SLOVENSKI STANDARD
SIST EN ISO 22282-3:2012

01-december-2012

Geotehnično preiskovanje in preskušanje - Hidrogeološke preiskave - 3. del: Tlačni preskus v kamninah (VDP) (ISO 22282-3:2012)

Geotechnical investigation and testing - Geohydraulic testing - Part 3: Water pressure tests in rock (ISO 22282-3:2012)

Geotechnische Erkundung und Untersuchung - Geohydraulische Versuche - Teil 3: Wasserdruckversuch im Fels (ISO 22282-3:2012)

Reconnaissance et essais géotechniques - Essais géohydrauliques - Partie 3: Essais de pression d'eau dans des roches (ISO 22282-3:2012)

Ta slovenski standard je istoveten z: **EN ISO 22282-3:2012**

ICS:

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

SIST EN ISO 22282-3:2012 **en,fr,de**

EUROPEAN STANDARD

NORME EUROPÉENNE

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EN ISO 22282-3

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ICS 93.020

English Version

Geotechnical investigation and testing - Geohydraulic testing - Part 3: Water pressure tests in rock (ISO 22282-3:2012)

Reconnaissance et essais géotechniques - Essais géohydrauliques - Partie 3: Essais de pression d'eau dans des roches (ISO 22282-3:2012)

Geotechnische Erkundung und Untersuchung - Geohydraulische Versuche - Teil 3: Wasserdruckversuch in Fels (ISO 22282-3:2012)

This European Standard was approved by CEN on 31 May 2012.

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EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

Foreword

This document (EN ISO 22282-3:2012) 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of an identical text or by endorsement, at the latest by December 2012, and conflicting national standards shall be withdrawn at the latest by December 2012.

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.

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INTERNATIONAL STANDARD

ISO 22282-3

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Geotechnical investigation and testing — Geohydraulic testing —

Part 3: Water pressure tests in rock

Reconnaissance et essais géotechniques — Essais géohydrauliques — Partie 3: Essais de pression d'eau dans des roches

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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 22282-3 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 22282 consists of the following parts, under the general title *Geotechnical investigation and testing — Geohydraulic testing*:

— *Part 1: General rules*

— *Part 2: Water permeability tests in a borehole using open systems*

— *Part 3: Water pressure tests in rock*

— *Part 4: Pumping tests*

— *Part 5: Infiltrometer tests*

— *Part 6: Water permeability tests in a borehole using closed systems*

Geotechnical investigation and testing — Geohydraulic testing —

Part 3:
Water pressure tests in rock

1 Scope

This part of ISO 22282 specifies the requirements for water pressures tests (WPT) carried out in boreholes drilled into rock as part of geotechnical investigation and testing according to EN 1997-1 and EN 1997-2.

The tests are used to investigate the following:

— hydraulic properties of the rock mass, which are mainly governed by discontinuities;

— absorption capacity of the rock mass;

— tightness of the rock mass;

— effectiveness of grouting;

— geomechanical behaviour, e.g. hydrofracturing, hydrojacking.

Many effects of the geohydraulic tests are not only influenced by the ground itself, but stem from the testing procedure. Historically, the water pressure test was evaluated based on the assumption that the stationary behaviour was achieved. Recent advances in geohydraulics have shown that transient phenomena are often present. This part of ISO 22282 attempts to address the limitations of certain testing procedures without restricting the required equipment too stringently.

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

ISO 22282-1, *Geotechnical investigation and testing — Geohydraulic testing — Part 1: General rules*

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

3 Terms, definitions and symbols

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 22282-1 and the following apply.

3.1.1
water flow rate
Q
quantity of water that flows through the test equipment under certain test conditions per time unit

3.1.2
water take
w
water flow Q related to the effective test pressure p_T

3.1.3
single pressure step test
test with only one pressure step

NOTE This test is normally used to check the tightness of the rock or the tightening measures.

3.1.4
multiple pressure step test
test with more than one pressure step

NOTE This test is normally used to investigate the water take and the behaviour of the discontinuities, e.g hydrojacking, hydrofracturing, erosion and clogging.

3.1.5
steady state condition
test phase during which both pressure and flow rate are constant

3.1.6
Lugeon
unit of permeability

NOTE 1 lugeon unit equals 1 litre of water taken per metre of test length, per minute, at 10 bars pressure.

3.1.7
hydrofracturing
formation of new discontinuities by injection

3.1.8
hydrojacking
dilation of discontinuities by injection

3.1.9
flow meter
device used to measure the volume of water usage

3.2 Symbols

For the purposes of this document, the symbols given in Table 1 apply.