



MikroTest® 5 standard **MikroTest® 6 automatic**

Technical Reference and Operating Manual

Advancing with Technology

ElektroPhysik

Table of Contents

© 04/2002 B11-N

Subject to change without notice.

Table of Contents

- 1. Application..... E-1
- 2. Measuring operation E-1
 - 2.1 Measurement on small and curved surfaces E-3
 - 2.2 Measurement on rough surfaces E-3
- 3. Checking measuring tolerance E-3
- 4. Delivery schedule E-4
- 5. Accessories E-4
- 6. Measuring principle E-4
- 7. Maintenance E-5
- 8. Service E-5
- 9. Safety Notes E-5
- 10. Technical Data E-6

1. Application

Depending on the instrument type the following coating thicknesses can be measured:

- a. All non-magnetic coatings such as chrome, copper, paint, rubber on steel*.
- b. Electroplated nickel coatings on non-ferrous substrates.
- c. Electroplated nickel coatings on steel.

*The steel substrate should be commercial unhardened steel (St 33 to St 60 or C 15 to C 45).

2. Measuring operation

- a. Place the gauge on the surface to be measured.
- b. Turn the scale wheel forward to the stop (see figure 1)
- c. The magnet will now adhere to the surface (if necessary push the button on the bottom of the gauge).
- d1. **MikroTest 5:** Turn the scale wheel slowly and steadily backwards using the index finger until the magnet lifts with a click.
- d2. **MikroTest 6:** The scale wheel now turns back automatically. The wheel stops when the magnet lifts.
- e. You can now read the thickness.

Measuring operation

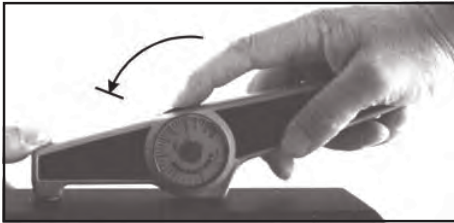


figure 1

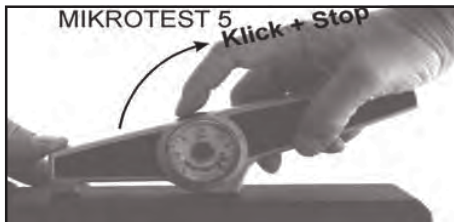


figure 2

Note:

- Clean both the magnet and the surface to be measured before initiating the measurement.
- Do not touch the button at the bottom of the gauge.
- Measurement can be carried out regardless of the position of the gauge.
- All gauges including the automatic model do not require power or batteries.
- The end result x should always be determined from several readings to arrive at an average. When reading this average the tolerance indicated in the technical data (see chapter 10) should always be taken into account.

Measurement on small, curved and rough surfaces; measuring tolerance

2.1 Measurement on small and curved surfaces

When measuring on small and curved surfaces, please observe the information regarding the diameter and the minimum curvature radius in chapter 11. The V-groove on the supporting surface of the gauge can be used as a positioning aid when measuring on cylindrical objects (see figure 3).

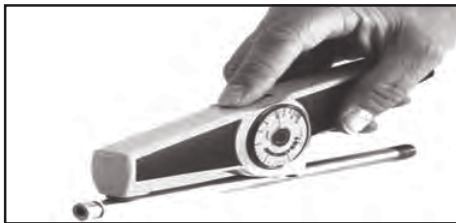


figure 3

2.2 Measurement on rough surfaces

Measurements of coatings applied to rough surfaces generally show high variations. The correct average coating thickness is determined by subtracting the mean of measurements taken on non-coated material from the mean of measurements taken on coated material. It is recommended to form the mean of at least 5 measurements.

3. Checking measuring tolerance

The MikroTest gauge contains a magnet of which the magnetisation does not alter during normal usage. Thus, the correct thickness indication only needs to be checked occasionally.

The measuring tolerance can be checked by means of the ElektroPhysik thickness standards. The tolerance can be impaired by e.g. wear and tear, dirt or improper use of the gauge.

Delivery schedule, accessories and measuring principle

4. Delivery schedule

- MikroTest 5 and 6, magnetic coating thickness gauge, conforms to DIN 50 981, 50 982, ASTM B499, E367, D1186, G12, G530, BS 54 11, DIN EN ISO 2178, 2361
- carrying case
- works certificate
- manual

5. Accessories

- thickness standards, set of 2 or 4 pieces in four different thicknesses to check the measuring accuracy of the MikroTest;
- MikroTest belt case for working on ladders or on scaffolding;

- SurfaTest wet film gauge (measuring comb) for measuring freshly applied wet coatings; MikroTest and SurfaTest constitute an ideal inspection kit, particularly for the painting inspector.

6. Measuring principle

The MikroTest works according to the principle of magnetic attraction. The adherence of the measuring magnet to the magnetic substrate (steel or nickel) can be broken by rotating a spring. The amount of rotation of the spring is directly related to the coating thickness.

7. Maintenance

- Do not expose the gauge to strong magnetic fields or to electromagnets.
- After use always put the gauge back into the case.

Note:

Special maintenance is not necessary.

8. Service

State-of-the-art methods using high-quality components as well as a quality management system certified to DIN EN ISO 9001 ensure an optimum workmanship of the gauge.

Should you nevertheless detect an error or malfunction on your gauge, please inform the ElektroPhysik service responsible for your products, giving the details including a description of the error or malfunction.

9. Safety Notes

Please observe that the measuring system generates a continuous magnetic field which may impair or destroy electronic devices or measuring gauges. In particular, keep a distance to magnetic carries such as floppy discs and magnetic cards.

Technical Data

10. Technical Data

Type	Application	Measuring range	Tolerance	Minimum surface area	Minimum thickness of substrate	Minimum curvature radius
6 G	electro platings and paints on steel**	0 ... 100 µm	1 µm or 5 %*	20 mm	0.5 mm	5 mm convex 25 concave
5/6 F		0 ... 1000 µm	5 µm or 5 %*	30 mm	0.5 mm	8 mm convex 25 concave
6 S3	enamel, plastiques, rubber on steel	0.2 ... 3 mm	5 %*	30 mm	1 mm	15 mm convex 25 mm concave
6 S5		0.5 ... 5 mm	5 %*	50 mm	1 mm	15 mm convex 25 mm concave
6 S10		2.5 ... 10 mm	5 %*	50 mm	2 mm	15 mm convex 25 mm concave
6 S20***		7.5 ... 20 mm	5 %*	100 mm	7 mm	100 mm convex 150 mm concave

Technical data

Type	Application	Measuring range	Tolerance	Minimum surface area	Minimum thickness of substrate	Minimum curvature radius
6 Ni50	electroplated nickel on non-ferrous substrates	0 ... 50 µm	1 µm + 5 %*	15 mm	----	5 mm convex 25 concave
6 Ni100		0 ... 100 µm	1 µm + 5 %*	15 mm	----	5 mm convex 25 concave
6 NiFe50	electroplated nickel on steel**	0 ... 50 µm	2 µm + 8 %*	20 mm	0.5 mm	10 mm convex 25 mm concave
For all gauges	Ambient temperature: -20° C ... +100° C Dimensions: Instrument with case: 235 mm x 85 mm x 44 mm Weight: 450 g					
* of measuring value and using ElektroPhyisk thickness standards ** steel St 33 ... St 60 roughness Rz ≤ 3 µm *** special version						

Index

Index	M
A	Magnet E-1, E-2, E-3, E-4
Average E-2	Magnetic field E-5
B	Magnetisation E-3
Belt case E-4	Malfunction E-5
C	Mean E-3
Curved surfaces E-3	N
Cylindrical objects E-3	Non-magnetic coatings E-1
E	P
Electromagnet E-5	Positioning aid E-3
Electroplated nickel coatings E-1	Principle of magnetic attraction E-4
Error E-5	Q
	Quality management E-5
	R
	Rough surfaces E-3

ElektroPhysik

Index

S

Scale wheel	E-1
Spring	E-4
Substrate	E-1
Supporting surface	E-3
Surface	E-1, E-2

T

Thickness	E-1
Thickness standards	E-3, E-4
Tolerance	E-2

V

V-groove	E-3
----------------	-----

ElektroPhysik