

## Intuitive scanning and one-click analysis



The ModelMaker handheld laser scanners are ideally suited for portable 3D inspection and reverse engineering applications. ModelMaker's true digital camera technology is a major leap forward in 3D laser scanning, as it introduces enhanced sensor performance, high frame rates, and a large stripe width up to 200mm for ultra-productive scanning.

The digital camera benefits from a true non-interpolated resolution of more than a thousand points per stripe, providing optimum resolution for efficient scanning of freeform surfaces and features. ModelMaker is compatible with MCA and many 3<sup>rd</sup> party articulated arms in addition to the K-Series Optical CMM system.

### Features

- Scanning up to 80,000 measurement points per second
- Multiple stripe widths available from 40 to 200mm
- Accuracy down to 16µm (2 sigma)
- Enhanced Sensor Performance for scanning materials with varying surface materials and reflectivity
- Out-of-the-box scanning with direct plug into PC
- Focus software for handheld 3D laser scanning
  - Real-time rendered scan visualization
  - Localizer-driven scanning menu
  - Mesh creation and processing
  - Part-to-CAD comparison

### Applications

- Part-to-CAD inspection
- Inspection of geometric features
- Gap & flush inspection
- Reverse engineering – from concept studio clay to class A surfaces
- Input for rapid prototyping

### Benefits

- Ergonomic solution thanks to lightweight housing and full scanner control at your fingertips
- Superior scanning accuracy for freeform and feature inspection
- High scanning throughput through fast digital data capture
- Robust design for use under all shopfloor conditions

### Related solutions

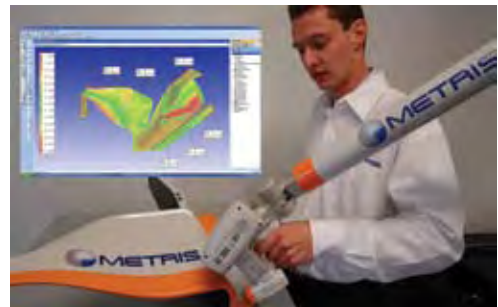
- MCA articulated measuring arm
- K-Series Optical CMM
- Focus point cloud processing software



MMD scanner is available in 50/100/200 stripe width and scans at maximum rate of 80,000 points/sec

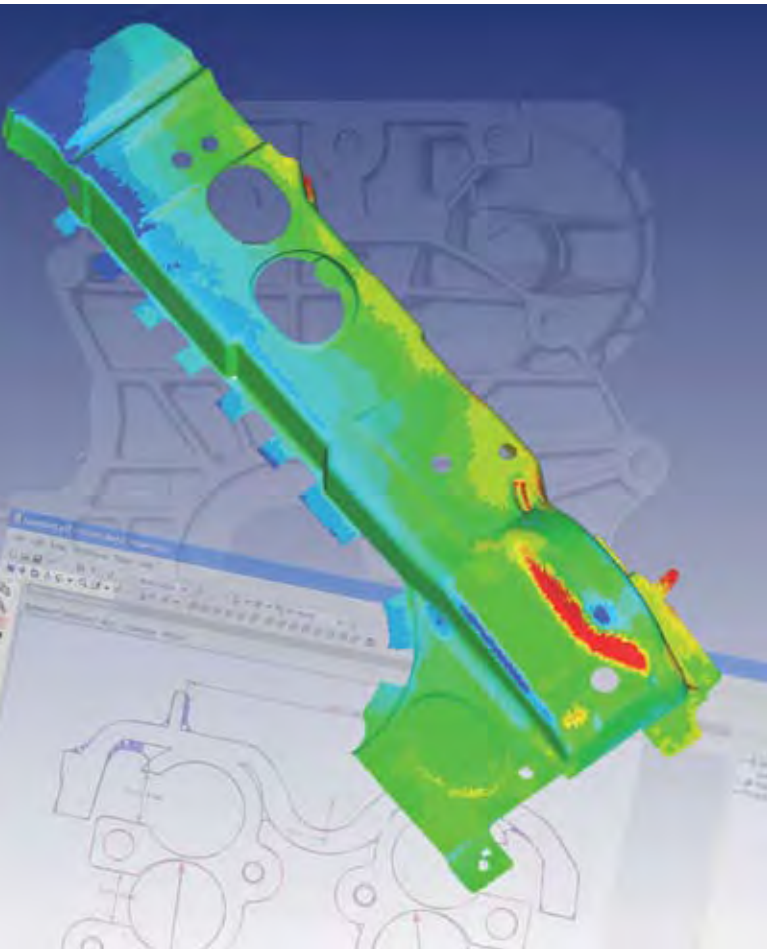


MMC scanner is available with 40/80/160mm stripe width and scans at 24,000 points/sec



Focus software handles data acquisition and processing

## 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.

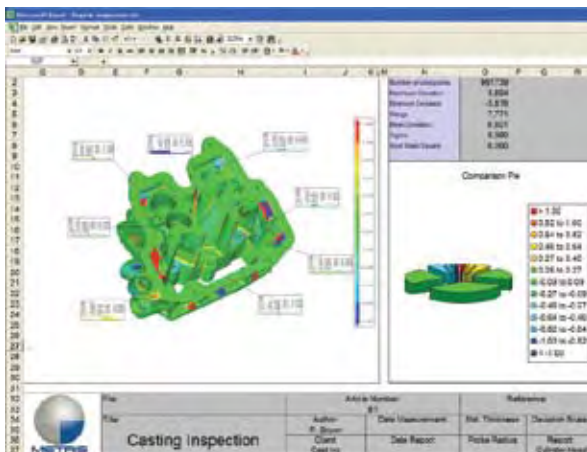
Focus Inspection provides feature and full part-to-CAD 3D inspection, starting from point cloud data or meshes from CMM scanners, handheld scanners or Computed Tomography (CT). Focus Inspection visualizes inspection results in easy-to-interpret, interactive graphics and reports.

### Features

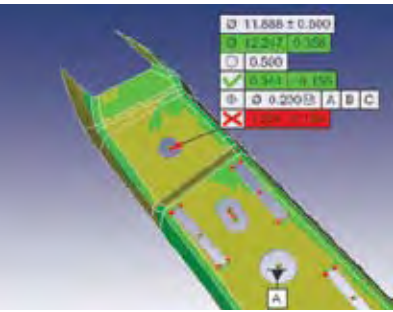
- Superior point clouding handling
  - Up to 100 million points
  - Powerful and automated feature detection algorithms
- Full inspection toolbox
  - Full part comparison to CAD or STL
  - Complete set of 2D and 3D features
  - GD&T (Geometric Dimensioning & Tolerancing)
  - Wall thickness, flush & gap,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

### Benefits

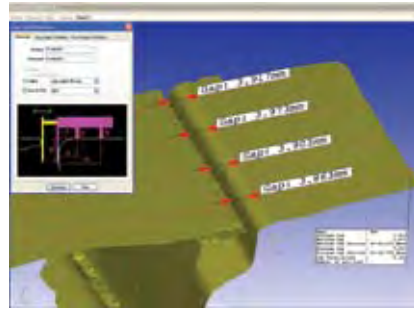
- High productivity and data processing consistency with minimum effort
- Operator-independent results with accurate feature detection algorithms
- Designed for industrial use by operators and engineers
- Inspection automation without requiring programming skills
- Easy-to-interpret and interactive reporting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



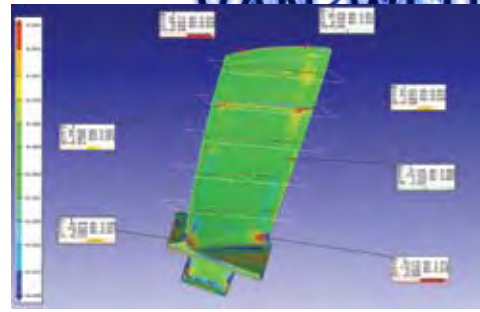
Color map reports clearly indicate local geometry deviations



Geometric dimensioning & tolerancing (GD&T)



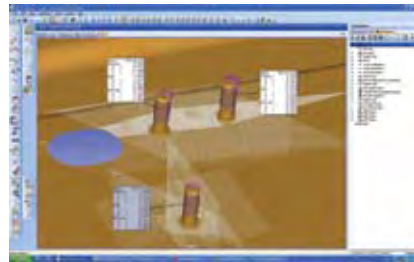
Gap & flush analysis



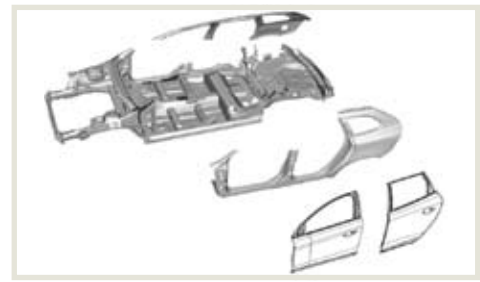
Turbine blade inspection



Inspection of features in automotive applications...



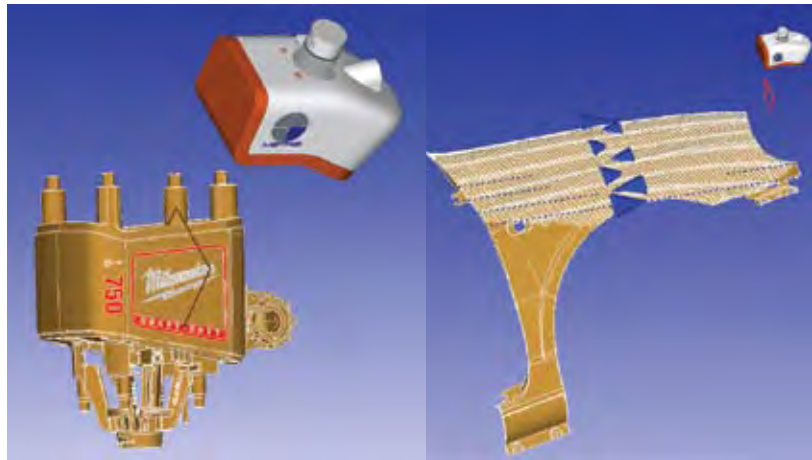
...are readily compared to CAD in Focus Inspection



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.

