unique sensor architecture simultaneously captures and transmits multiple images in parallel while proprietary 3D fusing algorithms merge the images together. The result is ultra-high quality 3D images, accurate to sub 10 µm at production speed.

MULTIPLE MRS SENSOR OPTIONS			
Standard MRS Sensor	High Speed	High Resolution	Ultra High Resolution

The Ultra-High Resolution MRS sensor enhances the SQ3000 platform, delivering superior inspection performance, ideally suited for the 0201 metric process and micro-electronic applications where an even greater degree of accuracy and inspection reliability is critical



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.

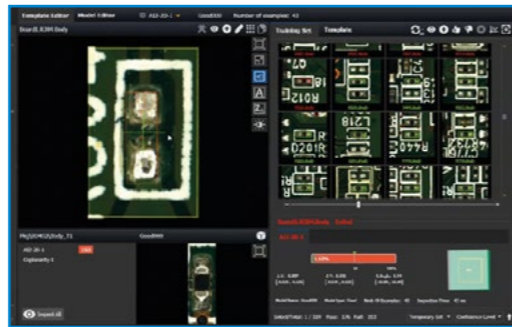


Ultra-fast programming capabilities

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

Enable smarter, faster inspection

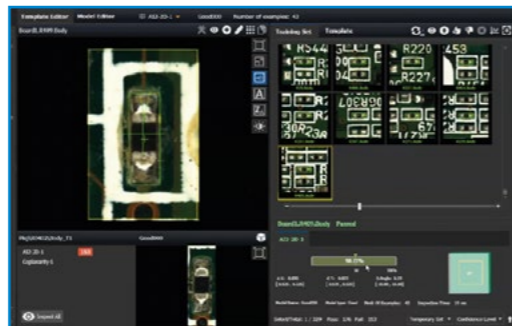
Speed programming and tuning with new capabilities including AutoTeach, AutoTune and AutoDefine for faster set-up and simplify process.



Failed Model

AI²

AI² (Autonomous Image Interpretation) technology is all about keeping it simple - no parameters to adjust or algorithms to tune. And, you don't need to anticipate defects or pre-define variance either - AI² does it all for you. With AI², you have the power to inspect the most comprehensive list of features and identify the widest variety of defects. AI² offers precise discrimination with just one panel inspection making it a perfect solution for high-mix and high-volume applications.



Passed Model

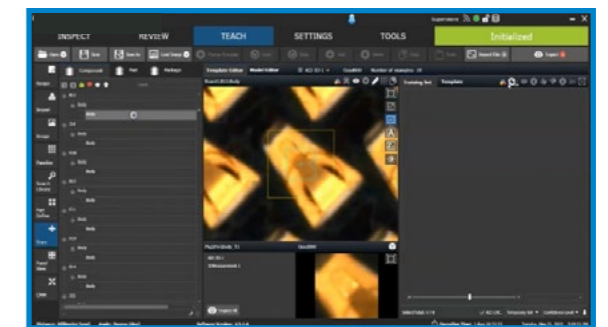
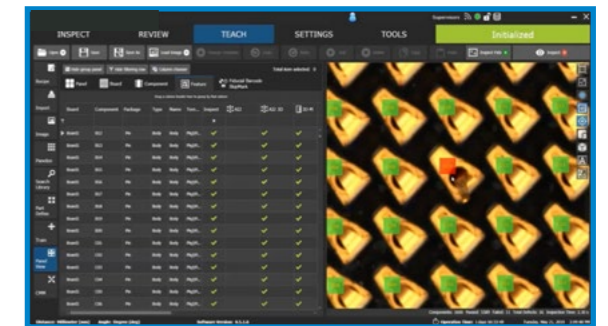
Faster, Highly Accurate CMM Suite

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



CyberCMM software 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).

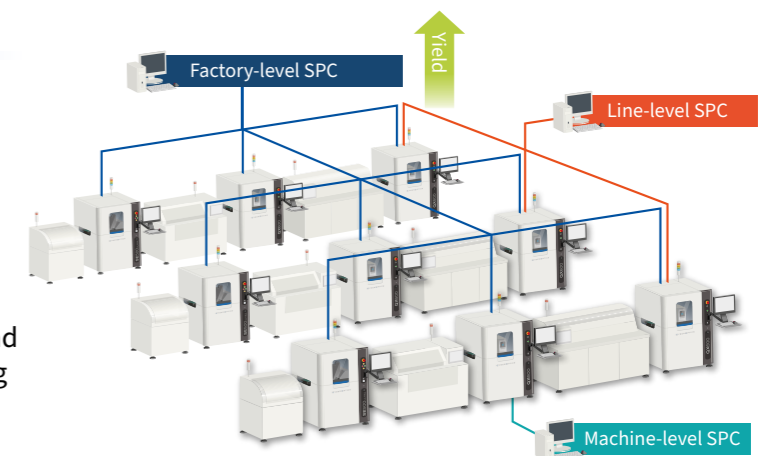


Measure critical points faster than traditional measurement systems.

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-DD offers unmatched accuracy with the revolutionary Multi-Reflection Suppression (MRS) technology. 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.



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 coplanarity, Illumination Intensity & Adhesive Squeeze out measurements. Dye chip out.



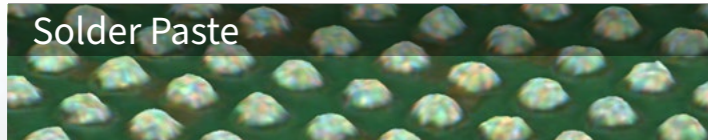
Advanced Socket Metrology



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



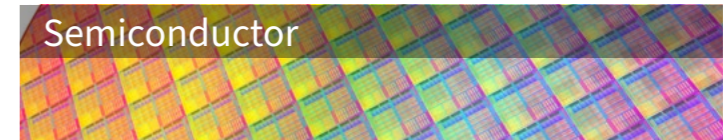
Solder Paste



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

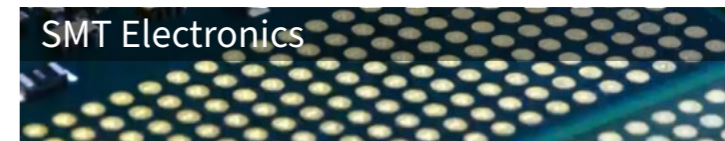


Semiconductor



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

SMT Electronics



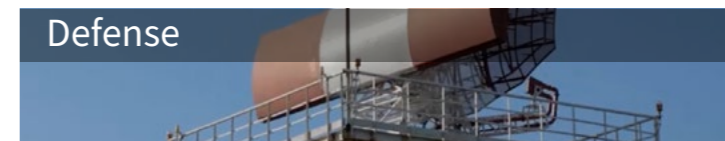
Microelectronics, Fast and accurate inspection with low false calls, Fast programming, Speed and Accuracy, Quick programming.

Medical



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

Defense



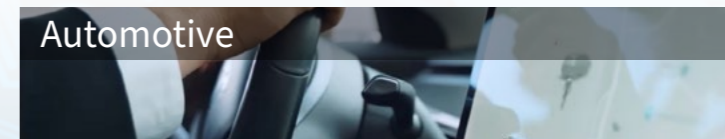
Component Verification, Counterfeit part detection, High map & Point cloud output capabilities, Adhesive & epoxy inspection.

Aerospace



Metal modules that have cavities, Substrate & 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)
Minimum Component Size	0402 mm (01005 in.)		0201 mm (008004 in.)	
PCB Size	SQ3000 DD: Single Lane: 510 x 510 mm (20 x 20 in.); Dual Lane: 350 x 320 mm (13.7 x 12.5 in.) SQ3000 D: Single Lane: 510 x 510 mm (20 x 20 in.); Dual Lane: 510 x 320 mm (20 x 12.5 in.)			
Component Height Clearance	Top: 50 mm ; Bottom: 30mm			
PCB Thickness	0.3 - 5 mm			
Component Types Inspected	Standard SMT (chips, J-lead, gull-wing, BGA, etc.), through-hole, odd-form, clips, connectors, header pins, and more			
Component Defects	Missing, polarity, tombstone, billboard, flipped, wrong part, gross body and lead damage, and more			
Solder Joint and Other Defects	Gold finger contamination, excess solder, insufficient solder, bridging, through-hole pins			
3D Measurement Inspection	Lifted Lead, package coplanarity, polarity dimple and chamfer identification			
Measurement Gage R&R	<10% @ ±3σ (±80 μm process tolerance)			
Z Height Accuracy	1 μm on certification target			
Z Measurement Range	6 mm at spec, 24 mm capability		3 mm at spec, 8 mm capability	

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 Kg/cm ² to 7.0 Kg/cm ² (80 to 100 psi @ 4 cfm)
System Dimensions	170.5 x 162 x 152 cm (W x D x H) Height excludes signal-light pole and leveling feet
Weight	≈1596 kg (3519 lbs.)

Options	
	Barcode Reader, Rework station, SPC Software, Alignment Target Standard SQ3000 and SQ3000 X models available

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

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