

AS 1858.1—1986

Australian Standard[®]

Electrodes and fluxes for submerged-arc welding

Part 1: Carbon steels and carbon-manganese steels

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Carbon-Manganese Steels, Submerged Arc)] (NSC:3439)

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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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PREFACE

This standard was prepared by the Association's Committee on Electrodes and Filler Rods. It supersedes AS 1858—1976, Electrodes and Fluxes for Submerged-arc Welding of Carbon and Low Alloy Steels.

The committee decided that the carbon steel consumables and alloy steel consumables should be covered separately, and hence this standard does not refer to low alloy steels. It is intended that low and intermediate alloy steels will be covered by AS 1858.2 which will also incorporate specific limitations for weld metal hydrogen.

This standard is based on ANSI/AWS A5.17, Specification for Carbon Steel Electrodes and Fluxes for Submerged-arc Welding.

The system for the identification of electrodes is based on the ANSI/AWS standard. Some grades not included in the ANSI/AWS system have been added. Flux classification is based on the major application of the flux, as specified by the manufacturer, combined with its contribution to the weld metal chemistry. Classification of the weld metal has been derived from the ANSI/AWS standard, modified to agree with the ship classification societies' unified rules.

The principle behind the classification systems adopted was that each of the three factors involved, electrodes, flux and weld metal, should be capable of individual selection and identification. In particular, the concept of the classification of weld metal as a separate entity is regarded as being of great significance. For ease of selection, the weld metal is classified according to its tensile strength and divided into grades related to its Charpy V-notch impact energy value. The standard, therefore, separately deals with electrodes, fluxes, weld metal and testing.

Because of the large number of electrode/flux combinations available, guidance is frequently needed on the suitability of the process for a specific weldment. The intent here is that the designer should only need to specify on the drawing the weld metal classification, thereby nominating the mechanical properties required for the satisfactory functioning of the welded joint. The fabricator, taking into account recommendations by the manufacturer of the consumables, can select the electrode/flux combination appropriate to the materials of construction and the conditions pertaining at the time; however the term 'Australian Standard' will be restricted to the actual sizes, types and strengths given in the tables in this standard.

If procedure qualification is called up in the relevant application code, it may be necessary for the chosen electrode/flux combination to be qualified by procedure testing.

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