

Title	Weld steel pressure pipe using the manual metal arc welding process with cellulosic electrodes		
Level	4	Credits	20

Purpose	<p>This unit standard covers welding of steel pressure pipe to the standard required by AS 2885.2 or equivalent, using the manual metal arc welding (MMAW) process with cellulosic electrodes (stovepipe welding).</p> <p>People credited with this unit standard are able to prepare to weld steel pressure pipe using the MMAW process with cellulosic electrodes; weld steel pressure pipe using the MMAW process with cellulosic electrodes; 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

1 References

AS/NZS 2885.2:2007, *Pipelines – Gas and liquid petroleum – Welding*. Available at <https://standards.govt.nz>.

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

2 Definitions

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

Industry standard – AS 2885.2 or equivalent.

MMAW – Manual Metal Arc Welding.

NDT – Non-Destructive Testing.

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

Steel – low-carbon unalloyed (carbon-manganese) steels or low alloyed steels as used in pipelines for water, gas or oil.

Stovepipe welding – the welding of pipe using cellulosic MMAW electrodes with the vertical down technique.

Welding procedure – welding procedure specification (WPS) meeting the requirements of AS 2885.2 or equivalent.

- 3 Recommended for entry
Unit 2682, *Weld steel in the downhand positions to a general purpose industry standard using the manual metal arc welding process.*
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Outcomes and performance criteria

Outcome 1

Prepare to weld steel pressure pipe using the MMAW process with cellulosic electrodes.

Performance criteria

- 1.1 Work area is assessed for hazards associated with MMAW 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 MMAW power source characteristics and controls are selected for pressure pipe welding and welding procedure requirements.
- Range rating, duty cycle, open circuit voltage, polarity, arc characteristic (dynamics) control, hot start control.
- 1.3 Equipment is assembled and maintained ready for use in accordance with manufacturer's instructions.
- 1.4 Steel pipe is prepared and assembled in accordance with welding procedure.
- Range preparation and assembly are limited to – cleaning, providing root face where required, tack welding to correct alignment.
- 1.5 Cellulosic electrodes are selected in accordance with welding procedure.

Outcome 2

Weld steel pressure pipe using the MMAW process with cellulosic electrodes.

Performance criteria

- 2.1 Safety procedures are followed and personal protective equipment is worn in accordance with safe working practice.
- 2.2 Cellulosic electrodes are stored and handled in accordance with manufacturer's specifications.
- 2.3 Welds are deposited on steel pipe to industry standard and in accordance with welding procedure.
- Range welds include but are not limited to – 150 mm diameter Schedule 40 pipe in the 2G and 5G, or 6G positions.

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 or an NDT report.

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