

<b>Title</b>	<b>Service and maintain butterfly valves for hygienic processing operations</b>		
<b>Level</b>	<b>3</b>	<b>Credits</b>	<b>4</b>

<b>Purpose</b>	<p>This unit standard is for operators and fitters involved in hygienic processing operations, and covers knowledge of, and servicing and maintenance of butterfly valves.</p> <p>People credited with this unit standard are able to demonstrate knowledge of, prepare for servicing and maintenance of, and service and maintain butterfly valves used in hygienic processing operations.</p>
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<b>Classification</b>	Mechanical Engineering > Maintenance and Diagnostics in Mechanical Engineering
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<b>Available grade</b>	Achieved
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**Explanatory notes**

1 References

- Health and Safety in Employment Act 1992.
- Food Act 1981 and its associated regulations and standards.
- New Zealand (Australia New Zealand Food Standards Code) Food Standards 2002.
- Animal Products Act 1999.
- Animal Products (Dairy) Regulations 2005.
- Hazardous Substances and New Organisms Act 1996.

2 Definitions

- Butterfly valves* – a member of the family of valves called quarter turn valves.
- Valve* – a device which can be used to control the flow of liquids, gases, and slurries.
- Industry practice* – safe and sound trade practices generally accepted by competent persons within the mechanical engineering industry.
- Hygienic processing operations* – any condition of the production environment, including the condition of the equipment that can affect the hygienic status of food or by-products throughout processing.
- Maintain* – care and service of an appliance/plant/machinery/equipment by personnel for the purpose of maintaining equipment and facilities in satisfactory operating condition by providing for systematic inspection, detection, and correction of incipient failures either before they occur or before they develop into major defects. The process includes tests, measurements, adjustments, and parts replacement, performed specifically to prevent faults from occurring.
- Manufacturer’s instructions* – refer to manufacturer’s specifications and instructions for installation, operation, maintenance, servicing, and performance of their product.

*Service* – routine actions that ensure operational integrity. Examples include checking, cleaning, lubricating, minor adjustments, testing and pre-emptive fault-spotting, with the emphasis on testing all the different functions of an appliance/plant/machinery/equipment for correct and safe operation.

*Worksite procedures* – operational procedures and instructions from the employer to staff on policy and procedures which is documented in memo or manual format and are available in the workplace. These include but are not limited to site safety procedures, equipment operating procedures, job procedures, quality assurance, and procedures for the handling and disposal of materials and waste.

### 3 Assessment information

Servicing and maintenance of butterfly valves at this level involves working on bench tops in workshops, and does not include isolating, removing and or re-fitting valves into operating fluid systems.

### 4 Range

Common sizes of butterfly valves used in hygienic processing operations in New Zealand generally range from around 25mm to 150mm (1 inch to 6 inches). These valves have automated or manual actuators.

Evidence is required of servicing and maintenance of at least six valves of three different dimensions. At least two valves must have automated actuators and two must have manual actuators.

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## Outcomes and evidence requirements

### Outcome 1

Demonstrate knowledge of butterfly valves used in hygienic processing operations.

Range wafer-style, lug-style, triple eccentric, flanged.

### Evidence requirements

- 1.1 Different types of butterfly valves are identified.
- 1.2 Major components of the butterfly valves are identified. (body, disk, stem, seat).
- 1.3 The principles of operation of butterfly valves are described using manufacturers' diagrams.
- 1.4 Common butterfly valve operational problems are described with reference to symptoms, causes, and remedial actions.

Range leakage, stiffness, jamming, erosion.

### Outcome 2

Prepare for servicing and maintenance of butterfly valves used in hygienic processing operations.

### Evidence requirements

- 2.1 Drawings and/or specifications are interpreted and servicing and maintenance procedures clarified.
- 2.2 Safety hazards associated with servicing and maintaining butterfly valves are identified, and precautions are taken in accordance with worksite procedures.
- 2.3 Tools are selected and their fitness for use determined.

### Outcome 3

Service and maintain butterfly valves used in hygienic processing operations.

### Evidence requirements

- 3.1 Butterfly valves are disassembled and assembled in accordance with manufacturer's instructions, worksite procedures, and industry practice.
- 3.2 Service checks are completed in accordance with manufacturer's instructions, worksite procedures, and industry practice.
- 3.3 Maintenance of butterfly valves is completed in accordance with manufacturer's instructions, worksite procedures, and industry practice.
- 3.4 Consumable components are replaced in accordance with manufacturer's instructions, worksite procedures, and industry practice.
- 3.5 Check/test -simulate butterfly valve operation after assembly and connecting to actuators.
- 3.6 Servicing records are completed in accordance with worksite procedures.
- 3.7 Waste material is disposed of in accordance with worksite procedures.
- 3.8 Butterfly valves are cleaned to the required Food Safety Standard/contaminants removed by using appropriate agents and processes in accordance with worksite procedures and industry practice.

<b>Planned review date</b>	31 December 2017
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### Status information and last date for assessment for superseded versions

Process	Version	Date	Last Date for Assessment
Registration	1	14 December 2012	N/A

<b>Consent and Moderation Requirements (CMR) reference</b>	0013
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This CMR can be accessed at <http://www.nzqa.govt.nz/framework/search/index.do>.

**Please note**

Providers must be granted consent to assess against standards (accredited) by NZQA, before they can report credits from assessment against unit standards or deliver courses of study leading to that assessment.

Industry Training Organisations must be granted consent to assess against standards by NZQA before they can register credits from assessment against unit standards.

Providers and Industry Training Organisations, which have been granted consent and which are assessing against unit standards must engage with the moderation system that applies to those standards.

Requirements for consent to assess and an outline of the moderation system that applies to this standard are outlined in the Consent and Moderation Requirements (CMR). The CMR 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.

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**Comments on this unit standard**

Please contact Competenz [qualifications@competenz.org.nz](mailto:qualifications@competenz.org.nz) if you wish to suggest changes to the content of this unit standard.