

Title	Install industrial machines		
Level	4	Credits	10

Purpose	<p>This standard is for people engaged in the installation of machines, including levelling and alignment.</p> <p>People credited with this unit standard are able to plan installations, prepare industrial machines for installation, install industrial machines, and check installation of industrial machines.</p>
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Classification	Mechanical Engineering > Mechanical Installation
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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

Accepted industry practice – approved codes of practice and standardised procedures accepted by the wider mechanical engineering industry sectors as examples of best practice.

Ancillary services – services required for the proper operation of the machines such as electricity supply, hydraulics, pneumatics, raw material flow, water, drainage, lighting, and ventilation.

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 Assessment information

a Foundations and footings are expected to have been completed prior to commencement of machine installation.

b Connections to electrical and plumbing services are not covered by this unit standard.

- 4 Recommended for entry
Unit 2409, *Level mechanical machinery*.
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Outcomes and performance criteria

Outcome 1

Plan installations.

Range evidence of three different installations is required; examples of typical machines are – rotating equipment and machinery, such as pumps, compressors, drive units, blowers, fans, motor units; production equipment; process equipment and machinery; machine tools; pneumatic pick and place system; conveyor systems.

Performance criteria

- 1.1 Specifications or job requirements are analysed to plan all stages of the work.
- 1.2 Suitability of site for installation is confirmed utilising appropriate measuring equipment and arrangements made for any necessary alterations.
- Range space, dimensions, footings, beds and frameworks, fitting of spacers, relocation of brackets, alignment of holes.
- 1.3 Timing of installation is arranged with appropriate personnel.
- 1.4 Ancillary services are arranged to meet installation requirements.
- 1.5 Safety and environmental issues are identified and addressed.

Outcome 2

Prepare industrial machines for installation.

Range installations from outcome 1.

Performance criteria

- 2.1 Machines are inspected and compared with inventory and specifications, and discrepancies reported in accordance with workplace procedures.
- 2.2 Machines are cleaned in accordance with specifications or accepted industry practice and workplace procedures.
- Range examples of cleaning methods are – chemicals, steam, scraping, compressed air, power tools, gritblasting, high pressure water, heat.
- 2.3 Machines ready for installation are secured or stored, or prepared for transport if necessary.

Outcome 3

Install industrial machines.

Range installations from outcome 1.

Performance criteria

- 3.1 Components of machines are installed sequentially in final position and secured, in accordance with specifications or accepted industry practice and workplace procedures.
- 3.2 Machines are positioned, levelled, aligned, coupled, and connected to ancillary services in accordance with specifications or accepted industry practice and workplace procedures.
- 3.3 Lubricants are applied according to specifications or accepted industry practice.
- 3.4 Debris is cleared and site is left clean and safe in accordance with workplace procedures.

Outcome 4

Check installation of industrial machines.

Range installations from outcome 1.

Performance criteria

- 4.1 Ancillary services are inspected for compliance with specifications or accepted industry practice, and discrepancies reported in accordance with workplace procedures.
- 4.2 Installation tests are carried out in accordance with specifications or accepted industry practice, and adjustments made where necessary.
- 4.3 Installations are documented in accordance with specifications or accepted industry practice and 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	27 September 1994	31 December 2012
Revision	2	14 April 1997	31 December 2012
Revision	3	5 January 1999	31 December 2012
Revision	4	23 May 2001	31 December 2012
Review	5	20 June 2006	31 December 2022
Rollover	6	17 November 2011	31 December 2022
Review	7	17 August 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.