



## **ATOS 5**

Industrial 3D Measurement Technology with High-Speed Technology



Seeing beyond

# High-Speed Scanner

with Highest Data Quality

Due to the advanced camera technology, a powerful light source and high-performance software, the ATOS 5 systems achieve a new level of performance. This is particularly evident when measuring shiny and dark surfaces, fine structures and edges. The technology accelerates the total measuring time, while providing precise 3D measurement data at the same time.

## **ATOS Accelerates Production Processes**

The sensors of the ATOS 5 family meet the high metrological requirements of industrial users. The systems provide high-precision data: from tools and molds to plastic and metal parts. The GOM Inspect Pro inspection software guides you through the entire workflow: from measurement and evaluation to the inspection report – all is included in one package. The full-field 3D scans enable comprehensive process and quality control by making errors and defects visible. This allows for early corrective measures to be taken and fast process optimization.





## **Fast**

Significant time saving during inspection

Short exposure times, even with shiny and dark surfaces

Maximum speed due to large measuring areas

## **Robust**

Developed for industrial use

Self-monitoring systems

Fast and interference-free data transmission

## **Flexible**

Variable system for individual requirements

Stationary, mobile or automated operation

Production environment and measuring room

## **Complete package with software**

High-performance software for measurement, evaluation and reporting

Digital twin for inspection, adaptive manufacturing, simulation and reverse engineering

Detailed 3D models (rib structures, narrow radii or hemmed edges)

## Measuring Systems for Industrial Requirements



### ATOS 5

High-precision sensor for measurement data acquisition of tools and molds as well as plastic and metal parts in the production environment



### ATOS 5X

Automated scanning of large measuring areas in press, tool and body shops



### ATOS 5 for Airfoil

High-speed scanner for small to medium-sized, complex parts of the aerospace industry



# ATOS 5

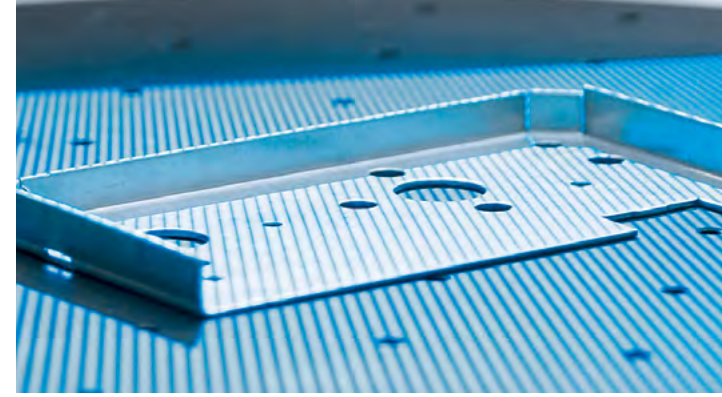
## Designed for a Wide Range of Tasks

Companies from the automotive, consumer goods and aerospace industries are successfully using ATOS 5 systems to accelerate time-to-market and maintenance of products and to ensure the quality in ongoing production, thus minimizing costs.

The sensors ensure the quality of sheet metals, tools and molds, turbine blades, prototypes as well as injection-molded and cast parts. All systems are delivered with the GOM Inspect Pro high-performance software, which guides the user through the entire workflow.

### **Metal forming**

Efficient quality control from toolmaking and try-out, first article inspection and serial inspection to assembly



### **Casting and forging**

Shorter measurement and inspection times in sand casting, die casting and investment casting as well as in the forging industry



### **Plastics**

Optimization in all phases of injection molding, blow molding and thermoforming



### **Additive manufacturing**

Speed up product development and launch with high-resolution polygon meshes (STL files) for 3D printing, milling, additive manufacturing and dimensional inspection



# Versatile All-Rounders

ATOS 5, ATOS 5X and ATOS 5 for Airfoil solve complex measurement and inspection tasks manually, semi-automated or automated. The software guides the user through the entire workflow.

## Manual

Placed on a stand, ATOS 5 can be used in the measuring room but also as a mobile unit in production.

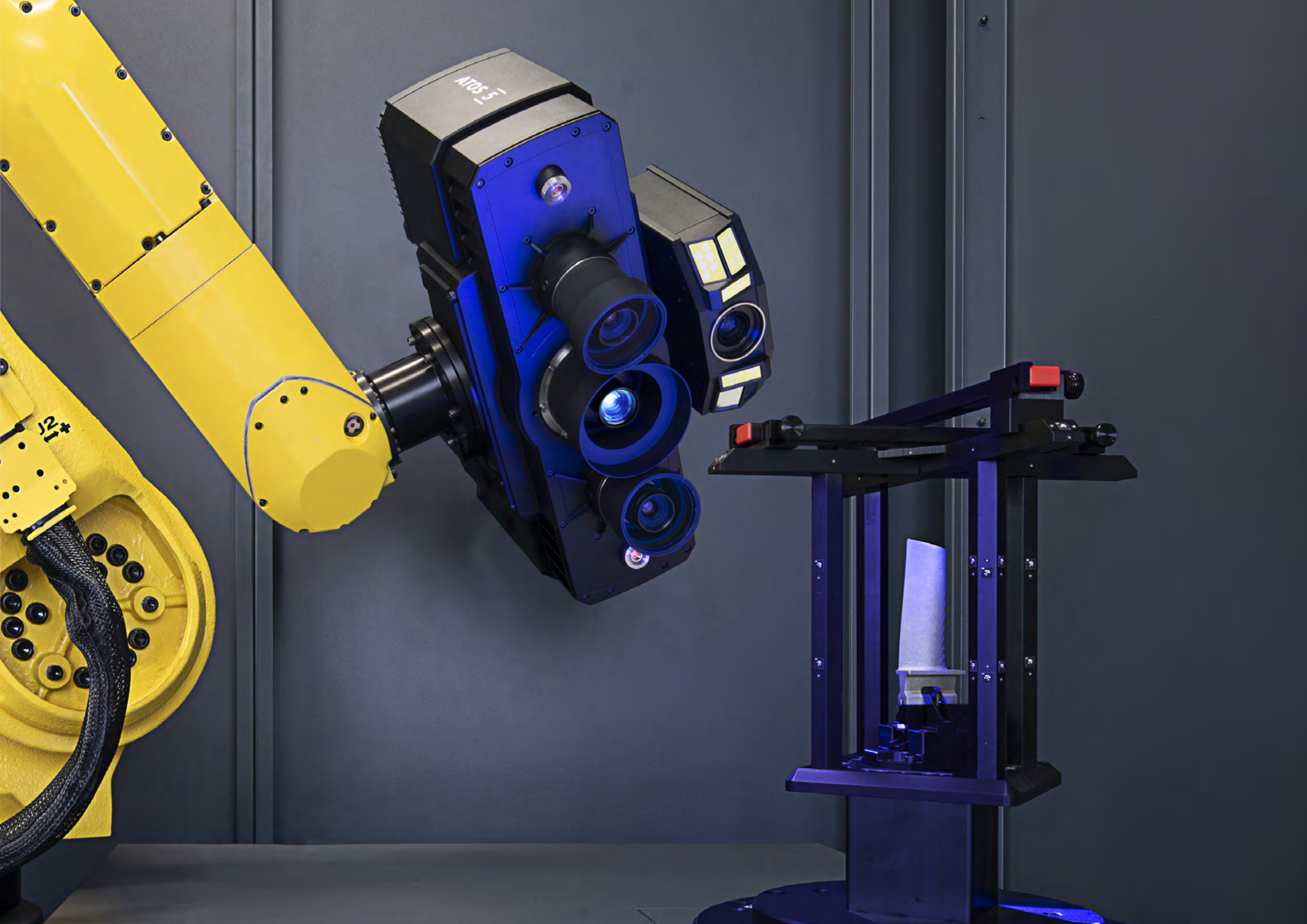
## Semi-automated

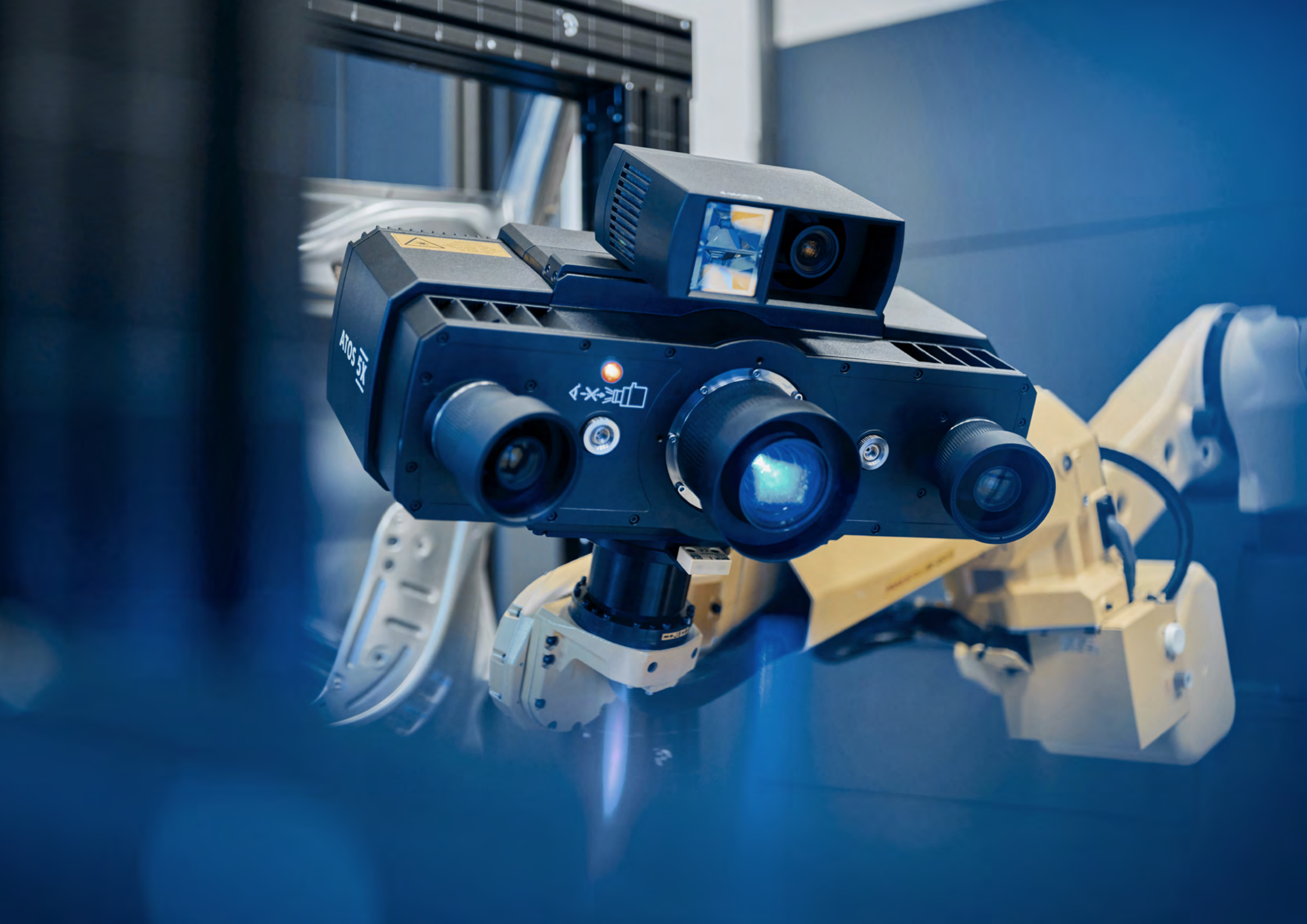
Mobile rotation tables enable simple automated measurements of small to medium-sized objects.

## Automated

In production, the sensors of the ATOS 5 family enable quality control during series production with a high throughput in the standardized ScanBox measuring machine.









# ATOS Technology

The ATOS sensors are fully tailored to the metrological requirements of industrial users and provide absolute, accurate and traceable measurement data even under harsh conditions. The 3D sensors operate with structured blue light for contactless measurement.

## Triple Scan Principle

The Triple Scan Principle ensures precise and complete measurement data, even with complex geometries and non-cooperative surfaces. The sensor's two high-resolution cameras and projection unit provide different views of an object in each measurement. To accomplish this, the projection unit projects a fine fringe pattern onto the part surface, which is captured by the two cameras operating on the stereo camera principle and used by the software to generate the digital geometric twin. The stereo camera setup gives the system a built-in, sensor-controlled process reliability monitoring feature during measurement. The software gives the user continuous feedback on the calibration status, the transformation accuracy of the individual measurements, changes in the environment and part movements.

## High-speed measurements

With each scan, the ATOS sensors provide full-field 3D coordinates within a few seconds. An individual measurement consists of up to 12 million independent measuring points. This is made possible thanks to the low noise level of the Blue Light Equalizer. It increases the brightness of the light source by a factor of 1.5, allowing for short exposure times.

## Laser Light Compressor

For extremely short exposure times, the light processing capacity of ATOS 5X has been expanded by an additional Laser Light Compressor. By combining several laser elements, it turns into a very bright light source based on laser light. The up to eight times brighter light is especially resistant to ambient light influences and enables measuring areas of up to 1,000 mm. This reduces the number of required scans, simplifies the measuring setup and speeds up the measuring time.

## Graphics card accelerates measurements

Thanks to GPU acceleration, ATOS 5 provides fast measuring results. The GOM Inspect software uses the computing power of the graphics card. Due to the large number of cores on the GPU, individual scans are processed faster. This significantly reduces the total measuring time. Combined with its powerful light source and camera technology, ATOS 5 reaches a new level of performance with this GPU acceleration.



## Technical Data

### The ATOS 5 family

ATOS 5, ATOS 5X and ATOS 5 for Airfoil capture up to 2x 12 million coordinate points during scanning. Accuracy, resolution and the size of the measuring area can be defined freely. This also allows for a very high resolution in complex parts as well as very rapid digitizing of large parts.

	ATOS 5 (8M, 12M)	ATOS 5X	ATOS 5 for Airfoil
Light source	LED	LASER	LED
Laser class	—	2/3B *	—
Measuring area [mm <sup>2</sup> ]	170×140 – 1000×800	320×250 – 1000×800	100×70 – 400×300
Working distance [mm]	880	880	530
Measuring points per scan	8 or 12 million	12 million	12 million
Dimensions [mm]	approx. 550×320×200	approx. 550×320×200	approx. 550×320×200
Temperature range		+5 °C to +35 °C, non-condensing	

\* according to standard IEC 60825-1: In 2014, classified as a Class 2 laser in automated use and as a Class 3B laser in manual use (safety distance without safety goggles > 700 mm).



## ScanBox with the ATOS 5 family

The ATOS 5 sensors for automated measurement and inspection are used in various ScanBox models. The systems allow for high process reliability during operation thanks to trend analyses in real time. Changes within the production can thus be identified quickly.

	<b>ZEISS ScanBox 5110</b>	<b>ZEISS ScanBox 5120</b>	<b>ZEISS ScanBox 5130</b>
Dimensions [mm <sup>3</sup> ]	2200 × 2850 × 3050 mm (Door) 2200 × 3550 × 3050 mm (Light curtain)	3600 mm × 3550 mm × 3050 mm (D) 3600 mm × 4250 mm × 3050 mm (LC)	4300 mm × 4250 mm × 3050 (LC)
Max. part size [mm]	Ø 1000	Ø 2000	Ø 3000
Max. part weight [kg]	2000	2000	2000
Opening width [mm]	950 mm (D), 1000 mm (LC)	2050 mm (D), 2400 mm (LC)	3100 mm (LC)
Sensor compatibility	ATOS 5 for Airfoil, ATOS 5 *	ATOS 5, ATOS 5 for Airfoil	ATOS 5

\* Verification of set-up necessary

	<b>ATOS ScanBox 6135</b>	<b>ATOS ScanBox 6235</b>
Dimensions [mm <sup>3</sup> ]	4500 × 4725 × 3250	7665 × 4725 × 3250
Max. part size [mm]	Ø 3500	2x Ø 3500 mm
Max. part weight [kg]	5000	2x 5000
Opening width [mm]	2850	2850
Sensor compatibility	ATOS 5, ATOS 5X	ATOS 5, ATOS 5X

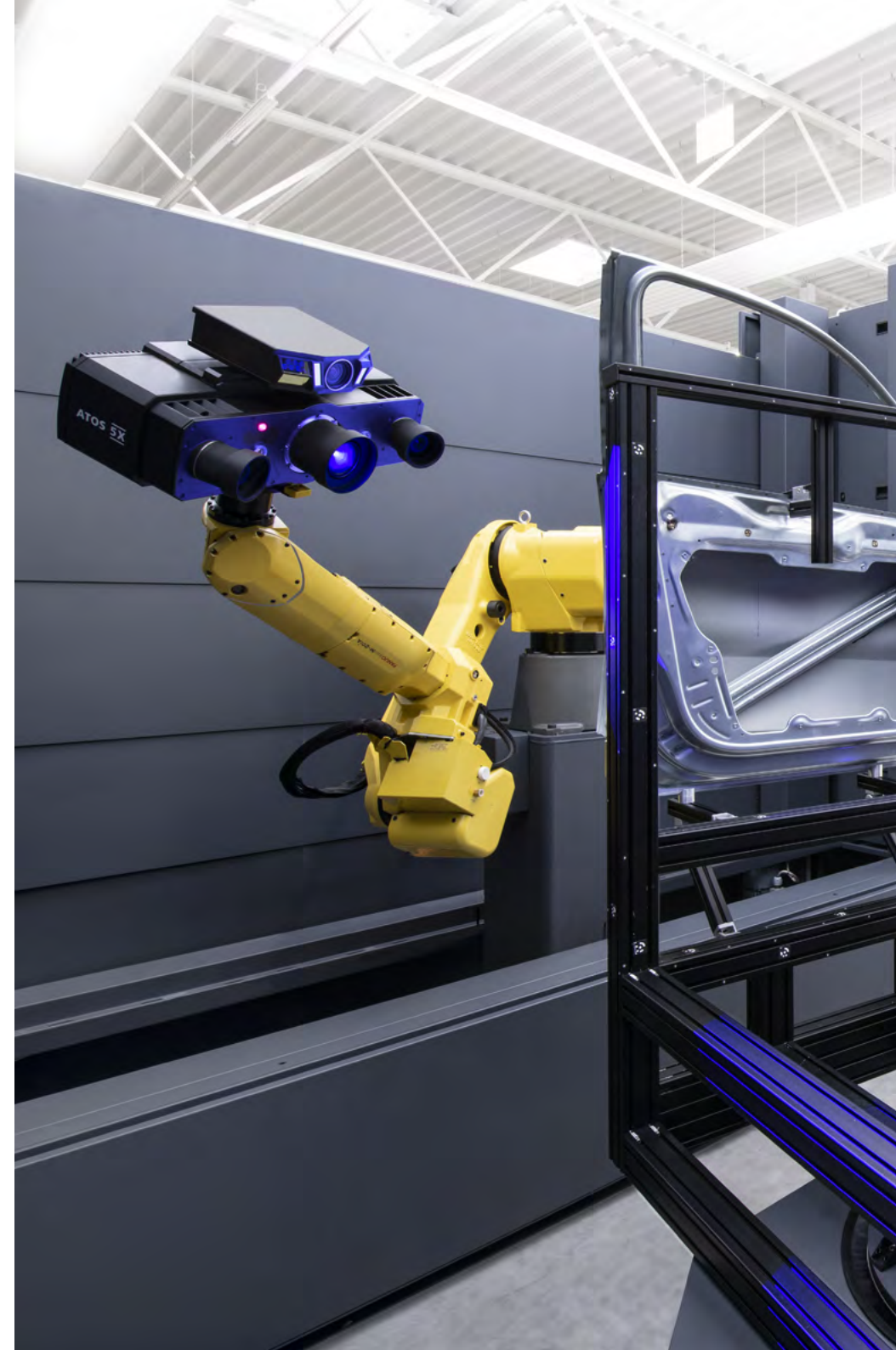
	<b>ATOS ScanBox 7160</b>	<b>ATOS ScanBox 7260</b>
Dimensions [mm <sup>3</sup> ]	4750 × 10150 × 3900	8115 × 10150 × 3900
Max. part size [mm]	6000 × 2500	6000 × 2500, rotation table working area up to Ø 3000
Max. part weight [kg]	unlimited	unlimited, rotation table working area up to 5000
Opening width [mm]	3050	3050, rotation table working area 2950
Sensor compatibility	ATOS 5, ATOS 5X	ATOS 5, ATOS 5X

	<b>ATOS ScanBox 8160</b>	<b>ATOS ScanBox 8260</b>	<b>ATOS ScanBox 8360</b>
Dimensions [mm <sup>3</sup> ]	5750 × 10150 × 3900	9140 × 10150 × 3900	12530 × 10150 × 3900
Max. part size [mm]	6000 × 2500	6000 × 2500, rotation table working area up to Ø 3000	
Max. part weight [kg]	Unbegrenzt	unlimited, rotation table working area up to 5000	
Opening width [mm]	3050	3050, rotation table working area 2950	
Sensor compatibility	ATOS 5, ATOS 5X	ATOS 5, ATOS 5X	ATOS 5, ATOS 5X

# ScanBox

## Automated 3D Measurement Technology

Fast automated measurements with highest precision: ScanBox is an all-in solution for efficient quality control in production and manufacturing processes.

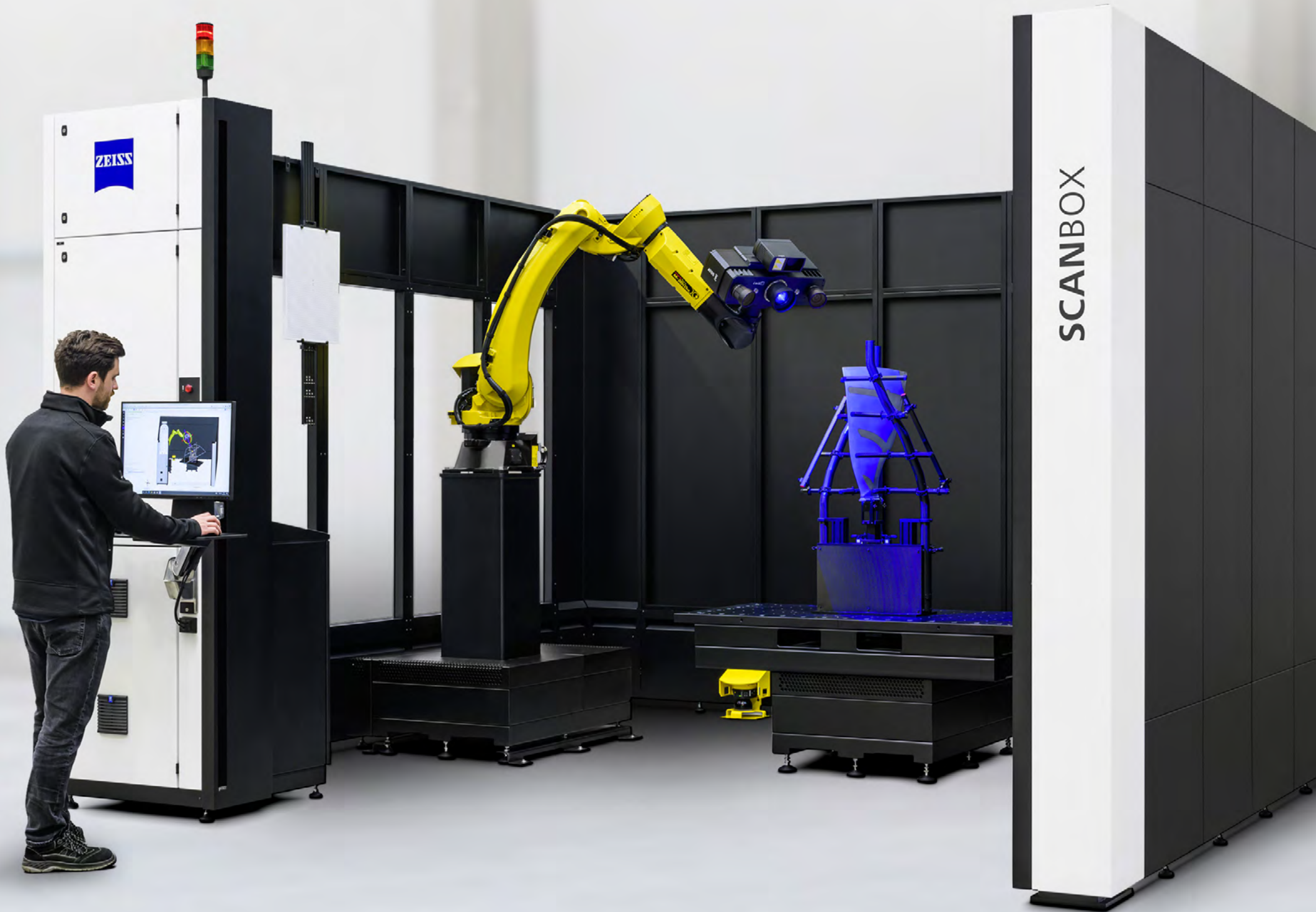




## **Precise simulation meets the highest demands**

Available in 11 variants for different applications and part sizes – from locking hooks to complete car bodies – the standardized measuring machines offer an all-in-one solution: Programming, automated digitizing, inspection and reporting.

Thanks to an intuitive user interface and the virtual measuring room (VMR) as the central control and measurement planning software, the models are easy to operate. The ScanBox system provides fully automated full-field deviations between the actual 3D coordinates and the CAD data in a short amount of time. Additionally, the powerful all-in-one GOM Inspect Pro software derives GD&T information, trimming or hole positions.



ZEISS

SCANBOX

# ScanBox

## Five Reasons for Automated Quality Assurance

### Accelerated measuring times

Particularly for parts with complex geometries or freeform surfaces, full-field measurements with ScanBox are between 50% and 80% faster.

### Easy operation

Plan your measuring procedures with just a few clicks in the virtual measuring room (VMR) in GOM Inspect Pro and execute them fully automated.

### Numerous applications

The various ScanBox machines for different part sizes are complete systems and can be directly placed in production – this saves both time and costs.

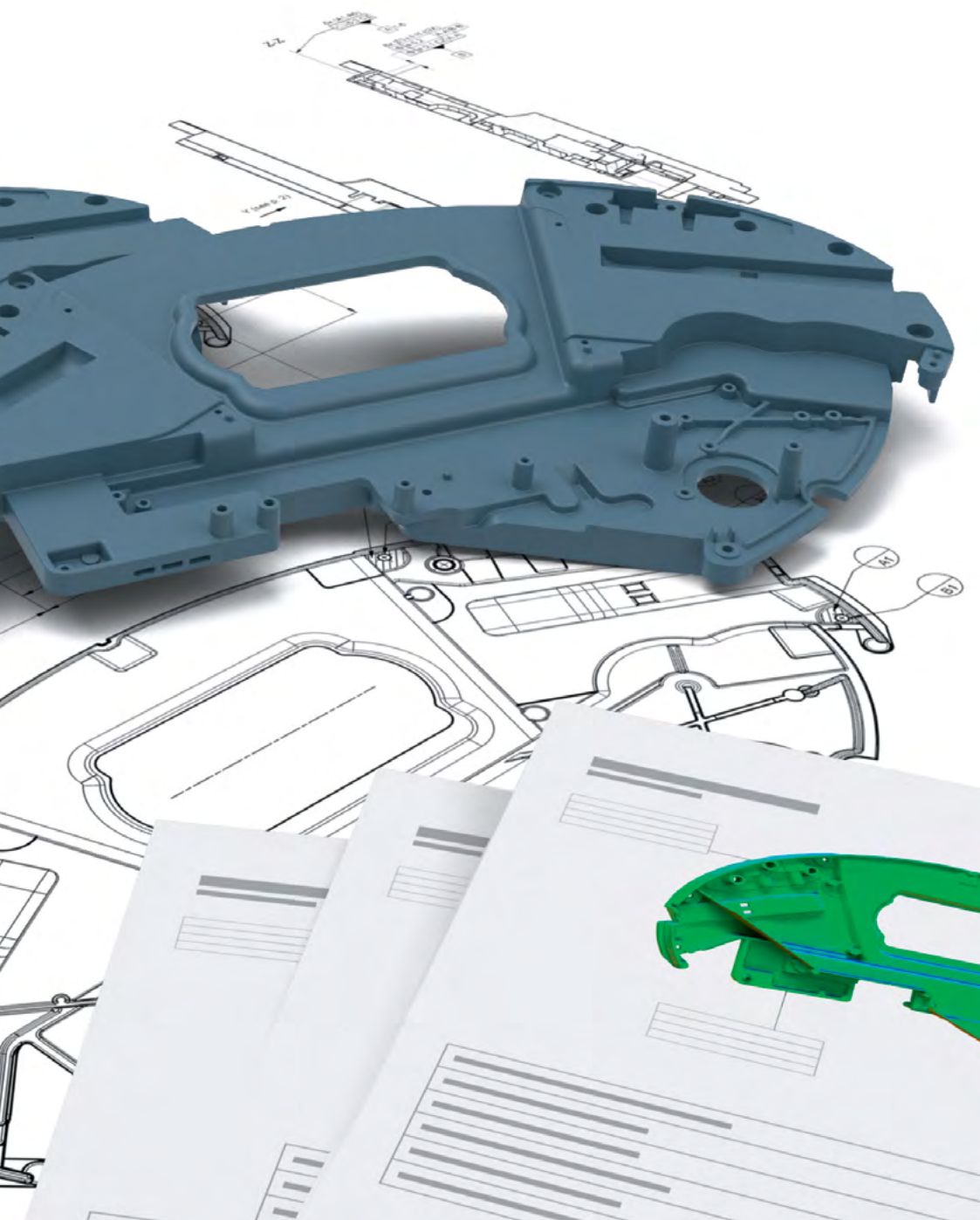
### Effective analysis tool

GOM Inspect Pro automatically generates GD&T information as well as trimming and hole positions – and is the industry standard for metrology software.

### Outstanding performance in numerous industries

ScanBox has established itself worldwide as the preferred measuring system for production control in a wide range of industries, such as automotive, aerospace or energy.





All-in-One-Software

# GOM Inspect Pro

Scanning, inspection and reporting from a single source: ATOS 5 is equipped with the GOM Inspect Pro software. You can import CAD data, create polygon meshes from point clouds and execute 3D inspections.

## Certified inspection software

The measuring accuracy of the GOM software has been tested and certified by the National Metrology Institute of Germany (Physikalisch-Technische Bundesanstalt, PTB) and the National Institute of Standards and Technology (NIST). By comparing obtained results with reference results, the software has been put in the category of lowest measurement deviations (Class 1).



### Parametric inspection

The parameter-based design of the software allows every step of a process to be traced, repeated and edited. Trend analyses, statistical process control (SPC) and deformation analyses can be performed with one software. In addition, it is also easy to perform series inspections in a project and to determine statistical analysis values.

### Numerous CAD formats

Native CAD formats, such as CATIA, NX, SOLIDWORKS and Pro/E, can be imported into the software at any time.

### Teaching by Doing

Thanks to continuous buffering, the desired inspection steps can be transferred to subsequent parts without any programming effort.

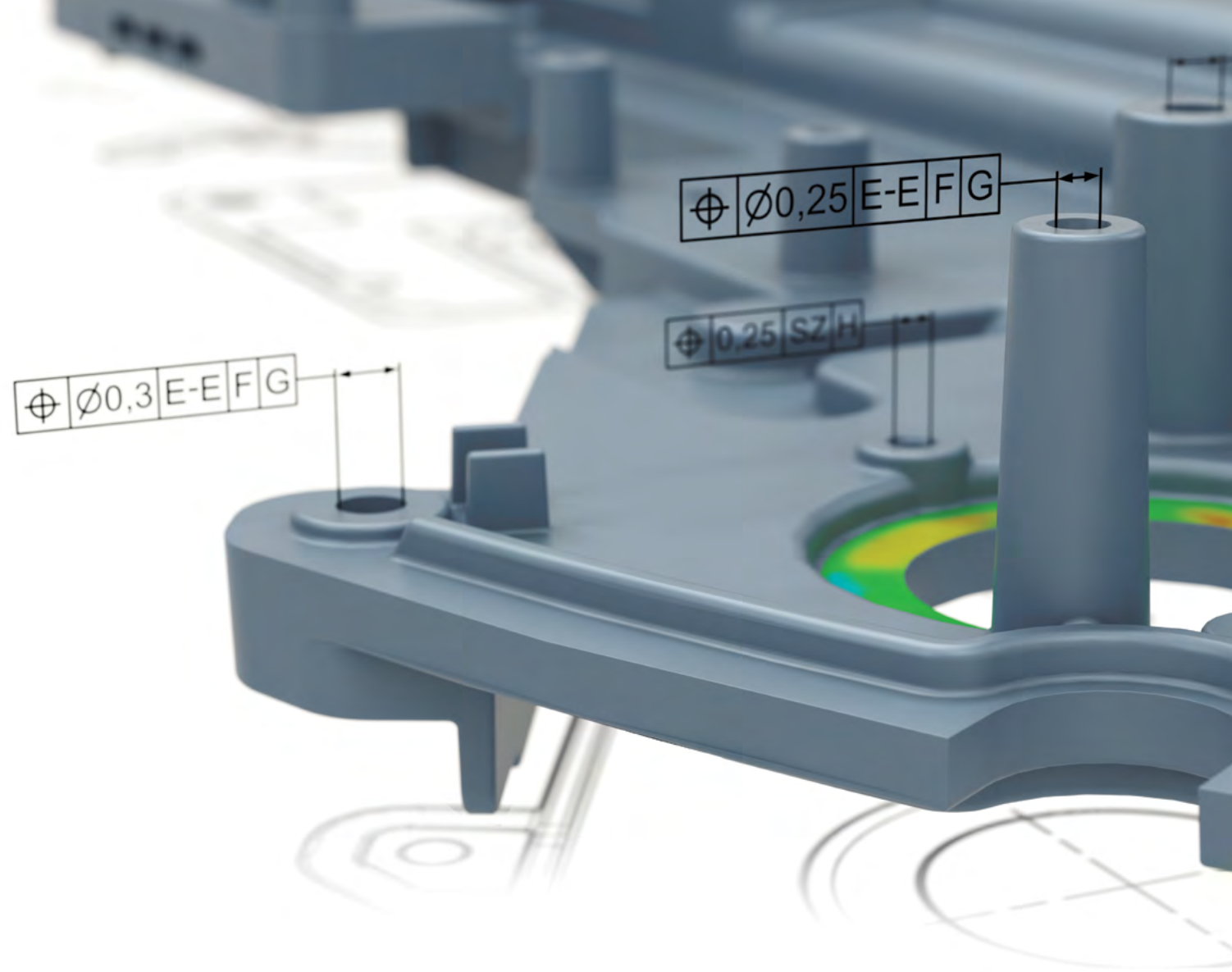
### Digital Assembly

Digital assembly allows for the alignment of parts to one another and an analysis of whether they fit accurately, regardless of where the parts were manufactured.

### Scripting

A command recorder saves all executed operations as a Python script, which can then be repeatedly applied or adjusted for other measurements.

GOM Inspect Pro supports the measuring and inspection process with detailed analysis and reporting functions. The results are displayed in a simple and clear manner.



### Free trial version

Experience the numerous benefits of GOM Inspect Pro – free for 14 days and without any contractual obligations.



# GOM Metrology

Your holistic  
technology partner

GOM Metrology, a company of the ZEISS Group, specializes in industrial 3D coordinate measuring technology, 3D computed tomography and 3D testing. GOM Metrology sets international standards in optical 3D metrology. The company helps customers worldwide to increase product quality, optimize processes and thus produce more efficiently.

From product development to production and distribution, GOM Metrology offers machines and systems for manual and automated 3D digitizing, inspection software, training and professional support from a single source. Today, more than 17,000 system installations accelerate and improve product development and manufacturing processes for international companies in industries such as automotive, aerospace, energy and consumer goods, for their suppliers as well as for many research institutes and universities.

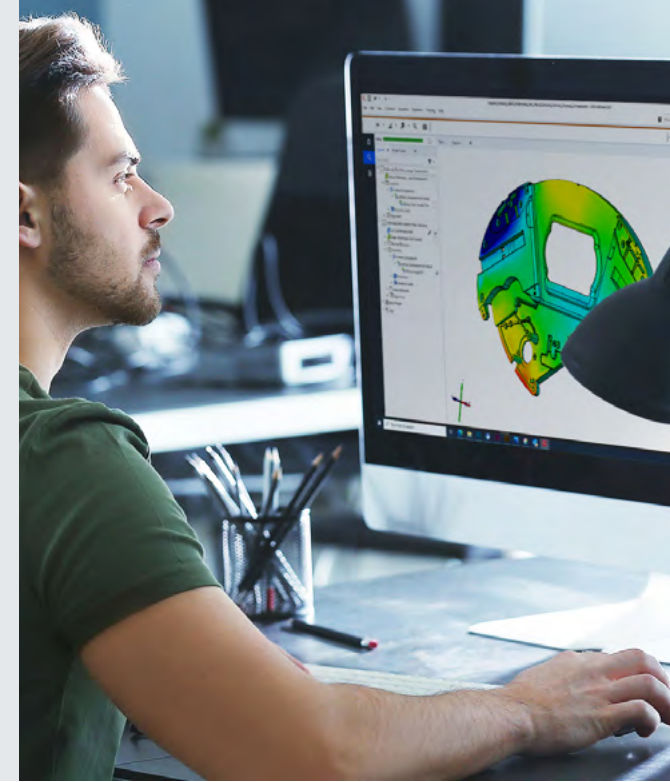
Numerous services and training courses support your daily work when using 3D metrology. In training courses and webinars, you can expand your knowledge on the software and dive into further application fields of the measuring systems.

The online platform myGOM provides instructions, tutorials and frequently asked questions and answers for you. Furthermore, there is an application forum for exchanging ideas and supporting each other.

At conferences and application-based workshops, GOM Metrology directly shares knowledge on processes and measurement technology. Furthermore support and services for 3D measuring systems are offered on a contractual basis.

## Training

GOM Metrology training centers offer training and eLearning courses for all knowledge levels. The training concept follows a worldwide standard, which is implemented by our certified partners in the respective national language. In addition to online training and appointments at our training centers, customized on-site training courses are also feasible upon request.



## Support and Service

GOM Metrology offers you fast and reliable customer support and services when necessary. They are based on three pillars: Remote Assistance, Services and Contract Plans.



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