SLOVENSKI STANDARD
SIST EN 1559-2:2014

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SIST EN 1559-2:2000

Livarstvo - Tehnični dobavni pogoji - 2. del: Dodatne zahteve pri jeklenih ulitkih

Founding - Technical conditions of delivery - Part 2: Additional requirements for steel castings

Gießereiwesen - Technische Lieferbedingungen - Teil 2: Zusätzliche Anforderungen an Stahlgussstücke

Fonderie - Condition techniques de fourniture - Partie 2: Spécifications complémentaires pour les pièces moulées en acier

Ta slovenski standard je istoveten z: **EN 1559-2:2014**

ICS:

77.140.80	Železni in jekleni ulitki	Iron and steel castings

SIST EN 1559-2:2014 **en,fr,de**

EUROPEAN STANDARD

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English Version

Founding - Technical conditions of delivery - Part 2: Additional requirements for steel castings

Fonderie - Conditions techniques de fourniture - Partie 2: Spécifications complémentaires pour les pièces moulées en acier

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This European Standard was approved by CEN on 18 July 2014.

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

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Foreword

This document (EN 1559-2:2014) 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of an identical text or by endorsement, at the latest by April 2015 and conflicting national standards shall be withdrawn at the latest by April 2015.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 1559-2:2000.

Within its programme of work, Technical Committee ECISS/TC 111 included the revision of the following standard:

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

Annex B provides details of significant technical changes between this European Standard and the previous edition.

This European Standard is one of a series of European Standards for technical delivery conditions for castings. The other standards in this series are:

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

— EN 1559-3, *Founding - Technical conditions of delivery - Part 3: Additional requirements for iron castings;*

— EN 1559-4, *Founding - Technical conditions of delivery - Part 4: Additional requirements for aluminium castings;*

— EN 1559-5, *Founding - Technical conditions of delivery - Part 5: Additional requirements for magnesium castings;*

— EN 1559-6, *Founding - Technical conditions of delivery - Part 6: Additional requirements for zinc castings.*

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

In order to assist manufacturers and purchasers to prepare proper contractual arrangements and prevent misunderstanding, CEN/TC 190 approved the preparation of a series of standards covering technical delivery conditions. These have been prepared as separate parts.

This European Standard covers the additional technical delivery conditions for all the steel casting materials and has the same structure for clauses as EN 1559-1 "*Founding - Technical conditions of delivery – Part 1: General*".

This European Standard cannot be used alone for compiling a specification for ordering and supplying steel castings, but as a complement to EN 1559-1.

The structure of this European Standard is as follows:

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

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

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

— subclauses without dot marking are mandatory.

Annex A gives a checklist for quick information about different points that shall or may be agreed by the time of acceptance of the order. It relates to the applicable clauses or subclauses of EN 1559-1:2011 and EN 1559-2:2014.

1 Scope

This part of EN 1559 specifies the additional technical delivery conditions for steel castings unless other conditions have been agreed at the time of enquiry and order.

This European Standard is also applicable to nickel and cobalt alloy castings.

2 Normative references

The following 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 1369, *Founding - Magnetic particle testing*

EN 1370, *Founding - Examination of surface condition*

EN 1371-1, *Founding - Liquid penetrant testing - Part 1: Sand, gravity die and low pressure die castings*

EN 1371-2, *Founding - Liquid penetrant inspection - Part 2: Investment castings*

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

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

EN 10027-2, *Designation systems for steels - Part 2: Numerical system*

EN 12680-1, *Founding - Ultrasonic examination - Part 1: Steel castings for general purposes*

EN 12680-2, *Founding - Ultrasonic examination - Part 2: Steel castings for highly stressed components*

EN 12681, *Founding - Radiographic examination*

EN 13018, *Non-destructive testing - Visual testing - General principles*

EN 14784-1, *Non-destructive testing - Industrial computed radiography with storage phosphor imaging plates - Part 1: Classification of systems*

EN 14784-2, *Non-destructive testing - Industrial computed radiography with storage phosphor imaging plates - Part 2: General principles for testing of metallic materials using X-rays and gamma rays*

EN ISO 148-1, *Metallic materials - Charpy pendulum impact test - Part 1: Test method (ISO 148-1)*

EN ISO 3452-1, *Non-destructive testing - Penetrant testing - Part 1: General principles (ISO 3452-1)*

EN ISO 3651-1, *Determination of resistance to intergranular corrosion of stainless steels - Part 1: Austenitic and ferritic-austenitic (duplex) stainless steels - Corrosion test in nitric acid medium by measurement of loss in mass (Huey test) (ISO 3651-1)*

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)*

EN ISO 5579, *Non-destructive testing - Radiographic testing of metallic materials using film and X- or gamma rays - Basic rules (ISO 5579)*

EN ISO 6506-1, *Metallic materials - Brinell hardness test - Part 1: Test method (ISO 6506-1)*

EN ISO 6892-1, *Metallic materials - Tensile testing - Part 1: Method of test at room temperature (ISO 6892-1)*

EN ISO 6892-2, *Metallic materials - Tensile testing - Part 2: Method of test at elevated temperature (ISO 6892-2)*

EN ISO 9712, *Non-destructive testing - Qualification and certification of NDT personnel (ISO 9712)*

EN ISO 9934-1, *Non-destructive testing - Magnetic particle testing - Part 1: General principles (ISO 9934-1)*

EN ISO 16810, *Non-destructive testing - Ultrasonic testing - General principles (ISO 16810)*

EN ISO 19232-1, *Non-destructive testing - Image quality of radiographs - Part 1: Determination of the image quality value using wire-type image quality indicators (ISO 19232-1)*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in EN 1559-1:2011 and the following apply.

3.1
purchaser ■

3.2
manufacturer ■

3.3
casting ■

3.4
as-cast casting ■

3.5
as-delivered casting ■

3.6
initial sample ■

3.7
preliminary sample ■

3.8
relevant wall thickness ■

3.9
inspection ■

3.10
continuous inspection ■

3.11
inspection representative ■

3.12
test unit ■

3.13
sample casting ■

3.14
sample ■

Note 1 to entry: In steel foundry industry the term used for sample is “test block”.

3.15
test piece ■

3.16
sequential testing ■

3.17
acceptance criteria ■

3.18
drawing ■

3.19
finishing welding ■

3.20
joint welding ■

3.21
excavation
cavity produced by the removal of cast material prior to subsequent welding

Note 1 to entry: It can be of minor or major nature according to its depth (over 40 % of the section thickness the excavations are major).

4 Information to be supplied by the purchaser

4.1 • Mandatory information

In addition to EN 1559-1:2011, the relevant wall thickness shall be given in the order.

4.2 •• Optional information

In addition to EN 1559-1:2011, for specific uses, some optional requirements may become mandatory according to the product standards.

4.3 ■ Drawings, patterns and tools

4.4 ■ Information on the mass

4.5 ■ Preliminary sample

4.6 ■ Initial sample

5 Designations

Cast steels shall be designated in accordance with EN 10027-1 and EN 10027-2.

NOTE Designations of steel casting materials are given in the applicable product standards.

6 Manufacture

6.1 Manufacturing process

6.1.1 Melting

The steel or alloy shall be produced by an electric melting process or by any other process involving secondary refining.

6.1.2 •• Heat treatment

6.1.2.1 The type of heat treatment is usually defined by the product standard. If this information is not available, the heat treatment type can be agreed between the purchaser and the manufacturer.

6.1.2.2 If required, the purchaser shall be informed of the heat treatment conditions.

6.2 Welding operations

6.2.1 ■ General

6.2.2 ■ Production welding

6.2.2.1 ■

6.2.2.2 ■

6.2.2.3 ■

6.2.2.4 ■

6.2.2.5 ■

In addition to EN 1559-1:2011 major production welds may be reported by indicating their location and extent in the form of drawings, sketches or photographs.

If agreed between the manufacturer and the purchaser, the documents related to the production welding shall be supplied to the purchaser.

6.2.2.6 ■

6.2.2.7 •• Criteria for excavation

Criteria other than those defined in 3.21 can be agreed.

6.3 Further processing

Unless previously agreed the manufacturer shall not be held responsible for the consequences of any further processing, e.g. welding, heat treatment, etc. undertaken by the purchaser after delivery of the castings by the manufacturer.

7 Requirements

7.1 ■ General

7.2 Material

7.2.1 Chemical composition

In addition to EN 1559-1:2011, Table 1 specifies permissible deviations above the maximum limits or below the minimum limits of the chemical requirements of the applicable product specification for the results of product analysis carried out on test blocks or on the product itself.

NOTE 1 Table 1 does not apply to cast analysis as specified in the product standards. For the term cast analysis the term heat analysis can be used.

NOTE 2 For methods of determination of the chemical composition, see CEN/TR 10261.