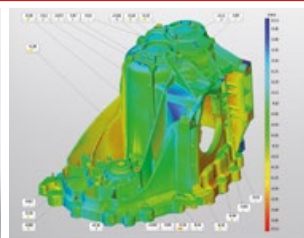
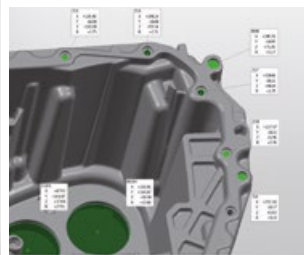


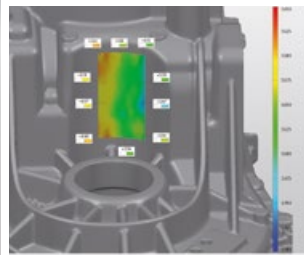
# CASTING



CAD Comparison



Comparison to Drawings



Wall Thickness Calculation



2D Section Inspection

## Optical Measuring Techniques for Industrial Casting and Forging Processes

Full-field measurement and complete analysis  
Quality control and first article inspection

gom

# CASTING

## Optical Measuring Techniques for Industrial Casting and Forging Processes

The ATOS 3D Digitiser differs from traditional coordinate measurement machines and measuring arms. Instead of measuring single points, the complete part geometry is captured in a dense point cloud or polygon mesh describing the object's surface and primitives precisely, allowing full-field analysis, detecting errors point based analysis would miss.

### Quick full-field measurement

Find problems a tactile system might miss and allows easy part visualisation and understanding.

### Mobile system

Scanner goes to the object, measurement can be carried out at the part saving transport of heavy components or machinery.

### Full-field material thickness

Check more of the component than previous methods, identify problem areas quickly and make the decision making process easier.

### Flexible measuring system

Simple non-contact measurement of all parts (small to large) in the process chain (sand cores, model plates, wax models, ...).

### ATOS Touch Probe

Combination of full-field 3D scanning with classic touch probe measurement for measurement of primitives, direct comparison to CAD, quick single point measurement, ...

The ATOS 3D Digitisers have been produced and constantly developed since 1995 and installed in more than 2500 measurement and analysis rooms as well as factory and production halls worldwide.





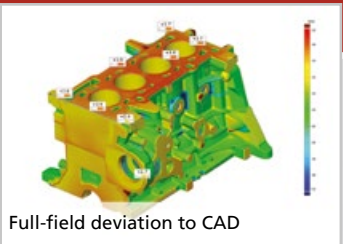
CAD-Import

## The basic three-step workflow

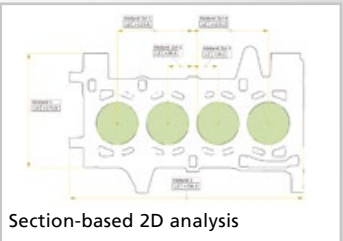
### 3D Polygon Mesh Generation

ATOS delivers highly accurate 3D coordinates and triangular meshes.

- Complete geometry backup for maintenance and archiving
- Incorporation of tool changes in CAD data
- Copying of models and tools
- Direct milling from the ATOS mesh without CAD data
- Reverse Engineering



Full-field deviation to CAD

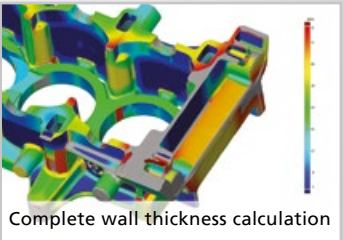


Section-based 2D analysis

### Evaluation

ATOS software includes data editing and complete inspection package

- Analyse trends for quality control, first article inspection and material allowance control
- Highlight thin areas, detect problems missed by traditional methods
- Quick determination of critical areas using wall thickness based selections
- Classic comparison to drawings and dimensional control



Complete wall thickness calculation

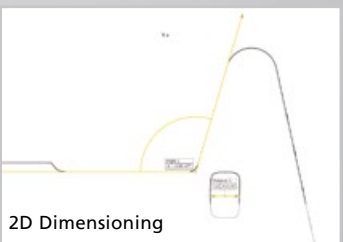
### Reports and Viewer

ATOS software includes complete reporting and offers free results viewer

- Present results and efficiently support interaction between departments and clients
- Share 3D measurement and inspection data, perform analysis operations
- Combine all data in one single file
- Results are available to customers and colleagues for discussion or further analysis



Virtual callipers

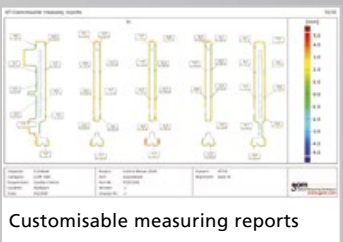


2D Dimensioning

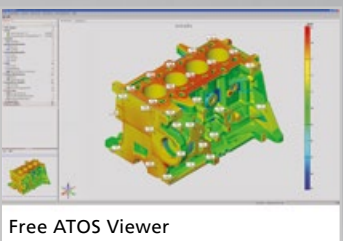
## Integrated Hard and Software Solution

The bundled ATOS software forms the complete measuring and inspection solution; measuring, evaluation, inspection and reporting is carried out with in one software.

- Optimised workflows – time saving
- User friendly – one training session
- No third party inspection package required
- One support contact
- Import native and general CAD formats without extra costs



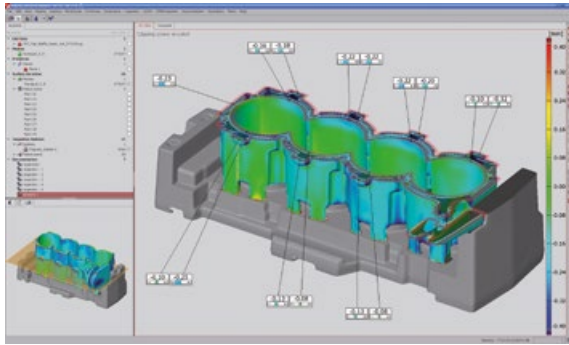
Customisable measuring reports



Free ATOS Viewer

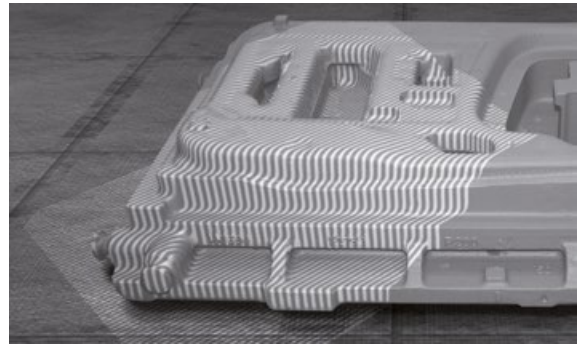
## ATOS in the Casting and Forging Process Chain

ATOS is used in the casting and forging process chain as an accurate, fast and robust measuring solution helping optimising and simplifying application workflows. The ATOS sensor combines high data quality with flexibility and stability for industrial environments.



### Sandcores and boxes

- Complete part analysis highlighting problems missed by sectional analysis
- Sectional analysis for classical inspection
- Check the quality and position of core points ensuring accurate core positioning
- Quickly analyse actual status and wear on the core box
- Check tightness or fit of sand or core box



### Models and tools

- Verification of the milling result to reduce tool collisions
- True 3D record of tool maintenance for archiving and duplication
- Extend tool life by understanding wear
- Save material and time by understanding material allowance



## GOM - Optical Measuring Techniques

Founded in 1990 as spin-off of the Technical University Braunschweig, Germany, GOM develops, produces and distributes optical measuring equipment for the three-dimensional measurement and deformation measurement of components. The measuring systems are based on digital image processing and are used in product development, quality assurance, material and component testing.

GOM offers a complete in-house solution covering hardware, software, technical support and training. This single point of contact offers a completely integrated hardware and software solution maximising the capability of the hardware, resulting in an efficient, flexible measurement workflow.

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