ISO 22476-1:2022-12 (E)

Geotechnical investigation and testing - Field testing - Part 1: Electrical cone and piezocone penetration test

Contents

Page

Foreword v

Introduction vi

1 Scope 1

2 Normative references 1

3 Terms,definitionsandsymbols 1
3.1 Terms and definitions 2
3.2 Symbols 8

4 Equipment 11
4.1 General 11
4.1.1 Tolerances 11
4.1.2 Gaps and soil seals 11
4.2 Cone penetrometer 11
4.3 Surface roughness and hardness 11
4.4 Cone 12
4.5 Friction sleeve 13
4.6 Filter element 14
4.6.1 General filter location 14
4.6.2 Pore pressure u1 14
4.6.3 Pore pressure u2 15
4.6.4 Pore pressure u3 15
4.7 Pushrods 15
4.8 Measuring system 15
4.8.1 Accuracy 15
4.8.2 Sensors for cone resistance and sleeve friction 16
4.8.3 Sensor for pore pressure 16
4.8.4 Sensor for inclination 16
4.8.5 Sensor for temperature 16
4.8.6 Measuring of penetration length 16
4.8.7 Raw data 16
4.9 Thrust machine 17

5 Test procedures 17
5.1 Selection of equipment, procedures and evaluation of results 17
5.1.1 General 17
5.1.2 Calibration and verification requirements 17
5.1.3 Cone penetrometer class conformity assessment 18
5.2 Position and verticality of thrust machine 20
5.3 Preparation of the test 20
5.4 Pushing of the cone penetrometer 21
5.5 Use of friction-reducing techniques 21
5.6 Frequency of test data recording 21
5.7 Registration of penetration length 21
5.8 Pore pressure dissipation test (PPDT) 22
5.9 Test completion 22
5.10 Evaluation of CPT/CPTU in relation to test category 23
5.11 Equipment checks and calibrations 24

5.12 Safety requirements 24

6 Test results 24
6.1 Measured parameters 24
6.2 Correction of parameters 25
6.3 Calculated parameters 27

7 Reporting 27
7.1 General 27
7.2 Reporting of test results 27
7.2.1 General information 27
7.2.2 Location of the test 28
7.2.3 Test equipment 28
7.2.4 Test results 29
7.3 Presentation of test results 29

Annex A (informative)Suitabilityoftestmethods 31

Annex B (normative)Maintenance,checksandcalibration 34

Annex C (informative)Calibrationreportexample 52

Annex D (normative) Calculation of penetration depth 62

Annex E (informative) Correction of sleeve friction for water pressure 63

Annex F (informative) Preparation of the piezocone 64

Annex G (informative) Friction reduction techniques 65

Bibliography 66