SLOVENSKI STANDARD
SIST EN 1559-4:2000

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Livarstvo - Tehnični pogoji za dobavo - 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 pieces moulées en alliages d'aluminium

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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

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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 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

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Foreword

This European Standard 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of an identical text or by endorsement, at the latest by November 1999, and conflicting national standards shall be withdrawn at the latest by November 1999.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.

Within its programme of work, Technical Committee CEN/TC 132 requested CEN/TC 132/WG10 "Aluminium and aluminium alloys - Castings" to prepare the following standard :

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

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

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

prEN 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.*

Introduction

CEN/TC 132 "Aluminium and aluminium alloys" has prepared a material standard covering aluminium alloy castings. 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 for various metals.

The 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.

This European Standard covers the additional technical delivery conditions for aluminium alloy castings.

The following symbols used in this standard for clauses and subclauses are identified as follows :

- ✦ completely replace those in EN 1559-1 ;
- ■ are identical to those in EN 1559-1 ;
- ◆ are supplementary to those in EN 1559-1 ;
- ● are requirements to be agreed upon at the time of ordering ;
- ●● are requirements which are optional and may be agreed between the manufacturer and the purchaser at the time of ordering.

Clauses and subclauses without a symbol are mandatory.

1 Scope

This part of EN 1559 specifies the additional technical conditions for delivery of aluminium alloy castings unless other technical delivery conditions have been agreed at the time of acceptance of the order.

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

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

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

prEN 12681, *Founding - Radiographic inspection.*

ISO 10049, *Aluminium alloy castings - Visual method for assessing the porosity.*

NOTE Informatives references to documents used in the preparation of this standard and cited at the appropriate places in the text, are listed in a bibliography, see annex B.

3 Terms and definitions

For the purposes of this European Standard, the following definition apply:

3.1
◆excavation cavity
cavity produced by the removal of material from a casting in the area of a defect prior to repair by production welding or other methods

4 Information to be supplied by the purchaser

4.1 ■ Mandatory information

4.2 ■ Optional information

4.3 ■ Drawing, patterns and other 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 the samples are acceptable, one shall be retained by the purchaser and one returned to the manufacturer marked "as approved".

5 ■ Designation

6 ■ Manufacture

6.1 ■ Manufacturing process

6.2 Welding operations

6.2.1 General

✦ Measures to finish castings or correct casting defects may include the use of a filler metal deposited by a suitable welding process or the insertion of a machined piece secured by welding.

NOTE The manufacturer's and purchaser's attention is drawn to the need for approved procedures and suitably qualified welders (see prEN 288-13 [1]).

6.2.2 Production welding

✦ Production welding are permitted, unless otherwise agreed at the enquiry and order stage.

After preparing the casting for finishing welding, the excavation cavity 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 ■

7 Requirements

7.1 ■ General

7.2 ■ Material

7.2.1 ◆ Chemical composition

NOTE Metal is usually taken for spectrographic analysis at the time the castings are made, in the form of a chill cast disc (see EN 1706 [2]).

7.2.2 ■ Mechanical properties

7.3 Casting

7.3.1 ■

7.3.2 ■

7.3.3 Non destructive testing

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

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

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

7.3.4 Conditions of the casting

7.3.4.1 ■ General

7.3.4.2 ■ Fetting and finishing

7.3.4.3 ●● In order to eliminate leaks in castings, it is possible with the approval of the purchaser, to use impregnation.The impregnation medium and method, maximum permitted size of discontinuities and retest procedures shall be agreed between purchaser and manufacturer.

7.3.4.4 ●● In the case of as cast castings, it is recommended that the purchaser agrees with the manufacturer on the choice of any non-destructive testing and criteria to determine the acceptability of a subsequently machined surface.Unless specifically agreed, discontinuities revealed on the machined surface should not be regarded as a cause for rejection. If the porosity on machined surfaces is to be assessed, ISO 10049 shall be used.