

# COATING THICKNESS MEASURING



Quality needs control

*The human eye – the symbol of our work:*

*Quality assurance by control.*

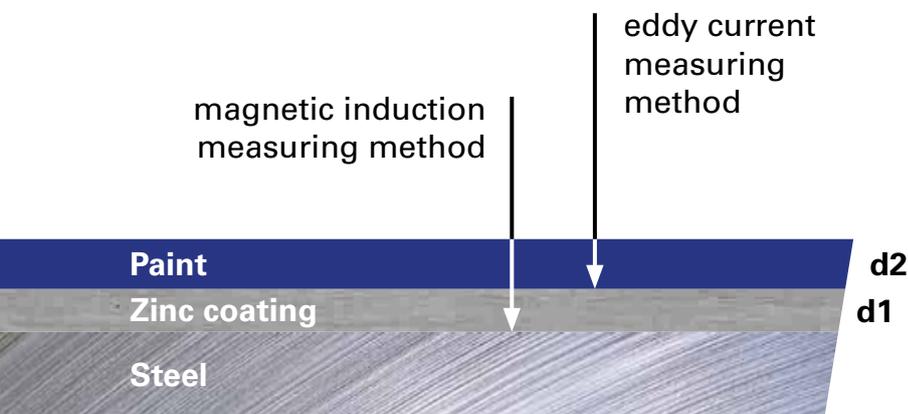
*Perfect in function and technology.*

*Open for innovation.*

*Recognition of change at early stage and intelligent implementation.*

*The success is visible.*

## COATING THICKNESS MEASURING on metallic substrate



Two measuring techniques are used to measure the thickness of layers over a metal substrate.

Firstly, the magnetic induction, that is, when the substrate is self-magnetizable (steel or iron), and, secondly, the eddy current method, that is, when the substrate is at least electrically conductive (other metals such as aluminum). We specialize in those two techniques, and we are sorry to say, we are unable to offer you equipment for the thickness measurement of ceramics, glass or plastic.

You will find a variety of probes to suit your specific requirements. Please note: The combined oscillating probe is designed for using both measuring techniques. You can work with both methods on all metals, with automatic detection of the substrate. The 90° swivel-mounted probe allows you to measure even in the most difficult-to-reach corners and openings. All our coating thickness gauges are "Made in Germany".



# TOP-CHECK

## Coating thickness meters

With the integrated, world-wide unique 90° swivel-mounted probe of the **LIST-MAGNETIK TOP-CHECK** coating thickness meters, you always carry out precise measurements. The compact, lightweight devices are barely larger than a probe and are therefore ideal for on-site applications in areas that are difficult to access. For interference-free measurements in harsh environments, the handy metal housing is splash-proof, in accordance with IP 64. Optionally, we also offer equipment with flow-water protection. The measuring probe has a wear-resistant ruby probe pole for a long service life with frequent measurement on rough surfaces.

The devices are very easy to use, with the press of a button, and the self-explanatory multilingual menu.

**TOP-CHECK FE** is ideal for iron and steel substrates. The device measures insulating layers of lacquer, paint, plastic, rubber, ceramic and galvanic coatings (except nickel) according to ISO 2178. **TOP-CHECK FE-B** supplements the performance spectrum by data logger and Bluetooth interface.

**TOP-CHECK FN** has a combined probe that measures insulating layers of paint, varnish, plastic, rubber, ceramics and galvanic coatings (except nickel) in a magnet-inductive measuring method. The device is used on iron and steel subsoil. It is also suitable for measuring insulating layers, according to the eddy current method, on non-ferrous metals such as aluminum, brass, copper, bronze and non-magnetic stainless steels, according to ISO 2178 and ISO 2360. **TOP-CHECK FN-B** supplements these services by data logger and Bluetooth interface.



To easily manage and send your measurement data with **TOP-CHECK FE-B** and **TOP-CHECK FN-B**, you can use the free Mobile App for Android and the free transfer software for PC.

# LIST-MAGNETIK

## TOP-CHECK

### Coating thickness meters

TOP-CHECK in a compact case 12x12 cm ►



▲ Die TOP-CHECK APP records the measurement



▲ Optionally, we equip your unit with flow-water protection IP67

## MEGA-CHECK POCKET

### Coating thickness meters



With the **LIST MAGNETIK MEGA-CHECK Pocket** coating thickness meters, you can carry out exact, reproducible measurements. The measuring probes digitize the signals in the probe before they are transmitted to the measuring device via the probe cable. The probe cable, which can be plugged in on both sides, connects the display unit and probe, and can be easily replaced in the event of a cable defect.

With the press of a button **MEGA-CHECK Pocket** is easy to use. Thanks to the integrated ASR (Automatic-Statistic-Result) technology, the device can display the statistics of the past measurement series. If the **MEGA-CHECK Pocket** is switched on without a probe, the statistics of the last measurement series are automatically displayed one after the other.

#### **MEGA-CHECK Pocket FE**

measures insulating layers (varnish, paint, plastic, rubber, ceramics) and galvanic coatings (except nickel) on iron and steel substrates according to ISO 2178 with a magnet-inductive probe.

#### **MEGA-CHECK Pocket FN**

uses a combined probe to measure insulating layers (paint, varnish, plastic, rubber, ceramics) and galvanic coatings (except nickel) on iron and steel substrates and non-ferrous metals based on the eddy current method- (Brass, copper, bronze, non-magnetic stainless steels) according to ISO 2178 and ISO 2360.



## MEGA-CHECK Coating thickness meters

You can connect many specialized probes to the **LIST-MAGNETIK MEGA-CHECK Basic**, **Profi** or **Master** coating thickness meters. Applications with particularly small openings, thick layers and small measuring points are thus easily possible. Special functions such as the scan measurement for rough surfaces, and the duplex measurement for galvanized, and additionally coated steel complete the performance spectrum.

The signals are already digitized in the probe for an absolutely interference-free and precise measurement. This results in very accurate, reproducible measurements.

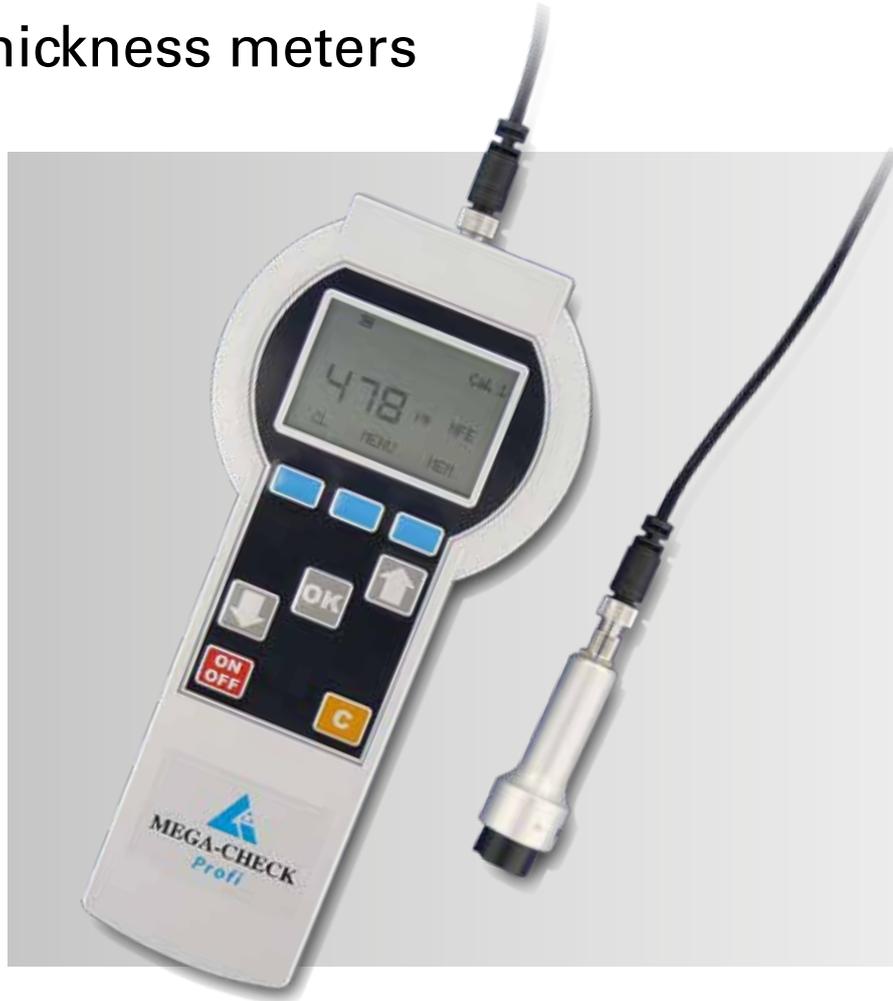
At LIST-MAGNETIK, you will find a wide range of probes for FE metals (ferrous metals) and NFE metals (non-ferrous metals such as aluminum, brass, copper, bronze and non-magnetic stainless steel) as well as combined probes with automatic recognition of the base material. The combined probe with swivel-mounted head is unique worldwide.

The magnet-inductive method allows measurements on all types of paints, varnishes, plastics and galvanic coatings on steel. With the eddy current method, you measure insulating layers (color, varnish, plastic, anodic) on non-ferrous metals.

All devices have a large, clear and illuminated graphic display. The menu is given in German, English, Spanish or Dutch.

The probe cable, which can be plugged in on both sides, connects the display unit and the probe and can be easily replaced in the event of a cable fault.

All **LIST-MAGNETIK MEGA-CHECK** coating thickness meters are high-quality products "Made in Germany".



### MEGA-CHECK Basic

is the standard device for rapid on-site measurement. Flexibly usable by connecting different measuring probes.

### MEGA-CHECK Profi

provides as an additional service to **MEGA-CHECK Basic** a data logger and a RS232 interface. The measured values can be statistically evaluated. The documentation of the measurement results with easy operation, is carried out via a connected PC or printer. Three calibration memories are available to store special calibration parts.

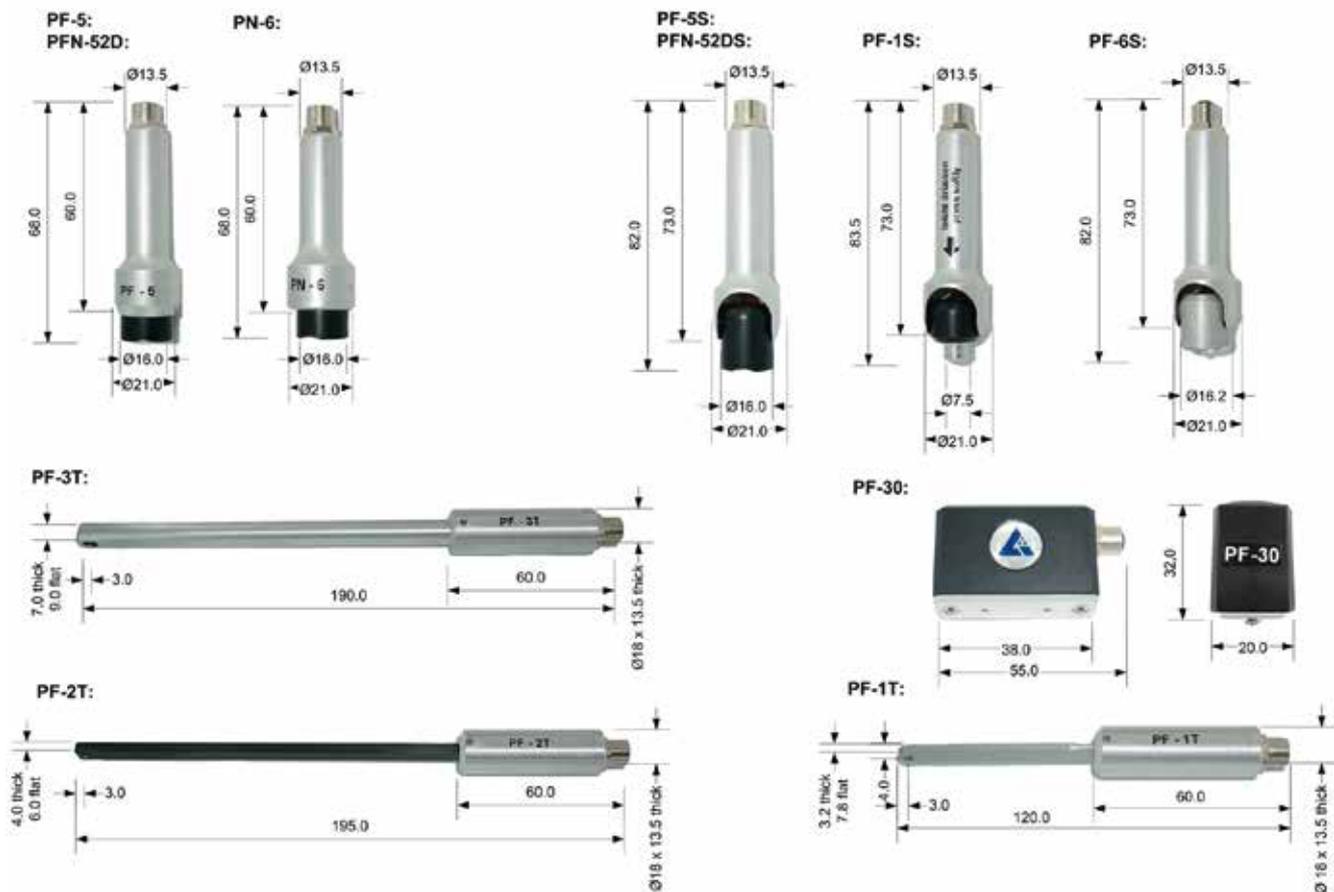
### MEGA-CHECK Master

is a high-end device with easy to use functions for many different applications. In addition to the functions of **MEGA-CHECK Profi**, the device offers a scan function for the determination of the layer thickness on rough or blasted surfaces as well as the duplex function for the exact determination of the individual layer thicknesses of insulating layers on galvanized steel parts. In the case of continuous measurement of the layer thickness, the analogous representation of the measured value profile proves to be an important support.

## MEASURING PROBES

for coating thickness meters

MEGA-CHECK Basic / Profi / Master



| Type     | Measuring principle | Model  | Measuring range                                       | Smallest area       | Smallest curvature radius |         |
|----------|---------------------|--|---|---------------------|---------------------------|---------|
|          |                     |  |   |                     | convex                    | concave |
| PF-5     | FE                  | Standard FE probe with spring-loaded guide and prism   | 0–5.000 $\mu\text{m}$                                 | $\varnothing 4$ mm  | 4 mm                      | 38 mm   |
| PF-5S    | FE                  | Standard FE probe with spring-loaded guide and prism, swivel-mounted                                     |   |                     |                           |         |
| PFN-52D  | FE + NFE combined   | Dual function probe with spring-loaded guide and prism   | FE 0–5.000 $\mu\text{m}$<br>NFE 0–2.000 $\mu\text{m}$ | $\varnothing 8$ mm  | FE 4 mm<br>NFE 6 mm       | 38 mm   |
| PFN-52DS | FE + NFE combined   | Dual function probe with spring-loaded guide and prism, swivel-mounted                                   |   |                     |                           |         |
| PN-6     | NFE                 | Special NFE probe with spring-loaded guide and prism, for thick layers                                   | 0–6.000 $\mu\text{m}$                                 | $\varnothing 8$ mm  | 6 mm                      | 38 mm   |
| PF-1S    | FE                  | Special FE probe with spring-loaded guide and prism for especially small parts and areas, swivel-mounted | 0–1.000 $\mu\text{m}$                                 | $\varnothing 2$ mm  | 1 mm                      | 6 mm    |
| PF-1T    | FE                  | Bar-shaped probe for small spaces  | 0–1.000 $\mu\text{m}$                                 | $\varnothing 2$ mm  | 2 mm                      | 16 mm   |
| PF-2T    | FE                  | Bar-shaped probe for small spaces and pipes  | 0–2.000 $\mu\text{m}$                                 | $\varnothing 3$ mm  | 2 mm                      | 12 mm   |
| PF-3T    | FE                  | Bar-shaped probe for small spaces and pipes  | 0–3.000 $\mu\text{m}$                                 | $\varnothing 3$ mm  | 2 mm                      | 8 mm    |
| PF-6S    | FE                  | Two-pole probe for thick coatings, swivel-mounted  | 0–6.000 $\mu\text{m}$                                 | $\varnothing 14$ mm | 5 mm                      | 25 mm   |
| PF-30    | FE                  | Two-pole probe for very thick coatings   | 0–30.000 $\mu\text{m}$                                | $\varnothing 40$ mm | 15 mm                     | 60 mm   |

# Performance table and technical Data

## TOP-CHECK · MEGA-CHECK

|                             | LIST-MAGNETIK TOP-CHECK  |      |  |      | LIST-MAGNETIK MEGA-CHECK Pocket  |  | LIST-MAGNETIK MEGA-CHECK   |       |        |
|-----------------------------|--|------|--|------|--|--|--|-------|--------|
|                             | FE   | FE-B | FN   | FN-B | FE   | FN   | Basic  | Profi | Master |
| Applications                | Measurement of paint, varnish, plastic and galvanic coatings on steel (ISO 2178) |      | Measurement of paint, varnish, plastic and galvanic coatings on steel (ISO 2178),<br>Measurement of insulating layers on non-ferrous metals (ISO 2360)<br>automatic detection of base material |      | Measurement of paint, varnish, plastic and galvanic coatings on steel (ISO 2178) | Measurement of paint, varnish, plastic and galvanic coatings on steel (ISO 2178),<br>Measurement of insulating layers on non-ferrous metals (ISO 2360)<br>automatic detection of base material | Depending on the selection of the probe measurement of paint, varnish, plastic and galvanic layers on steel, measurement of insulating layers on non-ferrous metals with automatic recognition of the basic material |       |        |
| Measuring probe             | swivel-mounted by 90°  |      |  |      | Model PF-5   | Model PFN-52D  | see page 7   |       |        |
| Measuring range             | on steel and iron:<br>0–5000 µm  |      | on steel and iron:<br>0–5000 µm, on NFE-metals: 0–2000 µm  |      | 0–5000 µm  | on steel and iron:<br>0–5000 µm, on NFE-metals: 0–2000 µm  | depending on the probe   |       |        |
| Smallest measuring area     | Ø 4 mm   |      | Ø 8 mm   |      | Ø 4 mm   | Ø 8 mm   | depending on the probe   |       |        |
| Minimal radius of curvature | convex: 4 mm,<br>concave: 38 mm  |      | convex: FE 4 mm, NFE 6 mm,<br>concave: 38 mm   |      | convex: 4 mm,<br>concave: 38 mm  | convex: FE 4 mm, NFE 6 mm,<br>concave: 38 mm   | depending on the probe   |       |        |
| Calibration value           | 300 µm, for measurements over 2 mm: 1000 µm                                      |      |  |      |  |  | depending on the probe   |       |        |
| Precision                   | under 100 µm ± 1 µm, 100–1000 µm: ± 1 %, 1000–2000 µm: ± 3 %, > 2000 µm: ± 5 %   |      |  |      |  |  |  |       |        |
| Resolution                  | 1–100 µm: 0,1 µm, 100–1000 µm: 1 µm, > 1000 µm: 10 µm                            |      |  |      |  |  |  |       |        |
| Measuring units             | µm and mils  |      |  |      |  |  |  |       |        |
| Ambient temperature         | 0–50° C  |      |  |      |  |  |  |       |        |
| Display                     | Illuminated high contrast graphic OLED display                                   |      |  |      | LCD-display 3½ digit   |  | Illuminated graphic display  |       |        |
| Multilingual menu guidance  | German, English  |      |  |      |  |  | German, English, Spain, Dutch  |       |        |

|                       | LIST-MAGNETIK TOP-CHECK |  |    |  | LIST-MAGNETIK MEGA-CHECK Pocket                          |    | LIST-MAGNETIK MEGA-CHECK |       |  |
|-----------------------|-------------------------|--|----|--|--|----|--------------------------|-------|--|
|                       | FE                      | FE-B   | FN | FN-B   | FE   | FN | Basic                    | Profi | Master   |
| Measured value memory |                         | 2 x 500 measured values  |    | 2 x 500 measured values  |  |    |                          |       | 10.000 measured values   |
| Statistics            |                         | Count / Maximum / Minimum / Average / Standard deviation                         |    | Count / Maximum / Minimum / Average / Standard deviation                         | Count / Maximum / Minimum / Average / Standard deviation |    |                          |       | Count / Maximum / Minimum / Average / Standard deviation   |
| Calibration store     |                         |  |    |  |  |    |                          |       | 3 calibration memory for storing individual calibrations   |
| Interface             |                         | Bluetooth interface class 2 for communication with PC, TOP-CHECK App and printer |    | Bluetooth interface class 2 for communication with PC, TOP-CHECK App and printer |  |    |                          |       | RS232 interface with USB cable for communication with PC and printer   |
| Analog display        |                         |  |    |  |  |    |                          |       | Analog measured value display with continuous measurement  |
| Scan function         |                         |  |    |  |  |    |                          |       | For accurate measurement on rough or blasted surfaces  |
| Duplex function       |                         |  |    |  |  |    |                          |       | For the exact determination of the individual layer thickness during measurements of insulating layers on galvanized steel parts |
| Power supply          | 1 x 1.5 V AA Mignon     |  |    |  | 2 x 1.5 V AA Mignon                                      |    | 3 x 1.5 V AA Mignon      |       |  |
| Operating time        | approx. 30 hours        |  |    |  | approx. 35 hours   |    | approx. 60 hours         |       |  |
| Dimensions            | Ø 28 x 98 mm            |  |    |  | 105 x 65 x 26 mm   |    | 198 x 92 x 35 mm         |       |  |
| Weight                | 72 g (with Battery)     |  |    |  | 137 g (with Batteries)                                   |    | 265 g (with Batteries)   |       |  |



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