AS 1303—1984
UDC 669.14-426:693.554

Australian Standard®
1303—1984

1991 ed.

amend. 1.

(amend. 1.)

~~HARD-DRAWN~~ STEEL REINFORCING WIRE FOR CONCRETE

1303—1991 Steel reinforcing wire for concrete
(In Professional Packages 30, 58) A4 7pp CC

This Standard specifies requirements for steel wire, plain or deformed, suitable for resistance welding, and intended for use as reinforcement for concrete and for manufacturer into welded wire fabric in accordance with AS 1304. It specifically excludes hard-drawn high tensile steel wire for prestressed concrete. The following significant changes to the previous edition have been made: a carbon equivalent is now specified, manufacturing tolerances in lengths have been amended to comply with AS 3600, changes to the bend test have been made, process of manufacture has been deleted and a warning, on the need to avoid excessive cold-working when straightening wires, has been added.

Committee BD/23: ***Supersedes AS 1303—1984: Publication date 1991-02-11:***
ISBN 0 7262 6636 1.

STANDARDS ASSOCIATION OF AUSTRALIA
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This Australian standard was prepared by Committee BD/23, Structural Steel. It was approved on behalf of the Council of the Standards Association of Australia on 28 August 1984 and published on 9 November 1984.

The following interests are represented on Committee BD/23:

Australian Institute of Steel Construction

Bureau of Steel Manufacturers of Australia

Confederation of Australian Industry

Metal Trades Industry Association of Australia

National Association of Australian State Road Authorities

Railways of Australia Committee

Steel Reinforcement Promotion Group

University of New South Wales

University of Sydney

SAA Committees on—

- Steel Structures
- Concrete Structures
- Masonry Structures
- Mechanical Testing of Metals

This standard was issued in draft form for comment as DR 83017.

AUSTRALIAN STANDARD

(Amend. 1.)

~~HARD-DRAWN~~ STEEL REINFORCING WIRE FOR CONCRETE

AS 1303—1984

AS A82 first published.....1958
AS A82 revised.....1966
AS A82 revised.....1971
AS A82 revised and issued as
AS 1303.....1973
Second edition.....1984

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

ISBN 0 7262 3518 0

PREFACE

This edition of this standard was prepared by the Association's Committee on Structural Steel, to supersede AS 1303—1973. (Amend. 1)

The standard specifies requirements for ~~hard-drawn~~ steel wire, plain or deformed, suitable for resistance welding, and intended for use as reinforcement for concrete.

Apart from some editorial consolidation and rationalization, the following significant changes, to which attention is drawn, have been made to the previous edition of the standard:

- To ensure the steel wire's suitability for resistance welding, a maximum carbon content is now specified.
- ~~A new Table 2, Sizes of Deformed Wire, has been included.~~ See Amend. 1.
- The mass per unit length of wires, previously calculated to three decimal places, is now calculated to four decimal places as the difference in calculated mass for considerable lengths of wire is significant depending on whether the given values for mass per unit length are accurate to three or four decimal places.
- Manufacturing tolerances have been amended in order to ensure that at the ends of a straight piece, the concrete cover is not encroached upon.
- The term 'height' has been revised to 'depth' relating to depth of deformation. Table 4 has been edited for greater clarity.
- In keeping with current ISO policy, the term 'yield strength', which is intended to cover the terms 'yield stress' and 'percentage proof stress', as appropriate, is defined and adopted throughout this standard. Users of this standard are alerted to the distinction between 'tensile strength' and 'yield strength' tests.
- 'Number of Tests' has been amended to 'Product Quality Assessment'.
- An appendix has been added which presents purchasing guidelines, including contractual requirements previously covered in the body of AS 1303—1973, and which directs attention to matters requiring consideration at the time of enquiry and/or order. The intention of the appendix is to prevent misinterpretation or other problems and to ensure a clear understanding of product requirements by both purchaser and supplier.

STANDARDS ASSOCIATION OF AUSTRALIA
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AMENDMENT No 1
to
AS 1303—1984
HARD-DRAWN STEEL REINFORCING WIRE FOR CONCRETE

REVISED TEXT

SUMMARY: This amendment applies to Front cover, Page 1 (Title page), (Preface), (Contents), Page 4 (Title), Clauses 1, 2, 3.10, 4.1, 5.1, 5.2, 8.3, 13, Appendix A and Appendix B.

Published on 6 January 1986.

AMDT No 1 JAN 1986 **Front cover.**

Delete 'HARD-DRAWN' from title.

AMDT No 1 JAN 1986 **Page 1. (Title page).**

Delete 'HARD-DRAWN' from title.

AMDT No 1 JAN 1986 **Page 2. (Preface).**

Third line.

Delete 'hard-drawn'.

AMDT No 1 JAN 1986 **Page 2. (Preface).**

Tenth line.

Delete: 'A new Table 2, Sizes of Deformed Wire, has been and included.' and

Substitute:

•Wire sizes for both plain and deformed wires are combined in Table 1 to ensure identical sizes are used for the manufacture of welded wire fabric complying with AS 1304.'

AMDT No 1 JAN 1986 **Page 3. (Contents).**

Appendix B.

Delete 'Hard-drawn'.

AMDT No 1 JAN 1986 **Page 4. (Title).**

Delete 'HARD-DRAWN'.

AMDT No 1 JAN 1986 **Page 4. Clause 1.**

Second line.

Delete 'hard-drawn'.

AMDT No 1 JAN 1986 **Page 4. Clause 2.**

Add: 'AS 1304—Welded Wire Reinforcing Fabric for Concrete'.

AMDT No 1 JAN 1986 **Page 4. Clause 3.10.**

First line.

Delete 'cold-drawn'.

AMDT No 1 JAN 1986

Page 4. Clause 4.1.

First line.

Delete 'cold-drawn' and *substitute* 'manufactured'.

AMDT No 1 JAN 1986

Page 4. Clause 5.1.

Delete 'plain' from Clause title, and the first word of the Clause.

Delete existing Table 1, and *substitute*:

TABLE 1

SIZES OF WIRE

Size mm	Nominal area mm^2	Mass per unit length kg/m
4	12.6	0.0986
5	19.6	0.1541
6*	28.3	0.2220
6.3	31.2	0.2447
6.75*	35.8	0.2809
7.1	39.6	0.3108
7.5*	44.2	0.3468
8	50.3	0.3946
9	63.6	0.4994
10	78.5	0.6165
11.2	98.5	0.7734
12*	113.1	0.8878
12.5	122.7	0.9633

* NOTE: Wire sizes 6, 6.75, 7.5 and 12 do not comply with the requirements of welded wire fabric covered in AS 1304.

AMDT No 1 JAN 1986

Page 4. Clause 5.2.

Delete the entire Clause and Table 2.

AMDT No 1 JAN 1986

Page 5. Clause 8.3.

Second line.

Delete 'Tables 1 and 2' and *Substitute* 'Table 1'.

AMDT No 1 JAN 1986

Page 6. Clause 13.

Note 2, second line.

Delete 'hard-drawn'.

AMDT No 1 JAN 1986

Page 7. Appendix A.

Delete 'steel' and *substitute* 'wire' in the following three places:

(1) Clause A3(a)
(2) last line of Clause A3
(3) second line of Clause A5.

AMDT No 1 JAN 1986

Page 8. Appendix B.

Delete 'Hard-drawn' in the following two places:

(1) The Title
(2) Clause B1 Scope.

CONTENTS

STANDARDS ASSOCIATION OF AUSTRALIA

Australian Standard

for

(Amend.1) ~~HARD-DRAWN~~ STEEL REINFORCING WIRE FOR CONCRETE

(Amend.1) 1 **SCOPE.** This standard specifies requirements for ~~hard-drawn~~ steel wire, plain or deformed, suitable for resistance welding, and intended for use as reinforcement for concrete. It specifically excludes hard-drawn high tensile steel wire for prestressed concrete, which is dealt with by AS 1310.

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

2 **REFERENCED DOCUMENTS.** The following standards are referred to in this standard:

AS 1050	Methods for the Analysis of Iron and Steel
AS 1213	Iron and Steel—Methods of Sampling
AS 1310	Steel Wire for Tendons in Prestressed Concrete
AS 1391	Methods for Tensile Testing of Metals
AS 2505	Methods for Bend and Related Testing of Metals Part 4—Wire
AS K1	Methods for the Sampling and Analysis of Iron and Steel.

(Amend.1) AS 1304 – welded wire Reinforcing Fabric for Concrete.

3 **DEFINITIONS.** For the purposes of this standard, the following definitions apply:

3.1 Coil—one continuous length of wire in the form of a coil.

3.2 Parcel—any quantity of finished wire of one size presented for examination and test at any one time.

3.3 Bundle—any number of lengths of wire bound together.

3.4 Wire size—the nominal diameter of a plain wire, in millimetres.

3.5 Nominal area—the cross-sectional area of wire calculated from a nominal diameter.

3.6 Mass per unit length—the mass per metre calculated from the nominal area on the basis of the density of steel being 7850 kg/m³.

NOTE: The value of 7850 kg/m³ can be expressed as 0.007 85 kg/m.mm².

3.7 Lot—all the wire of the same size and type contained in an individual shipment.

3.8 Deformed wire—steel wire with a surface having deformations which—

(a) inhibit longitudinal movement of the wire relative to the surrounding concrete; and

(b) comply with Clause 7.

3.9 Deformed wire size—the nominal diameter of a plain wire having the same mass per unit length as the deformed wire.

3.10 Yield strength—for ~~cold-drawn~~ wire, the yield strength is taken as being the proof stress at 0.4 percent total strain.

(Amend.1)

4 **MATERIAL REQUIREMENTS.** (Amend.1) Manu

4.1 Process. The wire shall be ~~cold-drawn~~ from steel made by the open hearth, the basic oxygen, or the electric process. For the purpose of this standard, the basic oxygen process means the process of making steel in a basic converter blown with commercially pure oxygen.

4.2 Composition. The cast analysis shall show that the steel contains not more than 0.25 percent of carbon, not more than 0.05 percent of sulphur and not more than 0.05 percent of phosphorus. The chemical composition shall be such that the wire is suitable for resistance welding.

4.3 Methods of sampling and analysis. The methods of sampling for analysis and the methods of analysis shall not be less accurate than those prescribed in AS 1213, and in AS 1050 and AS K1 respectively.

5 **DIMENSIONS.**

5.1 ~~Plain~~ wire. ~~Plain~~ wire sizes normally available are given in Table 1.

New Table See Amend

TABLE 1
SIZES OF PLAIN WIRE

Size mm	Nominal area mm²	Mass per unit length kg/m
4	12.6	0.0986
5	19.6	0.1541
6.3	31.2	0.2447
7.1	39.6	0.3108
8	50.3	0.3946
9	63.6	0.4994
10	78.5	0.6165
11.2	98.5	0.7734
12.5	122.7	0.9633

5.2 Deformed wire. Deformed wire sizes normally available are given in Table 2.

Clause Deleted Am

TABLE 2
SIZES OF DEFORMED WIRE

Size mm	Nominal area mm²	Mass per unit length kg/m
4	12.6	0.0986
5	19.6	0.1541
6	28.3	0.2220
6.75	35.8	0.2809
7.5	44.2	0.3468
9	63.6	0.4994
10	78.5	0.6165
12	113.1	0.8878

(Amend.1)