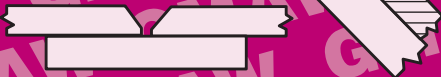




**TYPICAL JOINT
GEOMETRIES
FOR ARC WELDING
OF ALUMINUM**



The Everyday Pocket Handbook for Gas Metal Arc Welding (GMAW) of Aluminum



Number 8 in a series

Compiled as a useful tool for
on-the-job welding personnel by the
AWS Product Development Committee

Edited by
Lee G. Kvidahl
Ingalls Shipbuilding

© 1998 by American Welding Society. All rights reserved
Printed in the United States of America

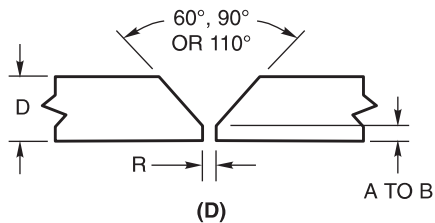
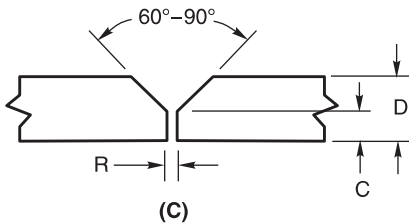
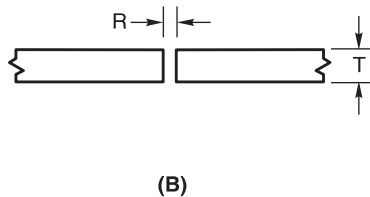
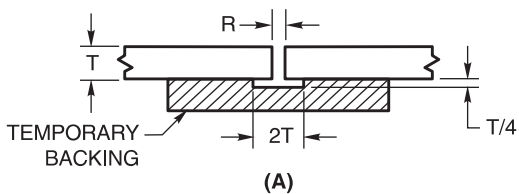


American Welding Society

NOTE: Although care was taken in choosing and presenting the data in this guide, AWS cannot guarantee that it is error free. Further, this guide is not intended to be an exhaustive treatment of the topic and therefore may not include all available information, including with respect to safety and health issues. By publishing this guide, AWS does not insure anyone using the information it contains against any liability or injury to property or persons arising from that use.

Table of Contents

Basic Safety Precautions	4	Joint Geometry Types	21
Typical Joint Geometries for Arc Welding of Aluminum.....	6	Typical Procedures for Gas Metal Arc Welding of Fillet Welds in Aluminum Alloys with Large Diameter Electrodes and Argon Shielding.....	22
Designations for Wrought Alloy Groups	9	Aluminum Welding Wire.....	23
Chemical Composition of Wrought Aluminum Filler Metals.....	10	Preparation of Aluminum for Welding	24
Typical Aluminum Filler Metal Properties (As-Welded Condition).....	11	Storage of Base Metal.....	24
Guide to the Selection of Filler Metal for General Purpose Welding	12	Storage of Consumables	24
Influence of Shielding Gas on Weld Profile.....	15	Plate Edge Preparation.....	24
Typical Procedures for Gas Metal Arc Welding of Groove Welds in Aluminum Alloys with Argon Shielding.....	16	Cleaning Prior to Welding	24
Typical Procedures for Gas Metal Arc Welding of Fillet Welds in Aluminum Alloys with Argon Shielding.....	18	Oxide Removal with Wire Brushing.....	25
Typical Procedures for Flat Position Gas Metal Arc Welding Groove Welds in Aluminum Alloys with Large Diameter Electrodes.....	19	Shielding Gas Purity	25
		Tips to Make the Aluminum Welding Job Easier	26
		Troubleshooting	27
		Basic Welding Symbols and Their Location Significance	28
		Location of Elements of a Welding Symbol	30
		Other Publications Available from AWS.....	31



Note: $A = 1/16$ in. (1.6 mm), $B = 3/32$ in. (2.4 mm), $C = 3/16$ in. (4.8 mm), $D = 3/8$ in. (9.5 mm), R = root opening, T = thickness.

Typical Joint Geometries for Arc Welding of Aluminum (Not to Scale)