Making the Invisible Visible

QUADRA® Pro

QUADRA® Pro Series

Manual X-ray Inspection

www.nordson.com/TestInspect

Nordson
TEST & INSPECTION

Your X-ray Inspection Partner

Nordson TEST & INSPECTION offers its customers a robust product portfolio, including Manual X-ray and Autonomous X-ray Inspection, Acoustic and Optical Inspection, X-ray Component Counting and Nordson X-ray Technologies. 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. Nordson Corporation is an innovative precision technology company, founded in 1954 and headquartered in Westlake, Ohio. The Company has operations and support offices in over 35 countries, which serves customers by ensuring product quality, maximizing return on investment and reducing long term costs.

Nordson TEST & INSPECTION's state-of-the-art manufacturing facility in Aylesbury, UK is responsible for development and production of the key core technology in the X-ray imaging chain. This includes X-ray source, power supply and flat panel detector. This unrivalled level of vertical integration enables Nordson to achieve the best image quality and make systems that are easy to use.

The Quadra Pro Series

<0.10 µm

QUADRA 7® Pro

Ultimate image quality and magnification, Quadra 7 Pro reveals quality defects as small as 0.1 µm.

20W | QUADRA µCT | XPLANE | 4K UHD

QUADRA 5® Pro

Advanced, sub µm feature detection and higher output power for more challenging workflows.

20W | QUADRA µCT | XPLANE

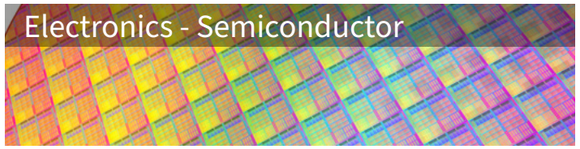
QUADRA 3® Pro

High quality, high magnification inspection for production applications.

15W | XPLANE

Your X-ray Inspection Solution

Electronics - Semiconductor



FO-WLP, 3D packaging.
Through Silicon Via (TSV) filling and voids.
Micro bump, copper pillar size and void measurement.

Packaging - Semiconductor

Assembly & IC Packaging.
Memory, CPU/GPU, wire bonding.

Aerospace

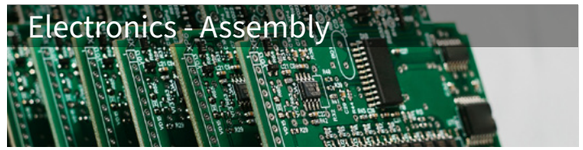
Inspect electronic components for soldering quality (IPC-A-610) and wire bond integrity, including metal cored boards and copper backed BGAs.
Perform component quality inspection for cracking, voids, counterfeiting and dimensional checks.

Energy

Measure voids in solar cells, inspect under-fill.
Check for component cracking and wire bond integrity.

QUADRA® Pro

Electronics - Assembly



Solder shorts, open connections, paste residue, voiding, cracking.
Track inspection, plated through hole filling.
Counterfeit device screening.

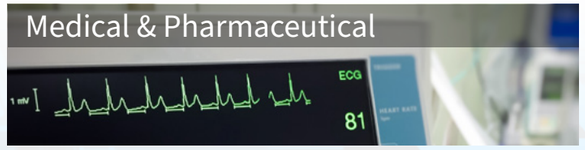
Automotive

Inspect automotive components for wear and fatigue cracking. Inspect electronic components and PCBAs for soldering quality (IPC-A-610) and BGAs (IPC-7095).

Optoelectronics

Detect micro-cracks, wire bond defects, die adhesion, voiding and PCB quality. Inspect laser-diodes and LEDs.

Medical & Pharmaceutical



Inspect products non-invasively in 2D or 3D, perform root cause failure analysis. Offline inspection for contaminant detection and fill level measurement.

Turn Images Into Solutions

Quadra™ Pro creates unbeatable ultra high resolution images displayed on a new ultra-wide monitor. The proprietary designed high performance X-ray tube and the detector provide visibility of even the tiniest detail and finding the defects immediately. Nothing can hide anymore.

Under Control

Get working quickly and easily with Revalution™ control software which features simple intuitive menus and controls. Personalize and store individual operators screen layouts for smoother workflow. Customize filtering and image enhancements to suit your applications needs. Utilize the easy point & click controls to analyze defects fast and produce automated inspection routines.

All In Sight

Designed in-house by a team of semiconductor experts Onyx™ delivers state-of-the-art performance. Using world-class pixel specifications for low dose sensitivity & high saturation dose. Onyx™ has higher frame rates and lower noise, giving you faster images with highest clarity and brilliance.

Easy to maintain

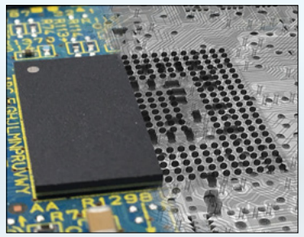
QuadraNT™ tubes use filament free technology for continuous service. Eliminate the risks of oil contamination in the X-ray tube, oil spills or leaks into the work environment. QuadraNT uses an oil free ion pump to maintain X-ray tube vacuum which never requires an oil change. Stable performance is guaranteed since the filament is never changed.

Dual Mode Tube Technology

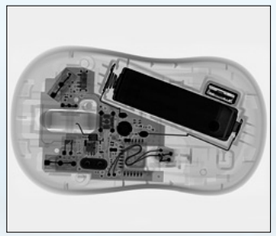
QuadraNT™ is the powerhouse of Quadra Pro. Nordson's latest generation X-ray source gets another enhancement with patent-pending, automatic Dual Mode in the Quadra 7 Pro. The tube automatically switches between two modes:

- High resolution mode ideal for sensitive, semiconductor samples
- High flux mode essential for dense, thicker samples

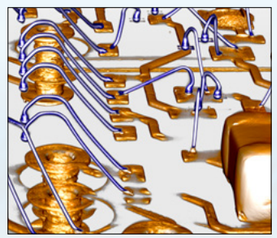
The benefit of Dual Mode is crystal clear images to spot defects in more detail than you have seen before!
The best-in-class X-ray tube maintains its 10-fold brightness and improved stability over conventional tubes and bests them again with smaller spot size at any voltage. The results you can see for yourself.



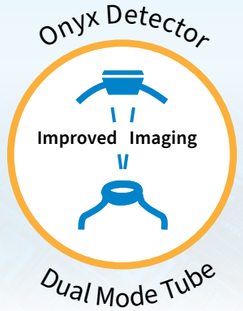
Optical → X-ray

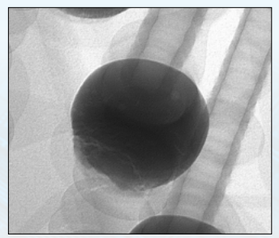


Computer mouse

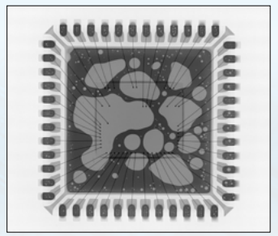


Multi level PCBA

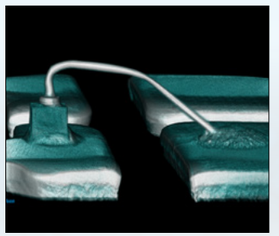




Microcrack in a BGA solder ball



Voiding in a QFN package



Light emitting diode

Maintenance Free

Increase your return on investment, reduce your downtime and costs. Quadra™ Pro is the only maintenance free inspection system. Regular preventative maintenance visits are no longer required to guarantee optimum X-ray performance.

Unique, patented technology

No use of tungsten filaments which degrade quickly and require regular replacement and maintainance. QuadraNT™ tubes use proprietary filament free technology for continuous service.

QuadraNT 4th generation X-ray tube.

Lifetime repeatability

Stable performance is guaranteed since the filament is never changed. Inspection imagery is clear and repeatable, today, tomorrow and year after year.

Oil free

Eliminate the risks of oil contamination in the X-ray tube, oil spills or leaks into the work environment. QuadraNT uses an oil free ion pump to maintain X-ray tube vacuum which never requires an oil change.

Applications and training support

Technical applications, training and software support tailored to your specific requirements ensure you get the most from your Quadra Pro.

QUADRA™ LIFE

Total Peace of Mind

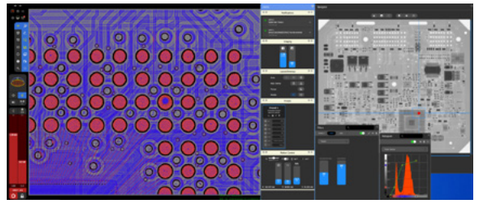
Quadra Life is the 5 year plan for your Quadra Pro that guarantees your cost of ownership, eliminating risk and maximizing uptime for total peace of mind.

Revalution™

Nordon's brand new Revalution™ software has everything under control with its modern GUI design and optimised workflow. Revalution has many new and optimised features including:

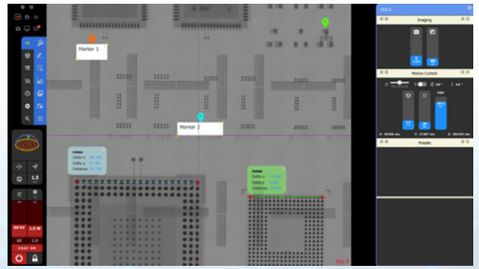
Layout flexability

When dealing with complex images, control windows can be floating or docked in the dock bar allowing you to create the space you need.



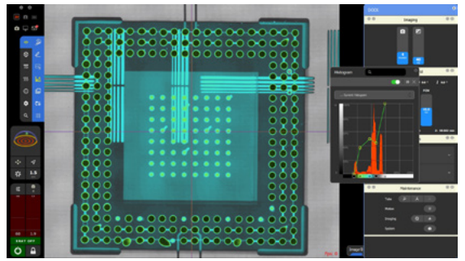
Annotations & measurements

Markers with notes can be added to images, measurements are colour coded and can be combined with notes. Annotations remain locked to location when system moved including zooming.



Filtering and imaging

Customize filtering and image enhancements to suit your applications needs with the enhanced histogram and Image filters with simplified drag and drop editing.



Histogram - save and load settings, can be colourised.

Main tool bar

The toolbar consists of groups of controls to assist your workflow, along with animations and visual indicators allowing you to see the tube power, and an interactive orbit control that is draggable to reposition the detector.

Specifications

	QUADRA 3® Pro	QUADRA 5® Pro	QUADRA 7® Pro
X-ray Tube	**Mk4 NT350**	**Mk4 NT100**	**Mk4 Dual Mode**
Feature recognition	Finalizing	Finalizing	<100nm (at less than 10W)
Tube target power	15 W	20 W	20 W
Tube voltage	30-160kv	30-160kv	30-160kv
Detector	**Onyx Gadox**	**Onyx HL**	**Onyx HL**
Resolution	Finalizing	Finalizing	6.5 MP
Frame rate	20 fps	25 fps	30 fps
Inspection			
Operation	Mouse point and click (joysticks optional)		
Oblique angle view	2 × 70° - No sample rotation required		
Inspection area	510 × 445 mm (20 × 17.5”)		
Anti-vibration	Passive	Active	Active
Geometric magnification	Up to × 3,000	Up to × 3,000	Up to × 3,000
Total magnification	Up to × 7,500	Up to × 45,000	Up to × 68,000
Ultra Wide Curved Display	34” Ultra Wide Monitor (3440 × 1480)	38” Ultra Wide Monitor (3840 × 1600)	40” Ultra Wide Monitor (5120 × 2160)
Installation			
Footprint (W × D × H)	1.57 × 1.50 × 1.90 m		
Weight	1,950 kg		
Power	Single phase 200-230 Vac, 50/60 Hz,16A		
X-ray safety	< 1 µSv / hour		
Air	Not required	5-8 bar clean dry for anti-vibration	
Software	**Revalution**	**Revalution**	**Revalution**
Other Options	Xplane Pro		
	USB Joystick Module		
	CT		

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

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