

Domain	METAL FABRICATION-WELDER	Unit ID: 254
Title:	Perform advanced manual arc welding on stainless steel in all positions	
Level: 4		Credits: 6

Purpose

This unit standard specifies the competencies required to perform advanced manual arc welding on stainless steel in all positions. It includes the preparation of materials and equipment, welding stainless steel in specified positions, post welding inspection as well as completion of work and cleaning up. This unit standard is intended for those who work as welders.

Special Notes

1. Entry information

Prerequisite:

- *Unit 228* - Apply safety rules and regulations in a metal fabrication work environment or demonstrated equivalent knowledge and skills.

2. To demonstrate competence, at a minimum, requires evidence of performing one butt, one-joint and one lap joint weld in all welding positions. These tasks should be performed ensuring correct identification of requirements and finishing of the tasks, correct selection and use of appropriate processes, tools and equipment and completing all work to specification.
3. Assessment evidence may be collected from a real workplace or simulated real workplace or an appropriate simulated realistic environment in which metal fabrication operations are carried out.
4. Performance of all elements in this unit standard must comply with manufacturers' specifications and workplace specific requirements.
5. '*Specifications*' refers to any, or all of the following: manufacturers' specifications and recommendations, site and workplace specific requirements.
6. Materials are limited to stainless steel exceeding 3 millimetres in thickness.
7. Regulations and legislation relevant to this unit standard include the following:
- Labour Act 6 of 1992
 - Occupational Health and Safety Regulations No.18, 1997 and all subsequent amendments.

Quality Assurance Requirements

This unit standard and others within this Subfield may be awarded by institutions which meet the accreditation requirements set by the Namibia Qualifications Authority and the Namibia Training Authority and which comply with the national assessment and moderation requirements. Details of specific accreditation requirements and the national assessment arrangements are available from the Namibia Qualifications Authority and the Namibia Training Authority on www.nta.com.na.

Elements and Performance Criteria

Element 1: Prepare materials and equipment

Range

Test procedures may include voltage drop, amperage setting, earthing, electrode and wire conductivity, electrode flux condition.

Preparation of materials is to include pre-heating, setting up jigs, fixtures and clamps.

Performance Criteria:

- 1.1 Weld requirements are identified from specifications and drawings.
- 1.2 Personal protective clothing and equipment is selected and inspected in line with workplace procedures.
- 1.3 Appropriate material is selected, prepared and aligned in line with job requirements.
- 1.4 Welding equipment is assembled and set up safely and in line with standard operating procedures.
- 1.5 Welding machine settings and electrodes are identified against predetermined specifications and welding procedures.
- 1.6 Test runs are undertaken and verified in line with specifications.

Element 2: Weld stainless steel in all positions

Range

Welding positions are to include vertical up, vertical down, overhead and horizontal.

Performance Criteria:

- 2.1 Risks associated with manual arc welding are identified and minimised prior to commencing of task.
- 2.2 Appropriate personal safety clothing and personal protective equipment is used in line with workplace procedures.

- 2.3 Distortion prevention measures are identified and applied as required and appropriate action to prevent distortion is taken.
- 2.4 Equipment start up procedure is implemented in line with manufacturer's specifications.
- 2.5 Materials are welded to specifications and in line with requirements and instructions.
- 2.6 Equipment shut down procedure is implemented in line with manufacturer's specifications.

Element 3: Conduct post weld inspection

Range

Visual inspection of work piece to include but not limited to metal control, penetration, undercutting and porosity.

Performance Criteria

- 3.1 Welds are cleaned in line with workplace procedures.
- 3.2 Welds are visually inspected for correctness and quality in line with specified method.

Element 4: Complete work and clean up

Performance Criteria

- 4.1 Work is completed and appropriate personnel notified in accordance with workplace procedures.
- 4.2 Work area is cleared of waste, cleaned, restored and secured in accordance with workplace procedures.
- 4.3 Plant, tools and equipment are cleaned, checked, maintained and stored in accordance with workplace procedures.
- 4.4 Work completion details are finalised in line with workplace procedures.

Registration Data

Subfield:	Mechanical Engineering
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