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Elcometer 311

Elcomotor
Refinishing Gauge

Types F and FNF

Operating Instructions

Equipment described in these instructions is covered by the following Patents:

FNF UK Patent No: GB2306009B and FNF US Patent No: 5886522

CE This product meets the Electromagnetic Compatibility Directive.
The product is Class B, Group 1 ISM equipment according to CISPR 11

Group 1 ISM product: A product in which there is intentionally generated and/or used conductively coupled radio-frequency energy which is necessary for the internal functioning of the equipment itself.

Class B product are suitable for use in domestic establishments and in establishments directly connected to a low voltage power supply network which supplies buildings used for domestic purposes.

A copy of this Instruction Manual is available for download on our Website via www.elcometer.com.

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Thank you for your purchase of this Elcometer 311 Refinishing Gauge. Welcome to Elcometer.

Elcometer are world leaders in the design, manufacture and supply of inspection equipment for coatings and concrete. Our products cover all aspects of coating inspection, from development through application to post application inspection.

This Elcometer 311 Refinishing Gauge is a world beating product. With the purchase of this product you now have access to the worldwide service and support network of Elcometer. For more information visit our website at www.elcometer.com

1 ABOUT YOUR GAUGE

The Elcometer 311 Refinishing Gauge is a fixed calibration gauge for checking dry film thickness of paint coatings on automotive bodywork.

The gauge is available in two versions:

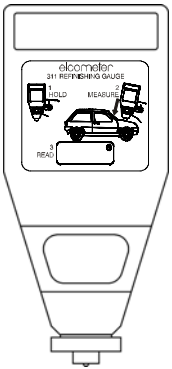
- 311F for measurement on steel bodies
- 311FNF for measurement on steel and aluminium bodies

Both versions are available in either metric or imperial units of measurement. The metric gauges display thickness readings in microns (µm), and the imperial gauges display thickness in mils (thousandths of an inch).

Every gauge is factory calibrated. The user can check calibration with the checkpiece and foil supplied with the gauge. Adjustment of the Elcometer 311 by the user is not possible.

The Elcometer 311 Refinishing Gauge is powered by internal dry cell batteries.

1.1 GAUGE FEATURES



- Easy to use, Instant readings
- No calibration
- Ferrous (F) and dual ferrous/non-ferrous (FNF) versions available
- Bigfoot™ for stable and repeatable readings
- Choice of Metric or Imperial versions
- Automatic on/off

1.2 WHAT THE BOX CONTAINS

- Elcometer 311 Refinishing Gauge (F or FNF)
- 2 x LR03 (AAA) alkaline batteries
- Steel checkpiece
- Aluminium checkpiece (311FNF only)
- Foil
- Carrying case
- Operating instructions

The Elcometer 311 Refinishing Gauge is packed in a cardboard and foam package. Please ensure that this packaging is disposed of in an environmentally sensitive manner. Consult your local Environmental Authority for further guidance.

To maximise the benefits of your new Elcometer 311 Refinishing Gauge please take some time to read these Operating Instructions. Do not hesitate to contact Elcometer or your Elcometer supplier if you have any questions.

2 GETTING STARTED

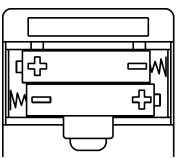
2.1 FITTING BATTERIES

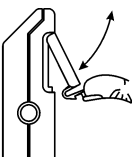
The Elcometer 311 may be used with dry cell batteries or rechargeable batteries.

2 x LR03 (AAA) alkaline batteries are supplied with the gauge.

To fit or replace batteries:

1. Locate battery compartment cover at rear of gauge.
2. Lift off battery compartment cover.
3. Place batteries in the battery clips ensuring correct polarity.
4. Replace battery compartment cover.



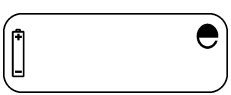


Note: *Remove the batteries from the gauge if it is to remain unused for a long period of time. This will prevent damage to the gauge in the event of malfunction of the batteries.*

2.2 LOW BATTERY VOLTAGE

When the battery voltage is low the battery symbol illuminates on the display. The gauge will still function but new batteries are recommended.

When the battery symbol flashes the batteries must be replaced.



2.3 SWITCHING THE GAUGE ON/OFF

To switch on, place the probe against any hard surface - the gauge will switch on automatically.

The gauge will switch off automatically after one minute of inactivity.

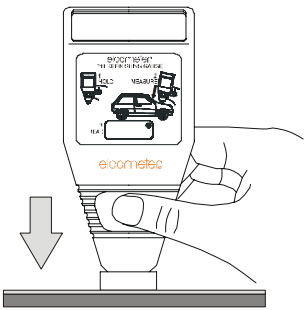
3 TAKING A MEASUREMENT

Before taking a measurement it is good practice to check the performance of the gauge using the calibration check procedure - see “Calibration check” on page 6.

1. Hold the gauge with the probe pressed firmly[a] against the surface you are measuring.
2. Read the coating thickness shown on the display.

   The screen displays:

   - the coating thickness
   - the measurement units (µm or mils)
   - on FNF gauges only, the substrate type - F (ferrous) or NF (non ferrous)



a. The reading may be inaccurate if the probe is not held flat against the surface.

4 CALIBRATION CHECK

Before carrying out a measurement it is good practice to check the performance of the gauge using the following procedure:

1. Place foil on checkpiece
2. Place probe onto foil
3. Read display

Metric gauges: The gauge reading should be between 100 µm and 140 µm.

Imperial gauges: The gauge reading should be between 4.0 mils and 6.0 mils.

If the gauge does not measure the foils on the checkpiece correctly, consult your local Elcometer supplier or contact Elcometer directly.

Worldwide: sales@elcometer.com

Or USA/Canada: inc@elcometer.com

5 STORAGE

This gauge incorporates a Liquid Crystal Display (LCD). If the display is heated above 50°C (120°F) it may be damaged. This can happen if the gauge is left in a car parked in strong sunlight.

Always store the gauge in its carrying pouch when it is not being used.

6 MAINTENANCE

You own one of the finest hand-held refinishing gauges in the world. If looked after, it will last a lifetime.

The gauge does not contain any user-serviceable components. In the unlikely event of a fault, the gauge should be returned to your local Elcometer supplier or directly to Elcometer. The warranty will be invalidated if the instrument has been opened.

Calibration

Regular calibration checks over the life of the gauge are a requirement of quality management procedures such as ISO 9000 and other standards. For checks and certification contact your local Elcometer supplier or Elcometer direct.

Probe

The probe will wear with repeated use. Probe life depends on the number of measurements taken and the manner in which readings are taken. To extend probe life, always set the probe down so that it is perpendicular to the panel surface. Never drag the probe along the surface, as doing so will drastically reduce the life of the probe.

Replacement of the probe must be carried out by Elcometer.

7 TECHNICAL SPECIFICATION

Scale range:	0 µm to 500 µm (0 mils to 20 mils)
Resolution:	10 µm (0.5 mils)
Accuracy:	± 5% or ± 20 µm (1.0 mil), whichever is the greater
Minimum substrate thickness (For specified accuracy):	Steel, 800 µm (30 mils) Aluminium, 300 µm (12 mils) - (311FNF only)
Measurement speed:	> 30 readings per minute
Display:	Liquid Crystal Display (LCD) 3½ Digits
Character height:	10 mm (0.4")
Operating temperature:	0°C to 50°C (32°F to 120°F)
Dimensions:	56 mm x 24 mm x 125 mm (2.2" x 0.95" x 4.9")
Weight (incl. dry batteries):	115 g (4 oz)
Battery type:	2 x LR03 (AAA), alkaline[b] dry batteries or rechargeable[c] equivalents
Battery life:	20[d] hours continuous (alkaline dry batteries)
Foil, metric gauges:	125 µm
Foil, imperial gauges:	5 mils

b. Alkaline batteries must be disposed of carefully to avoid environmental contamination. Please consult your local environmental authority for information on disposal in your region. Do not dispose of any batteries in fire.
c. Rechargeable batteries can be used if they are charged outside the gauge.
d. Battery life is reduced to approximately 25% of the dry battery life when using rechargeable batteries. Follow the instructions provided by the battery manufacturer when charging and disposing of rechargeable batteries.

8 SPARES AND ACCESSORIES

The following spare parts and optional accessories are available from your local Elcometer supplier or direct from Elcometer:

Checkpiece F (steel):	T99916925
Checkpiece NF (aluminium):	T99916901
Foil (metric):	T99016898
Foil (imperial):	T99016897
Splash proof cover; Pack of 5	T99913537

9 RELATED EQUIPMENT

Elcometer produces a wide range of coating thickness gauges and associated paint inspection equipment.

Users of the Elcometer 311 may also benefit from the following Elcometer products:

- Elcometer 456 Coating Thickness Gauge
- Elcometer 406L Statistical Mini Glossmeter

For further information contact Elcometer, your Elcometer supplier or visit www.elcometer.com