

DIN EN 12699:2015-07 (E)

Execution of special geotechnical works - Displacement piles

	Contents	Page
Foreword		4
1 Scope		5
2 Normative references		5
3 Terms and definitions		7
4 Information needed for the execution of the work		16
4.1 General		16
4.2 Special features		17
5 Geotechnical investigation		18
5.1 General		18
5.2 Specific requirements		18
6 Materials and products		19
6.1 General		19
6.2 Prefabricated displacement piles		19
6.2.1 Concrete piles		19
6.2.2 Steel piles		19
6.2.3 Cast iron piles		20
6.2.4 Timber piles		20
6.3 Cast in situ displacement piles		20
6.3.1 Mortar and concrete		20
6.3.2 Grout		22
6.3.3 Reinforcement		22
6.4 Coatings and corrosion protection compounds		23
7 Considerations related to design		23
7.1 General		23
7.2 Geometrical construction tolerances		23
7.3 Sequence of installation		23
7.4 Protection of piles		24
7.5 Needs for driving assistance		24
7.6 Design for impact driving of prefabricated piles		24
7.6.1 General		24
7.6.2 Prefabricated concrete piles		25
7.6.3 Steel piles		25
7.6.4 Timber piles		25
7.7 Specific design related considerations		26
7.7.1 General		26
7.7.2 Reinforcement of cast in situ piles		26
7.7.3 Pile shoe		28
7.7.4 Pile joint		28
7.7.5 Pile enlargement		28
7.7.6 Spacing of piles		28
7.7.7 Combined piles		29
7.7.8 Screw piles		29
8 Execution		29
8.1 General		29

8.2	Construction tolerances	29
8.3	Site preparation	30
8.4	Sequence of installation	30
8.5	Equipment and Methods	30
8.5.1	General	30
8.5.2	Impact hammer	30
8.5.3	Vibrating hammer	30
8.5.4	Equipment for screw piles	31
8.5.5	Equipment for jacked piles	31
8.5.6	Auxiliary equipment	31
8.5.7	Drive tube	31
8.6	Prefabricated piles	31
8.6.1	General	31
8.6.2	Prefabricated concrete piles	31
8.6.3	Steel piles	32
8.6.4	Timber piles	33
8.6.5	Combined piles	33
8.7	Cast in situ piles	33
8.7.1	General	33
8.7.2	Temporary cased piles	34
8.7.3	Permanently cased piles	36
8.8	Grouted piles	36
8.8.1	Grouting during driving	36
8.8.2	Grouting after driving	37
8.9	Trimming of concrete piles	37
8.10	Driving assistance methods	37
8.11	Ground movement limiting methods	38
8.12	Cast in situ base enlargements	38
9	Supervision, monitoring and testing	38
9.1	Supervision	38
9.2	Monitoring of pile construction	39
9.3	Pile testing	40
9.3.1	General	40
9.3.2	Pile load tests	41
9.3.3	Integrity tests	41
10	Records	41
11	Special requirements	44
	Annex A (informative) Classification and examples	46
	Annex B (informative) Guidance on minimum cover (in mm) for bearing element of low strength steel for cast in situ displacement piles	61
	Annex C (informative) Degree of obligation of the provisions	62
	Bibliography	69