Australian Standard™

Railway track material

Part 14: Prestressed concrete sleepers

Standards Australia

This Australian Standard was prepared by Committee CE-002, Railway Track Materials. It was approved on behalf of the Council of Standards Australia on 29 November 2002 and published on 14 February 2003.

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Australasian Railway Association

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Australian Industry Group

Bureau of Steel Manufacturers of Australia

Rail Track Association Australia

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Part 14: Prestressed concrete sleepers

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PREFACE

This Standard was prepared by the Standards Australia Committee CE-002, Railway Track Materials, to supersede AS 1085.14—1997, *Railway permanent way material*, Part 14: *Prestressed concrete sleepers*.

The objective of this Standard is to provide purchasers and suppliers including owners, operators, designers and manufacturers of railway sleepers with requirements for the specification, manufacture and testing of prestressed concrete sleepers for use in railway track.

This revision includes only those changes necessary to accompany the publication of the new Standards in the series, AS 1085.18 and AS 1085.19. This implements the separation of the requirements for resilient fasteners from those for pre-stressed concrete sleepers.

This Standard includes the following changes to the previous edition:

(a) Change of title of the AS 1085 series (previously *Railway permanent way material*).

(b) Amendment No. 1 has been incorporated.

(c) Requirements for resilient fastenings that are covered in AS 1085.19 have been removed and reference made to that Standard.

(d) The referenced documents list has been updated.

(e) Minor editorial changes implemented.

(f) Appendix order has been updated following removal of a number of appendices.

(g) The most recent version of the informative Appendix ‘Means of demonstrating compliance with this Standard’ has been included.

This Standard is Part 14 of the AS 1085 series (*Railway track material*) comprised of the following parts:

Part 1: Steel rails

Part 2: Fishplates

Part 3: Sleeper plates

Part 4: Fishbolts and nuts

Part 7: Spring washers

Part 8: Dogspikes

Part 10: Rail anchors

Part 12: Insulated joint assemblies

Part 13: Spring fastening spikes for sleeper plates

Part 14: Prestressed concrete sleepers

Part 15: Aluminothermic rail welding

Part 17: Steel Sleepers

Part 18: Screw spikes and threaded inserts

Part 19: Resilient fastening systems

New parts also under development are Part 20: *Welding of steel rail*. and Part 21: *Points and crossing structures*

Of interest to users of this series are the following:

AS 3818.2, *Timber—Heavy structural products—Visually graded* Part 2: *Railway track timbers*

AS 2758.7, *Aggregates and rock for engineering purposes,* Part 7: *Railway ballast*.

Statements expressed in mandatory terms in notes to tables and figures are deemed to be requirements 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.

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FOREWORD

The performance of concrete sleepers in track depends on the condition of the rail and the joints provided, and upon the rail fastening system, (which comprises elastic fastenings, rail pads and insulators). Accordingly, when considering their performance, the concrete sleeper and its fastening together with the rail must be regarded as interdependent components of a system.

Track constructed using concrete sleepers and fastener components meeting the requirements of this Standard is expected to give satisfactory performance under current Railways of Australia approved maximum axle loads and with acceptable standards of maintenance.

This Standard is intended for use by persons experienced in track design and performance and who have a good knowledge of the duty and environment of the track in which the sleepers are to be used.

STANDARDS AUSTRALIA

Australian Standard
Railway track material

Part 14: Prestressed concrete sleepers

SECTION 1 SCOPE AND GENERAL

1.1 SCOPE

This Standard sets out requirements for the design, manufacture, testing and installation of prestressed concrete sleepers and their fastening components for use in main line railway systems. It also sets out requirements for electrical performance of rail fastener and sleeper combinations.

This Standard also covers special sleepers such as turnout bearers, sleepers with additional rails and dual gauge sleepers and their fastenings for use in special sleepered track (See Appendix A).

This Standard does not cover—

(a) the design of post-tensioned concrete sleepers;

(b) the design of duo block concrete sleepers; and

(c) the techniques and equipment for the manufacture of concrete sleepers or fastenings.

NOTES:

1 Guidance on information that should be supplied by the purchaser is given in Appendix B.

2 Guidance on means for demonstrating compliance with this Standard is given in Appendix C.

1.2 ALTERNATIVE DESIGN TECHNIQUES AND MATERIALS

Alternative design techniques and materials may be used where the manufacturer can demonstrate compliance with the requirements of Sections 5 and 6 and other requirements to the satisfaction of the purchaser.

1.3 REFERENCED DOCUMENTS

The documents referred to in this Standard are listed in Appendix D.

1.4 DEFINITIONS

For the purpose of this Standard the definitions below apply.

1.4.1 Administrative definitions

1.4.1.1 *Manufacturer*

The person(s) or organization responsible for the manufacture of prestressed concrete sleepers and their fastening components.

1.4.1.2 *Purchaser*

The person(s), organization or regulatory authority for whom the manufacturer is contracted to manufacture the prestressed concrete sleepers and their fastening components.