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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EUROPEAN STANDARD

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English Version

Designation systems for steels - Part 2: Numerical system

Systèmes de désignation des aciers - Partie 2: Système numérique

Bezeichnungssysteme für Stähle - Teil 2: Nummernsystem

This European Standard was approved by CEN on 7 February 2015.

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 CEN-CENELEC Management Centre 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 CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and United Kingdom.

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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

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Foreword

This document (EN 10027-2:2015) has been prepared by Technical Committee ECISS/TC 100 “General issues”, the secretariat of which is held by BSI.

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of an identical text or by endorsement, at the latest by October 2015, and conflicting national standards shall be withdrawn at the latest by October 2015.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. CEN [and/or CENELEC] shall not be held responsible for identifying any or all such patent rights.

This document supersedes EN 10027-2:1992.

In comparison with EN 10027-2:1992, the following significant changes were made:

a) in 4.3 the wording was modified;

b) in Clause 5 the number of digits for the sequential number were extended to 4 and a NOTE as well as an explanatory text were added;

c) the standard was revised editorially.

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

According to the CEN-CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Bulgaria, Croatia, Cyprus, Czech Republic, Denmark, Estonia, Finland, Former Yugoslav Republic of Macedonia, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Romania, Slovakia, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom.

1 Scope

1.1 This European Standard specifies 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.

This European Standard is applicable to steels specified in European Standards. This European Standard may be applied to 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 in accordance with this system have a fixed number of digits (see Clause 5). They are better suited for data processing than steel names established in accordance with 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. ASD, 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*

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 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.

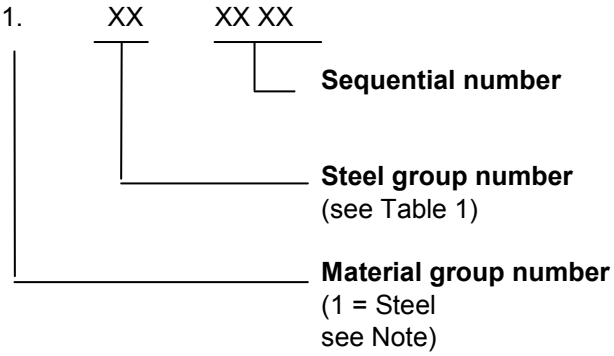
4.3 The European Registration Office (see A.9) shall revise the list of registered steels at appropriate intervals. The object of such revisions is to review, in cooperation with the bodies responsible for the application of steel numbers, those steel numbers for steels no longer in production. The revised list of registered steels is published on the internet (www.stahldaten.de).

Steel numbers deleted in accordance with the above procedure shall not be re-allocated to future steel grades.

NOTE Information concerning deleted steel grades can be received from the European Registration Office.

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 of the material group may be allocated to other materials. See note to 1.1 or 1.3.

For allocating new steel numbers with a 4 digit sequential number it shall be ensured that the 1st two digits of the sequential number are completely filled (e.g. 1.xx99) before allocating the last two digits of the sequential number (e.g. 1.xx9901).

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 ≥ 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 ≥ 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

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				
		06	96	16			26	36	46	56	66	76	86	
		Steels with average ≥ 0,55 % C or R_m ≥ 700 MPa		Tool steels			W, excluding groups 24, 25 and 27	Materials with special magnetic properties, without Co	Chemically resistant and high-temperature Ni alloys	Ni	Cr-Ni-Mo with < 0,4 % Mo + ≥ 2 % Ni < 3,5 % Ni	Cr-V with < 2,0 % Cr		
		07	97	17			27	37	47	57	67	77	87	
		Steels with higher P- or S content		Tool steels			With Ni	Materials with special magnetic properties with Co	Heat resistant steels with < 2,5 % Ni	Cr-Ni with < 1,0 % Cr	Cr-Ni-Mo with < 0,4 % Mo + ≥ 3,5 % Ni < 5 % Ni or ≥ 0,4 % Mo	Cr-Mo-V		
				18	08	98	28	38	48	58	68	78	88	
				Tool steels	Steels with special physical properties		Other	Materials with special magnetic properties, without Ni	Heat resistant steels with ≥ 2,5 % Ni	Cr-Ni with ≥ 1,0 % Cr < 1,5 % Cr	Cr-Ni-V Cr-Ni-W Cr-Ni-V-W			
				19	09	99	29	39	49	59	69	79	89	
					Steels for other applications			Materials with special physical properties, with Ni	Materials with elevated temperature properties	Cr-Ni with ≥ 1,5 % Cr < 2,0 % Cr	Cr-Ni, except groups 57 to 68	Cr-Mn-Mo Cr-Mn-Mo-V Cr-Mn-Mo-Ni		

↑ Steels not for heat treatment by user

↓ High strength weldable steels

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.