



Australian Government

MEM05075 Perform advanced welding using oxy acetylene welding process

Release: 1

MEM05075 Perform advanced welding using oxy acetylene welding process

Modification History

Release 1. Unit code changed. Changes to prerequisites, performance evidence and knowledge evidence. Supersedes and is not equivalent to MEM05022 Perform advanced welding using oxy acetylene welding process.

Application

This unit of competency has been developed for engineering fabrication trade training and the recognition of trade skills in advanced welding using oxy acetylene welding.

It defines the skills and knowledge required to plan, prepare for, and carry out advanced welding using oxy acetylene welding as defined in the unit, in combination with its prerequisites. The required welding may be specified in a relevant Australian or international standard or code and/or in a relevant welding procedure specification (WPS).

Where the welding associated with this unit also requires advanced manual thermal cutting, gouging and shaping, the unit MEM05071 Perform advanced manual thermal cutting, gouging and shaping must also be selected. Where the welding associated with this unit also requires the application of welding to codes and standards, the unit MEM05062 Apply welding and welding related codes and standards must be selected. Where the welding associated with this unit also requires the welding to be undertaken according to a formal WPS, the unit MEM05068 Apply weld procedure specifications must also be selected. Where formal weld records associated with the application of this unit are required to be maintained, the unit MEM05065 Maintain weld records must 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

MEM05004 Perform routine oxy fuel gas welding
MEM05007 Perform manual heating and thermal cutting
MEM05052 Apply safe welding practices
MEM05085 Select welding processes
MEM05097 Weld using oxy fuel gas welding process
MEM09002 Interpret technical drawing
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	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 including relevant standards and codes from specifications, drawings, job sheets or work instructions
2. Prepare materials for welding	2.1 Prepare materials to achieve the required weld requirements 2.2 Assemble and/or align materials to specification in accordance with SOPs
3. Select, assemble and set up welding equipment and consumables	3.1 Identify and select welding equipment and consumables according to job requirements 3.2 Assemble and set up welding equipment in accordance with SOPs
4. Weld joints to specifications using oxy acetylene welding	4.1 Apply appropriate distortion prevention measures 4.2 Ensure weld is to specifications 4.3 Clean joints to specifications 4.4 Rectify any distortion using appropriate techniques
5. Ensure weld conformance	5.1 Inspect weld joints visually for conformance to specifications 5.2 Rectify any cracks or defects with minimum loss of sound metal using correct and appropriate techniques and tools

Elements	Performance Criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
	5.3 Complete weld records in accordance with SOPs

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance but not explicit in the performance criteria.

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:	fillet and butt welds in the horizontal, vertical and overhead positions.
Materials include one or more of the following:	low carbon steel: • plate • pipe • tube • round bar.
Fuel gases include one or more of the following:	• acetylene • liquefied petroleum gas (LPG) • hydrogen.
Equipment includes the following:	• cylinders • regulators • hoses • torches • tips • flash back arrestors.
Consumables include the following:	• appropriate fuel gas • filler rods • fluxes.

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Preparation includes one or more of the following:	• pre-heating • setting up of jigs, fixtures and clamps • joint preparation
Distortion prevention measures include one or more of the following:	• pre-heating • setting up of jigs • fixtures and clamps.
Defects include one or more of the following:	• porosity • slag inclusions • discontinuities • lack of penetration • undercut.

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 MEM05075 Perform advanced welding using oxy acetylene 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 and include the ability to:

- follow work instructions, standard operating procedures (SOPs) and safe work practices
- identify and interpret specifications from drawings, sketches and verbal or written job instructions for performing advanced welding using oxy acetylene welding process on at least two occasions
- select appropriate weld and joint preparation methods
- clean and prepare materials for welding
- weld materials in all positions, including fillet and butt in the horizontal, vertical and overhead positions to the specified standard or equivalent on at least two occasions
- apply distortion prevention techniques
- rectify identified cracks or defects.

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:

- safe welding practices and procedures and use of personal protective equipment (PPE)
- purpose of pre-welding and/or post-welding heating and the methods of application
- instructions, symbols, specifications, including bead size, bead placement, reinforcement and weld procedure sheet
- weld specifications and requirements
- causes of weld cracks or defects and methods of rectification
- properties and characteristics of materials and consumables used in oxy acetylene welding
- fuel gas properties and applications
- weld specifications and requirements
- different welder identification systems, including numbering, bar coding, paint coding and letter stamps.
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Assessment Conditions

Assessors must:

- have vocational competency in performing advanced welding using oxy acetylene 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.
 - 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.
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