

# Australian Standard 1504—1983

---

## FIBRE ROPE—THREE-STRAND, HAWSER LAID

[Title Allocated by Defence Cataloguing Authority:  
Rope Fibrous (Three Strand Hawser Laid)]

---



**STANDARDS ASSOCIATION OF AUSTRALIA**  
*Incorporated by Royal Charter*

**This Australian standard was prepared by Committee TX/4, Ropes and Cordage. It was approved on behalf of the Council of the Standards Association of Australia on 14 September 1983 and published on 4 November 1983.**

---

**The following interests are represented on Committee TX/4:**

**Australian Steamship Owners Federation  
Confederation of Australian Industry  
Cordage Institute of Australia  
Department of Defence  
Department of Industrial Relations, N.S.W.  
Department of Transport  
Railways of Australia Committee**

---

***Review of Australian Standards.*** To keep abreast of progress in industry, Australian standards are subject to periodic review and are kept up-to-date by the issue of amendments or new editions as necessary. It is important therefore that standards users ensure that they are in possession of the latest edition, and any amendments thereto.

***Full details of all SAA publications will be found in the Annual List of Australian Standards; this information is supplemented each month by SAA's journal 'The Australian Standard', which subscribing members receive, and which gives details of new publications, new editions and amendments, and of withdrawn standards.***

***Suggestions for improvements to Australian standards, addressed to the head office of the Association, are welcomed. Notification of any inaccuracy or ambiguity found in an Australian standard should be made without delay in order that the matter may be investigated and appropriate action taken.***

---

***This standard was issued in draft form for comment as DR 82011.***

**AUSTRALIAN STANDARD**

# **FIBRE ROPE—THREE-STRAND, HAWSER LAID**

**AS 1504—1983**

First published .....	1974
Second edition .....	1983

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

**ISBN 0 7262 3199 1**

## PREFACE

This edition of this standard was prepared by the Association's Committee on Ropes and Cordage under the direction of the Textile Standards Board, to supersede AS 1504—1974. It specifies requirements for three-strand, hawser laid rope manufactured from the following textile fibres which are described in AS 2450, Glossary of Generic Names for Textile Fibres:

Manila (Abaca)  
Sisal  
Polyamide (Nylon)  
Polyester  
Polyethylene  
Polypropylene  
Vinylal

The standard is set out in three sections, covering general requirements, manufacturing requirements, and test requirements. Appendices give test procedures together with notes on the care and maintenance of ropes.

The standard designates rope by its diameter in millimetres.

The colour identification code in this edition differs from the 1974 edition in that it has been amended to conform to international standards (see also AS 1752, Fibre Rope—Eight-Strand Plaited). The minimum breaking force of polyester and polyamide rope has been revised because of availability of fibre having high tenacity and realization factors for calculating breaking force of large sizes have been reviewed.

The standard calls for the use of a coloured yarn in one strand of the rope in accordance with ISO 4877, Ropes and Cordage—Colour Code for Identification, to indicate the generic fibre type. Because of differences between the ISO standard and the previous edition of the Australian standard, it is intended to insert two coloured yarns in one strand for a period of 12 months\* to apply from the date of publication of the standard. One coloured yarn will represent past Australian practice, the other representing the international standard ISO 4877 as stated in this edition. The colours are as follows:

Fibre type	Colour to past Australian practice	Colour to this Australian standard
Manila (Abaca)	Black	Black
Sisal	Light Blue	Red
Polyamide (Nylon)	Red	Green
Polyester	Green	Blue
Polyethylene Staple Monofilament	Grey	Orange
Polypropylene	Purple	Orange
Vinylal	Red Brown	Brown
	Orange	Yellow

The breaking force of ropes specified in this standard in some cases differs from those stated in the relevant ISO standards† because of differences in Australian manufacturing practices and testing procedures.

\*This period may be extended by agreement of the Committee depending on experience with use of the revised standard.

†See ISO 1140, ISO 1141, ISO 1181, ISO 1346, ISO 1969.

© Copyright - STANDARDS ASSOCIATION OF AUSTRALIA 1983

Users of standards are reminded that copyright subsists in all SAA publications. No part of this publication may be reproduced, stored in a retrieval system in any form or transmitted by any means without prior permission in writing of the Standards Association of Australia.

## CONTENTS

	<i>Page</i>
<b>SECTION 1. SCOPE AND GENERAL REQUIREMENTS</b>	
1.1 Scope .....	4
1.2 Referenced Documents .....	4
1.3 Designation .....	4
1.4 Identification of Fibre .....	4
1.5 Marking .....	5
1.6 Packaging .....	5
<b>SECTION 2. MANUFACTURING REQUIREMENTS</b>	
2.1 Material .....	6
2.2 Yarn .....	6
2.3 Construction .....	6
2.4 Finish .....	6
2.5 Diameter of Rope .....	6
2.6 Length of Rope .....	6
<b>SECTION 3. TEST REQUIREMENTS</b>	
3.1 Conditioning .....	12
3.2 Linear Density .....	12
3.3 Mass .....	12
3.4 Breaking Force .....	12
<b>APPENDICES</b>	
A Guide to Procedure for Determining Compliance of Rope with This Standard .....	13
B Methods for Determining the Diameter, Length of Lay, Linear Density and Coil Length of Rope .....	14
C Methods for Determining the Breaking Force of Rope .....	16
D Notes on the Care and Use of Ropes .....	18

## STANDARDS ASSOCIATION OF AUSTRALIA

**Australian Standard**  
for  
**FIBRE ROPE—THREE-STRAND, HAWSER LAID**

## SECTION 1. SCOPE AND GENERAL REQUIREMENTS

**1.1 SCOPE.** This standard specifies requirements for three-strand, hawser laid rope made from natural or synthetic textile staple fibre, monofilament or multifilament yarn made from the following generic textile fibres\*:

- Natural fibre  
Manila (Abaca)  
Sisal
- Synthetic fibre  
Polyamide (Nylon)  
Polyester  
Polyethylene  
Polypropylene  
Vinylal

The required physical properties and test methods are stated.

The standard does not deal with hard laid rope or rope manufactured for special requirements.

NOTE: Guidance on procedures for establishing that rope is manufactured to the requirements of this standard is set out in Appendix A.

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

- AS 1157 Methods of Testing Materials for Resistance to Fungal Growth Part 3—Resistance of Cordage and Yarns to Fungal Growth
- AS 1199 Sampling Procedures and Tables for Inspection by Attributes
- AS 1380 Fibre-rope Slings (of Natural or Synthetic Rope)
- AS 1399 Guide to AS 1199, Sampling Procedures and Tables for Inspection by Attributes
- AS 1752 Fibre Rope—Eight-strand Plaited
- AS 1821—23 Suppliers Quality Control Systems, Levels 1, 2 and 3
- AS 2000 Guide to AS 1821—23, Suppliers Quality Control Systems
- AS 200 Methods of Test for Textiles 2001.1.1† Method for Conditioning Textile Materials for Test
- AS 2193 Methods for Calibration and Grading of Force-measuring Systems of Testing Machines
- AS 2450 Glossary of Generic Names for Textile Fibres
- AS L54 Method for the Determination of Breaking Load and Extension of Yarns and Threads
- ISO 1140 Three-strand Polyamide Multifilament Ropes

- ISO 1141 Three-strand Polyester Multifilament Ropes
- ISO 1181 Three- or Four-strand Manila and Sisal Ropes
- ISO 1346 Three-strand (Hawser-laid) and Eight-strand (Plaited) Polypropylene Monofilament or Film Ropes—Required Characteristics
- ISO 1969 Three-strand Polyethylene Monofilament Ropes
- ISO 4877 Ropes and Cordage—Colour Code for Identification
- BS 381C Specification for Colours for Identification, Coding and Special Purposes
- BS 4128 Recommendation for the Selection, Use and Care of Man-made Fibre Ropes in Marine Applications.

**1.3 DESIGNATION.** The rope shall be designated by its nominal size, which shall be the diameter expressed in millimetres.

**1.4 IDENTIFICATION OF FIBRE.** The fibre shall be identified by a single coloured yarn of polyethylene or multifilament viscose rayon of 56 tex inserted in the centre of one of the strands. The colour of the identifying yarns shall be as set out in Table 1.1. The thread used for identification purposes shall be regarded as an additional yarn in the strand.

The colour should approximate to the standard colours specified in BS 381C as indicated in Table 1.1.

**TABLE 1.1**  
**FIBRE IDENTIFICATION COLOUR CODING CHART**

Type of rope fibre	Colour of identifying yarn	BS 381C colour
Manila (Abaca)	Black	642 Night
Sisal	Red	537 Signal Red
Polyamide	Green	218 Grass Green
Polyester	Blue	104 Azure Blue
Polyethylene Staple	Orange	557 Light Orange
Polyethylene Monofilament	Orange	557 Light Orange
Polypropylene	Brown	414 Golden Brown
Vinylal	Yellow	309 Canary Yellow

NOTE: Attention is drawn to the statement in the preface regarding the past colour coding system used in AS 1504 and AS 1752 and the proposal to include two coloured yarns in the one strand for a period of 12 months from date of publication of this edition.

\*See AS 2450.

†See AS 1090 (in course of revision).