ATOS 5

Versatile 3D scanning system for industrial demands

ZEISS

Seeing beyond

Versatile Scanner

with Highest Data Quality

Customers choose the ATOS 5 systems because the
3D scanners offer flexibility and precision. Be it on the shop
floor or in a measuring room, in a manual or automated
setup, the systems solve complex inspection tasks.

ATOS Accelerates Production Processes

ATOS meets the high metrological requirements of industrial users. The systems
accelerate the total measuring time, from tools and molds to plastic and metal parts,
speeding up your production processes.

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 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 ZEISS INSPECT high-performance software, which guides the user through the entire workflow.
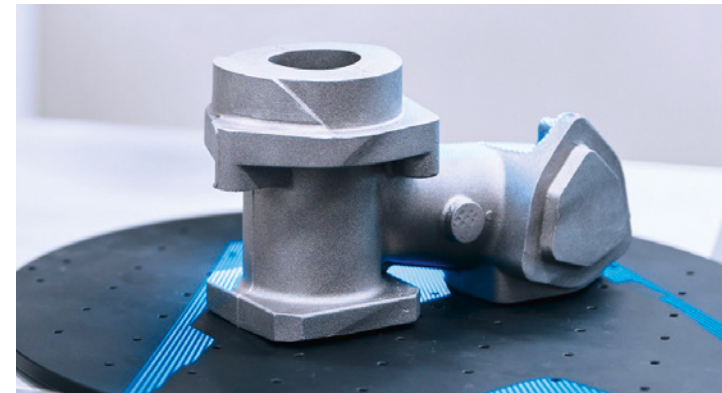
Metal forming
Efficient quality control from toolmaking and try-out, first article inspection and serial inspection to assembly
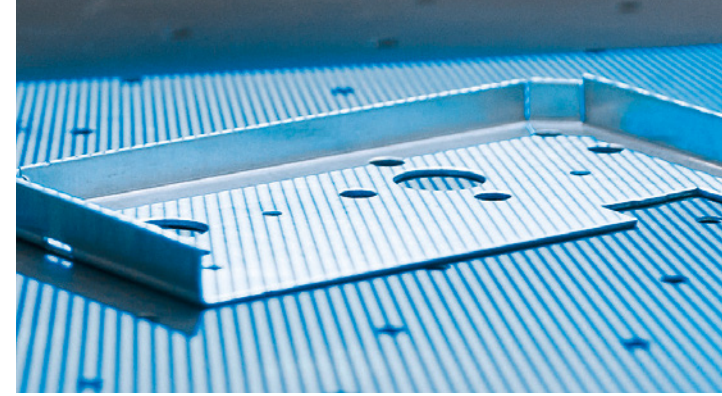
Casting and forging
Shorter measurement and inspection times in sand casting, die casting and investment casting as well as in the forging industry

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 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.
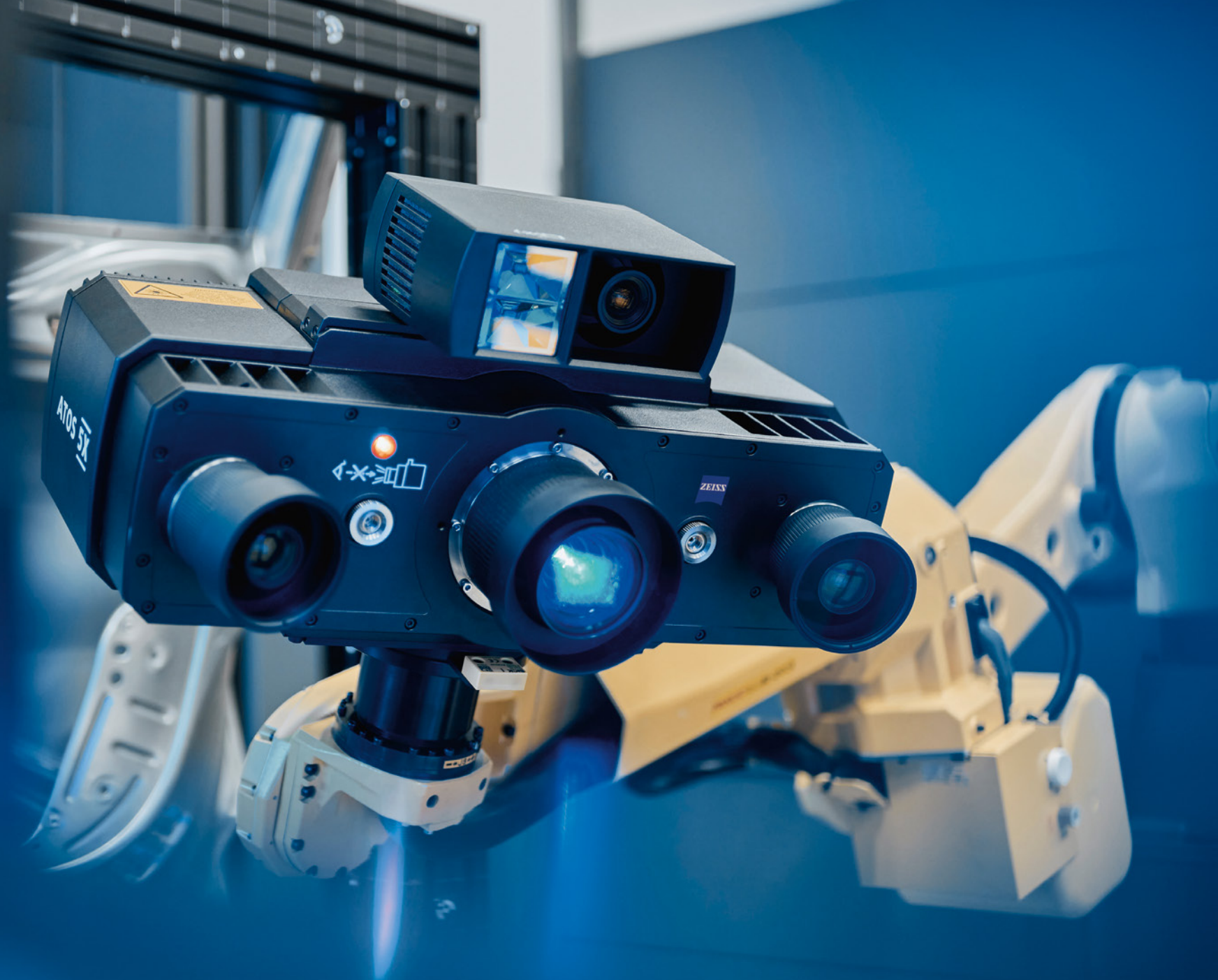
Semi-automated

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

Automated

In production, ATOS 5, ATOS 5X and ATOS 5 for Airfoil 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, 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 ZEISS 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 2× 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
Use	manual, automated	automated	automated
Light source	LED	LASER	LED
Laser class	—	3B *	—
Measuring area [mm²]	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).

	ZEISS ScanBox 5110	ZEISS ScanBox 5120	ZEISS ScanBox 5130
Dimensions [mm³]	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

	ATOS ScanBox 6135	ATOS ScanBox 6235
Dimensions [mm³]	4500 × 4725 × 3250	7665 × 4725 × 3250
Max. part size [mm]	Ø 3500	2× Ø 3500 mm
Max. part weight [kg]	5000	2× 5000
Opening width [mm]	2850	2850
Sensor compatibility	ATOS 5, ATOS 5X	ATOS 5, ATOS 5X

	ATOS ScanBox 7160	ATOS ScanBox 7260
Dimensions [mm³]	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

ScanBox
with the ATOS 5 family

ATOS 5, ATOS 5X and ATOS 5 for Airfoil are used in various ScanBox models for automated scanning and inspection. 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.

	ATOS ScanBox 8160	ATOS ScanBox 8260	ATOS ScanBox 8360
Dimensions [mm³]	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

Automated measurements with highest
precision: ScanBox is an all-in-one
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 ZEISS INSPECT software derives GD&T information, trimming or hole positions.
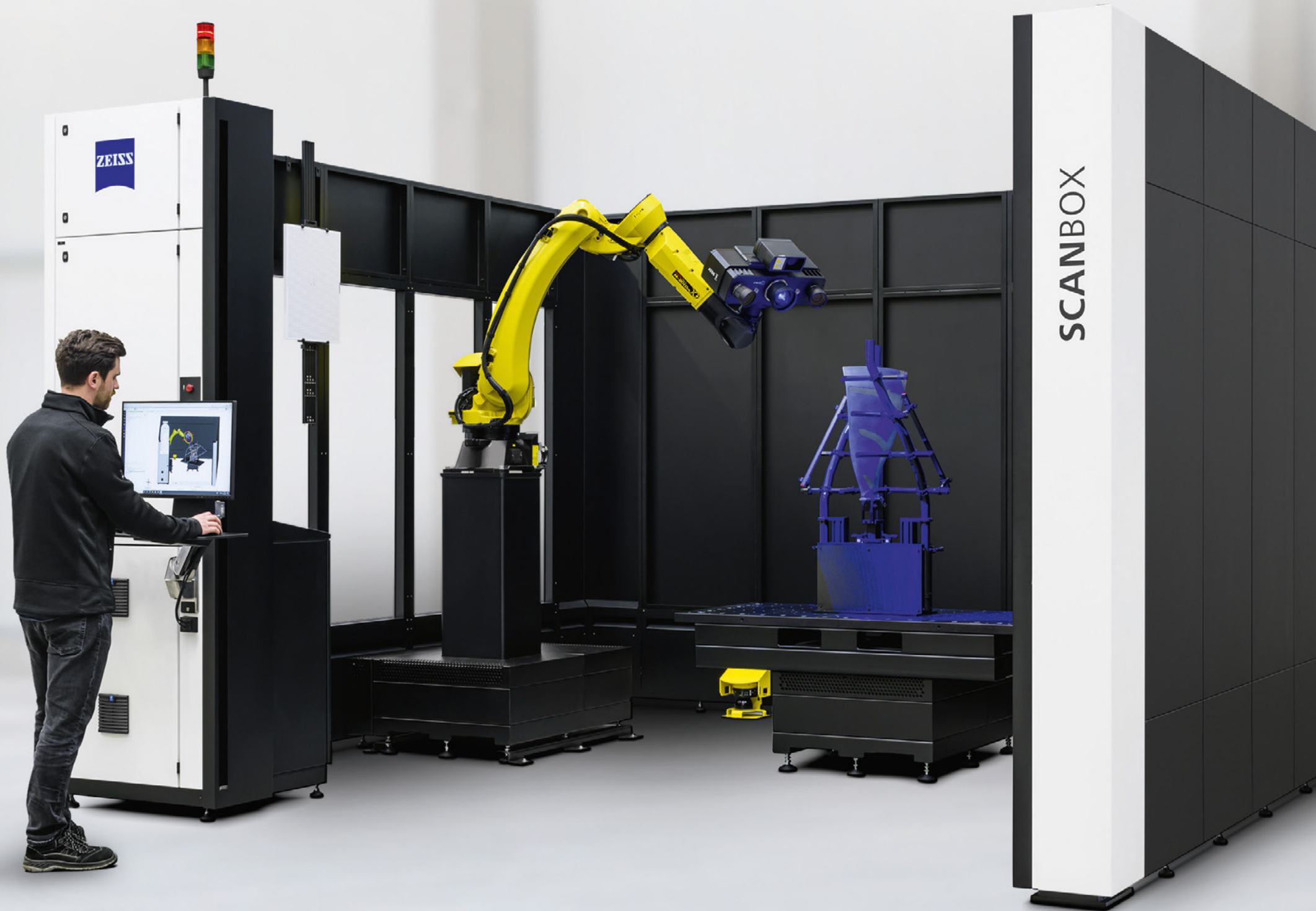
ScanBox

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 than traditional measurement technology.

Easy operation
Plan your measuring procedures with just a few clicks in the virtual measuring room (VMR) in ZEISS INSPECT 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
ZEISS INSPECT 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.
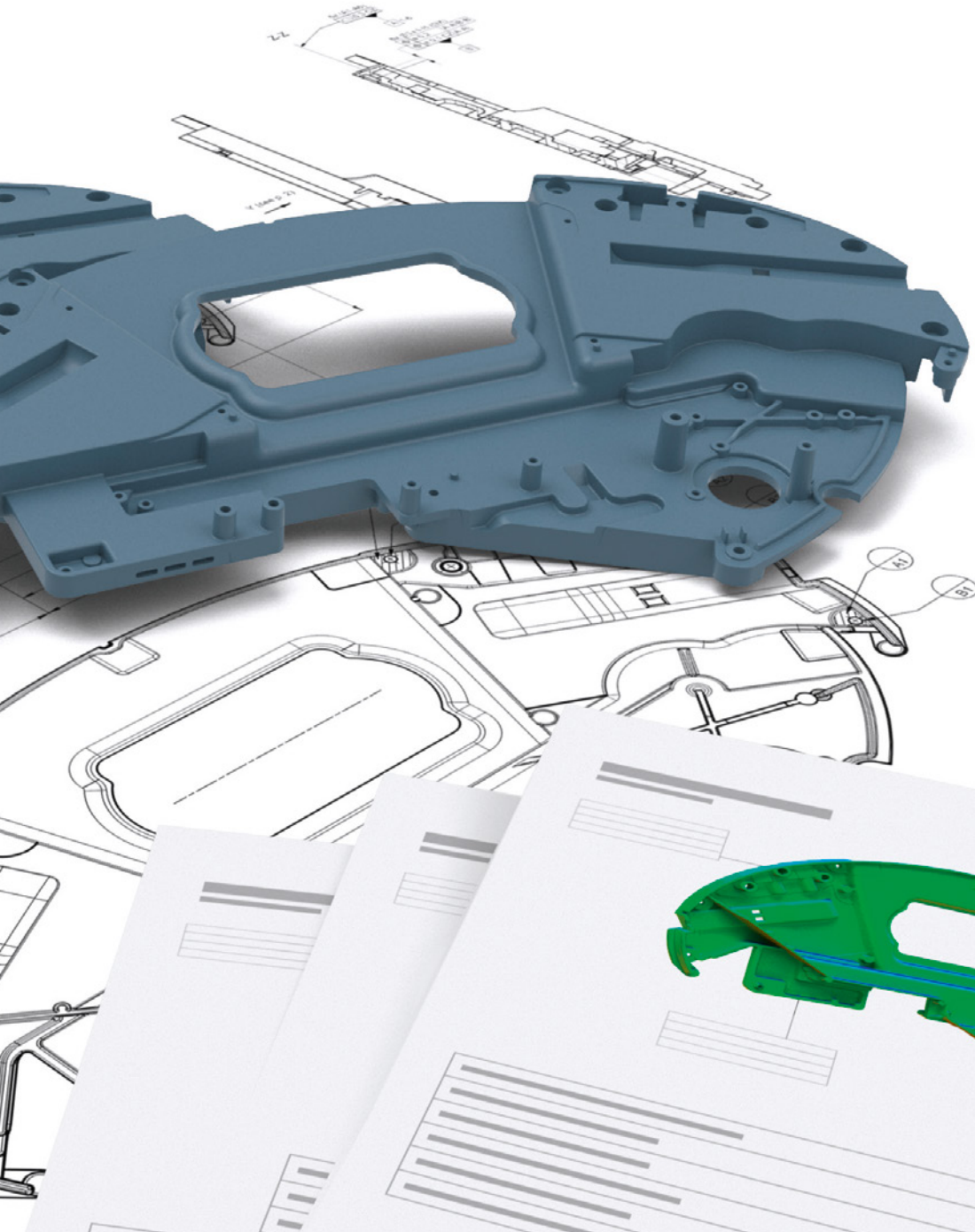
All-in-One-Software
ZEISS INSPECT

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

Certified inspection software

The measuring accuracy of the ZEISS 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 concept

The software saves each inspection step, thereby making measurement plans traceable, repeatable, and editable. This allows for carrying out trend analyses, statistical process control (SPC) and deformation analyses in one single software. In addition, it also facilitates performing serial inspections in a project and determining 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.

Customization

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

As part of the ZEISS Quality Suite, the software supports the measuring and inspection process with detailed analysis and reporting functions. The results are compiled in a simple and concise manner.
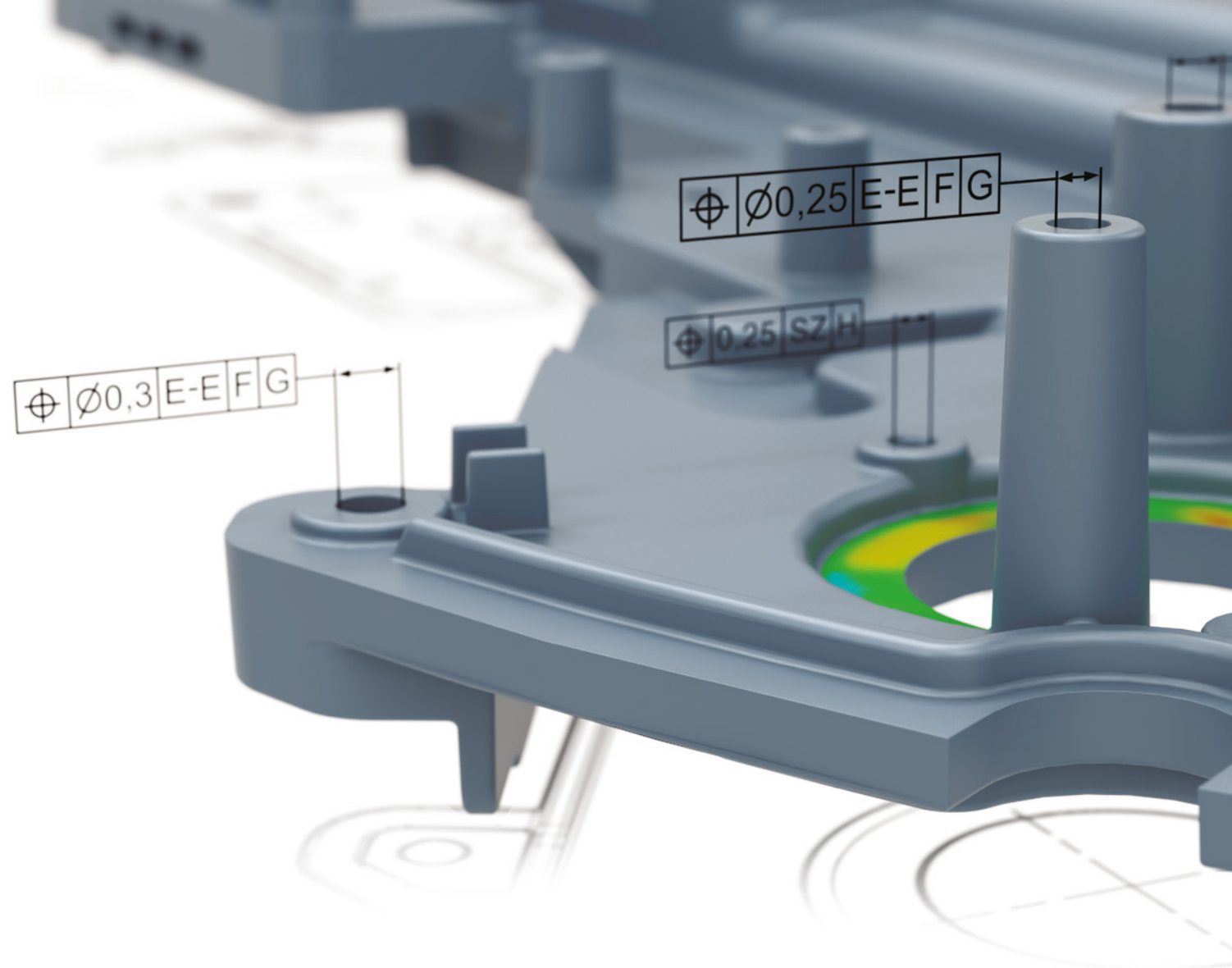
Free trial version

ZEISS INSPECT in the ZEISS Quality Suite for 14 days – free of charge and without any contractual obligation.

Start now: **zeiss.ly/ioig**

ZEISS Industrial Quality Solutions

ZEISS Industrial Quality Solutions is a leading manufacturer of multidimensional metrology solutions. These include coordinate measuring machines, optical and multi-sensor systems, microscopy systems for industrial quality assurance as well as metrology software for the automotive, aircraft, mechanical engineering, plastics and medical technology industries.

Innovative technologies such as 3D X-ray metrology for quality assurance complete the portfolio.

In addition, ZEISS Industrial Quality Solutions offers a broad global spectrum of customer services with ZEISS Quality Excellence Centers close to its customers.

Your Holistic Technology Partner

Numerous services and training courses support you in your daily work with 3D measuring technology. Training courses and webinars help you to extend your knowledge about using the software and get to know more application fields for the measuring systems.

The ZEISS Quality Suite supports you with instructions, tutorials and frequently asked questions and answers. Moreover, the user forum offers a platform for mutual exchange and support.

At conferences and application-based workshops, webinars and digital demos, ZEISS directly shares process and measurement technology know-how. In addition, contractual support and services for all measuring solutions are available.

Training

ZEISS training centers offer training and eLearning courses for all levels of expertise. The training courses follow an internationally standardized concept and are implemented by our certified partners in the corresponding national language. In addition to online training courses and scheduled courses in our training centers, customer-specific on-site training courses are also available on request.
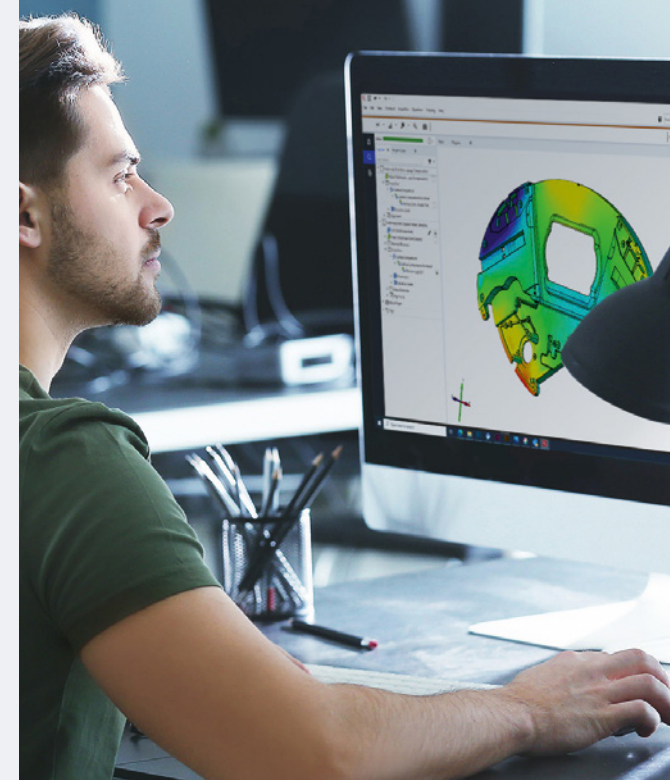
Support and Service

ZEISS provides support and services to assist you quickly and reliably if required. These are based on the following three pillars: Remote Assistance, Services and Contract Plans.