
**Geotechnical investigation and testing —
Laboratory testing of soil —**

**Part 6:
Fall cone test**

*Reconnaissance et essais géotechniques — Essais de sol au
laboratoire —*

iTeh STANDARD PREVIEW
Partie 6: Essai au cône
(standards.iteh.ai)

ISO/TS 17892-6:2004

<https://standards.iteh.ai/catalog/standards/sist/a1a4c62b-67fb-4d8f-8841-37c924be354b/iso-ts-17892-6-2004>



PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[ISO/TS 17892-6:2004](https://standards.iteh.ai/catalog/standards/sist/a1a4c62b-67fb-4d8f-8841-37c924be354b/iso-ts-17892-6-2004)

<https://standards.iteh.ai/catalog/standards/sist/a1a4c62b-67fb-4d8f-8841-37c924be354b/iso-ts-17892-6-2004>

© ISO 2004

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from 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

Published in Switzerland

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.

In other circumstances, particularly when there is an urgent market requirement for such documents, a technical committee may decide to publish other types of normative document:

- an ISO Publicly Available Specification (ISO/PAS) represents an agreement between technical experts in an ISO working group and is accepted for publication if it is approved by more than 50 % of the members of the parent committee casting a vote.
- an ISO Technical Specification (ISO/TS) represents an agreement between the members of a technical committee and is accepted for publication if it is approved by 2/3 of the members of the committee casting a vote.

ISO/TS 17892-6:2004

An ISO/PAS or ISO/TS is reviewed after three years with a view to deciding whether it should be confirmed for a further three years, revised to become an International Standard, or withdrawn. In the case of a confirmed ISO/PAS or ISO/TS, it is reviewed again after six years at which time it has to be either transposed into an International Standard or withdrawn.

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/TS 17892-6 was prepared by the European Committee for Standardization (CEN) 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).

Throughout the text of this document, read "...this European pre-Standard..." to mean "...this Technical Specification...".

ISO 17892 consists of the following parts, under the general title *Geotechnical investigation and testing — Laboratory testing of soil*:

- *Part 1: Determination of water content*
- *Part 2: Determination of density of fine-grained soil*
- *Part 3: Determination of particle density — Pycnometer method*
- *Part 4: Determination of particle size distribution*
- *Part 5: Incremental loading oedometer test*
- *Part 6: Fall cone test*

- *Part 7: Unconfined compression test on fine-grained soil*
- *Part 8: Unconsolidated undrained triaxial test*
- *Part 9: Consolidated triaxial compression tests on water-saturated soil*
- *Part 10: Direct shear tests*
- *Part 11: Determination of permeability by constant and falling head*
- *Part 12: Determination of the Atterberg limits*

iTeh STANDARD PREVIEW
(standards.iteh.ai)

[ISO/TS 17892-6:2004](https://standards.iteh.ai/catalog/standards/sist/a1a4c62b-67fb-4d8f-8841-37c924be354b/iso-ts-17892-6-2004)

<https://standards.iteh.ai/catalog/standards/sist/a1a4c62b-67fb-4d8f-8841-37c924be354b/iso-ts-17892-6-2004>

Contents

Page

Foreword.....	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Equipment	2
5 Test procedure	3
6 Test results	6
7 Test report	7
Bibliography	8

Figures

Figure 1 — Example of a fall-cone	2
Figure 2 — Fall-cone test on remoulded soil	4
Figure 3 — Fall-cone test on undisturbed soil	4

iTeh STANDARD PREVIEW
(standards.iteh.ai)
<https://standards.iteh.ai/catalog/standards/sist/a1a4c62b-67fb-4d8f-8841-37c924be354b/iso-ts-17892-6-2004>

Tables

Table 1 — Set of fall-cones - typical masses and dimensions	2
---	---

Foreword

This document (CEN ISO/TS 17892-6:2004) 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”.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to announce 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.

CEN ISO/TS 17892 consists of the following parts, under the general title “*Geotechnical investigation and testing — Laboratory testing of soil*”:

- *Part 1: Determination of water content*
- *Part 2: Determination of density of fine-grained soil*
- *Part 3: Determination of particle density - Pycnometer method*
- *Part 4: Determination of particle size distribution*
- *Part 5: Incremental loading oedometer test*
- *Part 6: Fall cone test*
- *Part 7: Unconfined compression test on fine-grained soil*
- *Part 8: Unconsolidated undrained triaxial test*
- *Part 9: Consolidated triaxial compression tests on water-saturated soil*
- *Part 10: Direct shear tests*
- *Part 11: Determination of permeability by constant and falling head*
- *Part 12: Determination of Atterberg limits*

ITeH STANDARD PREVIEW
(standards.iteh.ai)
<https://standards.iteh.ai/catalog/standards/sist/a1a4c62b-67fb-4d8f-8841-37e924be354b/iso-ts-17892-6-2004>

Introduction

This document covers areas in the international field of geotechnical engineering never previously standardised. It is intended that this document presents broad good practice throughout the world and significant differences with national documents is not anticipated. It is based on international practice (see [1]).

iTeh STANDARD PREVIEW (standards.iteh.ai)

[ISO/TS 17892-6:2004](https://standards.iteh.ai/catalog/standards/sist/a1a4c62b-67fb-4d8f-8841-37c924be354b/iso-ts-17892-6-2004)

<https://standards.iteh.ai/catalog/standards/sist/a1a4c62b-67fb-4d8f-8841-37c924be354b/iso-ts-17892-6-2004>

iTeh STANDARD PREVIEW
(standards.iteh.ai)

ISO/TS 17892-6:2004

<https://standards.iteh.ai/catalog/standards/sist/a1a4c62b-67fb-4d8f-8841-37c924be354b/iso-ts-17892-6-2004>

1 Scope

This document specifies the laboratory determination of undrained shear strength of both undisturbed and remoulded specimen of saturated fine grained cohesive soils by use of a fall-cone.

This document specifies the fall-cone test, in which a cone is allowed to fall with its tip towards a soil specimen, whereupon the penetration of the cone into the soil is measured. Tests performed according to this test yield penetration values which can be used to estimate the undrained shear strength.

The test is applicable to both undisturbed and remoulded soil test specimen.

For undisturbed soil test specimen, the results of the test are dependent on the quality of the specimen. Because of possible effects of anisotropy, it can also differ depending on what undrained shear strength the relation refers to.

The evaluated value of the undrained shear strength of the 'undisturbed' soil refers to its state during the test in the laboratory. This value is not necessarily indicative of the undrained shear strength of the soil in its natural state in the field. Therefore, the test should be regarded as an index test.

NOTE 1 For non-homogeneous soil samples, this method yields values of the undrained shear strength which are less representative for the bulk shear strength of the sample than other tests involving a larger volume of soil.

NOTE 2 For disturbed soil samples and fissured soil samples this method normally yields higher strength values than tests involving a larger volume of soil.

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.

[ISO/TS 17892-6:2004](https://standards.iteh.ai/catalog/standards/sist/a1a4c62b-67fb-4d8f-8841-354893548935/iso-ts-17892-6:2004)

<https://standards.iteh.ai/catalog/standards/sist/a1a4c62b-67fb-4d8f-8841-354893548935/pr-en-1997-1>

prEN 1997-1, *Eurocode 7 - Geotechnical design - Part 1: General rules*.

prEN 1997-2, *Eurocode 7 - Geotechnical design - Part 2: Ground investigation and testing*

3 Terms and definitions

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

3.1

undrained shear strength

c_u

the shear strength of a saturated fine grained soil determined in such a way that the soil remains undrained during the shearing process

3.2

fall-cone undrained shear strength

c_{ufc}

the undrained shear strength determined using a fall-cone apparatus

3.3

undisturbed sample

normally a sample of quality class 1 according to prEN 1997-2