



**SLOVENSKI STANDARD**  
**SIST EN 12697-36:2004**

**01-junij-2004**

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Bituminous mixtures - Test methods for hot mix asphalt - Part 36: Determination of the thickness of a bituminous pavement

Asphalt - Prüfverfahren für Heiasphalt - Teil 36: Bestimmung der Dicke von Fahrbahnbefestigungen aus Asphalt

Mlanges bitumineux - Mthodes d'essai pour enrobs a chaud - Partie 36:  
Dtermination des paisseurs de chausee bitumieuse

**Ta slovenski standard je istoveten z: EN 12697-36:2003**

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**ICS:**

93.080.20      Materiali za gradnjo cest      Road construction materials

**SIST EN 12697-36:2004**      en

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ICS 93.080.20

English version

## Bituminous mixtures - Test methods for hot mix asphalt - Part 36: Determination of the thickness of a bituminous pavement

Matériaux enrobés - Méthodes d'essai pour enrobés à  
chaud - Partie 36: Méthode d'évaluation d'épaisseur d'un  
revêtement bitumineux

Asphalt - Prüfverfahren für Heiasphalt - Teil 36:  
Bestimmung der Dicke von Fahrbahnbefestigungen aus  
Asphalt

This European Standard was approved by CEN on 21 November 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.

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

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

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## Foreword

This document (EN 12697-36:2003) 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 September 2003, and conflicting national standards shall be withdrawn at the latest by August 2005.

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

EN 12697-1, *Bituminous mixtures – Test methods for hot mix asphalt – Part 1: Soluble binder content*

EN 12697-2, *Bituminous mixtures – Test methods for hot mix asphalt – Part 2: Determination of particle size distribution*

EN 12697-3, *Bituminous mixtures – Test methods for hot mix asphalt – Part 3: Binder recovery: Rotary evaporator*

EN 12697-4, *Bituminous mixtures – Test methods for hot mix asphalt – Part 4: Binder recovery: Fractionating column*

EN 12697-5, *Bituminous mixtures – Test methods for hot mix asphalt – Part 5: Determination of the maximum density*

EN 12697-6, *Bituminous mixtures – Test methods for hot mix asphalt – Part 6: Determination of bulk density of bituminous specimen by hydro-static method*

EN 12697-7, *Bituminous mixtures – Test methods for hot mix asphalt – Part 7: Determination of bulk density of bituminous specimens by gamma rays*

EN 12697-8, *Bituminous mixtures – Test methods for hot mix asphalt – Part 8: Determination of void characteristics of bituminous specimens*

EN 12697-9, *Bituminous mixtures – Test methods for hot mix asphalt – Part 9: Determination of the reference density*

EN 12697-10, *Bituminous mixtures – Test methods for hot mix asphalt – Part 10: Compactibility*

prEN 12697-11, *Bituminous mixtures – Test methods for hot mix asphalt – Part 11: Determination of the compatability between aggregate and binder*

prEN 12697-12, *Bituminous mixtures – Test methods for hot mix asphalt – Part 12: Determination of the water sensitivity of specimens*

EN 12697-13, *Bituminous mixtures – Test methods for hot mix asphalt – Part 13: Temperature measurement*

EN 12697-14, *Bituminous mixtures – Test methods for hot mix asphalt – Part 14: Water content*

EN 12697-15, *Bituminous mixtures – Test methods for hot mix asphalt – Part 15: Determination of the segregation sensitivity*

prEN 12697-16, *Bituminous mixtures – Test methods for hot mix asphalt – Part 16: Abrasion by studded tyres*

prEN 12697-17, *Bituminous mixtures – Test methods for hot mix asphalt – Part 17: Particle loss of porous asphalt specimen*

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prEN 12697-18, *Bituminous mixtures – Test methods for hot mix asphalt – Part 18: Binder drainage from porous asphalt*

prEN 12697-19, *Bituminous mixtures – Test methods for hot mix asphalt – Part 19: Permeability of specimen*

prEN 12697-20, *Bituminous mixtures – Test methods for hot mix asphalt – Part 20: Indentation using cube or marshall specimen*

prEN 12697-21, *Bituminous mixtures – Test methods for hot mix asphalt – Part 21: Indentation using plate specimens*

prEN 12697-22, *Bituminous mixtures – Test methods for hot mix asphalt – Part 22: Wheel tracking*

prEN 12697-23, *Bituminous mixtures – Test methods for hot mix asphalt – Part 23: Determination of the indirect tensile strength of bituminous specimens*

prEN 12697-24, *Bituminous mixtures – Test methods for hot mix asphalt – Part 24: Resistance to fatigue*

prEN 12697-25, *Bituminous mixtures – Test methods for hot mix asphalt – Part 25: Cyclic compression test*

prEN 12697-26, *Bituminous mixtures – Test methods for hot mix asphalt – Part 26: Stiffness*

EN 12697-27, *Bituminous mixtures – Test methods for hot mix asphalt – Part 27: Sampling*

EN 12697-28, *Bituminous mixtures – Test methods for hot mix asphalt – Part 28: Preparation of samples for determining binder content, water content and grading*

EN 12697-29, *Bituminous mixtures – Test methods for hot mix asphalt – Part 29: Determination of the dimensions of a bituminous specimen*

prEN 12697-30, *Bituminous mixtures – Test methods for hot mix asphalt – Part 30: Specimen preparation, impact compactor*

prEN 12697-31, *Bituminous mixtures – Test methods for hot mix asphalt – Part 31: Specimen preparation, gyratory compactor*

EN 12697-32, *Bituminous mixtures – Test methods for hot mix asphalt – Part 32: Laboratory compaction of bituminous mixtures by a vibratory compactor*

prEN 12697-33, *Bituminous mixtures – Test methods for hot mix asphalt – Part 33: Specimen preparation, slab compactor*

prEN 12697-34, *Bituminous mixtures – Test methods for hot mix asphalt – Part 34: Marshall test*

prEN 12697-35, *Bituminous mixtures – Test methods for hot mix asphalt – Part 35: Laboratory mixing*

EN 12697-36, *Bituminous mixtures – Test methods for hot mix asphalt – Part 36: Determination of the thickness of a bituminous pavement*

prEN 12697-37, *Bituminous mixtures – Test methods for hot mix asphalt – Part 37: Hot sand test for the adhesivity of binder on precoated chippings for HRA*

prEN 12697-38, *Bituminous mixtures – Test methods for hot mix asphalt – Part 38: Test equipment and calibration*

The applicability of this European Standard is described in the product standards for bituminous mixtures.

No existing European Standard is superseded.

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.

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## 1 Scope

This European Standard describes two test methods for determining the thickness of a bituminous pavement. The first method describes measurements carried out on one or more cores which have been drilled from the full depth of the slab or road structure (destructive method). The second method electro-magnetic (non-destructive) measurement are used.

## 2 Apparatus

2.1 Metal rule or tape.

2.2 Calliper gauge.

2.3 Approved jig or other device.

2.4 Electro-magnetic apparatus for non-destructive measurements consisting of aluminium foil that is stuck on the bituminous layer or aluminium sheet-metal that is fastened on the unbound aggregates of the subgrade. The dimensions of the antipole shall be: width  $(300 \pm 10)$  mm, length  $(700 \pm 10)$  mm and thickness 0,05 mm to 0,30 mm. The quality of the antipole shall be the same all the time.

NOTE No other metal object may be present within 1 m distance of the antipole, because this can influence the measurement.

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## 3 Test specimens

Cores used as specimens for thickness measurements shall be representative of the bituminous pavement slab from which they are taken. The cores shall be drilled completely through the bituminous pavement slab for which the thickness is to be measured. The core axis shall preferably be within  $5^\circ$  of the normal axis to the pavement. Furthermore the ends shall be free from all conditions not typical of the surfaces of the paving. Cores that show defects which influence the measurements or that have been damaged appreciably in the drilling operation (e. g. fragmented cores, split cores and curved cores), shall not be used.

NOTE The recommended diameter of the cores taken is 100 mm or 150 mm.

## 4 Procedure

### 4.1 Destructive measurement

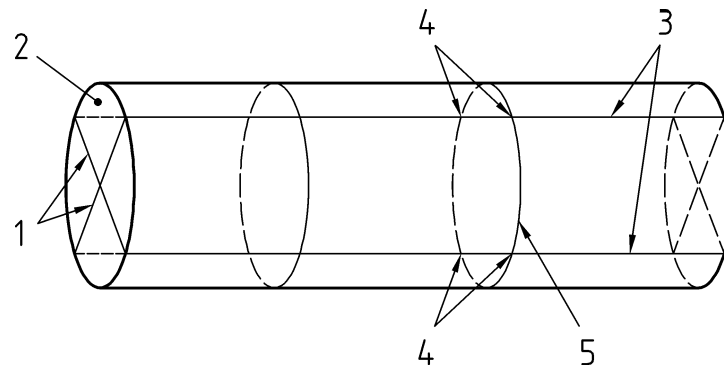
4.1.1 The thickness of each core or each layer shall be measured to the nearest 1 mm. The thickness measurements shall be perpendicular to the upper plane of the core. Measurements shall be between upper and lower surfaces or between well defined boundary lines in cases where the core consists of more than one layer.

4.1.2 Four measurements shall be taken evenly spaced about the diameter of each core. The position of these measurements shall be clearly marked along each core.

4.1.3 When the core consists of one layer or when only the total thickness of the bituminous pavement is relevant, record the average of the four measurements as the pavement thickness.

4.1.4 When the core consists of more than one layer and also the thickness of the individual layers is relevant, then at each of the four points a line shall be drawn to the bottom surface of the core, perpendicular to the upper surface. The boundary lines of the layers shall then be marked on the drawn lines, as shown in Figure 1.





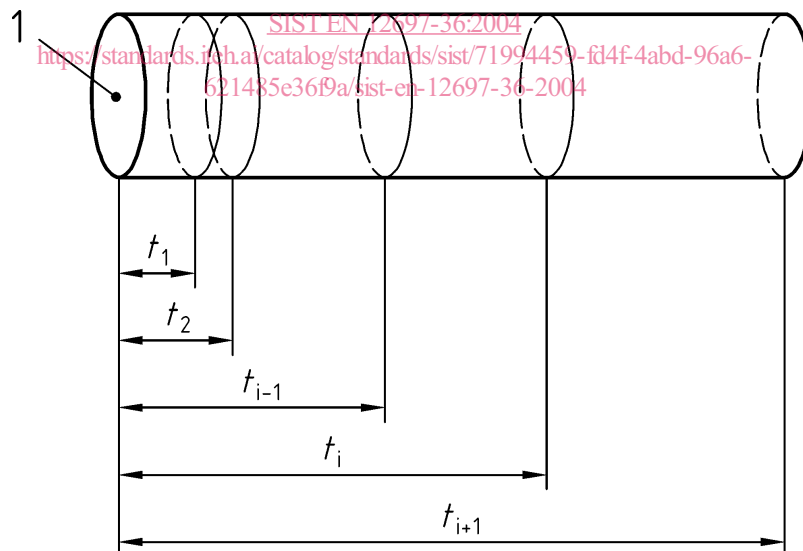
**Key**

- 1 markings on the upper surface
- 2 upper surface
- 3 lines perpendicular to the upper surface
- 4 crosspoints
- 5 boundary line

NOTE When it is difficult to distinguish the boundary lines, the core may be rolled on the floor or wetted. When this is not sufficient and the core is not to be used for other purposes, the core may be sawn in half along its length (from top to bottom).

**Figure 1 — Marking for thickness measurement of cores with multiple layers**

4.1.5 Beginning at the top layer, the thickness of the individual layers shall be measured with cumulative measurement at the crosspoints of the four perpendicular lines with the boundary lines, as shown in Figure 2.



**Key**

- 1 upper surface

**Figure 2 — Principle of cumulative measurement**