ATOS | GOM Inspect Professional | VMR

Process-safe 3D measuring and inspection software

3D digitizing and full-field scanning with ATOS
Parametric inspection of point clouds
Planning of automated inspection cells

GOM Optical Measuring Techniques

ATOS Professional

3D Digitizing Software

ATOS Professional is a process-safe software solution that controls the ATOS 3D Digitizer and produces precise 3D surface data.

The easy-to-use software provides the ultimate flexibility required for all measuring tasks.

ATOS Professional is a knowledge base - it guides the operator through the complete scanning procedure and provides support for setting up new measuring tasks using guided project creation.

- Provides application-related parameter settings
- Optimizes start-up times for measuring and evaluation tasks
- Higher levels of safety for operator based on pre-defined templates

Full-Field 3D Scanning

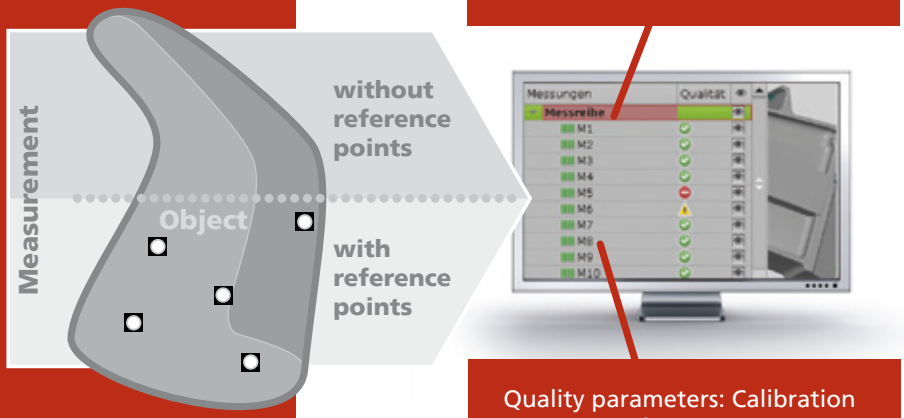
ATOS Professional and the ATOS 3D Digitizer are designed to work seamlessly and 3D data is available directly after fringe projection.

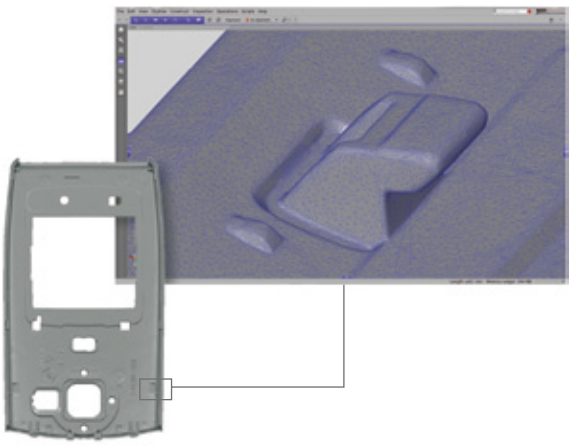
Single scans are automatically combined using a process-safe workflow based on a combination of reference points and surface matching.

Self-monitoring for process safety

ATOS is a self-monitoring measuring system that verifies calibration status, transformation accuracy, environmental changes and part movement.

This makes ATOS an industrial measuring solution that is ideal for operation in industrial production environments





High-quality 3D mesh data

Successful and cost-effective post-processing is based on the quality of 3D mesh data.

ATOS Professional provides the unique algorithms for highest 3D mesh data quality combining small data size with accentuated fine details.

Fast Inspection: Real time evaluation

ATOS Professional contains Fast Inspection, the real-time evaluation of 3D surface deviation and inspection elements directly after each scan.

Inspection information is continuously derived and displayed from the complete pre-imported or manually created measuring plan and CAD during measurement.

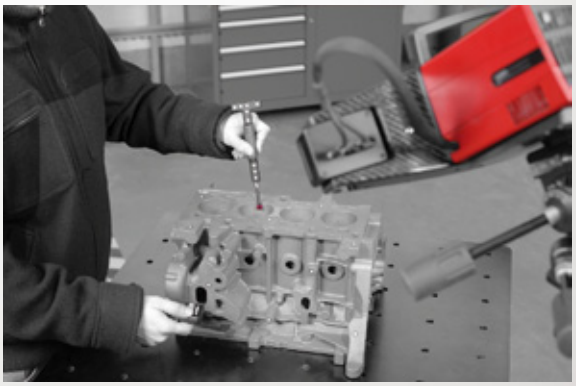
Transformation quality using traffic light system.

Quality parameters: Calibration status, transformation accuracy, environmental changes and part movement.

Dynamic referencing

Due to ATOS dynamic referencing, the object or the sensor can be easily and freely moved or positioned. Sensor and object do not need to be fixed in relation to each other, this allows flexible measurement planning.

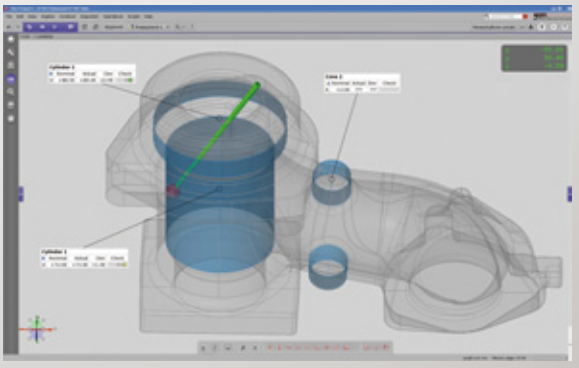
Navigation with the ATOS Digitizer is easy and fast as the sensor and measuring area are visualized online.

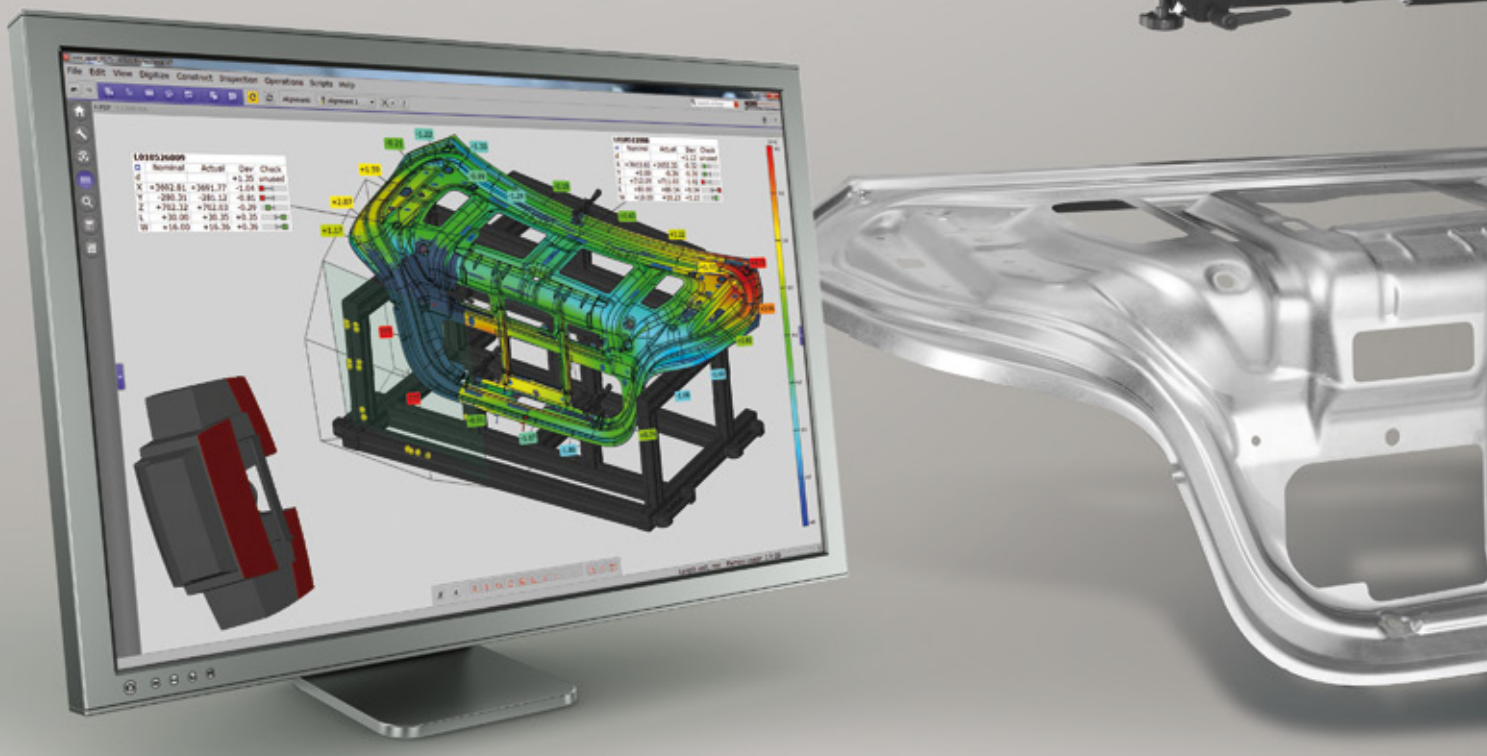


Optically Tracked Touch Probe

The GOM Touch Probe, as an add-on to the ATOS 3D Digitizer, combines full-field and touch probe 3D measurement. The handheld GOM Touch Probe allows measurement in difficult to access areas, comparison directly to CAD, measurement of primitives, quick measurement of individual points and online alignment.

ATOS and Touch Probe measurements are carried out with one system and are evaluated with one software package.





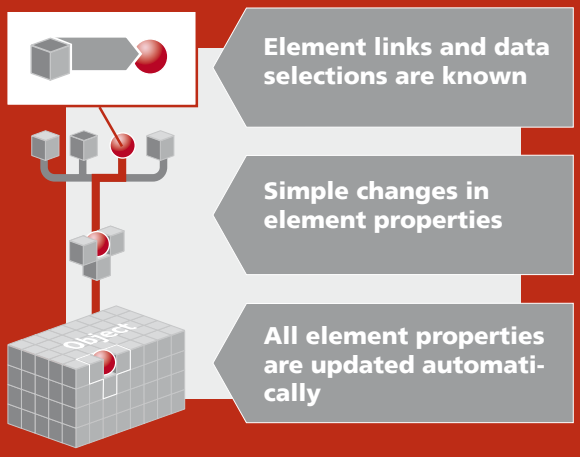
GOM Inspect Professional

The new approach of parametric inspection

GOM Inspect Professional is a process-safe, parametric, traceable evaluation software for dimensional analysis of 3D point clouds from white light scanners, laser scanners, CTs and other sources.

Parametric inspection

Instead of using a macro engine, every single element knows its path of creation within the software structure. All actions and evaluation steps are completely traceable and interlinked and can be easily modified or adjusted. A one-button solution updates all dependent elements automatically after changes.

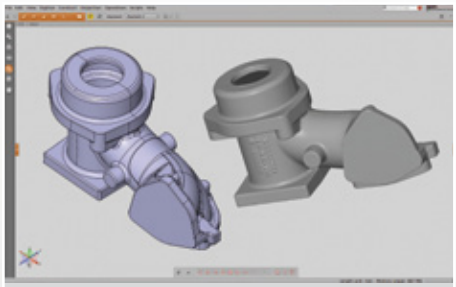


Traceability

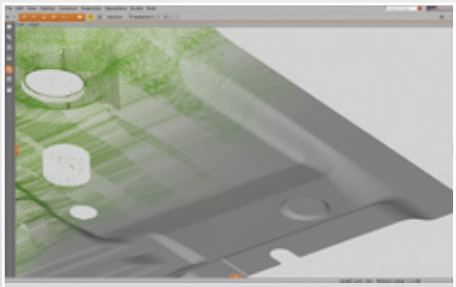
GOM Inspect Professional offers deep and comprehensive traceability, from result back to element creation, to increase overall process safety. The exact creation parameters, measurement and point selection of any element are known and can be traced back to origin and checked.

Teaching By Doing

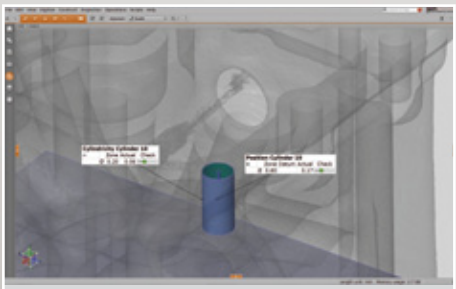
With GOM's Teaching By Doing, all evaluation steps are available without the need for scripting, advanced planning or user intervention. Teaching By Doing reduces programming time to zero. The result is identical workflows for single and multiple part evaluation, saving time and costs.



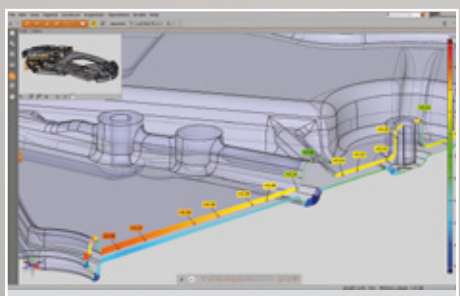
CAD Import



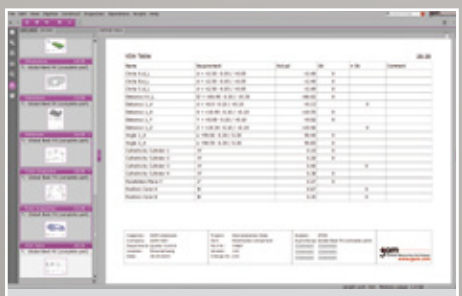
Polygonize 3D Point Clouds



GD&T Analysis



Inspection Sections



Measuring Reports

Evaluation software for point clouds

GOM Inspect Professional automatically converts point cloud data in 3D mesh data and offers extensive post-processing functionalities.

Inspection is performed by comparing scanned data to nominal CAD and analyzing false-color plots, 2D sections or multiple inspection points. GOM Inspect Professional handles imported and manually created measuring plans for CAD or drawing-based geometrical analysis.

Measuring Principles

GOM's inspection approach is based on measuring principles. A measuring principle defines the method used to create an actual element and it assures the automatic link between nominal and actual data.

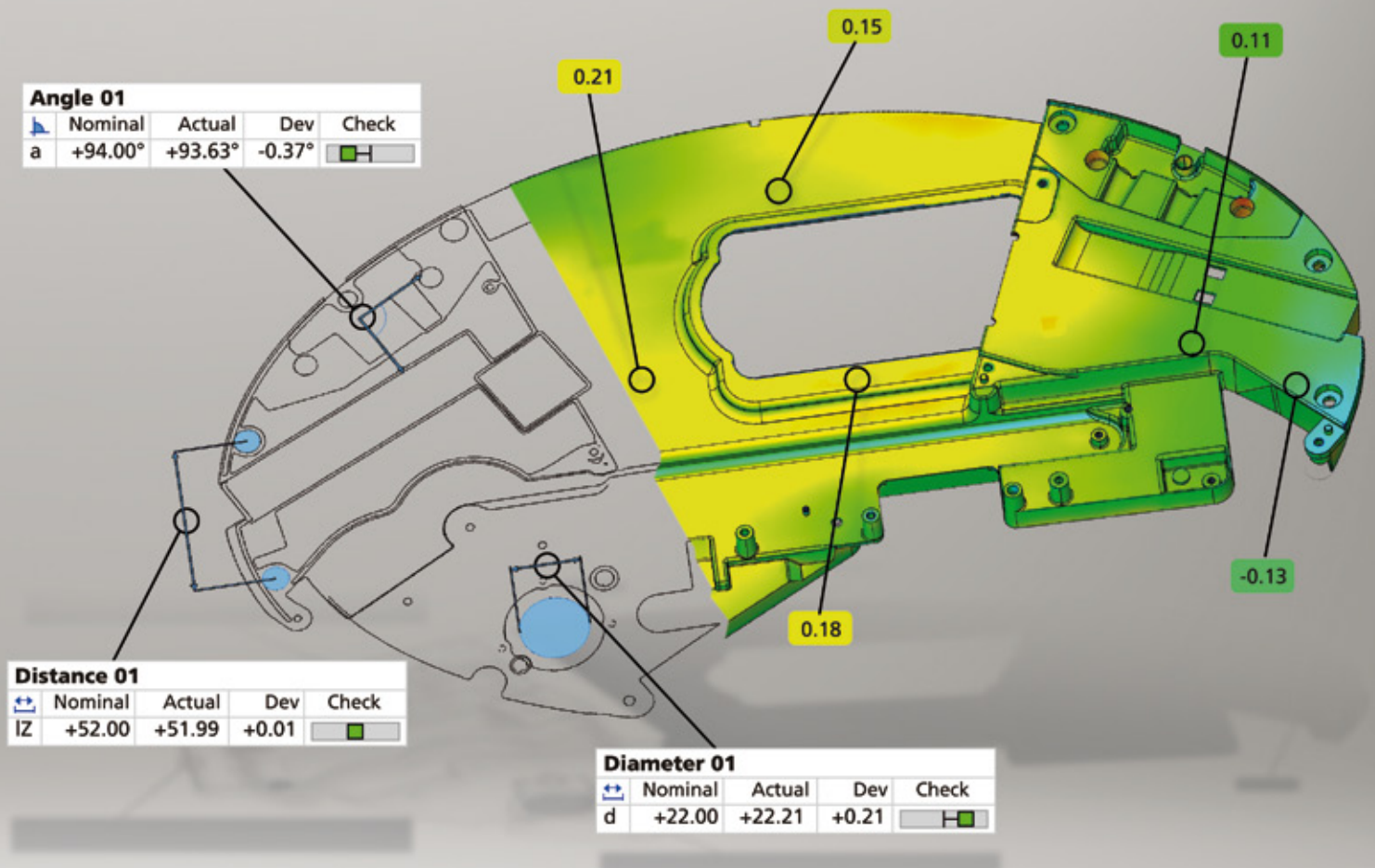
GOM Inspect Professional offers freely configurable measuring principles accessible via I-Inspect. I-Inspect stands for intelligent inspect and is the operator's guide through the inspection process. Interaction with the software is reduced to one button, thereby saving overall time and costs for inspection tasks.

Reporting for first article inspection

Measuring reports are adapted to the inspection task using fully customizable report templates. Tables are available, e. g. in standardized VDA format.

All measuring results can be shared with customers and colleagues using the free GOM Inspect 3D viewer.

Evaluation tools for an extensive analysis of parts and components
Import of point clouds: ATOS, STL, ASCII, ...
Polygon mesh generation: smoothing, thinning, hole filling, ...
CAD Import: CATIA V4, CATIA V5, PRO/E, Unigraphics, IGES, STEP, JT-Open, Parasolid, ...
Measurement plan import: ASCII, CSV, FTA, ...
Multiple alignments within one project: automatic pre-alignment, RPS, 3-2-1, plane-line-point, best-fit, hierarchical, ...
CAD comparison: surface, sections, points, ...
CAD-based primitive generation: lines, planes, circles, cylinders, cones, ...
2D section-based analysis
Inspection functions: dimensions, virtual calipers, angles, diameters, ...
GD&T analysis based on ISO 1101 and ASME Y14.5 standards
Reporting: first article inspection, tables (e. g. VDA), free definable report templates, ...
GOM Inspect: Free 3D viewer



VMR

Virtual Measuring Room

The Virtual Measuring Room is a virtual but functional representation of the real world measuring environment. This unique software offers all required functionalities.

Fully Integrated Solution

The VMR is a fully integrated solution for the complete reproduction of automated measurement process chains within one software package.

- Offline programming
- Online programming
- Data capturing
- 3D data processing
- Inspection
- Reporting

Guided Teaching

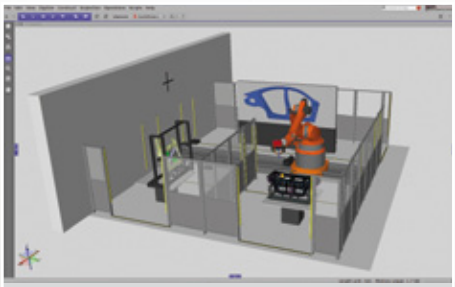
The Virtual Measuring Room guides operators safely through the measurement and inspection process

- Guided Teaching shortens the ramp-up time during the implementation of inspection tasks
- Simplified measurement workflows
- Higher process safety and shorter turnaround time for new parts
- Faster teaching both online and offline with the same tool
- Collision control for higher security and safety; robot processes are optimized before the actual movement occurs

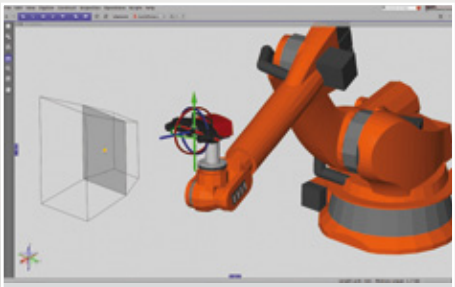
Part Inspection Management

The Virtual Measuring Room supports the industrial integration of automated quality control cells with sustainable analysis workflows even over multiple departments and locations.

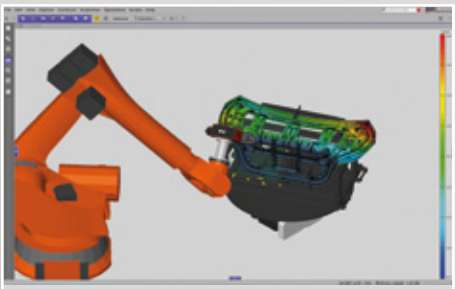
VMR combined with the parametric and traceable inspection workflows in GOM Inspect Professional open the path to uniform and centralized part inspection management.



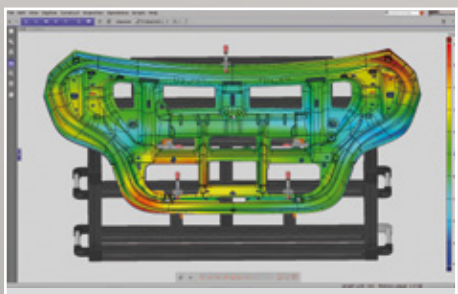
Fully integrated measuring cell



Offline / Online programming

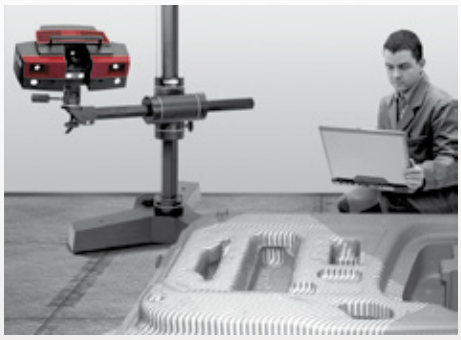


Guided Teaching



Inspection

Reporting



GOM

Single Source Provider

GOM is a global industrial partner with over 20 years' experience in 3D coordinate measurement, material and component testing, quality control and analysis, digital image processing.

All over the world, companies from the automotive, aviation and space industries, their suppliers and various manufacturers of consumer goods as well as research facilities use GOM systems.

GOM was founded in 1990 as a spin-off of the Technical University Braunschweig, Germany. The company owns subsidiaries in Switzerland, France, Great Britain and Belgium. Worldwide, more than 35 committed and competent partners install, support and market GOM products.

Inhouse development, production, distribution and support enable a quick and efficient reaction to customers' requirements.

Faster time to market and high production quality

Optical measuring technology and full-field surface measurement systems have become a standard tool within virtually all industries.
GOM's ATOS systems have been successful within industrial development and production processes supporting:

- Reduction of development times
- Optimization of production processes
- Improvement of industrial process safety

3D software to meet changing demands

Changes and developments in customer manufacturing processes and metrology environments have led GOM to identify a number of critical software areas which could lead to significant process efficiency and integrity improvements.

To meet these demands from the industry, GOM has developed ATOS V7 Professional and GOM Inspect Professional.

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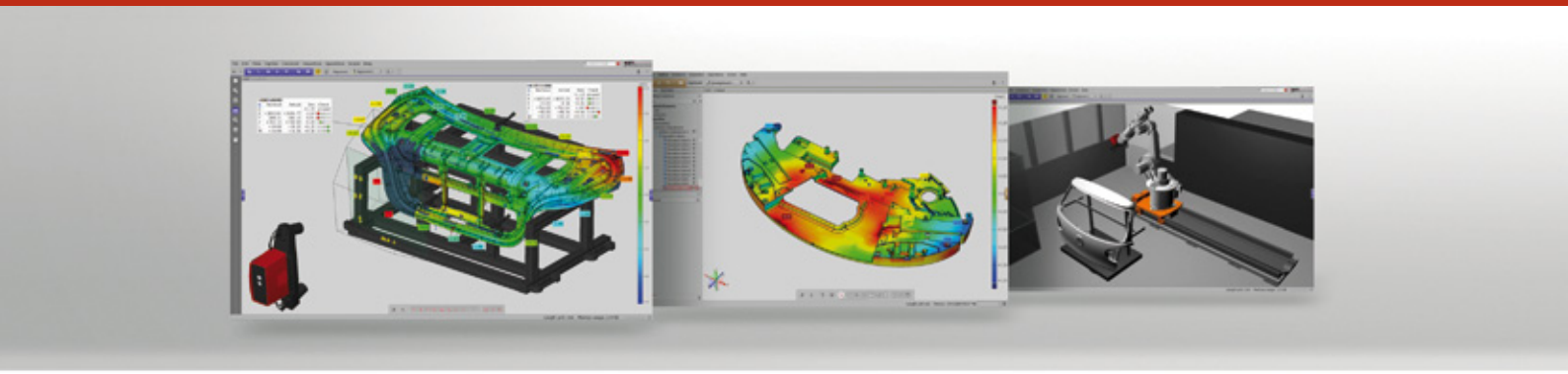

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