

Domain	PLUMBING	Unit ID: 448
Title:	Apply basic manual metal arc welding techniques as part of plumbing operations	
Level: 2		Credits: 4

Purpose

This unit standard specifies the competencies required to apply basic manual metal arc welding techniques as part of plumbing operations. It includes preparing welding equipment, selecting and assembling welding components and performing routine manual metal arc welding tasks. This unit standard is intended for those who work as plumbers.

Special Notes

1. Entry information:

Prerequisite

- 434 - *Apply safety rules and regulations in plumbing operations* or demonstrated equivalent knowledge and skills.
2. To demonstrate competence, at a minimum, evidence is required of performing two given welding tasks. These are a fillet and butt weld in horizontal position, using 150mm continuous length on two pieces of low-carbon steel with the dimensions of 50 x 3 x 150mm. 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 plumbing operations are carried out.
 4. All inspection, operation and maintenance procedures associated with the use of tools and equipment shall comply with manufacturers' guidelines and instructions.
 5. Regulations and legislation relevant to this unit standard include the following:
 - Labour Act, No. 6, 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: Plan and prepare for work

Range

Planning and preparation may include but are not limited to workplace inspection, equipment defect identification, assessment of conditions and hazards and determination of work requirements.

Tools and equipment may include but are not limited to hand tools, welding equipment including manual metal arc welding machine, safety equipment, measuring and marking out equipment.

Materials are to include but are not limited to welding rods/electrodes and cleaning materials.

Performance Criteria

- 1.1 Work instructions, including repair order forms, specifications and operational details are obtained, confirmed and applied.
- 1.2 Safety requirements are followed in line with safety plans and policies.
- 1.3 Tools and equipment selected to carry out tasks that are consistent with the requirements of the job, are checked for serviceability and any faults rectified or reported prior to commencement.
- 1.4 Materials appropriate to the work application are identified, obtained, prepared, safely handled and located, ready for use.
- 1.5 Environmental protection requirements are identified and applied in line with environmental plans and regulatory obligations.

Element 2: Select, assemble and set up welding components and equipment

Performance Criteria

- 2.1 Welding machine setting, accessories and consumables are identified.
- 2.2 Welding equipment is assembled and correctly set up.
- 2.3 Welding machine is set to correct welding current.

Element 3: Perform routine welding using manual arc metal welding process

Performance Criteria

- 3.1 Correct procedures are accessed from sources to enable welding to be performed in line with equipment manufacturers' specifications.
- 3.2 Manual metal arc welding is completed using approved methods and equipment in line with type of material and repairs required.
- 3.3 Manual metal arc welding procedures are completed without causing damage to components or systems.
- 3.4 Safety requirements are observed including the wearing of personal protective equipment.

Element 4: Complete work and clean up

Range

Work completion details may include but are not limited to work schedule or appointment sheet and sign-out form for equipment.

Performance Criteria

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

Registration Data

Subfield:	General Construction
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