



**ANSI/AWS A2.4-98**  
**An American National Standard**



# **Standard Symbols for Welding, Brazing, and Nondestructive Examination**



**American Welding Society**

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examination symbols

**ANSI/AWS A2.4-98**  
**An American National Standard**

**Approved by**  
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# **Standard Symbols for Welding, Brazing, and Nondestructive Examination**

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Prepared by  
AWS Committee on Definitions and Symbols

Under the Direction of  
AWS Technical Activities Committee

Approved by  
AWS Board of Directors

## **Abstract**

This standard establishes a method of specifying certain welding, brazing, and nondestructive examination information by means of symbols. Detailed information and examples are provided for the construction and interpretation of these symbols. This system provides a means of specifying welding or brazing operations and nondestructive examination, as well as the examination method, frequency, and extent.



**American Welding Society**

550 N.W. LeJeune Road, Miami, Florida 33126

# Foreword

(This Foreword is not a part of ANSI/AWS A2.4-98, *Standard Symbols for Welding, Brazing, and Nondestructive Examination*, but is included for information purposes only).

Welding cannot take its proper place as a fabricating tool unless means are provided for conveying the information from the designer to the welding personnel. Statements such as “to be welded throughout” or “to be completely welded,” in effect, transfer the design responsibility from the designer to the welder, who cannot be expected to know design requirements.

These symbols provide the means for placing welding, brazing, and examination information on drawings. The system for symbolic representation of welds on engineering drawings used in this standard is consistent with the “third angle” method of projection. This is the method predominately used in the United States. In practice, many companies will need only a few of the symbols and, if they desire, can select only the parts of the system that fit their needs.

In the past, the use of the words, “far side” and “near side” in the interpretation of welding symbols has led to confusion because when joints are shown in section, all welds are equally distant from the reader and the words “near” and “far” are meaningless. In the present system, the joint is the basis of reference. Any welded joint indicated by a symbol will always have an “arrow side” and an “other side.” Accordingly, the terms *arrow side*, *other side*, and *both sides* are used herein to locate the weld with respect to the joint.

The tail of the symbol is used for designating the welding and cutting processes, as well as the welding specifications, procedures, or the supplementary information to be used in making the weld. When only the size and type of weld are specified, the information necessary for making that weld is limited. The process, identification of filler metal that is to be used, whether peening, root gouging, or other operations are required, and other pertinent data, should be known. The notation to be placed in the tail of the symbol indicating these data will usually be established by each user.

Symbols in this publication are intended to be used to facilitate communications among designer, shop, and fabrication personnel. The usual limitations included in specifications and codes are beyond the scope of this standard.

**Illustrations included with the text are intended to show how correct applications of symbols may be used to convey welding or examination information and are not intended to represent recommended welding or design practice.**

Part B, Brazing Symbols, uses the same symbols for brazing that are used for welding.

Part C, Nondestructive Examination Symbols, establishes symbols to be used on drawings to specify nondestructive examination for determining the soundness of materials. The nondestructive examination symbols included in the standard represent nondestructive examination methods as discussed in the latest edition of AWS publication B1.10, *Guide for the Nondestructive Inspection of Welds*. Definitions and details for use of the various nondestructive examination methods are found in AWS B1.10.

AWS A2.4 came into existence in 1976 as the result of combining and superseding two earlier documents A2.0, *Standard Welding Symbols*, and A2.2, *Nondestructive Testing Symbols*. Both of the earlier documents had their origins in work done jointly by the American Welding Society and ASA Sectional Committee Y32. A2.0 was first published in 1947 and revised in 1958 and 1968; A2.2 first appeared in 1958 and was revised in 1969.

AWS A2.4-76, *Symbols for Welding and Nondestructive Testing*, was the first version of the combined documents and was prepared by the AWS Committee on Definitions and Symbols. It was revised in 1979 as A2.4-79, *Symbols for Welding and Nondestructive Testing, Including Brazing* and revised again in 1986 with the title, *Standard Symbols for Welding, Brazing, and Nondestructive Examination*. ANSI/AWS A2.4-98 is the second revision of the 1986 document and has the same title.

Official interpretations of any of the technical requirements of this standard may be obtained by sending a request, in writing, to the Managing Director, Technical Services, American Welding Society. A formal reply will be issued after it has been reviewed by the appropriate personnel following established procedures. Users of this standard are invited to suggest additional symbols or revisions for consideration by the committee. These suggestions should be addressed to the Secretary, Committee on Definitions and Symbols, American Welding Society, 550 N.W. LeJeune Road, Miami, Florida 33126.

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# Standard Symbols for Welding, Brazing, and Nondestructive Examination

## *Part A* *Welding Symbols*

### **1. Basic Symbols**

**1.1 Distinction Between Weld Symbol and Welding Symbol.** This standard makes a distinction between the terms *weld symbol* and *welding symbol*. The weld symbol indicates the type of weld and, when used, is a part of the welding symbol.

**1.2 Weld Symbols.** Weld symbols shall be as shown in Figure 1. The symbols shall be drawn “on” the reference line (for illustrative purposes shown dashed).

**1.3 Welding Symbols.** The welding symbol consists of several elements (see Figure 2). Only the reference line and arrow are required elements. Additional elements may be included to convey specific welding information. Alternatively, welding information may be conveyed by other means such as by drawing notes or details, specifications, standards, codes, or other drawings which eliminates the need to include the corresponding elements in the welding symbol. All elements, when used, shall have specific locations within the

welding symbol as shown in Figure 2. Mandatory requirements regarding each element in a welding symbol refer to the location of the element and should not be interpreted as a necessity to include the element in every welding symbol.

**1.4 Supplementary Symbols.** Supplementary symbols to be used in connection with welding symbols shall be as shown in Figure 3.

**1.5 Placement of Welding Symbol.** The arrow of the welding symbol shall point to a line on the drawing which conclusively identifies the proposed joint. It is recommended that the arrow point to a solid line (object line, visible line); however, the arrow may point to a dashed line (invisible, hidden line).

**1.6 Illustrations.** Examples given, including dimensions, are illustrative only and are intended to demonstrate the proper application of principles. They are not intended to represent design practices, or to replace code or specification requirements.