



Australian Government

MEM18112 Perform basic eddy current testing

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Modification History

Release	Comments
1	This unit of competency was first released in MEM Manufacturing and Engineering Release 5.0.

Application

This unit of competency defines the skills and knowledge required to operate eddy current testing equipment and the preparation and performance of eddy current testing on fabrications, structures and components across a wide range of industries.

Eddy current testing is performed on critical component or structural zones. Actual and potential defects are considered, together with ongoing abnormalities.

This unit should not be selected when unit MEM24026 Undertake eddy current tests has already been selected.

Where interpretation of technical drawings is required unit MEM09002 Interpret technical drawing should also be selected.

Where the selection and use of engineering measurements is required unit MEM12023 Perform engineering measurements should also be selected.

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

Band: A

Unit Weight: 2

Licensing/Regulatory Information

Assessment as competent against MEM18112 Perform basic eddy current testing may contribute to certification against Australian Standards where assessment in this unit of competency is carried out in conjunction with an examining authority as described in AS ISO 9712 NDT – Qualification and certification of NDT personnel or subsequent Standards.

Pre-requisite unit(s)

MEM11011 Undertake manual handling

MEM13015 Work safely and effectively in manufacturing and engineering

MEM16006 Organise and communicate information

MEM18001 Use hand tools

Competency field(s)

Maintenance and diagnostics

Unit sector(s)

N/A

Elements and Performance Criteria

Elements	Performance criteria
Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
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
2. Prepare inspection areas for basic eddy current testing	2.1 Clean inspection areas and prepare for testing using appropriate procedures and materials 2.2 Carry out preparation processes in accordance with the relevant procedures 2.3 Assess inspection areas visually and identify obvious discontinuities
3. Perform basic tests	3.1 Identify nominated test from SOPs 3.2 Prepare test equipment in accordance with standards and/or procedures 3.3 Carry out eddy current test procedure in accordance with relevant work instructions 3.4 Maintain eddy current test equipment and store in accordance with SOPs
4. Report the results of basic eddy current tests	4.1 Check and confirm basic indications and identify defects in accordance with organisational standards and/or procedures 4.2 Report test results in accordance with organisational standards and/or procedures

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

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, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.	
Preparation processes include:	• surface cleaning and drying.
Eddy current test applications include one (1) or more of the following:	• weld inspection • wheel bead seat inspection • production line inspection • tube production line inspection • conductivity measurement methods.

Unit Mapping Information

Current Code and Title	Previous Code and Title	Comments	Equivalence
MEM18112 Perform basic eddy current testing	MEM24005 Perform basic eddy current testing	Superseded	Equivalent

Assessment Requirements for MEM18112 Perform basic eddy current testing

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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 and include:

- following work instructions, standard operating procedures (SOPs) and safe work practices
- identifying and interpreting specifications, standards and other reference documentation for performing basic eddy current testing
- preparing the area for testing and identifying discontinuities and defects in accordance with procedures
- carrying out eddy current testing using techniques and equipment appropriate for material/s to be tested, checking and confirming basic indicators and identifying all defects in accordance with procedures on at least two occasions
- undertaking numerical operations and calculations associated with performing eddy current testing
- reporting test results in accordance with procedures and customer service requirements on at least two occasions.

Note: Where a volume and/or frequency is not specified, demonstration must be provided at least once.

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)
- cleaning and preparation processes, procedures and work health and safety (WHS) requirements in relation to the preparation process
- visual inspection relevant to eddy current testing
- eddy current instrument set-up and probe selection
- types of discontinuities and their consequences

- procedure for carrying out basic eddy current testing and the necessary system verification checks
- testing and compliance standards (organisation specific)
- basic principles of electricity, magnetism, electromagnetism and eddy current testing
- basic electrical principles
- overview of factors affecting eddy current response
- limitations of eddy current testing
- basic maintenance and storage procedures for testing equipment
- standard defects and comparative techniques
- industry-specific and workplace relevant common basic defects
- standard recording and reporting formats and methods and/or procedures for reporting test results
- standard procedures for the following eddy current test applications:
 - weld inspection
 - wheel bead seat
 - production line
 - tube production line
 - conductivity measurement methods.

Assessment Conditions

- Assessors must:
 - have vocational competency in performing basic eddy current testing at least to the level being assessed with relevant industry knowledge and experience
 - satisfy the assessor requirements in the current vocational education and training legislation, frameworks and/or standards.
- Where possible, assessment must occur in operational workplace situations. Where this is not possible or where personal safety or environmental damage are limiting factors, assessment must occur in a sufficiently rigorous simulated environment that reflects realistic operational workplace conditions that cover all aspects of workplace performance, including environment, 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.

Link

Companion volumes, including implementation guides, are found on the national training register - <https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=45a7f1d5-61a5-447a-9688-7abbd7e1a5c7>.