Title	**Describe and operate compressors in an energy and chemical plant**		
Level	**4**	**Credits**	**8**

Purpose	This unit standard is intended for people working as boiler operators and energy and chemical process operators in an energy and chemical plant. People credited with this unit standard are able to describe: compressors used in an energy and chemical plant, and compressor operational deviations; and demonstrate knowledge of control and protection systems of compressors in an energy and chemical plant. They are also able to operate compressors in an energy and chemical plant.

Classification	Energy and Chemical Plant > Operation of Energy and Chemical Plant

Available grade	Achieved

Guidance Information

1 Legislation relevant to this unit standard includes but is not limited to:
- Health and Safety at Work Act 2015;
- Hazardous Substances and New Organisms Act 1996;
- Resource Management Act 1991;

and any subsequent amendments.

2 Definitions

Energy or chemical plant may be in – petrochemical, agri-nutrient, power generation, dairy processing, meat processing, and wood fibre manufacturing, or other plants that operate with a combination of high temperatures, pressures, steam and/or chemicals in gas, liquid or solid form.

Organisational requirements – documented policies and procedures. These may include: equipment manufacturers' procedures; plant procedures; suppliers' instructions; site signage; codes of practice; company health and safety plans; on site briefings; and supervisor's instructions. This includes all regulatory and legislative obligations that apply to the plant.

Plant – the operational unit, equipment and/or workplace at which the person is working.

3 For the purposes of assessment:
- evidence for the practical components of this unit standard must be supplied from the workplace.

Outcomes and performance criteria

Outcome 1

Describe compressors used in an energy and chemical plant, and compressor operational deviations.

Performance criteria

1.1 Describe types of compressors in terms of method of operation and design concepts.

Range types include but are not limited to – centrifugal, reciprocating, single stage, multistage, axial flow.

1.2 Describe components of compressors in terms of their function.

Range components include but are not limited to –coupling, casing, shaft, impeller, bearings, seals, instrumentation.

1.3 Describe compressor systems in terms of their design concepts.

Range design concepts include but are not limited to – filtration, pulsation dampers, lubrication system, cooling system, minimum flow, duty or standby system, drain.

1.4 Describe compressor operational deviations in terms of their causes.

Range operational deviations include but are not limited to – vibration, stall, overload, low discharge pressure, surge.

Outcome 2

Demonstrate knowledge of control and protection systems of compressors in an energy and chemical plant.

Performance criteria

2.1 Identify and describe control and protection systems for compressors in terms of their purpose and in accordance with organisational requirements.

Range evidence of two control systems and four protection systems for a specific site is required.

Outcome 3

Operate compressors in an energy and chemical plant.

Performance criteria

3.1 Identify the location of compressors in accordance with the site-specific identification coding system and organisational requirements.

3.2 Operate compressors using safe work practices in accordance with organisational requirements.

3.3 Start up and shut down compressors in accordance with organisational requirements.

3.4 Carry out plant checks and routine procedures on compressors in accordance with organisational requirements.

3.5 Complete all plant documentation related to the process and equipment operation in accordance with organisational requirements.

Planned review date	31 December 2024

Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	27 June 2005	31 December 2014
Rollover and Revision	2	25 July 2006	31 December 2014
Review	3	22 May 2009	31 December 2016
Review	4	24 October 2014	31 December 2022
Review	5	27 February 2020	N/A

Consent and Moderation Requirements (CMR) reference	0079

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

Comments on this unit standard

Please contact the Primary Industry Training Organisation standards@primaryito.ac.nz if you wish to suggest changes to the content of this unit standard.