SLOVENSKI STANDARD
SIST EN 1559-5:2000

01-april-2000

Livarstvo - Tehniļ ni dobavni pogoji - 5. del: Dodatne zahteve za ulitke iz magnezijevih zlitin

Founding - Technical conditions of delivery - Part 5: Additional requirements for magnesium alloy castings

Gießereiwesen - Technische Lieferbedingungen - Teil 5: Zusätzliche Anforderungen an Gußstücke aus Magnesiumlegierungen

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Fonderie - Conditions techniques de fourniture - Partie 5: Spécifications complémentaires pour les pieces moulées en alliage de magnésium

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Ta slovenski standard je istoveten z: **EN 1559-5:1997**

ICS:

77.150.20	Magnezijevi izdelki	Magnesium products

SIST EN 1559-5:2000 **en**

2003-01.Slovenski inštitut za standardizacijo. Razmnoževanje celote ali delov tega standarda ni dovoljeno.

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 1559-5

October 1997

ICS 77.150.20

Descriptors: foundry engineering, castings, magnesium alloys, user supplier relations, designation, manufacturing, chemical composition, mechanical properties, tests, inspection

English version

Founding - Technical conditions of delivery - Part 5: Additional requirements for magnesium alloy castings

Fonderie - Conditions techniques de fourniture - Partie 5: Spécifications complémentaires pour les pièces moulées en alliage de magnésium

Gießereiwesen - Technische Lieferbedingungen - Teil 5: Zusätzliche Anforderungen an Gußstücke aus Magnesiumlegierungen

This European Standard was approved by CEN on 19 September 1997.

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.

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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.

CEN members are the national standards bodies of Austria, Belgium, Czech Republic, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

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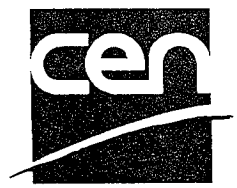

EUROPEAN COMMITTEE FOR STANDARDIZATION
COMITÉ EUROPÉEN DE NORMALISATION
EUROPÄISCHES KOMITEE FÜR NORMUNG

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Foreword

This European Standard has been prepared by Technical Committee CEN/TC 190 "Foundry technology", the secretariat of which is held by DIN.

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 1998, and conflicting national standards shall be withdrawn at the latest by April 1998.

Within its programme of work, Technical Committee CEN/TC 190 requested CEN/TC 190/WG 3.10 "Cast magnesium" to prepare the following standard:

EN 1559-5
Founding – Technical conditions of delivery – Part 5: Additional requirements for magnesium alloy castings

This European Standard is one of several 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

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

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

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prEN 1559-6
Founding – Technical conditions of delivery – Part 6: Additional requirements for zinc alloy castings

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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.

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Introduction

CEN/TC 190 "Foundry Technology" has prepared a material standard covering cast magnesium alloys. 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 magnesium alloy castings.

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

The following symbols are used in this standard:

- clauses and subclauses preceded by ■ indicates no additional requirements to EN 1559-1;

- subclauses preceded by ●● indicates requirements that are optional, which can be agreed at the time of ordering;

- clauses and subclauses without a symbol are mandatory.

1 Scope

This part of EN 1559 applies to castings made from magnesium alloys produced by sand casting, permanent mould casting, pressure die casting, centrifugal casting, continuous casting or investment casting.

This standard specifies the additional technical delivery conditions for magnesium alloy castings.

This standard does not apply to ingots, bars, billets (or other shapes) for further reprocessing, such as remelting, grinding or extrusion.

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2 Normative references

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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

prEN 1371-2
Founding – Liquid penetrant inspection – Part 2: Investment castings

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

EN 1753
Magnesium and magnesium alloys – Magnesium alloy ingots and castings – General

EN 1754
Magnesium and magnesium alloys – Magnesium and magnesium alloy anodes, ingots and castings – Designation system

prEN 12681
Founding – Radiographic inspection

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3 Definitions

See EN 1559-1 and the applicable material standard.

4 ■ Information to be supplied by the purchaser

5 Designations

The designation of cast magnesium alloys by material number or material symbol shall be in accordance with EN 1754. This designation shall be used on drawings and in the order.

The designation describes the magnesium alloy based on chemical composition. To identify the temper (heat treatment condition) and/or the casting process the designation shall be supplemented with symbols preceded and separated from each other by a hyphen:

– for tempers as given in EN 1753;

– for casting process as given in EN 1753.

Examples of the use of these symbols in conjunction with either the material symbol or material number are:

EN-MC21120 or EN-MCMgAl9Zn1(A) which defines only the material;

EN-MC21120-T4 or EN-MCMgAl9Zn1(A)-T4 which defines the material and the temper (heat treatment condition);

EN-MC21120-F-D or EN-MCMgAl9Zn1(A)-F-D which defines the material, the temper and the casting process.

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NOTE: Designations of cast magnesium alloys are given in EN 1753.

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6 ■ Manufacture

7 Requirements

7.1 ■ General

7.2 Material

7.2.1 Chemical composition

EN 1559-1 shall apply with the following addition:

●● Analysis for elements not specified in the applicable material standard shall be made when agreed between the manufacturer and the purchaser by the time of acceptance of the order.

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7.2.2 ■ **Mechanical properties**

7.2.3 ■ **Other properties**

7.3 Casting

7.3.1 ■ **Chemical composition**

7.3.2 ■ **Mechanical properties**

7.3.3 **Non-destructive testing**

7.3.3.1 ●●

EN 1559-1 shall apply with the following additions:

– the liquid penetrant inspection shall be carried out in accordance with either EN 1371-1 or prEN 1371-2, as appropriate.

– the radiographic inspection shall be carried out in accordance with prEN 12681.

7.3.3.2 ■

7.3.3.3 ■

7.3.3.4 ■

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7.3.4 ■ **Condition of the casting**

7.3.5 ■ **Mass of the casting**

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7.3.6 ●● **Additional requirements regarding the condition of the casting**

In order to eliminate leaks in castings, impregnation procedures may be used with the approval of the purchaser. The impregnation medium and method, maximum permitted size of discontinuities and retest procedures shall be agreed between the manufacturer and the purchaser.

Macrostructure: Where appropriate, a macroscopic examination of a suitably prepared section shall be carried out to assess the grain structure and/or structural inadequacy of a casting to agreed criteria.

NOTE 1: Assessment is usually carried out with the naked eye or at a low magnification.

Microstructure: Where appropriate, a microscopic examination of a suitably prepared section shall be carried out to determine the metallurgical structure of a casting to agreed criteria.

NOTE 2: Assessment is usually carried out at a high magnification and can include the nature, shape and distribution of the structural constituents.

NOTE 3: A cooling curve/thermal analysis carried out on a sample of liquid alloy before casting can predict to a limited extent the metallurgical structure which can be expected in the casting.

If applicable, density evaluation by weight measurements in air and water to agreed criteria shall be used to estimate the soundness of the casting.