



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **MEM05047B Weld using flux core arc welding process**

**Release: 1**

## MEM05047B Weld using flux core arc welding process

### Modification History

Not Applicable

### Unit Descriptor

<b>Unit descriptor</b>	This unit covers preparing materials, selecting and setting up the welding equipment, carrying out flux core arc welding (FCAW) and inspecting for and correcting defects.
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### Application of the Unit

<b>Application of the unit</b>	<p>Welds are associated with heavy or light fabrication. Fillet and butt welds in all positions would typically be performed on a range of materials that may include carbon steel or stainless steel etc.</p> <p>Welding procedures and the skills are applied to a range of fabrication activities.</p> <p>As a guide, welds produced to the standard of this unit would typically conform to Australian Standard 1554 General Purpose, American Bureau of Shipping (ABS) or equivalent.</p> <p>Where thermal processes, hand and/or power tools are required, the appropriate specialisation units should be accessed.</p> <p><b>Band: A</b></p> <p><b>Unit Weight: 4</b></p>
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### Licensing/Regulatory Information

Not Applicable

## Pre-Requisites

Prerequisite units		
<b>Path 1</b>	MEM05050B	Perform routine gas metal arc welding
	MEM05051A	Select welding processes
	MEM05052A	Apply safe welding practices
	MEM12023A	Perform engineering measurements
	MEM18001C	Use hand tools
	MEM18002B	Use power tools/hand held operations

## Employability Skills Information

Employability skills	
	This unit contains employability skills.

## Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.
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## Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Prepare materials for flux core arc welding	1.1. Weld requirements are identified from specifications and/or drawings. 1.2. Materials are correctly prepared. 1.3. Materials are assembled/aligned to specification where required.
2. Select welding machine components	2.1. Welding machine settings accessories and consumables are identified.
3. Assemble and set up welding equipment	3.1. Welding equipment is assembled and set up.
4. Minimise and rectify distortion	4.1. Appropriate distortion prevention measures are selected. 4.2. Distortion is rectified.
5. Weld to job specification using FCAW	5.1. Weld deposit is to specification. 5.2. Joints are cleaned to specifications.
6. Ensure weld conformance	6.1. Defects are removed with minimum loss of sound metal using correct and appropriate techniques and tools. 6.2. Weld joints are visually inspected for conformance to specifications.
7. Maintain weld records	7.1. Weld records are completed correctly.

## Required Skills and Knowledge

### REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

#### Required skills

Look for evidence that confirms skills in:

- identifying and interpreting appropriate standard e.g. Australian Standard 1554 General Purpose, American Bureau of Shipping (ABS) or equivalent
- depositing welds in accordance with appropriate standards
- following specifications and drawings
- using appropriate tools and techniques to prepare material for welding

**REQUIRED SKILLS AND KNOWLEDGE**

- undertaking distortion prevention and rectification
- cleaning the welded joint using appropriate tools and techniques
- removing weld defects to achieve a minimum amount of sound metal with the defect.
- reading and interpreting information on written job instructions, specifications, standard operating procedures and drawings
- recording routine information related to FCAW onto proformas and standard workplace forms
- following oral instructions
- using measurement skills relating to joint preparation and FCAW

**Required knowledge**

Look for evidence that confirms knowledge of:

- types of gases and their uses
- the relationships between amperage/wire feed, voltage, gas flow, electrode, contact tip and material
- material preparation
- polarity
- electrode stickout
- joint preparations
- electrode classification
- causes of distortion for materials within the scope of this unit
- safe welding practices
- use and application of personal protective equipment for FCAW
- hazards and control measures associated with welding, including housekeeping

## Evidence Guide

<b>EVIDENCE GUIDE</b>	
<p>The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.</p>	
<p><b>Overview of assessment</b></p>	<p>A person who demonstrates competency in this unit must be able to prepare materials, select and set up the welding equipment, carry out FCAW welding and inspect for and correcting defects. Competency in this unit cannot be claimed until all prerequisites have been satisfied.</p>
<p><b>Critical aspects for assessment and evidence required to demonstrate competency in this unit</b></p>	<p>Assessors must be satisfied that the candidate can competently and consistently perform all elements of the unit as specified by the criteria, including required knowledge, and be capable of applying the competency in new and different situations and contexts.</p>
<p><b>Context of and specific resources for assessment</b></p>	<p>This unit may be assessed on the job, off the job or a combination of both on and off the job. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by an individual working alone or as part of a team. The assessment environment should not disadvantage the candidate.</p> <p>This unit could be assessed in conjunction with any other units addressing the safety, quality, communication, materials handling, recording and reporting associated with welding using flux core arc welding process (FCAW) or other units requiring the exercise of the skills and knowledge covered by this unit.</p>
<p><b>Method of assessment</b></p>	<p>Assessors should gather a range of evidence that is valid, sufficient, current and authentic. Evidence can be gathered through a variety of ways including direct observation, supervisor's reports, project work, samples and questioning. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.</p>

**EVIDENCE GUIDE**

<b>Guidance information for assessment</b>	
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**Range Statement****RANGE STATEMENT**

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

<b>Materials</b>	Carbon steel or stainless steel
<b>Prepared</b>	Preheating, setting up of jigs, fixtures, clamps, etc.
<b>Consumables</b>	Gas or gasless wire, a range of gases
<b>Equipment</b>	Semi-automatic machines
<b>Distortion prevention</b>	Measures include preheating, setting up of jigs, fixtures, clamps, etc.
<b>Rectified</b>	Using oxy acetylene air arc equipment and grinding devices

**Unit Sector(s)**

<b>Unit sector</b>	
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**Co-requisite units**

<b>Co-requisite units</b>	
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<b>Co-requisite units</b>		

## Competency field

<b>Competency field</b>	Fabrication
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