

Cut metal using an automated cutting machine

Level 5

Credits 10

Purpose This unit standard covers the setting up and operation of a single or multiple headed automated cutting machine used in the fabrication industry for sheet, plate, and pipe cutting. The cutting media may be fuel gases, oxy-acetylene, plasma arc, laser, water jets, or others. The machine may be numerically controlled or employ tracing devices.

People credited with this unit standard are able to: maintain a safe worksite for automated machine cutting of metal; prepare for automated machine cutting of metal; cut metal using an automated machine; and apply quality assurance processes for automated machine cutting of metal.

Subfield Mechanical Engineering

Domain Welding

Status Registered

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Entry information Prerequisite: Unit 21907, *Demonstrate and apply knowledge of safe welding procedures under supervision*; or demonstrate equivalent knowledge and skills.

Recommended: Unit 2691, *Cut metals using mechanised thermal cutting equipment*, or demonstrate equivalent knowledge and skills.

Accreditation Evaluation of documentation and visit by NZQA and industry.

Standard setting body (SSB) Competenz

Accreditation and Moderation Action Plan (AMAP) reference 0013

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

Special notes

1 References

Health and Safety in Welding. Wellington: Department of Labour, 2006. Available from <http://www.osh.govt.nz>.

WTIA Technical Note 07. *Health and safety in welding*. Australia: Welding Technology Institute of Australia, 2004. Available from HERA, PO Box 76134, Manukau City, Manukau 2241.

2 Definitions

Code of safe practice refers to safe practice in welding, following either of the above references or similar codes.

Job specifications refer to client's instructions, drawings, and/or contract.

Operating procedures refer to the manufacturer's operating instructions for the automated cutting machine, associated procedures for selecting and running control programs, and site procedures (if any) for the use of the machine and associated materials.

3 Range

a metal may be steel, stainless steel, or non-ferrous metals.

b evidence of setting up and operating one automated cutting machine is required.

Elements and performance criteria

Element 1

Maintain a safe worksite for automated machine cutting of metal.

Performance criteria

1.1 Hazards associated with automated cutting are identified in accordance with a code of safe practice.

Range electrical, radiation (ultra violet, infra red, visible light), fire and/or explosion, inadequate ventilation, compressed gas, confined space, hot metal.

1.2 Procedures are implemented to eliminate, isolate, or minimise hazards in accordance with a code of safe practice.

1.3 Automated cutting is undertaken in accordance with a code of safe practice.

Element 2

Prepare for automated machine cutting of metal.

Performance criteria

- 2.1 Equipment is set up for cutting in accordance with operating procedures.
- Range program selection and loading, setting of process parameters, selection of consumables, identification of guidance controls, setting of machine datum.
- 2.2 Material is positioned and supported in accordance with operating procedures, using stack cutting and nesting where appropriate to minimise wastage.

Element 3

Cut metal using an automated machine.

Performance criteria

- 3.1 Machine is started in accordance with operating procedures.
- 3.2 Material is cut to meet job specifications and in accordance with operating procedures.
- 3.3 Machine is shut down and material removed in accordance with operating procedures.

Element 4

Apply quality assurance processes for automated machine cutting of metal.

Performance criteria

- 4.1 Causes of cutting imperfections are controlled.
- Range surface condition, material defects, work support, machine stability, accuracy of guidance system, cutting parameters.
- 4.2 Cuts are assessed by visual examination.
- Range includes – surface roughness, top edge condition, slag adherence, edge profile.
- 4.3 Procedures are planned to control distortion.
- Range cutting sequence, locking of scrap, stack cutting.

Please note

Providers must be accredited by NZQA, or an inter-institutional body with delegated authority for quality assurance, before they can report credits from assessment against unit standards or deliver courses of study leading to that assessment.

Industry Training Organisations must be accredited by NZQA before they can register credits from assessment against unit standards.

Accredited providers and Industry Training Organisations assessing against unit standards must engage with the moderation system that applies to those standards.

Accreditation requirements and an outline of the moderation system that applies to this standard are outlined in the Accreditation and Moderation Action Plan (AMAP). The AMAP also includes useful information about special requirements for organisations wishing to develop education and training programmes, such as minimum qualifications for tutors and assessors, and special resource requirements.

Comments on this unit standard

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