AS 1289.6.2.2:2020

Australian STANDARD®

Methods of testing soils for engineering purposes

Method 6.2.2: Soil strength and consolidation tests — Determination of shear strength of a soil — Direct shear test using a shear box

STANDARDS Australia

AS 1289.6.2.2:2020

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Originated as AS 1289.6.2.2—1998.
Second edition 2020.

Preface

This Standard was prepared by Standards Australia Committee CE-009, Testing of Soils for Engineering Purposes, to supersede AS 1289.6.2.2—1998.

The objective of this document is to set out a method for performing direct shear (shear box) tests on soils with a wide range of particle sizes. The data recorded from the test method is used to interpret soil strength. Usually three single-stage tests at different normal stresses are applied. The interpretation of the results may then be carried out by a suitably experienced and qualified person, such as a geotechnical engineer.

The major changes in this edition are as follows:

(a) The determination of the apparent cohesion value and the friction angle has been deleted.

(b) Procedures for the preparation of specimens have been updated in light of developments showing sensitivity of test results to sample preparation.

(c) This document encompasses larger shearboxes up to 300 mm.

NOTE In the 1998 edition it was limited to 100 mm.

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1 Scope

This document sets out a method for determining the effective shear strength of a soil by direct shearing in a shear box. The method specified is for a single-staged test, i.e. with a single value of applied normal stress.

This document applies to shearing of dry, fine-grained and clay soils using shear boxes having shear plane dimensions up to a maximum of 300 mm × 300 mm.

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document.

AS 1289.0, *Methods of testing soils for engineering purposes, Part 0: Definitions and general requirements*

AS 1289.6.6.1, *Methods of testing soils for engineering purposes, Method 6.6.1: Soil strength and consolidation tests — Determination of the one-dimensional consolidation properties of a soil*

AS 1726, *Geotechnical site investigations*

3 Terms and definitions

For the purpose of this document, the definitions below apply.

3.1
may
indicates the existence of an option

3.2
normal
stress is one that occurs when a member is loaded by an axial force

3.3
shall
indicates that a statement is mandatory

3.4
should
indicates a recommendation

4 Principle

A predetermined normal stress is applied under one-dimensional conditions, allowing sufficient time for any consolidation or creep to occur and then shearing the soil by displacing one half of a shear box relative to the other. Interpretation of the shearing stage of the test assumes that the soil is drained and the displacement rate is chosen so that it is slow enough to ensure fully drained behaviour. Shear boxes used allow for either circular or square specimens, with the maximum length of specimen in the direction of shearing varying from 50 mm to 300 mm. Specimens are either tested in their natural