AWS D14.3/D14.3M:2010
An American National Standard

Specification for Welding Earthmoving, Construction, and Agricultural Equipment

American Welding Society

Approved American National Standard
ANSI

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Specification for Welding Earthmoving, Construction, and Agricultural Equipment

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Prepared by the
American Welding Society (AWS) D14 Committee on Machinery and Equipment
Under the Direction of the
AWS Technical Activities Committee

Approved by the
AWS Board of Directors

Abstract

This specification provides standards for producing structural welds used in the manufacture and repair of earthmoving, construction, and agricultural equipment. Such equipment is defined as self-propelled, on- and off-highway machinery and associated implements. Manufacturer's responsibilities are presented as they relate to the welding practices that have been proven successful within the industry in the production of weldments on this equipment. Basic dimensional weld details are defined and interpreted for application throughout the document. Provisions are made to identify base metals used in these weldments. Procedures to ensure that they are welded with compatible, identifiable welding processes and consumables are included with consideration given to factors that affect weldability.

American Welding Society
550 N.W. LeJeune Road, Miami, FL 33126

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American Welding Society
550 N.W. LeJeune Road, Miami, FL 33126

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A. D. Wilson	*ISG Incorporated Lukens Plate*

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Foreword

This foreword is not part of AWS D14.3/D14.3M:2010, *Specification for Welding Earthmoving, Construction, and Agricultural Equipment*, but is included for informational purposes only.

AWS first published the Specification for Welding Earthmoving and Construction Equipment in 1977 to provide a welding specification where none previously existed. By definition, the types of equipment covered by the specification are numerous and varied. Every effort was made to reflect the best welding practices employed by manufacturers within the industry and to incorporate all the various methods which have proven successful by individual manufacturers. This edition builds on these foundations to improve interpretation and effect implementation. Text, tables, and figures have been updated or clarified to reflect more recent developments and promote standardization.

Changes in this 6th edition of D14.3 include the following:

1. Updated requirements in Clause 7 for prequalified procedures using single wire SAW;
2. Updated Clauses 7 and 8 to reference AWS B2.1 as the primary source of requirements for procedure and performance qualifications and removed redundant information from this standard;
3. Clarified the qualification of individuals responsible for performance test evaluations as described in Clause 8;
4. Added some general statements to the Workmanship and Welding Quality Requirements in Clause 9.

Underlined areas in text, tables, or figures indicate changes from the previous edition. A vertical line in the margin next to a figure, equation, or other item indicates a revision of that item from the previous edition.

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Specification for Welding Earthmoving, Construction, and Agricultural Equipment

1. Scope and General Provisions

1.1 Scope

1.1.1 This specification applies to all structural welds used in the manufacture and repair of earthmoving, construction, and agricultural equipment.[1] It reflects the welding practices employed by manufacturers within the industry and incorporates various methods which have been proven successful by individual manufacturers. No restrictions are placed on the use of any welding process or procedure, provided the weld produced meets the qualification requirements of this specification. No attempt is made to limit or restrict the welding technology progression of earthmoving, construction, and/or agricultural equipment manufacturing and repair, nor should any such limitation be inferred. Design criteria for allowable stresses for the base and weld metal and the fatigue analysis for welded joints are not published in the specification. The user shall utilize AWS D14.4, *Specification for Welded Joints in Machinery and Equipment*, or appropriate engineering practices and principles for design criteria.

1.1.2 The Manufacturer's adherence to this specification shall include responsibility for the following:

(1) welding, as defined in 1.1.1, in accordance with this specification;
(2) producing welds as designated on drawings by appropriate symbols and notes, with sufficient detail to show joint preparation compatible with applied processes;
(3) providing and using written welding procedure specifications (WPSs);
(4) ensuring that qualified welders are used to make welds;
(5) recording and maintaining results of all welder performance and procedure qualification tests;
(6) controlling use of designated base metals and consumables;
(7) inspecting the welds to the requirements of this specification;
(8) ensuring a safe welding environment and safe welding practice;
(9) having a quality system in place. The requirements of AWS B5.17, *Specification for the Qualification of Welding Fabricators* may be used as a guide in establishing this quality program. Accreditation of quality systems of welding fabricators may be obtained through the AWS Certified Welding Fabricator (CWF) or equivalent programs.

1.2 Units of Measure. This specification makes use of both the U.S. Customary Units and the International System of Units (SI). The measurements may not be exact equivalents; therefore each system must be used independently of the other without combining in any way. The specification with the designation D14.3 uses U.S. Customary Units. The specification D14.3M uses SI Units. The latter are shown in appropriate columns in tables and figures or within brackets [ ] when used in the text. Detailed dimensions on figures are in inches. A separate tabular form that relates the U.S. Customary Units with SI units may be used in tables and figures.

[1] For purposes of this specification, earthmoving, construction, and agricultural equipment are described as self-propelled, on and off-highway machinery and associated implements. Such products as crawlers, tractors, graders, loaders, off-highway trucks, power shovels, backhoes, mobile cranes, draglines, and similar equipment are considered to be included in this specification.