

# Product Overview

Innovative, Top Quality Measurement Technology





 Coating Thickness



 Material Analysis



 Microhardness

## Knowledge, Competence, Experience

Since 1953, FISCHER has created and produced increasingly innovative, powerful and versatile technologies for measuring coating thickness and microhardness, as well as for material analysis and testing. Today, FISCHER instruments are used all around the globe – wherever trueness, precision and reliability are essential.

## Research and Development

Building leading-edge products requires a strong focus on research and development. All FISCHER products are developed and manufactured at the company's facilities in Germany, where one in five employees works in R&D.

Highly qualified specialists – with advanced degrees in physics, chemistry, electronics, engineering and computer science – continually develop new products and processes to meet the ever-changing demands of the market. FISCHER also cooperates closely with universities and research institutes.

## "Made in Germany" Quality

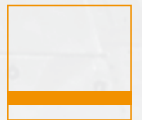
Keeping its manufacturing predominantly in-house allows FISCHER to fulfil its customers' expectations with truly superior products. In FISCHER's modern, high-tech production facilities, close attention is paid to even the tiniest of details in order to ensure consistently high quality.

Here at FISCHER, "Made in Germany" is more than just a merchandise mark: it is a point of employee pride and an integral part of the company philosophy.

## Product Assortment

FISCHER instruments cover a comprehensive range of measuring and analysis tasks that are relevant in diverse industries. For each application, the appropriate method is employed for maximum precision and accuracy: whether magnetic induction or eddy current, beta-backscatter, coulometry, microhardness or x-ray fluorescence – FISCHER always has the right technology for the purpose.

Industrial enterprises, research centres and academic institutions worldwide depend on the reliability and accuracy of their instruments. FISCHER meets this challenge with its rigorous quality standards and commitment to develop and produce the most technically advanced – yet easy to use – measurement systems and software on the market.



COATING THICKNESS



MATERIAL ANALYSIS



MICROHARDNESS



MATERIAL TESTING



 Material Testing

## Coating Thickness Measurement and Material Analysis



Whether the coating is painted or electroplated, onto magnetic or non-magnetic materials – you will find the right tool for precise, mobile thickness measurement in FISCHER's wide assortment of powerful hand-held instruments.

For extra versatility, FISCHER's stationary multi-measurement systems with network capabilities and modular design can perform material analyses in addition to measuring coating thickness.

Whatever your measurement application needs, and across a wide variety of substrates: With the appropriate FISCHER instruments and probes, you are perfectly equipped for the task at hand!



### FISCHER DataCenter Software

The FISCHER DataCenter software significantly enhances the functionality of FISCHER handheld instruments. With just a few keystrokes, measurement data can be transferred to a PC for storage and archival. A variety of evaluation and statistical functions are also available, such as histogram, sum frequency, etc. as well as various chart and table presentation options. In addition, the Factory Diagnostic Diagram (FDD) serves as a user-friendly tool for monitoring processes at a glance. The DataCenter's report generator makes it easy to design customised templates incorporating proprietary elements such as logos, pictures or scanned forms.



Small, handy and robust: The non-destructive measurement instruments of the MPO and MPOR series quickly determine coating thicknesses with the degree of precision that one has come to expect from FISCHER. With their wear-resistant probe tips, a backlit graphics display and an additional display on the top, these compact and lightweight instruments are ideal companions for onsite applications. Geometry and permeability of the specimen exert relatively little influence on the measurement results. In addition, these instruments feature patented conductivity compensation for non-magnetic substrate materials. Whether surfaces are rough or smooth, it can measure even thin coatings precisely.

The instruments operate according to the magnetic induction method (PERMASCOPE, for measurement on ferrous substrates), the eddy current method (ISOSCOPE, for non-ferrous substrates) – or both (DUALSCOPE): Whether aluminium or iron, the substrate material is automatically detected by the DUALSCOPE's measuring system, which selects the appropriate measurement method.

**PERMASCOPE® MPO** with integrated probe for measuring thickness of coatings on steel and iron.

**DUALSCOPE® MPO** with integrated probe for measuring thickness of coatings on virtually all metal substrates.

Above and beyond the range of functions the MPO-series instruments provide, the MPOR-series also offers a comfortable graphics display, storage capacity for up to 10,000 individual readings, and special modes for measuring anticorrosion coatings according to IMO PSPC and SSPC-PA2 guidelines. Using the USB interface, the instruments can be connected to a PC and the measurements conveniently evaluated and recorded using FISCHER DataCenter software. The permanently attached cable probe of the FP models makes measuring easy and precise even in hard-to-reach places and on a range of different specimen shapes.

**PERMASCOPE® MPOR** and **MPOR-FP** with integrated probe or cable probe for coating thickness measurements on steel and iron.

**DUALSCOPE® MPOR** and **MPOR-FP** with integrated probe or cable probe for coating thickness measurements on virtually all metal substrates.

**ISOSCOPE® MPOR** with integrated probe designed specifically for high-precision measurements of thin coatings on virtually all non-ferrous metals.

**DUALSCOPE® MPORH-FP** with cable probe, designed specifically for measurements of thicker metal or protective coatings on steel and iron.



COATING THICKNESS



Container: Corrosion protection coatings



Facade sections: Anodised coatings on aluminium



Measurement of corrosion protection coatings in harsh environments



COATING THICKNESS

Due to their interchangeable probes, the handheld instruments of the FMP family are well suited for performing non-destructive coating thickness measurements through magnetic induction (DELTA SCOPE), eddy current (ISOSCOPE) or both (DUALSCOPE).

The instruments' modular design allows individual assembly of the appropriate measurement system for the respective measuring task. Besides differently equipped instruments, numerous high-precision probes are also available.

**DELTA SCOPE® FMP10 and FMP30** for coating thickness measurements on steel and iron.

**ISOSCOPE® FMP10 and FMP30** designed specifically for high-precision measurements of thin coatings on virtually all non-ferrous metals.

**DUALSCOPE® FMP20 and FMP40** for coating thickness measurements on virtually all metal substrates.

**FMP10 and FMP20** are entry-level models for professional mobile measurement technology, ideal for spot checks and control measurements.

They are easy to operate and have a rugged housing with a large, high-contrast graphics colour display and a USB interface, through which the measured values can be evaluated and recorded using the convenient FISCHER DataCenter software on a PC.

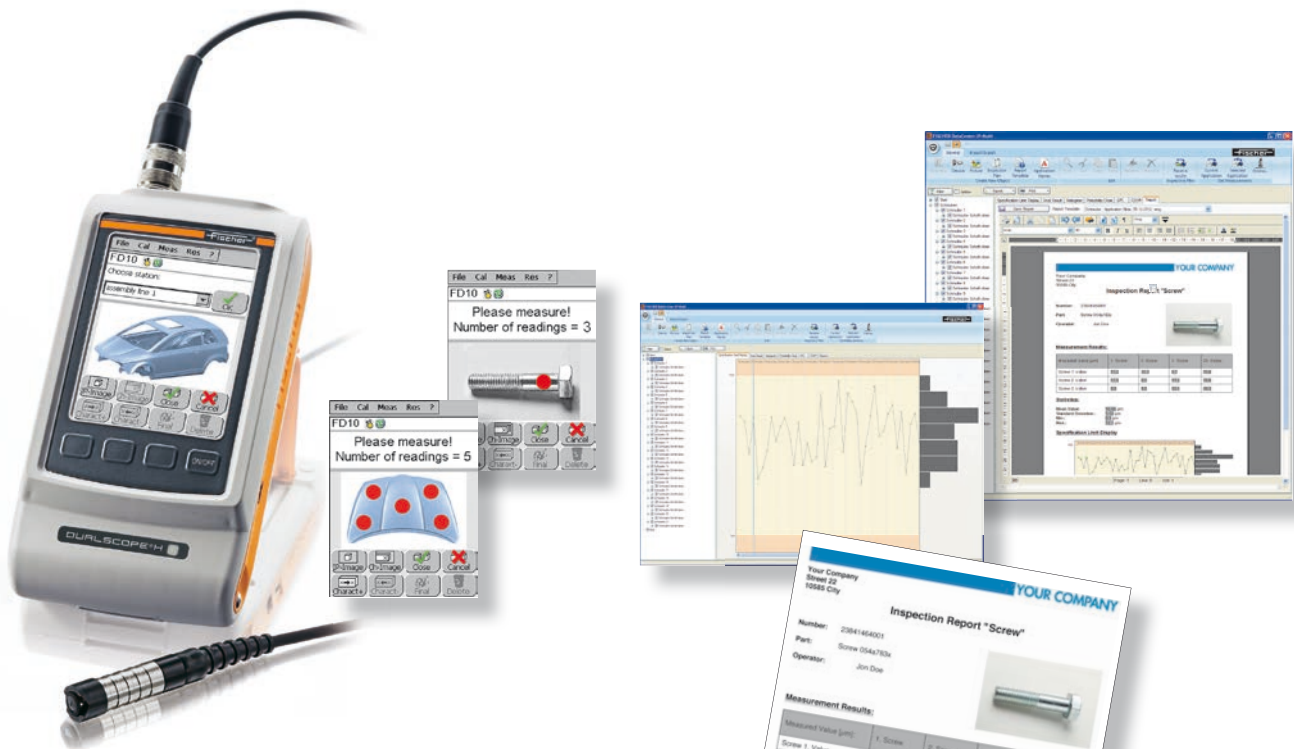
**FMP30 and FMP40** also offer various strategies for measurement capture, more memory for storing numerous, customer-specific measuring applications and up to 20,000 readings, as well as Bluetooth® data transfer. Extensive graphical and statistical evaluation capabilities make them well suited for complex measuring applications. In addition, measurements can be made according to IMO P5PC, SSPC-PA2, QUALANOD and QUALICOAT rules, which are pre-stored in the instrument.



Machine component: Zinc on iron

Anodised coating on aluminium

Zinc flake coating on steel disc brake



The **DUALSCOPE® FMP100** is a powerful and user-friendly tool suited for a wide variety of measurement challenges. Incorporating both magnetic induction and eddy current methods and outfitted with a wide range of high-precision probes, it is particularly useful for performing diverse measurement tasks under frequently changing conditions. Its Windows™ CE operating system with graphical user interface, high-resolution touchscreen display, memory capacity for storing several thousand measuring applications and extensive evaluation and statistical functions make it the perfect solution for professional coating thickness measurements. Whether used for automotive, electroplating or anodising applications, or for testing heavy-duty corrosion protection or fine coatings, this instrument meets the highest standards for precision and trueness in all situations.

The **DUALSCOPE® H FMP150** is further equipped with a third measurement principle, the magnetic method, which also makes it possible to take precise measurements of thick, nonmagnetic but conductive coatings on steel and iron, as well as nickel coatings on nonferrous metals.

With the optionally available inspection plan software, FISCHER DataCenter IP, individual test plans can be created on a PC and transferred to the measurement instrument. The operator is then guided step-by-step through the measurement sequence of the inspection plan, visually assisted by stored images, sketches and technical drawings. Once data acquisition is complete, the readings are sent back to the PC where they can easily be logged and extensively evaluated, thereby readying the handhelds for new measurements. In this way the compact and convenient FMP100 and FMP150 instruments turn into powerful, multi-functional data terminals.



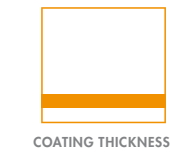
COATING THICKNESS



Measuring paint coating on steel

Measurement with support stand on curved anodised parts

Measurement of auto body paint thickness using the Dual Probe FD13H



COATING THICKNESS



### SR-SCOPE® RMP30-S

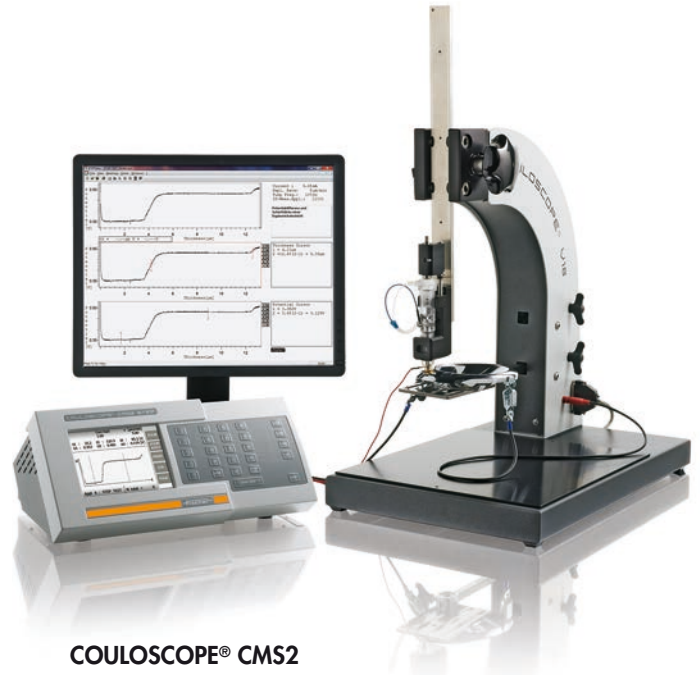
This instrument uses electrical resistance to determine the thickness of copper coatings on PC-boards in a non-destructive manner: ideal for multi-layers and thin laminates because there is no influence from lower layers or the back side.



### PHASCOPE® PMP10

Primarily used in the electroplating and PCB industry for quality control of metal coatings on various substrate materials, the PMP10 can precisely measure the thickness of nickel, zinc or copper coatings on steel, despite very rough surfaces, as well as the copper coatings on printed circuit boards – even in PCB through-holes.

The **PMP10 Duplex** was specifically developed for the automotive industry to measure duplex coatings (e.g. paint/zinc on steel): Both values are acquired in one measurement procedure and displayed separately. It can also measure paint coatings on aluminium.



### COULOSCOPE® CMS2

CMS2 instruments quickly measure nearly all metallic coatings – even multi-coatings – on any substrate material, with high precision. They work by de-plating using the coulometric method. Due to their ease of use and menu-based user interface, they are ideal for production monitoring in the electroplating industry or for incoming inspection of finished parts.

The **CMS2 STEP** is used for standard-conforming STEP test measurements of individual coatings and potential differences, e.g. for quality control of multi-layer nickel coatings.

STEP (Simultaneous Thickness and Electrochemical Potential determination) is a method for simultaneously measuring individual coating thicknesses and determining electrochemical potential differences between the individual layers of a nickel coating system. The coating thickness is measured according to the coulometric method; the potential profile is recorded using an AgCl-coated silver reference electrode.



SR-SCOPE® RMP30-S: Cu on printed circuit board

PHASCOPE® PMP10: Zn/Fe with a rough surface

COULOSCOPE® CMS2 STEP: Cr/Ni/Cu/ABS





### FISCHERSCOPE® MMS® PC2

The stationary multi-measurement system with built-in Windows™ CE and network capability is ideally suited for non-destructive, high-precision coating thickness measurements and material testing.

The MMS PC2 can be operated using either the large, high-resolution colour touchscreen or a keyboard and mouse. It features LAN and USB ports for integration into automated production processes. In addition, it can operate up to eight probes in parallel.

The modular design of the MMS PC2 not only allows for customised instrument configurations, it can be retrofitted as needed using any of the numerous modules and probes available for this purpose. Depending on the task, a variety of different measurement methods can be employed, such as eddy current, magnetic or magnetic induction, or electrical resistance. The thickness of nearly all coating materials on metal substrates can be measured, as well as metallic coatings on electrically non-conductive materials. It can also determine the conductivity of non-ferrous metals and the ferrite content in austenitic or duplex steel.

Using the **BETASCOPE®** module, which employs the beta backscatter method, the thickness of organic and metallic coatings can be determined on various substrate materials – indeed, practically any type coating on any substrate – as long as there is a difference of at least five atomic numbers between them. With the appropriate probe even soft layers and lubricating films can be monitored for quality control purposes, e.g. the thin organic nanocoatings on stainless steel (anti-fingerprint) or the anti-corrosion oils used in the production and processing of sheet metals.

Equipped with the modules appropriate for the measuring task at hand, the MMS PC2 can be utilised flexibly in incoming inspection, final inspection or in production. It offers extensive measurement data presentation capabilities as well as the FISCHER FDD software for continuous quality and process monitoring. Automated measurement runs are easy to set up, as the measuring system can directly control a motor-driven support stand or XY-stage and can be integrated via LAN and I/O module into automated manufacturing processes.



*Al stamping parts: Anodised coatings*

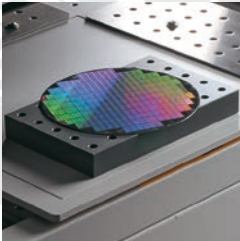
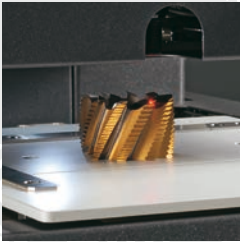


*Measuring an oil film on steel*



*Measuring the copper thickness on printed circuit boards*

## Coating Thickness Measurement and Material Analysis



Whether for high-precision coating thickness measurements or exact material analysis, the broad assortment of FISCHER X-ray fluorescence measurement systems has the optimal instrument for any application. In addition to many innovations and patents, the FISCHERSCOPE X-RAY product line integrates more than 30 years of experience and continued development.

Determining single or multiple coatings on the smallest structures or on large components, trace analysis according to RoHS, testing of jewellery and gold or inline measurements in continuous production – FISCHERSCOPE X-RAY instruments can do it all. In the laboratory as on the factory floor.

And the intelligence controlling these instruments is called WinFTM®. It not only makes operation easy, it sets the standard in functional diversity and precision.





**FISCHERSCOPE® X-RAY XUL® and XULM®**

The XUL-series instruments are compact X-ray fluorescence systems for coating thickness measurements and material analysis. Because the X-ray source and detector are underneath the measurement chamber, samples are simply positioned directly on the support table.

Despite their compact dimensions, the **XUL** instruments feature a large-volume measurement chamber and are ideal for testing electroplated parts such as screws, bolts or nuts or for measuring decorative coatings. The metal content of electroplating baths can also be analysed quickly and easily.

The **XULM** is designed for measurements on small structures. Equipped with a micro-focus tube and automatically changeable apertures and multiple filters, it is particularly well suited for measurements on delicate parts such as plugs, contacts and wires as well as for manual measurements on PC-boards. Therefore special PCB instruments with extended support plates are available.

**FISCHERSCOPE® X-RAY XAN®**

The user-friendly X-ray fluorescence measurement systems of the XAN series are perfect for material analysis in business and production, research and development.

Special **XAN** instruments equipped with proportional counter tube detectors and optimised for the requirements of the gold and jewellery industries allow fast, non-destructive tests for authenticity and can accurately determine the exact gold content. Detailed analyses of gold and precious metal alloys are straightforward.

Equipped with a silicon drift detector, the **XAN 250** instruments can analyse thin coatings, complex alloys and the composition of powders, liquids and dust – which is why they are ubiquitous in laboratories and testing institutes, as well as in precious metal refineries and customs offices. The instruments' excellent repeatability precision allows for accuracies comparable to cupellation.



COATING THICKNESS



MATERIAL ANALYSIS



Corrosion protection: Zn/Fe



Showerhead: Cr/Ni/Cu/ABS



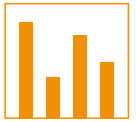
Gold jewellery



Gold content determination



COATING THICKNESS



MATERIAL ANALYSIS

### FISCHERSCOPE® X-RAY XDL® and XDLM®

The instruments of the XDL series are equipped with proportional counter tube detectors and are used in quality assurance, incoming inspections and production monitoring. They are also suited for measurements on large specimens with complex shapes due to the easily accessible measurement chamber. The XDL instruments can be equipped with simple support devices or various XY-stages and a Z-axis, and therefore can also be used for automated batch testing.

Typical applications are measurements of electroplating coatings as well as functional coatings in the electronics and semiconductor industries. XDL instruments can also quickly and precisely measure corrosion protection or decorative coatings such as chrome on nickel/copper. In addition, the composition of galvanic baths can be analysed.

The **XDLM**, with its micro-focus tube, is ideal for measurements on very small structures such as coatings on plug contacts and other electronic components.

### FISCHERSCOPE® X-RAY XDAL®

The XDAL measurement systems with silicon PIN detectors and micro-focus tubes provide reliable analysis results and coating thickness readings even for small concentrations and thin coatings. They are used in incoming goods inspection, production monitoring and in research and development. XDAL instruments are equipped with exchangeable apertures and filters and a fast, programmable XY-stage. This allows for automatic travel to defined measurement positions and automated batch measurements.

Typical applications for the XDAL include the analysis of hard material coatings, for example on drills and cutters, material analyses of alloys, and the measurement of very thin coatings in the electronics and semiconductor industries. Also "high reliability" examinations in aerospace technology or testing electronic products for RoHS compliance – for example, determining the lead content in solder layers – is possible with the XDAL.



Printed circuit boards:  
Au/Ni/Cu/PCB



Connectors: Au/Ni/CuSn6



HSS drills: TiN/Fe



PCB assemblies: Lead test



#### FISHERSCOPE® X-RAY XDV®-SDD

The XDV-SDD is designed to meet the highest demands in coating thickness measurement and material analysis. With its modern silicon drift detector it is particularly suited for the non-destructive determination of coatings with thicknesses of just a few nanometres and for precise trace analysis. It is ideal for measurements on PC-boards and electronic components according to RoHS and WEEE requirements, for the determination of complex multi-coating systems, as well as for measurements of electroplated or vapour-deposited coatings in the electronics and semiconductor industries. The phosphorus content in electroless nickel coatings can also be determined with the XDV-SDD.

In order to create ideal excitation conditions for every measurement, the XDV-SDD features electrically interchangeable apertures and six primary filters. It is universally applicable and, due to its fast, programmable XY-stage, also suitable for automated measurements, e.g. in quality control.

#### FISHERSCOPE® X-RAY XDV®-μ

The XDV-μ is equipped with innovative polycapillary X-ray optics to focus the X-rays, enabling both very small measurement spots and high excitation intensity. Thus, the XDV-μ is particularly well suited for the measurement of thin coatings and analysis on structures smaller than 100 μm. The silicon drift detector guarantees highly accurate analysis as well as good detection sensitivity. Reliable positioning and a razor-sharp presentation of even the smallest measurement spots are possible due to the high-resolution video optics.

The XDV-μ is perfect for high-precision measurements of coating systems on printed circuit boards, lead frames, thin wires and wafers, as well as for material analysis on small structures and components in the electronics and semiconductor industries. It is used mainly for research and development tasks in the laboratory, but also excels in production monitoring, for process qualification, and quality assurance.



COATING THICKNESS



MATERIAL ANALYSIS



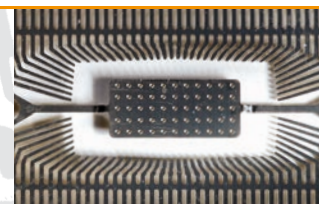
Passivation layers: Cr/Zn/Fe



Plug contacts: Au/Ni/CuSn<sub>6</sub>



Wire: Sn/Cu



Lead frame: Au/Pd/Ni/CuFe



### FISCHERSCOPE® X-RAY XUV® 773

The X-ray fluorescence measurement system XUV 773 is equipped with a large measurement chamber that can be evacuated. Together with the large-area silicon drift detector, it can detect fluorescence radiation with low energy down to about 1 keV. This enables in particular measurements of the elements sodium and magnesium, as well as the L-radiation of zinc, copper and nickel. Its large apertures – and subsequently high count rates – enable very low detection limits and very small coefficients of repeatability, thus achieving greater accuracy.

The XUV is particularly well suited for non-destructive, high-precision analyses of thin coatings and light elements. It can simultaneously detect up to 24 elements in the range from sodium (11) to uranium (92). Analysis can be performed in ambient air, helium or vacuum, so even organic or moist samples can be measured.

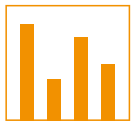


Not only is the XUV ideal for research and development, it is also appropriate for process qualification, quality assurance and production optimisation. Typical areas of application include the analysis of functional coatings in the electronics and semiconductor industries: for example, thin aluminium and silicon coatings on wafers. By measuring in vacuum, repeatability precisions of a few nanometres can be achieved for these coatings.

The XUV can also be used for general material analysis, such as in forensic investigations or for identifying trace elements in soil samples, as well as in the photovoltaic industry or for the analysis of gold and jewellery. Analysing the matrix of precious stones makes it possible to determine their type and origin, and therefore their authenticity and value.



COATING THICKNESS



MATERIAL ANALYSIS



Precious stone: Matrix  $Al_2O_3$ ,  $SiO_2$

Soil samples, ash, minerals

Wafer: Al/Si wafer



### FISCHERSCOPE® X-RAY for Inline Measurements

These X-ray fluorescence systems for continuous coating thickness measurement and analysis are specifically geared towards quality control in an ongoing manufacturing process.

### FISCHERSCOPE® X-RAY 4000

Equipped with a fast traversing unit, this series is ideally suited for taking measurements at several locations or when the measuring head needs to travel automatically and precisely.

The FISCHERSCOPE X-RAY 4000 instruments are used mainly in strip electroplating for the measurement on mass-produced and stamped parts. In addition, the hot-dip galvanisation on steel strips and metal coatings on foils can be measured precisely during production.



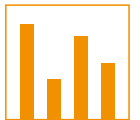
### FISCHERSCOPE® X-RAY 5000

This model series is specifically designed as a flange measuring head for integration into a production line. It allows for continuous, non-destructive inline analysis of alloys and the measurement of very thin coatings and coating systems on objects with large surface area directly in an ongoing manufacturing process. Using a cooled standard flange allows the instrument to be attached to a vacuum chamber, whereby the integrated cooling circuit enables measurements even on hot substrates.

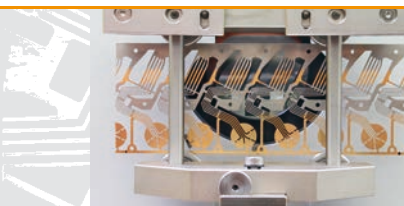
For example, in the photovoltaic industry, the FISCHERSCOPE X-RAY 5000 instruments can determine the thickness and composition of CIGS, CIS, or CdTe coatings on different substrate materials such as glass, metal or plastic. They are also used for the analysis of thin coatings on metal strips and foils as well as for process monitoring at sputter and electroplating plants.



COATING THICKNESS



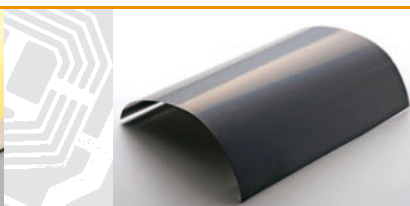
MATERIAL ANALYSIS



Sensor contacts: Au/Ni/CuFe



Full strip: Au/Ni/CuSn6



CIGS: CuInGaSe/Mo/foil



## Material Testing

Material failure can have disastrous consequences. For this reason, materials and workmanship must be tested for safety, reliability and longevity.

Whether for determining the quality of weld seams in steel constructions or sealants on anodised façade elements, testing tank coatings or aluminium airplane structures for fatigue – FISCHER's proven measurement technology is in demand.







### FERITSCOPE® FMP30

A compact instrument for standards-compliant, non-destructive determination of the ferrite content in austenitic welded products and in duplex steel. Using the magnetic induction method, ferrite content between 0.1 and 80% Fe or in the ferrite number range from 0.1 to 110 FN can be quickly and easily measured in situ.



### SIGMASCOPE® SMP350

For measuring the electrical conductivity of non-ferrous metals or non-magnetisable metals such as aluminium, copper and stainless steel according to the eddy current method. Moreover, based on the measured conductivity, conclusions can be drawn about the hardness and strength of heat-treated materials. Heat damage and material fatigue can be determined as well.



### ANOTEST® YMP30-S

The YMP30-S is used for testing sealants on anodic coatings on aluminium. It measures the admittance according to standards and, due to its handy design, is ideally suited for onsite applications.



### HV5, HV20 and HV40

For finding pores and defects, cracks and inclusions in linings and coatings made of enamel, paint, rubber and bitumen, also in containers made of GFK or other plastics.



FERITSCOPE® FMP30: Ferrite content measurement on weld seams

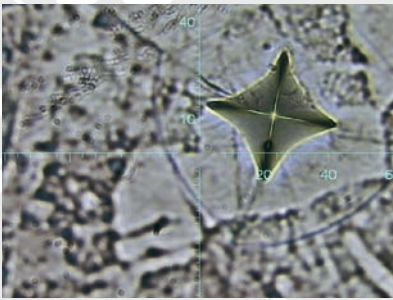
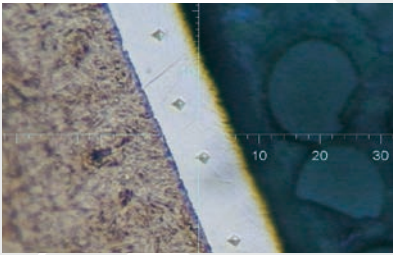
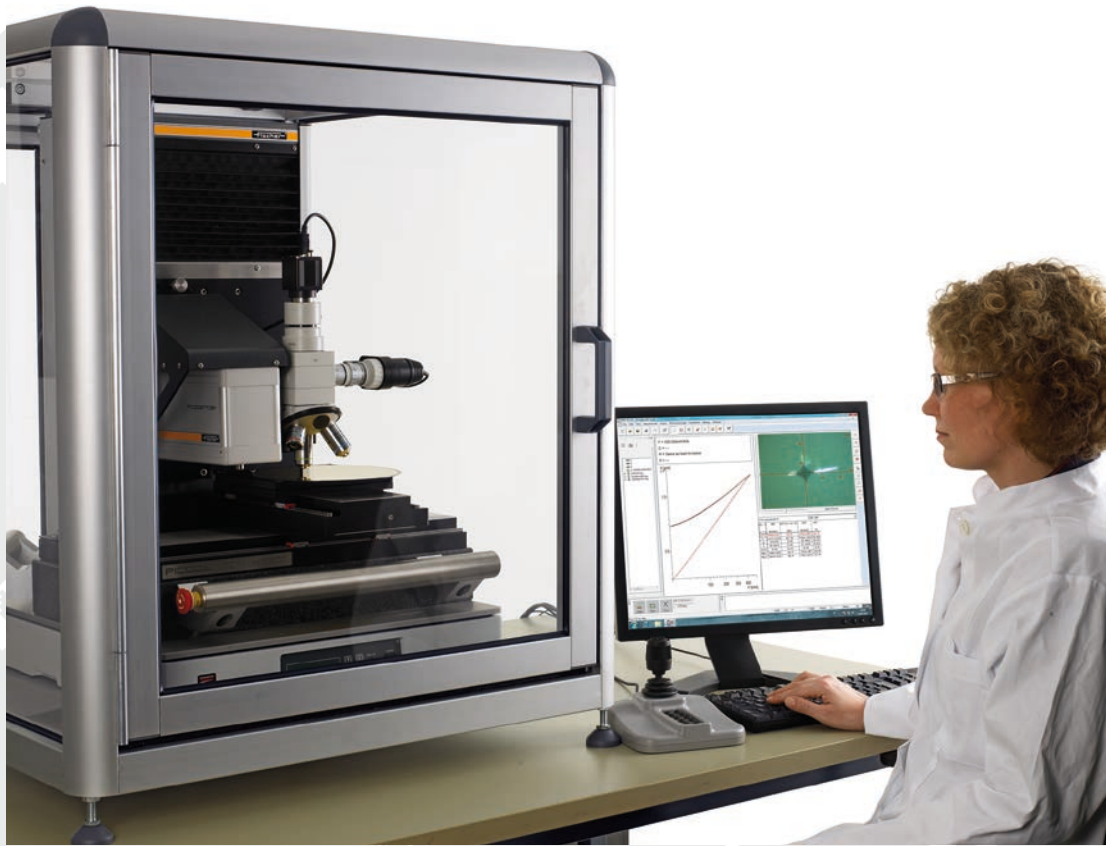


ANOTEST® YMP30-S: Testing the seal of anodised coatings



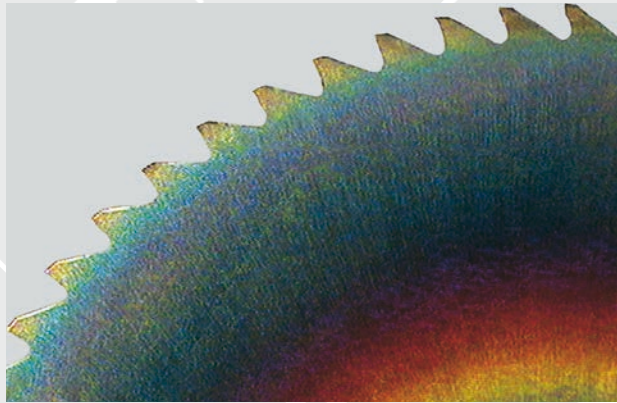
Measuring the electrical conductivity on aluminium parts

## Microhardness Measurement



The tough demands of modern surface technology – to characterise very hard, very thin or visco-elastic coatings and materials – require correspondingly powerful measurement methods and systems.

The FISCHER microhardness measuring instruments are capable of making quick, precise and effective measurements where classic methods reach their limits – in the nanometre range.





### Microhardness Measurement Systems

User-friendly and powerful measurement systems for the precise determination of Martens Hardness according to the load/indentation depth method. In addition, other important materials characteristics such as the Vickers Hardness, the elastic modulus of indentation or the creep behavior can be determined. Main areas of application include paint coatings, electroplated coatings, hard material coatings, polymers, metals and coatings on glass.

#### FISCHERSCOPE® HM2000

The HM2000 series has a test load range between 0.1 and 2000 mN and a distance resolution of less than 100 pm. A support stand model, the **HM2000 S** is an entry level instrument for measuring microhardness and is very well suited for easy-to-position specimens. For automated measurement processes, the **HM2000** with its programmable XY-stage and motorised Z-axis is the appropriate solution. Systems for vibration absorption and various specimen positioning devices are available for both versions.



#### PICODENTOR® HM500

The **HM500** can determine the Martens Hardness, elastic characteristics and material parameters even in the nanometre range. Its high-precision distance resolution in the picometre range and load generation of just a few micronewtons allow for the characterisation of ultra-thin coatings or surface areas with regard to their mechanical properties.

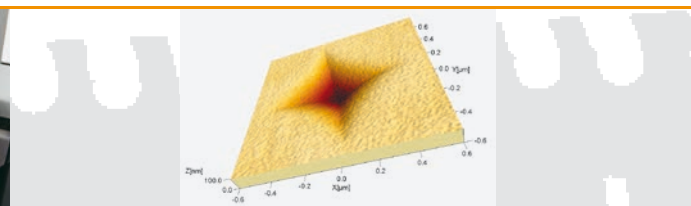
Very thin coatings on sensors, glass and data carriers, ion-implanted surfaces and matrix effects in alloys are among the typical applications of the HM500. With its high-precision, programmable XY-stage for sample positioning, active vibration absorption table and enclosed test chamber, the HM500 is suitable both for scientific evaluations in the laboratory as well as for process and quality control in manufacturing. To visualise even the tiniest material changes in the nanometre range, the HM500 can be extended with an optional AFM (atomic force microscope).



*Eyeglasses: Scratch-proof protection coatings*



*Wafer: Hardness determination on the gold coating*



*Hardness indentation on a glass sample measured with AFM*



For virtually every industrial application there is an appropriate FISCHER probe available. These are high-precision devices tailored to the various measuring applications. After years of continuous development and innovation, the FISCHER probe program now encompasses several hundred probes designed to deliver optimal results with the highest accuracy. Of course, FISCHER also offers comprehensive, expert consulting services to assist you in selecting the appropriate probe for any given measurement application.

FISCHER probes are extremely robust and wear-resistant – they deliver precise measurement results over a long period of time even on hard surfaces and after many measurement cycles. All probes are developed and manufactured in-house according to strict quality standards. Each probe undergoes individual factory calibration to ensure the highest possible degree of trueness.

Special probes have been developed for the eddy current method that can compensate for the influence of curvature on rounded specimens. Furthermore, FISCHER's patented conductivity compensation – used in all eddy current probes – makes it possible to adjust for different conductivities of the substrate material, e.g. aluminium, eliminating time-consuming onsite calibration on the actual substrate material while simultaneously achieving very high levels of trueness.

### Probes for Special Applications

When particularly challenging measuring applications – for which only a customised probe can provide precise measurement results – come up, FISCHER experts can develop (upon request) individual probe designs that offer maximal repeatability precision and trueness.



*Cavity probe V3FGA06H for EPD coatings in hard-to-reach cavities, eliminating the need to destroy for example automotive body parts for measuring*

## Accessories

Extensive accessories complement the FISCHER product assortment. Manually and motor-driven support stands, sample holders in a wide variety of designs, protective sleeves for instruments, adapters and much more – everything to facilitate day-to-day use.



*Motorised support stand for automated, reproducible positioning of the probe on the specimen, resulting in a significantly improved repeatability precision*



*Electrolyte solution measurement cell for the quick and easy analysis of electroplating baths*



*Support for cross section polished samples with a diameter of 20, 30, 40 or 50 mm*



*Wristband for MPOR-FP instruments for one-hand operation*

## Calibration and Certification

In addition, FISCHER offers a wide range of calibration standards for each measurement method. These include, for example, pure element foils, single and dual layer standards as well as complete standard sets for different applications, including standards for measuring ferrite content or conductivity, as well as calibration standards made of different materials for all common coating thickness applications.

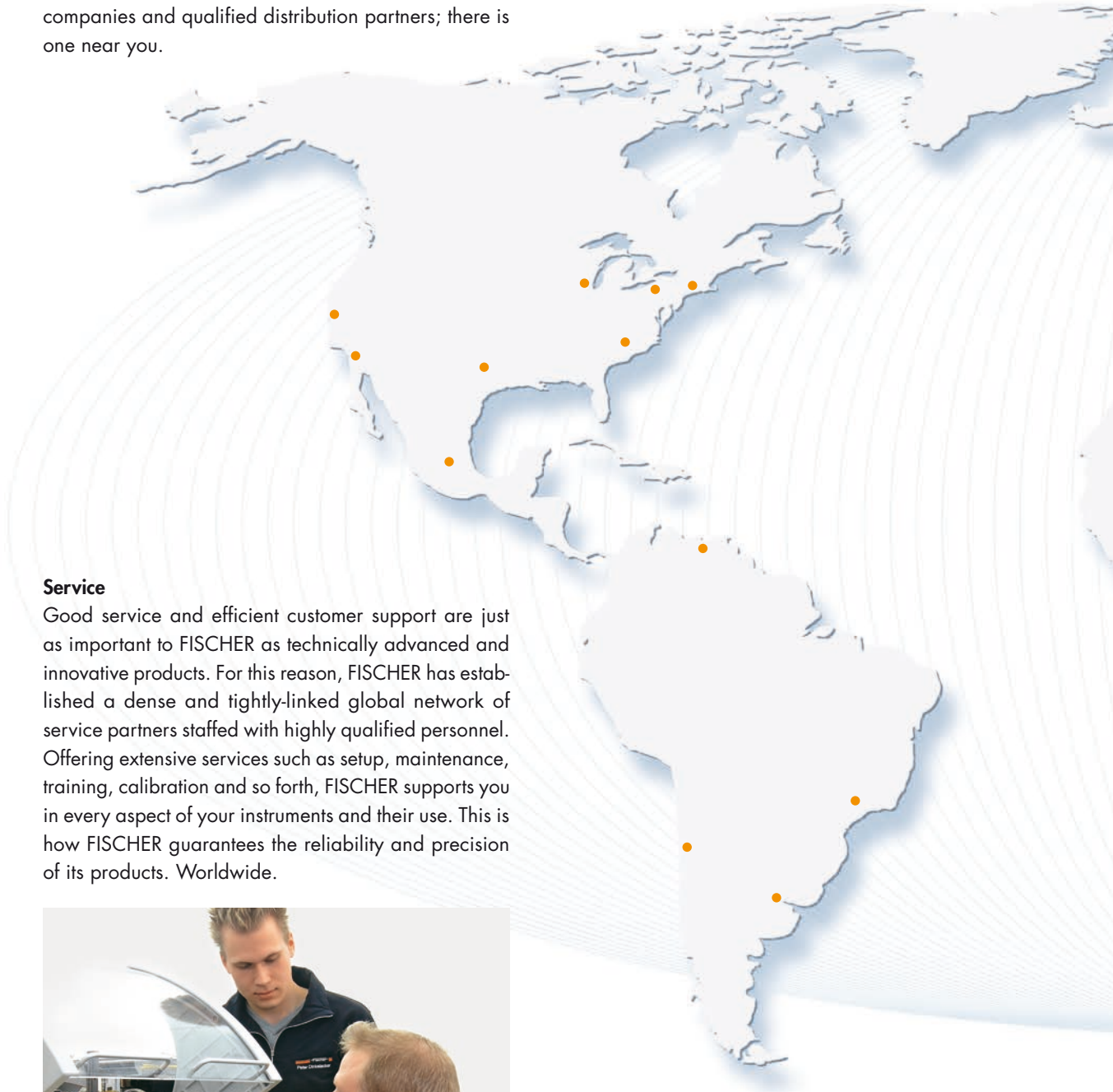
FISCHER is able to offer certified, traceable calibration standards since it is approved as a calibration laboratory for mass per unit area measurements by the German Akkreditierungsstelle GmbH [German Accreditation Body] according to DIN EN ISO/IEC 17025:2005.



## FISCHER worldwide

Knowing what their customers need and want is a must for anyone trying to succeed in today's globalised markets. Because we at FISCHER think of ourselves as partners to our customers, we attach great importance to providing them excellent advice and working in close cooperation with them. This is why the Helmut Fischer Group maintains its worldwide presence through own companies and qualified distribution partners; there is one near you.

In keeping with our high standards of quality and customer satisfaction, all members of the Helmut Fischer Group are certified according to DIN EN ISO 9000.



### Service

Good service and efficient customer support are just as important to FISCHER as technically advanced and innovative products. For this reason, FISCHER has established a dense and tightly-linked global network of service partners staffed with highly qualified personnel. Offering extensive services such as setup, maintenance, training, calibration and so forth, FISCHER supports you in every aspect of your instruments and their use. This is how FISCHER guarantees the reliability and precision of its products. Worldwide.



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### Application Laboratories

More and more, demanding applications require highly qualified application advice. FISCHER addresses this need through its strategically located Application Laboratories around the world (Germany, Switzerland, China, USA, India, Japan and Singapore).



### Training and Seminars

Because we want you to derive maximum benefit from our products, FISCHER's specialists are happy to share their practical know-how: starting with seminars and training sessions on metrological basics, through the optimal use of the instruments, to expert symposia on special topics.

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