BRITISH STANDARD

BS EN
683-3 : 1997

Aluminium and aluminium alloys — Finstock

Part 3. Tolerances on dimensions and form

The European Standard EN 683-3 : 1996 has the status of a British Standard

ICS 77.120.10

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the Sector Board for Engineering (E/-) to Technical Committee NFE/35, Light metals and their alloys, upon which the following bodies were represented:

Aluminium Federation
Aluminium Stockholders' Association
Association of Light Alloy Refiners Ltd.
Magnesium Industry Council
Ministry of Defence

The following bodies were also represented in the drafting of the standard, through subcommittees and panels:

Association of British Welded Aluminium Tube Makers
Institution of Structural Engineers
Metal Packaging Manufacturers' Association

This British Standard, having been prepared under the direction of the Engineering Sector Board, was published under the authority of the Standards Board and comes into effect on
15 April 1997

Amendments issued since publication

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The following BSI references relate to the work on this standard:
Committee reference NFE/35
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Contents

National foreword

This British Standard has been prepared under the direction of the Engineering Sector Board and is the English language version of EN 683-3 : 1996 *Aluminium and aluminium alloys — Finstock — Part 3: Tolerances on dimensions and form*, published by the European Committee for Standardization (CEN).

Cross-references

Publication referred to	Corresponding British Standard
EN 683-1 : 1996	BS EN 683-1

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, the EN title page, pages 2 to 4, an inside back cover and a back cover.

EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 683-3

July 1996

ICS 77.120.10; 77.140.50

Descriptors: Aluminium, aluminium alloys, rolled products, thin films, heat transfer, dimensional tolerances

English version

Aluminium and aluminium alloys — Finstock — Part 3: Tolerances on dimensions and form

Aluminium et alliages d'aluminium — Bandes pour échangeurs thermiques — Partie 3: Tolérances sur dimensions et forme

Aluminium und Aluminiumlegierungen — Vormaterial für Wärmeaustauscher (Finstock) — Teil 3: Grenzabmaße und Formtoleranzen

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CEN

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

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

Foreword

This European Standard has been prepared by Technical Committee CEN/TC 132, Aluminium and aluminium alloys, of which the Secretariat 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 February 1997, and conflicting national standards shall be withdrawn at the latest by February 1997.

This standard is part of a set of three standards which are the following:

EN 683-1 : 1996 *Aluminium and aluminium alloys — Finstock — Part 1: Technical conditions for inspection and delivery*

EN 683-2 : 1996 *Aluminium and aluminium alloys — Finstock — Part 2: Mechanical properties*

EN 683-3 : 1996 *Aluminium and aluminium alloys — Finstock — Part 3: 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.

Contents

1 Scope

This Part of EN 683 specifies the requirements for tolerances on dimensions and form for aluminium and aluminium alloy finstock supplied in accordance with EN 683-1.

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 683-1 : 1996 — *Aluminium and aluminium alloys — Finstock — Part 1: Technical conditions for inspection and delivery*

3 Tolerances on dimensions and form

3.1 Gauge

3.1.1 *Single gauge measurement*

The tolerance on gauge for a single measurement for finstock shall be ± 6 % at 95 % confidence limits.

Gauge can be measured with any of the usual precision instruments capable of assessing finstock thickness but, in the event of dispute, the weighing method shall be used as a referee procedure.

Description of the weighing method:

From the test sample, cut an area (A) of approximately 1 dm^2 either square or circular. Degrease the sample if necessary in a suitable solvent and weigh on a laboratory balance with an accuracy of equal to or better than 1 mg. The dimensions of the sample (sides of square or diameter of circle) shall be measured to an accuracy of equal or better than ± 0,1 mm.

Gauge shall be calculated by use of the formula:

$$E = \frac{M}{10 \times A \times D}$$

where:

- E is the gauge in micrometres;
- M is the mass in milligrams;
- D is the density as defined in table 2, in grams per cubic centimetre;
- A is the area in square decimetres.

3.1.2 *Mean gauge measurement*

The tolerance on gauge for a mean measurement is specified in table 1.

Table 1. Tolerances on mean measurement of gauge for finstock

Lot size kg	Limit deviations
≤ 3000	± 5 %
> 3000 to ≤ 10000	± 4 %
> 10000	± 3 %

Mean gauge may be obtained by either:

a) Calculation

Calculation of mean gauge by this method requires an accurate knowledge of length and net weight of the reels. The mean gauge shall be calculated by the formula:

$$E_m = \frac{P \times 10^6}{L \times W \times D}$$

where:

- E_m is the mean gauge in micrometres;
- P is the net mass in kilograms;
- L is the length in metres;
- W is the width in millimetres;
- D is the density as defined in table 2, in grams per cubic centimetre.

Table 2. Density

Material	Density g/cm^3
EN AW-1050A	2,70
EN AW-1100	2,71
EN AW-1200	2,71
EN AW-3003	2,73
EN AW-3103	2,73
EN AW-5005	2,69
EN AW-6063	2,70
EN AW-6951	2,70
EN AW-6060	2,70
EN AW-8011A	2,71
EN AW-8006	2,74
EN AW-8079	2,71

b) Averaging spot measurements

The method shall be agreed between purchaser and supplier.

3.2 Width

The tolerance on width is specified in table 3.

Table 3. Tolerance on width			
Width mm	**Limit deviations** mm		
	Symmetrical	**Only plus**	**Only minus**
≤ 100	± 0,2	+0,4 0	0 −0,4
> 100 to ≤ 350	± 0,3	+0,6 0	0 −0,6
> 350 to ≤ 1000	± 0,5	+1,0 0	0 −1,0
> 1000	± 1,0	+2,0 0	0 −2,0

Unless otherwise specified in the order, the type of limit deviations is at the discretion of the supplier.

3.3 Lateral bow

3.3.1 *Test procedure*

Lateral bow shall be measured on finstock with a width greater than 100 mm; on narrow width finstock (width between 20 mm and 100 mm), this measurement shall be carried out only if required by the purchaser.

One of the following measurement procedures shall be used.

a) Take a sample from the first set of slit reels produced from the parent coil. Cut two 1 m lengths from that sample. Place the two lengths back to back on a flat surface. Measure the maximum distance *2d* between the two lengths as shown in figure 1.

b) Take a sample from the first set of slit reels. Measure the lateral bow *d* against a straight edge as shown on figure 2 on a length of 1 m.

3.3.2 *Test results*

The lateral bow is defined as the distance *d* and expressed in millimetres per 1000 mm.

3.3.3 *Acceptance criteria*

The maximal lateral bow shall not exceed 2 mm per 1000 mm.

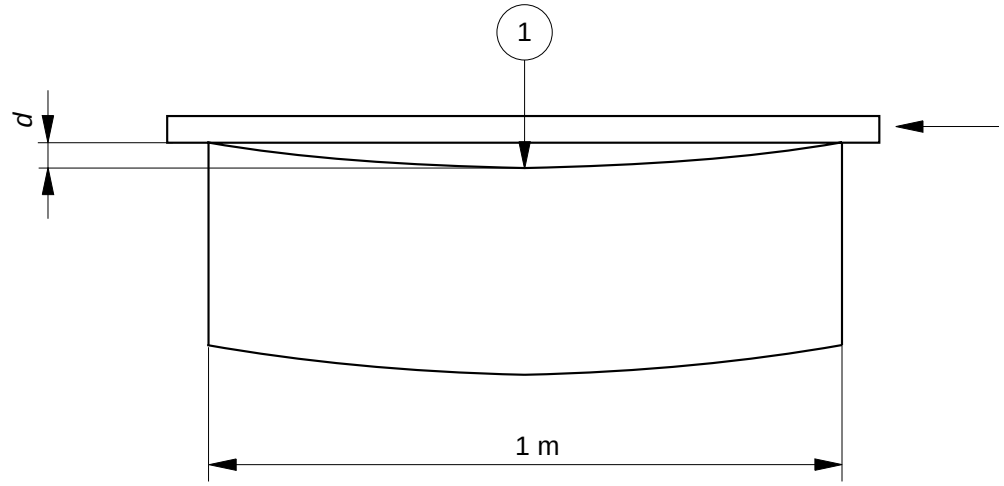

Figure 1. Measurement of lateral bow: method a)

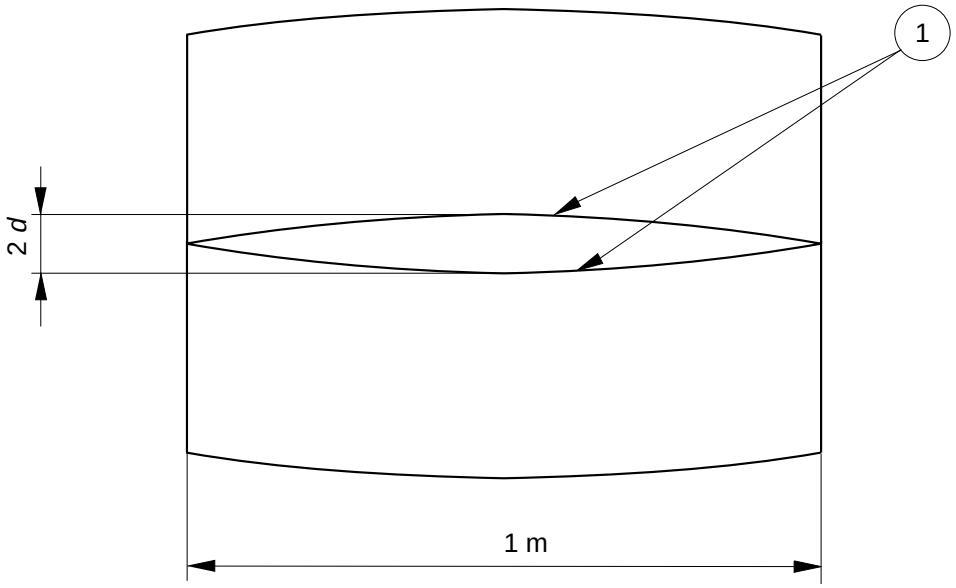

Figure 2. Measurement of lateral bow: method b)

List of references

See national foreword.

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