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CARBON STEELS AND CARBON-MANGANESE STEELS —BRIGHT BARS

[Title allocated by Defence Cataloguing Authority: METAL BAR (Steels: Carbon and Carbon-Manganese)]

STANDARDS ASSOCIATION OF AUSTRALIA

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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:

Bureau of Steel Manufacturers of Australia

Confederation of Australian Industry

Department of Defence

Department of Productivity

Institute of Steel Service Centres of Australia

Metal Trades Industry Association of Australia

Railways of Australia Committee

Society of Automotive Engineers, Australasia

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To keep abreast of progress in industry, Australian standards are regularly reviewed. Suggestions for improvements to published standards, addressed to the head office of the Association, are welcomed.

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AUSTRALIAN STANDARD SPECIFICATION

CARBON STEELS AND CARBON-MANGANESE STEELS—BRIGHT BARS

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PREFACE

This revised standard was prepared under the direction of the Association's Committee on Iron and Steel, by its subcommittee on carbon and alloy steels. It applies, in particular, to bright carbon and carbon-manganese steel bars for general engineering purposes.

The steels detailed in this standard represent those carbon and carbon-manganese steels specified in AS 1442* that are in general use in Australia, in the bright finished condition. Tables 1 to 5 have been rationalized, and provision for fully-killed steels has been made in Table 6.

In this revision, grades have been rationalized, and Appendix A added. Appendix A presents purchasing guidelines including contractual requirements previously included in the body of the 1973 edition and directs attention to matters requiring consideration at the time of enquiry and/or order. The intention is to avoid misinterpretation or other problems and to ensure a clear understanding of product requirements by both purchaser and supplier.

Bars to this standard may be finished by a variety of processes including turning, centreless grinding, cold rolling and cold drawing. Any of these processes is applicable, except in respect of steels to Table 7 where specific provision is made for cold working by either cold rolling or cold drawing, in order to produce the specified mechanical properties.

The attention of users of the standard is drawn to the fact that semi-killed steels may not be as homogeneous as fully-killed steels and therefore may not be as suitable for critical applications, particularly in the higher carbon grades.

Enquiries seeking information regarding the availability of bright finished carbon and carbon-manganese steel bars not listed in this standard should be directed to the steel suppliers. In addition, information regarding the mechanical properties which can be obtained from a number of grades specified on a composition basis only in the standard is contained in the following publication:

ASTM A450 Recommended Practice for Selection of Steel Bar Compositions According to Section.

Those requiring information on welding of steel are referred to the steel manufacturer or to the Australian Welding Research Association's Technical Note 1, The Weldability of Steels.

This standard requires reference to the following Australian standards:

AS 1027 Preferred Metric Sizes of Wrought Ferrous and Non-ferrous Round, Square and Hexagonal Bar and Rod for General Engineering Purposes

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* AS 1442, Carbon Steels and Carbon-Manganese Steels—Hot-rolled Bars and Semi-finished Products.

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 1256	Preferred Metric Sizes of Hot-rolled Flat Steel Bars and Wrought Non-ferrous Rectangular Bars
AS 1391	Methods for Tensile Testing of Metals
AS 1733	Methods for the Determination of Grain Size in Metals
AS K1	Methods for the Sampling and Analysis of Iron and Steel.

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STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard Specification for CARBON STEELS AND CARBON-MANGANESE STEELS —BRIGHT BARS

1 SCOPE. This specification applies to bright finished carbon steel and carbon-manganese steel bars for general engineering purposes. This specification provides for the supply of steel to specified chemical composition only (Tables 1 to 5) or to specified chemical composition and mechanical properties (Tables 6 and 7).

NOTE: Guidelines to purchasers on requirements that must be specified by the purchaser and those that must or may be agreed at the time of enquiry and/or order are given in Appendix A.

2 DESIGNATION.

2.1 Steels Supplied to Specified Composition Only (Tables 1 to 5).

2.1.1 *General.* The steel designation shall include—

(a) the number of this Australian standard, i.e. AS 1443;

(b) a prefix letter to indicate the degree of killing or deoxidation (see Clause 2.1.2);

(c) a series designation in accordance with Clause 2.1.3 (see also Paragraph A6 of Appendix A), and

(d) modification symbols in accordance with Clause 2.1.4 where applicable.

2.1.2 *Degree of deoxidation.* The prefix letters indicating the degree of killing or deoxidation shall be as follows:

CS = semi-killed (balanced*) steel (0.10 percent carbon range)
S = semi-killed (balanced*) steel (restricted carbon range)
K = fully killed steel.

2.1.3 *Series designation.* The following series designation shall be used to identify each group, whereby the first two digits of the number indicate the type of steel and the last two digits indicate the approximate mean of the specified carbon range:

10XX	Plain carbon steels
11XX	Sulphurized free-cutting carbon steels
12XX	Phosphorized and sulphurized free-cutting carbon steels
13XX	Carbon-manganese steels.

* The term 'balanced steel' is sometimes used in the steel industry as a synonym for semi-killed steel.