

# KK & S Instruments FMP10-40 Series Coating Thickness Measuring Instruments

The flexible solution for your measuring applications



# Instrument Overview







The new generation of our worldwide renowned portable instruments with plug-in type probes delivers non-destructive, high precision measurements of your coatings.

An instrument selected from our new range of coating thickness measuring instruments, combined with one of our Smart probes will meet your specific measurements requirements.

The FMP10-40 series is comprised of two model types: The base instrument FMP10-20 and the flexible, user-definable premium class FMP30-40 with up to 100 application settings.

### Features

- Non-destructive coating thickness measurement according to the magnetic induction method and/ or the eddy current method.
- Automatic probe and base material recognition.
- Large contrast-rich graphics display in a new sturdy housing.
- Simple instrument operation and versatile evaluation capabilities.
- USB communication with a PC, for the FMP30-40 also with a printer.
- Innovative probe technology with a large selection for high accuracy and an expanded measurement range.

Probes	DELTA SCOPE®	DUAL SCOPE®	ISO SCOPE®	Application	Statistics, Evaluation
plug-in type	 DELTA SCOPE® FMP30	 DUAL SCOPE® FMP40	 ISO SCOPE® FMP30	up to 100	• Statistics display of common and specific characteristic values • Tolerance monitoring • Graphical evaluation
	 DELTA SCOPE® FMP10	 DUAL SCOPE® FMP20	 ISO SCOPE® FMP10		
	Magnetic induction method	Eddy current method and magnetic induction method	Eddy current method		
	e.g., zinc on iron		e.g., paint on aluminum		
The measurement range varies depending on the probe in use. It is typically between 0 and 2000 µm.					



DELTA SCOPE® FMP40 – using a support stand, cylindrical parts are positioned and measured with accuracy.

### Top Quality

For more than 50 years, the instruments of the Helmut Fischer GmbH Institute for Electronics and Metrology have offered solutions with the highest quality standards. All instruments continue to be developed and manufactured at the headquarters facility in Sindelfingen. We are, of course, DIN ISO 9001:2000 certified. Our calibration lab is DKD accredited.

### Additional Services

- Certified calibration standards
- Calibration service
- Repair service
- Product training



## FMP10-20 Series Coating Thickness Measuring Instruments

### DELTA SCOPE® FMP10

User for the measurement of non-ferromagnetic metal coatings, e.g., chrome, copper, zinc, as well as paint, lacquer, enamel or plastic coatings on steel and iron.

### ISO SCOPE® FMP10

User for the measurement of paint, lacquer or plastic coatings on non-ferromagnetic metal substrate materials; used for anodic coatings on aluminium as well as electrically anodic coatings on aluminum and electrically conducting coatings on non conducting carrier materials.

### DUAL SCOPE® FMP20

Due to automatic substrate material recognition and the combination of both measurement methods, this universal instrument is capable of measuring numerous coatings both on iron/steel and on non-ferromagnetic metals and on non-conducting carrier materials.

The new FMP10-20 generation of proven portable instruments with wide assortment of plug-in type probes provides precise measurements. In addition to one user created calibration application, these easy to operate and sturdy instruments are suitable for virtually any coating thickness measurement requirement. The spectrum of requirements that the FMP10-20 is capable of spans from extensive painted specimens to other very specific and complex measuring challenges. Common characteristic statistical values are also determined and displayed for the measurements on the FMP10-20 Series.

Depending on your measuring application, you can make precise coating thickness measurements according to the magnetic induction method (**DELTA SCOPE® FMP10**), the eddy current method (**ISO SCOPE® FMP10**) or according to both methods combined in one instrument (**DUAL SCOPE® FMP20**).

### Characteristic features of the FMP10-20 series.

- For all magnetic induction and eddy current probes
- Automatic probe recognition
- Automatic base material recognition (FMP 20)
- User-friendly instrument operation
- USB port for data transfer to a PC
- Large, display rich in contrast with 240x160 pixels
- Ready to make measurements right after power-up
- Automatic measurement acquisition upon probe placement
- Audible signal at measurement acquisition
- Statistical display of common characteristic values such as mean value, standard deviation, min, max, range
- Easy adaptation to the shape of the specimen through a normalization by means of the ZERO key
- For strong differences in shape, additional corrective calibration using one or two calibration foils
- Master calibration for exact characteristics settings in case of extreme material and geometric properties
- Capability of storing the master calibration in the connected probe
- Units of measurement can be switched between  $\mu\text{m}$  and mils
- Adjustable instrument switch-off or continuous operation
- Various status displays (e.g., warning message when battery voltage drops)
- Lockable keyboard/restricted operating mode
- Mechanical sliders to cover keys not required for the measurement operation
- Various language settings



DUALSCOPE® FMP20 with anodized parts. Measured using a curvature-compensated probe (Fischer patent).



DELTA SCOPE® FMP10 –  
Zinc on iron



ISO SCOPE® FMP10 –  
Printed circuit boards,  
copper boards

# FMP30-40 Series Coating Thickness Measuring Instruments



The new FMP30-40 series is even more versatile than the standard models FMP10-20. These instruments integrate additional features such as more memory for numerous applications as well as extensive statistical and graphical evaluations. Tolerance limits can be entered into the calibratable applications and the production process can be analyzed statistically. The default mode can be switched to matrix mode for connected multi-point measurements. These are only a few of the many features described below.

Depending on your measuring application, you can make precise coating thickness measurements according to the magnetic induction method (**DELTA**SCOPE® FMP30), the eddy current method (**ISO**SCOPE® FMP30) or according to both methods combined in one instrument (**DUAL**SCOPE® FMP40). You will be able to measure most standard or special applications with a wide assortment of Fischer plug-in type probes.

## **DELTA**SCOPE® FMP30

Used for the measurement of non-ferromagnetic metal coatings, e.g., chrome, copper, zinc, as well as paint, lacquer, enamel or plastic coatings on steel and iron.

## **ISO**SCOPE® FMP30

Used for the measurement of paint, lacquer or plastic coatings on non-ferromagnetic metal substrate materials; used for anodic coatings on aluminium as well as anodic coatings on aluminum and electrically conducting coatings on non-conducting carrier materials.

## **DUAL**SCOPE® FMP40

Due to automatic substrate material recognition and the combination of both measurement methods, this universal instrument is capable of measuring numerous coatings both on iron/steel and on non-ferromagnetic metals and on non-conducting carrier materials.

### **Characteristic Features of the FMP30-40 Series:**

(features additional to those of the FMP10-20 series)

- Automatic base material recognition (FMP40).
- Memory for up to 20,000 readings
- Up to 100 calibratable applications
- Capability of allocating readings into up to 4,000 blocks
- Date and time stamp for blocks
- Statistics display of common characteristic values in the block and final results. Output of characteristic variance-analytical values
- Graphical measurement display as a histogram with a Gaussian plot
- Capability of entering process tolerance limits and computation of the associated process capability indices  $c_p$  and  $c_{pk}$
- Audible and visual warning when tolerance limits are exceeded
- Free-running display with additional presentation of the reading as an analog bar between the tolerance limits
- External key-triggered measurement acquisition, e.g., in hollow cylinders with small diameters
- Option to calibrate through an unknown coating (with magnetic induction method only)
- Capability to enable matrix measurement mode for connected multi-point measurements
- Capability of averaging measurement data: Only the mean value of several readings will be stored
- Measurement acquisition through area measurement possible:
  - Only the single readings until probe lift-off are captured and averaged
- Capability to measure continuously with the probe placed on the specimen
- Outlier rejection for the automatic elimination of erroneous measurements
- Correction of any stored reading
- Application linking mode: Ability for common normalization/calibration of applications
- Designations for applications through the optional PC program MP-Name
- USB port to a printer
- Battery and line power operation



*ISO*SCOPE® FMP30 –  
Light alloy rim



*DELTA*SCOPE® FMP30 –  
Truck brake disc



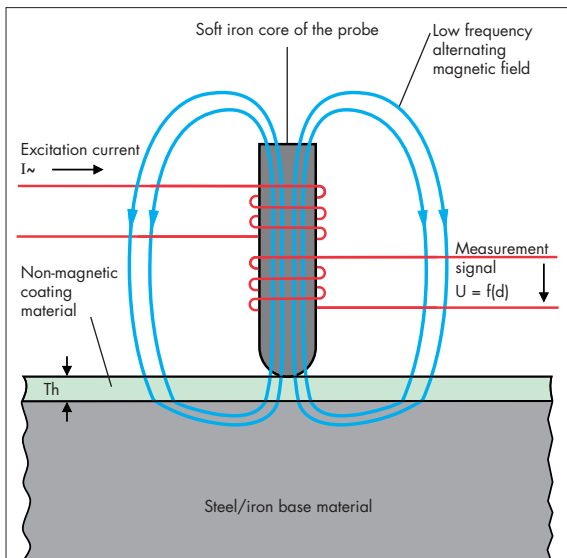
*DUAL*SCOPE® FMP40 –  
With small parts

## Magnetic induction method

The excitation current of the probe generates a low-frequency magnetic field with a strength that is dependent on the coating thickness and is amplified by the magnetic base material. The signal of the measurement coil that captures this amplification is converted to the coating thickness reading by means of the probe characteristic stored in the instrument.

### Applications

- Electroplated coatings made of zinc, chrome, copper, etc. or
- Cladded or sputtered, non-magnetic coatings, or
- Paint, lacquer, plastic coatings, etc. on steel and iron



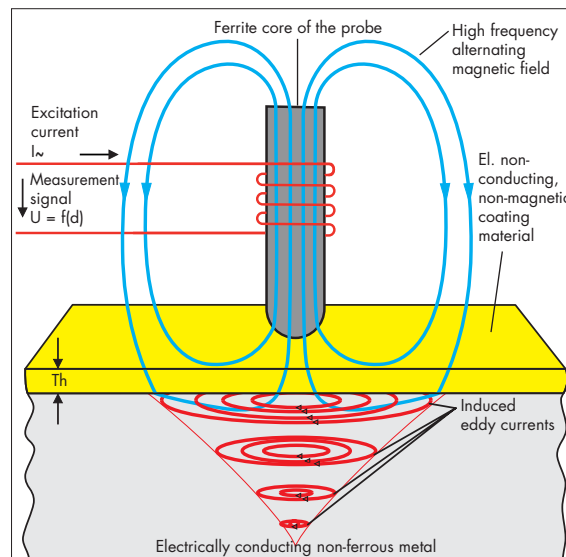
Magnetic induction method according to DIN EN ISO 2178

## Eddy current method

The excitation current of the probe generates a high-frequency primary magnetic field that induces eddy currents in the base material. Its secondary magnetic field weakens the primary field. This weakening effect corresponds to the distance (= coating thickness) between the probe and the base material and is converted to the coating thickness reading by means of the probe characteristic stored in the instrument.

### Applications

- Paint, lacquer or plastic coatings on non-ferrous metals, e.g., aluminum or stainless steel
- Anodized coatings on aluminum
- Electrically conducting coatings on electrically non-conducting carrier materials, e.g., copper on printed circuit boards



Eddy current method according to DIN EN ISO 2360

### Standard content of shipment

Standard content of shipment	Order no.
• Instrument	
DELTA SCOPE® FMP 10	604-301
ISOSCOPE® FMP 10	604-298
DUALSCOPE® FMP 20	604-285
DELTA SCOPE® FMP 30	604-297
ISOSCOPE® FMP 30	604-299
DUALSCOPE® FMP 40	604-286
• Short form operator's manual, print version	
FMP 10-20	901-095*
FMP 30-40	901-096*
• Operator's manual and USB drivers on CD	
• Carrying strap FMP	604-150*
• Interface cable FMP/PC	604-146*
• Battery set FMP (Alkaline)	604-296*
• Additionally for FMP 30-40: Carrying case FMP	

\*available as a replacement part

### Optional accessories

Optional accessories	Order no.
Carrying case FMP	604-148
Adapter E-probe/F-socket	604-214
AC adapter FMP 30-40	604-290
Rechargeable battery set FMP (NiMH)	604-295
Charger AA/Mignon	604-335
Printer cable DK-FMP	604-145
Printer F6100	604-291
Software PC-DATEX	602-465
Software PC-DATACC	603-028
Operator's manual FMP 10-20 German	901-093
Operator's manual FMP 30-40 German	901-094
Measurement stand V12	602-260
Measurement stand (motor-driven) V12-AM	603-717

## Active around the globe

The Helmut Fischer GmbH Institute for Electronics and Metrology of Sindelfingen, Germany, is a leading specialist in the fields of coating thickness measurement, materials analysis, hardness testing, el. conductivity and ferrite content measurement as well as sealing and porosity testing. Based on its extensive experience, the company is able to offer optimal solutions for projects in any of these fields.

The instruments available in the company's extensive assortment are based on the X-ray fluorescence, beta backscatter, magnetic, magnetic induction, eddy current, electrical resistance, or coulometric measuring

methods. Helmut Fischer is active around the globe with 13 Fischer subsidiaries and 32 sales offices in all key industrialized countries.

The high quality level of Helmut Fischer-instruments is driven through the cooperation with demanding partners. Helmut Fischer is a reliable and competent partner offering appropriate consultation, extensive service, and practice-oriented training events. Today, Helmut Fischer instruments are used with great success in all technical fields in industry and research.



FISCHERSCOPE® X-RAY XDAL® for coating thickness measurements and materials analyses according to the X-ray fluorescence method



FISCHERSCOPE® MMS® PC, universal measurement system for the magnetic, magnetic induction, eddy current and beta backscatter methods for coating thickness measurements and general materials testing

*The information in this brochure contains general descriptions or performance features, which may not apply in the described form in all concrete applications, or which may change due to product advancements. The desired performance features are binding only if they have been agreed upon expressly in the contract.*

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# K K & S INSTRUMENTS

Unit 29 Number 7 Anella Ave, Castle Hill. 2154

02 88503755 [www.kks.com.au](http://www.kks.com.au)

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