

Domain **Control and Instrumentation**

Title: **Apply knowledge of process valves and actuators**

Level: 4

Credits: 5

Purpose

This unit standard specifies the competencies required to demonstrate fundamental knowledge of process valves, actuators and positioners, Assemble Stroke-check control valve and calibrate positioners, Stroke-check control valve and calibrate positioners. This unit standard is intended for those who work in instrumentation industry.

Special Notes

1. Entry information:

Prerequisite

- *Unit 1157 - Demonstrate basic knowledge of workplace health and safety*
- *Unit I&C02 - Plan and organise work in instrumentation work environment*

2. Assessment evidence may be collected from a real workplace or a simulated workplace in which instrumentation operations are carried out.

3. To demonstrate competence, minimum evidence of assembling, calibrating and testing of at least two types of valves. including identify different components.

4. All inspection, operation and maintenance procedures associated with the use of tools and equipment shall comply with manufacturers' guidelines and instructions.

7. Glossary of terms:

- *specifications'* refers to any, or all of the following: manufacturers' specifications and recommendations, workplace specific requirements

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

- Labour Act 2007, No. 11, 2007
- Regulations relating to the health & safety of employees at work under Schedule 1 (2) of the Labour Act No.11 of 2007
- And all subsequent amendments.

6. Performance of all elements in this unit standard must comply with industry standards.

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. All approved unit standards, qualifications

and national assessment arrangements are available on the Namibia Training Authority website www.nta.com.na

Elements and Performance Criteria

Element 1: Demonstrate fundamental knowledge of process valves, actuators and positioners.

Range

Introduction to process control valves may include and is not limited to types of valves and control valves, types of valves, their principles of operation, how and where they can be used and their limitations

Understanding of process on and off valves may include and is not limited to, the type of on/off valves, valve selection methods, how they are installed and maintenance factors that can limit their life span

Performance Criteria

1.1 Safety precautionary measures related to valves, actuators and positioners are explained.

1.2 Types of valves, actuators and positioners are identified and explained in regard to their principles of operation.

1.3 Advantages and disadvantages of valves, actuators and positioners are explained.

1.4 Methods of Installation of on/off valves are explained.

1.5 Maintenance of on/off is explained.

1.6 Methods of repairs of on/off valves is explained.

1.7 Limiting factors on On/off valves are explained

Element 2: Assemble Stroke-check control valve and calibrate positioners.

Range

Assembling of control valves may include but not limited to fitting actuators to valves and positioners to actuators.

Hazards in terms of inherent risk include but not limited to, stored energy (springs), moving parts, compressed air, hydraulic pressure and electricity where valves are electrically actuated (electrocution).

Performance criteria

2.1 Hazards in terms of inherent risk are identified.

2.2 Safe working procedures are explained and followed.

2.3 Control valve selection methods are explained.

2.4 Actuators and positioners are fitted to the valves according to manufacturer's recommendations

Element 3: Stroke-check control valve and calibrate positioners

Performance criteria

- 3.1 Valve stroking and calibration executed according to process requirement.
- 3.2 Device address is set where applicable.
- 3.3 Test results are documented in accordance with industry requirements.

Registration Data

Subfield:	Electrical Engineering
Date first registered:	
Date this version registered:	
Anticipated review:	
Body responsible for review:	Namibia Training Authority