ARTISAN®
TECHNOLOGY GROUP

Your **definitive** source for quality pre-owned equipment.

Artisan Technology Group
(217) 352-9330 | sales@artisantg.com | artisantg.com

Full-service, independent repair center
with experienced engineers and technicians on staff.

We buy your excess, underutilized, and idle equipment
along with credit for buybacks and trade-ins.

Custom engineering
so your equipment works exactly as you specify.

- Critical and expedited services
- In stock / Ready-to-ship
- Leasing / Rentals / Demos
- ITAR-certified secure asset solutions

Expert team | Trust guarantee | 100% satisfaction

All trademarks, brand names, and brands appearing herein are the property of their respective owners.

Find the *Helmut-Fischer A 20.10.01* at our website: *Click HERE*

FISCHERSCOPE® MMS® PC2

The Universal Multi-Measuring System
for Coating Thickness Measurement and Material Testing



FISCHERSCOPE® MMS® PC2 – The Versatile Benchtop Instrument

The FISCHERSCOPE MMS® PC2® is used wherever quality is a top priority: in incoming inspection, in final inspection, during ongoing production, for sampling or routine tests. And that in all industries. As a result of its modern design, the MMS PC2 can be adapted specifically to your needs and expanded at any time.

Whether coating thickness, electrical conductivity or ferrite content, with the MMS PC2 you will always measure precisely and correctly.

MMS PC2 – one measuring instrument for all measuring applications.



Coating thickness measurement
Measurement of the coating thickness with the following material combinations:
- Almost all coating materials on metals
- Duplex coating systems
- Metallic coatings on electrically nonconductive materials
- Organic coatings, e.g. oil or grease films

Material testing
- Measurement of the electrical conductivity of nonferrous metals
- Testing of the quality of weld seams, ferrite content in austenitic or duplex steels

At home in all industries
- Automotive
- Electronics industry
- Paint industry
- Coating technologies
- Gold, watches, jewellery
- Material analysis and material testing

Versatile in application
- Quality assurance in incoming and outgoing inspections
- Routine tests or sampling in ongoing production
- Continuous production control
- Can be integrated in quality management systems and company networks

Measurement by hand or automated
- Automatically after touchdown of the probe
- At the push of a button or via external start
- In predefined time intervals
- Semiautomatically with motorised support stand or programmable XY measuring stage
- Automated via PLC unit
- Automated in production plants

Modular design
- Eight modules with different test methods for coating thickness, conductivity and ferrite content are available

A Wide Variety of Applications

Measurement of thin organic coatings, e.g. oils, with the hand probe Z15NG-TC
Hand probe with beta emitter for measurements according to the radiometric beta-backscatter method, an integrated temperature sensor serves to automatically compensate for the beta radiation damping through the air at different temperatures.



Precise measurements on small parts with the motorised support stand V12 MOT
The FISCHERSCOPE MMS PC2 automatically controls the upwards and downwards motion of the support stand and the measurement.



Measurement of the chrome coating on pistons with the measurement probe V2EGA06H in the motorised support stand



Incoming inspection
Measuring station with several module boards and probes for incoming inspection, mounted on a transport trolley for measuring different parts.



Typical Configurations



Anodising measuring station
Measuring station with several probes for testing various parts with different geometries without having to reinsert the probes. The correct probe is automatically activated when the application is selected. Measurement of the coating thickness and conductivity of anodised aluminum parts, search for causes in the case of colour differences.

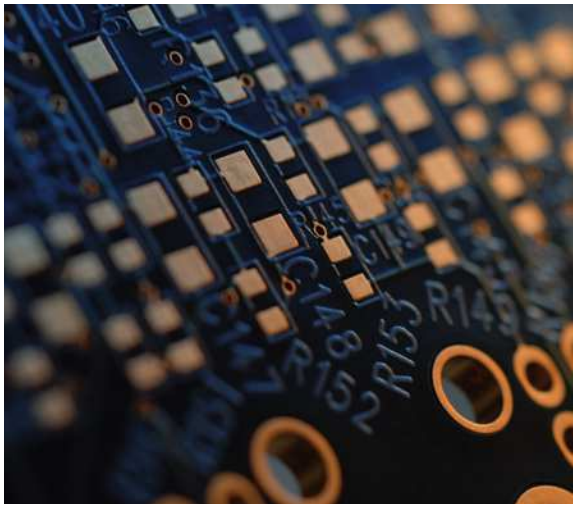
Assembly
- Module SIGMASCOPE® with the probes ES40 and ES24 for conductivity measurement
- Module PERMASCOPE® with the inner measurement probe FAI3.3-150 and the curvature-compensated probe FTD3.3 for measuring the anodised coating thickness
- Support stand V12 MOT for semi-automatic measurement of many parts

Electroplating measuring station
Measuring station for determining the coating thickness in the case of different part shapes, material combinations and surface finishes that are typical of electroplating companies. Even measurements on threads and rough surfaces are possible with a very high repeatability.

Assembly
- Module PERMASCOPE® with the probes FGA06H-MC for measurement on small parts and F20H for measurement on rough surfaces, probe V7FKB4 for measurement of phosphate-coatings
- Module SIGMASCOPE®/PHASCOPE® 1 with the probes ESD20 Zn and ESD2.4 for measurement of copper or zinc coatings on steel and cast-iron parts
- Support stand V12 MOT or V12 BASE for measurement on small parts such as nuts and screws

Measuring station lacquer laboratory
Measuring station for determining the coating thickness of:
- Lacquer coatings on nonferrous metals
- Lacquer coatings on iron or steel
- Duplex measurements, i.e. lacquer on zinc on iron or steel with simultaneous measurement of both coatings

Assembly
- Module PERMASCOPE® with probe FD13H
- Module PHASCOPE® DUPLEX with probe ESG20
- Support stand V12 MOT for automatic scanning of lacquered metal sheets



Measuring station printed circuit board (PCB)
Measuring station for almost all measuring applications with PCB's. In the case of extremely thin coatings, we also recommend the instruments of our X-RAY product line.

Assembly
- Module SIGMASCOPE®/PHASCOPE® 2 with probe ESL080V for measuring the Cu through-connection
- Module SIGMASCOPE®/PHASCOPE® 1 with probe ESD20 Cu for measuring the copper coatings under solder resist coatings
- Module SR-SCOPE® with probe ERCU-D10 for measuring the copper coating on multilayers without interference in the measuring result from copper coatings on inner layers
- Module PERMASCOPE® with probe FTA3.3-5.6HF for measuring the solder resist coatings and protective coatings on thin copper intermediate layers and probe FKB10-OD for measuring the total PCB thickness

The FISCHERSCOPE MMS PC2 offers a wide variety of possibilities for evaluating your measuring results.

Evaluation and statistics functions

- Display of important statistical characteristics such as mean value, standard deviation, min, max, and range
- Statistics display of the important characteristics in the block and final result
- Graphic display as a histogram, sum frequency chart, FDD
- Possibility of entering the process tolerance limits and calculation of the corresponding process capability indices c_p and c_{pk}

Measurement print forms

For a clear presentation of your measurement results, you can create print forms that present the measurements and statistical evaluations in a clearly organised manner. It is possible to incorporate e.g. your company logo and a sketch of the specimen in the print forms. You may define the layout and contents of a print form in templates. You can create a separate template for each application.

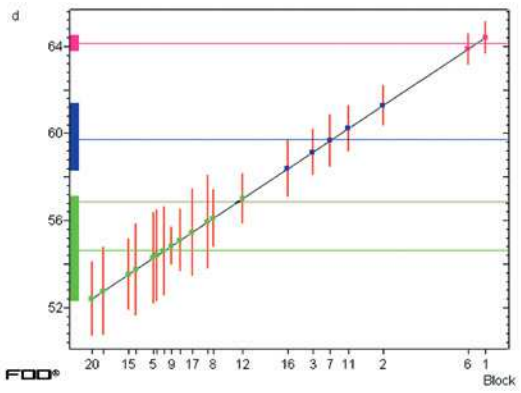
Data export

You can export your measuring data quickly and easily. It is possible to define what to export in templates. You can create a different template for each application. Possible formats: PDF, ASCII, Excel, Q-DAS, HTML

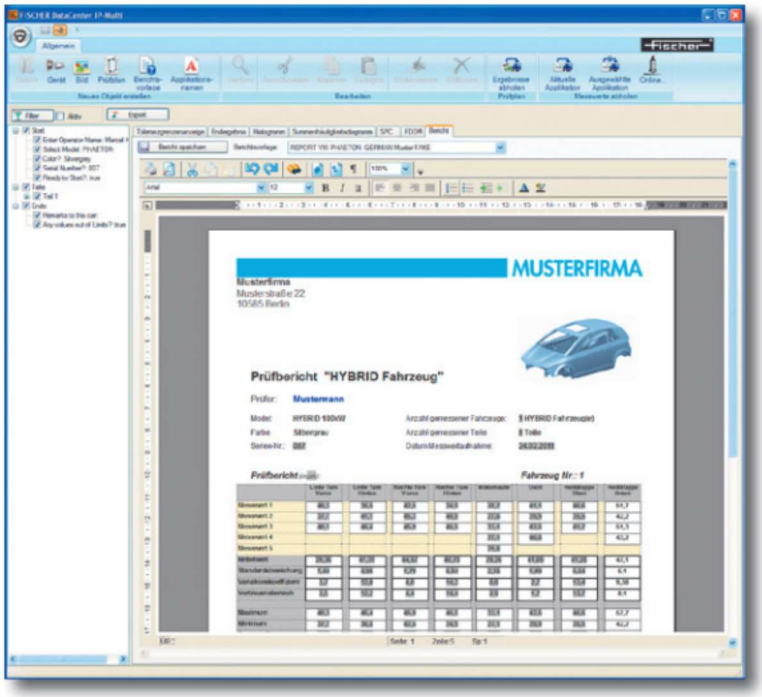
FISCHER DataCenter ►

The PC software FISCHER DataCenter is included in the scope of supply of the FISCHERSCOPE MMS PC2. The DataCenter software makes it possible to easily and conveniently generate individual reports and design them with your own logos, images and graphics. You can integrate any desired measurements, statistical values and graphic displays via drag and drop. In addition, you can create report templates on the basis of scanned forms.

Simple visualisation of the process quality with the factory diagnosis diagram (FDD®)



The FISCHERSCOPE MMS PC2 offers the patented factory diagnosis diagram (FDD) from FISCHER, a graphic evaluation possibility that visualises the process at a glance. An easy-to-interpret chart provides a graphic overview of the distribution of manufacturing parameters such as e.g. the coating thickness. As a result of the colour display, you receive information for optimising the production process quickly and easily without statistical calculations of your own.



Adaptable Due to Modular Structure



100 different applications - eight slots and more than 60 probes

Due to its modular design, the MMS PC2 is always right for your applications. Based on your measuring application, we assemble the measuring instrument for you with the right module boards and probes

Eight different module boards

The measurement of the physical quantities of coating thickness, electrical conductivity and ferrite content requires different test methods. In the case of coating thickness measurement, different test methods are used, depending on the coating/substrate material combination. In order to cover this wide range, we have developed eight different module boards for the MMS PC2.

Changed requirements?

You can upgrade the MMS PC2 at any time with further module boards and probes.

Interfaces

- LAN network connection
- 5 USB connections for PC, printer etc.
- RS232 interface for connecting support stand, XY measuring stage, digital measuring aids or radio interface
- Multi-function connector, e.g. for connecting signal lights for reporting when tolerance limits are exceeded
- Optional: connection for PLC integration

Features

- ☐ Coating thickness measurement and material testing with only one instrument
- ☐ Sturdy and very versatile bench-top instrument as a multifunctional measurement system with data archiving and measurement processing
- ☐ User-friendly work with a large, high-resolution LCD touchscreen and Windows® CE
- ☐ User interface can be switched between many European and Asian languages

Evaluation and data export

- ☐ Statistics functions for evaluation of the measurements: sum frequency chart, histogram and factory diagnosis diagram (FDD)
- ☐ Various graphic measurement displays for a quick overview of the production process and the product quality
- ☐ Customer-specific recording of the measurement data
- ☐ Export of the result print forms and the measurements in different data formats for evaluation in external statistics programs
- ☐ Delivery with PC software FISCHER DataCenter with following functions: transfer and archiving of measurements, comprehensive statistical and graphic evaluation possibilities, easy creation and printing of individual test reports

Hardware concept
Housing with 8 slots for module boards with different test methods.

Test method
- Magnetic method (DIN EN ISO 2178)
- Magnetic induction method (DIN EN ISO 2178, ASTM D7091)
- Amplitude sensitive eddy current test method (DIN EN ISO 2360, ASTM D7091)
- Phase sensitive eddy current test method (DIN EN ISO 21968)
- Micro-resistance method (DIN EN 14571)
- Beta-backscatter method (DIN EN ISO 3543, ASTM B567a)

Measured quantities
Coating thickness, electrical conductivity, ferrite content, temperature

Measurement probes
Connection sockets on the module boards for all FISCHER probes, simultaneous connection of max. 8 measurement probes

Software
- Windows® CE based program software
- Software available in European and Asian languages: German, English, French, Italian, Spanish, Czech, Polish, Turkish, Chinese and Japanese
- Inputs via touchscreen, mouse or keyboard (USB)
- Storage of applications, blocking of access to program functions to prevent operating errors, limit value monitoring, outlier control, calibration, block formation

Measurement storage
The instrument stores measurements in application files. The following is also saved in these files:
All settings, information on the measurement blocks, date, time and calibration data.
- Default mode: measurements are saved in successive blocks in the application. Automatic block formation after a specified number n of individual measurements. Automatic calculation of the mean value
- Matrix mode: measurements are stored in blocks which are set up in matrix form in the application. Block change in any desired block manually or automatically in a specified order

Multi-channel measurement
Measurements from up to 8 measurement probes are displayed and stored parallel in one application.

Measurement presentation
- Numeric display: list of the measurements with a large numeric display of the last individual measurement
- Specification limit display: graphical presentation of the measurements within specified limit values
- SPC chart: control chart presentation as x/R or x/s chart
- Simple display: numeric display of the last measurement
- Selectable unit of measurement for measured quantity
  - Coating thickness: metric or imperial
  - Ferrite: Fe% or WRC-FN
  - El. conductivity: % IACS or MS/m
  - Temperature: °C or °F
  - Free definition of a further unit of measurement, e.g. g/m2
- Selectable resolution of the measurement display

Screen
Large, high-resolution colour display with touchscreen function. 170 mm x 130 mm (W x H) with 800 x 600 px

Measurement accept
- Automatic after probe touchdown
- Through external start
- In continuous running mode at the push of a button
- Clocked in selected time intervals either after probe touchdown or after external start

Evaluation
Statistical evaluation of test series with mean value, standard deviation, coefficient of variation, maximum and minimum value, number of measurements, individual and block statistics, calculation of the process capability factors
C_p and C_{pk}; histogram, sum frequency chart with parameters of the distribution shape, FDD, evaluation from groups of blocks, filtered according to block designations

Dimensions (W x H x D)
360 mm x 170 mm x 270 mm

Weight (fully equipped)
approx. 5 kg

Ambient temperature
+10 °C ... +40 °C

Connections (standard)
- 1x COM1 - RS232 interface
- 1x LAN network connection
- 4x USB connections for keyboard, mouse, printer
- 1x USB connection for PC
- Multi-function connector with signal outputs for upper and lower limit violations, external start
- Jack socket for connecting e.g. a button for externally triggering the measurement capture
- Voltage supply via AC adapter 12V/1.2 A

Connectable printers
Printer with USB connection (2.0 compatible) which features one of the following printer language emulations: PCL, ESC/P

Documentation
- Printout of individual measurements, block and final results, specification limits using print form templates. Printout of SPC charts, histogram, sum frequency chart and FDD
- Print form design with customer-specific information. The instrument can store any desired number of print forms

Data storage
- In the internal memory of the instrument with 256 MB storage space
- On an external USB stick
- In the network

Data export
- Online or offline output of the measurements via the USB interface to a PC
- Online or offline output of the measurements via the RS232 interface to a PC
- Export of result print forms as text files, ASCII files for importing to Excel spreadsheets, in Q-DAS or HTML format

Module Boards/Areas of Application

Depending on the application, you can assemble your FISCHERSCOPE® MMS® PC2 with the following modules.

Applications	Module boards								Measuring method
	PERMASCOPE®	BETASCOPE®	SIGMASCOPE® / PHASCOPE®	SIGMASCOPE® / PHASCOPE® 2	PHASCOPE® DUPLEX	NICKELSCOPE®	SR-SCOPE®	TEMPERATURE	
Coating thickness measurement - electromagnetic measuring methods									
Electrically nonconductive coatings on nonferrous metals	✓				✓				Eddy current measuring method DIN EN ISO 2360
Electrically nonconductive coatings on ferromagnetic substrate materials (steel or iron)	✓								Magnetic induction measuring method DIN EN ISO 2178
Duplex coatings in heavy corrosion protection (zinc thicknesses ≥ 70 µm)	✓								Magnetic induction measuring method DIN EN ISO 2178 Eddy current measuring method DIN EN ISO 2360
Corrosion protection coatings (zinc thicknesses approx. 5 – 20 µm)					✓				Magnetic induction measuring method DIN EN ISO 2178 Phase sensitive eddy current method DIN EN ISO 21968
Coatings of Cu, Zn, Ni on ferromagnetic substrate materials (steel or iron)			✓						Phase sensitive eddy current method DIN EN ISO 21968
Metal coatings with high electrical conductivity on substrate materials of low conductivity (e.g. Cu/Ms)			✓						
Individual thicknesses of a lacquer/zinc coating system (duplex coating) on thin metal sheets in a measurement process (zinc thicknesses 5 – 20 µm)					✓				
Copper on PCB material (Cu/Iso)			✓						
Copper coatings in PCB holes				✓					Phase sensitive eddy current method DIN EN ISO 21968
Galvanic nickel coatings on nonferrous metals or electrically nonconductive substrate material						✓			Magnetic method (DIN EN ISO 2178)
Non-magnetic thick coatings in the mm range (Cu, Al, Pb) on ferromagnetic substrate materials (steel or iron)						✓			
Copper coating thickness on laminates or multilayers, not affected by underlying copper coatings							✓	✓	Electrical resistance method DIN EN 14571

Substrate material nonferrous metals
Substrate material PCB material
Ferromagnetic substrate materials
Nonferrous metals and electrically nonconductive substrate materials

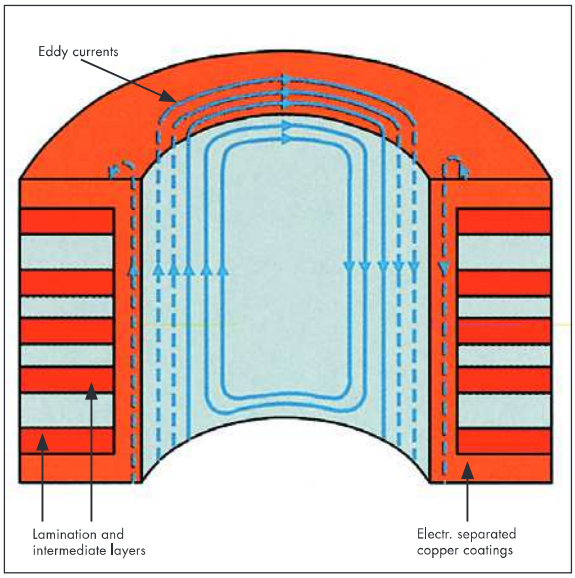
Applications	Module boards								Measuring method
	PERMASCOPE®	BETASCOPE®	SIGMASCOPE® / PHASCOPE® ·	SIGMASCOPE® / PHASCOPE® 2	PHASCOPE® / DUPLEX	NICKELSCOPE®	SR-SCOPE	TEMPERATURE	
Conductivity measurement									
Electrical conductivity of nonferrous metals			✓						Phase sensitive Eddy current method DIN EN ISO 21968
Ferrite content measurement									
Ferrite content in austenitic and duplex steels	✓								Magnetic induction method DIN EN ISO 2178
Temperature measurement									
Temperature measurement with the temperature probe TF100A (temperature probe with Pt100 sensor)								✓	Temperature recording With a Pt100 sensor, measurement range -20 °C to +80 °C
Coating thickness measurement - beta-backscatter method									
Plastic or metal coatings		✓						✓	Beta-backscatter method DIN EN ISO 3543, ASTM B567, BS 5411
Oil or wax coatings on metals		✓						✓	
Thickness inspection of foils, determination of the uniformity of cloths and fabrics		✓							Beta-backscatter method

Measurement ranges of the beta emitters

Emitter		Pm-147	Tl-204	Sr-90	C-14
Coating	Substrate material	Measurement ranges in µm			
Ag, Rh, Pd	Cu, Ni, Fe	1.2 – 4.0	5.5 – 22	15 – 70	–
Al	Cu, Ni, Fe	4.5 – 20	25 – 100	90 – 400	–
Au	Cu, Ni, Fe	0.5 – 2.0	2.5 – 10	5.5 – 35	–
Cd	Cu, Ni, Fe	1.5 – 5.0	7.0 – 30	15 – 70	–
Cr	Al	2.0 – 8.0	8.0 – 30	–	–
SnPb(60/40)	Cu, Ni, Fe	1.1 – 4.5	5.0 – 28	10 – 80	–
Ni, Cu	Ag, Mo	1.5 – 5.0	9.0 – 30	20 – 100	–
Sn	Cu, Ni, Fe	1.8 – 5.5	7.5 – 35	15 – 100	–
Zn	Fe, Al	2.0 – 6.5	4.0 – 30	–	–
Lacquer	Ni, Cu, Al	11 – 40	50 – 200	80 – 800	3 – 11
Oil, grease film	Cu, Ni, Fe, Al, Mo, Ag, Au	–	–	–	1 – 11

Measuring Methods

Phase sensitive eddy current measuring method
Standard: DIN EN ISO 21968

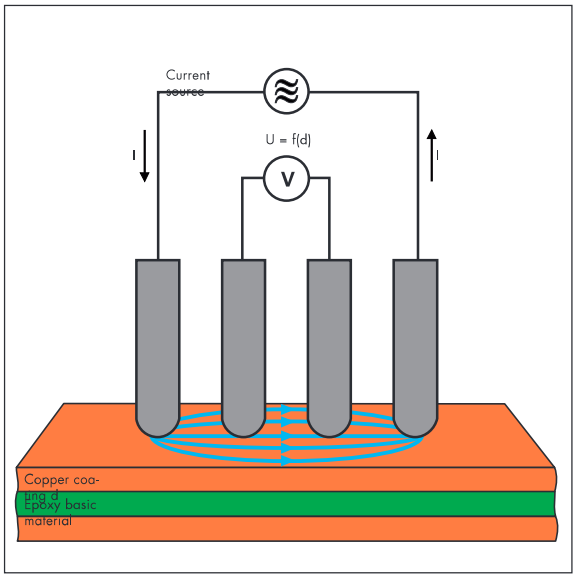


Functional principle
The high-frequency magnetic field generated in the probe induces eddy currents in the copper sleeve whose magnetic field weakens the primary magnetic field. The thicker the copper sleeve, the stronger the weakening is. A specially patented probe design results in an expansion of the eddy currents that is essentially in the longitudinal axis of the copper sleeve.

Major areas of application
- Electrical and electronics industry
- PCB manufacturing

Suitable module types
SIGMASCOPE®/PHASCOPE® 2

Micro-resistance measuring method
Standard: DIN EN 14571



Functional principle
The probe contacts the specimen surface with 4 electrodes. The two outer electrodes supply a current to the coating. The copper coating between the two inner electrodes serves as an electrical resistor at which the voltage drop is measured. This is indirectly proportional to the thickness of the copper coating. The measurement signal is converted to the coating thickness value in the measuring instrument using the probe characteristic, the functional correlation between the probe signal and the coating thickness. The electrical conductivity of the copper coating is affected by the temperature, which may make a temperature compensation necessary.

Major areas of application
- Electrical and electronics industry
- PCB manufacturing

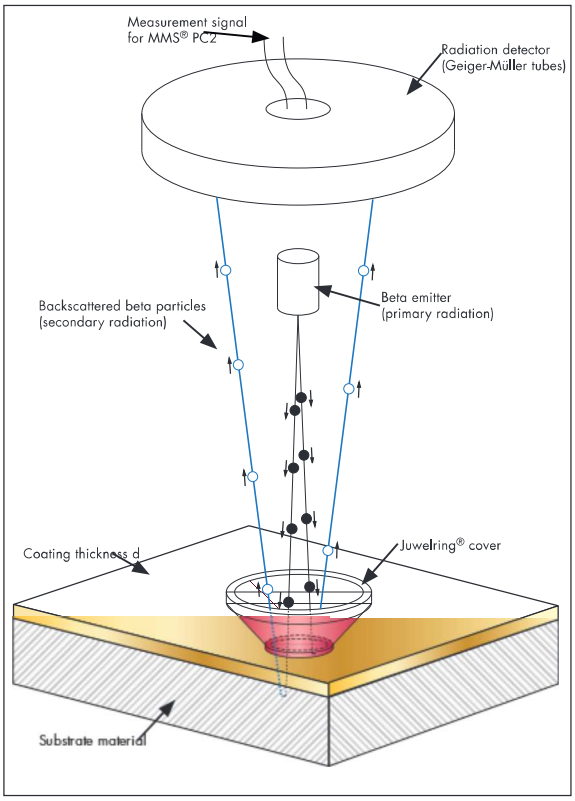
Suitable module types
SR-SCOPE®

Note
This document does not describe all measuring methods. The brochure "Probes for Coating Thickness Measurement" contains descriptions of the following methods:

- ☐ Magnetic induction measuring method
- ☐ Eddy current measuring method
- ☐ Magnetic measuring method
- ☐ Duplex measurements

Beta-backscatter measuring method

Standard: DIN EN ISO 3543, ASTM B567a



Functional principle

An isotope source emits beta radiation (electrons). These penetrate the surface of the coated workpiece and interact with the atoms of the coating and substrate material. The measurement effect consists of the number of backscattered electronics that are detected with a Geiger-Müller counter tube. The coating thickness can be determined with this method when the atomic numbers Z of the coating and substrate material differ by at least Z = 5.

Major areas of application

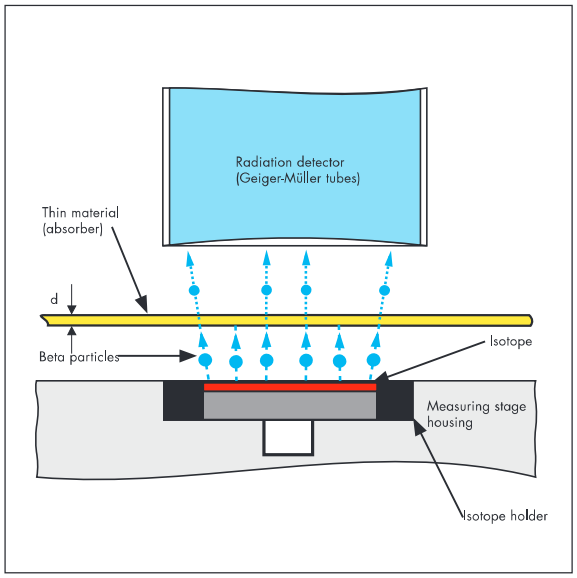
- Printed circuit board and electronics industry
- Automobile industry
- Consumer goods industry

Suitable module types

BETASCOPE®

Beta transmission method

Standard: DIN EN ISO 3543, ASTM B567a



Functional principle

Analogous to the beta-backscatter method, an isotope source emits beta radiation (electrons) that are detected by the Geiger-Müller counter tube. If a thin material, e.g. a foil or a fabric, is placed in the beam path, a portion of the radiation will be absorbed by the material. The Geiger-Müller counter tube counts the number of transmitted electrons. This allows for the measurement of changes in the mass per unit area or the coating thickness in comparison to a reference part.

Major areas of application

- Thickness inspection of foils
- Determination of the uniformity of cloths and fabrics
- Printing industry

Suitable module types

BETASCOPE®

Accessories

Support stand V12 BASE
Support stand with manual probe lowering. The support stand has a special lever mechanism that decelerates the lowering speed shortly before touching down, which causes the probe to touch down gently on the specimen surface.



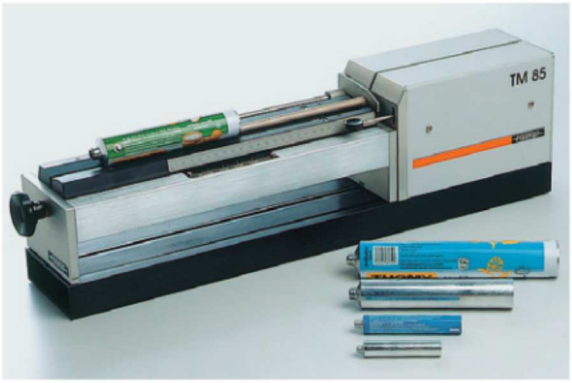
Support stand V12 MOT
Support stand with motorised probe lowering for maximum repeatability. Control directly on the support stand or via the measuring instrument FISCHERSCOPE MMS PC2. The teach-in function guarantees a gentle touchdown of the probe on the specimen surface.



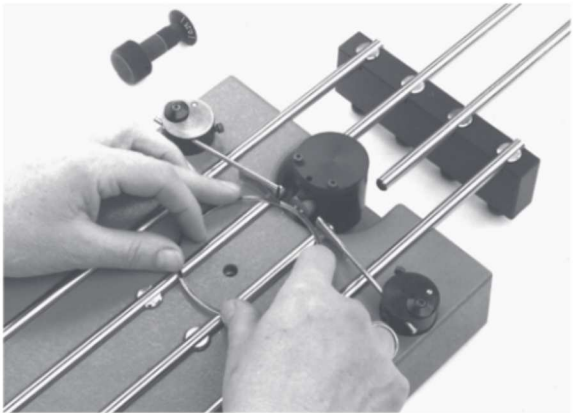
Screw measuring device
For precise measurement of coating thicknesses on metallic connection elements.



Tube measuring station TM85
For measuring the lacquer coating thickness on the inner or outer cladding of aluminum tubes and cans.



Piston ring measuring stage V4EKB4
For measuring e.g. chrome coatings on piston or oil scraper rings.



Universal measuring stage Z6NG and supplemental kit
For small parts with pressing device.



Measuring stage Z14NG
For coating thickness measurement on small parts with universal pressing device.



Angle probe Z11NG in the support stand V12
For coating thickness measurement in sleeves, pipes, bearing shells etc. of 32 mm diameter and more.



Hand probe Z15NG
For measuring thin coatings (e.g. oil and grease films), on cylindrical parts as well.



Hand probe Z9NG
For coating thickness measurement on e.g. fittings, PCB's, metal sheets etc.



Probe for inside diameters Z3NG for measurement in holes.
Touchdown probe Z3NG-A for measurement on very small measuring surfaces.



Ordering Information

Measuring instrument FISCHERSCOPE® MMS® PC2		Slots	Order number
FISCHERSCOPE® MMS® PC2 base unit with LAN, USB, RS232 and multi-function connector, Windows® CE based program software, AC adapter (220 Vac/12 Vdc), software FISCHER DataCenter and PC-Datex A description of the module boards/areas of application is found on page 8.		8 free	604-355
Module boards	Connectable probes/measuring stages	Required slots	Order number
Module board F-MODUL PERMASCOPE® for upgrading a FISCHERSCOPE MMS PC2 base unit for coating thickness measurement according to the magnetic induction and eddy current method, incl. connection socket for measurement probes with sturdy, 10-pin connector (of type "F"). For the connection of the E-probes, order the module board PERMASCOPE® MMS® PC, order number 603-382	All magnetic induction F-probes All eddy current F-probes All dual probes (FD13H, FDX13H) All FGAB1.3*Fe probes	1	604-293
Module board NICKELSCOPE® for coating thickness measurement according to the magnetic test method.	Probes of type EN3	1	603-383
Module board BETASCOPE® for coating thickness measurement according to the beta-backscatter method	Z6NG, Z9NG, Z11NG With all emitters, Z15NG	2	603-384
Module board SR-SCOPE® for copper thickness measurement on PCB's according to the electrical micro-resistance test method	ERCU D10 ERCU N	1	603-385
Module board SIGMASCOPE®/PHASCOPE®1 for measurement of the coating thickness and the electrical conductivity according to the phase sensitive eddy current test method. Measuring frequencies: 60, 120, 240, 480 and 1250 kHz	ESD20Zn (Zn/Fe; Cu/Fe) ESD20Cu, ESD20Ni, ESD2.4 ES40, ES40HF ES20, ES24	2	603-592
Module board SIGMASCOPE®/PHASCOPE®2 for measurement of the copper thickness in PCB holes. Module board only works in connection with the module board SIGMASCOPE®/PHASCOPE®1	ESL080B ESL080V	1 (3)	603-625
Module board PHASCOPE® DUPLEX for coating thickness measurement according the magnetic induction method, amplitude sensitive and phase sensitive eddy current test method	ESG20	1	603-730
Module board TEMPERATURE for temperature measurement with the temperature probe TF100A in connection with the module boards BETASCOPE® MMS® PC and SR-SCOPE® MMS® PC	Temperature probe TF100A	1	603-390
DIGITALES I/O module Interface module for MMS PC2, for PLC, electrically isolated, level 24 V		1	604-426

General accessories	Order number
Support stand V12 BASE	604-420
Support stand V12 MOT; support stand controllable from MMS PC2 for motorised probe movement	604-374
USB connection cable for printer and support stand V12 MOT	603-398
Interface cable ActiveSync; for data exchange via the RS232 interface between MMS PC2 and a PC	603-396
Interface cable LAN RJ45; for connecting the MMS PC2 to a network	603-397
Interface cable LAN RJ45 twisted for connecting the MMS PC2 to a PC with a LAN connection	603-400
Pedal for external triggering of measurement capture. Connection to the external start connection of the MMS PC2	600-152
Spare parts	Order number
Soft pencil MMS PC2	603-857
AC adapter MMS PC2 100 – 240 V	603-480
Probes	Order number
We will be happy to help you select the right probe for your measuring application from our comprehensive range of probes.	
Accessory module board BETASCOPE®	Order number
Universal measuring stage Z6NG*	602-261
Measuring stage Z14NG*	602-250
Hand probe Z9NG*	600-460
Angle probe Z11NG*	600-471
Hand probe Z15NG; only suitable for beta emitter C-14	602-789
Probe for inside diameters Z3NG	600-456
Touchdown probe Z3NG-A	600-458
Supplemental kit for universal measuring stage Z6NG	602-371
Adapter Beta 32 mm; adapter for measuring stage Z6NG for accommodating emitter and aperture ring	600-550
Centering device for hand probe Z9NG	600-461

* Select desired beta emitter from the ´following table

Emitter for beta probes and measuring stages All standard emitters available are listed in the following. Further aperture rings as well as special versions on request				Order number
Designation	Aperture ring opening	Energy	Half life	
PM-147	ø 0.63 mm	0.22 MeV	2.65 years	600-488
	0.63 x 1.2 mm			600-489
Tl-204	ø 0.63 mm	0.76 MeV	3.65 years	600-490
	0.63 x 1.2 mm			600-491
SR-90	ø 1.6 mm	2.27 MeV	28 years	600-492
C-14	ø 20 mm	0.156 MeV	5680 years	600-493

FISCHER Worldwide

Helmut Fischer GmbH
Institut für Elektronik und Messtechnik
71069 Sindelfingen, **Germany**
Tel. +49 70 31 30 30
mail@helmut-fischer.de

Fischer Instrumentation (GB) Ltd
Lymington, Hampshire SO41 8JD, **England**
Tel. +44 15 90 68 41 00
mail@fischergb.co.uk

Helmut Fischer AG
CH-6331 Hünenberg, **Switzerland**
Tel. +41 41 785 08 00
switzerland@helmutfischer.com

Fischer Instrumentation Electronique
78180 Montigny le Bretonneux, **France**
Tel. +33 1 30 58 00 58
france@helmutfischer.com

Helmut Fischer S.R.L.
20099 Sesto San Giovanni (Milano), **Italy**
Tel. +39 02 25 52 26 26
italy@helmutfischer.com

Fischer Instruments, S.A.
08018 Barcelona, **Spain**
Tel. +34 9 33 09 79 16
spain@helmutfischer.com

Helmut Fischer Meettechniek B.V.
5627 GB Eindhoven, **The Netherlands**
Tel. +31 40 248 22 55
netherlands@helmutfischer.com

Fischer Technology, Inc.
Windsor, CT 06095, **USA**
Tel. 1 (860) 683-0781
info@fischer-technology.com

Helmut Fischer S. de R.L. de C.V.
76230 Querétaro, QRO, **Mexico**
Tel. +52 1 (442) 190-99 88
hhuerta@fischer-technology.com

Fischer do Brasil
04561-001 São Paulo, **Brazil**
Tel. +55 11 35 88 09 09
brasil@helmutfischer.com

Fischer Instruments K.K.
Saitama-ken 340-0012, **Japan**
Tel. +81 4 89 29 34 55
japan@helmutfischer.com

Nantong Fischer Instrumentation Ltd
Shanghai 200333, **P.R. China**
Tel. +86 21 32 51 31 31
china@helmutfischer.com

Fischer Instrumentation (Far East) Ltd
Kwai Chung, N.T., **Hong Kong**
Tel. +852 24 20 11 00
hongkong@helmutfischer.com

Fischer Measurement Technologies (India) Pvt. Ltd
Pune 411036, **India**
Tel. +91 20 26 82 20 65
india@helmutfischer.com

Fischer Instrumentation (S) Pte Ltd
Singapore 658065, **Singapore**
Tel. +65 62 76 67 76
singapore@helmutfischer.com

Helmut Fischer Korea Co., Ltd
Seoul City, **Republic of Korea**
Tel. +82 10 34 73 12 80
korea@helmutfischer.com

www.helmut-fischer.com

09-12
05/13
902-102

Artisan Technology Group is an independent supplier of quality pre-owned equipment

Gold-standard solutions

Extend the life of your critical industrial, commercial, and military systems with our superior service and support.

We buy equipment

Planning to upgrade your current equipment? Have surplus equipment taking up shelf space? We'll give it a new home.

Learn more!

Visit us at **artisantg.com** for more info on price quotes, drivers, technical specifications, manuals, and documentation.

Artisan Scientific Corporation dba Artisan Technology Group is not an affiliate, representative, or authorized distributor for any manufacturer listed herein.

We're here to make your life easier. How can we help you today?

(217) 352-9330 | sales@artisantg.com | artisantg.com

ARTISAN® TECHNOLOGY GROUP