



Australian Government

MEM19034 Apply chain manufacture process

Release: 1

MEM19034 Apply chain manufacture process

Modification History

Release 1. Supersedes and is equivalent to MEM19034A Apply chain manufacture process.

Application

This unit of competency defines the skills and knowledge required to plan, construct and solder a series of chains according to required specification.

This unit applies to individuals involved in jewellery manufacture in a small or large-scale production context. They use and adapt technical skills and knowledge to produce work that meets pre-determined design and production requirements.

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

Band: A

Unit Weight: 2

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 Use personal protective equipment (PPE) in accordance with SOPs 1.4 Identify job requirements from specifications
2. Draw wire for chain	2.1 Establish and organise stages, materials, tools and equipment for

Elements	Performance Criteria
<i>Elements describe the essential outcomes.</i>	<i>Performance criteria describe the performance needed to demonstrate achievement of the element.</i>
making to size required	the fabrication process 2.2 Calculate and cut materials and draw wire to the required size 2.3 Complete required annealing of materials to relieve stress and work hardening 2.4 Draw materials to specified tolerance using appropriate equipment 2.5 Obtain and prepare resources and equipment for fabrication work
3. Fabricate jewellery chains	3.1 Produce spit jig suitable for specified chain 3.2 Produce links to the correct size and specification 3.3 Solder links free from pit holes and flooding 3.4 Construct chain links sequentially 3.5 Conduct quality assurance during construction to maintain link consistency and meet specifications
4. Finish jewellery chains	4.1 Polish and finish chains to a blemish-free high lustre 4.2 Clean up and maintain production environment, including polishing machines and tumblers, in accordance with SOPs

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:	- drawings - job sheets - work instructions.
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Environmental requirements include one or more of the following:	• liquid waste • solid waste • emissions (gas, fumes, vapour, smoke, fugitive emissions or dust) • excessive energy and water use • excessive noise.
Equipment includes one or more of the following:	• draw and jewellery benches • soldering torch • adjustable chair • pickle bath and heater • propane-oxy heating equipment • flexible drive and drill bits • spit jigs • hand tools • measuring and marking out equipment • abrasives, lubricants and compounds • round, square and fancy shaped drawplates • stock gauge rod and wire for chain links • polishing lathe with extraction, buffs, brushes and compounds • tumbler with stainless steel shot • protective clothing and equipment.
Finishing includes one or more of the following:	• finishing by files and emery • tumbling with appropriate shot • polishing on a polishing lathe using appropriate brushes and compounds.

Unit Mapping Information

Release 1. Supersedes and is equivalent to MEM19034A Apply chain manufacture process.

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 MEM19034 Apply chain manufacture process

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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 work instructions, standard operating procedures (SOPs) and safe work practices
- applying chain manufacturing process on at least two occasions in accordance with SOPs, including the use of tools and equipment
- calculating and cutting materials and rolling materials to size and thickness
- annealing to relieve stress and work hardening according to job requirements
- drawing materials to size required
- producing jewellery chains from wire on at least two occasions using soldering materials and equipment
- finishing jewellery chains to a blemish-free high lustre.

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:

- safe work practices and procedures and use of personal protective equipment (PPE)
- equipment and techniques used in chain manufacture
- uses of wire and chain
- use of rolling equipment and techniques for rolling
- calculations and measurements
- procedures to anneal material and reasons for stress relieving metal
- equipment and techniques and safety requirements for wire drawing
- use of cleaning solution and safe practices with chemicals
- procedure to make a split jig
- techniques for coiling and cutting link wire
- procedures to fit and solder chain links
- safe use of polishing lathe and polishing tumbler
- selection and use of buffs and compounds

- selection, use and maintenance of steel polishing shot
- environmental considerations related to chain manufacture.
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Assessment Conditions

- Assessors must:
 - have vocational competency in applying chain manufacture process 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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