Ballastless Track Systems

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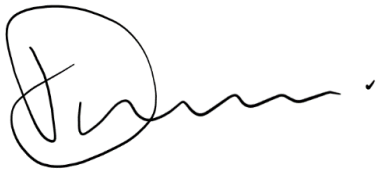
Development of this Standard was prepared by a Rail Industry Safety and Standards Board (RISSB) Development Group consisting of representatives from the following organisations:

DTP Victoria; ARUP; Acoustic Studio; TfNSW; Yarra Trams; Monash Institute of Railway Technology; Rhomberg Sersa Australia; Aurecon; KiwiRail; WSP; Salix; Metro Trains Sydney; PTA WA; Arcadis; ATHRA

The Infrastructure Standing Committee verified that RISSB's accredited process was followed in developing the product, before the RISSB Board approved the document for publication.

RISSB wishes to acknowledge the positive contribution of subject matter experts in the development of this Standard. Their efforts ranged from membership of the Development Group through to individuals providing comments on a draft of the Standard during the open review.

I commend this Standard to the Australasian rail industry as it represents industry good practice and has been developed through a rigorous process.



Damien White
Chief Executive Officer
Rail Industry Safety and Standards Board

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2024	24 May 2024	Initial version.

Approval

Name	Date
Rail Industry Safety and Standards Board	23 April 2024

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Preface

This Standard was prepared by the Ballastless Track Systems Development Group, overseen by the RISSB Infrastructure Standing Committee.

Objective

The objective of this Standard is to provide technical requirements to enable a rail infrastructure manager (RIM) to design, supply, install and maintain ballastless track systems. The Standard outlines minimum requirements for ballastless track systems. RIMs may accept alternative independently certified products, materials, construction procedures or testing regimes which meet or exceed these requirements. Responsibility for ensuring the minimum requirements are met remains with the parties undertaking the works.

This Standard is intended to be used by rail authority's, RIM, projects, and specifiers of ballastless track systems and for reference and development by suppliers and construction contractors.

Compliance

There are four types of provisions contained within Australian Standards developed by RISSB:

(a) Requirements.

(b) Recommendations.

(c) Permissions.

(d) Constraints.

Requirements – it is mandatory to follow all requirements to claim full compliance with the Standard. Requirements are identified within the text by the term 'shall'.

Recommendations – do not mention or exclude other possibilities but do offer the one that is preferred. Recommendations are identified within the text by the term 'should'.

Recommendations recognize that there could be limitations to the universal application of the control, i.e. the identified control is not able to be applied or other controls are more appropriate or better.

Permissions – conveys consent by providing an allowable option. Permissions are identified within the text by the term 'may'.

Constraints – provided by an external source such as legislation. Constraints are identified within the text by the term 'must'.

For compliance purposes, where a recommended control is not applied as written in the standard it could be incumbent on the adopter of the standard to demonstrate their actual method of controlling the risk as part of their WHS or Rail Safety National Law obligations. Similarly, it could also be incumbent on an adopter of the standard to demonstrate their method of controlling the risk to contracting entities or interfacing organisations where the risk may be shared.

RISSB Standards address known hazards within the railway industry. Hazards, and clauses within this Standard that address those hazards, are listed in Appendix C.

Appendices in RISSB Standards may be designated either "normative" or "informative". A "normative" appendix is an integral part of a Standard and compliance with it is a requirement, whereas an "informative" appendix is only for information and guidance.

Commentary

Commentary *C Preface*

This Standard includes a commentary on some of the clauses. The commentary directly follows the relevant clause, is designated by 'C' preceding the clause number and is printed in italics in a box. The commentary is for information and guidance and does not form part of the Standard.

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Figures and Tables

Section 1 Scope and general

1.1 Scope

The scope of the Standard includes:

(a) defining a minimum set of technical requirements for ballastless track systems (BTSs), track structure and ballastless track specific fastenings; and

(b) providing guiding principles for the design, supply, construction and maintenance of BTSs.

This Standard does not specifically cover crane rail systems, cane rail systems, and rail (as defined in AS 1085.1), but items from this Standard may be applied to such systems as deemed appropriate.

Further details for higher speed rail, light rail, heavy rail and heavy haul applications may be included in future developed Codes of Practice for BTSs.

1.2 Normative references

The following documents are referred to in the text in such a way that *some* or all of their content constitutes requirements of this document:

- AS 1085.19, *Railway Track Material: Resilient Fastening Assemblies*
- AS 1530.1, *Methods for Fire Tests on Building Materials, Components and Structures – Part 1: Combustibility Test for Materials*
- AS 3600, *Concrete Structures*
- AS 5100.2, *Bridge Design – Part 2: Design Loads*
- AS 5100.4, *Bridge Design – Part 4: Bearings and Deck Joints*
- AS 5100.5, *Bridge Design – Part 5: Concrete*
- AS 7513, *Railway Rolling Stock Interior Environment*
- AS 7630, *Railway Infrastructure – Track Classification*
- AS 7635, *Railway Infrastructure – Track Geometry*
- AS 7636, *Railway Structures*
- AS 7638, *Railway Earthworks*
- AS 7640, *Rail Management*
- AS 7643, *Track Stability*
- AS 7702, *Rail Equipment Type Approval*
- AS 7722, *EMC Management*
- ISO 3381, *Railway Applications – Acoustics – Noise Measurement inside Railbound Vehicles*
- ISO 14837-1, *Mechanical Vibration – Ground-Borne Noise and Vibration Arising from Rail Systems – Part 1: General Guidance*
- EN 13146-9, *Railway Applications – Track – Test Methods for Fastening Systems – Part 9: Determination Of Stiffness*
- EN 13231-2, *Railway Applications – Track – Acceptance of Works – Part 2: Acceptance of Reprofiling Rails in Plain Line, Switches, Crossings and Expansion Devices*
- EN 13481-5, *Railway Applications – Track – Performance Requirements for Fastening Systems - Part 5: Fastening Systems for Ballastless Tracks*