

First edition
2018-02

Geotechnical investigation and testing — Laboratory testing of soil —

Part 9: Consolidated triaxial compression tests on water saturated soils

Reconnaissance et essais géotechniques — Essais de laboratoire sur les sols —

Partie 9: Essais en compression à l'appareil triaxial consolidés sur sols saturés



Reference number
ISO 17892-9:2018(E)

© ISO 2018



COPYRIGHT PROTECTED DOCUMENT

© ISO 2018

All rights reserved. Unless otherwise specified, or required in the context of its implementation, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
CP 401 • Ch. de Blandonnet 8
CH-1214 Vernier, Geneva
Phone: +41 22 749 01 11
Fax: +41 22 749 09 47
Email: copyright@iso.org
Website: www.iso.org

Published in Switzerland

This is a preview of "ISO 17892-9:2018". Click here to purchase the full version from the ANSI store.

Contents

	Page
Foreword	v
Introduction	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	2
4 Symbols	3
5 Apparatus	5
5.1 General.....	5
5.2 Triaxial cell.....	7
5.3 Confining membrane.....	7
5.4 Porous discs.....	7
5.5 Filter paper.....	8
5.6 Pressure systems.....	8
5.7 Load frame.....	8
5.8 Measuring devices.....	8
5.8.1 Load measuring device.....	8
5.8.2 Pressure measuring devices.....	9
5.8.3 Vertical displacement measuring device.....	9
5.8.4 Volume change measuring device.....	9
5.9 Cell and back pressure fluids.....	9
5.10 Ancillary apparatus.....	9
6 Test procedure	10
6.1 General requirements and equipment preparation.....	10
6.2 Preparation of specimens.....	10
6.3 Saturation of specimen.....	11
6.3.1 Saturation.....	11
6.3.2 Application of cell and back pressure.....	12
6.3.3 Saturation checks.....	12
6.4 Isotropic consolidation (CIU and CID tests).....	13
6.5 Anisotropic consolidation (CAU and CAD tests).....	13
6.6 End of consolidation.....	13
6.7 Shearing.....	13
6.7.1 General.....	13
6.7.2 Undrained tests (CIU and CAU).....	14
6.7.3 Drained tests (CID and CAD).....	14
6.8 Dismounting.....	15
7 Test results	15
7.1 Bulk density, dry density and water content.....	15
7.2 Calculations of test parameters.....	16
7.2.1 Height after consolidation.....	16
7.2.2 Corrected cross sectional area.....	16
7.2.3 Corrections for elastic membrane.....	16
7.2.4 Correction for filter paper strips.....	17
7.2.5 Vertical total stress.....	17
7.2.6 Vertical effective stress.....	17
7.2.7 Horizontal total stress.....	18
7.2.8 Horizontal effective stress.....	18
7.2.9 Pore pressure change.....	18
7.2.10 Vertical strain.....	18
7.2.11 Vertical strain during shear.....	18
7.2.12 Volumetric strain.....	18
7.2.13 Volumetric strain during shear.....	18

This is a preview of "ISO 17892-9:2018". [Click here to purchase the full version from the ANSI store.](#)

8	Test report	19
8.1	Mandatory reporting.....	19
8.2	Graphical presentation.....	20
8.3	Optional reporting.....	20
Annex A (normative) Calibration, maintenance and checks		21
Annex B (informative) Additional calculations for effective shear strength		23
Bibliography		25

This is a preview of "ISO 17892-9:2018". [Click here to purchase the full version from the ANSI store.](#)

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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

This document was prepared by the European Committee for Standardization (CEN) Technical Committee CEN/TC 341, *Geotechnical investigation and testing*, in collaboration with ISO Technical Committee TC 182, *Geotechnics*, in accordance with the agreement on technical cooperation between ISO and CEN (Vienna Agreement).

This first edition of ISO 17892-9 cancels and replaces ISO/TS 17892-9:2004, which has been technically revised. It also incorporates ISO/TS 17892-9:2004/Cor.1:2006.

A list of all the parts in the ISO 17892 series can be found on the ISO website.

This is a preview of "ISO 17892-9:2018". [Click here to purchase the full version from the ANSI store.](#)

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 Reference [1]).