

**Geotechnical investigation and testing -  
Field testing - Part 3: Standard penetration  
test**

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- Part 3: Standard penetration test

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN ISO 22476-3:2005 sisaldab Euroopa standardi EN ISO 22476-3:2005 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 22.02.2005 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN ISO 22476-3:2005 consists of the English text of the European standard EN ISO 22476-3:2005.</p> <p>This document is endorsed on 22.02.2005 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p><b>Käsitlusala:</b></p> <p>This European standard specifies requirements for indirect investigations of soil by standard penetration test within the scope of the geotechnical investigations according to ENV 1997. The standard penetration test is used mainly for the determination of the strength and deformation properties of cohesionless soils, but some valuable data may also be obtained in other types of soils</p>	<p><b>Scope:</b></p> <p>This European standard specifies requirements for indirect investigations of soil by standard penetration test within the scope of the geotechnical investigations according to ENV 1997. The standard penetration test is used mainly for the determination of the strength and deformation properties of cohesionless soils, but some valuable data may also be obtained in other types of soils</p>
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ICS 93.020

Võtmesõnad:

**English version**

Geotechnical investigation and testing

**Field testing**

Part 3: Standard penetration test

(ISO 22476-3:2005)

Reconnaissance et essais géotechniques – Essais en place – Partie 3: Essai de pénétration au carottier  
(ISO 22476-3:2005)

Geotechnische Erkundung und Untersuchung – Felduntersuchungen – Teil 3: Standard-Penetration-Test  
(ISO 22476-3:2005)

This European Standard was approved by CEN on 2004-11-04.

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.

The European Standards exist 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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**CEN**

European Committee for Standardization  
Comité Européen de Normalisation  
Europäisches Komitee für Normung

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## Foreword

This document (EN ISO 22476-3:2005) has been prepared by Technical Committee CEN/TC 341 "Geotechnical investigation and testing", the secretariat of which is held by DIN, in collaboration with Technical Committee ISO/TC 182 "Geotechnics".

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 July 2005, and conflicting national standards shall be withdrawn at the latest by July 2005.

EN ISO 22476 *Geotechnical investigation and testing - Field testing* has the following parts:

- *Part 1: Electrical cone and piezocone penetration tests*
- *Part 2: Dynamic probing*
- *Part 3: Standard penetration test*
- *Part 4: Menard pressuremeter test*
- *Part 5: Flexible dilatometer test*
- *Part 6: Self-boring pressuremeter test*
- *Part 7: Borehole jack test*
- *Part 8: Full displacement pressuremeter test*
- *Part 9: Field vane test*
- *Part 10: Weight sounding test*
- *Part 11: Flat dilatometer test*
- *Part 12: Lefranc permeability test*
- *Part 13: Water pressure tests in rock*

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## 1 Scope

This document specifies requirements for indirect investigations of soil by standard penetration test as part of geotechnical investigation and testing according to EN 1997-1 and EN 1997-2 to complement direct investigations (e.g. sampling according to prEN ISO 22475-1).

The standard penetration test aims to determine the resistance of soils at the base of a borehole to the dynamic penetration of a split barrel sampler and the recovering of disturbed samples for identification purposes (SPT). In gravelly soils and in soft rocks a solid cone is also be used (SPT(C)).

The standard penetration test is used mainly to assess the strength and deformation parameters of cohesionless soils, but some valuable data may also be obtained in other soil types.

The basis of the test consists in driving a sampler by dropping a hammer of 63,5 kg mass on to an anvil or drive head from a height of 760 mm. The number of blows ( $N$ ) necessary to achieve a penetration of the sampler of 300 mm (after its penetration under gravity and below a seating drive) is the penetration resistance.

## 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.

prEN ISO 22475-1, *Geotechnical investigation and testing — Sampling by drilling and excavation methods and groundwater measurements — Part 1: Technical principles for execution (ISO/DIS 22475-1:2004)*

## 3 Terms and definitions

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

### 3.1

#### **anvil or drive head**

that portion of the drive-weight assembly that the hammer strikes and through which the hammer energy passes into the drive rods

### 3.2

#### **hammer**

portion of the drive-weight assembly consisting of the 63,5 kg impact weight which is successively lifted and dropped to provide the energy that accomplishes the penetration and sampling

### 3.3

#### **height of fall**

free fall of the hammer after being released

### 3.4

#### **drive-weight assembly**

device consisting of the hammer, the hammer fall guide, the anvil and the drop system

### 3.5

#### **drive rods**

rods that connect the drive-weight assembly to the sampler

### 3.6

#### **actual energy**

$E_{\text{meas}}$

energy delivered by the drive-weight assembly into the drive rod, immediately below the anvil, as measured