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METRIC UNITS

SPECIFICATION FOR

WROUGHT ALUMINIUM AND ALUMINIUM ALLOYS

BARS, EXTRUDED ROUND TUBE AND SECTIONS

BRITISH STANDARDS INSTITUTION

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SPECIFICATION FOR

WROUGHT ALUMINIUM AND ALUMINIUM ALLOYS

For General Engineering Purposes

BARS, EXTRUDED ROUND TUBE AND SECTIONS

BS 1474 : 1969

Price 14/- net

BRITISH STANDARDS INSTITUTION
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THIS BRITISH STANDARD, having been approved by the Non-ferrous Metals Industry Standards Committee, was published under the authority of the Executive Board on 29th August, 1969.

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The Institution desires to call attention to the fact that this British Standard does not purport to include all the necessary provisions of a contract.

A complete list of British Standards, numbering over 5000, fully indexed and with a note of the contents of each, will be found in the British Standards Yearbook, price 20s. The BS Yearbook may be consulted in many public libraries and similar institutions.

This standard makes reference to the following British Standards:

BS 18. Methods for tensile testing of metals.
BS 1499. Sampling non-ferrous metals.
BS 1728. Methods for the analysis of aluminium and aluminium alloys.
BS 1957. Presentation of numerical values (fineness of expression; rounding of numbers).
BS 3660. Glossary of terms used in the wrought aluminium industry.
BS 4229. Sizes of non-ferrous and ferrous bars. Part 1. Non-ferrous bars.

British Standards are revised, when necessary, by the issue either of amendment slips or of revised editions. It is important that users of British Standards should ascertain that they are in possession of the latest amendments or editions.

The following BSI references relate to the work on this standard:
Committee reference NFE/19 Draft for comment 68/24442

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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:

*Aluminium Federation
Association of Bronze and Brass Founders
Association of Consulting Engineers
Board of Trade
British Bronze and Brass Ingot Manufacturers' Association
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
Crown Agents for Oversea Governments and Administrations
Electric Cable Makers' Confederation
Institute of British Foundrymen
Institute of Metals
Institution of Mechanical Engineers (Automobile Division)
Institution of Mining and Metallurgy
Institution of Production Engineers
*Institution of Structural Engineers
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 British Aerospace Companies
*Society of Motor Manufacturers and Traders Ltd.
Tin Research Institute
Zinc Development Association
Individual manufacturers

The Government departments and scientific and industrial 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:

ALARS (Association of Light Alloy Refiners and Smelters)
British Aluminium Holloware Manufacturers' Association
Institute of Sheet Metal Engineering
Lloyd's Register of Shipping
London Transport Board
Ministry of Technology
National Association of Drop Forgers and Stampers
National Federation of Vehicle Trades
Rolled Thread Screw Association
Small Rivet Association
Welding Institute

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BRITISH STANDARD SPECIFICATION FOR

WROUGHT ALUMINIUM AND ALUMINIUM ALLOYS

FOR GENERAL ENGINEERING PURPOSES

Bars, extruded round tube and sections

FOREWORD

This British Standard is the first revision in metric terms of one of a series for aluminium and aluminium alloys in various wrought forms for general engineering purposes, the preparation of which was authorized by the Non-Ferrous Metals Industry Standards Committee.

Others in the series are:

BS 1470. Wrought aluminium and aluminium alloys for general engineering purposes. Plate, sheet and strip.

BS 1471. Wrought aluminium and aluminium alloys for general engineering purposes. Drawn tube.

BS 1472. Wrought aluminium and aluminium alloys for general engineering purposes. Forging stock and forgings.

BS 1473. Wrought aluminium and aluminium alloys for general engineering purposes. Rivet, bolt and screw stock.

BS 1475. Wrought aluminium and aluminium alloys for general engineering purposes. Wire.

For convenience the former BS 1474 (Extruded round tubes and hollow sections) and BS 1476 (Bars and sections) have been combined in this revision under one cover.

In preparing this metric specification regard has been paid to the recommendations of the International Organization for Standardization (ISO). Alloy compositions and properties have been brought in line with ISO Recommendations where this has been practicable and the temper designations now cited are those proposed by ISO. Thus work-hardened tempers of the strain-hardened materials, formerly shown as ¼H, ½H, ¾H and H, are now designated with the appropriate symbol selected from the range H1 to H8 which represents a scale of increasing strength. The condition of heat-treated alloys is also indicated by the letter T followed by a B, D, E, F or H indicating the precise condition following the heat treatment.

Advantage has also been taken of the opportunity to rationalize the number of materials offered and certain alloys and purities, whose usage has not justified retention, have been deleted. This is the case in respect of aluminium 1A, non-heat-treatable alloy N6, and heat-treatable alloys H11, H14 and H19.

All tables of tolerances have been reviewed and metric values in accordance with latest production practices are now cited; preferred standard sizes are shown in Appendix D.

Also included as Appendix B is information relating to forms of material available, and in Appendix C information is given on annealing and heat treatment.

The tables of compositions and properties show the designations adopted nationally. In addition, the material designation currently adopted by ISO has been included in another column.

Some reduction in size of this standard has been achieved by tabulation of chemical composition and mechanical properties instead of setting out each individual alloy on separate pages as in the previous issue.

SPECIFICATION

1. SCOPE

This British Standard specifies requirements for solid bars and sections and for extruded round tube and hollow sections made from two grades of aluminium and seven aluminium alloys in various conditions.

2. GENERAL

The solid bars and sections, extruded round tubes and hollow sections shall comply with the general requirements set out in the following clauses and with the appropriate requirements given in Tables 4-18.

3. DEFINITIONS

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

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

(2) *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.

(3) *Bar**. A round, rectangular or polygonal solid section supplied in straight lengths. The term is applied to materials of not less than 6 mm diameter or minor dimension.

* Extracted from BS 3660, 'Glossary of terms used in the wrought aluminium industry'.

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