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Australian Standard 1586—1980

LOW ALLOY STEEL COVERED ELECTRODES FOR MANUAL METAL-ARC WELDING

AMDT 1 - 1984.

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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 W/L/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
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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:

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NOTE: For classification E 4810—G and E 5510—G, the 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

| | |
|------------------------------------|------|
| First published (as AS B322) | 1973 |
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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 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 KI | Methods for the Sampling and Analysis of Iron and Steel |

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CONTENTS

| | <i>Page</i> |
|---|-------------|
| SECTION 1. SCOPE AND GENERAL | |
| 1.1 Scope..... | 4 |
| 1.2 Series..... | 4 |
| 1.3 Classification | 4 |
| SECTION 2. PROPERTIES AND REQUIREMENTS | |
| 2.1 Chemical Composition | 6 |
| 2.2 Mechanical Properties | 6 |
| 2.3 Radiographic Requirements | 6 |
| 2.4 Size of Electrodes | 6 |
| 2.5 Core Wire | 7 |
| 2.6 Flux Covering | 7 |
| 2.7 Bared Ends | 11 |
| 2.8 Testing and Production Control..... | 11 |
| 2.9 Retest before Rejection | 11 |
| 2.10 Test Certificates | 11 |
| 2.11 Packing | 11 |
| 2.12 Marking | 11 |
| 2.13 Storage | 12 |
| 2.14 Manufacturer's Certificate..... | 12 |
| 2.15 Identification | 12 |
| SECTION 3. DETAILS OF TESTS | |
| 3.1 Material for Test Plates | 13 |
| 3.2 Electrodes for Tests | 13 |
| 3.3 Chemical Analysis | 14 |
| 3.4 All-weld Metal Tests | 14 |
| 3.5 Fillet Weld Test | 16 |
| 3.6 Moisture Test | 18 |

STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard
forLOW 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.