



Australian Government

Assessment Requirements for MEM04027 Develop and manufacture bevel gear patterns

Release: 1

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Modification History

Release 1. Supersedes but is not equivalent to MEM04017 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 and include:

- following work instructions, standard operating procedures (SOPs) and safe work practices
- planning the appropriate pattern by identifying and interpreting specifications and other applicable reference documents to determine type of pattern required
- selecting appropriate materials and applying moulding or casting techniques and foundry processes suited to the type of bevel gear pattern required
- calculating pattern parameters to develop bevel gear forms
- laying out pattern to specifications on at least two occasions, showing tapers, machining allowances, core prints and method of construction
- designing and manufacturing required jigs and fixtures on at least two occasions
- 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 on at least two occasions and checking final product for compliance with specifications
- identifying pattern in accordance with SOPs.

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)
- timber, epoxy resin and composite products including features, characteristics and applications
- moulding and casting techniques for cast bevel gears
- tooling required for casting and moulding
- methoding techniques
- use and application of jigs and fixtures
- methods of construction

- techniques, tools and equipment to measure, mark out and produce bevel gear patterns
- mathematical calculations and formulae required to manufacture patterns or core boxes including those related to contraction, taper, pitch, profiles, clearances and machining allowances
- identification coding and numbering
- pattern checking techniques
- mouldability including surface finish, face taper, convex or concave perspectives and undercuts.

Assessment Conditions

- Assessors must:
 - have vocational competency in the development and manufacture of bevel gear 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.
- 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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Links

Companion Volume implementation guides are found in VETNet -
<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>