SLOVENSKI STANDARD
SIST EN 10283:2000

01-april-2000

Korozijsko obstojni jekleni ulitki

Corrosion resistant steel castings

Korrosionsbeständiger Stahlguß

Aciers moulés résistant a la corrosion

Ta slovenski standard je istoveten z: **EN 10283:1998**

ICS:

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

SIST EN 10283:2000 **en**

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 10283

September 1998

ICS 77.140.20; 77.140.80

Descriptors: steels, cast steels, corrosion resistant steels, designation, manufacturing, chemical composition, grades : quality, mechanical properties, specifications, welding, tests, physical properties

English version

Corrosion resistant steel castings

Aciers moulés résistant à la corrosion

Korrosionsbeständiger Stahlguß

This European Standard was approved by CEN on 4 September 1998.

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 Central Secretariat 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 Central Secretariat has the same status as the official versions.

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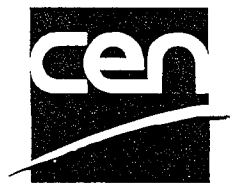

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

Central Secretariat: rue de Stassart, 36 B-1050 Brussels

Contents

Foreword

This European Standard has been prepared by the Technical Committee ECISS/TC 31 "Steel castings" 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of an identical text or by endorsement, at the latest by March 1999, and conflicting national standards shall be withdrawn at the latest by March 1999.

According to the CEN/CENELEC Internal Regulations, the national standards organizations of the following countries are bound to implement this European Standard: Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and the United Kingdom.

Introduction

This European Standard retains the same format for clauses as EN 1559-1 and EN 1559-2. It shall be used in conjunction with these standards. Where no text is given under a clause heading, the corresponding clause of EN 1559-1 or EN 1559-2 applies.

The structure of this standard is as follows :

- clauses and subclauses preceded by ■ indicates no additional conditions to Part 1 or Part 2 [1] of 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 European Standard applies to corrosion resistant steel castings for general purposes.

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

In cases where castings are joined by welding by the founder, this European Standard applies.

In cases where castings are welded :

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

- or by non founders ;

this European Standard does not apply.

2 Normative references

This European Standard 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 hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies.

EN 1559-1	Founding - Technical conditions of delivery - Part 1 : General

[1] When additional information is given in a clause or subclause of this standard (versus the same clause or subclause of EN 1559-1 or EN 1559-2) it is preceded by : "In addition to EN 1559:...".

EN 1559-2	Founding - Technical conditions of delivery - Part 2 : Additional requirements for steel castings
EN 10204	Metallic products - Types of inspection documents
prEN 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 sulphuric acid
CR 10260	ECISS/IC10 - Designation system for steel - Additional symbols

■ 3 Definitions

■ 4 Information to be supplied by the purchaser

5 Designations

In addition to EN 1559-2 :

For a steel grade manufactured to different strength levels, according to the heat treatment, a suffix shall be added in accordance with CR 10260.

6 Manufacture

6.1 Manufacturing Process

6.1.1 Melting

In addition to EN 1559-2 :

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.

Table 1 : Chemical composition (cast analysis) (% by mass)

	Designation Name	Number	C max.	Si max.	Mn max.	P max.	S max.	Cr	Mo	Ni	N	Cu	Nb 1)	W max.
martensitic grades	GX12Cr12	1.4011	0,15	1,00	1,00	0,035	0,025	11,50 to 13,50	max. 0,50	max. 1,00	-	-	-	-
	GX7CrNiMo12-1	1.4008	0,10	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	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	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	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	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	-
austenitic grades	GX2CrNi19-11	1.4309	0,030	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	1,50	1,50	0,040	0,030	18,00 to 20,00	-	8,00 to 11,00	-	-	-	-
	GX5CrNiNb19-11	1.4552	0,07	1,50	1,50	0,040	0,030	18,00 to 20,00	-	9,00 to 12,00	-	-	8 x % *C* to 1,00	-
	GX2CrNiMo19-11-2	1.4409	0,030	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	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	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* to 1,00	-
	GX5CrNiMo19-11-3	1.4412	0,07	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	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	-	-	-

"continued"

Table 1 (*concluded*)

	Designation Name	Number	C max.	Si max.	Mn max.	P max.	S max.	Cr	Mo	Ni	N	Cu	Nb [1]	W max.
fully austenitic grades	GX2NiCrMo28-20-2	1.4458	0,030	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	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	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	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	-	-	-
	GX2NiCrMoCuN29-25-5	1.4587	0,030	1,00	2,00	0,035	0,025	24,00 to 26,00	4,00 to 5,00	28,00 to 30,00	0,15 to 0,25	2,00 3,00	-	-
	GX2NiCrMoCuN25-20-6	1.4588	0,025	1,00	2,00	0,035	0,020	19,00 to 21,00	6,00 to 7,00	24,00 to 26,00	0,10 to 0,25	0,50 1,50	-	-
	GX2CrNiMoCuN20-18-6	1.4593	0,025	1,00	1,20	0,030	0,010	19,50 to 20,50	6,00 to 7,00	17,50 to 19,50	0,18 to 0,24	0,50 1,00	-	-
austeno-ferritic grades	GX6CrNiN26-7	1.4347	0,08	1,50	1,50	0,035	0,020	25,00 to 27,00		5,50 to 7,50	0,10 to 0,20	-	-	-
	GX2CrNiMoN22-5-3	1.4470	0,030	1,00	2,00	0,035	0,025	21,00 to 23,00	2,50 to 3,50	4,50 to 6,50	0,12 to 0,20	-	-	-
	GX2CrNiMoN25-6-3	1.4468	0,030	1,00	2,00	0,035	0,025	24,50 to 26,50	2,50 to 3,50	5,50 to 7,00	0,12 to 0,25	-	-	-
	GX2CrNiMoCuN25-6-3-3	1.4517	0,030	1,00	1,50	0,035	0,025	24,50 to 26,50	2,50 to 3,50	5,00 to 7,00	0,12 to 0,22	2,75 to 3,50	-	-
	GX2CrNiMoN25-7-3	1.4417	0,030	1,00	1,50	0,030	0,020	24,00 to 26,00	3,00 to 4,00	6,00 to 8,50	0,15 to 0,25	max. 1,00	-	1,00
	GX2CrNiMoN26-7-4	1.4469	0,030	1,00	1,00	0,035	0,025	25,00 to 27,00	3,00 to 5,00	6,00 to 8,00	0,12 to 0,22	max. 1,30	-	-

1) The niobium content value applies for the sum of niobium + tantalum.