



Australian Government

MEM12003 Perform precision mechanical measurement

Release: 1

MEM12003 Perform precision mechanical measurement

Modification History

Release 1. Supersedes and is equivalent to MEM12003B Perform precision mechanical measurement

Application

This unit of competency defines the skills and knowledge required to perform precision mechanical measurement.

This unit covers comprehensive measuring skills where judgement is required in the selection of the most appropriate techniques/devices and where results are interpreted and/or analysed.

Where interpretation of technical drawings is required unit MEM09002 Interpret technical drawing should also be selected.

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: 2

Pre-requisite Unit

MEM11011	Undertake manual handling
MEM12023	Perform engineering measurements
MEM13015	Work safely and effectively in manufacturing and engineering
MEM16006	Organise and communicate information

Competency Field

Measurement

Elements and Performance Criteria

Elements describe the essential outcomes.	Performance criteria describe the performance needed to demonstrate achievement of the element.
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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, sketches, job sheets or work instructions
2	Perform precision measurement	2.1	Select appropriate precision equipment to achieve specified outcome
		2.2	Check the accuracy of the selected measuring equipment for where appropriate
		2.3	Use correct and appropriate measuring techniques for the measurement task
		2.4	Take measurements to the finest graduation of instrument in an accurate manner
		2.5	Interpret readings and measurements
3	Maintain precision equipment	3.1	Set measuring equipment to specifications using manufacturer guidelines or procedures and techniques
		3.2	Adjust and maintain measuring equipment to required accuracy using appropriate techniques according to manufacturer's specifications or SOPs
		3.3	Store equipment to manufacturer's specifications or 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, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

- Equipment includes one (1) or more of the following:**
- strip gauges
 - precision squares
 - angle dekkors
 - sine bars
 - angle gauges
 - polygons
 - precision levels
 - dial indicators
 - vernier protractors
 - shadow graphs
 - vibration measurement equipment
 - dynamic balancing equipment
 - micrometres
 - height gauges
 - hardness testers
 - texture measuring equipment

- Measurements include one (1) or more of the following:**
- length
 - circular
 - straightness
 - flatness
 - hardness
 - angles
 - finishes
 - textures
 - roundness
 - squareness
 - alignment and coordinate measurement

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM12003B Perform precision mechanical measurement

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 MEM12003 Perform precision mechanical measurement

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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 measurement requirements from specifications, including sketches and job instructions, schematics, diagrams and technical manuals
- selecting appropriate measuring device or equipment to achieve the required outcome
- checking the accuracy of the selected measuring equipment where appropriate
- setting up measuring equipment where appropriate
- obtaining measurements on components or equipment in a safe and effective manner, interpreting results and recording measurements, as required
- storing and maintaining measuring devices including routine adjustments according to manufacturer's specifications or 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)
- appropriate precision mechanical measuring device for given measurement requirements
- procedures for verifying equipment being used has been recently calibrated
- procedures for obtaining a range of mechanical measurements and techniques to be used
- suitability of environmental conditions for the measurements being carried out
- setting precision mechanical measuring devices procedures
- accuracy to which a range of precision mechanical measuring devices can be read
- procedures for reading graduated mechanical measuring devices
- units of measurement and numerical operations within the scope of this unit
- specifications of the equipment to be set
- tools and equipment for setting mechanical measuring devices
- procedures and techniques required to undertake adjustments to a range of precision mechanical measuring devices
- storage procedures.

Assessment Conditions

- Assessors must:
 - have vocational competency in performing precision mechanical measurement 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. This must 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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