



NIKON METROLOGY SOLUTIONS



X-RAY AND CT INSPECTION



CMM LASER SCANNING



HANDHELD LASER SCANNING



METROLOGY SOFTWARE

LARGE SCALE METROLOGY

ROBOT METROLOGY

VIDEO MEASURING INSTRUMENTS

MEASURING MICROSCOPES

INDUSTRIAL MICROSCOPES

METROLOGY SERVICES

NIKON METROLOGY | VISION BEYOND PRECISION

NIKON METROLOGY SOLUTIONS

4 X-RAY AND CT INSPECTION

X-ray sources
XT H series industrial Computed Tomography systems
Configurable X-ray CT systems
MCT series Metrology CT
XT V series electronics X-ray inspection
CT Automation

13 MULTI-SENSOR METROLOGY

CMM-based scanners
ModelMaker handheld scanners
MCAx – Manual CMM Arm
FOCUS Point cloud software
CMM-Manager metrology software
3rd party software integrations

20 METROLOGY ASSISTED PRODUCTION / ROBOT METROLOGY

Laser Radar large volume inspection
Shop floor CMM

24 MEASURING INSTRUMENTS

iNEXIV VMA high-speed digital benchtop imaging system
NEXIV VMZ video measuring system series
Measuring microscopes
Profile projectors
Digimicro digital length measuring systems
Autocollimators

30 INDUSTRIAL MICROSCOPES

Stereoscopic microscopes
Industrial microscopes
BW-series – White light interferometric microscope system
NeoScope benchtop scanning electron microscope
Instruments software

35 SERVICES AND SUPPORT



NIKON METROLOGY | VISION BEYOND PRECISION

X-RAY AND CT INSPECTION



Get the inside picture of complex electronics or industrial parts, by literally looking into the internal structure. Then use CT capability to qualify and quantify any inner or outer dimension, all in a smooth, non-destructive process.

X-RAY SOURCES

XT H 225 / 225 ST INDUSTRIAL CT

XT H 320 INDUSTRIAL CT

XT H 450 HIGH VOLTAGE CT

LARGE ENVELOPE CT SYSTEMS

MCT225 METROLOGY CT

XT V 130C / XT V 160 ELECTRONICS X-RAY INSPECTION

CT AUTOMATION

X-RAY SOURCES



In-house design and build

Nikon Metrology X-ray sources are at the heart of our technology and have been designed and manufactured in-house from 1987 to this day; offering over 30 years of knowledge. Being at the heart of the image, control over the X-ray source technology allows Nikon Metrology to quickly move with the market and develop complete and innovative solutions to the application demand. All sources are open-tube giving a low cost of ownership and range from low (180) to medium (225) to high (450) kV, all with micron resolution.

450 kV static and high brilliance source

The unique 450 kV microfocus source gives industry leading performance for small high density or small to medium castings with unrivalled power and resolution.

Nikon's 450 kV high-brilliance source delivers 450 W continuous power, without any measurement time restriction, whilst maintaining a smaller spot size for faster CT scanning, collecting data up to 5x faster or with higher accuracy in a similar scan duration of the default 450 kV.



180 kV transmission target

Applicable for samples smaller than 10 mm, such as small rock cores or bone samples, the transmission target operates up to 180 kV to achieving a minimum spot size of 1 μm leading to high resolution CT.



225 kV reflection target

With up to 225 kV and a minimum spot size of 3 μm , the 225 kV microfocus source is the core of Nikon's XT H 225 range, devising flexibility to cope with a range of sample sizes and densities.



225 kV rotating target option

Nikon Metrology is the only company to produce an industrial 225 kV rotating target option. Using a rotating target, the electron beam falls on a moving instead of a fixed surface, which yields much more effective cooling. This offers the opportunity to measure objects faster, or denser objects with higher accuracy than using a conventional static 225 kV.



320 kV source

The 320 kV source is a unique microfocus source for samples too large or dense for 225 kV whilst still maintaining a small spot size. Ideal for rock cores and small castings, the source is an option in the XT H 320 cabinet.



Multi-metal target

Often, using a lower energy X-ray emission is beneficial in material analysis and that can be achieved with the multi-metal target. Beside the standard tungsten (W) target, the operator can easily select from three other target materials: silver (Ag), molybdenum (Mo) and copper (Cu).

XT H 225 / 225 ST

ENTER THE WORLD OF X-RAY CT



Features

- Choice of different proprietary microfocus X-ray sources
 - 180 kV Transmission target
 - 225 kV Reflection target
 - Optional rotating target (ST only)
- Choice of Varex flat panels
- Real-time X-ray visualization, fast CT reconstruction
- CT measuring volume up to X:450 mm, Y:350 mm, Z:750 mm (ST version)
- 5-axis fully programmable part manipulator
- Customizable macros automate measurement workflow
- Small footprint

Detailed capture and measurement of internal component and assembly features is often vital for quality control, failure analysis and material research.

The entry-level XT H 225 systems feature a microfocus X-ray source offering high image resolution.

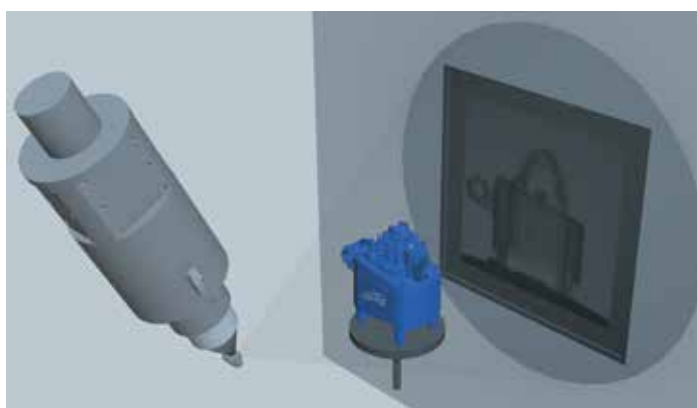
The XT H 225 ST system is an extended version capable of housing larger or heavier samples and a choice of X-ray sources ranging from transmission target 180 kV to rotating target high flux 225 kV. They cover a wide range of applications, including the inspection of plastic parts, small castings and complex mechanisms as well as researching materials and natural specimens.

Benefits

- Flexibility combined in a single system: X-ray for quick visual inspection, CT for in-depth analysis
- Fast data capture and high-quality images
- Fast operation with interactive joystick navigation
- High-resolution digital imaging and processing
- Safe system requiring no special precautions or badges
- Tight integration with industry standard post-processing applications

Computed Tomography

To generate a 3D CT volume, a series of sequential 2D X-ray images are captured as the object is rotated through 360°. These images are then reconstructed to generate a 3D volumetric representation of the object. In addition to the outer surfaces, the reconstructed volume contains all information of interior surfaces and structure - as well as information on the material structure. It is possible to navigate through the CT volume at any given point, through any plane. As a result even interior measurements can be easily obtained, as well as the added benefit of localizing structural material imperfections and identifying assembly errors not usually visible through traditional methods of NDT.



LARGE CABINET MICROFOCUS CT



The XT H 320 is a large cabinet system for the X-ray CT scanning and metrology of large components. The system consists of a 320 kV microfocus source delivering up to 320 W of power.

A high resolution flat panel is used to collect high quality images of the sample. The system is controlled by Inspect-X software which makes the collection of CT data and setting up of measurements simple and easy. The system can output volume data to industry standard volume viewing software

Stunning images

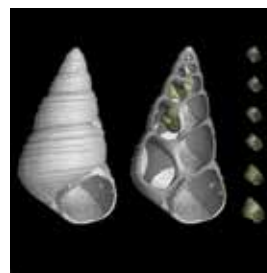
Multi-material or lower attenuating samples are better scanned with Varex flat panels due to the high dynamic range. High resolution voxel data is achieved in CT scans by having flat panels with many pixels. The larger cabinets are configurable with higher resolution 4000 x 4000 pixel Varex panels, offering razor sharp images.

320 kV microfocus

Most system suppliers only offer microfocus sources up to 225 kV, while more powerful sources in their offerings are minifocus. With larger samples, one often needs more penetration power and therefore Nikon Metrology offers a unique 320 kV microfocus X-ray source. As the X-ray spot size of these sources is orders of magnitude smaller compared to minifocus sources, end users benefit from superior resolution, accuracy and a wider array of measurable parts.

With Nikon Metrology CT systems you can

- Verify complex internal structures
- Isolate and inspect included components
- Measure internal dimensions without sectioning the sample
- Automatically detect and measure internal voids/volumes
- Reveal internal and external surfaces with ease
- Reduce total inspection time
- Reduce number of iterations to fine-tune (pre-) production parameters



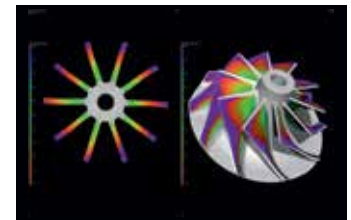
Snail fossil



Battery



Shaving foam can



Wall thickness evaluation on impeller

XT H 450

HIGH VOLTAGE 450 kV MICROFOCUS CT



The XT H 450 sets a new reference for turbine blade measurement and NDT inspection of small to medium castings. At the core of this powerful equipment is a 450 kV microfocus source, providing superior resolution and accuracy.

The curved linear array detector optimizes the collection of X-rays by eliminating scatter phenomena that typically corrupt 2D radiographs of blades and other metal parts.

Applications

- Detailed analysis of the wall thickness and internal structure of turbine blades
- Automated pass/fail inspection of blades
- Inspection of high density parts (e.g metal parts, castings) with a need for micron accuracy

Features

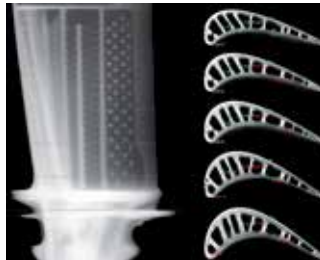
- Unique open-tube 450 kV microfocus source
- High-brilliance source available (option)
- Different imaging options
 - Varex flat panel detector (XT H 450 3D)
 - Curved Linear array Detector (XT 450 2D)
 - Combination of flat panel and CLDA detector
- Measuring volume up to 600 mm diameter and 600 mm height
- 5-axis fully programmable turntable manipulator with precision ball screws and linear slides
- Dedicated application for automatic pass/fail inspection of turbine blades

Faster throughput or higher data quality with high-brilliance source

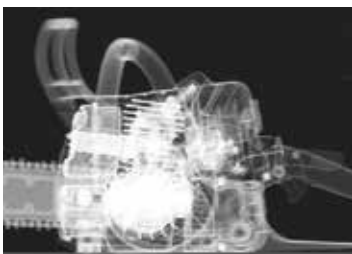
The new (optional) 450 kV high-brilliance source enables the user to get the most out of this XT H 450 system. For a given spot size and power, data can be collected typically 3-5x faster, giving the user faster throughput. Alternatively for a given power and measurement time, the available resolution will be higher and so the data quality will be improved. The high-brilliance source also delivers continuous 450W without measurement time restriction.



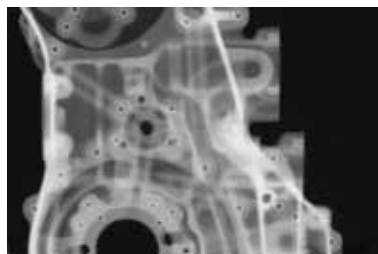
The 450 kV high-brilliance source provides the same advantages as a rotating target source: faster data collection or a higher data quality at continuous power



X-ray image and CT slices of a single-crystal aerospace turbine blade generated using a Curved linear diode array (CLDA) detector.



X-ray of chainsaw



X-ray of engine casting



CT volume model of engine casting

LIMITLESS CONFIGURATIONS FOR PRECISION CT SCANNING

Nikon Metrology's configurable X-ray/CT systems offer a large inspection envelope, support multiple sources, multiple detectors and can be custom-configured to fit a variety of applications. Nikon Metrology's modular microfocus CT systems can be built into existing cabinets or walk-in rooms to upgrade older film-based facilities or mini-focus systems.

The core of these configurable systems are the Nikon in-house-built micro focus sources up to 450 kV. The focal spot size of these microfocus sources is orders-of-magnitude smaller when compared to mini-focus sources, which results in superior resolution and accuracy.

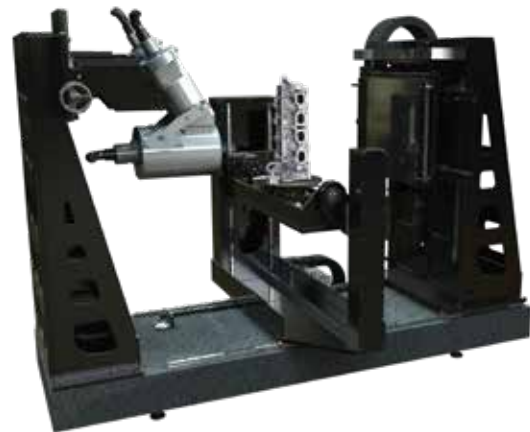


Large-envelope precision CT scanning system

Dense and unwieldy objects are perfect for the C2 scanning system. Configurable with dual sources, dual detectors and multi-position panel shifting, this system can accurately scan objects up to 150 kg in weight. The C2 delivers an unrivaled inspection envelope via synchronized vertical X-ray source and detector motion. The system offers perfect precision thanks to its 4.3-meter long granite foundation and is configurable with an flat panel detector and Nikon Metrology's Curved Linear Diode Array (CLDA) to reduce scatter and dramatically improve image definition.

Compact precision CT

The M2 completely redefines industrial CT scanning. Configurable for dual sources, dual detectors and multi-position panel shifting, this system can accurately scan objects of all shapes and sizes. The M2 is equipped with a vertical manipulator as well as a tilting turntable, with a sample bridge supported on both ends for ideal positioning and accuracy.



Custom cabinets or walk-in rooms

These configurable CT systems can be built into (existing) cabinets or walk-in rooms. As such you can configure your X-ray / CT facilities to your needs or even upgrade existing facilities with the latest X-ray/CT technology.



MCT225 Metrology CT

ABSOLUTE ACCURACY FOR INSIDE METROLOGY



MCT225 efficiently measures internal and external geometry without reference measurements and damaging the sample. With fifty years' CMM experience and over 30 years' X-ray experience, our pedigree for reliable high quality Metrology CT is second to none.

Absolute accuracy

MCT225 is pre-calibrated using accuracy standards traceable to the UK's national measurement institute (NPL) and verified using VDI/VDE 2630 guidelines for Computed Tomography in Dimensional Measurement. Absolute Accuracy guarantees measurement accuracy without time consuming comparative scans or reference measurements, samples are simply placed on a rotary table inside the enclosure and measured. Several key metrology features provide long term stability and enable the MCT225 to achieve an impressive MPE of $9+L/50 \mu\text{m}$.

Features

- Nikon Metrology developed microfocus X-ray source
- Temperature controlled enclosure
- High precision linear guideways
- Axis travels error corrected
- Liquid cooled X-ray source
- High resolution optical encoders
- High resolution 4 Megapixel detector
- Finite Element Analysis (FEA) optimized manipulator

Material penetration guide

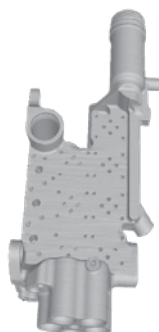
PLASTIC	170 mm
ALUMINIUM	75 mm
IRON	15 mm

Other suitable materials include:
STEEL, CERAMIC, CARBON FIBRE, WOOD

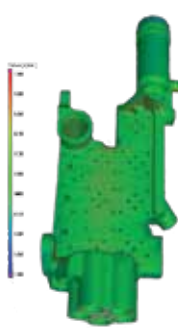
Metrology CT process



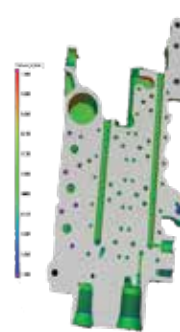
F1 car hydraulic manifold



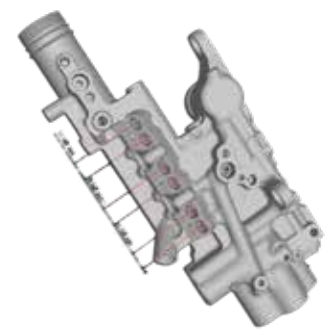
▶ CT volume reconstruction



▶ Direct comparison to CAD model



▶ Section of internal geometry



▶ Dimensional report GD&T

TOP-CLASS X-RAY INSPECTION SYSTEM



Component connections on today's compact and densely populated PCBs are hidden by other components, making X-ray the only viable inspection solution. XT V 160 is an easy-to-use, cost-effective and high-quality PCB inspection system targeting production facilities and failure analysis laboratories.

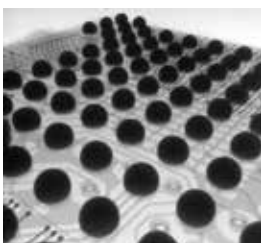
In automated inspection mode, samples can be inspected at the highest throughput. In manual mode, intuitive software and high-precision sample manipulation enable operators to visualize and evaluate the tiniest internal defects and deficiencies.

Features

- Proprietary 160 kV source with submicron focal spot size
- True 72° tilting angle for optimum inspection of BGAs
- Fast data capture and high-quality imaging
- Large tray for loading multiple boards
- Customizable macros automate measurement workflow
- Remote validation station available

Benefits

- Flexibility combined in one system
 - Interactive visualization
 - Fully automatic X-ray inspection
 - Optional CT for in-depth analysis
- Maximum magnification at unrivalled angles (up to 72°)
- Fast operation with intuitive GUI and interactive joystick navigation
- Low-cost maintenance with open-tube technology
- Safe system requiring no special precautions or badges
- Small footprint



Under any combination of rotation, tilt and magnification, the region of interest is consistently locked into the center of the field of view

Applications

- Solder reflow analysis
- BGA connectivity and analysis
- Solder void calculation
- Through hole measurement and inspection
- Die attach voiding measurement
- Ball bond analysis
- Stitch bond analysis
- Micro BGA / chip-on-chip analysis
- Pad array analysis
- Dry joint detection and analysis

XT V 130C

VERSATILE AND EASY-TO-USE ELECTRONICS QA SYSTEM



Applications

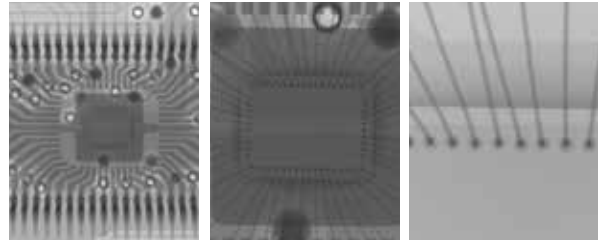
- Electronic and electrical components
 - Broken wedge bonds, lifted ball bonds, wire sweep, die attach, dry joints, bridging/shorts, voiding, BGA, etc.
- Populated and unpopulated PCBs
 - View surface mount defects i.e. misaligned devices, solder joint porosity and bridging
 - Detailed inspection of vias, through-hole plating and multi-layer alignment
 - Wafer-level chip scale packages (WLCSP)
 - BGA and CSP inspection
 - Non-lead solder inspection
- Micro-electro-mechanical systems (MEMS, MOEMS)
- Cables, harnesses, plastics and many more



Easy access to the inspection area

The XT V 130C is a highly flexible and cost-effective electronics and semiconductor inspection system. The system features a 130 kV/10 watt Nikon Metrology manufactured source, a globally recognized open tube design with integrated generator, and a high-resolution imaging chain.

Through a series of factory and field upgrades, the end-user can configure these systems to its own needs with a higher power source, a rotating sample tray, automatic inspection software, a digital flat panel option, and the ability to add future-proof CT technology.



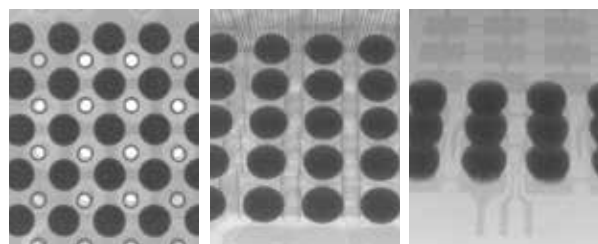
Superb image magnification enables users to zoom in on any specific item of interest

Features

- Proprietary 20-130 kV micro-focus source with 2 μm feature recognition
- Measurement area of 406x406 mm
- True 72° manipulator tilting angle allows oblique viewing for easy inspection of internal features
- A hinged door providing easy access to the inspection area
- Serviceable components are easily accessible

Benefits

- On-line operation with intuitive joystick navigation
- Low-cost maintenance with open-tube technology
- Safe system requiring no special precautions or batches
- Small footprint and low-weight for easy installation
- CT option possible



Tilt angles up to 72° offers sufficient flexibility to trace connectivity issues quickly

NIKON CT AUTOMATION – READY FOR PRODUCTION

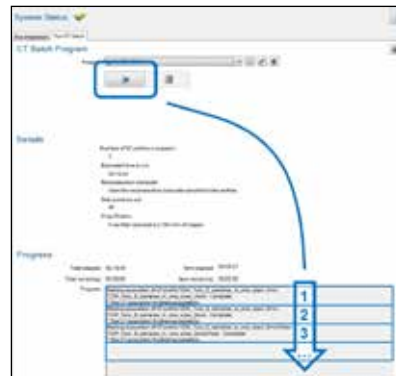
An important challenge to manufacturers is to increase product quality, which can be achieved through 100% part inspection. Recent advances in high-resolution high-flux rotating targets for X-ray sources, coupled with easy automation of CT scanning parameters and analysis techniques allow samples to be scanned, reconstructed and evaluated in under two minutes. This opens the gate to a broad span of automation inspection applications, varying from simple pass/fail inspection to full in-line automated CT inspection with feedback to the production process.

Batch CT Inspection

As standard, Inspect-X allows to save profiles with scan and reconstruction parameters ensuring repeatability of the complete CT process.

Benefits

- No programming skills required
- Inspect-X loads appropriate analysis and reporting programs
- User is free to do parallel tasks such as sample preparation



Batch inspection allows automation of multiple scans with manual part handling.

Semi-automated CT Inspection

In semi-automated CT inspection systems, loading the part or a sample holder with multiple parts is the only manual operation. The remaining scanning and analyzing fail/pass process is completely automated.

Benefits

- Custom, simplified user interface (UI) guides the user through the complete process
- Part identification by bar or QR code reader
- Integrated with manufacturing database
- Repeatable process



Semi-automated inspection allows automation of all tasks with multiple part loading.

In-line CT Inspection

The in-line CT system is a 100% inspection solution for automated production environments where critical parts with complex internal geometries need to be inspected. Robots load/unload samples from conveyors and position parts in the CT system via an automated door.

Benefits

- Integration with robot and conveyor systems
- Improved quality control
- Increased efficiency
- Complete traceability



In-line automation allows full integration of CT inspection to your production line.

MULTI-SENSOR METROLOGY



L100



LC15Dx



XC65Dx-LS



H120



MCAx

CMM LASER SCANNING

HANDHELD LASER SCANNING

MULTI-SENSOR METROLOGY SOFTWARE

DIGITAL LASER SCANNING BOOSTS INSPECTION PERFORMANCE

L100 – The ultimate CMM laser scanner combining productivity and accuracy



The L100 CMM laser scanner offers the best possible combination of speed, accuracy and ease-of-use. Suited for both surface and feature measurement, the L100 quickly delivers accurate data and insightful part-to-CAD comparison reports even on shiny or multi-material surfaces.

The L100 is ideal to inspect larger components where productivity is key, but without having to compromise on accuracy. Equipped with a high quality glass Nikon lens and a high definition camera, the L100 features a point resolution of 42 μm and an exceptionally small probing error of 6.5 μm , enabling delivery of smooth meshes and high levels of detail.

LC60Dx – All purpose, digital scanner



The LC60Dx is an all-purpose scanner is designed for effortless scanning of varying or hard-to-scan surface materials. Like all other Nikon digital scanners, the LC60Dx is equipped with the unique Enhanced Sensor Performance capability, providing real-time, point per point laser intensity adjustment that constantly adapts to the material surface.

Benefits of CMM-based laser scanning

• Better insights into deviations

- Colorful part-to-CAD surface / profile / feature reports provide in a visual way detailed information on product conformity
- Leads to faster decision-making and corrective actions
- Results in fewer and shorter design iterations and faster time-to-market
- Shortens production downtime through faster troubleshooting

• Enhance the capability of your current CMM

- Upgrade to a versatile multi-sensor CMM offering both non-contact and touch probe inspection
- Retrofit existing CMMs controller hardware and software. Retrofit kits are available for most leading CMM controller brands

• Increase inspection productivity

- Laser scanners collect more information in less time
- Faster feature measurement due to fewer CMM movements
- Easy off-line CAD-based programming saves on preparation and modification of measurement programs

• Measure soft and fragile components

- Measure delicate surfaces that cannot be touched
- No deformation of soft materials like foams, rubber, membranes, etc
- Scan any material - No special treatment required for dark or shiny parts

FULL 3D CAPTURE OF FEATURES AND COMPLEX SURFACES

LC15Dx – Closing the gap with tactile accuracy



The all-digital Nikon LC15Dx scanner brings 3D digitizing in the accuracy range of tactile measurement, while offering the advantage of capturing a multitude of inspection points. Thanks to the high quality Nikon lens, the LC15Dx achieves a probing accuracy of 1.9 μm and a multi-stylus test accuracy of 3.9 μm in tests comparable to EN/10360-2 and -5.

With its smaller field-of-view, it perfectly suits digitizing small or detailed objects with higher point density and tighter tolerances.

XC65Dx(-LS) Cross Scanner – Productive feature inspection



Incorporating 3 lasers in a cross pattern, the XC65Dx captures all full 3D details of features, edges, pockets, ribs and freeform surfaces in a single scan. By digitizing complex features from 3 sides, the Cross Scanner acquires the complete 3D geometry of the features, driving the accurate extraction of positions and dimensions.

The XC65Dx-LS has a longer stand-off for optimum capture into deep pockets and slots, and accessing other hard-to-reach locations. The Cross Scanner is suited for inspection of sheet metal vehicle body parts with 2D or 3D features, casted engine parts and complex plastic molded parts etc.

Specifications

	L100	LC15Dx	LC60Dx	XC65Dx	XC65Dx-LS
Field-of-view	Approx 100x60 mm	18x15 mm	60x60 mm	65x65 mm (3x)	65x65 mm (3x)
Probing error (MPE,) ¹	6.5 μm	1.9 μm	9 μm	12 μm	15 μm
Data acquisition (approx. pts/sec)	200,000	70,000	77,000	3 x 25,000	3 x 25,000
Enhanced Scanner Performance	ESP4	ESP3	ESP3	ESP3	ESP3

¹ Nikon Metrology test comparable to EN/ISO 10360-2

ULTRAFAST SCANNING WITH UNCOMPROMISING DETAIL



Applications

- Full part-to-CAD inspection
- Inspection of geometric features
- Flush & gap inspection
- Reverse engineering
- On-site troubleshooting
- Input for rapid prototyping



Enhanced scanning experience with the ModelMaker H120



MMDx scanner is available in 50/100/200 mm stripe width

The MCAx Manual Coordinate Measuring Arm, is a precise, reliable and easy-to-use portable 7-axis measuring system. It is the perfect partner for the ModelMaker digital handheld laser scanners and ideally suited for portable 3D inspection and reverse engineering applications.

The ModelMaker H120 scanner features blue laser technology, ultra-fast frame rate, specially developed Nikon optics, and the ability to measure the most challenging materials. With 2,000 points per scan line and no reliance on point-to-point interpolation to artificially boost data density, it is possible to measure very small details on large surfaces – even when cycle time is critical.

The entry-level ModelMaker MMDx features stripe widths from 50 up to 200 mm, high speed data acquisition and ESP3 to digitize nearly all shiny or multi-coloured parts without any surface preparation.

Features

ModelMaker H120

- Blue light laser technology
- Ultrasharp Nikon Lens
- Stripe widths up to 120 mm
- Extremely fast frame rate of over 450Hz
- Scanner accuracy up to 7 μm (1σ)
- Combined system accuracy with the MCAx arms up to 28 μm (2σ)
- Enhanced Sensor Performance (ESP4) enables measuring difficult materials such as carbon fibre, gloss black, reflective or significantly multi-coloured parts.

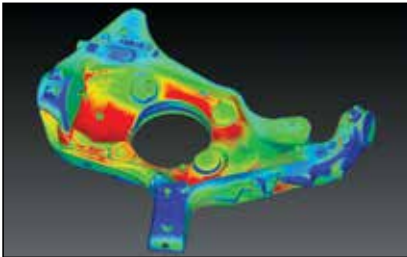
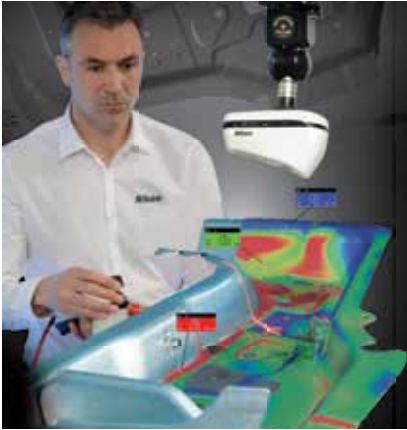
ModelMaker MMDx

- Stripe widths available from 50 mm to 200 mm
- Accuracy up to 10 μm (1σ)
- Enhanced Sensor Performance for scanning materials with varying surface materials and reflectivity

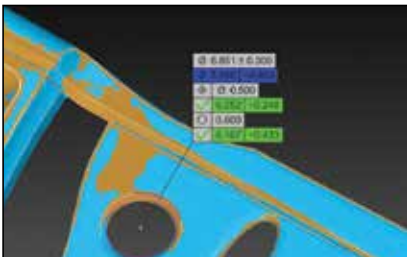
MCAx articulated arm

- Flexible probing options
- Intuitive scanning and inspection software
- Available in lengths between 2 m and 4.5 m
- Advanced construction: aerospace grade carbon fiber arms – strong but light with lifetime warranty
- Infinite rotation of all principle axes for unrestricted use

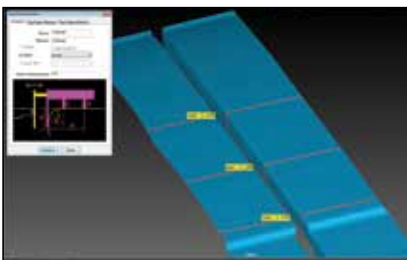
FOCUS POINT CLOUD SOFTWARE



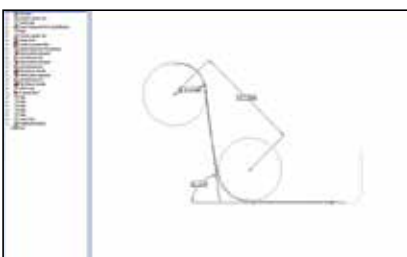
Part to CAD comparison



GD&T analysis



Flush&Gap inspection



Section reporting

Focus point cloud software drives a digital inspection process. The core of this process is the 3D inspection suite featuring easy-to-interpret part-to-CAD comparisons and advanced feature inspection. Focus also manages the data acquisition from laser scanner on CMMs and articulated arms, including off-line preparation to automate CMM scanning tasks.

Benefits

Focus Inspection software covers a wide range of inspection applications and offers stunning performance, an intuitive user interface, and standard macro functionality to automate the entire inspection process.

- Seamlessly integrated scanning and inspection for CMM and handheld laser scanning inspection workflows for both operators and engineers
- New ribbon toolbar facilitates inspection workflows
- Intelligent feature detection and analysis algorithms resulting in high productivity and consistent results
- Most complete set of functions for digital surface and feature inspection
- Easy-to-interpret and interactive reporting to facilitate decision making
- Inspection automation without requiring programming skills
- Share 3D results with colleagues and customers with free Focus Viewer

Surface inspection

Part-to-CAD inspection compares the acquired point cloud with nominal CAD data, and displays geometric deviations in a clear graphic report. Surface inspection is used to study material springback and shrinkage phenomena and to make sure that the shape of the part is as designed.

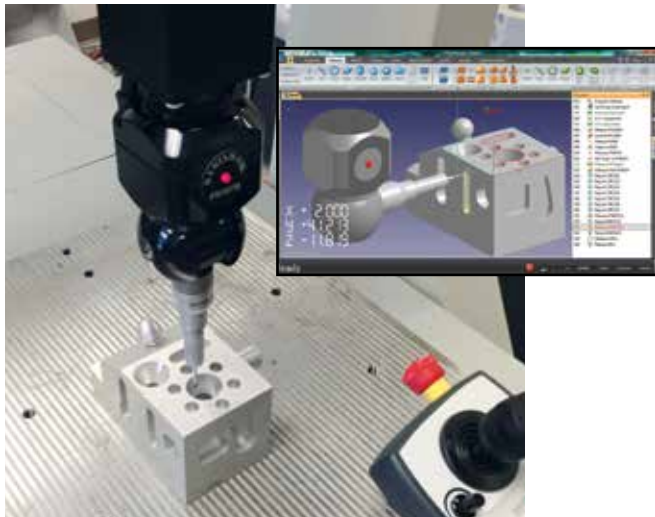
- Full part-to-CAD inspection
- 2D and 3D sections
- Wall thickness, edge analysis, etc.
- Customizable flyouts for clear interpretation

Feature inspection

Checking the position and dimensions of component features is crucial in order to guarantee an optimal fit later in the assembly process.

- Automatic and semi-automatic feature detection
 - 2D features: surface point, hole, slot, plane, etc.
 - 3D basic features: cylinder, sphere, etc.
 - 3D advanced features: T-Stud, diamond pin, fir tree, etc.
- Sectional inspection of flush & gap between assemblies (body, door, trunk, etc.)
 - Definition of user-specific flush & gap gauges
 - Combi hem: creation of virtual edge points
- Imports GD&T data from nominal CAD
- Complete set of certified GD&T functions to define tolerances on form, orientation and location
- PTB certified feature calculation algorithms

FULLY FEATURED FOR MANUAL, CNC & PORTABLE CMMs



CMM-Manager for Windows is value-for-money tactile inspection software that runs on nearly all manual, CNC and portable CMMs. Users accomplish more in less time with CMM-Manager, by automating serial inspection or by easily taking a few points on the spot.

It is a task-oriented, highly intuitive software featuring quick walk-in measurement, one-click CAD measure, collision-free CAD teach, virtual simulation, real-time verification, CAD and datum alignment, and many more smart functions. CMM-Manager's Windows 7 graphical user interface makes the software even more informative and interactive.

Features

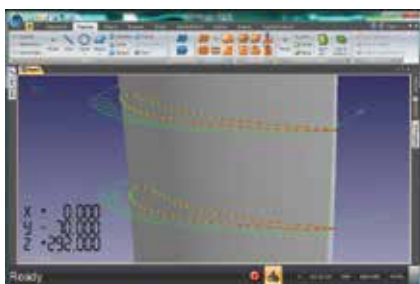
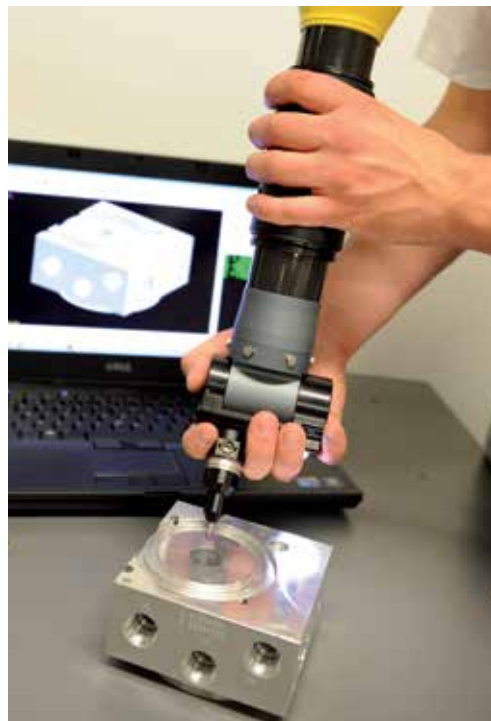
- CAD based graphical programming
- Automatic collision avoidance
- Smart alignment features
- Automatic probe recognition
- Leap frogging to extend measurement volume for portable measurement
- Best-fit analysis for improved inspection accuracy
- Drag-and-Drop web-ready graphical reporting

Benefits

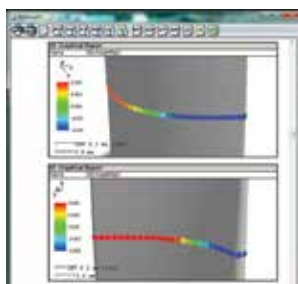
- Focus on quick and accurate measurement results
- Easy to use, yet complete metrology software
- Single software package for CNC, manual and portable measurement

Retrofit capabilities

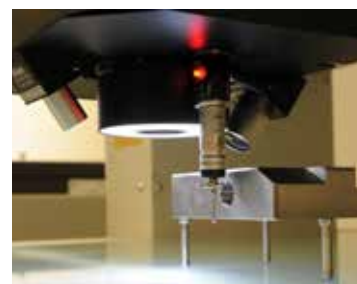
- CNC or Manual CMM: Nikon Metrology, Sheffield, Mitutoyo, Brown & Sharpe, DEA, Zeiss, Starrett, Numerex, Helmel, Wenzel, Renishaw
- Portable CMM retrofits: MCA (I, II, x), K-Series Optical CMM, Faro, Romer/CimCore, Sheffield, Brown & Sharpe, Mitutoyo, Renishaw
- iNEXIV video measuring systems



Easy-to-use software capable of measuring complex parts



Quick data interpretation through color-coded local geometry deviation



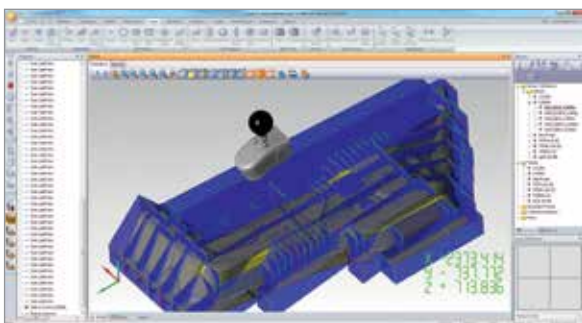
CMM-Manager is also available on iNEXIV video measuring systems

3rd PARTY SOFTWARE INTEGRATIONS

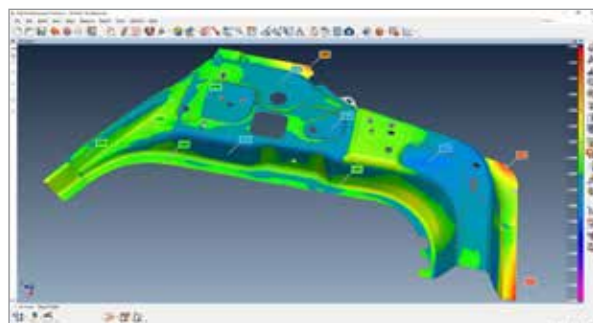
Nikon Metrology provides integrations with several 3rd party metrology software applications. This allows users to operate CMMs or articulated arms with the software of their choice. The integration level depends on the software package and spans online/offline programming, full-featured native acquisition, CAD/non-CAD based inspection, tactile/laser scanning probing. The resulting measurement data is further processed in dedicated analysis applications.

Available integrations

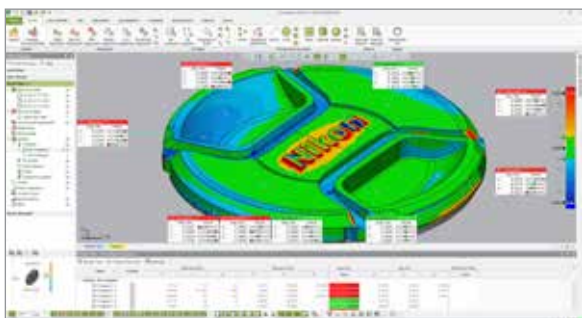
	CMM		ARTICULATED ARMS		OPTICAL CMM	
	Automated Laser Scanning	Automated Tactile Probing	Manual Laser Scanning	Manual Tactile Probing	Manual Laser Scanning	Manual Tactile Probing
CAMIO	✓	✓	✓	✓	✓	✓
InnovMetric PolyWorks	✓	✓	✓	✓	✓	✓
Metrologic Metrolog X4	✓	✓	✓	✓	✓	✓
3D Systems Geomagic			✓	✓	✓	✓
Autodesk PowerInspect			✓	✓	✓	✓
Verisurf X		✓	✓	✓	✓	✓
NRK SpatialAnalyzer			✓	✓	✓	✓



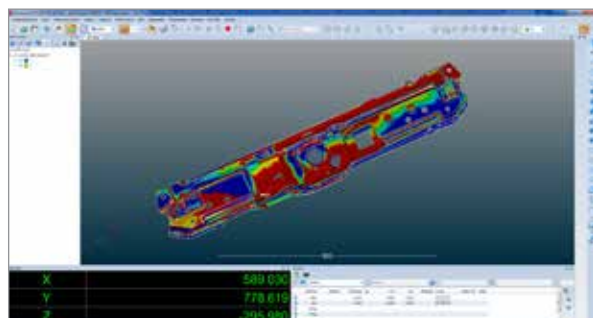
LK Metrology CAMIO: simulation of the scanning path



InnovMetric Polyworks

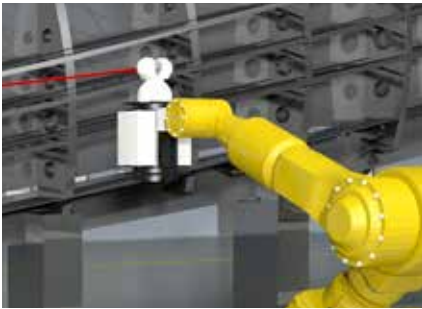


3D Systems Geomagic



Metrologic Metrolog X4

METROLOGY ASSISTED PRODUCTION / ROBOT METROLOGY



Nikon Metrology assists customers in successfully deploying metrology-driven manufacturing capability. Metrology assisted production builds on accurate geometric data to consistently increase the precision and speed of design, manufacturing and assembly operations.

LASER RADAR

SHOP FLOOR CMM

Laser Radar MV331/351

AUTOMATED, NON-CONTACT LARGE VOLUME INSPECTION



Laser Radar is a versatile metrology system that offers non-contact and true single-operator inspection. As it is CNC-programmable, it is ready for completely automated unattended operation. Laser Radar incorporates patented laser reflection technology that allows for direct surface and feature measurement at high data rates. As a result, Laser Radar eliminates the tedious use of photogrammetry dots, spherically mounted retroreflectors (SMRs) or handheld probes, slashing inspection time and operator overhead. Laser Radar is able to scan dark diffuse and highly reflective material and finish surfaces at challenging incident angles.

Applications

- Inspection of fuselage, wing, wing/body connection, landing gear door and jet engine blade
- Gap and step inspection of jet engine cowling
- Automated inspection of riveting hole positions
- Mold, first article and serial inspection of composite parts
- On-machine verification of large machined parts
- Dimensional verification of forged and molded parts before milling process starts
- Measuring wind turbine blades and concentrated solar panels
- Verification of space telescope hardware, parabolic antenna and heated surface

Features

- Measurement range for MV351 up to 50 m, MV331 up to 30 m
- Vision Scan inspection mode captures up to 2000 points per second
- Accuracy from 24 μm (2 m distance)
- Powerful hole and edge measurement capabilities
- Expanded line of sight using mirrors
- All acquired data referenced to a single contiguous coordinate system
- Supports a variety of large volume metrology software

Benefits

- Productivity multiplier thanks to fast measurement and low operator overhead
- Non-contact measurement ideal for delicate and inaccessible specimens
- Automation saves on operator expenses and manipulation errors
- Reliable range measurements on composite materials
- Seamless integration in measurement process



The Laser Radar is used for large volume inspection of objects ranging from a passenger door to an entire aircraft, reducing costs and improving product and process quality.

SHOP FLOOR CMM FOR CAR BODY INSPECTION

The Laser Radar mounted on an industrial robot introduces an innovative approach to body-in-white (BIW) inspection. This shop floor system provides accurate, dimensional measurements in the car coordinate system allowing direct comparison to CAD without the need for a reference part. Unlike horizontal-arm CMM, its high-speed measurements fit within short production cycle times. At the same time it is a more flexible solution to adapt with changes in model mix and factory layout.



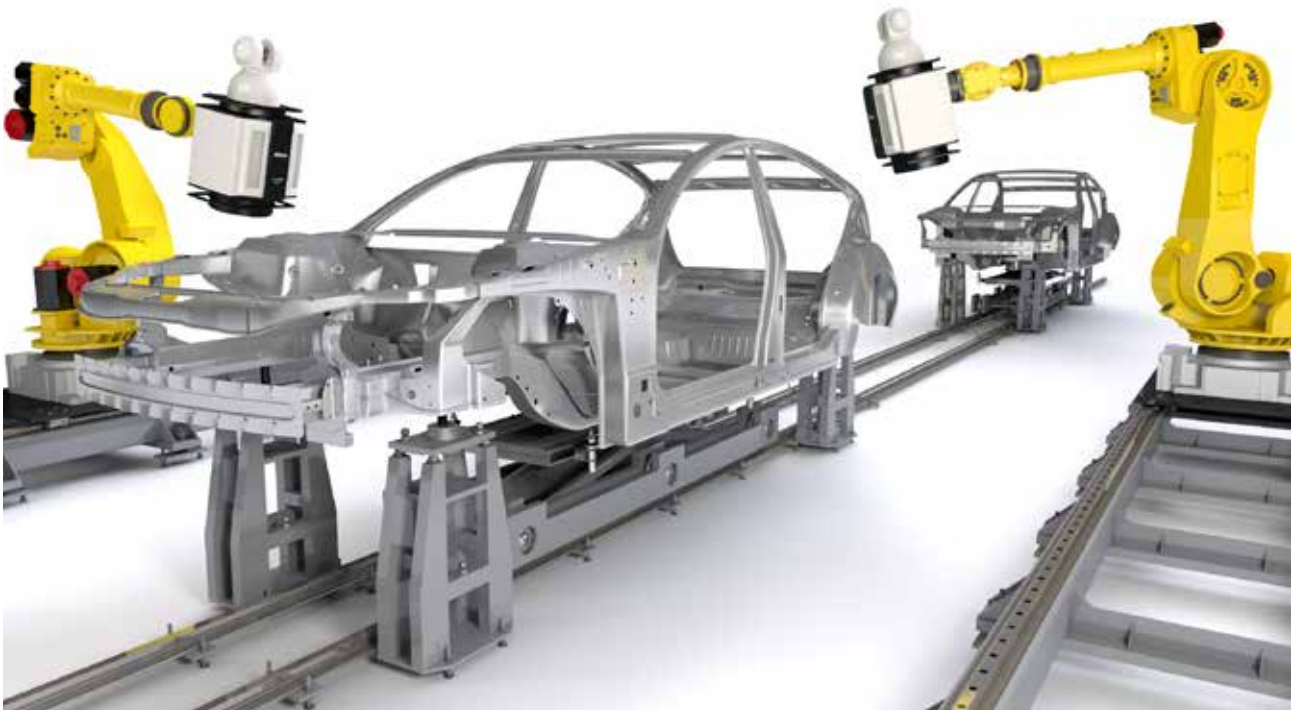
Laser Radar mounted on a robot is an innovative alternative for a traditional horizontal arm CMM

Key features

- Flexible, automated inspection
- Absolute measurements in vehicle coordinates
- <math><0.1\text{ mm}</math> accuracy over the volume of the car
- Large stand-off prevents collisions
- Fully (offline) programmable
- Available as stand-alone solution or robotized integration for use in measurement room, as by-pass station or directly on the production line.
- Interfaces with leading industrial robot brands
- Integration with leading application software (Metrolog, Polyworks, etc)



Features like holes, slots, pins, studs etc are inspected in an automated way at a scanning rate of 2000 points/sec



Inline car body inspection: On every car body, several features are inspected in the takt time of the line. After a series of passing cars, all critical features are measured.

DRIVING QUALITY 4.0

As Body-in-white inspection moves in the direction of Quality 4.0, it will become a fully automated, non-contact, absolute measurement process that is integrated into the production line. Traditional inspection approaches, such as coordinate measuring machines (CMMs), are being replaced by newer, automated approaches like Laser Radar systems. The better and more regular the measured data is provided, the more tightly a production line can be controlled. This is especially true in car plants, where the increase in quality and repeatability is effective in production, prototyping and ramp-up phases, ultimately leading to a much shorter time-to-market for a new vehicle.



Line-side inspection: A car body is taken from the line and fully inspected. Two or four robots guarantee the highest inspection productivity. After inspection the body is re-inserted into the production line.



Line-side inspection with rotating table: A car body is taken from the line onto a rotating table. A Laser Radar on a fixed lift inspects the body from different sides.



Horizontal arm CMM replacement: The Laser Radar on robot solution measures 6x quicker than traditional horizontal arm CMMs. As such BiW inspection data is much faster, more bodies can be inspected resulting in earlier feedback to the production process.



Component inspection: a single Laser Radar on a lift inspects front and back of multiple components on rotate tables.

€ WHAT CUSTOMERS GAIN

With the need for shorter and more flexible production cycles, automotive manufacturers are continuously looking to cut time and costs whilst maintaining quality. For automotive inline inspection, the automated Laser Radar on a robot offers the right capabilities to meet the need for flexible and absolute measurements directly on the shop floor. For car manufacturers this results in:

- ✓ **Shorter startup of new production line or upon vehicle model changes:** During the startup phase of a production line, the first produced vehicles can be completely measured and compared to CAD in a short time. This provides better insight into product conformance and enables faster fine tuning of the production process.
- ✓ **Reduced scrap:** By closely monitoring the production quality, the manufacturing process can be instantly adjusted when variances occur over time.
- ✓ **Future proof data:** Measurements in absolute coordinates fit in the digital manufacturing process where big data is used as a reference to compare data over time and enabling enhanced insight, decision making, process automation and to speed up future product development.

MEASURING INSTRUMENTS



Precision metrology instruments ensure the finest quality assurance throughout production. Founded on Nikon's optical excellence, video measuring systems, measuring microscopes, profile projectors and optical comparators set new standards for measuring even the smallest of work pieces.

VIDEO MEASURING SYSTEMS

MEASURING MICROSCOPES

PROFILE PROJECTORS

DIGITAL HEIGHT GAUGES

AUTOCOLLIMATORS

iNEXIV VMA-2520 / VMA-4540 / VMA-6555

MULTI-SENSOR CNC VIDEO MEASURING SYSTEMS



iNEXIV VMA-4540

Features

- Space-saving body weighing only 72kg (VMA-2520)
- Comfortable measuring volumes:
 - 250 x 200 mm XY stroke and 200 mm Z stroke (VMA-2520)
 - 450 x 400 mm XY stroke and 200 mm Z stroke (VMA-4540)
 - 650 x 550 mm XY stroke and 200 mm Z stroke (VMA-6555)
- Sophisticated VMA AutoMeasure software
- High-speed and highly accurate laser autofocus (option)
- Multi-sensor ready: vision, laser and touch probe

Benefits

- High accuracy through white LED illumination and use of aluminum alloy materials in the construction of the system
- Fast stage controls increase inspection yield
- New zooming optics make 3D part measurement easier
- Advanced image processing algorithm and intelligent search capability



iNEXIV VMA-2520



iNEXIV VMA-6555 large stroke model



Aluminum die casting part

iNEXIV CNC Video Measuring Systems automatically inspect the dimensions of a variety of precision equipment and electric parts, using optical measuring and image processing technologies. By precisely detecting the edges of the sample using CCD camera images and data processing, the measurement of complex sample shapes is possible

The iNEXIV VMA-2520 is a lightweight and compact multi-sensor benchtop measuring system for fast, full-automatic and high-accuracy features. It is ideally suited for a wide variety of industrial measuring, inspection and quality control applications. The iNEXIV is designed to measure 3D workpieces, is touch probe ready, integrates the latest imaging processing software, and incorporates a 10x optical zoom system and laser autofocus option.

The cost-effective VMA-4540V/4540 offers a larger measurement stroke enabling inspection of both large and tall mechanical and electronic parts. While the VMA-4540V offers video measurement only, the VMA-4540 additionally provides optional touch probe measurement.

The VMA-6555 is suitable for large samples (up to 650 x 550 x 200 mm) and simultaneous measurement of multiple parts. It features optimal cost-performance with the same strong cast-iron body and direct bearing as the high-end models.

The VMA-6555V is for video measuring, while the VMA-6555 is touch-probe ready.

Applications

- Mechanical parts (e.g. metal and injection molding parts)
- Electronic devices
- Dies
- Molds
- Medical devices

THE LATEST ADVANCEMENTS IN NEXIV TECHNOLOGY



VMZ-R4540

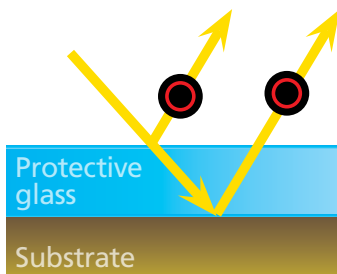
Features

- Laser Autofocus designed to detect surface of thin transparent material
- 6 types of optical zoom systems
- 8-sector Ring Light system with three incident angles
- Improved measuring accuracy with high resolution linear encoder
- Available in different sizes (VMZ-R3020, VMZ-R4540, VMZ-R6555)
- Streamlined software user interface enables every user to operate the system and create automated measurement programs



VMZ-R3020

VMZ-R6555



New Laser Autofocus is designed to detect surfaces of thin, transparent material. The new sensor detects both top and back surfaces.

Accurate measurements of advanced products (i.e. smartphones and tablets) and high-speed image processing technology for mass production have become a standard inspection operation. These next-generation NEXIV systems aim for fast and accurate measurement of the dimensions and shapes of high density and multi-layered electronic components and mechanical parts.

Highly accurate and fast measurements

A higher level of accurate measurements is achieved by Nikon's in-house developed linear encoder. In addition, improvements to the image transfer technology and changes to the illumination source have shortened overall measuring time.

Measurement flexibility

A third ring illumination angle features advanced edge detection, while enhancements to the TTL (Through The Lens) Laser Autofocus have strengthened the system's ability to measure transparent components.

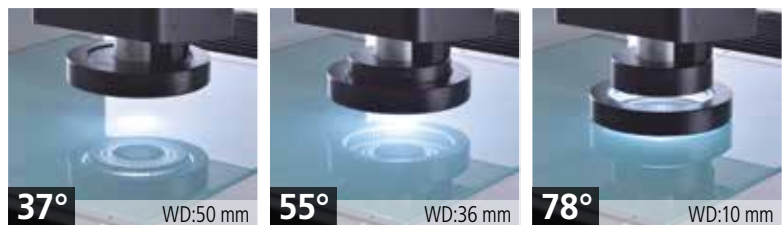
Advanced operability

Work efficiency has improved by reducing the number of steps needed to create teaching files. Developed for easier understanding and better comprehension, the newly added "Guide Panel" function has improved the main program.

8-sector Ring Light system with three incident angles

Episcopic, diasopic and Ring illumination employ white LED and provide stability and long life.

Ring Light System with three incident angles designed for correct edge capture.



Low incident angle / Long WD

High incident angle / short WD

New 8-sector Ring Light system with three incident angles is designed for better capturing edges

CONFOCAL NEXIV

3D MEASUREMENTS USING CONFOCAL IMAGES



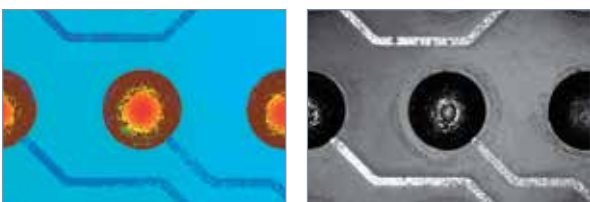
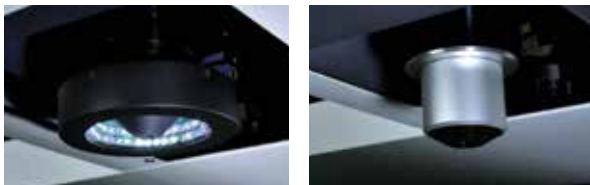
The Confocal NEXIV, a ground-breaking multi-functional video measuring system, was developed on the strength of Nikon's leading opto-mechatronics technologies. It incorporates confocal optics for fast and accurate evaluation of fine three-dimensional geometries, and brightfield optics with a 15x zoom. It allows both 2D and height measurements in the same field of view. The Confocal NEXIV can be optimally used for the inspection of highly complex structures such as bump heights on advanced semiconductor packages, probe cards and laser marks on wafers, etc.

Applications

- Bumps on advanced IC packages
- Probe cards
- Precise optical components (micro lens, contact lens)
- Laser marks on semiconductor wafers
- MEMS
- Wire bonding

Features

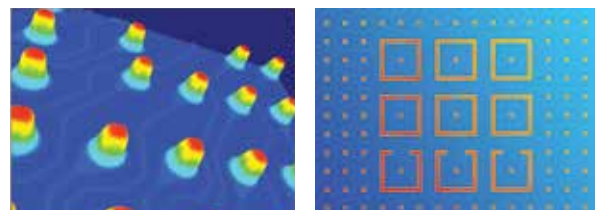
- Simultaneous wide-area height measurements with Nikon proprietary confocal optics
- 2D measurement with 15x brightfield zoom optics
- Fully compatible with 300 mm wafer measurement
- Available in different sizes: VMZ-K3040 and VMZ-K6555



Confocal images captured by Z scan are reconstructed in real time into 3D contour map and EDF (Extended Depth of Focus) images.



VMZ-K6555



Bird's-eye view Wafer Level package with 3D viewer software (option)

Fine bump and substrate pattern

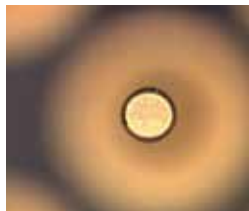
INTEGRATING DIGITAL IMAGING WITH INDUSTRIAL METROLOGY



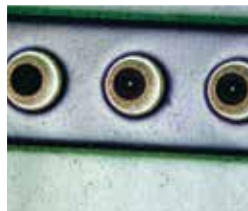
MM-800 measuring microscope

Nikon's measuring microscopes offer performance, convenience and an unprecedented degree of flexibility for upgrading and expansion. The MM400/800 Series deliver complete digital control for maximum measuring accuracy in demanding industrial environments. Measuring microscopes are excellently suited to inspect and measure 2D and 3D small parts.

The MM-200 is a compact and lightweight measuring microscope with an affordable price for all who require precision and accuracy for measuring a variety of metal, plastic and electronic parts in all industries; especially automotive and electronics.



PGA – Insertion pin



Brightfield image



CCD



Plastic gear teeth

Features

- Seamless integration with Nikon digital cameras and E-Max metrology software
- High-intensity white LED illuminator is standard for brightfield use
- Backpack interface facilitates automated illumination, XY stage and Z data control through an external computer running E-Max software
- Optional TTL Laser Autofocus
- For larger workpiece measuring, a stage up to 12x8 inch is available

Benefits

- Excellent geometric data processing and storage
- Ease of operation greatly improved through various motorized controls and ergonomic design
- Added body strength allows for using larger stages
- Expanded observation range by offering many options in illuminators and light sources
- A fully motorized high-power microscopy model is also available for digital imaging capability

Applications

- Lab-on-a-chip
- MEMS
- Plastic manufacturing (e.g. injection molded parts)
- Medical devices
- Microelectronics and optoelectronics
- Micro tooling
- Surface analysis
- Cracks & failure analysis

Related solutions

- NEXIV and iNEXIV video measuring systems
- Industrial microscopes



MM-200



MM-400

Profile projectors, Digital height gauges, Autocollimators

UNRIVALED PRECISION, UNMATCHED PERFORMANCE

Profile projectors



V-20B



V-12B

Nikon's profile projectors apply the principles of optics to the inspection of manufactured parts, by projecting the magnified silhouette of a part on a screen. To suit your specific application, each profile projector comes with multiple projection lenses, each featuring a different magnification, working distance and field of view size.

The V-20B has a large effective screen diameter of 500 mm. Its superior magnification accuracy is ideal for measuring and inspecting profiles, surface conditions and other aspects of large workpieces.

The Horizon line of horizontal benchtop comparators yield powerful, reliable illumination for surface and profile inspection and measurement.

Related solutions

Different profile projector types are available:

- V-20B (Screen diameter 500 mm)
- V-12B (Screen diameter 300 mm)
- Horizon 16E (Screen diameter 400 mm, only for USA)

Applications

- Profiles (metal and plastic manufacturing)
- Surface conditions
- Other part aspects
- Crack and failure analysis

MF-1001/MF-501 Digimicro



MF-1001 digital height gauge



MF-501 digital height gauge

The MF-1001 and MF-501 Digimicro series offer flawless contact measurements of dimensions, thickness and depth. They feature measuring length equal to 100 mm and 50 mm respectively and accuracy of 1 μm at 20°C. Stands are available in ceramic, steel or granite for added stability and a wide variety of probe tips are available to suit most applications

6B/6D Autocollimators



Nikon Metrology's autocollimators check alignment and measure very small angular deviations to measure flatness or height by simple geometry. Darkfield model autocollimator is perfect for measuring small, flat mirrors. Brightfield model autocollimator utilizes hallmark Nikon optics to illuminate surface details.

Applications involve surface flatness inspection, alignment of components with reflective surfaces (e.g. CD player pickup lens) as well as measurements related to machine tools (e.g. straightness in movement of stages, angles of indexers).

INDUSTRIAL MICROSCOPES



As a world leader in imaging technology, Nikon manufactures complete optical and digital microscope systems with outstanding versatility, performance and productivity for any application.

STEREOSCOPIC MICROSCOPES

INDUSTRIAL MICROSCOPES

SCANNING ELECTRON MICROSCOPES

SOFTWARE

Complete range of stereoscopic microscopes

A GIANT STEP FORWARD FOR STEREO MICROSCOPY



The SMZ25 and SMZ18 are revolutionizing stereo microscopy with their unique zoom range, along with modularity, comfort and ultra-high-performance optics.

These new SMZ cover a wide range of functionality, from basic stereoscopic images of unparalleled quality to the most sophisticated observation.

Features

- World's largest zoom range (25:1 for SMZ25) and highest resolution in the SMZ series
- Motorized focus and zoom operation (SMZ25)
- Crystal clear images in fluorescence as well as normal illumination techniques
- Easy-to-operate slim LED DIA base with OCC illumination (oblique lighting method developed by Nikon)



Injection needle



Printed circuit board (brightfield)



Printed circuit board (fluorescence)



Watch



SMZ1270i

SMZ800N

SMZ745T

The SMZ1270/SMZ1270i is a stereo microscope with the largest zoom ratio in its class. The SMZ800N excels by featuring enhanced optics and operability.

These stereo microscopes enable researchers to carry out high-magnification, large-zoom-ratio and high-definition imaging with ease. The clarity of the images and improved ease-of-use benefit researchers in a variety of industrial fields.

The complete line of Nikon stereomicroscopes covers a wide range of functionality, from sophisticated observation to affordable and ergonomic. Available models are:

- SMZ 25/18
- SMZ 1270i/1270/800N
- SMZ 745/745T
- SMZ 445/460
- SMZ-2



AT THE FOREFRONT OF OPTICAL INNOVATION



Eclipse LV100ND



Eclipse LV150N

Nikon Metrology offers a complete portfolio of industrial microscopes for a wide range of applications, from basic models to sophisticated systems for high-end inspection. The Eclipse range featuring optical and digital microscope systems offers outstanding versatility, performance and productivity to tackle practically any application.

Small-footprint Eclipse LV100N series deliver superb optics and ergonomics

Nikon's Eclipse microscopes are renowned for their ability to produce clearer images with higher contrast. The LV100N delivers brighter images, lower power consumption and less heat generation, thereby reducing the chance of heat-induced focus drift.

LV150N for industrial inspection

The Eclipse LV150 Series microscopes provide superb performance when inspecting semiconductors, flat panel displays, packages, electronics substrates, materials, medical devices, and a variety of other samples.

L200N for inspecting 200 mm wafers and masks

Combined with Nikon's superior CFI60-2 optical system and an extraordinary new illumination system, this microscope provides brighter images with greater contrast. The L200 series is ideally suited for the inspection of wafers, photo masks and other substrates.

L300N for large-size flawless inspection of LCDs and wafers

Configured for 300 mm wafer and mask inspection, the Eclipse L300N Series also satisfies the need for flat panel display backend inspection. The L300N Series utilizes Nikon proprietary CFI60-2 optical system, offering high resolution, contrast and transmittance.

Eclipse MA200 / MA100N inverted metallurgical microscope

MA200 is an inverted metallurgical microscope optimized for digital imaging and ergonomic efficiency. Its unique box design allows easy access to the sample on the stage and nosepiece, with a footprint, one third of the conventional model. The Eclipse MA100N is a compact-size inverted microscope developed for brightfield observation and simple polarizing observation.

NWL200 wafer loader for IC inspection microscopes

The NWL200 is capable of loading 100 micron thin wafers. The new loading system achieves highly reliable loading suitable for inspection of next-generation semiconductors.

Related solutions

- Modular design concept and huge choice of accessories (e.g. illuminators, objective lenses, stages, wafer loaders) to meet the inspection requirements
- Availability of microscope variants for dedicated inspection purposes (e.g. polarizing capability, metallurgical use)
- Availability of motorized nosepieces and digital imaging



Eclipse L200N



Eclipse L300N



MA100N



Eclipse MA200



Wafer loading system NWL200



Microscope cameras

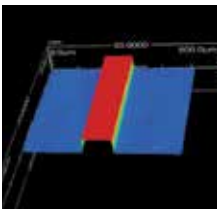
BW-S/D series – White light interferometric microscope systems

ULTRA HIGH VERTICAL RESOLUTION OF 1 PICOMETER

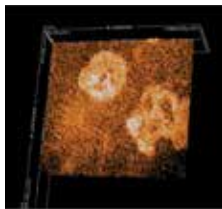


BW-S/D series measure surface profiles from sub-nano to millimeter height ranges speedily and accurately.

- High accuracy and repeatability - calibrated by an 8 nm or 8 μm VLSI Step Height Standards sample, certified by NIST
- High-precision/high-speed image - acquisition via a two beam interference objective lens
- 1 pm height resolution achieved at magnifications from 2.5x to 100x
- Wide region configuration analysis with stitching
- Six models available to match application and cost



VLSI Step Height Standard: 8nm



The Planarized SiC Wafer

NeoScope Benchtop scanning electron microscope (SEM)

COMBINING DIGITAL CAMERA FAMILIARITY WITH SEM



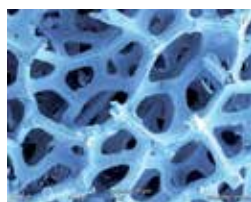
NeoScope SEM



The JCM-6000Plus "NeoScope™", is a touch panel controlled, multi functional desktop scanning microscope that answers the increasingly diversified needs among users worldwide. Offering the high resolution and depth of field of a powerful SEM, NeoScope helps accelerate the pace of failure analysis of manufacturing materials.



Diatoms

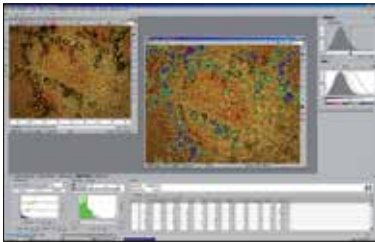


Foam

Basic operation of the NeoScope is simple with autofocus, auto contrast and auto brightness controls. Samples can be loaded and imaged in less than three minutes, without requiring any special sample preparation. Pre-stored parameter files (recipes) allow the user to quickly and automatically set up the NeoScope for a wide variety of material samples. The NeoScope operates in both low and high vacuum modes and has three settings for accelerating voltage.

INSTRUMENTS SOFTWARE OVERVIEW

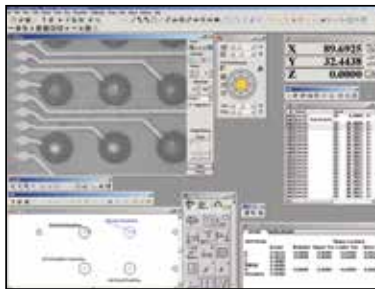
NIS-Elements software



Comprehensive device control and image analysis, visualization and archiving tools

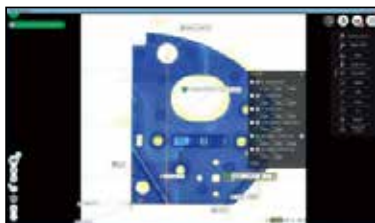
NIS-Elements revolutionizes imaging software for the microscopy market by combining automated intelligence to microscopes, cameras, components and peripherals with powerful archiving, analysis, visualization and archiving tools. Its intuitive interface simplifies workflow and speeds up image acquisition times while providing a versatile range of features, such as image stitching, object counting and volume views.

AutoMeasure (Measuring instruments)



User-friendly software that makes measuring automation simple

AutoMeasure integrates an intuitive wizard menu, customizable GUI and engineer/operator mode within a multiple-language environment. AutoMeasure software runs on iNEXIV VMA and NEXIV VMZ-R video measuring systems.



Auto MeasureEyes (iNEXIV)

Auto MeasureEyes features easy operation with measurement programs that can be created with just a few clicks. It also features comprehensive reporting functions to obtain profound insight into product quality.

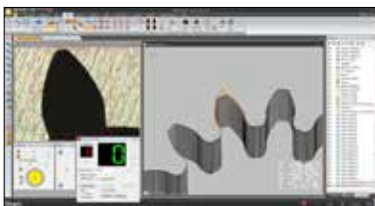
E-Max Series of data processing software (Measuring instruments)



FOV measurement with advanced digital imaging processing technology

The E-MAX series software offers state-of-the-art image processing that supports general-purpose measurement for a wide range of manual measuring instruments, including measuring microscopes and profile projectors.

CMM-Manager for iNEXIV



Expand the capabilities of multi-sensor measurement

Expand your 3D tactile and video measuring capabilities with CMM-Manager, now available on Nikon iNEXIV hardware. CMM-Manager is task-oriented, highly intuitive and offers powerful measuring and reporting capabilities. Main features are collision-free CAD-based path definition, virtual path simulation and accurate feature measurement for both tactile and vision probing.

CUSTOMER SUPPORT

Nikon Metrology provides ISO9001/2000 and UKAS accredited metrology solutions to a wide range of industries and bluechip customers in a global marketplace, utilizing a worldwide network of highly trained metrology experts. The complete range of services including helpdesk support, training, maintenance programs, retrofit capabilities and contract work, enables our customers to get the maximum value out of their Nikon Metrology solutions or to solve their inspection issues in the shortest possible time.

HELPDESK

Instant help – the skills and technical knowledge to solve your application/software problems by dedicated helpdesk engineers.

METROLOGY TRAINING/SEMINARS

Knowledge base – on-site/off-site, basic, intermediate and advanced software and hardware training and seminars using dedicated staff with hands-on experience.

PROGRAMMING CONSULTATION

Operational assistance - highly-skilled engineers provide part programs or programming consultation - expertise which can reduce your product inspection costs.

MAINTENANCE AND CALIBRATION

Technical service – the manpower, state-of-the-art technology and logistics to maximize reliability, uptime and equipment performance.

SUB-CONTRACT INSPECTION

Nikon Metrology offers a wide range of subcontract inspection work. The broad product portfolio includes the right tool for every inspection challenge of the customer. On top of Nikon Metrology own inspection service facilities, Nikon Metrology also has a broad worldwide network of Nikon Metrology Service Centers, that are accredited by Nikon Metrology to perform contract inspection work.

- Laser scanning work for part-to-CAD inspection or Reverse Engineering
- X-ray and CT inspection work for electronics and industrial applications



UPGRADES AND RETROFITS

Existing CMMs can be upgraded with an innovative Nikon Metrology scanner and application software. This considerably improves the inspection productivity and broadens the application scope. A full range of scanners and application software is available to meet all of your current and future needs.



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