



Australian Government

MEM19013 Produce jewellery metal masters

Release: 1

MEM19013 Produce jewellery metal masters

Modification History

Release 1. Supersedes and is equivalent to MEM19013B Produce jewellery metal masters

Application

This unit of competency covers the skills and knowledge required for producing jewellery master patterns for jewellery reproduction.

Where machining is required as a major component of this manufacturing concept unit MEM07005 Perform general machining should also be selected.

Where component(s) require preparation or manufacture by numerically controlled (NC)/computer numerically controlled (CNC)/computer-aided design (CAD)/computer-aided manufacture (CAM) as an integral part of this process by the person working autonomously appropriate units should also be selected.

Where electro-deposition and/or electro-forming of metal are required unit MEM07024 Operate and monitor machine and process or unit MEM08003 Perform electroplating operations, should also be selected as appropriate.

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

Band:

This unit has dual status and is to be regarded as both a Specialisation Band A unit and Specialisation Band B unit for progression to C5 (AQF level V).

Unit Weight: 4

Pre-requisite Unit

MEM08010	Manually finish/polish materials
MEM13004	Work safely with molten metals/glass
MEM13015	Work safely and effectively in manufacturing and engineering
MEM16006	Organise and communicate information
MEM19001	Perform jewellery metal casting

Competency Field

Jewellery and horological

Elements and Performance Criteria

Elements describe the essential outcomes.

Performance criteria describe the performance needed to demonstrate achievement of the element.

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	Use appropriate personal protective equipment (PPE) in accordance with SOPs
		1.4	Identify job requirements from specifications, drawings, job sheets or work instructions
2	Produce master	2.1	Select technique and process to achieve quality high polish finish for masters
		2.2	Select materials, tools and equipment for task
		2.3	Mark out materials and develop construction plan to meet specifications and stages of process
		2.4	Prepare pattern materials and produce master
3	Finish and inspect work	3.1	Check item for compliance with specifications
		3.2	Determine the action required when item does not comply with specifications and carry out the determined action
		3.3	Record weights and measurements
		3.4	Fit sprue material, as required
		3.5	Apply final finish to meet specifications and store item
		3.6	Evaluate master and compare to production sample

Foundation Skills

This section describes those required skills (reading, writing, oral communication and numeracy) that are essential to workplace performance in this unit of competency.

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.

Materials include one (1) or more of the following:

- jewellery alloys
- base metals

Tools and equipment include one (1) or more of the following:

- hand and power tools
- lathes
- non-CNC machines

Unit Mapping Information

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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 MEM19013 Produce jewellery metal masters

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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 on at least two (2) occasions and include:

- following work instructions, standard operating procedures (SOPs) and safe work practices
- identifying and interpreting specifications, drawings, job sheets or work instructions to produce jewellery metal masters
- selecting technique and process appropriate to the task
- applying a working knowledge of metals and materials
- selecting and using tools and equipment, including precision measuring equipment to produce master
- marking out materials and developing construction plan to meet specifications
- undertaking numerical operations and calculations associated with producing jewellery metal masters
- inspecting surface condition for pre-treatment and plating process
- positioning and securing sprue section and undertaking final treatments
- checking product for compliance to specification and original design concepts and evaluating master against production sample.
- taking appropriate action with non-compliant items

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:

- safe work practices and procedures and use of personal protective equipment (PPE)
- principles of casting, moulding, shrinkage and wax injection
- location of information and specifications and clarification approval processes
- production processes used to finish reproductions
- wrought, forge, machine and cast techniques and applications
- properties, abilities, limitations and functions of materials
- planning and process stages
- difference between master and finished item specifications
- fine detail work processes
- levels of acceptable performance and productivity outcomes

- finishing processes
- inspection and compliance checks
- appropriate actions for non-compliant items
- surface, parts and areas appropriate for post-production processes for setting, electroplating and enamelling, and for the subsequent processes of moulding and waxing
- appropriate measuring devices and recording methods and reasons for the recording of specifications
- handling and design needs associated with sprue placement
- processes of wax injection, moulding, casting, molten metal flow and solidification
- procedures for final treatment and safe handling and storage of item
- relevancy of calculations and specifications
- techniques, tools and equipment to measure machined components.

Assessment Conditions

- Assessors must:
 - have vocational competency in producing jewellery metal masters 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. This must 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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