AS 1085.18:2023



Railway track material: Part 18: Screw spikes and threaded inserts



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Infrastructure Standard



This Australian Standard[®] AS 1085.18 Railway track material: Part 18: Screw spikes and threaded inserts was prepared by a Rail Industry Safety and Standards Board (RISSB) Development Group consisting of representatives from the following organisations:

Coldforge

Vossloh

Monash University

Transport for NSW

PTAWA

The Standard was approved by the Development Group and the Infrastructure Standing Committee in June, 2023. On June 21, 2023 the RISSB Board approved the Standard for release.

Consultation only

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.

Damian White CEO Rail Industry Safety and Standards Board

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Railway track material: Part 18: Screw spikes and threaded inserts

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This standard was prepared by the Railway track material: Part 18: Screw spikes and threaded inserts Development Group, overseen by the RISSB Infrastructure Standing Committee.

Objective

The objective of this Standard is to provide manufacturers and purchasers with manufacturing and performance requirements for steel screw spikes and threaded inserts for use with sleeper plates, fastenings and sleepers in a railway permanent way.

This Standard is part of the AS 1085 series, which covers products used on the railway track.

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 organizations 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.



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1 Scope and general

This Standard specifies requirements for steel screw spikes and threaded inserts for use as part of a fastening system that holds rail to sleepers or slabs for railway permanent way. A preferred shape is specified, and information is given on optional shapes.

This Standard covers screw spikes used in the following applications:

- (a) Screwed into a threaded insert that is cast into concrete.
- (b) Screwed into a pre-drilled hole in timber or alternative sleepers.

1.1 Normative references

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

- AS 1085.7 Railway track material Part 7: Spring washers
- AS 1085.22 Alternative material sleepers
- AS 1199 Sampling procedures and tables for inspection by attributes
- AS 1399 Guide to AS 1199—Sampling procedures and tables for inspection by attributes
- AS 1442 Carbon steels and carbon manganese steels—Hot rolled bars and semifinished products
- AS 1720.1 Timber structures Part 1: Design methods
- AS 3818.2 Timber heavy structural products visually graded Part 2: Railway track timbers
- AS/NZS 4680 Hot-dipped galvanized (zinc) coatings on fabricated ferrous articles
- HB18.28 Guide 28—General rules for a model third-party certification scheme for products

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

1.2 Defined terms and abbreviations

1.2.1

Rail screw

a screw spike with a flange that is used to fasten the foot of the rail (through a sleeper plate) to timber sleepers or alternative material sleepers and is often used as an alternative or replacement for dog spikes or lock spikes.

1.2.2

Screw spike

Screw spikes hold the sleeper plate or rail fastened firmly to the timber, concrete or other support member or structure. Screw spikes are subjected to withdrawal, shear and bending forces due to the passage of rolling stock at speed (including vibration effects), thermal expansion and contraction of the rail and maintenance operations. They are also subject to fatigue and corrosion.

1.2.3

Threaded insert

keys into the concrete and provides the material and shape into which the screw spike is screwed. The threaded inserts are subjected to pull-out and shear forces.