

1443:1983

AS 1443 — 1979
UDC 699.14-122.4-412

Australian Standard 1443-1979

CARBON STEELS AND CARBON-MANGANESE STEELS — BRIGHT BARS

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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

This standard, prepared by Committee MT/1, Iron and Steel was approved by the Metals Standards Board on behalf of the Council of the Standards Association of Australia on 22 November 1978, and was published on 1 March 1979.

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.

This standard was issued in draft form for public review as DR 77141.

AUSTRALIAN STANDARD SPECIFICATION

**CARBON STEELS AND
CARBON-MANGANESE
STEELS — BRIGHT BARS**

AS 1443 — 1979

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| First published | 1973 |
| Revised | 1979 |

**PUBLISHED BY THE STANDARDS ASSOCIATION OF AUSTRALIA
STANDARDS HOUSE, 80 ARTHUR STREET, NORTH SYDNEY, N.S.W.**

ISBN 0 7262 1605 4

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 A400 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

* 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
- ASK1 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. The 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.