



Australian Government

UEPMNT401 Install and maintain complex mechanical seals

Release: 2

UEPMNT401 Install and maintain complex mechanical seals

Modification History

Release 2. Minor release to update superseded pre-requisite units.

Release 1. This is the first release of this unit of competency in the UEP Generation Training Package.

Application

This unit involves the skills and knowledge required to undertake the installation and maintenance of complex mechanical seals which may involve fault finding, diagnosis and repair.

Installation of mechanical seals, which are leakage control devices used in power generation plant and equipment, is typically performed in conjunction with manufacturers' specifications to ensure serviceability and reliability. Maintenance ensures the ongoing care and upkeep of the seals to ensure optimal efficiency.

Competency in this unit requires the ability to plan work, remove complex mechanical seals for maintenance, maintain complex mechanical seals, replace and/or install complex mechanical seals and to report on all completed work tasks. Individuals will, in general, work under supervision in an electrical, electronic and/or mechanical equipment repair workshop or on site.

Power generation maintenance personnel are typically trained and authorised to receive permits to work.

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

Note: Workplace practice

The application of the skills and knowledge described in this unit of competency may require a licence or training permit to practice in the workplace, where work is carried out on gas and electrical installations. Additional and/or other conditions may apply under state and territory legislative and regulatory licensing requirements.

Pre-requisite Unit

MEM09002 Interpret technical drawing

MEM12023 Perform engineering measurements

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

UEPMNT304 Maintain mechanical pumps

Competency Field

Maintenance

Unit Sector

Electricity generation

Elements and Performance Criteria**ELEMENTS**

Elements describe the essential outcomes.

1 Plan and prepare for work**PERFORMANCE CRITERIA**

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

- 1.1** Requirements including scope of work and assigned roles are identified and confirmed with appropriate personnel or by site inspection, in accordance with workplace procedures
- 1.2** Work, Health and Safety (WHS)/Occupational Health and Safety (OHS) regulations, legislative requirements, industry standards, codes of practice, manufacturers' specifications, environmental obligations and workplace procedures are reviewed in preparation for work
- 1.3** Resources are obtained and inspected for compliance with job specification
- 1.4** Relevant plans, drawings and manuals are selected and used, in accordance with workplace procedures
- 1.5** Correct materials and components for work are obtained and inspected, in accordance with workplace procedures, for compliance with job specification
- 1.6** Work is planned, sequenced and prioritised, in accordance with workplace procedures
- 1.7** Potential hazards are identified, and risk control measures are selected and implemented, in accordance with workplace procedures
- 1.8** Work area is prepared, in accordance with workplace

- and site procedures
- 2 Remove complex mechanical seals for maintenance**
- 2.1** Isolations for work are confirmed, in accordance with workplace procedures
- 2.2** Complex mechanical seals are identified, in accordance with workplace procedures
- 2.3** Complex mechanical seals are removed, in accordance with workplace procedures
- 2.4** Complex mechanical seals are inspected for abnormalities, in accordance with workplace procedures
- 3 Maintain complex mechanical seals**
- 3.1** Maintenance is performed on complex seals, in accordance with workplace procedures and manufacturers' specifications
- 3.2** Complex mechanical seal assemblies are dismantled, in accordance with workplace procedures, using approved engineering principles
- 3.3** Components and/or parts are clearly marked and sketches produced, as required, in accordance with workplace procedures, for identification
- 3.4** Component wear and clearances are determined using precise measuring techniques and approved testing equipment, in accordance with workplace procedures and manufacturers' specifications
- 3.5** Components found to be faulty are repaired or replaced, in accordance with workplace procedures, to conform with manufacturers' specifications
- 3.6** New components are inspected for compliance and are prepared for reassembly, in accordance with workplace procedures and manufacturers' specifications
- 3.7** Component parts are refitted to complex mechanical seal assemblies, in accordance with workplace procedures and manufacturers' specifications
- 3.8** Modifications or alterations to complex mechanical seals are undertaken, in accordance with workplace procedures
- 4 Replace or install complex**
- 4.1** Equipment is prepared for complex mechanical seal

mechanical seals	replacement, in accordance with workplace procedures
4.2	Complex mechanical seals are replaced, in accordance with workplace procedures and manufacturers' specifications
4.3	All fastenings are torqued, in accordance with workplace procedures and manufacturers' specifications
4.4	Machinery and/or plant are test run, monitored and adjusted, as required, in accordance with workplace procedures and manufacturers' specifications
5 Complete work	
5.1	Work is completed and appropriate personnel are notified, in accordance with workplace procedures
5.2	Work area is cleared of waste, cleaned, restored and secured, in accordance with workplace procedures
5.3	Tools and equipment are cleaned, maintained and stored, in accordance with workplace procedures
5.4	Work completion details are finalised, in accordance with workplace procedures

Foundation Skills

Foundation skills essential to performance are explicit in the performance criteria of this unit of competency.

Range of Conditions

Range is restricted to essential operating conditions and any other variables essential to the work environment.

Non-essential conditions may be found in the Companion Volume Implementation Guide.

Unit Mapping Information

This unit replaces and is equivalent to UEPMT401B Install and maintain complex mechanical seals.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1715b9fa-e7bd-441c-bb8d-cf22c9c825a8>

Assessment Requirements for UEPMNT401 Install and maintain complex mechanical seals

Modification History

Release 2. Minor release to update superseded pre-requisite units.

Release 1. This is the first release of this unit of competency in the UEP Generation Training Package.

Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements, performance criteria and range of conditions on at least two separate occasions and includes:

- applying Work, Health and Safety (WHS)/Occupational Health and Safety (OHS) requirements including:
 - emergency procedures
 - hazard identification
 - risk control measures
 - safe working practices
- communicating with personnel
- completing work
- determining permit to work requirements
- interpreting manufacturers' specifications and manuals
- maintain complex mechanical seals
- manufacturing and installing seals and gaskets
- planning for installation and maintenance of complex mechanical seals work
- recognising worn or damaged components
- remove complex mechanical seals for maintenance
- replace or install complex mechanical seals
- selecting materials and components
- undertaking dismantling and reassembling techniques
- using measuring equipment
- using tools
- utilising removal, installation and maintenance techniques and procedures
- working with diagnostic and testing techniques

Knowledge Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy all the requirements of the elements, performance criteria and range of conditions and includes

knowledge of:

- diagnosis and repair of faults in complex mechanical seals
- generation plant and equipment, its location and operation
- isolations
- legislation, industry standards, codes of practice and regulations
- level and aligning techniques
- manufacturers' specifications and manuals
- materials and components
- permit to work system
- precision measuring equipment
- technical drawings
- test techniques
- tools
- types and materials of seals and gaskets
- typical arrangements of power production plant
- WHS/OHS legislated requirements including:
 - emergency procedures
 - hazard identification
 - risk control measures
 - safe working practices
- workplace documentation
- workplace policies and procedures

Assessment Conditions

As a minimum, assessors must satisfy applicable regulatory requirements, which include requirements in the Standards for Registered Training Organisations current at the time of assessment.

As a minimum, assessment must satisfy applicable regulatory requirements, which include requirements in the Standards for Registered Training Organisations current at the time of assessment.

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.

Assessment must occur in workplace operational situations. Where this is not appropriate, assessment must occur in simulated workplace operational situations that reflect workplace conditions. Resources for assessment must include access to:

- a range of relevant exercises, case studies and/or other simulations
- relevant and appropriate materials, tools, equipment and personal protective equipment currently used in industry
- applicable documentation including workplace procedures, industry standards, equipment specifications, regulations, codes of practice and operation manuals.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=1715b9fa-e7bd-441c-bb8d-cf22c9c825a8>