

Specification for

Wrought aluminium —

For electrical purposes —

Wire

Confirmed
October 2008

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*	Institution of Mechanical Engineers (Automobile Division)
Association of Bronze and Brass Founders	Institution of Mining and Metallurgy
Association of Consulting Engineers	Institution of Production Engineers
Board of Trade	Institution of Structural Engineers
British Bronze and Brass Ingot Manufacturers' Association	Lead Development Association
British Electrical and Allied Manufacturers' Association*	Light Metal Founders' Association
British Lead Manufacturers' Association	London Metal Exchange
British Non-Ferrous Metals Federation	Magnesium Industry Council
British Non-Ferrous Metals Federation — High Conductivity Copper Group	Ministry of Defence, Army Department
British Non-ferrous Metals Research Association	Ministry of Defence, Navy Department
Copper Development Association	National Brassfoundry Association
Crown Agents for Overseas Governments and Administrations	Non-ferrous Metal Stockists*
Electric Cable Makers Confederation*	Post Office*
Institute of British Foundrymen	Royal Institute of British Architects
Institute of Metals	Society of Motor Manufacturers and Traders Ltd.
	Tin Research Institute
	Zinc Development Association
	Individual manufacturer

The Government department 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:

British Railways Board	Institute of Iron and Steel Wire Manufacturers
Electricity Supply Industry in England and Wales	Institute of Sheet Metal Engineering

This British Standard, having been approved by the Non-Ferrous Metals Industry Standards Committee, was published under the authority of the Executive Board on 28 January 1970

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First published July, 1955
First revision October, 1961
Second revision January, 1970

The following BSI references relate to the work on this standard:
Committee reference NFE/24
Draft for comment 68/22309

ISBN 580 05555 8

Amendments issued since publication

Amd. No.	Date	Comments
3377	June 1980	Indicated by a sideline in the margin

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Foreword

In order to keep abreast of progress in the industries concerned, British Standards are subject to periodical review. Suggestions for improvements will be recorded and in due course brought to the notice of the committees charged with the revision of the standards to which they refer.

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 the tensile testing of metals.*
 - BS 18-1, *Non-ferrous metals.*
 - BS 1499, *Sampling non-ferrous metals.*
 - BS 1728, *Methods for the analysis of aluminium and aluminium alloys.*
 - BS 3239, *Determination of resistivity of metallic electrical conductor materials.*
- This British Standard was first published in 1955 under the authority of the Non-ferrous Metals Industry Standards Committee and at the request of the Aluminium Industry, in view of the increasing use of aluminium for electrical conductors of many types, and a revised edition was prepared in 1961.

In this edition all dimensions are shown in metric units which are not exact equivalents of the original inch values.

The three conditions previously covered have been replaced by six conditions the designations of which have been based on the system under consideration by ISO/TC79 — “*Light metals and their alloys*”. The new designations of the six conditions bear the following relationship to the superseded designations:

<i>New designation</i>	<i>Superseded designation</i>
0	0
H4	No previous equivalent condition
H6	$\frac{3}{4}$ H
H8	No previous equivalent condition
H68	No previous equivalent condition
The designation H68 refers to material, the tensile strength of which embraces those of H6 and H8.	
H9	H

The conditions H4, H8 and H68 have been introduced to cover the requirements for wire for insulated cables in addition to the $\frac{3}{4}$ H condition formerly used for this purpose.

All stresses are quoted in terms of the hectobar (hbar)¹⁾.

As in the earlier edition a wrapping test is specified for the harder conditions but this is replaced by an elongation test for material in the H6 condition in larger diameters (i.e. greater than 5 mm).

In deciding on the resistivity values and associated physical properties to be quoted in this standard the committee took into account the relevant IEC Recommendations, namely IEC 111:1959, “*Recommendation for the resistivity of commercial hard-drawn aluminium electrical conductor wire*”, and IEC 121:1960, “*Recommendation for commercial annealed aluminium electrical conductor wire*”.

¹⁾ 1 hbar = 10 MN/m² = 10 N/mm².