

LC60D/LC50C/LC15 Line scanners



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Digital laser scanning boosts inspection performance



Equipped with state-of-the-art CMOS technology and powerful on-board data processing, the LC60D scanner more than triples today's common scan rates. This enables manufacturers to drastically reduce the inspection cycle time for freeform parts, or boost the number of features that can be scanned in the same time frame.

To effectively scan surfaces with varying color or high reflectivity, LC60D provides automatic real-time adjustment of sensor settings for each individual point of the laser stripe. LC50C is the ideal scanner for digitizing features and freeform objects with uniform surface properties. And LC15, with its smaller field of view, perfectly suits digitizing small or detailed objects with higher point density and tighter tolerances.

Features

- Laser stripe width of 60mm (LC60D), 50mm (LC50C) or 15mm (LC15)
- Accuracy of 8µm (LC15), 15µm (LC60D) and 20µm (LC50C)
- Scanning rate of 75,000 points/second (LC60D)
- Fully compatible with Renishaw PH10M(Q) and automatic change racks (ACR)
- Data collection over multi-wire is integrated into most CMM brands and types
- Designed for minimum warm-up time and maximum operational stability and robustness



LC60D

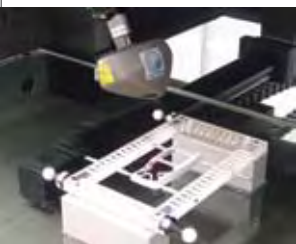
LC50C

Applications

- Inspection and reverse engineering of mobile phones, turbine blades, tools, castings, dies, sheet metal parts, plastics, etc.

Related solutions

- Bridge, horizontal arm and gantry CMMs
- Focus point cloud software, Inspection and Reverse Engineering software
- Camio multi-sensor CMM software

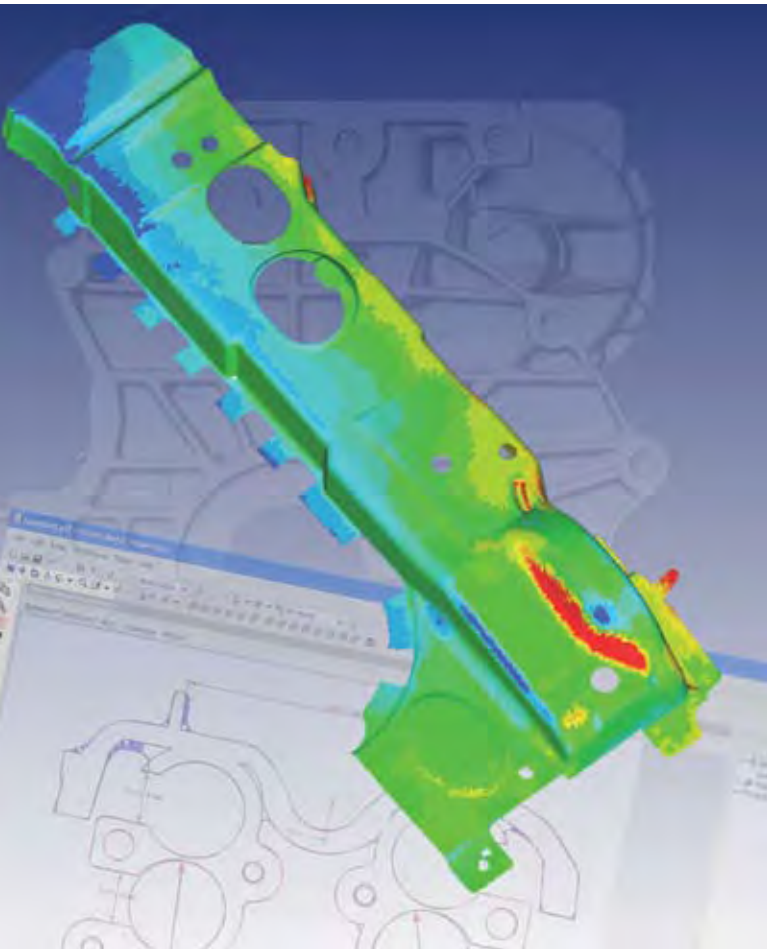


Detailed analysis of mobile phone cover using LC15

BENEFITS OF CMM-BASED LASER

- Simplified measurement and processing setup
 - Teach scan paths or indicate scan area on CAD
 - Import feature properties and GD&T information directly from CAD
 - Macro functionality for fully automated scanning and inspection
- Reduced measurement time
 - Reduction of probe head movements
 - XC65D(-LS) scanner captures full feature information in a single movement

Focus Inspection – The reference for point cloud processing



Focus Inspection is today's reference for point cloud inspection. The software offers stunning performance, an intuitive user-interface, and standard macro functionality to automate the entire inspection process.

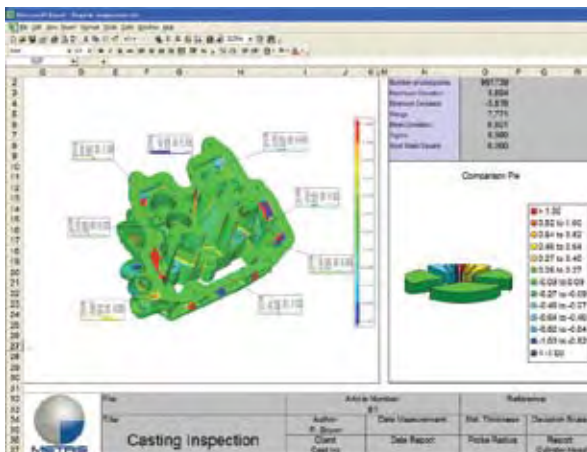
Focus Inspection provides feature and full part-to-CAD 3D inspection, starting from point cloud data or meshes from CMM scanners, handheld scanners or Computed Tomography (CT). Focus Inspection visualizes inspection results in easy-to-interpret, interactive graphics and reports.

Features

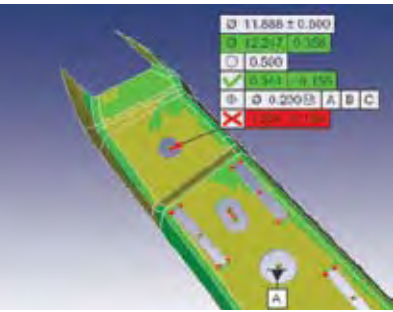
- Superior point clouding handling
 - Up to 100 million points
 - Powerful and automated feature detection algorithms
- Full inspection toolbox
 - Full part comparison to CAD or STL
 - Complete set of 2D and 3D features
 - GD&T (Geometric Dimensioning & Tolerancing)
 - Wall thickness, flush & gap, and directional comparison
- Flexible reporting and data sharing
- All inspection functions fully automatable
- Dedicated inspection modules (e.g. Turbine Blade Inspection)

Benefits

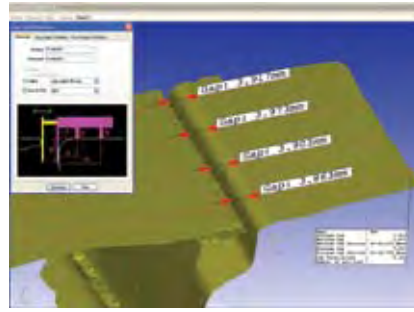
- High productivity and data processing consistency with minimum effort
- Operator-independent results with accurate feature detection algorithms
- Designed for industrial use by operators and engineers
- Inspection automation without requiring programming skills
- Easy-to-interpret and interactive reporting to facilitate decision making



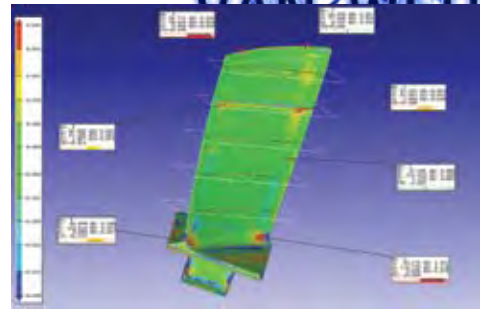
Color map reports clearly indicate local geometry deviations



Geometric dimensioning & tolerancing (GD&T)



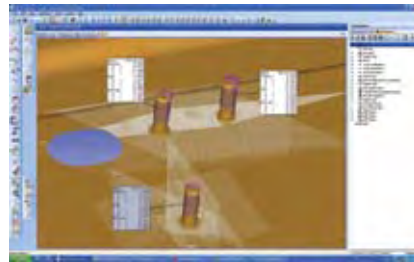
Gap & flush analysis



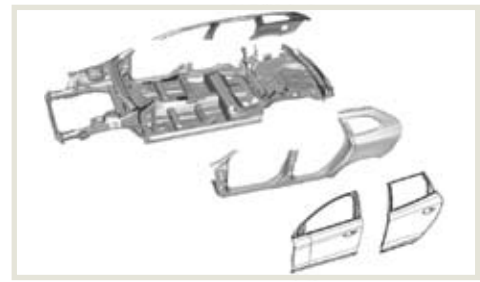
Turbine blade inspection



Inspection of features in automotive applications...



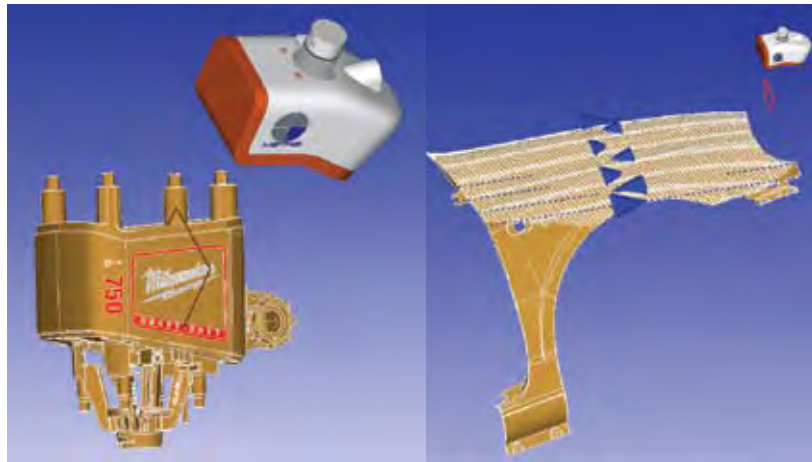
...are readily compared to CAD in Focus Inspection



Virtual assembly allows measured and CAD models to be built together to predict mating conflicts

Focus Scan – Fast, easy and accurate data capture for CMM laser scanning

Focus Scan is the driver software for Nikon Metrology laser scanner integrations on CMMs. It provides off-line and on-line scanner path definition, and acquires and pre-processes the raw point cloud data. The software is fully integrated with Focus Inspection, Reverse Engineering and Automation. Focus Scan's off-line module enables users to create, modify and prove out part programs using 3D CAD models, allowing CMMs to be used exclusively for measurement.



Besides requiring simpler scanner motion paths, automatic scan path programming further reduces measurement preparation time.

A breakthrough in validating scan macros is the new point spray feature that simulates a point cloud as if the part is measured on the CMM.

Focus RE Basics - Straightforward reverse engineering

Focus RE Basics quickly creates CAD surface models from individual point clouds using a straightforward workflow. Reverse engineering is typically applied when original CAD data is missing, to create CAD from handmade clay models, to update designs, or as input for rapid prototyping of freeform parts and products.

