



Australian Government

MEM05026 Apply welding principles

Release: 2

MEM05026 Apply welding principles

Modification History

Release 2. Quantum of hours of workplace practice removed. Supersedes and is equivalent to MEM05026 Apply welding principles (Release 1).

Release 1. Supersedes and is equivalent to MEM05026C Apply welding principles.

Application

This unit of competency has been developed for post-trade training of advanced engineering tradespeople and the recognition of post-trade skills in applying welding principles to meet the statutory and regulatory requirements for welding procedures generally associated with the application of one of the units satisfying AS 1796-2001 (R2016) *Certification of welders and welding supervisors*, Certificates 1-9.

This unit covers the underpinning knowledge required to satisfy AS 1796-2001 (R2016) *Certification of welders and welding supervisors* and includes knowledge of welding terms, codes and symbols, the effects of heat treatment on metal as it relates to welding, and the logical sequence for a welding process required to be conducted to AS 1796-2001 (R2016) *Certification of welders and welding supervisors*. It covers welding, planning and set up principles for a range of materials and processes.

This unit must be assessed in combination with one of the units satisfying the AS 1796-2001 (R2016) *Certification of welders and welding supervisors*, Certificates 1-9. These units include:

- MEM05042 Perform welds to code standards using flux core arc welding process
- MEM05043 Perform welds to code standards using gas metal arc welding process
- MEM05044 Perform welds to code standards using gas tungsten arc welding process
- MEM05045 Perform pipe welds to code standards using manual metal arc welding process
- MEM05046 Perform welds to code standards using manual metal arc welding process
- MEM05058 Perform welds to code standards using oxy fuel gas welding process.

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

Band: B

Unit Weight: 4

Pre-requisite Unit

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

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, drawings, job sheets or work instructions
		1.5	Interpret welding terms and symbols correctly
2	Determine the effects of heat treatment on metal in relation to welding	2.1	Identify reasons for performing heat treatment
		2.2	Apply processes, including pre-heat/post-heat treatment, stress relieving, normalising and annealing, where appropriate
3	Plan the logical sequence of welding operations	3.1	Apply statutory and safety requirements to welding
		3.2	Apply principles of planning and setting up welding
		3.3	Prepare welds for testing, where specified

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.

Statutory and safety requirements include:

- as required by AS 1796-2001 (R2016) Certification of welders and welding supervisors, welding codes

Welding is to AS 1796-2001 (R2016) Certification of welders and welding supervisors and includes one (1) or more of the following:

- flux core arc welding (FCAW)
- gas metal arc welding (GMAW)
- gas tungsten arc welding (GTAW)
- manual metal arc welding (MMAW)
- oxy fuel gas welding

Unit Mapping Information

Release 2. Supersedes and is equivalent to MEM05026 Apply welding principles (Release 1).

Release 1. Supersedes and is equivalent to MEM05026C Apply welding principles.

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 MEM05026 Apply welding principles

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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
- interpreting and applying statutory and safety requirements, including welding terms, codes and symbols as required by AS 1796-2001 (R2016) *Certification of welders and welding supervisors*, and welding codes for welding processes
- applying appropriate pre- and post-heat treatment processes for a range of welded materials
- setting up weld sequence and preparing materials in a logical manner for welding job.

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)
- welding terminology, including codes and symbols
- heat treatment processes and the effect of heat treatment on metal
- logical sequence for welding processes
- tools, equipment and techniques used in welding.

Assessment Conditions

- Assessors must:
 - have vocational competency in applying welding principles 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.

- Assessment must occur in a functioning workplace. Where assessment in the workplace would be unsafe, impractical or threatens the environment, assessment must occur in a sufficiently rigorous simulated environment that reflects the circumstances that would be experienced in a functioning workplace. Assessment must cover all aspects of workplace performance, including 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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