



Australian Government

MEM19061 Carve and polish gemstones

Release: 1

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Modification History

Release 1. New unit.

Application

This unit of competency defines the skills and knowledge required to carve and polish gemstones, including all the processes from the selection of the piece of gemstone to the completed polished carving. It is based on deleted unit CUVOPA401A Use opal carving tools.

This unit applies to individuals processing gemstones in a small or large-scale production context. They use and adapt technical knowledge and skills to produce work that meets client requirements.

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

Band: B

Unit Weight: 8

Pre-requisite Unit

MEM13015 Work safely and effectively in manufacturing and engineering

MEM16006 Organise and communicate information

Competency Field

Jewellery

Elements and Performance Criteria

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
1. Determine job requirements	1.1 Follow standard operating procedures (SOPs) 1.2 Comply with work health and safety (WHS) requirements at all times 1.3 Identify job requirements from specifications
2. Prepare to carve stone	2.1 Review available pieces of rough gemstone to determine the suitability or necessity for carving

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
	2.2 Assess the potential of pieces of gemstone for carving based on the characteristics of the stone 2.3 Clean the stone, removing foreign materials and eliminating faults 2.4 Discuss the potential for enhancing stone with colleagues and client 2.5 Determine the approach to be taken to achieve the potential of the stone and maximise the value of the finished product 2.6 Select carving tools and equipment needed to achieve the desired result 2.7 Select consumables for grinding and polishing the carving
3. Carve gemstones	3.1 Grind stone to desired shape using high speed fine grit burr working through several grades 3.2 Polish entire carving with suitable polishing compound to job requirements 3.3 Use magnification to check the finished carving for faults and conformance to industry standards and rectify if necessary

Foundation Skills

This section describes those language, literacy, numeracy and employment skills that are essential to performance.

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

Range of Conditions

This field allows for different work environments and conditions that may affect performance. Essential operating conditions that may be present (depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts) are included.

Specifications include one or more of the following:	- client requirements - job sheets - work instructions.
Carving tools include one	- assorted mandrels - coarse, medium, fine and extra fine wheels

or more of the following:	• diamond grinding burrs of assorted shapes • diamond polishing wheels of assorted shapes • diamond sanding wheels of assorted shapes • felt polishing buffs • silicon carbide grinding burrs of assorted shapes • supporting equipment: • drip feed watering system • dust extraction system • wooden polishing buffs.
Carving equipment includes one or more of the following:	• air power tools • centre point carvers • flexible drive • hobby carvers • micro motor • personal protective equipment (PPE).
WHS issues for carving include:	• contamination • eye protection • guarding • keeping a clean work area • minimising dust inhalation • maintaining equipment • unattended running machinery.
Grinding mediums include one or more of the following:	• coarse, medium, fine and extra fine wheels of assorted shapes • diamond powders (up to #1200 on felt/wooden wheels) • pumice powders on felt wheels • silicon carbide powders (up to #1200 on felt/wooden wheels).
Polishing compounds include one or more of the following:	• cerium oxide on felt, leather or wooden wheels or discs • diamond compounds (from #1200 to #100,000) • tin oxide.
Industry practice and expectations relate to one or more of the following:	• no sharp or protruding areas • when shaping, keep the setting into jewellery in mind • very high polish • no grinding marks on surface • no cracks or obvious inclusions that should have been removed with initial grinding • avoiding making the carving too large.

Unit Mapping Information

No equivalent unit.

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=b7050d37-5fd0-4740-8f7d-3b7a49c10bb2>

Assessment Requirements for MEM19061 Carve and polish gemstones

Modification History

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Performance Evidence

Evidence required to demonstrate competence in this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include:

- following standard operating procedures and complying with work health and safety (WHS) requirements at all times
- identifying, selecting and using consumables, tools, machinery and equipment appropriate to carving and polishing tasks
- assessing and discussing potential of stone for carving
- carving and polishing gemstones on at least two occasions to accepted standards.

Note: Where a volume and/or frequency is not specified, demonstration must be provided at least once.

Knowledge Evidence

Evidence required to demonstrate the required knowledge for this unit must be relevant to and satisfy the requirements of the elements and performance criteria and include knowledge of:

- materials, equipment, tools, machinery and consumables needed for carving and polishing gemstones
- characteristics of gemstone pieces that make them suitable for carving
- techniques and processes to create a finished carving
- fault identification and rectification
- industry standards for gemstone carving
- safety issues associated with the use of gemstone carving and polishing:
 - materials
 - machinery
 - equipment
 - tools
 - consumables.
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Assessment Conditions

- Assessors must:
 - have vocational competency in carving and polishing gemstones at least to the level being assessed with relevant industry knowledge and experience

- satisfy the assessor requirements in the *Standards for Registered Training Organisations 2015* or its replacement and comply with the *National Vocational Education and Training Regulator Act 2011*, its replacement or equivalent legislation covering VET regulation in a non-referring state/territory as the case requires.
- Where possible, assessment must occur in operational workplace situations. Where this is not possible or where personal safety or environmental damage are limiting factors, assessment must occur in a sufficiently rigorous simulated environment that reflects realistic operational workplace conditions that cover all aspects of workplace performance, including environment, task skills, task management skills, contingency management skills and job role environment skills.
- Conditions for assessment must include access to all tools, equipment, materials and documentation required including relevant workplace procedures, product and manufacturing specifications.
- 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.
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