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BS EN ISO 22476-7:2012



BSI Standards Publication

Geotechnical investigation and testing — Field testing

Part 7: Borehole jack test

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This British Standard is the UK implementation of EN ISO 22476-7:2012. It partially supersedes BS 5930:1999+A2:2010, which is currently being revised in order to remove conflicting material.

The tests included in BS 5930:1999 (Clauses 25.7.2.1 and 25.7.4.1, and more generally in Clauses 27.7.3, 25.7.5 and 25.7.6) are also provided in this standard. In the meantime, where conflict arises between these documents, the provisions of BS EN ISO 22476-7:2012 take precedence.

The UK participation in its preparation was entrusted to Technical Committee B/526/3, Site investigation and ground testing.

A list of organizations represented on this committee can be obtained on request to its secretary.

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Geotechnical investigation and testing - Field testing - Part 7: Borehole jack test (ISO 22476-7:2012)

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- Partie 7: Essai au dilatomètre rigide diamétral (ISO
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Foreword

This document (EN ISO 22476-7:2012) 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 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of an identical text or by endorsement, at the latest by June 2013, and conflicting national standards shall be withdrawn at the latest by June 2013.

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

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

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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.

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ISO 22476-7 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 test*
- *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)*

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Introduction

The results of borehole jack tests are used for ground deformation calculations provided that the range of stresses applied in the test are representative of the stresses caused by the proposed foundation. Local experience normally improves the application of the results.

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. In addition, 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.)

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Geotechnical investigation and testing — Field testing —

Part 7: Borehole jack test

1 Scope

This part of ISO 22476 specifies the equipment requirements, execution of and reporting on borehole jack tests.

NOTE This part of ISO 22476 fulfils the requirements for borehole jack tests as part of geotechnical investigation and testing according to EN 1997-1 [1] and EN 1997-2 [2].

This part of ISO 22476 specifies the procedure for conducting a borehole jack test in ground stiff enough not to be adversely affected by the drilling operation. Two diametral cylindrical steel loading plates are placed in the ground and opened by pressure. Pressure applied to, and associated opening of the probe are measured and recorded so as to obtain a stress-displacement relationship of the ground for the range of the expected design stress.

This part of ISO 22476 applies to test depths of ≤ 100 m and to testing 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*

ISO/IEC Guide 98-3, *Uncertainty of measurement — Part 3: Guide to the expression of uncertainty in measurement (GUM:1995)*

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

equipment for borehole jack test

borehole jack, hydraulic pump, measuring unit and cables to connect the borehole jack to the measuring unit and the hydraulic pump