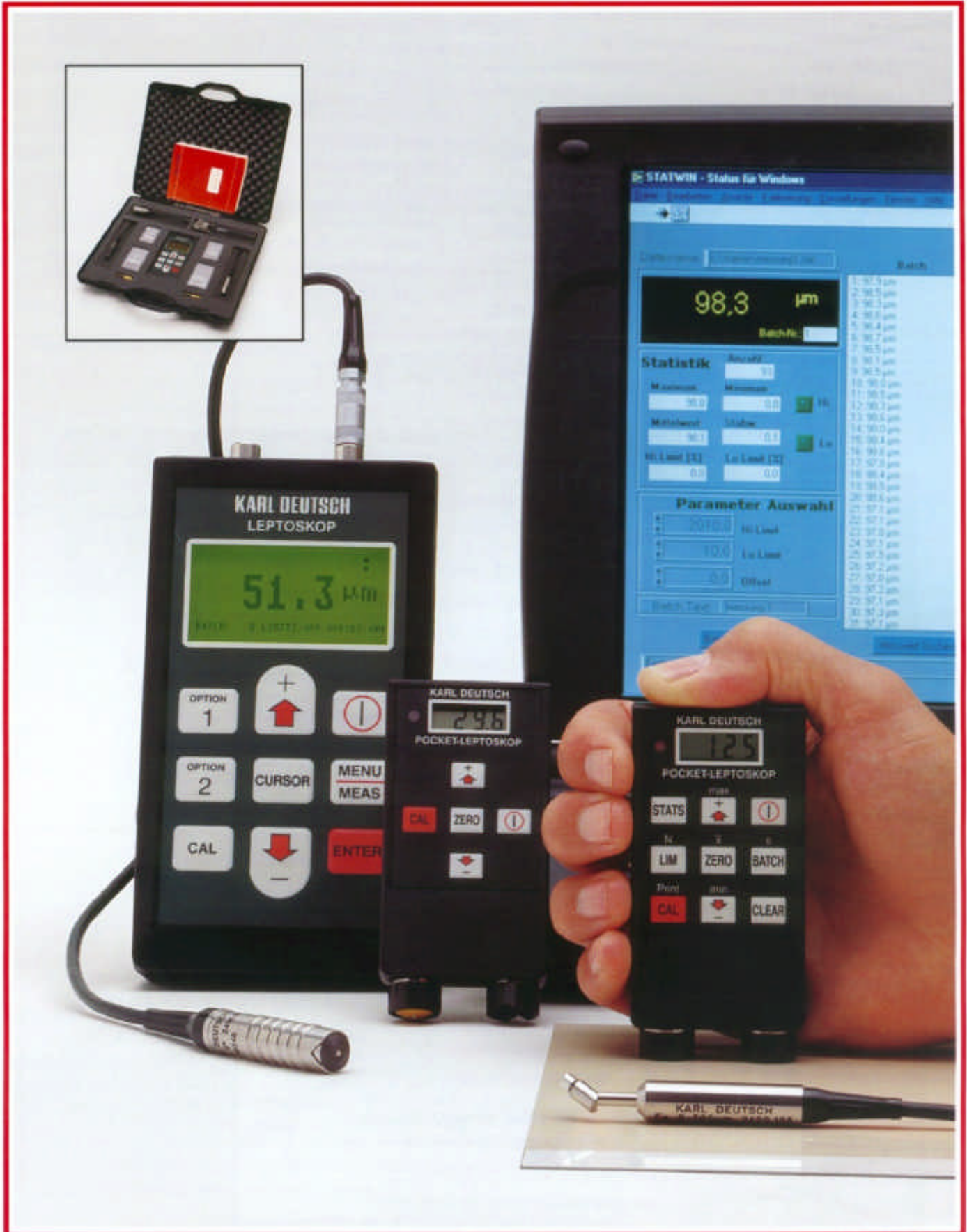


LEPTOSKOP

Coating Thickness Gauges



Leaflet P 20 E · Subject to change without notice · Printed in Germany 2/02



KARL DEUTSCH

LEPTOSKOP'es are, for decades, well-approved coating thickness gauges for non-destructive measurement of layers upon metals based on the magnetic-inductive procedure (EN ISO 2178) and the eddy current procedure (EN ISO 2360).

Application and measurement procedures:

For all non-magnetic layers on (ferro)magnetic substrates (Fe):

Magnetic-inductive method (Fe).

Examples: Varnish, paint, powder lacquer, enamel, plastic, zinc, chromium, copper on iron and steel.

For all non-conductive layers on (electrically) conducting substrates (NFe):

Eddy current method (NFe).

Examples: Varnish, paint, powder lacquer, anodizing, plastic on all non-ferrous (NFe) metals such as aluminium, copper, brass, etc.

Pocket-LEPTOSKOP'es are equipped with integrated probes (Fe-probe, or alternatively, Fe/NFe dual-use probe).

All other **LEPTOSKOP'es** are working with external (exchangeable) probes, which are designed either for Fe- or for NFe-operation.

LEPTOSKOP 2051



If your coating thickness gauge should statistically evaluate the accepted measured values without permanent storage of the single values? In this case, the LEPTOSKOP 2051 equipped with all functions of a comfortable coating thickness gauge, but without storage of the measured values, will be the perfect choice.

- Large selection of external probes
- Automatic distinguishing of each probe
- Statistical evaluation of measurement results
- Local coating thickness / arithmetic average (EN ISO 2064)
- Instantly ready for measurement, even without calibration
- Two-point calibration possible
- Limit value supervision
- Stand-by function

LEPTOSKOP 2041



The **comfortable** coating thickness gauge with a large data storage and large illuminated indication of measured values

In addition to the basic functions of the LEPTOSKOP 2051:

- Freely groupable storage of up to 7700 measured values
- Online statistical indication
- Menue-driven, simple operation
- Adjustment even on coatings of unknown thickness possible
- Data interface to PC or printer



PC-LEPTOSKOP 2050

The software STATWIN converts your PC to a coating thickness gauge. You simply connect a suitable LEPTOSKOP probe with the RS232-interface of your PC. After downloading of the program, the screen of your PC presents a virtual coating thickness gauge, which can be operated by mouse like a normal instrument.

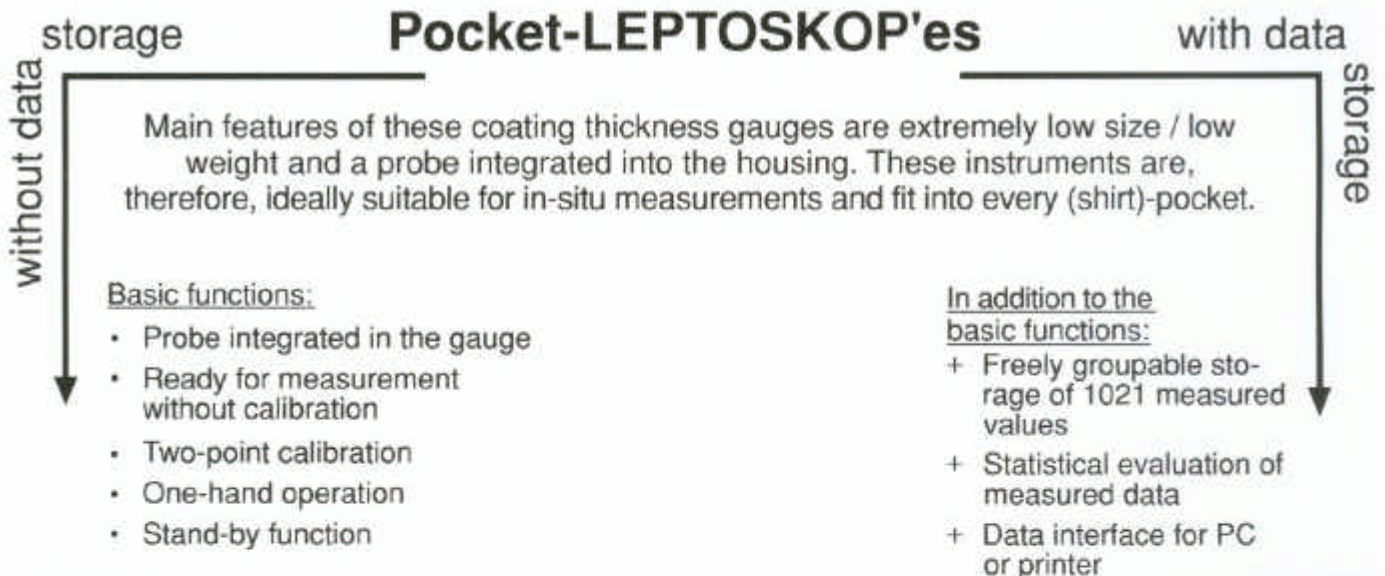


This coating thickness gauge, consisting of PC, software and probe, is specially suitable for stationary measurements (e. g. in a laboratory). However, the software may also be installed for mobile measurements on any Laptop-PC.

- No additional PC plug-in board required
- Only connect a PC-probe to the serial interface and the measurement may be started
- The same probes can be used for the PC-LEPTOSKOP 2050 and also for the LEPTOSKOP 2051

In addition to the functions of LEPTOSKOP 2041:

- N-point calibration
- Nearly unlimited storage capacity
- Switchable language English / German
- Direct graphical evaluation and documentation



Pocket-LEPTOSKOP
2020
without data storage

← **Type: Fe** →

For non-magnetic coatings on ferrous substrates (iron, steel, ...)

Pocket-LEPTOSKOP
2030
with data storage



Pocket-LEPTOSKOP
2025
without data storage

← **Type: Fe/NFe** →

The Fe / NFe dual-use probe automatically recognises the substrate material and measures non-magnetic coatings on ferrous substrates (iron, steel, ...), and also non-conductive coatings on non-ferrous metals (aluminium, copper, brass etc.)

Pocket-LEPTOSKOP
2035
with data storage

LEPTOSKOP probes suitable for every application range

Probe types

(dimensions in mm)

Single-pole probe, straight



Single-pole probe, 20 mm



Single-pole probe, angled



Micro-probe, straight



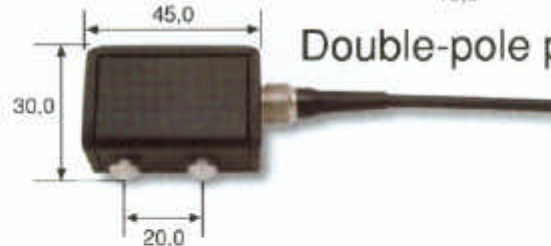
Micro-probe, 45°



Micro-probe, 90°



Double-pole probe



Measuring ranges and ordering no's

Probe description			Ordering no's	
Probe type	Fe / NFe	Measuring range (mm / inch)	for LEPTOSKOP 2041	for LEPTOSKOP 2050 / 2051
Single-pole probe, straight for all standard measurements	Fe	0 - 4 750 μm / 190 mils	2418.104	-
		0 - 1 200 μm / 48 mils	-	2050.101
		0 - 3 000 μm / 120 mils	-	2050.111
	NFe	0 - 1 000 μm / 40 mils	2418.201	2050.201
		0 - 3 750 μm / 150 mils	2418.401	-
Single-pole probe, 20 mm for measuring bigger layers	Fe	500 - 20 000 μm / 800 mils	2418.304	-
Single-pole probe, angled for measure hard-to-reach locations: (e.g. internal tube walls)	Fe	0 - 4 750 μm / 190 mils	2418.106	-
		0 - 1 200 μm / 48 mils	-	2050.102
		0 - 3 000 μm / 120 mils	-	2050.112
Double-pole probe for measuring thicker coatings	Fe	500 - 12 500 μm / 20 - 500 mils	2419.101	-
		0 - 10 000 μm / 400 mils	-	2050.103
Micro-probe, straight to measure on small structures	Fe	0 - 500 μm / 20 mils	2420.104	-
		0 - 250 μm / 10 mils	-	2050.104
	NFe	0 - 500 μm / 20 mils	2420.201	2050.204
		0 - 250 μm / 10 mils	-	-
Micro-probe, 45° to measure on small and hard-to-access structures	Fe	0 - 500 μm / 20 mils	2420.105	-
		0 - 250 μm / 10 mils	-	2050.105
	NFe	0 - 500 μm / 20 mils	2420.202	2050.205
		0 - 250 μm / 10 mils	-	-
Micro-probe, 90° to measure on small and hard-to-access structures	Fe	0 - 500 μm / 20 mils	2420.106	-
		0 - 250 μm / 10 mils	-	2050.106
	NFe	0 - 500 μm / 20 mils	2420.203	2050.206

Recommended accessories for micro-probes (NFe): Positioning device (see next page), ordering no: 2820.002

Accessories



Software: STATWIN 2002

This software is used to transfer the measured data of a LEPTOSKOP with data interface to a PC, and works also as a virtual gauge in case of the LEPTOSKOP 2050 (PC + software + probe). Besides the statistical functions and limit value supervision, STATWIN 2002 also offers graphical evaluation and documentation facilities. By means of export functions, individual reports and measuring protocols may also be written in other programs (e.g. Excel®, Word®, etc.).

Older versions for DOS and Windows (16 bit) are also still available.

Ordering no.:	2902.001	STATUS	(DOS version)
	2903.001	STATUS for Windows	(Windows 3.XX to Windows 95)
	2904.001	STATWIN 2002	(from Windows 95 and Windows NT)

Recommended minimum requirements for STATWIN 2002: Pentium 400 MHz, 64 MB RAM working storage, 10 MB available hard disc space, operating system Windows 95 or higher, VGA - monitor resolution 800 by 600 pixels



Calibration blocks and foils

Depending upon application, ferro-magnetic (iron) and non-ferrous calibration blocks are available, and depending on the measuring range, different foil sets can be shipped. By means of the foils of known thickness, the LEPTOSKOP can easily be calibrated. For ordering no's, refer to the last page.

Positioning device

Precisely positioned and reproducible measurements for all Fe- and NFe- micro probes. This pneumatically damped positioning device provides high positioning accuracy and repeatability. Holding devices for 0°-, 45°-, and 90°- probes are included.

Ordering no.: 2820.002



Positioning aids for micro probes

In case of manual measurements, these simple positioning aids, prevent errors caused by tilted probes.

Ordering no's.: for 0°-probe: 2998.001
for 45°-probe: 2998.002
for 90°-probe: 2998.003



Tube measurement set-up

The tube measurement set-up consists of a measuring stand and a special probe, suited for LEPTOSKOP 2041.

Ordering no's.: measuring stand 2820.999
special probe 2498.010



Technical Data	Pocket LEPTOSKOP 2020	Pocket LEPTOSKOP 2025	Pocket LEPTOSKOP 2030	Pocket LEPTOSKOP 2035	LEPTOSKOP 2041	PC LEPTOSKOP 2050	LEPTOSKOP 2051
Measuring principle	magnetic	magnetic / eddy current	magnetic	magnetic / eddy current	magnetic inductive / eddy current depending on chosen probe		
Power supply with Alkali-Manganese batteries	1 x 1.5V (Typ Micro, AAA, LR03)				2 x 1.5V 2x1.2V recharge LR6 Mignon AA	PC	2 x 1.5V 2x1.2V recharge LR6 Mignon AA
Operation time	70 hrs.				26 hrs.	unlimited	33 hrs.
Data storage	-	-	up to 1021 measured values		up to 7700 meas. values	PC-facilities	-
Measuring range μm / mils	0 - 1250 μm / 50 mils				0 - 20 mm / 800 mils dep. on probes	0 - 10000 μm / 400 mils depending on probes	
Measurement accuracy*)	For coatings < 100 μm : $\pm 2 \mu\text{m}$ For coatings > 100 μm : 1-3 % $\pm 1 \mu\text{m}$				For coatings < 100 μm : $\pm 1 \mu\text{m}$ For coatings > 100 μm : 1-3 % $\pm 1 \mu\text{m}$ Two- and single-pole probes 20 mm: For coatings > 500 μm : 1-3 % $\pm 10 \mu\text{m}$ For coatings > 10000 μm : 1-5 % $\pm 10 \mu\text{m}$		
*) depending on calibration method and material							
Statistical functions	-	-	yes	yes	yes	yes	yes
Environment	Operating temperature: 0 °C to +45 °C Storage temperature: -20 °C to +60 °C Protection type: IP 40						
Interface	-	-	RS 232		RS 232		-
Dimensions (mm ³)	93 x 46 x 16				151 x 83 x 35	Probe, PC	151 x 83 x 35
Weight (incl. battery)	79 g				300 g	Probe, PC	268 g
Ordering Numbers:	2020	2025	2030	2035	2041	2050	2051
Instrument (incl. battery)	2020.001	2025.001	2030.001	2035.001	2041.001	Probe + Software	2051.001
Calibration block Fe	2815.001						
Calibration block Fe (large) for double- and single-pole probes 20 mm	-	-	-	-	2815.002		
Calibration block NFe	-	2815.003	-	2815.003			
Calibration foil set (up to 1250 μm)	2715.001						
Calibration foil set (1250 to 4750 μm)	-	-	-	-	2715.004		
Calibration foil set (0,5 to 12,5 mm)	-	-	-	-	2715.002		
Calibration foil set (12,5 to 20 mm)	-	-	-	-	2715.151	-	-
Precision foil set (up to 1250 μm)	2715.003						
Battery charger	-	-	-	-	2806.001	-	2806.001
Printer	-	-	6010.001		6010.001	-	-
Printer cable	-	-	1657.301		1657.305	-	-
PC cable	-	-	1657.303		1657.307	-	-
Software: STATUS II (DOS)	-	-	2902.001		2902.001		-
Software: STATUS for Windows	-	-	2903.001		2903.001		-
Software: STATWIN 2002	-	-	2904.001		2904.001		-
Positioning device	-	-	-	-	2820.002		
Positioning aids for micro probes	-	-	-	-	0°: 2998.001 / 45°: 2998.002 / 90°: 2998.003		
Tube measurement set-up	-	-	-	-	2820.999 + 2498.010	-	-
Complete Packages:	2020	2025	2030	2035	2041	2050	2051
Standard package Fe	2020.901	-	2030.901	-	2041.901	-	2051.901
Standard package NFe	-	-	-	-	2041.902	-	2051.902
Standard package Fe/NFe	-	2025.901	-	2035.901	2041.905*)	-	-
Data package Fe	-	-	2030.902	-	2041.903	2050.901	-
Data package NFe	-	-	-	-	2041.904	2050.902	-
Data package Fe/NFe	-	-	-	2035.902	2041.906*)	-	-

*) incl. Fe- and NFe- single-pole probe (straight)

Standard packages contain: Instrument, single-pole probe, calibration block, calibration foil set

Data packages contain: Instrument, single-pole probe, calibration block, calibration foil set, PC-cable, Software STATWIN 2002

For your QM testing media documentation:

All LEPTOSKOP instruments will carefully and thoroughly be tested in our laboratories and delivered with individual measuring protocols and quality testing certificates.

Upon request, we also will carry out repetitive checks for you.

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