



Australian Government

MEM19063 Use a faceting machine

Release: 1

MEM19063 Use a faceting machine

Modification History

Release 1. New unit.

Application

This unit of competency defines the skills and knowledge required to use a faceting machine to facet gemstones including pre-forming, cutting and polishing a selected stone. The machine may be used to produce a traditional faceted gemstone and complete a range of other tasks, such as making cubes from gemstone material. It is based on deleted unit CUVOPA403A Use a faceting machine.

This unit applies to individuals processing gemstones in a small or large-scale production context. They work in accordance with established procedures.

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

Band: B

Unit Weight: 4

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 use faceting machine	2.1 Set up faceting machines to manufacturer's specifications identifying machine components and laps

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 Complete manufacturer's maintenance checklist 2.3 Investigate index wheels for quill and identify main and critical angles for gemstones 2.4 Select piece of gemstone suitable for faceting according to a chosen design pattern 2.5 Pre-form using faceting machine or diamond wheels to establish rough shape of the gemstone 2.6 Dop stone, using the appropriate adhesive for gemstone material
3. Grind and polish pavilion	3.1 Place dopped stone in quill and cut pavilion to a centre point 3.2 Grind girdle to according to pattern instructions 3.3 Grind main, girdle break and cutlet facets following pattern instructions 3.4 Pre-polish and polish all pavilion facets including girdle 3.5 Transfer stone to suitable dop 3.6 Remove crown dop and place new dop and stone in faceting quill
4. Grind, pre-polish and polish crown	4.1 Place girdle facet on lap at a 90-degree angle, main index setting 4.2 Grind girdle break, main and table facets to meet job requirements 4.3 Pre-polish and polish all facets and crown facets 4.4 Remove stone from dop and clean with appropriate chemical agents

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.
Machine components include one or more of the following:	• angle Vernier (protractor) • coarse and fine height adjuster • coolant tank • forward and reverse switch • handpiece (quill) • index wheel • master lap • radial Vernier (cheater) • sliding post • variable speed control.
Laps' diamond grit sizes include:	• coarse (#80, #100, #120, #180) • fine (#800, #1000, #1200) • medium (#220, #320, #360, #400, #600) • polish (#14000, #50000, #100000) • pre-polish (#2400, #3000, #8000).
Maintenance includes one or more of the following:	• check electrics regularly for faults and water seepage • cover machine when not in use • keep all laps separate from each other • keep whole machine clean • oil and clean moving parts • read manufacturer manual and keep near machine.

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 MEM19063 Use a faceting machine

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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 (SOPs) and complying with work health and safety (WHS) requirements at all times
- setting up faceting equipment and completing required maintenance checklist on at least two occasions
- selecting gemstone pieces suitable for faceting
- using faceting equipment to produce and polish a faceted gemstone that meets industry standards on at least two occasions.

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 used for the gemstone faceting and polishing process
- maintenance requirements for faceting machines
- characteristics of gemstone pieces that make them suitable for faceting
- techniques and processes used for faceting gemstones
- sources of materials and supplies for gemstone production cutting and polishing
- industry standards for gemstone faceting
- safety issues associated with the use of gemstone faceting and polishing:
 - materials
 - machinery
 - equipment
 - tools
 - consumables.
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Assessment Conditions

- Assessors must:

- have vocational competency in using gemstone faceting machinery 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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