



Australian Government

Assessment Requirements for MEM24007 Perform ultrasonic thickness testing

Release: 1

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Modification History

Release 1. Supersedes and is equivalent to MEM24007B Perform ultrasonic thickness testing.

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 and standards for performing ultrasonic thickness testing
- preparing the area for testing and identifying discontinuities including observed changes in material homogeneity and defects in accordance with procedures
- carrying out ultrasonic thickness testing using techniques and equipment appropriate for material/s to be tested and interpreting and confirming basic thickness in accordance with procedures on at least two occasions
- undertaking numerical operations and calculations associated with performing ultrasonic thickness 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 for different test surfaces
- established assessment procedures and techniques
- basic principles of ultrasonic thickness testing and properties and behaviour of ultrasound
- basic concepts associated with frequency, velocity, wavelength and amplitude
- generation of ultrasound
- types of discontinuities and their consequences
- procedures, tools, equipment, techniques and system verification checks necessary to carry out the ultrasonic thickness test
- advantages and limitations of ultrasonic thickness testing
- basic maintenance and storage procedures for testing equipment

- common basic defects, indications and thicknesses
- ultrasonic thickness testing equipment
- types of displays including a-scan display and a b-scan display
- types of couplants and their characteristics
- straight beam testing method including:
 - calibration of thickness testing equipment
 - frequency
 - probe size and shape
 - thickness testing
 - plate testing to acceptable standards within the scope of this unit
- recording and reporting including job records, routine reports and codes and standards
- methods and/or procedures for reporting test results
- variables affecting test results and methods of controlling them
- component variables including size and geometry, distance location from entry surface, orientation to entry surface and reflecting characteristics of back wall
- the following abnormalities:
 - thickness measurement of corrosion
 - laminations of nonferrous alloys, ferrous alloys, steels and composite materials.

Assessment Conditions

- Assessors must:
 - have vocational competency in performing ultrasonic thickness 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.

Links

Companion Volume implementation guides are found in VETNet -

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

