



SLOVENSKI STANDARD
SIST EN 13513:2004

01-januar-2004

Footwear - Test methods for uppers - Deformability

Footwear - Test methods for uppers - Deformability

Schuhe - Prüfverfahren für Obermaterialien - Verformbarkeit

Chaussures - Méthodes d'essai pour les tiges - Déformabilités

Ta slovenski standard je istoveten z: EN 13513:2001

[SIST EN 13513:2004](https://standards.iteh.ai/catalog/standards/sist/0b7db374-e908-4d5d-ad8b-b58002357ee2/sist-en-13513-2004)

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ICS:

61.060

Obuvala

Footwear

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EUROPEAN STANDARD

EN 13513

NORME EUROPÉENNE

EUROPÄISCHE NORM

November 2001

ICS 61.060

English version

Footwear - Test methods for uppers - DeformabilityChaussures - Méthodes d'essai pour les tiges -
Déformabilités

Schuhe - Prüfverfahren für Schäfte - Verformbarkeit

This European Standard was approved by CEN on 3 October 2001.

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 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 Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 309 "Footwear", the secretariat of which is held by AENOR.

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of an identical text or by endorsement, at the latest by May 2002, and conflicting national standards shall be withdrawn at the latest by May 2002.

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.

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EN 13513:2001 (E)**1 Scope**

This European Standard specifies a test method for determining deformability of uppers or complete upper assembly, irrespective of the material, in order to assess the suitability for the end use.

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 12222, *Footwear - Standard atmospheres for conditioning and testing of footwear and components for footwear.*

prEN ISO 2418, *Leather - Chemical, physical, mechanical and fastness tests – Sampling.*

3 Terms and definitions

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

3.1 deformability

multidirectional modulus characteristics of an upper material

3.2 upper

materials forming the outer face of the footwear which is attached to the sole assembly and covers the upper dorsal surface of the foot. In the case of boots this also includes the outer face of the material covering the leg. Only the materials that are visible are included, no account should be taken of underlying materials

3.3 complete upper assembly

finished upper, fully seamed, joined or laminated together as appropriate, comprising the centre material and any lining(s) together with all components such as interlinings, adhesives, membranes, foams or reinforcements, but excluding toe puffs and stiffeners

NOTE The complete upper assembly can be flat, 2- dimensional or comprise lasted upper in the final footwear.

4 Apparatus and material

The following apparatus and material shall be used:

4.1 Test machine (see Figures 1 and 2), including the following:

4.1.1 Means of clamping the test specimen round its edge leaving a central circular free area of diameter 25,0 mm \pm 0,5 mm. The design of the clamping system of the machine shall ensure that the test specimen does not slip during the test, and shall neither stretch nor compress the central area of the test specimen as it is clamped.

Dimensions in millimetres

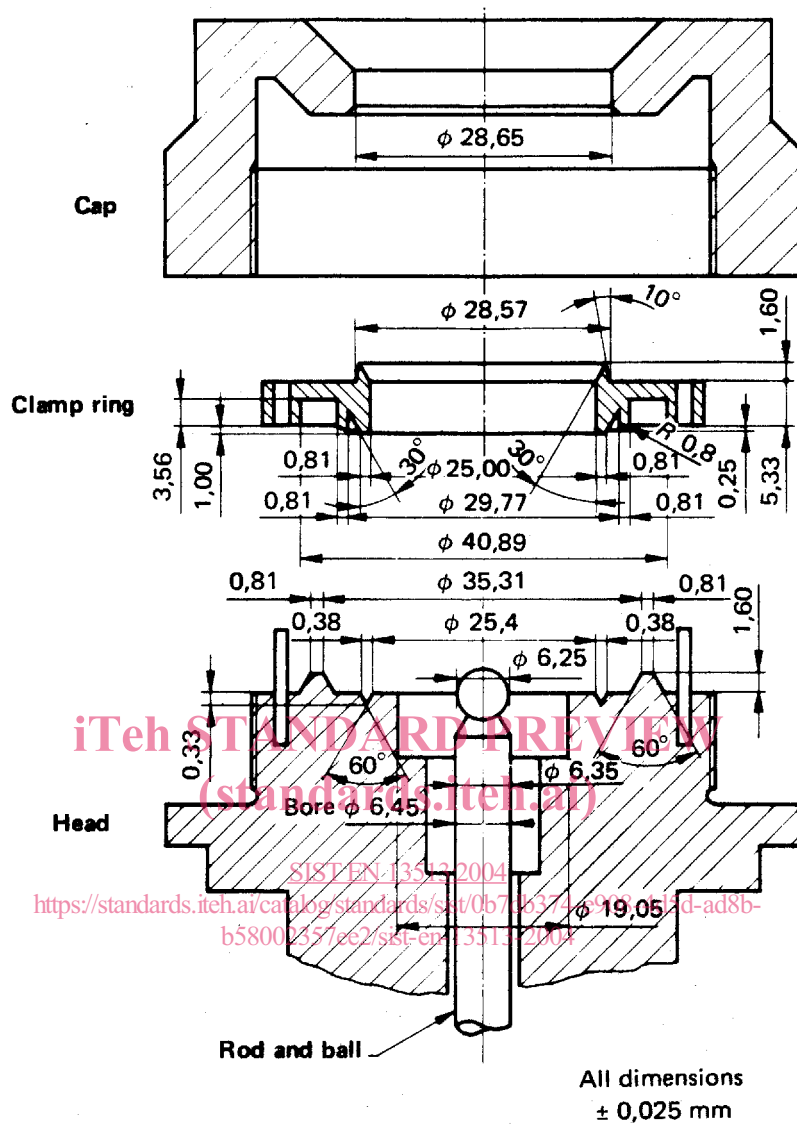


Figure 1 — Details of clamp and head

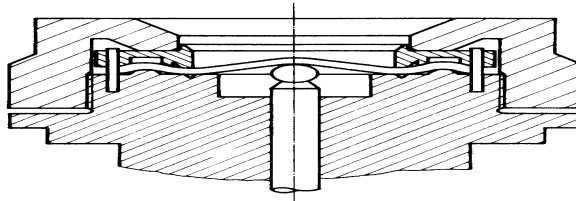


Figure 2 — Cross section of clamping head with test piece in position

- 4.1.2** Moveable plunger with a $20,0 \text{ mm} \pm 0,2 \text{ mm}$ diameter spherical ball on the end.
- 4.1.3** Means of moving the plunger relative to the test specimen clamp at a speed of $0,20 \text{ mm/s} \pm 0,05 \text{ mm/s}$.
- 4.1.4** Means of continuously recording the travel of the plunger to an accuracy of $\pm 0,05 \text{ mm}$.
- 4.1.5** Means of continuously recording the force on the plunger within the range 0 N to 800 N to an accuracy of $\pm 10 \text{ N}$.
- 4.2** **Press knife** or similar means for cutting test specimens.

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5 Sampling and conditioning

5.1 Cut three test specimens of a sufficient size to allow them to be clamped firmly on the test machine, so that they do not slip during the test.

In the case of leather use prEN ISO 2418 to select the sampling position from the butt region of the skin or side.

For non-leather materials, cut test specimens from a range of positions across the full usable width and length of the sheet material. For a material with a woven structure this shall prevent any two test specimens containing the same warp or weft threads.

5.2 For test specimens from footwear uppers, they shall not be cut from any areas containing seams or perforations and any other design features which mean that the test specimen will not be of uniform thickness across its entire surface area. Furthermore, no test specimens shall be cut from areas of finished shoe uppers which are subjected to large strains during lasting especially the toe and backpart. Test specimens shall be prepared from complete upper assemblies when the lining material is permanently attached to the upper material.

It can be that it is impossible to cut a test specimen of sufficient size from certain types of footwear especially children's and the test specimen size shall not be reduced. If it is not possible to cut the correct size test specimen from a shoe upper the materials themselves shall be tested.

5.3 Place the test specimens in a conditioned standard atmosphere as specified in EN 12222 for 24 h prior to test and carry out the test in this atmosphere.

6 Test method

6.1 Principle

A circular test specimen is clamped round its edge and is gradually distended by forcing a metal ball attached to a plunger against the reverse of the test specimen. The travel of and force required to move the ball are continuously recorded throughout the test.

6.2 Procedure

6.2.1 Ensure the test machine is set with the central plunger retracted to zero or minimum distension.

6.2.2 Tightly clamp the test specimen into the test machine so that the ball ended plunger acts on the reverse side of the test specimen (i.e. when testing grain leathers, the ball ended plunger will press against the flesh side of the leather).

6.2.3 For some thick test specimens a very high clamping force may be necessary whereas with thin test specimens care is required to avoid cutting into the test specimen.

6.2.4 Force the plunger into the test specimen at a rate of 0,20 mm/s \pm 0,05 mm/s.

6.2.5 Continuously record the force required to move the plunger against the distance it has moved.

6.2.6 Stop the test when the plunger has travelled a total distance of 10 mm (from the point of contact with the reverse of the test specimen) or the test specimen is damaged.

6.2.7 Retract the plunger and remove the test specimen.

6.2.8 Inspect the marks on the top of the test specimen left by the clamps. If there are signs of slippage occurring during the test, for example evident by a blurring of clamping rings, or of tearing of the clamped edges; reject the results and repeat the procedure with a new test specimen.

6.2.9 Repeat the procedure for the remaining test specimens.

6.2.10 From the plot of force against distance travelled by the plunger record the force at intervals of 2 mm travel from the point where the plunger makes contact with the reverse of the sample.

7 Expression of results

Calculate the arithmetic mean of the force measurements for the three test specimens, to the nearest 10 N.

8 Test report

The test report shall include the following information :

- a) the arithmetic mean of the three results of force calculated in clause 7 at each of the distances travelled by the plunger;
- b) if testing finished footwear or uppers, a description of the style of shoe tested including commercial style codes;
- c) a description of the material, including commercial reference if known;
- d) a description of the test piece (upper or complete upper assemblies);
- e) reference to the method of test;