# SLOVENSKI STANDARD
# SIST EN 1818:1999

**01-julij-1999**

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**Netekstilne talne obloge - Ugotavljanje uļ inka teģko obremenjenega kolesca**

Resilient floor coverings - Determination of the effect of loaded heavy duty castors

Elastische Bodenbeläge - Bestimmung des Verhaltens gegenüber Schwerlastrollen

Revetements de sol résilients - Détermination de l'effet de roulettes fortement chargées



**Ta slovenski standard je istoveten z:** **EN 1818:1998**

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**ICS:**

97.150 Netekstilne talne obloge Non-textile floor coverings

**SIST EN 1818:1999** **en**

# EUROPEAN STANDARD
# NORME EUROPÉENNE
# EUROPÄISCHE NORM

**EN 1818**

September 1998

ICS 97.150

Descriptors: floor coverings, wear tests, displacements, chairs, castors, determination, adhesion

English version

## Resilient floor coverings - Determination of the effect of loaded heavy duty castors

Revêtements de sol résilients - Détermination de l'effet de roulettes fortement chargées

Elastische Bodenbeläge - Bestimmung des Verhaltens gegenüber Schwerlastrollen

This European Standard was approved by CEN on 14 August 1998.

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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 Central Secretariat has the same status as the official versions.



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

**Central Secretariat: rue de Stassart, 36 B-1050 Brussels**

Contents

## Foreword

This European Standard has been prepared by Technical Committee CEN/TC 134 "Resilient and textile 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of an identical text or by endorsement, at the latest by March 1999, and conflicting national standards shall be withdrawn at the latest by March 1999.

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, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

## 1 Scope

This European Standard describes a method for determining the effect caused by the use of loaded heavy duty castors on a resilient floor covering and its joints, as they roll and reverse. It is intended to simulate the effects of trolleys and other equipment fitted with castors, which can be used in offices and light industry. It consists of two test methods, one for the assessment of the floor surface and one for the assessment of adhesion.

## 2 Normative references

This European Standard incorporates by dated or undated references, 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 apply:



| | |
|---|---|
| ISO 606 : 1982 | Short-pitch transmission precision roller chains and chain wheels |
| ISO 468 : 1982 | Surface roughness - Parameters, their values and general rules for specifying requirements |
| EN 309 : 1992 | Wood particleboards - Definition and classification |



## 3 Principle

A floor covering with one or more joints, hot-welded or cold-sealed where necessary, is trafficked by a heavy loaded swivel castor. The castor moves backwards and forwards, and turns and reverses. The profile of the surface is measured before and after the test, and any damage is evaluated. The adhesion between floor covering and the substrate is measured in test and control areas.

## 4 Apparatus and materials

**4.1** **Test rig** comprising the following (see figure 1):

**4.1.1** **A supporting table**, level and having dimensions at least equal to (700 x 800) mm which supports the test specimens while they are trafficked by the loaded castor described below.

**4.1.2 A swivel castor**, with the design shown in figure 2. It has a polyamide wheel with a Brinell hardness of (11 ± 1) HB (when measured with a 10 mm ball and a load of 5 kN), a diameter of (115 ± 5) mm and width of (40 ± 1) mm. The wheel has a cylindrical travelling surface and its edges are chamfered with a radius of 1 mm.

The castor can move freely about the swivel axis and is mounted so that it can move across the specimen in two directions at right angles, with a longitudinal movement of (390 ± 2 ) mm with a frequency of (7,0 ± 0,4) cycles/minute, and a transverse movement of (260 ± 2) mm with a frequency of (1,72 ± 0,1) cycles/minute. For the wear on the test area to be uniform, the two movements shall not be coordinated, but may be driven for example by a common motor with a roller chain transmission as described in ISO 606:1982, with chain wheels with fifty seven and fourteen teeth respectively. The ratio of the frequencies shall be 4,07 ± 0,03 to ensure that the wheel does not follow the same path all the time.

The swivel axis is free to move vertically (which may be achieved with roller bearings at both ends of the axis, at least 300 mm apart) and is loaded so that the total load applied by the castor is (1250 ± 10) N. The overhang is (45 ± 1) mm (see figure 2).



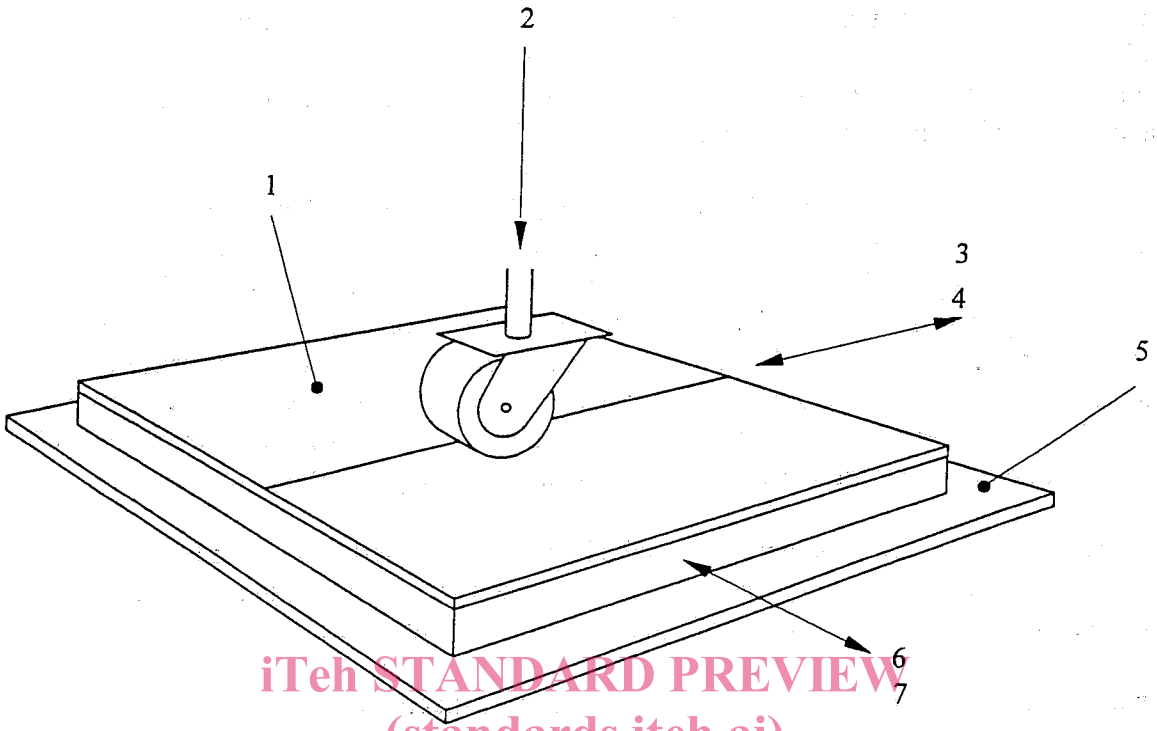
Other wheels and/or loads can be applied in order to test specific combinations, if agreed by the parties involved.



**4.2 Measuring device**, figure 4, for measuring and recording at least 600 mm long profiles of horizontal surfaces with accuracy ± 0,05 mm in the vertical direction and ± 0,5 mm in the horizontal direction. The device comprises a straight beam, a transducer and a recording apparatus. The beam serves as a support for the transducer. The feeler of the transducer is equipped with a steel wheel which is rolling on the surface (figure 3). The loading on the floor from the transducer shall be within (0,3 ± 0,1) N.

In order to reach the prescribed accuracy, the mean surface deviation $R_a$ of the transducer supporting surface of the beam shall not be more than 3,2 µm as indicated in ISO 468:1982.

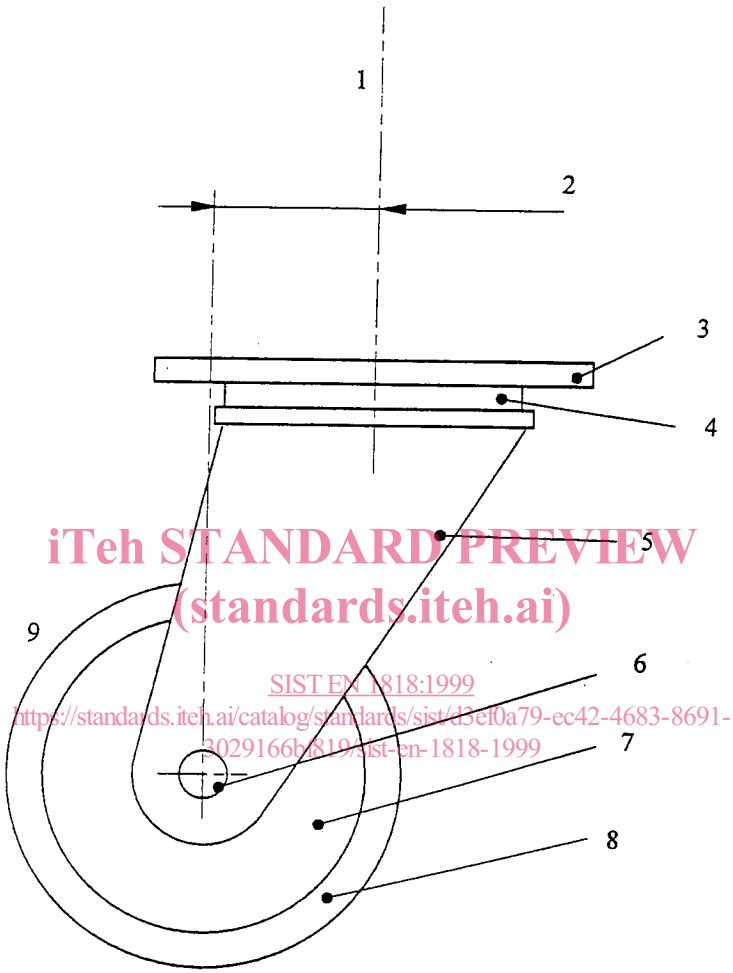
The transducer rests on the beam and can be moved along the beam with its axis perpendicular to the tested surface. The transducer is feeling and recording the surface of the test piece in relation to the beam, resulting in a graphic picture of the measured profile.






1. Test piece
2. Load
3. Travel 260 mm ± 2 mm
4. Frequency 1,72 ± 0,1 cycles/minute
5. Supporting table
6. Travel 390 mm ± 2 mm
7. Frequency 7,0 ± 0,4 cycles/minute

**Figure 1. Simplified sketch of test rig**






1. Swivelling axis
2. Ovehang 45 mm ± 1 mm
3. Mounting plate
4. Bearing
5. Fork
6. Wheel axle
7. Wheel body
8. Wheel ring
9. Travelling surface

**Figure 2: Swivel castor with descriptions of parts**