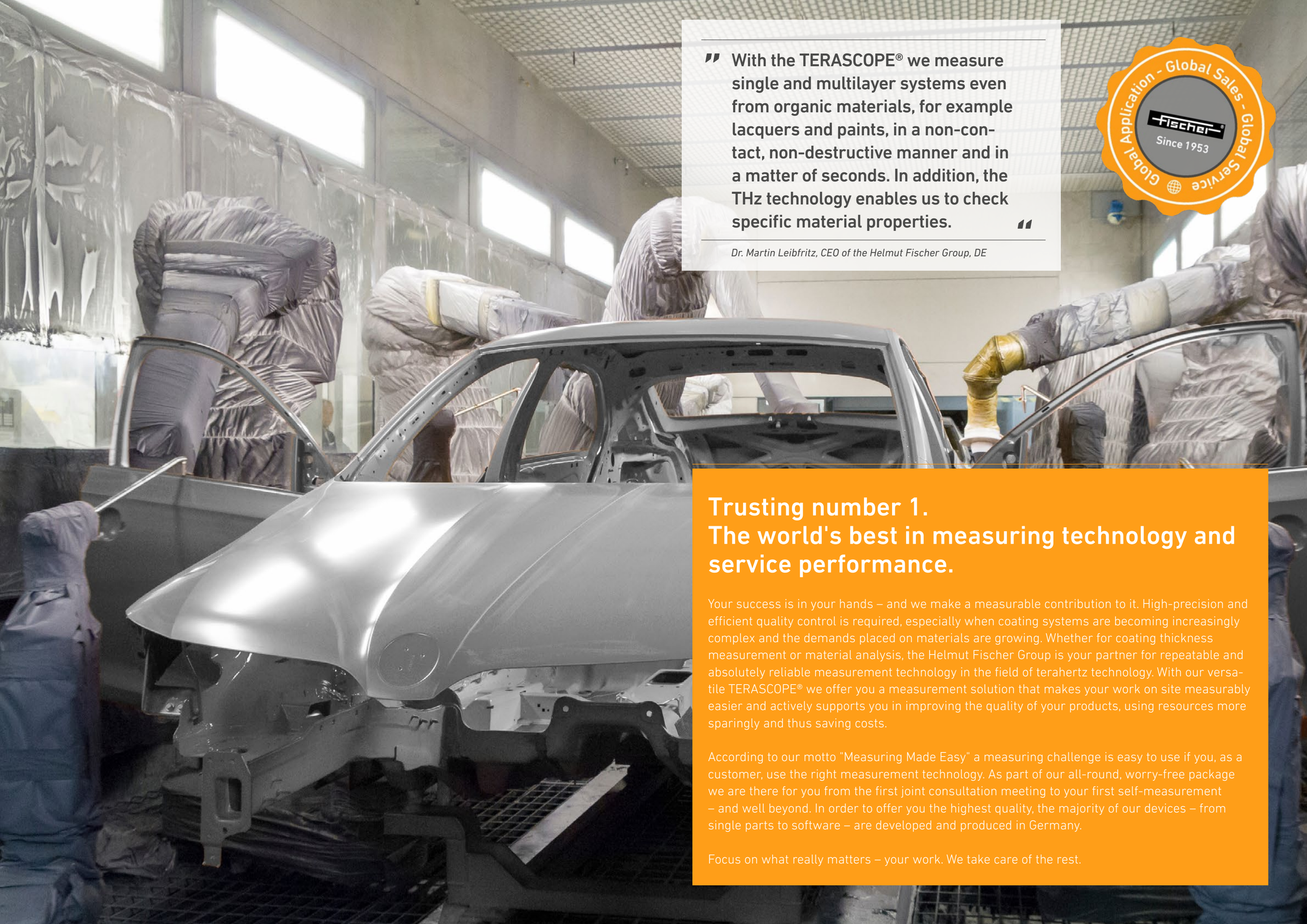
TERASCOPE®

Coating thickness measurement and material analysis by terahertz waves

fischer®



> With the TERASCOPE® we measure single and multilayer systems even from organic materials, for example lacquers and paints, in a non-contact, non-destructive manner and in a matter of seconds. In addition, the THz technology enables us to check specific material properties.
>
> *Dr. Martin Leibfritz, CEO of the Helmut Fischer Group, DE*

Global Application - Global Sales - Global Service
Fischer
Since 1953

Trusting number 1.
The world's best in measuring technology and service performance.

Your success is in your hands – and we make a measurable contribution to it. High-precision and efficient quality control is required, especially when coating systems are becoming increasingly complex and the demands placed on materials are growing. Whether for coating thickness measurement or material analysis, the Helmut Fischer Group is your partner for repeatable and absolutely reliable measurement technology in the field of terahertz technology. With our versatile TERASCOPE® we offer you a measurement solution that makes your work on site measurably easier and actively supports you in improving the quality of your products, using resources more sparingly and thus saving costs.

According to our motto "Measuring Made Easy" a measuring challenge is easy to use if you, as a customer, use the right measurement technology. As part of our all-round, worry-free package we are there for you from the first joint consultation meeting to your first self-measurement – and well beyond. In order to offer you the highest quality, the majority of our devices – from single parts to software – are developed and produced in Germany.

Focus on what really matters – your work. We take care of the rest.

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FISCHER TRUSTED BRANDS

FISIQ®
TERASCOPE®

Company headquarters in Sindelfingen, Germany

Helmut Fischer – Measuring Made Easy

The knowledge and willpower of our founder, Helmut Fischer – his inventive genius and irrepressible desire to implement – are the driving force behind an exemplary company development. In 1953, this success story began with the founding of a two-man company in Stuttgart, Germany. Today, the Helmut Fischer Group is a global player at the forefront of industrial measurement technology.

Innovation and expertise
When it comes to surface measurements, we are state-of-the-art worldwide. Our vow is to continuously develop and produce technology-leading products that make our customers measurably more efficient. Our high-tech devices measure coating thicknesses down to the nanometer range and are used wherever precision, reliability and ease of use are required.

Customized product solutions
Our portfolio is diverse, with each solution perfectly tailored to your requirements and wishes. Your big advantage: Fischer offers everything you need from one single source, whether simple handheld devices for quick measurements on the go, to XRF analysis, or fully integrated high-end systems for automated production monitoring.

Excellent customer service
With 21 subsidiaries worldwide and an extensive network of authorized distributors, we are there for our customers in almost every country. From the first joint consultation to your first self-measurement, our experts from sales, application laboratory, and service will ensure individual, fast, and uncomplicated onsite support.

Quality and safety
If you assure quality in your products, you should work with quality measuring devices. For many decades, the Helmut Fischer Group has stood for outstanding products at the highest standard. Absolutely reliable measured values – this is our commitment to our customers. That is why we develop our measuring devices in-house and produce most of them at our company headquarter in Germany. In addition, we are certified according to ISO 9001.

Environment and sustainability
We stand for responsible and resource-saving actions while developing sustainable measurement solutions. With optimized processes and technologies, we reduce environmental impact to a minimum. Whether recycling or upcycling – corresponding material and energy savings benefit not only the environment, but also our customers.

How it all began ...

The ambitious start
The Helmut Fischer Group proudly looks back on a long and successful company history that began in 1953. At the age of only 22, Helmut Fischer founded the company "Schuhmann and Fischer" in a small workshop in Stuttgart, Germany, together with his mentor and former physics teacher Schuhmann.

The expansion
A few years later, Helmut Fischer founded the company of the same name with headquarters in Sindelfingen. Bolstered by the German economic miracle of the 1950s and 1960s, the Swabian one-man business became an international company.

The innovations
At the beginning of the 1980s, Fischer greatly expanded its product range. In 1982, the first X-ray fluorescence measuring device was launched. Further measuring and testing devices in the fields of nanoindentation and scratch testing as well as automated measuring solutions followed. Thanks to numerous patented innovations, which still exist today, these devices quickly established themselves in the industrial environment. Terahertz measurement technology joined our product portfolio in 2023.

The technical progress
By continuously developing the components we use, we are still able to produce market-leading measuring instruments in order to support and promote the technical progress of our customers. Our extensive range of accessories also ensures a high degree of customization.

The life's work
Building measurement devices that will last for many years has always been very important to Helmut Fischer. The company itself, then, should be just as durable. Our declared goal is to develop measurement solutions that offer our customers added value and support them efficiently in the performance of their work. This focus shapes our work day after day.

The foundation
After five decades at its helm, in 2003, Helmut Fischer transferred his company shares to the Helmut Fischer Foundation. The Foundation was established to support artists and young scientists, and helps to ensure the continuity of the company.

One partner for all your needs

Terahertz technology. Non-destructive and non-contact measurement of organic single and multilayer systems on any base material

SUPER-FAST MEASURING. MEASURING TIMES OF A FEW SECONDS

Made in Germany. Highest quality standards in Fischer production guaranteed

Powerful software. User-oriented and intuitive software for your coating thickness measurement and material analysis projects

PARTICULARLY SAFE. MEASURING WITH HARMLESS TERAHERTZ WAVES

Market-leading measurement performance. Up to 6 THz bandwidth* for highest precision and repeatability

* Depending on configuration.

Low maintenance thanks to immovable parts. Electro-optical measurement for maximum uptime

Automatic referencing. Referencing of measurement system fully automatically for non-stop operation

Uniquely high sampling rate of 1.6 kHz.* Resistant to all undesired mechanical vibrations, for fast and precise measurement results even in harsh environments

* Depending on configuration.

Built to last. Robust design for uninterrupted 24/7 industrial use

3-in-1 innovation. Combines terahertz technology with patented Clean-Trace technology and determination of radar transmission and reflection

High reliability. Proven repeatability through traceability of results and color teaching

Optimized for automation. Measuring head with 6 kg total weight, easy to integrate into existing and new manufacturing plants

CUSTOMIZED. WE HAVE THE RIGHT MEASUREMENT SOLUTION FOR YOU

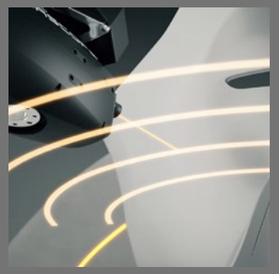
Wide-ranging expertise. Comprehensive know-how and personal advice from our team of experts – from application consulting and commissioning to trainings and after-sales support

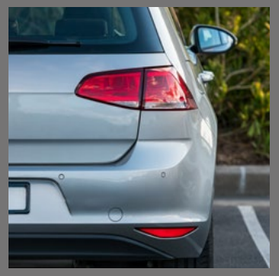
Many applications, a solution for everyone

Terahertz technology opens up a wide range of applications in industrial measurement technology. What makes it so versatile? Terahertz waves penetrate all organic and dielectric materials such as plastics, wood, ceramics, lacquers and much more – absolutely non-destructively and without contact.
This means that terahertz technology can be used for many different applications in various industries to measure single and multilayer systems and to test material properties.

	WHAT THE TERASCOPE® CAN MEASURE
Category of material of the layer system	**Organic/dielectric**
Number and thickness of the layer(s)	**Up to 7 layers (depending on the material)** **10 µm up to several millimeters**
Texture of the layer surface	**Hard or soft** Examples hard: Oxides, clear coats, lacquer coatings with metallic particles, ceramics and much more Examples soft: Base coats, primers, polymer layers, soot, graphite, foams, rubber, silicones, papers and much more **Wet or dry** Examples: Wet and cured lacquers, wet and dried paints and much more **Smooth or rough** Examples smooth: Lacquers, enamel and much more Examples rough: Polymer coatings, ceramics, powder coatings, foils and much more
Transparency of the layer(s)	**Visually transparent or non-transparent** Examples: Highly tinted plastics, ceramics, sinter materials, paints, granular and sintered materials and much more
Base material	**Any** Examples: Electrically conductive and non-conductive metals, plastics, metallized plastics, semiconductors, glass, ITO glass, ceramics, CFRP, GFRP, wood and much more
Shape of the component	**Flat and curved surfaces**
Use of the measurement system	**Inline and offline** Single measurements or continuous measurements in the running production process

Automotive





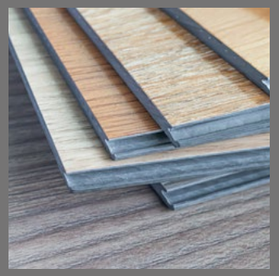
Coating thickness measurement of single and multilayer systems including detection of invisible defects and hidden corrosion

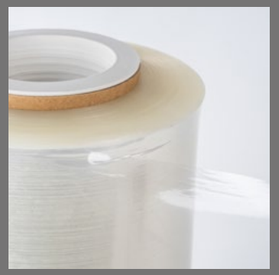
- Paints and lacquers on car bodies and add-on parts made of metal, plastic, or carbon such as spoilers and bumpers
- Slush skins on airbags
- Fabric and organic functional coatings on plastic composite parts in the interior
- Battery foils
- Bipolar plates for fuel cells
- And much more

Determining radar transmission and reflection

- Painted add-on parts made of metal or plastic such as bumpers

Polymers and extrusion of plastic





Coating thickness measurement of single and multilayer systems including detection of invisible defects and inclusions

- Battery foils
- Packagings
- Polymer functional layers such as EVOH
- Coextruded floorboards and films
- Bipolar plates for fuel cells
- All coated functionally- and safety-critical components made of plastic, polymers, or composite materials
- And much more

Semiconductors

Testing of material properties

- Electrical conductivity
- Layer resistance
- Mobility of free charge carriers (2DEG)
- Density of charge carriers
- Refractive index and extinction coefficient
- Absorbed power
- Single frequency characteristics

For applications such as wafers and in the fields of biosensors, photovoltaics and many more.

Aerospace

Coating thickness measurement of single and multilayer systems including detection of invisible defects and hidden corrosion

- Paints and lacquers on various aircraft parts made of epoxy resin or epoxy-glass resin such as fuselage and wings
- Thermal barrier coatings on turbine blades
- All coated functionally- and safety-critical components made of composite materials or metal
- And much more

Ceramics

Coating thickness measurement of single and multilayer systems including detection of invisible defects

- Ceramic and enamel coatings on ceramic, for example in the sanitary sector
- Ceramic coatings on metal, for example in the aerospace sector as thermal barrier coatings on turbine blades

Environment

Coating thickness measurement of single and multilayer systems including detection of invisible defects and inclusions

- Battery foils
- Packagings
- Bipolar plates for fuel cells
- All coated functionally- and safety-critical components made of plastic, composite materials, or metal for wind turbines or photovoltaics
- And much more

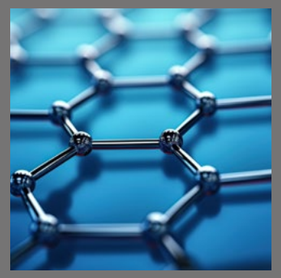
Material

Coating thickness measurement of single and multilayer systems

- Wear protection layers such as diamond-like carbon (DLC)
- Packagings
- Paints and lacquers on paper and sheet metal, including special inks on paper, for example for printing money
- And much more

Testing of material properties

- Electrical conductivity
- Layer resistance
- Mobility of free charge carriers (2DEG)
- Density of charge carriers
- Refractive index and extinction coefficient
- Absorbed power
- Single frequency characteristics



For applications such as wafers and 2D materials (for example graphene in photovoltaics), paints, lacquers, and special inks for printing money and many more.

Do you have other applications? Don't hesitate to contact us! **sales@helmut-fischer.com**

TERASCOPE®

Market-leading measurement performance. Up to 6 THz bandwidth* for highest precision and repeatability

Faster than any vibration. Precise measurement results even in harsh environments thanks to uniquely high sampling rate of 1.6 kHz*

Patented Clean-Trace technology. Continuous dry air purging for unadulterated measurement results

3D scanner. High-precision positioning even on round surfaces and complex geometries

Low maintenance. Less wear and tear due to electro-optical measurement

Easy integration. Hardware and software designed for robot and control systems

High reliability. Robust, low maintenance, developed for 24/7 operation

Availability depending on region and country.

* Depending on configuration.

Coating thickness measurement of lacquer coating system on car body

Unbeatable in automated terahertz measurement.

The TERASCOPE® is our answer when it comes to fully automated coating thickness measurement of organic single and multilayer systems as well as material analysis with terahertz waves. Non-destructive and without contact, the innovative measurement system offers a market-leading measurement performance with up to 6 THz bandwidth* for highest precision, repeatability, and speed.

Perfectly suited for automated quality control with robot and control systems, the TERASCOPE® can be flexibly integrated into your production process. Using an optional 3D scanner, the intelligent measuring head takes the optimum position in relation to the measuring object and thus guarantees reliable and repeatable measurement results even for curved surfaces and complex component shapes. The extremely high sampling rate enables data acquisition independent of external vibrations and measurement results within a super-short time.

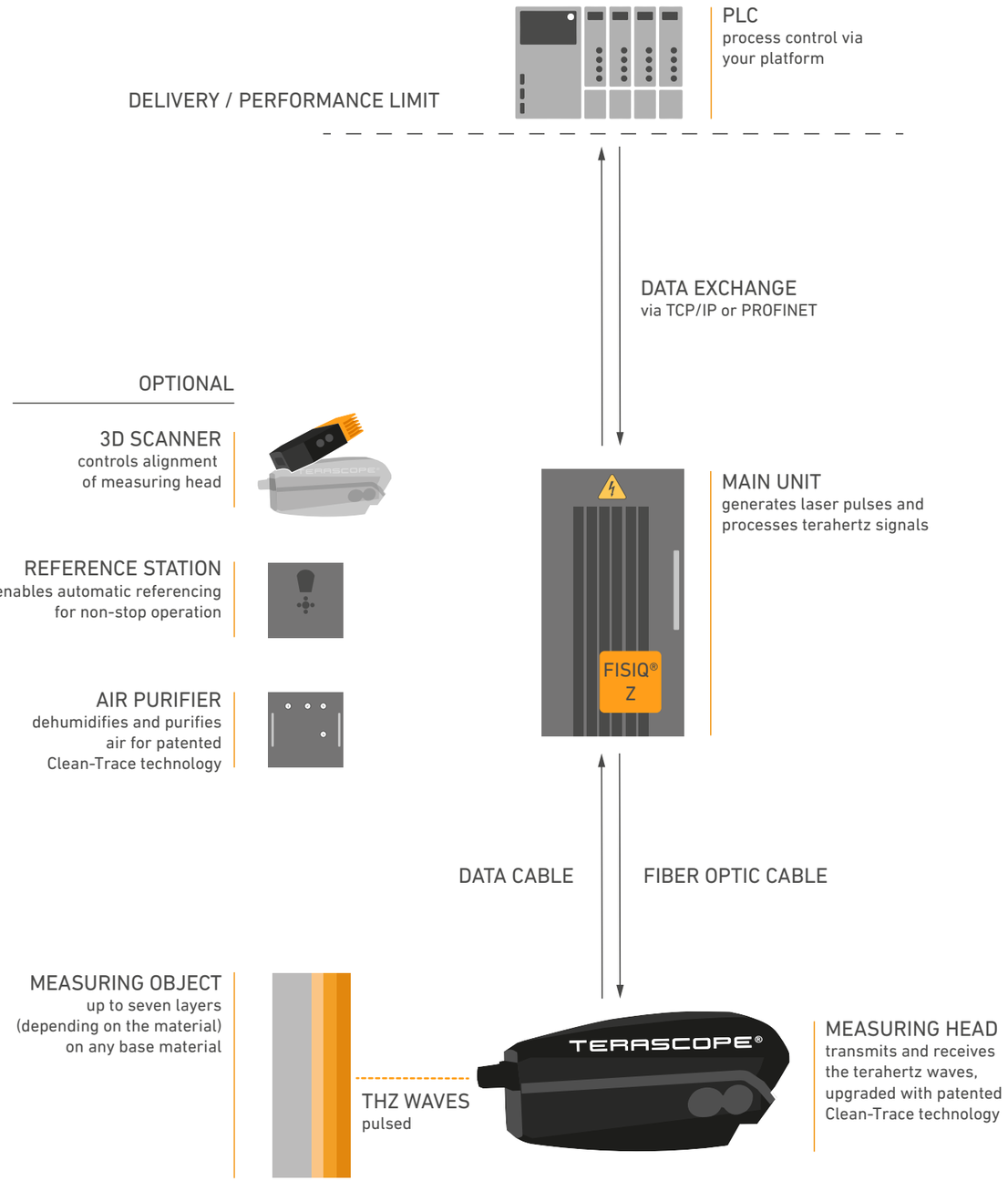
In addition, our unique, patented Clean-Trace technology ensures stable and reproducible measuring conditions. As the TERASCOPE® measures electro-optically compared to mechanical terahertz measurement technology, the measuring head requires very low maintenance. For evaluation and visualization of your data we offer you FISIQ® Z, an efficient software solution that can be easily integrated into your PLC.

* Depending on configuration.

Features

- Automated solution for coating thickness measurement of organic single and multilayers as well as material analysis with terahertz waves
- Bandwidth: Up to 6 THz*
- Sampling rate: 1.6 kHz*
- Measuring time: approx. 1 s
- Spot size: ø 1 mm
- Measuring distance: 7 cm
- Number of layers: Up to 7 (depending on the material)
- Thickness of the layer(s): 10 µm up to several millimeters
- Measuring precision: Up to 1 µm, from 100 µm layer thickness up to 1% (depending on the application)
- Repeatability: < 0.1 µm
- Integration, remote control, and data export via fieldbus system

VIDEO AND LANDING PAGE:
Scan the QR code and learn more about the TERASCOPE®.



Modular. Flexible. Customized.

With the TERASCOPE® we offer you a modular measurement system consisting primarily of the main unit – with the Fischer software FISIQ® Z at its heart – and the measuring head. Depending on your project and your challenges, our team of experts customizes your individual measurement system, upgraded with supplementary components.

PLC: Fully integrated into your production line, you can conveniently control your TERASCOPE® with your PLC – via TCP/IP or PROFINET. The measurement results can also be displayed in your platform.
Alternatively, you can monitor your measurement system and retrieve the measurement results with FISIQ® Z.

Main Unit: The main unit is a switch cabinet containing the heart of the measurement system: the computer with FISIQ® Z for central data processing.
During a measurement, the Tera Suite® receives the measured values via a data cable as a so-called raw data stream. From this, the software determines a frequency spectrum in real time from which it calculates the coating thickness, spectral density, radar transmission and reflection and other relevant material data. The measurement results can be displayed in your PLC or directly in FISIQ® Z.
The main unit also contains an engine that continuously supplies the measuring head with laser pulses via fiber optic cable to generate terahertz waves.

Further information about the **FISIQ® Z software** can be found on pages 20 and 21.

Measuring head: The measuring head transmits and receives the terahertz waves. It contains the terahertz emitter and the detector and is also upgraded with the Clean-Trace technology.
The emitter generates pulsed terahertz waves from the laser pulses supplied by the main unit and directs them at the measuring object. The terahertz signals reflected by the measuring object are then caught by the detector and sent back to the main unit as a raw data stream.
With continuous dry air purging during the measurement, the Clean-Trace technology significantly reduces any interference from external environmental influences such as humidity or dirt particles. The Clean-Trace technology ensures stable and reproducible measuring conditions and guarantees unadulterated measurement results.

Further information about the **measuring method** can be found on pages 24 and 25.

Optional

3D scanner: The 3D scanner is fitted to the measuring head as a supplementary component for automated measurement solutions and is used to align the measuring head optimally with the measuring object.
It scans the relative position and form of the measuring object as well as the texture of the coating and reports the data back to the main unit for a continuous target/actual comparison. You can control the 3D scanner via your PLC or directly via FISIQ® Z.

Reference station: The reference station is connected to the main unit as a supplementary component for manual and fully automated measurement solutions. It is available to the measuring head for carrying out various referencing tasks.

Further information about **referencing** can be found on page 23.

Air purifier: The air purifier is a supplementary component connected to the main unit and the on-site compressed air system. It continuously supplies the measuring head with dehumidified and purified air, which is required for the patented Clean-Trace technology.
It also provides the reference station with humid air for automatic referencing.

Smart integration, systematic measurement.

Facing challenges? You can count on Fischer's comprehensive expertise and individual support.

We develop economic and reliable automated measurement solutions customized to your production line. Throughout the entire process, our experts work closely with you or the integrator. From constructive consulting, initial sample testing and conception, to commissioning at your site, and long after that – Fischer accompanies you every step of the way with your TERASCOPE® measurement system.

Our roadmap for your revolution in terahertz

1. Clarifying your requirements
In an initial meeting, we discuss your requirements and any important questions such as ...

- What should be measured?
- What are the material properties of the measuring object?
- At what point in the production process should measurements be taken?
- What requirements does your quality control have to serve for your production?

2. Testing your samples
As soon as the most important key points have been clarified, our application experts carry out sample tests and individual color teaching for you. To do this, we take specific measurements on the components you provide to us. Among other things, we evaluate ...

- Can the measuring task be solved in practice with terahertz technology?
- Can the desired measurement results be achieved and the required tolerances adhered to?

3. Developing a concept
If the tests are successful, we develop a concept in close consultation with you or the integrator. Among other things, the concept includes ...

- the definition of the measurement process
- the technical integration of the TERASCOPE® hardware into your production line
- if necessary, the integration of the Fischer software FISIQ® Z into your PLC, including interface definition

4. Initial commissioning
Is your customized automated measurement solution is ready for quality control? We support you or the integrator during the initial commissioning of your TERASCOPE® measurement system and carry out the first measurements together with you.

5. After-sales support
Our customer support does not end with the purchase of the measurement system – it continues long after that. Further information about **application consulting** and **service** can be found on pages 26 and 27.

Our services at a glance

- Individual configuration of your TERASCOPE® measurement system for your process of quality control for coating thickness measurement and material analysis
- Extensive and personal consulting
- Individual sample testing including color teaching by our application experts
- Technical design of your automated TERASCOPE® measurement system and interface management together with you or the integrator
- Support with initial commissioning including first measurements
- Comprehensive after-sales support

TERASCOPE® visionary hub – Ideas for integration

We open up the space for your requirements and our ideas – let us bring together your visions with innovation and pragmatism and work together on path-breaking projects.

TERASCOPE® on robot system
Measuring task: Coating thickness measurement of lacquer coating systems on car bodies and add-on parts (multilayer system)

Requirements: Inline quality control (painting line), complex component shape

Automated solution: Measuring head with 3D scanner fitted to robot system, supplemented by reference station*

TERASCOPE® mounted on vacuum chamber
Measuring task: Material analysis of 2DEG coatings on wafers

Requirements: Inline quality control (vacuum system)

Automated solution: Measuring head fitted to vacuum chamber, measuring through vacuum window, without 3D scanner, supplemented by mobile reference station**

TERASCOPE® on crossbeam
Measuring task: Coating thickness measurement of coextruded floorboards (multilayer system)

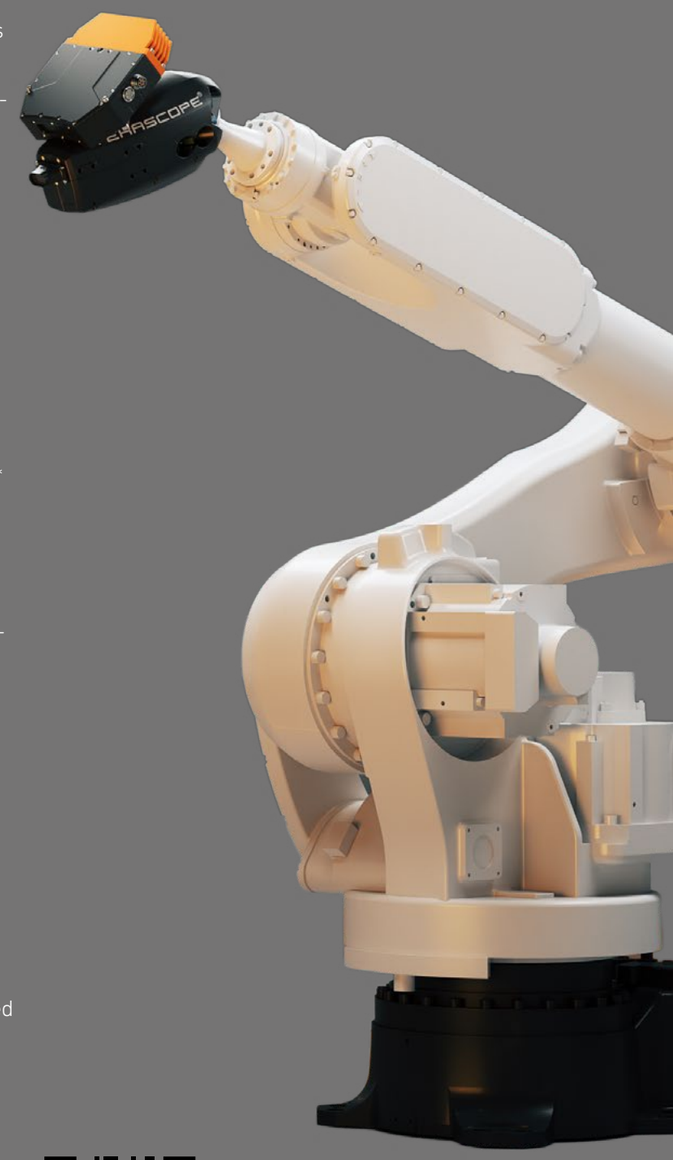
Requirements: Inline quality control (assembly-line production), flat surface

Automated solution: Measuring head fixed on crossbeam, without 3D scanner, supplemented by reference station*

Mapping a surface with the TERASCOPE®
Measuring task: Coating thickness measurement of bipolar plates for fuel cells (foamy singlelayer system)

Requirements: Quality control as single measurement, particularly large, flat surface

Automated solution: Measuring head integrated into a mapping system, with optical line scanner, supplemented by reference station*



*Referencing takes place at predefined time intervals in which the measuring head automatically moves to the reference station.
**Referencing takes place at predefined time intervals in which the reference station automatically moves to the measuring head.

KNOWLEDGE BANK:
Scan the QR code and find out more about TERASCOPE® applications.

FISIQ® Z

The algorithmic heart of the TERASCOPE®.

With FISIQ® Z you get an efficient and user-oriented software solution* for your TERASCOPE® system for coating thickness measurement and material analysis with terahertz waves. Tailored to your needs, the FISIQ® Z is designed for convenient data handling, automated measurement processes, and full data control. From setting up an individual measuring plan, adapted to your shift plan, and monitoring your measurement, to the evaluation and export of your measurement results – FISIQ® Z always guarantees you, as the user, optimum support.

Powerful and reliable. Efficiently performs all calculations in the background

Intuitive. User-friendly interface allows easy control of the entire measurement system

Resource-saving energy management. Definition of the operating hours and off times of the measurement system via the planning mode

Graphic display of measured values. Detailed visualization of the measurement results and each single layer

Convenient data handling. Export of measurement results to all common data evaluation, statistic, and reporting programs

Easy integration. Compatible with TCP/IP or PROFINET, remote control via your process control system

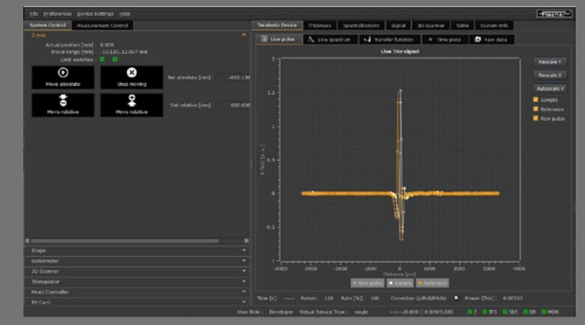
Full data control. All measurement data processed or as a complete raw data stream

Optional upgrade. The function for determining radar transmission and reflection can be purchased as an additional software package

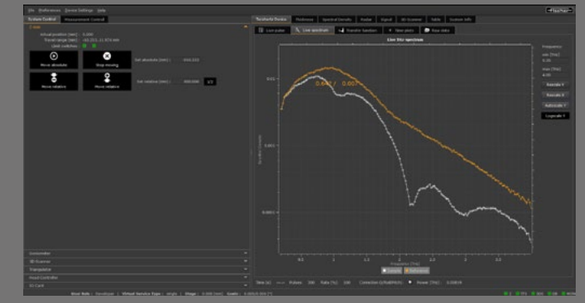
* The software including a PC is part of the scope of delivery.

Explore smart and highly efficient measuring. Evaluating and exporting your data has never been so convenient. Get 100 % security with comprehensive data control in just a few clicks.

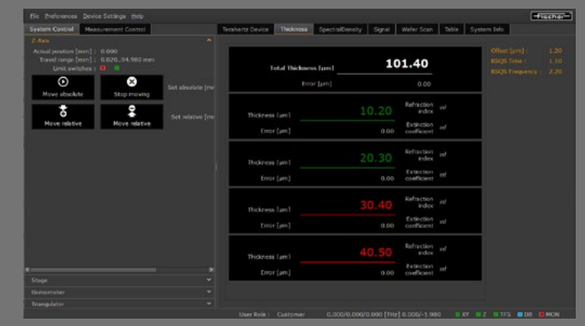
Raw signal in real time
The software shows the reflected terahertz signals of every single layer in real time. If required, you can also display the maximum intensity of the signals as a reference.

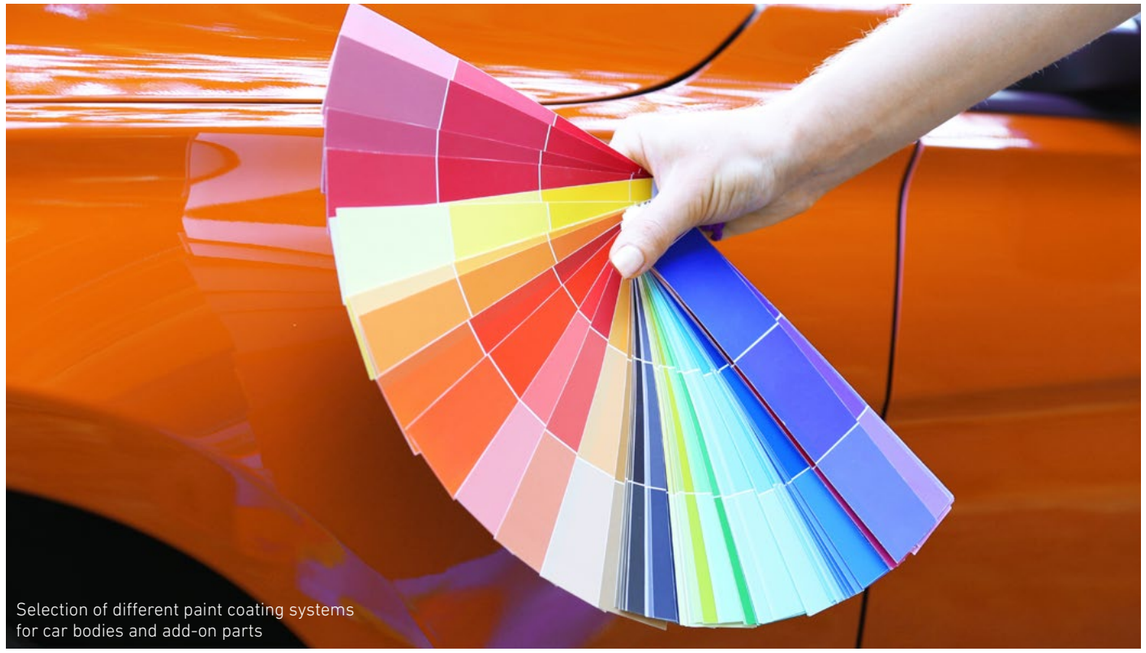


Detailed frequency spectrum
From the raw signal, the software determines a high-resolution frequency spectrum from which it calculates the layer thickness of your multilayer system reliably and with high precision.



Your measurement results at a glance
The measured coating thickness values can be displayed both individually and in tabular form for several measuring points. In addition, the tolerance limits can be defined in color. So you always have the overview.





Selection of different paint coating systems for car bodies and add-on parts

Safety through traceability

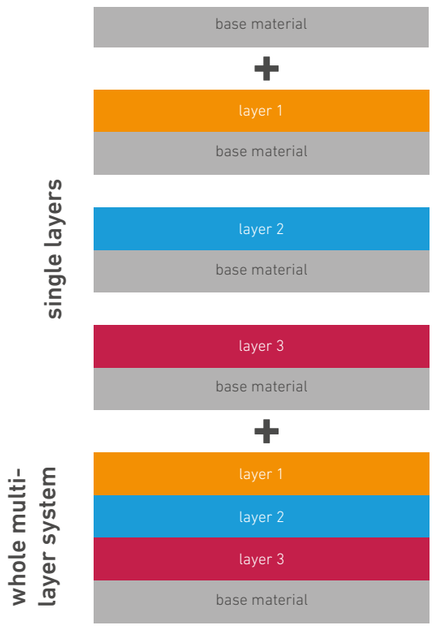
Color teaching

To prepare the TERASCOPE® for measuring, we must first "teach" it the layer system being measured in the measuring task. This calibration process is called color teaching. To do this, you provide us with your layer system on specially coated sample parts which we use to train the algorithms of the measurement system individually for your measuring task.

Sample parts

First, we measure the pure base material and initially define its material data. The various layers are then measured one after the other as individual layers on the base material. As each layer has specific material data depending on its material composition, each layer must be measured separately and parameterized once. For the final check, we measure the entire multilayer system. If required, we can verify the traceability of the coating thickness measurement with cross-sections of your sample parts.

In this way, the TERASCOPE® gets to know your layer system step by step. So, if your layer system changes by one layer, all you need to do is update it with the new overall layer system.



Visual: Color teaching

Referencing

Only a correctly-referenced measurement system delivers correct results. For this reason, Fischer offers a reference station for regular referencing of your TERASCOPE®. The reference station fulfills the following tasks:

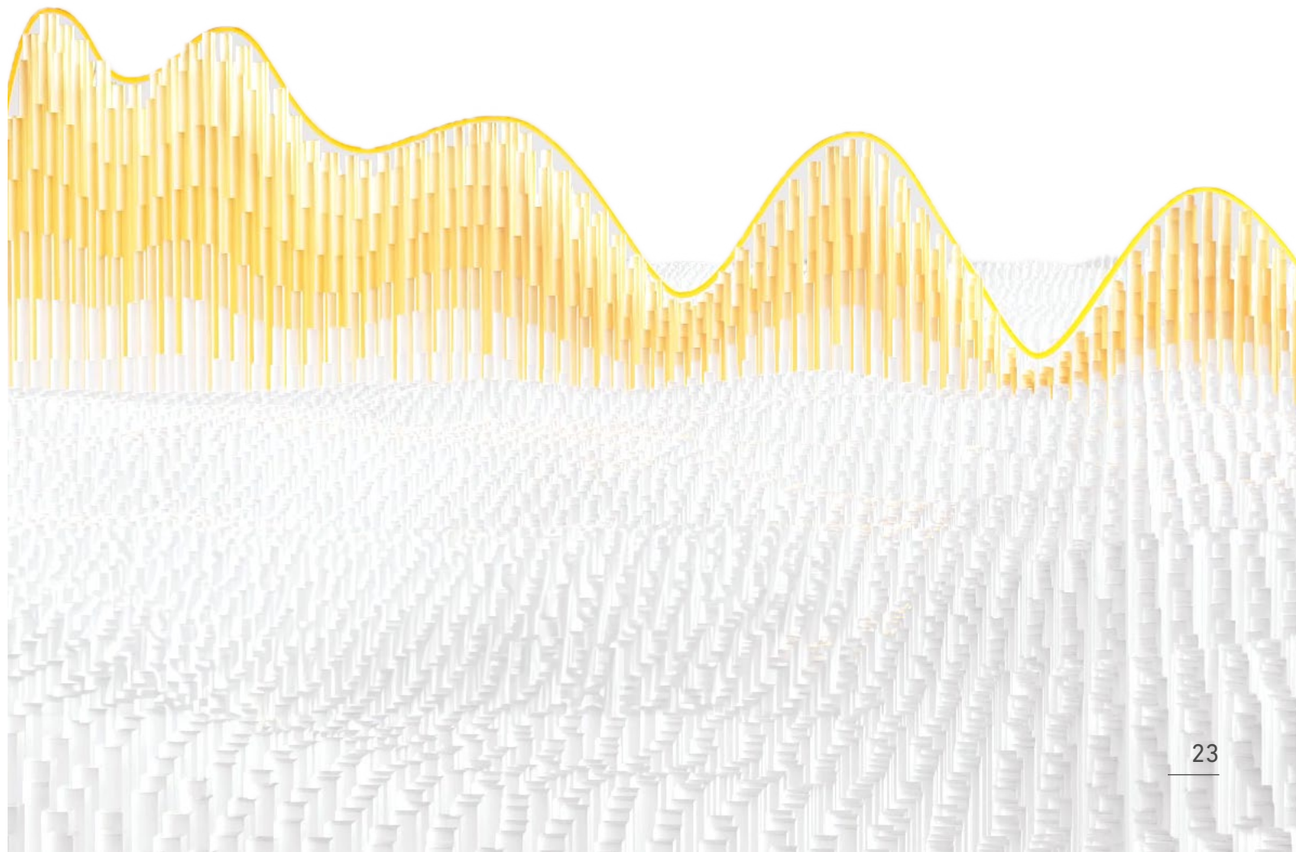
Referencing the intensity: The intensity must be referenced once before each new measuring task. A plate of stainless steel, which reflects 100 % of the terahertz waves from the TERASCOPE® measuring head, is used as standard for referencing. In the subsequent measurements, this maximum of intensity is used by the measurement system as a reference value in order to compare it with the different intensities of the various layers.

Referencing the frequency: The frequency must be referenced several times during the continuous measurement operation – at predefined time intervals and usually once per layer. Humid air, which is flushed into the measuring path of the TERASCOPE® measuring head by a nozzle at the reference station, is used as standard for referencing. The spectral position of the water absorption bands in the terahertz frequency spectrum is constant, so they always appear in the same place. In the subsequent measurements, these constant "water lines" are used by the measurement system as a reference to correctly evaluate the frequency spectrum of the layer system.

Optional

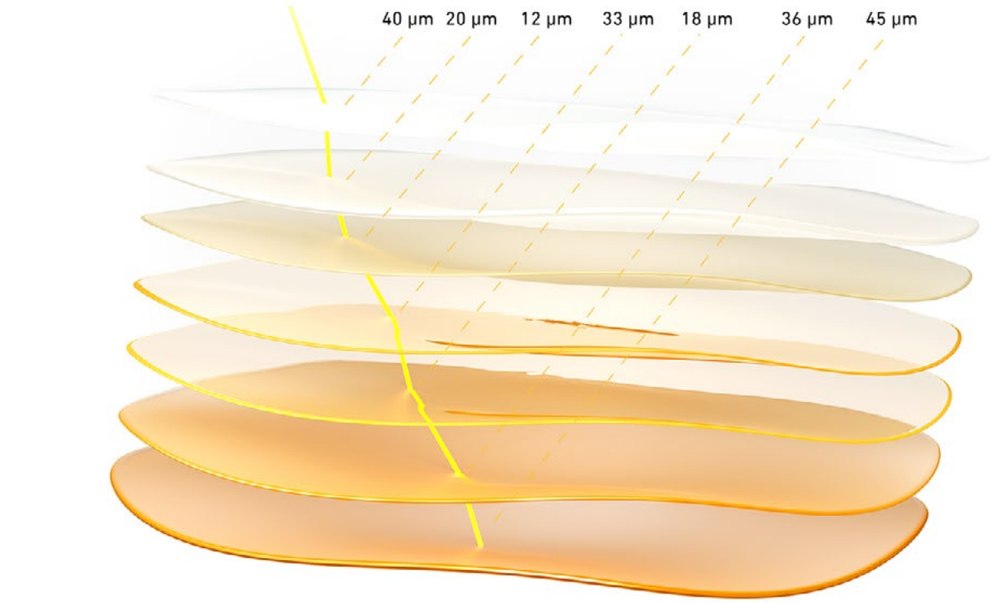
Calibrating the position: If your TERASCOPE® measuring head is upgraded with a 3D scanner, we will initially calibrate it for you before the measurement system is put into operation for the first time. This guarantees the optimum position of the measuring head to your measuring object. For calibrating the position, the same plate of stainless steel* is used as for referencing the intensity.

*The plate of stainless steel as a calibrating and referencing standard is part of the scope of supply and does not need to be replaced if used correctly.



How exactly does it work?

TH Terahertz

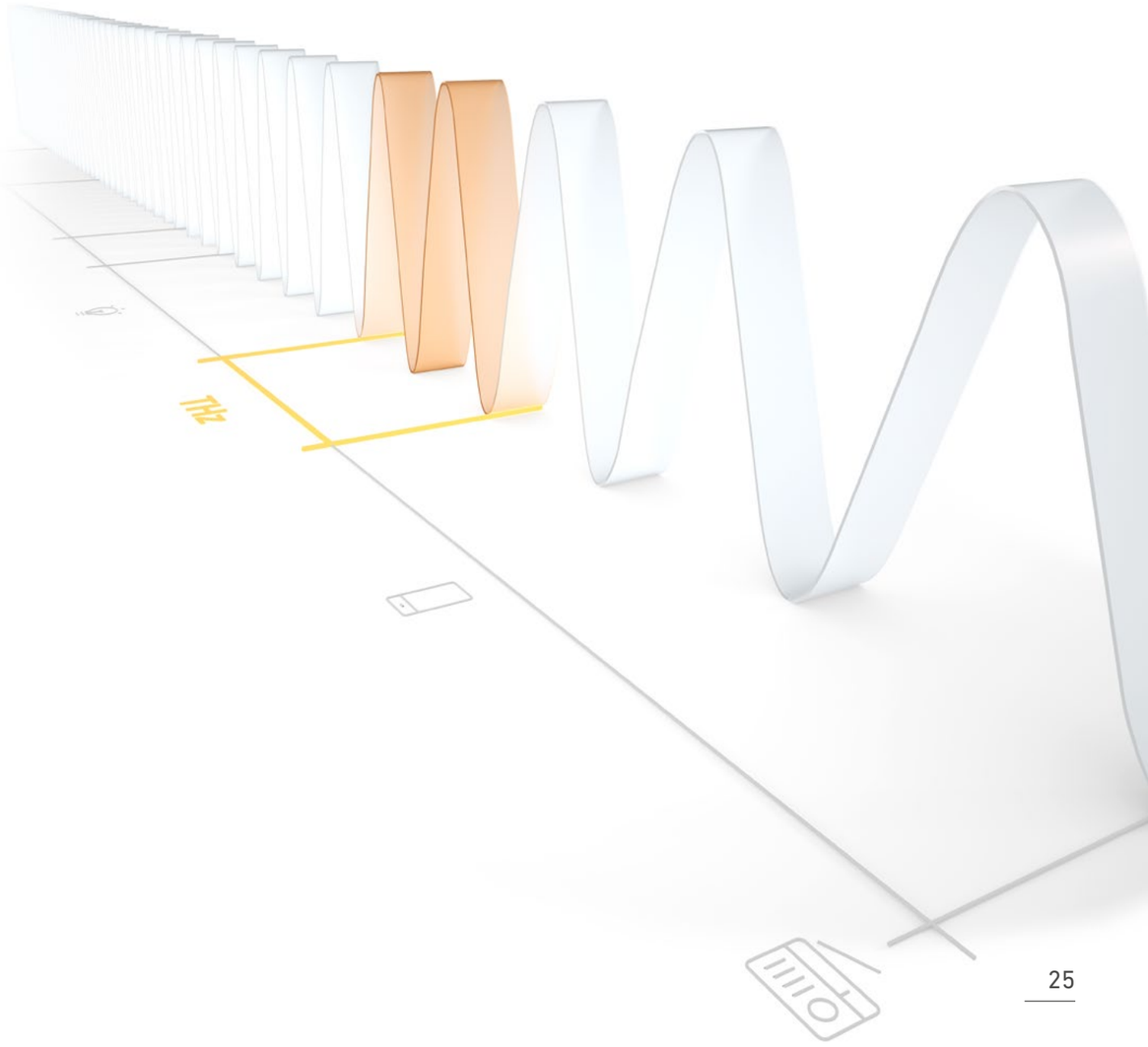


Visual:
Coating thickness measurement with terahertz waves

Characteristics of terahertz waves
In the electromagnetic spectrum, the terahertz waves belong to the field between infrared radiation and microwaves. With a wavelength of less than 1 mm they penetrate numerous organic and dielectric materials such as lacquer, plastic, glass, or ceramics. Due to their low photon energy, terahertz waves do not have an ionizing effect. They can therefore be used without radiation protection precautions which makes them particularly interesting as a harmless, absolutely non-destructive measuring method. Compared to ultrasound or magnetic induction the measurement with terahertz waves is contact-free, which is why even humid and soft layers can be measured.

Functioning of the terahertz technology
The TERASCOPE® uses terahertz waves in a broad frequency range from up to 6 THz* and shoots them at the measuring object in the form of ultrashort pulses. As soon as the waves hit an organic or dielectric layer system, they penetrate it and are partially reflected at the interfaces of each layer. The base material has no influence on the measurement and can therefore have any material properties. Depending on the thickness and material composition of the layer(s), different reflection times are recorded by the detector, this means the terahertz reflection signals are measured time-resolved and mapped in a frequency spectrum. From the frequency spectrum, the layer thickness of each individual layer can be determined with high precision. The spectral density provides information about the material properties. In addition, the measurement can be used to determine the radar transmission and reflection of components, which is crucial for the attenuation of radar signals, for example in bumpers.

Influences
As terahertz waves are strongly absorbed by polar substances such as water, even low humidity and very fine dirt particles can cause falsified measurement results. Our patented Clean-Trace technology therefore flushes the measuring path with dehumidified and purified air during the measurement, ensuring stable and reproducible measurement conditions and highly precise, repeatable measurement results.



* Depending on configuration.

Application consulting

Everything for your measuring task

Your quality is our mission
Successful quality management is the foundation of a successful company. We make a measurable contribution to this, as only the right measurement technology combined with the right measuring method and correct use of devices lead to reliable, valid quality control measurements. Our specialists are just the right point of contact for your concerns and challenges, your requirements in measurement technology, and for all other questions relating to your measuring task.

Wide-ranging expertise for precise measurement results
An interdisciplinary team of physicists, application specialists, programmers and project managers is always on hand to provide you with advice and support – whether in the selection of a suitable measuring instrument, the development of a measuring strategy, or the definition of a suitable measuring program. You will benefit from our comprehensive application consulting, especially when it comes to solving complex measuring tasks. This means that your employees will always know what is important for the measurement.

Our specialists have excellent networks with all our application laboratories as well as with research and educational institutions and industry. In this way, we ensure that you have access to cutting-edge expertise worldwide. And we make sure that we have the right answers to your questions.

Our services at a glance

- Conceptualizing of your request together with our team of experts and potential partners (integrators)
- Individual sample testing with your components
- Parameterization and integration of new colors (color teaching)
- Support in use and implementation of new measuring tasks
- Technical advice by remote, email and telephone

Service

A reliable partner for the entire life of your device

All-round worry-free package with maximum flexibility
For over 70 years, we have been supporting our customers with outstanding products and unique services. We attach just as much importance to fast and reliable service as we do to the quality of our products. As part of our 360° support, our service experts will assist you with the commissioning, inspection, and maintenance of your device. With our product trainings, we teach you how to use your measurement system.

Your advantages of regular inspections
To ensure that your devices stay with you over a long period of time and provide reliable measured values, we recommend regular inspections – ideally at annual intervals. All inspections are carried out by our trained and experienced service personnel. Thanks to our global support network, we are flexibly available in your area and provide individual advice and support on site with fast response times.

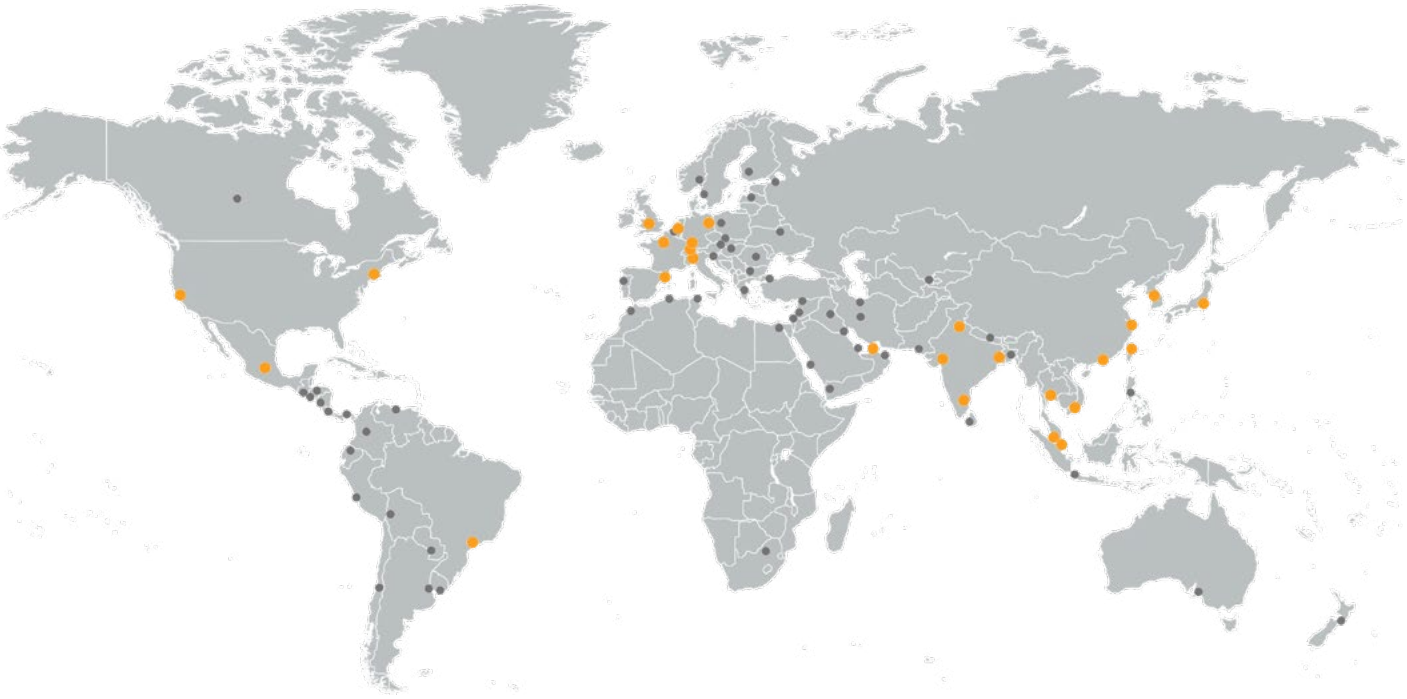
Through regular inspections, you extend not only the life of your device but also keep your downtimes to a minimum. We plan inspection times together with you at an early stage and coordinate them with your production schedule. The same applies to our spare parts: We only use original parts of the highest quality.

There for you in every respect

- Individual service concept tailored to your requirements for the quality control process
- Telephone and remote support
- On-site service in 21 countries and in your national language
- If required, individual instruction during initial commissioning and product training (user training)
- Customized inspection contracts with scheduled maintenance

Do you need technically sound advice?
Then contact us! **sales@helmut-fischer.com**

You can find us in:
AMERICA | EUROPE | AFRICA | MIDDLE EAST | ASIA & PACIFIC



- Subsidiaries
- Authorized distributors

Made in Germany! Our measuring devices and software as well as all accessories are developed, produced, and continuously optimized in-house – always with the goal to make our customer's world measurably easier.

Our experienced staff will be happy to advise you on site and in your national language. Please find your personal contact at www.helmut-fischer.com

Discover Helmut Fischer Global on social media!

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