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# Geotechnical investigation and testing — Geotechnical monitoring by field instrumentation —

## Part 5: Stress change measurements by total pressure cells (TPC)

*Reconnaissance et essais géotechniques — Surveillance géotechnique par instrumentation in situ —*

*Partie 5: Mesures de la variation de pression par cellules de pression totale (TPC)*

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# Contents

Page

**Foreword** ... **iv**

**1 Scope** ... **1**

**2 Normative references** ... **1**

**3 Terms and definitions** ... **1**

**4 Symbols** ... **5**

**5 Instruments** ... **6**
5.1 General ... 6
5.2 Deformation measuring method ... 7
5.3 Compensation measuring method ... 7
5.4 Stiffness of the pressure compartment ... 8
5.5 Shape of the pressure compartment ... 8
5.6 Accuracy ... 9

**6 Installation and measuring procedure** ... **10**
6.1 Installation ... 10
6.1.1 Installation in the ground ... 10
6.1.2 Installation in fill ... 11
6.1.3 Installation in concrete/shotcrete ... 12
6.1.4 Installation in contact planes ... 13
6.2 Carrying out the measurement ... 14
6.2.1 Instrumentation check and calibration ... 14
6.2.2 Measurement ... 14

**7 Data processing and evaluation** ... **14**

**8 Reporting** ... **14**
8.1 Installation report ... 14
8.2 Monitoring report ... 14

**Annex A** (normative) **Evaluation procedure** ... **15**

**Annex B** (informative) **Geo-engineering applications** ... **17**

**Annex C** (informative) **Measuring examples** ... **18**

**Bibliography** ... **27**

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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.

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).

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For an explanation of 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 www.iso.org/iso/foreword.html.

This document was prepared by Technical Committee ISO/TC 182, *Geotechnics*.

A list of all parts in the ISO 18674 series can be found on the ISO website.

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# Geotechnical investigation and testing — Geotechnical monitoring by field instrumentation —

# Part 5:
# Stress change measurements by total pressure cells (TPC)

## 1 Scope

This document specifies the measurement of stress changes by means of total pressure cells (TPC). General rules of performance monitoring of the ground, of structures interacting with the ground, of geotechnical fills and of geotechnical works are presented in ISO 18674-1.

If applied in conjunction with ISO 18674-4, this document allows the determination of effective stress acting in the ground.

This document is applicable to:

— monitoring changes of the state of stress in the ground and in geo-engineered structures (e.g. in earth fill dams or tunnel lining);

— monitoring contact pressures at the interface between two media (e.g. earth pressure on retaining wall; contact pressure at the base of a foundation);

— checking geotechnical designs and adjustment of construction in connection with the Observational Design procedure;

— evaluating stability during or after construction.

Guidelines for the application of TPC in geotechnical engineering are presented in Annex B.

NOTE This document fulfils the requirements for the performance monitoring of the ground, of structures interacting with the ground and of geotechnical works by the means of total pressure cells as part of the geotechnical investigation and testing according to EN 1997-1[1] and EN 1997-2[2].

## 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. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies

ISO 18674-1:2015, *Geotechnical investigation and testing — Geotechnical monitoring by field instrumentation — Part 1: General rules*

ISO 18674-4, *Geotechnical investigation and testing — Geotechnical monitoring by field instrumentation — Part 4: Measurement of pore water pressure: Piezometer*

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

## 3 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO 18674-1 and the following apply.

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