



SLOVENSKI STANDARD

SIST EN 10087:2000

01-april-2000

Avtomatna jekla - Tehnični dobavni pogoji za polizdelke, vroče valjane drogove in palice

Free-cutting steels - Technical delivery conditions for semi-finished products, hot-rolled bars and rods

Automatenstähle - Technische Lieferbedingungen für Halbzeug, warmgewalzte Stäbe und Walzdraht

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Aciers de décolletage - Conditions techniques de livraison pour les demi-produits, barres et fils-machine laminés a chaud

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Ta slovenski standard je istoveten z: EN 10087:1998

ICS:

77.140.60 Jeklene palice in drogovi Steel bars and rods

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en

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EUROPEAN STANDARD

EN 10087

NORME EUROPÉENNE

EUROPÄISCHE NORM

September 1998

ICS 77.140.50; 77.140.60; 77.140.65

Descriptors: iron and steel products, hot-rolled products, metal bars, wire rod, free machining steels, grades:quality, chemical composition, mechanical properties, heat treatment, delivery condition, surface defects, inspection, tests

English version

Free-cutting steels - Technical delivery conditions for semi-finished products, hot-rolled bars and rods

Aciers de décolletage - Conditions techniques de livraison pour les demi-produits, barres et fils-machine laminés à chaud

Automatenstähle - Technische Lieferbedingungen für Halbzeug, warmgewalzte Stäbe und Walzdraht

This European Standard was approved by CEN on 4 September 1998.

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.

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



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

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

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Foreword

This European Standard has been prepared by Technical Committee ECISS/TC 23 "Steels for heat treatment, alloy steels and free-cutting steels - Qualities and dimensions", the secretariat of which is held by DIN.

ECISS/TC 23 met on 1st/2nd July 1997 in Düsseldorf and agreed on the text for submission of this draft European Standard to COCOR-Vote. The following countries were represented in the meeting:
Finland, France, Germany, Italy and United Kingdom.

The United Kingdom issues a non-conflicting national addition which describes a steel used in the United Kingdom but not included in this European Standard.

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 1999, and conflicting national standards shall be withdrawn at the latest by March 1999.

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

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1 Scope

1.1 This European Standard gives the technical delivery conditions for

- semi-finished products,
- hot-rolled bars (including peeled bars),
- rods

manufactured from the free-cutting steels listed in table 1.

This European Standard covers those groups of free-cutting steels classified as listed in table 1.

NOTE: European Standards for similar steels are listed for information in annex C.

1.2 In special cases, variations in these technical delivery conditions or additions to them may form the subject of an agreement at the time of enquiry and order (see annex B).

1.3 In addition to the specifications of this European Standard, the general technical delivery conditions specified in EN 10021 are applicable unless otherwise specified below.

2 Normative references

[SIST EN 10087:2000](https://standards.iteh.ai/catalog/standards/sist/c1beb9c3-c3bc-4dbf-95de-e6878ce2ea42/sist-en-10087-2000)

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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.

EN 10002-1	Metallic materials - Tensile testing - Part 1: Method of test (at ambient temperature)
EN 10003-1	Metallic materials - Brinell hardness test - Part 1: Test method
EN 10020	Definition and classification of grades of steel
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	Definition of steel products

EN 10204	Metallic products - Types of inspection documents (includes amendment A1:1995)
EN 10221	Surface quality classes for hot-rolled bars and rods - Technical delivery conditions
CR 10260	ECISS IC 10 - Designation systems for steel - Additional symbols
EN ISO 377	Steel and steel products - Location and preparation of test pieces for mechanical testing
EURONORM 103 ¹⁾	Microscopic determination of the ferritic or austenitic grain size of steels
ISO 14284	Steel and iron - Sampling and preparation of samples for the determination of chemical composition

3 Definitions

For the purpose of this European Standard the following definition applies in addition to the definitions in EN 10020, EN 10021, EN 10052, EN 10079, EN ISO 377 and ISO 14284:

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3.1 Free-cutting steels: Steels with a minimum sulfur content of at least, in general, 0,1% are regarded as free-cutting steels.

4 Classification and Designation

4.1 Classification

All steels covered by this European Standard are classified as non-alloy quality steels according to EN 10020.

4.2 Designation

4.2.1 Steel names

For the steel grades covered by this European Standard, the steel names as given in table 1 are allocated in accordance with EN 10027-1 and CR 10260.

1)

It may be agreed at the time of ordering, until this EURONORM has been adopted as an European Standard, that either this EURONORM or a corresponding national standard may be applied

4.2.2 Steel numbers

For the steel grades covered by this European Standard, the steel numbers as given in table 1 are allocated in accordance with EN 10027-2.

5 Information to be supplied by the purchaser

5.1 Mandatory information

The following information shall be supplied by the purchaser at the time of enquiry and order:

- a) the quantity to be delivered;
- b) the designation of the product form (e.g. round or square);
- c) the number of the dimensional standard (see Annex D);
- d) the dimensions and tolerances on dimensions and shape and, if applicable, letters denoting relevant special tolerances;
- e) the number of this European Standard (EN 10087);
- f) steel name or steel number (see 4.2);
- g) the standard designation for a test report (2.2) or, if required, any other type of inspection document in accordance with EN 10204 (see 8.1).

EXAMPLE:

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20 rounds EURONORM 60 - 40x8000 [10087:2000](https://standards.iteh.ai/catalog/standards/sist/c1beb9c3-c3bc-4dbf-95de-e6878ce2ea42/sist-en-10087-2000)
 EN 10087 - 35S20
 EN 10204 - 2.2

or

20 rounds EURONORM 60 - 40x8000
 EN 10087 - 1.0726
 EN 10204 - 2.2

5.2 Options

A number of options are specified in this European Standard and listed below. If the purchaser does not indicate his wish to implement one of these options, the supplier shall supply in accordance with the basis specification of this European Standard (see 5.1).

- a) any special requirement on treatment condition at delivery (see 6.2);
- b) any special requirement on grain size (see 7.3 and B.2);
- c) any requirement for internal soundness (see 7.4 and B.3);
- d) any requirement relating to surface quality (see 7.5.3);
- e) any requirement concerning suitability of bars and for bright drawing (see 7.5.4);
- f) any requirement relating to removal of surface defects (see 7.5.5);
- g) any requirement concerning special marking of the products (see clause 9 and B.5);
- h) any special requirement concerning verification of the mechanical properties in the quenched and tempered condition on a reference test piece (see 8.2.1.1 e) and B.1);
- i) any verification of the product analysis (see 8.2.1.1 f), table 8 and B.4).

6 Manufacturing process

6.1 General

The manufacturing process of the steel and of the products is left to the discretion of the manufacturer with the restrictions given by the requirements in 6.2 (see also 7.3).

6.2 Treatment condition at delivery

Unless otherwise agreed, products shall be delivered in the untreated condition.

6.3 Cast separation

The products shall be delivered separated by cast.

7 Requirements

7.1 Chemical composition and mechanical properties

The product shall have a chemical composition and mechanical properties, i.e. tensile strength and hardness, appropriate to the product form and treatment condition as set out in tables 1 to 5.

7.2 Weldability

Because of their high sulfur and phosphorus contents, free-cutting steels are not normally recommended for welding.

7.3 Structure

Unless otherwise agreed at the time of enquiry and order, the grain size shall be left to the discretion of the manufacturer. If, for case-hardening or direct-hardening steels, a fine grain structure is required in accordance with a reference treatment, this must be agreed at the time of enquiry and order (see B.2).

7.4 Internal soundness

Requirements for internal soundness may be agreed upon at the time of enquiry and order, e.g. on the basis on non-destructive tests (see B.3).

7.5 Surface quality

7.5.1 All products shall have a surface finish appropriate to the forming processes applied.

7.5.2 Minor surface imperfections which may occur also under normal manufacturing conditions, such as scores originating from rolled-in scale in the case of hot-rolled products, shall not be regarded as defects.

7.5.3 Where appropriate, requirements relating to the surface quality of the products shall be agreed on at the time of enquiry and order with reference to EN 10221.

NOTE: It is more difficult to detect and eliminate surface discontinuities from coiled products than from cut lengths. This should be taken into account when agreements are made on surface quality.

7.5.4 If suitability of bars and rod for bright drawing is required, this shall be agreed at the time of enquiry and order.

7.5.5 The repair of surface defects by welding is not permitted.

The method and permissible depth of defect removal, where appropriate, shall be agreed at the time of enquiry and order.

7.6 Dimensions, tolerances on dimensions and shape

The nominal dimensions, tolerances on dimensions and shape tolerances for the product shall be agreed at the time of enquiry and order, if possible, with reference to the dimensional standards applicable (see annex D).

8 Inspection and testing

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8.1 Types and contents of inspection documents

8.1.1 Products complying with this European Standard shall be ordered and delivered with one of the inspection documents as specified in EN 10204. The type of document shall be agreed upon at the time of enquiry and order. If the order does not contain any specification of this type, a test report shall be issued.

8.1.2 If, in accordance with 8.1.1, a test report is to be issued, it shall contain the following information:

- a) the confirmation that the material complies with the requirements of the order;
- b) the results of the cast analysis for all the elements specified in table 1 for the steel grade concerned.

8.1.3 If, in accordance with the agreements at the time of enquiry and order, an inspection certificate or inspection report is to be issued, the specific inspection described in 8.2 shall be carried out and the results shall be confirmed in the inspection document.

In addition, the inspection document shall contain the following information:

- a) the manufacturer's results for the cast analysis of all elements specified in table 1 for the steel grade concerned;