AS 1586—1980
UDC 621.791.04:621.791.75

Australian Standard 1586—1980

LOW ALLOY STEEL COVERED ELECTRODES

FOR MANUAL METAL-ARC WELDING

STANDARDS ASSOCIATION OF AUSTRALIA
Incorporated by Royal Charter

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THE FOLLOWING SCIENTIFIC, INDUSTRIAL AND GOVERNMENTAL ORGANIZATIONS and departments were officially represented on the committee entrusted with the preparation of this standard:

Australian Gas Association

Australian Welding Institute

Australian Welding Research Association

Bureau of Steel Manufacturers of Australia

Confederation of Australian Industry

Department of Industrial Relations, N.S.W.

Department of Defence

Department of Productivity

Manufacturers of welding materials, plant and equipment

Railways of Australia Committee

State Dockyard, N.S.W.

This standard, prepared by Committee WL/2, Electrodes and Filler Rods, was approved on behalf of the Council of the Standards Association of Australia on 16 July 1980, and was published on 31 December 1980.

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AMENDMENT No 1
to
AS 1586—1980
LOW ALLOY STEEL COVERED ELECTRODES FOR MANUAL METAL-ARC WELDING

REVISED TEXT

SUMMARY: This amendment applies to Table 2.2(A) and Table 3.4.

Published on 2 July 1984.

Page 6. Table 2.2(A).

1st column, 11th row, *delete* classification 'E 4810-C' and *substitute* 'E 4810—G'. AMDT No 1 JULY 1984

Page 15. Table 3.4.

3rd column, 2nd and 5th rows—after 'Not applicable' *add* (See Note) and *insert* the following note under the table: AMDT No 1 JULY 1984

NOTE: For classification E 4810—G and E 5510—G, the all-weld-metal tensile test specimen shall be aged at 95°C to 105°C for 48 ± 2 h and cooled to room temperature prior to testing.

2nd column, 5th row, *delete* '95 to 105' and *substitute* '165 to 190'.

2nd column, 8th row, delete '95 to 105' and *substitute* '95 to 105'.

AUSTRALIAN STANDARD

LOW ALLOY STEEL COVERED ELECTRODES

FOR MANUAL METAL-ARC WELDING

AS 1586—1980

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PREFACE

This standard was prepared by the Association's Committee on Electrodes and Filler Rods to supersede AS 1586—1974.

This edition is, by and large, limited to editorial updating, although the table of mechanical properties of deposited weld metal has been extended to include some electrodes, now in widespread use, which were not available when the standard was first published. When this revision was first started it was intended to be comprehensive. Recently, however, it was found that standards being prepared by the American Welding Society and the International Organization for Standardization would be likely to have a profound effect on the present content of the Australian standard if the latter was to be revised along similar lines. For this reason it was decided to make the present revision a simple one and to await the publication of the overseas standards before commencing a more comprehensive revision.

In recent years the service requirements of low alloy steel arc-welding electrodes have become more and more exacting. Customers for many applications require low alloy steel electrodes that will give weld metal of specific mechanical properties and also have other specific properties. These other specific properties make it imperative that the weld metal not only be according to specification mechanically but also that its chemical composition be within a specific analysis. This standard is intended to meet this demand. All electrodes are required to meet a specific chemical analysis as well as certain mechanical properties. This standard covers only the most frequently used low alloy steel electrodes.

This standard follows American practice in classification and mechanical requirements and is, in fact, closely in line with AWS A5.5-69, Specification for Low Alloy Steel Covered Arc-welding Electrodes. However, the table of chemical composition was modified to bring it into line with BS 2493:1971 in order to achieve a manganese/silicon ratio which it is believed will lead to lower weld brittleness. In this respect the standard departs from AS 1552, Classification of Covered Electrodes.

This standard requires reference to the following Australian standards:

AS 1050	Methods for the Analysis of Iron and Steel (Metric Units)
AS 1213	Methods for the Sampling of Iron, Steel, Permanent Magnet Alloys and Ferro-alloys
AS 1391	Methods for Tensile Testing of Metals
AS 1544	Methods for Impact Tests on Metals Part 2—Charpy V-notch
AS 1552	Classification of Covered Electrodes
AS 1553	Low Carbon Steel Covered Electrodes for Manual Metal-arc Welding
AS 2177	Radiographic Examination of Welded Butt Joints in Metal Part 1—Methods of Test
AS 2205	Methods for the Destructive Testing of Welds in Metal
AS K1	Methods for the Sampling and Analysis of Iron and Steel

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
for
LOW ALLOY STEEL COVERED ELECTRODES FOR MANUAL METAL-ARC WELDING

SECTION 1. SCOPE AND GENERAL

1.1 SCOPE. This standard specifies requirements for low alloy steel covered electrodes for the manual metal-arc welding of carbon and low alloy steels.

1.2 SERIES. Electrodes shall be one of the following series, based on mechanical properties in which the numbers represent one-tenth of the approximate minimum tensile strength of the deposited metal in megapascals (MPa):

48XX-X 62XX-X 69XX-X 76XX-X 83XX-X.

1.3 CLASSIFICATION. The electrodes shall be classified in accordance with AS 1552 and Table 2.1 herein.

FOOTNOTES TO TABLE 2.1:

*The suffixes A1, B3, C2, etc designate the chemical composition of the electrode classification.
†Single values shown are maximum percentages, except where otherwise specified.
‡For determining the chemical composition, d.c. electrode negative polarity only may be used where d.c., both polarities, is specified.
§In order to comply with the alloy requirements of G group, the deposited metal need have the minimum, specified in the table, of only one of the elements listed.
‖The letters 'XX' as used in the classification designations in this table stand for the various strength levels (48, 55, 62, 69, 76, and 83) of electrodes.