



Australian Government

Department of Education, Employment and Workplace Relations

MEM07008C Perform grinding operations

Release: 1

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Modification History

There are no notes for this unit.

Unit Descriptor

This unit covers determining the job requirements, observing safety precautions, selecting appropriate wheels and accessories, performing the grinding operations and checking the components for conformance to specifications.

Application of the Unit

This unit applies to grinding operations performed on surface, cylindrical and centreless grinding machines. It requires use of measuring equipment and standard engineering materials and tooling.

Work is performed to established processes, practices and to drawings or sketches, specifications and instructions as appropriate.

Work is carried out autonomously to predetermined standards of quality and safety.

Licensing/Regulatory Information

Pre-Requisites

Path 1	MEM07005B Perform general machining
	MEM09002B Interpret technical drawing
	MEM12023A Perform engineering measurements
	MEM18001C Use hand tools

Employability Skills Information

Elements and Performance Criteria Pre-Content

Elements are the essential outcomes of the unit of competency.

Together, performance criteria specify the requirements for competent performance. Text in *italics* is explained in the range statement following.

Elements and Performance Criteria

Elements and Performance Criteria

Element	Performance Criteria
1 Determine job requirements	<p>1.1 Job requirements are determined from specifications, and sequence of operations is determined.</p> <p>1.2 Correct and appropriate holding devices are selected and applied.</p>
2 Observe safety precautions	<p>2.1 Machine guards, coolant and dust extraction devices are checked.</p> <p>2.2 Correct safety procedures are observed and protective clothing and safety glasses are worn.</p>
3 Select grinding wheels and accessories	<p>3.1 Wheels are selected, balanced and dressed based on knowledge of grinding wheel structure and application. Accessories are selected to facilitate production to job specifications.</p>
4 Perform grinding operations	<p>4.1 Grinding machine is set up and adjusted in accordance with defined procedures.</p> <p>4.2 Work piece is held or clamped appropriately to avoid damage.</p> <p>4.3 Grinding operations are performed safely, utilising all guards, safety procedures and personal protective clothing and equipment.</p>
5 Check components for conformance with specifications	<p>5.1 Components are checked for conformance to specification using appropriate techniques, tools and equipment.</p>

Required Skills and Knowledge

Evidence Guide

The evidence guide specifies the evidence required to demonstrate achievement in the unit of competency as a whole. It must be read in conjunction with the unit descriptor, performance criteria, range statement and the assessment guidelines for the Metal and Engineering Training Package

Overview of assessment requirements

A person who demonstrates competency in this unit must be able to perform grinding operations on a range of machines. Competency in this unit cannot be claimed until all prerequisites have been satisfied.

Context of 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.

Interdependent assessment

This unit could be assessed in conjunction with any other units addressing the safety, quality, communication, materials handling, recording and reporting associated with performing grinding 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 techniques should not require language, literacy and numeracy skills beyond those required in this unit of competency. 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.

Consistency of performance

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.

Required skills

Look for evidence that confirms skills in:

reading and interpreting information on written job instructions, procedures, specifications, charts, lists, drawings and other applicable reference documents

checking and clarifying task related information

preparing an operational work plan

planning and sequencing operations

using precision measurement equipment within the scope of this unit

setting up work using tools, techniques and equipment

using coolant and dust extraction devices

selecting and preparing grinding wheels and accessories appropriate to the grinding task(s)

performing and monitoring internal/external cylindrical grinding process

clamping/mounting work pieces

checking for conformance to specifications

performing numerical operations and calculations within the scope of this unit

Required knowledge

Look for evidence that confirms knowledge of:

reasons for selecting the chosen sequence of operations

the application of a range of holding devices/accessories

reasons for selecting specific work holding devices, tools, techniques and equipment

coolant selection/function

standard grinding wheel shapes

the range of abrasive materials used in grinding wheels

factors impacting grinding wheel selection including grain size of abrasive particles; grade or strength of bond; and bond material

grinding wheel dressing tools and their application

internal/external cylindrical grinding process

principles of effective clamping

grinding operations/procedures

the function of any grinding accessories

tools, techniques and equipment for checking components for conformance to specifications

hazards and control measures associated with grinding operations, including housekeeping

use and application of personal protective equipment

safe work practices and procedures

Range Statement

The range statement provides information about the context in which the unit of competency is carried out. The variables and scope cater for different work requirements, work practices and knowledge between States, Territories and the Commonwealth, and between organisations and workplaces. The range statement relates to the unit as a whole and provides a focus for assessment. Text in italics in the performance criteria is explained here.

The following variables may be present and may include, but are not limited to, the examples listed under the scope. All work is undertaken to relevant legislative requirements, where applicable

Variable	Scope
Specifications	Dimensions and tolerances, geometry and tolerances, surface finish
Holding devices	Vices, clamps, magnetic chucks, face plates, collets, 3/4 jaw chuck, etc.
Wheels	Shape, grit/bond composition
Balanced	Static and dynamic balancing
Grinding machine	Surface, cylindrical and centreless machines

Unit Sector(s)

Competency field

Machine&process operations

Band

A

Unit Weight

4

Related units

Where precision mechanical measurement is required, Unit MEM12003B (Perform precision mechanical measurement) should also be considered.