

Smart & compact photothermal inspection technology saving time and costs for non-destructive testing (NDT) of composites in aerospace, energy and automotive sectors

Summary

Profile type

Technology offer

Company's country

Austria

POD reference

TOAT20260206012

Profile status

PUBLISHED

Type of partnership

Commercial agreement with technical assistance
Research and development cooperation agreement

Targeted countries

• **World**

Contact Person

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Term of validity

6 Feb 2026
6 Feb 2027

Last update

6 Feb 2026

General Information

Short summary

An Austrian SME offers the world's first compact, intelligent, and mobile photothermal tomography system for non-destructive, contactless 3D inspection of composite material/structures (like Carbon Fiber Reinforced plastics). It provides up to 80% faster and more cost-efficient quality control than conventional NDT, highest resolution and enables (3D) imaging of hidden material and structural defects. Industry/research partners are sought for commercial, technical, research, license agreements.

Full description

Defect detection in safety-critical components especially in aerospace, automotive and energy industry suffers from slow and costly inspection cycles for composite materials and limitations of ultrasonic (contact-based, slow) or radiography (uses ionizing radiation). In addition, there is an increasing regulatory pressure for data-backed quality proof, a shortage of skilled NDT (non-destructive testing) operators, and the desire for automation and 3D defect visualization.

The Austrian deep-tech SME (innovation prize winner) succeeded in solving these issues with its groundbreaking photothermal tomography system:

- a non-destructive, non-contact imaging technology (no water, no coupling gel needed, no ionizing radiation)
- that enables up to 80% faster and more cost-effective inspections compared to traditional NDT methods
- with high-resolution imaging for sub-surface defects
- with data management software for easy reporting for QA (quality assurance) workflows
- the easy-to-automate inspection system with an overall weight of less than 6 kg enables the handling of complex measurement and inspection tasks manually, semi-automatically or fully-automatically.

Description of the technology:

Optical-excited pulsed tomography is a non-destructive inspection method that involves the use of an optical energy source to induce thermal changes in a component. The temporal evolution of the surface temperature is measured during and after excitation using an infrared camera.

While conventional active thermography typically relies on a two-dimensional analysis of the thermal response, this system enables three-dimensional evaluation through proprietary, highly advanced post-processing based on multidimensional reconstruction algorithms. This approach allows internal structures, material properties, and defects not only to be detected but also to be spatially reconstructed and localized in 3D.

Technical details:

- Spatial/Depth resolution: up to 660/100 μm
- Inspection area: up to 400 x 300 mm
- Overall weight: < 6 kg
- Housing: 423 mm x 270 mm x 130 mm
- Power supply: 4.2 kW @ 400 V / 230 V 3P+N

Current stage of development:

The Austrian SME has already successfully supplied the innovative inspection system to the biggest aerospace market players in Austria, to the defense sectors of all DACH (Germany, Austria, Switzerland) countries, and many other customers.

Fields of application:

Ideal use cases are the inspection of composite structures like fiber reinforced plastics (e.g. CFRP, GFRP,...), green and new lightweight materials in the following industries:

- Aerospace: Inspection of composite parts like wings, fuselage panels, propeller blades (e.g. inspection of bonding defects of skin layer to core structures),
- Energy: Wind turbine maintenance (e.g. detecting delaminations or disbonds in wind turbine blades),
- Automotive: Composite structural integrity in lightweight vehicle design (detection of voids and delamination), EV battery casing.

The Austrian company is looking for industrial partners, system integrators, value-added resellers and research institutes in the above mentioned fields to buy the novel technology for QA applications in production or in-service. It offers technical assistance and training (commercial agreement with technical assistance), adaptations to specific requirements (technical cooperation), license agreements and cooperation in EU R&D projects (research cooperation).

Advantages and innovations

The novel system provides many advantages for inspection applications in production and in service:

- **High-speed & Cost Efficiency:** Up to 80 % faster inspection cycles, significant reduction of QA costs
- **Mobility & Compact Design:** Entire system < 6 kg: ideal for field use (no direct power supply required); manual and automated operation possible; easy setup in less than 2 minutes; laser based assistance systems for positioning;
- **3D Imaging Capability:** Optional volumetric (depth-resolved) visualization of hidden structural defects
- **High Precision & Resolution:** detects smallest delaminations or voids
- **Automation Ready:** Can be integrated inline. Semi-automatic or automatic inspection setups are possible; ease of integration (plug-and-play deployment)
- **Data acquisition & 3D reconstruction software:** speeds up reporting thanks to fast quantitative defect analysis and detailed (3D) visualization, keeping the highest precision standards. Minimizes the learning curve by using well-known ultrasonic like representation for thermographic measurement data.
- **Sustainability:** The absence of coupling media, chemical substances, and ionizing radiation reduces environmental impact and makes testing processes more sustainable. Optimized defect detection minimizes material waste. Energy-efficient process control helps to reduce the carbon footprint.
- **Compliance Support:** Enables documentation and traceability in line with FAA (Federal Aviation Administration) / EASA (European Union Aviation Safety Agency) quality requirements.
- The company's engineers possess over 20 years of experience in NDT&E (non-destructive testing & evaluation) segment and are members of the sub-committee of the Austrian Society for Non-Destructive Testing and European Committee for Standardization.

Technical specification or expertise sought

Stage of development

Already on the market

IPR Status

IPR granted

IPR Notes

**Patent granted in Austria;
Patents applied for but not yet granted in Europe, USA, Japan, China and Hong-Kong;**

Sustainable Development goals

- **Goal 9: Industry, Innovation and Infrastructure**
- **Goal 17: Partnerships to achieve the Goal**
- **Goal 12: Responsible Consumption and Production**

Partner Sought

Expected role of the partner

Main targeted industries:

- Aerospace & Defense: OEMs, Tier 1 suppliers, and MROs (Maintenance, Repair, and Operations/Overhaul) that test composite parts (fuselages, wings, turbine blades).
- Renewable Energy: Manufacturers or operators of wind turbine blades, solar panels, and battery housings.

Other applicable industries:

- Automotive (Electric Vehicles & composites): OEMs and Tier 1 suppliers using advanced materials like CFRP (carbon fiber-reinforced plastic) or composites in car body, battery systems, or structural parts.
- Space
- Maritime and many others using composites

Main targeted contacts: QA & NDT engineers, R&D managers, production/plant managers, procurement & supply chain managers, contacts from academic / research institutes, system integrators & VARs (value-added resellers);

Task to be performed by the partner:

- commercial agreement with technical assistance: partners willing to buy the novel inspection system for their QA in production or in-service; system integrators and value-added resellers;
- technical cooperation agreement: the technology can be customized according to the specific requirements of potential partners;
- research cooperation agreement: the Austrian company is open to offer its technology in the framework of EU-funded research projects or applications;
- license agreements are also possible;

The services of the Austrian SME include feasibility studies inhouse or at customers (including lab tests), providing manual or automated inspection solutions together with software add-on packages and education and training (according to Level III EN ISO 9712).

Type of partnership

Commercial agreement with technical assistance
Research and development cooperation agreement

Type and size of the partner

- **Big company**
- **University**
- **SME 50 - 249**
- **R&D Institution**

Dissemination

Technology keywords

- **02007005 - Composite materials**
- **02011002 - Aircraft**
- **09001006 - Optical material testing**
- **04005008 - Wind energy**
- **02009002 - Hybrid and Electric Vehicles**

Targeted countries

- **World**

Market keywords

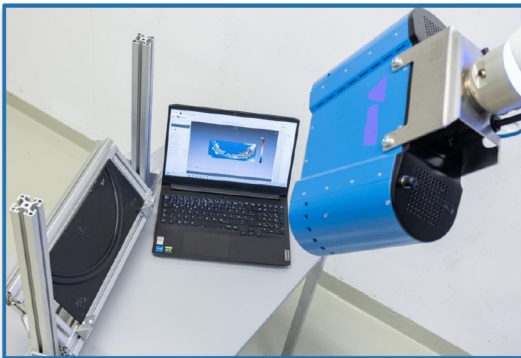
- **09001005 - Motor vehicles, transportation equipment and parts**
- **08002002 - Industrial measurement and sensing equipment**
- **06003003 - Wind energy**
- **08001004 - Fibre-reinforced (plastic) composites**
- **09001001 - Airlines**

Sector groups involved

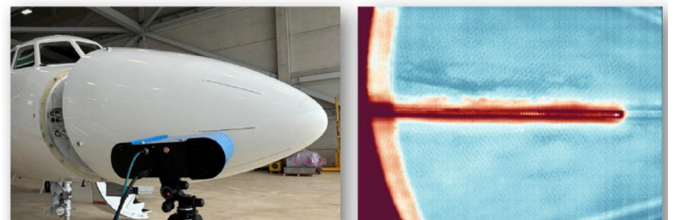
- **Mobility - Transport - Automotive**
- **Aerospace and Defence**
- **Renewable Energy**

Media

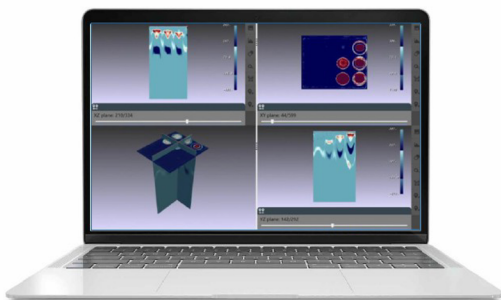
Images



[inspection technology and equipment](#)



[service use case - aeroplane](#)



[software environment](#)



[use case - Maintenance, Repair and Operations, Overhaul](#)



[use case - automotive GFRP component](#)