



Australian Government

MEM07007 Perform milling operations

Release: 2

MEM07007 Perform milling operations

Modification History

Release 2. Quantum of hours of workplace practice removed. Supersedes and is equivalent to MEM07007 Perform milling operations (Release 1).

Release 1. Supersedes and is equivalent to MEM07007C Perform milling operations.

Application

This unit of competency has been developed for Engineering Tradesperson - Mechanical apprenticeship training and the recognition of trade-level skills in using a range of milling machines to produce components to required tolerances and specifications using all types of accessories.

Skills covered by this unit are generally applied in occupational and work situations associated with trade-level fitting and machining work.

Where the selection and use of power tools/hand held operations is required unit MEM18002 Use power tools/hand held operations should also be selected.

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

Band: A

Unit Weight: 4

Pre-requisite Unit

MEM07005	Perform general machining
MEM09002	Interpret technical drawing
MEM11011	Undertake manual handling
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

Competency Field

Machine and process operations

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 | Identify job requirements from specifications, drawings, job sheets or work instructions |
| | | | |
| 2 | Prepare to undertake work | 2.1 | Determine sequence of operations to meet job specifications |
| | | 2.2 | Select tooling, using International Standard Organisation (ISO) standards or according to SOPs, to produce component to specification |
| | | 2.3 | Determine cutting parameters |
| | | | |
| 3 | Perform milling operations | 3.1 | Carry out milling operations to produce components to specification |
| | | 3.2 | Undertake operations using conventional and/or climb milling techniques and a variety of cutters |
| | | 3.3 | Use the full range of standard accessories |
| | | | |
| 4 | Check components | 4.1 | Check components for compliance with specifications |
| | | 4.2 | Rectify non-compliant product in accordance with SOPs |

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

Milling machines include one (1) or more of the following:

- vertical
- horizontal
- universal types

Tooling includes one (1) or more of the following:

- slab
- gang
- end
- shell
- slot
- form
- slitting cutters

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

- manual and digital micrometres
- vernier calipers
- dial indicators
- scribing blocks

Cutting parameters include one (1) or more of the following:

- setting up machine
- feed and speed calculations

Accessories include the following:

- dividing heads
- rotary tables

Unit Mapping Information

Release 2. Supersedes and is equivalent to MEM07007 Perform milling operations (Release 1).

Release 1. Supersedes and is equivalent to MEM07007C Perform milling operations.

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 MEM07007 Perform milling operations

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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 engineering drawings to AS 1100,401-1884 (R2014) Technical drawing to determine job requirements for milling operations, including quantity, material, measurements and tolerances
- selecting cutting tools using International Standard Organisation (ISO) standards or according to SOPs from drawings, sketches, specifications and instructions, as appropriate
- fixing of job and tooling to specifications
- calculating and setting required speeds and feeds
- undertaking milling operations to specifications
- checking components for conformance to specifications
- rectifying non-compliant product.

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)
- sequence of milling operations to achieve the job requirements
- cutter types and tooling geometry
- consequences of varying speeds and feeds from the optimum rates calculated
- effects of different materials on cutting speeds and feeds
- conventional and climb milling techniques and their applications
- application of each of the following:
 - slab
 - gang
 - shell
 - slot

- form and slitting
- use of dividing heads and rotary tables when milling components
- procedures for using dividing heads and rotary tables on milling machines
- appropriate techniques, tools and equipment to measure milled components
- tools, techniques and equipment for checking components for conformance to specifications and rectifying non-compliant components.

Assessment Conditions

- Assessors must:
 - have vocational competency in performing milling operations 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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