



SLOVENSKI STANDARD

SIST EN 10267:1998

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Feritno perlitna konstrukcijska jekla, ki se izločevalno utrjujejo s temperature vročega preoblikovanja

Ferritic-pearlitic steels for precipitation hardening from hot-working temperatures

Von Warmformgebungstemperatur ausscheidungshärtende ferritisch-perlitische Stähle

Aciers de type ferrite-perlite aptes au durcissement par précipitation a partir des températures de formage a chaud

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Ta slovenski standard je istoveten z: **EN 10267:1998**

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ICS:

77.140.10	Jekla za toplotno obdelavo	Heat-treatable steels
77.140.20	Visokokakovostna jekla	Stainless steels

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EUROPEAN STANDARD

EN 10267

NORME EUROPÉENNE

EUROPÄISCHE NORM

January 1998

ICS 77.140; 77.140.10

Descriptors: steels, non alloy steels, heat treatable steels, hot-working, billets, metal bars, designation, grades : quality, chemical composition, mechanical properties, quality, inspection, conformity tests, testing conditions, marking

English version

Ferritic-pearlitic steels for precipitation hardening from hot-working temperatures

Aciers de type ferrite-perlite aptes au durcissement par précipitation à partir des températures de formage à chaud

Von Warmformgebungstemperatur ausscheidungshärtende ferritisch-perlitische Stähle

This European Standard was approved by CEN on 11 December 1997.

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, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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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 ECISS/TC 23 "Steels for heat treatment, alloy steels and free-cutting steels-qualities", 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 July 1998, and conflicting national standards shall be withdrawn at the latest by July 1998.

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 requirements for semi-finished products and bars of the non-alloy special steels listed in tables 3 and 5. The products are supplied in the conditions given in table 1, line 2 to 4, and in one of the surface conditions given in table 2.

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

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

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.

- EN 10002-1 Metallic materials - Tensile testing - Part 1: Method of test (at ambient temperature)
<https://standards.iteh.ai/catalog/standards/sist/150da40b-91d6-4f45-b80b-4a51112a3151/en-10002-1>
- EN 10003-1 Metallic materials - Brinell hardness test - Part 1: Test method
<https://standards.iteh.ai/catalog/standards/sist/150da40b-91d6-4f45-b80b-4a51112a3151/en-10003-1>
- 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 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 for steel names
- CR 10261 ECISS IC 11 - Iron and steel - Review of available methods of chemical analysis

- prEN ISO 377 Steel and steel products - Location and preparation of test pieces for mechanical testing
- 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 definitions given in EN 10020, EN 10021, EN 10079, prEN ISO 377 and ISO 14284 apply.

4 Classification and designation

4.1 Classification

All steels covered by this European Standard are classified as non alloy special 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 tables 3 and 5 are allocated in accordance with EN 10027-1 and CR 10260.

4.2.2 Steel numbers

For the steel grades covered by this European Standard, the steel numbers as given in tables 3 and 5 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;
- 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 10267);
- f) steel name or steel number (see 4.2);
- g) if appropriate, the symbol for the treatment condition at delivery (see 6.3.1 and table 1);
- h) if appropriate, the symbol for the surface condition at delivery (see 6.3.2 and table 2);
- i) if required, the type of inspection document in accordance with EN 10204 (see 8.1).

EXAMPLE:

20 rounds EURONORM 60 - 40x8000
EN 10267 - 19MnVS6+P
EN 10204 - 2.2

or

20 rounds EURONORM 60 - 40x8000
EN 10267 - 1.1301+P
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 requirement concerning non-metallic inclusion content (see 7.2.2 and A.1);
- b) any requirement for internal soundness (see 7.3 and A.2);
- c) any requirement relating to surface quality (see 7.4.1);
- d) any requirement relating to removal of surface defects (see 7.4.2);
- e) any requirement concerning special marking of the products (see clause 9 and A.4);
- f) any verification of the product analysis (see table 6 and A.3).

6 Manufacturing process [SIST EN 10267:1998](https://standards.iteh.ai/catalog/standards/sist/150da40b-91d6-4f45-b80b-eab711172c6/sist-en-10267-1998)

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6.1 General

The manufacturing process of the steel and of the products is left to the discretion to the manufacturer with the restrictions given by the requirements in 6.2 and 6.3.

6.2 Deoxidation

All steels shall be killed.

6.3 Heat-treatment and surface condition at delivery**6.3.1 Heat-treatment condition**

Products which are intended for hot forging, shall be delivered in the untreated condition or in the condition "treated for cold shearing".

Products which are intended for machining, shall be delivered in the precipitation hardened condition.

6.3.2 Surface condition

Unless otherwise agreed (see table 2, lines 3 to 6) at the time of enquiry and order, the products shall be delivered in the as-hot-worked condition.

6.3.3 Cast separation

The steels shall be delivered separated by casts. Identified products stemming from several casts may be delivered in the same means of transport, e.g. lorry or wagon.

7 Requirements

7.1 Chemical composition and mechanical properties

7.1.1 Where the products are to be delivered in the untreated condition, the requirements for chemical composition given in tables 3 and 4 apply. In addition, for products to be delivered in the condition "treated for cold shearing", a maximum Brinell hardness of 255 applies.

NOTE: Guidance data for mechanical properties of hot forgings after precipitation hardening are given in table B.1.

7.1.2 Where the products are to be delivered in the precipitation hardened condition, the requirements for mechanical properties given in table 5 apply.

NOTE: In this case, the chemical composition given in table 3 is for guidance only.

7.2 Structure

7.2.1 Steels in table 5 are control-cooled from the hot-working temperature to produce a ferritic-pearlitic structure. Under certain circumstances, small portions of bainite and/or martensite may be present.

7.2.2 For the content of non-metallic inclusions, see A.1.

7.3 Internal soundness

Requirements for internal soundness may be agreed upon at the time of enquiry and order, e.g. on the basis of non-destructive tests (see A.2).

7.4 Surface quality

7.4.1 At the time of enquiry and order, agreements may be made concerning the required surface quality.

In the case of bars, such agreements should be made in accordance with EN 10221.

7.4.2 Repair of surface discontinuities by welding is not permitted.

If surface discontinuities are removed, the kind of surface discontinuities and permissible depth for their removal should, where appropriate, be agreed upon at the time of enquiry and order.

7.5 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 C).

8 Inspection and testing

8.1 Types and contents of inspection documents

8.1.1 For each delivery, the issue of any inspection document according to EN 10204 may be agreed upon at the time of enquiry and order.

8.1.2 If, in accordance with the agreements made at the time of enquiry and order, a test report is to be provided, this shall cover:

- a) the statement that the material complies with the requirements of the order;
- b) the results of the cast analysis for all elements specified for the type of steel supplied. (This also applies to the grades of table 5.)

8.1.3 If, in accordance with the agreements in the order, an inspection certificate 3.1.A, 3.1.B or 3.1.C or an inspection report 3.2 (see EN 10204) is to be provided, the specific inspections and tests described in 8.2 shall be carried out and their results shall be certified in the document.

In addition the document shall cover

- a) the results of the cast analysis provided by the manufacturer for all elements specified in table 3 for the steel type concerned (this also applies to the grades of table 5);
- b) the results of all inspections and tests ordered by supplementary requirements (see annex A);
- c) the symbol letters or numbers connecting the inspection documents, the test pieces and products to each other.

8.2 Specific inspection and testing

8.2.1 Verification of the mechanical properties

8.2.1.1 Unless otherwise agreed, only the mechanical properties according to table 5 shall be verified for steels ordered and delivered in the precipitation hardened condition.

8.2.1.2 The amount of testing, the sampling conditions and the test methods used for the verification of the requirements shall be as given in table 6.

8.2.2 Testing of the surface quality

For bars, the verification of the surface quality shall be in accordance with EN 10221 unless otherwise agreed. For billets, the details of verification are to be agreed upon at the time of enquiry and order.

8.2.3 Visual and dimensional inspection

A sufficient number of products shall be inspected to ensure compliance with the specification.

8.2.4 Retests

For retests, EN 10021 shall apply.

9 Marking

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The manufacturer shall mark the products or the bundles or boxes containing the products in a suitable way, so that the identification of the cast, the steel type and the origin of the delivery is possible (see A.4).

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