



Australian Government

Department of Education, Employment and Workplace Relations

MEM05010B Apply fabrication, forming and shaping techniques

Release: 1

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Modification History

There are no notes for this unit.

Unit Descriptor

This unit covers applying the fabrication of shapes and products using a variety of forming and shaping techniques, using a variety of tools and equipment.

Application of the Unit

Predetermined standards of quality and safety are observed and work is carried out following standard operating procedures.

Competency in this unit includes the ability to produce a wide range of shapes and products such as pipework, chamfers, cylinders, cones, angles, hoppers, ductwork, square to round, transitions, lobster backs and all forms of tubular shapes, including hand rails, reticulation pipework and mufflers.

Materials may include ferrous and non-ferrous and non-metallic substances. A variety of tools and equipment may be used including presses, shapers, benders, rollers, drop hammers etc.

This unit is not intended to apply in situations where products or shapes are merely bent using hand tools or equipment.

Licensing/Regulatory Information

Pre-Requisites

Path 1

MEM05037B Perform geometric development

MEM09002B Interpret technical drawing

MEM12023A Perform engineering measurements

MEM12024A Perform computations

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 Select and set up forming/shaping equipment for a specific operation	1.1 Most appropriate tools and equipment are selected.
	1.2 Equipment is correctly set up and adjusted for operation to standard operating procedures.
	1.3 Allowances for shrinkage, thickness and inside/outside measurements are correctly made.
2 Operate forming/shaping equipment	2.1 Machine is safely started up and shut down to standard operating procedures.
	2.2 Material and safety guards are correctly positioned.
	2.3 Equipment is correctly operated and adjusted.
3 Form and shape material	3.1 Material is levelled, straightened, rolled, pressed or bent to specifications/drawings using fabrication techniques .
	3.2 Correct hot or cold forming procedures are followed.
	3.3 Final form/shape is checked for compliance to specification and adjusted as necessary to standard operating procedures.

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 apply fabrication, forming and shaping techniques to meet specifications. 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 applying fabrication, forming and shaping techniques 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:

selecting tools and equipment

setting up and adjusting equipment

calculating allowances

taking measurements

starting up and shutting down the machine

positioning material

positioning safety guards

obtaining drawings and/or specifications

selecting the most appropriate forming/shaping process to achieve the required size and specification

forming/shaping material to size and specification

checking the final form/shape of the object for conformance with specifications

reworking the object to ensure conformance with specifications

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

Required knowledge

planning and sequencing operations

checking task-related information

Look for evidence that confirms knowledge of:

a variety of hot and cold forming/shaping processes

the machines, tools and/or equipment required to perform forming/shaping processes

the reasons for selecting chosen tools, equipment and process(es)

adjustments that can be made to the equipment and the effect of adjustments on the object being formed/shaped

allowances when forming/shaping materials

sources of data relating to allowances

start-up and shut-down procedures

the material positioning/feeding requirements

the location and function of all safety guards

procedures for the forming/shaping process

defects in formed/shaped materials

defects that can be rectified by further work/adjustment

hazards and control measures associated with undertaking fabrication, forming and shaping, including housekeeping

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
Tools and equipment	Presses, shapers, benders, rollers, drop hammers etc.
Material	Ferrous and no-ferrous and non-metallic substances
Fabrication techniques	Includes measurements and calculations associated with allowances for shrinkage, thickness and inside/outside measurements
Final form/shape	Pipework, chamfers, cylinders, cones, angles, hoppers, ductwork, 'square to round', 'transitions', 'lobster backs' and all forms of tubular shapes, including hand rails, reticulation pipework, mufflers etc.

Unit Sector(s)

Related units

If heating or thermal cutting is required, Unit MEM05007C (Perform manual heating and thermal cutting) should be accessed.

Where marking off/out skills are required, then Unit MEM12007C (Mark off/out structural fabrications and shapes) should be selected.

Where welding is required, relevant welding units should be selected.

Competency field

Fabrication

Band

A

Unit Weight

8