

Device function

MetaScope 5 is a state-of-the-art measurement device, which enables the measurement of tin, nickel and silver layers on copper wires.

Measuring method

According to EN ISO 2177 Metallic coatings — Measurement of coating thickness — Coulometric method.

Technical Data

Measurement Device		Sample holder	
Dimensions:	375 x 175 x 85 mm	Dimensions:	230 x 220 x 330 mm
Weight:	3.5 kg	Weight:	2.3 kg
Operating temperature:	15 °C – 35 °C	Base material:	PVC, black
Power supply:	100 – 240 V, 50 – 60 Hz, 75W	Holder material:	Brass, nickel plated
Display:	7 inch capacitive touch 800 x 480 pixels, colour	Stir function	Stepper motor in the base with a rod magnet
Connections:	Power cord M12 connector to sample holder USB socket type A	Connections:	M12 socket with 1m cable to the measurement device
Measurement range layer:	0.2 – 30 µm	Beaker max. diameter	107 mm
Wire diameter range:	0.05 – 2.50 mm	Beaker max. heights	150 mm
		Beaker max. volume	1000 ml

Measurement set-up



Electrolytes to be used according to EN ISO 2177

For tin-plated wires:

Chemically pure hydrochloric acid (200 ml) 1:4 mixed with distilled water (800 ml).

For nickel-plated wires:

Chemically pure hydrochloric acid (100 ml) 1:9 mixed with distilled water (900 ml).

For silver-plated wires:

100 g potassium fluoride mixed with distilled water to a level of 1000 ml.

Please be sure to observe the safety instructions for the chemicals to be used!

Principle of measurement

- a specified length in relation to the diameter of the sample is cut and prepared for measurement.
- The sample is attached to the sample holder and thereby contacted with the measuring electronics.
- The specified length of the sample is immersed in the electrolyte and the measurement is started.
- The layer metal is detached and the amount of electricity required for this is measured.
- The result of the layer thickness is displayed in μm and g/kg.

Handling

A hook made of uncoated copper can also be used to contact the sample. For very thin wires, a special contact clamp is also available.

Maintenance

The measured layer metal will gradually deposit on the copper cathode, which must therefore be cleaned or slightly ground from time to time.

The electrolytes are consumed depending on the layer thickness, wire diameter and number of measurements and must therefore be renewed regularly.

The measuring device must be calibrated and checked regularly once a year.

Contact

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