

Title	Weld aluminium pipe in all positions using the gas tungsten arc welding process		
Level	4	Credits	12

Purpose	<p>This unit standard covers welding of aluminium pipe in all positions to Category B of AS/NZS 1665:2004 or equivalent standards or codes, using the gas tungsten arc welding process (GTAW).</p> <p>People credited with this unit standard are able to prepare to weld aluminium pipe in all positions using the GTAW process; weld aluminium pipe in all positions using the GTAW process; and inspect and repair welds to industry standard.</p>
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Classification	Mechanical Engineering > Welding
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Available grade	Achieved
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Guidance Information

- References

AS/NZS 1665:2004, *Welding of aluminium structures*. Available at <https://standards.govt.nz>.

Health and Safety in Welding. Wellington: Department of Labour, 2006. Available from <http://www.worksafe.govt.nz/>.
- Definitions

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

Aluminium – weldable aluminium alloys.

GTAW – Gas tungsten arc welding; also referred to as *Tungsten Inert Gas (TIG) welding*.

Industry standard – Category B of AS/NZS 1665:2004, or equivalent.

Safe working practice – formal worksite or company safety policies, or the practices established by *Health and Safety in Welding* or similar codes.

Welding procedure – a written work instruction providing all the necessary technical details for a specific welding application.
- Recommended for entry

Unit 2689, *Weld aluminium in all positions using the gas tungsten arc welding process*.

Outcomes and performance criteria

Outcome 1

Prepare to weld aluminium pipe in all positions using the GTAW process.

Performance criteria

1.1 Work area is assessed for hazards associated with the GTAW process and all necessary precautions taken in accordance with safe working practice.

Range electric shock, arc radiation, fire, explosion, fumes and gases, heat, confined space.

1.2 Equipment is selected to meet welding procedure requirements.

Range power source rating and duty cycle, torch, shielding gas supply, welding cables, work clamp.

1.3 Equipment is assembled and maintained ready for use in accordance with manufacturer's instructions.

Range torch; shielding gas supply; welding cables; work clamp.

1.4 Aluminium pipe is prepared and assembled in accordance with welding procedure.

Range preparation includes – edge preparation, cleaning, tack welding to correct alignment.

1.5 Consumables are selected in accordance with welding procedure.

Range filler rods are identified by specification and classification; shielding gases are identified by brand name and composition.

Outcome 2

Weld aluminium pipe in all positions using the GTAW process.

Range evidence is required of welds or test pieces in the 3G and 4G, or the 6G welding positions.

Performance criteria

2.1 Safety procedures are followed and personal protective equipment is worn in accordance with safe working practice.

2.2 Welding parameters are verified by a trial weld run to ensure conformance to welding procedure.

2.3 Welds are deposited on aluminium pipe to industry standard and in accordance with welding procedure.

2.4 Welds are cleaned in accordance with accepted industry practice.

Outcome 3

Inspect and repair welds to industry standard.

Performance criteria

3.1 Weld imperfections are identified by visual examination and workshop tests.

Range workshop tests – nick break, fillet break-over, bend, macro examination. Evidence of two tests is required.

3.2 Weld imperfections are compared to the permissible levels allowed by industry standard.

3.3 Weld defects are repaired to industry standard.

Range evidence is required of at least one weld repair involving the removal of the defect and rewelding to industry standard.

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	30 November 1994	31 December 2018
Revision	2	14 April 1997	31 December 2018
Revision	3	5 January 1999	31 December 2018
Review	4	4 April 2001	31 December 2018
Rollover and Revision	5	20 April 2006	31 December 2018
Review	6	22 May 2009	31 December 2022
Review	7	17 August 2017	N/A

Consent and Moderation Requirements (CMR) reference	0013
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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 Competenz qualifications@competenz.org.nz if you wish to suggest changes to the content of this unit standard.