



Australian Government

Assessment Requirements for MEM04017 Develop and manufacture gear, conveyor screw and propeller patterns

Release: 2

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Modification History

Release 2. Quantum of hours of workplace practice removed. Supersedes and is equivalent to MEM04017 Develop and manufacture gear, conveyor screw and propeller patterns (Release 1).

Release 1. Supersedes and is equivalent to MEM04017B Develop and manufacture gear, conveyor screw and propeller patterns.

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
- planning the appropriate pattern by identifying and interpreting specifications, sketches, drawings and other applicable reference documents in determining type of pattern required
- selecting appropriate materials, applying moulding, casting techniques and foundry processes to the type of pattern required
- undertaking calculations of pattern parameters appropriate to developing various types of gear, conveyor and propeller forms
- laying out pattern according to specification showing tapers, machining allowances, core prints and method construction
- designing and manufacturing jigs and fixtures as required
- manufacturing pattern by marking out material for construction, producing pattern or pattern components to size and shape utilising appropriate hand and power tools
- joining and fixing pattern component parts as required and checking final product for compliance with specifications
- marking, colour coding and/or tagging pattern according to SOPs.

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)
- timber, epoxy resin and composite product knowledge, including features, characteristics and applications
- moulding and casting techniques for cast gears, conveyor screws and marine propellers
- tooling required for casting/moulding

- methoding techniques
- use and application of jigs and fixtures
- methods of construction
- techniques, tools and equipment to measure, mark out and produce gear, conveyor screw and propeller patterns
- mathematical calculations and formulae required to manufacture patterns/core boxes - contraction, taper, pitch, profiles, clearances and machining allowances
- identification coding and numbering
- pattern checking techniques
- mouldability, i.e. surface finish, face taper, convex or concave perspectives and undercuts.

Assessment Conditions

- Assessors must:
 - have vocational competency in the development and manufacture of gear, conveyor screw and propeller patterns 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.

Links

Companion Volume implementation guides are found in VETNet -

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