

ROOSTEVABAD TERASED. OSA 1: ROOSTEVABADE TERASTE LOETELU

Stainless steels - Part 1: List of stainless steels

EESTI STANDARDI EESSÕNA

NATIONAL FOREWORD

See Eesti standard EVS-EN 10088-1:2023 sisaldab Euroopa standardi EN 10088-1:2023 ingliskeelset teksti. Standard on jõustunud sellekohase teate avaldamisega EVS Teatajas. Euroopa standardimisorganisatsioonid on teinud Euroopa standardi rahvuslikele liikmetele kättesaadavaks 20.12.2023. Standard on kättesaadav Eesti Standardimis-ja Akrediteerimiskeskusest.	This Estonian standard EVS-EN 10088-1:2023 consists of the English text of the European standard EN 10088-1:2023. This standard has been endorsed with a notification published in the official bulletin of the Estonian Centre for Standardisation and Accreditation. Date of Availability of the European standard is 20.12.2023. The standard is available from the Estonian Centre for Standardisation and Accreditation.
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English Version

Stainless steels - Part 1: List of stainless steels

Aciers inoxydables - Partie 1 : Liste des aciers
inoxydables

Nichtrostende Stähle - Teil 1: Verzeichnis der
nichtrostenden Stähle

This European Standard was approved by CEN on 6 November 2023.

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

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European foreword

This document (EN 10088-1:2023) has been prepared by Technical Committee CEN/TC 459 “ECISS - European Committee for Iron and Steel Standardization¹”, the secretariat of which is held by AFNOR.

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of an identical text or by endorsement, at the latest by June 2024, and conflicting national standards shall be withdrawn at the latest by June 2024.

This document supersedes EN 10088-1:2014.

In comparison with the previous edition, the following technical modifications have been made:

- a) addition of austenitic grades 1.4420 (also part 2), 1.4678 (2), 1.4681 (3), 1.4391 (3), 1.4382 (2), 1.4682 (2), austenitic-ferritic (duplex) grades 1.4637 (2), 1.4670 (3), ferritic grades 1.4622 (2), 1.4106 (3), 1.4114 (3), 1.4045 (3), martensitic grade 1.4060 (2), 1.4037 (3);
- b) change in chemical composition: austenitic grades 1.4310 (2, 3), 1.4404 (2, 3), 1.4529 (2, 3), ferritic grade 1.4003 (2, 3), 1.4521(2), martensitic grades 1.4028 (2, 3), 1.4116 (2, 3);
- c) removal: austenitic grades 1.4319 (2, 3), 1.4537 (2, 3), austenitic-ferritic (duplex) grade 1.4655 (2).

EN 10088, under the general title *Stainless steels*, consists of the following parts:

- *Part 1: List of stainless steels;*
- *Part 2: Technical delivery conditions for sheet/plate and strip of corrosion resistant steels for general purposes;*
- *Part 3: Technical delivery conditions for semi-finished products, bars, rods, wire, sections and bright products of corrosion steels for general purposes;*
- *Part 4: Technical delivery conditions for sheet/plate and strip of corrosion steels for construction purposes;*
- *Part 5: Technical delivery conditions for bars, rods, wire, sections and bright products of corrosion steels for construction purposes.*

Any feedback and questions on this document should be directed to the users' national standards body. A complete listing of these bodies can be found on the CEN website.

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, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, Malta, Netherlands, Norway, Poland, Portugal, Republic of North Macedonia, Romania, Serbia, Slovakia, Slovenia, Spain, Sweden, Switzerland, Türkiye and the United Kingdom.

¹ Through its sub-committee SC 5 “Steels for heat treatment, alloy steels, free-cutting steels and stainless steels”, (secretariat: DIN).

Introduction

The European Committee for Standardization (CEN) draws attention to the fact that it is claimed that compliance with this document may involve the use of patents concerning ten steel grades, given in Clause 4, Annex A, Annex B and Annex E and which is claimed to be relevant for the following clause(s) of this document:

Clauses: Clause 4, Annex A, Annex B and Annex E

CEN takes no position concerning the evidence, validity and scope of these patent rights. The holders of these patents right have assured CEN that they are willing to negotiate licences, under reasonable and non-discriminatory terms and conditions, with applicants throughout the world. In this respect, the statements of the holders of these patent rights are registered with CEN.

Information may be obtained from:

Grade 1.4662, 1.4637

Outokumpu Stainless AB

SE-77480 Avesta, Sweden

Grade 1.4420, 1.4622

Outokumpu Oyj

FI-00180, Helsinki, Salmisaarenranta 11, Finland

Grade 1.4062, 1.4669, 1.4670

Ugitech

F-73403 Ugine Cedex, France

Grade 1.4062, 1.4669

Industeel

F-71200 Creusot, 56 Rue Clemenceau, France

Grade 1.4646, 1.4611, 1.4613

Acciai Speciali Terni

I-05100 Terni, Italy

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

1 Scope

This document lists the chemical composition of stainless steels, which are subdivided in accordance with their main properties into corrosion resistant steels, heat resistant steels and creep resistant steels (see Annex C) and specified in the European Standards given in Table 1.

Table 1 — Overview of material standards for stainless steels

Corrosion resistant steels	Stainless steels	
	Heat resistant steels	Creep resistant steels
EN 10028-7		EN 10028-7
EN 10088-2		
EN 10088-3		
EN 10088-4		
EN 10088-5		
	EN 10095	
EN 10151		
EN 10216-5		EN 10216-5
EN 10217-7		
EN 10222-5		EN 10222-5
EN 10250-4		
EN 10263-5		
EN 10264-4	EN 10264-4	
EN 10269		EN 10269
EN ISO 6931-1		
EN 10272		
EN 10296-2		
EN 10297-2		
		EN 10302
EN 10312		

Reference data on some physical properties are given in Annex E, Tables E.1 to E.8.

Empirical formulae for steel grade microstructure classification and pitting resistance ranking are given in Annex D.

NOTE 1 A matrix that shows which steels are included in which standard is given in Annex B.

NOTE 2 Valve steels are specified in EN 10090.

NOTE 3 Steel castings are specified in various European Standards (see Bibliography).

NOTE 4 Tool steels are specified in EN ISO 4957.

NOTE 5 Welding consumables are specified in various European Standards (see Bibliography).

2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

EN 10079, *Definition of steel products*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 10079 and the following apply.

ISO and IEC maintain terminology databases for use in standardization at the following addresses:

- ISO Online browsing platform: available at <https://www.iso.org/obp>
- IEC Electropedia: available at <https://www.electropedia.org/>

3.1

stainless steels

steels with at least 10,5 % of chromium and maximum 1,20 % of carbon

[SOURCE: EN 10020:2000, 3.2.2]

Note 1 to entry: Stainless steels are further subdivided in accordance with their main property into corrosion resistant steels, heat-resistant steels and creep resistant steels.

Note 2 to entry: One type of steel in Table 7 and five types of steel in Table 9 contain less chromium than the minimum defined for stainless steels, but are included in the heat-resistant and creep-resistant steels standards respectively, because they form a part of these two families of steels.

4 Chemical composition

The chemical composition of stainless steels is given:

- in Table 2 for austenitic corrosion resistant steels;
- in Table 3 for austenitic-ferritic corrosion resistant steels;
- in Table 4 for ferritic corrosion resistant steels;
- in Table 5 for martensitic and precipitation hardening corrosion resistant steels;
- in Table 6 for austenitic and austenitic-ferritic heat resistant steels;
- in Table 7 for ferritic heat resistant steels;
- in Table 8 for austenitic creep resistant steels;
- in Table 9 for martensitic creep resistant steels.

NOTE 1 The chemical composition of nickel and cobalt alloys listed in EN 10095, EN 10269 and EN 10302 is given in Annex F, Tables F.1 and F.2.

NOTE 2 Steels in this document and in EN 10088-2 and EN 10088-3 are listed according to a line number (see Annex A).

NOTE 3 The order of the elements listed in the tables of chemical composition is according to ISO 6306.