DIN EN ISO 22477-4:2018-07 (E)

Geotechnical investigation and testing - Testing of geotechnical structures - Part 4: Te sting of piles: dynamic load testing (ISO 22477-4:2018)

Contents

Page

European foreword ... **3**

Foreword ... **4**

Introduction ... **5**

1 Scope ... **6**

2 Normative references ... **7**

3 Terms, definitions and symbols ... **7**
3.1 Terms and definitions ... 7
3.2 Symbols ... 9

4 Testing equipment ... **9**
4.1 General ... 9
4.2 Loading ... 10
4.2.1 General ... 10
4.2.2 Loading by an impact driving system ... 11
4.2.3 Loading by a single or multiple blow drop mass ... 11
4.3 Measurements ... 11
4.3.1 General ... 11
4.3.2 Measurements for dynamic impact tests ... 12
4.3.3 Measurements and recordings required for pile driving formula or wave equation analysis ... 13

5 Test procedure ... **14**
5.1 Preparation for testing ... 14
5.2 Safety requirements ... 14
5.2.1 People and equipment in the surrounding area ... 14
5.2.2 Test pile ... 15
5.3 Preparation of the pile ... 15
5.4 Timing of tests ... 15
5.4.1 General ... 15
5.4.2 Driving — Continuous monitoring and end of initial driving test ... 15
5.4.3 Re-driving ... 15
5.4.4 Bored or cast-in-situ piles ... 16

6 Test results ... **16**
6.1 Test results for dynamic load test with driving formula ... 16
6.2 Test results for dynamic load test with wave equation analysis ... 16
6.3 Test results for dynamic load test with measurements at the pile head ... 16

7 Test reporting ... **17**

Annex A (informative) **Driving formula** ... **19**

Annex B (informative) **Wave equation analysis** ... **22**

Annex C (informative) **Examples of transducer attachment and pile extension details** ... **32**

Annex D (informative) **Evaluation by closed form solutions using empirical damping values** ... **34**

Annex E (informative) **Evaluation of the measurements by signal matching** ... **41**

Annex F (informative) **Multi-blow dynamic testing technique** ... **49**

Bibliography ... **56**