

**Elcometer 1540**

**Cross Cut Tester**

**Operating Instructions**

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A copy of this Instruction Manual is available for download on our Website via [www.elcometer.com/downloads](http://www.elcometer.com/downloads).

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Thank you for your purchase of this Elcometer 1540 Cross Cut Tester. 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 1540 Cross Cut Tester 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](http://www.elcometer.com)

## **1 ABOUT THIS INSTRUMENT**

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The Elcometer 1540 Cross Cut Tester is a simple but effective instrument for determining the adhesion of a large variety of coatings. The instrument is ideal for thin coatings on flat and curved surfaces.

The cutter has 11 tapered teeth spaced every 1 mm (0.04").

The cutter scores through the coating down to the next coating layer or down to the substrate. Two cuts are made at right angles to each other resulting in a grid of 100 squares. Adhesion can then be assessed visually by comparing the grid against ASTM or Corporate Standards.

### **What the box contains**

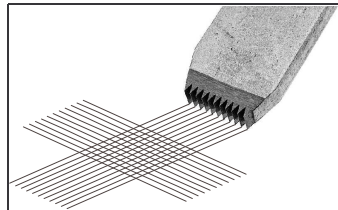
- Elcometer 1540 Cross Hatch Cutter
- Plastic storage case
- Operating instructions

The Elcometer 1540 Cross Cut Tester 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.

## 2 TEST PROCEDURE

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1. Place the cutting tool on the sample, press down gently and pull the tool towards you in one steady movement to make a series of parallel cuts approximately 20 mm long. Apply sufficient pressure to ensure that you cut right through the coating to the next layer of coating, or to the substrate.
2. Place the cutting tool on the sample at 90° to the first cut and repeat step 1 to create a lattice pattern on the coating (Figure 1).



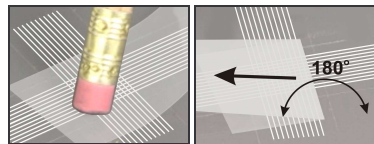
**Figure 1. Cut twice to give lattice pattern**

3. Use a brush to remove debris from the lattice and inspect to ensure the cuts have penetrated all the way through the coating (Figure 2).
4. Remove and discard two complete turns of adhesive tape (ASTM adhesive tape part number T1078894-, contact Elcometer to order).  
Remove an additional length of tape at a steady rate and cut a piece approximately 75 mm from this length.



**Figure 2. Remove debris by brushing**

5. Centre the cut piece of tape over the lattice and smooth into place using a pencil eraser (Figure 3).
6. Remove the tape by pulling in a single smooth action at 180° (Figure 3).
7. Analyse the results - see page 5.
8. Repeat the test at two other positions.



**Figure 3. Apply tape and remove at 180°**

**Note:** For full details of the test method, consult the applicable standard.

When the cutting edge of the blades becomes worn, rotate the instrument through 90° to use the other edge of the blades.

### 3 ANALYSING THE RESULTS

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Coating adhesion can be assessed by comparing the lattice of cuts with ASTM or Corporate Standards. The ASTM standards are reproduced in Table 1 on page 6.

### 4 TECHNICAL SPECIFICATION

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Material:	Steel
Dimensions:	100 mm x 16 mm x 6 mm (4" x 0.6" x 0.25")
Weight:	80 g (2.8 oz)

### 5 RELATED ELCOMETER EQUIPMENT



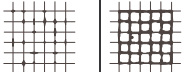
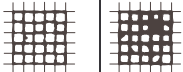
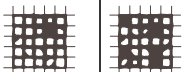

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In addition to the Elcometer 1540 Cross Cut Tester, Elcometer produces a wide range of other equipment for testing and measuring the characteristics of coatings. Users of the Elcometer 1540 may also benefit from the following Elcometer products:

- Elcometer 141 Paint Inspection Gauge (for deeper cuts)
- Elcometer 107 Cross Hatch Cutter
- Elcometer 195 Säberg Drill
- Elcometer 456 Coating Thickness Gauge
- Elcometer Coating Adhesion Testers

For further information contact Elcometer, your local supplier or visit our website at [www.elcometer.com](http://www.elcometer.com)

**Table 1: Classification of test results**

	The edges of the cuts are completely smooth; none of the squares of the lattice is detached.	0	5B
	Detachment of flakes of the coating at the intersections of the cuts. A cross cut area not significantly greater than 5% is affected.	1	4B
	The coating has flaked along the edges and/or at the intersections of the cuts. A cross cut area significantly greater than 5%, but not significantly greater than 15% is affected.	2	3B
	The coating has flaked along the edges of the cuts partly or wholly in large ribbons, and/or it has flaked partly or wholly on different parts of the squares. A cross cut area significantly greater than 15%, but not significantly greater than 35%, is affected.	3	2B
	The coating has flaked along the edges of the cuts in large ribbons and/or some squares have detached partly or wholly. A cross cut area significantly greater than 35%, but not significantly greater than 65%, is affected.	4	1B
	Any degree of flaking that cannot be classified even by classification 4 (1B).	5	0B



