



Australian Government

MEM05008 Perform advanced manual thermal cutting, gouging and shaping

Release: 1

MEM05008 Perform advanced manual thermal cutting, gouging and shaping

Modification History

Release 1. Supersedes and is equivalent to MEM05008C Perform advanced manual thermal heating cutting, gouging and shaping

Application

This unit of competency defines the skills and knowledge required to perform advanced manual heating, thermal cutting, gouging and shaping to produce complex internal and external profiles.

Items are cut, shaped or gouged by a variety of methods to satisfy predetermined shape, size and surface finish specifications.

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

MEM05007	Perform manual heating and thermal cutting
MEM09002	Interpret technical drawing
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.

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|---|--|-----|--|
| 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 | Select and set up equipment for manual thermal cutting, gouging and shaping | 2.1 | Select appropriate cutting process and procedure for material being worked |
| | | 2.2 | Select and assemble appropriate accessories and equipment |
| | | 2.3 | Ensure equipment is in safe working condition |
| | | 2.4 | Set up equipment following SOPs |
| | | | |
| 3 | Perform hand held thermal cutting and shaping | 3.1 | Follow equipment start-up procedures |
| | | 3.2 | Cut material to specifications |
| | | 3.3 | Identify cutting defects and take corrective action in accordance with SOPs |
| | | 3.4 | Remove material with minimum loss of sound metal |
| | | 3.5 | Check final shape/profile/surface finish for compliance with specifications |

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.

Methods include one (1) or more of the following:

- oxy acetylene
- oxy/hydrogen
- plasma
- carbon arc

Cutting and shaping equipment includes the following:

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

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM05008C Perform advanced manual thermal heating cutting, gouging and shaping

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 MEM05008 Perform advanced manual thermal cutting, gouging and shaping

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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
- selecting appropriate equipment to manual heat, thermal cut and gouge, including the selection of settings and consumables to specifications
- checking condition of equipment
- setting up:
 - gas cylinders
 - hoses
 - blowpipes
 - tips and nozzles
 - regulators
 - flashback arrestors
- operating equipment to produce complex internal and external profiles with shape/profile/surface finish to predetermined specifications with minimum loss of sound material
- identifying defects and taking appropriate remedial action
- 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)
- cutting processes and procedures appropriate to various materials
- potential equipment faults
- heating, cutting and surface finish specifications and procedures
- use and applications of tools, equipment and techniques for heating and cutting
- assembling procedures for equipment and accessories
- equipment settings, pre-checks and operation

- sources of information and application on equipment settings and consumables
- procedures for adjusting heating and cutting equipment
- cutting allowances and reasons for applying them
- tools, equipment and techniques required to correct cutting defects
- procedures and reasons for minimising waste material
- cutting defects and their causes and tools, equipment and techniques required to correct defects.

Assessment Conditions

- Assessors must:
 - have vocational competency in performing advanced manual thermal cutting, gouging and shaping 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.

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