

AS 1085.17:2021



Railway track material: Part 17: Steel sleepers

RiSSB
RAIL INDUSTRY SAFETY AND STANDARDS BOARD

Infrastructure Standard



This Australian Standard® AS 1085.17 Railway track material: Part 17: Steel sleepers was prepared by a Rail Industry Safety and Standards Board (RISSB) Development Group consisting of representatives from the following organisations:

DoT Victoria

USQ

IRT Monash University

Yarra Trams

Queensland Rail

ROCLA

The Standard was approved by the Development Group and the Infrastructure Standing Committee in June, 2021. On June 21, 2021 the RISSB Board approved the Standard for release.

This standard was issued for public consultation and approved.

Development of the Standard was undertaken in accordance with RISSB's accredited process. As part of the approval process, the Standing Committee verified that proper process was followed in developing the Standard

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 comment 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.



Deb Spring
Exec. Chair / CEO
Rail Industry Safety and Standards Board

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This Standard was prepared by the Rail Industry Safety and Standards Board (RISSB) Development Group AS 1085.17 Railway track material: Part 17: Steel sleepers. Membership of this Development Group consisted of representatives from the organisations listed on the inside cover of this document.

AS 1085.17:2021 Railway track material: Part 17: Steel sleepers consists part of the AS 1085 Railway track material series.

AS 1085.17:2021 Railway track material: Part 17: Steel sleepers supersedes AS 1085.17: 2003 (R2013).

Objective

This Standard provides purchasers and suppliers including owners, operators, designers, and manufacturers of railway sleepers with requirements for the specification, manufacture, and testing of trough-shaped steel sleepers for use in railway track.

Compliance

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

1. Requirements.
2. Recommendations.
3. Permissions.
4. 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 recognise 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'.

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.

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.

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1 Scope and general

1.1 Introduction

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.

The limits given in this Standard are based on the current state of knowledge of steel sleeper behaviour in service; however, service conditions are difficult to define and test criteria that are seen as the most appropriate for the current state of knowledge, have been adopted.

Track constructed using sleepers and fastener components meeting the requirements of this Standard is expected to give satisfactory performance when properly installed and under an appropriate maintenance program.

A critical design aspect of trough-shaped steel sleepers is the interaction of the fastening and the portion of sleeper around the fastening system. The rail seat assembly repeated load test cannot be used to predict the expected in-track fatigue life. It does, however, provide a means of acceptance of a design by comparison with existing proven designs on the basis of experience.

The loads used in testing and design should reflect the use of the sleeper. For example, if sleepers are used in an interspersed pattern, a disproportionate amount of the load may be taken by a particular sleeper and early in-service failure may result.

Loads and calculation methods given in this Standard are in permissible stress format and are not based on limit state principles.

1.2 Scope

This Standard specifies the performance requirements and gives design and testing methods for trough-shaped steel sleepers and their associated components for use in railway track. It provides methods for determining loads on sleepers and refers to AS 1085.19 for requirements for resilient fastening systems. It also sets out requirements for the performance of rail-insulating components.

This Standard does not cover sleepers for use in curves with a radius less than 200 m.

NOTES:

1. Guidance on means for demonstrating compliance with this Standard is given in Appendix B.
2. Guidelines on the design and manufacture of special sleepers and fastenings are given in Appendix C.