



SLOVENSKI STANDARD SIST EN 1559-4:2015

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Nadomešča:
SIST EN 1559-4:2000

Livarstvo - Tehnični dobavni pogoji - 4. del: Dodatne zahteve za ulitke iz aluminijevih zlitin

Founding - Technical conditions of delivery - Part 4: Additional requirements for aluminium alloy castings

Gießereiwesen - Technische Lieferbedingungen - Teil 4: Zusätzliche Anforderungen an Gußstücke aus Aluminiumlegierungen

Fonderie - Conditions techniques de fourniture - Partie 4: Spécifications complémentaires pour les pièces moulées en alliages d'aluminium

Ta slovenski standard je istoveten z: EN 1559-4:2015

ICS:

77.150.10 Aluminijski izdelki Aluminium products

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EUROPEAN STANDARD

EN 1559-4

NORME EUROPÉENNE

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Founding - Technical conditions of delivery - Part 4: Additional requirements for aluminium alloy castings

Fonderie - Conditions techniques de fourniture - Partie 4:
Spécifications complémentaires pour les pièces moulées en
alliages d'aluminium

Gießereiwesen - Technische Lieferbedingungen - Teil 4:
Zusätzliche Anforderungen an Gussstücke aus
Aluminiumlegierungen

This European Standard was approved by CEN on 26 December 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.

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

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

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Foreword

This document (EN 1559-4:2015) has been prepared by Technical Committee CEN/TC 132 "Aluminium and aluminium alloys", 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 August 2015 and conflicting national standards shall be withdrawn at the latest by August 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 1559-4:1999.

Within its programme of work, Technical Committee CEN/TC 132 requested CEN/TC 132/WG 22 "Revision of EN 1559-4:1999" to revise the following standard:

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

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

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

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

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

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

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

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

EN 1559-4:2015 (E)**Introduction**

In order to assist manufacturers and purchasers to prepare proper contractual arrangements and prevent misunderstandings, CEN/TC 190 "Foundry Technology" 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 aluminium alloy casting materials and has the same structure 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 aluminium alloy castings, but as a complement to EN 1559-1.

The structure of this standard is as follows:

- clauses and sub clauses preceded by ■ indicate no additional conditions to EN 1559-1;
- clauses and sub clauses marked with a single dot • indicate that conditions shall be agreed at the time of enquiry and order;
- clauses and sub clauses marked with two dots •• indicate that conditions can be agreed at the time of enquiry and order (optional);
- clauses and sub clauses without a symbol are mandatory;
- clauses and sub clauses preceded by ◆ are supplementary to those in EN 1559-1;
- clauses and sub clauses preceded by ✦ completely replace those in EN 1559-1.

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1 Scope

This European Standard specifies the additional technical delivery conditions for aluminium alloy castings unless other conditions have been agreed at the time of enquiry and order.

This European Standard retains the same structure and numbering system as used in EN 1559-1 and repeats the numbering of clauses and sub-clauses even if nothing extra or different has been added. It also indicates items specific to aluminium alloy castings under existing or new headings.

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

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

EN 1706, *Aluminium and aluminium alloys — Castings — Chemical composition and mechanical properties*

EN 12681, *Founding — Radiographic examination*

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3 Terms and definitions

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For the purposes of this document, the terms and definitions given in EN 1559-1, in the applicable material standard and the following apply.

3.1

◆ excavation

cavity produced by the removal of cast material prior to subsequent welding (or other finishing methods)

EN 1559-4:2015 (E)**4 Information to be supplied by the purchaser****4.1 ■ Mandatory information****4.2 •• Optional information****4.3 ■ Drawing, patterns and tools****4.4 ■ Information on the mass****4.5 ■ Preliminary sample****4.6 Initial sample**

◆ If required, a minimum of two initial samples shall be supplied to the purchaser for approval. If these initial samples are accepted, one shall be retained by the purchaser and one returned to the manufacturer marked as "approved".

Supplementary initial samples (one for metallurgical and the other for dimensional purposes) should be retained either by the manufacturer or by the purchaser.

NOTE Testing of initial samples by the manufacturer can be agreed.

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5 ■ Designations

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6 ■ Manufacture

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6.1 ■ Manufacturing process**6.2 Welding operations****6.2.1 ■ General****6.2.2 Production welding**

◆ Production welding is permitted, unless otherwise agreed at the enquiry and order stage. For railway applications, production welding has to be agreed separately (see EN 15085-2).

◆ Actions to finish castings or eliminate casting imperfections may include the use of a filler metal deposited by a suitable welding process or the insertion of a machined piece secured by welding.

The manufacturer's and purchaser's attention is drawn to the need for approved procedures and suitably qualified welders (see EN ISO 15614-4, for finishing welding).

After preparing the casting for finishing welding, the excavation can be classified in accordance with the procedure given in Annex A.

6.2.2.1 ■**6.2.2.2 ■**

6.2.2.3 ■

6.2.2.4 ■

6.2.2.5 ■

6.2.2.6 ■

7 Requirements

7.1 ■ General

7.2 ■ Material

7.2.1 ■ Chemical composition

NOTE Metal is usually taken for optical emission spectrometry analysis at the time the castings are made, in the form of a chill cast disc (see EN 14361).

7.2.2 ■ Mechanical properties

7.2.3 ■ Other properties

7.2.4 ◆ Additional requirements

The manufacturer shall examine the results of any treatment of the melt carried out during the melting process by using appropriate methods. [SIST EN 1559-4:2015](https://standards.iteh.ai/catalog/standards/sist/498692db-1d7c-45fd-a388-42ce53ae2fc5/sist-en-1559-4-2015)

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7.3 Casting

7.3.1 ■ Chemical composition

For chemical composition of aluminium alloy castings, refer to the appropriate table in EN 1706.

7.3.2 ■ Mechanical properties

7.3.3 Outer and inner conditions (non-destructive testing)

◆ Liquid penetrant examination shall be carried out in accordance with EN 1371-1.

◆ Radiographic inspection shall be carried out in accordance with EN 12681.

◆ Where applicable, unacceptable external and internal discontinuities shall be eliminated by production welding (see 6.2.2) or other agreed methods.

7.3.3.1 ●

7.3.3.2 ■

7.3.3.3 ●●

7.3.3.4 ●●