

Title	Produce components by performing jig-boring operations		
Level	4	Credits	15

Purpose	<p>This unit standard covers jig-boring operations with a range of tools and accessories to produce components to specified tolerances.</p> <p>People credited with this unit standard are able to prepare the machine for jig-boring operations, perform jig-boring operations, and measure components.</p>
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Classification	Mechanical Engineering > Engineering Machining and Toolmaking
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Available grade	Achieved
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Guidance Information

- 1 References

Health and Safety at Work Act 2015.
Best Practice Guidelines, Safe Use of Machinery, Worksafe, 2014.
- 2 Definitions

Accessories – dividing head, rotary table, sine bar/table, adjustable boring head.
Operations – boring holes or machining surfaces relative to coordinate position;
Specifications – detail that defines an object being made; commonly communicated by annotated and dimensioned drawings; by written description, or by other communication media. External references may also be used to specify objects such as tables or industry standards.
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 Recommended for entry

Unit 21906, *Perform basic mechanical engineering machining operations under supervision*. Candidates must be able to safely carry out basic machining operations.

Outcomes and performance criteria

Outcome 1

Prepare the machine for jig-boring operations.

Range operations on two accessories;
examples of machines are jig borers and milling machines which may be manually or CNC controlled.

Performance criteria

- 1.1 Machine is lubricated and routine maintenance carried out in accordance with workplace procedures.
- 1.2 Drawings, instructions, and specifications are interpreted to establish job requirements.
- 1.3 Sequence of operations is planned to achieve job requirements efficiently, and verified in accordance with workplace procedures.
- 1.4 Components are marked out as required by specifications.
- 1.5 Accessories and work-holding fixtures are installed to securely hold the work.
- 1.6 Tools are selected for efficient machining, prepared, and mounted securely.
- 1.7 Cutting speeds and feeds are selected relevant to machine, material, and tooling.

Outcome 2

Perform jig-boring operations.

Range operations on two accessories from outcome 1.

Performance criteria

- 2.1 Machine coolant type and flow are adjusted as required by machine and boring operations.
- 2.2 Components are finished to specified tolerances, without damage to machine and tools.

Range typical tolerance – $\pm 0.02\text{mm}$.
- 2.3 Machine is cleaned and waste material disposed of in accordance with workplace procedures.

Outcome 3

Measure components.

Range components from outcome 2.

Performance criteria

3.1 Components are measured using instruments matching the required accuracy to confirm that specifications have been achieved.

3.2 Measurements are recorded in accordance with workplace procedures.

Planned review date	31 December 2022
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Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	17 January 1995	31 December 2012
Revision	2	14 April 1997	31 December 2012
Revision	3	8 July 1997	31 December 2012
Revision	4	13 November 1997	31 December 2012
Revision	5	5 January 1999	31 December 2012
Review	6	26 September 2001	31 December 2012
Review	7	20 June 2006	31 December 2022
Rollover and Revision	8	17 November 2011	31 December 2022
Review	9	17 August 2017	N/A

Consent and Moderation Requirements (CMR) reference	0013
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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.