Australian Government

Department of Education, Employment and Workplace Relations

MEM06008A Hammer forge complex shapes

Release: 1

MEM06008A Hammer forge complex shapes

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit covers forging complex shapes using a power hammer.

Application of the Unit

Application of the unit	This unit applies to open die forging of complex shapes commonly forged in the forging and fabrication areas of industry including forged bosses, heavy rings and bushes. Specialised methods of holding, and positioning and lifting complex forgings are covered. Equipment may include forging plant, diesel and gas furnaces. For basic use of power hammer, Unit MEM06002B (Perform hammer forging) should be selected. **Band**: **A** **Unit Weight**: **4**

Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		
Path 1	MEM06002B	Perform hammer forging

Employability Skills Information

Employability skills	This unit contains employability skills.

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.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Set up and operate forging machine	1.1. The forging machine is set up and operated in accordance with standard operating procedures and specifications. 1.2. Complex open die tooling is selected and used according to workplace procedures. 1.3. Safe operating procedures are followed.
2. Forge complex shapes and heavy parts	2.1. The material to be forged is safely and correctly positioned in the forming equipment in accordance with standard operating procedures. 2.2. Hot forgings are marked and measured as required. 2.3. Allowance is made for material shrinkage and oxidisation. 2.4. Hammer tools and fixtures attached to power hammer are used correctly. 2.5. Forging is checked to ensure conformance to tolerances and specifications. 2.6. Forgings are handled safely and correctly according to workplace procedures.
3. Heat complex forgings	3.1. Heating plant and equipment is selected appropriate to work undertaken. 3.2. Techniques used to heat heavy and complex forgings are applied correctly. 3.3. Post-forging heating is performed correctly and safely. 3.4. Hot forgings are handled safely and according to workplace procedures.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE
This section describes the skills and knowledge required for this unit.
Required skills
Look for evidence that confirms skills in: • selecting and using measuring guides • calculating allowance for material shrinkage and oxidisation

REQUIRED SKILLS AND KNOWLEDGE
• setting up and operating forging machine • selecting forming tools and equipment • positioning material • handling materials • selecting and setting up heating equipment • performing heat treatment process(es) for forging
Required knowledge
Look for evidence that confirms knowledge of: • hammer tools and formers and their applications • hammer forging techniques • numerical operations and calculations/formulae for data analysis within the scope of this unit • tools, formers and techniques to produce a range of hammer forged articles • procedures for measuring forged articles • effects of material shrinkage and oxidisation on the dimensions of the forged article • methods of overcoming/allowing for the effects of shrinkage and oxidisation when hammer forging articles • hammer punching techniques • procedures for handling material to be hammer forged • heating equipment and applications • heat treatment processes for forging • heat treatment requirements for given materials

Evidence Guide

EVIDENCE GUIDE	
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.	
Overview of assessment	A person who demonstrates competency in this unit must be able to hammer forge complex shapes. Competency in this unit cannot be claimed until all prerequisites have been satisfied.
Critical aspects for assessment and evidence required to demonstrate competency in this unit	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.
Context of and specific resources for assessment	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. This unit could be assessed in conjunction with any other units addressing the safety, quality, communication, materials handling, recording and reporting associated with hammer forging complex shapes or other units requiring the exercise of the skills and knowledge covered by this unit.
Method of assessment	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, standards, manuals and reference materials.

EVIDENCE GUIDE	
Guidance information for assessment	

Range Statement

RANGE STATEMENT	
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.	
Forge	• Forging on and against cold mandrels • Hammer punching and opening of large diameter holes

Unit Sector(s)

Unit sector	

Co-requisite units

Co-requisite units		

Competency field

Competency field	Forging