



Australian Government

MEM07014 Perform electro-discharge machining (EDM) operations

Release: 2

MEM07014 Perform electro-discharge machining (EDM) operations

Modification History

Release 2. Quantum of hours of workplace practice removed. Supersedes and is equivalent to MEM07014 Perform electro-discharge machining (EDM) operations (Release 1).

Release 1. Supersedes and is equivalent to MEM07014B Perform electro-discharge (EDM) machining operations.

Application

This unit of competency defines the skills and knowledge required to perform electro-discharge machining (EDM) operations and applies to a range of EDM operations and engineering materials.

This unit has been primarily developed for Engineering Tradesperson - Mechanical apprenticeship training and the recognition of trade-level skills in performing EDM operations.

Where the selection and use of power tools/hand held operations is required unit MEM18002 Use power tools/hand held operations should also be selected.

Where electrodes are required to be manufactured see appropriate machining units.

No licensing, legislative or certification requirements apply to this unit at the time of publication.

Band: A

Unit Weight: 4

Pre-requisite Unit

MEM07005	Perform general machining
MEM09002	Interpret technical drawing
MEM11011	Undertake manual handling
MEM12023	Perform engineering measurements
MEM12024	Perform computations
MEM13015	Work safely and effectively in manufacturing and engineering
MEM14006	Plan work activities
MEM16006	Organise and communicate information

MEM18001

Use hand tools

Competency Field

Machine and process operations

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

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|---|-----------------------------------|-----|--|
| 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, drawings, job sheets or work instructions |
| 2 | Prepare to undertake work | 2.1 | Determine sequence of operations |
| | | 2.2 | Select correct electrode to ensure finished component conforms to drawing specifications |
| | | 2.3 | Calculate electrode surface area and set process parameters to give safe, accurate and efficient operation |
| | | 2.4 | Set up job relative to electrode to ensure required position is obtained |
| 3 | Perform EDM | 3.1 | Operate electro-discharge machine to produce components to drawing specifications |
| | | 3.2 | Check components for compliance with specifications |
| | | 3.3 | Rectify non-compliant product in accordance with SOPs |

Foundation Skills

This section describes those required skills (reading, writing, oral communication and numeracy) that are essential to workplace performance in this unit of competency.

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.

Electrodes include the following:

- all types and grades of graphite electrodes

Job set up includes the following:

- 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

Unit Mapping Information

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Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>

Assessment Requirements for MEM07014 Perform electro-discharge machining (EDM) operations

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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 on at least two (2) occasions and include:

- following work instructions, standard operating procedures (SOPs) and safe work practices
- identifying and interpreting specifications, drawings and other applicable reference documents with respect to performing electro-discharge machining (EDM) operations
- determining the coordinates of the work pieces relative to the machine datum
- calculating machining parameters necessary in achieving the safe, accurate and efficient machining of the work piece
- calculating the electrode surface area and selecting the correct electrodes for the job
- setting up job using appropriate holding devices and accessories
- performing EDM operations to produce components to specifications
- checking components for conformance to specifications using precision measuring instruments
- rectifying non-compliant product.

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)
- sequence of operations to achieve the EDM job requirements
- electrode types and geometry required to achieve the specified outcome
- effects of material to be machined on the electrode material and geometry
- procedures for producing electrodes for the electro-discharge machining process
- coordinates of the feature(s) to be machined
- coordinates of the electrode relative to the machine datum
- procedures for operating the electro-discharge machine to produce components
- tools, techniques and equipment appropriate to the checking of machined components

- tools, techniques and equipment for checking components for conformance to specifications and rectifying non-compliant components
- reasons for selecting the tools, techniques and equipment to be used.

Assessment Conditions

- Assessors must:
 - have vocational competency in performing electro-discharge machining (EDM) operations 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.
- Assessment must occur in a functioning workplace. Where assessment in the workplace would be unsafe, impractical or threatens the environment, assessment must occur in a sufficiently rigorous simulated environment that reflects the circumstances that would be experienced in a functioning workplace. Assessment must cover all aspects of workplace performance, including 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.

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