

<b>Domain</b>	<div data-bbox="1024 197 1243 233" data-label="Text">Unit ID: 251</div> <b>METAL FABRICATION-WELDER</b> <b>Weld mild steel using the tungsten inert</b> <b>gas welding process in all positions</b>	
<b>Title:</b>		
<b>Level: 3</b>	<div data-bbox="1182 369 1356 405" data-label="Text"><b>Credits: 6</b></div>	

### **Purpose**

This unit standard is intended for those who weld mild steel using the tungsten inert gas welding process in all positions. People credited with this unit standards are able to prepare materials and equipment; weld mild steel in all positions; conduct post weld inspection.

This unit standard is intended for those who works as Welders and Boilermakers.

### **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*
- *Unit 229 – Plan and organize metal fabrication work*

1 To demonstrate competence, at a minimum, evidence is required of performing one butt joint weld, one T joint weld and one lap joint in all welding positions. These tasks should be performed ensuring correct identification of requirements and finishing of the tasks, and completing all work to specification.

2 Assessment evidence may be collected from a real workplace or simulated real workplace or simulated realistic environment in which metal fabrication operations are carried out.

3 All welding positions are to include but are not limited to down hand, vertical up, vertical down, overhead and horizontal.

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 mild steel not exceeding 3 millimetres in thickness.

7 Regulations and legislation relevant to this unit standard include the following:

- Labour Act 11 of 2007
- 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](http://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 includes 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 workplace 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 mild steel in all positions**

#### **Range**

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

#### **Performance Criteria**

- 2.1 Risks associated with tungsten inert gas welding are identified and minimised prior to commencement of task.

- 2.2 Appropriate personal protective clothing and equipment is used in line with workplace procedures.
- 2.3 Equipment start up procedure is undertaken in line with task requirements.
- 2.4 Distortion prevention measures are identified and applied as required and appropriate action to prevent distortion is taken.
- 2.5 Materials are welded to specifications and in accordance with requirements and instructions.

### **Element 3: Conduct post weld inspection**

#### **Range**

Visual inspection of work piece includes but is 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 accordance with specified method.

### **Registration Data**

<b>Subfield:</b>	Manufacturing Engineering
<b>Date first registered:</b>	
<b>Date this version registered:</b>	
<b>Anticipated review:</b>	2024
<b>Body responsible for review:</b>	Namibia Training Authority