



SLOVENSKI STANDARD

SIST EN 10027-2:1995

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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

Systemes de désignation des aciers - Partie 2: Systeme numérique

Ta slovenski standard je istoveten z: **EN 10027-2:1992**

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EUROPEAN STANDARD

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NORME EUROPÉENNE

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Designation systems for steels - Part 2: Numerical system

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Systèmes de désignation des aciers - Partie 2: Système numérique (standards.iteh.ai) Bezeichnungssysteme für Stähle - Teil 2: Nummernsystem

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CEN

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

This European Standard EN 10027-2 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.

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1 Scope

1.1 This Part 2 of 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 organisation for their registration, allocation and dissemination. Such steel numbers are complimentary to steel names set out in EN10027-1.

Application of this Part 2 of the 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 system 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 EN10027-1.

1.3 For steels specified in European Standards the application for allocation of steel numbers (see A6 to A9) 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 organisations having a specific interest in the standardisation of steel and steel products, eg AECMA, EUROFER are submitted via the ECISS Central Secretariat (see A.9).

2 Normative references (standards.iteh.ai)

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	Designation systems for steel Part 1: Steel names, principal symbols
EN10079	Definition of steel products

3 Definitions

For the purpose of this Part 2 of this European Standard the definitions given in EN10020 and EN10079 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.

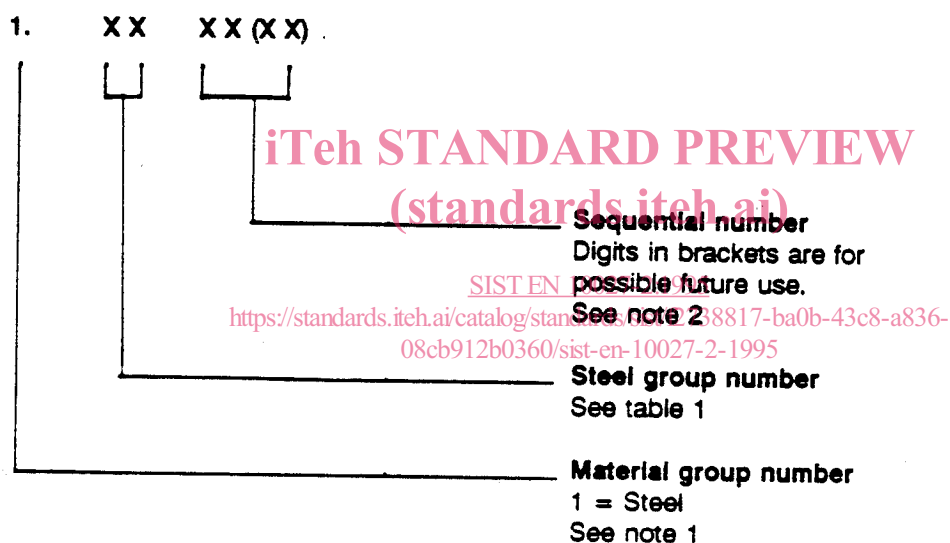
4.3 The European Registration Office (see A.9) shall revise the list of Registered Steels at appropriate intervals. The object of such revisions is to review, in cooperation with the bodies responsible for the application of steel numbers, those steel numbers for steels no longer in production. Such 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.

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

The structure of steel numbers is set out as follows:



Notes

- 1 Numbers 2 to 9 may be allocated to other materials. See note to cl 1
- 2 At present the sequential number comprises two digits. Should an increase in the number of digits be necessary by reason of an increase in the number of steel grades to be considered, a sequential number of up to four digits is envisaged. In that case a revision of this Part 2 of the European Standard will be published.

TABLE 1 Steel groups

No	NON-ALLOY STEELS		ALLOY STEELS								
	Base steels	Quality steels	Special steels	Quality steels	Special steels	Microalloyed steels	Stainless & heat-resisting steels	Structural, pressure vessel and engineering steels			
0	00 Base steels		10 Steels with special physical properties		20 C	30	40 Bainite steel with $\leq 2.0\% Ni$ without Mn, Nb and Ti	50 Mn-Bi-Cu	60 Cr-Mn with ≤ 2.0 $\leq 0.05 C$	70 Cr-B	80 Cr-Bi-Mo Cr-Bi-Mn-Mo Cr-Bi-Mn-Mo-V
1		01 General structural steels with $R_m < 800 N/mm^2$	11 Structural, pressure vessel and engineering steels with C $\leq 0.30\%$		21 Cr-B Cr-Mn Cr-Mn-B	31	41 Bainite steel with $\leq 2.5\% Ni$ and Mn but without Nb and Ti	51 Mn-B Mn-C	61	71 Cr-B Cr-Mn Cr-Mn-B Cr-Bi-Mn	81 Cr-Bi-V Cr-Mn-V Cr-Bi-Mn-V
2		02 Other structural steels not intended for heat treatment with $P_{10} < 800 N/mm^2$	12 Structural, pressure vessel and engineering steels with C $\leq 0.30\%$		22 Cr-V Cr-V-B Cr-V-Mn Cr-V-Mn-B	32 High speed steel with Co	42 High speed steel with $\leq 2.0\% Ni$ without Mn, Nb and Ti	52 Mn-Cu Mn-Mo Mn-V Mn-W Mn-B-V	62 Mn-B Mn-Mo Mn-Cu	72 Cr-Mo with $\leq 0.35\% Mo$ Cr-Mo-B	82 Cr-Mo-W Cr-Mo-W-V
3		03 Steels with average C $\leq 0.12\%$ or $P_{10} < 600 N/mm^2$	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 Bainite steel with $\leq 2.5\% Ni$ without Mn, Nb and Ti	53 Mn-Ti Mn-Ti B-Ti	63 Mn-Mo Mn-Mo-Mn Mn-Mo-Cu Mn-Mo-V	73 Cr-Mo with $\leq 0.35\% Mo$	83
4		04 Steels with average C $\leq 0.12\%$ or $P_{10} < 600 N/mm^2$	14		24 W Cr-W	34	44 Bainite steel with $\leq 2.5\% Ni$ with Mn but without Nb and Ti	54 Mo Nb, Ti, V, W	64	74	84 Cr-B-Ti Cr-Mo-Ti Cr-Bi-Mn-Ti
5		05 Steels with average C $\leq 0.25\%$ or $P_{10} < 800 N/mm^2$	15 Tool steel		25 W-V Cr-W-V	35 Bearing steels	45 Bainite steels with special additions	55 B Mn-B $\leq 1.85\% Mn$	65 Cr-Mn-Mo with $\leq 0.4\% Mo$ + $\leq 0.2\% Ni$	75 Cr-V with $\leq 2.0\% Cr$	85 Hardening steels
6		06 Steels with average C $\leq 0.55\%$ or $P_{10} < 700 N/mm^2$	16 Tool steel		26 W W excluding groups 24, 25 and 27	36 Materials with special magnetic properties without Co	46 Chemical resistant and high temp Ni alloys	56 Ni	66 Cr-Mo-Mo with $\leq 0.4\% Mo$ + ≤ 2.0 $\leq 3.8\% Ni$	76 Cr-V with $\leq 2.0\% Cr$	86
7		07 Steels with higher P or S content	17 Tool steel		27 With Ni	37 Materials with special magnetic properties and with Co	47 Heat resistant steels with $\leq 2.5\% Ni$	57 Cr-Ni with $\leq 1.0\% Cr$	67 Cr-Mo-Mo with $\leq 0.4\% Mo$ + ≤ 2.5 $\leq 8.0\% Ni$ + $\leq 0.4\% Mo$	77 Cr-Mo-V	87 Steels not for heat treatment by water
8			18 Tool steel	08 Steels with special physical properties	28 Other	38 Materials with special physical properties without Ni	48 Heat resistant steels with $\leq 2.5\% Ni$	58 Cr-Ni with ≥ 1.0 $\leq 1.6\% Cr$	68 Cr-Ni-V Cr-Ni-W Cr-Ni-V-W	78	88 High strength weldable steels
9			19	09 Steels for other applications	29	39 Materials with special physical properties and with Ni	49 Materials with elevated temperature properties	59 Cr-Ni with ≥ 1.5 $\leq 2.0\% Cr$	69 Cr-Ni except groups 87 to 89	79 Cr-Mn-Mo Cr-Mn-Mo-V	89 High strength weldable steels

Notes 1 The classification of steel groups is in accordance with the classification of steels in EN10020

2 The following information is provided in the boxes of the table:
 (a) steel group number, in upper left hand side
 (b) principal characteristic of the steel group
 (c) R_m = tensile strength

The limiting values for the chemical composition and tensile strength (R_m) 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, eg hardness, tensile properties, impact properties, hardenability, corrosion resistance, metallographic characteristics
- (c) suitability for processing, eg cold forming
- (d) suitability for specific applications, eg tyre cord wire

Differences in delivery requirements which do not effect the material characteristics, eg 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 EN10020 (eg reduction in maximum sulphur 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 number in order to determine the availability of a useable number. (see A.12).

A.5

In accordance with 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.