



NSAI
Standards

Irish Standard
I.S. EN 1090-1:2009+A1:2011

Execution of steel structures and aluminium structures - Part 1: Requirements for conformity assessment of structural components

I.S. EN 1090-1:2009+A1:2011

Incorporating amendments/corrigenda/National Annexes issued since publication:

EN 1090-1:2009/A1:2011

EN 1090-1:2009/AC:2010

The National Standards Authority of Ireland (NSAI) produces the following categories of formal documents:

I.S. xxx: Irish Standard – national specification based on the consensus of an expert panel and subject to public consultation.

S.R. xxx: Standard Recommendation - recommendation based on the consensus of an expert panel and subject to public consultation.

SWIFT xxx: A rapidly developed recommendatory document based on the consensus of the participants of an NSAI workshop.

This document replaces:

EN 1090-1:2009, EN 1090-1:2009/AC:2010, EN 1090-1:2009/FprA1

This document is based on:

EN 1090-1:2009+A1:2011

Published:

28 November, 2011

This document was published
under the authority of the NSAI
and comes into effect on:

28 November, 2011

ICS number:

91.080.10

NSAI

1 Swift Square,
Northwood, Santry
Dublin 9

T +353 1 807 3800

F +353 1 807 3838

E standards@nsai.ie

W NSAI.ie

Sales:

T +353 1 857 6730

F +353 1 857 6729

W standards.ie

Údarás um Chaighdeáin Náisiúnta na hÉireann

English Version

Execution of steel structures and aluminium structures - Part 1: Requirements for conformity assessment of structural components

Exécution des structures en acier et des structures en
aluminium - Partie 1: Exigences pour l'évaluation de la
conformité des éléments structuraux

Ausführung von Stahltragwerken und Aluminiumtragwerken
- Teil 1: Konformitätsnachweisverfahren für tragende
Bauteile

This European Standard was approved by CEN on 15 June 2008 and includes Corrigendum 1 issued by CEN on 17 November 2010 and Amendment 1 approved by CEN on 3 October 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.....	4
Introduction	5
1 Scope	6
2 Normative references	6
3 Terms, definitions and abbreviations	7
3.1 Terms and definitions	7
3.2 Abbreviations	8
4 Requirements	9
4.1 Constituent products	9
4.1.1 General.....	9
4.1.2 Constituent products for steel components.....	9
4.1.3 Constituent products for aluminium components	9
4.2 Tolerances on dimensions and shape	9
4.3 Weldability	9
4.4 Fracture toughness	10
4.5 Structural characteristics	10
4.5.1 General.....	10
4.5.2 Load bearing capacity	10
4.5.3 Fatigue strength.....	10
4.5.4 Resistance to fire	10
4.5.5 Deformation at serviceability limit state.....	11
4.6 Reaction to fire.....	11
4.7 Dangerous substances	11
4.8 Impact resistance.....	11
4.9 Durability	11
5 Evaluation methods.....	12
5.1 General.....	12
5.2 Constituent products	12
5.3 Tolerances on dimensions and shape	12
5.4 Weldability	12
5.5 Fracture toughness	12
5.6 Structural characteristics	13
5.6.1 General.....	13
5.6.2 Structural design	13
5.6.3 Manufacturing characteristics.....	14
5.7 Resistance to fire	14
5.8 Reaction to fire.....	14
5.9 Dangerous substances	14
5.10 Impact resistance.....	14
5.11 Durability	14
6 Evaluation of conformity.....	15
6.1 General.....	15
6.2 Initial type testing	15
6.2.1 General.....	15
6.2.2 Characteristics	16
6.2.3 Use of historical data	16
6.2.4 Use of structural calculations for conformity assessment	16
6.2.5 Initial type calculation	16
6.2.6 Sampling, evaluation and conformity criteria.....	16
6.2.7 Declaration of performance characteristics	16

6.2.8	Recording of results from evaluations.....	17
6.2.9	Corrective actions	17
6.3	Factory production control.....	19
6.3.1	General	19
6.3.2	Personnel	19
6.3.3	Equipment	19
6.3.4	Structural design process	19
6.3.5	Constituent products used in manufacture	20
6.3.6	Component specification.....	20
6.3.7	Product evaluation	20
6.3.8	Non-conforming products	20
7	Classification and designation	21
8	Marking.....	22
Annex A	(informative) Guidelines for preparation of the component specification	23
A.1	General	23
A.2	Purchaser provided component specification (PPCS).....	23
A.3	Manufacturer provided component specification (MPCS)	23
Annex B	(normative) Assessment of factory production control.....	25
B.1	General	25
B.2	Initial inspection	25
B.3	Continuous surveillance.....	26
B.4	Frequency of inspection	27
B.4.1	General	27
B.4.2	Surveillance intervals.....	27
B.4.3	Declaration by manufacturer.....	28
B.4.4	Action in case of non-compliance	28
B.5	Reports	28
Annex ZA	(informative) Clauses of this European Standard Addressing the provisions of EU Construction Products Directive (CPD)	29
ZA.1	Scope and relevant characteristics	29
ZA.2	Procedures for the attestation of conformity of structural steel and aluminium components	31
ZA.2.1	System of attestation of conformity	31
ZA.2.2	Assignment of tasks	31
ZA.2.3	Declaration of conformity	32
ZA.3	CE marking and labelling.....	33
ZA.3.1	General	33
ZA.3.2	Declaration of product properties by material properties and geometrical data	33
ZA.3.3	Declaration of the strength value(s) of the component.....	37
ZA.3.4	Declaration of compliance with a given component specification	39
ZA.3.5	Declaration of the strength value(s) of the component from purchaser's order.....	41
	Bibliography.....	43

Foreword

This document (EN 1090-1:2009+A1:2011) has been prepared by Technical Committee CEN/TC 135 “Execution of steel and aluminium structures”, the secretariat of which is held by SN.

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, at the latest by May 2012, and conflicting national standards shall be withdrawn at the latest by May 2012.

This document includes Corrigendum 1¹ issued by CEN on 2010-11-17 and Amendment 1, approved by CEN on 2011-10-03.

This document supersedes EN 1090-1:2009.

The start and finish of text introduced or altered by amendment is indicated in the text by tags **A1** **A1**.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document has been prepared under a mandate given to CEN by the European Commission and the European Free Trade Association, and supports essential requirements of EU Directive(s).

For relationship with EU Directive(s), see informative Annex ZA, which is an integral part of this document.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: 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.

¹ This corrigendum has been superseded by the changes of EN 1090-1:2009/FprA1:2011.

Introduction

This harmonised European Standard is a part of a group of European standards dealing with design and manufacturing of load bearing components and structures made of steel or aluminium.

This harmonised European Standard deals with provisions for conformity assessment of components which imply conformity to performance characteristics declared by the manufacturer of the components.

The components have structural characteristics which make them fit for their particular use and function.

The structural characteristics are governed by the design and the manufacture of the components.

This harmonised European Standard does not contain rules for structural design and manufacture. Such rules are called up from the relevant parts of Eurocode for design requirements and from EN 1090-2 (steel) and EN 1090-3 (aluminium) for execution requirements.

To use this harmonised European Standard for assessment and declaration of conformity of structural steel or aluminium components all relevant design and execution standards within the group need to be available.

This harmonised European Standard has been prepared to satisfy Mandate M 120 – Structural metallic products and ancillaries (2/4) – issued by the European Commission.

1 Scope

This European Standard specifies requirements for conformity assessment of performance characteristics for structural steel and aluminium components as well as for kits placed on the market as construction products. The conformity assessment covers the manufacturing characteristics, and where appropriate the structural design characteristics.

This European Standard covers also the conformity assessment of steel components used in composite steel and concrete structures.

The components can be used directly or in construction works or as structural components in the form of kits.

This European Standard applies to series and non-series structural components including kits.

The components can be made of hot rolled or cold formed constituent products or constituent products produced with other technologies. They may be produced of sections/profiles with various shapes, flat products (plates, sheet, strip), bars, castings, forgings made of steel and aluminium materials, unprotected or protected against corrosion by coating or other surface treatment, e.g. anodising of aluminium.

This European Standard covers structural cold formed members and sheeting as defined in EN 1993-1-3 and EN 1999-1-4.

This European Standard does not cover conformity assessment of components for suspended ceilings, rails or sleepers for use in railway systems.

NOTE For certain steel and aluminium components, particular specifications for performance and other requirements have been developed. The particular specifications may be issued as an EN or as Clauses within an EN. An example is given in EN 13084-7 for single wall steel chimneys and steel liners. Such particular specifications will take precedence in case of non-compliance with the requirements of this European Standard.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 1090-2	<i>Execution of steel structures and aluminium structures — Part 2: Technical requirements for steel structures</i>
EN 1090-3	<i>Execution of steel structures and aluminium structures — Part 3: Technical requirements for aluminium structures</i>
EN 1990:2002	<i>Eurocode: Basis of structural design</i>
EN 1991 (all parts)	<i>Eurocode 1: Actions on structures</i>
EN 1993 (all parts)	<i>Eurocode 3: Design of steel structures</i>
EN 1994 (all parts)	<i>Eurocode 4: Design of composite steel and concrete structures</i>
EN 1998 (all parts)	<i>Eurocode 8: Design of structures for earthquake resistance</i>
EN 1999 (all parts)	<i>Eurocode 9: Design of aluminium structures</i>
EN 10045-1	<i>Metallic materials — Charpy impact test — Part 1: Test method</i>

This is a free preview. Purchase the entire publication at the link below:

[Product Page](#)

-
- Looking for additional Standards? Visit Intertek Inform Infostore
 - Learn about LexConnect, All Jurisdictions, Standards referenced in Australian legislation
-