SLOVENSKI STANDARD
SIST EN 10283:2019

01-junij-2019

Nadomešča:
SIST EN 10283:2010

Korozijsko obstojni jekleni ulitki

Corrosion resistant steel castings

Korrosionsbeständiger Stahlguss

Aciers moulés résistant à la corrosion

Ta slovenski standard je istoveten z: EN 10283:2019

ICS:

77.140.20	Visokokakovostna jekla	Stainless steels
77.140.80	Železni in jekleni ulitki	Iron and steel castings

SIST EN 10283:2019 **en,fr,de**

EUROPEAN STANDARD

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English Version

Corrosion resistant steel castings

Aciers moulés résistant à la corrosion

Korrosionsbeständiger Stahlguss

This European Standard was approved by CEN on 14 December 2018.

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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.

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

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Contents

Page

European foreword

This document (EN 10283:2019) has been prepared by Technical Committee ECISS/TC 111 "Steel castings and forgings", 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of an identical text or by endorsement, at the latest by September 2019, and conflicting national standards shall be withdrawn at the latest by September 2019.

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

This document supersedes EN 10283:2010.

In comparison with EN 10283:2010, the following significant technical changes were made:

— alignment with the structure of EN 1559-1:2011, *Founding — Technical conditions of delivery — Part 1: General* and EN 1559-2:2014, *Founding — Technical conditions of delivery — Part 2: Additional requirements for steel castings*;

— new grade (GX20Cr14) added;

— Table A.1: welding group added.

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

Introduction

This document retains the same format for clauses as EN 1559-1:2011 and EN 1559-2:2014. It is intended to be used in conjunction with these documents. Where no text is given under a clause heading, the corresponding clause of EN 1559-1:2011 or EN 1559-2:2014 applies.

The structure of this document is as follows:

— clauses and subclauses preceded by ■ indicate no additional conditions to EN 1559-1:2011 or EN 1559-2:2014

Note When additional information is given in a clause or subclause of this document (versus the same clause or subclause of EN 1559-1:2011 or EN 1559-2:2014) it is preceded by: "ln addition to EN 1559:".

— subclauses and paragraphs marked with a single dot • indicate that the conditions shall be agreed at the time of enquiry and order;

— subclauses marked with two dots •• indicate that conditions may be agreed at the time of enquiry and order (optional);

— subclauses without dot marking are mandatory.

1 Scope

This document applies to corrosion resistant steel castings for general purposes.

This document relates to castings manufactured from martensitic, austenitic, fully austenitic and austenitic-ferritic steel grades characterized by their chemical composition (see Table 1) and mechanical properties (see Table 2).

ln cases where castings are joined by welding by the founder, this document applies.

ln cases where castings are welded:

— to wrought products (plates, tubes, forgings);

— or by non-founders,

this document does not apply.

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 1559-1:2011, *Founding — Technical conditions of delivery — Part 1: General*

EN 1559-2:2014, *Founding — Technical conditions of delivery — Part 2: Additional requirements for steel castings*

EN 10027-1, *Designation systems for steels — Part 1: Steel names*

EN ISO 3651-2, *Determination of resistance to intergranular corrosion of stainless steels — Part 2: Ferritic, austenitic and ferritic-austenitic (duplex) stainless steels — Corrosion test in media containing sulfuric acid (ISO 3651-2:1998)*

3 ■ Terms and definitions

No terms and definitions are listed in this document.

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

4 ■ Information to be supplied by the purchaser

5 Designations

In addition to EN 1559-2:2014: For a steel grade manufactured to different strength levels, according to the heat treatment, a suffix shall be added in accordance with EN 10027-1.

6 Manufacture

6.1 Manufacturing process

6.1.1 Melting

In addition to EN 1559-2:2014: Alternative processes are left to the discretion of the manufacturer.

6.1.2 Heat treatment

Unless otherwise agreed, the type of heat treatment represented by its symbol shall comply with Table 2. For some grades there are different options with different mechanical properties given in Table 2.

6.2 Welding operations

6.2.1 ■ General

NOTE For austenitic, fully austenitic and ferritic-austenitic (duplex) grades with a carbon content greater than 0,030 %, when welding cannot be followed by heat treatment as solution annealing (+AT), there may be a risk of intergranular corrosion.

6.2.2 Production welding

In addition to EN 1559-2:2014:

— information on preheat and interpass temperatures as well as on post weld heat-treatment and the corresponding welding groups as defined in EN ISO 11970 is given in Annex A.

6.3 ■ Further processing

Table 1 — Chemical composition (cast analysis), (% by mass)

Group of grades	Designation		C	Si	Mn	P	S	Cr	Mo	Ni	N	Cu	Nb[a]	W
	Name	Number		max.	max.	max.	max.							max.
Martensitic grades	GX12Cr12	1.4011	0,15 max.	1,00	1,00	0,035	0,025	11,50 to 13,50	max. 0,50	max. 1,00	-	-	-	-
	GX20Cr14	1.4027	0,16 to 0,23	1,00	1,00	0,045	0,03 [b]	12,50 to 14,50	-	1,00	-	-	-	-
	GX7CrNiMo12–1	1.4008	0,10 max.	1,00	1,00	0,035	0,025	12,00 to 13,50	0,20 to 0,50	1,00 to 2,00	-	-	-	-
	GX4CrNi13–4	1.4317	0,06 max.	1,00	1,00	0,035	0,025	12,00 to 13,50	max. 0,70	3,50 to 5,00	-	-	-	-
	GX4CrNiMo16–5-1	1.4405	0,06 max.	0,80	1,00	0,035	0,025	15,00 to 17,00	0,70 to 1,50	4,00 to 6,00	-	-	-	-
	GX4CrNiMo16–5-2	1.4411	0,06 max.	0,80	1,00	0,035	0,025	15,00 to 17,00	1,50 to 2,00	4,00 to 6,00	-	-	-	-
	GX5CrNiCu16–4	1.4525	0,07 max.	0,80	1,00	0,035	0,025	15,00 to 17,00	max. 0,80	3,50 to 5,50	max. 0,05	2,50 to 4,00	max. 0,35	-

Group of grades	Designation		C	Si	Mn	P	S	Cr	Mo	Ni	N	Cu	Nb[a]	W
	Name	Number		max.	max.	max.	max.							max.
Austenitic grades	GX2CrNi19–11	1.4309	0,030 max.	1,50	2,00	0,035	0,025	18,00 to 20,00	-	9,00 to 12,00	max. 0,20	-	-	-
	GX5CrNi19–10	1.4308	0,07 max.	1,50	1,50	0,040	0,030	18,00 to 20,00	-	8,00 to 11,00	-	-	-	-
	GX5CrNiNb19–11	1.4552	0,07 max.	1,50	1,50	0,040	0,030	18,00 to 20,00	-	9,00 to 12,00	-	-	8 x % C ≤ 1,00	-
	GX2CrNiMo19–11–2	1.4409	0,030 max.	1,50	2,00	0,035	0,025	18,00 to 20,00	2,00 to 2,50	9,00 to 12,00	max. 0,20	-	-	-
	GX5CrNiMo19–11–2	1.4408	0,07 max.	1,50	1,50	0,040	0,030	18,00 to 20,00	2,00 to 2,50	9,00 to 12,00	-	-	-	-
	GX5CrNiMoNb19–11–2	1.4581	0,07 max.	1,50	1,50	0,040	0,030	18,00 to 20,00	2,00 to 2,50	9,00 to 12,00	-	-	8 x % C ≤ 1,00	-

Group of grades	Designation Name	Number	C	Si max.	Mn max.	P max.	S max.	Cr	Mo	Ni	N	Cu	Nb[a]	W max.
	GX4CrNiMo19–11–3	1.4443	0,05 max.	1,50	2,00	0,040	0,030	18,00 to 20,00	2,50 to 3,00	10,00 to 13,00	-	-	-	-
	GX5CrNiMo19–11–3	1.4412	0,07 max.	1,50	1,50	0,040	0,030	18,00 to 20,00	3,00 to 3,50	10,00 to 13,00	-	-	-	-
	GX2CrNiMoN17–13–4	1.4446	0,030 max.	1,00	1,50	0,040	0,030	16,50 to 18,50	4,00 to 4,50	12,50 to 14,50	0,12 to 0,22	-	-	-
Fully austenitic grades	GX2NiCrMo28–20–2	1.4458	0,030 max.	1,00	2,00	0,035	0,025	19,00 to 22,00	2,00 to 2,50	26,00 to 30,00	max. 0,20	max. 2,00	-	-
	GX4NiCrCuMo30–20–4	1.4527	0,06 max.	1,50	1,50	0,040	0,030	19,00 to 22,00	2,00 to 3,00	27,50 to 30,50	-	3,00 4,00	-	-
	GX2NiCrMoCu25–20–5	1.4584	0,025 max.	1,00	2,00	0,035	0,020	19,00 to 21,00	4,00 to 5,00	24,00 to 26,00	max. 0,20	1,00 3,00	-	-
	GX2NiCrMoN25–20–5	1.4416	0,030 max.	1,00	1,00	0,035	0,020	19,00 to 21,00	4,50 to 5,50	24,00 to 26,00	0,12 to 0,20	-	-	-