Title	**Cut metals using mechanised thermal cutting equipment**		
Level	**4**	**Credits**	**4**

Purpose	This unit standard is intended for people training to be engineering fabricators. People credited with this unit standard are able to – using mechanised thermal cutting equipment – prepare to cut metals; cut metals; and control quality of cuts made.

Classification	Mechanical Engineering > Welding

Available grade	Achieved

Guidance Information

1 References
Health and Safety at Work Act 2015.
Health and Safety in Welding. Wellington: Department of Labour, 2006. Available from http://www.worksafe.govt.nz/.

2 Definitions
Accepted industry practice – approved codes of practice and standardised procedures accepted by the wider mechanical engineering industry sectors as examples of best practice.
Metals – weldable grades of steel, stainless steel, or aluminium.
Workplace procedures – procedures used by the organisation carrying out the work and applicable to the tasks being carried out. Examples are – standard operating procedures, safety procedures, equipment operating procedures, codes of practice, quality management practices and standards, procedures to comply with legislative and local body requirements.

3 Related unit standards
This unit standard is one of a metal cutting set:
– Unit 25783, *Demonstrate knowledge of and apply metal cutting and gouging processes* (Level 3); an introductory standard to provide foundation awareness for cutting and gouging.
– Unit 30279, *Cut steel using the manual gas cutting process* (Level 3); a cutting standard specific to manual (not automated) gas cutting.
– Unit 30280, *Cut metals using the manual plasma cutting process* (Level 3); a cutting standard specific to manual (not automated) plasma cutting.
– Unit 2691, *Cut metals using mechanised thermal cutting equipment* (Level 4); a cutting standard for automated cutting using gas, plasma or laser processes.

4 Equipment
Equipment (machines) used for thermal cutting may employ oxyfuel, plasma arc, or laser processes. They may be of the portable (creeper) unit, radial arm profile cutter, or cross carriage. Evidence of setting up and cutting on one machine using either process is sufficient for assessment purposes.

5 Timeframe
All activities are expected to be completed within commercially acceptable timeframes.

Outcomes and performance criteria

Outcome 1

Prepare to cut metals using mechanised thermal cutting equipment.

Performance criteria

1.1 The equipment is set up and operationally maintained in accordance with manufacturers' instructions and workplace procedures.

1.2 Metal is positioned and supported for mechanised cutting in accordance with accepted industry practice.

1.3 Cutting parameters are established to accepted industry practice or equipment manufacturers' instructions.

Range examples are – nozzle size, gas specification, gas pressures, flame type, travel speed, current type, electrode.

1.4 Distortion control procedures are implemented in accordance with accepted industry practice.

Range examples are – cutting sequence, locking of scrap.

Outcome 2

Cut metals using mechanised thermal cutting equipment.

Performance criteria

2.1 Workplace safety procedures are followed.

Range examples are – use of personal protective equipment, checking of equipment for faults, use of fume extraction equipment, elimination of risk of fire or explosion, protection from arc radiation.

2.2 Component nesting is used to minimise wastage in accordance with accepted industry practice.

2.3 Profiles are cut in accordance with accepted industry practice.

Outcome 3

Control quality of cuts made using mechanised thermal cutting equipment.

Performance criteria

3.1 Cuts are compared to quality requirements by visual examination.

Range typical imperfections – surface roughness, top edge condition, slag adherence, edge profile.

3.2 Causes of unsatisfactory cuts are identified and cutting parameters are adjusted to correct imperfections to achieve quality requirements.

Range typical causes – surface condition, material defects, work support, machine stability, accuracy of guidance system, cutting parameters.

Planned review date	31 December 2022

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	30 November 1994	31 December 2022
Revision	2	14 April 1997	31 December 2022
Revision	3	5 January 1999	31 December 2022
Review	4	4 April 2001	31 December 2022
Rollover and Revision	5	20 April 2006	31 December 2022
Review	6	22 May 2009	31 December 2022
Review	7	20 July 2017	N/A

Consent and Moderation Requirements (CMR) reference	0013

This CMR can be accessed at http://www.nzqa.govt.nz/framework/search/index.do.

Comments on this unit standard

Please contact Competenz qualifications@competenz.org.nz if you wish to suggest changes to the content of this unit standard.