



SLOVENSKI STANDARD
SIST EN 1963:2007

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Tekstilne talne obloge - Preskusi z uporabo Lissonovega aparata Tretrad

Textile floor coverings - Tests using the Lisson Tretrad Machine

Textile Bodenbeläge - Prüfungen mit dem Tretradgerät System Lisson

Revetements de sol textile - Essais utilisant la machine Lisson

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English Version

Textile floor coverings - Tests using the Lisson Tretrad Machine

Revêtements de sol textile - Essais utilisant la machine
Lisson

Textile Bodenbeläge - Prüfungen mit dem Tretradgerät
System Lisson

This European Standard was approved by CEN on 8 March 2007.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN Management Centre has the same status as the official versions.

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

Management Centre: rue de Stassart, 36 B-1050 Brussels

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Foreword

This document (EN 1963:2007) has been prepared by Technical Committee CEN/TC 134 “Resilient, textile and laminate floor coverings”, the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by October 2007, and conflicting national standards shall be withdrawn at the latest by October 2007.

This document supersedes EN 1963:1997.

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

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1 Scope

This European Standard specifies four methods of test of textile floorcoverings (with or without an underlay, see Clause 9) using the Lisson Tretrad machine.

Test A: Determination of mass loss of textile floorcoverings also used to assess fibre bind of synthetic cut pile carpets.

Test B: Determination of stair nosing appearance change of textile floorcoverings.

Test C: Determination of fibre bind on synthetic loop pile carpets.

Test D: Determination of fibre bind (hairiness) on needled floorcoverings.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 984, *Textile floor coverings — Determination of the mass per unit area of the use surface of needled floor coverings*

EN 1307, *Textile floor coverings — Classification of pile carpet*

EN 1470, *Textile floor coverings — Classification of needled floor coverings except for needled pile floor coverings*

EN 1471, *Textile floor coverings — Assessment of changes in appearance*

EN 13297, *Textile floor coverings — Classification of needled pile floor coverings*

EN 14215, *Textile floor coverings — Classification of machine-made pile rugs and runners*

EN 15114, *Textile floor coverings — Classification of textile floor coverings without pile*

EN ISO 139, *Textiles — Standard atmospheres for conditioning and testing (ISO 139:2005)*

ISO 1765, *Machine-made textile floor coverings — Determination of thickness*

ISO 1957, *Machine-made textile floor coverings — Selection and cutting of specimens for physical tests*

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

ISO 8543, *Textile floor coverings — Methods for determination of mass*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 2424:1992 and the following apply.

3.1

mass loss per unit area, m_v

difference between the sample mass before and after the test, related to the tested area, (see Clause 10)

3.2

relative mass loss m_{rv} for pile carpets

ratio of the mass loss per unit area m_v as a percentage of the mass of pile per unit area above the substrate m_{AP} (according to ISO 8543)

3.3

I_{TR}

index calculated according to the following equation:

$$I_{TR} = 0,19 \sqrt{m_{AP} \cdot x} \left(\frac{100 - m_{rv}}{100} \right) \text{ where :}$$

m_{AP} is the mass per unit area above the substrate in grams per metre squared, determined according to ISO 8543;

m_{rv} is the relative fibre loss in percentage

3.4

stair suitability

suitability of a textile floorcovering for use on stair nosing in different use classes (as described in EN 1307, EN 1470, EN 15114, EN 14215 and EN 13297)

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4 Principle

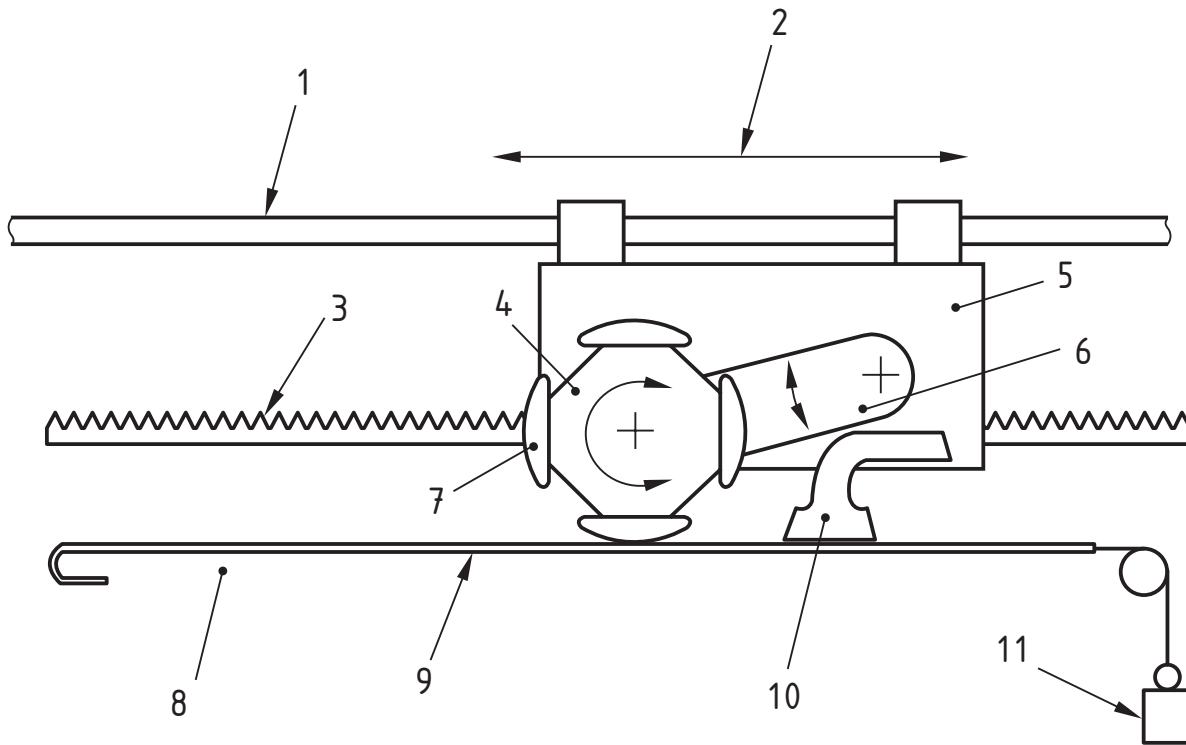
The specimens of textile floorcovering are exposed, at constant load and slippage and for a prescribed number of double passages, to the action of a four-footed wheel (Tretrad), the feet of which are fitted with interchangeable rubber soles.

5 Apparatus

5.1 Lisson Tretrad machine

5.1.1 General

A Lisson Tetrad machine comprises a bed plate, a vacuum cleaning system and two Tretrad assemblies (see Figure 1).



Key

- | | | | | | | | |
|---|----------|----|-----------------|----|----------------|---|---------------|
| 1 | support | 2 | movement of the | 3 | cog bar | 4 | Tretrad wheel |
| 5 | frame | 6 | drive | 7 | foot | 8 | bed plate |
| 9 | specimen | 10 | dust extraction | 11 | tension weight | | |

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Figure 1 — Lisson Tretrad machine

5.1.2 Bed plate

The bed plate faces are parallel to the track travelled by the Tretrad feet and the front edge of the plate is rounded with a 10 mm radius to simulate a stair nosing.

The tested surface is formed by the width of the Tretrad feet and the length of the track over which the Tretrad runs. The track length shall be determined for each machine by measuring the distance between the front edge of the base plate and the perpendicular projection of the Tretrad axis at its furthestmost point of reversal. The length of track shall be (800 ± 20) mm.

Two clamps mounted at each end of the bed plate are used to hold each specimen under tension. The tension is applied by means of a weighted third clamp, each specimen being subjected to a force of (20 ± 2) kg.

5.1.3 Tretrad assemblies

The Lisson Tretrad apparatus has two Tretrad assemblies each of which comprises a Tretrad mounted in a frame that is free to rotate around an axis that is 135 mm to 140 mm above the upper surface of the bed plate.

Each Tretrad comprises four equally spaced legs with rigidly attached feet platforms.

The surface of the foot platform has a radius of curvature of $(112,5 \pm 1,0)$ mm, a circumferential length of $(100,0 \pm 1,0)$ mm and a width of $(55,0 \pm 0,5)$ mm. The ends of the contact surfaces of the platforms are rounded with a radius of $(4,0 \pm 0,5)$ mm.

The vertical force applied by the Tretrad feet, in the stationary state, shall be $(15,0 \pm 1,0)$ kg measured without the soles in position.

The linear speed of the Tretrad is $(0,28 \pm 0,02) \text{ m/s}$ and the peripheral speed of the Tretrad with sole coverings is $(20,0 \pm 1,0) \%$ greater than the linear speed. This causes slippage of the feet on the test specimen in addition to the compressive action.

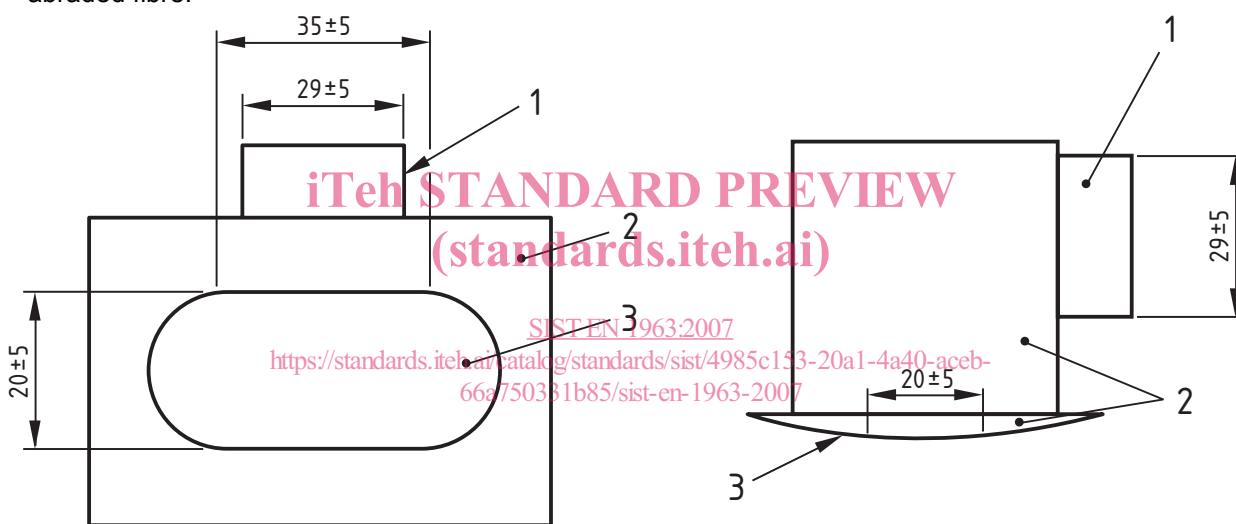
At the front edge of the bed plate the Tretrad runs beyond the bed and is held horizontal by a height adjustable stopper in such a way that the lower edge of the foot (without sole material) can be adjusted between 5 mm below and 5 mm above the level of the surface of the bed plate.

At the points of reversal the Tretrad remains stationary for approximately 1 s; during this stoppage at the forward point of reversal, the Tretrad is rotated through an angle to ensure that the feet walk over different parts of the test specimens, thereby evenly distributing the action.

5.1.4 Vacuum cleaning system

Suction nozzles follow the horizontal movement of the Tretrad assemblies. The nozzles are flexibly mounted and are equipped on their undersides with slides that rest on the edges of the test specimens thereby not imposing any wear on the specimens.

Each nozzle has the dimensions shown in Figure 2 and is connected to the vacuum cleaner to extract the abraded fibre.



Key

- 1 connection to vacuum
- 2 nozzle casing
- 3 nozzle mouth

Figure 2a — Vacuum inlet – bottom view

Key

- 1 connection – side view
- 2 casing of nozzle
- 3 nozzle mouth

Figure 2b — Vacuum inlet – side view

The vacuum cleaner performance shall be such as to produce an airflow of at least 30 l/s measured by an appropriate anemometer in order to remove loose fibre from the surface of the specimens.

5.2 Sole¹

The soles are made from vulcanised styrene butadiene rubber (SBR) with silicic acid-based white filler additives. The soles have a wave profile on one face, and their slip resistance is controlled to ensure standard behaviour in the Lisson Tretrad test.

¹ Certified soles are available from TFI – Deutsches Teppichforschungsinstitut – Charlottenburger Allee 41 52068 Aachen – Germany.