



Australian Government

Department of Education, Employment and Workplace Relations

MEM06005B Perform drop and upset forging

Release: 1

MEM06005B Perform drop and upset forging

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit covers selecting, setting up, and operating drop and upset forging equipment.
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Application of the Unit

Application of the unit	<p>This unit includes the preparation and forging of material using drop and upset methods on a range of metals, and a range of drop forging and upset forging equipment including cold upset forging equipment.</p> <p>The material forged is to specified dimensional accuracy and finish.</p> <p>For routine, repetitive cold upset forging see Unit MEM07024B (Operate and monitor machine/process [basic])</p> <p>Band: A</p> <p>Unit Weight: 4</p>
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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.
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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. Identify and select drop and upset forging equipment and tools for specific operation	1.1. Appropriate equipment is selected which accounts for size of material and procedures. 1.2. Dies and punches are correctly selected for specific operations and equipment. 1.3. Die replacement is correctly determined with regard to relief allowances, cracking, dimensions, etc.
2. Set up and operate drop and upset forging equipment	2.1. Equipment is correctly and safely set up, adjusted and operated. 2.2. Correct die setting techniques are applied in setting correct die and punch alignment. 2.3. Correct die preheating procedures are applied.
3. Prepare material	3.1. Materials are correctly prepared and heated in accordance with job requirements and/or specifications.
4. Drop and upset forge material	4.1. Material is drop forged using the correct procedures and techniques. 4.2. Correct lubricant is applied for die wear and forging release. 4.3. Correct grain flow is determined. 4.4. Galls, folds and cracks are identified and corrected. 4.5. Correct removal of flash or fin is carried out. 4.6. Material amounts are calculated with allowance for heat wastage and flash or fin.

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: <ul style="list-style-type: none"> • inspecting dies and preparing dies and materials • aligning dies and punches • replacing dies • operating drop/upset forging equipment

REQUIRED SKILLS AND KNOWLEDGE

- die preparation
- material preparation
- detecting and correcting defects
- removing flash or fins
- calculating material volume, weight, allowances, heat wastage, flash, fin

Required knowledge

Look for evidence that confirms knowledge of:

- drop or upset forging techniques
- characteristics of forging equipment
- safety work practices and procedures
- hazards and control measures associated with drop and upset forging, including housekeeping
- incorrect/correct alignment of dies, punches
- dies (preheating, preparation, lubrication, defects, conformance, replacement)
- materials pre-heating
- relevant tools, techniques and equipment
- setting, adjusting, operating forging equipment
- features of defects in drop/upset forged articles such as, galls, folds, cracks
- ways of correcting defects
- ways of removing flash, fins from drop/upset forged articles
- calculations for material volume, weight, allowances, heat wastage, flash/fin

Evidence Guide

EVIDENCE GUIDE	
<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>Overview of assessment</p>	<p>A person who demonstrates competency in this unit must be able to perform preparation and forging of material using drop and upset methods on a range of metals, and a range of drop forging and upset forging equipment including cold upset forging equipment. Competency in this unit cannot be claimed until all prerequisites have been satisfied.</p>
<p>Critical aspects for assessment and evidence required to demonstrate competency in this unit</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>Context of and specific resources for assessment</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 selecting, setting up, and operating drop and upset forging equipment or other units requiring the exercise of the skills and knowledge covered by this unit.</p>
<p>Method of assessment</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,</p>

EVIDENCE GUIDE	
	product and manufacturing specifications, codes, standards, manuals and reference materials.
Guidance information for assessment	

Range Statement

RANGE STATEMENT	
<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>	
Equipment	May include: drop forging hammer/press, open die forging hammer using closed loose die or horizontal upsetting machine (heading machine)
Materials	May include: ferrous materials (steel) or non-ferrous material (copper, aluminium bronze)
Lubricants	Graphite bearing oils/greases or cellulose granules, waxes
Correct removal	Ejector pins, drafts in die (angle)

Unit Sector(s)

Unit sector	
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Co-requisite units

Co-requisite units	
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Co-requisite units		

Competency field

Competency field	Forging
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