SLOVENSKI STANDARD
SIST CR 10260:2000

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Sistem označevanja jekel - Dodatni znaki

Designation systems for steel - Additional symbols

Bezeichnungssysteme für Stähle - Zusatzsymbole

Systemes de désignation des aciers - Symboles additionnels

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Designation systems for steel - Additional symbols

Systèmes de désignation des aciers - Symboles additionnels

Bezeichnungssysteme für Stähle - Zusatzsymbole

This CEN Report was approved by CEN on 6 November 1997. It has been drawn up by the Technical Committee ECISS/TC 7.

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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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CONTENTS PAGE

Foreword

This CEN Report was prepared by the ECISS Technical Committee 7 (ECISS/TC7) 'Conventional designation of steel', the secretariat of which is the Ente Italiano di Unificazione Siderurgica (UNSIDER).

The purpose of this CEN Report is to complement EN10027-1 and EN10027-2 thereby providing guidance, based on the evolution of EURONORMS and European Standards to date, to the Technical Committees of the European Committee of Iron and Steel Standardisation (ECISS) and national standards bodies responsible for establishing designations for steel. To this end it contains additional symbols for use in conjunction with the principal symbols for steel names set out in EN10027-1 and certain additional symbols for use with steel numbers to EN10027-2.

This CEN Report was originally published as an ECISS Information Circular ECISS IC 10: 1992. This revised CEN Report is a result of comments made by ECISS Members and ECISS technical committees on their experience gained during the implementation of the designation system for steels in European Standards already adopted and those in preparation up to October 1996.

The major changes made include:

a) addition of the symbol A = precipitation hardening to Group 1 of 6.3(a)(1);
b) addition of the symbol C = suitability for cold drawing to Group 2 of 6.3(a)(4);
c) deletion of the symbols +C = coarse grain and +F = fine grain\ from table 1;
d) addition of the following symbols in table 3:

+AR	= as rolled (without any special rolling and/or heat treatment conditions);
+DC	= delivery condition at manufacturer's discretion;
+FP	= treated to ferrite-pearlite structure and hardness range;
+I	= isothermically treated;
+P	= precipitation hardened;
+RA	= recrystallisation annealed;
+TH	= treated to hardness range;
+WW	= warm worked;

e) the option to add additional symbols to steel numbers indicating 'specified requirements', 'type of coating' and 'treatment condition' as set out in tables 1, 2 and 3 respectively

According to the ECISS Internal Regulations a CEN Report may or may not be implemented at the discretion of ECISS members by:

a) using the CEN Report directly, or
b) using the authorised text as a basis for a national standard or other similar document dealing with the subject.

1 Scope

This CEN Report is a supplement to EN10027-1 and EN10027-2.

It sets out additional symbols which may supplement the principal symbols of steel names as defined in EN10027-1 and certain additional symbols which may supplement steel numbers as defined in EN10027-2 thus providing a complete abbreviated identification of a steel or steel product.

2 Normative references

This CEN Report 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 CEN Report 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
EN10027-1: Steel names; principal symbols
EN10027-2: Steel numbers
EN10079 Definition of steel products

3 Definitions

For the purpose of this CEN Report the definitions in EN10020 and EN10079 apply.

4 Allocation of additional symbols

Additional symbols shall be assigned by the technical committee concerned.

The application of additional symbols not in tables 1, 2 or 3 and which are considered necessary for the designation of steel shall be notified to ECISS/TC7.

5 Consultation

Where there are difficulties or disputes in establishing additional symbols, ECISS/TC7 shall be consulted and shall advise.

6 Additional symbols

6.1 Steel names

Steel names assigned in accordance with EN10027-1 may have additional symbols added in accordance with 6.3 and 6.4

Additional symbols are divided into two groups, i.e. group 1 and group 2 (see 6.3 and 6.4). Symbols of group 2 shall only be used in conjunction and follow symbols of group 1.

Further additional symbols may follow to additional symbols of group 1 and group 2 and shall be selected in accordance with 6.3 and 6.4 from tables 1, 2 and 3. These symbols shall be separated from preceding symbols by the plus sign (+).

For the convenience of the user details of the principal symbols of steel names in accordance with EN10027-1 are included, but in condensed form. For the exact complete requirements for principal symbols reference shall be made to EN10027-1.

6.2 Steel numbers

Steel numbers allocated in accordance with EN10027-2 may have additional symbols added which shall be selected from tables 1, 2 and 3. These symbols shall be separated from the steel number by the plus sign(+).

6.3 6.3(a)(1)[1]	Steels designated according to their application and mechanical or physical properties Structural steels

Principal symbols	Additional symbols for steel	Additional symbols for steel products
G S n n n	an	+an +an ..... [2]

Principal symbols		Additional symbols		
Letter	Mechanical property	For steel		For steel product
		Group 1[3]	Group 2[4]	
G = cast steel (where necessary) S = structural steel	nnn = min yield strength (Re) N/mm² for the smallest thickness range	Impact property Energy Joules (J) / Test temp 27J / 40J / 60J / °C JR / KR / LR / 20 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 = Normalised or normalised rolled Q = Quenched and tempered G = Other characteristics followed, where necessary by 1 or 2 digits	C = Special cold forming D = Hot dip coating E = Enamelling F = Forging H = Hollow sections L = Low temperature M = Thermomechanically rolled N = Normalised or normalised rolled O = Offshore 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 x the average (rounded to 0.1%) of that specified range of the content of that element	Tables 1, 2, 3

[1] 6.3(a)(1) corresponds to 7.2(a) in EN10027-1

[2] n = numerical characters, a = alpha characters, an = alphanumeric characters

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

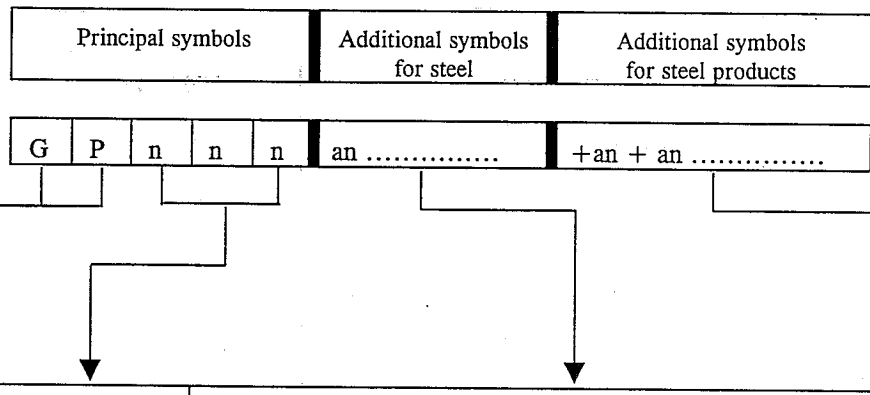
[4] Symbols of group 2, other than chemical symbols, may be suffixed by one or two digits in order to distinguish between qualities in accordance with the relevant product standard

6.3(a)(1) continued

Examples of steel names for structural steels		
Standard	Former steel name[1]	Steel name according to EN10027-1 & CR10260
EN10025	Fe 310-0	S185
	Fe 510 B	S355JR
	Fe 510 C	S355J0
	Fe 510 D1	S355J2G3
	Fe 510 D2	S355J2G4
	Fe 510 DD1	S355K2G3
	Fe 510 DD2 KQ	S355K2G4C
EN10113-2	Fe E 355 KG N	S355N
	Fe E 355 KT N	S355NL
EN10149-2	Fe E 355-TM	S355MC
EN10149-3	Fe E 355-TD	S355NC
EN10137-2	Fe E 460 V	S460Q
EN10147	Fe E 350 G	S350GD
	Fe E 350 G Z100	S350GD+Z100
EN10155	Fe 360 C KI	S235J0W
	Fe 360 D K1	S235J2W
	Fe 510 C1 KI	S355J0WP
	Fe 510 D1 KI	S355J2WP
	Fe 510 C2 KI	S355J0W
	Fe 510 D2 KI	S355J2G1W
	Fe 510 DD2 KI	S355K2G2W

[1] Former steel names are generally according to EU 27:74

6.3 6.3(a)(2)[1]	Steels designated according to their application and mechanical or physical properties Steels for pressure purposes



Principal symbols		Additional symbols		
Letter	Mechanical property	For steel		For steel products
		Group 1[3]	Group 2[4]	
G = cast steel (where necessary) P = steels for pressure purposes	nnn = min yield strength (Re) N/mm² for the smallest thickness range	M = Thermomechanically rolled N = Normalised or normalised rolled Q = Quenched and tempered B = Gas bottles 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 1, 2, 3

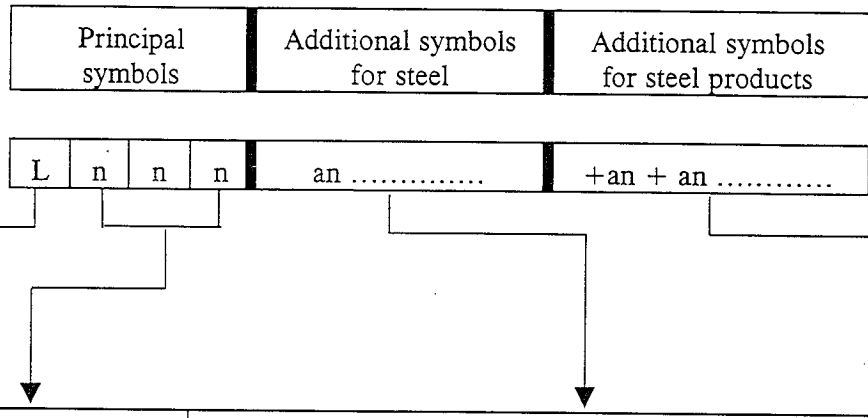
1 6.3(a)(2) corresponds to 7.2(a) in EN10027-1
2 n = numerical characters, a = alpha characters, an = alphanumeric characters
3 Symbols M, N and Q in group 1 apply to fine grain steels
4 Symbols of group 2, other than chemical symbols, may be suffixed by one or two digits in order to distinguish between qualities in accordance with the relevant product standard

Examples of steel names

Standard	Former steel name[5]	Steel name according to EN10027-1 and CR10260
EN10120	Fe E 265 KR	P265NB
EN10028-2	-	P265GH
EN10028-3	-	P355NH

5 Former steel names are generally according to EU 27:74

6.3 6.3(a)(3)[1]	Steels designated according to their application and mechanical orphysical properties Steels for line pipe



Principal symbols		Additional symbols		
Letter	Mechanical property	For steel		For steel products
		Group 1[3]	Group 2	
L = steels for line pipe	nnn = min yield strength (Re) N/mm² for the smallest thickness range	M = Thermomechanically rolled N = Normalised or normalised rolled Q = Quenched and tempered G = Other characteristics followed, where necessary, by 1 or 2 digits	a = class requirement followed, where necessary, by one digit	Tables 1, 2, 3

1 6.3(a)(3) corresponds to 7.2(a) in EN10027-1
2 n = numerical characters, a = alpha characters, an = alphanumeric characters
3 Symbols M, N and Q in group 1 apply to fine grain steels

Examples of steel names

Standard	Former steel name[4]	Steel name according to EN10027-1 and CR10260
EN10208-2	360	L360NB
	360 QT	L360QB
	360 TM	L360MB

4 Former steel names are generally according to EU 27:74