STN	Nehrdzavejúce ocele. Časť 1: Zoznam nehrdzavejúcich ocelí.	STN EN 10088-1
		42 0927

Stainless steels - Part 1: List of stainless steels

Táto norma obsahuje anglickú verziu európskej normy. This standard includes the English version of the European Standard.

Táto norma bola oznámená vo Vestníku ÚNMS SR č. 03/15

Obsahuje: EN 10088-1:2014

Oznámením tejto normy sa ruší STN EN 10088-1 (42 0927) z novembra 2005

#### 120382

STN EN 10088-1: 2015

# EUROPEAN STANDARD NORME EUROPÉENNE EUROPÄISCHE NORM

EN 10088-1

October 2014

ICS 77.140.20

Supersedes EN 10088-1:2005

#### **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 9 August 2014.

CEN members are bound to comply with the CEN/CENELEC Internal Regulations which stipulate the conditions for giving this European Standard the status of a national standard without any alteration. Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the CEN-CENELEC Management Centre or to any CEN member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CEN member into its own language and notified to the CEN-CENELEC Management Centre has the same status as the official versions.

CEN members are the national standards bodies of 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 United Kingdom.



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

CEN-CENELEC Management Centre: Avenue Marnix 17, B-1000 Brussels

Con	tents	Page
Forew	ord	3
Introd	uction	4
1	Scope	5
2	Normative references	6
3	Terms and definitions	6
4	Chemical composition	6
Annex	A (informative) Designation of ISO stainless steels and of comparable grades covered in various designation systems listed according to the European system	24
Annex	B (informative) Matrix to show which steels are included in which European Standard	32
Annex	C (informative) Classification of stainless steel grades	42
Annex	CD (informative) Empirical formulae for steel grade microstructure classification and pitting resistance ranking	46
Annex	ε Ε (informative) Guidance data on some physical properties	48
Annex	r F (informative) Chemical composition of nickel and cobalt alloys listed in EN 10095, EN 10269 and EN 10302	63
Biblio	graphy	66

### **Foreword**

This document (EN 10088-1:2014) has been prepared by Technical Committee ECISS/TC 105 "Steels for heat treatment, alloy steels, free-cutting and stainless steels", the secretariat of which is held by DIN.

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 2015 and conflicting national standards shall be withdrawn at the latest by April 2015.

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

This document supersedes EN 10088-1:2005.

This document mainly differs from the 2005 edition as follows:

- a) addition of austenitic grades 1.4615 (also part 3), 1.4618 (2), 1.4376 (2), 1.4640 (2), 1.4646 (2, 3), 1.4020 (3), 1.4378 (3), addition of austenitic-ferritic (duplex) grades 1.4162 (2, 3), 1.4662 (2, 3), 1.4658 (3), 1.4482 (2, 3), 1.4062 (2, 3), 1.4669 (3), addition of ferritic grades 1.4621 (2), 1.4600 (2), 1.4607 (2), 1.4611 (2, 3), 1.4613 (2, 3), 1.4630 (2), 1.4634 (2),addition of martensitic grade 1.4150 (3), addition of precipitation hardening grade 1.4612 (3);
- b) chemical composition was changed for following grades:austenitic grade 1.4371, 1.4597, austenitic-ferritic grade 1.4362.

Each of the tables for the chemical composition of steel grades now has a sub-section with grades designated as 'uncommon' (i.e. not produced in the past 10 years and which may be removed during the next revision).

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

- Part 1: List of stainless steels (including a table of European Standards, in which these stainless steels
  are further specified, see Annex B) [the present document];
- Part 2: Technical delivery conditions for sheet/plate and strip of corrosion resisting steels for general purposes;
- Part 3: Technical delivery conditions for semi-finished products, bars, rods, wire, sections and bright products of corrosion resisting steels for general purposes;
- Part 4: Technical delivery conditions for sheet/plate and strip of corrosion resisting steels for construction purposes;
- Part 5: Technical delivery conditions for bars, rods, wire, sections and bright products of corrosion resisting steels for construction purposes.

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

## Introduction

The European Organization for Standardization (CEN) draws attention to the fact that it is claimed that compliance with this document may involve the use of patents applied to ten steel grades.

CEN takes no position concerning the evidence, validity and scope of these patent rights.

The holder of these patent rights has ensured 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 1.4658 Sandvik AB SE-81181 Sandviken, Sweden

Grade 1.4162, 14662 Outokumpu Stainless AB SE-77480 Avesta, Sweden

Grade 1.4062, 1.4615, 1.4669 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

# 1 Scope

This European Standard lists the chemical composition of stainless steels, which are subdivided in accordance with their main properties into corrosion resisting steels, heat resisting steels and creep resisting steels and specified in the European Standards given in Table 1.

Table 1 — Overview of material standards for stainless steels

Stainless steels				
Corrosion resisting steels	Heat resisting steels	Creep resisting 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 10270-3				
EN 10272				
EN 10296-2				
EN 10297-2				
		EN 10302		
EN 10312				

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

- 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 referenced 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 10079:2007, Definition of steel products

koniec náhľadu – text ďalej pokračuje v platenej verzii STN