

SLOVENSKI STANDARD
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Geotehnično preiskovanje in preskušanje - Hidrogeološke preisave - 2. del:
Preskusi prepustnosti za vodo v vrtini brez zavijanja (ISO/DIS 22282-2:2008)

Geotechnical investigation and testing - Geohydraulic testing - Part 2: Water permeability tests in a borehole without packer (ISO/DIS 22282-2:2008)

Geotechnische Erkundung und Untersuchung - Geohydraulische Versuche - Teil 2:
Wasserdurchlässigkeitsversuche in einem Bohrloch unter Anwendung offener Systeme
(ISO/DIS 22282-2:2008)

Reconnaissance et essais géotechniques - Essais géohydrauliques - Partie 2: Essai de
perméabilité dans un forage en tube ouvert (ISO/DIS 22282-2:2008)

Ta slovenski standard je istoveten z: prEN ISO 22282-2

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

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EUROPEAN STANDARD
NORME EUROPÉENNE
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English Version

**Geotechnical investigation and testing - Geohydraulic testing -
Part 2: Water permeability tests in a borehole without packer
(ISO/DIS 22282-2:2008)**

Reconnaissance et essais géotechniques - Essais
géohydrauliques - Partie 2: Essai de perméabilité dans un
forage en tube ouvert (ISO/DIS 22282-2:2008)

This draft European Standard is submitted to CEN members for parallel enquiry. It has been drawn up by the Technical Committee CEN/TC 341.

If this draft becomes a European Standard, CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration.

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Foreword

This document (prEN ISO 22282-2:2008) 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 document is currently submitted to the parallel Enquiry.

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Geotechnical investigation and testing — Geohydraulic testing —

Part 2:

Water permeability tests in a borehole without packer

Reconnaissance et essais géotechniques — Essais géohydrauliques —

Partie 2: Essai de perméabilité dans un forage en tube ouvert

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In accordance with the provisions of Council Resolution 15/1993 this document is circulated in the English language only.

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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.

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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.

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 22282-2 was prepared by Technical Committee ISO/TC 182, *Geotechnics*, Subcommittee SC 1, and by Technical Committee CEN/TC 341, *Geotechnical investigation and testing* in collaboration. 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 test in rocks*
- *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 2:

Water permeability tests in a borehole without packer

1 Scope

This standard specifies requirements for the determination of the local permeability in soils and rocks below and above ground water level in an open hole by the water permeability tests as part of the geotechnical investigation services according to EN 1997-1 and prEN 1997-2.

It also includes the estimation of permeability of unsaturated soils.

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.

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

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

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EN ISO 14688-1, *Geotechnical investigation and classification of soils – Part 1: Identification and description*.

prEN ISO 22282-2, *Geotechnical investigation and testing – Geohydraulic testing – Part 2: Water permeability tests in a borehole without packer*.

EN ISO 22475-1, *Geotechnical investigation and testing – Sampling by drilling and excavation methods and groundwater measurements – Part 1: Technical principles for execution*.

3 Terms, definitions and symbols

3.1 Terms and definitions

For the purposes of this document, the terms and definitions given in EN ISO 22475-1 and prEN ISO 22282-1 are applied.

3.2 Symbols

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

Table 1 — Symbols

| Symbol | Designation | Unit |
|-----------------|---|---------|
| A_c | area of the inner cross section of the casing | m^2 |
| A_r | area of the water surface in the reservoir | m^2 |
| D | borehole diameter, diameter of the test section | m |
| F | shape factor | m |
| H | hydraulic head of the test | m |
| H_1, H_2, H_3 | applied hydraulic heads | m |
| H_0 | distance of the water level from the ground level | m |
| ΔH | change in hydraulic head | m |
| k | permeability coefficient | m/s |
| k_{fs} | field saturated permeability coefficient | m/s |
| L | length (height) of the test section | m |
| Q | effective inflow | m^3/s |
| Q_1, Q_2, Q_3 | water flow | m^3/s |
| t_i | time need to reach the equilibrium | s |
| t | time | s |
| t_0 | time at test begin | s |

4 Test principle

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The test is based on the following assumption that the test section shall be isolated and located above or below the groundwater surface.

The results may vary depending of the test type chosen (water withdrawal or injection) according to the purpose of the test.

Three test methods are available depending of the type of loading:

a) Constant flow rate test method (suitable for k-value greater than 10^{-6} m/s)

The test consists in producing a change in hydraulic head in a section of a borehole by injecting or withdrawing a constant flow rate. The change in hydraulic head is measured against time.

b) Variable head test method (suitable for k-value between 10^{-4} m/s and 10^{-9} m/s)

The test consists in producing an instant change in hydraulic head in a section of a borehole. The change in hydraulic head is measured against time.

c) Constant head test method (suitable for k-value between 10^{-4} m/s and 10^{-9} m/s)

The test consists in maintaining a constant hydraulic head in a section of a borehole. The flow rate is measured against time.