



Australian Government

Department of Education, Employment and Workplace Relations

MEM18012B Perform installation and removal of mechanical seals

Release: 1

MEM18012B Perform installation and removal of mechanical seals

Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit covers dismantling, selecting, reassembling and installing mechanical seals.
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Application of the Unit

Application of the unit	Tasks involve the checking, installation, removal and replacement of 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. Lubrication requirements are attended to according to suppliers' instructions and recommendations or specifications. All removal and installation practices are to be undertaken in conformance to safe workplace practices and procedures, using correct tools and equipment. For straightforward replacement of seals, Unit MEM18055B (Dismantle, replace and assemble engineering components) should be regarded as sufficient. Band: A Unit Weight: 2
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Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		
Path 1	MEM09002B	Interpret technical drawing
	MEM12023A	Perform engineering measurements
	MEM18001C	Use hand tools
	MEM18002B	Use power tools/hand held operations
	MEM18003C	Use tools for precision work
	MEM18006C	Repair and fit engineering components
	MEM18055B	Dismantle, replace and assemble engineering components

Employability Skills Information

Employability skills	This unit contains employability skills.
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Elements and Performance Criteria Pre-Content

Elements describe the essential outcomes of a unit of competency.	Performance criteria describe the performance needed to demonstrate achievement of the element. Where bold italicised text is used, further information is detailed in the required skills and knowledge section and the range statement. Assessment of performance is to be consistent with the evidence guide.
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Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1. Determine mechanical seal requirements	1.1.Principles of mechanical seals are understood and applied. 1.2.Operational function of mechanical seal components is understood. 1.3.For new mechanical seal installation, specifications are interpreted from engineering drawings etc.
2. Dismantle mechanical seal installations	2.1.Mechanical seal assembly is examined and appropriate dismantling techniques, tools and equipment are selected to suit work requirements. 2.2.Mechanical seal assembly is dismantled using engineering techniques and safe workshop procedures appropriate to the work requirements. 2.3.All component parts are examined for wear, including housing, shafts, primary sealing elements, secondary seals, seat assembly etc., to determine need for repair or replacement. 2.4.Where applicable, serviceable items are repaired by appropriate means. 2.5.Primary sealing elements and secondary seals are removed for replacement where required, using correct and appropriate engineering techniques and tools.
3. Select replacement items	3.1.Replacement items are selected using manufacturers' catalogues, spare parts lists, engineering specifications or sample, using standard operating procedures.
4. Reassemble mechanical seal installations	4.1.Mechanical seal components are fitted using correct and appropriate engineering techniques and tools, including seal head, secondary seals, seat assembly, shaft and housing. 4.2.Mechanical seal assembly is tensioned and adjusted to manufacturers' specifications. 4.3.Mechanical seal assembly is tested using appropriate methods for compliance with specifications and operational performance.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

This section describes the skills and knowledge required for this unit.

Required skills

Look for evidence that confirms skills in:

- reading, interpreting and following information on standard operating procedures, written job instructions, specifications, charts, lists, drawings and other applicable reference documents
- determining mechanical seal requirements
- dismantling mechanical seal installations
- selecting replaceable items
- reassembling/repairing mechanical seal installations
- adjusting mechanical seal tensions
- testing mechanical seal assembly
- checking for conformance to specifications
- measuring components to specified tolerances

Required knowledge

Look for evidence that confirms knowledge of:

- principles of operation and range of mechanical seals
- components and function of a range of mechanical seal designs
- installation specifications and procedures
- failure patterns/wear limits of mechanical seal components
- techniques/tools for removing primary sealing elements and secondary seals from the mechanical seals
- units of measurement, numerical operations and calculations/formulae within the scope of this unit
- reasons for selection of the mechanical seal
- specified mechanical seal tension
- testing mechanical seals
- techniques, tools and equipment to measure components
- hazards and control measures associated with installing/ removal of mechanical seals, including housekeeping
- use and application of personal protective equipment
- safe work practices and procedures

Evidence Guide

EVIDENCE GUIDE

The evidence guide provides advice on assessment and must be read in conjunction with the performance criteria, required skills and knowledge, range statement and the Assessment Guidelines for the Training Package.

Overview of assessment

A person who demonstrates competency in this unit must be able to dismantle, select, reassemble and install mechanical seals. Competency in this unit cannot be claimed until all prerequisites have been satisfied.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

Assessors must be satisfied that the candidate can competently and consistently perform all elements of the unit as specified by the criteria, including required knowledge, and be capable of applying the competency in new and different situations and contexts.

Context of and specific resources for assessment

This unit may be assessed on the job, off the job or a combination of both on and off the job. Where assessment occurs off the job, that is the candidate is not in productive work, then an appropriate simulation must be used where the range of conditions reflects realistic workplace situations. The competencies covered by this unit would be demonstrated by an individual working alone or as part of a team. The assessment environment should not disadvantage the candidate.

This unit could be assessed in conjunction with any other units addressing the safety, quality, communication, materials handling, recording and reporting associated with dismantling, selecting, reassembling and installing of mechanical seals, or other units requiring the exercise of the skills and knowledge covered by this unit.

Method of assessment

Assessors should gather a range of evidence that is valid, sufficient, current and authentic. Evidence can be gathered through a variety of ways including direct observation, supervisor's reports, project work, samples and questioning. Questioning should not require language, literacy and numeracy skills beyond those required in this unit. The candidate must have access to all tools, equipment, materials and documentation required. The candidate must be permitted to refer to any relevant workplace procedures, product and manufacturing specifications, codes, standards, manuals and reference materials.

EVIDENCE GUIDE**Guidance information for assessment****Range Statement****RANGE STATEMENT**

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the performance criteria, is detailed below. Essential operating conditions that may be present with training and assessment (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) may also be included.

Seals

Range of mechanical seals may include carbon, satellite, neoprene and other associated materials

Mechanical seal assembly

Range of mechanical seal assemblies used across different sealing applications

Unit Sector(s)**Unit sector****Co-requisite units**

Co-requisite units		

Competency field

Competency field	Maintenance and diagnostics
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