Advancing with Technology

ElektroPhysik

Messgeräte für Oberflächentechnik • Surface Testing Instruments

ElektroPhysik

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Coating Thickness Wall Thickness Pinhole Detection Asphalt Layer

Contents

Technical Data 4

Coating Thickness
- MiniTest 725/735/745 10
- SmarTest 11
  - Sensors for MiniTest 725/735/745 and SmarTest 12
- MiniTest 2500/4500 13
  - Sensors for MiniTest 2500/4500 14
- QuintSonic 7 17
- MiniTest 650 18
- MiniTest 70 19
- MikroTest 19

Wall Thickness
- MiniTest 7200 FH/7400 FH 20
- MiniTest 420/430/440 21

Destructive Thickness Measurement
- GalvanoTest 22

Adhesion Test
- SecoTest 22

Pinhole Detection/Asphalt Layer
- PoroTest 23
- StratoTest 23

History of ElektroPhysik 24

ElektroPhysik worldwide 26

Technical Data

Coating Thickness Gauges

MiniTest 725/735/745

Model	MiniTest 725	MiniTest 735	MiniTest 745
Sensor model	Built-in sensor, not convertible	External sensor, not convertible	Built-in/external sensor, convertible
Weight	approx. 175 g, 6.2 oz	approx. 210 g, 7.4 oz	approx. 175 g, 6.2 oz/ 230 g, 8.1 oz
Dimensions	157 mm x 75,5 mm x 49 mm 6.2 in. x 3 in. x 2 in.		
Measuring units	µm, mm, cm, mils, inch, thou		
Data interfaces	USB and Bluetooth		
Data memory	10 batches for a maximum of 10,000 readings (MiniTest 725+735) 100 batches for a maximum of 100,000 readings (MiniTest 745)		
Power supply	2 pcs batteries, type AA (Mignon); rechargeable NiMH batteries, type AA/HR6 as an option		
Operating temperature	-10°C…60°C 14°F…140°F		
Measuring range	model F: 0…15 mm model N: 0…7 mm	model F: 0…35 mm model N: 0…20 mm	
	model FN: 0…5.0 mm (F) / 0…2.5 mm (N)		

SmarTest

Model	SmarTest
Sensor model	Wireless sensor
Weight	approx. 60 g, 2.1 oz
Dimensions	16 x 125 mm 0.6 in. x 5 in.
Measuring units	Metric/mils switchable
Data interfaces	Bluetooth 4.0/USB connector for charging and power supply
Data memory	Storage of measured values in CSV file format
Power supply	LiFePO4 battery/ operating time approx. 8 hrs, USB
Operating temperature	-10°C…60°C 14°F…140°F
Measuring range for standard configuration	Depending on the sensor connected same as MiniTest 725/735/745

Technical Data

Coating Thickness Gauges

MiniTest 2500/4500

Model	MiniTest 2500	MiniTest 4500
Sensor model	Sensor convertible	Sensor convertible
Weight	282 g (incl. batteries), 10 oz	
Dimensions	150 mm x 85 mm x 25 mm 6 in. x 3.3 in. x 1 in.	
Measuring units	µm, mm, mils, inch	
Data interfaces	USB, Bluetooth (just 4500)	
Data memory	2,000,000 measuring values in direct mode	2,000,000 measuring values storable in max. 99 application memories and max. 98 batches
Power supply	3 x AA (LR6) batteries, USB	
Operating temperature	-10°C…+60°C 14°F…140°F	
Measuring range	0…100 mm/3940 mils Depending on the probe connected to the gauge	

QuintSonic 7

Model	QuintSonic 7
Sensor model	Sensor convertible
Weight	310 g (incl. batteries), 11 oz 80 g sensor, 2.8 oz
Dimensions	153 mm x 89 mm x 32 mm 6 in. x 3.5 in. x 1.3 in.
Measuring units	µm, mm, mils
Data interfaces	IrDA® 1.0, USB or RS232 via adapter cable
Data memory	approx. 100,000 measuring values (in total)
Power supply	4 x AA (LR6) batteries or optionally via mains unit (100-240 V~/50-60 Hz)
Operating temperature	+5°C…+50 °C 41°F…122°F
Measuring range	Maximum 7500 µm / 295 mils (adjustable in ranges of 356 µm, 890 µm 1900 µm, 3900 µm for a velocity of 2375 m/s for all layers in order to achieve most precise scanning)

Technical Data

Coating Thickness Gauges

MiniTest 650

Model	MiniTest 650, 650E, 650B
Sensor model	Sensor on cable lead, not convertible
Weight	225 g incl. batteries, 7.93 oz
Dimensions	70 mm x 122 mm x 32 mm 2.8 in. x 4.8 in. x 1.3 in.
Measuring units	µm – mils
Data interfaces	650: USB
Data memory	–
Power supply	3 x AAA batteries
Operating temperature	Gauge 0°C…50°C/ 32 ° to 122 °F Sensor -10°C…-70°/ 14 ° to 158 °F
Measuring range	model F 0…3000 µm/120 mils model N 0…2000 µm/80 mils model FN 0…2000 µm/80 mils

MiniTest 70

Model	MiniTest 70, 70E, 70B
Sensor model	Built-in sensor not convertible
Weight	80 g incl. batteries, 2.8 oz
Dimensions	length 157 mm, Ø 27 mm, 6.2 in. length, Ø 1.06 in.
Measuring units	µm – mils
Data interfaces	–
Data memory	–
Power supply	1 x AA batteries
Operating temperature	-10°C…+60°C 14°F…140°F
Measuring range	model F 0…3 mm/120 mils model FN 0…2.5(N)/3 mm (F) 100 mils/120 mils

MikroTest

Model	5 G/F, 6 G/F, 6 S3, 6 S5, 6 S10, 6 NiFe50, Ni 50, Ni 100
Sensor model	Built-in sensor not convertible
Weight	Case incl. gauge approx. 560 g, 19.8 oz
Dimensions	215 mm x 55 mm x 29 mm 8.5 in. x 2.2 in. x 1.1 in.
Measuring units	Depending on the model
Data interfaces	–
Data memory	–
Power supply	Power independant
Operating temperature	-20°C…100°C -4 °F…212°F
Measuring range	0…50 µm/2 mils 0…100 µm/4 mils, 0…1000 µm/40 mils, 0.2/8 mils… 3 mm/120 mils, 0.5/20 mils… 5 mm/200 mils, 2.5/98 mils… 10 mm/394 mils according to different models

Technical Data

Wall Thickness Gauges

MiniTest 7200/7400 FH

Model	MiniTest 7200 FH	MiniTest 7400 FH
Sensor model	Exchangeable sensors for wall and coating thickness measurement	
Weight	310 g (gauge including batteries)/11 oz	
Dimensions	153 mm x 89 mm x 32 mm 6 in. x 3.5 in. x 1.3 in.	
Measuring units	µm, mm, mils, inch	
Data interfaces	RS232 TTL + IrDA 1.0 + USB + footswitch	
Data memory	100,000 values	240,000 values incl. graphical representation of the readings
Power supply	4 x AA (LR06) batteries, or optional power unit (90 – 240 V~/48 – 62 Hz)	
Operating temperature	-10°C…+60°C 14°F…140°F	
Measuring range	For wall thickness 0…24 mm/945 mils Depending on the probe connected to the gauge	

MiniTest 420/430/440

Model	MiniTest 420	MiniTest 430	MiniTest 440
Sensor model	Different transducers at choice		
Weight	approx. 190 g/6.7 oz		
Dimensions	130 mm x 73 mm x 24 mm 5.1 in. x 2.9 in. x 1 in.		
Measuring units	µm, mils		
Data interfaces	–	USB	
Data memory	–	10 batches with max 500 values	
Power supply	2 x AA batteries, approx. 64 hours in continuous operation		
Operating temperature	-20°C…+50°C/-4°F…122°F HT probe: -20°C…+350°C/-4°F…662° F		
Measuring range	0.65…400 mm/26…15748 mils additionally 3..25 mm/118…984 mils steel through coating		

Technical Data

Pinhole Detection

	PoroTest 7		
High voltage probe	P7	P30	P35
Operating range	0.5 … 7 kV	3 … 30 kV	5 … 35 kV
Coating thickness	0.03 mm … 1.7 mm 1 mils…67 mils	20 mils…374 mils	1.1 mm…11.3 mm 43…443 mils
Voltage	DC		
Test voltage indication	LC-Display, 3-digit		
Accuracy of voltage setting	± (0.1 kV + 3% of reading)		
Dimensions/weight of high voltage probe	274 mm x 63 mm (l x dia)/550 g 10.8” x 2.48”/1.2 lbs/19.4 oz.		
Dimensions/weight of control unit	225 mm x 150 mm x 85 mm (L x W x H)/1400 g 8.87” x 5.9” x 3.35” (L x W x H)/3 lbs/49 oz.		
Alarm signal	90 dB, 0.1 s/pore, continuous tone in case of short-circuit		
Signal output	Potential free, $U_{max.}$: 100 V, $I_{max.}$: 0.1 A		
Storage battery	4 C-cells, IEC LR 14, 3.5 Ah, NiMH, replaceable		
Storage battery life at maximum voltage	PoroTest 7-P7 approx. 20 h continuous operation	PoroTest 7-P30 approx. 10 h continuous operation	PoroTest 7-P35 approx. 10 h continuous operation
Storage battery charging time	4 hrs quick charge		
Mains voltage	110 to 230 V, 50/60 Hz, automatic switch		
Operating temperature	0° … +50°C/32°…122°F		
Humidity	Avoid dew on the surface (refer to DIN 55670)		
Standards	DIN 55670, ASTM D5162-08, AS 3894.1-2002		

Asphalt Layer

	StratoTest
Measuring principle	Eddy current testing
Measuable layers	All non-metallic road layer materials
Reflectors®	Aluminium foils or sheets of different sizes
Measuring ranges	0 … 40 cm/15748 mils (N400ST standard probe) 0 … 10 cm/3937 mils (N100ST optional probe) 0 … 80 cm/31496 mils (N1800ST optional probe)
Resulution of standard probe	0.1 cm/39.4 mils from 0 … 30 cm/0 … 11811 mils; 0.2 cm/78.7 mils from 30 … 35 cm/11811 … 13779 mils; 0.4 cm/157.48 mils from 35 … 40 cm/13779… 15748 mils
Tolerance of standard probe	Reflector: 0.7 m x 0.3 m/27.5 in x 11.8 in; 1.0 m x 0.3 m/39.4 in x 11.8 in; Measuring range: 0 … 30 cm/0 … 11811 mils; 30 … 35 cm/11811 … 13779 mils; 35 … 40 cm/13779 … 15748 mils Tolerance: ± (0.1 cm/3937 mils + 2% of reading); + 2% of reading + 3% of reading
Display	Digital on LCD
Power supply	1 x 9 V alkaline battery
Battery life	approx. 20 hours

Technical Data

Destructive Coating Measurement

Type	GalvanoTest 2000	GalvanoTest 3000
Coating/substrate combinations		
– more than 70 coating/substrate combinations (standard version)	•	•
– coatings on flat and curved surfaces	•	•
– coatings on small components and wires	•	•
– 10 preset types of metal: Cr, Ni, Cu, brass, Zn, Ag, Sn, Pb, Cd, Au		•
– 9 preset types of metal: Cr, Ni, Cu, brass, Zn, Ag, Sn, Pb, Cd	•	
– 8 further metal coatings for special applications		•
– 1 further metal coating for special application	•	
– measuring range: 0.05…75 µm	•	•
Measuring cell		
– with circulation pump		•
– with air pulsator	•	
Measuring surface		
– gasket 8 mm^2/12.4 x 10^{-3} $inch^2$	•	
– gasket 4 mm^2/6.2 x 10^{-3} $inch^2$	•	•
– mask 1 mm^2/1.55 x 10^{-3} $inch^2$	•	•
– mask 0.25 mm^2/0.388 x 10^{-3} $inch^2$ (deplated area barely visible)		•
– electrolyte cup for wire measurement 0.25 mm^2 to approx. 16 mm^2/ (0.388–24.8) x 10^{-3} $inch^2$ (optional)	•	•
Data storage with GalvanoTest		
– number of memories for various metals	10	18
– number of readings which can be stored and evaluated	2000	2000
– non-volatile memory retains all calibration settings, readings and statistical values after the gauge has been switched off	•	•

Adhesion Test

Model	SecoTest 1	SecoTest 2	SecoTest 3	SecoTest 4
Standard	DIN EN ISO 2409	DIN EN ISO 2409 or ASTM D 3359	DIN EN ISO 2409	ASTM D 3359
Coating thickness/ material	up to 60 µm for hard substrates (e.g. metal, plastics, etc.)	up to 60 µm for soft substrates (e.g. wood or plaster) 61 µm to 120 µm for hard and soft substrates 51 µm to 125 µm (> 2 mils to 5 mils)	121 µm to 250 µm for hard and soft substrates	up to 50 µm (0 to 2 mils)
Number of blades x space	6 x 1 mm	6 x 2 mm	6 x 3 mm	11 x 1 mm

Coating thickness gauges
MiniTest 725/735/745

The MiniTest 725/735/745 series sets new standards in precision and flexibility. All models of the new series are equipped with a Bluetooth interface for wireless data transfer to a PC, Tablet-PC or smartphone. As an alternative, data transfer can also be made via a conventional USB connection. Further data processing on the end device can be done via a comprehensive evaluation software, MSoft 7 professional, or the mobile app.

All models of the MiniTest 725/735/745 series connect to SIDSP®-sensors. Thanks to the use of the most-advanced SIDSP®-technology, these sensors are unsusceptible to interference and provide an excellent measuring accuracy

MiniTest 725 (left)
MiniTest 725 with a built-in sensor is especially suited for quick measurement on car bodies, hulls or steel constructions. Thanks to its ergonomic design for one-handed operation all functions can be easily accessed with one hand only.

MiniTest 735 (middle)
MiniTest 735 with an external sensor combines high precision and ease of measurement. The cable-connected sensor ensures convenient measurement on objects difficult to access.

MiniTest 745 (right)
MiniTest 745 – the top model of the series – convinces through its flexible sensor design. Its built-in sensor can be easily converted into an external sensor. Thus you can take advantage of the features of both sensor designs. Additional comfort and flexibility is provided by the wireless sensor.

Advantages at a glance
- Large memory capacity for up to 100,000 readings
- Easy, menu-guided operation with more than 20 languages
- Bluetooth interface for wireless data transfer to a PC, Tablet-PC or smartphone
- Increased precision through various calibration modes
- Perfect compensation of temperature variations over the complete measuring range
- Utmost accuracy and reproducibility thanks to the SIDSP®-technology
- Monitoring of limits, user-adjustable Offset and correction value for rough substrate materials
- Continuous measuring mode
- Free software update downloads for sensor and gauge via the internet

Wireless sensors
SmarTest

Flexibility and mobility through wireless sensors
Just connect your digital sensor to the Bluetooth Smart-adapter and your readings will be transferred immediately to the MiniTest 745 gauge – in a distance of up to a 10 m. All MiniTest 745 sensors are Bluetooth Smart-adapter capable.

Smart Sensors – now also available in the wireless version
SmarTest is the new concept of coating thickness measurement. A wireless sensor and an APP for smart phones and tablets are all that is required for reliable determination of the coating thickness. Readings are taken with the small sensor, which can fit in any pocket and then transferred to the APP via Bluetooth.

SmarTest – the evaluation APP
The APP itself offers a clear display of current measuring value, statistical evaluation of readings taken, data memory in files, two-point calibration and export of complete batches as CSV format. Send your measuring data to any recipient by e-mail using the functionality of your smart phone or tablet.

Operation system:
as of Android 4.1 and iOS 9.0

Sensors

MiniTest 725/735/745 and SmarTest

Measuring procedure	Sensor model	Measuring range	Uncertainty (of reading)*	Minimum measuring spot	Available in combination with		
					MiniTest 725	MiniTest 735	MiniTest 745
Magnetic-induction sensors	F 0.5M-0° F 0.5M-45° F 0.5M-90°	0 … 0.5 mm/20 mils	± (0.5 µm/0.02 mils + 0.75 %)	ø 3 mm/0.1 in		X	X
	F 1.5	0 … 1.5 mm/60 mils	± (1.0 µm/0.04 mils + 0.75 %)	ø 5 mm/0.2 in	X	X	X
	F 1.5-90°	0 … 1.5 mm/60 mils	± (1.0 µm/0.04 mils + 0.75 %)	ø 5 mm/0.2 in		X	X
	F2	0 … 2.0 mm/80 mils	± (1.5 µm/0.06 mils + 0.75 %)	ø 10 mm/0.4 in	X	X	X
	F2.6	0 … 2.6 mm/100 mils	± (1.0 µm/0.04 mils + 0.75 %)	ø 5 mm/0.2 in	X	X	X
	F 5	0 … 5.0 mm/200 mils	± (1.5 µm/0.06 mils + 0.75 %)	ø 10 mm/0.4 in	X	X	X
	F 15	0 … 15 mm/590 mils	± (5.0 µm/0.2 mils + 0.75 %)	ø 25 mm/1 in	X	X	X
	F 35	0 … 35 mm/1380 mils	± (20 µm/0.8 mils + 0.75 %)	ø 100 mm/4 in		X	X
Eddy current sensors	N 0.3M-0° N 0.3M-45° N 0.3M-90°	0 … 0.3 mm/12 mils	± (0.5 µm/0.02 mils + 0.75 %)	ø 3 mm/0.1 in		X	X
	N 0.7	0 … 0.7 mm/30 mils	± (1.0 µm/0.04 mils + 0.75 %)	ø 5 mm/0.2 in	X	X	X
	N 0.7-90°	0 … 0.7 mm/30 mils	± (1.0 µm/0.04 mils + 0.75 %)	ø 5 mm/0.2 in		X	X
	N 2.5	0 … 2.5 mm/100 mils	± (1.5 µm/0.06 mils + 0.75 %)	ø 10 mm/0.4 in	X	X	X
	N 7	0 … 7.0 mm/280 mils	± (5.0 µm/0.2 mils + 0.75 %)	ø 25 mm/1 in	X	X	X
	N 20	0 … 20 mm/790 mils	± (20 µm/0.8 mils + 0.75 %)	ø 100 mm/4 in		X	X
Dual sensors	FN 1.5	F: 0 … 1.5 mm/60 mils N: 0 … 0.7 mm/30 mils	± (1.0 µm/0.04 mils + 1.5 %)	ø 5 mm/0.2 in	X	X	X
	FN 1.5-90°	F: 0 … 1.5 mm/60 mils N: 0 … 0.7 mm/30 mils	± (1.0 µm/0.04 mils + 0.75 %)	ø 5 mm/0.2 in		X	X
	FN 2.6	F: 0 … 2.6 mm/100 mils N: 0 … 1.3 mm/40 mils	± (1.0 µm/0.04 mils + 0.75 %)	ø 5 mm/0.2 in	X	X	X
	FN 5	F: 0 … 5.0 mm/200 mils N: 0 … 2.5 mm/100 mils	± (1.5 µm/0.06 mils + 0.75 %)	ø 10 mm/0.4 in	X	X	X

* referring to multipoint calibration

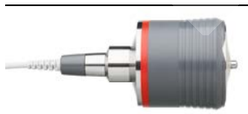
Micro sensors:
Miniature sensors
F 0.5M and N 0.3M

Standard sensors:
Sensors F 1.5, F 2,
F 2.6, F 5,
N 0.7, N 2.5, FN 1.5,
FN 2.6, FN 5

Pencil shape sensors:
Sensors F 1.5-90°, N 0.7-90°,
FN 1.5-90°

Sensors for thick coatings:
Sensors F 15, N 7

Heavy-duty sensors:
Heavy-duty sensor



Sensors for thick coatings:
Sensors F 35, N 20

Coating thickness gauges

MiniTest 2500/4500

The new models MiniTest 4500 and MiniTest 2500 (without Bluetooth and reduced memory capacity) are equipped with the same functionality. Both models continue the proven tradition of coating thickness measurement using analogue sensors and replace the successful MiniTest 3100 series working on the latest state of technology. A modern data administration with APPL-Batch structure allows comfortable access to the large internal data memory of up to 2,000,000 readings. The large display shows the current reading in in 20 mm high digits as well as the most important parameters at the same time.

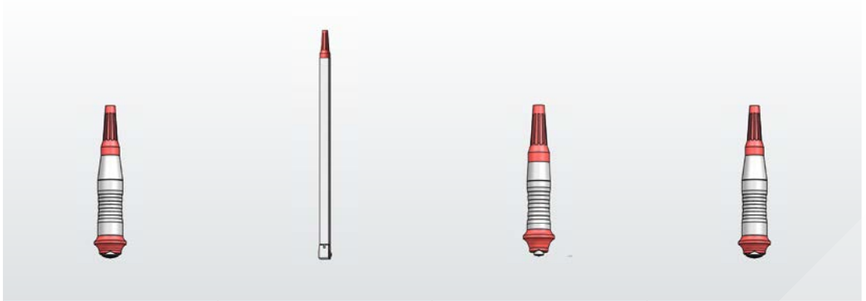
Measuring data is transferred wireless on site to a laptop or PC using the Bluetooth interface of the MiniTest 4500. Both models are equipped with a USB interface for quick connection to computers, notebooks or printer. The standard supply scope of both models includes a sturdy transport case as well as a rubber protection case, batteries, a manual and a works certificate. A set of calibration foils is supplied along with the sensor.

Users can choose from a wide selection of sensors to comply with standard measuring tasks as well as more complex applications as for examples measuring in tubes or extremely thick coatings of up to 100 mm coating thickness. All sensors of the predecessor series MiniTest 1100/2100/3100/4100 can be connected to the new models or vice versa.

Coating thickness gauges

Sensors

MiniTest 2500/4500



Type of sensor	FN 1.6	FN 1.6/90	F 05	F 3
Application:	Non-magnetic coatings on steel and insulating coatings on non-ferrous metal. The multi-talent for standard applications. Also available as version F 1.6 only for measuring on magnetic substrate or version N 1.6 only for measuring on non-ferrous metals.	Non-magnetic coatings on steel and insulating coatings on non-ferrous metal. Especially appropriate for measurements in tubes and pipes or objects which are difficult to access. Also available as version F 1.6/90 only for measuring on magnetic substrate or version N 1.6/90 only for measuring on non-ferrous metals.	Extremely thin non-ferrous metal, oxide or paint coatings on small steel objects. Highest precision for thin coatings.	Non-magnetic coatings on steel, thick paint and enamel coatings. A true classic of coating thickness measurement.

Technical Data

Measuring range:	0…1600 µm/65 mils	0…1600 µm/65 mils	0…500 µm/20 mils	0…3000 µm/120 mils
Low range resolution:	0.1 µm/0.004 mils	0.1 µm/0.004 mils	0.1 µm/0.004 mils	0.2 µm/0.008 mils
Guaranteed tolerance (of reading):	± (1%+1 µm/0.04 mils) *	± (1%+1 µm/0.04 mils) *	± (1%+0.7 µm) *	± (1%+1 µm/0.04 mils) *
Minimum radius of curvature (convex/concave):	1.5 mm/0.06 in convex/ 10 mm/0.4 in concave	flat convex/ 6 mm/0.2 in concave	0.75 mm/0.03 in convex/ 5 mm/0.2 in concave	1.5 mm/0.06 in convex/ 10 mm/0.4 in concave
Minimum area for measurement:	Ø 5 mm/0.2 in	Ø 5 mm/0.2 in	Ø 3 mm/0.1 in	Ø 5 mm/0.2 in
Minimum substrate thickness:	F 0.5 mm/N 50 µm F 20 mils/N 2 mils	F 0.5 mm/N 50 µm F 20 mils/N 2 mils	0.1 mm/4 mils	0.5 mm/20 mils

*(of measurement value referring to ElektroPhysik calibration foils)
All illustrations are not true to scale
All Sensors of MiniTest series 1100-4100 are compatible with MiniTest 2500 / 4500

Type of sensor	F 10	F 20	F 50	N 02
Application:	Thick coatings like plastic in tank, pipeline and container construction.	Thick plastic, rubber or concrete layers in pipeline construction as well as corrosion-resistant layers.	Very thick corrosion-resistant layers and anti-drumming layers.	The precise solution for very thin insulating layers like lacquer, enamel or anodized layers on non-ferrous metals with high measurement resolution, (0.1 µm) and defined tracking force of just 25 g.

Technical Data

Measuring range:	0…10000 µm/394 mils	0…20000 µm/790 mils	0…50000 µm/1970 mils	0…200 µm/8 mils
Low range resolution:	5 µm/0.2 mils	10 µm/0.4 mils	10 µm/0.4 mils	0.1 µm/0.004 mils
Guaranteed tolerance (of reading):	± (1%+10 µm/0.4 mils) *	± (1%+20 µm/0.8 mils) *	± (3%+50 µm/2 mils) *	± (1%+0.5 µm/0.02 mils) *
Minimum radius of curvature (convex/concave):	5 mm/0.2 in convex/ 16 mm/0.6 in concave	10 mm/0.4 in convex/ 30 mm/1.2 in concave	50 mm/2 in convex/ 200 mm/7.9 in concave	1 mm/0.04 in convex/ 5 mm/0.2 in concave
Minimum area for measurement:	Ø 20 mm/0.8 in	Ø 40 mm/1.6 in	Ø 300 mm/12 in	Ø 2 mm/0.08 in
Minimum substrate thickness:	1 mm/40 mils	2 mm/80 mils	2 mm/80 mils	50 µm/2 mils

Sensors
MiniTest 2500/4500

Type of sensor	N 08.Cr	N 10	N 20	N 100
Application:	Special version to measure chrome layers up to 80 µm on copper substrate with minimum thickness of 100 µm.	For measurement of insulating layers made of rubber, plastics, glass etc. on non-ferrous metals.	Insulating coatings, e. g. rubber, plastics, glass on non-ferrous metal.	Thick insulating layers and composite materials on non-ferrous metals.

Technical Data

Measuring range:	0…80 µm / 3 mils	0…10000 µm/394 mils	0…20000 µm/790 mils	0…100000 µm/3940 mils
Low range resolution:	0.1 µm / 0.004 mils	10 µm/0.4 mils	10 µm/0.4 mils	100 µm/4 mils
Guaranteed tolerance (of reading):	± (1%+ 1µm/0.04 mils) *	± (1%+25 µm/1 mils) *	± (1%+50 µm/2 mils) *	± (1%+0.3 µm/12 mils) *
Minimum radius of curvature (convex/concave):	2,5 mm / 0.1 in convex/ 10 mm / 0.4 in concave	25 mm/1 in convex/ 100 mm/3.9 in concave	25 mm/1 in convex/ 100 mm/3.9 in concave	100 mm/3.9 in convex/ plan
Minimum area for measurement:	Ø 5 mm (0.2 in)	Ø 50 mm/2 in	Ø 70 mm/2.8 in	Ø 200 mm/78.8 in
Minimum substrate thickness:	100 µm / 4 mils	50 µm/2 mils	50 µm/2 mils	50 µm/2 mils

*(of measurement value referring to ElektroPhysik calibration foils)
All illustrations are not true to scale
All Sensors of MiniTest series 1100-4100 are compatible with MiniTest 2500 / 4500

Coating thickness gauges/Ultrasonic
QuintSonic 7

QuintSonic 7 is an ultrasonic coating thickness gauge for measuring paint, lacquer and plastic layers applied on:
- Plastic
- Metal
- Wood
- Glass
- Ceramic

Thanks to its innovative technology, QuintSonic 7 is the first gauge of its kind to determine exactly coating thickness on GRP and CRP components. Up to five layers can be measured non-destructively in one operation. QuintSonic 7 offers a wide range of applications in the automotive industry, aircraft manufacturing or any other industrial branch where accuracy is of high importance.

Based on the reflection of ultrasonic waves, the intelligent sensor of QuintSonic 7 works as a receiver and a transmitter at the same time sending an ultrasonic pulse through the layer system. When the ultrasound beam crosses a boundary between two layers or to the substrate, some of the ultrasound energy is reflected. Such reflections are detected by the sensor and evaluated according to the sound velocity of the material to be measured. The transit time of the ultrasonic waves is analyzed and converted into a coating thickness value that is displayed with a resolution of 0.1 µm.

Additional feature:
QuintSonic 7 can also be used to measure the thickness of the substrate through the coating.

Coating thickness gauges
MiniTest 650

Designed for durability and high-precision, MiniTest 650 is the ideal tool for any measuring task in the finishing industry. The rugged and easy-to-handle thickness gauge combines extended mechanical life on the one hand and high accuracy on the other hand to meet the requirements of any professional user in the shipbuilding, automotive, bridge building, construction or other industry.

MiniTest 650 is suitable to measure:

- Any non-magnetic coatings such as paint, enamel, chrome and zinc on steel
- Any insulating coatings on non-ferrous metals such as paint, anodising, ceramics on aluminium, copper, zinc die-cast, brass, etc.

… and is available in three different models:

- With a magnetic-induction sensor for measurements on steel substrates
- With an eddy currents sensor for measurements on non-ferrous metals
- With a dual sensor for measuring on both, steel or non-ferrous metals

Coating thickness gauges

Coating thickness gauges
MiniTest 70

Designed for quick and easy non-destructive coating thickness measurement, the MiniTest 70 series is available in two models:

MiniTest 70 F – for measuring non-magnetic coatings applied on steel

MiniTest 70 FN – for measuring non-magnetic coatings applied on steel and insulating coatings on non-ferrous metals.

MiniTest 70E & MiniTest 70B offer a budgetary version of this gauge series. Their focus is clearly on quick and simple use not requiring special knowledge of coating thickness measurement: Switch on and start to work!

Coating thickness gauges
MikroTest

The MikroTest® has been the most widely used coating thickness gauge in the world over the last 60 years. International patents and our production “know-how” ensure that the gauge has the highest technical standards of all analogue magnetic coating thickness gauges. Calibration free – just take readings!

Application

A coating thickness gauge for quick, precise and non-destructive measurement of:

- Electroplating
- Nickel coatings
- Phosphating
- Paint
- Plastic
- Enamel

… etc. on steel

High-precision Wall Thickness Gauges

MiniTest 7200/7400 FH

The MiniTest 7200 FH/MiniTest 7400 FH is a portable thickness measuring device that offers the capability to precisely measure materials up to 24 mm thickness. The small size and portability of the device enables it to be operated in production areas and quality laboratories The two models ensure easy, nondestructive and highly accurate wall thickness measurement on all types of non-ferrous products, regardless of their size, shape, and material. They are ideal for applications where accurate measurement of small radii and/or complex shapes are required.

Sensors

In order to maximize the accuracy of readings, two easily interchangeable sensors with a tip made of wear-resistant hardsteel and a variety of ball sizes are available to cover the various thickness ranges. The FH 4/FH 4-M sensor uses steel balls to measure from 0 to 6 mm and magnetic balls to measure up to 9 mm. The FH 10/ FH 10-M sensor uses steel balls to measure from 0 to 13 mm and magnetic balls to measure up to 24 mm. The two sensor models are interchangeable and can be connected to any of the two gauge models.

Ultrasonic Thickness Measurement

MiniTest 420/430/440

Rugged ultrasonic thickness gauges are designed for use in harsh industrial environments. Easy to use and light-weight, these handy gauges provide accurate thickness readings on site for quality assurance and corrosion testing.

Three models of the coating thickness gauge MiniTest 400 are available:

MiniTest 420 – the sturdy entry-level model with the most important basic functions

MiniTest 430 – with extended functional range and USB interface

MiniTest 440 – the high-end device that can penetrate coatings for measuring

Transducers for versatile applications

In the standard supply schedule, all models come with a 5 MHz transducer. To meet specific customer requirements, ElektroPhysik offers a range of transducers that connect to all models of the MiniTest 400 series. The automatic transducer recognition allows to switch quickly between different measuring tasks.

Available transducers:

U5.0E – Measures through coatings in the E-E mode

U5.0 – Flat surfaces, large curvatures

U2.0 – Rough surfaces (e.g. cast steel))

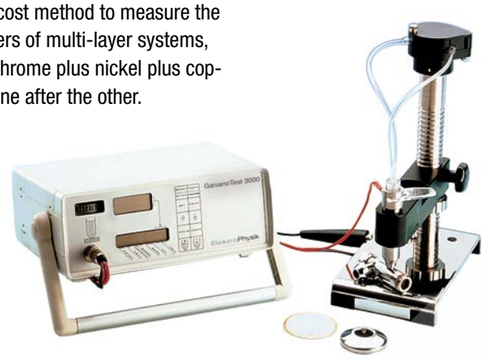
U7.5 – Thin walls, small radii

U10.0 – Small shaped objects

U5.0HT – High-temperature transducer

Destructive Thickness Measurement
GalvanoTest

The coulometric or anodic de-plating technique is used for measuring the thickness of electroplated coatings on virtually all substrates such as steel, non-ferrous metals or insulating material bases. Typical applications include: nickel on steel, zinc on steel, tin on copper, silver on copper or copper on epoxy This technique simply involves the removal of a small, barely visible area of coating material. The substrate is not affected. The coulometric method ensures reliable and exact results. Designed for complete ease of use, GalvanoTest requires no specific operator skills and only minimal training before actual measurements can take place. The coulometric principle is the only low-cost method to measure the individual layers of multi-layer systems, for instance chrome plus nickel plus copper on steel one after the other.



Adhesion Test
SecoTest

The SecoTest gauges are used to apply a cross hatch pattern by means of a defined cutting head into the coating to be tested. The pattern obtained is examined visually and classified by means of a reference table. According to the standard applied, an identification number is assigned to classify the adhesion properties of the tested coating. According to model, the SecoTest gauges are suitable for one- or multi-layer coatings (paint, plastics, etc.) on hard substrates such as metal or plastic or on soft materials such as wood or plaster.

Pinhole Detection
PoroTest 7

Flaws in protective coatings such as pores, cracks and fissures, if undetected, may impair the corrosion resistance of a product. The PoroTest 7 by ElektroPhysik has been specifically designed for non-destructive porosity testing of such coatings, based on automatic test voltage control specific to the thickness of material to be tested and vice versa. The major fields of application of the PoroTest 7 range from vendor inspection to quality assurance in corrosion protection. Designed for detecting flaws and pores, the PoroTest 7 can be used for testing all insulating coatings on conductive substrates such as steel, Aluminium, etc. The test instrument consists of a high voltage probe with an integrated high voltage generator and a test electrode, which is simply connected to the probe. The control unit features a digital display and control pad. The control unit housing is fully portable and made of rugged ABS plastic with an integrated handle.

Asphalt Layer
StratoTest

The core drill method of road surface testing is a destructive, time-consuming, costly and inaccurate procedure. The StratoTest has none of these drawbacks, combining completely non-destructive measurement with accurate and repeatable test results displayed within seconds. The gauge is based on 20 years experience particularly for experts in road construction. Initially developed for measuring bituminous wearing courses, the StratoTest nowadays is mainly used for road inspection and cost settlement according to the German standard TPD StB 12.

History of ElektroPhysik

Measurement with a tradition

The history of ElektroPhysik – and the world

Did the physicist Erich Steingroever and his then partner, the engineer Hans Nix, already suspect in 1947 that their “production permit” from the British military would be the foundation stone of a concern that would expand across the globe? In the ruins of post-war Germany, raw materials and resources were scarce. Production was dictated by need and availability: as was the case for the first electrostatic voltage detector produced in 1947.Today – 70 years later – ElektroPhysik is a leading global manufacturer for non-destructive surface measurement. Represented in over 70 countries, the Cologne-based company has been able to secure for itself a dominant position in the global market. Scarcity of resources is a thing of the past. Innovation, quality and practicality are today’s priorities. In 2017, ElektroPhysik can look back on a colourful 70-year history and take you along on a little journey through time:

1947 – Europe and Germany struggle to recover from the war. Raw materials and resources are scarce and the slow reconstruction of West Germany can only take place with the support of the Allied Powers.

The engineer Nix and the physicist Erich Steingroever obtain a „provisional production permit“ from the British military authorities. The first magnetic measurement and test devices, and the electrostatic voltage detector are produced.

1952 – The division between West and East Germany becomes wider. Whilst the construction of socialism begins in the East, the West, with Allied support, was heading towards its „economic miracle“.

Upon the request of a Cologne lacquer factory, ElektroPhysik develops and manufactures the coating thickness measurement gauge MikroTest. In the previous year, a patent for the model had been applied for. The measuring device known worldwide as the Banana gauge is still used today.

1963 – Thanks to the economic miracle, Germany becomes hardly recognisable. Luxuries such as televisions, cars and tourism transform the country. There are also considerable changes on the political stage. John F. Kennedy makes his famous „Ich bin ein Berliner“ speech whilst Martin Luther King utters the legendary words „I Have a Dream“. The young Federal Republic of Germany gets Ludwig Erhard as its second Chancellor

In the meantime, ElektroPhysik has begun to specialise on coating thickness measurement. The technologies for preservative surface finishing with lacquers, synthetic materials and enamel continue to develop. Soon enough, ElektroPhysik supplies its 100,000th MikroTest gauge

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1979 – The Cold War spurs a genuine innovation boom. New technologies develop, especially in the areas of electronics and communications.After the shock of the oil crisis, people become aware of the need to use resources sparingly.

The trend for refining preservative surface finishing continues unabated, with positive effects for ElektroPhysik too.

The expansion of its sales and distribution activities in western Europe and overseas is a great success. ElektroPhysik opens its own site in the USA, as it had two years previously in Great Britain

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1986 – The Chernobyl disaster shocks the world. The nuclear catastrophe provokes protests against nuclear energy across the world.

At the same time, ElektroPhysik successfully expands its product range to include microprocessor-controlled MiniTest devices.

1997 – Global interconnectedness is no longer a mere vision of the future, but reality. Thanks to digitalisation, new paths open up towards complex testing and documentation systems.

ElektroPhysik establishes itself as a leading global manufacturer of measurement and testing devices. Its programme encompasses the entire domain of quality assurance in surface technology, corrosion prevention and road engineering.

2000 – The new millennium doesn’t bring about the end of the world, but does see some catastrophes. Terror attacks such as 9/11 mark the still-young century and the reality of climate change becomes drastically evident.Yet there are also several positive changes: the German military makes a giant step towards equality, the Catholic Church elects a German Pope and the USA the first African American president. Globalisation, not least thanks to mobile phone technology, can no longer be stopped.

As a pioneer in the area of non-destructive coating thickness measurement, ElektroPhysik, in cooperation with universities and research institutions, has successfully advanced the development and global standardisation of coating thickness measurement.An in-house development team of engineers and technicians ensure that our products are not only high performing and of the highest quality, but also that they are focused around design and usability.

2007 – 2007 begins stormily. Hurricane „Kyrill“ rampages through Germany, keeping the topic of climate change firmly on the table. At the same time, the baby polar bear Knut conquers hearts everywhere, not only those of visitors to the Berlin Zoo.
The year continues as tumultuously as it had begun, as a housing crisis that began in the USA goes on to have consequences that shakes the financial world.

ElektroPhysik is the first manufacturer of coating thickness measurement gauges to introduce digital sensor technology: sensor-integrated digital signal processing.
SIDSP® = Sensor-integrated digital signal processing and has been trademarked by us.
To this day ElektroPhysik is the only provider of digital sensors for coating thickness measurement.

2009 – American makes history by swearing in its first African American president. Talking of history: the historic Cologne City Archives collapses during the expansion of the underground train network, burying valuable documents beneath its ruins.

ElektroPhysik lives up to its reputation as a pioneer and trendsetter in non-destructive coating thickness measurement: One of the first ultrasound coating thickness measurement devices for measuring coating thickness on non-metallic substrates comes on the market: QuintSonic.

2013 – At the beginning of the year the German Pope Benedict XVI announces his retirement to general surprise and the Argentine Pope Francis becomes the new head of the Roman Catholic Church. Just as surprising were Edward Snowden‘s revelations that appear in the „Guardian“ newspaper.

Just 4 years after the development of QuintSonic, ElektroPhysik revises the model and equips it with a digital sensor. With the QuintSonic 7 it‘s now possible to measure up to five coatings in a single operation – effectively and with precision.

2015 – As a result of the ever more precarious situation in several conflict areas, peaceful Europe is subject to a large-scale influx of refugees.
Yet there are also positive news stories: conservative Ireland votes in a referendum for equal marriage and in the same year enshrines the decision in law.

ElektroPhysik introduces the wireless sensor SmarTest. The intelligent wireless sensor relays all measurements with the help of Bluetooth via an app on mobile devices.In addition, SmarTest is compatible with all SIDSP® sensors, considerably enlarging its measurement portfolio

ElektroPhysik worldwide

Our agencies abroad

- Algeria
- Argentina
- Australia
- Austria
- Bahrain
- Belgium
- Bosnia and Herzegovina
- Brazil
- Bulgaria
- Chile
- China
- Colombia
- Croatia
- Czech Republic
- Denmark
- Ecuador
- Egypt
- Estonia
- Finland
- France
- Germany
- Great Britain
- Greece
- Hungary
- India
- Indonesia
- Iran
- Israel
- Italy
- Japan
- Korea
- Kuwait
- Latvia
- Lithuania
- Malaysia
- Mexico
- Montenegro
- Morocco
- Netherlands
- New Zealand
- Nigeria
- Norway
- Oman
- Pakistan
- Peru
- Poland
- Portugal
- Qatar
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- Russia
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