Модульные измерительные системы ScanBox, легкие 3D-лазерные сканеры, координатно-измерительные машины семейства PRISMO для обеспечения качества в автомобильной промышленности, в аэрокосмической отрасли

Технические характеристики

По вопросам продаж и поддержки обращайтесь:

Алматы (727)345-47-04
Ангарск (3955)60-70-56
Архангельск (8182)63-90-72
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Благовещенск (4162)22-76-07
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Владикавказ (8672)28-90-48
Владимир (4922)49-43-18
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89
Иваново (4932)77-34-06
Ижевск (3412)26-03-58
Иркутск (395)279-98-46
Казань (843)206-01-48
Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Коломна (4966)23-41-49
Кострома (4942)77-07-48
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04
Курган (3522)50-90-47
Липецк (4742)52-20-81
Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижний Новгород (831)429-08-12
Новокузнецк (3843)20-46-81
Ноябрьск (3496)41-32-12
Новосибирск (383)227-86-73
Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Петрозаводск (8142)55-98-37
Псков (8112)59-10-37
Пермь (342)205-81-47
Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
Севастополь (8692)22-31-93
Саранск (8342)22-96-24
Симферополь (3652)67-13-56
Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Сургут (3462)77-98-35
Сыктывкар (8212)25-95-17
Тамбов (4752)50-40-97
Тверь (4822)63-31-35
Тольятти (8482)63-91-07
Томск (3822)98-41-53
Тула (4872)33-79-87
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Улан-Удэ (3012)59-97-51
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Чебоксары (8352)28-53-07
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Чита (3022)38-34-83
Якутск (4112)23-90-97
Ярославль (4852)69-52-93

Россия +7(495)268-04-70 **Казахстан** +7(727)345-47-04 **Беларусь** +(375)257-127-884 **Узбекистан** +998(71)205-18-59 **Киргизия** +996(312)96-26-47

эл.почта: zsf@nt-rt.ru || сайт: https://zeiss.nt-rt.ru/

ZEISS

Seeing beyond

Quality Assurance at all Altitudes

ZEISS Aerospace Solutions

Quality takes flight
Embracing safety and elevating performance

The aerospace industry is constantly evolving. Meet your production targets, pursue sustainable growth, and guarantee the highest safety standards with ZEISS metrology solutions. Dedicated support from our expert team further promotes long-term success.

Safety takes top priority, but staying competitive also means optimizing your production capacity. ZEISS quality assurance (QA) solutions such as material analysis, automation, X-ray, and computed tomography (CT) help address production challenges via early identification of defects.

We understand the importance of sustainability and aim to expedite design-to-delivery processes. Achieve your green goals while maintaining operational efficiency and speed with ZEISS solutions such as additive manufacturing and reverse engineering.

ZEISS aerospace solutions for propulsion

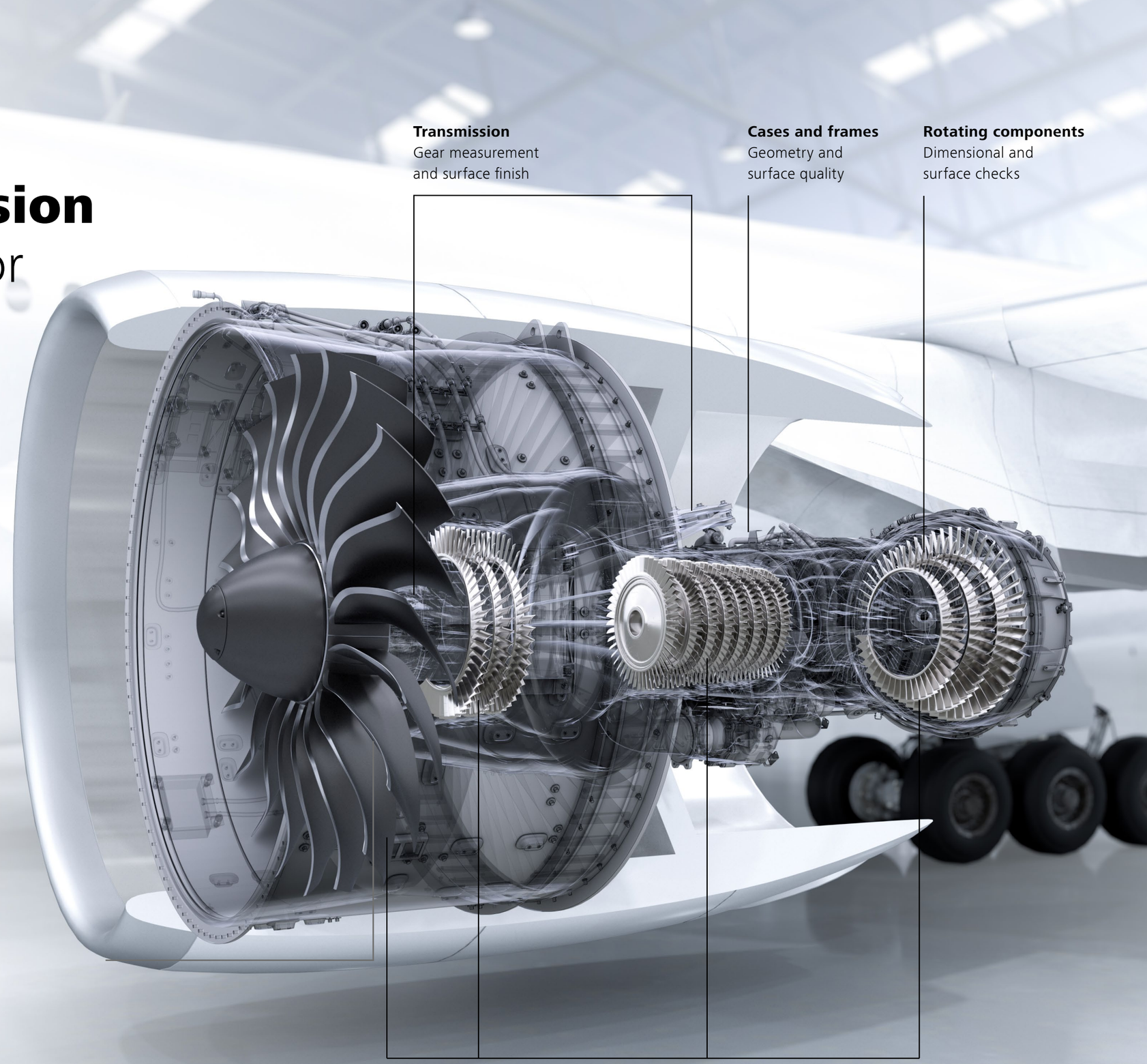
Quality-assured blades for extreme conditions

Some 20,000 components make up each aircraft engine, and the tiniest aspects can have major consequences. Fuel efficiency is also a crucial driver for the industry. ZEISS propulsion solutions help tackle these competing challenges with confidence.

Our metrology systems enable measurement of even the smallest tolerances, helping part manufacturers achieve the minimum clearances between components. This in turn saves costs on fuel, reduces emissions, and maximizes the efficiency of the blades and vanes impacting engine performance.

Effective non-destructive testing (NDT) with ZEISS 2D and 3D inspection solutions guarantees structural precision by detecting and evaluating defects without causing damage.

Our portfolio encompasses additional aerospace applications such as helicopter propulsion and space launch systems. We are committed to providing innovative aerospace metrology solutions that assure the quality and integrity of every component – for total peace of mind.



Transmission
Gear measurement and surface finish

Cases and frames
Geometry and surface quality

Rotating components
Dimensional and surface checks

Blades, blisks / IBR, and vanes
Geometry and surface quality

Aerostructure quality management
Scalable metrology for efficient safety

Lightweight, high-strength composites and alloys are enjoying increased use in the aerospace sector. ZEISS microscopy enables detailed analysis and inspection of these materials via advanced optical and multisensor inspection and testing systems.

Facing a shortage of skilled personnel, the industry is pivoting to a single software solution for a more adaptable workforce and minimized training. ZEISS automation and AI support component manufacturers and OEMs, while our software solutions offer an unparalleled competitive edge.

Advanced metrology and software solutions from ZEISS underpin structural design and analysis processes for the benefit of all air vessels. They are essential for ensuring superlative safety, quality you can rely on, and compliance with the highest regulatory standards.

Our off-the-shelf, fully automated measurement systems make light work of large aerostructure components. With standard hardware and custom solutions beyond this, we can support the manufacturing process of all aircraft parts.

Wings
Component geometry inspection and wing tension analysis

Fuselage
Digitalization and surface defects analysis

Interiors
Alignment and geometry inspection

Aircraft systems quality management
Virtual inspection of safety-critical parts

Aircraft systems such as the landing gear and hydraulic subsystems are critical to safety. Huge numbers of parts featuring many hard-to-reach areas need quick, precise measurement.

Early visualization of defects increases productivity and reduces uncertainty. This demands highly flexible solutions that generate relevant data through the interaction of advanced hardware and software.

Enjoy flexible, repeatable, and accurate measurement with ZEISS. Its non-contact 3D scanning technology supports virtual defect inspection from every angle and captures every edge. Digital twin generation enables high-resolution imaging, high repeatability, and a fast turnaround.

With our virtual assembly solutions, you can ensure a proper fit in the final assembly even before the parts leave production. Meet tolerance requirements, exceed quality standards, and guarantee safety with ZEISS.

Mechanical systems and hydraulic hoses
Geometry and material porosity analysis

Landing gear
Process measurement and movement analysis

Managing supply chain pressure Cost-effective solutions for aerospace MRO

ZEISS combines measurement, inspection, and detection methods in its automated processes. These are completed in a fraction of the time and without extensive operator training.

To avoid escalating costs in the context of fuselage damage, ZEISS optical scanning helps you make the right decision in a matter of minutes. Simply scan the affected area, check against the maintenance manual, and get airborne again faster.

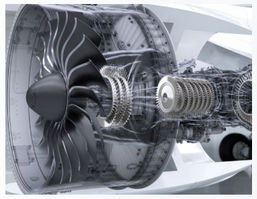
You can also vastly reduce the maintenance costs for engine and APU parts via targeted use of 3D data. By applying the digital copy and modern inspection methods, you can quickly establish whether a component is within the limits, needs a repair scheme, or is not serviceable.

Our advanced data analysis and visualization capabilities deliver time and cost savings for MRO hangars and repair shops. They also power data-driven decisions, enhanced workflows, and improved performance.

Every minute an aircraft is on the ground (AOG) costs money. And in an aerospace MRO industry that is grappling with an aging workforce, highly manual tasks, a decline in skilled labor, and spare parts shortages, our solutions are uniquely positioned to address these issues and drive efficiency.

Aerostructure
Geometry and surface precison inspection

Systems
Virtual inspection and motion analysis



Propulsion
Precision inspection

Driving decarbonization
Solutions for the future of flight

Although aerospace contributes only 2 percent of global emissions, it is among the most challenging industries to decarbonize. Yet aerospace decarbonization is crucial for achieving a net-zero future, and quality assurance solutions are essential on this journey.

ZEISS provides the industry with metrology solutions that promote higher precision and lower tolerances, enabling efficiency gains such as reduced fuel consumption and increased engine efficiency. Advancements in quality assurance of lightweight design and novel materials further support the industry in optimizing resource consumption.

To reduce the time between pre-development and series production, ZEISS additive manufacturing solutions enable shortened innovation cycles by means of modernized quality assurance approaches. Additional additive manufacturing and reverse engineering solutions help conserve resources while maintaining operational efficiency and speed.

By leveraging modern technologies and fostering collaboration, we can collectively achieve our aerospace decarbonization goals while maintaining safety, reliability, efficiency, and profitability.

Seamless quality for additive manufacturing
From pre-development to series production

Additive manufacturing, or 3D printing, is a game-changing technology. Offering the potential to enhance production efficiency, reduce costs, and rapidly produce intricate custom parts, it promises to transform the aerospace industry.

To capitalize on these advantages, it is essential to guarantee consistent quality assurance. This covers all aspects from parameter and material development to qualifying the manufacturing process and preserving stability.

Our specialized inspection solution for additive manufacturing provides comprehensive analysis that encompasses material composition, powder integrity, distortion evaluation, defect detection, surface inspection, and more. Integrating these quality assurance processes delivers reliable insight regarding the dependability of additively manufactured parts.

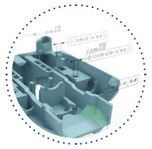
The growing role of artificial intelligence in additive manufacturing is another game-changer. Since AI can analyze defect types and patterns without disrupting production, it enhances quality, enables sustainable process improvements, and sets standards for future series production.

ZEISS portfolio

Coordinate measurement solutions

ZEISS CMMs deliver stunning speed, accuracy, and flexibility, while ZEISS VMMs (vision measuring machines) offer outstanding point density for fast optical measurement results.

ZEISS CALYPSO



ZEISS CALYPSO is your dimensional metrology software solution for CMMs.

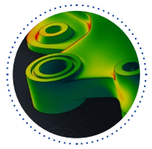
ZEISS Smart Services

ZEISS Smart Services boost safety, availability, and productivity.

Optical solutions

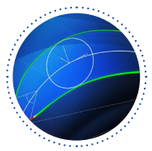
ZEISS manual and automatic scanning delivers fast high-resolution results for small to medium components. ZEISS optical solutions enable dynamic object measurement to test for deformation or movement.

ZEISS INSPECT



ZEISS INSPECT Optical 3D software takes inspection and evaluation to a whole new level with features such as full-field data acquisition and trend analysis.

ZEISS INSPECT Airfoil



This inspection software for blade geometries links directly to ZEISS CALYPSO and ZEISS INSPECT – and can also read third-party data.

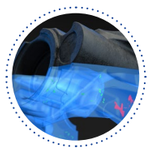
CT and X-ray solutions

2D and 3D X-ray solutions from ZEISS are ideal for fast and non-destructive part evaluation. ZEISS industrial CT enables precise measurements and defect analyses via the data from a single X-ray scan.

ZEISS INSPECT

ZEISS INSPECT X-Ray software performs in-depth visualization and analyses using the data generated with industrial CT.

ZADD Segmentation

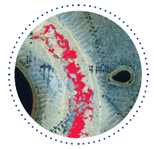


Based on machine learning, this software enables the detection, segmentation, and evaluation of defects and abnormalities. AI is used to inspect CT data.

Microscopy solutions

ZEISS offers precision solutions in light, digital, electron, and X-ray microscopy, from specific surface inspection to general material characterization.

ZEISS ZEN core



The powerful imaging and connectivity software ZEISS ZEN core enables traceable analysis and ensures compliance with regulatory demands.

ZEN Intellesis

ZEN Intellesis leverages machine learning to automatically segment multi-dimensional images, even including 3D datasets. This removes the need for manual processing.

Supporting software

Data exchange

The truth from a single source: ZEISS CONNECTED QUALITY enables agnostic, traceable, secure, and global quality processes, offers access to system health and utilization data, and contributes to centrally managed global quality operations.

Data management

ZEISS PiWeb scalable reporting and quality management software combines metrology results from different measuring technologies for efficient tracking of production quality. Its powerful features and intuitive templates handle huge amounts of data and provide immediate results.

Reverse engineering

ZEISS REVERSE ENGINEERING surface reconstruction software promotes the automated, interactive, and highly precise creation of CAD models. The additional tool correction option helps improve CAD data quality.

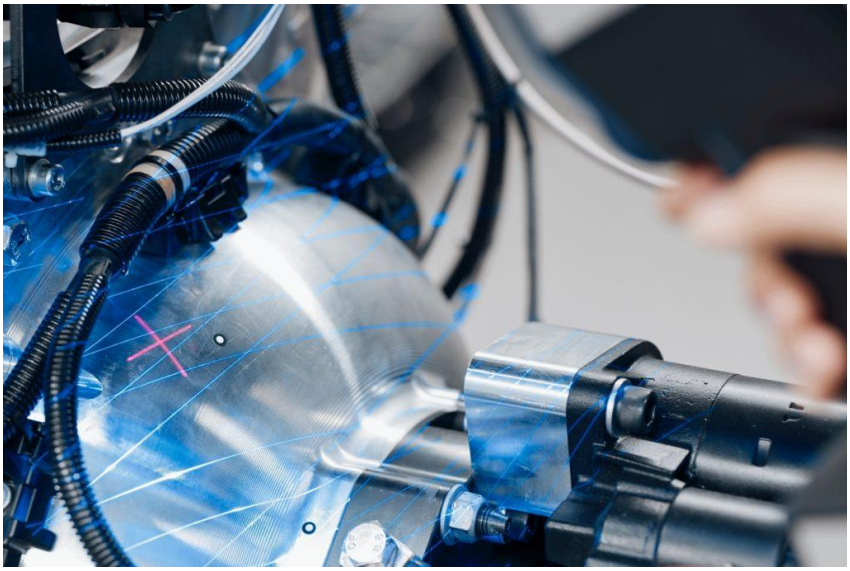
Take it.
Make it.

Your tool to get about anything done:
ZEISS T-SCAN hawk 2

- Highlights
- Features
- Accessories
- Applications
- Technical Data
- Find a dealer
- Discover more

Handheld precision, developed and produced by ZEISS

The portable T-SCAN hawk 2, the next-generation lightweight 3D laser scanner, comes with metrology-grade precision and remarkable ease of use. Whatever the task, wherever the job, this is a power tool that fits right in your hand.
Just take it and make it.

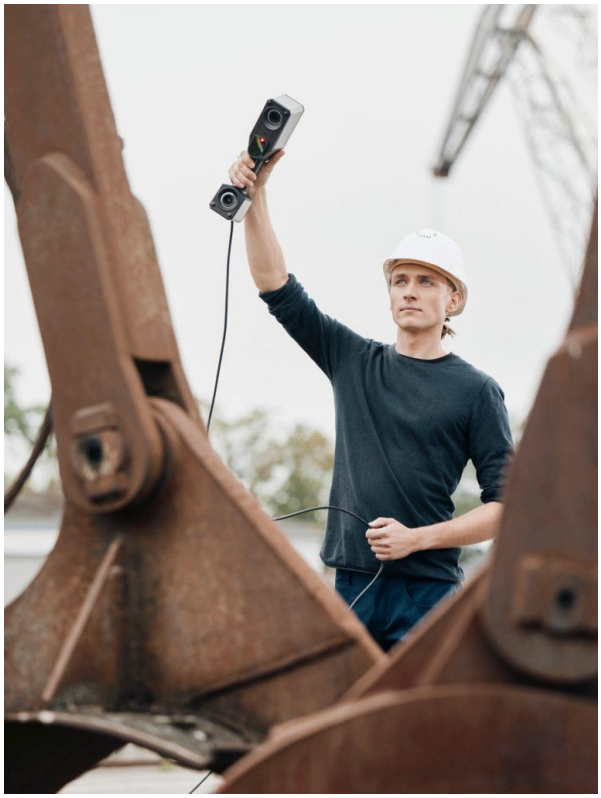


Your perfect working distance

Control your working distance with a new projection mode – a red laser marker helps you to easily adjust for perfect scanning results.

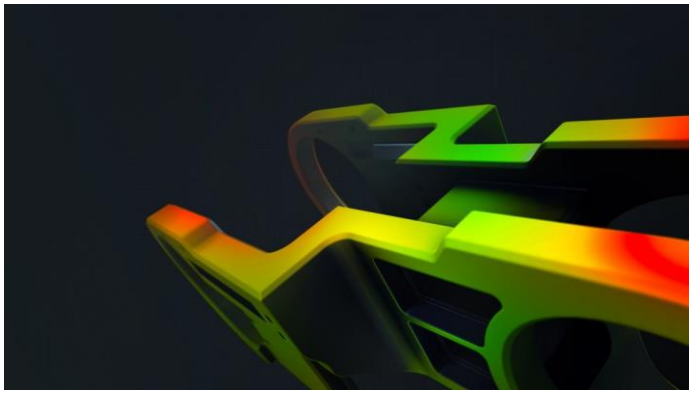
A solution that adapts to your workflow

The flow is yours – T-SCAN hawk 2 is intuitive to operate and adapts easily to the movement of your hand.



Go big with the new satellite mode

T-SCAN hawk 2 is the first portable laser scanner with the new satellite mode to scan up to multiple meters. No need for the classical built-in photogrammetry with coded markers. No compromise on accuracy.



ZEISS INSPECT – The all-in-one software for 3D inspection

T-SCAN hawk 2 operates with ZEISS INSPECT, the well established standard in 3D metrology and part of the ZEISS Quality Suite. For 30 days, enjoy your free trial of the pro version of ZEISS INSPECT.

Accessories

01**02**03

Everything at hand: Your case for travelling

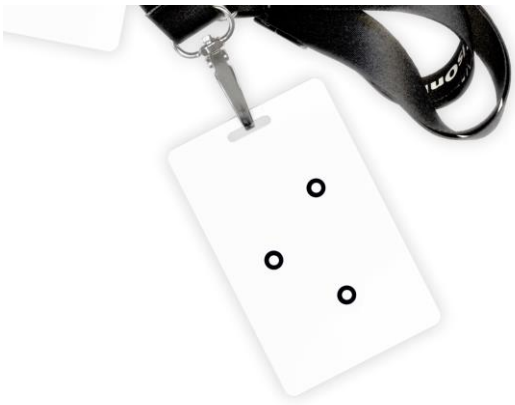
Whether you take it to production or outside, the 3D laser scanner travels with you in just one case, containing additional tools.

- T-SCAN hawk 2
- Calibration panel
- Hyperscale
- Toolbox
- Reference points
- Power delivery hub

01**02**03

Stay plugged in and powered up

The handy power delivery hub doesn't take up much space and connects to your sensor, the power supply and your computer.



01**02**03

Cut out the unnecessary

The cards feature reference points to quickly define and cut out a background that you don't need.

Ready to take on many applications

Maintenance

- 3D inspection of dents, corrosion and damage
- 3D scanning and remanufacturing of legacy parts
- Indoor and outdoor, in rugged and harsh environments
- Wear monitoring

Reverse engineering

Quality Control

Design

Industries

- 

Technical Data

High-speed scanning

Included (multiple blue laser crosses)

Deep pockets

Included (single blue laser line)

Flexible depth of field

Included (on-object distance radar)

Detailed scan

Included

One-shot sensor calibration

Included (Hyperscale)

Large parts

Included (Satellite mode, no coded markers required)

Carbon-fibre lengths standards

Certified (DAkks / ILAC) (1)

Volumetric accuracy

0.02 mm + 0.015 mm/m (2)

Laser class (IEC 60825-1:2014)

Class 2 (eye-safe)

Weight

< 1kg

Cable

10m (ultra-light)

Software

ZEISS Quality Suite / ZEISS INSPECT

Full remote workflow

Supported

(1) D-K-21312-01-00 according to DIN EN ISO/IEC 17025:2018
(2) Acceptance Test based on ISO 10360

Discover the ZEISS PRISMO family

Discover a new era of precision. ZEISS PRISMO has been one of the most precise CMMs on the market for over 30 years and achieves reliable and reproducible results with maximum accuracy. The coordinate measuring machines in the ZEISS PRISMO family offer the highest measuring speeds of all ZEISS CMMs and are suitable for use in a wide variety of environments. The ZEISS PRISMO family consists of four models. Their high quality and measuring accuracy increase the efficiency of your process. If you don’t want to compromise on precision when it comes to quality assurance, you’re in safe hands with the ZEISS PRISMO family. Because the rule here is: accuracy plus safety ensures productivity.

ZEISS PRISMO

The all-rounder

With a length measurement error from 0.9 + L/350 µm, ZEISS PRISMO is the flagship among ZEISS CMMs and offers maximum productivity and outstanding performance.

•

ZEISS PRISMO verity
The new standard
ZEISS PRISMO verity delivers results with a length measurement error from just 0.7 + L/400 µm and impresses with improved form measurement values.

- 

ZEISS PRISMO ultra
Maximum precision in the PRISMO family
With a length measurement error of 0.5 + L/500 µm, ZEISS PRISMO ultra improves precision even further and is therefore particularly suitable for research and calibration tasks, as well as reference laboratories.

-

ZEISS PRISMO fortis
Precision in production environments
ZEISS PRISMO fortis is designed for use in production environments and offers maximum precision even at temperatures of up to 40°C.

-

ZEISS PRISMO sets new standards

More than just a facelift: The flagship family of coordinate measuring machines from ZEISS has been completely overhauled. With numerous upgrades, safety, economic and environmental efficiency, flexibility, ergonomics and, last but not least, productivity have reached a whole new level.

Increased safety
Safety laser scanner and DGUV certification
ZEISS PRISMO has safety laser scanners that not only fully detect every corner but also trigger an automatic speed reduction as soon as they detect movement or hazards in the safety zone. In addition, every ZEISS PRISMO coordinate measuring machine is officially certified by the internationally recognized German Social Accident Insurance (DGUV). This voluntary certification is unique among CMM providers. Additional innovations have been introduced to

comply with DGUV guidelines, such as the adjustable side panels. By reducing the distance between the moving parts to less than 4 mm, the crushing hazard is reduced.

Maximum productivity

Speed and optional ZEISS VAST Rotary Table Axis

The new safety laser scanners are equipped with a function for automatic speed reduction and thus enable significantly faster measurement than before – while reliably maintaining high safety standards.

The speed is also increased by the ZVRA option for defining the rotary table axis. Axis definition on a rotary table no longer takes 60 seconds, but only 15 seconds – thanks to continuous measurement using the special ZEISS VAST Rotary Table Axis (ZVRA) option.

Improved ergonomics

Control panel holder, switch arrangement and slim design

Ergonomics have also been optimized as part of the new ZEISS PRISMO family. The new control panel holder allows the control panel to be conveniently stored when not in use.

For even easier operation and monitoring, most of the switches are no longer located on the controller, but directly on the control panel.

The new cover at the front significantly reduces the distance between the operator and the measuring volume compared to the previous model – which can protect employees, especially when loading heavy workpieces.

Increased flexibility

Free choice of sensor and extended size selection

With the new ZEISS C99m controller, ZEISS PRISMO now supports both ZEISS ROTOS (roughness sensor) and ZEISS LineScan (optical sensor), thus increasing operational flexibility. The range of sizes has also been extended. The usual ZEISS PRISMO sizes from 7/9/5 to 16/42/10 are still available. The standard version now also comes in three new sizes: 16/24/14, 16/30/14 and 16/42/14.

Technical comparison

	ZEISS PRISMO	ZEISS PRISMO verity	ZEISS PRISMO ultra	ZEISS PRISMO fortis
Place of use	Quality laboratory (offline)	Production (offline)	Quality laboratory (offline)	Quality laboratory (inline)
Accuracy from	0.9 + L/350 µm	0.7 + L/400 µm	0,5 + L/500	0.7 + L/400 µm (at 22°C), up to 2.7 + L /80 µm (at 40°C)
Temperature	19-22°C	19-22°C	20-22°C	5-40°C with TVA (Temperature Variable Accuracy)
ZEISS mass Technologie	As standard	As standard	As standard	As standard
DGUV-compliant	✓	✓	✓	✓
Retrofit of older models	✓	✓	✓	✓
ZEISS PowerSaver	✓	✓	✓	✓
ZVRA and ZVR compatible	ZVRA (optional)	ZVRA (optional)	ZVRA (optional)	ZVRA (optional) ZVR (7/12/7 fortis only)
Glass-ceramic scales	✓ Robax ®: Resolution 200 nm	✓ ZERODUR ®: Resolution 80 nm	✓ ZERODUR ®: Resolution 20 nm	✓ ZERODUR ®: Resolution 80 nm
Sizes	7/9/5 - 16/42/14	7/9/5 - 12/18/10	7/10/5 - 16/30/10	7/12/7 - 12/18/10

Performance in a nutshell

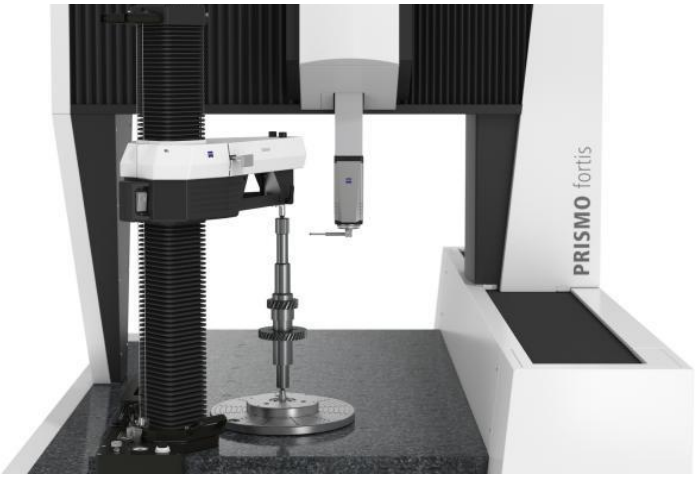
Performance driver for maximum speed and agility

ZEISS CMM Acceleration Mode for Aerospace Applications

Special option for ZEISS PRISMO 7/12/7 and 12/18/10 fortis

The essential quality inspection of engine components such as turbine blades and blisks is subject to strict quality assurance requirements. It accounts for 20% of total production costs and 25% of total production time, making it extremely costly and time-consuming. Speeding up the measurement process without compromising on measuring accuracy means significant potential savings for the entire industry. The solution is called ZEISS CMM Acceleration Mode for Aerospace Applications.

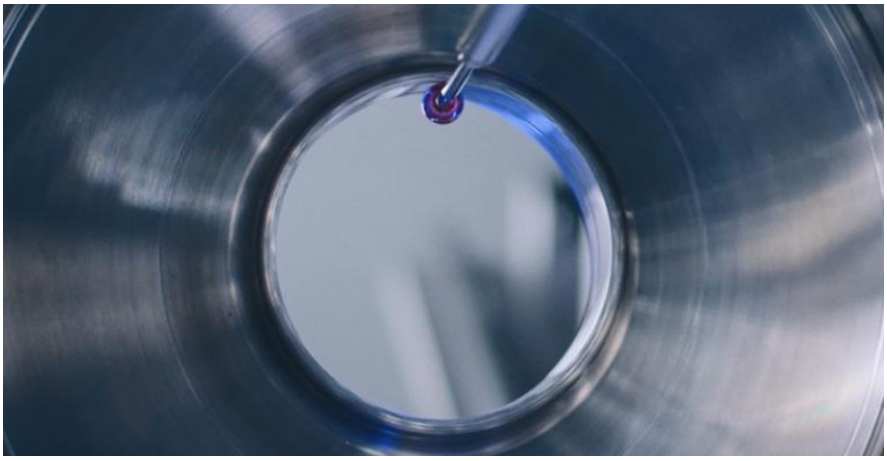
The ZEISS CMM Acceleration Mode for Aerospace Applications available for ZEISS PRISMO 7/12/7 and 12/18/10 fortis offers the two options ZEISS VAST Rotary Table Axis (ZVRA) and ZEISS VAST Rotary Table (ZVR) as well as a special package for application support if required. ZVRA ensures even greater accuracy thanks to the fast definition of the rotary table axis. ZVR speeds up the movement of the rotary table and thus the measurement process and reliable measurement results.

- 

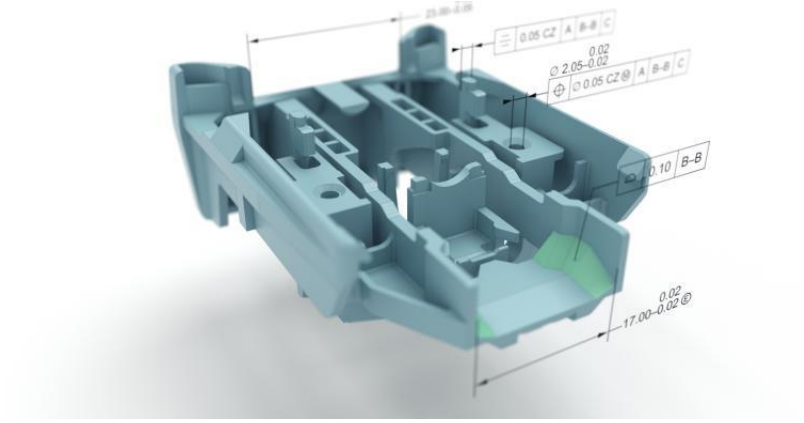
ZEISS TS

The new tailstock for the ZEISS PRISMO family

The ZEISS tailstock enables wave-shaped measuring objects to be clamped between tips. For example, gear shafts, worm shafts, crankshafts, camshafts and rotors can be clamped without deformation and measured in the best possible way. Thanks to this optimum accessibility, complete measurements can be carried out in a single clamping operation. The ZEISS TS features an interchangeable interface that allows the tailstock to be quickly set up in the measuring volume if required. In combination with the high-precision ZEISS RT-AB-600 rotary table with air bearings, a universal coordinate measuring machine can be quickly and flexibly upgraded to a special shaft measuring machine. The ZEISS TS is available in two Z-sizes as TS-7 and TS-10 variants and is designed to match selected variants of the ZEISS PRISMO family.



ZEISS VAST navigator
High scanning speeds
Automatically configures the optimum scanning speed to avoid user errors when selecting parameters. Ensures faster scanning speed, consistent accuracy and reliable and repeatable results.



ZEISS CALYPSO Software
Software for dimensional measurement technology
ZEISS CALYPSO measures standard geometries simply, quickly and reliably. Program inspection plans easily by clicking on the desired features. Travel paths are generated automatically and optimally by the software. Thanks to numerous optional extensions, ZEISS CALYPSO also offers the right tools for special requirements, for example with ZEISS CALYPSO VAST probing and ZEISS CALYPSO pallet optimizer. These functions allow measurements to be carried out up to 25% faster.

-

More sustainability in your measurement processes with ZEISS PRISMO

At the heart of every machine use is energy consumption, which plays a key role in the active utilization phase and has a significant impact on the environmental balance. Thanks to its energy-saving functions and a newly developed, energy-efficient control system, ZEISS PRISMO is a prime example of efficient resource consumption in the field of industrial measurement technology. The ZEISS PRISMO family stands for durability and sets new standards in terms of precision, speed and sustainability.
New C99m control unit The new ZEISS PRISMO family is equipped with the new C99m control unit, which reduces power consumption by 64% compared to previous models.

ZEISS PowerSaver

ZEISS AirSaver

AUTOMOTIVE

ZEISS Car Body Solutions

Efficient production of car bodies

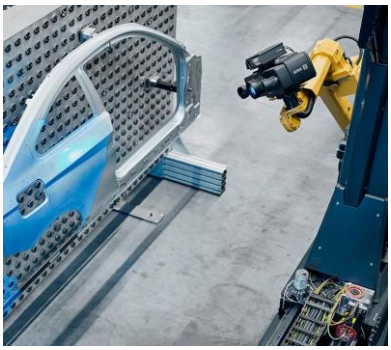
Press shopCar body manufacturingPaint shopDigital assembly

Contact

Automated measurement technology for quality control in production

In order to produce competitive, safe, efficient and environmentally friendly vehicles, the automotive industry is under constant pressure to find solutions to a wide range of challenges: Reducing emissions requires innovative materials and construction methods. With the transition to electric vehicles, large batteries need to be integrated into the car body. In addition, modern vehicles are equipped with a variety of functions and technologies that also need to be integrated into the body. Increased demands on safety, aerodynamics and design are leading to more complex car body geometries. In order to meet the various requirements of the global markets, a high degree of flexibility is also required in car body design.
Once the vehicle design is complete and the individual components have been designed, all materials selected and the necessary tools, matrices and molds provided, the vehicle can go into series production.

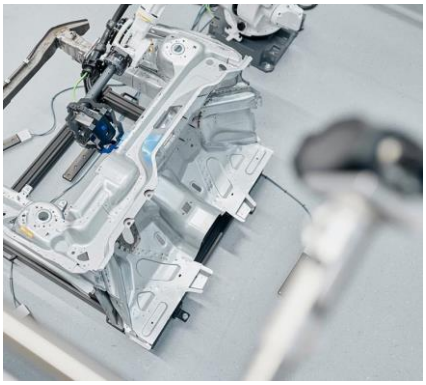
Efficient quality controls in the production and manufacturing process



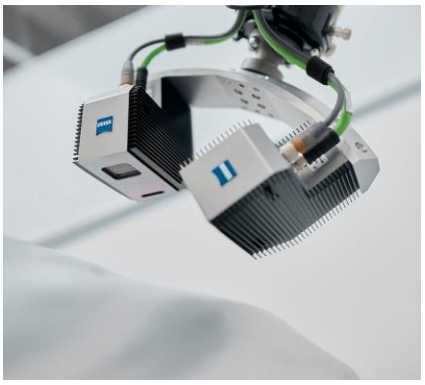
Increased efficiency in press shops

Inspecting surfaces and edges

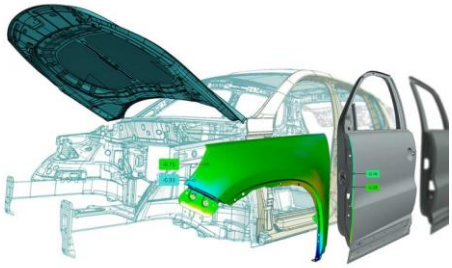
A reliable inspection workflow for sheet metal components enables the validation of surfaces and sharp edges.

- 

Wide range of variants in car body manufacturing
Inspecting assembly and welding processes
More modularity and a greater variety of variants in production require flexible quality assurance.

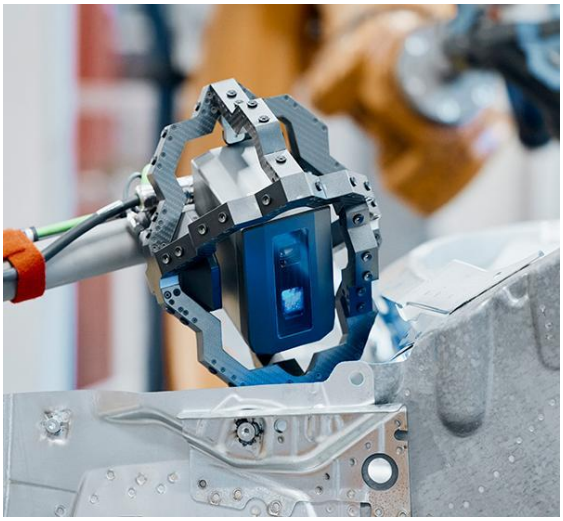
- 

Paint shop
Precision in the painting process
Inline inspections during the painting process detect defects at an early stage of the production cycle and enable immediate corrective action.

- 

Digital assembly
Quality control based on 3D data
Precise 3D data of each individual component of an assembly makes physical fixtures superfluous.

- ## Service, software, fixtures, reporting, and quality data management

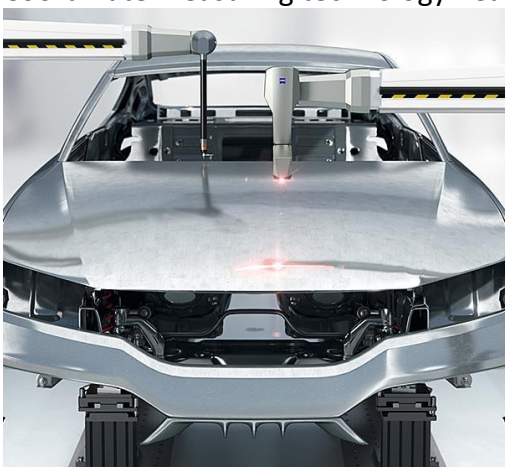


3D inline inspection in the production cycle

Inline inspection

Fast atline measurements

Coordinate measuring technology near production



Highest precision in the measuring room

Multidimensional measurement technology in the measuring room

CAR BODY

Increasing Efficiency in the Press Shop

Multidimensional measurement technology for sheet metal inspection

Inspection of surfaces and sharp edges

In modern press shops, press machines shape and cut flat sheet metal to produce the various body panels that make up the structure of the car body. Pressing tools are used to form the sheet metal into the desired shapes for various body parts - side panels, doors, hoods, roofs and other body components are created. After pressing, the sheets are often cut to size using cutting tools.

The challenges of quality, flexibility, decreasing batch sizes and availability must be met in order to increase overall system effectiveness. Greater efficiency in the pressing plant means, among other things, reducing scrap and minimizing the amount of reworking required.

ZEISS has developed comprehensive solutions and a reliable inspection workflow for sheet metal components, enabling the validation of surfaces and sharp edges.

The measuring systems combine precise measurements and flexibility so that they can be used in measuring rooms as well as in press shops and harsh production environments.

Automated quality control

Inspection of complete sheet metal components

To ensure higher throughput (more parts in less time, optimized planning) and better repeatability for more process reliability, industrial production processes require automated measuring cells. As a complete supplier of industrial measurement sensors and parametric evaluation software, ZEISS opens up new ways for standardized and centralized inspection with traceable workflows.

Gauges and measuring fixtures

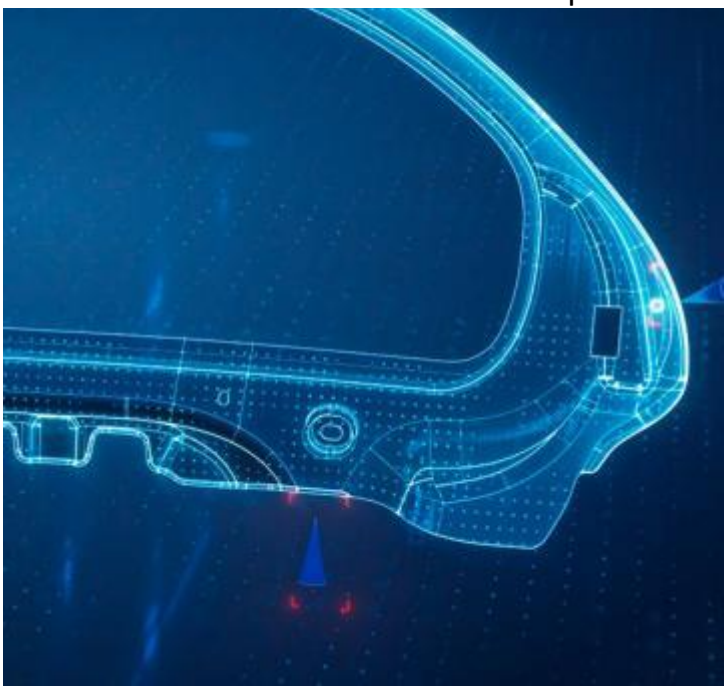
Measuring fixtures facilitate the inspection

Rigid components are measured with the non-contact digitizer without clamping fixtures, because the alignment of the measuring data to the CAD data in ZEISS INSPECT is controlled by RPS points. To digitize the sheet metal component in its free state, the component is only recorded once and deformations can then be measured and visualized. Due to the data density, different alignments are possible, which contribute to quick problem solving in the

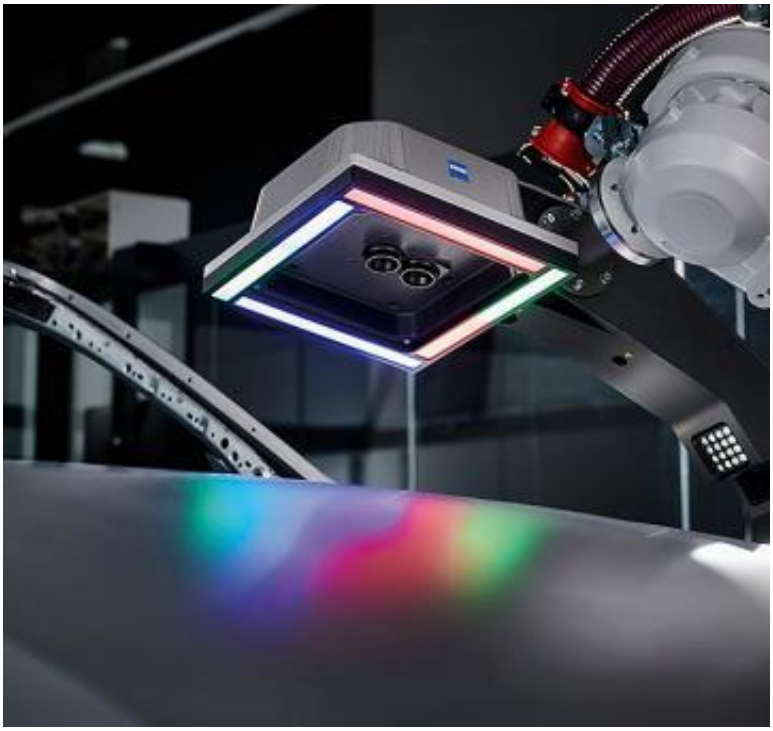
analysis of sheet metal assemblies. When measuring clamped sheet metal components, the non-contact measuring methods enable an adaptive measuring concept, making costly gauges superfluous. A single measuring fixture can be used, for example, as a replacement for six measuring gauges. As this device can be used for several components at the same time, it not only saves storage space but also production time.

ZEISS measurement technology

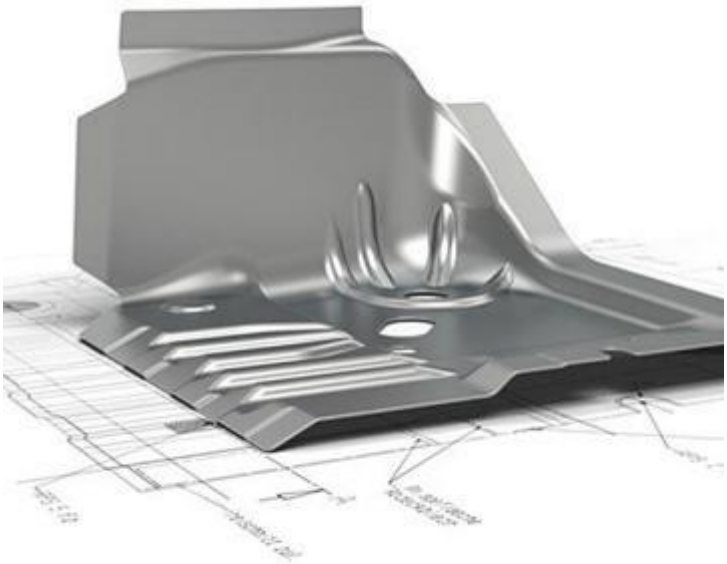
to increase productivity in the press shop



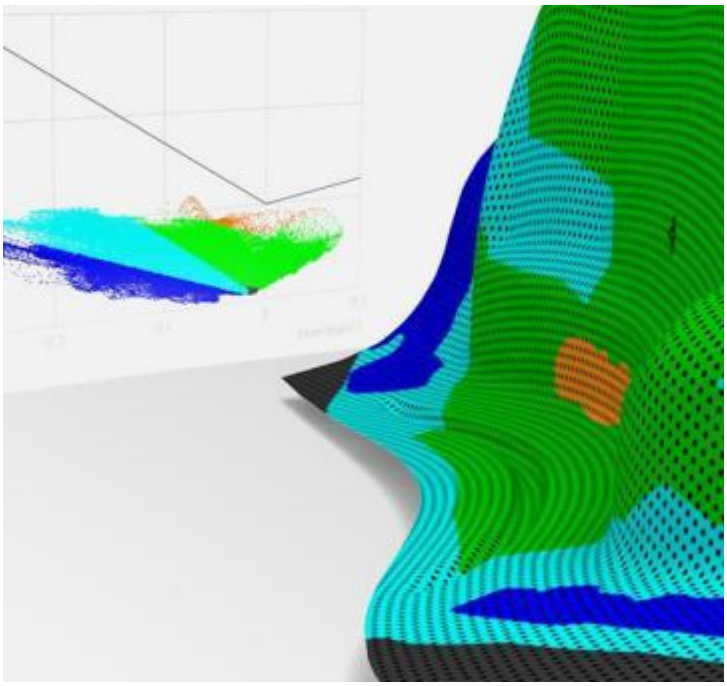
Virtual clamping
Virtual clamping simulates the clamping of components in ZEISS INSPECT and makes it possible to calculate the clamped state using the data of the real component in the unclamped state.

- 

Process monitoring in cycle time
ZEISS ABIS III is a customized solution for fully automated surface inspection in modern press shops and future-oriented car body manufacturing.

- 

Metal forming
Multidimensional measuring systems from ZEISS are used in stamping, bending, drawing, pressing and forming process chains for end-to-end quality assurance.

- 

Forming analysis
Forming analysis is a process to evaluate the forming states and surface strain levels of sheet metal components after press forming.

-

CAR BODY

Wide Range of Variants in Car Body Construction

Flexible quality assurance for high production rates

Testing of assembly and welding processes

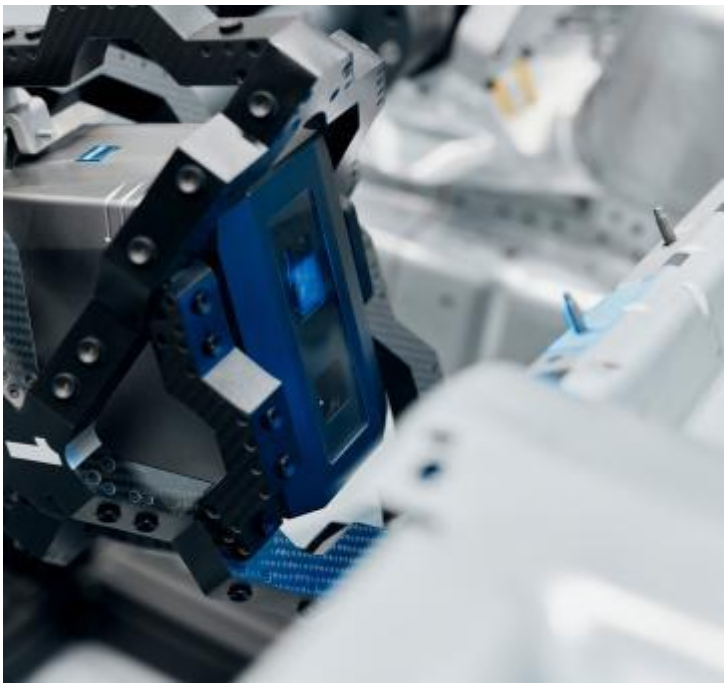
In the body shop, the sheet metal components from the press shop are brought together, welded and assembled. This includes the assembly of frames, side panels, doors and other structural components. The structure of the car body is shaped. Not only is the quality of each individual component important, but the interaction of the different components must also meet high quality requirements.

In addition, increasingly individualized customer requirements are leading to a growing number of variants in automotive engineering and thus to the need for modularization in production. The trend towards more modularity and a greater variety in manufacturing requires flexible quality assurance.

As a leading manufacturer of multidimensional industrial measurement technology, ZEISS is familiar with the challenges of future-oriented car body construction and offers individual solutions.

Flexible and fast quality assurance

Individual solutions for future-oriented car body construction

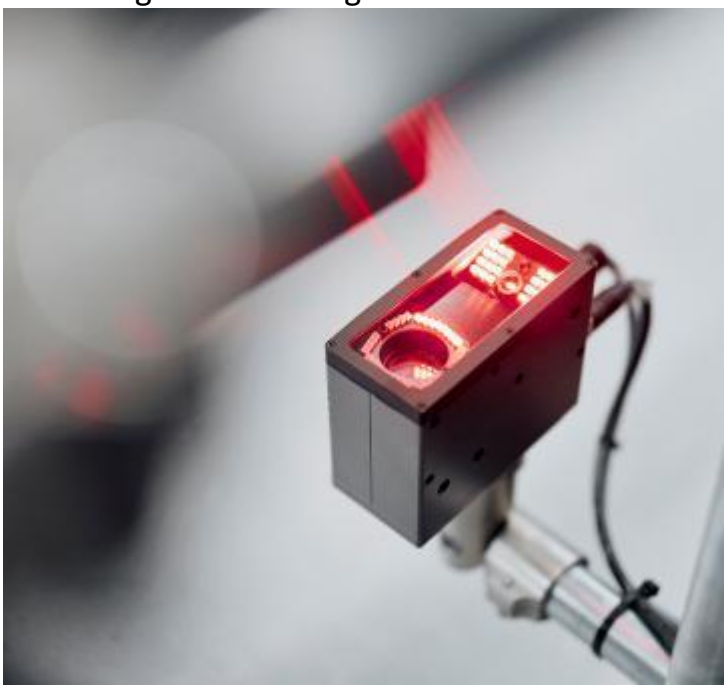


Testing of assembly and welding processes

Standards and regulations ensure that vehicles meet certain quality and safety standards.

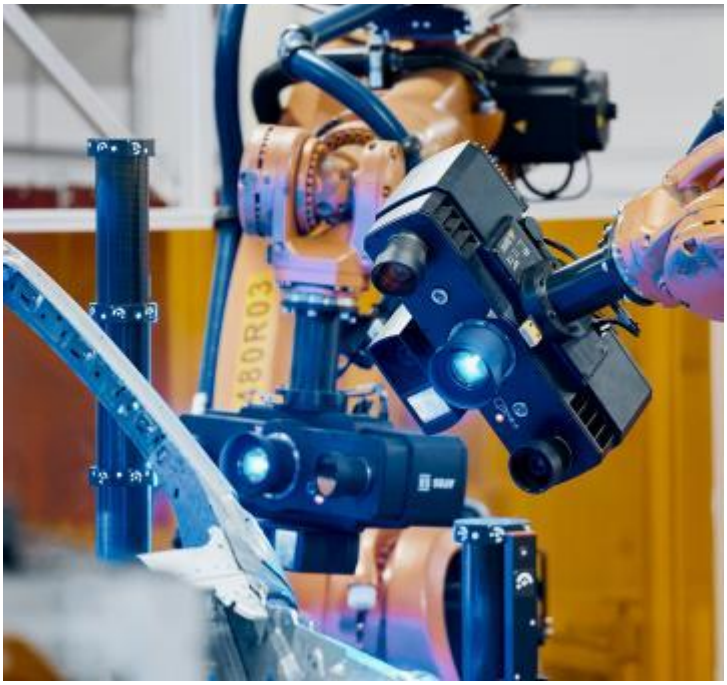
Measurement of gap and flush

The early detection of gap and flush prevents very time-consuming and cost-intensive reworking at a later stage.



Position detection and positioning tasks

The use of sensor technologies leads to precision, efficiency and quality in the production process.



Series measurement of complex body parts

Complex geometries are the result of advanced design, aerodynamic considerations and safety standards.

INLINE MEASUREMENT TECHNOLOGY

ZEISS AIMax twin & ZEISS AIMax twin UV

100% detection of gaps and flushes

The double-head sensors inspect gap and flush values on every vehicle produced in the production line. ZEISS AIMax twin measures geometric gap and flush dimensions on metallic and painted surfaces. ZEISS AIMax twin UV also enables the reliable inspection of gap and flush on non-cooperative and transparent surfaces such as glass or plastic. The continuous control of all necessary gaps and flush fits - from the overall body to the finished vehicle - guarantees that the parts fit together perfectly.

- **Short control loops thanks to automated detection**
- **Measurement of geometric gaps on metallic, painted, non-cooperative and transparent surfaces**
- **Inline inspection guarantees optimum fitting accuracy of the installed parts**

Flush & GapZEISS AIMax twinZEISS AIMax twin UV

Contact

Significance of gap & flush for the automotive industry

The early detection of gaps and flushness is intended to prevent subsequent, very time-consuming and cost-intensive reworking. The cross-trade inline functional inspections not only guarantee a perfect optical appearance, but also ensure the tightness of the vehicle and correct door closing forces. This has an impact on the customer's subsequent driving experience in terms of driving and wind noise.

ZEISS AIMax twin

ZEISS AIMax twin can - thanks to the double-head sensor technology - capture and evaluate the gap geometrically from two directions by looking directly into it. The result: an even more precise inspection with more data and information that can be fed back into the process.

CAR BODY

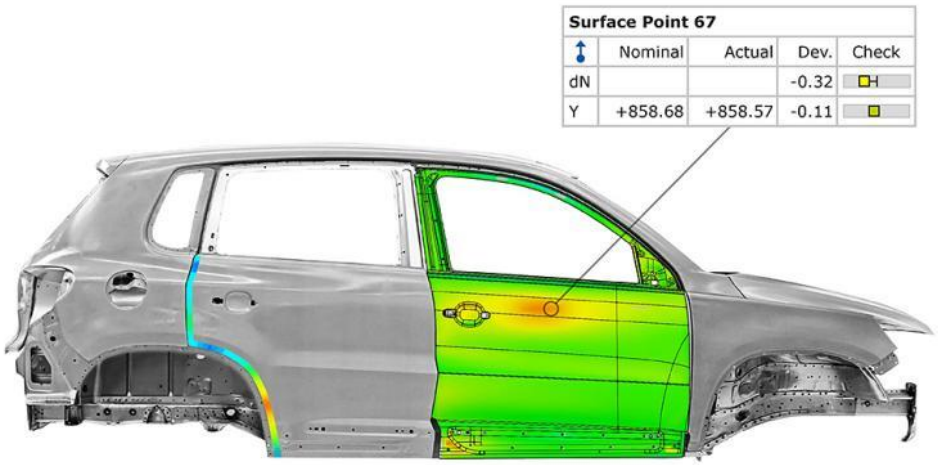
Digital assembly

Precise quality control based on 3D data

Virtual data replaces master jig and cubing

Assembly is the final step in the manufacturing process and marks the end of production. Careful assembly is crucial for the quality, safety and reliability of the vehicle, which is now ready for use on the road.

During assembly, the individually manufactured components are put together to form assemblies or the complete product and analyzed to determine how they interact. Complex measuring devices such as master jigs and cubing are often used for this purpose. Handling them requires specialist knowledge. In addition, the result is often influenced by the respective employee. 3D digitization with ZEISS measurement technology makes it possible to eliminate these physical devices and instead easily inspect the assembly virtually. Physical fixtures become completely superfluous thanks to precise 3D data for each individual component of an assembly. ZEISS INSPECT provides the central interface for the virtual assembly of the individual components.

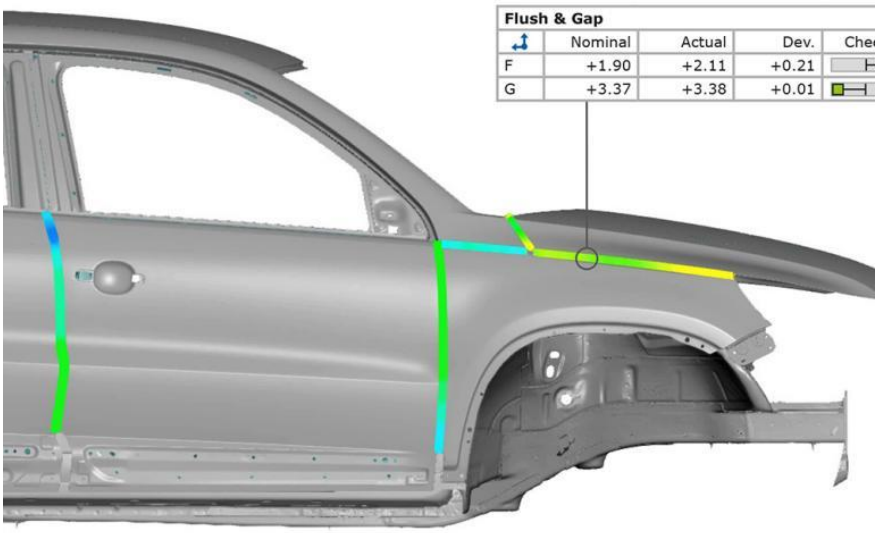


Assembly through virtualization

Quick and easy analysis with ZEISS INSPECT

During assembly, physical clamping devices are used to check how well the various components fit together for assembly or how well an individual component fits the CAD model. With ZEISS measurement technology, the assembly analysis can be completely virtualized.

-



Virtual inspection of the sub-assembly

Efficient inspection with ZEISS INSPECT

In the assembly analysis, the joints master jig is used to examine whether the individual components can be joined to form sub-assemblies. The joints master jig can be replaced by using ZEISS measuring technology. The analyses are carried out on a virtual basis.

-

По вопросам продаж и поддержки обращайтесь:

Алматы (727)345-47-04
Ангарск (3955)60-70-56
Архангельск (8182)63-90-72
Астрахань (8512)99-46-04
Барнаул (3852)73-04-60
Белгород (4722)40-23-64
Благовещенск (4162)22-76-07
Брянск (4832)59-03-52
Владивосток (423)249-28-31
Владикавказ (8672)28-90-48
Владимир (4922)49-43-18
Волгоград (844)278-03-48
Вологда (8172)26-41-59
Воронеж (473)204-51-73
Екатеринбург (343)384-55-89
Иваново (4932)77-34-06
Ижевск (3412)26-03-58
Иркутск (395)279-98-46
Казань (843)206-01-48
Калининград (4012)72-03-81
Калуга (4842)92-23-67
Кемерово (3842)65-04-62
Киров (8332)68-02-04
Коломна (4966)23-41-49
Кострома (4942)77-07-48
Краснодар (861)203-40-90
Красноярск (391)204-63-61
Курск (4712)77-13-04
Курган (3522)50-90-47
Липецк (4742)52-20-81
Магнитогорск (3519)55-03-13
Москва (495)268-04-70
Мурманск (8152)59-64-93
Набережные Челны (8552)20-53-41
Нижний Новгород (831)429-08-12
Новокузнецк (3843)20-46-81
Ноябрьск (3496)41-32-12
Новосибирск (383)227-86-73
Омск (3812)21-46-40
Орел (4862)44-53-42
Оренбург (3532)37-68-04
Пенза (8412)22-31-16
Петрозаводск (8142)55-98-37
Псков (8112)59-10-37
Пермь (342)205-81-47
Ростов-на-Дону (863)308-18-15
Рязань (4912)46-61-64
Самара (846)206-03-16
Санкт-Петербург (812)309-46-40
Саратов (845)249-38-78
Севастополь (8692)22-31-93
Саранск (8342)22-96-24
Симферополь (3652)67-13-56
Смоленск (4812)29-41-54
Сочи (862)225-72-31
Ставрополь (8652)20-65-13
Сургут (3462)77-98-35
Сыктывкар (8212)25-95-17
Тамбов (4752)50-40-97
Тверь (4822)63-31-35
Тольятти (8482)63-91-07
Томск (3822)98-41-53
Тула (4872)33-79-87
Тюмень (3452)66-21-18
Ульяновск (8422)24-23-59
Улан-Удэ (3012)59-97-51
Уфа (347)229-48-12
Хабаровск (4212)92-98-04
Чебоксары (8352)28-53-07
Челябинск (351)202-03-61
Череповец (8202)49-02-64
Чита (3022)38-34-83
Якутск (4112)23-90-97
Ярославль (4852)69-52-93

Россия +7(495)268-04-70
Казахстан +7(727)345-47-04
Беларусь +(375)257-127-884
Узбекистан +998(71)205-18-59
Киргизия +996(312)96-26-47

эл.почта: zsf@nt-rt.ru || сайт: https://zeiss.nt-rt.ru/