



Australian Government

MEM05047 Weld using flux core arc welding process

Release: 1

MEM05047 Weld using flux core arc welding process

Modification History

Release 1. Supersedes and is equivalent to MEM05047B Weld using flux core arc welding process

Application

This unit of competency defines the skills and knowledge required to perform flux core arc welding (FCAW) on heavy or light metal fabrications.

Weld quality would conform to AS 1554 General Purpose and American Bureau of Shipping (ABS) or equivalent.

Where the interpretation of technical drawings is required unit MEM09002 Interpret technical drawing should also be selected.

Where thermal processes, hand and/or power tools are required the appropriate specialisation units should also be selected.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Band: A

Unit Weight: 4

Pre-requisite Unit

MEM05051	Select welding processes
MEM05052	Apply safe welding practices
MEM05056	Perform routine flux core arc welding
MEM11011	Undertake manual handling
MEM12023	Perform engineering measurements
MEM12024	Perform computations
MEM13015	Work safely and effectively in manufacturing and engineering
MEM14006	Plan work activities
MEM16006	Organise and communicate information
MEM18001	Use hand tools

MEM18002 Use power tools/hand held operations

Competency Field

Fabrication

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

- | | | | |
|---|--|-----|---|
| 1 | Determine job requirements | 1.1 | Follow standard operating procedures (SOPs) |
| | | 1.2 | Comply with work health and safety (WHS) requirements at all times |
| | | 1.3 | Use appropriate personal protective equipment (PPE) in accordance with SOPs |
| | | 1.4 | Identify job requirements from specifications, sketches, job sheets or work instructions |
| 2 | Prepare materials for FCAW | 2.1 | Prepare materials to achieve the required weld requirements |
| | | 2.2 | Assemble/align materials to specification, where required |
| 3 | Select, assemble and set up welding equipment and consumables | 3.1 | Identify and select welding machine settings, accessories and consumables appropriate to the material |
| | | 3.2 | Assemble and set up semi-automatic machines |
| 4 | Minimise and rectify distortion | 4.1 | Apply appropriate distortion prevention measures |
| | | 4.2 | Rectify any distortion using appropriate techniques |

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

5	Weld to job specification using FCAW	5.1	Ensure weld deposit is to specification
		5.2	Clean joints to specifications
6	Ensure weld conformance	6.1	Inspect weld joints visually for conformance to specifications
		6.2	Rectify any weld defects with minimum loss of sound metal using correct techniques and tools
		6.3	Maintain weld records according to SOPs

Foundation Skills

This section describes those required skills (reading, writing, oral communication and numeracy) that are essential to workplace performance in this unit of competency.

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Welds include the following:

- fillet and butt welds carried out in all positions

Materials include one (1) or more of the following:

- carbon steel
- stainless steel

Preparation includes one (1) or more of the following:

- pre-heating
- setting up of jigs
- fixtures and clamps

Consumables include one (1) or more of the

- gas or gasless wire
- a range of gases

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following:

Distortion prevention measures include one (1) or more of the following:

- pre-heating
- setting up of jigs
- fixtures and clamps

Rectify includes the use of one (1) or more of the following:

- oxy acetylene
- air arc equipment
- grinding devices

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM05047B Weld using flux core arc welding process

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>

Assessment Requirements for MEM05047 Weld using flux core arc welding process

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria on at least two (2) occasions and include:

- following work instructions, standard operating procedures (SOPs) and safe work practices
- identifying and interpreting specifications from sketches and verbal or written job instructions for welding using flux core arc welding process (FCAW) to the specified standard
- selecting appropriate weld and joint preparation methods
- consistently weld materials to the specified standard or equivalent using semi-automatic machines and consumables while preventing distortion
- rectifying any defects
- completing weld records related to FCAW onto standard workplace forms.

Knowledge Evidence

Evidence required to demonstrate the required knowledge for this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include knowledge of:

- safe welding practices and procedures and use of personal protective equipment (PPE)
- types of gases and their uses
- 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 when welded
- causes of weld defects and methods of rectification
- standards for FCAW, including AS 1554 General Purpose and any other equivalent standards.

Assessment Conditions

- Assessors must:
 - have vocational competency in welding using flux core arc welding process at least to the level being assessed with relevant industry knowledge and experience
 - satisfy the assessor requirements in the *Standards for Registered Training Organisations 2015* or its replacement and comply with the *National Vocational Education and Training Regulator Act 2011*, its replacement or equivalent legislation covering VET regulation in a non-referring state/territory as the case requires
- Where possible assessment must occur in operational workplace situations. Where this is not possible or where personal safety or environmental damage are limiting factors, assessment must occur in a sufficiently rigorous simulated environment that reflects realistic operational workplace conditions. This must cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills
- Conditions for assessment must include access to all tools, equipment, materials and documentation required, including relevant workplace procedures, product and manufacturing specifications
- Assessment processes and techniques must be appropriate to the language, literacy and numeracy requirements of the work being performed and the needs of the candidate.

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