L100

The ultimate CMM laser scanner combining productivity and accuracy

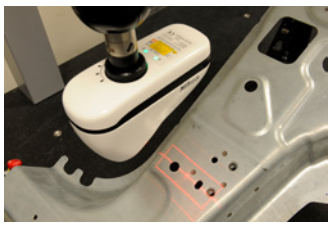
It's a Nikon ...

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.

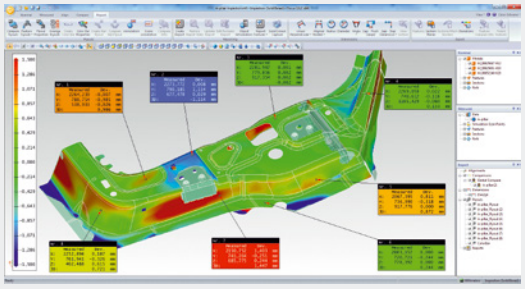
The L100 builds on 20 years of experience in optical metrology. With the L100, Nikon Metrology confirms their technology leadership in the field of CMM laser scanning.

L100

Higher productivity
Better understanding
Faster decisions
Superior product quality

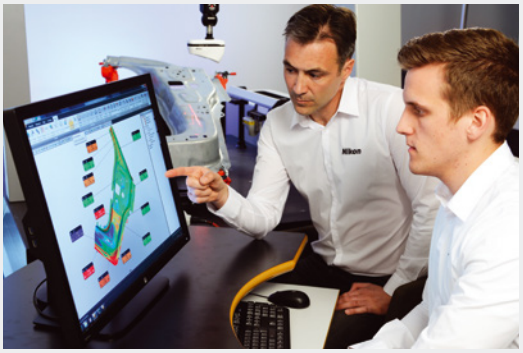




8 REASONS TO CHOOSE NIKON NON-CONTACT METRO



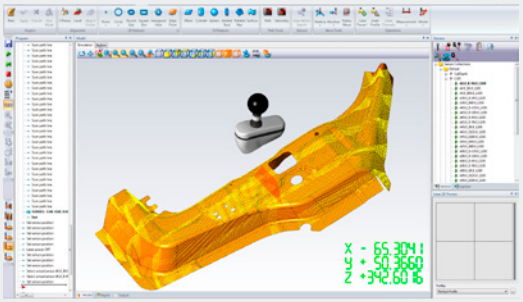
BETTER INSIGHTS IN DEVIATIONS

- 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



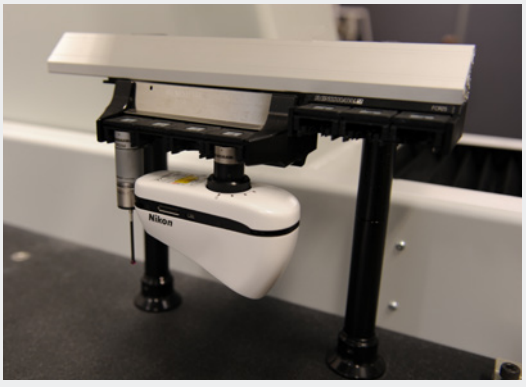
FACILITATE COMMUNICATION

- A picture is worth a thousand numbers
- Easy-to-interpret graphical reports
- Exchange unambiguous results with internal or external colleagues or suppliers



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

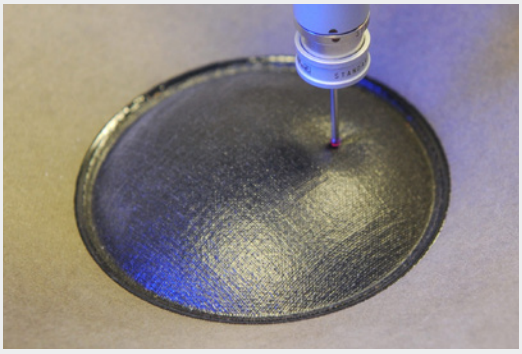


ENHANCE THE CAPABILITY OF YOUR CURRENT CMM

- Upgrade to a versatile multi-sensor CMM offering both non-contact and touch probe inspection
- Retrofit existing CMMs controller hardware and software

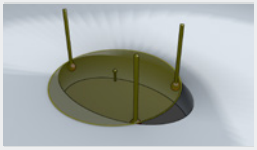
Retrofit kits are available for most leading CMM controller brands

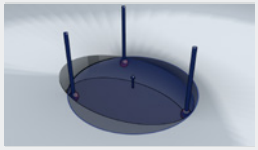
LOGY

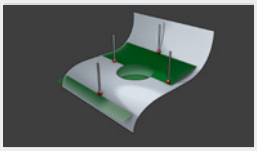


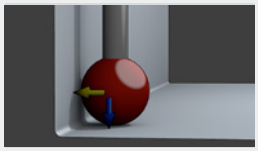
MEASURE SOFT AND FRAGILE COMPONENTS

- 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



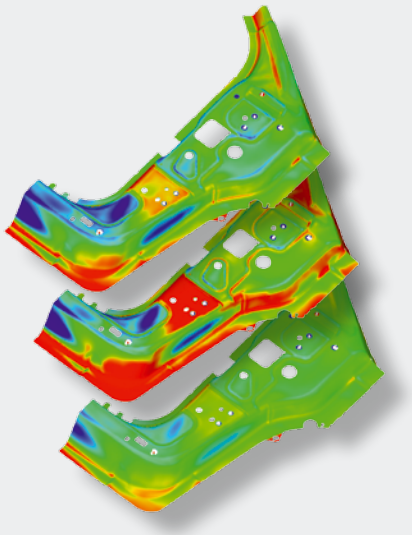






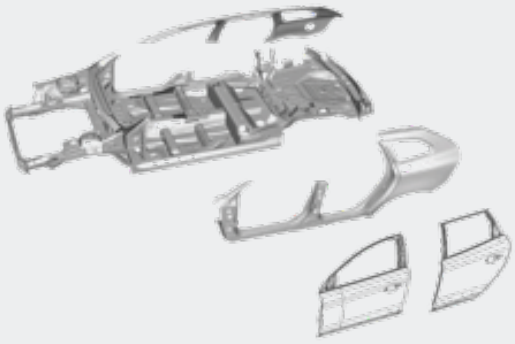
IMPROVED DATA QUALITY

- Overcomes errors inherent to tactile probing
  - No errors due to probe tip compensation
  - Uses large numbers of measuring points to extract features or reference planes compared to just a few points in case of tactile probing
- Measures complex surfaces with fine detail



REDO ANY ANALYSIS AT ANY TIME

- Perform additional analyses on existing measuring data even when the physical part isn't available anymore
- Easily compare samples from different measuring sessions
- Re-use existing data to accelerate development of new models
- Reverse-engineer older or modified parts to obtain actual CAD models



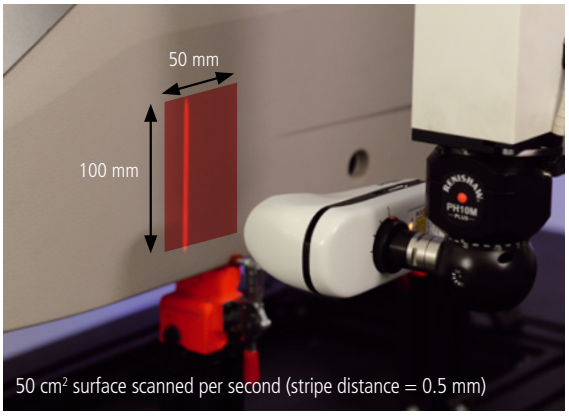
REDUCE COSTS

- Less physical prototype iterations by virtual assembly of individually measured parts
- Laser scanning avoids the need for expensive checking fixtures
- Reduce (online) programming and maximize measuring time

L100 LASER SCANNER

ULTRAFAST DATA COLLECTION

The L100 is ideal to inspect larger components where productivity is key but without having to compromise on accuracy. The 100 mm wide Field-of-View combined with the increased measurement speed results in measurement productivity that wasn't achievable with CMM scanning before.



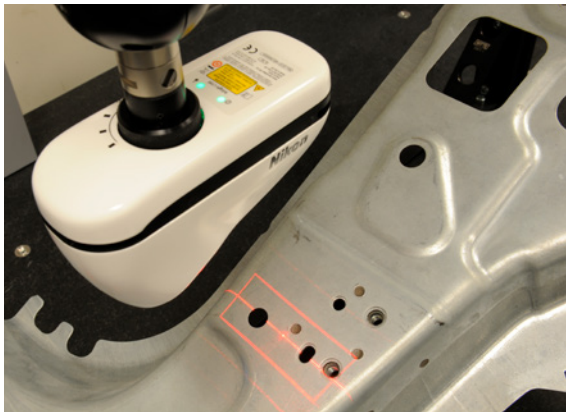
50 cm² surface scanned per second (stripe distance = 0.5 mm)

CAPTURE THE FINEST DETAILS

The L100 is equipped with a high quality glass Nikon lens optimized for laser scanning. Combined with the high definition camera this results in a point resolution of 42 µm and a data quality that is the best on the market, enabling fine detail capture and measurement of sharper edges. The L100 has an exceptionally small probing error of 6.5 µm, which is a measure of the scanner's noise level, enabling delivery of smooth meshes and high levels of detail.

ACCURATE FEATURE MEASUREMENT

The L100 is perfectly suited for combined surface and feature measurements. Thanks to the low measurement noise and high point resolution, feature measurement accuracy approaches the accuracy of a touch probe.



COPE WITH CHANGES IN SURFACE COLOR

The 4th generation of Enhanced Sensor Performance (ESP4) adapts the laser intensity for each point in the scan line to varying colors or materials faster than ever. This makes the scanner even more robust for digitizing multi-material assemblies or shiny surfaces without the need for cumbersome surface treatment.

NO COMPROMISES ON ACCURACY AND SPEED

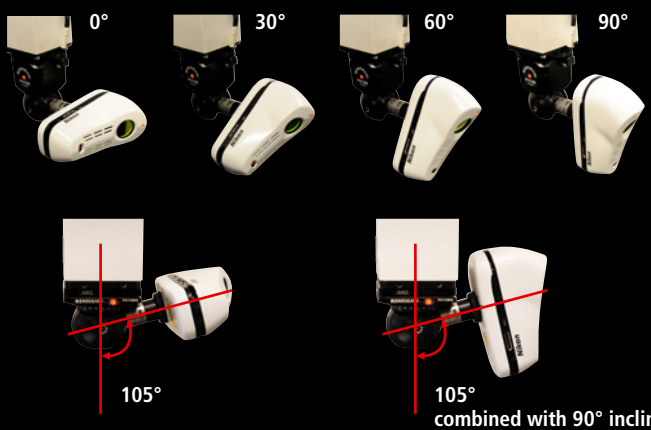
EASY TO USE

The new Field-of-View (FOV) projection provides a clear indication for the user whether the scanner is optimally positioned. This facilitates scanner programming and provides better feedback during actual scanning.

EXTEND THE MEASUREMENT REACH

The patent-pending integrated mount rotation allows the scanner to rotate around its autojoint axis in 30° increments up to 90°. This is particularly interesting to measure turbine blades or parts with vertically oriented features and edges.

The L100 also allows the use of an extended 105° PH10 A-angle allowing better access to measure underneath or behind parts.



SPECIFICATIONS

Probing error (MPE_P) [1]	6.5 µm (0.00026″)
Ball bar length (MPE_E) [2]	6 µm +L/350 mm (0.00024″+L/13.8″)
Multi-stylus test (MPE_{AL}) [3]	6 µm (0.00024″)
ISO Probing form error [4]	15 µm (0.00059″)
ISO Probing size error all [5]	20 µm (0.00079″)
ISO Probing dispersion value [6]	26 µm (0.00102″)
ISO Cone angle [7]	125°
Scanning speed	200,000 points/sec
Resolution	Max. 42 µm (0.0017″)
Max. Field-of-View width	110 mm (4.3″)
Field-of-View depth	60 mm (2.4″)
Stand-off distance	105 mm (4.1″)
Laser safety	Class 2
Enhanced Scanner Performance	ESP4
Daylight filter	Yes
Probe head compatibility	PH10M, PH10MQ, CW43, PHS

All accuracy specifications valid for a CMM with an accuracy of 2µm + L/350 or better using manufacturer supplied test sphere

[1] Nikon Metrology test comparable to EN/ISO 10360-2 MPE_P using 1σ sphere fit.

[2] Nikon Metrology test comparable to EN/ISO 10360-2 MPE_E

[3] Nikon Metrology test comparable to EN/ISO 10360-5 MPE_{AL}

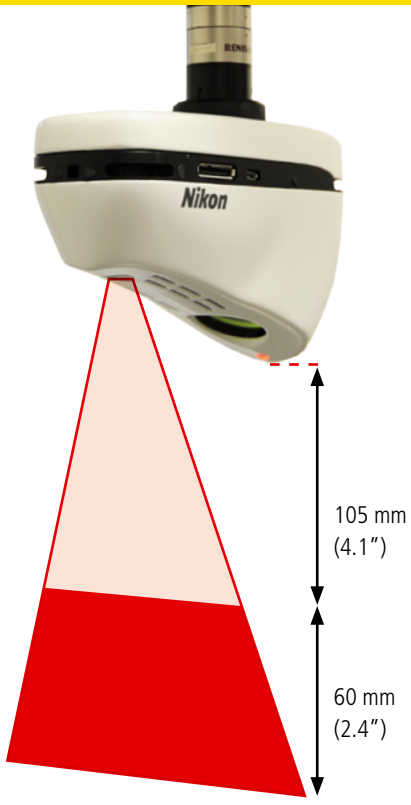
Accuracy specifications according ISO 10360-8:2013:

[4] $P_{Form.Sph.1x25:Tr:ODS,MPE}$: "Maximum probing form error" using 25 representative points in translatory scanning mode

[5] $P_{Size.Sph.All:Tr:ODS,MPE}$: "Maximum probing size error using All" measured points in translatory scanning mode

[6] $P_{Form.Sph.D95\%:Tr:ODS,MPE}$: "Maximum probing dispersion value" using 95% of the measured points in translatory scanning mode

[7] Cone angle : Region of sphere on which the measured points are selected



LASER RADIATION
DO NOT STARE INTO THE BEAM
CLASS 2 LASER PRODUCT
Max output = 1.65 mW 660 nm
1 mW 635 nm
IEC 60825-1 Edition 3.0 2014
Read instruction manual before use

US 6611617; 6944564; 7009717; 7299145; 7313264; 7428061; 8117668; 8353059; RE43895; EP 0840880; 1160539; 1361414; 1754951; 2010863; 2096403 Other intl. / pending patents
Complies with 21 CFR 1040.10 and 1040.11, Laser Notice No. 50 dated June 24, 2007

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Laser scanning beyond expectations

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