DIN EN 15050:2012-06 (E)

Precast concrete products - Bridge elements (includes Amendment A1:2012)

Contents

Page

Foreword 4

Introduction 6

1 Scope 7

2 Normative references 7

3 Terms and definitions 8

4 Requirements 9
4.1 Material requirements 9
4.2 Production requirements 9
4.2.1 General 9
4.2.3.2 Application of prestressing 9
4.3 Finished product requirements 10
4.3.1 Geometrical properties 10
4.3.2 Surface characteristics 12
4.3.3 Mechanical resistance 12
4.3.4 Resistance and reaction to fire 13
4.3.5 Acoustic properties 13
4.3.6 Thermal properties 13
4.3.7 Durability 13
4.3.8 Other requirements 14

5 Test methods 14
5.1 Tests on concrete 14
5.2 Measuring of dimensions and surface characteristics 14
5.2.1 General 14
5.2.2 Beams 14
5.2.3 Other elements 15
5.3 Weight of the products 15

6 Evaluation of conformity 15

7 Marking and labelling 15

8 Technical documentation 15

Annex A (informative) Typology 16

A.1 Scope 16
A.2 Decks with precast beams as main structural elements 16
A.3 Solid slabs 22
A.4 Segmental decks 22

Annex B (informative) Decks formed by beams and slabs 23

B.1 Scope 23
B.2 Dimensions in the bearing zone 23
B.3 Transfer of prestressing 23
B.4 Anchorage of the main reinforcement at supports 23

B.5 Change of the restraint conditions after the application of loads 26
B.6 Skewed ends 26
B.7 Deck layout 26

Annex C (informative) Use of plates in bridges 28

C.1 General 28
C.2 Connecting reinforcement 28
C.3 Connection to beams 28
C.4 Connection between adjacent floor plates 29

Annex D (informative) Continuity of bridge decks 31

D.1 Scope 31
D.2 Continuity of bridge decks 31
D.3 Hogging moments at supports 31
D.4 Long term sagging moments at supports 31

Annex E (informative) Infilled beams 37

E.1 General 37
E.2 Infilled beams with a thin topping 37
E.3 Infilled beams with a thick topping 37

Annex F (informative) Precast beams without topping 39

F.1 Scope 39
F.2 Transverse prestressing by post-tensioning 39
F.3 Reinforced joints 39

Annex G (informative) Precast segmental decks 41

G.1 General 41
G.1.1 Description 41
G.1.2 Joints 41
G.1.3 Keys 41
G.1.4 Post-tensioning 42
G.2 Design 42
G.2.1 Assembly stage 42
G.2.2 Final situation 42
G.2.3 Checking of joints 43
G.2.4 Local transverse bending 43
G.2.5 Discontinuity regions 43
G.3 Production 44
G.4 Building assembly 44
G.4.1 Segment positioning 44
G.4.2 Segment sealing 44
G.4.3 Post-tensioning 44
G.4.4 Closing segment 44

Annex H (informative) Ambient conditions for bridge elements 46

Annex J (normative) Finished product inspection 47

Annex ZA (informative) Clauses of this European Standard addressing the provisions of the EU Construction Products Directive 49

ZA.1 Scope and relevant characteristics 49

ZA.2 Procedure for attestation of conformity of precast concrete bridge elements 50

ZA.2.1 System of attestation of conformity 50

ZA.2.2 EC Certificate and Declaration of conformity 52

ZA.3 CE marking and labelling 52

ZA.3.1 General 52

ZA.3.2 Declaration of geometrical data and material properties 54

ZA.3.3 Declaration of product properties 56

ZA.3.4 Declaration of compliance with a given design specification 58

Bibliography 60