



Australian Government

Assessment Requirements for MEM05066 Develop and maintain welding procedures

Release: 1

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Modification History

Release 1. New Unit.

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 the ability to:

- interpret technical drawings
- apply requirements of relevant standards and codes to designs incorporating welding and associated processes
- produce sketches showing joint configuration including weld dimensions, weld preparation, weld position or number, material type and grade for inclusion in welding procedure specification (WPS)
- assess pre-approved procedure qualification records (PQRs) and WPSs and consumables for suitability to a current design
- supervise the welding of test pieces including:
 - determining the number and type of test piece required for at least two ferrous and two non-ferrous designs and their nominated standards or codes
 - measuring and recording of welding parameters used during welding of test pieces
 - arrange for any required witnessing of welding of test pieces
- produce PQRs and WPSs covering:
 - ferrous and non-ferrous welding
 - manual metal arc welding (MMAW), gas metal arc welding (GMAW), tungsten inert gas (TIG), submerged arc, flux cored and oxy welding processes
 - welds to AS1554 Structural Purpose
 - at least one international welding standard
- file PQRs and WPSs to a welding library.

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:

- factors that influence the quality of fusion welds in steels
- the characteristics of commonly-used welding processes
- technical drawings and welding symbols
- set up for the inspection of welds, macrosections and other mechanical tests

- the effects that material departure from specification has on weld quality
- procedures for production of test pieces for welding related non-destructive tests (NDTs)
- types of welding related to NDT and their application
- arithmetic operations, formulae and calculations for testing welding and/or fabrications
- procedures for:
 - organising weld tests and obtaining previous weld tests
 - verifying/amending previously established weld test procedures
 - documenting welding procedures and preparing a weld test piece
- information to be covered in a WPS including:
 - procedure number
 - process type
 - consumable size, type and full codification
 - consumable baking requirement if applicable
 - parent material grade and specification
 - plate or pipe thickness range
 - pipe diameter range
 - welding position
 - joint fit up, preparation, cleaning, dimensions etc.
 - backing strip, back gouging information
 - pre-heat (including minimum temperature and method)
 - interpass if required and recording of maximum temperature recorded
 - post weld heat treatment if required including time and temperature
 - welding technique (weaving, max run width etc.)
 - arc energy limits and their correct application
 - welding current and polarity
 - arc voltage
 - pulse parameters
 - wire feed speed
 - wire configuration
 - welding electrode types and their use
 - welding gases for shielding, fuel and purging
 - fluxes
 - torch and nozzle types and applications.
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Assessment Conditions

- Assessors must:
 - have vocational competency in developing and maintaining welding procedures 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.
- Knowledge assessment may be either verbal or written but must adequately reflect the knowledge requirements of the unit in a functioning workplace.
- 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>