RISSB
RAIL INDUSTRY SAFETY AND STANDARDS BOARD

STANDARDS

AS 7516

Axle Bearings

Australian STANDARD

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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:

Rio Tinto, Queensland Rail, Sydney Metro, ARTC, Egis, Unipart, Metro Melbourne, Sydney Trains, Aurizon, Transport for NSW, RailFirst, Public Transport Authority of Western Australia, Qube Logistics

The Rolling Stock 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.

Alan Fedda
Chief Executive Officer
Rail Industry Safety and Standards Board

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Publication Version	Effective Date	Reason for and Extent of Change(s)
2025	27 June 2025	This document has been reviewed to ensure it remains relevant and applicable. The latest review assessed the content, confirming that while updates were made to align with current industry practices, technologies, and regulatory requirements, the original authorship and copyright have been acknowledged as required.

Approval

Name	Date
Rail Industry Safety and Standards Board	27 June 2025

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Preface

This Standard was prepared by the Axle Bearings Development Group, overseen by the RISSB Rolling Stock Standing Committee.

Objective

The objective of this Standard is to ensure maximum safety of the general public, passengers, workers and property against the hazards that may arise due to failure of axle bearings, axleboxes and adaptors.

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 A.

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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Section 1 Scope and general

1.1 Scope

This document applies to all new and existing rolling stock used in the Australian railway industry.

Section 2 and Section 3 apply to new rolling stock.

The document covers the design, maintenance and overhaul of axle bearings used on rolling stock.

Bearings that are mounted on the axle but do not transmit the main weight of the vehicle to the wheelset are not covered by this Standard.

Operation of rolling stock is not covered.

Rolling stock used on light rail and cane railway networks is not covered.

This Standard applies to axle bearings designed for operating speeds up to and including 200 km/h.

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 2729, *Rolling bearings – Dynamic load ratings and rating life*
- ISO 281, *Rolling bearings – Dynamic load ratings and rating life*
- EN 12080, *Railway applications – Axleboxes - Rolling bearings*
- EN 12081, *Railway applications – Lubricating greases*
- *AAR Field Manual*
- *AAR Manual of Standards and Recommended Practices* - Sections H and H-II

NOTE:

Documents for informative purposes are listed in a Bibliography at the back of the Standard.

1.3 Defined terms and abbreviations

For the purposes of this document, the following terms and definitions apply:

1.3.1

AAR
Association of American Railroads

1.3.2
acoustic detector
wayside system used to detect suspected axle bearing defects

1.3.3
AREMA
American Railway Engineering and Maintenance of Way Association

1.3.4
axle bearings
bearings mounted on the axle to transmit the main weight of the vehicle directly to the wheelset

Note 1 to entry: Excludes bearings mounted on the axle to support traction motors, final drives etc.