

Operating Instructions  
for

## MiniTest 70E FN

## MiniTest 70B FN

Coating Thickness  
Gauges

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### Application

Designed for quick and precise measurement, the handy coating thickness gauges are the ideal tool for on-site use, for car dealers and experts.

The **MiniTest 70E FN** and **70B FN** combine two measuring principles: Magnetic induction for non-magnetic coatings applied on iron and steel and the eddy-currents principle for insulating coatings applied on non-ferrous metals. The gauges conform to:

**DIN EN ISO 1461, 2178, 2360, 2808, 3882;**  
**ASTM B 244, B 499, D7091, E 376.**

A built-in dual sensor automatically identifies the substrate and sets to the correct measuring principle being shown after switch-on after the first reading has been taken or once the measuring principle changes. Before a reading is shown, "F" appears to indicate magnetic induction or "n" for eddy-currents.



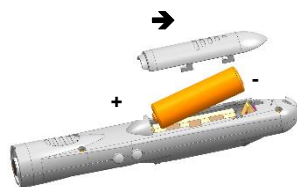
### Scope of delivery

- MiniTest 70E FN or 70B FN
- 2 zero reference plates
- 1 control standard
- 1 AA battery (Mignon)
- Operating instructions in German / English / French
- Soft pouch with belt clip

### A. Start-Up

#### Remove the battery protection slip prior to the first use.

The gauge comes with a battery inside the battery compartment. Before switching on, remove the battery protection strip. Push battery lid in the direction of arrow and lift it. Remove the battery protection strip and close lid.



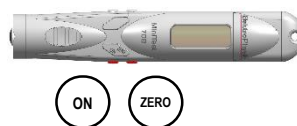
#### Changing the battery:

If the BAT-symbol flashes, the battery must be changed. Insert a fresh battery into the battery compartment. Use the same type as the original one (AA). Respect +/- polarities. Close battery lid.

### B. Operation of the Gauge

MiniTest 70E FN is operated by one button.

MiniTest 70B FN is operated by two buttons.



#### 1. Switch ON

Briefly press



The display shows:



### 2. Switch OFF

Both models feature an Auto-OFF function to switch the gauges off automatically after one minute of idle state. As an alternative you can use the ON-button.



Press for about two seconds, wait for the signal tone to sound and release button.

### 3. Calibration

MiniTest 70E FN does not need to be calibrated. You can immediately proceed on measurement.

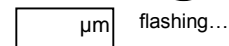
#### 3.1 Zero calibration

With MiniTest 70B FN you can also take readings immediately. Its factory calibration will be sufficient for quick and simple measurements and if larger tolerances are admissible.

The zero calibration should be used to increase accuracy, for measurements on substrates of a nature other than the one of the reference zero plates or for measurements on curved or rough samples.

MiniTest 70B FN is ON.

Briefly press



Put the sensor on an uncoated sample. Its substrate should be the same as the one of the coated sample to be measured. Wait for the signal to sound and lift the sensor. Repeat this procedure several times. The mean value  $\bar{x}$  calculated from



your set of measurements will be shown. The use of the mean value is to increase calibration accuracy.

Briefly press



to save this calibration point.

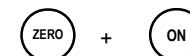
Now take readings.

Calibration must be done for each substrate F (ferrous) and N (non-ferrous).

#### 3.2 Delete a calibration

Switch the gauge OFF.

Press the following buttons simultaneously and keep pressed down:



First release the ON button.

The one-point calibration will be deleted and the factory calibration will be enabled. Wait for about three seconds. The gauge switches to measuring mode.

#### 3.3 Change the measuring unit

Both models offer two measuring systems: metric and imperial

To switch from microns to mils and vice versa:

The gauge must be switched off.

Press ON. Keep pressed down until the measuring unit "μm" or "mils" appears on display.

Release ON. Now you can switch the unit by briefly pressing ON.

Wait for about three seconds. The gauge will switch to measuring mode.

### C. Error Messages

E01 Communication failure between sensor and display unit. Please contact after-sales service.

E02 At switch on, the gauge was held close to metal parts. Make sure to keep the gauge away from metal parts in a sufficient distance. Switch the gauge off, then switch on again.

E04 Calibration: The reading does not match the calibration being active. During the calibration procedure, you have changed to another substrate material and the gauge has switched the measuring principle accordingly (only applies to MiniTest 70B-FN)

BAT Battery exhausted.

## D. Technical Data

		<b>MiniTest 70E FN</b>	<b>MiniTest 70B FN</b>
Measuring range	F- part:	0...3 mm / 120 mils	0...3 mm / 120 mils
	N- part:	0...2.5 mm / 100 mils	0...2.5 mm / 100 mils
Measuring principle		Magnetic induction / eddy currents	Magnetic induction / eddy currents
Signal processing		Sensor-integrated digital 32-bits signal processing (SIDSP®)	
Accuracy*1		± (5 µm + 5 % of reading) ± (0,2 mils + 5 % of reading)	± (2 µm + 3 % of reading) ± (0,08 mils + 3 % of reading)
Repeatability*1		± (5 µm + 1 % of reading) ± (0,2 mils + 1 % of reading)	± (2 µm + 1 % of reading) ± (0,08 mils + 1 % of reading)
Low range sensitivity		5 µm / 0,2 mils	1 µm / 0,04 mils
Minimum curvature radius, convex		F- part: 50 mm / 2" N- part: 200 mm / 8"	10 mm / 0,4"
Minimum curvature radius concave		F- part: 100 mm / 4" N- part: 250 mm / 10"	50 mm / 2"
Minimum measuring spot		ø 50 mm / 2"	ø 50 mm / 2"
Minimum substrate thickness	F- part:	F: 0.7 mm / 28 mils	F: 0.7 mm / 28 mils
	N- part:	N: 0.1 mm / 4 mils	N: 0.1 mm / 4 mils
Measuring systems		metric / imperial (user selectable)	metric / imperial (user selectable)
Calibration modes		Factory calibration, no calibration required	Factory calibration, zero calibration
Operating temperature		-10 °C ...+60 °C, 14 °F...140 °F	
Storage temperature		-20 °C...+70 °C; -4 °F...158 °F	
Power supply		1 x AA (Mignon) - battery / -rechargeable battery	
Norms and standards		DIN EN ISO 1461, 2178, 2360,2808, 3882 ASTM B 244, B 499, D7091, E 376	
Dimensions		Approx.. 157 mm length Ø 27 mm; 6.2" length, Ø 1.06"	
Weight including batteries		Approx. 80 g; 2.8 oz	

\*1 according to DIN 55350 part 13

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