#**HandsOn**Metrology

CUSTOMER REPORT

Shaping the mobility of the future with 3D scanning

B-TECHNOLOGY develops innovative drones that not only fly but are also capable of traversing terrain. With the Beccarii vehicle, the company aims to transform the transportation market. Innovative solutions and a high standard of quality ensure safety on water, land, and in the air.


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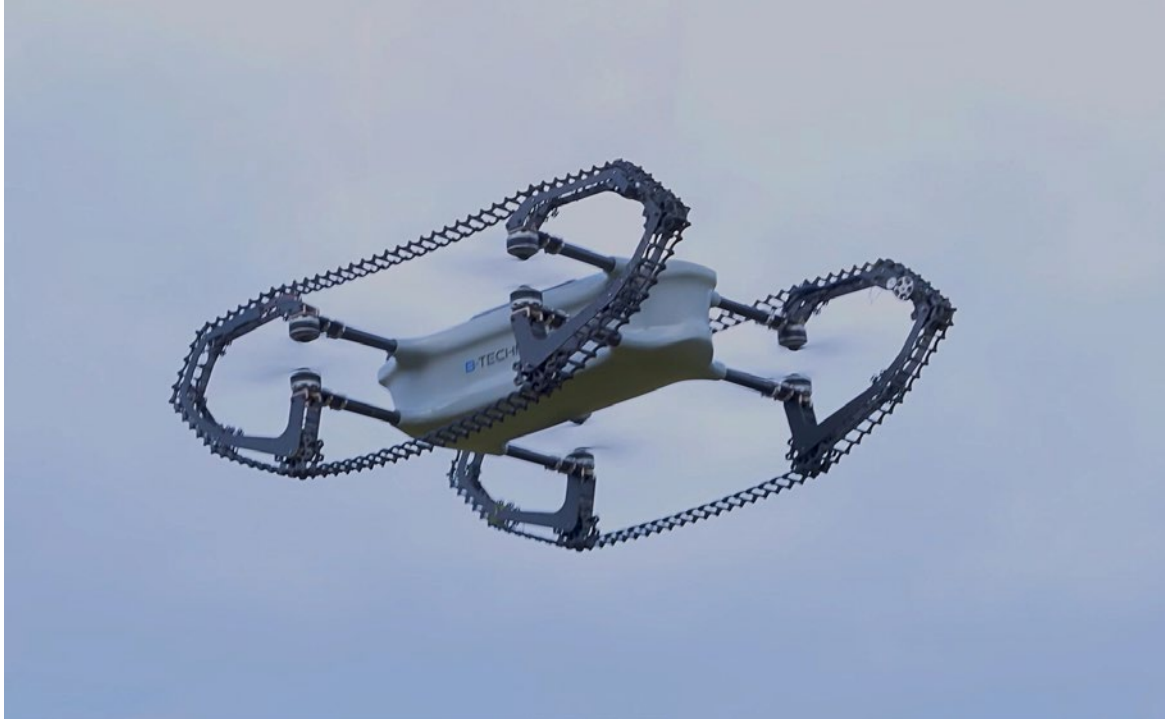


B-TECHNOLOGY

Content

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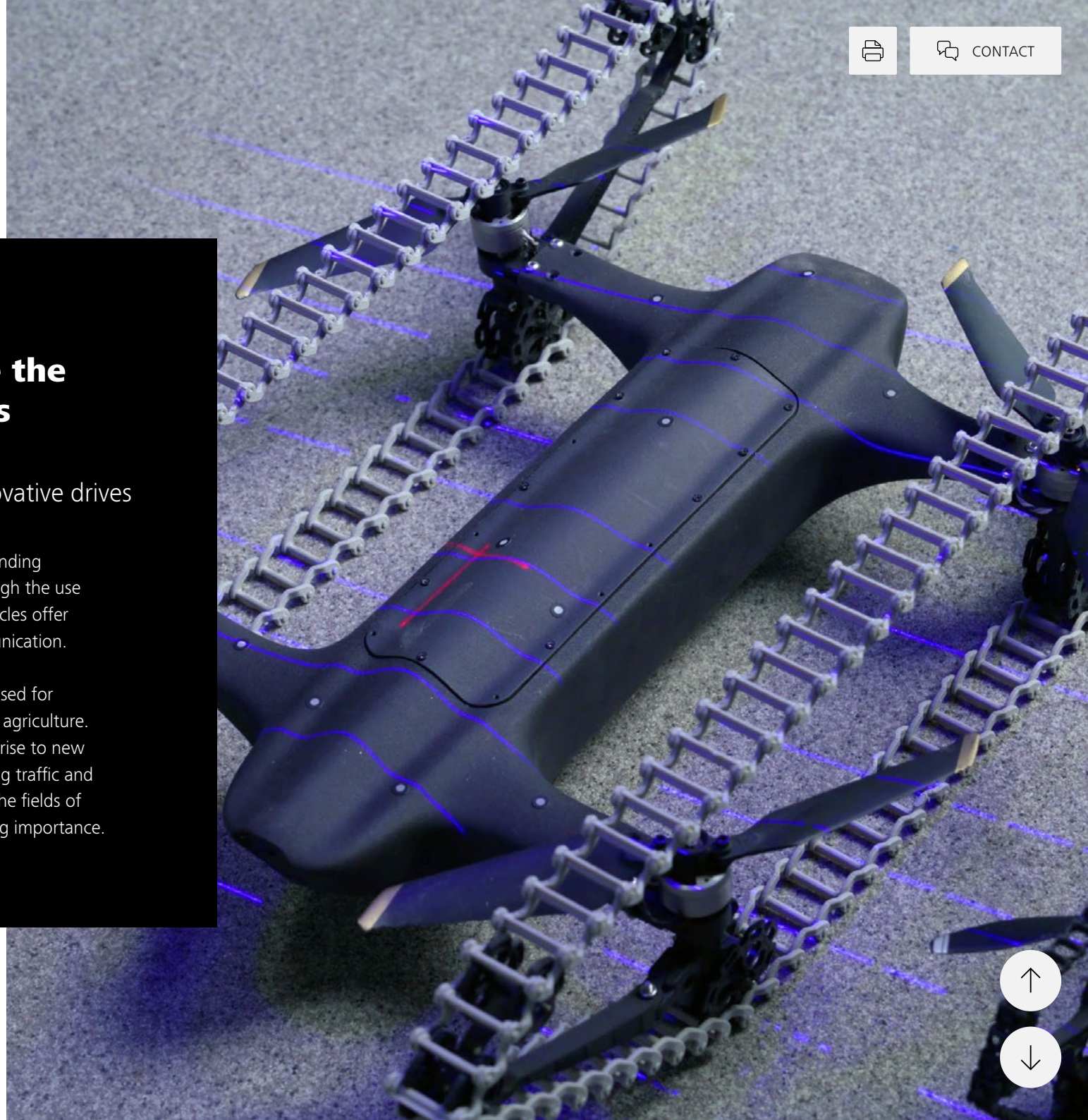
Visions that take off: 3D laser scanners ensure the highest quality standards

Multi-environmental vehicles with innovative drives

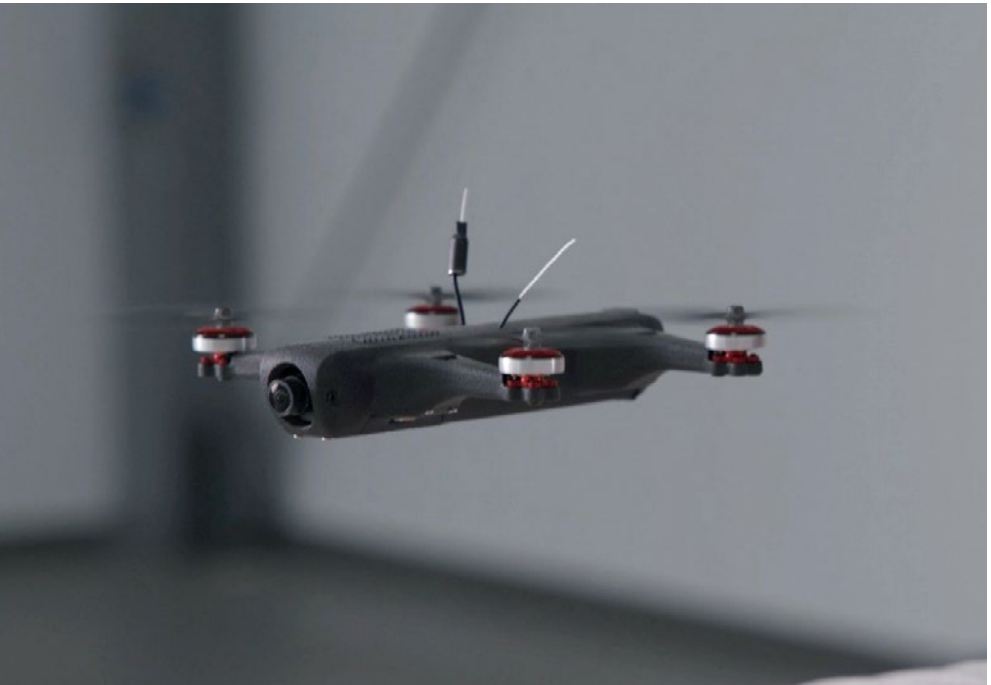
The term Urban Air Mobility refers to the idea of expanding existing transportation systems into the airspace through the use of flying vehicles. Drones and so-called Urban Air Vehicles offer new possibilities for transport, inspection, and communication.

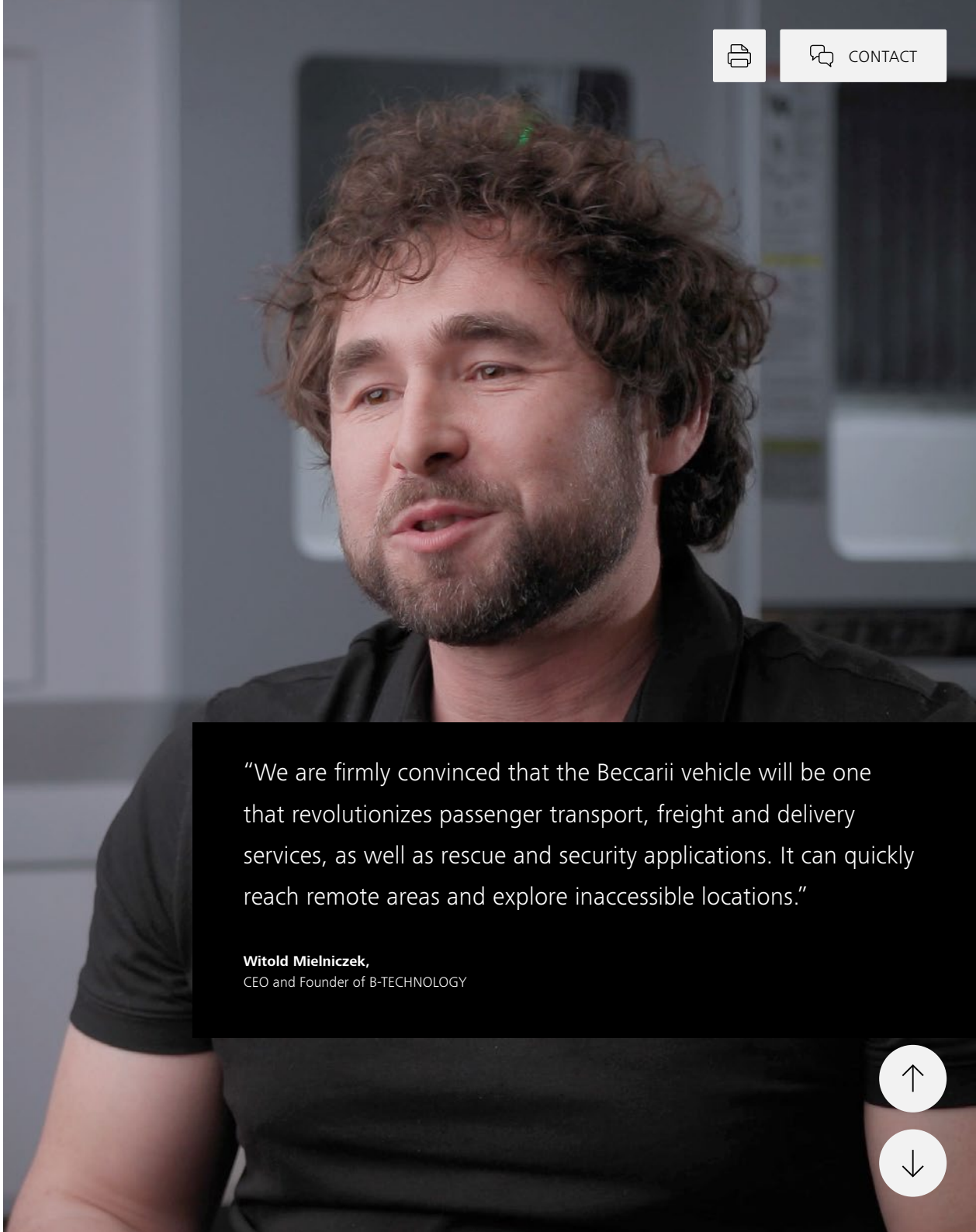
In the industry, drones are already being successfully used for monitoring infrastructures, surveying buildings, and in agriculture. In urban areas, electrically powered aircraft are giving rise to new concepts for passenger and goods transport, alleviating traffic and environmental burdens. Furthermore, applications in the fields of security, disaster relief, and logistics are steadily gaining importance.



Flying drone with additional functionality

The drones from B-TECHNOLOGY are unmanned multi-environment vehicles with innovative propulsion systems, characterized by low weight and high efficiency, capable of navigating on land, water, and in the air.





"We are firmly convinced that the Beccarii vehicle will be one that revolutionizes passenger transport, freight and delivery services, as well as rescue and security applications. It can quickly reach remote areas and explore inaccessible locations."

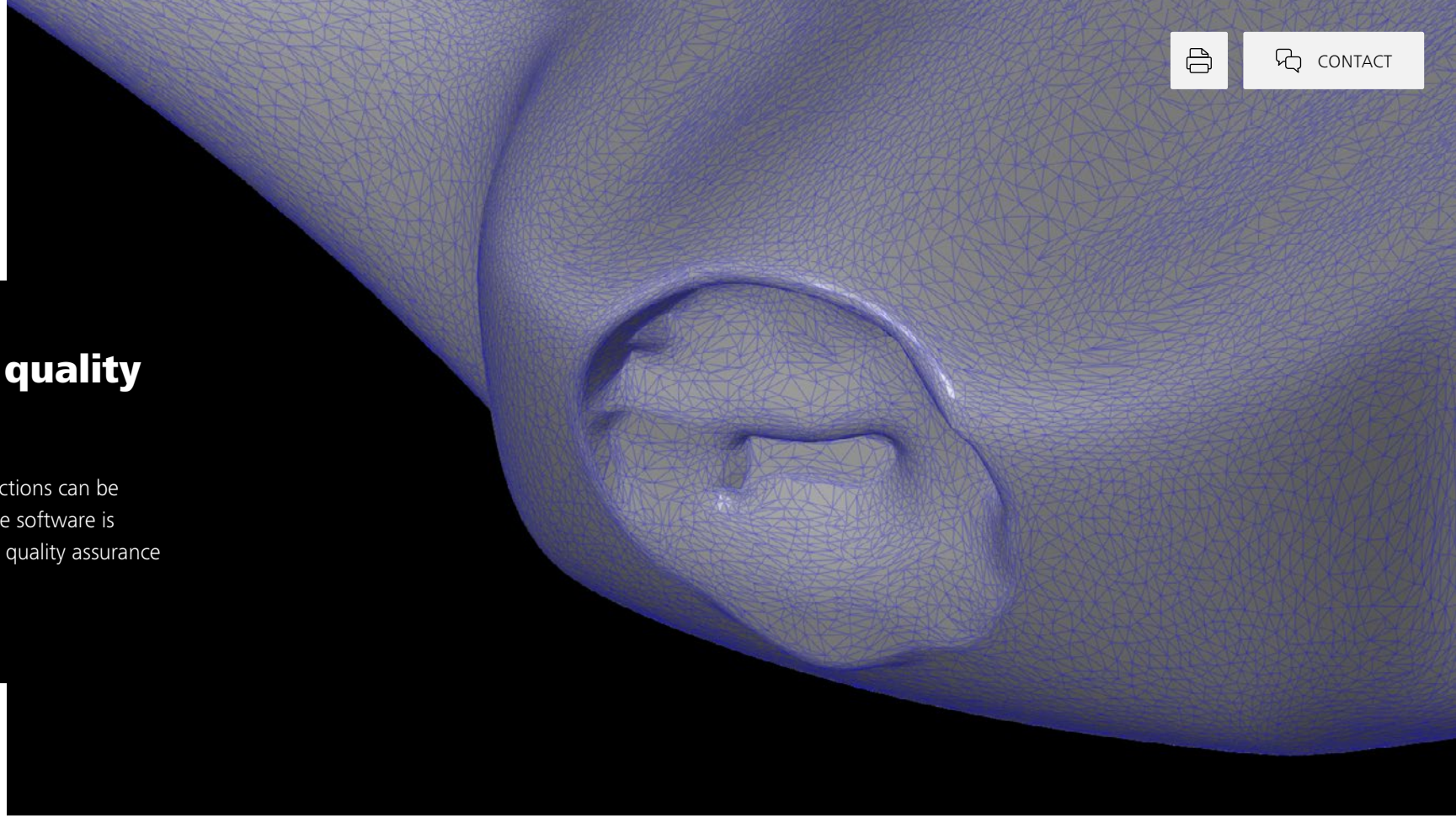
Witold Mielniczek,
CEO and Founder of B-TECHNOLOGY

Application description

B-TECHNOLOGY is a rapidly growing high-tech center specializing in drones and Urban Air Vehicles, offering services in advanced CNC machining, 3D printing, CAD design, prototyping, and composite laminating.

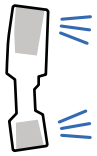
With the portable and easy-to-use 3D laser scanner ZEISS T-SCAN hawk 2, B-TECHNOLOGY can efficiently control the quality of manufactured and supplied parts.

The scanning solution additionally bridges the gap between simulations and real-world applications for the company. The 3D coordinates are also integrated into reverse engineering or 3D printing processes. This allows for the reproduction of components, the development of new products, and the implementation of design changes in a short time.



Comprehensive quality assurance

With ZEISS INSPECT, surface inspections can be easily and intuitively visualized. The software is used in product development and quality assurance to inspect 3D measurement data.



Scanning

ZEISS T-SCAN hawk 2 captures the surface of a component at high speed while also recording complex geometries and minute details. This results in a high-precision 3D model.

3D inspection

The measurement software ZEISS INSPECT visualizes and analyzes the 3D coordinates. Surface comparisons with imported CAD data can identify defects and deviations.

Reporting

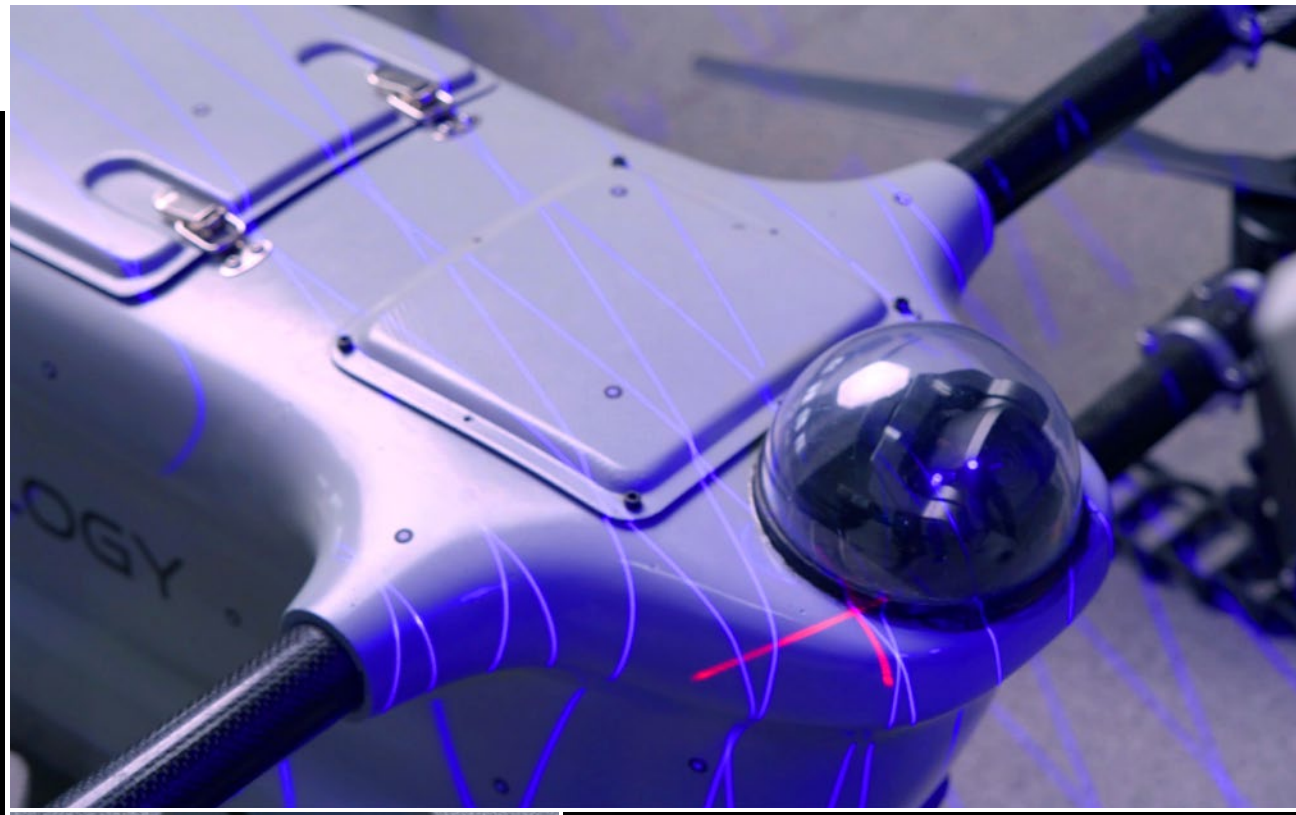
The results of quality controls can be summarized in easily understandable reports. This documents the accuracy of the manufactured and supplied components.

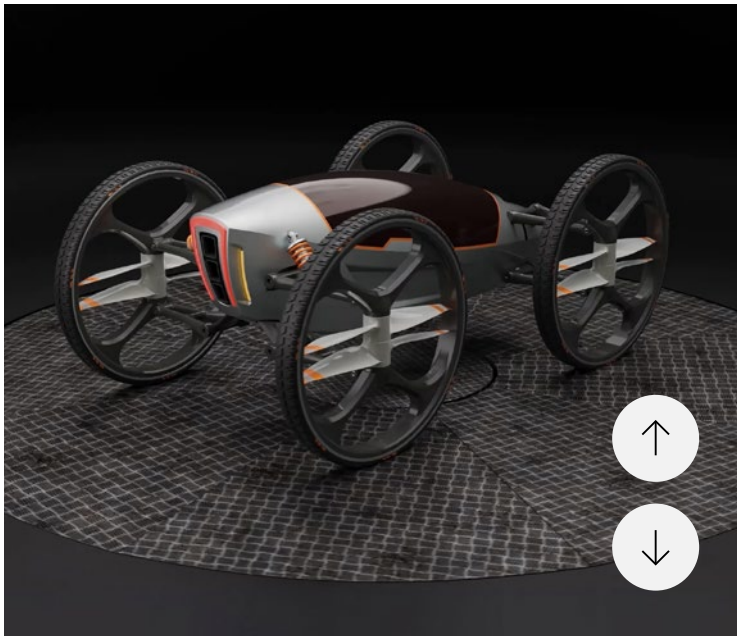
Scanning with metrological precision

ZEISS T-SCAN hawk 2 makes quality controls and computer simulations more efficient. The 3D laser scanner also provides measurement data from dark and shiny surfaces with high speed and utmost precision.

Full-surface 3D data with high detail accuracy is the basis for comparing the actual data of the component with the target data from the CAD model during drone inspection. Deviations and defects can be quickly and reproducibly identified through a surface comparison.

The 3D coordinates are also incorporated into simulations. For example, finite element analyses simulate the bending of the drone fuselage under load. The data from the computer simulation is then compared with the 3D coordinates captured by ZEISS T-SCAN hawk 2.

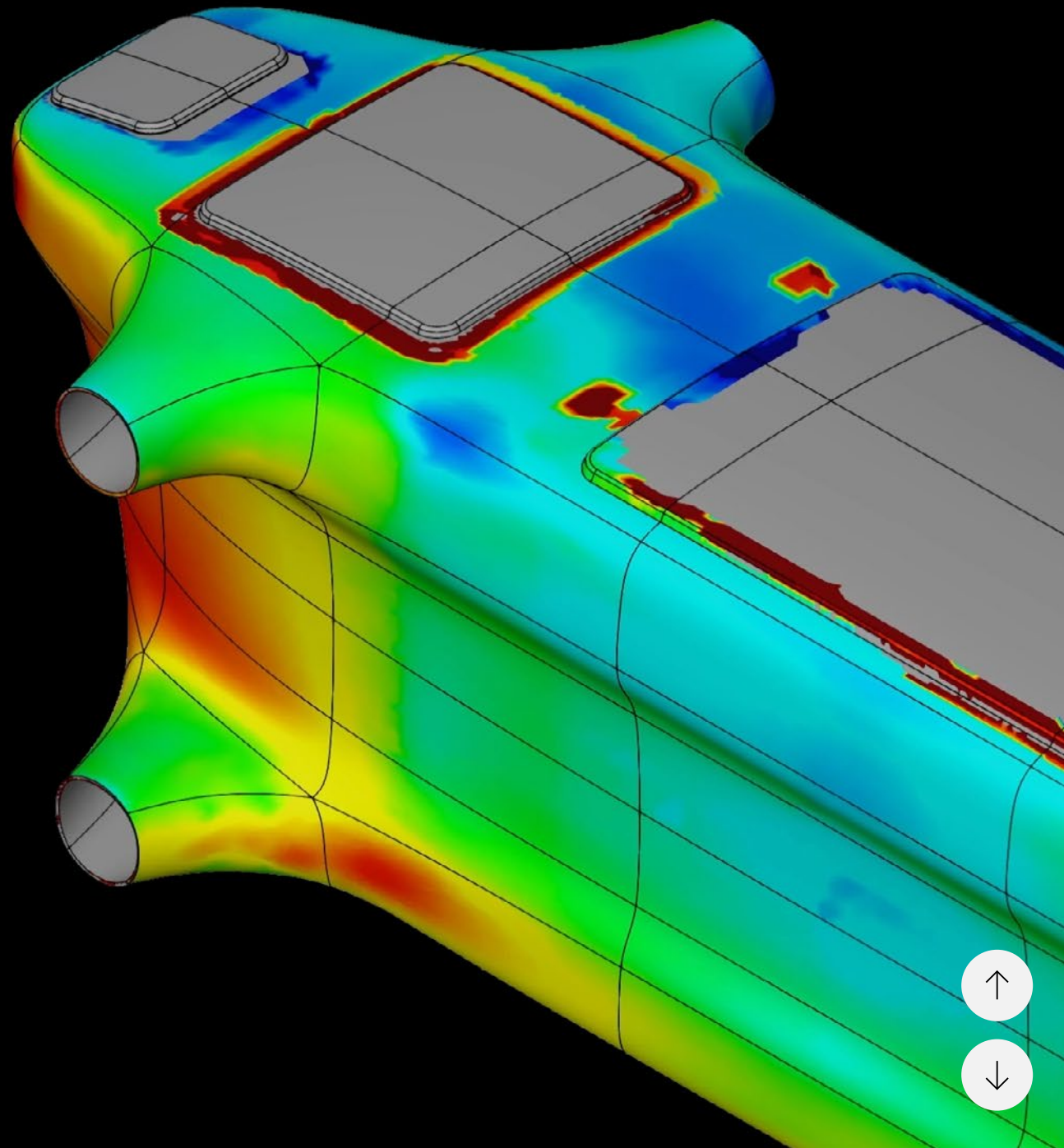




Making quality visible

Scan, inspection, and reporting from a single source: ZEISS INSPECT simplifies complex tasks and supports the entire workflow from data acquisition, mesh processing, and CAD import to 3D inspection.

For example, ZEISS T-SCAN hawk 2 digitizes prototypes, components, and supplier parts for the Beccarii vehicle. The user-friendly software ZEISS INSPECT creates a digital twin of the respective part from the widely distributed 3D coordinates.

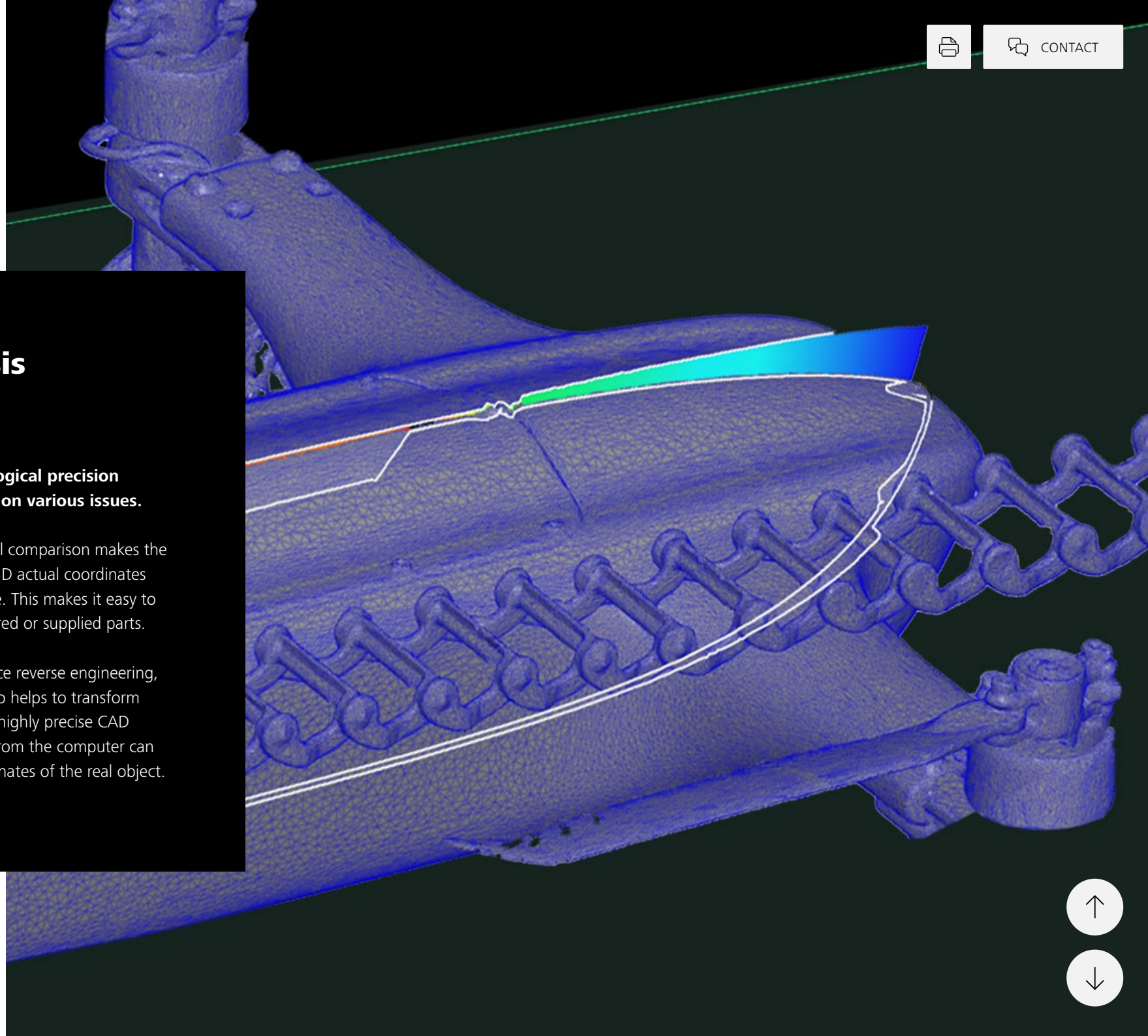


Detailed analysis of 3D data

The scan results with metrological precision provide immediate feedback on various issues.

During inspection, a target-actual comparison makes the surface deviations between the 3D actual coordinates and the target coordinates visible. This makes it easy to control the quality of manufactured or supplied parts.

As a powerful software for surface reverse engineering, ZEISS REVERSE ENGINEERING also helps to transform the results of the 3D scan into a highly precise CAD model. In simulations, the data from the computer can be compared with the 3D coordinates of the real object.



ZEISS T-SCAN hawk 2

A tool to get about anything done

Operation at the push of a button

ZEISS T-SCAN hawk 2 is intuitive to operate and easily adapts to hand movements. The workflow can be directly started and navigated using four buttons. It is not necessary to operate the software separately.

Switching between different tasks

Small parts with fine details, larger objects, or deep pockets and tight spaces: ZEISS T-SCAN hawk 2 seamlessly adjusts resolution and field of view. Laser markers assist in controlling the working distance for perfect scan results.

Developed and produced in Germany

ZEISS T-SCAN hawk 2 is characterized by its metrological precision and remarkable user-friendliness. The acceptance test is certified according to the highest industry standards.

Take it.
Make it.

The measurement process with ZEISS T-SCAN hawk 2 is simple and intuitive. The handheld 3D laser scanner projects laser lines onto the measurement object. It emits focused light pulses and measures the time until the signal reflected from the surface returns.

The powerful tool is guided around the entire measurement object to capture all surfaces. Precise 3D coordinates can thus be assigned to each scanned point on the surface. The associated metrology software then creates an accurate representation of the object's surface.

"ZEISS T-SCAN hawk 2 is an invaluable tool for us. It bridges the gap between our simulations and real-world applications, ensuring that our designs are both accurate and groundbreaking."

Witold Mielniczek
CEO and founder of B-TECHNOLOGY

Technical specifications

ZEISS T-SCAN hawk 2	
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 recalibration	Included (Hyperscale)
Large parts	Supported (Satellite mode, no coded targets required)
Extended measurement volume	Supported
Carbon-fibre lengths standards	Certified (DAkks / ILAC) (1)
Volumetric accuracy	0.02mm + 0.015mm/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/IEC17025:2018
(2) Acceptance Test based on ISO 10360

Accessories

Always powered on

A practical power supply hub takes up little space and connects the sensor, power supply, and computer.

Cutting out the unnecessary

The chip card-sized cards are equipped with reference points to quickly define and cut out an unwanted background.

Outdoors or in production, everything at hand

A travel case contains the additional tools: calibration panel, hyperscale, toolbox, reference points, and power supply hub.

Wide range of use cases

ZEISS T-SCAN hawk 2 is a powerful tool for numerous applications across various industries. Both the smallest details and objects spanning several meters can be intuitively digitized.

Maintenance

The lightweight 3D laser scanner is designed for maintenance. It inspects dents, corrosion, and damage to components both indoors and outdoors.

The wear of a component can also be monitored with ZEISS T-SCAN hawk 2 in robust and harsh environments. A 3D scan additionally aids in the refurbishment of old parts.

Quality assurance

With ZEISS T-SCAN hawk 2, quality is controlled where it matters most. The versatile software ZEISS INSPECT supports the entire workflow and enables easy component inspection. CAD data is imported, and surface comparisons are performed. The inspection and the associated report are generated in a short time.

Data acquisition

With high speed, the portable ZEISS T-SCAN hawk 2 captures data where it is needed. Complex shapes are integrated into applications such as reverse engineering or 3D printing to reproduce components or develop new products. 3D visualizations can also be quickly generated.

Experience ZEISS T-SCAN hawk 2

Handheld precision, developed and produced by ZEISS.

The portable T-SCAN hawk 2 is the next-generation lightweight 3D laser scanner: With metrological precision and remarkable ease of use, it is your powerful tool to accomplish scanning tasks.

Would you like to know more?

Contact your local
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