



Australian Government

Department of Education, Employment and Workplace Relations

MEM07014B Perform electro-discharge (EDM) machining operations

Release: 1

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Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit covers performing electro-discharge (EDM) machining operations.
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Application of the Unit

Application of the unit	<p>This unit applies to a range of electro-discharge machining (EDM) operations and engineering materials. Work is performed to established processes, practices and standards of quality, safety and workshop procedures, and to drawings and sketches, specifications and instructions as appropriate.</p> <p>For electrode manufacture, other appropriate machining units should be accessed.</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	MEM07005C	Perform general machining
	MEM09002B	Interpret technical drawing

Prerequisite units		
	MEM12023A	Perform engineering measurements
	MEM18001C	Use hand tools
Path 2	MEM07024B	Operate and monitor machine/process
	MEM09002B	Interpret technical drawing
	MEM18001C	Use hand tools

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. Observe safety precautions	1.1. Correct safety procedures are observed, and protective clothing and safety glasses are worn.
2. Determine job requirements	2.1. Drawings are interpreted, and sequence of operations is determined. 2.2. Correct electrode is selected to ensure finished component conforms to drawing specifications. 2.3. Electrode surface area is calculated and process parameters are set to give safe, accurate and efficient operation.
3. Set up job	3.1. Job is set up relative to electrode to ensure required position is obtained.
4. Perform electro-discharge (EDM)	4.1. Electro-discharge machine is operated to produce components to drawing specifications.
5. Check components for conformance to specification	5.1. Components are checked for conformance to specification using appropriate techniques, tools and equipment.

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:

- following relevant safety procedures
- obtaining and interpreting relevant drawings, job instructions and specifications
- selecting correct electrode to ensure that the finished product conforms to specification
- determining the coordinates of the work pieces relative to the machine datum
- calculating machining parameters necessary to achieve the safe, accurate and efficient machining of the work piece
- calculating the surface area of the electrode
- positioning work piece and electrode to enable the safe, accurate and efficient machining of the required feature(s)
- producing components to specification

REQUIRED SKILLS AND KNOWLEDGE

- checking machined components for conformance with specifications

Required knowledge

Look for evidence that confirms knowledge of:

- safety hazards associated with the use of electro-discharge machines
- the job requirements
- the sequence of operations to achieve the job requirements
- the electrode type and geometry required to achieve the specified outcome
- the effects of material to be machined on the electrode material and geometry
- the procedures for producing electrodes for the electro-discharge machining process
- the coordinates of the feature(s) to be machined
- the coordinates of the electrode relative to the machine datum
- the procedures for operating the electro-discharge machine to produce components
- the tools, techniques and equipment appropriate to the checking of machined components
- the procedures for checking machined components for conformance to specification
- the reasons for selecting the tools, techniques and equipment to be used

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 electro-discharge (EDM) machining operations. 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 electro-discharge (EDM) machining operations 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, product and manufacturing specifications, codes, standards, manuals and reference materials.</p>

EVIDENCE GUIDE

Guidance information for assessment	
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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.

Electrode

Electrode	Includes all types and grades of graphite electrodes
Job set up	Includes correct use of work holding devices and selection of EDM fluids, spark generation, cycle time, power settings, and dielectric fluids for the requirement of a particular job

Job set up**Unit Sector(s)**

Unit sector	
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Co-requisite units

Co-requisite units	

Competency field

Competency field	Machine and process operations
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