



**Australian Government**

**Department of Education, Employment and Workplace Relations**

# **MEM06001B Perform hand forging**

**Release: 1**

## MEM06001B Perform hand forging

### Modification History

Not Applicable

### Unit Descriptor

<b>Unit descriptor</b>	This unit covers using hand tools and formers, applying hand forging techniques and operating heat treatment equipment.
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### Application of the Unit

<b>Application of the unit</b>	<p>The unit applies to hand forging low to medium carbon and alloy steels using a variety of techniques, tools, formers and heating devices.</p> <p>For simple manual heating and bending, see Unit MEM05007C (Perform manual heating and thermal cutting).</p> <p><b>Band: A</b></p> <p><b>Unit Weight: 4</b></p>
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### Licensing/Regulatory Information

Not Applicable

### Pre-Requisites

<b>Prerequisite units</b>		
<b>Path 1</b>	MEM18001C	Use hand tools

## Employability Skills Information

<b>Employability skills</b>	This unit contains employability skills.
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## Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.
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## Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Use hand tools and formers	1.1. Hand tools and formers are correctly selected for specific forging techniques. 1.2. Hand tools and formers used correctly.
2. Apply hand forging techniques	2.1. Knowledge of drawing, swaging, bending, upsetting, spreading, punching and drifting techniques is applied to produce articles to specification. 2.2. Forging temperatures and heat specifications are adhered to for various materials. 2.3. Allowance is made for material shrinkage and oxidation 2.4. Appropriate forging technique is selected and applied.
3. Operate heating equipment	3.1. Heating equipment is set up and operated correctly. 3.2. Equipment is operated in a manner that minimises oxidation. 3.3. Heat is controlled to specified areas.

## Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
<b>Required skills</b>
Look for evidence that confirms skills in: <ul style="list-style-type: none"> <li>• selecting and using hand tools and formers</li> <li>• applying hand forging techniques</li> <li>• determining correct forging temperatures</li> <li>• setting up and operating heating equipment</li> </ul>
<b>Required knowledge</b>
Look for evidence that confirms knowledge of: <ul style="list-style-type: none"> <li>• range of hand tools, formers used in hand forging</li> <li>• hand forging techniques (drawing, swaging, bending, upsetting, spreading, punching, drifting)</li> <li>• how to calculate mean diameter, length, circumference</li> </ul>

**REQUIRED SKILLS AND KNOWLEDGE**

- source of information on forging temperatures
- heat specifications for various materials
- effects of and allowances for material shrinkage and oxidation
- the application, set up, and means of adjustment of a range of heating equipment
- use and application of personal protective equipment
- safe work practices and procedures
- hazards and control measures associated with hand forging, including housekeeping

## Evidence Guide

<b>EVIDENCE GUIDE</b>	
<p>The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.</p>	
<p><b>Overview of assessment</b></p>	<p>A person who demonstrates competency in this unit must be able to use hand tools and formers, apply hand forging techniques and operate heat treatment equipment. Competency in this unit cannot be claimed until all prerequisites have been satisfied.</p>
<p><b>Critical aspects for assessment and evidence required to demonstrate competency in this unit</b></p>	<p>Assessors must be satisfied that the candidate can competently and consistently perform all elements of the unit as specified by the criteria, including required knowledge, and be capable of applying the competency in new and different situations and contexts.</p>
<p><b>Context of and specific resources for assessment</b></p>	<p>This unit may be assessed on the job, off the job or a combination of both on and off the job. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by an individual working alone or as part of a team. The assessment environment should not disadvantage the candidate.</p> <p>This unit could be assessed in conjunction with any other units addressing the safety, quality, communication, materials handling, recording and reporting associated with hand forging of low to medium carbon and alloy steels using a variety of techniques, tools formers and heating devices or other units requiring the exercise of the skills and knowledge covered by this unit.</p>
<p><b>Method of assessment</b></p>	<p>Assessors should gather a range of evidence that is valid, sufficient, current and authentic. Evidence can be gathered through a variety of ways including direct observation, supervisor's reports, project work, samples and questioning. Questioning techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes,</p>

<b>EVIDENCE GUIDE</b>	
	standards, manuals and reference materials.
<b>Guidance information for assessment</b>	

## Range Statement

<b>RANGE STATEMENT</b>	
<p>The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.</p>	
<b>Hand tools and formers</b>	Flatters, set hammers, hot/cold sets, ball peen hammer, swages, etc.
<b>Hand forging techniques</b>	Drawing, swaging, bending, upsetting, spreading, punching and drifting
<b>Materials</b>	Low to medium carbon and alloy steels
<b>Heating equipment</b>	Diesel, electric and gas furnaces; coke fires and gaseous oxygen/fuel equipment

## Unit Sector(s)

<b>Unit sector</b>	
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## Co-requisite units

<b>Co-requisite units</b>	

<b>Co-requisite units</b>		

## Competency field

<b>Competency field</b>	Forging
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