SLOVENSKI PREDSTANDARD

SIST ENV 1090-1

prva izdaja
april 1999

Izdelava in montaža jeklenih konstrukcij - 1. del : Splošna pravila in pravila za stavbe (prevzet ENV 1090-1:1996 z metodo platnice)

Execution of steel structures - Part 1: General rules and rules for buildings

Exécution des structures en acier - Partie 1: Règles générales et règles pour les bâtiments

Ausführung von Tragwerken aus Stahl - Teil 1: Allgemeine Regeln und Regeln für Hochbauen

Deskriptorji: stavbe, jeklena konstrukcija, jekleni okvirji, konstrukcijska jekla, materiali, izdelava, pogoji izvajanja, stikovanje, varjenje, spojna sredstva, sestavljanje, geometrijska odstopanja, zaščita, pregled, preskusi

ICS 91.040.00; 91.080.10

Referenčna številka
SIST ENV 1090-1:1999 ((sl),en)

Nadaljevanje na straneh od II do V in od 1 do 123

NACIONALNI UVOD

Predstandard SIST ENV 1090-1 ((sl),en), Izdelava in montaža jeklenih konstrukcij - 1. del : Splošna pravila in pravila za stavbe, prva izdaja, 1999, ima status slovenskega predstandarda in je z metodo platnice prevzet evropski predstandard ENV 1090-1, Execution of steel structures - Part 1: General rules and rules for buildings, 1996, v angleškem jeziku.

NACIONALNI PREDGOVOR

Evropski predstandard ENV 1090-1:1996 je pripravil tehnični odbor Evropskega komiteja za standardizacijo CEN/TC 135 Izdelava in montaža jeklenih konstrukcij.

Odločitev za prevzem tega predstandarda po metodi platnice je sprejela delovna skupina USM/TC KON/WG 3 Jeklene konstrukcije, ki je pripravila tudi nacionalni dokument za uporabo v Sloveniji, potrdil pa tehnični odbor USM/TC KON Konstrukcije.

Ta predstandard se v Sloveniji lahko uporablja samo v skladu z nacionalnim dokumentom, ki je sestavni del SIST ENV 1090 -1:1999.

Ta slovenski predstandard je dne 1999-01-28 odobril direktor USM.

Rok veljavnosti predstandarda je tri leta od njegove izdaje oziroma do izdaje evropskega standarda EN 1090-1.

ZVEZE S STANDARDI

S prevzemom tega evropskega predstandarda veljajo naslednje zveze:

ENV 1090-2**	Izdelava in montaža jeklenih konstrukcij - 2. del: Dopolnilna pravila za hladnooblikovane tankostenske profile in pločevine
ENV 1090-3:1997*	Izdelava in montaža jeklenih konstrukcij - 3. del: Dopolnilna pravila za jekla visoke trdnosti
ENV 1090-4:1997*	Izdelava in montaža jeklenih konstrukcij - 4. del: Dopolnilna pravila za konstrukcije z votlimi prerezi
ENV 1090-5**	Izdelava in montaža jeklenih konstrukcij - 5. del: Dopolnilna pravila za mostove
ENV 1991	Eurocode 1 - Osnove projektiranja in vplivi na konstrukcije
ENV 1993	Eurocode 3 - Projektiranje jeklenih konstrukcij
ENV 1994	Eurocode 4 - Projektiranje sovprežnih konstrukcij
ENV 1998	Eurocode 8 - Projektiranje konstrukcij na potresnih področjih

OPOMBI

- Povsod, kjer se v besedilu predstandarda uporablja izraz “evropski predstandard”, v SIST ENV 1090-1:1999 to pomeni “slovenski predstandard”.
- Uvod in nacionalni predgovor nista sestavni del predstandarda.

* Dokument bo predvidoma prevzet kot SIST.
** Dokument je v fazi izdelave in bo predvidoma prevzet kot SIST.

VSEBINA **Stran**

Nacionalni dokument za uporabo v Sloveniji

SIST ENV 1090-1 obravnava izdelavo in montažo jeklenih konstrukcij in se nanaša na splošna pravila in pravila za stavbe. Edina sprememba besedila evropskega predstandarda ENV 1090-1:1996 je seznam referenčnih standardov, podan v drugem poglavju ENV 1090-1.

Za vijake visoke trdnosti kvalitete 8,8 in 10,9 ter pripadajoče matice in podložke so bili pripravljeni predlogi evropskih standardov od prEN 780 do prEN 785. Zaradi neusklajenih pogledov nekaterih članic CEN na vijake visoke trdnosti ti predlogi evropskih standardov verjetno ne bodo v kratkem pridobili statusa evropskih standardov.

Namesto visokovrednih vijakov 8,8 in 10,9 ter pripadajočih matic in podložk v skladu z neusklajenimi predlogi evropskih standardov:

prEN 780	Hexagon nuts for high-strength structural bolting with large width across flats, thick style - Product grade B - Property classes 8 and 10
prEN 781	Hexagon bolts for high-strength structural bolting with large width across flats (thread lengths according to ISO 888) - Product grade C - Property classes 8.8 and 10.9
prEN 782	Hexagon bolts for high-strength structural bolting with large width across flats (short thread length) - Product grade C - Property class 10.9
prEN 783	Hexagon nuts for high-strength structural bolting with large width across flats, style 1 - Product grade B - Property class 10
prEN 784	Plain washers for high-strength structural bolting, hardened and tempered
prEN 785	Plain washers, chamfered, hardened and tempered for high-strength structural bolting,

navedenih v drugem poglavju ENV 1090 -1, se morajo uporabljati vijaki, matice in podložke, ki so v skladu s slovenskimi standardi:

SIST ISO 4775:1996	Šestrobe široke matice velike trdnosti za vijačene jeklene konstrukcije - Razred izdelave B - Trdnostna razreda 8 in 10
SIST ISO 7411:1996	Vijaki s šestrobo široko glavo velike trdnosti za vijačene jeklene konstrukcije - Zevi ključa "S" (dolžina navoja po ISO 888) - Razred izdelave C - Trdnostna razreda 8.8 in 10.9
SIST ISO 7412:1996	Vijaki s šestrobo široko glavo velike trdnosti za vijačene jeklene konstrukcije - Zevi ključa "S" (kratka dolžina navoja) - Razred izdelave C - Trdnostna razreda 8.8 in 10.9
SIST ISO 7414:1996	Šestrobe matice, široke, za jeklene konstrukcije, tip 1 - Razred izdelave B - Trdnostni razred 10
SIST ISO 7415:1996	Okrogle podložke, poboljšane, za vijačene zveze velike trdnosti v jeklenih konstrukcijah
SIST ISO 7416:1996	Okrogle posnete podložke, poboljšane, za vijačene zveze velike trdnosti v jeklenih konstrukcijah

ali standardi DIN:

DIN 6914:1989	Sechskantenschrauben mit großen Schlüsselweiten - HV-Schrauben in Stahlkonstruktionen *Vijaki visoke trdnosti s šestrobo široko glavo za jeklene konstrukcije*
DIN 6915:1989	Sechskantenmutteren mit großen Schlüsselweiten für Verbindungen mit HV-Schrauben in Stahlkonstruktionen *Šestrobe matice za spoje v jeklenih konstrukcijah, izvedene z vijaki visoke trdnosti*
DIN 6916:1989	Scheiben rund für HV-Schrauben in Stahlkonstruktionen *Okrogle podložke za vijake visoke trdnosti v jeklenih konstrukcijah*

Pri uporabi vijakov po DIN 6914 se morajo uporabljati matice po DIN 6915 in podložke po DIN 6916.

Po mnenju Ministrstva za informiranje Republike Slovenije z dne 18. februarja 1992, štev. 23/96-92, spada ta publikacija med proizvode informativne narave iz 13. točke tarifne številke 3, za katere se plačuje 5-odstotni prometni davek.

EUROPEAN PRESTANDARD

PRÉNORME EUROPÉENNE

EUROPÄISCHE VORNORM

ENV 1090-1

April 1996

ICS 91.040.00; 91.080.10

Descriptors: buildings, steel construction, steel frames, structural steels, materials, manufacturing, setting-up conditions, joining, welding, fastenings, assembling, geometrical tolerances, protection, inspection, tests

English version

Execution of steel structures - Part 1: General rules and rules for buildings

Exécution des structures en acier - Partie 1: Règles générales et règles pour les bâtiments

Ausführung von Tragwerken aus Stahl - Teil 1: Allgemeine Regeln und Regeln für Hochbauten

This European Prestandard (ENV) was approved by CEN on 1995-02-28 as a prospective standard for provisional application. The period of validity of this ENV is limited initially to three years. After two years the members of CEN will be requested to submit their comments, particularly on the question whether the ENV can be converted into an European Standard (EN).

CEN members are required to announce the existance of this ENV in the same way as for an EN and to make the ENV available promptly at national level in an appropriate form. It is permissible to keep conflicting national standards in force (in parallel to the ENV) until the final decision about the possible conversion of the ENV into an EN is reached.

CEN members are the national standards bodies of Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

Central Secretariat: rue de Stassart,36 B-1050 Brussels

Ref. No. ENV 1090-1:1996 E

FOREWORD

This European Prestandard has been prepared by Technical Committee CEN/TC 135 "Execution of steel structures", the secretariat of which is held by NSF.

No European Standard for execution of structures has previously been issued. Certain rules for execution have been included in product standards, certain rules have also been included in the design rules for structures, such as ENV 1992-1-1 (Eurocode 2), ENV 1993-1-1 (Eurocode 3) and ENV 1994-1-1 (Eurocode 4). The intention of including rules for execution in the design standards has been to define minimum requirements which shall be met in order to ensure consistency with the assumptions made in the design thus ensuring that the structure achieves its intended reliability.

During some years from 1990, discussions have led to a common understanding of the advantages of having European Standards for execution of structures. Such standards will complete the set of standards necessary to design, execute and purchase construction works. Many countries have national standards for execution. The reason for developing European Standards for execution has, however, been debated within some of CEN's committees. It is thus convenient to summarize here the main reasons for developing a European Standard for execution of steel structures:

- To transfer the requirements set during design from the designer to the constructor, i.e. to be a link between design and execution.

- To give instructions to the constructor on how to execute the physical work (fabrication, welding, bolting, erection, protective treatment) as well as to give requirements for accuracy of the work. The standard on execution will thus serve as a document which gives standardized

  technical requirements when ordering a steel structure.

- To inform and serve as the check list for the designer with respect to information which needs to be specified in the project specification for the particular project. It is foreseen and required that each project shall have a project specification which defines the technical requirements for that particular project. Such a project specification could be a single drawing for a minor project or a comprehensive package of documents for a complicated steel structure.

A standard for execution of structures is basically a type A standard which give rules for fulfillment of the essential requirement of mechanical resistance and stability. The execution standard is a direct parallel to ENV 1993-1-1 in this respect.

However, some clauses give specific measureable performance criteria for fabricated steel products manufactured for inclusion in construction works (e.g. tolerances for fabrication and welding). Whether these products are produced in batches, non-series production or as one-off items (to a purchaser's special requirements) the same criteria will apply when products are manufactured to this standard.

Because of the close connection between design rules and rules for execution, TC 135 cooperates closely with CEN/TC 250/SC 3 - *Eurocode 3: Design of Steel Structures*. This applies to the framework for the standards, including the subdivision into a series of standards for various types of structures, as well as the technical rules themselves. CEN/TC 135 has not yet concluded whether it will be necessary for the execution standards to have the same number of parts as for the design standards. However, Part 1 of the execution document covers the same scope as ENV 1993-1-1, with the exception that structures susceptible to fatigue are excluded from the execution part.

The present program for further parts is the following:

Execution of steel structures -
Part 2: Rules for cold formed thin gauge members and sheeting;

Execution of steel structures -
Part 3: Supplementary rules for high strength steels;

Execution of steel structures -
Part 4: Supplementary rules for hollow section lattice structures;

Execution of steel structures -
Part 5: Supplementary rules for bridges and plated structures.

(This numbering system is different from the numbering system of ENV 1993).

According to the CEN/CENELEC Internal Regulations, the national standards organisations of the following countries are bound to announce this European Prestandard: Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

INTRODUCTION

(1) This European Prestandard gives requirements for execution of steel structures in order to ensure adequate levels of mechanical resistance and stability, serviceability and durability.

(2) This European Prestandard specifies requirements for execution of steel structures in particular those which are designed according to ENV 1993-1-1 and for the steel parts of composite structures designed according to ENV 1994-1-1.

(3) This European Prestandard presupposes that the work is carried out with the necessary skill and adequate equipment and resources to perform the work in accordance with the requirements of the project specification and the requirements of this European Prestandard.

Note: This European Prestandard does not state requirements for quality assurance which shall follow relevant national regulations.

1 SCOPE

(1) This European Prestandard specifies general requirements for execution of structural steelwork produced from hot rolled, hot finished, welded and cold formed steel products. This European Prestandard does not cover cold formed thin gauge members and sheeting. The definition of steel products is given in EN 10079.

(2) In addition, Part 1 gives detailed requirements for structures which are not significantly susceptible to fatigue. The definition of structures which are not significantly susceptible to fatigue is given in ENV 1993-1-1.

(3) The standard also gives the method for specifying to match the requirements of the standard to project specific requirements.

(4) The standard is also applicable to steel components in composite steel and concrete structures as defined in ENV 1994-1-1.

(5) The standard is also applicable to temporary steel structures.

2 NORMATIVE REFERENCES

This European Prestandard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Prestandard, only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 287-1:1992	Approval testing of welders - Fusion welding - Part 1: Steels
EN 288-1:1992	Specification and qualification of welding procedures for metallic materials - Part 1: General rules for fusion welding
EN 288-2:1992	Specification and approval of welding procedures for metallic materials - Part 2: Welding procedure specification for arc welding
EN 288-3:1992	Specification and approval of welding procedures for metallic materials - Part 3: Welding procedure tests for the arc welding of steels
EN 288-5:1995	Specification and approval of welding procedures for metallic materials - Part 5: Approval by using approved welding consumables for arc welding
EN 288-6:1995	Specification and approval of welding procedures for metallic materials - Part 6: Approval related to previous experience
EN 288-7:1995	Specification and approval of welding procedures for metallic materials - Part 7: Approval by a standard welding procedure for arc welding
EN 288-8:1995	Specification and approval of welding procedures for metallic materials - Part 8: Approval by a pre-production welding test
EN 719:1995	Welding coordination - Task and responsibilities
EN 729-1:1995	Quality requirements for welding - Fusion welding of metallic parts - Part 1: Guidelines for selection and use
EN 729-2:1995	Quality requirements for welding - Fusion welding of metallic parts - Part 2: Comprehensive quality requirements
EN 729-3:1995	Quality requirements for welding - Fusion welding of metallic parts - Part 3: Standard quality requirements
EN 729-4:1995	Quality requirements for welding - Fusion welding of metallic parts - Part 4: Elementary quality requirements
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prEN 783	Hexagon nuts for structural bolting with large width across flats, style 1 - Product grades B - Property class 10
prEN 784	Plain washers for high-strength structural bolting, hardened and tempered
prEN 785	Plain washers, chamfered, hardened and tempered for high-strength structural bolting
prEN 970	Welding - Visual examination for fusion welded joints
prEN 1011	Recommendation for arc welding of ferritic steels
prEN 1029	Hot dip galvanized coatings on fabricated ferrous products - Specification
prEN 1418	Welding personnel - Approval testing of welding personnel for fully mechanized and automatic welding of metallic materials
ENV 1992-1-1:1992	Eurocode 2: Design of concrete structures - Part 1-1: General rules and rules for buildings
ENV 1993-1-1:1992	Eurocode 3: Design of steel structures - Part 1-1: General rules and rules for buildings
prENV 1993-1-2	Eurocode 3: Design of steel structures - Part 1-2: Supplementary rules for structural fire design
ENV 1994-1-1:1992	Eurocode 4: Design of composite steel and concrete structures - Part 1-1: General rules and rules for buildings
EN 10020:1988/ AC:1991	Definition and classification of grades of steel
EN 10021:1993	General technical delivery requirements for steel and iron products
EN 10024:1995	Taper flange I sections - Tolerances on shape and dimensions
EN 10025:1990/ A1:1993	Hot rolled products of non-alloy structural steels - Technical delivery conditions
EN 10027-1:1992	Designation system for steel - Part 1: Steel names, principal symbols
EN 10027-2:1992	Designation system for steel - Part 2: Numerical systems
EN 10029:1991	Hot rolled steel plates 3 mm thick or above - Tolerances on dimensions, shape and mass
EN 10034:1993	Structural steel I and H sections - Tolerances on shape and dimensions
EN 10051:1991	Continuously hot-rolled uncoated plate, sheet and strip of non-alloy and alloy steels - Tolerances on dimensions and shape
EN 10055:1995	Hot rolled steel equal flange tees with radiused root and toes - Dimensions and tolerances on shape and dimensions
EN 10056-1:1995	Structural steel equal and unequal leg angles - Part 1: Dimensions
EN 10056-2:1993	Structural steel equal and unequal leg angles - Part 2: Tolerances on shape and dimensions