ATOS Core

Optical 3D Scanner

Mobile – Stationary – Automated
For small and medium-size components

gom
Optical Measuring Techniques

ATOS

Industrial Optical 3D Scanning

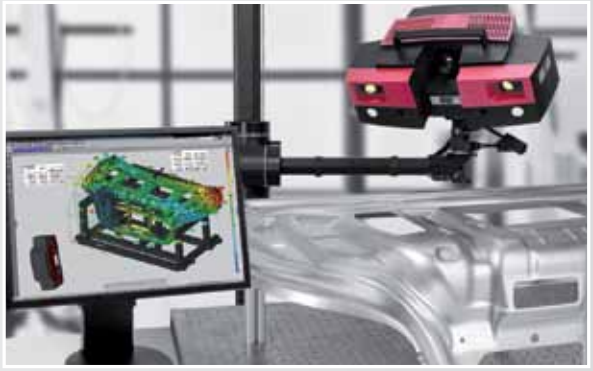
First launched in 1995, the ATOS series of 3D scanners has been continually developed always utilizing state-of-the-art technology. Today, optical 3D measuring technology and full-field surface measurement systems have become a standard tool within virtually all industries worldwide. ATOS systems are used to reduce development times, optimize production processes and, at the same time, improve process security.

Full-field Measurement

ATOS is a 3D coordinate measuring machine. The fast, non-contact, optical 3D scanners deliver a high-resolution point cloud which precisely describes free-form surfaces and primitives regardless of part sizes, surfaces, finishes, and geometries. ATOS provides three-dimensional measurement data and analysis for industrial components such as sheet metal parts, tools and dies, turbine blades, prototypes, injection molded parts, castings, and more.

Self-monitoring Systems

The high-resolution 3D scanners from the ATOS product line guarantee high process security. The proven stereo camera setup allows a completely self-monitoring system. Calibration and sensor movements are checked continuously preventing measuring errors and thus delivering accurate and reliable measuring data. The projection unit's narrowband Blue Light Technology enables precise measurements regardless of ambient light conditions.



Comprehensive Inspection

Used in conjunction with GOM's professional inspection software, ATOS supplies:

- Precise 3D coordinates
- Full-field deviations from CAD
- Complete shape and dimension analyses
- Comprehensive measurement and inspection reports

The measurement data is available for immediate analysis and comparison with CAD data, 2D drawings or similar parts. Deviations from CAD are highlighted in color and easy to recognize as problematic areas, enabling specific improvements to be made to the manufacturing process. This eliminates the need for time- and cost-intensive iteration loops.

Shape and Dimension Control

ATOS 3D scanners are key elements of the entire process chain, from construction through to production and maintenance:

- Shorter research and development times
- Faster production processes
- Improved quality assurance within the entire product lifecycle

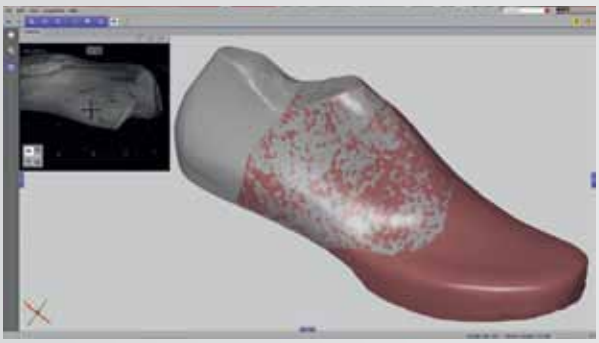
ATOS systems reduce product development and production start-up times. They optimize production processes as they minimize scrap produced during manufacturing and rework times. With the integration of ATOS scanners in the entire development and production process standardized quality assurance operations are established.

ATOS Core

One Core – Three Solutions

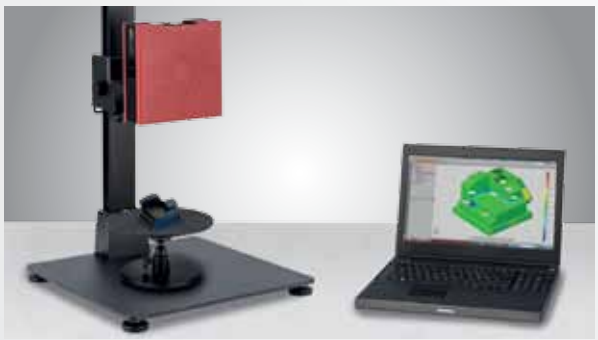
ATOS Core is characterized by its compact form. It is ideal for 3D digitizing of small and medium-size components. The three product lines offer solutions for diverse measurement tasks, ranging from the handling of basic 3D scans to fully automated measurement and inspection processes.

Essential Line
3D Scanning with GOM Scan



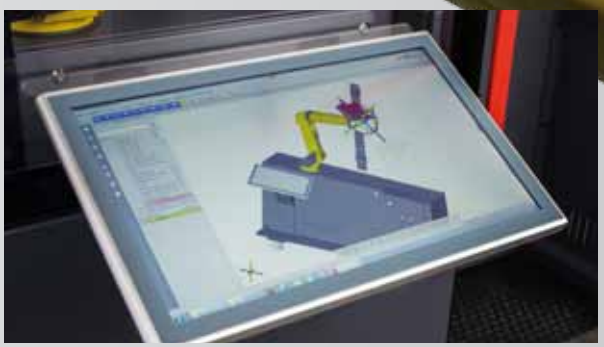
The ATOS Core Essential Line with the GOM Scan software is designed for basic scanning tasks. Its focus lies on 3D scans which produce high-quality data for applications such as reverse engineering and rapid prototyping. The GOM Scan software is easy to use and supplies high-quality 3D polygon meshes in STL format. The delivery package comprises the sensor head, software, image processor, cables and accessories. For manual operation customers can choose between a stand, tripod or desk stand. If requirements or measurement tasks change, they can upgrade to the Professional or Kinematics Line whenever needed.

Professional Line
3D Metrology Solutions



The ATOS Core Professional Line comes with the ATOS Professional software for comprehensive shape and dimension analysis. Parametric inspection can be used to completely trace and link all actions and analysis steps in the software. Functions include selective and back projection as well as dynamic referencing for tracking, touch probes or adapter applications. The scanner uses Triple Scan technology during the scanning process, whereby the two cameras combine with the projector to capture three object views in a single measurement process. This reduces the number of individual scans that are required – even for complex parts. The ATOS Core system can also be used in conjunction with ATOS Triple Scan or ATOS Compact Scan to provide an additional measurement volume. The sensor head is easily exchanged if different resolutions or measurement field sizes are required. After the change, there is no need for re-calibration.

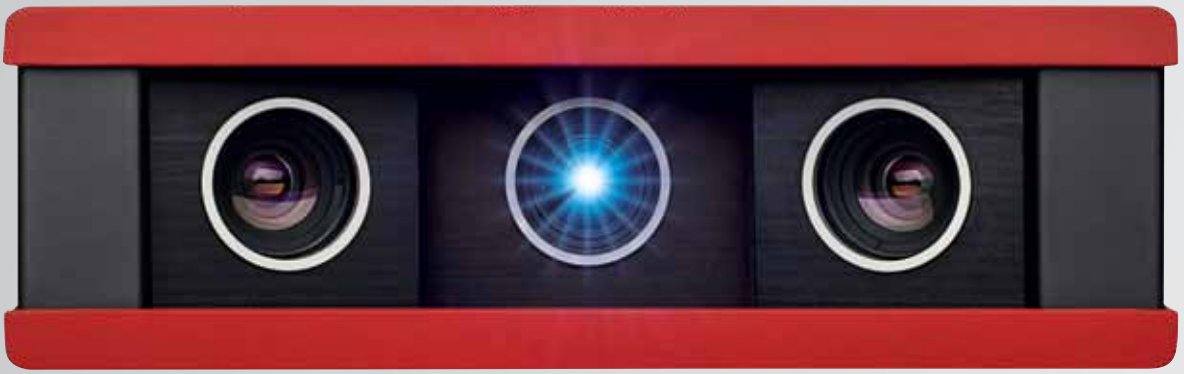
Kinematics Line
Automated Small Objects Inspection



The ATOS Core Kinematics Line is used for automated measurement and inspection of small parts and components. The robot-guided sensor is integrated in the ready-to-use ATOS ScanBox measuring cell and enables efficient quality controls during the production process. To ensure that measurement and inspection processes are easy to program, the system is controlled via the standard VMR (Virtual Measuring Room) software solution within the ATOS Professional software. ATOS Core can be extended to include the ATOS Plus photogrammetry system for fast capture of complex components or fixtures during automated measurement processes.

ATOS Core

As well as offering the proven ATOS features such as stereo camera setup and Blue Light Technology, ATOS Core is based on a new technology platform. For the first time, the optics and electronics modules have been integrated in a minimum installation space. This compact format gives the sensor maximum stability, reduces overall sensor size, and allows measurements to be taken in confined conditions.



Hot Plugging

Preset sensor models for different resolutions and measurement field sizes can be exchanged quickly and reliably. After the change, there is no need for re-calibration.

Blue Light Technology

The projection technology developed by GOM operates with narrowband blue LED light. As a result, accurate measurements can be taken independently of ambient light conditions.

Triple Scan Technology

In ATOS Core the two cameras combine with the projector to capture three views of an object in a single measurement process. This requires fewer scans and delivers higher quality data – even on shiny and complex objects.

Stereo Camera Setup

Thanks to the proven stereo camera setup, ATOS Core monitors its own activities. Calibration, transformation accuracy and component movements are subject to continuous control. This guarantees that the system generates reliable and precise measurement data.

Application-specific Software

Different software packages are available for ATOS Core. In GOM Scan the focus lies on 3D meshes, while ATOS Professional offers a broad range of functions for parametric inspection.

Extend with Photogrammetry

To enable quick and accurate component and fixture referencing, ATOS Core can be extended to include a photogrammetry option – with TRITOP for manual or ATOS Plus for automated applications.

Technical data

	ATOS Core 45	ATOS Core 80	ATOS Core 135	ATOS Core 200
Measuring area	45 x 30 mm	80 x 60 mm	135 x 100 mm	200 x 150 mm
Working distance	170 mm	170 mm	170 mm	250 mm
Point spacing	0.02 mm (0.03 mm)*	0.03 mm (0.05 mm)*	0.05 mm (0.09 mm)*	0.08 mm (0.13 mm)*
Sensor dimensions	206 x 205 x 64 mm	206 x 205 x 64 mm	206 x 205 x 64 mm	206 x 205 x 64 mm
Weight	2.1 kg			
Power supply	90 – 230 V AC			
Operating temperature	+5°C up to +40°C, non condensing			

*GOM Scan with Sensor Driver 2M

	ATOS Core 185	ATOS Core 300	ATOS Core 500
Measuring area	185 x 140 mm	300 x 230 mm	500 x 380 mm
Working distance	440 mm	440 mm	440 mm
Point spacing	0.07 mm (0.12 mm)*	0.12 mm (0.18 mm)*	0.19 mm (0.31 mm)*
Sensor dimensions	361 x 205 x 64 mm	361 x 205 x 64 mm	361 x 205 x 64 mm
Weight	2.9 kg		
Power supply	90 – 230 V AC		
Operating temperature	+5°C up to +40°C, non condensing		

*GOM Scan with Sensor Driver 2M

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Accessories and options

		Essential Line	Professional Line	Kinematics Line
Software	GOM Scan	■	–	–
	ATOS Professional	–	■	■
Automation software	Motion Replay	–	■	–
	VMR	–	–	■
Sensor driver	Sensor Driver 2M	2 million PPS **	–	–
	Sensor Driver 5M	5 million PPS **	–	–
	Triple Scan Sensor Driver	–	■	■
Stand	Studio stand	■	■	–
	Tripod	■	■	–
	Desk stand	■	■	–
Automation options	Rotation table	–	■	–
	Small Object Motorization	–	■	–
	ScanBox	–	–	■
Photogrammetry	Manual	–	TRITOP based	–
	Automated	–	–	ATOS Plus
Dynamic referencing	Touch Probe	–	■	–
	Adapter	–	■	■
	Tracking	–	■	■
Inspection	Parametric Inspection	–	■	■
	CAD import standard formats (IGES, STEP, ASCII,…)	■***	■	■
	CAD import native formats (CATIA, UG, Pro/E)	–	■	■
Image Processing Computer	Mobile, Workstation, Rack Design			

** Points per Scan (Native camera resolution: 5 million pixels) *** with free GOM Inspect software




GOM Optical Measuring Techniques

The name GOM stands for innovative hardware and software in optical 3D coordinate measurement technology. Solutions from GOM have established themselves as standards in product development and quality assurance as well as in material and component testing. Users of GOM systems include international companies from the automotive, aviation, aerospace and consumer goods industries, their suppliers as well as research institutions and universities from all over the globe. GOM offers a full range of development, production, sales, training and professional support services from a single source.

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