

Designation systems for steel — Additional symbols

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National foreword

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Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, the CR title page, pages 2 to 21 and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

Amendments issued since publication

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ICS

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English version

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

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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 EN 10027-1 and EN 10027-2 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 EN 10027-1 and certain additional symbols for use with steel numbers to EN 10027-2.

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 Table 1, Table 2 and Table 3 respectively

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- 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.

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1 Scope

This CEN Report is a supplement to EN 10027-1 and EN 10027-2.

It sets out additional symbols which may supplement the principal symbols of steel names as defined in EN 10027-1 and certain additional symbols which may supplement steel numbers as defined in EN 10027-2 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.

EN 10020, *Definition and classification of grades of steel*.

EN 10027, *Designation systems for steel*.

EN 10027-1, *Steel names; principal symbols*.

EN 10027-2, *Steel numbers*.

EN 10079, *Definition of steel products*.

3 Definitions

For the purpose of this CEN Report the definitions in EN 10020 and EN 10079 apply.

4 Allocation of additional symbols

Additional symbols shall be assigned by the technical committee concerned.

The application of additional symbols not in Table 1, Table 2 or Table 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 EN 10027-1 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 Table 1, Table 2 and Table 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 EN 10027-1 are included, but in condensed form.

For the exact complete requirements for principal symbols reference shall be made to EN 10027-1.

6.2 Steel numbers

Steel numbers allocated in accordance with EN 10027-2 may have additional symbols added which shall be selected from Table 1, Table 2 and Table 3. These symbols shall be separated from the steel number by the plus sign(+).

6.3	Steels designated according to their application and mechanical or physical properties				
6.3 a) 1) ¹	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 products
		Group 1 ³		Group 2 ⁴	
G = cast steel (where necessary)	nnn = min yield strength	Impact property Energy Joules (J)		C = Special cold forming	Table 1, Table 2, Table 3
S = structural steel	(Re) N/mm ² for the smallest thickness range	Test temp		D = Hot dip coating	
		27J 40J 60J °C		E = Enamelling	
		JR KR LR 20		F = Forging	
		J0 K0 L0 0		H = Hollow sections	
		J2 K2 L2 - 20		L = Low temperature	
		J3 K3 L3 - 30		M = Thermomechanically rolled	
		J4 K4 L4 - 40		N = Normalised or normalised rolled	
		J5 K5 L5 - 50		O = Offshore	
		J6 K6 L6 - 60		P = Sheet piling	
A = Precipitation hardening		Q = Quenched and tempered			
M = Thermomechanically rolled		S = Ship building			
N = Normalised or normalised rolled		T = Tubes			
Q = Quenched and tempered		W = Weather resistant			
G = Other characteristics followed, where necessary by 1 or 2 digits		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			

¹ 6.3 a) 1) corresponds to 7.2 a) in EN 10027-1

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

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