

DS/EN 1993-1-11 DK NA:2015

National Annex to

Eurocode 3: Design of steel structures – Part 1-11: Design of structures with tension components

Preface

The implementation of Eurocodes has involved the preparation of

- National Annexes to the bridge-specific Eurocodes
- Addenda to National Annexes for bridge-specific sections in Eurocodes for loads.

Together with the basic Eurocodes, including the related national annexes, these constitute the codes of practices to be applied in the design of bridges in Denmark.

Scope

This National Annex sets out the conditions for implementation of EN 1993-1-11.

Contents

This National Annex contains the national choices that apply in Denmark.

The national choices may be in the form of current national values, a choice between several methods or addition of supplementary guidance.

In connection with the national choices, the national annexes may refer to Banedanmark's Railway Standards (e.g. BN1-59) or Danish Road Directorate's Road Standards.

Reference may also be made to the infrastructure manager (IF). IF is the authority which has ownership and/or holds maintenance responsibility for a road bridge or for a railway bridge. Examples of IFs include the Danish Road Directorate, local authorities, Banedanmark and regional railway providers.

In addition, the National Annex includes an overview of all the items where it has been possible to make a national choice.



Items for which a national choice has been made

Page	Item	Subject	National choice
10	2.3.6 (1)	Definition of transient loading conditions and partial coefficients for replacement.	Loading and partial coefficients shall be determined in each individual case for the specific project.
10	2.3.6 (2)	Possibility for the definition of accidental design situation.	Definition of accidental design situation shall be determined in each individual case for the specific project.
11	3.1 (1)	Maximum breaking strength f_u of steel wire.	Values higher than those recommended can be used if documented as safe for the specific project.
15	4.4 (2)	Definition of corrosion resistance classes for stainless steel.	Stainless steel for wire should with regard to corrosion be selected in accordance with Table A.1 in DS/EN 1993-1-4.
18	6.2 (2)	Partial coefficient γ_R for tension resistance.	<p>γ_R is set at 1.2 when taking precautions against bending stresses at the anchorage and 1.3 when no such precautions are taken.</p> <p>The γ_R values are multiplied by γ_3 and γ_0.</p> <p>For γ_3 and γ_0, see DS/EN 1993-1-1 DK NA.</p> <p>Note: Use of strict control requires independent 3rd party tests of materials and execution, see DS/EN 1990 DK NA.</p>
30	B (6)	Further instructions on monitoring and supervision.	In connection with the design of tension elements, a supervision and maintenance plan shall be prepared.



Overview of possible national choices

The following overview shows the places where a national choice is possible and which informative annexes that apply/do not apply. Moreover, it is specified where a national choice has been made.

Page	Item	Subject	Comment
10	2.3.6 (1)	Definition of transient loading conditions and partial coefficients for replacement.	National choice specified.
10	2.3.6 (2)	Possibility for the definition of accidental design situation.	National choice specified.
11	2.4.1 (1)	Defines partial coefficient γ_G for construction phase.	No national choice.
11	3.1 (1)	Maximum breaking strength f_u of steel wire.	No national choice.
15	4.4 (2)	Definition of corrosion resistance classes for stainless steel.	National choice specified.
16	4.5 (4)	Choice of continuous hydrophobic materials etc.	No national choice.
16	5.2 (3)	Choice of γ_P on prestressing force P when self-weight and prestressing are designed in the construction phase.	No national choice.
17	5.3 (2)	Instructions on factors outside the scope of EN 1993.	No national choice.
18	6.2 (2)	Partial coefficient γ_R for tension resistance.	National choice specified.
20	6.3.2 (1)	Partial Coefficient γ_{Mfr} for slippage of cable over saddle.	No national choice.
22	6.3.4 (1)	Saddle design. The factor k to be specified. The value of $k = 1.10$ is recommended.	No national choice.
22	6.4.1 (1) P	Partial coefficient of slippage of clamp.	No national choice.
23	7.2 (2)	Stress limits during the construction phase and serviceability limit state.	No national choice.
29	A.4.5.1 (1)	Details for tests may be given.	No national choice.
29	A.4.5.2 (1)	Details for tests, e.g. salt fog tests, may be given.	No national choice.
30	B (6)	Further instructions on monitoring and supervision.	National choice specified.
10	Annex A	Definition of transient loading conditions and partial coefficients for replacement.	Annex A is applicable.
10	Annex B	Possibility of defining accident design situation.	Annex B is applicable.
11	Annex C	Defines partial coefficient γ_G for construction phase.	Annex C is applicable.

Note: No national choice implies that a recommendation in the code of practice is observed.

DISCLAIMER

The translation into English of Road Standards (Vejregler), Tender Specifications and National Annexes is to be regarded entirely as a service. In the event of any discrepancy or shortcomings in the translation, the Danish version will prevail. At any time the Danish versions of Road Standards (Vejregler), Tender Specifications and National Annexes are those in force.