SLOVENSKI STANDARD
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Manufactured articles solely filled with feathers and down - Measurement of thickness and compressibility of cushions - Part 1: Test method by rotation

Manufactured articles solely filled with feathers and down - Measurement of thickness and compressibility of cushions - Part 1: Test method by rotation

Fertigartikel gefüllt mit Federn und Daunen - Messung der Dicke und Kompressibilität von Kissen - Teil 1: Rotationsprüfverfahren

Articles manufacturés garnis de plumes et duvets - Mesurage de l'épaisseur et de la compressibilité des coussins - Partie 1: Méthode d'essai par rotation

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This document (EN 13855-1:2003) has been prepared by Technical Committee CEN /TC 222, "Feather and down as filling material for any article, as well as finished articles filled with feather and down" the secretariat of which is held by UNI.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by November 2003, and conflicting national standards shall be withdrawn at the latest by November 2003.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Luxembourg, Malta, Netherlands, Norway, Portugal, Slovakia, Spain, Sweden, Switzerland and the United Kingdom.

1 Scope

This part 1 specifies a test method by rotation to evaluate the durability of cushions solely filled with feathers and/or down.

This standard applies to:

— back cushions;

— seating cushions;

— armrest cushions.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text, and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

EN 1883 *Feather and down – Sampling in view of tests*

EN 20139 *Textiles - Standard atmospheres for conditioning and testing (ISO 139:1973).*

EN 20187 *Paper, board and pulps - Standard atmosphere for conditioning and testing and procedure for monitoring the atmosphere and conditioning of samples (ISO 187:1990).*

3 Terms and definitions

For the purposes of this European Standard, the following terms and definitions apply:

3.1
cushion
manufactured article of all shapes and sizes included in 60 cm x 60 cm, used to sit on or to lean against or used as a decorative element, consisting of a feather and/or down filling withheld in a primary tick

NOTE A cushion has not to be confused with a pillow, used as a headrest in a bed.

3.2
test specimen
single cushion taken from the sample as presented

3.3
compressibility
difference between the initial and final thickness of the cushion

3.4
durability test
series of loads applied to a test specimen simulating the stress due to use

3.5
shaking-up
manual, lateral compression and levelling of the test specimen so as to restore it to its original shape

4 Principle

The initial thickness of a cushion is measured. After a series of compression cycles with a portion of sphere able to rotate with an eccentric system, the cushion is measured again for loss thickness.

5 Apparatus

5.1 Test equipment working in compression cycle, with constant speed, fitted with a portion of sphere of diameter (300 ± 5) mm and (50 ± 1) mm of height. A support receives the test product.

— The support of the test product is able to rotate under load during the test, with an eccentric system (off centring = 15,0 mm ± 0,5 mm). Frequency of cycles : (18 ± 1) min^{-1} and rotation of the support during the test at a rate of 15 $min^{-1.}$

— This test equipment is able to make a determined number of cycles under defined loads.

  — 750 N for a seat cushion ;

  — 350 N for a back cushion ;

  — 150 N for an armrest cushion;

It is also fitted with a recording equipment for the loads measured during the test.

5.2 Board: board dimensions (800 x 250 ± 5) mm and mass of (600 ± 5) g

6 Sampling and conditioning

6.1 Take sample(s) in accordance with EN 1883.

6.2 Condition the sample(s) in accordance with EN 20139. Temperature and humidity are to be measured in accordance with EN 20187.

7 Tolerances

If not given, the following tolerances apply:

— dimensions : ± 2 mm;

— loads : ± 5 N.

8 Procedure

8.1 The tests are carried out on three finished products from the same lot.

8.2 The cushion is put on the support, so that its centre is under the vertical axis of the part of sphere.

8.3 Before starting the test of a series of compression cycles, the initial thickness of the cushion is measured, after 5 cycles, by putting on a board (5.2). The measurement is made at the four corners and the retained value of the thickness of the cushion is the mean value of the four measurements.

8.4 Carry out the series of the following cycles:

5 000 -- 20 000 and each 20 000 cycles up to 100 000 at the following loads

- 750 N for a seat cushion;
- 350 N for a back cushion;
- 150 N for an armrest cushion;

8.5 After each series of cycles, measure the thickness of the cushion when the following loads are applied:

- seat cushions at:
  - 100 (± 2) N;
  - 250 N;
  - 500 N;
  - 700 N.
- back cushions at:
  - (100 ± 2) N;
  - 250 N;
  - 300 N.
- armrest cushions at:
  - (10 ± 1) N;
  - (50 ± 2) N;
  - (100 ± 2) N;
  - (125 ± 2) N.

After each measurement, a shaking-up is done to avoid lumpiness.