Precise Industrial 3D Metrology



ATOS Compact Scan

Portable 3D Scanner

Optical and tactile coordinate measurement
Flexible use on site
For tools – systems – components

Optical 3D Measuring Technology

In Industrial Quality Control

Optical 3D coordinate measuring machines are replacing tactile measuring systems and gages in many areas of industry. They capture more detailed and easier to interpret quality information about an object with significantly shorter measuring times.

While mechanical measuring systems capture data in a point-based or linear manner, optical measuring systems provide full-field data about deviations between the actual 3D coordinates and the CAD data. As this measuring data contains all the object information, in addition to the surface deviations from the CAD, the software also automatically derives detailed information such as GD&T, trimming or hole positions.

The accuracy of optical measuring machines is not due to expensive and high-maintenance precision mechanics, but is rather based on state-of-the-art optoelectronics, precise image processing and mathematical algorithms. A few precision standards and calibration that can be performed by the customer ensure the accuracy of the machine. This also means no loss of accuracy due to wear under harsh conditions. As with the tactile machines, measuring uncertainty is certified with the help of ball bars or step gages.

Over 14,000 GOM measuring systems worldwide ensure the dimensional quality of automotive, sheet-metal, cast and injection molded products as well as turbine blades and wheels. In most cases, the detailed analyses are not used for a simple “OK” / “not OK” evaluation, but form the basis for the optimization of production and machine parameters as part of a value-added measuring procedure.

ATOS Compact Scan – The Compact Class

With the ATOS Compact Scan, GOM presents a portable 3D scanner for full-field measurement and inspection. This lightweight and compact overall solution opens up complete new application areas and offers the user various possibilities for 3D digitizing and analyses of parts, tools and systems. Even in cramped spaces or interiors, the compact solution of the ATOS series allows fast and precise measuring of surface geometries.

In addition to innovative hardware, the complete package includes integrated, high-performance software for all scan and inspection tasks. Furthermore, users benefit from practice-oriented hardware and software training as well as unrestricted access to the reliable and worldwide support network.

The ATOS Compact Scan comes with the proven technologies of the ATOS series. Thanks to a stereo camera setup, the system is self-monitoring and generates accurate and reliable measuring data. Furthermore, Blue Light Technology allows measurements to be made independent of ambient light conditions.

The ATOS Compact Scan offers:

- The proven high-end technology of GOM
- A portable system of low weight
- Optical and tactile measurement in one system
- Easy handling independent of the environment
- High-resolution measurement for small and large components
- Complex measurement and inspection tasks



ATOS Compact Scan

Variable Use on Site



Companies must inspect tools, systems and components even during ongoing production, so as to introduce corrections as quickly as possible. Therefore, with the ATOS Compact Scan, GOM provides a portable measuring system, which can be used immediately during the manufacturing process.

ATOS sensors have proven in practice to be successful due to their flexibility and precision. Instead of removing the component from the running process and transporting it to the measuring room, the compact solution of the ATOS series is used directly on the production line or on the measuring object. This way, errors which would otherwise only show up in the final product can be identified directly at the site where they occur. This also avoids a lengthy search for the source of the error.

The portable scan kit widens the flexible possibilities of the ATOS Compact Scan. The complete system including sensor head, stand, calibration body, cable and rotation table fits into one standard suitcase.

- System, stand, measuring volume and manual rotation table in one suitcase
- Complete system in travel size
- Portable, high-performance computer
- Industrial, portable and easy to transport

ATOS Technology

The ATOS sensor technology has been continuously developed and refined by GOM since its introduction in 1995. Due to their proven measuring technology, the ATOS systems from GOM have established themselves as the preferred measuring system in virtually all industries. In addition to the innovative hardware, all ATOS systems include integrated, high-performance software for all scan and inspection tasks.

Blue Light Technology – The GOM projection technology works with narrow-band blue light, which means that interfering ambient light during image acquisition can be filtered out. The light sources are so powerful that short measuring times can be achieved even on uncooperative surfaces.

Live tracking – The online measurement is used for the selective alignment and positioning of components to the CAD. For example, components can be aligned in their nominal position in such a way that online positioning is possible within the assembly.

GOM Adapter – The GOM adapters provide expanded possibilities for live measurement such as component alignment or the measurement of regular geometries and edges.

Self-monitoring system – The ATOS Compact Scan is a self-monitoring system. The sensor recognizes changing ambient conditions during operation and is able to compensate these changes.

Photogrammetry – For high global accuracy and process reliability, regardless of the object size and complexity, the ATOS Compact Scan can be extended with photogrammetry.



ATOS Compact Scan

For Tools – Systems – Components

Scalable Measuring Areas

In contrast to other measuring methods, the technology of the ATOS Compact Scan can be optimally used for all measuring tasks and for all object sizes. Whether a high level of detail resolution, highest accuracy or fast scanning of large measuring areas: The scalable measuring area of the 3D scanner allows perfect adjustment to each measuring task. With only one sensor head, each required precision, detail resolution and velocity is possible.







For measuring areas from 40 mm² to 1,200 mm², the ATOS Compact Scan digitizes all component and object sizes with highest accuracy.



To capture also large objects of several meters in optimal workflows, the ATOS Compact Scan can be easily combined with digital photogrammetry of GOM's optical 3D coordinate measuring machine TRITOP.

- Adaptable accuracy, resolution and speed
- Complete component analysis
- Digitizing small to large parts with one sensor head
- Digitizing very large measuring objects of several meters

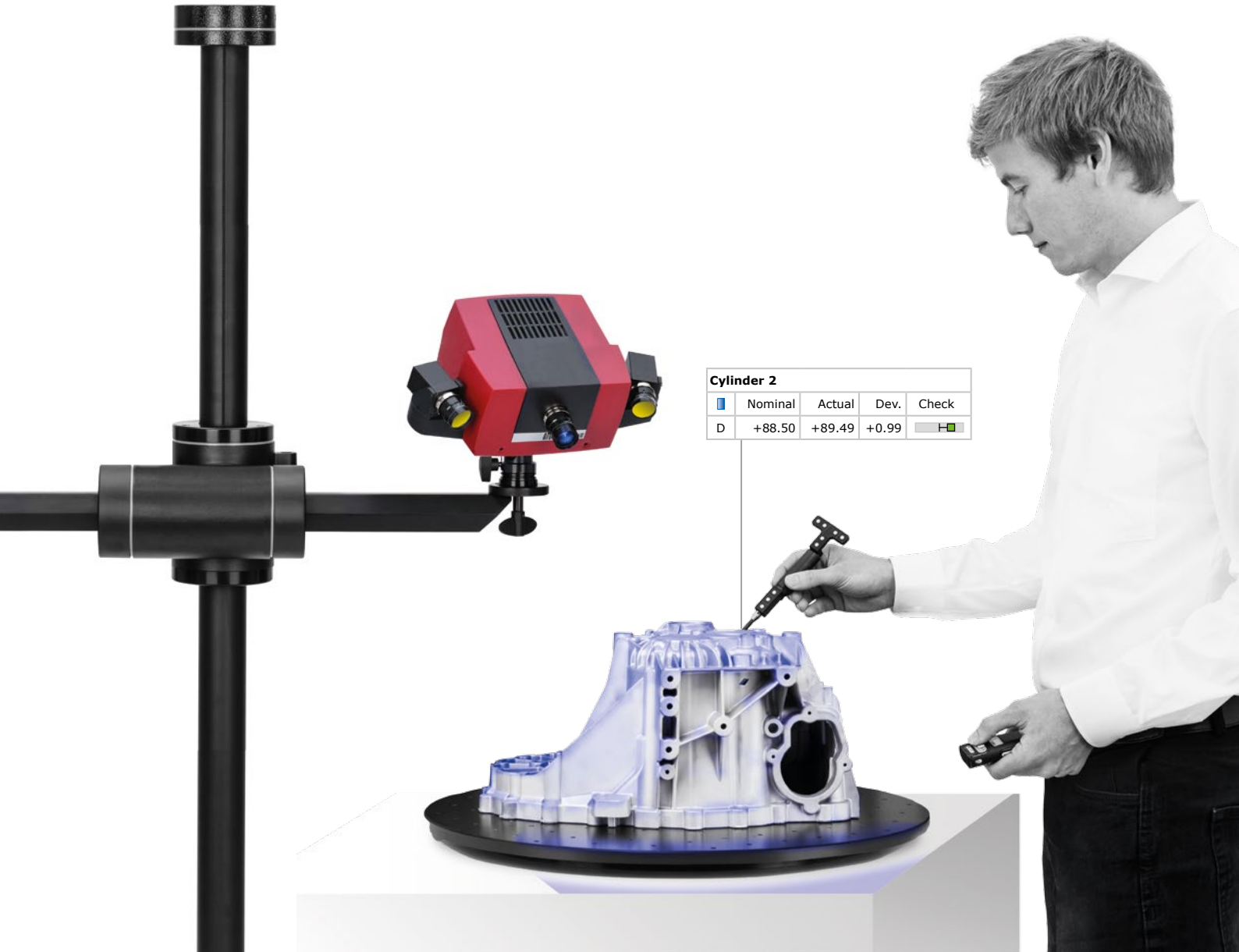
Scan & Probe

When digitizing deep pockets, bore holes or areas that cannot be accessed optically, all conventional devices reach their limits. The ATOS Compact Scan combines high-resolution scanning with the hand-operated, wireless measurement via optically tracked touch probe. Using the ATOS Compact Scan, practically all components can be digitized and analyzed within the shortest of times.

GOM Touch Probe – The GOM Touch Probe combines full-field ATOS measurements with tactile 3D measurements of individual measuring points. That enables the selective measurement of areas that are difficult to access optically, the measurement of regular geometries and their direct comparison with CAD data.

Industrial applications require process-reliable measuring data. The stereo camera systems of GOM are able to provide high-quality and precise measuring data by constantly monitoring the sensor and the environment as well as by direct feedback from the operator.

- Quick change between scanning and probing
- Measurement of optically difficult-to-access areas, bore holes, deep pockets ...
- Fast measurement of single points
- Online alignments
- Adjustment processes for equipment



GOM Services

Support and Training

GOM provides its customers with support and advice throughout the entire product life cycle. GOM application engineers are employed worldwide to commission measuring systems for customers on site and in the local language, or to provide user-specific advice on a measuring task. By email and on the phone, the GOM Support Team not only provides answers to questions relating to software and hardware, but also to applications and processes. An individual update program allows GOM customers to benefit from the latest product developments.

The aim of GOM is not only to provide measuring systems, but also the corresponding technological expertise. GOM provides standardized training courses worldwide for beginners and advanced users for this purpose.

In the GOM Service Area under www.gom.com/service, registered customers are given access to user manuals and application-specific video tutorials. A knowledge database also provides various articles with information on hardware and software. In discussion forums, users also have the option of asking questions and exchanging their experiences with other users and GOM experts.



ATOS Compact Scan

Due to its compact design, its low weight and its immunity against ambient light, the ATOS Compact Scan offers various measurement applications. Because of the scalable measuring areas, it is very easy to handle the ATOS Compact Scan when measuring small components up to large systems and tools.





Measuring Points per Scan	5 million
Measuring Area [mm²]	40 – 1,200
Working Distance [mm]	450 – 1,200
Sensor Dimensions [mm]	340 × 130 × 230
Weight [kg]	4
Sensor Controller	integrated
Cable Length [m]	up to 30
Sensor Positioning	light-weight tripod or sensor pedestal
Part Positioning	manual or automatic rotation table
Computer	laptop or desktop system
Software	data capture, processing and complete inspection
Ambient Light	insensitive
Environmental Vibrations	unaffected due to GOM's dynamic referencing
Temperature Range	+ 5 °C to + 40 °C, non-condensing
Power Supply	90 – 230 V AC

High-Performance Software for Measurement and Inspection

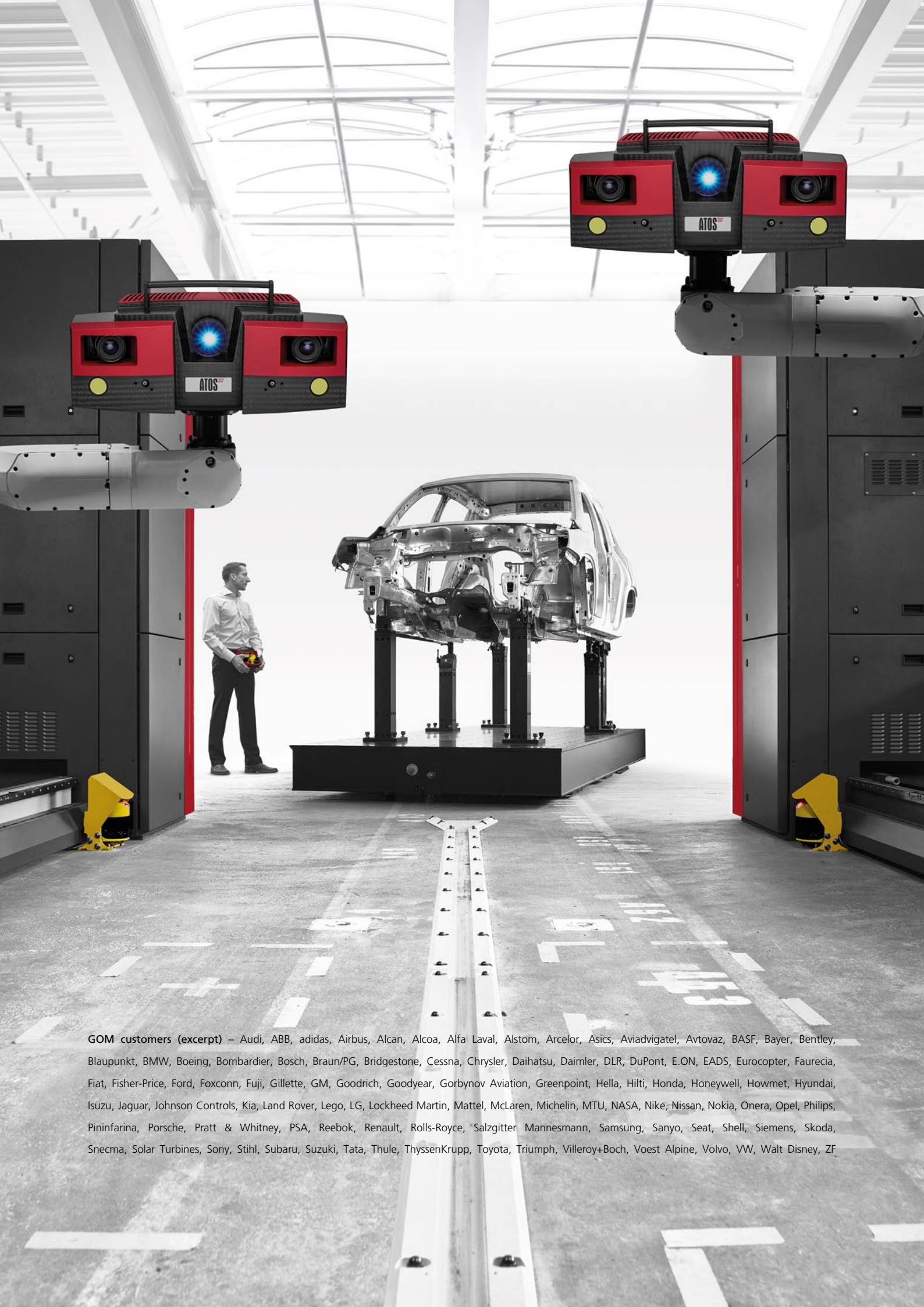
ATOS software – The ATOS software guides the user through the complete scanning procedure and provides support for setting up new measuring tasks using guided project creation.

The ATOS software is used to run the sensor head, to process the 3D point cloud and to edit and post-process the data. The simple graphical user interface helps to support today's demanding tasks in quality control, manufacturing processes and reverse engineering.

GOM Inspect – The inspection software for 3D measuring data allows a shape and dimension analysis, 3D inspection and mesh editing of 3D point clouds and CAD data. 3D measuring data from fringe projection scanners, laser scanners, coordinate measuring machines (CMM) and other measuring machines can be checked.

Using the free 3D viewer, data sets and measuring reports can be easily shared with project participants, customers or suppliers.

Free version under **www.gom.com**



GOM customers (excerpt) – Audi, ABB, adidas, Airbus, Alcan, Alcoa, Alfa Laval, Alstom, Arcelor, Asics, Aviadvigatel, Avtovaz, BASF, Bayer, Bentley, Blaupunkt, BMW, Boeing, Bombardier, Bosch, Braun/PG, Bridgestone, Cessna, Chrysler, Daihatsu, Daimler, DLR, DuPont, E.ON, EADS, Eurocopter, Faurecia, Fiat, Fisher-Price, Ford, Foxconn, Fuji, Gillette, GM, Goodrich, Goodyear, Gorbynov Aviation, Greenpoint, Hella, Hilti, Honda, Honeywell, Howmet, Hyundai, Isuzu, Jaguar, Johnson Controls, Kia, Land Rover, Lego, LG, Lockheed Martin, Mattel, McLaren, Michelin, MTU, NASA, Nike, Nissan, Nokia, Onera, Opel, Philips, Pininfarina, Porsche, Pratt & Whitney, PSA, Reebok, Renault, Rolls-Royce, Salzgitter Mannesmann, Samsung, Sanyo, Seat, Shell, Siemens, Skoda, Snecma, Solar Turbines, Sony, Stihl, Subaru, Suzuki, Tata, Thule, ThyssenKrupp, Toyota, Triumph, Villeroy+Boch, Voest Alpine, Volvo, VW, Walt Disney, ZF

GOM

Precise Industrial 3D Metrology

GOM develops, produces and distributes software, machines and systems for industrial and automated 3D coordinate measuring technology and 3D testing based on latest research results and innovative technologies.

With more than 60 sites and an employee network of more than 1,000 metrology specialists, GOM guarantees professional advice as well as support and service to operators on-site in their local languages. In addition, GOM shares knowledge on processes and measurement technology in training courses, conferences and application-based workshops.

GOM has been developing measuring technology in Braunschweig since 1990. In the respective research and development departments, more than 100 engineers, mathematicians and scientists shape the measuring technology of the present and the future.

Today, more than 14,000 system installations improve product quality and accelerate product development and manufacturing processes for international companies in the automotive, aerospace and consumer goods industries, their suppliers as well as many research institutes and universities.



GOM headquarters in Braunschweig, Germany

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