



**Australian Government**

# **MEM05018 Perform advanced welding using gas metal arc welding process**

**Release: 1**

# **MEM05018 Perform advanced welding using gas metal arc welding process**

## **Modification History**

Release 1. Supersedes and is equivalent to MEM05018C Perform advanced welding using gas metal arc welding process

## **Application**

This unit of competency defines the skills and knowledge required to carry out advanced welding using gas metal arc welding (GMAW).

Welds are associated with a range of structural sections and/or plate and/or pipe for general fabrication using ferrous and non-ferrous materials. Weld quality would typically conform to AS 1554 Structural Purpose or equivalent.

Where advanced manual thermal cutting, gouging and shaping is required unit MEM05008 Perform advanced manual thermal cutting, gouging and shaping 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**

MEM05007	Perform manual heating and thermal cutting
MEM05017	Weld using gas metal arc welding process
MEM05050	Perform routine gas metal arc welding
MEM05051	Select welding processes
MEM05052	Apply safe welding practices
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 describe the essential outcomes.

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

1	<b>Determine job requirements</b>	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	<b>Prepare materials for welding</b>	2.1	Prepare materials to achieve the required weld requirements
		2.2	Assemble/align materials to specification, where required
3	<b>Select, assemble and set up welding equipment and consumables</b>	3.1	Identify and select welding equipment and electrodes, accessories and consumables appropriate to the material
		3.2	Assemble and set up AC or DC welding equipment
4	<b>Minimise and</b>	4.1	Apply appropriate distortion prevention measures

Elements describe the essential outcomes.

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

	<b>rectify distortion</b>	4.2	Rectify any distortion using appropriate techniques
5	<b>Weld joints to specifications using GMAW</b>	5.1	Ensure weld deposit is to specifications
		5.2	Clean joints to specifications
6	<b>Ensure weld conformance</b>	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	Complete weld records, where required

## 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 weld carried out in all positions

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

- low carbon
- cast iron
- stainless and low alloy steel
- aluminium and aluminium alloys

**Preparation includes one (1) or more of the**

- pre-heating
- setting up of jigs

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.

**following:**

- fixtures, clamps
- joint preparation e.g. bevelling

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

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

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

- oxy acetylene
- air arc equipment
- grinding devices

**Defects include one (1) or  
more of the following:**

- porosity
- slag inclusions
- discontinuities
- lack of penetration
- undercut

## Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM05018C Perform advanced welding using gas metal arc welding process

## Links

Companion Volume implementation guides are found in VETNet -

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