

DIN EN 1993-2/NA:2012-08 (E)

National Annex - Nationally determined parameters - Eurocode 3: Design of steel structures - Part 2: Steel bridges

Contents	Page
Foreword.....	5
NA.1 Scope	6
NA.2 National provisions for the application of DIN EN 1993-2:2010-12.....	6
NA.2.1 General.....	6
NA.2.2 National provisions.....	7
NCI re 1.2 Normative references	7
NDP re 2.1.3.2(1), Note 1:	8
NDP re 2.1.3.3(5), Note:	8
NDP re 2.1.3.4(1), Note:	9
NDP re 2.1.3.4(2), Note 2:	9
NDP re 2.3.1(1), Note 2:	9
NCI re 3.1 General.....	10
NDP re 3.2.3(2), Note 2:	10
NDP re 3.2.3(3), Note:	13
NDP re 3.2.4(1), Note:	13
NDP re 3.4(1), Note:	13
NDP re 3.5(1), Note:	13
NDP re 3.6(1), Note:	13
NDP re 3.6(2), Note:	14
NDP re 4(1), Note:	14
NDP re 4(4), Note:	14
NDP re 5.2.1(4), Note:	14
NDP re 5.4.1(1), Note:	14
NCI re 5.4.2	14
NDP re 6.1(1)P, Note 2:	14
NDP re 6.2.2.3(1), Note:	14
NCI re 6.2.2.4(1)	14
NDP re 6.2.2.5(1), Note:	14
NDP re 6.3.2.3(1), Note:	15
NDP re 6.3.4.2(1), Note:	15
NDP re 6.3.4.2(7), Note:	15
NDP re 7.1(3), Note:	15
NDP re 7.3(1), Note:	15
NDP re 7.4(1), Note:	15
NCI re 7.4(3), Equation 7.7	15
NDP re 8.1.3.2.1(1), Note:	15
NDP re 8.1.6.3(1), Note:	15
NDP re 8.2.1.4(1), Note:	16
NDP re 8.2.1.5(1), Note:	16
NDP re 8.2.1.6(1), Note:	16
NDP re 8.2.10(1), Note:	16
NA) NCI re 8.2.12(1), Rules for welding in cold-formed zones.....	16
NDP re 8.2.13(1), Note:	17
NDP re 8.2.14(1), Note:	17
NDP re 9.1.2(1), Note:	17
NDP re 9.1.3(1), Note:	17
NDP re 9.3(1)P, Note:	17
NDP re 9.3(2)P, Note:	17
NDP re 9.4.1(6), Note:	18
NDP re 9.5.2(2), Note:	18

NDP re 9.5.2(3), Note:	19
NDP re 9.5.2(5), Note:	19
NDP re 9.5.2(6), Note:	19
NDP re 9.5.2(7), Note:	19
NDP re 9.5.3(2), Note 1:	19
NDP re 9.5.3(2), Note 3:	19
NDP re 9.6(1), Note 1:	19
NCI re 9.6(1), Note 1:	20
NDP re 9.6(1), Note 2	21
NDP re 9.7(1), Note:	21
NDP re Annex A (informative):	21
NDP re Annex B (informative):	22
NDP re Annex C (informative):	22
NDP re Annex E.2 (1):	22
NA NCI NA re Annex NA.F (normative):	22
NCI NA.F.1 General	23
NCI NA.F.1.1 Field of application	23
NCI NA.F.1.2 Fatigue actions	23
NCI NA.F.2 Design principles	23
NCI NA.F.2.1 Material and cross-sections for tension members	23
NCI NA.F.2.2 Design recommendations in respect of the geometry of the connections of round bar steel hangers	24
NCI NA.F.2.3 Recommendations for the design of flat steel plate hangers	26
NCI NA.F.2.4 Measures to reduce restraint forces from the main structure	26
NCI NA.F.3 Design rules for round bar steel hangers	26
NCI NA.F.3.1 Application limits	26
NCI NA.F.3.2 Oscillations due to vortex shedding	26
NCI NA.F.3.3 Rain-wind-induced oscillations	28
NCI NA.F.3.4 Traffic-induced stresses	29
NCI NA.F.3.5 Verification concepts	29
NCI NA.F.3.5.1 Verification concept for traffic and oscillations due to vortex shedding	29
NCI NA.F.3.5.2 Verification concept for rain-wind-induced vibrations	29
NCI NA.F.3.5.2.1 Ultimate limit state verification	29
NCI NA.F.3.5.2.2 Fatigue assessment	30
NCI NA.F.4 Rules for the design of flat steel plate hangers	30
NCI NA.F.4.1 Oscillations due to vortex shedding	30
NCI NA.F.4.2 Galloping	32
NCI NA.F.4.2.1 Onset wind velocities for galloping oscillations in the bending mode	32
NCI NA.F.4.2.2 Onset wind velocities for galloping oscillations in the torsional mode	33
NCI NA.F.4.3 Traffic-induced stresses	34
NCI NA.F.4.4 Verification concept	34
NCI NA.F.5 Additional verifications	34
NCI NA.F.5.1 General	34
NCI NA.F.5.2 Planning measures	34
NCI NA.F.5.3 Emergency measures	34
NCI NA.F.5.4 Increasing the level of damping	34
NCI NA.F.5.5 Measurements	35
NCI NA.G.1 Highway bridges	36
NCI NA.G.1.1 General	36
NCI NA.G.1.2 Deck plate	38
NCI NA.G.1.2.1 General	38
NCI NA.G.1.2.2 Thickness of deck plates	39
NCI NA.G.1.2.3 Deck plate welds	41
NCI NA.G.1.2.4 Connection between the deck plate and webs of main girders, webs of open section stiffeners and webs of crossbeams	42
NCI NA.G.1.3 Longitudinal stiffeners	42
NCI NA.G.1.3.1 Requirements	42

NCI	NA.G.1.3.2 Types of stiffener.....	42
NCI	NA.G.1.3.3 Stiffener to deck plate connections.....	43
NCI	NA.G.1.3.4 Stiffener-to-stiffener site connections.....	43
NCI	NA.G.1.3.5 Connection of stiffeners to the webs of the crossbeam	43
NCI	NA.G.1.3.5.1 General	43
NCI	NA.G.1.3.5.2 Cut-outs in the webs of crossbeams.....	45
NCI	NA.G.1.3.5.3 Special case in which stiffeners are fitted between crossbeams	47
NCI	NA.G.1.3.5.4 Stiffeners made of flat plates	47
NCI	NA.G.1.4 Crossbeams	48
NCI	NA.G.1.4.1 General.....	48
NCI	NA.G.1.4.2 Connections of the web of the crossbeam	48
NCI	NA.G.1.4.3 Connections of the flange of the crossbeam	48
NCI	NA.G.1.4.4 Transverse frames, stiffeners or diaphragms	48
NCI	NA.G.2 Railway bridges	49
NCI	NA.G.2.1 General.....	49
NCI	NA.G.2.2 Plate thicknesses and dimensions	50
NCI	NA.G.2.3 Design of stiffener to crossbeam connections	51
NCI	NA.G.2.4 Weld preparation and inspection	52
NCI	NA.G.2.4.1 General.....	52
NCI	NA.G.2.4.2 Weld preparation of stiffener to deck plate connections	53
NCI	NA.G.2.4.2.1 Weld preparation of closed section stiffeners	53
NCI	NA.G.2.4.2.2 Requirements for butt welds	53
NCI	NA.G.2.5 Analyses	53
NCI	NA.G.2.5.1 Analysis of longitudinal stiffeners	53
NCI	NA.G.2.5.2 Analysis of crossbeams; general	53
NCI	NA.G.2.5.3 Analysis of crossbeams for orthotropic bridge decks with closed section stiffeners.....	53
NCI	NA.G.2.6 Flame-cut surfaces	55
NCI	NA.G.3 Tolerances for semi-finished products and fabrication	55
NCI	NA.G.3.1 Tolerances for semi-finished products	55
NCI	NA.G.3.2 Tolerances for fabrication.....	55
NCI	NA.G.3.3 Particular requirements for welded connections	56