

DUALSCOPE® MPOR
DUALSCOPE® MPOR-FP
DUALSCOPE® MPOR-FPW
DUALSCOPE® MPOR-FP-BT

Pocket Instruments with PC-Interface for
Convenient and Fast Coating Thickness
Measurement on Virtually all Metals



Description

Instrument properties	<p>The DUALSCOPE MPOR and MPOR-FP instruments measure coating thicknesses easily, quickly, non-destructively and with the precision that is typical for all Fischer instruments.</p> <ul style="list-style-type: none"> • Ideal for onsite applications due to the compact size, the light weight and the robust and durable instrument design • Intuitive operation of the menu navigation and graphic display. The display turns automatically, like a smart phone • Second display for reading the measurement results directly on the top side of the instrument, e.g., for measuring overhead • Different languages are selectable • Manufacturer's certificate, included in the scope of supply
Generating measurements	<ul style="list-style-type: none"> • The specimen's shape and permeability have a comparatively low influence on the measurement results • Patented conductivity compensation for measurements on non-magnetic substrate materials • Two special measuring modes in accordance with the measurement regulations IMO PSPC (90/10-Rule) and SSPC-PA2

Applications

	Steel or iron substrates (Fe)	Nonferrous metal substrates (NF)
Examples	<ul style="list-style-type: none"> • Zinc, chromium, copper, paint, varnish and plastic coatings on steel, iron or cast iron (Fe) 	<ul style="list-style-type: none"> • Paint, varnish or plastic coatings on aluminium, copper or brass • Anodized coatings on aluminium

The instruments are applicable for measurements both on smooth and rough surfaces

Models

	<ul style="list-style-type: none"> • DUALSCOPE MPOR: Probe integrated in the measuring instrument for single-handed operation • DUALSCOPE MPOR-FP: Probe with cable (80 cm; 31.5 ") permanently connected to the instrument, for measurements on various specimen shapes • DUALSCOPE MPOR-FPW: Angled probe with cable (80 cm; 31.5 ") permanently connected to the instrument, for measurements on various specimen shapes and in pipes and cavities • DUALSCOPE MPOR-FP-BT: Probe with cable (80 cm; 31.5 ") permanently connected to the instrument and a Bluetooth® interface additional to the USB port, for measurements on various specimen shapes
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Evaluation

Statistics	Display of mean value, standard deviation, MIN, MAX and number of measurements per block
PC software included in the scope of supply	PC software FISCHER DataCenter with the following functionality: Transferring and archiving measurement data, comprehensive statistical and graphical evaluations, easy creation and printing of inspection reports

Measuring Modes

Standard (Std)	Standard measuring mode for simple, universal coating thickness measurements, all measurement functions are available.
IMO PSPC 90/10 (90.10)	90/10 rule stored in the instrument for coating thickness measurements according to the requirements of the "Performance Standard for Protective Coatings" of the International Maritime Organization (IMO PSPC).
SSPC-PA2 (SSPC)	Coating thickness measurement according to the test specification SSPC-PA2 of the Society for Protective Coatings (SSPC).

Measurement Functions

Block size	Adjustable between 2 and 20 single readings per block
Tolerance limits	Adjustable, depending on the selected measuring mode
Offset value	In the standard mode, the freely adjustable offset value is deducted automatically from the measured value. Thus, one obtains the thickness of the top coating if for instance the interim coating is known.
Units of measurement	Selectable μm or mils
Continuous display mode	Measurement in "continuous display mode" for continuous sampling of the surfaces, e.g., in the manufacture of tanks and containers.
Normalization	Adaptation to the substrate material and the shape of the specimen.
Calibration	<p><i>Factory calibration</i></p> <p>Each individual instrument is factory calibrated at several reference points with the greatest care to ensure the highest possible degree of trueness.</p> <p><i>Corrective calibration (Adjustment)</i></p> <p>Adaptation to the substrate material and the shape of the specimen and to a thickness value using a calibration foil.</p> <p><i>Simple Calibration</i></p> <p>Adaption to the coating and substrate material in one step using a coated reference part with a coating thickness higher than 200 μm (7.87 inches). Nevertheless, this kind of calibration supplies only a lower accuracy as specified in the sections Trueness and Repeatability Precision.</p>

General Features

Measuring method	<p>Magnetic induction method (ISO 2178, ASTM D7091, Measurement of non-magnetic coatings on magnetic substrates);</p> <p>Eddy current method (ISO 2360, ASTM D7091, Measurement of non-conductive coatings on non-magnetic substrate metals);</p> <p>Automatic selection of the measuring method corresponding to the substrate material</p>
Probe	Probe tip radius: 2 mm (78 mils); Probe tip material: Hard metal
Data memory	Max. 10,000 individual readings; the contents of the memory is retained even without batteries
Measuring frequency	More than 70 measurements per minute
Measurement acquisition	Automatic upon placement of the probe; indication of the measurement with a beep visually with a green lit LED
Display limit value violation	Acoustically through 2 short beeps and visually with a red lit LED
Display	<ul style="list-style-type: none"> • Graphic display with an automatically turning display in order to read the measurement results in many different instrument positions • LCD display on the top side of the instrument, e.g., for reading the measurement value for measuring overhead
Languages	Many different display languages are selectable: German, English and several other European and Asian languages
USB port	2.0 compatible, mini type B socket, for connecting a PC
Bluetooth interface model DUALSCOPE MPOR-FP-BT only	Bluetooth module integrated in the instrument model DUALSCOPE MPOR-FP-BT, Bluetooth v2.1 + EDR, class 2
Data transfer	Single readings, mean values, group separator
Admissible ambient temperature range during operation	0 ... +40 °C (+32 ... +104 °F)

DUALSCOPE® MPOR Models

Weight (incl. batteries)

MPOR: approx. 137 g (4.8 oz); MPOR-FP, MPOR-FPW, MPOR-FP-BT: approx. 184 g (6.5 oz)

Power supply

2 Batteries, LR6, AA, 1.5 V

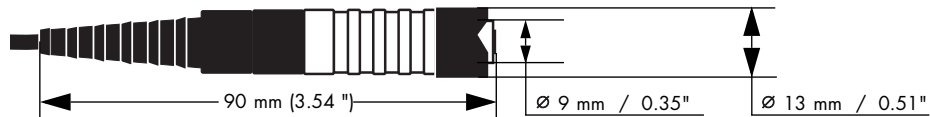
Dimensions

Instrument

Width: 64 mm (2.52 "); Depth: 28 mm (1.10 "); Height: 85 mm (3.35 ")

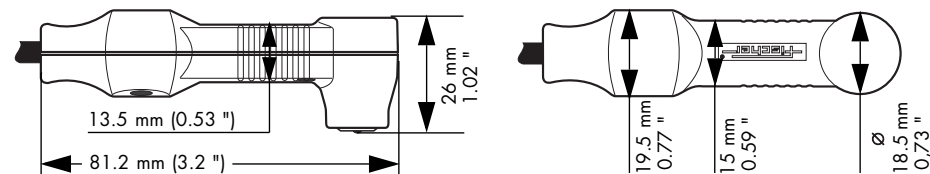
Probe of instruments MPOR-FP

Cable length: 800 mm (31.5 ")



Probe of instruments MPOR-FPW

Cable length: 800 mm (31.5 ")



Measurement Range

Steel or iron substrates (Fe)

0 ... 2000 μm (78 mils)

Nonferrous metal substrates (NF)

0 ... 2000 μm (78 mils)

Trueness

based on Fischer factory calibration standards

Steel or iron substrates (Fe)

0 ... 75 μm : $\leq 1.5 \mu\text{m}$
75 ... 1000 μm : $\leq 2 \%$ of nominal value
1000 ... 2000 μm : $\leq 3 \%$ of nominal value
0 ... 2.9 mils: ≤ 0.06 mils
2.9 ... 39 mils: $\leq 2 \%$ of nominal value
39 ... 78 mils: $\leq 3 \%$ of nominal value

Nonferrous metal substrates (NF)

0 ... 50 μm : $\leq 1 \mu\text{m}$
50 ... 1000 μm : $\leq 2 \%$ of nominal value
1000 ... 2000 μm : $\leq 3 \%$ of nominal value
0 ... 2 mils: ≤ 0.039 mils
2 ... 39 mils: $\leq 2 \%$ of nominal value
39 ... 78 mils: $\leq 3 \%$ of nominal value

Repeatability Precision

based on Fischer factory calibration standards, 5 single readings on each standard

Steel or iron substrates (Fe)

0 ... 50 μm : $\leq 0.25 \mu\text{m}$
50 ... 2000 μm : $\leq 0.5 \%$ of reading
0 ... 2 mils: ≤ 0.0098 mils
2 ... 78 mils: $\leq 0.5 \%$ of reading

Nonferrous metal substrates (NF)

0 ... 100 μm : $\leq 0.5 \mu\text{m}$
100 ... 2000 μm : $\leq 0.5 \%$ of reading
0 ... 3.9 mils: ≤ 0.0195 mils
3.9 ... 78 mils: $\leq 0.5 \%$ of reading

Ordering Data

605-097

DUALSCOPE MPOR, probe integrated in the measuring instrument

605-114

DUALSCOPE MPOR-FP, probe with cable permanently connected to the instrument

605-239

DUALSCOPE MPOR-FPW, angled probe with cable permanently connected to the instrument

605-388

DUALSCOPE MPOR-FP-BT, probe with cable permanently connected to the instrument and a Bluetooth interface additional to the USB port

Scope of Supply

Instrument case; instrument encased in an impact protective cover; lanyard; 2 batteries; metal plates NF/FE and ISO/NF for testing purposes; calibration foil (foil thickness about 75 μm (2.95 inches)); operator's manual; manufacturer's certificate; USB cable; support CD with USB drivers, software program FISCHER DataCenter for convenient evaluating, documenting and archiving of the measurement data, software program PC-Datex for exporting the measurement data to an Excel spreadsheet

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