

AWS A3.0M/A3.0:2020
An American National Standard

Standard Welding Terms and Definitions

**Including Terms for Adhesive
Bonding, Brazing, Soldering,
Thermal Cutting, and
Thermal Spraying**



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Approved by
American National Standards Institute
October 22, 2019

Standard Welding Terms and Definitions

**Including Terms for Adhesive Bonding, Brazing,
Soldering, Thermal Cutting, and Thermal Spraying**

13th Edition

Supersedes AWS A3.0M/A3.0:2010

Prepared by the
American Welding Society (AWS) A2 Committee on Definitions and Symbols

Under the Direction of the
AWS Technical Activities Committee

Approved by the
AWS Board of Directors

Abstract

This standard is a glossary of the technical terms used in the welding industry. Its purpose is to establish standard terms to aid in the communication of information related to welding and allied processes. Since it is intended to be a comprehensive compilation of welding terminology, nonstandard terms used in the welding industry are also included. All terms are either standard or nonstandard. They are arranged in word-by-word alphabetical sequence.



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Foreword

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

The A2 Committee on Definitions and Symbols was formed by the American Welding Society to establish standard terms and definitions to aid in the communication of welding information. This publication is the major product of work done by the Subcommittee on Definitions in support of that purpose.

The evolution of AWS A3.0M/A3.0, *Standard Welding Terms and Definitions Including Terms for Adhesive Bonding, Brazing, Soldering, Thermal Cutting, and Thermal Spraying*, is shown below:

January 18, 1940	<i>Tentative Definitions of Welding Terms and Master Chart of Welding Processes;</i>
May 7, 1942	<i>Definitions of Welding Terms and Master Chart of Welding Processes;</i>
A3.0-49	<i>Standard Welding Terms and Their Definitions;</i>
A3.0-61	<i>AWS Definitions, Welding and Cutting;</i>
A3.0-69	<i>Terms and Definitions;</i>
A3.0-76	<i>Welding Terms and Definitions Including Terms for Brazing, Soldering, Thermal Spraying, and Thermal Cutting;</i>
A3.0-80	<i>Welding Terms and Definitions Including Terms for Brazing, Soldering, Thermal Spraying, and Thermal Cutting;</i>
ANSI/AWS A3.0-85	<i>Standard Welding Terms and Definitions Including Terms for Brazing, Soldering, Thermal Spraying, and Thermal Cutting;</i>
ANSI/AWS A3.0-89	<i>Standard Welding Terms and Definitions Including Terms for Brazing, Soldering, Thermal Spraying, and Thermal Cutting;</i>
ANSI/AWS A3.0-94	<i>Standard Welding Terms and Definitions Including Terms for Brazing, Soldering, Thermal Spraying, and Thermal Cutting;</i>
AWS A3.0:2001	<i>Standard Welding Terms and Definitions Including Terms for Adhesive Bonding, Brazing, Soldering, Thermal Spraying, and Thermal Cutting; and</i>
AWS A3.0M/A3.0:2010	<i>Standard Welding Terms and Definitions Including Terms for Adhesive Bonding, Brazing, Soldering, Thermal Spraying, and Thermal Cutting.</i>
AWS A3.0M/A3.0:2020	<i>Standard Welding Terms and Definitions Including Terms for Adhesive Bonding, Brazing, Soldering, Thermal Spraying, and Thermal Cutting.</i>

The present publication, A3.0M/A3.0:2020, *Standard Welding Terms and Definitions Including Terms for Adhesive Bonding, Brazing, Soldering, Thermal Cutting, and Thermal Spraying*, defines over 1500 terms, with numerous illustrations to support and clarify the definitions, as well as classification charts and corollary information related to welding and allied processes. This latest revision includes significant enhancements to:

- Friction stir welding
- Plastics welding
- Qualification
- Resistance welding
- Soldering
- Underwater welding
- Master Chart of Processes

New terms have been introduced including additive manufacturing, reentrant angle, and waveform-controlled welding. Joints have been redefined in terms of butting and nonbutting workpieces resulting in the revision of edge joint to the new

term parallel joint. Depth of bevel and depth of groove were simplified to bevel depth and groove depth. Nondestructive examination and its synonyms have been modified. The Master Chart of Processes has been revised to classify the latest process developments and enhancements.

Revisions to the 2020 edition are identified by underlines as well as vertical lines in the margin next to the text (see Clause 1, General Requirements).

Figures in this edition are identified in Annex B and are not intended to represent all possible conceptual variations; they are examples only and are not intended to illustrate acceptable or rejectable conditions.

It must be understood that the Definitions Subcommittee cannot be the ultimate judge in terms of the preferability, acceptability, or correctness of any term for a specific situation. Such determinations are left to the discretion and opinion of the welding terminology user. There is one exception: when the use of a nonstandard term may endanger personal safety, that term is defined as both nonstandard and incorrect. The Definitions Subcommittee has neither the authority nor the desire to dictate welding terminology but considers it within its province to establish standard terms and nonstandard terms.

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1. General Requirements

1.1 Scope

The purpose of this document is to establish standard terms and definitions to aid in the communication of information related to welding, adhesive bonding, brazing, soldering, thermal cutting, and thermal spraying. The standard terms and definitions published in this document should be used in the oral and written language associated with these related processes.

Whenever A3.0 is mentioned in this document, it refers to the latest edition, A3.0M/A3.0:2020.

When terms from A3.0 are included in the glossary of other documents, it is intended that the definitions be identical to those in A3.0, except that the references may be changed if appropriate.

It is one of the goals of the Definitions Subcommittee that A3.0 encompass all terms, not adequately defined in the dictionary, directly related to welding or allied fields. Both standard and nonstandard jargon, as well as dialect and vernacular terms, are accepted for inclusion in A3.0. Nonstandard terms are primarily included to direct the user to preferred standard terms.

As this document is a comprehensive compilation of terminology, nonstandard terms are included with cross-references to the corresponding standard terms. **Boldface** type indicates standard terms, lightface type indicates nonstandard terms. Terms for standard welding processes and for standard welding process variations are followed by their standard letter designations.

For the user's convenience, all new text is underlined. Additionally, a single vertical line in the margin next to a term denotes a minor change to an existing definition. A double line denotes a new term or a major change. Terms for standard processes and standard process variations are followed by their standard letter designation. All terms are arranged in word-by-word alphabetical sequence.

The principles applied by the Definitions Subcommittee for the creation of terms and definitions in A3.0 are described in Annex C.

1.2 Units of Measurement

This standard makes use of both the International System of Units (SI) and U.S. Customary Units. The latter are shown within brackets ([]) or in appropriate columns in tables and figures. The measurements may not be exact equivalents; therefore, each system must be used independently.

1.3 Safety

Safety and health issues and concerns are beyond the scope of this standard, and therefore are not fully addressed herein.

Safety and health information is available from the following sources: