FISCHERSCOPE®
X-RAY SERIES

X-ray fluorescence for coating thickness measurement and material analysis

> Fischer impresses with their high-precision measuring instruments, application consulting and comprehensive service. For us, they are a permanent partner for measuring coating thickness.
>
> *Beate Brand, Head of Quality Lab at KNEISSLER Brüniertechnik GmbH, 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, structures are shrinking 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 X-ray fluorescence analysis. With our FISCHERSCOPE® X-RAY systems, we offer you first-class measurement solutions that make your work on site measurably easier and actively support you in improving the quality of your products.

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.

INHALT

FISCHER TRUSTED BRANDS

FISCHERSCOPE®
GOLDSCOPE SD®
WinFTM®
XAN®
XDAL®
XDL®
XDLM®
XDV®
XUL®
XULM®

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

CALIBRATION EX WORKS

BUILT TO LAST. ROBUST CONSTRUCTION FOR PARTICULARLY HIGH DEMANDS

Market-leading software. The world's most powerful application software for coating thickness measurement and material analysis

X-ray optics made by Fischer. As one of only two manufacturers of polycapillary optics worldwide, we enable X-rays to be focused on a very small measuring spot

OPTIMUM MEASURING DIRECTION. MEASUREMENTS POSSIBLE FROM ABOVE, BELOW OR FLEXIBLY

BROADLY POSITIONED. THE RIGHT DEVICE SOLUTION FOR EVERY REQUIREMENT

ELEMENT ANALYSIS OF UP TO 24 ELEMENTS SIMULTANEOUSLY

Powerful Detectors. Choice of three different detector types for the optimal solution of your measurement task. proportional counter tube, silicon PIN diode and silicon drift detector

SERVED TO SUIT. THREE TABLE CONFIGURATIONS AVAILABLE FOR YOUR NEEDS

Comprehensive service. From personal advice and preventive maintenance, including repair and spare parts management, to training on site

Particularly safe. Full-protection instruments in accordance with current radiation protection legislation

MADE IN GERMANY. HIGHEST QUALITY STANDARDS IN FISCHER PRODUCTION GUARANTEED

User-friendly. Proven and intuitive operating concept for easy handling of the device

Long-lasting X-ray tubes. Selection of different X-ray tubes for optimal measurements of your application

Many applications, a solution for everyone

Printed circuit boards: Our XRF systems comply with the IPC-4552-A/B and IPC-4556 standards. The measurement results are accurate and reproducible for the specified thickness range. HASL, electroless nickel and other critical coating systems can be measured quickly and accurately.
Applications: ENIG, ENEPIG, phosphorus content determination, solder alloys

Electronic components: Reliably control electronic components, such as compositions and layer thicknesses of lead-free solders during reflow soldering and analyses on SMD components.
Applications: Solder pads: Gold, silver, tin/tin alloy layers, under-nickel plating, palladium or palladium alloy layers

Lead frames: Determine the layer thickness and composition of complex multilayer coating systems on lead frames with repeatability and non-destructive accuracy.
Applications: Thinnest gold, silver and palladium coatings, solder alloys

Large components: Our instruments offer you the possibility to measure large samples quickly and reliably.
Applications: Material analysis, zinc (nickel) on iron, chrome coating systems, electroless nickel on aluminum

Tools: Hard coatings only function efficiently as wear protection if the coating thickness, composition and surface hardness are correct. Testing instruments from Fischer use various methods, such as X-ray fluorescence, to precisely determine the coating thickness of TiN coatings and other hard metals or carbide coatings.
Applications: Hard chrome, titanium nitride, titanium carbonitride, Titanium aluminum nitride, chromium nitride, zirconium nitride

Connector contacts: Functional surfaces on connector contacts from a size of approx. 20 µm can be measured precisely and non-destructively. These could be, for example, contact points, crimping surfaces or press-fit zones.
Applications: (Hard) gold, silver, tin (alloy) layers, under-nickel plating, base material analysis

Metal finishing: Measure the coating thickness and composition of the corrosion protection layer non-destructively and reliable. Our instruments also determine the metal concentration in your electroplating bath easily and with high precision.
Applications: Zinc, copper, ZnNi, nickel, chromium, gold, palladium, rhodium, decorative surfaces

Semiconductor / Wafer: Clean room suitable, fast and precise XRF measuring instruments for layer thickness measurement and structural analysis of modern 2.5D-/3D-packaging solutions. The instruments are available as benchtop or fully automated.
Applications: Solder bumps, thin film metallizations, smallest structures

Jewelry: Whether in the watch industry, in the gold trade or in the jewelry sector – wherever precious metals are used, Fischer instruments have proven their worth thanks to non-destructive and highly precise measurements.
Applications: Silver, gold, palladium, platinum, nickel, titanium

Sanitary: Clear results in a short time: Precise measurement of all common multilayer systems. In our product portfolio of X-ray fluorescence analysis instruments, we have just the right instrument for you.
Applications: Chromium coating system, complex geometries, zinc die casting, copper alloys

RoHS: Measuring instruments for the detection of lowest concentrations of heavy metals thanks to the sensitive silicon drift detectors. The measuring process is non-contact, non-destructive and simple. In addition, our measuring instruments offer a wide range of options for documenting the measurement results and generating reports. Our instruments measure quickly compared to chemical analysis and are excellent for screening.

Decorative chromium coatings: To ensure that trim is visually flawless not only at delivery but also after years of use, the layer structure must be monitored with regard to the thicknesses of the individual layers.
Applications: Decorative chrome coating systems on plastic substrates

ENVIRONMENT

UNIVERSAL MEASURING ENVIRONMENTS.

- Production: Can be integrated in various production environments
- Clean room: Manufacturing under conditions of the clean room class 100
- Laboratory: Research, development, medical laboratories and pharma
- Quality assurance: Incoming goods inspection and process control
- In retail: Testing at the purchase of precious metals
- On site: Mobile use with portable measuring device indoors and outdoors

CUSTOMIZED – THE OPTIMAL DEVICE SOLUTION FOR YOUR APPLICATION.

- Handy X-ray fluorescence instruments
- Small benchtop instruments for places with little space
- Large instruments modularly scalable with plenty of space for your samples, for smallest measuring spots, (partial) automation possible
- Automated systems – individually tailored to your requirements

DIMENSION

MEASURING DIRECTION

THE RIGHT MEASURING DIRECTION FOR EVERY APPLICATION.

Top down

- Image recognition with autofocus possible
- Precise positioning
- Automated measuring equipment monitoring
- Large measuring area

Bottom up

- Time saving since focusing is often not necessary
- Compact instrument dimensions
- Optional with manual table

Flexible

- Measurement on very large components possible
- Most compact instrument
- Mobile measurements possible
- Battery operation

Fixed table

- Cost-effective
- Compact

Manual XY table

- Simple and accurate positioning of the sample by hand
- Manual approach to multiple samples

Automatic XY table

- Controllable, also partially automated, via software
- Several samples can be measured in succession
- Automated image and pattern recognition via software
- Programming of measuring points, line or area scans

SERVED TO SUIT.

MEASURING TABLE

DETECTOR

THE RIGHT DETECTOR FOR EVERY APPLICATION.

Proportional counter tube

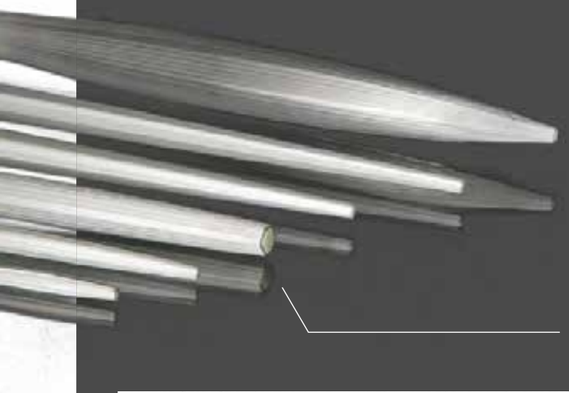
- For coating thickness measurements and simple material analysis
- Very large active detector area for high count rates
- Insensitive to the sample-orientation and the measuring distance
- Ideal for complex shapes with recesses and different measuring distances

Silicon PIN diode (PIN)

- For demanding coating thickness measurements and material analysis
- Ideal for measuring thin layers
- High energy resolution

Silicon drift detector (SDD)

- Measurement in the nanometer range and of complex multilayer tasks
- Highest energy resolution and detection sensitivity
- Phosphorus determination of NiP coatings and RoHS screening
- Best for measurement of light elements (Al, Si, P, Cl)



- Smallest spot sizes down to 10 µm* for measurements on smallest components and microstructures
  * Spot size: Full width at half maximum (FWHM) Mo-Kα
- The microfocus of the polycapillary optics amplifies the X-ray beam up to 10.000 times compared to collimator optics
- Instruments with polycapillary lenses are characterized by short measuring times when measuring smallest structures
- Developed and produced in-house for best quality

HIGH INTENSITIES FOR SMALLEST MEASURING SPOTS.

POLYCAPILLARY OPTICS

SOFTWARE

THE MOST COMPREHENSIVE SOFTWARE ON THE MARKET.

WinFTM®

The world's most comprehensive and powerful XRF software for coating thickness measurement, material and bath analysis with market-leading measurement accuracy.

Get more information on page 50-51.

- Distance-dependent measured (DCM) value correction without additional calibrations
- Quick and convenient adjustment of the measuring distance, also stepless
- Measurements with the smallest possible distance and thus optimized counting rate
- Simple measurement of complex geometric shapes and in recesses
- Absolute safety: Switch-off plate and light barrier protect the detector from component collision – and thus your investment

SIMPLE AND QUICK ADJUSTMENT OF THE MEASURING DISTANCE.

DISTANCE CONTROL

PRODUCT PORTFOLIO

Measuring direction	View	Product family	Short characteristics	Detector	Primary filter	Apertures	Aperture type/size *	C-slot	Page
Measuring bottom up		**XULM®** 240 **XUL®** 220	Flexible measuring devices for coating thickness measurement of filigree parts like plugs. contacts. wires or smaller circuit boards as well as for the determination of the metal content of electroplating baths and the composition of simple alloy layers	Proportional counter tube Proportional counter tube	3 1	4 1	Ø 0.1 / 0.2 mm; 0.05 × 0.05 mm; 0.2 × 0.03 mm* 0.3* / 0.2 / 0.3 × 0.3 / 0.3 × 0.05 / 0.2 × 0.03 mm	✓	**18**
		**XAN®** 215 220 / 222 250 / 252	Universal instruments for fast. precise metal and gold analysis. coating thickness measurement and RoHS screening (XAN® 250)	PIN SDD SDD	- 1 6	1 1 4	Ø 1 mm* Ø 1 mm* Ø 0.2 / 0.6 / 1 / 2 mm*	–	**20**
		**GOLDSCOPE SD®** 510 / 515 520 550	Special instruments for analysis and verification of gold and other precious metals	PIN SDD SDD	- 1 6	1 1 4	Ø 1 mm* Ø 1 mm* Ø 0.2 / 0.6 / 1 / 2 mm	–	**22**
Measuring top down		**GOLDSCOPE SD® 600**	Special instrument for fast. cost-effective and non-destructive analysis of jewelry. coins and precious metals. also suitable for larger parts	SDD	3	4	Ø 0.2 / 0.6 / 1 / 2 mm*	–	**24**
		**XDL®** 230	Robust instrument for quality control of galvanized bulk parts and for bath analysis	Proportional counter tube	1	1	Ø 0.3 mm*	✓	**26**
		**XDLM®** 237 PCB 220 PCB 200 / 210	Universal instruments for the inspection of small parts and small structures. for example in the electronics industry. for measurements of light metals. hard coatings and thin electroplated coatings; special solutions for printed circuit boards possible	Proportional counter tube	3 1	4 1	Ø 0.1 / 0.2 mm 0.05 × 0.05 mm; 0.2 × 0.03 mm* Ø 0.1 mm*	✓	**26** **38 (PCB)**
		**XDAL®** 237 PCB 237 SDD	Model series for applications in the area of thin and very thin coatings; also for material analysis (e. g. RoHS screening); special solutions for printed circuit boards possible SDD version with high count rates for highest precision and shorter measuring times	PIN SDD	3 3	4 4	Ø 0.1 / 0.3 / 0.6 mm 0.5 × 0.15 mm*	✓	**28** **30** **36 (PCB)**
		**XDAL® 600**	Easy-to-use and compact measuring instrument. specialized in the measurement of thin and very thin layers; also for material analysis (including RoHS screening)	SDD	3	4	Ø 0.1 / 0.3 / 1 / 3 mm*	–	**24**
		**XDV®-SDD**	Powerful measuring device for universal use for the inspection of very thin or complex layers up to RoHS screening at very low detection limits	SDD	6	4	Ø 0.2 / 0.6 / 1 / 3 mm*	–	**30**
		**XDV®-µ** **XDV®-µ LD** **XDV®-µ PCB** **XDV®-µ WAFER**	Model series optimized for microanalysis for measurement on smallest components and structures; also for checking complex multilayer systems; special solutions for wafers. lead frames and printed circuit boards possible	SDD	4	Polycapillary optics	Ø 20 µm Standard** Ø 20 µm halofree** Ø 10 µm halofree** Ø 60 µm halofree** Ø 50 µm halofree**	✓	**36, 38**
Mobile measuring		**XAN® 500**	Flexible handheld instrument for precise coating thickness measurement and material analysis on bulky parts or in hard-to-reach places	SDD	1	1	Ø 2 mm	–	**40**
		Customized solution and automation	Modular XRF benchtop instrument scalable. tailored to your requirements FISCHERSCOPE® X-RAY 5000 series. 4000 series and FISCHERSCOPE® XAN® LIQUID ANALYZER						**42 - 49**

* Standard size, optional sizes on request, ** Full width at half maximum (FWHM) (for Mo-K_α)
Products may vary based on model or features

Get advice from our experts! sales@helmut-fischer.com

FISCHERSCOPE® X-RAY XULM®
FISCHERSCOPE® X-RAY XUL®

Quick-measure design. The sample is placed and ready for measurement in just a few steps

Good prospects. Largest measurement window on the market

Also for large samples. Hood with C-slot allows large, flat samples

Testing of multiple measuring points. Even with large-area samples, measuring points are possible on the entire sample area

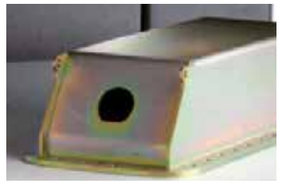
Balanced. Optimal cost-benefit ratio

Commissioning. Extremely fast and simple


Connectors

Entry-level model with a focus on time saving.

The FISCHERSCOPE®X-RAY XULM® and XUL® benchtop devices are the right solution for fast coating thickness determination in electroplating. There, a large number of samples must pass through quality control as efficiently as possible. Equipped with the microfocus tube and the proportional counter tube detector, the device allows short measuring times, even at large measuring distances and for parts with complex geometries. An intuitive control panel on the front of the unit further simplifies handling.


Corrosion protection: Zn/Fe


Fittings: Ni/Cu/Fe

With a measuring spot of 0.1 mm diameter, the robust FISCHERSCOPE® X-RAY XULM® and XUL®devices are perfectly suited for measuring contacts, connectors, wires, PCBs and other galvanized surfaces. Another common application is in the field of corrosion protection.

Features

- Robust entry-level instruments for coating thickness measurement of galvanized parts and determination of metal content in electroplating baths
- Measuring direction with measuring bottom up
- Microfocus-tube
- Fixed or 4-fold changeable apertures
- Fixed or 3-fold changeable filter
- Proportional counter tube detector for short measuring times, particularly large measuring distances and complex geometries
- Up to 17 cm sample height possible
- Fully protected instruments with type approval according to current radiation protection legislation

Video:
Scan the QR code and find out more about the **FISCHERSCOPE® X-RAY XULM®**.

Video:
Scan the QR code and find out more about the **FISCHERSCOPE® X-RAY XUL®**.

FISCHERSCOPE® X-RAY XAN®

Quick-measure design. The sample is placed and ready for measurement in just a few steps

Versatile. For trade, industry and laboratory applications

Digital pulse processor DPP+. Even shorter measuring times with the same standard deviation* (not available with XAN® 215)

RoHS analysis. Reliable determination of hazardous substances

Commissioning. Extremely fast and simple

* Compared to the DPP.

Noble metal inspection

The system for a wide range of applications.

The focus of the FISCHERSCOPE® X-RAY XAN® family is on fast and precise material analysis of precious metals and gold alloys. In addition, these instruments are used for the determination of heavy metal trace elements and other hazardous substances within the scope of the RoHS directive. This is particularly important for electronics and other manufacturing industries.

The XAN® 215 with a powerful PIN detector is suitable for analyzing simple gold alloys that contain only a few other elements such as silver and copper. For more complex alloys, instruments with a silicon drift detector (e.g. XAN® 220) are a better choice. With their much higher resolution, they can distinguish between gold and platinum, for example in the analysis of dental alloys and melted precious metal alloys.

RoHS screening also requires higher resolutions as well as different primary filters. Ideal for this: XAN® 250 with fixed sample support or the XAN® 252 with manually operated XY stage.

Adjusting the sample

Video image displays the measuring spot exactly

Features

- Universal instrument for metal and precious metal analysis, coating thickness measurement on simple shaped samples and RoHS screening
- XAN form factor with measuring bottom up
- Microfocus tube with tungsten anode
- 4-fold changeable apertures (XAN® 250, 252)
- 6-fold changeable filter (XAN® 250, 252)
- Various semiconductor detectors ensure very good detection accuracy and high resolution: silicon PIN and silicon drift detector
- Digital pulse processor DPP+ for higher count rates and significantly reduced measuring times
- Different measuring table options: fixed or manually operable
- Up to 17 cm sample height possible (XAN® 222, 252)
- Fully protected instrument with type approval according to current radiation protection legislation (XAN® 215, 220, 250)

Video:
Scan the QR code and find out more about the **FISCHERSCOPE® X-RAY XAN®**.

GOLDSCOPE SD®

Your safety. Best measuring performance for your precious metal alloys

Quick-measure design. The sample is placed and ready for measurement in just a few steps

Versatile. Ideal for pawnshops, gold trading, testing laboratories and jewelry manufacturers

Digital pulse processor DPP+. Even shorter measuring times with the same standard deviation*

Balanced. Optimal cost-benefit ratio

Commissioning. Extremely fast and easy, measuring tasks are already pre-programmed

* Compared to the DPP.

Gold jewelry

Analysis, value determination and authenticity testing.

With the GOLDSCOPE SD® family, Fischer offers tailored solutions for the non-destructive testing of gold and precious metals. All GOLDSCOPE SD® models are equipped with the WinFTM® software, which has the most important measuring tasks for the testing of gold and precious metals.

The GOLDSCOPE SD® family offers the right solution for your testing needs: Entry-level instruments with silicon PIN detectors are intended for use in stores and pawnshops to check the composition of jewelry and dental gold. The GOLDSCOPE SD® 510 model is particularly space-saving: the laptop can be easily placed on top of the device.

For testing laboratories and jewelry manufacturers, the series offers instruments with a silicon drift detector and changeable apertures. Thus, the GOLDSCOPE SD® family also meets sophisticated demands.

Authenticity testing

Determination of value

Features

- Compact and robust benchtop instrument for fast, cost-effective and non-destructive analysis of jewelry, coins and precious metals
- Hardware and software aligned to measuring tasks related to gold and precious metals
- Especially space-saving with the GOLDSCOPE SD® 510 version
- Measuring direction with measuring bottom up
- 4-fold changeable apertures (GOLDSCOPE SD® 550)
- 6-fold changeable filter (GOLDSCOPE SD® 550)
- Various semiconductor detectors ensure very good detection accuracy and high resolution: silicon PIN and silicon drift detector
- Digital pulse processor DPP+ for higher count rates and significantly reduced measuring times
- Fully protected instrument with type approval according to current radiation protection legislation

Video:
Scan the QR code and find out more about the **GOLDSCOPE SD®**.

GOLDSCOPE SD® 600
FISCHERSCOPE® X-RAY XDAL® 600

Your safety. Best measuring performance for your precious metal alloys

Quick-measure design. The sample is placed and ready for measurement in just a few steps

Versatile. Ideal for pawnshops, gold trading, testing laboratories and jewelry manufacturers

Digital pulse processor DPP+. Even shorter measuring times with the same standard deviation*

Balanced. Optimal cost-benefit ratio

Commissioning. Extremely fast and easy, measuring tasks are already pre-programmed on the XDAL® 600

Availability depending on region and country.

* Compared to the DPP.

Gold jewelry

Connectors

Analysis, value determination and authenticity testing.

GOLDSCOPE SD® 600

The GOLDSCOPE SD® 600 is tailor-made for non-destructive gold and jewelry testing as well as precious metal analysis. Predefined measurement tasks (gold setup) simplify the application for you. The silicon drift detector ensures high-resolution analyses of alloys and layers such as gold on sterling silver or rhodium on gold alloys.

Features

- Robust benchtop instrument for analysis of jewelry, coins and precious metals
- Measuring direction with measuring top down
- Microfocus tube with tungsten anode
- 4-fold changeable apertures
- 3-fold changeable filter
- Silicon drift detector 20 mm^2 for highest precision on thin layers as well as peltier cooling
- Digital pulse processor DPP+ for higher count rates and significantly reduced measurement times
- Manually adjustable sample stage for fast and easy sample positioning

FISCHERSCOPE® X-RAY XDAL® 600

The FISCHERSCOPE® X-RAY XDAL® 600 is designed for non-destructive measurement of very thin layers and material analysis. This instrument is characterized by its compact design, simple handling and operation with a silicon drift detector that allows for the highest performance.

Features

- Universal instrument for measurement on smallest structures, very thin multilayers, functional layers and very thin coatings ≤ 0.1 µm
- Measuring direction with measuring top down
- Microfocus tube with tungsten anode
- 4-fold changeable apertures
- 3-fold changeable filter
- Silicon drift detector 20 mm^2 for highest precision on thin layers as well as peltier cooling
- Digital pulse processor DPP+ for higher count rates and significantly reduced measurement times
- Manually adjustable sample stage for fast and easy sample positioning

FISCHERSCOPE® X-RAY XDL®
FISCHERSCOPE® X-RAY XDLM®

Quick-measure design. The sample is placed and ready for measurement in just a few steps

Also for large samples. Hood with C-slot

Built to last. Robust design for measurement on mass-produced parts

Tailor-made. Different models offer the optimal solution for your application

Testing of multiple measuring points. Even with large samples, measuring points are possible on the entire sample surface

Commissioning. Extremely fast and simple

Galvanic coatings

Your ticket into automated measurement.

The FISCHERSCOPE® X-RAY XDL® and XDLM® instruments are closely related to the FISCHERSCOPE® X-RAY XULM®. While the detectors, X-ray tubes, apertures and filter combinations are identical with the XULM®, the XDL® and XDLM® devices measure top down.

Ideally suited for the inspection of galvanized mass-produced parts and bath analysis, the XDL® and XDLM® devices offer various measuring table options.
The latter can be used for automated series testing.

Corrosion protection: Zn/Fe

Connectors: Au/Ni/CuSn6

While the XDL® device has a standard X-ray tube, its sister model XDLM® is equipped with a microfocus tube and changeable apertures and primary filters. It is the best choice for inspecting many small parts in succession. That is why the device is also used in the electronics industry. With a variable measuring distance of 0 mm to 8 mm, it enables reliable measurement of non-planar parts, such as plug contacts.

Features

- Universal instrument for measurements on galvanic mass-produced parts
- Stepless measuring distance with measuring top down
- Standard X-ray tube (XDL®); microfocus tube (XDLM®)
- 4-fold changeable apertures (XDLM®)
- 3-fold changeable filter (XDLM®)
- Proportional counter tube detector for short measuring times and small measuring spot
- Various measuring table options; models with extended sample support
- Fully protected instrument with type approval according to current radiation protection legislation

Video:
Scan the QR code and find out more about the **FISCHERSCOPE® X-RAY XDL®**.

Video:
Scan the QR code and find out more about the **FISCHERSCOPE® X-RAY XDLM®**.

FISCHERSCOPE® X-RAY XDAL®

One device, many possibilities. Coating thickness measurement, material analysis and trace analysis

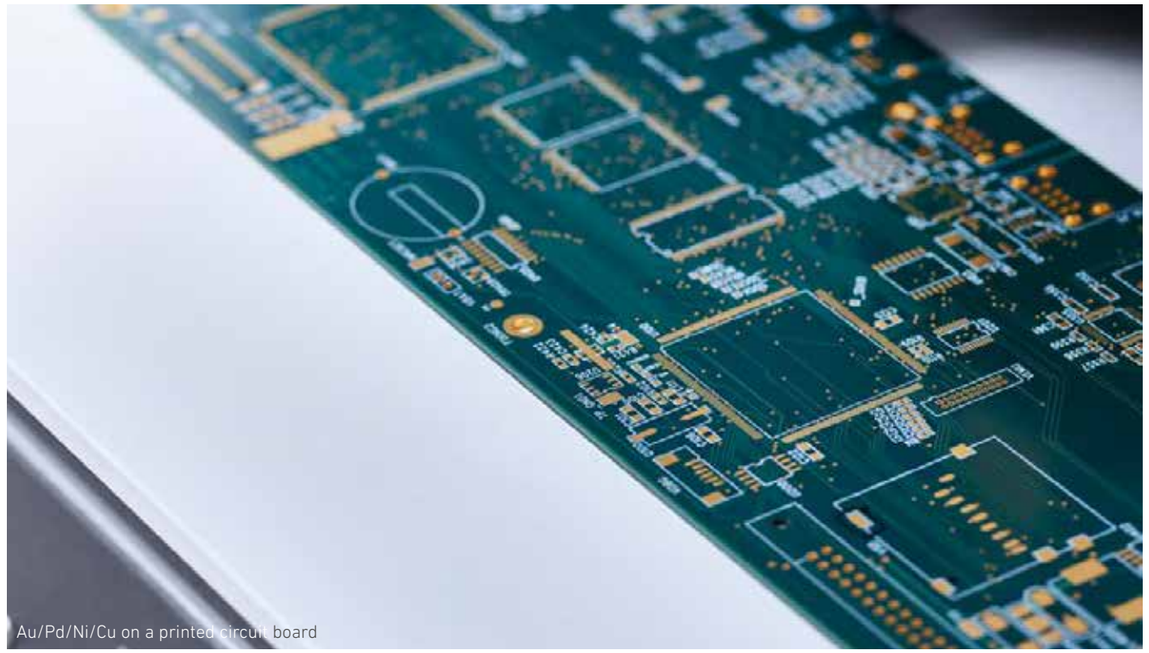
Fully automatable. Let your instrument work for you with just one click

Compact design. Very good compromise between performance and space requirements

Testing of multiple measuring points. Even with large samples, measuring points are possible on the entire sample surface

Also for large samples. Hood with C-slot

Commissioning. Extremely fast and simple



Au/Pd/Ni/Cu on a printed circuit board

The best detectors for thin layers.

The FISCHERSCOPE® X-RAY XDAL® benchtop devices are our expert instruments with proven flexibility, broad uses, and the highest precision. Thanks to the programmable measuring table and the semiconductor detectors, they are an excellent choice for quickly and accurately measuring the composition of solders.This makes it possible to eliminate the risk of getting different solder batches via a simple scan at incoming goods inspection.

The XDAL® series is also well suited for applications that require testing thin and ultra-thin coatings < 0.05 µm. This allows, for example, expensive materials to be saved and process-reliable production to be carried out. Mass inspection of different components in production control and incoming goods can also be completed.

The instrument version with a 50 mm^2 silicon drift detector is suitable for RoHS measurements.

HSS drill bit: TiN/Fe

High reliability: Pb (> 3 %) in electronic components

Features

- Universal instruments for automated measurements of thin and very thin layers < 0.05 µm and for material analysis in the ppm range
- Stepless measuring distance with measuring top down
- Microfocus tube with tungsten anode
- 4-fold changeable apertures
- 3-fold changeable filter
- Various semiconductor detectors ensure very good detection accuracy and high resolution: silicon PIN and silicon drift detector
- Optionally, also available with fixed or manual measuring table
- Fully protected instruments with type approval according to current radiation protection legislation

Video:
Scan the QR code and find out more about the **FISCHERSCOPE® X-RAY XDAL®**.

FISCHERSCOPE® X-RAY XDV®-SDD

Built to last. Robust design for particularly high requirements

Fully automatable. Let your instrument work for you with just one click

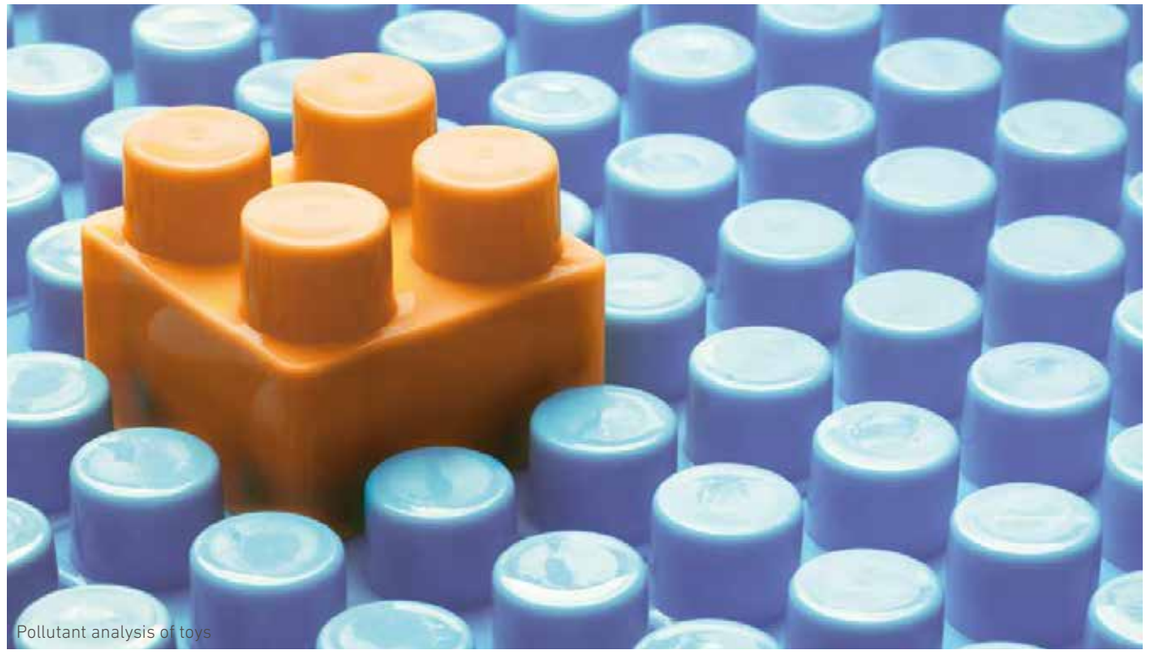
Quick-measure design. With a few simple steps the sample is placed and ready for measurement. Automated measurements of many parts are possible

Digital pulse processor DPP+. Even shorter measuring times with the same standard deviation*

RoHS analysis. Determination of pollutants with high detection accuracy and outstanding performance

Fast. Thanks to short measuring times, you save valuable time

* Compared to the DPP.



Pollutant analysis of toys

The high-end all-rounder.

The FISCHERSCOPE® X-RAY XDV®-SDD is one of our high-end XRF devices. It is our expert instrument with proven flexibility, broad uses, and the highest precision. Equipped with a high-performance silicon drift detector (SDD) and the digital pulse processor DPP+, this benchtop device is suitable for precise trace analyses at very low detection limits and for measuring light elements and very thin layers < 0.05 µm. Providing a dedicated RoHS setup, the XDV®-SDD allows detecting particularly critical elements such as lead, mercury, and cadmium with detection limits of just a few ppm.

NiP/Fe: P concentration and layer thickness

Passivation layers: Cr/Zn/Fe

Thanks to various collimators ranging from 0.1 mm to 3 mm, both small samples such as landing pads as well as large-scale samples such as wafers, solar cells or membranes for fuel cells can be measured. Convincing with high count rates and short measuring times, the XDV®-SDD truly is a high-end all-rounder for use in research and development, in laboratories, and in industrial production control.

Features

- Universal instrument for determining pollutants in the smallest concentrations according to RoHS and for automated measurements of layers, including < 0.05 µm
- Stepless measuring distance with measuring top down
- Microfocus tube with tungsten anode, other anodes as options available
- 4-fold changeable apertures
- 6-fold changeable filter
- Silicon drift detector 50 mm^2 for highest precision on thin layers
- Aperture (collimator) up to 3 mm: Highest intensity for shortest measuring times even with difficult samples (thinnest coatings, Si wafers, conversion layers) and light elements (fuel cells, Al components)
- Programmable measuring stage for automated measurements on small structures
- Fully protected instrument with type approval according to current radiation protection legislation

Ready to explore?
Scan the QR code and find out more about the **FISCHERSCOPE® X-RAY XDV®-SDD**.

FISCHERSCOPE® X-RAY XDV®-µ
FISCHERSCOPE® X-RAY XDV®-µ LD

Meeting all challenges. Reliable and fast results for ambitious measurement

Digital pulse processor DPP+. Even shorter measuring times with the same standard deviation*

Most advanced polycapillary optics on the market. Our in-house manufactured polycapillary optics deliver outstanding measurement results with short measuring times

Fully automatable. Let your instrument work for you with just one click

Programmable. Automated measurements on predefined structures thanks to advanced pattern recognition technology

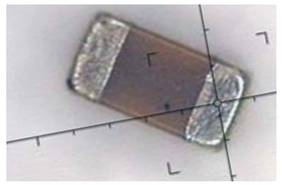
BRAND NEW MICROFOCUS TUBE ULTRA

* Compared to the DPP.

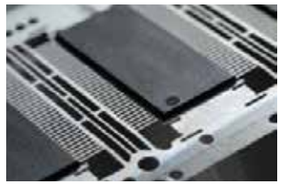
Connectors (XDV®-µ LD)

Smallest measuring surface, highest precision.

The FISCHERSCOPE® X-RAY XDV®-µ and the FISCHERSCOPE® X-RAY XDV®-µ LD top off our high-end range of XRF benchtop devices. Upgraded with polycapillary optics, they impress with the highest radiation intensity and precision on the smallest measuring spots. Equipped with our highly sensitive silicon drift detector (SDD) and our powerful digital pulse processor DPP+ for drastically reduced measuring times and high count rates, these devices are specially designed for coating thickness measurement and material analysis of ultra-thin multilayers and complex microstructures. They have proven to be especially indispensable in the electronics and semiconductor industries.



SMD components



Lead frames

The FISCHERSCOPE® X-RAY XDV®-µ offers the smallest of measuring spots for particularly flat samples, e.g. lead frames, thin wires, PCBs, or SMD components, and complex multilayers.

The FISCHERSCOPE® X-RAY XDV®-µ LD features our long distance polycapillary optic, providing a uniquely large measuring distance of 12 mm for complex shaped test parts, e.g. assembled PCBs, connectors, and potential wafer warpage.

Features

- Universal instruments for measurements on the smallest components and structures as well as complex multilayer systems
- Stepless measuring distance with measuring top down
- Microfocus tube Ultra with tungsten anode for even higher performance on the smallest spots; molybdenumanode optional
- Polycapillary optics allow the smallest measuring spots of 10 µm or 20 µm FWHM (XDV®-µ) or 60 µm FWHM (long distance polycapillary optic in XDV®-µ LD) with a unique measuring distance of 12 mm
- 4-fold changeable filter
- Silicon drift detector 20 or 50 mm^2 for highest precision on thin layers
- Video system with 3x optical zoom for precise sample positioning
- Precise programmable measuring table for automated measurements on small structures

Ready to explore?
Scan the QR code and find out more about the **FISCHERSCOPE® X-RAY XDV®-µ LD.**

FISCHERSCOPE® X-RAY XDLM®-PCB

PCB experts. Specialized measuring solutions for printed circuit boards

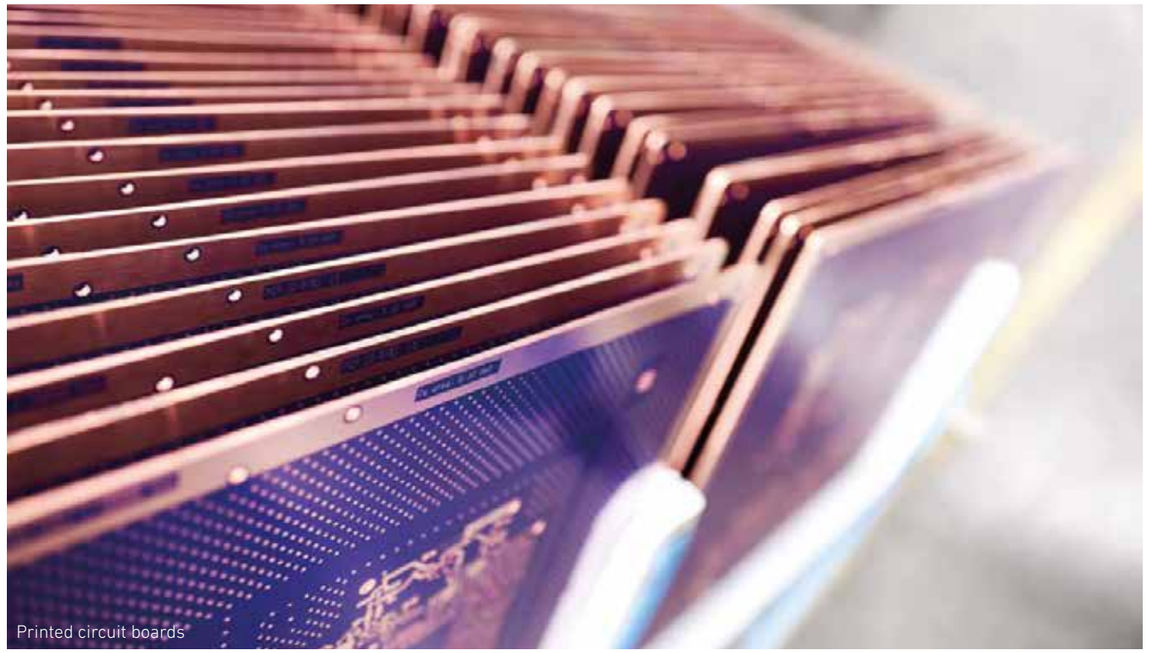
Programmable. Automated measurements on predefined structures thanks to advanced pattern recognition technology

Quick-measure design. The sample is placed and ready for measurement in just a few simple steps

Tailor-made. Different models offer the optimal solution for your application

Balanced. Optimal cost-benefit ratio

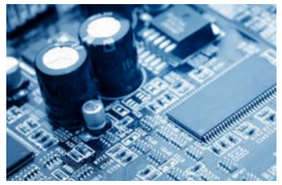
Commissioning. Extremely fast and simple



Printed circuit boards

The entry-level series for printed circuit boards.

The FISCHERSCOPE® X-RAY XDLM® PCB with microfocus tube and proportional counter tube detector is ideal for the simple and fast measurements of components and small structures on PCBs with a small measuring spot.. Equipped with various apertures and filters, as well as different measuring table options, the device always offers the optimal conditions for your measuring task.



PCB

Optional measuring table extension

Our WinFTM® software offers numerous programming tools and specific features especially for PCB applications, such as advanced image and pattern recognition technology. This allows you to fully automate your measurements and to ensure the quality of your products.

Features

- Universal entry-level instrument for simple measurements of components and small structures on printed circuit boards
- Measuring direction with measuring top down
- Microfocus tube with tungsten anode
- Fixed or 4-fold changeable apertures
- Fixed or 3-fold changeable filter
- Proportional counter tube detector for short measuring times and small measuring spot
- Various measuring table options: manual pull-out, optional with measuring table extension or programmable, for PCBs up to 610 × 610 mm

FISCHERSCOPE® X-RAY XDAL®-PCB
FISCHERSCOPE® X-RAY XDV®-µ PCB

Meeting all challenges. Reliable and fast results for ambitious measuring tasks

Digital pulse processor DPP+. Even shorter measuring times with the same standard deviation** (XDV®-µ PCB)

PCB experts. Specialized measuring solutions for printed circuit boards, fulfill IPC standards

Most advanced polycapillary optics on the market. Our in-house manufactured polycapillary optics deliver outstanding measurement results in short measuring times (XDV®-µ PCB)

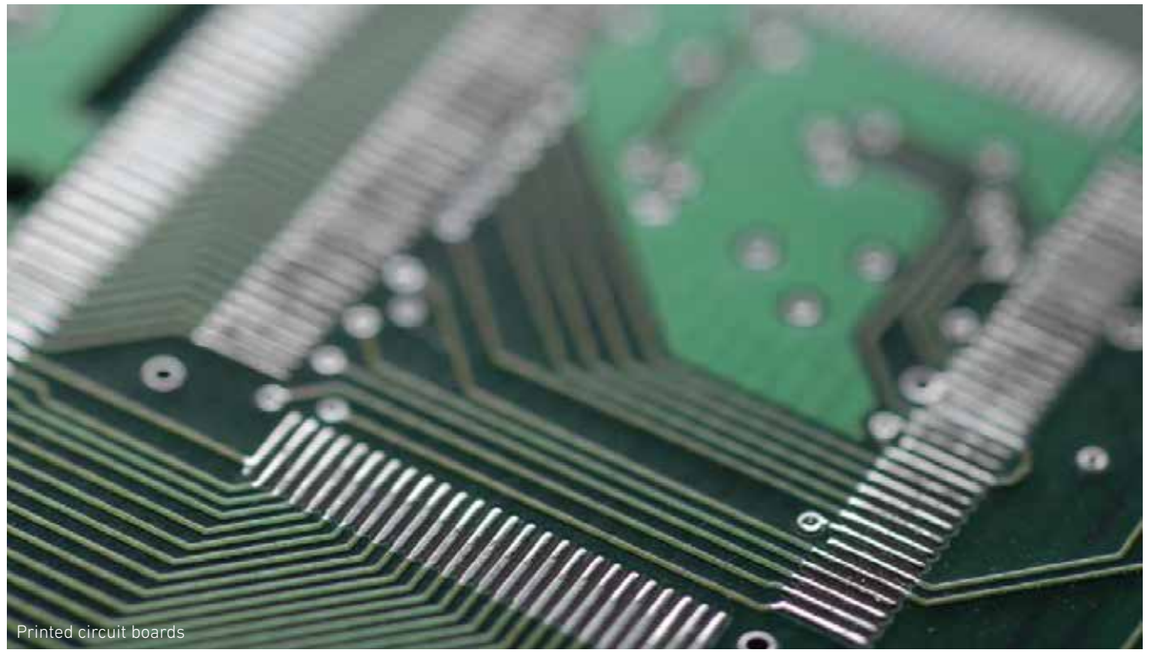
Fully automatable. Let your instrument work for you

Programmable. Automated measurements on predefined structures thanks to advanced pattern recognition technology

Commissioning. Extremely fast and simple

BRAND NEW MICROFOCUS TUBE ULTRA*

* Only for FISCHERSCOPE® X-RAY XDV®-µ PCB.
** Compared to the DPP.



Printed circuit boards

The professional series for printed circuit boards.

FISCHERSCOPE® X-RAY XDAL®-PCB

Due to the combination of a powerful silicon drift detector, multi-collimator and changeable filters, FISCHERSCOPE® X-RAY XDAL®-PCB instruments are predestined for the measurement of small structures on printed circuit boards. The instruments allow optimal measurement conditions for various applications, e. g. ENIG and ENEPIG.

Features

- Universal instrument for measurements on small structures, multilayers, functional layers and thin coatings < 0.1 µm
- Measuring direction with measuring top down
- Microfocus tube with tungsten anode
- 4-fold changeable apertures
- 3-fold changeable filter
- Silicon drift detector 20 or 50 mm^2 for highest precision on thin layers
- Various measuring table options: manual pull-out, optional with measuring table extension or automated, for PCBs up to 610 × 610 mm

FISCHERSCOPE® X-RAY XDV®-µ PCB

The FISCHERSCOPE® X-RAY XDV®-µ PCB instruments are used for measurements on smallest structures. Thanks to silicon drift detectors and polycapillary optics, the high-end instrument measures with extremely small measuring spot at very high intensity. The instruments meet the IPC requirements for ENIG, ENEPIG, silver and tin.

Features

- Universal instrument for automated measurements on smallest structures and very thin coatings < 0.1 µm
- Microfocus tube Ultra with tungsten anode for even higher performance on smallest spots; molybdenumanode optional
- Measuring direction with measuring top down
- Polycapillary optics permit particularly small measuring spots Ø approx. 20 or 10 µm
- 4-fold changeable filters
- Silicon drift detector 20 or 50 mm^2 for highest precision on thin layers
- Programmable measuring table for printed circuit boards up to 613 × 610 mm, optionally with vacuum function
- Up to 10 mm sample height possible

FISCHERSCOPE® X-RAY XDV®-µ WAFER

Meeting all challenges. Reliable and fast results for ambitious measuring tasks

Programmable. Automated measurements on predefined structures thanks to advanced pattern recognition technology

Digital pulse processor DPP+. Even shorter measuring times with the same standard deviation*

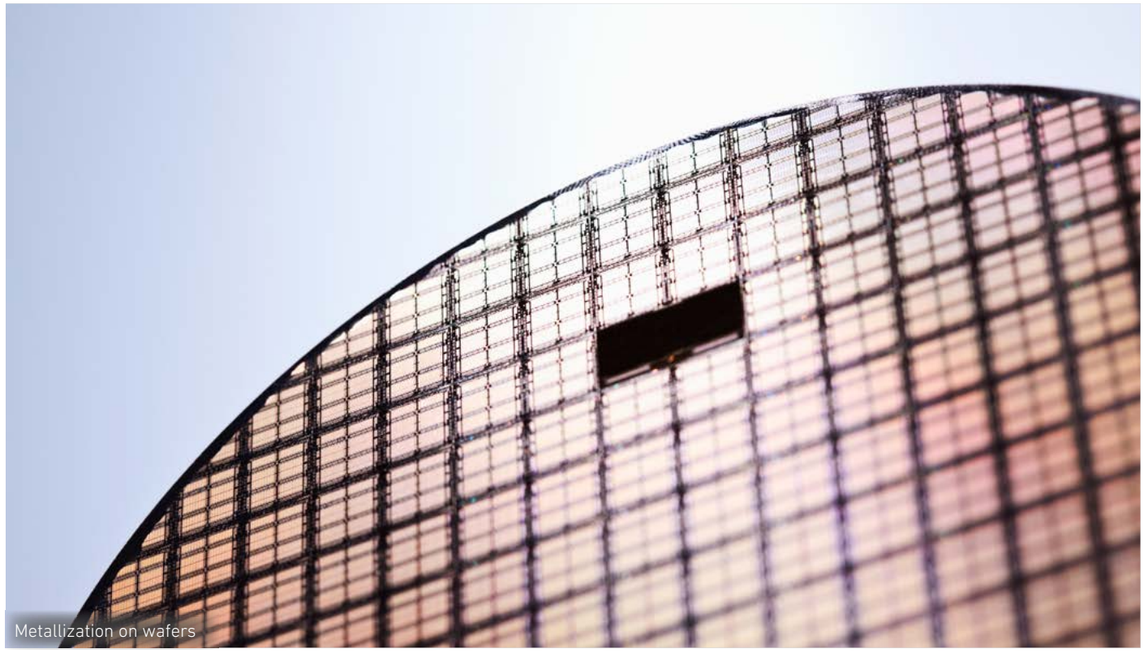
Most advanced polycapillary optics on the market. Our in-house manufactured polycapillary optics deliver outstanding measurement results at short measuring times

Fully integrated solution. XDV®-µ SEMI combined with wafer handler of your choice

Fully automatable. Let your instrument work for you with just one click

BRAND NEW MICROFOCUS TUBE ULTRA

* Compared to the DPP.

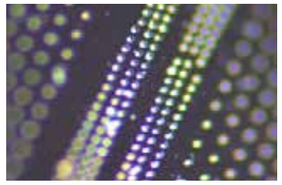


Metallization on wafers

Cutting-edge technology for wafer applications.

For the growing requirements in wafer quality control, we offer the FISCHERSCOPE® X-RAY XDV®-µ WAFER. Perfectly tailored to the application, this benchtop device features a programmable measuring table with vacuum wafer chuck for measuring thin films and complex microstructures on wafers with diameters from 6" to 12". Also part of our high-end XRF product range, this device is equipped with polycapillary optics for measuring spots of just 10 µm or 20 µm FWHM. In combination with our brand new microfocus tube Ultra and our powerful digital pulse processor DPP+, it achieves outstanding measurement performance. Typical measuring tasks include the material analysis of solder bumps, copper pillar bumps, and gold bumps as well as the coating thickness measurement on small contact surfaces and micro pads.

Solder bumps



Small structures

The XDV®-µ WAFER is available as stand-alone version, for the use in automation projects with local partners or integrated in our fully automated measuring system FISCHERSCOPE® X-RAY XDV®-µ SEMI.

Features

- Special instrument for automated measurements of thin multilayers and complex structures on wafers with diameters from 6" to 12"
- Stepless measuring distance with measuring top down
- Microfocus tube Ultra with tungsten anode for even higher performance on smallest spots; molybdenum anode optional
- Polycapillary optics allow particularly small measuring spots of 10 µm or 20 µm FWHM with short measuring times and high intensity
- 4-fold changeable filter
- Silicon drift detector 20 mm^2 or 50 mm^2 for highest precision on thin layers
- Programmable measuring table with vacuum wafer chuck or customized wafer handling
- Up to 5 mm sample height possible
- Extensive automation options with WinFTM®

Video:
Scan the QR code and find out more about the **FISCHERSCOPE® X-RAY XDV®-µ SEMI.**

FISCHERSCOPE® X-RAY XAN® 500

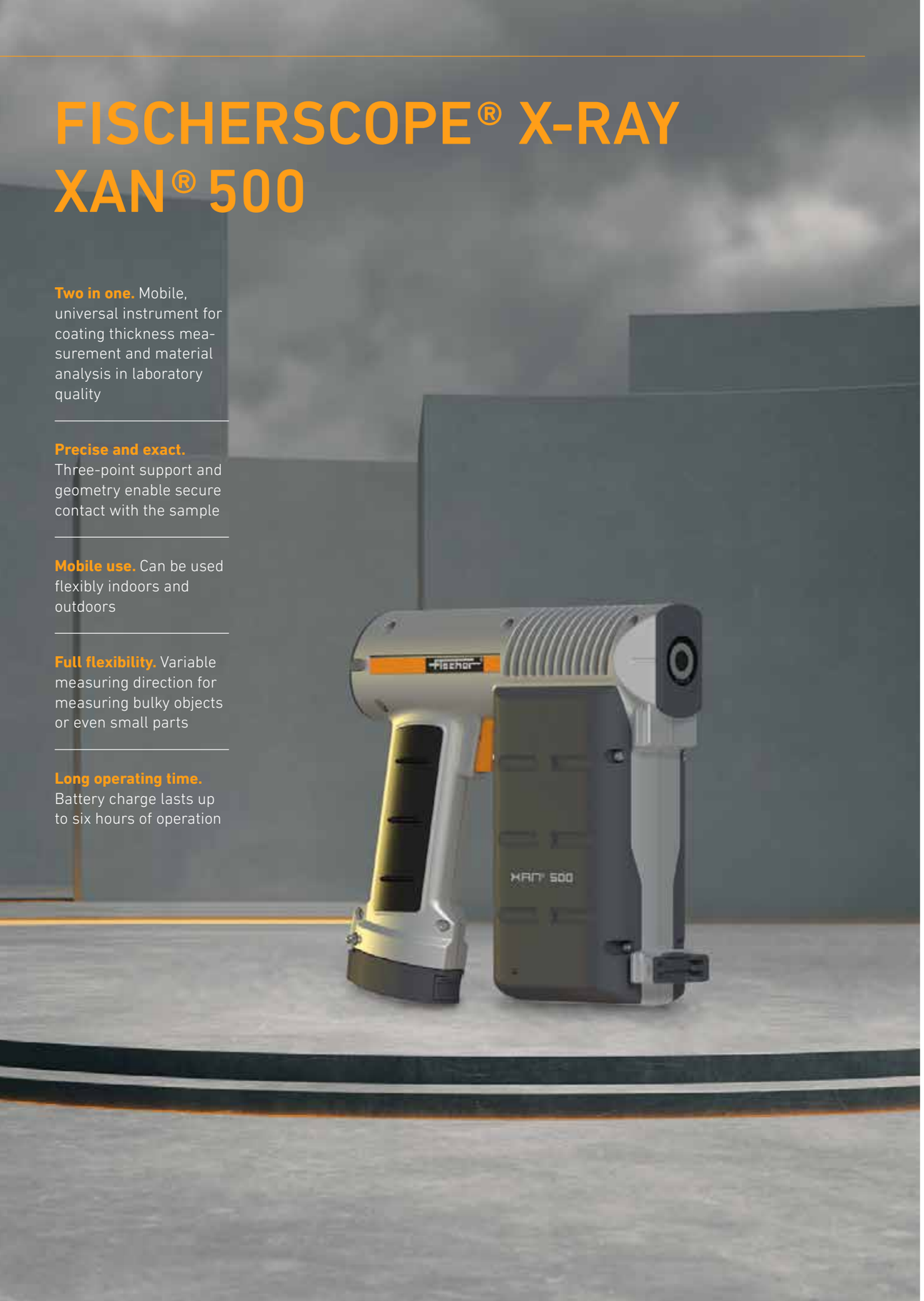
Two in one. Mobile, universal instrument for coating thickness measurement and material analysis in laboratory quality

Precise and exact. Three-point support and geometry enable secure contact with the sample

Mobile use. Can be used flexibly indoors and outdoors

Full flexibility. Variable measuring direction for measuring bulky objects or even small parts

Long operating time. Battery charge lasts up to six hours of operation




Corrosion protection in aircraft construction

The specialist for field duty.

Despite its small size, the FISCHERSCOPE® X-RAY XAN® 500 is in no way second to laboratory equipment. The modern silicon drift detector is capable of accurate and precise measurement results with short measuring times. Even complex measuring tasks involving multiple layers are performed reliably – and quickly. How? The compact device detects thickness and composition of the layer in a single measuring step.


Measuring box


Measuring cell

Thanks to its three-point support, the XAN® 500 can be positioned securely on the surface, so layer thicknesses can be determined with repeatable accuracy. The results are shown directly on the display. For data evaluation, the handheld unit is equipped with the full version of WinFTM® software that is offered with all of Fischer's other X-ray systems. As calibration samples may not be readily available, the WinFTM®'s fundamental parameter analysis offers standard free measurement capabilities to measure without prior calibration.

Features

- Mobile and universal handheld instrument for precise coating thickness measurement and material analysis – even with difficult material combinations
- Weight 1.9 kg
- Up to six hours operating time with one battery charge
- Portable measurement box transforms the system into a XRF benchtop instrument
- Air cooled mini X-ray tube
- Fixed aperture
- Measuring spot Ø 3 mm
- Silicon drift detector for highest precision on thin layers
- Data evaluation via Bluetooth connection with full WinFTM® software
- Capable of bath analysis; liquid measuring cell is available option
- For outdoor use with IP54 protection rating

Video:
Scan the QR code and find out more about the **FISCHERSCOPE® X-RAY XAN® 500**.

FISCHERSCOPE® X-RAY MODULAR CHAMBER

Think big. Large chamber for large samples

Tailor-made. Different models offer the optimal solution for your application and requirements; flexible and modularly scalable

Reliable. Precise measurement through measuring points on the entire sample surface

Configurable. Size and design according to your requirements

Proven software. Fischer WinFTM® software guarantees you most comprehensive functionalities and measurement applications

Two in one. Robust enclosure and proven Fischer measurement technology

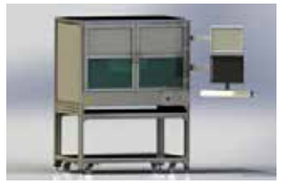
Crankshaft

Measurements on large-volume samples.

The Modular Chamber enables precise measurements and analysis on large-volume workpieces that exceed the sample sizes of Fischer's standard X-ray instruments. The Modular Chamber combines a large housing with Fischer's proven XRF measurement technology. You get the measurement technology of your choice mounted in a chamber customized for your needs. FISCHERSCOPE® instruments of the XDL®, XDLM® and XDAL® series can be integrated.

The Modular Chamber offers maximum flexibility. Matching your sample, the support is available as a standard table or adapted support plate. The large, easily accessible measuring chamber allows convenient hand-ling of samples and can be configured in any size. The functional overall system comes with a stable underframe as an available option.

As standard, the chamber is equipped with metal sheets on the sides and Plexiglas panes in the front.



With underframe

Ideally suited for large samples up to 30 cm

Features

- Large special enclosure for the integration of Fischer X-ray measurement technology for coating thickness measurements and material analysis on large-volume workpieces
- Integration of the devices FISCHERSCOPE® X-RAY XDL®, XDLM®, or XDAL®
- Measuring direction with measuring top down
- Different X-ray tubes depending on the instrument
- Different apertures depending on the instrument
- Different filters depending on the instrument
- Various detectors ensure very good detection accuracy and high resolution: proportional counter tube, silicon PIN or silicon drift detector
- Different measuring table options: fixed or programmable
- Standard chamber size with approx. 1 m^3 and 1.5 m^3 or tailor-made

FISCHERSCOPE®
X-RAY 5000 series

Tailor-made. Easy integration, individually adaptable to your application

Does not break a sweat. Sample temperatures up to 250 °C (482 °F) thanks to water cooling

Compact design. Measuring head with all necessary components in one unit

Robust and reliable. No moving parts

Vacuum compatible. Can be mounted on vacuum chambers

Digital pulse processor DPP+. Even shorter measuring times with the same standard deviation*

* Compared to the DPP.

Practical installation via an ISO-F DN 250 flange

Quality control of solar panels

Inline measurement with highest precision for thin layers.

The FISCHERSCOPE® X-RAY 5000 series is the perfect choice for non-destructive material analysis and thickness measurement of particularly thin coatings on large-area products. As a compact, modular measuring unit, the measurement technology can be easily and flexibly integrated into a wide variety of production systems. The FISCHERSCOPE® X-RAY 5000 can be used as a single module or grouped together, for example in the photovoltaic sector for quality testing of fuel cells, glass panels and thin-film solar cells, or for films and hot surfaces. Specially developed for automation, the measuring heads can be easily installed on vacuum chambers using an ISO-F DN 250 flange, for example.

FISCHERSCOPE® X-RAY 5100 scanner

Simultaneous measurement by several FISCHERSCOPE® X-RAY 5100

The device has proven itself to be robust and low-maintenance in continuous industrial operation. Calibration is quick and easy during the production process. Thanks to large apertures, state-of-the-art detectors and ultra-fast pulse processing, you benefit from outstanding repeatability. The measuring heads can be integrated into existing systems or supplied as a complete, customer-specific turnkey solution.

Features

- Robust inline instrument for analysis and measurement of thinnest layers and layer systems in the running process with connection to the production control system
- Microfocus tube with tungsten anode; molybdenum anode optional
- Fixed aperture (configurable up to Ø 11 mm)
- Fixed filter (configurable)
- Silicon drift detector 50 mm^2 for highest precision on thin layers as well as Peltier cooling
- Digital pulse processor DPP+ for higher count rates and significantly reduced measurement times
- For measurements in vacuum or air
- Available option: Water cooling for sample temperatures up to 250 °C (482 °F)
- Any mounting position possible
- Remote control and data export via TCP/IP interface

FISCHERSCOPE®
X-RAY 4000 series

Tailor-made. Individually adaptable to your application

Automatable. Approach measuring points precisely and change measuring task at the same time

Inline measurement in real time. Precise and fast measurement in your shift operation

Easy to operate. Strip for adjustment and operating panel easily accessible

Compact design. Positioning axis and measuring head in one unit

Intelligent self-monitoring. Automatable regular calibration and measuring equipment monitoring

Digital pulse processor DPP+. Even shorter measuring times with the same standard deviation*

* Compared to the DPP.

Electroplated stamped strip

Inline measurement with maximum endurance.

The FISCHERSCOPE® X-RAY 4000 series is developed for the continuous and non-destructive analysis and measurement of layers and layer systems in manufacturing processes. Designed for industrial requirements, the inline measuring system is used in production sites for the measurement of electroplated layers on solid and stamped strips, even with shaped and stamped contact surfaces. It is also suitable for measuring electrical contacts on strip material and platinum and other precious metals on membranes for fuel cells.

Fuel cells

FISCHERSCOPE® X-RAY 4200 (horizontal alignment)

Thanks to simple handling, automated calibration and minimum set-up times, converting from one product to another is simple due to the easily adjustable conveyor guides. The programmable axis of the measuring head allows reliable measurements at different positions of the product to be measured.

Features

- Robust inline instrument for measurement on solid strips, stamped grids or coated membranes, from a few millimeters up to one meter wide
- Microfocus tube with tungsten anode; molybdenum anode optional
- 2-fold or 4-fold changeable apertures
- 6-fold changeable filter
- Silicon drift detector 50 mm^2 for highest precision on thin layers
- Digital pulse processor DPP+ for higher count rates and significantly reduced measurement times
- Hardware and software aligned to measuring tasks related to inline measurement
- Horizontal or vertical installation position
- TCP/IP interface for process control

FISCHERSCOPE®
XAN® LIQUID ANALYZER

Market-leading precision. Combination of measuring cell and software ensures best measuring performance and safety

Absolutely unique. No need to change* the measuring cell

Maximum lifetime. Innovative design and durable materials enable a lifetime of the measuring cell up to 1 year*

Intelligent self-monitoring. Fully automatic, preventive purging, monitoring and calibration processes ensure maximum uptime

No time-consuming spot checks and information gaps. Stay continuously in the picture about your electroplating process

Extremely low maintenance. Robust construction, service-friendly design

Safety in real time. Live measurement results as well as simple and fast documentation of these

*In a test setup under controlled laboratory conditions with a typical zinc-nickel solution, a lifetime of the measuring cell of over one year was achieved. The lifetime can vary and is individually dependent on the frequency of the rinsing and cleaning cycles, the composition of the coating baths and their temperatures, and the ambient conditions.

Electroplating bath

Efficient inline solution analysis for electroplating baths.

Now you can control your coating system even more efficiently - with the FISCHERSCOPE® XAN® LIQUID ANALYZER you can keep a constant eye on your electroplating baths. The high-precision inline measuring device allows you to measure a wide range of metallic bath solutions, such as zinc, nickel, zinc-nickel, gold, palladium, chrome and rhodium. Each electroplating bath has its own supply line to the respective measuring cell in order to avoid contamination.

Closed Loop System

Sophisticated flow cell

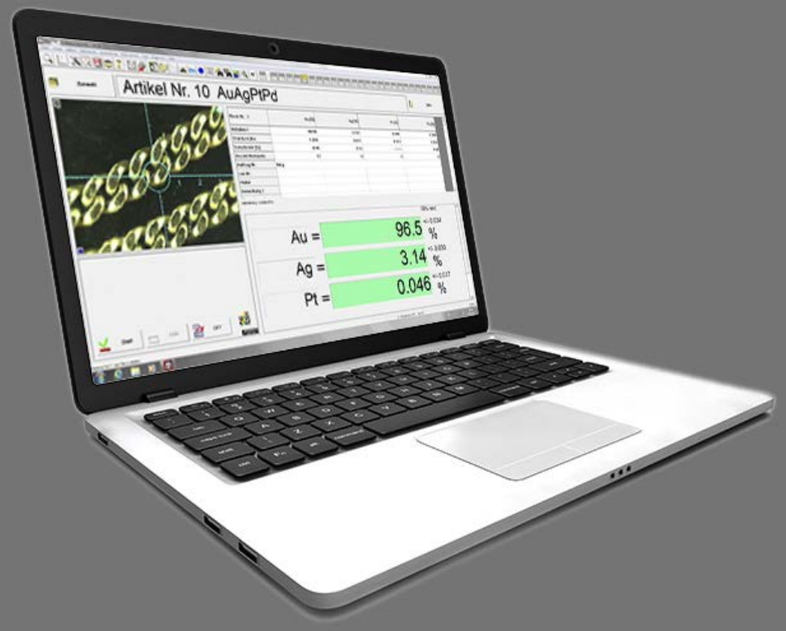
The robust multi-channel inline measuring system can be used flexibly, even in harsh industrial production environments: as a stand-alone version or fully integrated into a local production control system (MES). The device continuously delivers precise measurement results 24/7. The measurement data is provided quickly, easily and in real time via a fieldbus interface. The data can be visualized centrally on the device or decentrally on other external monitors, for example directly at the electroplating bath. The large touch display is easy and intuitive to operate. The measuring device is controlled via an integrated Siemens PLC.

Features

- Robust inline instrument for fully automated analysis of metal concentration in electroplating baths
- Automatic sequential measurement of up to 4 electroplating bath solutions (channels)
- 1-channel to 4-channel solution
- Microfocus tube with tungsten anode
- Silicon drift detector 50 mm^2 for highest precision
- Digital Pulse Processor DPP+ for minimizing measurement time and optimizing repeatability
- Fieldbus interface enables connection to higher-level control systems as well as equipment for equipment communication
- WAN connectivity

Video & landing page:
Scan the QR code and find out more about the **FISCHERSCOPE® XAN® LIQUID ANALYZER**.

WinFTM®



The mathematical heart of our FISCHERSCOPE® X-RAY devices.

Whether for quality control, incoming goods inspection or to draw up test reports for research laboratories – the requirements for reliable measurement software are as varied as the possible applications of FISCHERSCOPE® X-RAY devices. WinFTM® is the world's most comprehensive and powerful software for coating thickness measurement and material analysis with X-ray fluorescence on the market. Developed to perform precise and reliable measurements as well as for fast evaluation and professional documentation of measurement data, it is characterized by a wide range of proven features.

Standard-free and precise measurement. Coating thickness measurement and material analysis based on optimized fundamental parameter algorithms

Traceable measurement results. Simple and guided calibration workflow with Fischer calibration standards with DAkkS certificate

Automated measurement sequences. Application-specific programming for the automatic execution of recurring measurement sequences

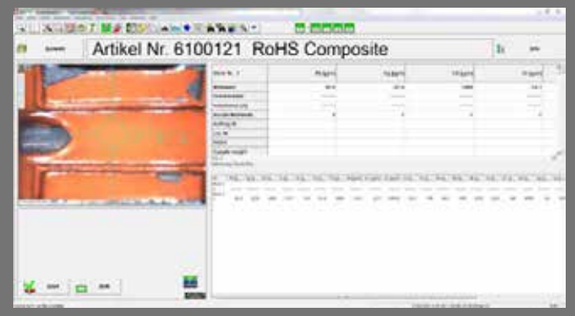
Convenient evaluation. Extensive statistical evaluations including statistical process control (SPC)

Direct data export. Simple data export via various interfaces, such as quality management systems

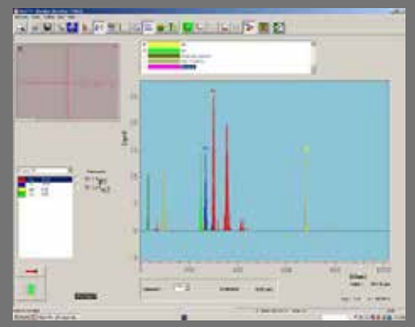
Create data reports easily. Fully customizable reports and creation of individual measurement protocols with just one click

With WinFTM® you are equipped for numerous applications. The software is not only used for coating thickness measurement and material analysis. You can also rely on precise and reliable measurement results for qualitative element analysis and solution analysis of electroplating baths.

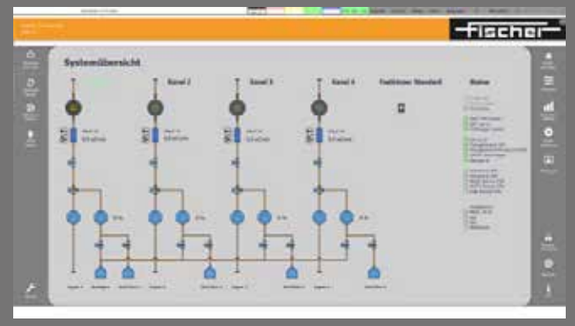
Coating thickness and material composition can be measured in parallel
Measure up to 24 variables simultaneously! A measured variable can be both a coating thickness and an element concentration. If you carry out a gold analysis, the WinFTM® will display your measurement results as a percentage or carat if required. If your FISCHERSCOPE® X-RAY device is used for RoHS screening, the software supports you with automatic material identification and a simple traffic light display – so that you can see at a glance whether your sample has passed or failed.



Qualitative element analysis with automatic element identification
Analyze unknown bulk materials with automatic element identification in just a few clicks. WinFTM® automatically identifies the chemical elements contained, calculates the concentrations, and provides you with the percentages.

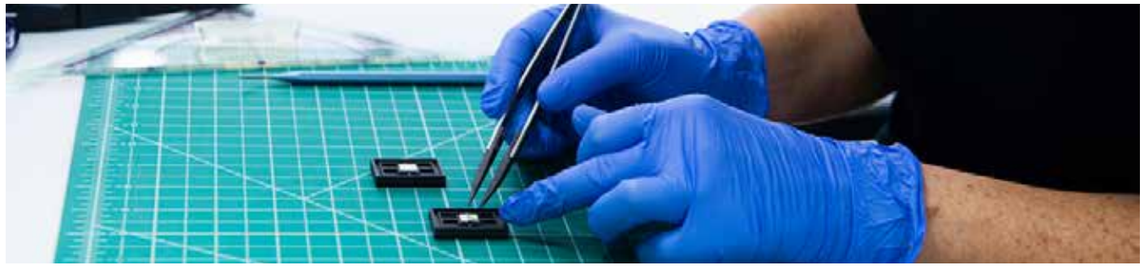


Solution analysis of electroplating baths
An additional module of the WinFTM® is available for solution analysis of electroplating baths, which automatically converts the various mass fractions into solution concentrations. Specifically programmed for automated quality control in electroplating plants, the module allows you to continuously monitor up to four electroplating baths inline via separate channels.



Tutorials & webinars:
Scan the QR code and find out more about **WinFTM®**.

Calibration standards & certification



Several accredited Fischer calibration laboratories **worldwide**

Safety through **traceability**

Over 500 different certified **calibration standards**

Best support from our experts

It's all about the right measure
Only a well-calibrated measuring instrument delivers correct and traceable results. In our calibration laboratories, we produce traceable calibration standards for you, also known as reference or comparison standards. Recognized and trusted all over the world, they guarantee you absolute reliability in your measurements.

Where safety meets standards
Fischer runs several accredited calibration laboratories in the USA, Mexico, China and Switzerland. What we are especially proud of: We are the first and only company with its own DAkkS-accredited calibration laboratory in Germany that is accredited according to DIN EN ISO/IEC 17025 for the mechanical measurand "mass per unit area". By tracing the measurements back to national standards and thus to national metrology institutes such as the Physikalisch-Technische Bundesanstalt (PTB), the National Institute of Standards and Technology (NIST), or the National Institute of Metrology (NIM), we achieve highest accuracy and quality. In addition to factory certificates, we also issue DAkkS certifications, offering you even lower measurement uncertainties.

Made to fit your needs
Calibration standards are foils or coated base material. Whether for coating thickness measurement, material analysis, material testing, or microhardness measurement, our portfolio includes well over 500 different certified standards and prefabricated sets, e.g. for PCB, wafer, or corrosion protection applications. Just mix and match your Fischer standards to suit your individual measuring task!

A selection that leaves nothing to be desired

- Solid standards: Single and multiple layers, alloy layers, pure elements, alloys (bulk)
- Foil standards: Single and multiple layers, alloy layers
- Prefabricated sets

Foil standard triple layer

Solid standard set

Your product as individual calibration standard? No problem! We also offer the DIN EN ISO/IEC 17025 certification of specific customer material for XRF measurements. Just hand over your sample to our experts, benefit from in-depth advice, receive your calibration certificate – and start measuring with confidence.

Please feel free to contact us! We advise you on suitable calibration standards and the optimal calibration strategy.
sales@helmut-fischer.com

Accessories


Sample stage Zero Background for thin films


Measuring cell for solution analysis

Continue measuring where others give up

Perfect fit without compromise

Perfectly equipped for every challenge

Simply **reliable** when it matters most

High-quality accessories for all occasions
We offer a wide range of accessories to complement our broad portfolio of measuring solutions. From holders and positioning aids to various measuring cells for solution analysis and tailormade accessories, we offer you the optimum additional equipment and, of course, spare parts for your Fischer measuring device or system.


Positioning aids for exact positioning of test parts

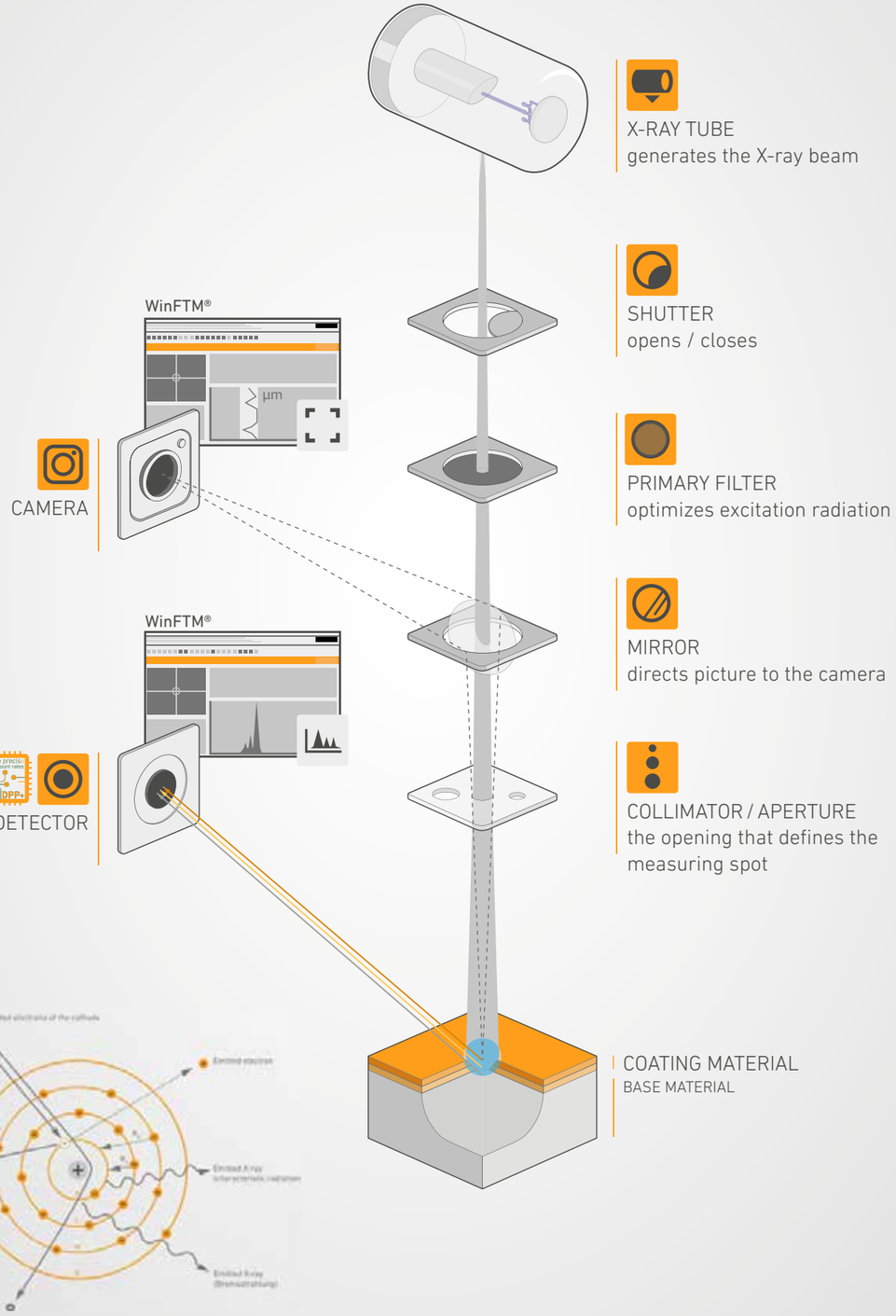

Tape guide for solid and punched tapes

Maximize your efficiency now and master any challenge easily – with Fischer accessories that deliver exactly the added value you're looking for!

Would you like personal advice or do you need a custom-made product? Then please feel free to contact us!
sales@helmut-fischer.com

Real game changers

- Measuring cells for analyzing electroplating bath solutions
- Various sample stages, holders and positioning aids for particularly demanding measuring tasks
- Vibration damping for a trouble-free measurement process
- Measuring table extensions for larger measuring objects
- Tape guide for solid and punched tapes for precise guidance of the measuring object (exclusively for FISCHERSCOPE® X-RAY 4000 series)
- Calibration device for punching grids (exclusively for FISCHERSCOPE® X-RAY® 4100)
- Replacement flow cell for analyzing electroplating bath solutions (exclusively for FISCHERSCOPE® XAN® LIQUID ANALYZER)
- And much more



Contactless. Non-destructive. Efficient.

X-ray fluorescence analysis is a clean, non-contact, non-destructive and fast measurement method working for all elements of technical relevance. It is based on the phenomenon that atoms, when excited by primary X-rays, release energy in the form of element-specific fluorescence radiation. The spectrum of the emitted radiation provides information about the makeup of the sample. This enables both analysis of the material composition and measurement of a coating's thickness.

X-ray tube: The X-ray tube generates the primary X-ray radiation. More advanced models have a high-resolution microfocus tube. Devices thus equipped allow for smaller measuring spots.

Shutter: Integrated into the beam path, the shutter is a safety device. It prevents primary radiation from entering the measuring chamber. The system only unlocks for the duration of the measurement, and only when the lid is closed. This prevents the risk of harm to the operator.

Primary filter: Depending on the filter used, the excitation conditions can be adjusted for different measuring tasks.

Camera / Mirror: The mirror directs the image to the camera. This allows the positioning of the measuring spot to be monitored.

Collimator / Aperture: The aperture restricts the diameter of the primary beam, ensuring that a measuring spot of defined size is excited. With smaller apertures the majority of the primary radiation is shielded from the sample. Polycapillary optics, on the other hand, focus the entire X-ray radiation onto a tiny surface, allowing for short measuring times even with small measuring spots.

Detector: Its quality determines for which measuring tasks an instrument is suitable. Fischer offers three types of detectors:

Proportional counter tube: The detector for simple measuring tasks is predestined for the measuring thicker layers with small measuring spots.

Silicon PIN diode (PIN): The mid-range detector can be used for both material analysis and coating thickness measurement of more complex measurement tasks.

Silicon drift detector (SDD): The strengths of this modern semiconductor detector lies in its ability to measure very thin layers and perform trace analysis in the ppm range.

Digital Pulse Processor (DPP): The in-house developed Fischer DPP is a high-tech component that processes very high pulse and counting rates. It amplifies the events recorded by the detector. Together with the detector, the DPP is responsible for very high stability and energy resolution. Regardless of the number of pulses per second.

Application consulting

Everything for your measuring task

Personal support on a global scale
With seven application laboratories worldwide in Germany, Switzerland, the USA, China, India, Japan, and Thailand, we are there for you around the globe. Our Fischer experts are always at your side with personalized advice and assistance – whether it's selecting the right measuring device, developing a customized measuring strategy or defining the right measuring program.

Wide-ranging expertise for reliable measurement results
Especially when solving complex measuring tasks, you benefit from our decades of expertise in measuring technology. Optimally networked with each other, as well as with research and educational institutions and industry, our application laboratories are always up to date. This is how we ensure to answer all your questions in the best possible way.

Our services at a glance

- Expert advice by email, phone, or in person at one of our seven application laboratories
- Targeted support for operation and calibration as well as for the implementation of new measuring tasks
- Individual testing of your sample parts
- Sample testing live: We measure your sample and you are live with us!
- Conceptualization of your request together with our team of experts and local integrators
- Contract measurements with inspection report according to ISO 17025 (only in selected laboratories)

Global support for your applications

Whether remotely or on-site at your location– we support you worldwide with expert advice. Feel free to get in touch with us or consult your local Fischer representative.

Interested in our product portfolio? Experience our instruments up close and visit us at one of our application laboratories! Depending on the location, various devices are available for you to test.

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Brazil, North and South America

APPLICATION CONSULTING ONSITE
At every Fischer subsidiary
You can find your contact person at:
www.helmut-fischer.com


Service

A reliable partner for the entire life of your device

Quality is what our services are all about
For over 70 years, we have been supporting our customers with outstanding products and excellent customer service. Today, we are proud to be available to you globally, with 21 subsidiaries and over 180 service professionals worldwide. We guarantee you fast response times, personal and individual support on-site, and quick availability of original spare parts in proven Fischer quality. Fast, reliable and tailored to your needs – that's what we mean by excellent customer service.

There for you in every respect
To extend the service life of your Fischer devices and systems and to prevent possible downtimes, we offer you regular inspections and maintenance performed by our experienced and trained service professionals. We plan inspection times together with you at an early stage and coordinate them with your production schedule. Furthermore, our service experts assist you in commissioning and calibration and offer individual product trainings and much more to ensure you are fully comfortable with your Fischer product.

Our services at a glance

- On-site service thanks to 21 subsidiaries worldwide
- Individual service agreements tailored to your needs
- Fast response times, prompt repairs and reliable spare parts supply
- Telephone hotline and remote support with direct contact to our XRF service experts
- Commissioning and customized task programming on-site
- Calibration and recertification of your standards for reliable measurement results
- Customized inspection agreements and regular maintenance
- Individual product trainings and seminars

Contact
Do you need technical support or would you like to learn more about our services? Then get in touch with us!

> " At Fischer, the customer relationship does not end with the sale of the device – it begins then. "

Paul Comer, Technical Director at Graphic Plc, UK

"We can only recommend Fischer instruments for quality assurance of surfaces. We have been more than satisfied with the measuring devices and the competent advice over many years."

Tomasz Suchcicki, Quality Manager, Aalberts Surface Technologies GmbH, DE

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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