



Australian Government

MEM24003 Perform basic magnetic particle testing

Release: 1

MEM24003 Perform basic magnetic particle testing

Modification History

Release 1. Supersedes and is equivalent to MEM24003B Perform basic magnetic particle testing.

Application

This unit of competency defines the skills and knowledge required to perform basic magnetic particle testing procedures and techniques in a range of industrial applications including fabrications, structures and components across a wide range of industries. It applies where knowledge of metallurgy, principles of magnetism and the associated application of basic magnetic particle testing techniques in the field of non-destructive testing associated with the level of application in this unit is required.

Magnetic particle testing is performed on critical component or structural zones and actual and potential defects are considered, together with ongoing abnormalities in fabrications, components and structures.

Materials and chemicals which are subject to codes and regulations - for example, chemicals, explosives, solvents, dangerous materials, acids, or noxious waste products - must be subject to safe work habits and must be stored and used in accordance with safe work practices.

This unit should not be selected when unit MEM24004 Perform magnetic particle testing 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 measurement 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.

No licensing or legislative requirements apply to this unit at the time of publication. Certification against Australian standards may be achieved where assessment in this unit of competency is carried out in conjunction with an examining authority as described in AS ISO 9712 Non-destructive testing — Qualification and certification of NDT personnel.

Band: A

Unit Weight: 2

Pre-requisite Unit

MEM11011 Undertake manual handling

MEM13015 Work safely and effectively in manufacturing and engineering

MEM16006 Organise and communicate information

MEM18001 Use hand tools

Competency Field

Non-destructive testing

Unit Sector

Elements and Performance Criteria

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
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 magnetic particle 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 'yoke' or 'bench' magnetic particle testing procedure from SOPs 3.2 Prepare test equipment in accordance with relevant standards and/or procedures 3.3 Carry out magnetic particle test in accordance with relevant work instructions 3.4 Maintain magnetic particle testing equipment and store in accordance with SOPs
4. Report the results of magnetic particle test(s)	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.

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM24003B Perform basic magnetic particle testing.

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 MEM24003 Perform basic magnetic particle 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, charts, lists and other reference documentation for performing basic magnetic particle testing
- preparing the area for testing and identifying discontinuities and defects in accordance with procedures
- selecting appropriate testing techniques and carrying out magnetic particle testing, checking and confirming basic indicators and identifying all defects in accordance with procedures on at least two occasions
- 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)
- surface preparation, procedures and work health and safety (WHS) requirements in relation to the preparation process
- established assessment procedures and techniques
- types of discontinuities and their consequences
- scope and basic principles of magnetic particle testing
- procedure for carrying out magnetic particle test using either the 'yoke' or 'bench'
- advantages and limitations of magnetic particle testing
- basic maintenance and storage procedures for testing equipment
- common basic defects
- methods and/or procedures for reporting test results
- advantages and limitations of various equipment
- magnetic particle application including methods for wet and dry particles

- recording and reporting results of simple tests
- use of toxic and flammable materials
- electrical hazards (at awareness level).

Assessment Conditions

- Assessors must:
 - have vocational competency in performing basic magnetic particle testing 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.
- 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.
- 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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