

DIN EN 996:2010-02 (E)

Piling equipment - Safety requirements (includes Amendment A3:2009)

Contents	Page
Foreword.....	4
Introduction	5
1 Scope	5
2 Normative references	6
3 Definitions	8
4 Safety measures and/or provisions	8
4.1 Stability	9
4.2 Ergonomics	9
4.3 Hot and cold surfaces and sharp edges	9
4.4 Hydraulic and pneumatic hoses or pipes	9
4.5 Isolation of energy sources	9
4.6 Pulleys, drums and wire ropes	9
4.7 Winches	10
4.8 Devices for transport and mounting.....	11
4.9 Operator's position.....	11
4.10 Visibility	12
4.11 Illumination.....	12
4.12 Starting	12
4.13 Controls	12
4.14 Guards to prevent falling	14
4.15 Personnel lift or platform	14
4.16 Suspension device of vibrators	15
4.17 Clamping devices	15
4.18 Inclination measuring system	16
4.19 Electrical installation.....	16
4.20 Control over output energy	16
4.21 Piling equipment – Auxiliary equipment	16
4.22 Emergency stop.....	17
4.23 Brakes of the carrier machine	17
4.24 Protection against moving parts.....	17
4.25 Hydraulic installations	18
4.26 Fire protection.....	18
4.27 Noise	19
4.28 Vibrations	20
4.29 Data plate.....	20
4.30 Warning devices and signs	20
4.31 Maintenance	21
5 Information for use	21
5.1 General.....	21
5.2 Operator's manual	21
5.3 Examinations or inspections.....	23
5.4 Spare parts list.....	24
5.5 Maintenance and service manual.....	24
6 Verification of safety requirements/measures.....	25
Annex A (normative) List of significant hazards	26
Annex B (normative) Calculation of piling equipment stability and ground pressure	28
Annex C (normative) Diaphragm walling rig - Safety requirements	41

Annex D (normative) Wire rope grips for drop hammers - Selection and fitting	44
Annex E (informative) Grouting and injection equipment - Safety	47
Annex F (informative) Bibliography	49
Annex G (normative) A_2 Noise test code for pile installation and extracting equipment A_2	52
Annex ZA (informative) A_3 Relationship between this European Standard and the Essential Requirements of EU Directive 98/37/EC A_1	61
Annex ZB (informative) A_3 Relationship between this European Standard and the Essential Requirements of EU Directive 2006/42/EC A_1	62