



Australian Government

MEM18012 Perform installation and removal of mechanical seals

Release: 2

MEM18012 Perform installation and removal of mechanical seals

Modification History

Release 2. Quantum of hours of workplace practice removed. Supersedes and is equivalent to MEM18012 Perform installation and removal of mechanical seals (Release 1).

Release 1. Supersedes and is equivalent to MEM18012B Perform installation and removal of mechanical seals.

Application

This unit of competency defines the skills and knowledge required to check, dismantle, select, reassemble and install a range of mechanical seals.

Skills covered by this unit include the knowledge of appropriate applications for a range of mechanical seals and the ability to remove, select, repair or replace all component parts of the seal.

Where straightforward replacement of seals is required see unit MEM18055 Dismantle, replace and assemble engineering components.

Lubrication requirements are attended to according to suppliers' instructions and recommendations or specifications.

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

Band: A

Unit Weight: 2

Pre-requisite Unit

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
MEM18002	Use power tools/hand held operations

MEM18003	Use tools for precision work
MEM18006	Perform precision fitting of engineering components
MEM18055	Dismantle, replace and assemble engineering components

Competency Field

Maintenance and diagnostics

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	Determine mechanical seal requirements	2.1	Apply principles and operational function of mechanical seals and component parts to determine seal requirements
		2.2	Interpret specifications from engineering drawings for new mechanical seal installation
3	Dismantle mechanical seal installations	3.1	Examine mechanical seal assembly and select appropriate dismantling techniques, tools and equipment to suit work requirements
		3.2	Dismantle mechanical seal assembly
		3.3	Examine all component parts for wear, including housing, shafts, primary sealing elements, secondary seals and seat assembly, to determine need for repair or

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

replacement

3.4 Repair serviceable items by appropriate means

3.5 Remove primary sealing elements and secondary seals for replacement, where required

4 **Select replacement items and reassemble mechanical seal installations**

4.1 Select replacement items from appropriate sources or sample using SOPs

4.2 Fit mechanical seal components, including seal head, secondary seals, seat assembly, shaft and housing

4.3 Tension and adjust mechanical seal assembly to manufacturers' specifications

4.4 Test mechanical seal assembly using appropriate methods for compliance with specifications and operational performance

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.

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

- carbon
- stellite
- neoprene
- other associated materials

Mechanical seals

- pusher

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- include (1) one or more of the following:**
- non-pusher
 - conventional
 - balanced
 - unbalanced
 - cartridge
 - single spring
 - multiple spring

Unit Mapping Information

Release 2. Supersedes and is equivalent to MEM18012 Perform installation and removal of mechanical seals (Release 1).

Release 1. Supersedes and is equivalent to MEM18012B Perform installation and removal of mechanical seals.

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 MEM18012 Perform installation and removal of mechanical seals

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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, charts, lists, drawings and other applicable reference documents for determining mechanical seal requirements
- dismantling mechanical seal assemblies used across different sealing applications using appropriate tools, equipment and techniques
- examining all component parts for wear and determining the need for repair/replacement and selecting replacement parts according to specifications
- reassembling/repairing mechanical seal installations using appropriate tools and equipment
- selecting and fitting replacement parts
- measuring components to specified tolerances
- adjusting mechanical seal tensions and checking for compliance to specifications.

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)
- principles of operation of mechanical seals
- components and function of a range of mechanical seal designs
- installation specifications and procedures
- techniques/tools for removing primary sealing elements and secondary seals from mechanical seals
- reasons for selection mechanical seal
- specified mechanical seal tension
- testing mechanical seals
- techniques, tools and equipment to measure components.

Assessment Conditions

- Assessors must:
 - have vocational competency in performing installation and removal of mechanical seals 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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