

DIN EN 1993-2/NA:2010-12 (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.2.1 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
NDP re 8.2.13(1), Note:	16
NDP re 8.2.14(1), Note:	16
NDP re 9.1.2(1), Note:	16
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:	17
NDP re 9.5.2(2), Note:	17
NDP re 9.5.2(3), Note:	18
NDP re 9.5.2(5), Note:	18
NDP re 9.5.2(6), Note:	18
NDP re 9.5.2(7), Note:	18
NDP re 9.5.3(2), Note 1:	18
NDP re 9.5.3(2), Note 3:	18
NDP re 9.6(1), Note 1:	18
NCI re 9.6(1), Note 1:	19
NDP re 9.6(1), Note 2	20

NDP re 9.7(1), Note:	20
NDP re Annex A (informative):	20
NDP re Annex B (informative):	21
NDP re Annex C (informative):	21
NDP re Annex E.2 (1):	21
NDP re Annex NA.F (normative):	21
NCI NA.F.1 General	22
NCI NA.F.1.1 Field of application	22
NCI NA.F.1.2 Fatigue actions	22
NCI NA.F.2 Design principles	22
NCI NA.F.2.1 Material and cross-sections for tension members	22
NCI NA.F.2.2 Design recommendations in respect of the geometry of the connections of round bar steel hangers	23
NCI NA.F.2.3 Recommendations for the design of flat steel plate hangers	25
NCI NA.F.2.4 Measures to reduce restraint forces from the main structure	25
NCI NA.F.3 Design rules for round bar steel hangers	25
NCI NA.F.3.1 Application limits	25
NCI NA.F.3.2 Oscillations due to vortex shedding	25
NCI NA.F.3.3 Rain-wind-induced oscillations	27
NCI NA.F.3.4 Traffic-induced stresses	28
NCI NA.F.3.5 Verification concepts	28
NCI NA.F.3.5.1 Verification concept for traffic and oscillations due to vortex shedding	28
NCI NA.F.3.5.2 Verification concept for rain-wind-induced vibrations	28
NCI NA.F.3.5.2.1 Ultimate limit state verification	28
NCI NA.F.3.5.2.2 Fatigue assessment	29
NCI NA.F.4 Rules for the design of flat steel plate hangers	29
NCI NA.F.4.1 Oscillations due to vortex shedding	29
NCI NA.F.4.2 Galloping	31
NCI NA.F.4.2.1 Onset wind velocities for galloping oscillations in the bending mode	31
NCI NA.F.4.2.2 Onset wind velocities for galloping oscillations in the torsional mode	32
NCI NA.F.4.4 Verification concept	33

NCI NA.F.5 Additional verifications	33
NCI NA.F.5.1 General	33
NCI NA.F.5.2 Planning measures	33
NCI NA.F.5.3 Emergency measures	33
NCI NA.F.5.4 Increasing the level of damping	33
NCI NA.F.5.5 Measurements	34
NCI NA.G.1 Highway bridges	35
NCI NA.G.1.1 General	35
NCI NA.G.1.2 Deck plate	37
NCI NA.G.1.2.1 General	37
NCI NA.G.1.2.2 Thickness of deck plates	38
NCI NA.G.1.2.3 Deck plate welds	40
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	41
NCI NA.G.1.3 Longitudinal stiffeners	41
NCI NA.G.1.3.1 Requirements	41
NCI NA.G.1.3.2 Types of stiffener	41
NCI NA.G.1.3.3 Stiffener to deck plate connections	42
NCI NA.G.1.3.4 Stiffener-to-stiffener site connections	42
NCI NA.G.1.3.5 Connection of stiffeners to the webs of the crossbeam	42
NCI NA.G.1.3.5.1 General	42
NCI NA.G.1.3.5.2 Cut-outs in the webs of crossbeams	44
NCI NA.G.1.3.5.3 Special case in which stiffeners are fitted between crossbeams	46
NCI NA.G.1.3.5.4 Stiffeners made of flat plates	46
NCI NA.G.1.4 Crossbeams	47
NCI NA.G.1.4.1 General	47
NCI NA.G.1.4.2 Connections of the web of the crossbeam	47
NCI NA.G.1.4.3 Connections of the flange of the crossbeam	47
NCI NA.G.1.4.4 Transverse frames, stiffeners or diaphragms	47
NCI NA.G.2 Railway bridges	48
NCI NA.G.2.1 General	48
NCI NA.G.2.2 Plate thicknesses and dimensions	49

NCI NA.G.2.3 Design of stiffener to crossbeam connections	50
NCI NA.G.2.4 Weld preparation and inspection	51
NCI NA.G.2.4.1 General	51
NCI NA.G.2.4.2 Weld preparation of stiffener to deck plate connections	52
NCI NA.G.2.4.2.1 Weld preparation of closed section stiffeners	52
NCI NA.G.2.4.2.2 Requirements for butt welds	52
NCI NA.G.2.5 Analyses	52
NCI NA.G.2.5.1 Analysis of longitudinal stiffeners	52
NCI NA.G.2.5.2 Analysis of crossbeams; general	52
NCI NA.G.2.5.3 Analysis of crossbeams for orthotropic bridge decks with closed section stiffeners	52
NCI NA.G.2.6 Flame-cut surfaces	54
NCI NA.G.3 Tolerances for semi-finished products and fabrication	54
NCI NA.G.3.1 Tolerances for semi-finished products	54
NCI NA.G.3.2 Tolerances for fabrication	54
NCI NA.G.3.3 Particular requirements for welded connections	55