

**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 delivery
conditions

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

<p>Käesolev Eesti standard EVS-EN 10149-1:1999 sisaldab Euroopa standardi EN 10149-1:1995 ingliskeelset teksti.</p> <p>Käesolev dokument on jõustatud 23.11.1999 ja selle kohta on avaldatud teade Eesti standardiorganisatsiooni ametlikus väljaandes.</p> <p>Standard on kättesaadav Eesti standardiorganisatsioonist.</p>	<p>This Estonian standard EVS-EN 10149-1:1999 consists of the English text of the European standard EN 10149-1:1995.</p> <p>This document is endorsed on 23.11.1999 with the notification being published in the official publication of the Estonian national standardisation organisation.</p> <p>The standard is available from Estonian standardisation organisation.</p>
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<p>Käsitlusala: See Euroopa standard määrab kindlaks nõuded nende tasapinnaliste toodete kohta, mis on tehtud keevitatavatest kuumvaltsitud kõrge voolavuspiiriga legeerkvaliteeteterastest ja eriterastest ning on ette nähtud külmsurvevormimiseks. Osa 1 määrab kindlaks üldised tarnetingimused.</p>	<p>Scope:</p>
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ICS 77.140.50

Võtmesõnad: keemiline koostis, kontroll, kuumvaltsstooted, kvaliteet, kõrge voolavuspiiriga terased, külmtöötlemine, legeerteras, liigitus, margid, mehaanilised omadused, metalli valtsimine, raud- ja terastooted, tarnetingimus, tähistamine

Hinnagrupp K

ICS 77.140.10; 77.140.50

Descriptors: Steel, plate, flats, high-strength steel.

English version

**Hot-rolled flat products made of high yield strength
steel for cold forming**

Part 1: General delivery conditions

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

Warmgewalzte Flacherzeugnisse aus
Stählen mit hoher Streckgrenze zum Kalt-
umformen. Teil 1: Allgemeine Lieferbe-
dingungen

This European Standard was approved by CEN on 1995-08-06.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

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

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Foreword

This European Standard has been prepared by ECISS/TC 10 'Structural steels; qualities', the Secretariat of which is held by NNI.

This European Standard is composed of three Parts:

Part 1: General delivery conditions

Part 2: Delivery conditions for thermomechanically rolled steels

Part 3: Delivery conditions for normalized or normalized rolled steels

This European Standard shall be given the status of a national standard, either by publication of an identical text or by endorsement, and conflicting national standards withdrawn, by March 1996 at the latest.

In accordance with the CEN/CENELEC Internal Regulations, the following countries are bound to implement this European Standard:

Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and 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.

Part 1 of this European Standard specifies the general delivery conditions.

Part 2 of this European Standard 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.

Part 3 of this European Standard specifies the delivery conditions for normalized or normalized rolled steels in the grades given in table 1 (chemical composition) and table 2 (mechanical properties) of Part 3.

The steels specified in Part 2 and 3 of this European Standard are applicable to hot-rolled flat products in the thickness range of 1,5 mm to 20 mm for the steels with $R_{eH} \leq 460 \text{ N/mm}^2$ and 1,5 mm to 16 mm for the steels with higher minimum yield strength.

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

- Hot-rolled products of non-alloy structural steels - (see EN 10025).
- Semi-finished products for forging in general purpose structural steel - (see EURONORM 30).
- Weldable fine grain structural steels - (see EN 10113 Parts 1 - 3).
- Plates and wide flats made of high yield strength structural steels in the quenched and tempered or precipitation hardened condition - (see EN 10137 Parts 1 - 3).
- Structural steels with improved atmospheric corrosion resistance - (see EN 10155).
- Steels for shipbuilding - normal and high strength qualities - (see EURONORM 156).
- Hot finished structural hollow sections (see EN 10210-1).

2 Normative references

This European Standard 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 Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

2.1 General standards

EN 10020	Definition and classification of grades of steels
EN 10021	General technical delivery requirements for steel and iron products
EN 10027-1	Designation systems for steel - Part 1: Steel

	names principal symbols
EN 10027-2	Designation systems for steel - Part 2: Numerical system
EN 10052	Vocabulary of heat treatment terms for ferrous products
EN 10079	Definitions of steel products
EN 10163	Delivery requirements for surface condition of hot-rolled steel plates, wide flats and sections - Part 1: General requirements; Part 2: Plates and wide flats
EN 10164	Steel products with improved deformation properties perpendicular to the surface of the product - Technical delivery conditions
EN 10204	Metallic products - Types of inspection documents
EURONORM 162 (1981) ¹⁾	Cold-rolled sections - Technical conditions of delivery
EURONORM 168 (1986) ¹⁾	Iron and steel products - Inspection documents - Contents
ECSC IC 2 (1983) ¹⁾	Weldable fine-grained structural steels - Recommendations for processing, in particular for welding
ECISS IC 10	Designation systems for steel - Additional symbols for steel names

2.2 Standards on dimensions and tolerances

EN 10029	Hot-rolled plates 3 mm thick or above - Tolerances on dimensions, shape and mass
EN 10048	Hot-rolled narrow steel strip - Tolerances on dimensions and shape
EN 10051	Continuously hot-rolled non-coated sheet and strip of non-alloy and alloy steels - Tolerances on dimensions and shape
EURONORM 91 (1981) ¹⁾	Hot-rolled wide flats - Tolerances on dimensions, shape and mass

2.3 Standards on testing

EN 10002-1	Metallic materials - Tensile testing - Part 1: Method of test (at ambient temperature)
EN 10045-1	Metallic materials - Charpy impact test - Part 1: Test method
EURONORM 6 (1955) ¹⁾	Bend test on steel
EURONORM 12 (1955) ¹⁾	Bend test on steel sheet and strip with a thickness less than 3 mm
EURONORM 18 (1979) ¹⁾	Selection and preparation of samples and test pieces for steel and iron and steel products

1) Until these EURONORMS are transformed into European Standards, they can either be implemented or reference made to the corresponding national standards, the list of which is given in Annex A to this European Standard.

- EURONORM 103 (1971) ¹⁾ Microscopic determination of the ferritic and austenitic grain size of steel
- EURONORM 160 (1985) ¹⁾ Manual ultrasonic testing of plate in thickness ≥ 6 mm (reflection method)
- ISO 2566-1 (1984) Steel - Conversion of elongation values - Part 1: Carbon and low alloy steels

3 Definitions

For the purposes of this European Standard the following definitions apply.

- 3.1 Alloy quality and special steel as defined in EN 10020.
- 3.2 Flat products (plate, sheet, narrow strip, wide strip and wide flats) as defined in EN 10079.
- 3.3 Heat treatment terms as defined in EN 10052.
- 3.4 **Fine grained steels:** steels with fine grain structure with an equivalent index of ferritic grain size ≥ 6 determined in accordance with EURONORM 103.
- 3.5 **Thermomechanical rolling:** a 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.
The abbreviated form of this delivery condition is M.

NOTE 1: Subsequent heating above 580 °C may lower the strength values. If temperatures above 580 °C are needed reference shall be made to the supplier.

NOTE 2: Thermomechanical rolling leading to the delivery condition M can include processes with an increased cooling rate with or without tempering including self-tempering but excluding direct quenching and quenching and tempering.

- 3.6 **Normalizing rolling:** a 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 normalizing so that the specified values of the mechanical properties are retained even after normalizing.
The abbreviated form of this delivery condition is N.

1) Until these EURONORMS are transformed into European Standards, they can either be implemented or reference made to the corresponding national standards, the list of which is given in Annex A to this European Standard.