



Australian Government

MEM06001 Perform hand forging

Release: 1

MEM06001 Perform hand forging

Modification History

Release 1. Supersedes and is equivalent to MEM06001B Perform hand forging

Application

This unit of competency defines the skills and knowledge required to use hand tools and formers, apply hand forging techniques and operate heat treatment equipment.

Where simple manual heating and bending is required unit MEM05007 Perform manual heating and thermal cutting should also be selected.

Where the interpretation of technical drawings is required unit MEM09002 Interpret technical drawings 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 power tools/hand held operations is required unit MEM18002 Use power tools/hand held operations 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

MEM11011	Undertake manual handling
MEM13015	Work safely and effectively in manufacturing and engineering
MEM16006	Organise and communicate information
MEM18001	Use hand tools

Competency Field

Forging

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	Apply hand forging techniques	2.1	Select and use hand tools and formers for specific forging techniques
		2.2	Select and apply appropriate hand forging technique to produce articles to specification
		2.3	Adhere to forging temperatures and heat specifications for various materials
		2.4	Make allowance for material shrinkage and oxidation
3	Operate heating equipment	3.1	Set up and correctly operate the appropriate heating equipment, required for the job
		3.2	Operate equipment in a manner that minimises oxidation
		3.3	Control heat to specified areas

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, accessibility of the item, and local industry and regional contexts) are included.

- Hand tools and formers include one (1) or more of the following:**
- flatters
 - set hammers
 - hot/cold sets
 - ball peen hammer
 - swages

- Hand forging techniques include one (1) or more of the following:**
- drawing
 - swaging
 - bending
 - upsetting
 - spreading
 - punching
 - drifting

- Materials include one (1) or more of the following:**
- low to medium carbon steels
 - low to medium alloy steels

- Heating equipment includes one (1) or more of the following:**
- diesel
 - electric and gas furnaces
 - coke fires
 - gaseous oxygen/fuel equipment

Unit Mapping Information

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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 MEM06001 Perform hand forging

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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 and using hand tools and formers
- selecting and applying hand forging techniques
- determining correct forging temperatures
- operating heat treatment equipment safely and effectively to hand forge materials to specification.

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)
- features and use of the range of hand tools, formers used in hand forging
- hand forging techniques, including drawing, swaging, bending, upsetting, spreading, punching and drifting
- calculations used to determine mean diameter, length and circumference
- sources of information on forging temperatures
- heat specifications for various materials
- effects of and allowances for material shrinkage and oxidation
- application, set up and means of adjustment of diesel, electric and gas furnaces; coke fires and gaseous oxygen/fuel heating equipment.

Assessment Conditions

- Assessors must:
 - have vocational competency in performing hand forging 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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