SLOVENSKI STANDARD
SIST EN 10027-1:2016

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SIST EN 10027-1:2005

Sistemi označevanja jekel - 1. del: Oznake jekel

Designation systems for steels - Part 1: Steel names

Bezeichnungssysteme für Stähle - Teil 1: Kurznamen

Systèmes de désignation des aciers - Partie 1: Désignation symbolique

Ta slovenski standard je istoveten z: **EN 10027-1:2016**

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EUROPEAN STANDARD

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Designation systems for steels - Part 1: Steel names

Systèmes de désignation des aciers - Partie 1: Désignation symbolique

Bezeichnungssysteme für Stähle - Teil 1: Kurznamen

This European Standard was approved by CEN on 15 July 2016.

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EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
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European foreword

This document (EN 10027-1:2016) has been prepared by Technical Committee ECISS/TC 100 “Iron and steel - 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of an identical text or by endorsement, at the latest by April 2017, and conflicting national standards shall be withdrawn at the latest by April 2017.

This document supersedes EN 10027-1:2005.

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

According to the CEN-CENELEC Internal Regulations, the national standards organisations 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.

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1 Scope

1.1 This European Standard specifies rules for designating steels by means of symbolic letters and numbers to express application and principal characteristics, e.g. mechanical, physical, chemical, so as to provide an abbreviated identification of steels.

NOTE In the English language the designations covered by this European Standard are known as "steel names"; in the French language as "designation symbolique"; in the German language as "Kurznamen".

1.2 This European Standard applies to steels specified in European Standards (EN), Technical Specifications (TS), Technical Reports (TR) and CEN member's national standards.

1.3 These rules may be applied to non-standardized steels.

1.4 A system of numerical designation of steels known as steel numbers is specified in EN 10027-2.

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 10020:2000, Definition and *classification* of grades of steel

EN 10027-2, *Designation systems for steels - Part 2: Numerical system*

EN 10079:2007, *Definition of steel products*

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3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 10020:2000 and EN 10079:2007 apply.

4 Principles

4.1 A unique steel name

There shall be one unique steel name for each steel.

4.2 Formulation of steel names

Steel names allocated in accordance with this European Standard shall comprise principal symbols as specified in 7.1.

In order to avoid ambiguity, it may be necessary to supplement these principal symbols by additional symbols identifying additional characteristics of the steel or steel product, e.g. suitability for use at high or low temperatures, surface condition, treatment condition, de-oxidation. These additional symbols are given in 7.2.

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Unless otherwise specified in this European Standard 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 (EN), Technical Specifications (TS) and Technical Reports (TR), steel names shall be allocated by the ECISS Technical Committee concerned.

4.3.2 For steels specified in CEN member's 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 EN 10027-2 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 ECISS/TC100 shall be consulted and shall advise accordingly.

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.

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

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6 Classification of steel names

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

— Category 1: steels designated according to their application and mechanical or physical properties (see 7.3).

— Category 2: steels designated according to their chemical composition (see 7.4).

7 Structure of steel names

7.1 Principal symbols

Principal symbols for steels designated according to steel application and its mechanical and physical properties shall be assigned in accordance with 7.3.

Principal symbols for steels designated according to the chemical composition of the steel shall be assigned in accordance with 7.4.

Where a steel is specified in the form of a steel casting, its name as specified in Tables 1 to 15 shall be preceded by the letter G.

Where a steel is produced by powder metallurgy, its name as specified in Tables 14 and 15 shall be preceded by the letters PM.

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7.2 Additional symbols

Additional symbols may be added to the principal symbols and assigned in accordance with 7.3 and 7.4.

Additional symbols are divided into two groups, i.e. group 1 and group 2 (see 7.3 and 7.4). If the symbols for group 1 are inadequate to describe the steel fully, then additional symbols from group 2 may be added. Symbols of group 2 shall only be used in conjunction with and follow symbols of group 1.

Further additional symbols for steel products may follow the additional symbols of group 1 and group 2 and shall be selected in accordance with 7.3 and 7.4 from Tables 16, 17 and 18. These symbols shall be separated from preceding symbols by the plus sign (+).

Additional symbols selected from Tables 16, 17 and 18 may be added to steel numbers allocated in accordance with EN 10027–2 and, when used, separated from the steel number by the plus sign (+).

7.3 Steels designated according to their application and mechanical or physical properties

The designation of steel according to their application and mechanical or physical properties shall be made in accordance with Table 1 to Table 11.

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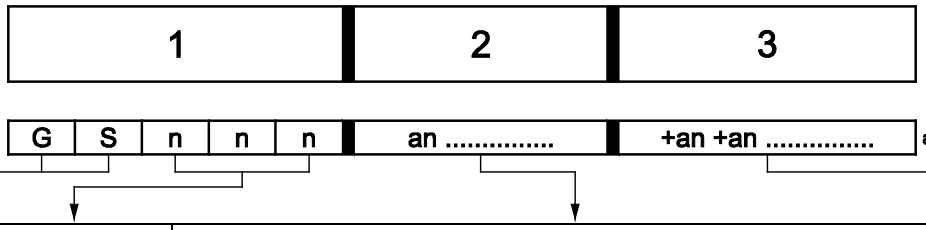
Table 1 — Structural steels



Principal symbols		Additional symbols						
		For steel						For steel product
		Group 1 [b]				Group 2 [c] [d]		
Letter	Mechanical property	Impact property Energy Joules (J)			Test temperature			
		27J	40 J	60 J	°C			
G = steel casting (where necessary) S = structural steel	nnn = specified minimum yield strength [e] in MPa [f] for the smallest thickness range	JR	KR	LR	20	C = Special cold forming D = Hot dip coating E = Enamelling *F* = Forgings H = Hollow section L = Low temperature M = Thermomechanically rolled *N* = Normalized or normalized rolled *P* = Sheet piling Q = Quenched and tempered S = Ship building T = Tubes W = Weather resistant an = Chemical symbol of specified additional elements, e.g. Cu, together, where necessary, with a single digit representing 10 × the average (rounded to 0,1 %) of that specified range of the content of that element	Tables 16, 17 and 18
		J0	K0	L0	0			
		J2	K2	L2	−20			
		J3	K3	L3	−30			
		J4	K4	L4	−40			
		J5	K5	L5	−50			
		J6	K6	L6	−60			
		A = Precipitation hardening M = Thermomechanically rolled *N* = Normalized or normalized rolled Q = Quenched and tempered G = Other characteristics followed, where necessary by 1 or 2 digits						

Key
1 = Principal symbols
2 = Additional symbols for steel
3 = Additional symbols for steel products

[a] *n* = numerical characters, a = alpha characters, an = alphanumeric characters.

[b] Symbols A, M, N and Q in Group 1 apply to fine grain steels.

[c] Symbols of Group 2, other than chemical symbols, may be suffixed by one or two digits in order to distinguish

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between qualities in accordance with the relevant product standard.

[d] If two of the symbols of this Group are needed the chemical symbol shall be the last one.

[e] The term "yield strength" 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.

[f] 1 MPa = 1 N/mm^2.

Table 1 (*continued*)

Examples of steel names for structural steels	
Standard	Steel name according to EN 10027–1
EN 10025–2	S235JR S355JR S355J0 S355J2 S355K2 S450J0
EN 10025–3	S355N S355NL
EN 10025–4	S355M S355ML
EN 10025–5	S235J0W S235J2W S355J0WP S355J2WP S355J0W S355J2W S355K2W
EN 10025–6	S460Q S460QL S460QL1
EN 10149–2	S355MC
EN 10149–3	S355NC
EN 10210–1	S355J2H
EN 10248–1	S355GP
EN 10346	S350GD S350GD+Z

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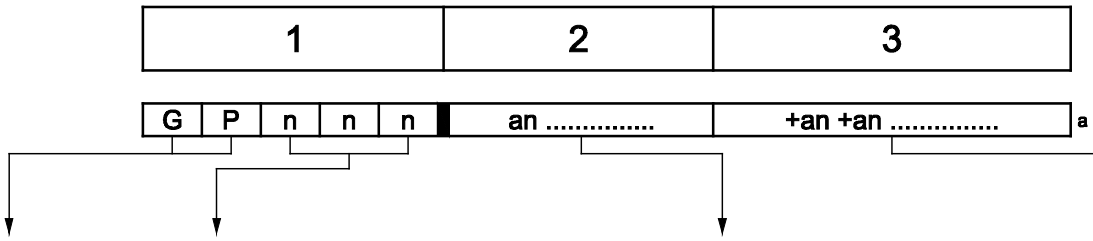
Table 2 — Steels for pressure purposes



Principal symbols		Additional symbols		
Letter	Mechanical property	For steel		For steel products
		Group 1 [b]	Group 2 [c]	
G = steel casting (where necessary) *P* = steels for pressure purposes	nnn = specified minimum yield strength [d] in MPa [e] for the smallest thickness range	B = Gas bottles M = Thermomechanically rolled *N* = Normalized or normalized rolled Q = Quenched and tempered S = Simple pressure vessels T = Tubes G = Other characteristics followed, where necessary, by 1 or 2 digits	H = High temperature L = Low temperature R = Room temperature X = High and low temperature	Tables 16, 17 and 18

Key

1 = Principal symbols

2 = Additional symbols for steel

3 = Additional symbols for steel products

[a] *n* = numerical characters, a = alpha characters, an = alphanumeric characters.

[b] Symbols M, N and Q in group 1 apply to fine grain steels.

[c] Symbols of group 2, other than chemical symbols, may be suffixed by one or two digits in order to distinguish between qualities in accordance with the relevant product standard.

[d] The term "yield strength" 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.

[e] 1 MPa = 1 N/mm^2.

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