

<b>Title</b>	<b>Describe electrical-based equipment and apply knowledge of diagnostics in a dairy processing operation</b>		
<b>Level</b>	<b>3</b>	<b>Credits</b>	<b>10</b>

<b>Purpose</b>	<p>People credited with this unit standard are able to describe: electrical energy flow in a circuit; the application of electrical components for energy conversion and the operation of electric motors; the use of electrical circuits and safety equipment for protection of electrical circuits and equipment; and, safe practices for working with electrical equipment, in a dairy processing operation.</p> <p>They are also able to apply a diagnostic technique to electrical-based equipment, and report and record the diagnostic results in a dairy processing operation.</p>
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<b>Classification</b>	Dairy Processing > Dairy Processing - Core Skills
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<b>Available grade</b>	Achieved
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### Guidance Information

- 1 Legislation relevant to this unit standard includes but is not limited to:
  - Electrical Act 1992;
  - Electrical Regulations 1997;
  - Health and Safety at Work Act 2015.
  
- 2 Definitions
 

*Electrical-based equipment and diagnostics* refer to computer applications, human machine interface (HMI), historical trending information.

*Organisational requirements* refer to instructions to staff on policy and procedures which are documented in memo or manual format and are available in the workplace. These requirements include but are not limited to – site specific requirements, manufacturer’s specifications, product quality specifications, and legislative requirements.
  
- 3 For the purposes of assessment:
  - evidence for the practical components of this unit standard must be supplied from the workplace.
  - evidence for all outcomes must be presented in accordance with organisational requirements.

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## Outcomes and performance criteria

### Outcome 1

Describe electrical energy flow in a circuit for electrical-based equipment in a dairy processing operation.

#### Performance criteria

1.1 Describe electricity in terms of electron flow.

Range electron flow includes but is not limited – static electrical charge, electron current flow, conventional current flow, direct current, alternating current.

1.2 Describe electrical circuits in terms of the need for a source of supply, a complete path for electron flow, and the electrical load.

Range electrical circuits includes but is not limited to – closed circuit, open circuit, short-circuit, series circuit, parallel circuit.

### Outcome 2

Describe the application of electrical components for energy conversion and the operation of electric motors in a dairy processing operation.

#### Performance criteria

2.1 Describe the application of solenoids, relays, and transformers in terms of their use for energy conversion.

2.2 Describe the operation of electric motors in terms of relationships between voltage, current, frequency and torque for alternating current induction motors.

### Outcome 3

Describe the use of electrical circuits and safety equipment for protection of electrical circuits and equipment in a dairy processing operation.

#### Performance criteria

3.1 Describe electrical circuits and safety equipment in terms of protection against short-circuit current flow and low over-current flow.

Range safety equipment includes but is not limited to – fuses, circuit breakers, motor overloads, motor circuit breakers.

### Outcome 4

Describe safe practices for working with electrical equipment in a dairy processing operation.

**Performance criteria**

- 4.1 Describe the responsibilities of a process operator in relation to safe work practices with electrical equipment.

**Outcome 5**

Apply a diagnostic technique to electrical-based equipment, and report and record the diagnostic results in a dairy processing operation.

**Performance criteria**

- 5.1 Apply a diagnostic technique to determine if electrical-based equipment is operating within correct current trending specifications.
- 5.2 Apply safe work practices when carrying out diagnostic testing.
- 5.3 Report and record diagnostic test results.

<b>Planned review date</b>	31 December 2025
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**Status information and last date for assessment for superseded versions**

Process	Version	Date	Last Date for Assessment
Registration	1	10 December 2020	N/A

<b>Consent and Moderation Requirements (CMR) reference</b>	0022
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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 the Primary Industry Training Organisation [standards@primaryito.ac.nz](mailto:standards@primaryito.ac.nz) if you wish to suggest changes to the content of this unit standard.