



# SLOVENSKI STANDARD

## SIST EN 10027-1:1995

01-december-1995

---

### Sistemi označevanja jekel - 1. del: Oznake jekel, osnovni znaki

Designation systems for steel - Part 1: Steel names, principal symbols

Bezeichnungssysteme für Stähle - Teil 1: Kurznamen, Hauptsymbol

Systemes de désignation des aciers - Partie 1: Désignation symbolique, symboles principaux

(standards.iteh.ai)

Ta slovenski standard je istoveten z: **EN 10027-1:1992**

<https://standards.iteh.ai/catalog/standards/sist/47a1a268-29b3-474a-a817-e55c1bd3578a/sist-en-10027-1-1995>

#### **ICS:**

01.040.77	Metalurgija (Slovarji)	Metallurgy (Vocabularies)
77.080.20	Jekla	Steels

**SIST EN 10027-1:1995**

**en**

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

SIST EN 10027-1:1995

<https://standards.iteh.ai/catalog/standards/sist/47a1a268-29b3-474a-a817-e55c1bd3578a/sist-en-10027-1-1995>

EUROPEAN STANDARD

EN 10027-1:1992

NORME EUROPÉENNE

EUROPÄISCHE NORM

July 1992

UDC 669.14:001.4:003.62

Descriptors: Iron and steel products, steels, designation, symbols

English version

**Designation systems for steel - Part 1: Steel names,  
principal symbols**Systèmes de désignation des aciers - Partie 1:  
Désignation symbolique, symboles principauxBezeichnungssysteme für Stähle - Teil 1:  
Kurznamen, Hauptsymbol**(standards.iteh.ai)**

SIST EN 10027-1:1995

<https://standards.iteh.ai/catalog/standards/sist/47a1a268-29b3-474a-a817-e55c1bd3578a/sist-en-10027-1-1995>

This European Standard was approved by CEN on 1991-12-20. 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.

The European Standards exist 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

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

## CONTENTS

Foreword		3
1	Scope	4
2	Normative references	4
3	Definitions	4
4	Principles	4
4.1	A unique steel name	4
4.2	Formulation of steel names	5
4.3	Allocation of steel names	5
4.4	Consultation	5
5	Reference to product standards	5
6	Classification of steel names	5
7	Structure of steel names	5
7.1	Initial symbol for steel castings	5
7.2	Steels designated according to their mechanical properties and to their application (group 1)	6
7.3	Steels designated according to their chemical composition (group 2)	7
7.3.1	Non-alloy steels (except free-cutting steels) with an average manganese content <1% (group 2.1)	7
7.3.2	Non-alloy steels with an average manganese content $\geq 1\%$ , non-alloy free-cutting steels and alloy steels (except high speed steels) where the content, by weight, of every alloying element is <5% (group 2.2)	7
7.3.3	Alloy steels (except high speed steels) where the content, by weight, of at least one alloying element is $\geq 5\%$ (group 2.3)	8
7.3.4	High speed steels (group 2.4)	8

### Foreword

This European Standard was prepared by the ECISS Technical Committee 7 (ECISS/TC 7) "Designation of steel" the secretariat of which is UNSIDER (Ente Italiano di Unificazione Siderurgica).

It is the first part of the European Standard "Designation system for steel", the second part being "Steel numbers".

This European Standard EN 10027-1 was approved by CEN on 1991-12-20.

According to the Common CEN/CENELEC Rules, 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 the United Kingdom.

**iTeh STANDARD PREVIEW**  
**(standards.iteh.ai)**

SIST EN 10027-1:1995

<https://standards.iteh.ai/catalog/standards/sist/47a1a268-29b3-474a-a817-e55c1bd3578a/sist-en-10027-1-1995>

## 1 Scope

1.1 This part of European Standard EN10027 sets out rules for designating steel, by means of symbolic letters and numbers to express application and principal characteristics, eg mechanical, physical, chemical, so as to provide an abbreviated identification of steels.

In order to avoid ambiguity, it may be necessary to supplement the principal symbols established according to this European Standard by additional symbols identifying additional characteristics of the steel or steel product, eg suitability for use at high or low temperatures, surface condition, treatment condition, deoxidation. These additional symbols are covered in Information Circular IC 10<sup>1</sup>

Note In the English language the designations covered by this European Standard together with IC 10 are known as 'steel names'; in the French language as 'designation symbolique'; in the German language as 'Kurznamen'.

1.2 These rules apply to steels specified in European Standards, Harmonisation Documents and CEN members national standards.

1.3 These rules may apply to non-standardised steels.

1.4 A system of numerical designation of steels known as steel numbers is set out in EN10027-2.

## 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 as follows. 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.

EN10020	Definition and classification of grades of steel
EN10027-2	Designation systems for steel - Part 2 : Steel numbers
EN10079	Definition of steel products
IC 10 <sup>1</sup>	Additional symbols for steel names covered by EN10027-1.

## 3 Definitions

For the purposes of this European Standard, the definitions in EN10020 and EN10079 apply.

## 4 Principles

### 4.1 A unique steel name

There shall be one unique steel name for each steel.

---

<sup>1</sup> In course of preparation

#### 4.2 Formulation of steel names

Unless otherwise specified in this European Standard or in IC 10 the symbols used in the steel name shall be written without spaces.

#### 4.3 Allocation of steel names

4.3.1 For steels specified in European Standards or Harmonisation Documents, steel names shall be allocated by the ECISS Technical Committee concerned.

4.3.2 For steels specified in CEN members national standards and for other steels, steel names shall be allocated by or under the responsibility of the national standards body concerned.

So as to avoid a variety of steel names being assigned to essentially the same steel, the European Registration Office as provided for in EN10027-2 shall, when a steel number is applied for, cooperate with the national standards body concerned to ensure uniform steel names.

#### 4.4 Consultation

Where there are difficulties or disputes in establishing steel names the ECISS/TC7 shall be consulted and shall advise.

### 5 Reference to product standards

The complete designation of a steel product where quoted in orders or similar contractual documents shall include, in addition to the steel name, an indication of the technical delivery requirement in which the steel is specified. For steels specified in standards this shall be the reference number of the relevant product standard.

SIST EN 10027-1:1995

<https://standards.iteh.ai/catalog/standards/sist/47a1a268-29b3-474a-a817->

Details of the structure of the steel name for the steel or steel product shall be provided in the relevant product or dimensional standard.

### 6 Classification of steel names

For the purposes of designation, steel names are classified into two main groups:

- Group 1 steels designated according to their application and mechanical or physical properties. (See 7.2)
- Group 2 steels designated according to their chemical composition and further divided into 4 sub groups. (See 7.3)

### 7 Structure of steel names

#### 7.1 Initial symbol for steel castings

Where a steel is specified in the form of a steel casting, its steel name as specified in 7.2 and 7.3 shall be preceded by the letter G.

## 7.2 Steels designated according to their application and mechanical or physical properties (group 1)

The coding shall comprise the following principal symbols:

- a) S = structural steels ) followed by a number being the  
 P = steels for pressure purposes ) specified minimum yield strength<sup>2</sup>  
 L = steels for linepipe ) in N/mm<sup>2</sup> for the smallest thickness  
 E = engineering steels ) range.
- b) B = steels for reinforcing concrete  
 followed by a number being the characteristic yield strength<sup>2</sup> in  
 N/mm<sup>2</sup>
- c) Y = steels for prestressing concrete  
 followed by a number being the specified minimum tensile strength  
 in N/mm<sup>2</sup>
- d) R = steels for or in the form of rails  
 followed by a number being the specified minimum tensile strength  
 in N/mm<sup>2</sup>
- e) H = cold rolled flat products of high strength steels for cold drawing  
 followed by a number being the specified minimum yield strength<sup>2</sup> in  
 N/mm<sup>2</sup> or where only the tensile strength is specified the letter T  
 followed by a number being the minimum specified tensile strength  
 in N/mm<sup>2</sup>
- f) D = flat products for cold forming (except those in 7(e))  
 followed by one of the following letters:  
 1) C for cold rolled products  
 2) D for hot rolled products for direct cold forming  
 3) X for products the rolled condition of which is not specified  
 and by  
 two symbols characterising the steel allocated by the responsible  
 body. See 4.3
- g) T = tinmill products (steel products for packaging)  
 followed by:  
 1) for single reduced products; the letter H followed by a number  
 being the specified average value of hardness to Rockwell HR 30Tm  
 2) for double reduced products; a number being the specified nominal  
 yield strength in N/mm<sup>2</sup>

<sup>2</sup> The term 'yield strength' as used in this European Standard refers to upper or lower yield strength ( $R_{eH}$ ) or ( $R_{eL}$ ) or proof strength ( $R_p$ ), or proof strength total extension ( $R_t$ ) depending on the requirement specified in the relevant product standard.



h) M = electrical steels

followed successively by:

- 1) a number being 100 x the specified maximum specific loss expressed in W/kg, corresponding to the nominal product thickness, for a magnetic induction at 50 Hz of:
  - 1.5 Tesla for semi-finished, non oriented and normal grain oriented steels
  - 1.7 Tesla for low loss or high permeability grain oriented steels
- 2) a number being 100 x the nominal thickness of the product in millimetres
- 3) a letter indicating the type of electrical steel, ie:
  - A for non-oriented products
  - B for non-alloy semi-processed (not finally annealed) products
  - E for alloy semi-processed (not finally annealed) products
  - N for normal grain oriented products
  - S for low loss grain oriented products
  - P for high permeability grain oriented products.

Note 1 : A hyphen shall separate symbols (1) and (2)

Note 2 : The symbols to be indicated after the letter M concern electrical steels for use at the industrial frequency of 50 Hz. For other uses such as steel products for relays and high frequency applications the principal symbols are not yet established.

7.3 Steels designated according to chemical composition (group 2)

7.3.1 Non-alloy steels (except free-cutting steels) with an average manganese content <1% (sub-group 2.1)

The coding shall comprise successively the following symbols:

- a) the letter C
- b) a number being 100 x the specified average percentage carbon content<sup>3</sup>. Where the carbon content is not specified by a range, the Technical Committee responsible for the relevant product standard shall select a suitably representative value.

7.3.2 Non-alloy steels with an average manganese content  $\geq 1\%$ , non-alloy free-cutting steels and alloy steels (except high speed steels) where the content, by weight, of every alloying element is <5% (sub-group 2.2)

The coding shall comprise successively the following symbols:

- a) a number being 100 x the specified average percentage carbon content<sup>3</sup>. Where the carbon content is not specified by a range the technical body responsible for the relevant product standard shall select a suitably representative value.
- b) chemical symbols indicating the alloy elements that characterise the steel. The sequence of symbols shall be in decreasing order of the value of their content; where the values of contents are the same for two or more elements, the corresponding symbols shall be indicated in alphabetical order.

<sup>3</sup>

To distinguish between two similar steel grades, the number indicating carbon content may be increased or decreased by one unit