SLOVENSKI STANDARD
oSIST prEN 10088-1:2022

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Nerjavna jekla - 1. del: Seznam nerjavnih jekel

Stainless steels - Part 1: List of stainless steels

Nichtrostende Stähle - Teil 1: Verzeichnis der nichtrostenden Stähle

Aciers inoxydables - Partie 1: Liste des aciers inoxydable

Ta slovenski standard je istoveten z: **prEN 10088-1**

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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 draft European Standard is submitted to CEN members for enquiry. It has been drawn up by the Technical Committee CEN/TC 459/SC 5.

If this draft becomes a European Standard, 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.

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Recipients of this draft are invited to submit, with their comments, notification of any relevant patent rights of which they are aware and to provide supporting documentation.

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

CEN-CENELEC Management Centre: Rue de la Science 23, B-1040 Brussels

Ref. No. prEN 10088-1:2021 E

Contents

Page

European foreword

This document (prEN 10088-1:2021) has been prepared by Technical Committee CEN/TC 459/SC5 “Steels for heat treatment, alloy steels, free-cutting and stainless steels, stainless steels”, the secretariat of which is held by DIN.

This document is currently submitted to the CEN Enquiry.

This document will supersede EN 10088-1:2014.

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

a) addition of austenitic grades 1.4420 (1,2), 1.4678 (2), 1.4681 (3), 1.4391 (3),1.4382 (2), 1.4682(2) addition of austenitic-ferritic (duplex) grades 1.4637 (2), 1.4670 (3), addition of ferritic grades 1.4622 (2), 1.4106 (3), 1.4114 (3), 1.4045 (3), addition of martensitic grade 1.4060 (2), 1.4037 (3);

b) chemical composition was changed for following grades: austenitic grades 1.4310, 1.4404, 1.4529, ferritic grade 1.4003, 1.4521, martensitic grades 1.4028, 1.4116;

c) the following grades were deleted: austenitic grades 1.4319, 1.4537, austenitic-ferritic (duplex) grade 1.4655.

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*.

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 applied to ten steel grades.

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

The holders of these patent rights have 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 1.4662, 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 and specified in the European Standards given in Table 1.

Table 1 — Overview of material standards for stainless steels

Stainless steels		
Corrosion resistant 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 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 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 10079:2007, *Definition of steel products*

ISO 6306, *Chemical analysis of steel — Order of listing elements in steel standards*

3 Terms and definitions

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

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

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

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 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 Table A.1) with the following rules.

The primary rule is ordering by austenitic steels (without Mo), austenitic steels with Mo, austenitic steels with Ni/Co as the main alloying elements, austenitic-ferritic (duplex) steels first without Mo then with Mo, ferritic steels first without Mo then with Mo, martensitic steels first without Mo then with Mo and precipitation-hardening steels without and with Mo.

The next two digits are the sum of the main alloying elements of Cr, Mo and Ni/Mn/Co (for the ferritic and martensitic steels it is only the sum of Cr and Mo).

The secondary rule is ordering by the line numbers as given in Table A.1.

Table 2 — Chemical composition (cast analysis) of austenitic corrosion resistant steels

Steel designation		% by mass [a]										
Name	**Number**	**C**	**Si**	**Mn**	**P**	**S**	**Cr**	**Mo**	**Ni**	**N**	**Cu** [c]	**Others**
Austenitic steels												
X2CrNiN18–7	1.4318	0,030	1,00	2,00	0,045	0,015	16,5 to 18,5	-	6,0 to 8,0	0,10 to 0,20	-	-
X4CrNiCu18-7	1.4382	0,05	1,00	2,00	0,045	0,015	17,0 to 19,0	-	6,0 to 8,0	0,05 to 0,15	0,50 to 2,00	
X10CrNi18–8	1.4310	0,030 to 0,15	2,00	2,00	0,045	0,015	16,0 to 19,0	0,80	6,0 to 9,5	0,10	-	-
X2CrNi18–9	1.4307	0,030	1,00	2,00	0,045	0,015 [b]	17,5 to 19,5	-	8,0 to 10,5	0,10	-	-
X9CrNi18–9	1.4325	0,030 to 0,15	1,00	2,00	0,045	0,030	17,0 to 19,0	-	8,0 to 10,0	-	-	-
X8CrNiS18–9 [e]	1.4305 [e]	0,10	1,00	2,00	0,045	0,15 to 0,35	17,0 to 19,0	-	8,0 to 10,0	0,10	1,00	-
X6CrNiCuS18–9-2 [e]	1.4570 [e]	0,08	1,00	2,00	0,045	0,15 to 0,35	17,0 to 19,0	0,60	8,0 to 10,0	0,10	1,40 to 1,80	-
X3CrNiCu18–9-4	1.4567	0,04	1,00	2,00	0,045	0,015 [b]	17,0 to 19,0	-	8,5 to 10,5	0,10	3,0 to 4,0	-
X5CrNiN19–9	1.4315	0,06	1,00	2,00	0,045	0,015	18,0 to 20,0	-	8,0 to 11,0	0,12 to 0,22	-	-
X3CrNiCu19–9-2	1.4560	0,035	1,00	1,50 to 2,00	0,045	0,015	18,0 to 19,0	-	8,0 to 9,0	0,10	1,50 to 2,00	-
X5CrNiCu19–6-2	1.4640	0,030 to 0,08	0,50	1,50 to 4,0	0,045	0,015	18,0 to 19,0	-	5,5 to 6,9	0,03 to 0,11	1,30 to 2,00	-
X2CrNiN18–10	1.4311	0,030	1,00	2,00	0,045	0,015 [b]	17,5 to 19,5	-	8,5 to 11,5	0,12 to 0,22	-	-
X5CrNi18–10	1.4301	0,07	1,00	2,00	0,045	0,015 [b]	17,5 to 19,5	-	8,0 to 10,5	0,10	-	-
X2CrNiSi18-10	1.4682	0,03	0,8 to 2,0	2,00	0,045	0,015	17,5 to 19,5	0,4 to 0,8	9,0 to 11,0	0,10		
X6CrNiTi18–10	1.4541	0,08	1,00	2,00	0,045	0,015 [b]	17,0 to 19,0	-	9,0 to 12,0 [d]	-	-	Ti: 5 × C to 0,70
X6CrNiNb18–10	1.4550	0,08	1,00	2,00	0,045	0,015	17,0 to 19,0	-	9,0 to 12,0 [d]	-	-	Nb: 10 × C to 1,00
X2CrNiCu19–10	1.4650	0,030	1,00	2,00	0,045	0,015	18,5 to 20,0	-	9,0 to 10,0	0,08	1,00	-
X2CrNi19–11	1.4306	0,030	1,00	2,00	0,045	0,015 [b]	18,0 to 20,0	-	10,0 to 12,0 [d]	0,10	-	-

Steel designation		% by mass [a]										
Name	Number	C	Si	Mn	P	S	Cr	Mo	Ni	N	Cu [c]	Others
X4CrNi18–12	1.4303	0,06	1,00	2,00	0,045	0,015 [b]	17,0 to 19,0	-	11,0 to 13,0	0,10	-	-
X1CrNiSi18–15–4	1.4361	0,015	3,7 to 4,5	2,00	0,025	0,010	16,5 to 18,5	0,20	14,0 to 16,0	0,10	-	-
X8CrMnCuN17–8-3	1.4597	0,10	2,00	6,5 to 9,0	0,040	0,030	15,0 to 18,0	1,00	3,00	0,10 to 0,30	2,00 to 3,5	-
X8CrMnNi19–6-3	1.4376	0,10	1,00	5,0 to 8,0	0,045	0,015	17,0 to 20,5		2,00 to 4,5	0,30	-	-
X3CrMnNiCu15–8-5–3	1.4615	0,030	1,00	7,0 to 9,0	0,040	0,010	14,0 to 16,0	0,80	4,5 to 6,0	0,02 to 0,06	2,0 to 4,0	-
X12CrMnNiN17–7-5	1.4372	0,15 [f]	1,00	5,5 to 7,5	0,045	0,015	16,0 to 18,0	-	3,5 to 5,5	0,05 to 0,25	-	-
X2CrMnNiN17–7-5	1.4371	0,030	1,00	6,0 to 8,0	0,045	0,015	16,0 to 17,5	-	3,5 to 5,5	0,15 to 0,25	1,00	-
X9CrMnNiCu17–8-5–2	1.4618	0,10	1,00	5,5 to 9,5	0,070	0,010	16,5 to 18,5	-	4,5 to 5,5	0,15	1,00 to 2,50	-
X30MnCrN16-14	1.4678	0,20 to 0,40	1,00	14,0 to 18,0	0,045	0,015	12,0 to 16,0	-	-	0,20 to 0,40	2,00	-
X12CrMnNiN18–9-5	1.4373	0,15	1,00	7,5 to 10,5	0,045	0,015	17,0 to 19,0	-	4,0 to 6,0	0,05 to 0,25	-	-
X8CrMnNiN18–9-5	1.4374	0,05 to 0,10	0,30 to 0,60	9,0 to 10,0	0,035	0,030	17,5 to 18,5	0,50	5,0 to 6,0	0,25 to 0,32	0,40	-
X11CrNiMnN19–8-6	1.4369	0,07 to 0,15	0,50 to 1,00	5,0 to 7,5	0,030	0,015	17,5 to 19,5	-	6,5 to 8,5	0,20 to 0,30	-	-
X13CrMnNiN18–13–2	1.4020	0,15	1,00	11,0 to 14.0	0,045	0,030	16,5 to 19,0	-	0,5 to 2,5	0,20 to 0,45	-	-
X6CrMnNiN18–13–3	1.4378	0,08	1,00	11,5 to 14,5	0,060	0,030	17,0 to 19,0	-	2,3 to 3,7	0,20 to 0,40	-	-
X6CrMnNiCuN18–12–4-2*	1.4646*	0,02 to 0,10	1,00	10,5 to 12,5	0,050	0,015	17,0 to 19,0	0,50	3,5 to 4,5	0,20 to 0,30	1,50 to 3,00	-
X3CrMnNiN20-9-6	1.4391	0,040	1,00	8,0-10,0	0,045	0,030	19,0-21,5	0,75	5,5-7,5	0,15-0,40	-	-
X1CrNi25–21	1.4335	0,020	0,25	2,00	0,025	0,010	24,0 to 26,0	0,20	20,0 to 22,0	0,10	-	-
Austenitic steels with Mo												
X2CrNiMoCuS17–10–2 [e]	1.4598[e]	0,030	1,00	2,00	0,045	0,10 to 0,20	16,5 to 18,5	2,00 to 2,50	10,0 to 13,0	0,10	1,30 to 1,80	-

Steel designation		% by mass [a]										
Name	Number	C	Si	Mn	P	S	Cr	Mo	Ni	N	Cu [c]	Others
X3CrNiCuMo17–11–3-2	1.4578	0,04	1,00	2,00	0,045	0,015	16,5 to 17,5	2,00 to 2,50	10,0 to 11,0	0,10	3,0 to 3,5	-
X2CrNiMoN17–11–2	1.4406	0,030	1,00	2,00	0,045	0,015 [b]	16,5 to 18,5	2,00 to 2,50	10,0 to 12,5 [d]	0,12 to 0,22	-	-
X2CrNiMo17–12–2	1.4404	0,030	1,00	2,00	0,045	0,015 [b]	16,5 to 18,5	2,00 to 3,0	10,0 to 13,0 [d]	0,10	-	-
X5CrNiMo17–12–2	1.4401	0,07	1,00	2,00	0,045	0,015 [b]	16,5 to 18,5	2,00 to 2,50	10,0 to 13,0	0,10	-	-
X6CrNiMoTi17–12–2	1.4571	0,08	1,00	2,00	0,045	0,015 [b]	16,5 to 18,5	2,00 to 2,50	10,5 to 13,5 [d]	-	-	Ti : 5 × C to 0,70
X6CrNiMoNb17–12–2	1.4580	0,08	1,00	2,00	0,045	0,015	16,5 to 18,5	2,00 to 2,50	10,5 to 13,5	-	-	Nb : 10 × C to 1,00
X2CrNiMoN21-9-1 [e]	1.4420[e]	0,03	1,00	2,00	0,045 [g]	0,015	19,5 to 21,5	0,50 to 1,50	8,0 to 9,5	0,14 to 0,25	1,00	-
X2CrNiMo17–12–3	1.4432	0,030	1,00	2,00	0,045	0,015 [b]	16,5 to 18,5	2,50 to 3,00	10,5 to 13,0	0,10	-	-
X3CrNiMo18–12–3	1.4449	0,035	1,00	2,00	0,045	0,015	17,0 to 18,2	2,25 to 2,75	11,5 to 12,5	0,08	1,00	-
X3CrNiMo17–13–3	1.4436	0,05	1,00	2,00	0,045	0,015 b	16,5 to 18,5	2,50 to 3,00	10,5 to 13,0 d	0,10	-	-
X2CrNiMoN17–13–3	1.4429	0,030	1,00	2,00	0,045	0,015	16,5 to 18,5	2,50 to 3,00	11,0 to 14,0 [d]	0,12 to 0,22	-	-
X2CrNiMoN18–12–4	1.4434	0,030	1,00	2,00	0,045	0,015	16,5 to 19,5	3,0 to 4,0	10,5 to 14,0 [d]	0,10 to 0,20	-	-
X2CrNiMo18–14–3	1.4435	0,030	1,00	2,00	0,045	0,015 [b]	17,0 to 19,0	2,50 to 3,00	12,5 to 15,0	0,10	-	-
X2CrNiMoN17–13–5	1.4439	0,030	1,00	2,00	0,045	0,015	16,5 to 18,5	4,0 to 5,0	12,5 to 14,5	0,12 to 0,22	-	-
X2CrNiMo18–15–4	1.4438	0,030	1,00	2,00	0,045	0,015 [b]	17,5 to 19,5	3,0 to 4,0	13,0 to 16,0 [d]	0,10	-	-
X5CrNiMnMoNNbV22-12-5-2	1.4681	0,060	1,00	4,0 to 6,0	0,045	0,030	20,5 to 23,5	1,5 to 3,0	11,5 to 13,5	0,20 to 0,40	-	Nb : 0,10 to 0,30 V : 0,10 to 0,30
X1CrNiMoCuN20–18–7	1.4547	0,020	0,70	1,00	0,030	0,010	19,5 to 20,5	6,0 to 7,0	17,5 to 18,5	0,18 to 0,25	0,50 to 1,00	-
X1CrNiMoN25–22–2	1.4466	0,020	0,70	2,00	0,025	0,010	24,0 to 26,0	2,00 to 2,50	21,0 to 23,0	0,10 to 0,16	-	-

Steel designation		% by mass [a]										
Name	Number	C	Si	Mn	P	S	Cr	Mo	Ni	N	Cu [c]	Others
X1CrNiMoCuNW24–22–6	1.4659	0,020	0,70	2,00 to 4,0	0,030	0,010	23,0 to 25,0	5,5 to 6,5	21,0 to 23,0	0,35 to 0,50	1,00 to 2,00	W : 1,50 to 2,50
X1CrNiMoCuN24–22–8	1.4652	0,020	0,50	2,00 to 4,0	0,030	0,005	23,0 to 25,0	7,0 to 8,0	21,0 to 23,0	0,45 to 0,55	0,30 to 0,60	-
X2CrNiMnMoN25–18–6-5	1.4565	0,030	1,00	5,0 to 7,0	0,030	0,015	24,0 to 26,0	4,0 to 5,0	16,0 to 19,0	0,30 to 0,60	-	Nb : 0,15
Austenitic steels with Ni as main alloying element												
X1NiCrMoCu25–20–5	1.4539	0,020	0,70	2,00	0,030	0,010	19,0 to 21,0	4,0 to 5,0	24,0 to 26,0	0,15	1,20 to 2,00	-
X1NiCrMoCuN25–20–7	1.4529	0,020	0,75	2,00	0,030	0,010	19,0 to 21,0	6,0 to 7,0	24,0 to 26,0	0,15 to 0,25	0,50 to 1,50	-
X2NiCrAlTi32–20	1.4558	0,030	0,70	1,00	0,020	0,015	20,0 to 23,0	-	32,0 to 35,0	-	-	Al : 0,15 to 0,45 Ti : [8×(C + N)] to 0,60
X1NiCrMoCu31–27–4	1.4563	0,020	0,70	2,00	0,030	0,010	26,0 to 28,0	3,0 to 4,0	30,0 to 32,0	0,10	0,70 to 1,50	-

Elements not quoted ("-") or not listed in this table shall not be intentionally added to the steel without the agreement of the purchaser except for finishing the cast. All appropriate precautions shall be taken to avoid the addition of such elements from scrap and other materials used in production which would impair mechanical properties and the suitability of the steel.

a Maximum values unless indicated otherwise.

b For bars, rods, wire, sections, bright products and the relevant semi-finished products, a maximum content of 0,030 % S applies. Particular ranges of sulfur content may provide improvement of particular properties. For machinability a controlled sulfur content of 0,015 % to 0,030 % is recommended and permitted. For weldability, a controlled sulfur content of 0,0080 % to 0,030 % is recommended and permitted. For polishability, a controlled sulfur content of 0,015 % max. is recommended.

c For austenitic steel grades intended for cold heading and cold extruding, a Cu-content of max. 1,00 % is permitted.

d Where for special reasons, e. g. hot workability for the fabrication of seamless tubes where it is necessary to minimize the delta ferrite content, or with the aim of low magnetic permeability, the maximum Ni content may be increased by the following amounts:

- 0,50 % (m/m): 1.4571;
- 1,00 % (m/m): 1.4306, 1.4406, 1.4429, 1.4434, 1.4436, 1.4438, 1.4541, 1.4550;
- 1,50 % (m/m): 1.4404.

e Parts made of high sulfur free cutting austenitic steels may not comply with European Directive 94/27 regarding articles in contact with human skin.

f For pressure purposes a carbon limit of C ≤ 0,07 % is allowed.

g For application according to Pressure Equipment Directive (PED) the phosphorus content is restricted to max 0,035 %

* Patented steel grade.

Table 3 — Chemical composition (cast analysis) of austenitic-ferritic corrosion resistant steels

Steel designation		% by mass [a]										
Name	Number	C	Si	Mn	P	S	Cr	Mo	Ni	N	Cu	Others
X2CrNiN22-2*)	1.4062*)	0,030	1,00	2,00	0,040	0,010	21,5 to 24,0	0,45	1,00 to 2,90	0,16 to 0,28	-	-
X2CrCuNiN23–2-2*)	1.4669*)	0,045	1,00	1,00 to 3,00	0,040	0,030	21,5 to 24,0	0,50	1,00 to 3,00	0,12 to 0,20	1,60 to 3,00	-
X2CrMnNiSiN20-5-4-2 [e]	1.4670 [e]	0,030	1,50 to 3,00	4,0 to 6,0	0,040	0,010	18,0 to 21,0	0,60	3,00 to 5,5	0,10 to 0,20	1,00	–
Austenitic-ferritic steels with Mo												
X2CrNiMoSi18–5-3	1.4424	0,030	1,40 to 2,00	1,20 to 2,00	0,035	0,015	18,0 to 19,0	2,50 to 3,0	4,5 to 5,2	0,05 to 0,10	-	-
X2CrNiMnMoCuN21-3-1-1	1.4637	0,015 to 0,030	0,30 to 0,50	1,05 to 1,30	0,035	0,05	19,9 to 20,3	1,15 to 1,30	2,65 to 3,00	0,18 to 0,21	0,30 to 0,50	–
X2CrNiN23–4	1.4362	0,030	1,00	2,00	0,035	0,015	22,0 to 24,5	0,10 to 0,60	3,5 to 5,5	0,05 to 0,20	0,10 to 0,60	-
X2CrMnNiN21–5-1	1.4162	0,04	1,00	4,0 to 6,0	0,040	0,015	21,0 to 22,0	0,10 to 0,80	1,35 to 1,90	0,20 to 0,25	0,10 to 0,80	-
X2CrMnNiMoN21–5-3	1.4482	0,030	1,00	4,0 to 6,0	0,035	0,030	19,5 to 21,5	0,10 to 0,60	1,50 to 3,50	0,05 to 0,20	1,00	-
X2CrNiMoN22–5-3 [c]	1.4462 [c]	0,030	1,00	2,00	0,035	0,015	21,0 to 23,0	2,50 to 3,5	4,5 to 6,5	0,10 to 0,22	-	-
X2CrNiMnMoCuN24–4-3–2*	1.4662*	0,030	0,70	2,50 to 4,0	0,035	0,005	23,0 to 25,0	1,00 to 2,00	3,0 to 4,5	0,20 to 0,30	0,10 to 0,80	-
X2CrNiMoCuN25–6-3	1.4507	0,030	0,70	2,00	0,035	0,015	24,0 to 26,0	3,0 to 4,0	6,0 to 8,0	0,20 to 0,30	1,00 to 2,50	-
X3CrNiMoN27–5-2	1.4460	0,05	1,00	2,00	0,035	0,015 [b]	25,0 to 28,0	1,30 to 2,00	4,5 to 6,5	0,05 to 0,20	-	-
X2CrNiMoN25–7-4	1.4410	0,030	1,00	2,00	0,035	0,015	24,0 to 26,0	3,0 to 4,5	6,0 to 8,0	0,24 to 0,35	-	-

X2CrNiMoCuWN25–7-4	1.4501	0,030	1,00	1,00	0,035	0,015	24,0 to 26,0	3,0 to 4,0	6,0 to 8,0	0,20 to 0,30	0,50 to 1,00	W : 0,50 to 1,00
X2CrNiMoN29–7-2	1.4477	0,030	0,50	0,80 to 1,50	0,030	0,015	28,0 to 30,0	1,50 to 2,60	5,8 to 7,5	0,30 to 0,40	0,80	-
X2CrNiMoCoN28–8-5–1*	1.4658*	0,030	0,50	1,50	0,035	0,010	26,0 to 29,0	4,0 to 5,0	5,5 to 9,5	0,30 to 0,50	1,00	Co : 0,50 to 2,00

Elements not quoted in this table shall not be intentionally added to the steel without the agreement of the purchaser except for finishing the cast. All appropriate precautions shall be taken to avoid the addition of such elements from scrap and other materials used in production which would impair mechanical properties and the suitability of the steel.

a Maximum values unless indicated otherwise.

b For bars, rods, wire, sections, bright products and the relevant semi-finished products, a maximum content of 0,030 % S applies. Particular ranges of sulfur content may provide improvement of particular properties. For machinability a controlled sulfur content of 0,015 % to 0,030 % is recommended and permitted. For weldability, a controlled sulfur content of 0,008 % to 0,030 % is recommended and permitted. For polishability, a controlled sulfur content of 0,015 % max. is recommended.

c By agreement, this grade can be delivered with a Pitting Resistance Equivalent Number (PRE = Cr + 3,3 Mo + 16 N, compare Table D.1) greater than 34.

* Patented steel grade.