

**PERMASCOPE® MPO**

**PERMASCOPE® MPO-FP**

Pocket Instruments for Simple and Fast  
Coating Thickness Measurement on  
Steel and Iron



## Description

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Instrument properties	<p>The PERMASCOPE measuring 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"><li>• Ideal for onsite applications due to the compact size, the light weight and the robust and durable instrument design</li><li>• Intuitive operation of the menu navigation and graphic display.</li><li>• Second display for reading the measurement results directly on the top side of the instrument, e.g., for measuring overhead</li><li>• Different languages are selectable</li><li>• Manufacturer's certificate, included in the scope of supply</li></ul>
Generating measurements	<ul style="list-style-type: none"><li>• The specimen's shape and permeability have a comparatively low influence on the measurement results</li></ul>

## Applications

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Examples	<p><b>Steel or iron substrates (Fe)</b></p> <ul style="list-style-type: none"><li>• Zinc, chromium, copper, paint, varnish and plastic coatings on steel, iron or cast iron (Fe)</li><li>• Measurements both on smooth and rough surfaces</li></ul> <p>The instruments are particularly suited for highly precise measurements of thin coating.</p>
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## Models

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

## Evaluation

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Statistics	Display of mean value, standard deviation, MIN, MAX and number of all measurements stored in the instrument memory
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## Measurement Functions

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Units of measurement	Selectable $\mu\text{m}$ 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	<i>Factory calibration</i> Each individual instrument is factory calibrated at several reference points with the greatest care to ensure the highest possible degree of trueness. <i>Calibration (Adjustment)</i> Adaptation to the substrate material and the shape of the specimen and to a thickness value using a calibration foil. <i>Simple Calibration</i> Adaption to the coating and substrate material in one step using a coated reference part with a coating thickness higher than 200 $\mu\text{m}$ (7.87 inches). This kind of calibration supplies only a lower accuracy.

## General Features

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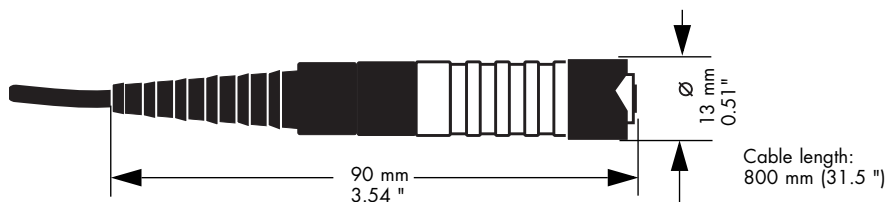
Measuring method	Magnetic induction method (ISO 2178, ASTM D7091, Measurement of non-magnetic coatings on magnetic substrates)
Probe	Probe tip radius: 2 mm (78 mils); Probe tip material: Hard metal
Data memory	Max. 1,000 individual readings; the contents of the memory is retained even without batteries
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	<ul style="list-style-type: none"><li>• Graphic display, in addition to the measurement reading the mean value and the standard deviation or the number of measurement reading can also be displayed</li><li>• LCD display on the top side of the instrument, e.g., for reading the measurement value for measurement overhead</li></ul>
Admissible ambient temperature range during operation	0 .... +40 °C (+32 ... +104 °F)
Weight (incl. batteries)	MP0: 137 g (4.8 oz) MP0-FP: 184 g (6.5 oz)
Power supply	2 Batteries, LR6, AA, 1.5 V

# PERMASCOPE® MPO Models

## Dimensions

Instrument Width: 64 mm (2.5 "); depth: 28 mm (1.1 "); height: 85 mm (3.35 ")

Probe of instrument MPO-FP



## Measurement Range

0 ... 2500  $\mu\text{m}$  (97.5 mils)

## Trueness

based on factory calibration standards of the Helmut Fischer GmbH

0 ... 100  $\mu\text{m}$ :  $\leq 1.5 \mu\text{m}$   
100 ... 1000  $\mu\text{m}$ :  $\leq 1.5 \%$  of reading  
1000 ... 2500  $\mu\text{m}$ :  $\leq 3 \%$  of reading

0 ... 3.9 mils:  $\leq 0.06$  mils  
3.9 ... 39 mils:  $\leq 1.5 \%$  of reading  
39 ... 97.5 mils:  $\leq 3 \%$  of reading

## Repeatability Precision

based on factory calibration standards of the Helmut Fischer GmbH, 5 single measurement readings on each standard

0 ... 100  $\mu\text{m}$ :  $\leq 0.3 \mu\text{m}$   
100 ... 2500  $\mu\text{m}$ :  $\leq 0.3 \%$  of reading

0 ... 3.9 mils:  $\leq 0.0117$  mils  
3.9 ... 97.5 mils:  $\leq 0.3 \%$  of reading

## Ordering Data

605-361	PERMASCOPE MPO, probe integrated in the measuring instrument
605-362	PERMASCOPE MPO-FP, probe with cable (80 cm; 31.5 ") permanently connected to the instrument

## Scope of Supply

Instrument case; protective instrument cover; 2 batteries; metal plate NF/FE for testing purposes; calibration foil (foil thickness about 75  $\mu\text{m}$  (2.95 inches)); operator's manual; manufacturer's certificate

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