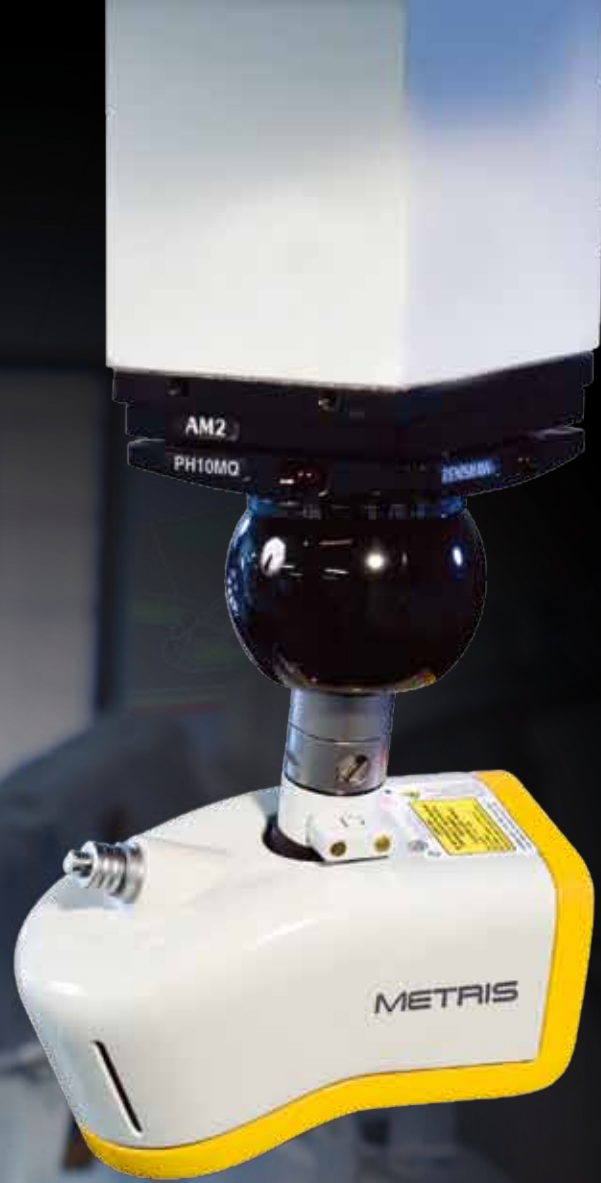




LC60Dx - LC50Cx  
Digital line scanners

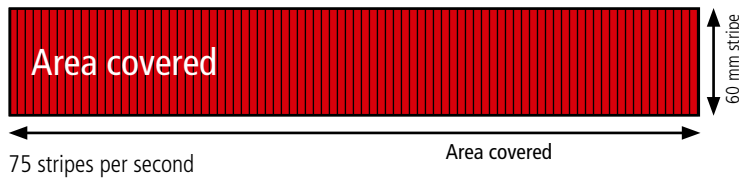


Revolutionizing CMM scanning

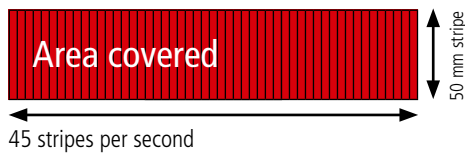
# Efficient and productive scanning...



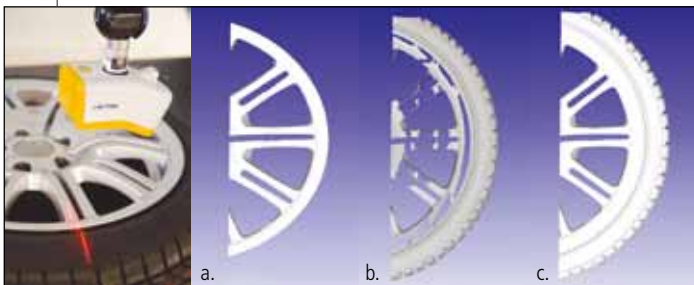
LC60Dx scanner



LC50Cx scanner



## Enhanced Sensor Performance (ESP3)



- ESP3 Off: Settings optimized to scan the rim → Tire is not scanned
- ESP3 Off: Settings optimized to scan the tire → Rim is partly scanned
- ESP3 On: Automatic point-per-point tuning results in optimal data in one single scan

LC60Dx is the premium model in the LC line of laser scanners, as it sets new accuracy and productivity standards by tripling today's common scan rates. It scans nearly all material surfaces at rates never achievable in the past, without requiring manual sensor adjustment.

LC50Cx is suited for digitizing freeform objects including parts with hard-to-scan surfaces.

### Top accuracy for top performance

The LC60Dx offers 40% accuracy improvement compared to the LC60D predecessor in comparable tests to EN/ISO10360 MPE<sub>p</sub> and MPE<sub>AL</sub>. This brings the scanner in the accuracy range of tactile measurements, while capturing thousands of measurement points per second to accurately digitize freeform shapes.

The LC60Dx achieves a scanning rate of 75,000 points per second minimizing the scan time to inspect larger parts such as e.g. vehicle sides or doors.

The LC50Cx laser scanner offers an adequate productivity with its 50mm stripe width and scanning rate of 45 stripes per second.

### Scan any surface with ESP3

The LC60Dx/LC50Cx scanners are both designed for effortless scanning of varying or hard-to-scan surface materials. The unique Enhanced Sensor Performance (ESP3) capability provides real-time, point per point laser intensity adjustment to constantly adapt to the material surface.

On top, the LC scanners also feature a highly effective filter to avoid capturing of scattered reflection points.

As a result, sheet metal parts, plastics, castings, milled objects or combinations of these – can be scanned in one single move without the need for spraying the part.

### Benefits of 3D Laser Scanning

- Digitizing test objects quickly and straightforward, even for novice user
- Gain valuable geometric insights from the 3D representation of the entire part
- Benefit from the unique capability to measure soft and fragile surfaces
- Run any kind of analysis on the digital copy, no need to keep the physical part anymore

## ... for a multitude of applications

### Robust scanner operation

To guarantee maximum operational stability and robustness, the principal scanner components are mounted in an ultra-stiff stress-free aluminum housing. By separating the heat-generating components from the critical optical parts, the scanners benefit from an inherent temperature stability.

The LC60Dx additionally includes a temperature compensation algorithm to minimize warm-up time and further sharpen accuracy under shop floor conditions. By docking the LC60Dx in the ACR3 heated rack, the scanner has even zero warm-up time, resulting in maximum productivity.

### A wide range of localizers

Both LC scanners fit on most leading CMM brands. In the case companies own fixed-bed CMMs and articulated arms, the LC60Dx uniquely allows to easily exchange the scanner between CMM and handheld localizers. In this way, they are able to execute most of their digitizing work using a single laser scanner.

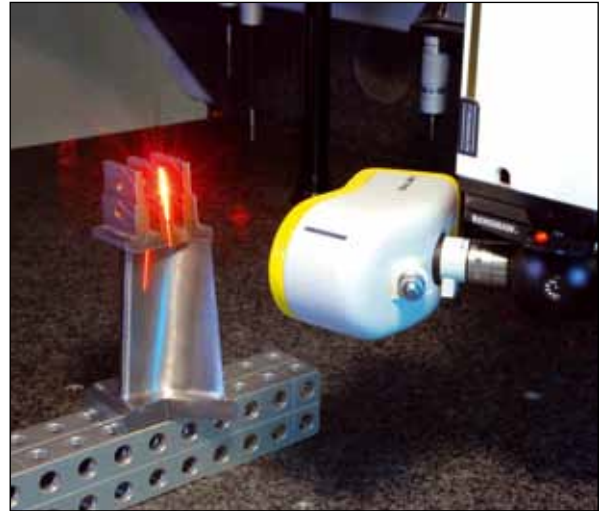
### A scanner for every application

For applications requiring premium productivity and top accuracy, the LC60Dx is the right choice. Combine this with its unique versatility and this is why LC60Dx is the most progressive scanner on the market today.

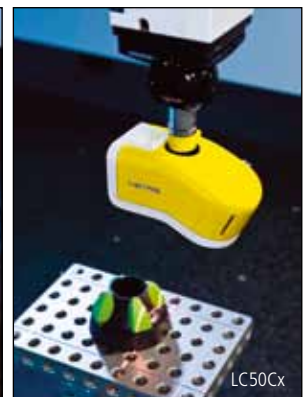
For straightforward digitizing tasks on CMM, the LC50Cx offers excellent scanning capability. Built on the same core digital scanning technology as the LC60Dx, the LC50Cx guarantees reliable full surface coverage at a scan rate of 37,500 points per second.

LC scanners are used for:

- Inspection of sheet metal shapes and features
- Assembly problem troubleshooting
- Shape validation of machined orthopedic implants
- Automotive flush & gap inspection
- Inspection and reverse engineering of turbine blades
- Investigating shrinkage of casted metal parts or injection-molded plastic components
- Inspection of tool wear
- Reverse engineering of manually tuned mold and dies
- etc.



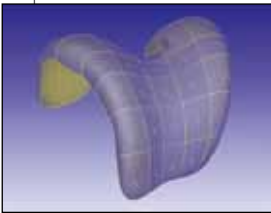
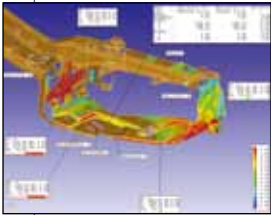
LC60Dx



LC50Cx



# Software and specifications



## The Digital Inspection Process

Compared to inspection performed directly on the physical test part, "digital inspection" first digitizes the test part and subsequently runs inspection on the acquired digital model data. From measurement preparation to final report, the acclaimed Focus and Camio software suites help you take full advantage of the typical automation capabilities and flexibility benefits of this entirely digital workflow. Alternatively, LC scanners can be easily set up to operate with third-party software.

## Focus Scan

Focus Scan is the driver software for LC laser scanner integrations on a wide range of CMMs. The offline version offers advanced scan path generation methods, as well as collision detection and scan preview animation. The offline virtual scan process allows to prepare and automate the inspection workflow including reporting, before the actual scan is performed. The online version is the driving software of the scanner and CMM and benefits from the same functionalities.

## Focus Inspection

As today's reference for point cloud inspection, Focus Inspection accelerates 2D/3D feature and full part-to-CAD inspection, and packages inspection results in easy-to-interpret graphics and reports.

## Focus RE Basics

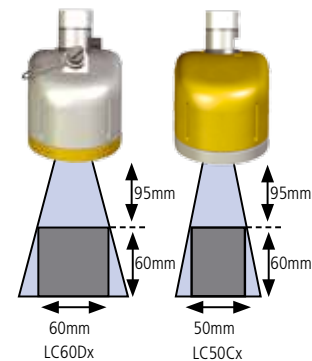
Focus RE Basics quickly creates CAD surface models from point clouds. It provides powerful and yet easy-to-use tools for design updating and manufacturing of freeform parts and products.

## Camio multi-sensor software

Camio is a fully integrated multi-sensor software platform for CMM based inspection featuring off-line programming and on-line inspection. It includes efficient software tools to create DMIS-based CMM inspection programs that efficiently drive laser scanners as well as a wide variety of touch sensors.

	LC60Dx	LC50Cx
Stripe width	60mm (2.36")	50mm (1.97")
Resolution	60µm (0.0024")	60µm (0.0024")
Maximum acquisition rate	75,000pts/s	37,500pts/s
Stand-off distance	95mm (3.74")	95mm (3.15")
Field of View (FOV) width and height	60x60mm (2.36x2.36")	50x60mm (1.97x2.36")
Weight	390g (0.86lbs)	380g (0.84lbs)
Typical probing error (MPE <sub>v</sub> ) <sup>1</sup>	7µm (0.0003")	15µm (0.0006")
Multi-stylus test (MPE <sub>AL</sub> ) <sup>2</sup>	9µm (0.0004")	19µm (0.0008")
Interface on CMMs	PH10 / Multi-wire	PH10 / Multi-wire
Interface on manual localizers	Ethernet	x
ESP3	✓	✓
Daylight filter	✓	✓
Laser power	Class 2	

<sup>1</sup> Comparable to EN/ISO10360-2 / <sup>2</sup> Comparable to EN/ISO10360-5, for CMM with accuracy of 2µm + L/350 or better



**CLASS 2 LASER PRODUCT**  
 Max output = 14 & 1 mW  
 660 & 635nm  
 IEC 60825-1 Edition 2.0 2007-03



### NIKON METROLOGY NV

Geldenaaksebaan 329  
 B-3001 Leuven, Belgium  
 phone: +32 16 74 01 00 fax: +32 16 74 01 03  
[info@nikonmetrology.com](mailto:info@nikonmetrology.com)

**NIKON METROLOGY EUROPE NV**  
 tel. +32 16 74 01 01  
[sales\\_europe@nikonmetrology.com](mailto:sales_europe@nikonmetrology.com)

**NIKON METROLOGY GMBH**  
 tel. +49 6023 91733-0  
[sales\\_germany@nikonmetrology.com](mailto:sales_germany@nikonmetrology.com)

**NIKON METROLOGY SARL**  
 tel. +33 1 60 86 09 76  
[sales\\_france@nikonmetrology.com](mailto:sales_france@nikonmetrology.com)

**NIKON METROLOGY, INC.**  
 tel. +1 810 2204360  
[sales\\_us@nikonmetrology.com](mailto:sales_us@nikonmetrology.com)  
[us.nikonmetrology.com](http://us.nikonmetrology.com)  
[www.nikoninstruments.com](http://www.nikoninstruments.com)

**NIKON METROLOGY UK LTD.**  
 tel. +44 1332 811349  
[sales\\_uk@nikonmetrology.com](mailto:sales_uk@nikonmetrology.com)

### NIKON CORPORATION

Shin-Yurakucho Bldg., 12-1, Yurakucho 1-chome  
 Chiyoda-ku, Tokyo 100-8331 Japan  
 phone: +81 3 3773 9026 fax: +81 3 3773 9062  
[www.nikon-instruments.jp/eng/](http://www.nikon-instruments.jp/eng/)

**NIKON INSTRUMENTS (SHANGHAI) CO. LTD.**  
 tel. +86 21 5836 0050  
 tel. +86 10 5869 2255 (Beijing office)  
 tel. +86 20 3882 0550 (Guangzhou office)

**NIKON SINGAPORE PTE. LTD.**  
 tel. +65 6559 3618

**NIKON MALAYSIA SDN. BHD.**  
 tel. +60 3 7809 3609

**NIKON INSTRUMENTS KOREA CO. LTD.**  
 tel. +82 2 2186 8400

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