

**Geotechnical investigation and testing -  
Field testing - Part 2: Dynamic probing**

Geotechnical investigation and testing - Field testing  
- Part 2: Dynamic probing

## EESTI STANDARDI EESSÕNA

## NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN ISO 22476-2:2005 sisaldab Euroopa standardi EN ISO 22476-2:2005 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 22476-2:2005 consists of the English text of the European standard EN ISO 22476-2:2005.</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>
<p><b>Käsitlusala:</b></p> <p>This document specifies requirements for indirect investigations of soil by dynamic probing as part of geotechnical investigation and testing according to EN 1997-1 and EN 1997-2.</p>	<p><b>Scope:</b></p> <p>This document specifies requirements for indirect investigations of soil by dynamic probing as part of geotechnical investigation and testing according to EN 1997-1 and EN 1997-2.</p>

ICS 93.020

Võtmesõnad:

**English version**

Geotechnical investigation and testing

**Field testing**

Part 2: Dynamic probing

(ISO 22476-2:2005)

Reconnaissance et essais géotechniques – Essais en place – Partie 2:  
Essai de pénétration dynamique  
(ISO 22476-2:2005)

Geotechnische Erkundung und Untersuchung – Felduntersuchungen –  
Teil 2: Rammsondierungen  
(ISO 22476-2:2005)

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.

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

**CEN**

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

**Management Centre: 36, rue de Stassart, B-1050 Brussels**

## Contents

	Page
<b>Foreword</b> .....	<b>3</b>
<b>1 Scope</b> .....	<b>4</b>
<b>2 Normative references</b> .....	<b>4</b>
<b>3 Terms and definitions</b> .....	<b>4</b>
<b>4 Equipment</b> .....	<b>6</b>
<b>5 Test procedure</b> .....	<b>9</b>
<b>6 Test results</b> .....	<b>11</b>
<b>7 Reporting</b> .....	<b>11</b>
<b>Annex A (informative) Summary log for dynamic probing</b> .....	<b>14</b>
<b>Annex B (informative) Record of measured values and test results for dynamic probing</b> .....	<b>15</b>
<b>Annex C (informative) Recommended method to measure the actual energy</b> .....	<b>16</b>
<b>Annex D (informative) Geotechnical and equipment influences on the dynamic probing results</b> .....	<b>19</b>
<b>Annex E (informative) Interpretation of test results by using the dynamic point resistance</b> .....	<b>29</b>
<b>Bibliography</b> .....	<b>32</b>

## Foreword

This document (EN ISO 22476-2:2005) 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: Ménard 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: Mechanical cone penetration test*
- *Part 13: Plate loading test*

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard : Austria, Belgium, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.

## 1 Scope

This document specifies requirements for indirect investigations of soil by dynamic probing as part of geotechnical investigation and testing according to EN 1997-1 and EN 1997-2.

This document covers the determination of the resistance of soils and soft rocks in situ to the dynamic penetration of a cone. A hammer of a given mass and given height of fall is used to drive the cone. The penetration resistance is defined as the number of blows required to drive the cone over a defined distance. A continuous record is provided with respect to depth but no samples are recovered.

Four procedures are included, covering a wide range of specific work per blow:

- dynamic probing light (DPL): test representing the lower end of the mass range of dynamic equipment;
- dynamic probing medium (DPM): test representing the medium mass range of dynamic equipment;
- dynamic probing heavy (DPH): test representing the medium to very heavy mass range of dynamic equipment;
- dynamic probing super heavy (DPSH): test representing the upper end of the mass range of dynamic equipment.

The test results of this document are specially suited for the qualitative determination of a soil profile together with direct investigations (e.g. sampling according to prEN ISO 22475-1) or as a relative comparison of other in situ tests. They may also be used for the determination of the strength and deformation properties of soils, generally of the cohesionless type but also possibly in fine-grained soils, through appropriate correlations. The results can also be used to determine the depth to very dense ground layers e.g. to determine the length of end bearing piles, and to detect very loose, voided, back-filled or infilled ground.

## 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.

EN 10204, *Metallic products — Types of inspection documents*

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 purpose of this document, the following terms and definitions apply.

### 3.1

#### **dynamic penetrometer**

cone and drive rods

### 3.2

#### **dynamic probing equipment**

penetrometer and all equipment necessary to drive the penetrometer