

DIN EN 13670:2011-03 (E)

Execution of concrete structures

Contents		Page
Foreword		5
Introduction		6
1	Scope	7
2	Normative references	7
3	Definitions	8
4	Execution management	11
4.1	Assumptions	11
4.2	Documentation	11
4.2.1	Execution specification	11
4.2.2	Quality Plan	12
4.2.3	Execution record documentation	12
4.2.4	Special record documentation	12
4.3	Quality Management	12
4.3.1	Execution classes	12
4.3.2	Inspection of materials and products	13
4.3.3	Inspection of execution	13
4.4	Action in the event of a non-conformity	14
5	Falsework and formwork	15
5.1	Basic requirements	15
5.2	Materials	15
5.2.1	General	15
5.2.2	Release agents	15
5.3	Design and installation of falsework	15
5.4	Design and installation of formwork	16
5.5	Special formwork	16
5.6	Inserts in formwork and embedded components	16
5.6.1	General	16
5.6.2	Making good of temporary recesses and holes	17
5.7	Removal of formwork and falsework	17
6	Reinforcement	17
6.1	General	17
6.2	Materials	17
6.3	Bending, cutting, transport and storage of the reinforcement	18
6.4	Welding	19
6.5	Joints	19
7	Prestressing	20
7.1	General	20
7.2	Materials for prestressing	20
7.2.1	Post-tensioning systems	20
7.2.2	Sheaths	20
7.2.3	Tensile elements	21
7.2.4	Anchorage elements and accessories	21
7.2.5	Tendon supports	21
7.2.6	Cement-based grout	21

7.2.7	Grease, wax or other products	21
7.3	Transport and storage	21
7.4	Installation of tendons	22
7.4.1	General	22
7.4.2	Pre-tensioned tendons	22
7.4.3	Post-tensioned bonded tendons	22
7.4.4	Internal and external unbonded tendons	22
7.5	Tensioning	23
7.5.1	General	23
7.5.2	Pre-tensioned tendons	23
7.5.3	Post-tensioned bonded tendons	23
7.5.4	Internal and external unbonded tendons	24
7.6	Protective measures (grouting, greasing)	24
7.6.1	General	24
7.6.2	Pre-tensioned tendons	24
7.6.3	Post-tensioned bonded tendons	24
7.6.4	Internal or external unbonded tendons	24
7.6.5	Grouting operations	24
7.6.6	Greasing operations	25
7.6.7	Sealing	25
8	Concreting	25
8.1	Specification of concrete	25
8.2	Pre-concreting operations	26
8.3	Delivery, reception and site transport of fresh concrete	26
8.4	Placing and compaction	27
8.4.1	General	27
8.4.2	Lightweight Aggregate Concrete	27
8.4.3	Self Compacting Concrete	27
8.4.4	Sprayed concrete	27
8.4.5	Slipforming	28
8.4.6	Underwater concreting	28
8.5	Curing and protection	28
8.6	Post-concreting operations	29
8.7	Concreting of composite structures	30
8.8	Surface Finish	30
9	Execution with precast concrete elements	30
9.1	General	30
9.2	Factory produced precast elements	30
9.3	Site manufactured precast elements	30
9.4	Handling and storage	30
9.4.1	General	30
9.4.2	Handling	31
9.4.3	Storage	31
9.5	Placing and adjustment	31
9.5.1	General	31
9.5.2	Placing	31
9.6	Jointing and completion works	32
9.6.1	General	32
9.6.2	In-situ works	32
9.6.3	Structural connections	32
10	Geometrical tolerances	32
10.1	General	32
10.2	Reference system	33
10.3	Base supports (foundations)	34
10.4	Columns and walls	34
10.5	Beams and slabs	36
10.6	Sections	37
10.7	Surfaces and edge straightness	39
10.8	Tolerances for holes and inserts	39

Annex A (informative) Guidance on documentation	40
Annex B (informative) Guidance on Quality Management	45
Annex C (informative) Guidance on falsework and formwork	47
Annex D (informative) Guidance on reinforcement	49
Annex E (informative) Guidance on prestressing	51
Annex F (informative) Guidance on concreting	54
Annex G (informative) Guidance on geometrical tolerances	60
Annex H (informative) Guidance on National Annex	67
Bibliography	68