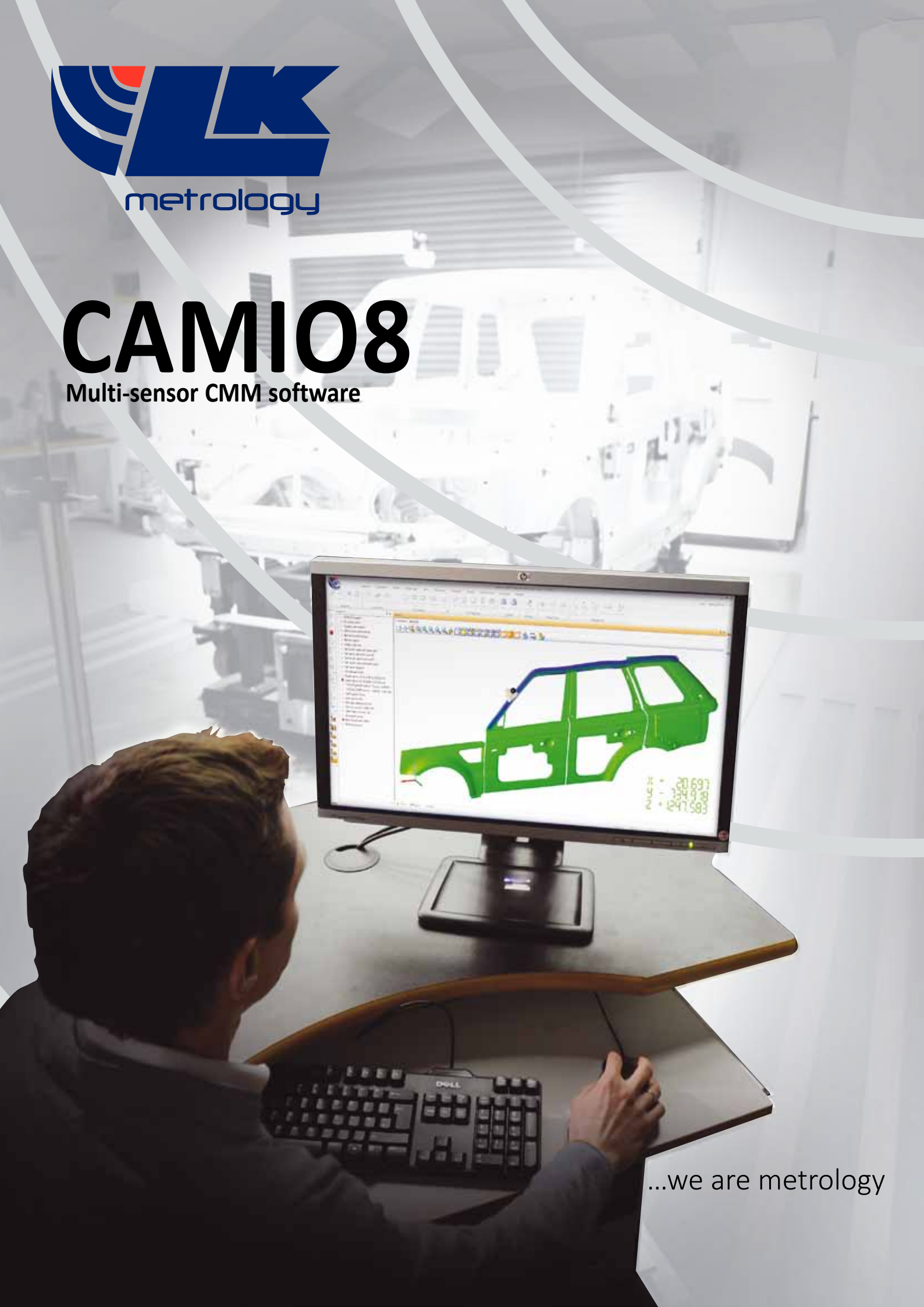
CAMIO8

Multi-sensor CMM software



...we are metrology

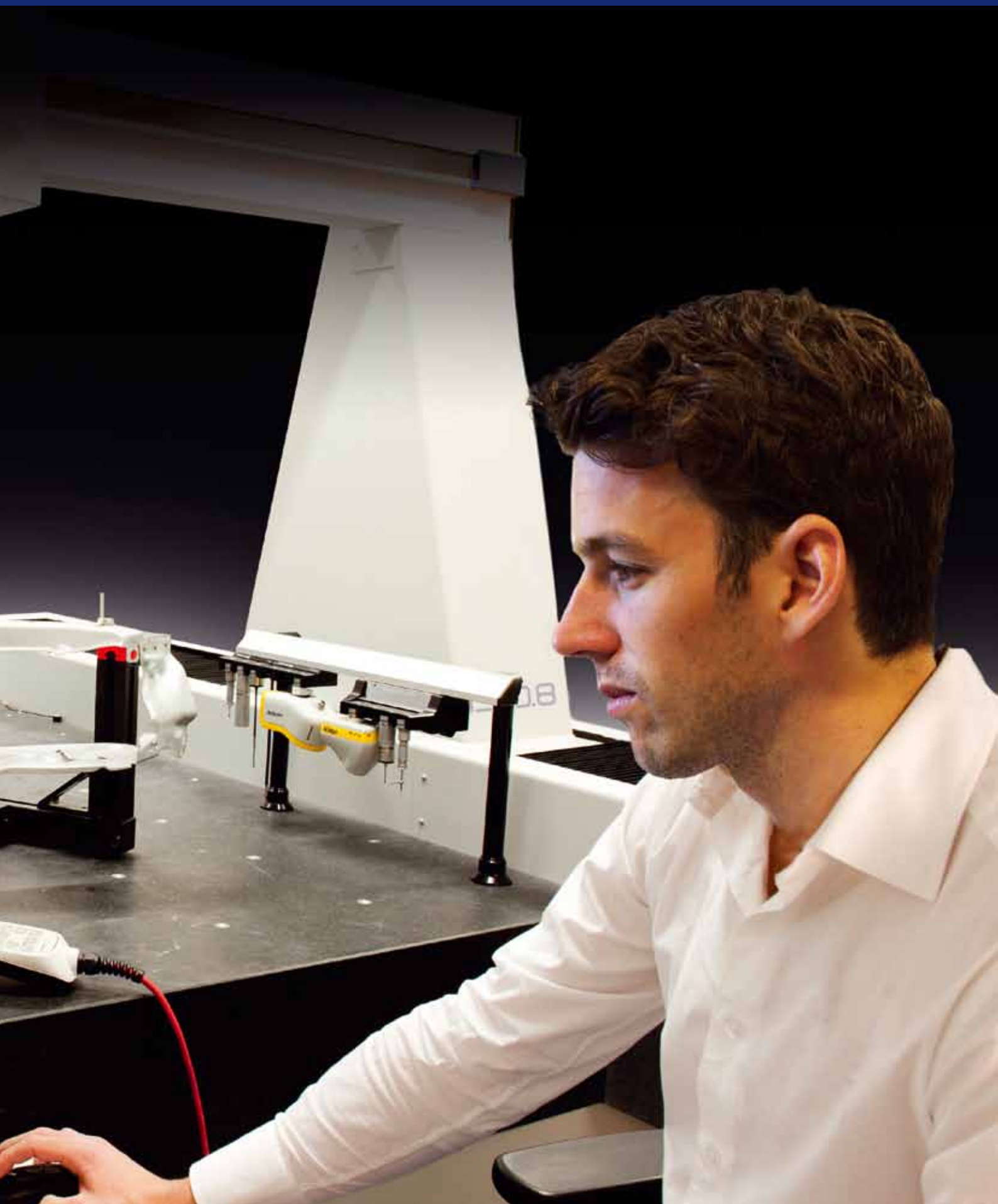
THE MEASURABLE ADVANTAGE

CAMIO

Proven in the most challenging application environments, CAMIO is the CMM software of choice for many of the world's largest manufacturers. By leveraging the productivity benefits of CAMIO, manufacturers can focus on accelerating lead times and improving product quality while reducing costs. CAMIO's interoperability across CMM platforms, sensor technology and manufacturing sites, is a unique advantage which guarantees the longevity of your investment in software and inspection programs for the longer term.



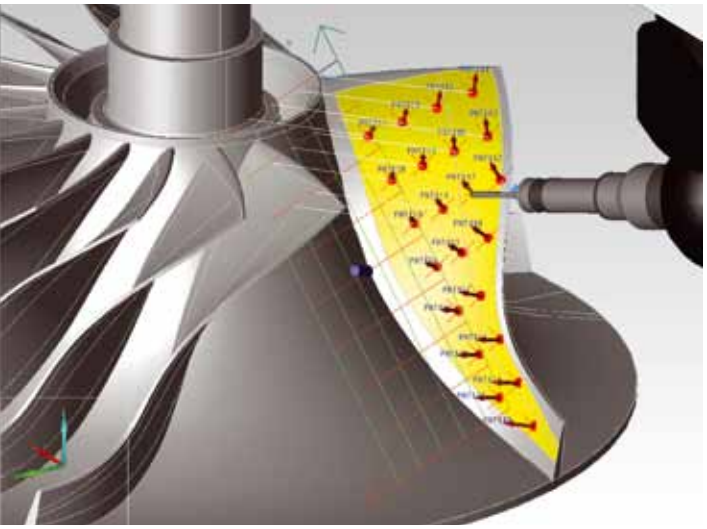
MULTI-SENSOR CMM SOFTWARE



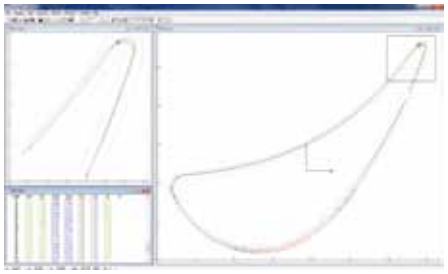
EXTENDED POSSIBILITIES

Regardless of whether inspecting stamped, molded or machined parts, CAMIO drives accurate and efficient inspection programs for geometric features or full surface analysis with part-to-CAD comparisons.















FOR A WIDE RANGE OF INDUSTRIES



AEROSPACE

AUTOMOTIVE

ENERGY

PLASTICS

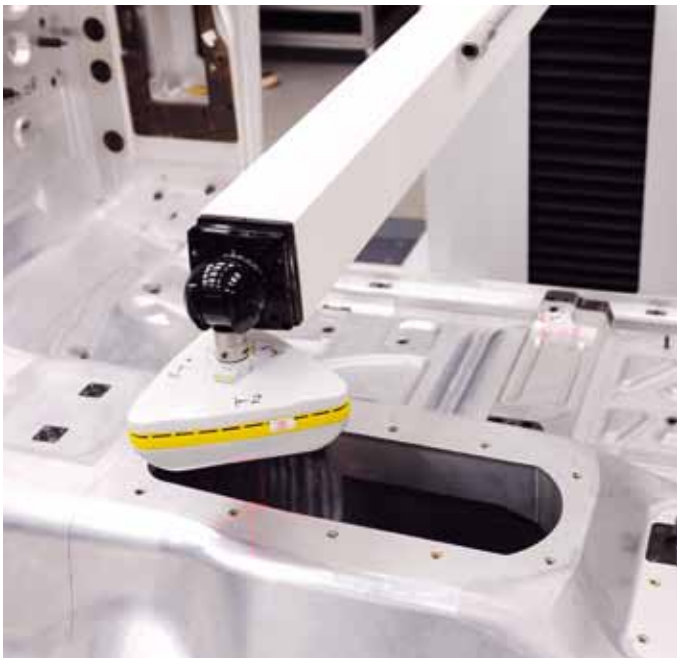
TOOL AND DIE

CONSUMER ELECTRONICS

MICRO-MANUFACTURING

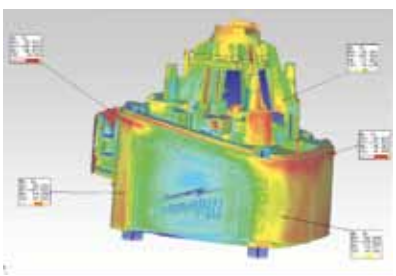
HOUSEHOLD APPLIANCES

MEDICAL

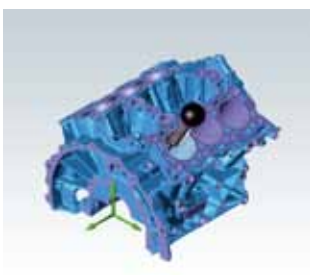


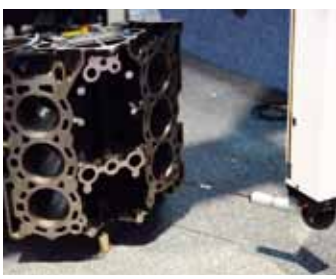












MULTI-SENSOR METROLOGY

Do you have the right tools to succeed?

LK Metrology multi-sensor technology provides manufacturers with greater measurement flexibility and a better understanding of product conformance while increasing CMM throughput.

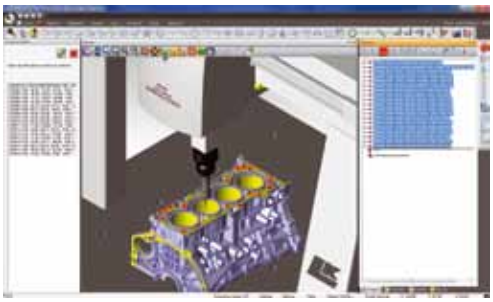
EFFICIENCY

Optimize CMM cycle times by using the most effective sensor technology.



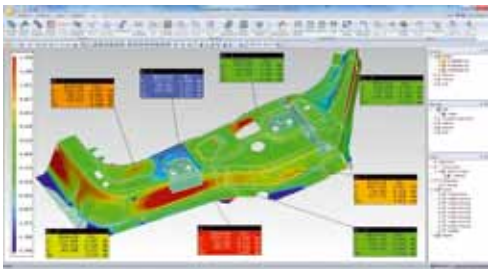
FLEXIBILITY

Measure an extended range of components, features, geometry and materials effortlessly.



INSIGHT

Gain a better understanding of product conformance by full 3D part-to-CAD comparison and detailed feature inspection.



Touch probe

Flexible solution with a range of accessories for general inspection.



TP20, TP200

Standard touch probe

Applications

- Feature inspection
- Form measurement (TP200)
- Internal geometry

Scanning probe

High speed feature measurement and profile scanning indexing probe head with stylus lengths up to 400mm and offset styli for difficult to reach features.



SP25M

High accuracy scanning probe with long stylus capability

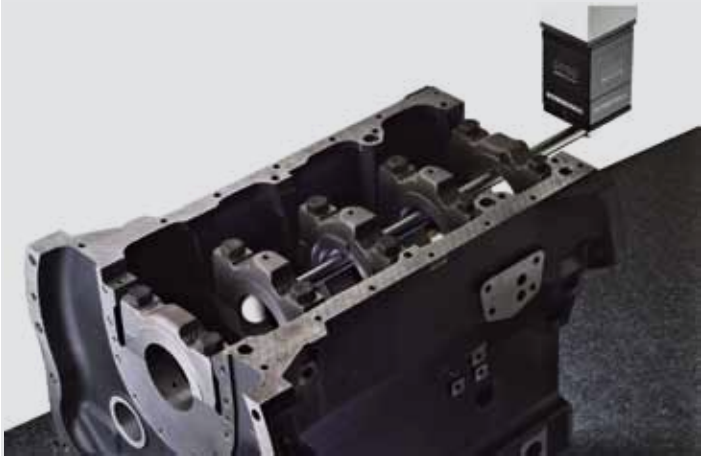


Applications

- Feature scanning
- Form scanning
- Internal geometry

High precision scanning head

SP80 high precision fixed scanning head with stylus lengths up to 800mm for powertrain applications and large high-precision machined components.



CHOOSE THE RIGHT PROBE FOR THE JOB

Laser scanner

High speed measurement with interactive 3D visualization of deviation from nominal. Non-contact technology eliminates the measurement errors associated with tactile probing.



L100

The ultimate CMM laser scanner combining productivity and accuracy

Applications
- Form/Surface inspection
- Feature inspection
- Reverse engineering



LC60Dx

Universal line scanner

Applications
- General inspection
- Reverse engineering



LC15Dx

High accuracy line scanner

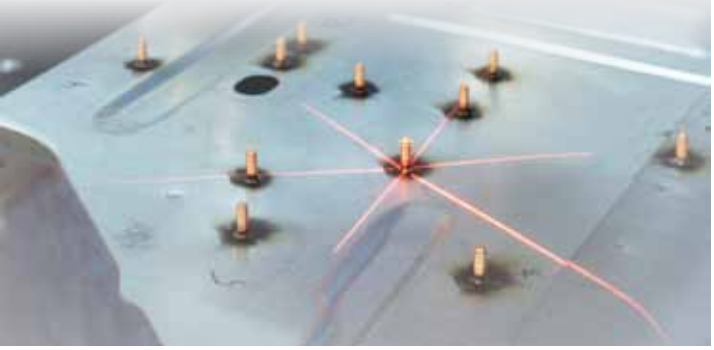
Applications
- Precision parts
- Small geometry
- Intricate detail



XC65Dx(-LS)

High productivity Cross Scanner

Applications
- Sheet metal feature inspection
- Complex surfaces
- Long stand-off version for difficult-to-reach areas





CAMIO offers true multi-sensor capability, allowing best-practice selection of sensor technology for each task. This flexibility improves the quality of the inspection data and reduces CMM cycle times. The LK Metrology CMM controller further enhances the capability with high speed continuous motion laser and probe scanning. As needs change, or new sensor technology is introduced, inspection programs can be easily migrated from one technology to another.

EASING THE WORKLOAD



With its familiar Windows® graphical user interface, CAMIO makes even the most complex inspection task look simple. Innovative workflows assist the user at every stage, from data acquisition to reporting, streamlining the inspection process for maximum efficiency.

WITH A CLICK OF THE MOUSE

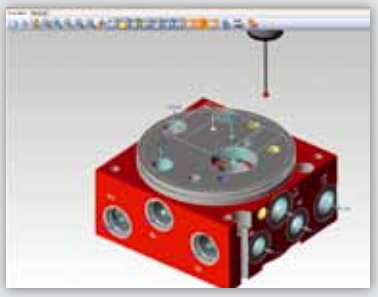
1 Select probe



EASE

The graphical probe designer provides an easy way to configure your sensor portfolio, whether it's a touch probe, scanning probe or laser scanner, the process is always the same.

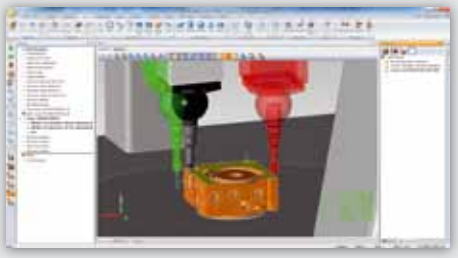
2 Create inspection program



SPEED

Creating an inspection program is as quick as measuring the initial sample. Whether with or without a CAD model, the process is just the same. CAMIO's teach-and-learn functionality automatically creates the inspection program at each stage of the process.

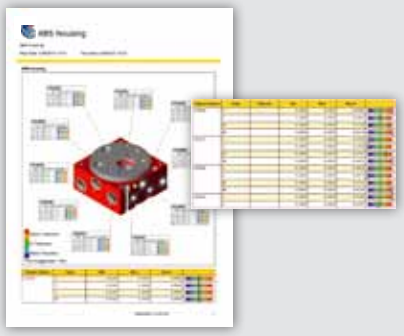
3 Prove out



TRUST

With a CAD model, inspection programs can be created and fully proven offline. Any potential collisions are highlighted and corrected offline, saving valuable CMM down-time when proving out new inspection programs.

4 Report



SHARE

Common file formats and direct links to 3rd party software packages provide efficient distribution and sharing of your inspection data with other departments, customers and suppliers.

INTELLIGENT PROGRAMMING

CAMIO provides a rich programming environment, with intuitive software tools and drag-and-drop functionality for a broad range of metrology applications.

Novice users find the step-through approach to CMM programming particularly easy to master and quickly migrate to the more advanced features of the software. More experienced users will appreciate in the high-level functionality which includes conditional program execution, mathematical functions and configurable Windows® style dialog boxes for operator input.



FOCUSING ON PRODUCTIVITY

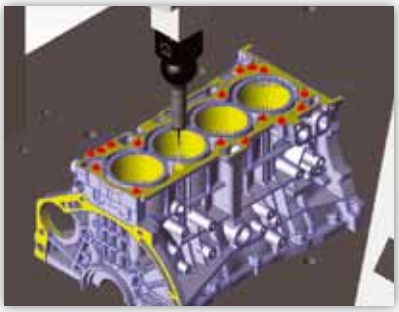
CAD-based feature inspection

The CAMIO program editor provides an easy to follow iconized view of the inspection program. Editing the program is as simple as double clicking or using drag and drop to re-order the inspection sequence.

Simply clicking on the CAD model initiates a measurement sequence. CAMIO automatically applies the optimum measurement strategy based on the feature and sensor selected. At every stage the user has full control to change any aspect of the inspection.



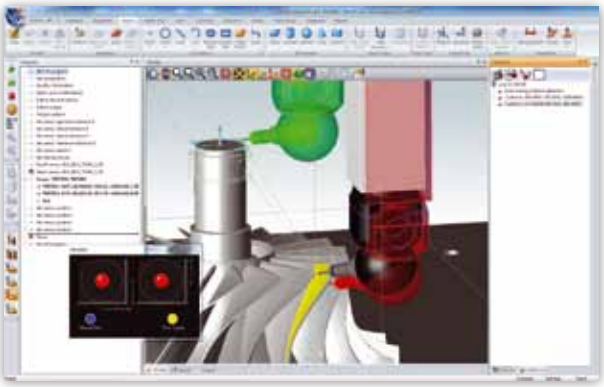
CAMIO program editor.



Multiple circles on a single plane are selected with one click.

Offline collision detection

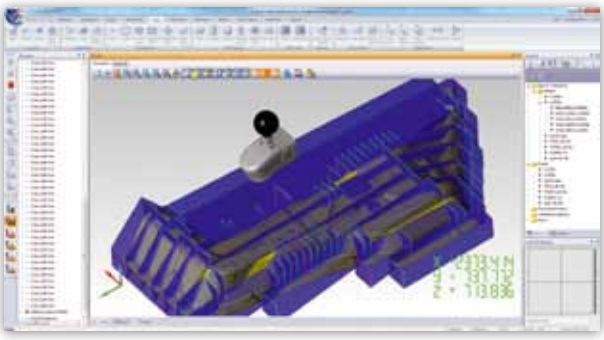
Any potential collisions are highlighted and can be corrected before the first part is measured, saving valuable CMM down-time when proving out new inspection programs.



Inspection programs can be created and fully proven offline.

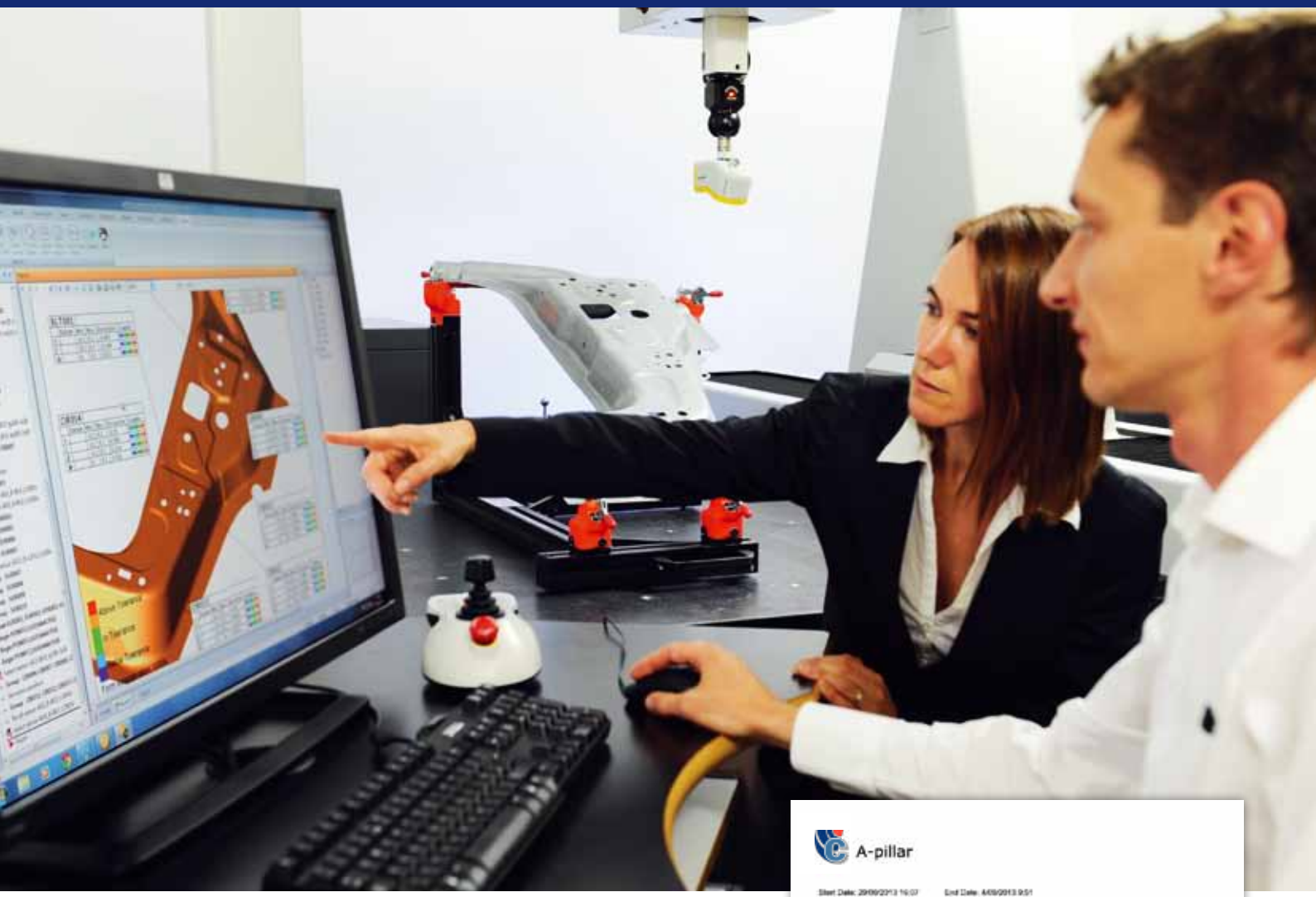
Productive scanning

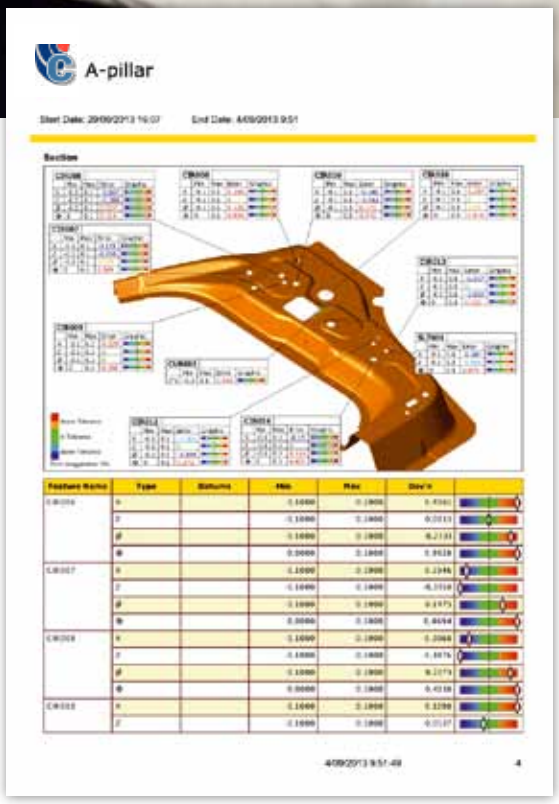
Scanning geometric features and complex surfaces is simple using CAMIO. Scan paths that follow the surface shape are created automatically, while simulated point cloud data enables checking part coverage. Scan paths can be fine-tuned interactively to include areas that were missed.



Full graphical representation of the planned scanning path.

BETTER INSIGHTS





Dependable results when you need them most

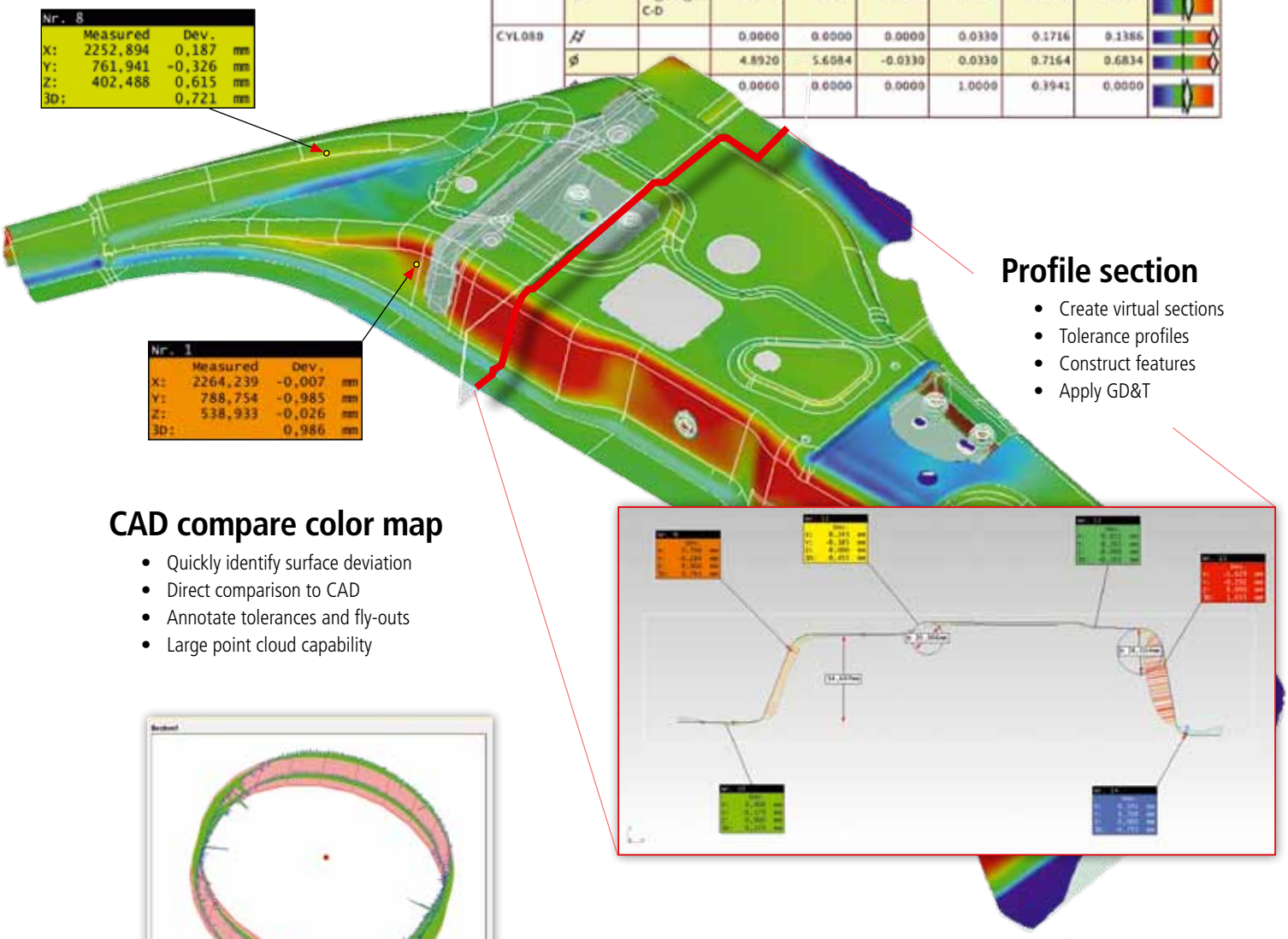
CAMIO conforms to the latest international standards for CMM data analysis and tolerancing, ensuring the integrity of your data at every stage of the inspection process. A suite of easy-to-use tools and templates provides endless reporting possibilities for a broad range of applications, with real-time reporting for instant results. An industry-standard database is used to archive all data, with open access for offline analysis and trouble shooting. Common file formats and direct links to 3rd party software packages provide efficient distribution and sharing of data across platforms.

WITH FLEXIBLE REPORTING

Dimensions table

- GD&T annotation
- Datum reference
- Deviation color bar
- Material condition
- Combined reports
- Customizable

Feature Name	Type	Datums	Nominal	Actual	Min	Max	Dev'n	Error	
CYL050	⌭		0.0000	0.0000	0.0000	0.0330	0.2303	0.1973	
	⌀		4.8920	5.6128	-0.0330	0.0330	0.7208	0.6878	
	⌖	A Ⓜ, B Ⓜ, C-D	0.0000	0.0000	0.0000	1.0000	0.5839	0.0000	
CYL060	⌭		0.0000	0.0000	0.0000	0.0330	0.2627	0.2297	
	⌀		4.8920	5.6540	-0.0330	0.0330	0.7620	0.7290	
	⌖	A Ⓜ, B Ⓜ, C-D	0.0000	0.0000	0.0000	1.0000	0.6108	0.0000	
CYL070	⌭		0.0000	0.0000	0.0000	0.0330	0.2226	0.1896	
	⌀		4.8920	5.6160	-0.0330	0.0330	0.7240	0.6910	
	⌖	A Ⓜ, B Ⓜ, C-D	0.0000	0.0000	0.0000	1.0000	0.5504	0.0000	
CYL080	⌭		0.0000	0.0000	0.0000	0.0330	0.1716	0.1386	
	⌀		4.8920	5.6084	-0.0330	0.0330	0.7164	0.6834	
	⌖		0.0000	0.0000	0.0000	1.0000	0.3941	0.0000	



Profile section

- Create virtual sections
- Tolerance profiles
- Construct features
- Apply GD&T

CAD compare color map

- Quickly identify surface deviation
- Direct comparison to CAD
- Annotate tolerances and fly-outs
- Large point cloud capability

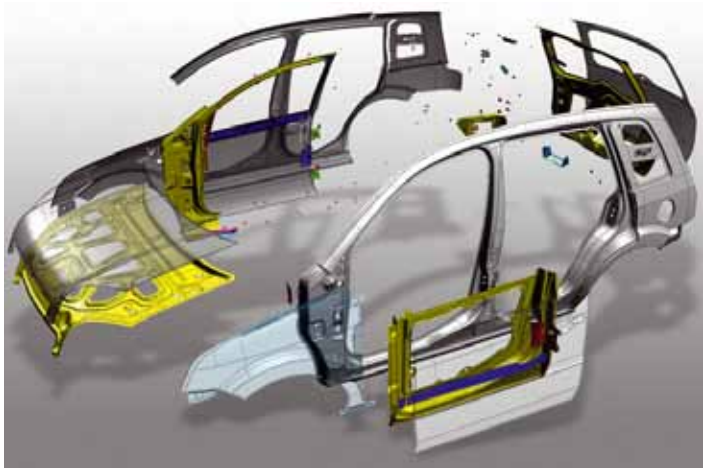
Graphical form error reporting

Feature forms can be displayed as individual reports with graphic and text information.

INTEROPERABILITY

CAD model import/export

CAMIO's industry standard bi-directional CAD interface supports popular native and neutral CAD file formats.
CAD models can be used to aid rapid programming and inspection, and to improve the appearance and readability of graphical inspection reports.
Measurement data can also be output using the supported CAD file formats to 3rd party software packages for reverse engineering applications.



Full compliance to DMIS standard

CAMIO's strict adherence to the industry standard for CMM inspection programs, Dimensional Measuring Interface Standard (DMIS), offers users significant benefits while ensuring the longevity of their investment in CMM software and inspections programs.
DMIS inspection programs are not bound to any particular CMM software version. This gives the freedom to use existing inspection programs from one software package with another, and to replace or upgrade their CMM software package without the need to modify or re-write existing programs. This is a major advantage to manufacturers with multiple CMMs spread across different sites. When managing inspection programs from a central resource, programs can be fully proven prior to deployment, saving valuable CMM down-time during program prove out.

AUTOMATION READY

CAMIO's automation capability enables your CMM to become part of a fully integrated manufacturing process.

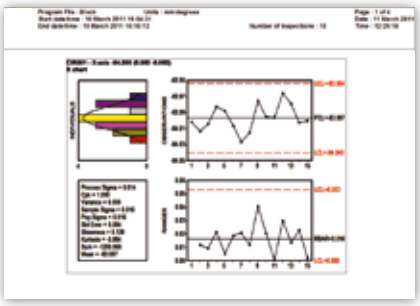
Loading possibilities include

- Manual loading
- Robot handling
- Automated pallet

Part recognition possibilities include

- User selection
- Bar code reader
- Fixture recognition
- Direct I/O
- PLCs

Custom solutions can be engineered around a particular customer requirement to provide a totally integrated solution based on your needs for process optimization.



Statistical Process Control (SPC) reporting

- Average and range charts
- Capability indices Cp and Cpk
- Run charts
- Pareto analysis



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