

# Precise Measurements – Displayed Twice!

This instrument measures coating thickness easily, quickly and non-destructively. A unit from the MP0R series is optimal for the demands of many measurement requirements. These 'smart' instruments automatically recognize the type of the coated substrate material, e.g., aluminum or steel, and selects the appropriate measurement method – Magnetic Induction or Eddy Current. This provides the assurance for precise measurements!

Depending on the measurement task and user preference, two models are available.

- The MP0R USB with the probe integrated in the unit for one-hand measurements includes memory, statistics, and download capability.
- The MP0R-SK has the probe integrated and provides a basic display of the coating thickness values.

#### Additional advantages at a glance:

- Error-free reading of the measurements in any instrument position due to two LCD displays
- Data transfer of the measurements via radio or USB cable and/or wireless radio transmitter
- Ready to measure immediately after power-up without prior calibration



# Small Size: Great Performance

All models of the MP0R series offer the following technical properties and advantages:

## Perfect for all applications

- Model DUALSCOPE® MP0R: Measures on all metallic materials (ferrous and nonferrous metals)
- Model ISOSCOPE® MP0R: Measures insulating coatings on nonferrous metals (e.g., paint or anodic coatings on Al)
- Models DELTASCOPE® MP0R and PERMASCOPE® MP0R-SK: Measure non-magnetic coatings such as paint and plating over steel or ferrous substrates.
- Automatically recognizes the substrate material under the coating. The instrument selects the appropriate measurement method (applies to DUALSCOPE® models)
- Reliable measurements. Low influence from permeability, electrical conductivity and shape of the substrate material
- Miniature size for measurements even in areas with limited accessibility
- Robust and long-lasting design
- Light weight of approx. 3 oz (without batteries)

## Made with the user in mind

- Simple one-hand operation: Place instrument on object and read the measurement
- Ergonomic design
- Fast, menu-driven parameter setting
- Automatic On and Off function, time-variable
- Warning message for low battery voltage

## Optimal measurement display

- Two LED displays allow view of readings from all instrument positions
- Backlit LED displays: To extend the battery life, display light can be turned off manually or automatically
- Acoustic and optical signal at measurement acceptance
- Acoustic and optical signal when pre-set upper or lower specification limits are exceeded

## Additional instrument functions

- Ready to measure immediately without calibration. Calibration required only for

significant changes in shape or substrate material.

- ZERO button for quick normalization to the respective shape of the measurement location (Eddy current method)
- Conductivity compensation of the reading (Eddy current method)
- Calibration with only one coating standard allows for a precise adjustment to different shapes or substrate materials
- Outlier monitoring to eliminate readings of erroneous measurements
- Display units selectable between  $\mu\text{m}$  and mill
- Measurements with continuous display mode for continuous scanning of surfaces (e.g., in boiler fabrication)
- Freely selectable offset value for an automatic subtraction of constants (e.g., for a known pre-coating)

## Evaluation and measurement data management

- Statistical evaluation at the push of a button:  
Arithmetic mean value; standard deviation, number of readings, smallest and largest value of a test series
- Upper and lower specification limits
- Storage space for max. 1,000 readings
- Measurement, normalization and calibration data are stored in the memory at all times even without battery (MP0R USB Version)

## Standard content of shipment

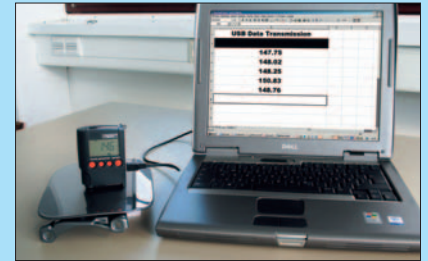
Instrument  
Carrying case, protective sleeve, carrying strap  
2 batteries LR6.AA 1.5 V  
CAL-N Fe-Base MP0R  
CAL-N Al-Base MP0R  
Calibration foil 3 mils  
Operator's manual

## Optional accessories with part number

Radio receiver USB 868 MHz	604-044
Radio receiver USB 915 MHz	604-045
Optional software PC-DATEX	602-465
Interface set MP0R-USB	604-087

## Data transfer of the measurement data via radio or USB port

The obtained measurement data can be transmitted to a computer and, for example, evaluated and documented using Excel spreadsheets (PC-DATEX). Every MP0R instrument includes a radio module and a USB port.



Data transfer via USB port (bidirectional)



Data transfer via radio across a distance of up to 60 ft. (unidirectional). The radio receiver required for this operation is available as an accessory.



The V-groove of the placement support allows for easy and reliable measurements on cylindrical parts



Measurement of the paint thickness on steel sheet using the magnetic induction method



Problem-free measurements even on cylindrical parts



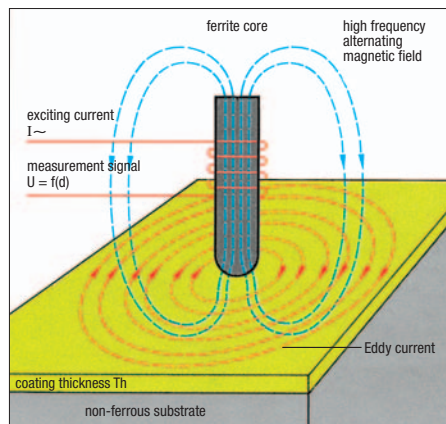
MP0R-SK Series provides quick coating thickness values on two displays

## Eddy current method

The excitation current of the measurement probe generates a high-frequency primary magnetic field that induces Eddy currents in the substrate material. The resultant secondary magnetic field weakens the primary field. This effect is a measure for the distance (= coating thickness) between the probe and the substrate material, and is converted to a coating thickness value using a probe characteristic that is stored in the instrument.

### Applications

- Paint varnish or plastic coatings on non-ferrous metals, e.g., aluminum or stainless steel
- Anodized coatings on aluminum



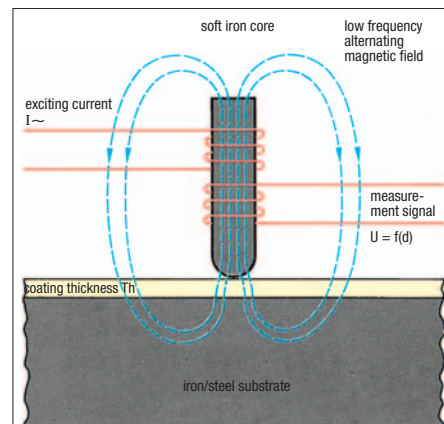
Eddy current method according to DIN EN ISO 2360.

## Magnetic induction method

The excitation current in the measurement probe generates a low-frequency magnetic field that is amplified by the magnetic substrate material corresponding to the coating thickness to be measured. The signal of a measuring coil that registers this amplification is converted to a coating thickness value using a probe characteristic that is stored in the instrument.

### Applications

- Electroplated coatings of zinc, chromium, copper, etc. or
- Plated or sputtered nonmagnetic coatings, or
- Paint, powder coating, varnish on steel or iron.



Magnetic induction method according to DIN EN ISO 2178.

## Top quality

For more than 50 years, instruments of Helmut Fischer GmbH+Co.KG offer solutions with top quality standards. All instruments are developed at the parent plant in Sindelfingen, Germany. Of course we are certified according to ISO 9001:2000. Our calibration lab is DKD accredited according to EN ISO/IEC 17025.

### Additional services:

- Certified calibration standards are available
- Calibration service
- Repair service
- Product training
- Application lab

## Conforms to these and other standards:

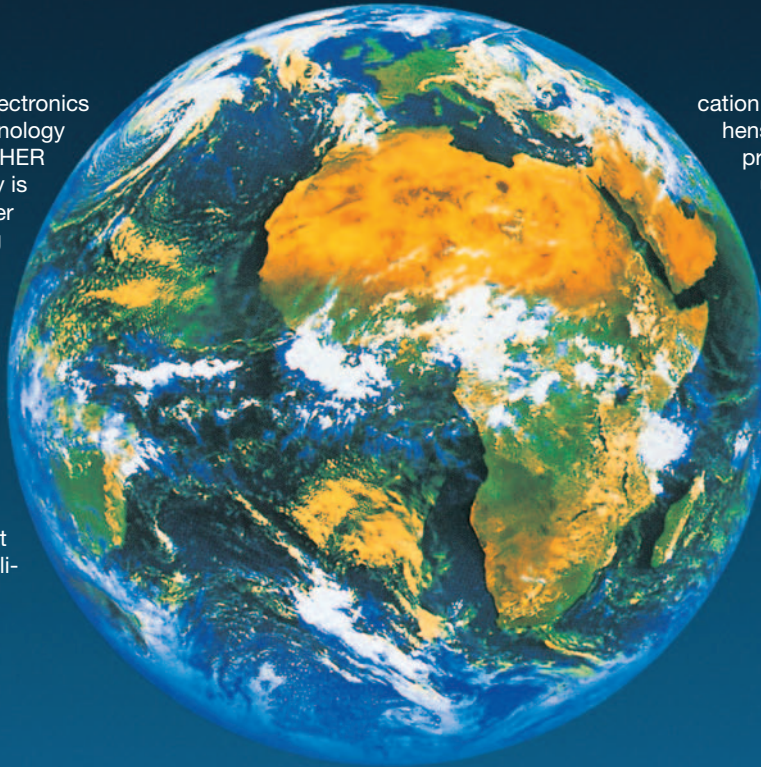
ISO 2178	D7091
ISO 2360	E376
ISO 2808	G12
EN ISO 19840	SSPC-PA2
ASTM B499	BS3900-C5
D1186	BS EN ISO 1461
D1400	

### Abbreviations used:

- NF** Nonferrous metals (non-ferromagnetic properties)
- Fe** Iron or steel (with ferromagnetic properties)
- iso** Material with insulating properties, i.e., electrically non-conducting, e.g., paint

	PERMASCOPE® MPOR-SK	DUALSCOPE® MPOR-SK	DELTASCOPE® MPOR USB	DUALSCOPE® MPOR USB	ISOSCOPE® MPOR USB	DUALSCOPE® MPORH USB
<b>Model No.</b>	603-779	603-780	603-543/DEL	604-051	604-066	604-055
<b>Measuring applications and measurement ranges</b>	NF/Fe 0 - 80 mils (0 - 2000 µm)	NF/Fe 0 - 80 mils (0 - 2000 µm)  NC/NF 0 - 80 mils (0 - 2000 µm)	NF/Fe 0 - 80 mils (0 - 2000 µm)	NF/Fe 0 - 80 mils (0 - 2000 µm)  NC/NF 0 - 80 mils (0 - 2000 µm)	NC/NF 0 - 47 mils (0 - 1200 µm)	NF/Fe 0 - 275 mils (0 - 7000 µm)  NC/NF 0 - 100 mils (0 - 2500 µm)
<b>Trueness based on Fischer Standards</b>	PERMASCOPE® & DUALSCOPE® NF/Fe 0 - 3 mils (0 - 75 µm) ± 1.5 µm 3 - 40 mils (75 - 1000 µm) ≤ 2 % 40 - 80 mils (1000 - 2000 µm) ≤ 3 %  DUALSCOPE® only NC/NF 0 - 2 mils (0 - 50 µm) ± 1 µm 2 - 40 mils (50 - 1000 µm) ≤ 2 % 40 - 80 mils (1000 - 2000 µm) ≤ 3 %		DELTASCOPE® & DUALSCOPE® NF/Fe 0 - 3 mils (0 - 75 µm) ± 1.5 µm 3 - 40 mils (75 - 1000 µm) ≤ 2 % 40 - 80 mils (1000 - 2000 µm) ≤ 3 %  DUALSCOPE® only NC/NF 0 - 2 mils (0 - 50 µm) ± 1 µm 2 - 40 mils (50 - 1000 µm) ≤ 2 % 40 - 80 mils (1000 - 2000 µm) ≤ 3 %		NC/NF 0 - 2.7 mils (0-70 µm) ± 1 µm 2.7 - 10 mils (70-250 µm) ± 1.5 µm 10 - 40 mils (250-1000 µm) ≤ 3 %	NF/Fe 0 - 6 mils (0 - 150 µm) ± 5 µm 6 - 120 mils (150 - 3000 µm) ≤ 3 % 120 - 234 mils (3000 - 6000 µm) ≤ 5 %  NC/NF 0 - 8 mils (0 - 200 µm) ± 1 µm 8 - 40 mils (200 - 1000 µm) ≤ 2 % 40 - 100 mils (1000 - 2500 µm) ≤ 3 %
<b>Repeatability based on Fischer Standards</b>	PERMASCOPE® & DUALSCOPE® NF/Fe 0 - 2 mils (0 - 50 µm) ≤ 0.25 µm 2 - 80 mils (50 - 2000 µm) ≤ 0.5 %  DUALSCOPE® only NC/NF 0 - 4 mils (0 - 100 µm) ≤ 0.5 µm 4 - 80 mils (100 - 2000 µm) ≤ 0.5 %		DELTASCOPE® & DUALSCOPE® NF/Fe 0 - 2 mils (0 - 50 µm) ≤ 0.25 µm 2 - 80 mils (50 - 2000 µm) ≤ 0.5 %  DUALSCOPE® only NC/NF 0 - 4 mils (0 - 100 µm) ≤ 0.5 µm 4 - 80 mils (100 - 2000 µm) ≤ 0.5 %		NC/NF 0 - 2 mils (0 - 50 µm) ≤ 0.25 µm 2 - 40 mils (50 - 1000 µm) ≤ 0.5 %	NF/Fe 0 - 8 mils (0 - 200 µm) ≤ 2 µm 8 - 28 mils (200 - 6000 µm) ≤ 1 %  NC/NF 0 - 2 mils (0 - 50 µm) ≤ 0.5 µm 2 - 40 mils (50 - 1000 µm) ≤ 1 % 40 - 86 mils (1000 - 2200 µm) ≤ 1.5 %
<b>Test Method</b>	Magnetic induction	Magnetic induction, Eddy current	Magnetic induction	Magnetic induction, Eddy current	Eddy current	Magnetic method, Eddy current
<b>Memory and Statistics</b>			✓	✓	✓	✓
<b>Radio Data Comm.</b>			✓	✓	✓	✓
<b>USB Data Comm.</b>			✓	✓	✓	✓
<b>Weight</b>	2.12 oz (without batteries)					
<b>Power Supply</b>	2 x 1R6.AA 1.5 V					
<b>Dimensions</b>	W x D x H: 2.5" x 1.2" x 3.4" (64 mm x 30 mm x 85 mm)					
<b>Option 603-544</b>	915 MHz Radio receiver with PC Datex software					
<b>Option 603-544/USB</b>	915 MHz Radio Receiver with PC Datex software & USB					

The Institute for Electronics and Measurement Technology HELMUT FISCHER in Sindelfingen/Germany is an innovative leader in the field of coating thickness measurement, material analysis, microhardness testing, electrical conductivity- and ferrite content measurement as well as for density and porosity testing. The company is able to recommend the best solution for any appli-



cation. A comprehensive range of products is offered using X-ray fluorescence; Beta-backscatter; Magnetic; Magnetic induction; Electric resistance; Eddy current and Coulometric techniques. HELMUT FISCHER has 13 subsidiary companies and more than 30 marketing agencies strategically located around the globe.



Fischer Technology hand held coating thickness gauges also come with interchangeable separate probes.



Fischer Technology offers the widest assortment of "Smart" coating thickness probes for virtually any application.

The information in this brochure contains only general descriptions and performance features that do not always apply as written, or that may be changed due to continuous development of the products. The desired performance features are binding only if they are expressly agreed upon in the contract.

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The high quality standard of FISCHER instruments is the result of our efforts to provide the very best instrumentation to our customers.

FISCHER is a reliable and competent partner, offering expert advice, extensive service, and training seminars.

Today, FISCHER instruments are used successfully in all technological fields of industry and research.

Subject to change,

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**Helmut Fischer GmbH+Co.KG**  
Industriestraße 21  
71069 Sindelfingen, **Germany**  
Tel. +49 70 31 30 30  
Fax +49 70 31 30 379  
mail@helmut-fischer.de  
Internet: www.Helmut-Fischer.com



**Fischer Instrumentation (G.B.) Ltd.**  
Gordleton Industrial Park  
Hannah Way, Pennington  
Lymington/Hampshire SO41 8JD, **England**  
Tel. +44 15 90 68 41 00, Fax +44 15 90 68 41 10  
Internet: www.fischergb.co.uk  
E-Mail: mail@fischergb.co.uk



**Fischer Technology, Inc.**  
750 Marshall Phelps Road  
Windsor, CT 06095, **USA**  
Tel. (860) 683 - 0781, Fax (860) 688 - 8496  
Internet: www.fischer-technology.com  
E-Mail: info@fischer-technology.com



**Sole Agent for Helmut Fischer GmbH+Co.KG, Germany:**

**Helmut Fischer Elektronik und Messtechnik AG**  
CH-6331 Hünenberg, **Switzerland**  
Tel. +41 41 785 08 00, Fax +41 41 785 08 01  
E-Mail: switzerland@helmutfischer.com

**Branch Offices of Helmut Fischer AG, Switzerland:**

**Fischer Instrumentation Electronique**  
78180 Montigny le Bretonneux, **France**  
Tel. +33 1 30 58 00 58, Fax +33 1 30 58 89 50  
E-Mail: france@helmutfischer.com

**Helmut Fischer S.R.L., Tecnica di Misura**  
20128 Milano, **Italy**  
Tel. +39 0 22 55 26 26, Fax +39 0 22 57 00 39  
E-Mail: italy@helmutfischer.com

**Fischer Instruments, S.A.**  
08018 Barcelona, **Spain**  
Tel. +34 9 33 09 79 16, Fax +34 9 34 85 05 94  
E-Mail: spain@helmutfischer.com

**Helmut Fischer Meettechniek B.V.**  
5627 GB Eindhoven, **The Netherlands**  
Tel. +31 4 02 48 22 55, Fax +31 4 02 42 88 85  
E-Mail: netherlands@helmutfischer.com

**Fischer Instruments K.K.**  
Saitama-ken 340-0012, **Japan**  
Tel. +81 4 89 29 34 55, Fax +81 4 89 29 34 51  
E-Mail: japan@helmutfischer.com

**Fischer Instrumentation (Far East) Ltd.**  
Kwai Chung, N.T., **Hong Kong**  
Tel. +852 24 20 11 00, Fax +852 24 87 02 18  
E-Mail: hongkong@helmutfischer.com

**Fischer Instrumentation (S) Pte Ltd.**  
Singapore 118529, **Singapore**  
Tel. +65 62 76 67 76, Fax +65 62 76 76 67  
E-Mail: singapore@helmutfischer.com

**Nantong Fischer Instrumentation Ltd.**  
Shanghai 200437, P.R.C., **China**  
Tel. +86 21 65 55 74 55, Fax +86 21 65 55 24 41  
E-Mail: china@helmutfischer.com

**Fischer Measurement Technologies (India) Pvt. Ltd.**  
Pune 411036, **India**  
Tel. +91 20 26 82 20 65, Fax +91 20 26 82 20 75  
E-Mail: india@helmutfischer.com



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