

Australian Standard[®]

Railway track material

Part 20: Welding of steel rail



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The following are represented on Committee CE-002:

- Australasian Railway Association
 - Australian Chamber of Commerce and Industry
 - Australian Industry Group
 - Bureau of Steel Manufacturers of Australia
 - Monash University
 - Rail Track Association Australia
 - Railway Technical Society of Australasia
 - The Permanent Way Institute
-

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Part 20: Welding of steel rail

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PREFACE

This Standard was prepared by the Standards Australia Committee CE-002, Railway Track Materials, to supersede AS 1085.20—2006.

The objective of this Standard is to provide owners and maintainers of railway track with specifications for and means of qualification of welding procedures for use with rail steel in railway track.

This Standard does not address the conditions under which the procedures that are described are to be used.

This Standard is not intended to cover welding of worn rails using flash butt or aluminothermic welds. However, the principles and procedures may be adapted for the welding of worn rails.

It is not intended to cover existing welds.

Changes to the 2006 edition include the following:

- (a) Introduction of aluminothermic head repair welding.
- (b) Test methods aligned with current European test methods (where required).
- (c) Revised procedures for non-destructive testing of welds.
- (d) Revised qualification procedures for the fatigue performance of aluminothermic welds.

Any existing welding procedures tested to AS 1085.15—1995 or AS 1085.20—2006 will be accepted as qualified to this Standard and no further testing is required. Any new welding process will need to be tested to the requirements of this Standard.

Statements expressed in mandatory terms in notes to figures are deemed to be requirements of this Standard.

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.

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STANDARDS AUSTRALIA**Australian Standard
Railway track material****Part 20: Welding of steel rail****SECTION 1 SCOPE AND GENERAL****1.1 SCOPE**

This Standard specifies requirements for the qualification of welds in steel rail manufactured in accordance with AS 1085.1 or rails that are shown to be metallurgically equivalent, for use in railway track. The following welding processes are covered:

- (a) Joining of rails by flash butt welding or aluminothermic fusion welding.
- (b) Repair of the railhead by arc welding or aluminothermic fusion welding.

The Standard does not provide strength properties of welds for use in design nor cover the welding of austenitic manganese steels.

NOTES:

- 1 Rail steel is considered to be very difficult to weld for structural purposes. It is not recommended that welded rail be used in applications other than railway track.
- 2 Rail produced to specifications other than AS 1085.1 may require a separate qualification process. Appropriate testing may need to be determined.

1.2 PURPOSE AND CONTEXT OF USE**1.2.1 Function**

Rail welds join lengths of rail or restore some part of the rail in railway track. They connect the rails together maintaining the qualities of the rail across the join. Rail welds may also be used to repair damage to the rail surface.

1.2.2 Action

Rail welds are subject to—

- (a) loads imposed by the passage of rolling stock and during maintenance;
- (b) loads generated by thermal effects on the rail and by ballast movement; and
- (c) fatigue, wear, corrosion and other damage.