

AWS D15.1/D15.1M:2019
An American National Standard

Railroad Welding Specification for Cars and Locomotives



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An American National Standard

Approved by the
American National Standards Institute
March 8, 2019

Railroad Welding Specification

for Cars and Locomotives

6th Edition

Supersedes AWS D15.1/D15.1M:2012

Prepared by the
American Welding Society (AWS) D15 Committee on Railroad Welding

Under the Direction of the
AWS Technical Activities Committee

Approved by the
AWS Board of Directors

Abstract

This specification establishes minimum welding standards for the manufacture and maintenance of railcars, locomotives, and their components, intended for North American railroad service. Clauses 4 through 17 cover the general requirements for welding in the railroad industry. Clauses 18 through 23 cover specific requirements for the welding of base metals thinner than 1/8 in [3 mm].



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Foreword

This foreword is not part of this standard but is included for information purposes only.

This specification establishes minimum welding standards for the manufacture and maintenance of railcars, locomotives, and their components, intended for North American railroad service. It was developed and is maintained by the D15 Committee on Railroad Welding of the American Welding Society.

Welding of railroad components is vital to the industry. An investigating committee was formed in 1982 which recommended a Railroad Welding Committee be formed to establish minimum welding standards for the industry. This recommendation was made because of confusion and incompleteness of the existing welding specifications and guides as applied to the railroad industry needs. The committee is made up of individuals from all segments of the railroad industry: both users and suppliers, the general public, and representatives of the Association of American Railroads.

The purpose of this specification is to provide a single comprehensive document of welding data that will be used throughout the railroad industry. Also, it should contribute to improvements in welding quality and performance.

AWS D15.1-86 was titled simply *Railroad Welding Specification*. For the 1993 revision, the suffix *Cars and Locomotives* was added because the locomotive section had been introduced. A later revision was published in 2001, AWS D15.1:2001. The welding of rail is addressed in AWS D15.2/D15.2M, *Recommended Practice for the Welding of Rails and Related Rail Components for Use by Rail Vehicles*.

Several significant modifications have been made in AWS D15.1/D15.1M:2019. A vertical line in the margin or underlined text in clauses, tables, or figures indicates an editorial or technical change from the 2012 edition. Limitations of essential variables for welding procedure qualification and welder performance qualification have been set up in table format (Tables 10.1 and 11.1, respectively). Friction stir welding has been included in the list of approved welding processes. Additional prequalified joint details for FCAW and GMAW have been added (see Figures 7.1G and 7.2A). Table 17.1 (Weld Crater Limitations) has been added. Clause 18 (Welding of Sheet Metal) has been revised.

Comments and suggestions for the improvement of this standard are welcome. They should be sent to the Secretary of the AWS D15 Committee on Railroad Welding, American Welding Society, 8669 NW 36 St, # 130, Miami, FL 33166.

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