



Australian Government

MEM06011 Perform power hammer forging

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Modification History

Release	Comments
1	This unit of competency was first released in MEM Manufacturing and Engineering Release 5.0.

Application

This unit of competency defines the skills and knowledge required to operate heating equipment to heat metal to forging temperature, to use a power hammer and power-hammer tools and forming tools, and to apply power hammer techniques.

It does not cover the use of drop and upset machinery, vacuum furnaces, or rolling and extruding mill machinery.

Where the interpretation of technical drawings is required, MEM09002 Interpret technical drawing should also be selected.

Where the selection and use of engineering measurement is required, MEM12023 Perform engineering measurements should also be selected.

Where the selection and use of tools is required, MEM18001 Use hand tools and MEM18002 Use power tools/hand held operations should also be selected as appropriate.

Commonwealth and state/territory laws and regulations governing work and training environments must be complied with.

Band: A

Unit Weight: 4

Licensing/Regulatory Information

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

Pre-requisite unit(s)

MEM11011 Undertake manual handling

MEM13015 Work safely and effectively in manufacturing and engineering

MEM16006 Organise and communicate information

Competency field(s)

Forging

Unit sector(s)

N/A

Elements and Performance Criteria

Elements	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. Select material	2.1 Select material to meet job requirements 2.2 Calculate material volumes and weights, including provision for thermal expansion/contraction, oxidization, and shrinkage
3. Use power-hammer tools and power-hammer forming tools	3.1 Select and use power-hammer tools and power-hammer forming tools appropriate to the forging techniques needed to meet job requirements 3.2 Set up and operate power hammer and heating equipment
4. Apply power-hammer forging techniques	4.1 Select and use power-hammer forging techniques to meet job requirements 4.2 Recognise defects and take appropriate action for rectification 4.3 Apply safe techniques, including balancing and pivoting, for handling hot metal 4.4 Apply heating processes appropriate to materials and job requirements

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.	
Materials include one or more of the following:	• low/high carbon steels • alloys • stainless steel • wrought iron.
Material calculations include one or more of the following:	• thermal expansion/contraction • material wastage • oxidation and shrinkage allowance.
Power-hammer tools include one or more of the following:	• hot cutters • hot snaps • C cutters and C snaps • trimming chisels • marking tools • sizing blocks.
Power-hammer forming tools include one or more of the following:	• square pads • half round pads • round pads • straight fullers • side fullers • spring swages • taper blocks • V blocks.
Power-hammer forming techniques include one or more of the following:	• drawing • tapering • cutting

	• necking • fullering • offsetting • rounding up.
Defects include one or more of the following:	• galls • fins • cracks, splits or bursts • concave ends • shrinkage • cold shuts • delamination • excessive oxidation.
Heating equipment includes one or more of the following:	• diesel equipment • electrical equipment • induction-forging equipment • gas equipment • solid-fuel equipment • oil-fuel equipment • ceramic-chip equipment • oxy-fuel equipment.

Unit Mapping Information

Current Code and Title	Previous Code and Title	Comments	Equivalence
MEM06011 Perform power hammer forging	MEM06002 Perform hammer forging	Superseded	Equivalent

Assessment Requirements for MEM06011 Perform power hammer 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 and include the ability to:

- follow work instructions, standard operating procedures (SOPs) and safe work practices
- calculate material requirements, allowing for oxidation and wastage
- select and using power hammer tools and power hammer forming tools to meet job requirements
- operate heating equipment to heat metal to forging temperature
- safely handle hot metal
- set up and operate power hammer
- use power hammer forging techniques to forge material to meet job requirements
- detect forging defects and their causes and rectify forging techniques.

Note: Where a volume and/or frequency is not specified, demonstration must be provided at least once.

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)
- set-up and operation of power hammers
- power hammer forging techniques
- safe techniques for handling hot metal
- oxidation/shrinkage allowances for forging material
- calculations and formulas for determining the volume and weight of material
- forging material specifications.

Assessment Conditions

- Assessors must:
 - have vocational competency in performing power hammer 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.

Link

Companion volumes, including implementation guides, are found on the national training register - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=45a7f1d5-61a5-447a-9688-7abbd7e1a5c7>.