

INTERNATIONAL STANDARD

ISO
10833

First edition
1992-11-15

Textile floor coverings — Determination of mechanical damage at a cut edge — Modified Vettermann drum tester method

iTeh STANDARD PREVIEW

*Revêtements de sol textiles — Détermination de l'endommagement
mécanique à l'endroit des joints — Méthode du tambour d'essai
Vettermann modifié*

ISO 10833:1992

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Reference number
ISO 10833:1992(E)

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 10833 was prepared by Technical Committee ISO/TC 38, *Textiles*, Sub-Committee SC 12, *Textile floor coverings*.

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International Organization for Standardization
Case Postale 56 • CH-1211 Genève 20 • Switzerland

Printed in Switzerland

Textile floor coverings — Determination of mechanical damage at a cut edge — Modified Vettermann drum tester method

1 Scope

This International Standard specifies a procedure for determining the susceptibility of a textile floor covering to mechanical damage at a cut edge.

It is applicable to all textile floor coverings except hand-knotted carpets.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 139:1973, *Textiles — Standard atmospheres for conditioning and testing*.

ISO 1957:1986, *Machine-made textile floor coverings — Sampling and cutting specimens for physical tests*.

ISO 2424:1992, *Textile floor coverings — Vocabulary*.

ISO/TR 9405:1990, *Textile floor coverings — Assessment of changes in appearance*.

ISO/TR 10361:1990, *Textile floor coverings — Production of changes in appearance by means of a Vettermann drum and hexapod tumbler testers*.

3 Definitions

For the purposes of this International Standard the definitions for chalking, delamination, fraying and sprouting given in ISO 2424 apply.

4 Principle

A metal ball with six rubber studs rolls randomly inside a rotating drum which is lined with the textile floor covering specimens. The specimens have a longitudinal cut, angled at 1°, down the centre (see figure 3). After fatiguing, the mechanical damage of the cut edges is assessed.

5 Apparatus¹⁾

5.1 Vettermann drum tester, as specified in ISO/TR 10361 (see also figures 1 and 2).

5.2 Steel ball, as specified in ISO/TR 10361, except that the ball shall be fitted with six (not 14) rubber studs.

The rubber studs shall be replaced before each test.

5.3 Upright vacuum cleaner, with rotating brush and beater bar.

The vacuum cleaner shall have the following characteristics:

- the power rating of the vacuum cleaner shall be approximately 1 000 J/s;
- the water gauge pressure shall be approximately 12 kPa;
- the airflow shall be approximately 38 l/s.

1) For information on the availability of the apparatus, apply to the ISO/TC 38/SC 12 Secretariat at BSI, 3 York Street, Manchester, M2 2AT, United Kingdom.

If the type of cleaner described above is not recommended by the manufacturer of the textile floor covering under test, the recommended device shall be used and described in the test report.

6 Atmosphere for conditioning and testing

The specimens shall be conditioned and the test conducted in one of the standard atmospheres for conditioning and testing textiles specified in ISO 139.

7 Selection and preparation of specimens

7.1 Selection

Select the specimens in accordance with ISO 1957 to be as representative as possible of the bulk. Before cutting out the test specimens, mark the sample and each test specimen on the back with an arrow in the direction of pile lay.

7.2 Number and dimensions

Cut out four specimens 570 mm long in the direction of manufacture by 265 mm wide. For sheet materials, cut out two specimens from the sides of the sheet and two from the middle.

For testing tiles, cut out two specimens in such a way that the production cut of the tiles is in the middle, and parallel to the direction of the drum rotation. Test both directions of the production cut.

NOTE 1 When testing thick samples, it may be necessary to shorten thicker specimens in order to fit them in the drum.

7.3 Preparation

Cut the specimens in the centre as shown in figure 3. Use a sharp carpet knife held vertically or a press cutter to cut from the pile side through the whole carpet including the backing. Cut across at least one pile row.

Connect the two sides of the cut with one-sided adhesive tape of at least 60 mm width. Ensure that the cut is closed as tightly as possible.

Fix the specimens on the drum wall with 20-mm-wide double-sided adhesive tape positioned over the specimen length on the one-sided tape in order to prevent the specimens from moving while they are being fatigued. Also cover both ends of the specimens with 50-mm-wide one-sided adhesive tape.

8 Procedure

8.1 Fitting

Fit the specimens into the drum (5.1), with the use surface towards the centre of the drum and the edges under the retaining segments. Ensure that the ends of two specimens lie near the centre of the retaining segments and clamp firmly.

Check that the ball (5.2) has new studs and that ball and studs are clean and free from any contamination. Place the ball in the drum.

Pre-set the revolution counter for 11 000 cycles and switch the machine on to start the test under continuous vacuum.

8.2 Assessment

After the test, clean the specimens with the vacuum cleaner (5.3), making four forward and backward passes along the length.

For assessment of the specimens, use the illumination levels and procedure described in ISO/TR 9405.

If changes in the region of the cut edges cannot be recognized at a distance of about 1,5 m, pick the specimen up and judge from a closer distance.

8.3 Expression of results

Make an evaluation of the following:

- whether either fibres or yarn have been worked out over the surface of the specimen (if so, determine the origin);
- how many tufts have been lost from one or more tuft rows (cut-pile carpets);
- how many pile yarns with a length of more than one loop have been worked out (loop-pile carpets);
- whether delamination has developed (if so, determine the length and depth).

9 Test report

The test report shall include the following particulars:

- a) all information necessary for complete identification of the sample;
- b) a reference to this International Standard;

- c) the number and kind of damaged parts along cut edges in the middle of each specimen;
- d) any special observations concerning the test specimens;
- e) any operation not specified in this International Standard, or in the International Standards to which reference is made, and any operation regarded as optional, as well as any incident which might have affected the results.

Dimensions in millimetres

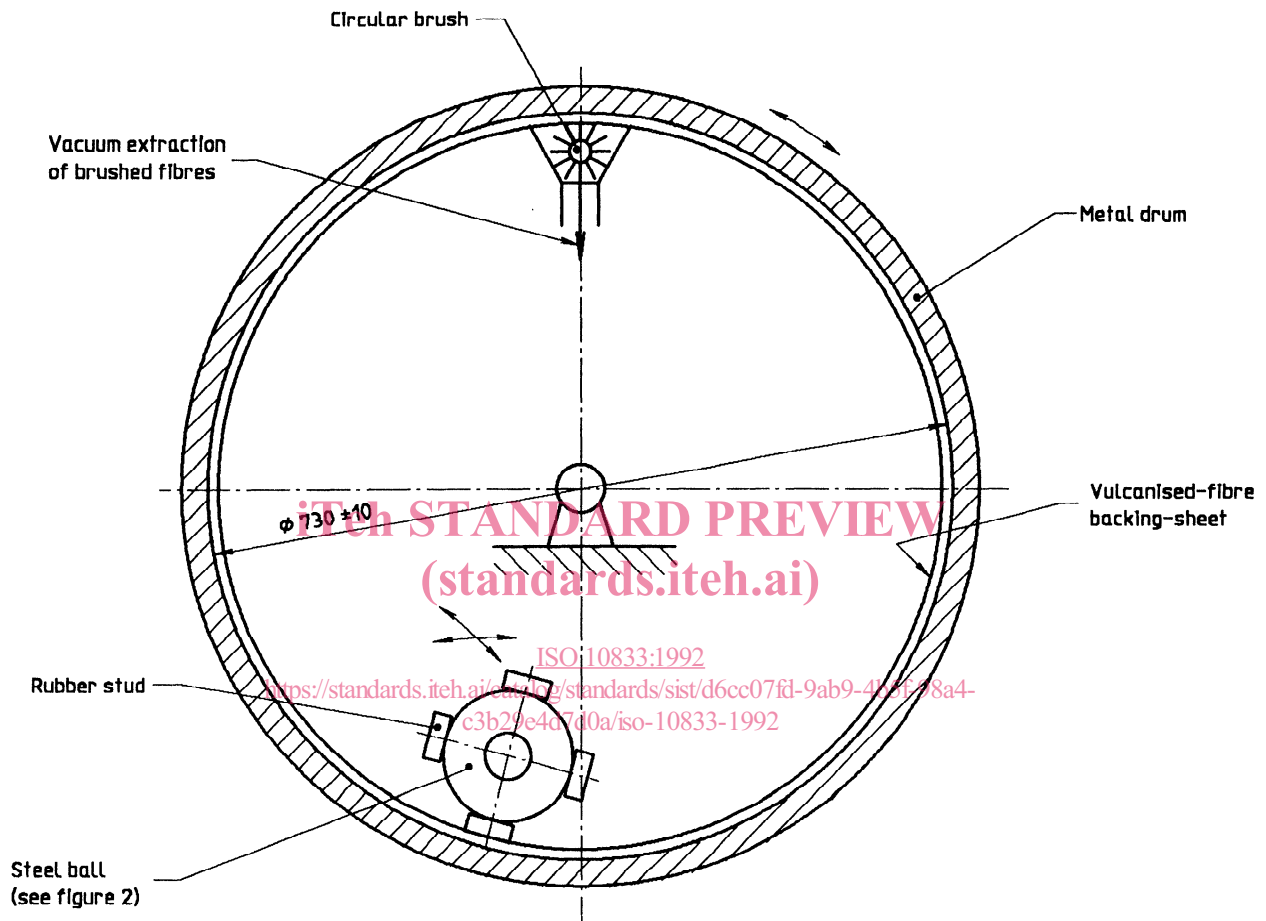


Figure 1 — Vettermann drum

Dimensions in millimetres

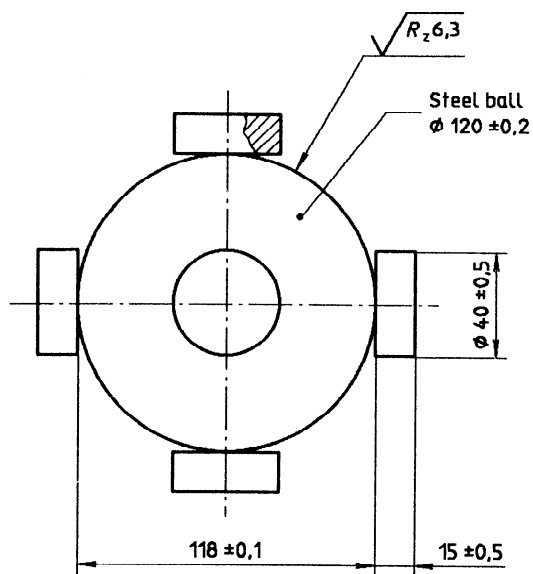


Figure 2 — Steel ball

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Dimensions in millimetres

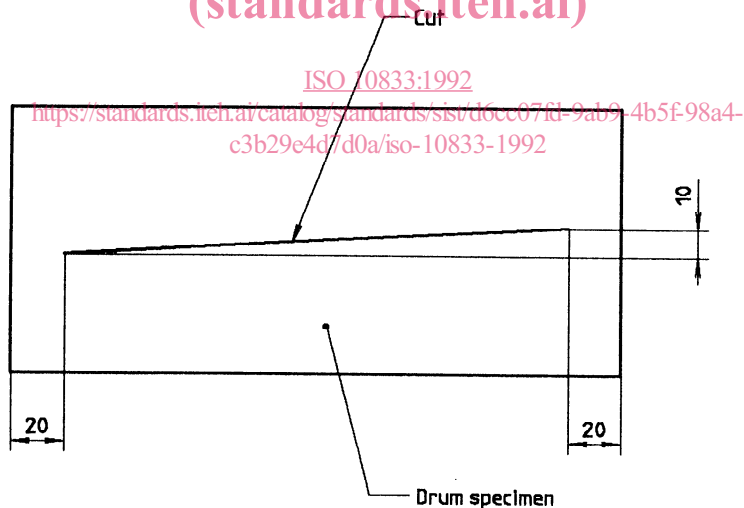


Figure 3 — Drum specimen with cut

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UDC 645.13-0.37:677.017.8

Descriptors: textiles, floor coverings, textile floor coverings, tests, cut tests, determination, damage.

Price based on 4 pages
