# MP0R Instrument Series


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


# MP0R instrument series - Overview

Overview of the various models of the MP0R instrument series

| Instrument models | Application | | | Probe | Probe | USB | Bluetooth® |
|---|---|---|---|---|---|---|---|
| | NC/Fe | NF/Fe | NC/NF | integrated in the instrument case | with cable permanently connected at the instrument | Mini USB port | module integrated in the instrument |
| PERMASCOPE® MP0R<br>605-117, see page 3 | ● | ● | | ● | | ● | |
| PERMASCOPE® MP0R-FP<br>605-118, see page 3 | ● | ● | | | ● | ● | |
| ISOSCOPE® MP0R<br>605-116, see page 7 | | | ● | ● | | ● | |
| DUALSCOPE® MP0R<br>605-097, see page 11 | ● | ● | ● | ● | | ● | |
| DUALSCOPE® MP0R-FP<br>605-114, see page 11 | ● | ● | ● | | ● | ● | |
| DUALSCOPE® MP0R-FPW<br>605-239, see page 11 | ● | ● | ● | | ● | ● | |
| DUALSCOPE® MP0R-FP-BT<br>605-388, see page 11 | ● | ● | ● | | ● | ● | ● |
| DUALSCOPE® MP0RH-FP<br>605-115, see page 15 | ● | ● | ● | | ● | ● | |

NC/Fe: Non conductive coating material on ferrous metals
NF/Fe: Non magnetic coating material on ferrous metals
NC/NF: Non conductive coating material on non-ferrous metals

# PERMASCOPE® MP0R
# PERMASCOPE® MP0R-FP

Pocket Instruments with PC-Interface for Convenient and Fast Coating Thickness Measurement on Steel and Iron

# PERMASCOPE® MP0R Models

## Description

The PERMASCOPE measuring instruments measure coating thicknesses easily, quickly, non-destructively and with the precision that is typical for all Fischer instruments.

**Instrument properties**

- 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**

- The specimen's shape and permeability have a comparatively low influence on the measurement results
- Two special measuring modes in accordance with the measurement regulations IMO PSPC (90/10-Rule) and SSPC-PA2

## Applications

**Steel or iron substrates (Fe)**

**Examples**

- Zinc, chromium, copper, paint, varnish and plastic coatings on steel, iron or cast iron (Fe)
- Measurements both on smooth and rough surfaces

The instruments are particularly suited for highly precise measurements of thin coating.

## Models

- PERMASCOPE MP0R: Probe integrated in the measuring instrument for single-handed operation
- PERMASCOPE MP0R-FP: Probe with cable (80 cm; 31.5 ") permanently connected to the instrument, for measurements on various specimen shapes

## 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 | *Factory calibration*<br>Each individual instrument is factory calibrated at several reference points with the greatest care to ensure the highest possible degree of trueness.<br>*Corrective calibration (Adjustment)*<br>Adaptation to the substrate material and the shape of the specimen and to a thickness value using a calibration foil.<br>*Simple Calibration*<br>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. |

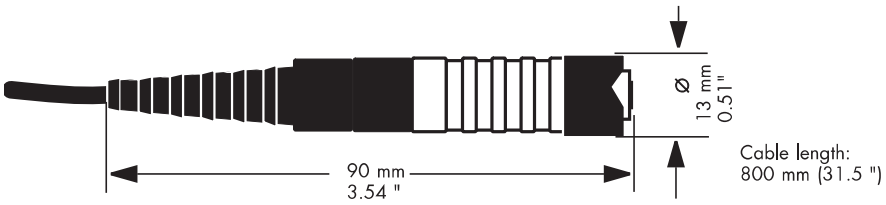
## General Features

| | |
|---|---|
| Measuring method | Magnetic induction method (ISO 2178, ASTM D7091, Measurement of non-magnetic coatings on magnetic substrates) |
| 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 | • Graphic display with an automatically turning display in order to read the measurement results in many different instrument positions<br>• 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 |
| Data transfer | Single readings, mean values, group separator |
| Admissible ambient temperature range during operation | 0 … +40 °C (+32 … +104 °F) |

# PERMASCOPE® MP0R Models

| | |
|---|---|
| Weight (incl. batteries) | MP0R: 137 g (4.8 oz)<br>MP0R-FP: 184 g (6.5 oz) |
| Power supply | 2 Batteries, LR6, AA, 1.5 V |

## Dimensions

| | |
|---|---|
| Instrument | Width: 64 mm (2.5 "); depth: 28 mm (1.1 "); height: 85 mm (3.35 ") |
| Probe of instrument MP0R-FP |  |

## Measurement Range

0 ... 2500 µm (97.5 mils)

## Trueness

| | | |
|---|---|---|
| based on Fischer factory calibration standards | 0 ... 100 µm: ≤ 1.5 µm<br>100 ... 1000 µm: ≤ 1.5 % of reading<br>1000 ... 2500 µm: ≤ 3 % of reading | 0 ... 3.9 mils: ≤ 0.06 mils<br>3.9 ... 39 mils: ≤ 1.5 % of reading<br>39 ... 97.5 mils: ≤ 3 % of reading |

## Repeatability Precision

| | | |
|---|---|---|
| based on Fischer factory calibration standards, 5 single measurement readings on each standard | 0 ... 100 µm: ≤ 0.3 µm<br>100 ... 2500 µm: ≤ 0.3 % of reading | 0 ... 3.9 mils: ≤ 0.0117 mils<br>3.9 ... 97.5 mils: ≤ 0.3 % of reading |

## Ordering Data

| | |
|---|---|
| 605-117 | PERMASCOPE MP0R, probe integrated in the measuring instrument |
| 605-118 | PERMASCOPE MP0R-FP, probe with cable (80 cm; 31.5 ") permanently connected to the instrument |

## Scope of Supply

Instrument case; instrument encased in an impact protective cover; lanyard; 2 batteries; metal plate NF/FE 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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# ISOSCOPE® MP0R

## Pocket Instrument with PC-Interface for Convenient and Fast Coating Thickness Measurement on Virtually all Non-Ferrous Metals

## Description

The ISOSCOPE measuring instrument measures coating thicknesses easily, quickly, non-destructively and with the precision that is typical for all Fischer instruments.

**Instrument properties**

- 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**

- 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

**Nonferrous metal substrates (NF)**

**Examples**

- Paint, varnish or plastic coatings on aluminium, copper or brass
- Anodized coatings on aluminium

The instrument is particularly suited for highly precise measurements of thin coatings.

## 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 | *Factory calibration*<br>Each individual instrument is factory calibrated at several reference points with the greatest care to ensure the highest possible degree of trueness.<br>*Corrective calibration (Adjustment)*<br>Adaptation to the substrate material and the shape of the specimen and to a thickness value using a calibration foil.<br>*Simple Calibration*<br>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. |

## General Features

| | |
|---|---|
| Measuring method | Eddy current method (ISO 2360, ASTM D7091, Measurement of non-conductive coatings on non-magnetic substrate metals) |
| Probe | Probe tip radius: 1.2 mm (46.8 mils); Probe tip material: Ruby |
| 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 | • Graphic display with an automatically turning display in order to read the measurement results in many different instrument positions<br>• 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 |
| Data transfer | Single readings, mean values, group separator |
| Admissible ambient temperature range during operation | 0 ... +40 °C (+32 ... +104 °F) |

| | |
|---|---|
| Weight (incl. batteries) | 137 g (4.8 oz) |
| Power supply | 2 Batteries, LR6, AA, 1.5 V |
| Dimensions (W x D x H) | Width: 64 mm (2.5 "); depth: 28 mm (1.1 "); height: 85 mm (3.35 ") |

## Measurement Range

0 … 1200 µm (46.8 mils)

## Trueness

based on Fischer factory calibration standards

| | |
|---|---|
| 0 … 70 µm: ≤ 1.0 µm | 0 … 2.7 mils: ≤ 0.039 mils |
| 70 … 250 µm: ≤ 1.5 % of reading | 2.7 … 9.75 mils: ≤ 1.5 % of reading |
| 250 … 1000 µm: ≤ 3 % of reading | 9.75 … 39 mils: ≤ 3 % of reading |

## Repeatability Precision

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

| | |
|---|---|
| 0 … 50 µm: ≤ 0.25 µm | 0 … 2 mils: ≤ 0.0098 mils |
| 50 … 1000 µm: ≤ 0.5 % of reading | 2 … 39 mils: ≤ 0.5 % of reading |

## Ordering Data

| | |
|---|---|
| 605-116 | ISOSCOPE MP0R, probe integrated in the measuring instrument |

## Scope of Supply

Instrument case; instrument encased in an impact protective cover; lanyard; 2 batteries; metal plate 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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# DUALSCOPE® MP0R
# DUALSCOPE® MP0R-FP
# DUALSCOPE® MP0R-FPW
# DUALSCOPE® MP0R-FP-BT

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

# DUALSCOPE® MP0R Models

## Description

The DUALSCOPE MP0R and MP0R-FP instruments measure coating thicknesses easily, quickly, non-destructively and with the precision that is typical for all Fischer instruments.

**Instrument properties**

- 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**

- 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 | • Zinc, chromium, copper, paint, varnish and plastic coatings on steel, iron or cast iron (Fe) | • Paint, varnish or plastic coatings on aluminium, copper or brass<br>• Anodized coatings on aluminium |

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

## Models

- DUALSCOPE MP0R: Probe integrated in the measuring instrument for single-handed operation
- DUALSCOPE MP0R-FP: Probe with cable (80 cm; 31.5 ") permanently connected to the instrument, for measurements on various specimen shapes
- DUALSCOPE MP0R-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 MP0R-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

## 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 | *Factory calibration*<br>Each individual instrument is factory calibrated at several reference points with the greatest care to ensure the highest possible degree of trueness.<br>*Corrective calibration (Adjustment)*<br>Adaptation to the substrate material and the shape of the specimen and to a thickness value using a calibration foil.<br>*Simple Calibration*<br>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. |

## General Features

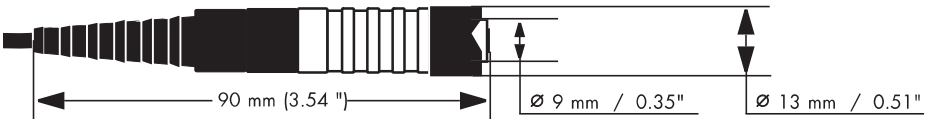
| | |
|---|---|
| Measuring method | Magnetic induction method (ISO 2178, ASTM D7091, Measurement of non-magnetic coatings on magnetic substrates);<br>Eddy current method (ISO 2360, ASTM D7091, Measurement of non-conductive coatings on non-magnetic substrate metals);<br>Automatic selection of the measuring method corresponding to the substrate material |
| 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 | • Graphic display with an automatically turning display in order to read the measurement results in many different instrument positions<br>• 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<br>model DUALSCOPE MP0R-FP-BT only | Bluetooth module integrated in the instrument model DUALSCOPE MP0R-FP-BT,<br>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) |

| | |
|---|---|
| Weight (incl. batteries) | MP0R: approx. 137 g (4.8 oz); MP0R-FP, MP0R-FPW, MP0R-FP-BT: approx. 184 g (6.5 oz) |
| Power supply | 2 Batteries, LR6, AA, 1.5 V |

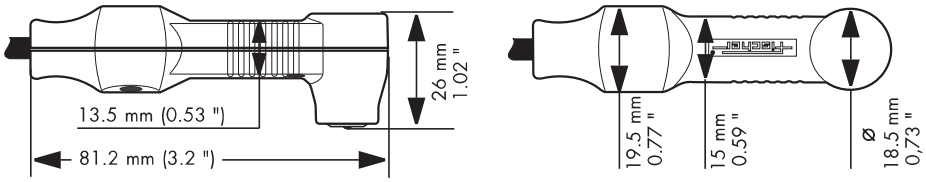
## Dimensions

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

Probe of instruments MP0R-FP
Cable length: 800 mm (31.5 ")




Probe of instruments MP0R-FPW
Cable length: 800 mm (31.5 ")




| Measurement Range | Steel or iron substrates (Fe) | Nonferrous metal substrates (NF) |
|---|---|---|
| | 0 … 2000 µm (78 mils) | 0 … 2000 µm (78 mils) |

| Trueness | Steel or iron substrates (Fe) | Nonferrous metal substrates (NF) |
|---|---|---|
| based on Fischer factory calibration standards | 0 … 75 µm: ≤ 1.5 µm<br>75 … 1000 µm: ≤ 2 % of nominal value<br>1000 … 2000 µm: ≤ 3 % of nominal value<br><br>0 … 2.9 mils: ≤ 0.06 mils<br>2.9 … 39 mils: ≤ 2 % of nominal value<br>39 … 78 mils: ≤ 3 % of nominal value | 0 … 50 µm: ≤ 1 µm<br>50 … 1000 µm: ≤ 2 % of nominal value<br>1000 … 2000 µm: ≤ 3 % of nominal value<br><br>0 … 2 mils: ≤ 0.039 mils<br>2 … 39 mils: ≤ 2 % of nominal value<br>39 … 78 mils: ≤ 3 % of nominal value |

| Repeatability Precision | Steel or iron substrates (Fe) | Nonferrous metal substrates (NF) |
|---|---|---|
| based on Fischer factory calibration standards, 5 single readings on each standard | 0 … 50 µm: ≤ 0.25 µm<br>50 … 2000 µm: ≤ 0.5 % of reading<br><br>0 … 2 mils: ≤ 0.0098 mils<br>2 … 78 mils: ≤ 0.5 % of reading | 0 … 100 µm: ≤ 0.5 µm<br>100 … 2000 µm: ≤ 0.5 % of reading<br><br>0 … 3.9 mils: ≤ 0.0195 mils<br>3.9 … 78 mils: ≤ 0.5 % of reading |

## Ordering Data

| | |
|---|---|
| 605-097 | DUALSCOPE MP0R, probe integrated in the measuring instrument |
| 605-114 | DUALSCOPE MP0R-FP, probe with cable permanently connected to the instrument |
| 605-239 | DUALSCOPE MP0R-FPW, angled probe with cable permanently connected to the instrument |
| 605-388 | DUALSCOPE MP0R-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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# DUALSCOPE® MP0RH-FP

Pocket Instrument with PC-Interface for Convenient and Fast Coating Thickness Measurement, especially on Thick Metal Coatings or Protective Coatings on Virtually all Metals

## Description

The DUALSCOPE MP0RH-FP measuring instrument measures thick coatings easily, quickly, non-destructively and with the precision that is typical for all Fischer instruments.

**Instrument properties**

- 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**

- 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 | • Zinc, chromium, copper, paint, varnish and plastic coatings on steel, iron or cast iron (Fe) | • Paint, varnish or plastic coatings on aluminium, copper or brass<br>• Anodized coatings on aluminium |

The instrument is particularly suited for measurements on thick metal coatings (e. g. 300 µm/11.8 mils copper) and thick protective coatings (e. g. 5 mm/ 197 mils enamel) on steel and iron.

## Evaluation

| | |
|---|---|
| Statistics | Display of mean value, standard deviation, MIN, MAX and number of measurements per block |
| PC software<br>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 | *Factory calibration*<br>Each individual instrument is factory calibrated at several reference points with the greatest care to ensure the highest possible degree of trueness.<br>*Corrective calibration (Adjustment)*<br>Adaptation to the substrate material and the shape of the specimen and to a thickness value using a calibration foil.<br>*Simple Calibration*<br>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. |

## General Features

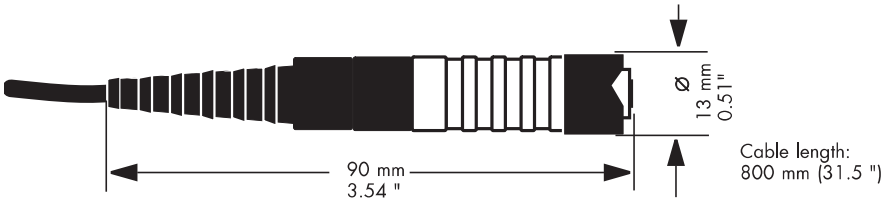
| | |
|---|---|
| Measuring method | Magnetic method (ISO 2178, ASTM D7091, Measurement of non-magnetic coatings on magnetic substrates);<br>Eddy current method (ISO 2360, ASTM D7091, Measurement of non-conductive coatings on non-magnetic substrate metals);<br>Automatic selection of the measuring method corresponding to the substrate material |
| Probe | Probe tip radius: 1.2 mm (46.8 mils); Probe tip material: Ruby |
| 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 | • Graphic display with an automatically turning display in order to read the measurement results in many different instrument positions<br>• 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 |
| Data transfer | Single readings, mean values, group separator |
| Power supply | 2 Batteries, LR6, AA, 1.5 V |

| | |
|---|---|
| Admissible ambient temperature range during operation | 0 … +40 °C (+32 … +104 °F) |
| Weight (incl. batteries) | 184 g (6.5 oz) |
| Dimensions (W x D x H) | Width: 64 mm (2.5 "); Depth: 28 mm (1.1 "); Height: 85 mm (3.35 ") |

## Dimensions

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

Probe of instrument MP0R-FP




## Measurement Range

| Steel or iron substrates (Fe) | Nonferrous metal substrates (NF) |
|---|---|
| 0 … 7000 µm (273 mils) | 0 … 2500 µm (97.5 mils) |

## Trueness

based on Fischer factory calibration standards

| Steel or iron substrates (Fe) | Nonferrous metal substrates (NF) |
|---|---|
| 0 … 150 µm: ≤ 5 µm | 0 … 50 µm: ≤ 1 µm |
| 150 … 3000 µm: ≤ 3 % of reading | 50 … 1000 µm: ≤ 2 % of reading |
| 3000 … 6000 µm: ≤ 5 % of reading | 1000 … 2200 µm: ≤ 3 % of reading |
| 0 … 5.85 mils: ≤ 0.195 mils | 0 … 2 mils: ≤ 0.039 mils |
| 5.85 … 117 mils: ≤ 2 % of reading | 2 … 39 mils: ≤ 2 % of reading |
| 117 … 234 mils: ≤ 5 % of reading | 39 … 85.8 mils: ≤ 3 % of reading |

## Repeatability Precision

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

| Steel or iron substrates (Fe) | Nonferrous metal substrates (NF) |
|---|---|
| 0 … 200 µm: ≤ 2 µm | 0 … 50 µm: ≤ 0.5 µm |
| 200 … 6000 µm: ≤ 1 % of reading | 50 … 1000 µm: ≤ 1 % of reading |
| | 1000 … 2200 µm: ≤ 1.5 % of reading |
| 0 … 7.8 mils: ≤ 0.078 mils | 0 … 2 mils: ≤ 0.0195 mils |
| 7.8 … 234 mils: ≤ 1 % of reading | 2 … 39 mils: ≤ 1 % of reading |
| | 39 … 85.8 mils: ≤ 1.5 % of reading |

## Ordering Data

| | |
|---|---|
| 605-115 | DUALSCOPE MP0RH-FP, probe with cable (80 cm; 31.5 ") permanently connected to the instrument |

## 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 und 500 µm (2.95 and 19.7 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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