Australian Standard®

Cored electrodes for arc welding

Part 1: Ferritic steel electrodes

[Title allocated by Defence Cataloguing Authority: Electrode, welding (Ferritic steel, cored)(NSC 3439)]

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PREFACE

This Standard was prepared by the Standards Australia Committee on Welding Consumables, to supersede AS 2203—1981, *Carbon steel electrodes, cored (for arc welding)*.

This edition includes requirements for low or intermediate alloy ferritic steel electrodes along with carbon steel electrodes. The classification system adopted is compatible with AS 1858, *Electrodes and fluxes for submerged-arc welding*, and AS 2717, *Welding—Electrodes—Gas metal-arc*, and similarly has mechanical requirements complying with the Ship Classification Societies' unified rules. It also takes into consideration documents of the International Institute of Welding and the American National Standards Institute.

For ease of selection, the weld metal is classified according to its tensile strength and is divided into grades related to its Charpy V-notch impact energy value. The intent here is that the designer needs only to specify on the drawing the weld metal classification which will thereby nominate 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 or electrode/gas combination appropriate to the materials of construction and the conditions pertaining at the time.

Statements expressed in mandatory terms in notes to tables are deemed to be requirements of this Standard.

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Part 1—Ferritic steel electrodes

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE This Standard specifies requirements for the following cored electrodes (as defined in AS 2812) for self-shielded and gas-shielded automatic and semi-automatic arc welding:

(a) Carbon steel electrodes.

(b) Low or intermediate alloy ferritic steel electrodes.

It does not apply to cored electrodes for submerged-arc, electroslag, or electrogas welding.

NOTES:

1 Throughout this Standard the word 'electrode' applies to both flux-cored and metal-cored electrodes.

2 Additional information concerning electrodes is given in Appendix B.

1.2 REFERENCED DOCUMENTS A list with titles of the documents referred to in this Standard is given in Appendix C.

1.3 DEFINITIONS For the purpose of this Standard, the definitions in AS 2812, and those below apply.

1.3.1 Basket—a type of package consisting of a continuous length of electrode wound on a rigid open-wire framework forming a cylinder flanged at both ends.

1.3.2 Lot or batch number—a number from which the manufacturer is able to identify the manufacturing history of the electrode.

1.3.3 Rim—a type of package consisting of a continuous length of electrode wound on a flanged liner of the type shown in Figure 2.4.

1.3.4 Shall—indicates that a statement is mandatory.

1.3.5 Should—indicates a recommendation.

1.4 CLASSIFICATION

1.4.1 Basis of classification Electrodes shall be classified on the basis of their construction, recommended welding position, whether or not external shielding gas is required, weld metal chemistry, and weld metal mechanical properties. Multiple classification of electrodes is permitted provided that the electrodes pass the tests appropriate to each of the classifications specified.

1.4.2 Description of the classification system The classification system shall consist of three groups of elements, separated by a hyphen, each group comprising a letter or letters and figures. (See Clause 1.4.3 for examples of the use of the system.)

(a) *First group—construction and recommended welding position*

E = electrode

T = tubular construction (either seamless or seamed)

D = horizontal-fillet or flat position.

P = suitable for welding in any position.

NOTE: Some 'D' electrode types in some sizes may be recommended by the manufacturer as being suitable for welding in other than horizontal position.

S = primarily intended for single run welding (if applicable).

(b) *Second group—shielding requirements and current type*

G = gas shielding, followed by one of the following letters, as appropriate:

N = no external shielding

C = shielding with welding grade carbon dioxide

M = shielding with mixed gas.

The gas used in the qualification tests shall be specified by trade name or by composition (percentage of constituents).