



Australian Government

Department of Education, Employment and Workplace Relations

LMTTF2017A Cut, bend and shape metal

Revision Number: 1

LMTTF2017A Cut, bend and shape metal

Modification History

Not applicable.

Unit Descriptor

Unit descriptor This unit 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.

Application of the Unit

Application of the Unit

This unit applies to cutting simple section metal stock and bending it into simple shapes. 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 workplaces
- operational outdoor workplaces
- 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.

The application of this unit is according to OHS practices of the enterprise and workplace practices, which may include:

- requirements prescribed by legislation, awards, agreements and conditions of employment
- standard operating procedures
- 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

This unit requires the application of skills associated with planning and organising for the safe and efficient use of technology and processes to cut, bend and shape metals used in the textile fabrication industry. This unit also requires an ability to interpret and communicate specifications and job related information, check the quality of outcomes and identify and address problems relating to own work such as those associated with equipment maintenance or repair requirements. Self management skills are applied to ensure workplace and quality standards are achieved.

Licensing/Regulatory Information

Not applicable.

Pre-Requisites

Prerequisites

Employability Skills Information

Employability Skills This unit contains employability skills.

Elements and Performance Criteria Pre-Content

Not applicable.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1 Prepare for task and select material	1.1 Safe working environment is established 1.2 Specifications of material to be used and shape to be formed are obtained 1.3 Sequence of task operations is planned 1.4 Required length of material is calculated 1.5 Appropriate section material is selected to meet specification 1.6 Suitable length of material stock is chosen for cutting so as to minimise waste 1.7 Material to be cut is moved to work area 1.8 Workplace procedures and instructions are read and interpreted
2 Select, use, store hand and power tools	2.1 Appropriate hand tools and power tools are selected for the task 2.2 Tools are inspected for damage, missing components or other defects (including frayed power cords where applicable) prior to use 2.3 Safe working environment for tool use is established 2.4 Extension power cables are checked for knots and insulation damage and are safely supported when used overhead 2.5 Electrical tools are safely connected to power supply 2.6 Safety equipment is used during tool operation in accordance with OHS practices 2.7 Tools are used in accordance with OHS practices 2.8 Tools are located in a safe position when not in use 2.9 Tools and extension cords are cleaned and stored in accordance with industry and workplace OHS practices
3 Prepare for cutting process	3.1 Cutting points are marked out on material 3.2 Appropriate cutting equipment is selected 3.3 Cords, cables, gas lines leading to cutting equipment are checked for fouling or damage 3.4 Material is secured to prevent movement
4 Cut material and informally check product	4.1 Safety equipment is used in accordance with OHS requirements during operation of cutting equipment 4.2 Appropriate saw blade, cutting disc or gas tip is selected and installed 4.3 Cutting equipment is set for cut 4.4 Cutting equipment is operated in accordance with accepted industry practice and OHS practices 4.5 Material is cut to correct length 4.6 Burrs or rough edges are removed by brushing, grinding or filing

ELEMENT	PERFORMANCE CRITERIA
	4.7 Cut sections are inspected to verify that their size and condition meets specifications and relevant workplace and industry quality standards
	4.8 Cutting equipment and immediate work area is cleaned up
	4.9 Knowledge of cutting and bending processes are applied to perform required tasks
5 Prepare for forming process	5.1 Sequence of forming operations is planned
	5.2 Appropriate forming equipment is selected
	5.3 Forming equipment is checked for damage or operating defects
	5.4 Appropriate formers are selected and set
6 Form material and informally check product	6.1 Metal section is placed in former and secured if necessary
	6.2 Metal section is heated to facilitate bending, if necessary
	6.3 Metal section is hot or cold bent around formers or hand formed to required specification
	6.4 Formed product is descaled or otherwise finished after forming
	6.5 Formed product is inspected to verify that it meets specifications and relevant workplace and industry quality standards
	6.6 Forming equipment and immediate work area is cleaned up
7 Maintain work area and equipment	7.1 Work area is cleaned and tools and electrical equipment are stowed away
	7.2 Cutting and forming equipment is cleaned and maintained in accordance with workplace requirements and manufacturer specifications
	7.3 Programmed maintenance which is within the province of the operator is performed
	7.4 Supervisor is informed of any abnormal conditions needing maintenance or repair

Required Skills and Knowledge

This describes the essential skills and knowledge and their level required for this unit.

Demonstrates knowledge of:

- specific OHS 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
- OHS practices, including hazard identification and control measures
- quality practices
- workplace practices
- recording and reporting practices

Demonstrates skills to:

- locate and interpret technical information about processes, materials and equipment
- use relevant cutting and forming equipment and hand and power tools
- use relevant chemicals and cleaning agents and dispose of waste products
- maintain work area
- identify hazards associated with the processes involved and apply all relevant safety practices
- read, interpret and follow information on work specifications, , standard operating procedures and work instructions and other reference material
- maintain accurate records
- communicate within the workplace
- sequence operations
- meet specifications
- clarify and check task-related information
- carry out work according to OHS practices

Evidence Guide

The Evidence Guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for the Training Package.

Critical aspects for assessment and evidence required to demonstrate competency in this unit

Demonstrates skills and knowledge to:

- comply with all relevant safety requirements including safe use of cutting and bending equipment, electrical equipment and hand and power tools
- interpret work orders
- interpret equipment and materials specifications and instructions needed for the cutting and forming processes
- set up cutting and forming equipment
- perform cutting and forming processes
- perform normal operator maintenance of work area to enable work to be conducted safely and efficiently
- document and communicate work related information including reporting of faults and other problems

Consistently applies skills and knowledge when:

- organising work
- completing tasks
- identifying improvements
- using workplace practices
- using OHS practices
- recording and reporting accidents and incidents
- assessing operational readiness of equipment used and work processes
- recognising and adapting to cultural differences in the workplace, including modes of behaviour and interactions
- completing work systematically with attention to detail without damage to goods and equipment

Context and specific resources for assessment

Assessment may occur on the job or in an appropriately simulated environment and requires access to work areas, materials and equipment, and to information on workplace practices and OHS practices.

Guidance information for assessment

This unit may be assessed independently or in combination with other relevant units.

Range Statement

RANGE STATEMENT

The range statement relates to the unit of competency as a whole. It allows for different work environments and situations that may affect performance. Bold italicised wording, if used in the Performance Criteria, is detailed below. Add any essential operating conditions that may be present with training and assessment depending on the work situation, needs of the candidate, accessibility of the item, and local industry and regional contexts.

Legislative/regulatory requirements All work must comply with relevant Federal and State or Territory legislative or regulatory requirements.

Hand tools may include

- hammers
- punches
- vices
- clamps
- jigs
- formers
- hand drills
- hacksaws
- files
- tongs
- wire brushes plus gloves
- goggles and other safety equipment

Power tools may include

- power hacksaws
- portable electric drills
- portable sanders and wire brushes
- guillotine
- abrasive disk cutting equipment
- gas cutting equipment

OHS practices OHS practices must include hazard identification and control, risk assessment and implementation of risk reduction measures specific to the tasks described by this unit, and may include:

- manual handling techniques
- standard operating procedures
- personal protective equipment
- safe materials handling
- taking of rest breaks
- ergonomic arrangement of workplaces
- following marked walkways
- safe storage of equipment
- housekeeping
- reporting accidents and incidents

- other OHS practices relevant to the job and enterprise

Unit Sector(s)

Sector Textile Fabrication