SLOVENSKI STANDARD
SIST EN 2082-1:2001

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Aerospace series - Aluminium alloy forging stock and forgings - Technical specification - Part 1: General requirements

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Luft- und Raumfahrt - Schmiedevormaterial und Schmiedestücke aus Aluminiumlegierungen - Technische Lieferbedingungen - Teil 1: Allgemeine Anforderungen

Série aérospatiale - Produits destinés a la forge, pieces forgées et pieces matricées en alliages d'aluminium - Spécification technique - Partie 1: Exigences générales

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Part 1

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English version

Aerospace series
Aluminium alloy forging stock and forgings
Technical specification
Part 1 : General requirements

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Produits destinés à la forge, pièces forgées et pièces matricées en alliages d'aluminium
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This European Standard was accepted by CEN on 1988-11-03. CEN members are bound to comply with the requirements of CEN 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 Central Secretariat 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 CEN Central Secretariat has the same status as the official versions.

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CEN

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

Central Secretariat : Rue Bréderode 2, B—1000 Bruxelles

Brief history

This European Standard has been prepared by the European Association of Aerospace Manufacturers (AECMA).

After inquiries and votes carried out in accordance with the rules of this Association, this Standard has successively received the approval of the National Associations and the Official Services of the member countries of AECMA, prior to its presentation to CEN.

According to the Common CEN/CENELEC Rules, 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 United Kingdom.

Contents

1 Scope

This standard defines the general requirements for manufacture, inspection and testing of aluminium alloy forging stock and forgings.

Particular requirements applicable to forging stock, pre-production forgings and production forgings are defined in EN 2082-2 and EN 2082-3 respectively.

The three standards EN 2082-1, EN 2082-2 and EN 2082-3 define the inspection level and the sampling frequencies to be applied unless otherwise specified on the drawing, order or inspection schedule.

2 Field of application

Unless otherwise specified on the drawing, order or inspection schedule this standard shall be applied when referenced in the relevant EN material standards.

It is applicable to :

- Forging stock (EN 2082-2),
- Hand forgings including forged blocks and rings, die forgings and rolled rings (EN 2082-3), hereafter described as "forgings".

By agreement between the purchaser and the manufacturer, it may also be applied to other materials or delivery conditions not covered by EN standards. The agreements shall be formalized by reference to this standard on the drawing, order or inspection schedule.

3 References

EN 2078, Definitions of manufacturing schedule, inspection schedule and inspection report - General definitions - Aerospace series

EN 2082-2, Aerospace series - Aluminium alloy forging stock and forgings - Technical specification - Part 2 - Forging stock

EN 2082-3, Aerospace series - Aluminium alloy forging stock and forgings - Technical specification - Part 3 - Pre-production and production forgings.

4 Definitions

4.1 Manufacturer

Company producing the forging stock or the forgings in the form and condition in which it is supplied to the purchaser.

4.2 Purchaser

Company which orders and purchases the forgings or the forging stock.

4.3 Cast

4.3.1 Metal taken from the same melt in a furnace or crucible or from several melts mixed in the same furnace or crucible before pouring.

4.3.2 Where a continuous melting process is used, a cast may be defined as metal taken from the furnace before the next following charge.

4.4 Batch

A batch consists of forging stock or forgings :

- of the same form and nominal dimensions or having the same drawing number and
- from the same cast and
- in the same heat treatment condition and
- from the same heat treatment charge for an air furnace or from the same heat treatment run for a salt bath furnace. The heat treatment charge and run for a salt bath furnace shall be defined in the manufacturing schedule.

4.5 Pre-production forgings

Forgings produced to a particular design which qualify the method of manufacture and equipment configuration and which demonstrate that the requirements of the purchaser can be met.

4.6 Inspection schedule

See EN 2078.

4.7 Manufacturing schedule

See EN 2078.

4.8 Inspection and testing report

See EN 2078.

4.9 "Capability clause"

Reference to capability signifies that sufficient evidence of a statistical nature with respect to the properties under consideration can be submitted to show that the requirements of the relevant standard will be met on the basis of a reduced amount of testing.

Such action in no way reduces the obligations of the manufacturer to fulfil all requirements. If subsequent testing indicates that a product does not comply with the requirements the batch shall be rejected.

5 Manufacture

5.1 Forgings shall be made from forging stock complying with the relevant EN material standard and EN 2082-2.

5.2 Unless otherwise specified, the method of manufacture to be employed shall be at the discretion of the manufacturer.

5.3 Conformance with the requirements of the purchaser shall be demonstrated by the manufacture and inspection and testing of pre-production forgings as required by EN 2082-3.

5.4 The products shall be supplied in the heat treatment condition specified in the material standard. If otherwise agreed, or if there are more than one heat treatment condition in the material standard, the condition of supply shall be specified on the order or on the drawing.

If a specific heat treatment temperature (value and tolerance) is stated, that temperature shall be mandatory.

If a heat treatment temperature range is stated, a temperature within that range reduced by the furnace tolerances shall be selected.

Unless otherwise specified, the charge shall be maintained at the temperature subject to the tolerance of ± 5 °C, for the period stated.

6 Traceability

Each product shall be identifiable to its cast and batch at all stages of manufacture and delivery.

7 Freedom from defects

The products shall be free from harmful defects and notwithstanding previous acceptance of products complying with this standard; any product that is found, at a later stage, to contain such defects may be rejected.

8 Testing

The tests required by the material standard, the order, the inspection schedule or the drawing shall be made in accordance with the requirements of the appropriate test standard. If a test standard does not exist, the method shall be agreed between the manufacturer and the purchaser.

The frequency of testing shall be as specified in EN 2082-2 or EN 2082-3,unless otherwise specified on the drawing, order, or inspection schedule.

8.1 Chemical composition

8.1.1 The chemical composition of the delivered product shall comply with the requirements of the relevant material standard.

8.1.2 The chemical composition of each cast shall be determined.

The samples taken for analysis purposes shall be representative of the cast. The method of analysis shall be selected by the manufacturer, but in case of dispute, the method set out in the relevant ISO standard shall be used. If no ISO standard exists a fundamental method of chemical analysis shall be used.

8.2 Preparation of test samples and test pieces

8.2.1 Test samples for the tests required by the material standard shall be obtained by one or more of the following methods as agreed between the manufacturer and the purchaser and indicated on the drawing or the inspection schedule :

a) test samples cut from forgings,

b) test samples forged integrally with the forgings,

c) test samples forged separately from the same batch of forging stock as the forgings they represent.

8.2.2 The test samples and test pieces shall be marked in such a manner that their identity and orientation with respect to the product and the batch is maintained.

8.2.3 Test samples removed from finished forgings shall not be further worked. The preparation of test samples for the release of forging stock shall be carried out in accordance with EN 2082-2.

8.2.4 Should the test samples be taken as described in clause 8.2.1 a), the purchaser shall specify the number of forgings to be cut up and shall define in the drawing or inspection schedule the location from which the test samples are to be taken.

8.2.5 Dimensions of test samples and test pieces representing forgings are to be agreed between manufacturer and purchaser and shall be stated on the drawing, order or inspection schedule.