



Railway track material Part 12: Insulated joint assemblies



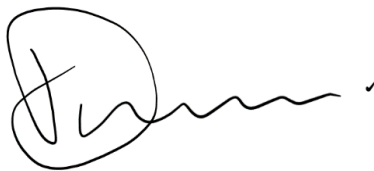
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The Infrastructure Standing Committee verified that RISSB's accredited process was followed in developing the product before the RISSB Board approved the document for publication.

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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AS 1085.12:2023

Railway track material Part 12: Insulated joint assemblies

Document details

First published as: AS 1085.19:1987 Railway track material Part 12: Insulated joint assemblies

ISBN: 978 1 76139 186 6

Document history

Publication Version	Effective Date	Reason for and Extent of Change(s)
2023	13 February 2023	4 th Edition.
2002	14 June 2002	3 rd Edition

Approval

Name	Date
Rail Industry Safety and Standards Board	13 February 2023

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Preface

This Standard was prepared by the Railway track material Part 12: Insulated joint assemblies Development Group, overseen by the RISSB Infrastructure Standing Committee.

Objective

The objective of this Standard is to provide manufacturers, specifiers and purchasers with performance requirements for insulated joints for use in railway track.

Two joint grades are described to separate a joint's performance characteristics from its type of construction so that innovation is not stifled. Grade A would generally be for factory-assembled bonded joints, but if the performance requirements were satisfied, Grade A could include a high-performance field joint. Also, a reduced-performance factory-assembled bonded joint might be classed as Grade B.

This Standard is part of the AS 1085 series.

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.

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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Section 1 Scope and general

1.1 Scope

This Standard provides details on the requirements for the manufacture, supply and testing of insulated joint assemblies (also known as insulated rail joints (IRJ)).

This Standard specifies requirements for two grades of insulated joint assemblies. It covers insulated joints that are assembled in a factory (factory-assembled bonded insulated joints) and joint components supplied as a kit for site assembly in track (field-assembled insulated joints).

NOTES:

- 1 Insulated joint assemblies are not expansion joints.
- 2 Means of demonstrating compliance with this Standard are given in Appendix A.
- 3 Guidance on information to be provided by the purchaser and supplier is given in Section 4

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 1085.1 Railway track material Part 1: Steel rails
- AS 1085.2 Railway track material Part 2: Fishplates
- 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 1816.1 Metallic materials—Brinell hardness test, Test method
- AS 1817.1 Metallic materials—Vickers hardness test, Test method
- AS 2205.5.1 Methods for destructive testing of welds in metal Part 5.1: Macro metallographic tests for cross-section examination
- AS 2205.6.1 Methods for destructive testing of welds in metal Part 6.1: Weld joint hardness test
- AS/NZS 1252.1 High-strength steel fastener assemblies for structural engineering - Bolts, nuts and washers, Technical requirements

NOTE:

Documents for informative purposes are listed in a Bibliography.

1.3 Defined terms and abbreviations

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

1.3.1

cut number

number that is marked on both rails forming a factory-assembled joint

1.3.2

factory-assembled bonded insulated joint

joint manufactured in controlled conditions using rail and joint materials (see Figure 1). The rail may be straight or curved to a nominated radius. A factory-assembled bonded insulated joint is intended to be welded in place in track and may be manufactured to provide a running surface smoother than can be expected from field-assembled insulated joints

1.3.3

field-assembled insulated joint

kit including two joint bars, which may be encapsulated in insulating material, insulating end post to separate the two rails to be joined, high-strength bolts or swage fasteners, other hardware such as ferrules, washers, bushes and glues, information on assembly, and any other materials that may be necessary. A field-assembled insulated joint is intended to be assembled in existing or new track with or without the use of glue (see Figure 1)

1.3.4

insulating ferrules

insulating tubes used to provide insulation of bolts or swage fasteners from the rails

1.3.5

joint bars

plates used to join two sections of rail

1.3.6

rail end

end section of rail cut at right angles to the longitudinal axis or with the vertical plane angled as specified by the purchaser

1.3.7

rail end post

insulating material used to separate the rail ends. It is profiled to the cross-section or angled cut of the relevant rail

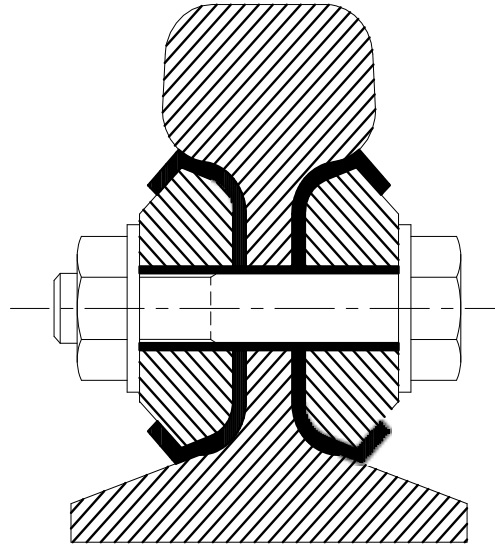
General rail industry terms and definitions are maintained in the RISSB Glossary. Refer to:
<https://www.rissb.com.au/products/glossary/>

Section 2 Purpose and context of use

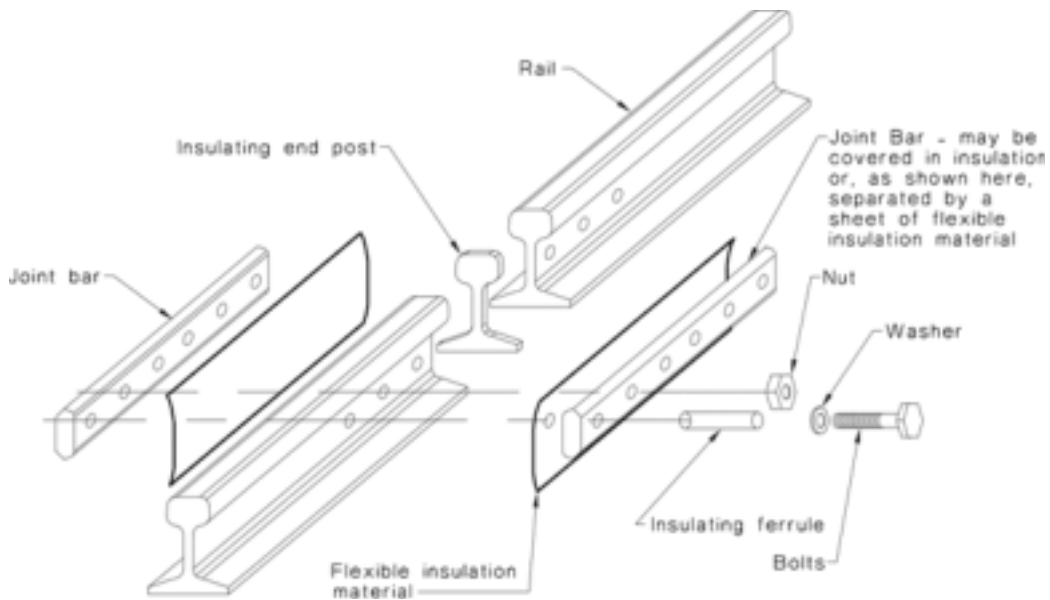
2.1 Function

Insulated joint assemblies join rails together in order to provide electrical isolation for signalling or traction supply purposes between two lengths of rail in a railway track.

Below is a typical field-assembled insulated joint assembly.



a) Cross section



b) Exploded view

Figure 1: Typical insulated joint assembly