

English Version

Execution of steel structures and aluminium structures - Part 2: Technical requirements for steel structures

Exécution des structures en acier et des structures en
aluminium - Partie 2: Exigences techniques pour les
structures en acier

Ausführung von Stahltragwerken und Aluminiumtragwerken
- Teil 2: Technische Regeln für die Ausführung von
Stahltragwerken

This European Standard was approved by CEN on 11 April 2008 and includes Amendment 1 approved by CEN on 25 June 2011.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland and United Kingdom.



EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

Foreword.....	9
Introduction	10
1 Scope	11
2 Normative references	12
2.1 General.....	12
2.2 Constituent products	12
2.2.1 Steels	12
2.2.2 Steel castings.....	14
2.2.3 Welding consumables.....	14
2.2.4 Mechanical fasteners	15
2.2.5 High strength cables	17
2.2.6 Structural bearings.....	17
2.3 Preparation	17
2.4 Welding	17
2.5 Testing	19
2.6 Erection.....	19
2.7 Corrosion protection	20
2.8 Tolerances	20
2.9 Miscellaneous	20
3 Terms and definitions	21
4 Specifications and documentation	23
4.1 Execution Specification	23
4.1.1 General.....	23
4.1.2 Execution classes.....	23
4.1.3 Preparation grades	23
4.1.4 Geometrical tolerances	24
4.2 Constructor's documentation	24
4.2.1 Quality documentation.....	24
4.2.2 Quality plan	24
4.2.3 Safety of the erection works.....	25
4.2.4 Execution documentation.....	25
5 Constituent products	25
5.1 General.....	25
5.2 Identification, inspection documents and traceability	25
5.3 Structural steel products	26
5.3.1 General.....	26
5.3.2 Thickness tolerances	28
5.3.3 Surface conditions	28
5.3.4 Special properties.....	29
5.4 Steel castings.....	29
5.5 Welding consumables.....	29
5.6 Mechanical fasteners	31
5.6.1 General.....	31
5.6.2 Terminology	31
5.6.3 Structural bolting assemblies for non preloaded applications	31
5.6.4 Structural bolting assemblies for preloading	31
5.6.5 Direct tension indicators.....	32
5.6.6 Weather resistant assemblies	32
5.6.7 Foundation bolts.....	32

5.6.8	Locking devices	32
5.6.9	A1 Washers A1	32
5.6.10	Hot rivets	33
5.6.11	Fasteners for thin gauge components	33
5.6.12	Special fasteners	33
5.6.13	Delivery and identification	33
5.7	Studs and shear connectors	34
5.8	Grouting materials	34
5.9	Expansion joints for bridges	34
5.10	High strength cables, rods and terminations	34
5.11	Structural bearings	35
6	Preparation and assembly	35
6.1	General	35
6.2	Identification	35
6.3	Handling and storage	35
6.4	Cutting	38
6.4.1	General	38
6.4.2	Shearing and nibbling	38
6.4.3	Thermal cutting	38
6.4.4	Hardness of free edge surfaces	39
6.5	Shaping	39
6.5.1	General	39
6.5.2	Hot forming	40
6.5.3	Flame straightening	40
6.5.4	Cold forming	40
6.6	Holing	42
6.6.1	Dimensions of holes	42
6.6.2	Tolerances on hole diameter for bolts and pins	43
6.6.3	Execution of holing	43
6.7	Cut outs	44
6.8	Full contact bearing surfaces	45
6.9	Assembly	45
6.10	Assembly check	46
7	Welding	46
7.1	General	46
7.2	Welding plan	46
7.2.1	Requirements for a welding plan	46
7.2.2	Content of a welding plan	46
7.3	Welding processes	47
7.4	Qualification of welding procedures and welding personnel	48
7.4.1	Qualification of welding procedures	48
7.4.2	Welders and welding operators	50
7.4.3	Welding coordination	50
7.5	Preparation and execution of welding	52
7.5.1	Joint preparation	52
7.5.2	Storage and handling of welding consumables	53
7.5.3	Weather protection	53
7.5.4	Assembly for welding	54
7.5.5	Preheating	54
7.5.6	Temporary attachments	54
7.5.7	Tack welds	54
7.5.8	Fillet welds	55
7.5.9	Butt welds	55
7.5.10	Welds on steels with improved atmospheric corrosion resistance	56
7.5.11	Branch connections	56
7.5.12	Stud welding	56
7.5.13	Slot and plug welds	56
7.5.14	Spot welds for thin gauge components	57