



Australian Government

MEM06016 Perform press 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 devices to heat metal to forging temperature, use a forging press and open dies, and apply press forging techniques.

It does not cover the use of power hammers, 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 that is appropriate for the specific open dies to be used 2.2 Calculate material volumes and weights, including provision for thermal expansion/contraction, oxidization, and shrinkage
3. Use forging press and open dies	3.1 Select open dies that are appropriate for the material and forging techniques to be used and determine whether they are safe and fit for purpose 3.2 Set up and operate forging press, dies and heating equipment
4. Apply press forging techniques	4.1 Select and use press 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 forging stock 4.4 Apply heating processes appropriate to materials and job requirements

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

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.
Forging press dies include one or more of the following:	• flat • combination • crown • double taper • single taper • v-block • round swages.
Forging press techniques include one or more of the following:	• drawing • tapering • necking • fullering • offsetting • swaging • rounding up.
Defects include one or more of the following:	• galls • fins • shrinkage • concave ends • 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.
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Unit Mapping Information

Current Code and Title	Previous Code and Title	Comments	Equivalence
MEM06016 Perform press forging		This unit has been created to address a skill or task required by industry that is not covered by an existing unit of competency	Newly created

Assessment Requirements for MEM06016 Perform press 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 for press forging allowing for oxidation and wastage
- select and use open dies
- store, protect, and maintain dies
- inspect dies using crack detection methods
- select and set up dies for specific purposes
- operate heating equipment to heat metal to forging temperature
- safely handle hot metal
- set up and operate forging press
- use press forging techniques to forge material to meet job requirements
- detect forging defects and their causes and rectify forging techniques in response.

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 forging press
- press forging techniques
- set-up of dies
- storage, protection, and maintenance of dies
- determining whether dies are fit for purpose

- 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 press 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>.