

Conical Mandrel Tester

Thank you for purchasing a Conical Mandrel Tester from Ascott. Please read these instructions carefully and retain for future reference.

Important Information

This equipment should only be used as intended by suitably qualified and trained personnel.

These instructions should be always readily available to such personnel.

Normal common-sense safety precautions must be taken at all times to avoid the possibility of accidents. We recommend that users produce their own risk assessment for the entire testing process for which this equipment will be used.

1. ABOUT YOUR TESTER

The **Conical Mandrel Tester** is used to determine the elasticity, adhesion and elongation of coatings on sheet metal. The specimen is clamped against a conical mandrel and is bent around the mandrel by a roller mounted on a hand operated lever. The diameter of the mandrel at the point where the coating starts to crack can be determined from a scale marked on the specimen clamp.

1.1 Standards

The **Conical Mandrel Tester** can be used in accordance with the following National and International Standards:

ASTM D 522	BS 3900 E11
DIN ISO EN NF 6860	ECCA T7

2. GETTING STARTED

This section of the instructions is intended for first-time users of the tester. It contains information on the parts and installation of your tester and specifications for the specimen. When you have finished reading this section you will be ready to start using your Conical Mandrel Tester.

2.1 The parts of your tester

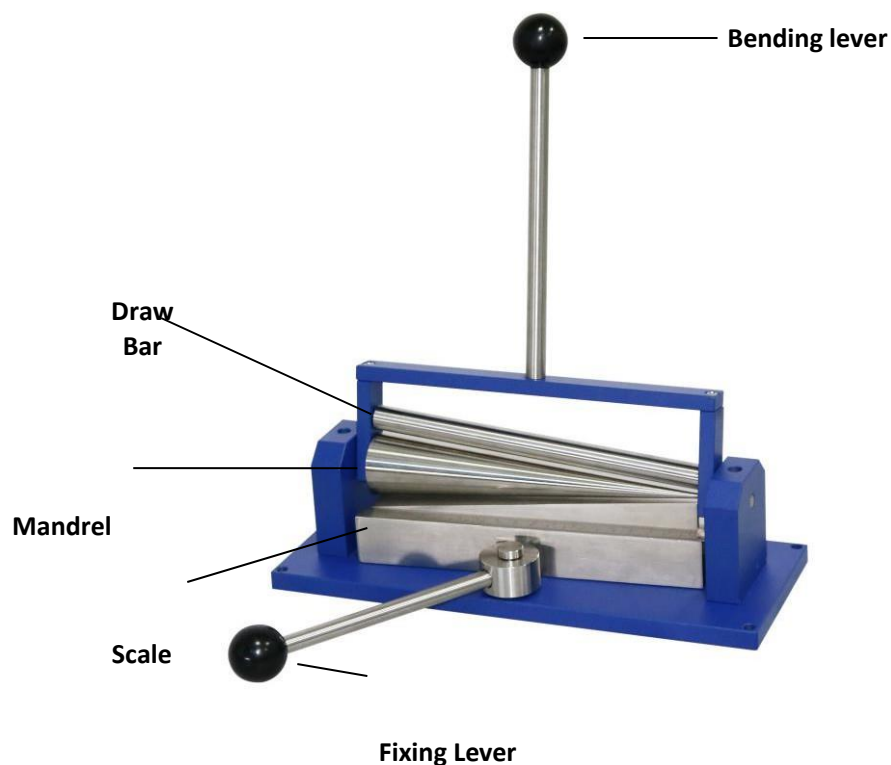


Figure 1. Conical Mandrel Tester

2.2 Installation

Mount the instrument on a sturdy and level surface in a clean and dry environment. Fasten in place using the mounting holes in the base of the instrument.

2.3 Specimens

Specimens should be prepared according to the requirements of the test standard. Specimens should be flat, free from distortion and the coated surface should not contain any visible cracks.

Specimen dimensions are given in “**Technical specification**”

Note: When testing to BS 3900 E11 and DIN ISO EN NF 6860, make incisions in the coating through to the substrate, parallel to the short edges of the specimen at distances of 20 mm(0.79”)

3. TESTING A SPECIMEN

1. If appropriate, make incisions in the coating through to the substrate, parallel to the short edges of the panel at distances of 20mm. (Without incisions, cracks starting at the small diameter can propagate over the whole length of the cone.)

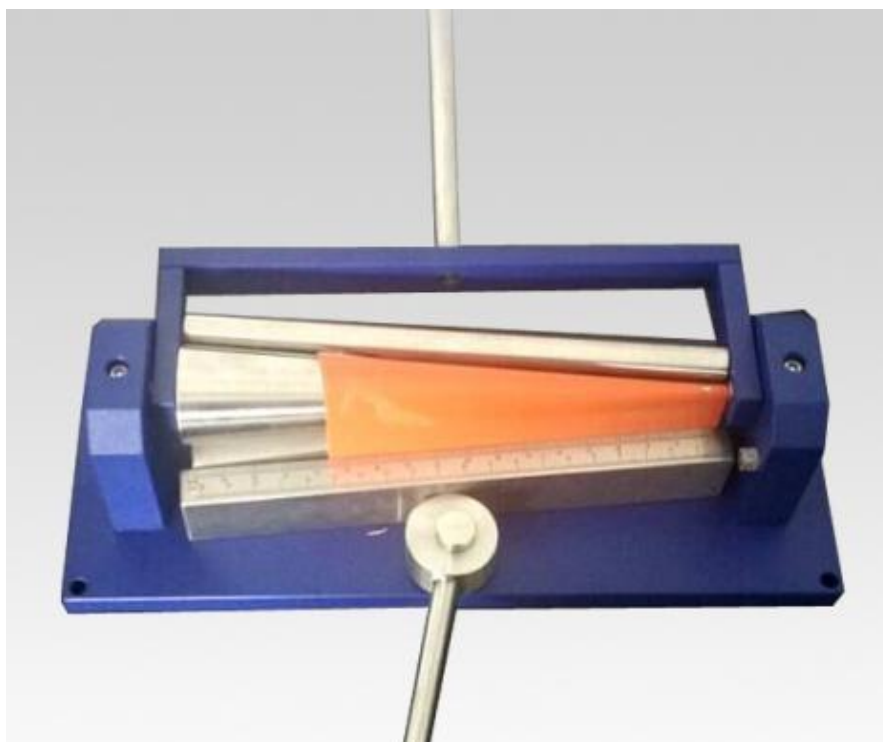
2. Put the Bending Lever down and towards to the user and turn the Fixing Lever to the right side. Insert the panel with the coated side towards the draw bar and in such a position that one short edge touches the small end of the mandrel (as shown below). A sheet of paper may be inserted over the coated surface between the panel and the draw bar to prevent the coating being damaged by the drawbar during the bending operation.



3. turn the Fixing Lever to the left side to clamp the panel firmly (as shown below)..



4. Hold the Bending Lever and bend the panel evenly and smoothly over the mandrel through 180° within a period of 2s to 3s.



5. Using a magnifier if necessary, inspect the coating for cracks in accordance with the requirements of the test standard. Mark the end of the crack furthest from the narrow end of the mandrel. The diameter of the mandrel at this point can be determined from the scale marked on the specimen clamp.

6. Reset the Bending Lever and loosen the Fixing Lever to remove the test panel.

7. Measure and record the length of the crack from the narrow end of the mandrel. Repeat the test on two further specimens and calculate the average of the three results.

4. CALCULATING ELONGATION - ASTM D 522

If required, use the curve shown in Figure 2a to determine the elongation of the coating.

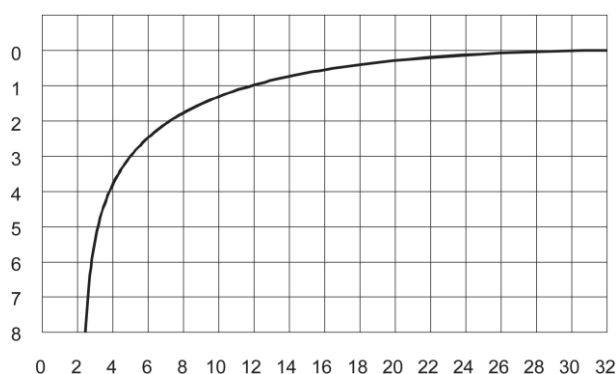


Figure 2. Crack length versus % elongation -Cold rolled steel, 0.8 mm (1/32") thick, 25 μ m (1 mil) coating

If necessary, adjust for coating thickness; add the correction value obtained from the curve in Figure 3 to the percentage elongation obtained from the curve in Figure 2.

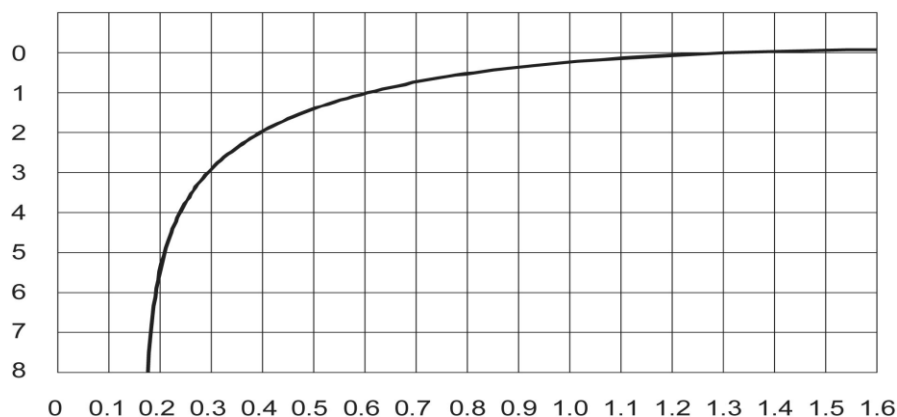


Figure 3. Crack length versus % elongation correction value -per 25 μm (1 mil) coating thickness NOTE: The curves shown in Figure

2 and Figure 3 are reproduced from ASTM D 522 Crack length
(inches) % elongation

4. MAINTENANCE

The Conical Mandrel Tester is designed to give many years reliable service under normal operating and storage conditions. Periodically clean the mandrel using a cloth slightly dampened with oil.

5. TECHNICAL SPECIFICATION

- ◆ Dimensions: 300 mm x 120 mm x 80 mm
- ◆ Weight: 8 kg
- ◆ Mandrel diameter: 3.1 ± 0.1 mm to 38 ± 0.1 mm
- ◆ Mandrel length: 203 ± 3 mm

The Conical Mandrel Tester is packed in a metal and foam package. It is recommended that this packaging is retained and reused in the event that the instrument needs to be transported. If the packaging materials are disposed of, please ensure that this is done in an environmentally sensitive manner.

If you have any queries regarding your new equipment, or require any additional accessories or consumables, please contact info@ascottshop.com or telephone +44 (0)1827 318040. If you wish to contact us by post, our full mailing address is 6-8 Gerard, Tamworth, Staffordshire, B79 7UW