

<b>Title</b>	<b>Calculate sizes, mass, volumes, and quantities for fabrication</b>		
<b>Level</b>	<b>3</b>	<b>Credits</b>	<b>4</b>

<b>Purpose</b>	<p>This unit standard is for use in training of fabrication trades and covers calculations related to fabrication.</p> <p>People credited with this unit standard are able to: calculate the size, mass, and volume of fabrications; and estimate the quantities of welding consumables required for fabrication.</p>
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<b>Classification</b>	Mechanical Engineering > Engineering - Fabrication
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<b>Available grade</b>	Achieved
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### Guidance Information

For assessment purposes, values referred to in this unit standard will be expressed in Systeme Internationale (SI) units including multiples and sub-multiples (micro, milli, kilo, etc).

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### Outcomes and performance criteria

#### Outcome 1

Calculate the size, mass, and volume of fabrications.

Range regular vessels – square, rectangular, cylindrical, elliptical, spherical, conic shaped tanks;  
calculations for three different vessels are required.

#### Performance criteria

1.1 The dimensions of regular vessels are calculated to suit a designated volumetric capacity. Volumetric capacities may be given in litres or cubic metres.

1.2 The mass of fabrications are determined for costing and/or lifting purposes.

Range fabrications – regular vessels made from combinations of sheet, plate, and sections, and include liquids such as water or oil.

**Outcome 2**

Estimate the quantities of welding consumables required for fabrication.

Range estimation of consumables for three welding jobs is required.

**Performance criteria**

2.1 The quantities of welding rods and/or electrodes needed are established for practical and costing purposes.

2.2 The volumes of gases required for cutting and welding operations are determined for practical and costing purposes.

Range methods of establishing volumes include the use of gas suppliers' tables, the calculation of the volume of gas based on specified flow rates and welding times.

**Status information and last date for assessment for superseded versions**

Process	Version	Date	Last Date for Assessment
Registration	1	28 October 1999	31 December 2020
Revision	2	11 November 2005	31 December 2022
Review	3	17 July 2009	31 December 2022
Review	4	18 February 2016	31 December 2022
Rollover	5	28 September 2017	31 December 2022

<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>.

This unit standard is expiring