



Australian Government

MEM25013 Produce three-dimensional plugs/moulds

Release: 2

MEM25013 Produce three-dimensional plugs/moulds

Modification History

Release 2. Quantum of hours of workplace practice removed. Supersedes and is equivalent to MEM25013 Produce three-dimensional plugs/moulds (Release 1).

Release 1. Supersedes and is equivalent to MEM25013B Produce three-dimensional plugs/moulds.

Application

This unit of competency defines the skills and knowledge required to manufacture three-dimensional plugs and, where applicable, solid and/or split moulds constructions used in marine vessel construction.

Tasks can include the use of hand and mechanical lay-up practices for plug/mould construction.

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

Band:

This unit has dual status and is to be regarded as both a Specialisation Band A unit and Specialisation Band B unit for progression to C7 (AQF level IV).

Unit Weight: 12

Pre-requisite Unit

MEM04018	Perform general woodworking machine operations
MEM09002	Interpret technical drawing
MEM11011	Undertake manual handling
MEM12007	Mark off/out structural fabrications and shapes
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

MEM18002	Use power tools/hand held operations
MEM25002	Form and integrate fibre-reinforced structures
MEM25003	Set up marine vessel structures

Competency Field

Marine craft construction

Elements and 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	Establish plug specifications from drawings, relevant documentation and client discussion, as appropriate
2	Construct plug	2.1	Select plug construction materials in accordance with job requirements and specifications
		2.2	Select plug coating materials to meet specifications in accordance with organisational procedures
		2.3	Select appropriate tooling and machinery
		2.4	Mark out plug material/s in accordance with plug construction requirements
		2.5	Carry out plug release angles/taper, flanges and rounding/concaving of corners, where applicable
		2.6	Use appropriate tools, machines and construction practices to construct plug

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

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|---|-------------------------------------|-----|---|
| 3 | Finish plug | 3.1 | Check plug for compliance with specifications/drawing |
| | | 3.2 | Apply final finish coatings to plug to comply with specifications, where required |
| | | 3.3 | Prepare plug for mould manufacturing in accordance with specifications or procedures |
| | | | |
| 4 | Determine mould requirements | 4.1 | Interpret mould construction specifications and drawings |
| | | 4.2 | Select mould construction materials in accordance with specifications |
| | | 4.3 | Select appropriate tools and machinery/equipment for job application |
| | | | |
| 5 | Produce mould | 5.1 | Apply tooling coat to plug in accordance with standard application procedures |
| | | 5.2 | Apply construction materials to plug in accordance with appropriate lay-up sequence and procedure |
| | | 5.3 | Apply stiffening/bracing materials in accordance with job requirements, where applicable |
| | | 5.4 | Prepare mould for production run/s, where applicable |

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, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

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Materials include one (1) or more of the following:

- timber
- metal
- plastic fibreglass
- composites
- fillers

Unit Mapping Information

Release 2. Supersedes and is equivalent to MEM25013 Produce three-dimensional plugs/moulds (Release 1).

Release 1. Supersedes and is equivalent to MEM25013B Produce three-dimensional plugs/moulds.

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 MEM25013 Produce three-dimensional plugs/moulds

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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, plans and drawings to identify materials for producing three-dimensional plugs/moulds
- marking out dimensions on appropriate materials relevant to plug/mould components and selecting and using appropriate hand tools, hand held power tools and workshop machinery to suit construction
- constructing plugs/moulds and modifying, as required, to ensure compliance with specifications/drawings
- checking external/internal dimensions against specifications/drawings and applying final finish coatings in accordance with procedures
- preparing plug/mould for production run by fitting reinforcement components and or materials in accordance with job requirements.

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)
- plug/mould construction materials, characteristics and applications
- plug/mould coating materials, characteristics and applications, including tooling coats
- correct dimensions and application procedures for marking out
- release angles/tapers, flanges and rounding/concaving of corner sections
- hand tools/hand held power tools and workshop machinery and their uses
- plug/mould construction methods
- methods used to apply stiffening/bracing/reinforcement
- method of application and sequence of final finish coating
- procedures for sanding/buffing/polishing plug/mould

- fault identification and rectification
- waste removal and disposal procedures.

Assessment Conditions

- Assessors must:
 - have vocational competency in producing three-dimensional plugs/moulds 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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