

## Technical Data

Substrate		Fe-probe
Iron or steel		
<b>QuaNix® 4500 includes:</b>		NFe-Probe
Non-magnetic metals, e.g. aluminum, zinc, copper, brass		
Measuring range	Fe	0 - 3000 µm or 0.00 - 120 mil
	NFe	0 - 2000 µm or 0.00 - 80 mil
Resolution		Range 0 – 999 µm: 1 µm
		Range ≥ 1 mm : 0.01 mm
	resp.	0.01 mil up to 9.99 mil
		0.1 mil from 10 to 99.9 mil
		1 mil from 100 to 120 mil
Accuracy		+/- (2 µm + 3%*)
	resp.	+/- (0.08 mil + 3 %*)
		(*) of reading
Minimum object size	Fe	10 x 10 mm <sup>2</sup> (0.4"x0.4")
	NFe	6x6 mm <sup>2</sup> (0.24"x0.24")
Minimum curvature convex		5 mm (0.02")
concave		25 mm (1")
Minimum substrate thickness	Fe	0.20 mm (8 mil)
	NFe	0.05 mm (2 mil)
Temperature range		
Storage		-10°C to 60°C (14°F to 140°F)
Operation		0°C to 60°C (32°F to 140°F)
Probe		One-point
Power supply		2 batteries AA alkaline
Dimensions	ca.	100 x 62 x 27 mm (3.9" x 2.4" x 1.1")
Weight	ca.	100 g (3.5 oz) incl. batteries

## Change of Batteries

The battery compartment is on the rear side of the gauge. The battery should be exchanged when the "BAT"-sign appears on the right side of the display. Additional readings can still be taken even with the "BAT"-indication before the gauge shuts off.

**Note!** Empty batteries should be disposed of properly. If possible, please use the appropriate method.

## Change of Unit µm/mil

Display of the readings is factory preset to the unit which is common for the user (generally in µm). To change the unit from µm to mil or vice versa, place the gauge on any surface or simply take a measurement. While holding it placed, press the button for at least 3 seconds. The display will switch from one unit to the other.

## Zero-Adjustment

A new zero-adjustment is required when using the gauge for the first time, working with different materials, and after inserting a new battery. Place the gauge on one of the zero plates in the case. For the Fe-probe please take the steel plate; for the NFe-probe take the aluminum plate, when you want to measure on aluminum; or use a suitable uncoated Fe- or NFe-substrate. Please make sure the probe is placed perpendicular and evenly on the surface of the zero plate or on your uncoated substrate. If the value indicated is not within the basic tolerance, the gauge should be adjusted as follows:

Place the gauge on the zero plate (substrate). Then press the button once. On the display a control number appears and a beep sounds. Then lift off the gauge at least 10 cm (4 inches) from the zero plate (substrate). A beep sounds and another control number appears. Now the zero-adjustment is completed.

When repeating measurements on the same spot, the reading may not always be 0 µm or 0.00 mil, as the surface roughness, dirt, scratches etc. might cause variances.

## System Description

The **QuaNix® 4200** dry film thickness gauge measures all non-magnetic coatings such as lacquer, chromium, copper, zinc etc. on steel or iron.

The **QuaNix® 4500** dry film thickness gauge additionally measures all insulating coatings such as lacquer, plastic, enamel, etc. on non-magnetic, metallic substrates, e.g. on aluminium, copper or brass.

Both gauges conform to national (DIN) and international (ISO, BS, ASTM) standards:

DIN 50981, 50984	BS 5411 (3, 11), 3900 (C, 5)
ISO 2178, 2360, 2808	ASTM B499, D1400

## General

This dry film thickness gauge was designed for various applications. Despite its rugged design it should be handled correctly to insure proper measurements at all time.

Do not let it drop and protect it from dirt, dust, humidity, chemicals and aggressive vapours. After use please store the gauge in the protective case.

As with all precision instruments large temperature variations can influence the measuring result. Please avoid direct solar irradiation and temperature shocks.

Due to the physical measuring principles the measurements can be influenced by strong electromagnetic fields. Please stay away from e.g. transformers, high voltage lines or discharge sources. Do not take measurements on magnetized parts. Magnetic fields can affect the Fe-measurements. Strong electromagnetic radiation can affect the NFe-measurements.

The housing is resistant against most solvents. Use a soft damp cloth to clean the housing.

Proper results can only be achieved with clean probes. Please regularly check the probe tips and remove any dirt and paint from the rubies

If the gauge is not used for a long period, please remove the batteries from the gauge in order to prevent leakage that can damage the unit.

In case of a malfunction of the instrument please do not try to repair it on your own. Our customer service will be happy to assist you.

## Handling

Place the gauge evenly on the object to be tested. The reading is immediately shown on the display accompanied by a beep. Simultaneously you will also receive the information, which measuring method, Fe or NFe, is presently used in the gauge (important for gauges with Dual-Probe).

If the gauge was placed incorrectly or lifted off before termination of the measurement, or when being zeroed on a non-metallic substrate, an error message "Err" is displayed. Readings that exceed the measuring range are indicated by the message "IFI" (infinite).

The gauge switches on automatically when being placed on the surface and turns off automatically after about 10 seconds when no other measurement is taken. For measurements on rods or tubes etc. align the "V"-groove along the axis of the object to be tested.

## Measurements with the Dual-Probe

The **QuaNix® 4500** gauge combines both measuring methods for Fe and NFe in one probe. Switching from Fe to NFe or vice versa is done as follows:

Switch on the gauge. The current measuring method is displayed on the left side of the LCD (e.g. Fe). Press the button for at least 3 seconds. The new measuring method is shown on the left side of the LCD (e.g. NFe).

## Display Messages

Fe	=	measurement on ferrous materials (steel or iron)
NFe	=	measurement on non-ferrous substrates
Err	=	handling error
IFI	=	wrong substrate, reading beyond measuring range
BAT	=	battery is getting week, please exchange



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### Change of Batteries

The battery compartment is on the rear side of the gauge. The battery should be exchanged when the "BAT"-sign appears on the right side of the display. Additional readings can still be taken even with the "BAT"-indication before the gauge shuts off.

**Note!** Empty batteries should be disposed of properly. If possible, please use the appropriate method.

### Change of Unit $\mu\text{m}/\text{mil}$

Display of the readings is factory preset to the unit which is common for the user (generally in  $\mu\text{m}$ ). To change the unit from  $\mu\text{m}$  to mil or vice versa, place the gauge on any surface or simply take a measurement. While holding it placed, press the button for at least 3 seconds. The display will switch from one unit to the other.

### Zero-Adjustment

A new zero-adjustment is required when using the gauge for the first time, working with different materials, and after inserting a new battery. Place the gauge on one of the zero plates in the case. For the Fe-probe please take the steel plate; for the NFe-probe take the aluminum plate, when you want to measure on aluminum; or use a suitable uncoated Fe- or NFe-substrate. Please make sure the probe is placed perpendicular and evenly on the surface of the zero plate or on your uncoated substrate. If the value indicated is not within the basic tolerance, the gauge should be adjusted as follows:

Place the gauge on the zero plate (substrate). Then press the button once. On the display a control number appears and a beep sounds. Then lift off the gauge at least 10 cm (4 inches) from the zero plate (substrate). A beep sounds and another control number appears. Now the zero-adjustment is completed.

When repeating measurements on the same spot, the reading may not always be 0  $\mu\text{m}$  or 0.00 mil, as the surface roughness, dirt, scratches etc. might cause variances.

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### Technical Data

Substrate		Fe-probe
Iron or steel		
<b>QuaNix<sup>®</sup> 4500 includes:</b>		
Non-magnetic metals, e.g. aluminum, zinc, copper, brass		NFe-Probe
Measuring range	Fe	0 - 3000 $\mu\text{m}$ or 0.00 - 120 mil
	NFe	0 - 2000 $\mu\text{m}$ or 0.00 - 80 mil
Resolution		Range 0 – 999 $\mu\text{m}$ : 1 $\mu\text{m}$ Range $\geq$ 1 mm : 0.01 mm
	resp.	0.01 mil up to 9.99 mil 0.2 mil from 10 to 99.9 mil 1 mil from 100 to 120 mil
Accuracy		+/- (2 $\mu\text{m}$ + 3%*)
	resp.	+/- (0.08 mil + 3 %*) (* of reading)
Minimum object size	Fe	10 x 10 mm <sup>2</sup> (0.4"x0.4")
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Minimum curvature		
convex		5 mm (0.02")
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Dimensions	ca.	100 x 62 x 27 mm (3.9" x 2.4" x 1.1")
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### Handling

Place the gauge evenly on the object to be tested. The reading is immediately shown on the display accompanied by a beep. Simultaneously you will also receive the information, which measuring method, Fe or NFe, is presently used in the gauge (important for gauges with Dual-Probe).

If the gauge was placed incorrectly or lifted off before termination of the measurement, or when being zeroed on a non-metallic substrate, an error message "Err" is displayed. Readings that exceed the measuring range are indicated by the message "IIFI" (infinite).

The gauge switches on automatically when being placed on the surface and turns off automatically after about 10 seconds when no other measurement is taken. For measurements on rods or tubes etc. align the "V"-groove along the axis of the object to be tested.

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### Display Messages

Fe	=	measurement on ferrous materials (steel or iron)
NFe	=	measurement on non-ferrous substrates
Err	=	handling error
IIFI	=	wrong substrate, reading beyond measuring range
BAT	=	battery is getting weak, please exchange

## Instruction Manual

### System Description

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