

Elcometer 5500

Circular Ball Type

Drying Time Recorder

Operating Instructions



CE The Elcometer 5500 Circular Ball Type Drying Time Recorder has been tested in accordance with EU Regulations governing electro-magnetic compliance (Low Voltage Directive) and it meets the required directives.

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

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Thank you for purchasing this Elcometer 5500 Circular Ball Type Drying Time Recorder. 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.

The Elcometer 5500 Circular Ball Type Drying Time Recorder 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 TESTER

The Elcometer 5500 Circular Ball Type Drying Time Recorder is used to determine the drying time of paint and other coatings such as glue, cosmetic products, varnish, inks, biologic material and adhesives.

A layer of coating is applied to a substrate and a stainless steel ball is dragged along a circular path across the substrate as the coating dries. At the end of the test the Drying Time Recorder is removed from the substrate and the trace left by the ball on the coating surface is examined to determine the point at which the coating dries.

1.1 These instructions

These instructions describe the operation of the following Elcometer 5500 Circular Ball Type Drying Time Recorders:

- Elcometer 5500/1: Single speed, 1 revolution per 1 hour
- Elcometer 5500/2: Single speed, 1 revolution per 6 hours
- Elcometer 5500/3: Single speed, 1 revolution per 12 hours
- Elcometer 5500/4: Single speed, 1 revolution per 24 hours

Can be used in accordance with ASTM D5895-B.

1.2 What the box contains

- Elcometer 5500 Circular Ball Type Drying Time Recorder
- Teflon Stylus 10mm diameter and 12 g weight
- Timing template
- Operating instructions

Your Elcometer 5500 Circular Ball Type Drying Time Recorder 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 5500 Circular Ball Type Drying Time Recorder 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

This section of the instructions is intended for first-time users of the Elcometer 5500 Circular Ball Type Drying Time Recorder. It contains information on the parts and controls of the instrument and advice on safe use of the equipment. When you have finished reading this section you will be ready to start using your Elcometer 5500 Circular Ball Type Drying Time Recorder.

2.1 The parts of the instrument



Power on/off

To switch the instrument on or off, press the button on the front of the instrument.

Ball shaft start/stop

To start the ball shaft rotating, press the button on the front of the instrument. Press the button again to stop the shaft rotating.

2.2 Caution

The Elcometer 5500 Circular Ball Type Drying Time Recorder has been manufactured with your safety in mind. However, improper use can result in damage to the machine.

Please observe the precautions discussed in these operating instructions.



To reduce the risk of electric shock, do not open the housing of the Drying Time Recorder. There are no user-serviceable parts inside.

To reduce the risk of fire or electric shock, do not expose the Drying Time Recorder to rain or excess moisture.

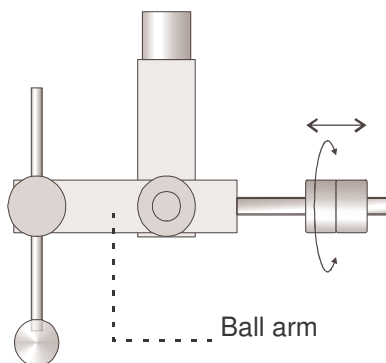
The mains plug on your Drying Time Recorder may be fitted with a fuse. When replacing this fuse, ensure a fuse of the correct rating is used.

3 TESTING A SPECIMEN

1. Ensure that the ball arm is perfectly balanced in the horizontal position.

At the Elcometer factory the ball arm of your Drying Time Recorder is set balanced in the horizontal position by adjustment of the knurled counter-weight nuts. A spot of varnish is applied in the factory to lock the counter-weights in the correct position.

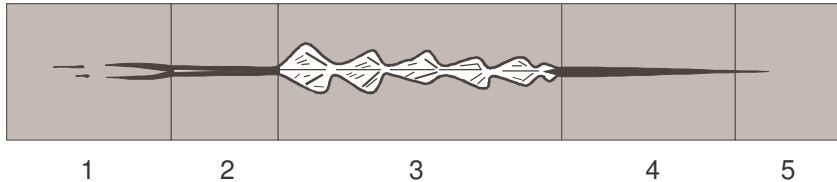
If adjustment is required, rotate the counter-weights until the ball arm is horizontal and then tighten the counter-weights together to lock in position.



2. Connect the Drying Time Recorder to the mains supply.
3. Fit the 12 g weight on to the ball.
4. Place the Drying Time Recorder on to the freshly coated sample.
5. Switch on the instrument.
6. Press the ON/OFF (start/stop) button on the front of the instrument to start the ball rotating.
7. At the end of the test, press the ON/OFF (start/stop) button to stop the ball rotating and then switch off the instrument.
8. Remove the Drying Time Recorder from the substrate and clean the ball thoroughly using a suitable solvent.
9. Analyse the trace to determine the drying time - see "Specimen trace analysis" on page 7.

4 SPECIMEN TRACE ANALYSIS

The following example demonstrates how to analyse the trace left by the ball on a paint coating. The trace shown is produced by a ball travelling in a straight line; a similar curved trace will be generated by your Drying Time Recorder as the ball travels its circular path.



- 1 Levelling:** Because paint flows when it is wet, the trace is covered by paint after the ball has passed, therefore no permanent trace is left in the paint film.
- 2 Basic trace:** The paint has started to dry.
- 3 Setting:** The paint film is ruptured by the ball. At this stage dust will not adhere to the paint film.
- 4 Surface dry:** A skin has formed over the paint. At this stage the paint does not adhere to the ball.
- 5 Dry:** The paint is no longer marked by the ball.

The number of stages (1 to 5) depends upon the test standard; some standards may not include all the stages shown above and may use different terminology.

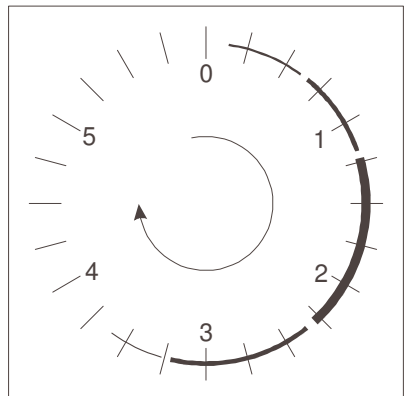
Using the template

To determine drying time from a trace, place the template over the substrate with the zero (0) mark aligned with the ball start position.

At the point where the ball no longer leaves a trace (section 5), read the time in hours from the template.

The example illustrates a drying time of approximately 3 hours and 35 minutes.

er an existing trace.



5 MAINTENANCE

The Elcometer 5500 Circular Ball Type Drying Time Recorder is designed to give many years reliable service under normal operating and storage conditions.

The Elcometer 5500 Circular Ball Type Drying Time Recorder does not contain any internal user-serviceable components. In the unlikely event of a fault, the instrument should be returned to your local Elcometer supplier or directly to Elcometer.

Details of Elcometer offices around the world are given on the outside cover of these Operating Instructions. Alternatively visit the Elcometer website, www.elcometer.com

6 TECHNICAL SPECIFICATION

Ball shaft speed	Elcometer 5500/1:	1 revolution per 1 hour
	Elcometer 5500/2:	1 revolution per 6 hours
	Elcometer 5500/3:	1 revolution per 12 hours
	Elcometer 5500/4:	1 revolution per 24 hours
Ball diameter:		10 mm
Load on ball (when balanced):		0 g
Additional load on ball with weight supplied:		12 g
Operating voltage:		UK, 240 V AC 50 Hz EUR, 220 V AC 50 Hz US, 110 V AC 60 Hz
Power consumption:		50 W
Dimensions:		140 mm x 130 mm x 190 mm (5.5" x 5.1" x 7.5")
Weight:		1.5 kg (3.3 lb)

7 SPARE PARTS

The Elcometer 5500 Circular Ball Type Drying Time Recorder is complete with all the items required to get started and take readings.

The following spare part is available from your local supplier or direct from Elcometer:

Ball tool, set of 5	KT005500P001
Transparent Timing Template, 12/24 hours	KT005500F011
Transparent Timing Template, 1/6 hours	KT005500F012
12g Load	KT005500F006

8 RELATED EQUIPMENT

In addition to the Elcometer 5500 Circular Ball Type Drying Time Recorder, Elcometer produces a wide range of other equipment for determining the physical characteristics of surface coatings.

Users of the Elcometer 5500 may also benefit from the following Elcometer products:

- Elcometer Linear Drying Time Recorder
- Elcometer Spiral Bar Coaters
- Elcometer Motorised Film Applicators
- Elcometer Leneta Test Charts
- Elcometer Wet Film Gauges
- Elcometer Washability, Brushability and Abrasion Testers
- Elcometer Hardness Testers
- Elcometer Elasticity and Impact Testers

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