



BS 4300/14:1973

UDC 669.71-13 + 669.715-41

**Specification (supplementary series)
Wrought aluminium
and aluminium
alloys for general
engineering purposes**

7020 Plate, sheet and strip

Gr 7

British Standards Institution



Documents

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The following BSI references relate to the work on this standard:
Committee reference NFE/19 Draft for comment 71/40419

Co-operating organizations

The Non-ferrous Metals Industry Standards Committee, under whose supervision this British Standard was prepared, consists of representatives from the following Government departments and scientific and industrial organizations:

- | | |
|---|---|
| <ul style="list-style-type: none"> *Aluminium Federation Association of Bronze and Brass Founders British Electrical and Allied Manufacturers' Association British Lead Manufacturers' Association British Non-ferrous Metals Federation British Non-ferrous Metals Federation High Conductivity Copper Group *British Non-ferrous Metals Research Association Copper Development Association Department of Trade and Industry (Marine Division) Electric Cable Makers' Confederation Institute of British Foundrymen Institution of Mining and Metallurgy Institution of Production Engineers *Institution of Structural Engineers | <ul style="list-style-type: none"> Lead Development Association Light Metal Founders' Association London Metal Exchange Magnesium Industry Council Ministry of Defence, Army Department *Ministry of Defence, Navy Department National Brassfoundry Association *Non-ferrous metal stockists Post Office *Royal Institute of British Architects *Society of Motor Manufacturers and Traders Ltd. Tin Research Institute Zinc Development Association Individual manufacturers |
|---|---|

The organizations marked with an asterisk in the above list, together with the following, were directly represented on the committee entrusted with the preparation of this British Standard:

- | | |
|--|--|
| <ul style="list-style-type: none"> ALARS (Association of Light Alloy Refiners and Smelters) British Aluminium Holloware Manufacturers' Association Department of Trade and Industry Institute of Sheet Metal Engineering Lloyd's Register of Shipping | <ul style="list-style-type: none"> London Transport Executive National Federation of Drop Forgers and Stampers National Federation of Vehicle Trades Small Rivet Association |
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Foreword

This British Standard specification for plate, sheet and strip is one of a series of supplementary specifications for wrought aluminium and aluminium alloys, the preparation of which has been authorized by the Non-ferrous Metals Industry Standards Committee. In reflection of the decision of the Government that British industry should effect a complete change to the metric system by 1975, this specification is expressed in metric terms, using SI units.

Aluminium and aluminium alloy materials intended for general engineering use are the subject of specification in BS 1470 to BS 1475, whilst those intended for specialized use, or which are of limited interest, are published in the supplementary engineering series. The latter series will be kept under frequent review, and if changed circumstances appear to warrant such, from time to time particular material specifications may be transferred from the supplementary to the general engineering series.

As a major step towards alignment of aluminium and aluminium alloy compositions on an international basis, a substantial number of countries have agreed to adopt a 4-digit classification for alloy composition designation. This system is administered by the Aluminum Association Inc., who issue the 'Registration Record of International Alloy Designations and Chemical Composition Limits for Wrought Aluminum Alloys'.

By amendment, it has been decided to introduce this system into the British Standards concerned with these types of material in place of the material designations formerly used. The details of the system are given in appendix B.

The temper designations and associated mechanical property requirements remain unaltered for the present and therefore may not necessarily align precisely with those in the standards of other countries.

The designation 7020 therefore replaces the former designation HS.17 (nearest ISO equivalent Al Zn4.5 Mg1). Minor compositional changes have been made.

Satisfactory performance of this alloy in service is as dependent on correct methods of manufacture and fabrication as on control of composition and tensile properties. It is essential therefore that there should be direct collaboration between the purchaser and the manufacturer concerning the intended use and likely environmental conditions.

NOTE. Attention is drawn to certification facilities offered by BSI; see the inside back cover of this standard.



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BS 4300/14 : 1973

British Standard Specification (supplementary series) for
Wrought aluminium and aluminium alloys
for general engineering purposes

7020 Plate, sheet and strip



1. General

1.1 Scope

This British Standard specifies requirements for aluminium alloy plate, sheet and strip.

NOTE. The titles of the British Standards referred to in this standard are listed on the inside back cover.

1.2 Definitions

For the purposes of this British Standard the following definitions apply:

Purchaser. The party, whether user, retailer, wholesaler or corporate body, or their agent(s) as appropriate, responsible for ordering the material standardized.

Plate. A product of rectangular section over 6 mm thick, supplied flat and with less control of surface finish than applies to sheet.

Sheet. A product of rectangular section over 0.2 mm but not exceeding 6 mm thick, supplied flat.

Strip. A product of rectangular section over 0.2 mm but not exceeding 3 mm thick, supplied in coil.

Heat-treatment batch.* A quantity of material of one alloy, of the same dimensions and produced in the same way, solution-treated in one furnace load, or such material so solution-treated and subsequently precipitation-treated in one furnace load. More than one heat-treatment batch may comprise a furnace load.

2. General requirements

2.1 General

The plate, sheet and strip shall comply with the general requirements set out in the following clauses and with the appropriate requirements specified in Section 3.

2.2 Freedom from defects

The material shall be free from defects prejudicial to its use.

2.3 Chemical composition

The chemical composition shall comply with the requirements specified in 3.1.

* Extracted from BS 3660.

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2.4 Condition

The material shall be supplied in one of the following conditions as specified by the purchaser and cited in 3.2.

TB *Solution heat-treated and naturally aged.* Material which receives no cold work after solution heat treatment except as may be required to flatten or straighten it. Properties in this temper are unstable.

TF *Solution heat-treated and precipitation-treated.*

2.5 Sizes and tolerances

2.5.1 Standard sizes. Material may be manufactured in the range of thicknesses given in BS 4391. Details of standard sizes and thicknesses of sheet and strip normally available are given in Appendix A.

2.5.2 Tolerances on thickness, width, length and flatness. The tolerances on thickness, width, length, lateral curvature, squareness of plate, sheet and strip, and on flatness of plate, shall be in accordance with Tables 3 to 8 and the relevant clauses of Section 3. Special purpose tolerances and Class A tolerances for lateral curvature shall apply only where specifically requested by the purchaser.

2.5.3 Shearing tolerances for strip (special purpose). Where specially close tolerances are required on the width of strip, half the limits shown in Table 7 apply. In the case of material up to 100 mm wide, the half tolerances shall be applied unilaterally on the plus side.

2.5.4 Tolerances on lateral curvature of plate, sheet and strip (see Fig. 1).

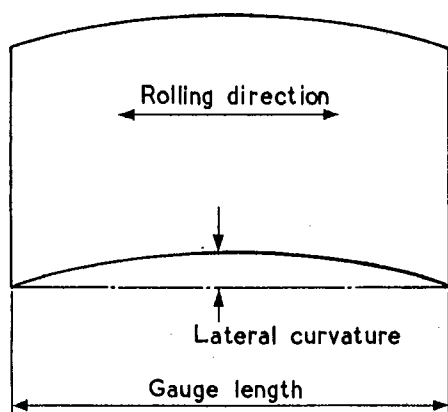


Fig 1 Tolerances for lateral curvature

2.5.5 Plate. No part of the edge of any plate should be distant from a 3000 mm chord by more than 6 mm. In the case of lengths shorter than 3000 mm the distance shall be proportionate.

2.5.6 Sheet

2.5.6.1 Applicable to sheet over 1000 mm wide, Class A. No part of the edge of any sheet should be distant from a 3000 mm chord by more than 3 mm. In the case of lengths shorter than 3000 mm the distance shall be proportionate.

2.5.6.2 Applicable to sheet 1000 mm wide and less, Class B. No part of the edge of any sheet should be distant from a 3000 mm chord by more than 6 mm. In the case of lengths shorter than 3000 mm the distance shall be proportionate.

2.5.7. Strip

2.5.7.1 Class A. Each coil shall be so free from lateral curvature that when laid out flat no part of its edge shall be distant from a 3000 mm chord by more than 6 mm. In the case of lengths shorter than 3000 mm the distance shall be proportionate.

2.5.7.2 Class B. Each coil shall be so free from lateral curvature that when laid out flat no part of its edge shall be distant from a 3000 mm chord by more than 12 mm. In the case of lengths shorter than 3000 mm the distance shall be proportionate.