



Australian Government

MEM05049 Perform routine gas tungsten arc welding

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Modification History

Release	Comments
2	Unit code updated in Application to reflect status.
1	This unit of competency was first released in MEM Manufacturing and Engineering Release 2.0.

Application

This unit of competency defines the skills and knowledge required to prepare the materials and carry out routine gas tungsten arc welding (GTAW) and applies in a maintenance or manufacturing environment where the weld quality is not required to meet an Australian Standard.

Where welding is required to meet AS 1554 General Purpose or equivalent codes, work health and safety (WHS) regulations and/or licensing requirements unit MEM05092 Weld using gas tungsten arc welding process should also be selected.

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

Where the selection and use of engineering measurement is required unit MEM12023 Perform engineering measurements should also be selected.

Where the selection and use of tools is required unit MEM18001 Use hand tools and unit MEM18002 Use power tools/hand held operations, should also be selected as appropriate.

Band: A

Unit Weight: 2

Licensing/Regulatory Information

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

Pre-requisite unit(s)

MEM11011	Undertake manual handling
MEM13015	Work safely and effectively in manufacturing and engineering
MEM16006	Organise and communicate information

Competency field(s)

Fabrication

Unit sector(s)

N/A

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 and equipment for welding	2.1 Identify location of welds in accordance with procedures and job specifications 2.2 Clean and prepare materials ready for welding 2.3 Set up welding equipment to meet work requirement 2.4 Select settings and consumables to suit application
3. Perform routine welding using GTAW	3.1 Weld materials to job requirements 3.2 Clean welds 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:	• butt • fillet.
Materials include one (1) or more of the following:	• low carbon/mild steels • aluminium.
Prepared includes one (1) or more of the following:	• pre-heating • setting up jigs • fixtures • clamps • joint preparation.
Welding equipment includes the following:	• hoses • welding leads and gas shrouds • electrodes • gas regulator • liners • contact tips.
Consumables include the following:	• tungsten electrodes, filler wire and shielding gas.
Clean includes the following:	• slag and spatter.

Unit Mapping Information

Current Code and Title	Previous Code and Title	Comments	Equivalence
MEM05049 Perform routine gas tungsten arc welding	MEM05049B Perform routine gas tungsten arc welding	Supersedes and is equivalent to MEM05049B Perform routine gas tungsten arc welding	Equivalent

Assessment Requirements for MEM05049 Perform routine gas tungsten arc welding

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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 performing routine gas tungsten arc welding (GTAW)
- cleaning and preparing materials for welding to specifications
- setting up welding equipment, including selecting settings and consumables to suit application
- consistently welding materials to specifications
- cleaning welds in accordance with SOPs.

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)
- preparatory requirements
- equipment and equipment settings
- shielding gas properties and applications
- weld characteristics.

Assessment Conditions

- Assessors must:
 - have vocational competency in performing routine GTAW 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.

Link

Companion volumes, including implementation guides, are found on the national training register - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=45a7f1d5-61a5-447a-9688-7abbd7e1a5c7>.