



Australian Government

Department of Education, Employment and Workplace Relations

MEM07002B Perform precision shaping/planing/slotting operations

Release: 1

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Modification History

Not Applicable

Unit Descriptor

Unit descriptor	This unit covers performing precision shaping/planing/slotting operations.
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Application of the Unit

Application of the unit	This unit applies to a range of one or more of precision shaping, planing or slotting operations where achievement of the specified tolerance and finish is mandatory. Work is performed to drawings or sketches, specifications and instructions as appropriate. Precision measuring instruments, standard engineering materials and cutting tools are used. Band: A Unit Weight: 4
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Licensing/Regulatory Information

Not Applicable

Pre-Requisites

Prerequisite units		
Path 1	MEM07005C	Perform general machining
	MEM09002B	Interpret technical drawing
	MEM12003B	Perform precision mechanical

Prerequisite units		
		measurement
	MEM12023A	Perform engineering measurements
	MEM18001C	Use hand tools

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. Observe safety precautions	1.1. Correct safety procedures are observed and protective clothing and safety glasses worn.
2. Determine job requirements	2.1. Drawings are interpreted, sequence of operations determined and tools selected to produce component to specification. 2.2. Cutting parameters are determined.
3. Perform precision shaping operations	3.1. Precision shaping operations are carried out including precision flat surfaces, shoulders, slots, keyways, angles and dovetails.
4. Perform precision planing operations	4.1. Precision planing operations are carried out including horizontal and vertical surfaces and angles.
5. Perform precision slotting operations	5.1. Precision slotting operations are carried out including feathered and tapered keyways, slotting internal cavities, dovetails, slotting circular surfaces and internal splines.
6. Check component for conformance to specification	6.1. Component is checked for conformance to specification using appropriate techniques, tools and equipment.

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:

- preparing an operational work plan
- performing precision shaping operations:
 - flat surfaces
 - shoulders
 - slots
 - keyways
 - angles
 - dovetails
- performing precision planing operations on:

REQUIRED SKILLS AND KNOWLEDGE

- horizontal and vertical surfaces
- performing precision slotting operations:
 - feathered keyways
 - tapered keyways
 - slotting internal cavities
 - dovetails
 - slotting circular surfaces
 - slotting internal splines
- checking for conformance to specifications
- using precision measurement equipment
- planning and sequencing operations
- reading and interpreting information on written job instructions, specifications, charts, lists, drawings and other applicable reference documents
- checking and clarifying task related information
- measuring components to specified tolerances
- performing calculations for determining cutting parameters and checking tolerances
- undertaking numerical operations within the scope of this unit

Required knowledge

Look for evidence that confirms knowledge of:

- reasons for selecting the chosen sequence of operations
- procedures for setting up the work piece
- tool type and geometry to achieve the required specifications on different materials
- techniques and procedures for machining the following:
 - flat surfaces
 - shoulders
 - slots
 - keyways
 - angles
 - dovetails
- planing techniques and procedures for machining:
 - horizontal and vertical surfaces
- slotting techniques and procedures for machining:
 - feathered keyways
 - tapered keyways
 - slotting internal cavities
 - dovetails
 - slotting circular surfaces

REQUIRED SKILLS AND KNOWLEDGE

- slotting internal splines
- appropriate techniques, tools and equipment to measure machined components
- hazards, control measures and housekeeping associated with precision shaping/planing/slotting operations
- 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 perform precision shaping/planing/slotting operations. 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 performing precision shaping/planing/slotting operations 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.

Tools

Cutting tools, tool holders

Cutting parameters

Feeds, speeds, depth of cut, length of cut etc.

Precision operations

The use of dedicated precision measuring instruments

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

Competency field

Competency field	Machine and process operations
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