

Specification for Standardized Ultrasonic Welding Test Specimen for Thermoplastics



American Welding Society



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AWS G1.2M/G1.2:1999 (R2010)
An American National Standard

Approved by the
American National Standards Institute
August 31, 1999
Reaffirmed: November 20, 2009

Specification for Standardized Ultrasonic Welding Test Specimen for Thermoplastics

1st Edition

Prepared by the
American Welding Society (AWS) G1 Committee on Joining of Plastics and Composites

Under the Direction of the
AWS Technical Activities Committee

Approved by the
AWS Board of Directors

Abstract

This specification outlines the requirements for the ultrasonic welding test sample for thermoplastics and its welding and testing. In order to minimize variations, the geometry for the standard test sample is defined in detailed figures including tolerances on critical dimensions that may affect its weldability.

This specification can be used for but not be limited to the following investigations:

Thermoplastic Ultrasonic Weldability Studies;
Thermoplastic Ultrasonic Welding Optimizations; and
Scientific Studies on the Ultrasonic Welding of Thermoplastics.

Data collection of welding variables is divided into three levels. Level three data recording requires the highest precision of data collection and, consequently, is the most time intensive. Level two data recording requires moderate data collection for more practical investigations. Level one data recording is the least stringent. These three levels are included in order to recognize the varying levels of precision required within the plastic welding community.



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International Standard Book Number: 0-87171-585-6
American Welding Society
550 N.W. LeJeune Road, Miami, FL 33126
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Printed in the United States of America
Reaffirmed: November 20, 2009

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Foreword

This foreword is not part of AWS G1.2M/G1.2:1999 (R2010), *Specification for Standardized Ultrasonic Welding Test Specimen for Thermoplastics*, but is included for informational purposes only.

This specification, dealing with ultrasonic welding, was developed by the American Welding Society (AWS) G1 Committee on Joining of Plastics and Composites in response to a plastics industry demand for a reference document. This document provides a uniform procedure and sample profile to be used in rating the relative weldability of thermoplastic and composite materials. This specification was first published in 1999, and subsequently reaffirmed in 2010.

The AWS Committee on Joining Plastics and Composites was formed in 1989 by industry and academic experts interested in providing process information and test standards for rating the weldability of plastic and composite materials. A supplemental publication, AWS G1.1, Guide to the Ultrasonic Welding of Thermoplastics, is pending. AWS G1.1 provides more general information regarding the ultrasonic welding process, equipment, troubleshooting, and generic discussion on thermoplastic materials. Documents covering vibrational welding and the qualification of hot gas and extrusion welding personnel are planned for the future.

As new applications are developed and more experience is gathered, it is anticipated that changes in this standard will be required. Comments and suggestions for the improvement of this standard are welcome. They should be sent to the Secretary, AWS G1 Committee on Joining of Plastics and Composites, American Welding Society, 550 N.W. LeJeune Road, Miami, FL 33126.

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Table of Contents

	Page No.
<i>Personnel (Reaffirmation)</i>	v
<i>Personnel (Original)</i>	vii
<i>Foreword</i>	ix
<i>List of Tables</i>	xii
<i>List of Figures</i>	xii
1. Scope	1
2. Referenced Documents	1
3. Definitions	1
4. Safety	2
5. Geometry of the Standard Sample and Preparation	2
5.1 Geometry Types	2
5.2 Mold Design	2
5.3 Molded Sample Specification	3
5.4 Energy Director Butt Joint	3
5.5 Double Shear Joint	3
5.6 Reference Sample	3
6. Welding	3
6.1 Horns	3
6.2 Fixture	4
6.3 Welding Parameters	4
7. Data Recording	4
7.1 Level 1 Data Recording	8
7.2 Level 2 Data Recording	8
7.3 Level 3 Data Recording	9
8. Testing Procedures	13
8.1 Data Recording	13
8.2 Data Reporting	13
8.3 Nominal Stress Calculation	14
Annex A (Informative)—Sample Tracking—Molding and Welding Sheet	17
Annex B (Informative)—Sample Ultrasonic Welding with Energy Director Butt Joint Data Sheet	19
Annex C (Informative)—Sample Ultrasonic Welding with Double Shear Joint Data Sheet	21
Annex D (Informative)—Guidelines for the Preparation of Technical Inquiries	23