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**WELDING AND BRAZING—
FILLER METALS**

**Part 2—FILLER METAL FOR
WELDING**



STANDARDS ASSOCIATION OF AUSTRALIA
Incorporated by Royal Charter

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Australian Gas Association
Australian Institute of Petroleum Limited
Australian Welding Institute
Australian Welding Research Association
Bureau of Steel Manufacturers of Australia
Confederation of Australian Industry
Department of Defence
Department of Employment and Industrial Affairs, Vic.
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AUSTRALIAN STANDARD

**WELDING AND BRAZING—
FILLER METALS**

Part 2

FILLER METAL FOR WELDING

AS 1167.2—1986

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PREFACE

This standard was prepared by the Association's Committee on Electrodes and Filler Rods, to supersede AS 1588—1974, Filler Rods for Welding.

This standard has as its object the specification of ferrous and non-ferrous, fluxed or unfluxed filler metals for welding. It includes requirements for chemical composition and analysis, sizes, packing, marking and storage. The methods of chemical analysis are in accordance with those in the ASTM Book of Standards.

The classification system adopted is basically in line with the ANSI/AWS classification. Attention has been given in making the alloys compatible with those of AS 1167.1, Welding and Brazing—Filler Metals, Part 1—Filler Metals for Brazing and Braze Welding.

The committee decided that because many filler metals are available in more than one form, the form in which the material is required should be specified by the purchaser.

Other Australian standards dealing with consumables are as follows:

- AS 1552 Classification of Covered Electrodes
- AS 1553.1 Covered Electrodes for Welding, Part 1—Low Carbon Steel Electrodes for Manual Metal-arc Welding of Carbon and Carbon-manganese Steels
- AS 1586 Low Alloy Steel Covered Electrodes for Manual Metal-arc Welding
- AS 1858.1 Electrodes and Fluxes for Submerged-arc Welding, Part 1—Carbon Steels and Carbon-manganese Steels
- AS 2203 Carbon Steel Electrodes, Cored (for Arc Welding)
- AS 2576 Welding Consumables for Build-up and Wear Resistance—Classification System
- AS 2717.1 Welding—Electrodes—Gas Metal Arc, Part 1—Ferritic Steel Electrodes

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard

for

WELDING AND BRAZING—FILLER METALS

PART 2—FILLER METAL FOR WELDING

1 SCOPE. This standard specifies requirements for ferrous and non-ferrous, fluxed or unfluxed filler metals for welding (excluding filler metals used as electrodes) in the form of rod, wire, strip, formed shapes or powder.

Fluxes, when used, are assumed to be non-additive and are not covered by this standard.

2 REFERENCED DOCUMENTS. The following documents are referred to in this standard:

AS 1167.1	Welding and Brazing—Filler Metals, Part 1—Filler Metal for Brazing and Braze Welding
AS 1674	Fire Precautions in Cutting, Heating and Welding Operations
AS 1943	Industrial Gas Cylinder Identification
AS 2717.1	Welding—Electrodes—Gas Metal Arc, Part 1—Ferritic Steel Electrodes
AS 2738.2	Copper and Copper Alloys, Compositions and Designations, Part 2—Wrought Products
AS 2812	Welding, Brazing and Cutting of Metals—Glossary of Terms
ASTM	Book of Standards Section 3—Metals Test Methods and Analytical Procedures [Volume 03.05—Chemical Analysis of Metals and Metal-bearing Ores]
AWRA/AWI	Technical Note 7—Health and Safety in Welding.

3 DEFINITIONS. For the purpose of this standard, the definitions given in AS 2812 apply.

4 CHEMICAL COMPOSITION AND ANALYSIS. The chemical composition of the filler metal, determined in accordance with the relevant methods of the appropriate volume of the current Book of ASTM Standards, or in accordance with other methods not less accurate, shall conform to Tables 3, 4, 5, 6, 7, 8 and 9 for the designation concerned.

5 IDENTIFICATION OF FILLER RODS AND WIRES. Each cut length of fluxed or unfluxed filler rod should be clearly marked with at least one legible imprint or overprint of the alloy designation of the filler rod (e.g. RB2L) or with a legible colour identification at one end of each cut length, or a combination of both.

Unfluxed wire in coils shall be legibly identified at each end of each coil or, if supplied in special containers such as packets, spools or mandrels, these shall be marked with the designation of the filler rod.

6 FORM AND FINISH.

6.1 General. This standard specifies form and finish requirements for filler metal in the form of wire and rod only.

NOTE: For forms other than rods and wires, the required form and size may be by agreement between purchaser and supplier.

6.2 Filler rods and wires.

6.2.1 Diameter. The tolerances in Table 1 shall be allowed on the diameter of the rods and wires excluding cast iron rods (see Clause 6.3).

6.2.2 Length. Cut length of filler rods excluding cast iron rods (see Clause 6.3) should be as shown in Table 2.

6.2.3 Finish. Filler rods and wires shall have a smooth finish, free from slivers, depressions, seams, laps, scratches, scale, rust or any other defects, and from other foreign matter including drawing lubricant that would adversely affect the weld metal properties.

6.3 Cast iron filler rods. Cast iron filler rods may be supplied in any convenient form.

TABLE 1
TOLERANCES ON DIAMETERS OF FILLER
RODS AND WIRES

Diameter mm	Tolerance on diameter of filler wires in coils mm	Tolerance on diameter of filler rod in cut length
≤ 1.6	+ 0.01, - 0.04	± 3 percent of diameter (maximum ± 0.1 mm)
> 1.6	+ 0.01, - 0.07	

TABLE 2
CUT LENGTHS OF FILLER RODS

Length mm	Tolerance on length mm
500	± 5
750	
915	
1000	

7 PACKING. Filler metals shall be packaged to guard against damage during normal transportation, handling and storage so that they will be capable of complying with the test requirements of this specification after being stored in accordance with the manufacturer's recommendations for a period of at least 6 months from the date of despatch by the manufacturer.