



Australian Government

MEM05009 Perform automated thermal cutting

Release: 1

MEM05009 Perform automated thermal cutting

Modification History

Release 1. Supersedes and is equivalent to MEM05009C Perform automated thermal cutting

Application

This unit of competency defines the skills and knowledge required to set up and operate single and multi-headed automated thermal cutting machines for plate and pipe used in heavy engineering.

Where the interpretation of technical drawings is required unit MEM09002 Interpret technical drawing 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.

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

Band: A

Unit Weight: 2

Pre-requisite Unit

MEM11011	Undertake manual handling
MEM12023	Perform engineering measurements
MEM13015	Work safely and effectively in manufacturing and engineering
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 | 1.1 | Follow standard operating procedures (SOPs) |
|---|----------------------|-----|---|

Elements describe the essential outcomes.		Performance criteria describe the performance needed to demonstrate achievement of the element.	
	requirements	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	Set up automated thermal cutting machine	2.1	Ensure gas handling equipment is in safe working condition
		2.2	Set up material, including correct procedures for stack cutting and nesting, to minimise waste
		2.3	Select appropriate cutting medium and set to specification
		2.4	Determine process requirements from specifications or instructions
		2.5	Set up machine to specifications
		2.6	Establish machine datum to specifications
3	Operate automated thermal cutting machine	3.1	Ignite cutting medium, where required, in accordance with SOPs
		3.2	Start machine using correct sequence and SOPs
		3.3	Use powder marking and/or other tracing devices, as required
		3.4	Check final product for compliance with specifications
		3.5	Shut down machine following 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.

Material includes one (1) or more of the following

- ferrous
- non-ferrous

Cutting medium includes one (1) or more of the following:

- fuel gases
- oxy acetylene
- plasma arc
- laser

Machine includes one (1) or more of the following:

- single head machines
- multi-headed machines
- numerically controlled (NC) driven equipment

Where NC machines are used, set up machine to specifications includes one (1) or more of the following:

- selecting programs according to predetermined instructions
- loading programs according to predetermined instructions

Tracing devices include one (1) or more of the following:

- powder marking and magnetic
- photoelectric tracing devices

Gas handling equipment includes the following:

- gas cylinders
- hoses
- blowpipes
- tips and nozzles
- regulators
- flashback arrestors

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM05009C Perform automated thermal cutting

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 MEM05009 Perform automated thermal cutting

Modification History

Release 1. Supersedes and is equivalent to MEM05009C Perform automated thermal cutting

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
- setting up materials for stack cutting and nesting to minimise waste and selecting appropriate cutting medium and setting to specifications
- checking condition of machine and equipment
- setting up:
 - gas cylinders
 - hoses
 - blowpipes
 - tips and nozzles
 - regulators
 - flashback arrestors
- setting up and operating single, multi-headed or NC machines to predetermined instructions and establishing machine datum to specifications
- using tracing devices as required
- shutting down machine in accordance with SOPs
- checking final product for compliance with specifications.

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 work practices and procedures and use of personal protective equipment (PPE)
- purpose of and setting up requirements of:
 - gas cylinders
 - hoses
 - blowpipes
 - tips and nozzles
 - regulators
 - flashback arrestors

- potential machine and equipment faults
- material set-up procedures
- advantages of stack cutting and nesting
- procedures for establishing machine datum
- hazards associated with igniting cutting media
- safety precautions to be taken when starting and shutting down the machine
- procedures for using powder marking and other tracing devices.

Assessment Conditions

- Assessors must:
 - have vocational competency in performing automated thermal cutting 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.

Links

Companion Volume implementation guides are found in VETNet -

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