



Australian Government

MEM06008 Hammer forge complex shapes

Release: 1

MEM06008 Hammer forge complex shapes

Modification History

Release 1. Supersedes and is equivalent to MEM06008A Hammer forge complex shapes

Application

This unit of competency defines the skills and knowledge required to forge complex shapes using a power hammer where specialised methods of holding, positioning and lifting complex forgings are required.

Where basic use of power hammer is required unit MEM06002 Perform hammer forging should also be selected.

Where the interpretation of technical drawings is required unit MEM09002 Interpret technical drawing 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 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: 4

Pre-requisite Unit

MEM06002	Perform hammer forging
MEM11011	Undertake manual handling
MEM13015	Work safely and effectively in manufacturing and engineering
MEM16006	Organise and communicate information

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	Set up and operate forging machine	2.1	Set up forging machine, as required, and operate in accordance with specifications and SOPs
		2.2	Select and use complex open die tooling following safe operating procedures
3	Forge complex shapes and heavy parts	3.1	Position the material to be forged in the forming equipment in accordance with SOPs
		3.2	Mark and measure hot forgings, as required, making allowance for material shrinkage and oxidation
		3.3	Use hammer tools and fixtures attached to power hammer
		3.4	Check forging to ensure conformance to tolerances and specifications
		3.5	Handle forgings in a safe and correct manner
4	Heat complex forgings	4.1	Select heating plant and equipment appropriate to work undertaken
		4.2	Apply techniques used to heat heavy and complex forgings
		4.3	Perform post-forging heating in accordance with procedures

Elements describe the essential outcomes.

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

4.4 Apply correct techniques in handling of hot forgings

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.

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

- forging on and against cold mandrels
- forging bosses
- heavy rings and bushes
- hammer punching and opening of large diameter holes

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

- forging plant
- diesel furnaces
- gas furnaces

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 MEM06008 Hammer forge complex shapes

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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 measuring guides
- setting up and safely operating hammer forging equipment and selecting and using complex open die tooling in accordance with procedures
- using appropriate and safe methods for holding, positioning and lifting complex shaped forged material, including hot materials
- performing hammer forging of complex shapes to meet specifications
- selecting and operating heating equipment to heat treat heavy and complex forgings.

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)
- hammer tools and formers and their application to produce a range of hammer forged articles
- hammer forging and punching techniques
- procedures for measuring forged articles and numerical operations and calculations/formulae for complex shape tooling
- effects of material shrinkage and oxidation on the dimensions of the forged article
- methods of overcoming/allowing for the effects of shrinkage and oxidation when hammer forging articles
- procedures for safe handling of material to be hammer forged
- forging heating equipment and applications
- heat treatment processes for forging.

Assessment Conditions

- Assessors must:
 - have vocational competency in hammer forging of complex shapes 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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