

Kuumvaltsitud tasapinnalised tooted, mis on tehtud kõrge voolavuspiiriga terastest ning on ette nähtud külmsurvevormimiseks. Osa 1: Üldised tarnetingimused

Hot rolled flat products made of high yield strength steels for cold forming - Part 1: General technical delivery conditions

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 10149-1:2013 sisaldab Euroopa standardi EN 10149-1:2013 ingliskeelset teksti.	This Estonian standard EVS-EN 10149-1:2013 consists of the English text of the European standard EN 10149-1:2013.
Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas.	This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation.
Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 25.09.2013.	Date of Availability of the European standard is 25.09.2013.
Standard on kättesaadav Eesti Standardikeskusest.	The standard is available from the Estonian Centre for Standardisation.

Tagasisidet standardi sisu kohta on võimalik edastada, kasutades EVS-i veebilehel asuvat tagasiside vormi või saates e-kirja meiliaadressile standardiosakond@evs.ee.

ICS 77.140.50

Standardite reprodutseerimise ja levitamise õigus kuulub Eesti Standardikeskusele

Andmete paljundamine, taastekitamine, kopeerimine, salvestamine elektroonsesse süsteemi või edastamine ükskõik millises vormis või millisel teel ilma Eesti Standardikeskuse kirjaliku loata on keelatud.

Kui Teil on küsimusi standardite autorikaitse kohta, võtke palun ühendust Eesti Standardikeskusega:
Aru 10, 10317 Tallinn, Eesti; www.evs.ee; telefon 605 5050; e-post info@evs.ee

The right to reproduce and distribute standards belongs to the Estonian Centre for Standardisation

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying, without a written permission from the Estonian Centre for Standardisation.

If you have any questions about copyright, please contact Estonian Centre for Standardisation:
Aru 10, 10317 Tallinn, Estonia; www.evs.ee; phone 605 5050; e-mail info@evs.ee

English Version

Hot rolled flat products made of high yield strength steels for cold forming - Part 1: General technical delivery conditions

Produits plats laminés à chaud en aciers à haute limite d'élasticité pour formage à froid - Partie 1: Conditions générales techniques de livraison

Warmgewalzte Flacherzeugnisse aus Stählen mit hoher Streckgrenze zum Kaltumformen - Teil 1: Allgemeine technische Lieferbedingungen

This European Standard was approved by CEN on 17 August 2013.

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, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.



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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Contents

Page

Foreword.....	3
1 Scope.....	4
2 Normative references.....	4
3 Terms and definitions	5
4 Information to be supplied by the purchaser.....	6
4.1 Mandatory information.....	6
4.2 Options	6
5 Dimensions, mass and tolerances	6
5.1 Dimensions and tolerances	6
5.2 Mass of steel	6
6 Classification and designation	6
6.1 Classification and grades	6
6.2 Designation	6
7 Technical requirements	7
7.1 Steel manufacturing process.....	7
7.2 Delivery condition	7
7.3 Chemical composition	8
7.4 Mechanical properties.....	9
7.5 Technological properties.....	9
7.6 Surface finish	10
7.7 Internal soundness	10
8 Inspection and testing	11
8.1 General	11
8.2 Sampling.....	11
8.3 Test units.....	11
8.4 Verification of chemical composition.....	11
8.5 Preparation of samples and test pieces.....	11
8.6 Test methods.....	12
8.7 Retests and resubmission for testing	13
8.8 Inspection documents	13
9 Marking.....	14
10 Disputes.....	14
11 Options	14
Bibliography.....	16

Foreword

This document (EN 10149-1:2013) has been prepared by Technical Committee ECISS/TC 103 “Structural steel other than reinforcements”, the secretariat of which is held by DIN.

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 March 2014, and conflicting national standards shall be withdrawn at the latest by March 2014.

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 supersedes EN 10149-1:1995.

In comparison with EN 10149-1:1995, the following significant technical changes were made:

- definition 3.2, Note 1 modified;
- subclause 7.4.1.1, Note modified and changed to standard text;
- subclause 7.5.1, Note 2 for welding suitability of grades S900MC and S960MC added;
- Table 1, values for Mn, Ti and Mo modified.

The specific requirements for hot rolled products made of high yield strength steels for cold forming are given in the EN 10149-2 and EN 10149-3. The titles of the other Parts of this European Standard are:

- *Part 2: Technical delivery conditions for thermomechanical rolled steels;*
- *Part 3: Technical delivery conditions for normalized or normalized rolled steels.*

According to the CEN-CENELEC Internal Regulations, the national standards organisations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

1.1 This European Standard specifies requirements for flat products made of weldable, hot-rolled, high yield strength alloy quality and special steels for cold forming.

EN 10149-1 specifies the general delivery conditions.

EN 10149-2 specifies the delivery conditions for thermomechanically rolled steels in the grades given in Table 1 (chemical composition) and Table 2 (mechanical properties) of Part 2.

EN 10149-3 specifies the delivery conditions for normalised or normalised rolled steels in the grades given in Table 1 (chemical composition) and Table 2 (mechanical properties) of Part 3.

1.2 This European Standard does not apply to products for pressure vessels and products for which other European Standards exist or European Standards dealing with steels for general structural applications are being prepared:

- Hot-rolled products of structural steels (see EN 10025 parts 1 to 6);
- Hot finished structural hollow sections of non-alloy and fine grain steels (see EN 10210-1).

2 Normative references

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

EN 10020, *Definition and classification of grades of steel*

EN 10021, *General technical delivery conditions for steel products*

EN 10029, *Hot-rolled steel plates 3 mm thick or above - Tolerances on dimensions and shape*

EN 10048, *Hot-rolled narrow steel strip – Tolerances on dimensions and shape*

EN 10051, *Continuously hot-rolled strip and plate/sheet cut from wide strip of non-alloy and alloy steels – Tolerances on dimensions and shape*

EN 10052:1993, *Vocabulary of heat treatment terms for ferrous products*

EN 10079:2007, *Definition of steel products*

EN 10149-2:2013, *Hot rolled flat products made of high yield strength steels for cold forming – Part 2: Technical delivery conditions for thermomechanically rolled steels*

EN 10149-3:2013, *Hot rolled flat products made of high yield strength steels for cold forming – Part 3: Technical delivery conditions for normalized or normalized rolled steels*

EN 10160, *Ultrasonic testing of steel flat product of thickness equal to or greater than 6 mm (reflection method)*

EN 10162, *Cold-rolled steel sections – Technical delivery conditions – Dimensional and cross-sectional tolerances*

EN 10163-1, *Delivery requirements for surface condition of hot-rolled steel plates, wide flats and sections – Part 1: General requirements*

EN 10163-2, *Delivery requirements for surface condition of hot-rolled steel plates, wide flats and sections – Part 2: Plate and wide flats*

EN 10168, *Steel products – Inspection documents – List of information and description*

EN 10204, *Metallic products – Types of inspection documents*

EN ISO 148-1, *Metallic materials – Charpy pendulum impact test – Part 1: Test method (ISO 148-1)*

EN ISO 377, *Steel and steel products – Location and preparation of samples and test pieces for mechanical testing (ISO 377)*

EN ISO 2566-1, *Steel – Conversion of elongation values – Part 1: Carbon and low alloy steels (ISO 2566-1)*

EN ISO 6892-1:2009, *Metallic materials – Tensile testing – Part 1: Method of test at room temperature (ISO 6892-1:2009)*

EN ISO 7438, *Metallic materials – Bend test (ISO 7438)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 10052:1993, EN 10079:2007 and the following apply.

3.1

fine grained steels

steels with fine grain structure with an equivalent index of ferritic grain size ≥ 6

Note 1 to entry: For the determination of grain sizes, see EN ISO 643.

3.2

thermomechanical rolling

rolling process in which the final deformation is carried out in a certain temperature range leading to a material condition with certain properties which cannot be achieved or repeated by heat treatment alone

Note 1 to entry: Hot forming or post weld heat treatment at a temperature above 580 °C may lower the strength values and for this reason is better not performed. Flame straightening can be applied in accordance with CEN/TR 10347. For grades S900MC and S960MC, subsequent heating at temperature above 400 °C is not recommended.

Note 2 to entry: Thermomechanical rolling can include processes with an increasing cooling rate with or without tempering including self-tempering but excluding direct quenching and quenching and tempering.

Note 3 to entry: In some publications, the word TMCP (Thermomechanical Control Process) is also used.

3.3

normalised rolled

rolling process in which the final deformation is carried out in a certain temperature range leading to a material condition equivalent to that obtained after normalising so that the specified values of the mechanical properties are retained even after normalising

Note 1 to entry: In international publications for both the normalising rolling, as well as the thermomechanical rolling, the expression "controlled rolling" may be found. However, in view of the different applicability of the products, a distinction of the terms is necessary.