

SLOVENSKI STANDARD
kSIST FprEN ISO 22476-5:2012
01-september-2012

Geotehnično preiskovanje in preskušanje - Preskušanje na terenu - 5. del: Preskus s podajnim dilatometrom v vrtini (ISO/FDIS 22476-5:2012)

Geotechnical investigation and testing - Field testing - Part 5: Flexible dilatometer test (ISO/FDIS 22476-5:2012)

Geotechnische Erkundung und Untersuchung - Felduntersuchungen - Teil 5: Versuch mit dem flexiblen Dilatometer (ISO/FDIS 22476-5:2012)

Reconnaissance et essais géotechniques - Essais en place - Partie 5: Essai au dilatomètre flexible (ISO/FDIS 22476-5:2012)

Ta slovenski standard je istoveten z: FprEN ISO 22476-5

ICS:

93.020	Zemeljska dela. Izkopavanja.	Earthworks. Excavations.
	Gradnja temeljev. Dela pod zemljo	Foundation construction. Underground works

kSIST FprEN ISO 22476-5:2012

en,fr,de

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

FINAL DRAFT
FprEN ISO 22476-5

May 2012

ICS 93.020

English Version

Geotechnical investigation and testing - Field testing - Part 5: Flexible dilatometer test (ISO/FDIS 22476-5:2012)

Reconnaissance et essais géotechniques - Essais en place
- Partie 5: Essai au dilatomètre flexible (ISO/FDIS 22476-
5:2012)

Geotechnische Erkundung und Untersuchung -
Felduntersuchungen - Teil 5: Versuch mit dem flexiblen
Dilatometer (ISO/FDIS 22476-5:2012)

This draft European Standard is submitted to CEN members for unique acceptance procedure. It has been drawn up by the Technical Committee CEN/TC 341.

If this draft becomes a European Standard, 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.

This draft European Standard was established by CEN 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 CEN-CENELEC Management Centre has the same status as the official versions.

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

Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

Warning : This document is not a European Standard. It is distributed for review and comments. It is subject to change without notice and shall not be referred to as a European Standard.



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

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

Foreword.....	3
---------------	---

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 22476-5:2013

<https://standards.iteh.ai/catalog/standards/sist/1c7912d8-db8a-4ae3-b10e-03e90e0ebca6/sist-en-iso-22476-5-2013>

Foreword

This document (FprEN ISO 22476-5:2012) has been prepared by Technical Committee CEN/TC 341 "Geotechnical Investigation and Testing", the secretariat of which is held by ELOT, in collaboration with Technical Committee ISO/TC 182 "Geotechnics".

This document is currently submitted to the Unique Acceptance Procedure.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 22476-5:2013

<https://standards.iteh.ai/catalog/standards/sist/1c7912d8-db8a-4ae3-b10e-03e90e0ebca6/sist-en-iso-22476-5-2013>

FINAL
DRAFT

INTERNATIONAL
STANDARD

ISO/FDIS
22476-5

ISO/182/SC 1

Secretariat: DIN

Voting begins on:
2012-05-24

Voting terminates on:
2012-07-24

Geotechnical investigation and testing — Field testing —

Part 5: Flexible dilatometer test

Reconnaissance et essais géotechniques — Essais en place —

Partie 5: Essai au dilatomètre flexible

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 22476-5:2013

<https://standards.iteh.ai/catalog/standards/sist/1c7912d8-db8a-4ae3-b10e-03e90e0ebca6/sist-en-iso-22476-5-2013>

RECIPIENTS OF THIS DRAFT ARE INVITED TO SUBMIT, WITH THEIR COMMENTS, NOTIFICATION OF ANY RELEVANT PATENT RIGHTS OF WHICH THEY ARE AWARE AND TO PROVIDE SUPPORTING DOCUMENTATION.

IN ADDITION TO THEIR EVALUATION AS BEING ACCEPTABLE FOR INDUSTRIAL, TECHNOLOGICAL, COMMERCIAL AND USER PURPOSES, DRAFT INTERNATIONAL STANDARDS MAY ON OCCASION HAVE TO BE CONSIDERED IN THE LIGHT OF THEIR POTENTIAL TO BECOME STANDARDS TO WHICH REFERENCE MAY BE MADE IN NATIONAL REGULATIONS.

Please see the administrative notes on page iii



Reference number
ISO/FDIS 22476-5:2012(E)

© ISO 2012

iTeh STANDARD PREVIEW (standards.iteh.ai)

SIST EN ISO 22476-5:2013

<https://standards.iteh.ai/catalog/standards/sist/1c7912d8-db8a-4ae3-b10e-03e90e0ebca6/sist-en-iso-22476-5-2013>

Copyright notice

This ISO document is a Draft International Standard and is copyright-protected by ISO. Except as permitted under the applicable laws of the user's country, neither this ISO draft nor any extract from it may be reproduced, stored in a retrieval system or transmitted in any form or by any means, electronic, photocopying, recording or otherwise, without prior written permission being secured.

Requests for permission to reproduce should be addressed to either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Reproduction may be subject to royalty payments or a licensing agreement.

Violators may be prosecuted.

ISO/CEN PARALLEL PROCESSING

This final draft has been developed within the European Committee for Standardization (CEN), and processed under the **CEN-lead** mode of collaboration as defined in the Vienna Agreement. The final draft was established on the basis of comments received during a parallel enquiry on the draft.

This final draft is hereby submitted to the ISO member bodies and to the CEN member bodies for a parallel two-month approval vote in ISO and two month formal vote in CEN.

Positive votes shall not be accompanied by comments.

Negative votes shall be accompanied by the relevant technical reasons.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 22476-5:2013

<https://standards.iteh.ai/catalog/standards/sist/1c7912d8-db8a-4ae3-b10e-03e90e0ebca6/sist-en-iso-22476-5-2013>

Contents

Page

Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	1
3 Terms, definitions and symbols	1
3.1 Terms and definitions	1
3.2 Symbols and abbreviations	3
4 Equipment	5
4.1 General	5
4.2 Dilatometer probe	6
4.3 Pressure control and displacement measuring units	8
4.4 Connecting lines	8
4.5 Measurement and control accuracy	8
4.6 Data logging	9
5 Test procedure	9
5.1 Safety requirements	9
5.2 Assembly of parts	9
5.3 Calibration of the testing device and corrections of readings	9
5.4 Uncertainties of measurement	10
5.5 Preparation for the sounding	10
5.6 Pocket drilling and device placing	10
5.7 Test execution	11
5.8 End of loading	12
5.9 Back-filling of borehole	12
6 Test results	12
6.1 Basic equations	12
6.2 Loading test	13
6.3 Constant pressure tests (procedure D)	16
6.4 Uncorrected and corrected graphs	17
7 Test report	18
7.1 General	18
7.2 Reporting of results	18
7.3 Choice of axis scaling	20
7.4 Presentation of test results	20
Annex A (normative) Calibration and corrections	21
Annex B (normative) Performing the test	24
Annex C (normative) Field report and G_{FDT} results	28
Annex D (normative) Accuracy and uncertainties	30
Bibliography	31

Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO 22476-5 was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 341, *Geotechnical investigation and testing*, in collaboration with Technical Committee ISO/TC 182, *Geotechnics*, Subcommittee SC 1, *Geotechnical investigation and testing*, in accordance with the Agreement on technical cooperation between ISO and CEN (Vienna Agreement).

ISO 22476 consists of the following parts, under the general title *Geotechnical investigation and testing* — *Field testing*:

- 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 7: *Borehole jack test*
- Part 9: *Field vane test*
- Part 10: *Weight sounding test* [Technical Specification]
- Part 11: *Flat dilatometer test* [Technical Specification]
- Part 12: *Mechanical cone penetration test (CPTM)*

Introduction

The results of dilatometer tests are used for deformation calculations provided that the range of stresses applied in the test are representative of the stresses to be applied by the proposed structure. Local experience normally improves the application of the results. In addition, for identification and classification of the ground, the results of sampling (according to ISO 22475-1) from each borehole are available for the evaluation of the tests. Identification and classification results (ISO 14688-1 and ISO 14689-1) are available from every separate ground layer within the desired investigation depth (see EN 1997-2:2007, 2.4.1.4(2)P, 4.1(1)P and 4.2.3(2)P).

iTeh STANDARD PREVIEW
(standards.iteh.ai)

SIST EN ISO 22476-5:2013

<https://standards.iteh.ai/catalog/standards/sist/1c7912d8-db8a-4ae3-b10e-03e90e0ebca6/sist-en-iso-22476-5-2013>

Geotechnical investigation and testing — Field testing —

Part 5: Flexible dilatometer test

1 Scope

This part of ISO 22476 is applicable to field testing using the flexible dilatometer test as part of geotechnical investigation and testing according to EN 1997-1 [1] and EN 1997-2 [2].

This part of ISO 22476 is applicable to tests in ground stiff enough not to be adversely affected by the drilling operation.

This part of ISO 22476 is applicable to four procedures for conducting a test with the flexible dilatometer.

This part of ISO 22476 applies to tests performed up to 1 800 m depth. Testing can be conducted either on land or off-shore.

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 amendments) applies.

ISO 10012, *Measurement management systems — Requirements for measurement processes and measuring equipment*

ISO 14688-1, *Geotechnical investigation and testing — Identification and classification of soil — Part 1: Identification and description*

ISO 14689-1, *Geotechnical investigation and testing — Identification and classification of rock — Part 1: Identification and description*

ISO 22475-1, *Geotechnical investigation and testing — Sampling methods and groundwater measurements — Part 1: Technical principles for execution*

EN 791, *Drill rigs — Safety*

EN 996, *Piling equipment — Safety requirements*

ENV 13005:1999, *Guide to the expression of uncertainty in measurement*

3 Terms, definitions and symbols

3.1 Terms and definitions

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

3.1.1

flexible dilatometer

cylindrical flexible probe which can be expanded by the application of hydraulic pressure or pressurized gas and which contains transducers for the measurement of the displacements of the flexible membrane and of the internal pressure