

ANSI/AWS C6.1-89 (R2009)
An American National Standard

Recommended Practices for Friction Welding



American Welding Society



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Key Words—Friction welding, direct drive friction welding, flywheel friction welding, friction forging, inertia friction welding, solid state bonding, spin welding

**ANSI/AWS C6.1-89 (R2009)
An American National Standard**

**Approved by the
American National Standards Institute
March 17, 1989**

Recommended Practices for Friction Welding

1st Edition

Prepared by the
American Welding Society (AWS) C6 Committee on Friction Welding

Under the Direction of the
AWS Technical Activities Committee

Approved by the
AWS Board of Directors

Abstract

This recommended practice describes friction welding fundamentals and basic equipment requirements. Suggested procedure qualification, inspection methods, and joint designs are detailed. Typical mechanical property data are referenced.



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International Standard Book Number: 0-87171-309-8
American Welding Society
550 N.W. LeJeune Road, Miami, FL 33126
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Printed in the United States of America
Reaffirmed: November 9, 1998 and February 24, 2009

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Dedication

J. O. Bodine

This Recommended Practice is dedicated posthumously to Mr. J. O. Bodine, who, during his technical career, has made a significant contribution to the understanding and use of the friction welding process in production.

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Foreword

This foreword is not part of ANSI/AWS C6.1-89 (R2009), *Recommended Practices for Friction Welding*, but is included for informational purposes only.

The Committee on Friction Welding was formed in 1977 with representatives from governmental agencies, industry, and research organizations. The initial objective of the committee was the exchange of friction welding technical information. As the process gained wider acceptance, it became increasingly apparent that there was a growing need for a set of guidelines to the variations and application of the process.

This recommended practice represents the culmination of committee activity to assemble a summary of friction welding technology into a single source.

This document is intended to serve as a guide for use of the process. Specific applications may require the consideration of other factors outside the scope of this document.

This document has been reaffirmed in 2009 and includes errata. A vertical line in the margin indicates a revision from the 1989 edition.

Comments and suggestions for the improvement of this standard are welcome. They should be sent to the Secretary, Committee on Friction Welding, American Welding Society, 550 N.W. LeJeune Road, Miami, FL 33126.

Erratum

The following Erratum has been identified and incorporated into the current reprint of this document.

Page 14, equation in 6.2 was changed from

$$\text{Weld Area} = \frac{\pi (\text{WOD})^2 - (\text{WID})^2}{4} \quad \text{to} \quad \text{Weld Area} = \frac{\pi (\text{WOD}^2 - \text{WID}^2)}{4} .$$

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