LEPTOSKOP® 2042
Coating Thickness Measurement

KARL DEUTSCH

LEPTOSKOP® 2042
Customized Coating Thickness Measurement

The LEPTOSKOP 2042:
high-performance, up-to-date, affordable

Practical carrying case provides enough space for extensive accessories

Package and scope of supply

	order no.
LEPTOSKOP 2042	2042.001

Scope of supply: Gauge with battery, carrying case, instruction manual, quality test certificate, accuracy report, measurement log, technical literature "Coating Thickness Measurement"

Basic packages

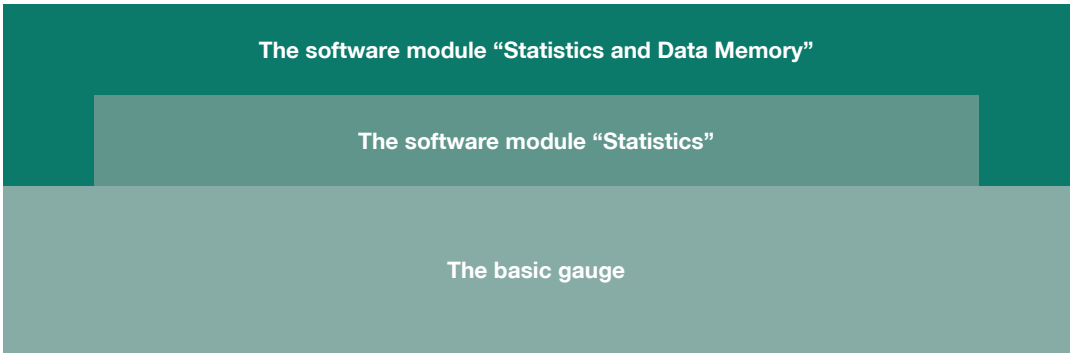
Basic package Fe	2042.901
Basic package NFe	2042.902
Basic package Fe/NFe	2042.904

Basic packages include:
LEPTOSKOP 2042 with scope of supply and additionally: reference block(s), calibration foil set
Fe-package: probe 2442.100
NFe-package: probe 2442.130
Fe/NFe-package: dual probe 2442.410

The brand name LEPTOSKOP® represents decades of experience in development of precise and reliable coating thickness measurement gauges from KARL DEUTSCH.

The advantages of the LEPTOSKOP 2042 are numerous. To find the perfect gauge for your individual needs we have developed 3 stages of expansion:

- **The basic gauge** – strong basis for precise measurements
- **The software module "Statistics"** – statistics and more for enhanced requirements
- **The software module "Statistics and Data Memory"** – for highest demands



The new LEPTOSKOP 2042 with 3 levels building on each other

For all 3 gauges a large range of external probes is available.
All KARL DEUTSCH probes are "active probes" with built-in microprocessor and signal processing. These probes achieve highest measuring accuracy and repeatability and make the LEPTOSKOP 2042 an universal instrument for all measuring tasks.

The basic gauge – strong basis for precise measurements

The compact basic gauge is ideal for the quick use in non-destructive coating thickness measurement.

Advantages at a glance:

- Precise measurement technique
- Adjustable offset for indication of readings
- Adjustable limit values
- Calibration on unknown coating (Fe)
- Multi-point calibration
- Local thickness
- Ready to measure without calibration
- Comfortable user guidance in comprehensible plain text
- Clearly arranged graphical display with a bright, but power saving backlight
- Large characters permit convenient reading of measured values
- Shock absorbing rubber holster with pop-up clip
- Measuring method according to EN ISO 2178/2360 (magnet-inductive and eddy current)
- Modern, small and lightweight
- Hotkeys

Process integration

- Possible application in automated processes by data exchange via USB/RS232 interface
- Assistance of the quality management system by logging of operating hours and the total number of measurements

Economical

- Power supply via 2 commercially available AA-batteries or via USB-connector
- Reserve energy up to 90 hours
- Battery status indication optically and acoustically

Individual

- 10 languages selectable
- Measuring units: µm, mm, mil, inch
- Comprehensive and individual advice by our specialists

The extra **versatile** and **economic** LEPTOSKOP 2042 provides the possibility to expand the functionality range anytime by means of an unlock code. Therefore, it is possible to extend the functional benefits directly on-site, for instance, to add data memory, statistics and further calibration options

The software module "Statistics" – statistics and more for enhanced requirements

- All functions of the basic unit are included
- Statistical evaluations with up to 999 measured values
- Variable display modes for an optimal adaptation to the measuring task:
  - All information viewable at a glance (measured value together with statistical data, minimum, maximum, number of measurements, arithmetic mean, standard deviation)
  - Measured value optionally in pointer indication
  - Fast navigation within the individual readings
  - List of measured data and graphic representation of the course of readings
- Keyboard lock

The software module "Statistics and Data Memory" – for highest demands

- All functions of the software module "Statistics" are included
- Data storage with easy file management system similar to Windows: Directories and files with alphanumeric naming
- Up to 140 files storable (999 measured values per file; max. 9,999 measured values altogether)
- All statistical evaluations are available for each file
- Each file individually stores its associated calibration
- In addition, calibrations from files can be stored or loaded separately
- Real-time clock

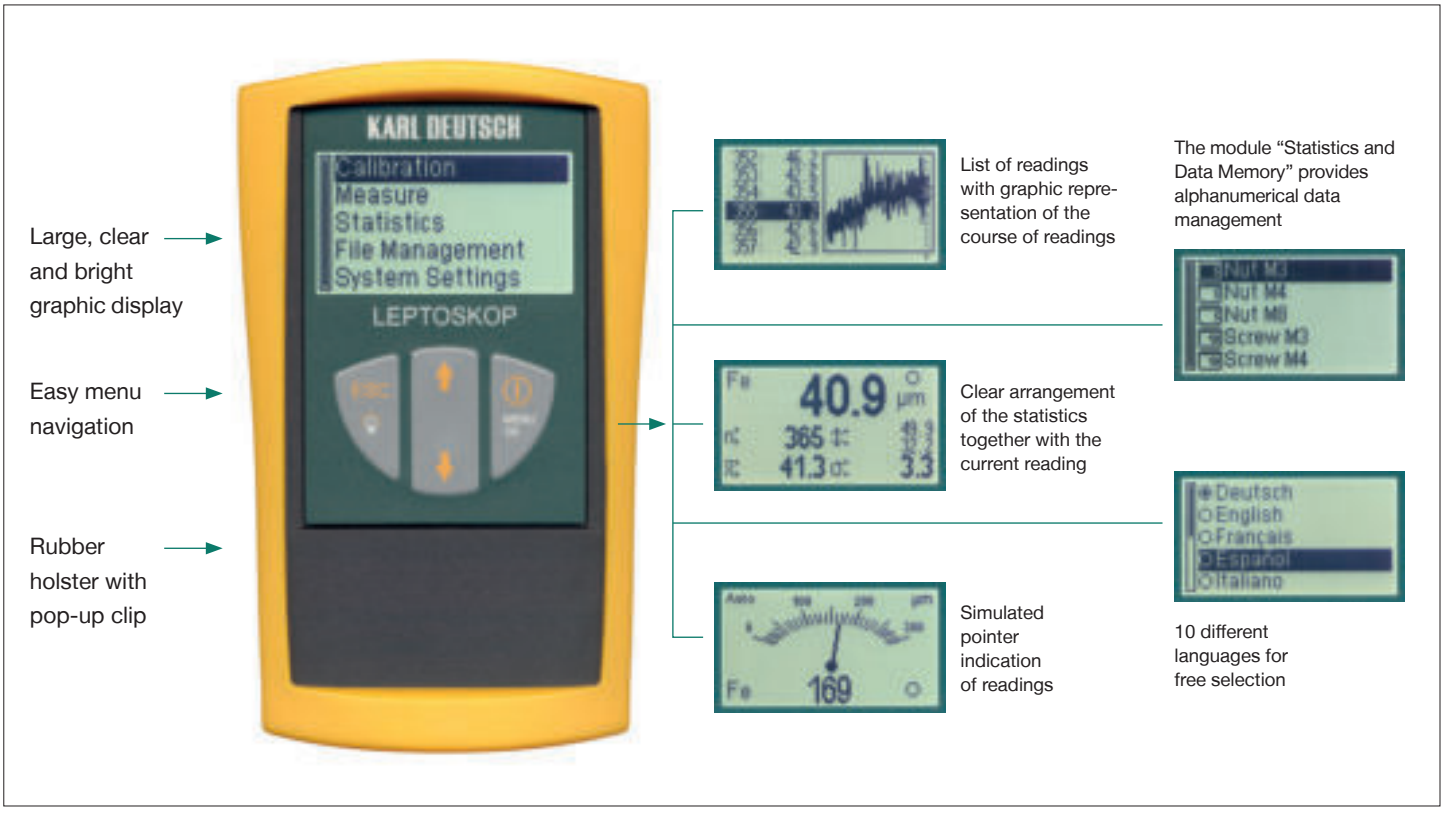
Package and scope of supply

	order no.
Statistics packages	
Statistics package Fe	2042.911
Statistics package NFe	2042.912
Statistics package Fe/NFe	2042.914

Statistics packages include:
LEPTOSKOP 2042 with scope of supply and additionally: module "Statistics", PC-cable (USB), PC-software EasyExport, reference block(s), calibration foil set,
Fe-package: probe 2442.100
NFe-package: probe 2442.130
Fe/NFe-package: dual probe 2442.410

Data packages	
Data package Fe	2042.921
Data package NFe	2042.922
Data package Fe/NFe	2042.924

Data packages include:
LEPTOSKOP 2042 with scope of supply and additionally: module "Statistics and Data Memory", PC-cable (USB), PC-software iCom, reference block(s), calibration foil set
Fe-package: probe 2442.100
NFe-package: probe 2442.130
Fe/NFe-package: dual probe 2442.410



The compact LEPTOSKOP 2042 satisfies with convenient user's guidance and clear representation of the measured data

LEPTOSKOP® probes
The right solution for every measuring task

Typical application

The LEPTOSKOP 2042 works with external, exchangeable probes, which are designed either for Fe- or NFe-base material. With the help of the following overview it is easily possible to find the appropriate probe for most measuring tasks.

Measuring methods

Magnet-inductive method (EN ISO 2178)

for all non-magnetic coatings (e.g. paint, lacquer, powder lacquer, enamel, plastics, zinc, chromium, copper) on (ferro)-magnetic substrate (Fe), e.g. iron and steel.

Eddy current method (EN ISO 2360)

for all non-conductive coatings (e.g. lacquer, paint, powder lacquer, anodized surface, plastics) on (electrically) conductive base material (NFe), e.g. aluminium, copper, brass.

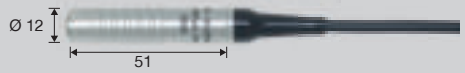
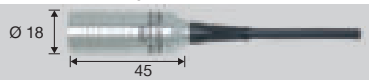
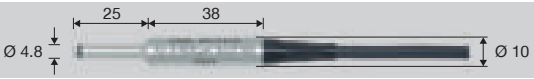
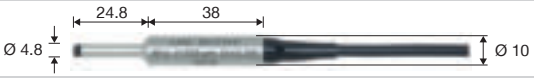
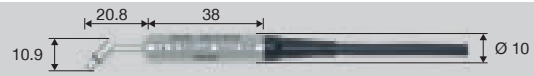
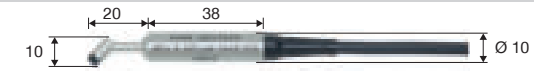
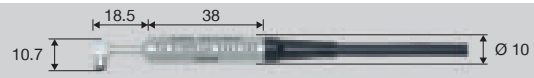
Criteria for an optimal probe selection

- The material combination of coating and substrate. This determines the measuring method.
- The coating thickness. It is decisive for the required measuring range of the probe.
- The geometrical shape and the size of the test item. They determine the probe type: Standard, micro, two-pole, dual or special probe; straight or angled.

Our experts are pleased to assist you and advice on selecting the best.

We also offer special probes for individual measuring tasks.

The right solution for every measuring task:

Probes (dimensions in mm)	Probe Type	Measuring Range	Order No.
	dual probe Fe/NFe 0°	0 - 3,000 µm Fe 0 - 1,250 µm NFe	2442.410
	probe Fe 0°	0 - 5,000 µm	2442.100
	probe Fe 90°	0 - 5,000 µm	2442.110
	probe Fe S 0°	0.5 - 20 mm	2442.120
	probe NFe 0°	0 - 1,000 µm	2442.130
	probe NFe S 0°	0 - 3,750 µm	2442.140
	two-pole probe Fe	0.5 - 12.5 mm	2442.200
	micro probe Fe 0°	0 - 500 µm	2442.300
	micro probe NFe 0°	0 - 500 µm	2442.310
	micro probe Fe 45°	0 - 500 µm	2442.320
	micro probe NFe 45°	0 - 500 µm	2442.330
	micro probe Fe 90°	0 - 500 µm	2442.340
	micro probe NFe 90°	0 - 500 µm	2442.350

LEPTOSKOP® 2042
Accessories

Accessories for LEPTOSKOP 2042

Accessories	Description		Order No.
PC-software: iCom	This user-friendly software is able to take on the entire administration of the measuring data of the gauges Pocket-LEPTOSKOP, LEPTOSKOP 2041/2042, ECHOMETER 1077 Data, ECHOMETER 1076 Data, ECHOMETER TC Data and RMG 4015. By means of a state-of-the-art, standards compliant user interface and software integration all resources of the PC system (e.g. printer, memory, software) can be used additionally in a quick and easy way.		2906.001
PC-software: EasyExport	This software enables the export of single measurements or whole data files into Windows programs. Via the PC-interface it is possible to transfer the measured data of KARL DEUTSCH instruments into different applications (word processing, spreadsheet analysis, data base, ERP and QM software etc.) according to your demand. For detailed information we recommend our separate product information sheet for EasyExport.		2905.001
Reference blocks	According to the application we offer ferrous (Fe, iron) and non ferrous (NFe, aluminium) reference blocks.	Reference block Fe Reference block Fe, large (for two-pole probe and standard probe Fe S 0°) Reference block NFe	2815.001 2815.002 2815.003
Calibration foils Calibration block	Foils with precise thickness for reliable and accurate calibration of the LEPTOSKOP. Depending on the measuring range different foil sets are deliverable.	Foil set up to 1,250 µm (6 ea) Foil set 1,250 up to 4,750 µm (3 ea) Foil set 0.5 bis 12.5 mm (4 ea) Precisions calibration foil set (6 ea) up to 1,250 µm Plastics calibration block, 15 mm thick	2715.001 2715.004 2715.002 2715.003 2715.151
Probe positioning device	It can be used for all Fe- and NFe-micro probes and comes with a pneumatically damped wire-operated manipulator for highly accurate repetitive positioning. Fixtures for the 0°-, 45°- and 90°-micro probes are included.		2820.002
Positioning aid for micro probes	These aids help to avoid wrong measuring data caused by inclining or twisting of the probes during measurement.	Positioning aid 0°: Positioning aid 45°: Positioning aid 90°:	2998.001 2998.002 2998.003
Probe holder	300 mm length for probe Fe 90° / two-pole probe Fe		2808.001
Mobile thermal printer	RS232, incl. mains/charger unit (230 V); connection of the printer to the LEPTOSKOP 2042 via periphery cable for RS232 interface (order no. 1657.311)		6010.201
Periphery cable	For connecting the LEPTOSKOP 2042 to a PC/printer with RS232 interface (9-pin) PC with USB-interface (incl. driver-CD)		 1657.311 1657.312
Battery set Charger unit	NiMH rechargeable battery set, 2 x 1.2 V (size AA, with enhanced capacity: 2,000 mAh min.) Charger unit 230 V for up to 4 NiCd/NiMH rechargeable batteries (4 x AA)		6016.001 6015.001
Protective bag	Leather case with viewing window for display and keypad, mechanical protection for transport and handling of the instrument if used without rubber holster.		3872.401
Technical literature	NDT – compact and understandable No. 12 “Coating Thickness Measurement” (included with scope of supply)		6607.121

Comprehensive printed instruction manual included.

PC-software: iCom

PC-software: EasyExport

Calibration foil sets and reference blocks

Probe positioning device

Positioning aid for micro probes

Mobile thermal printer

LEPTOSKOP® 2042
Technical data

Technical data LEPTOSKOP 2042	
Display	Approx. 48 mm x 24 mm, back light illumination
Measuring methods	Fe-measuring: magnetic-inductive method (EN ISO 2178) NFe-measuring: eddy current method (EN ISO 2360)
Measurement range	0 – 20,000 µm, depending on probe used
Calibration	• Zero calibration • Single and multi-point calibration with foils on uncoated base material • Calibration on coated material (Fe), if no uncoated material is available • Factory calibration • Loading and saving of customized calibrations
Measuring uncertainty (after calibration)	For coatings < 100 µm: 1 % +/- 1 µm For coatings > 100 µm: 1 to 3 % +/- 1 µm For coatings > 1,000 µm: 3 to 5 % +/- 10 µm For coatings > 10,000 µm: 5 % +/- 100 µm
Interface	USB/RS232 via adaptor cable
Measurement units	µm, mm, mils or inch
Storage	Up to 140 files, 999 measured values per file Overall: max. 9,999 measured values less approx. 100 measured values per generated file
Statistics	Minimum, maximum, arithmetic mean, number of readings, standard deviation Monitoring of limit values Local coating thickness and average coating thickness according to EN ISO 2808
Date and time	Real-time clock, battery backed
Power supply	2 x AA-batteries (primary or rechargeable cells), USB or mains adapter
Operating hours	• Approx. 90 hours with backlight off (with alkali-manganese primary cells) • Approx. 45 hours with backlight on (with alkali-manganese primary cells)
Battery level indicator	4-stage battery level indicator Audible warning signal approx. 2 to 4 hours before undervoltage condition occurs Automatic shut-off on undervoltage
Operating temperature	0 °C to +45 °C
Storage temperature	-20 °C to +60 °C without batteries 0 °C to +45 °C with batteries
Housing dimensions and weight	81 mm x 121 mm x 32 mm, approx. 150 g (with batteries, without rubber holster)
Dust and humidity protection	Protection class IP 40 (protection against intrusion of particles > 1 mm)
Probe electronic	Active probe with built-in microprocessor and signal processing

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