

Australian/New Zealand Standard™

Structural steel

Part 1: Hot-rolled bars and sections



AS/NZS 3679.1:2016

This Joint Australian/New Zealand Standard was prepared by Joint Technical Committee BD-023, Structural Steel. It was approved on behalf of the Council of Standards Australia on 13 January 2016 and on behalf of the Council of Standards New Zealand on 21 January 2016.

This Standard was published on 5 April 2016.

The following are represented on Committee BD-023:

Australian Chamber of Commerce and Industry
Australian Industry Group
Australian Steel Association
Australian Steel Institute
Austroads
Bureau of Steel Manufacturers of Australia
Business New Zealand
New Zealand Heavy Engineering Research Association
Steel Construction New Zealand
University of New South Wales
University of Sydney

Keeping Standards up-to-date

Standards are living documents which reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued. Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments which may have been published since the Standard was purchased.

Detailed information about joint Australian/New Zealand Standards can be found by visiting the Standards Web Shop at www.saiglobal.com.au or Standards New Zealand website at www.standards.co.nz and looking up the relevant Standard in the on-line catalogue.

For more frequent listings or notification of revisions, amendments and withdrawals, Standards Australia and Standards New Zealand offer a number of update options. For information about these services, users should contact their respective national Standards organization.

We also welcome suggestions for improvement in our Standards, and especially encourage readers to notify us immediately of any apparent inaccuracies or ambiguities. Please address your comments to the Chief Executive of either Standards Australia or Standards New Zealand at the address shown on the back cover.

This Standard was issued in draft form for comment as DR AS/NZS 3679.1.

Australian/New Zealand Standard™

Structural steel

Part 1: Hot-rolled bars and sections

Originated in Australia as part of AS A1—1925.
Originated in New Zealand as AS/NZS 3679.1:1996.
Previous edition 2010.
Fourth edition 2016.

COPYRIGHT

© Standards Australia Limited/Standards New Zealand

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher, unless otherwise permitted under the Copyright Act 1968 (Australia) or the Copyright Act 1994 (New Zealand).

Jointly published by SAI Global Limited under licence from Standards Australia Limited, GPO Box 476, Sydney, NSW 2001 and by Standards New Zealand, PO Box 10729, Wellington 6011.

PREFACE

This Standard was prepared by the Joint Standards Australia/Standards New Zealand Committee BD-023, Structural Steel, to supersede AS/NZS 3679.1:2010.

The objective of this Standard is to specify requirements for manufacturers and suppliers of hot-rolled structural steel bars and sections for general structural and engineering applications.

This edition includes the following major changes from the previous edition:

- (a) Requirements for type testing, and minimum production testing and inspections, have been included in the normative appendix on product conformity.
- (b) Test certificates are required to be available for all products produced to this Standard.
- (c) Labelling requirements have been added to enable products compliant with this Standard to be traceable back to its corresponding test certificate.
- (d) The prescriptive requirement of a rolled in mark on hot rolled sections greater than 150 mm has been replaced by a performance based requirement that provides the same level of permanency in identification.
- (e) Definitions, clause numbering and layout across the four steel product Standards AS/NZS 1163, AS/NZS 3678, AS/NZS 3679.1 and AS/NZS 3679.2 are consistent wherever practicable.

A statement expressed in mandatory terms in a note to a table is deemed to be a requirement of this Standard.

The terms 'normative' and 'informative' have been used in this Standard to define the application of the appendix to which they apply. A 'normative' appendix is an integral part of a Standard, whereas an 'informative' appendix is only for information and guidance.

CONTENTS

	<i>Page</i>
1 SCOPE.....	4
2 NORMATIVE REFERENCES	4
3 DEFINITIONS.....	5
4 DESIGNATION.....	7
5 MANUFACTURING PROCESS—STEEL FEED	7
6 CHEMICAL COMPOSITION	7
7 MANUFACTURING TOLERANCES.....	9
8 FREEDOM FROM DEFECTS.....	21
9 TESTING.....	22
10 MECHANICAL PROPERTIES	26
11 IDENTIFICATION, TEST AND INSPECTION CERTIFICATE	28
12 SAMPLING AND TESTING TO DEMONSTRATE PRODUCT CONFORMITY ..	30
13 ROUNDING OF NUMBERS.....	30
14 MANIPULATION	30
15 SECTION DESIGNATIONS, DIMENSIONS AND MASSES.....	30
 APPENDICES	
A PURCHASING GUIDELINES.....	31
B PRODUCT CONFORMITY	33
C COLD-BENDING OF ROUNDS, FLATS AND SQUARES DURING FABRICATION.....	39
D SECTION DESIGNATIONS, DIMENSIONS AND MASSES.....	40
E MEASUREMENT OF GAUGE RADIUS AND SWEEP IN UNIVERSAL SECTIONS	48
F STEEL FOR SEISMIC AND FRACTURE CRITICAL APPLICATIONS (NEW ZEALAND ONLY).....	49
 BIBLIOGRAPHY.....	 50

STANDARDS AUSTRALIA/STANDARDS NEW ZEALAND

Australian/New Zealand Standard
Structural steel

Part 1: Hot-rolled bars and sections

1 SCOPE

This Standard specifies the requirements for the production and supply of hot-rolled structural steel bars and sections.

This Standard is intended for general structural and engineering applications. All grades specified in this Standard are suitable for—

- (a) welding in accordance with AS/NZS 1554, Parts 1, 2, 5 and 7; and
- (b) fastening, as specified in AS 3990, AS 4100, AS/NZS 4600, AS 100.6 and NZS 3404.

This Standard does not cover the following:

- (i) Structural steel—welded I sections.
- (ii) Carbon steels and carbon-manganese steels—Hot-rolled bars and semi-finished products.
- (iii) Steel reinforcing bars for concrete.

Requirements for product conformity to this Standard are given in Appendix B.

NOTES:

- 1 Guidelines for purchasers on requirements that should be specified by the purchaser and those that should or may be agreed on at the time of enquiry and order are given in Appendix A.
- 2 Guidelines on cold-bending of rounds, flats and squares during fabrication are given in Appendix C.

2 NORMATIVE REFERENCES

The following normative documents are referenced in this Standard:

NOTE: Documents referenced for informative purposes are listed in the Bibliography.

AS	
1391	Metallic materials—Tensile testing at ambient temperature
1544	Methods for impact tests on metals
1544.1	Part 2: Charpy V-notch
2006	Numerical values—Rounding and interpretation of limiting values
3990	Mechanical equipment—Steelwork
4100	Steel structures
5100	Bridge design
5100.6	Part 6: Steel and composite construction
AS/NZS	
1050	Methods for the analysis of iron and steel (series)
1050.1	Part 1: Sampling iron and steel for chemical analysis