



SLOVENSKI STANDARD
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Sistemi označevanja jekel - 2. del: Številčni sistem

Designation systems for steels - Part 2: Numerical system

Bezeichnungssysteme für Stähle - Teil 2: Nummernsystem

Systèmes de désignation des aciers - Partie 2: Système numérique

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Designation systems for steels - Part 2: Numerical system

Systèmes de désignation des aciers - Partie 2: Système
numérique

Bezeichnungssysteme für Stähle - Teil 2: Nummernsystem

This draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee ECISS/TC 100.

If this draft becomes a European Standard, 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.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

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Foreword

This document (prEN 10027-2:2013) has been prepared by Technical Committee ECISS/TC 100 "General issues", the secretariat of which is held by BSI.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 10027-2:1992.

This document is the second Part of the European Standard "Designation systems for steels", the first Part being "Steel names".

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1 Scope

1.1 This European Standard sets out a numbering system, referred to as steel numbers, for the designation of steel grades. It deals with the structure of steel numbers and the organization for their registration, allocation and dissemination. Such steel numbers are complementary to steel names set out in EN 10027-1.

Application of this European Standard is obligatory for steels specified in European Standards. Application is optional for national steels and proprietary steels.

NOTE Although the scope of the systems is limited to steel, it is structured so as to be capable of being extended to include other industrially produced materials.

1.2 Steel numbers established according to this system have a fixed number of digits (see 5). They are better suited for data processing than steel names established according to EN 10027-1.

1.3 For steels specified in European Standards the application for allocation of steel numbers (see A.6 to A.9) is the responsibility of the ECISS Technical Committee concerned. For national steel grades, the responsibility is that of the national competent body.

NOTE Applications from European organizations having a specified interest in the standardization of steel and steel products (e.g. AECMA, EUROFER) are submitted via the ECISS Central Secretariat (see A.9).

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 10027-1, *Designation systems for steels. Part 1: Steel names* :2015

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EN 10079, *Definition of steel products*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 10020 and EN 10079 shall apply.

4 Principles

4.1 Each steel number shall refer only to one steel grade. Conversely, each steel grade shall correspond to one steel number. Accordingly, a number allocated to a steel shall not, in principle (see 4.3), be used for any other steel grade (see A.1 and A.2).

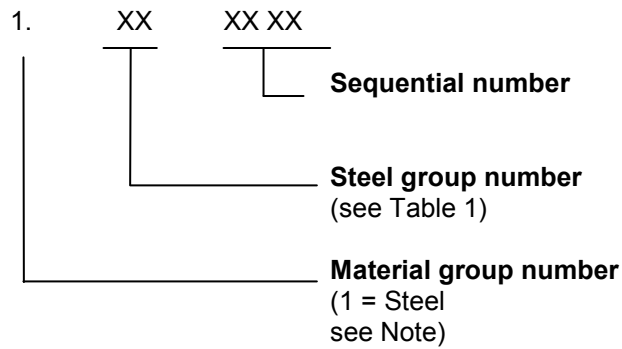
4.2 Steel numbers shall be allocated by the European Registration Office in accordance with annex A.

4.3 The European Registration Office (see A.9) shall revise the list of registered steels at appropriate intervals. The object of such revisions is to review, in cooperation with the bodies responsible for the application of steel numbers, those steel numbers for steels no longer in production. Such steel numbers are transferred to an annex to the list for a transitional period and eventually deleted. The revised list of registered steels is published on Internet.

Steel numbers deleted according to the above procedure may become available for re-allocation to future steel grades.

4.4 Steel numbers shall not normally be changed. If, under exceptional circumstances, a change is unavoidable, it shall be in accordance with 4.1, 4.2 and 4.3.

5 Structure of steel numbers



NOTE Numbers 2 to 9 may be allocated to other materials. See note to clause 1

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Table 1 — Steel group number ^{a, b}

Non-alloy steels				Alloy steels									
Base steels		Quality steels		Special steels	Quality steels		Special steels						
							Tool steels	Miscellaneous steels	Stainless and heat resisting steels	Structural, pressure vessel and engineering steels			
00 Base steels	90			10 Steels with special physical properties			20 Cr	30	40 Stainless steel with < 2,5 % Ni without Mo, Nb and Ti	50 Mn, Si, Cu	60 Cr-Ni with ≥ 2,0 % Cr < 3 % Cr	70 Cr Cr-B	80 Cr-Si-Mo Cr-Si-Mn-Mo Cr-Si-Mo-V Cr-Si-Mn-Mo-V
		01 General structural steels, with $R_m < 500$ MPa	91	11 Structural, pressure vessel and engineering steels with C < 0,50 %			21 Cr-Si Cr-Mn Cr-Mn-Si	31	41 Stainless steel with < 2,5 % Ni and Mo, but without Nb and Ti	51 Mn-Si Mn-Cr	61	71 Cr-Si Cr-Mn Cr-Mn-B Cr-Si-Mn	81 Cr-Si-V Cr-Mn-V Cr-Si-Mn-V
		02 Other structural steels not intended for heat treatment, with $R_m < 500$ MPa	92	12 Structural, pressure vessel and engineering steels with C ≥ 0,50 %			22 Cr-V Cr-V-Si Cr-V-Mn Cr-V-Mn-Si	32 High speed steel with Co	42	52 Mn-Cu Mn-V Si-V Mn-Si-V	62 Ni-Si Ni-Mn Ni-Cu	72 Cr-Mo with < 0,35 % Mo Cr-Mo-B	82 Cr-Mo-W Cr-Mo-W-V
		03 Steels with average < 0,12 % C or $R_m < 400$ MPa	93	13 Structural, pressure vessel and engineering steels with special requirements			23 Cr-Mo Cr-Mo-V Mo-V	33 High speed steel without Co	43 Stainless steel with ≥ 2,5 % Ni but without Mo, Nb and Ti	53 Mn-Ti Si-Ti	63 Ni-Mo Ni-Mo-Mn Ni-Mo-Cu Ni-Mo-V Ni-Mn-V	73 Cr-Mo with ≥ 0,35 % Mo	83
		04 Steels with average ≥ 0,12 % C < 0,25 % C or $R_m \geq 400$ MPa < 500 MPa	94	14			24 W Cr-W	34 Wear-resistant steel	44 Stainless steel with ≥ 2,5 % Ni and Mo, but without Nb and Ti	54 Mo Nb, Ti, V W	64	74	84 Cr-Si-Ti Cr-Mn-Ti Cr-Si-Mn-Ti
		05 Steels with average ≥ 0,25 C < 0,55 % C or $R_m \geq 500$ MPa < 700 MPa	95	15 Tool steels			25 W-V Cr-W-V	35 Bearing steels	45 Stainless steels with special additions	55 B Mn-B < 1,65 % Mn	65 Cr-Ni-Mo with < 0,4 % Mo + < 2 % Ni	75 Cr-V with < 2,0 % Cr	85 Nitriding steels

		06 Steels with average $\geq 0,55$ % C or $R_m \geq 700$ MPa	96	16 Tool steels			26 W, excluding groups 24, 25 and 27	36 Materials with special magnetic properties, without Co	46 Chemically resistant and high- temperature Ni alloys	56 Ni	66 Cr-Ni-Mo with < 0,4 % Mo + ≥ 2 % Ni < 3,5 % Ni	76 Cr-V with < 2,0 % Cr	86	<div> <div>↑</div> <div>Steels not for heat treatment by user</div> <div>↓</div> </div> <div>High strength weldable steels</div>
		07 Steels with higher P- or S content	97	17 Tool steels			27 With Ni	37 Materials with special magnetic properties with Co	47 Heat resistant steels with < 2,5 % Ni	57 Cr-Ni with < 1,0 % Cr	67 Cr-Ni-Mo with < 0,4 % Mo + $\geq 3,5$ % Ni < 5 % Ni or $\geq 0,4$ % Mo	77 Cr-Mo-V	87	
				18 Tool steels	08 Steels with special physical properties	98	28 Other	38 Materials with special magnetic properties, without Ni	48 Heat resistant steels with $\geq 2,5$ % Ni	58 Cr-Ni with $\geq 1,0$ % Cr < 1,5 % Cr	68 Cr-Ni-V Cr-Ni-W Cr-Ni-V-W	78	88	
				19	09 Steels for other applications	99	29	39 Materials with special physical properties, with Ni	49 Materials with elevated temperature properties	59 Cr-Ni with $\geq 1,5$ % Cr < 2,0 % Cr	69 Cr-Ni, except groups 57 to 68	79 Cr-Mn- Mo Cr-Mn- Mo-V Cr-Mn- Mo-Ni	89	

Footnotes to Table 1:

a The classification of steel groups is in accordance with the classification of steels in EN 10020.

b The following information is provided in the boxes of the table:

- steel group number, in upper left-hand side;

- principal characteristics of the steel group;

- R_m = tensile strength.

The limiting values for the chemical composition and tensile strength are for guidance only.

Annex A (normative)

Provisions and procedures for the allocation of steel numbers

A.1 Steel numbers are allocated to steel grades in accordance with clause 4, according to specified characteristics which include:

- a) chemical composition;
- b) characteristics as determined by standard test methods (e.g. hardness, tensile properties, impact properties, hardenability, corrosion resistance, metallographic characteristics);
- c) suitability for processing (e.g. cold forming);
- d) suitability for specific applications (e.g. tyre cord wire).

Differences in delivery requirements which do not affect the material characteristics (e.g. type of marking, surface appearance, dimensions) shall not be reason to allocate a different steel number.

A.2 Specification of more restrictive or supplementary requirements for the characteristics of the material shall not normally be reason to allocate a new steel number.

A.2.1 Where a manufacturer internally restricts the specified requirements for the material characteristics for a steel in order to reduce the probability of deviating from the specified requirements, this shall not be considered reason to allocate a new number.

A.2.2 Where modifications or additional requirements cause a significant alteration in the characteristics of the material, or even to changing the classification of the grade to EN 10020 (e.g. reduction in maximum sulfur content from 0,035 % to 0,010 %), this shall be considered reason to allocate a new steel number.

NOTE For practical reasons, an existing steel number may be supplemented by an appropriate symbol or text in order to denote certain specific requirements. Such additions do not form part of the steel number.

A.3 Steel numbers shall only be allocated to steel grades that have a commercial standing.

A.4 The justification of a new steel number shall always be verified by reference to the latest listing of allocated numbers in order to determine the availability of a usable number (see A.12).

A.5 In accordance with sub-clause 4.1 and 4.3, for a new steel number to be allocated, the characteristics (see A.1) shall be significantly different from any other steel grade for which a steel number has already been allocated.

A.6 A request for the allocation of a steel number shall be submitted on the relevant steel number assignment form. See annex B.

A.7 The guidance provided in annex B should be carefully read, and the information provided as indicated.

NOTE The forms are designed to serve as a data input sheet to facilitate the processing of each request through to final print out of data by electronic data processing equipment and to minimize transcription errors.

A.8 To further assist in the allocation of a steel number, the requester is asked to suggest a possible steel group number. See Table 1.

A.9 Each completed application form shall be sent to: