



Australian Government

MSTTF2002 Cut, bend and shape metal

Release: 1

MSTTF2002 Cut, bend and shape metal

Modification History

Release 1. Supersedes and is equivalent to LMTTF2017A Cut, bend and shape metal

Application

This unit of competency covers the skills and knowledge required to cut prescribed lengths of metal bar stock and to bend the lengths into various shapes by hand or with the aid of formers.

Work may involve interaction with other people in the workplace, including supervisors and production personnel. Work may be conducted in a variety of environments, such as operational indoor or outdoor workplaces and hazardous or exposed conditions

Work may be conducted in small to large scale enterprises and may involve individual and team activities. Work is performed within defined procedures under direct supervision.

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

Pre-requisite Unit

Nil

Competency Field

Textile fabrication

Unit Sector

Not applicable

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

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| 2 | Prepare for cutting, bending and shaping metal | 2.1 | Read and interpret workplace procedures and instructions |
| | | 2.2 | Establish safe working environment |
| | | 2.3 | Obtain specifications of material to be used and shape to be formed |
| | | 2.4 | Plan sequence of task operations and calculate required length of material |
| | | 2.5 | Select appropriate section material to meet specification, and choose suitable length of material stock for cutting to minimise waste |
| | | 2.6 | Move material to be cut to work area |
| | | 2.7 | Prepare appropriate hand and power tools |
| 3 | Prepare for cutting process | 3.1 | Mark out cutting points on material and select appropriate cutting equipment |
| | | 3.2 | Check area to ensure equipment doesn't become entangled or damaged during operation |
| | | 3.3 | Secure material to prevent movement |
| 4 | Cut material and informally check product | 4.1 | Use safety equipment in accordance with WHS requirements when using cutting equipment |
| | | 4.2 | Select and install appropriate consumables as to manufacturers requirements |
| | | 4.3 | Set and operate equipment in accordance with accepted industry and WHS practices |
| | | 4.4 | Cut material to correct length and remove burrs or rough edges by brushing, grinding or filing |
| | | 4.5 | Inspect cut sections to verify that their size and condition meets specifications and relevant workplace and industry quality standards |

5	Prepare for forming process	5.1	Plan sequence of forming operations and select appropriate forming equipment
		5.2	Check forming equipment for damage or operating defects
		5.3	Select and set appropriate formers
6	Form material and informally check product	6.1	Place metal section in former and secure, as necessary
		6.2	Heat metal section to facilitate bending, as necessary
		6.3	Hot or cold bend the metal section around formers or hand form to required specification
		6.4	Descale or otherwise finish formed product after forming
		6.5	Inspect formed product to verify that it meets specifications and relevant workplace and industry quality standards
7	Maintain work area and equipment	7.1	Clean work area and stow tools and electrical equipment away safely
		7.2	Comply with environmental regulations to reuse, recycle or dispose of materials as required
		7.3	Clean and maintain cutting and forming equipment in accordance with workplace requirements and manufacturer specifications
		7.4	Perform programmed maintenance which is within the operator's area of responsibility
		7.5	Inform supervisor of any abnormal conditions needing maintenance or repair

Foundation Skills

This section describes those required skills (language, literacy and numeracy) 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.

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| Workplace procedures include one or more of the following: | <ul style="list-style-type: none">• requirements prescribed by legislation, awards, agreements and conditions of employment• SOPs• work instructions• oral, written and visual communication• quality practices, including responsibility for maintenance of own work quality and contribution to quality improvement of team or section output• housekeeping• tasks related to environmental protection, waste disposal, pollution control and recycling• WHS practices |
| Australian Standards include: | <ul style="list-style-type: none">• the relevant industry or Australian Standards that are current at the time this unit is being undertaken |
| Hand tools include one or more of the following: | <ul style="list-style-type: none">• hammers• punches• vices• clamps• jigs• formers• hand drills• hacksaws• files• tongs• wire brushes plus gloves• goggles and other safety equipment |
| Power tools include one or more of the following: | <ul style="list-style-type: none">• power hacksaws• portable electric drills• portable sanders and wire brushes• guillotine |

- abrasive disk cutting equipment
- gas cutting equipment

WHS practices

WHS practices include hazard identification and control, risk assessment and implementation of risk reduction measures specific to the tasks described by this unit, and include one or more of the following:

- manual handling techniques
- SOPs
- PPE
- safe materials handling
- taking of rest breaks
- ergonomic arrangement of workplaces
- following marked walkways
- safe storage of equipment
- housekeeping
- reporting accidents and incidents
- environmental practices

Unit Mapping Information

Release 1. Supersedes and is equivalent to LMTTF2017A Cut, bend and shape metal

Links

Companion Volume implementation guides are found in VETNet -

<https://vetnet.gov.au/Pages/TrainingDocs.aspx?q=a203ec5c-de7d-406b-b3e1-8f1a9b76e92e>

Assessment Requirements for MSTTF2002 Cut, bend and shape metal

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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:

- reading and following work instructions, standard operating procedures (SOPs), safe work practices
- applying relevant standards
- complying with all relevant safety requirements applicable to the safe use of cutting and bending equipment
- interpreting work orders
- interpreting equipment and materials specifications and instructions needed for the cutting and forming processes
- setting up cutting and forming equipment
- performing cutting process using at least three (3) different tools or equipment according to workplace procedures, on at least three (3) different products
- performing forming processes according to workplace procedures on at least three (3) products
- inspecting completed work to assess quality
- performing normal operator maintenance of work area to enable work to be conducted safely and efficiently
- documenting and communicating work related information including reporting faults and other problems
- applying workplace procedures.

Knowledge Evidence

Evidence must be provided that demonstrates knowledge of:

- safe work practices and procedures and use of personal protective equipment (PPE)
- relevant Australian Standards
- specific work health and safety (WHS) requirements associated with cutting and heating equipment
- common metals and basic sections used in fabrication work
- metal cutting processes
- metal grinding and dressing processes
- metal forming processes

- the range of cutting and forming equipment, hand tools and power tools used in cutting and forming processes and their appropriateness for particular applications
- power sources, such as single phase, three phase and weather-protected outlets
- operating principles of tools and equipment used in cutting, dressing and forming metals, including abrasive cutting wheels, gas equipment, grinding wheels, guillotines and power hacksaws
- hazards associated with powered machinery and gas equipment
- materials and equipment specifications
- environmental requirements of relevant industry and workplace procedures
- general housekeeping policies and procedures
- WHS practices, including hazard identification and control measures
- quality practices
- workplace procedures
- recording and reporting practices.

Assessment Conditions

- Assessors must:
 - satisfy the assessor competency requirements that are in place at the time of the assessment, as set by the VET regulator
 - have vocational competency in cutting, bending and shaping metal, at least to the level being assessed, with relevant industry knowledge and experience.
- Assessment should 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 reflecting 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.
- 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.
- Conditions for assessment must include access to all tools, equipment, materials and documentation required, including relevant workplace procedures, product and manufacturing specifications associated with this unit.

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