



SLOVENSKI STANDARD

SIST EN 604-1:1998

01-april-1998

Aluminij in aluminijeve zlitine - Predulitki za kovanje - 1. del: Tehnični pogoji za prevzem in dobavo

Aluminium and aluminium alloys - Cast forging stock - Part 1: Technical conditions for inspection and delivery

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EUROPEAN STANDARD

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Descriptors: aluminium products, aluminium alloys, forgings, delivery condition, surface condition, quality control, tests, quality certificate

English version

Aluminium and aluminium alloys - Cast forging stock - Part 1: Technical conditions for inspection and delivery

Aluminium et alliages d'aluminium - Produits coulés et destinés à la forge - Partie 1: Conditions techniques de contrôle et de livraison

Aluminium und Aluminiumlegierungen - Gegossenes Schmiedevormaterial - Teil 1: Technische Lieferbedingungen

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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.

The European Standards exist 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, Denmark, Finland, France, Germany, Greece, Iceland, Ireland, Italy, Luxembourg, Netherlands, Norway, Portugal, Spain, Sweden, Switzerland and United Kingdom.

CEN

European Committee for Standardization
Comité Européen de Normalisation
Europäisches Komitee für Normung

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

Contents

Foreword	3
1 Scope	4
2 Normative references	4
3 Definitions	4
4 Orders or tenders	5
5 Requirements	5
5.1 Production and manufacturing processes	5
5.2 Quality control	5
5.3 Chemical composition	5
5.4 Surface quality	6
5.5 Tolerances on dimensions and form	6
5.6 Tolerances on quantity	6
5.7 Internal quality	6
6 Test method	6
6.1 Sampling	6
6.2 Test procedure	7
7 Inspection documents	7
7.1 General	7
7.2 Documents established on the basis of inspections and tests performed by qualified personnel (who are involved in the manufacturing process and/or belong to the quality control department)	8
7.3 Documents established on the basis of inspections and tests performed or supervised by qualified personnel organisationally independent from the manufacturing department, according to the requirements specified on the order and carried out on the products for delivery or on the relevant inspection lot	8
8 Marking	8
9 Packaging	8
10 Arbitration	9

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 July 1997, and conflicting national standards shall be withdrawn at the latest by July 1997.

This standard is part of a set of two standards. The other standard deals with :

EN 604-2 Aluminium and aluminium alloys - Cast forging stock - Part 2 : Tolerances on dimensions and form

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

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1 Scope

This part of this standard specifies the technical conditions for inspection and delivery of cast aluminium and aluminium alloy forging stock for general engineering applications.

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 573-3	Aluminium and aluminium alloys - Chemical composition and form of wrought products - Part 3 : Chemical composition
EN 604-2	Aluminium and aluminium alloys - Cast forging stock - Part 2 : Tolerances on dimensions and form
EN 10204	Metallic products - Types of inspection documents

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3 Definitions

For the purposes of this standard the following definitions apply :

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- 3.1 cast forging stock** : Cast material suitable for the production of forgings.
- 3.2 cast** : Quantity of product cast simultaneously from the same heat. The different ingots of a cast may have different dimensions.
- 3.3 inspection lot** : Consignment or part thereof, submitted for inspection, comprising products of the same grade or alloy, form, temper, size, shape, thickness or cross-section and processed in the same manner.
- 3.4 sample** : One or more products taken from an inspection lot.
- 3.5 test piece** : One or more pieces taken from each product in the sample and suitably prepared for test.
- 3.6 test** : Operation to which the test piece is subjected in order to measure or classify a property.

4 Orders or tenders

The order or tender shall define the product required and shall contain the following details :

- a) the form and finish of the product :
 - the form of the product (round or rectangular ingot) ;
 - whether or not the surface shall be scalped ;
- b) the type and metallurgical condition of the material :
 - the designation of the aluminium and aluminium alloy ;
 - the metallurgical temper condition for delivery (as cast or homogenized) ;
- c) the number of this European Standard ;
- d) the dimensions of the product (thickness, width, length, diameter) ;
- e) quantity and, where applicable, tolerances on quantity (see 5.6) ;
- f) any requirements for inspection documents ;
- g) any special requirements agreed between purchaser and supplier e.g. requirement for degassing, filtration.

SIST EN 604-1:1998

5 Requirements

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5.1 Production and manufacturing processes

The production and manufacturing processes shall be left to the discretion of the producer. Unless it is explicitly stated otherwise in the order, no obligation shall be placed on the producer to use the same processes for subsequent and similar orders.

5.2 Quality control

The supplier shall be responsible for the performance of all inspection and tests required by the relevant European Standard or specification, prior to shipment of the product. If the purchaser wishes to inspect the product at the supplier's works, he shall notify the supplier at the time of placing the order.

5.3 Chemical composition

The chemical composition shall comply with the requirements given in EN 573-3.

If the purchaser requires content limits for elements not specified in the above standard, these limits shall be stated on the order, after agreement between purchaser and supplier.

5.4 Surface quality

5.4.1 Surface roughness

The surface roughness of the product shall, where applicable, be agreed between purchaser and supplier and stated on the order.

5.4.2 Surface finish

The products shall be free from defects likely to impair the final surface finish of forgings subsequently produced. Whilst an operation designed to mask a defect shall not be permissible, the elimination of a superficial surface defect shall be permissible, provided that the tolerances on dimensions are observed.

5.5 Tolerances on dimensions and form

Tolerances on dimensions and form shall comply with prEN 604-2.

The purchaser may only reject those products having dimensions not complying with the specified tolerances.

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5.6 Tolerances on quantity (standards.iteh.ai)

The tolerances on quantity shall be $\pm 20\%$ unless otherwise agreed between purchaser and supplier.
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5.7 Internal quality

The product shall be free from internal defects which may be detrimental to the quality of forgings subsequently produced. If special inspections or tests are required, these shall be agreed between purchaser and supplier.

6 Test method

6.1 Sampling

6.1.1 Chemical analysis

The test piece for chemical analysis shall be taken at the time of casting. The shape and condition of production (mould design, cooling rate, mass, etc.) of the test piece shall be so designed that the composition is homogenous and suitable for the method of analysis.

6.1.2 Number of test pieces

At least one test piece shall be taken to represent each cast.

6.2 Test procedure

6.2.1 Chemical composition

Methods of analysis shall be at the discretion of the supplier. In case of dispute concerning the chemical composition, reference analysis shall be carried out by the methods agreed between purchaser and supplier and the results obtained by these methods shall be accepted. If the check analysis is to be made on the cast product, as supplied, the possibility of segregation effects shall be recognized, particularly in the thicker cross-sections. In such instances, the location of the sample for check analysis shall be subject to prior agreement between purchaser and supplier.

6.2.2 Measurement of dimensions

The dimensions shall be measured by means of measuring instruments which are of the accuracy required by the dimensions and tolerances on dimensions.

All dimensions shall be checked at the ambient temperature of the workshop or laboratory, and, in case of dispute, at a temperature between 15 °C and 25 °C inclusive.

6.2.3 Surface roughness

Where specified surface roughness measurement shall be carried out using a method agreed between purchaser and supplier.

6.2.4 Surface finish

Examination of surface appearance shall be carried out without the assistance of magnifying apparatus, on products before delivery.

7 Inspection documents

7.1 General

If requested by the purchaser on the order, the supplier shall provide one or more of the following documents as applicable.

These inspection documents are based on EN 10204 with modifications due to the specific needs of aluminium and aluminium alloys.

The requirements of "3.1.A", "3.1.B", 3.1.C" are in conformity with EN 10204.

The requirements of 7.2, 7.2.1, 7.2.2 and 7.3 are specific to aluminium products.