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**Značilnosti cestnih in letaliških površin - Preskusne metode - 3. del: Merjenje vodoravne odvodnosti površine vozišča**

Road and airfield surface characteristics - Test methods - Part 3: Measurement of pavement surface horizontal drainability

Oberflächeneigenschaften von Straßen und Flugplätzen - Prüfverfahren - Teil 3: Messung der horizontalen Entwässerung von Deckschichten

Caractéristiques de surface de routes et aérodromes - Méthodes d'essai - Partie 3: Méthodes d'essai pour mesurer la drainabilité superficielle d'un revêtement de chaussée

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**Ta slovenski standard je istoveten z: EN 13036-3:2002**

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**ICS:**

17.040.20	Lastnosti površin	Properties of surfaces
93.080.10	Gradnja cest	Road construction
93.120	Gradnja letališč	Construction of airports

**SIST EN 13036-3:2004****en**

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EUROPEAN STANDARD

EN 13036-3

NORME EUROPÉENNE

EUROPÄISCHE NORM

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ICS 93.080.20

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## Road and airfield surface characteristics - Test methods - Part 3: Measurement of pavement surface horizontal drainability

Caractéristique de surface de routes et aérodromes -  
Méthodes d'essai - Partie 3: Méthodes d'essai pour  
mesurer la drainabilité superficielle d'un revêtement de  
chaussée

Oberflächeneigenschaften von Straßen und Flugplätzen -  
Prüfverfahren - Teil 3: Messung der horizontalen  
Entwässerung von Deckschichten

This European Standard was approved by CEN on 23 October 2002.

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.

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

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## Foreword

This document (EN 13036-3:2002) has been prepared by Technical Committee CEN/TC 227 "Road materials", the secretariat of which is held by DIN.

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 June 2003, and conflicting national standards shall be withdrawn at the latest by June 2003.

This European Standard is one of a series of standards as listed below.

EN 13036-1, *Road and airfield surface characteristics — Test methods — Part 1: Measurement of pavement surface macrotexture depth using a volumetric patch technique.*

prEN 13036-2, *Road and airfield surface characteristics — Test methods — Part 2: Procedure for determination of skid resistance of a pavement surface.*

EN 13036-3, *Road and airfield surface characteristics — Test methods — Part 3: Measurement of pavement surface horizontal drainability.*

prEN 13036-4, *Road and airfield surface characteristics — Test methods — Part 4: Method for measurement of slip/skid resistance of a surface — The pendulum test.*

prEN (00227131)-5, *Road and airfield surface characteristics — Test methods — Part 5: Definition and calculation of the longitudinal evenness indices.*

prEN (00227132)-6, *Road and airfield surface characteristics — Test methods — Part 6: Longitudinal evenness — Profilametrie test methods.*

prEN 13036-7, *Road and airfield surface characteristics — Test methods — Part 7: Irregularity measurement of pavement courses — The straightedge test.*

Annex A is normative. Annex B is informative.

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, Malta, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

## Introduction

Three test methods are described in the EN 13036 series of standards for assessing macrotexture which can be used in different applications, depending on availability of equipment, measuring speed requirement and surface texture range (see Table 1). The selection of the method is determined by the purchaser of the product. These test methods can be used as part of the evaluation of surface skid resistance in accordance with prEN 13036-2.

**Table 1 — Test methods for assessing macrotexture**

Test methods		Validity range (expressed in Mean Profile Depth, MPD)
EN 13036-1	Measurement of pavement surface macrotexture depth using a volumetric technique	0,25 mm to 5 mm
ISO 13473-1	Determination of Mean Profile Depth (MPD)	0 mm to 5 mm
EN 13036-3	Measurement of pavement surface horizontal drainability	0 mm to 0,4 mm

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## 1 Scope

This European Standard describes a method for determining the horizontal drainability of a road surface as an indicator of relatively low surface texture using the outflow meter as a stationary device.

The method provides a measure of the drainability in the road/tyre contact area for use on all smooth non porous road surfaces (less than 0,4 mm mean profile depth) either in the field or in the laboratory.

As the method measures the horizontal drainability of a small area of the surface only the selection of the test area should be assessed carefully so that it is representative of the general area on which the measurements are to be made.

## 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).

ISO 868, *Plastics and ebonite — Determination of indentation hardness by means of a durometer (Shore hardness)*.

### 3 Terms and definitions

For the purposes of this European Standard, the following term and definition apply.

#### 3.1

##### **horizontal drainability**

capacity of the road surface texture to provide interconnecting voids through which water can be squeezed out by a moving tyre

### 4 Safety

When carrying out the test on a jobsite, adequate safety measures shall be in place to maintain a safe working area as the equipment and operator form a stationary obstructive.

### 5 Principle

The horizontal drainability of relatively smooth surfaces simulates the drainage of water from the contact area beneath a moving vehicle tyre. The outflow meter is placed on the test surface and filled with water. The time required for the water level to fall from an upper to a lower mark is recorded.

### 6 Apparatus

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#### 6.1 Outflow meter

##### 6.1.1 Description of the outflow meter

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The outflow meter consists of a cylinder of a solid transparent plastic height  $(400 \pm 1)$  mm, internal diameter  $(50 \pm 0,5)$  mm, which is glued to a brass weighting ring (see Figure 1). A brass carrier ring with a precision rubber ring bonded to it (see Figure 2) shall be screwed to the underside of the weighting ring. The total mass of the outflow-meter shall be  $(3\,500 \pm 10)$  g. The mass of the carrier ring shall be  $(138 \pm 3)$  g. The rubber ring is vulcanised onto the carrier ring. The property of the vulcanised rubber ring shall be as follows:

— hardness  $48 \pm 1$ , Shore A, in accordance with ISO 868.

The carrier ring shall carry the mark of the manufacturer together with a serial number and the expiry date (month, year) (see Figure 2).

A carrying box with holding devices shall be used for the transport and storage of the apparatus without damage.

The holding devices shall secure that:

- the cylinder of the apparatus is not in contact with the inner surface of the top of the carrying box;
- the brass weighting ring is laid on a holding device, so that the cylinder is without loading;
- the adhesive joint between cylinder and brass weighting ring does not touch any holding device;
- the rubber ring does not touch any holding device;
- the outflow meter is stored in a vertical position.

**EN 13036-3:2002 (E)****6.1.2 Maintenance and storage of the outflow meter**

The carrier ring with the rubber ring of the outflow meter shall be replaced when the expiry date is past. During the service life, the carrier ring shall be carefully protected from dirt, oil and grease. During longer intervals between test programmes, the outflow meter shall be protected against light and air by storing it in its carrying box at a temperature of  $(20 \pm 5)$  °C.

**6.1.3 Preparing the outflow meter for testing**

Before each test the rubber ring on the carrier ring shall be checked for any incisions, cracks, surface damage or warpage and that it is clean. If damaged, the carrier ring shall be replaced before testing.

The water tightness of the outflow meter under test conditions shall be checked on a level glass plate before starting and after completing a series of tests. No fall in water level shall be exhibited during a period of 5 min.

**6.2 Soft hand brush**

**6.3 Vessel for water storage**, containing potable water

**6.4 Water bucket**, for interim storage

**6.5 Refill bottle**

**6.6 Stop watch, accurate to 0,1 s**

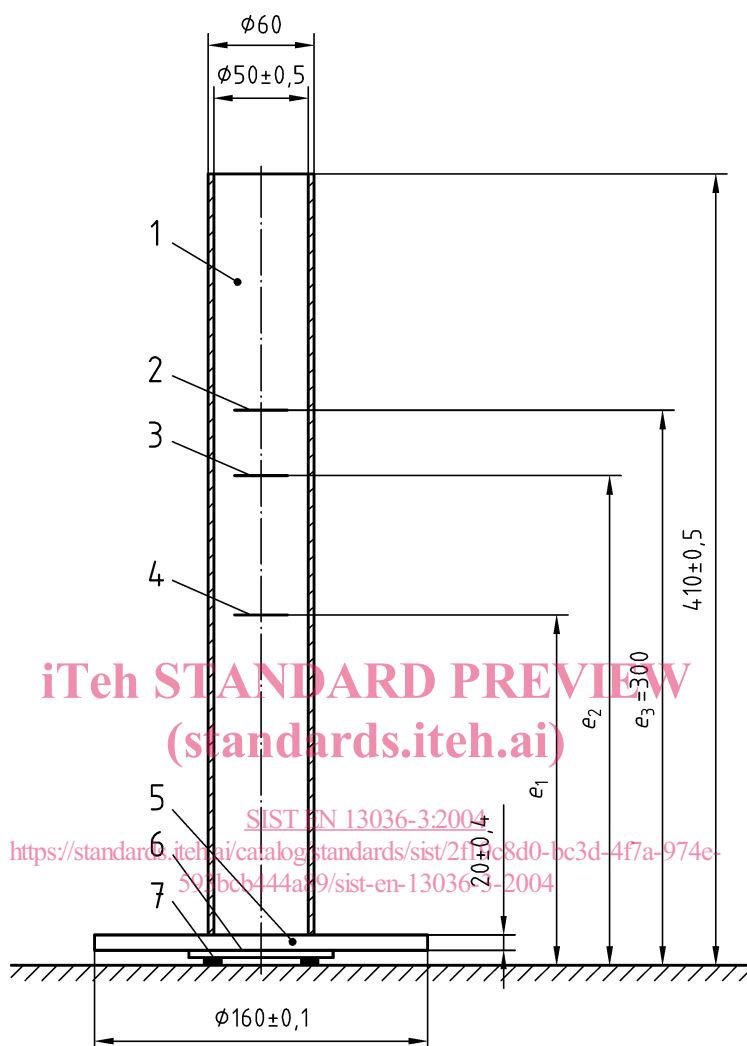
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Dimensions in millimetres

**Key**

- 1 Solid transparent plastic
- 2 Top mark
- 3 Intermediate mark
- 4 Lower mark
- 5 Brass weighting ring (material MS 58)
- 6 Brass carrier ring as shown in Figure 2
- 7 Rubber ring

NOTE The three marks (top, intermediate and lower mark) are placed by the authorized calibration organization.

**Figure 1 — Outflow meter**