



Australian Government

MEM05062 Apply welding and welding related codes and standards

Release: 1

MEM05062 Apply welding and welding related codes and standards

Modification History

Release 1. New unit.

Application

This unit of competency has been developed for post trade engineering fabrication training and the recognition of post trade skills in applying welding and fabrication codes and standards associated with a wide variety of welding applications and processes.

It defines the knowledge and skills required to apply Australian or equivalent international standards and codes covering welding processes, welding consumables, and materials used in welded and fabricated products and structures as defined in the unit in conjunction with its prerequisites.

The unit scope includes the skills and knowledge required to identify, locate, and apply Australian or equivalent international welding standards and codes and other relevant standards and codes such as materials and consumables standards.

Where this unit is applied in conjunction with welding to the requirements of a weld procedure specification (WPS), unit MEM05068 Apply welding procedure specifications must also be selected.

Where routine accessing, organising and communicating of information related to standard operating procedures or general tasks is required, MEM16006 Organise and communicate information must be selected.

This unit must be assessed in combination with one or more of the MEM welding process units aligned to AS 1554 General Purpose, or equivalent. Higher level MEM welding process units may also be used for the co-assessment. MEM AS 1554 General Purpose or equivalent aligned units are:

MEM05090 Weld using manual metal arc welding process

MEM05091 Weld using gas metal arc welding process

MEM05092 Weld using gas tungsten arc welding process

MEM05097 Weld using oxy fuel gas welding process

MEM05093 Weld using submerged arc welding process

MEM05096 Weld using flux core arc 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

MEM09002 Interpret technical drawing

MEM12023 Perform engineering measurements

MEM12024 Perform computations

MEM13015 Work safely and effectively in manufacturing and engineering

MEM16006 Organise and communicate information

Competency Field

Fabrication

Elements and Performance Criteria

Elements	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
2. Confirm details of required welds	2.1 Identify relevant welding standard and code from drawings, design specification or welding procedures specification 2.2 Obtain specified standard and code and check currency 2.3 Review relevant sections of the standard or code and identify requirements for welding
3. Identify and access relevant material and/or consumable standards and codes	3.1 Identify required standards and codes for materials and consumables from specifications 3.2 Confirm selected or provided materials and consumables comply with specified standards 3.3 Review specified standards and codes for any material preparation and/or consumable usage requirements

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
4. Apply standards and codes to welding task	4.1 Apply standards and codes to meet specifications for pre-fabrication test pieces 4.2 Apply standards and codes to meet specifications for material preparation and fit up 4.3 Apply standards and codes to meet specifications for required welds

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

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.

Standards and codes include Australian or international standards and codes covering:	- welding processes - welding consumables - materials used in fabrication related projects or products - destructive and non-destructive testing of welds - qualifying of welders, welding inspectors and welding supervisors.
International welding standards development organisations includes at least one or more of the following:	- International Organization for Standardization (ISO) - American Society of Mechanical Engineers (ASME) - American Petroleum Institute (API) - American Welding Society (AWS) - British Standards (BS) - other recognised international standards setting organisations.

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.

Welding parameters include one or more of the following:	• material specification and grade • material preparation • joint details • process type • position • run sequence and pass number • welding process • filler material • material diameter • current • voltage • polarity • wire feed speed • travel speed • pre and post heat input.
Standards and codes requirements relevant to welding include one or more directions re:	• documentation • fit up • dimensions and tolerancing • pre or post welding surface preparation • other fabrication requirements that are relevant to the welding task.

Unit Mapping Information

No equivalent unit.

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 MEM05062 Apply welding and welding related codes and standards

Modification History

Release 1. New unit.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include the ability to:

- identify methods used by welders in at least one enterprise to access and determine currency of Australian and international welding standards
- apply Australian and/or international welding codes or standards for two different fabrications where the fabrications require welds to at least AS1554GP or equivalent
- follow work instructions, standard operating procedures and safe work practices
- locate and review standards for materials and consumables specified in at least two different fabrications.

Note: Where a volume and/or frequency is not specified, demonstration must be provided at least once.

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:

- welding processes
- welding parameters
- welding symbols and abbreviations used in Australian and international standards
- joint geometry
- methods to obtain current copies of standards and welding procedure specifications
- manufacturers marks and other methods used by manufacturers of materials and consumables to indicate compliance with standards
- formats and methods used by standards organisations to arrange, distribute and indicate currency of welding standards
- principles of tolerancing and how tolerances may be referenced in fabrication related standards and codes.

Assessment Conditions

- Assessors must:
 - have vocational competency in applying welding and related codes and standards 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.
- Knowledge assessment may be either verbal or written but must adequately reflect the knowledge requirements of the unit in a functioning workplace.
- 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.

Links

Companion Volume implementation guides are found in VETNet -

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