

Unit ID: 871

Domain

ELECTROTECHNOLOGY

Title:

**Apply knowledge of electrotechnology
cables and accessories and install cables
as part of electrotechnology operations**

Level: 2

Credits: 3

Purpose

This unit standard specifies the competencies required to demonstrate and apply knowledge of electrical cables and accessories used in electrotechnology operations. It includes identification of electrotechnology cables and their characteristics, identification of cable accessories and their applications, installation, termination and jointing of electrotechnology cables. This unit standard is intended for those who work in electrical and related environment.

Special Notes

1. Entry information:

Prerequisite
 - Unit 864 – *Apply safety rules and regulations in an electrotechnology environment* or demonstrated equivalent knowledge and skills.
2. Assessment evidence may be collected from a real workplace or an appropriate simulated realistic environment in which electrical operations are carried out.
3. Glossary of terms:
 - '*specifications*' refers to any, or all of the following: manufacturers' specifications and recommendations, workplace specific requirements.
 - '*SANS*' refers to South Africa National Standards
4. Performance of all elements in this unit standard must comply with industry standards.
5. This unit standard can be co-assessed with other related unit standard(s).
6. Regulations and legislation relevant to this unit standard include the following:
 - Occupational Health and Safety Regulations No. 18, 1997 and all subsequent amendments.
 - Labour Act, No. 11, 2007.
 - SANS 10142-1.
 - SANS 10142-2.

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: Identify electrotechnology cables and their characteristics.

Range

Flexible cords and cables may include but are not limited to flat-section, circular construction, polyvinyl chloride (PVC), tough plastic-sheathed (TPS) and rubber sheathed.

Cables for fixed wiring may include but are not limited to (TPS), silicon wire, mineral-insulated metal-sheathed (MIMS), conduit wire, neutral-screened (coaxial) cable, cross-linked polyethylene (XLPE) and steel-wire armoured (SWA).

Methods of identifying cable conductors may be done but are not limited by sight, comparison with known cables, by interpretation of markings on cable drum or by measurement.

Colour and abbreviations may include but are not limited to that of phase, active, line, neutral and earth (in single and three phases).

Performance Criteria

- 1.1 Type of cable is identified by sight using colour codes and other appropriate industry practice
- 1.2 Cable conductor size is determined for an assortment of common flexible cords and fixed wiring cables.
- 1.3 Terminal abbreviations for different cables are identified and interpreted according to current regulations and standards.
- 1.4 The characteristics unique to each type of cable are stated and a typical application given according to industry practice.
- 1.5 An application is identified for each type of cable according to industry practice and in accordance with the manufacturer's specification
- 1.6 Restrictions on the use of rip cord and other single insulation types of flexible cords are stated according to current regulations and standards.

Element 2: Identify electrotechnology accessories and their applications.

Range

Accessories may include but are not limited to cable glands, lugs, ferrules, shrouds, shrinks, sleeves, and cable connectors.

Method for identifying accessories and their applications may include but are not limited to description, pictorial display, physical display and recall.

Ratings may include but are not limited to a.c. and d.c. current ratings, voltage rating, power rating and environmental restrictions.

Performance Criteria

- 2.1 Cable accessories are identified by name.
- 2.2 An application is identified for each accessory according to industry practice and in accordance with the manufacturer's specification.
- 2.3 Manufacturers' ratings are identified from accessory markings or data sheets.

Element 3: Install and terminate electrotechnology cables.

Range

Electrotechnology cables may include but are not limited to TPS, MIMS, conduit wire, neutral-screened (co-axial), XLPE, SWA and Paper Insulated Lead sheathed Cable (PILC).

Performance Criteria

- 3.1 Type of cable chosen matches the application in terms of operating conditions and environment.
- 3.2 Cable size is determined from given data in accordance with current regulations and standards and manufacturer's data.
- 3.3 Cables are mounted using accessories appropriate to the cable type according to current regulations, standards and industry practice.
- 3.4 Cables are terminated at accessories according to current regulations, standards and industry practice.

Element 4: Join electrical cables.

Performance Criteria

- 4.1 Jointing method is matched to the cable in accordance with industry practice and current regulations and standards, and may use proprietary jointing systems.

- 4.2 Jointing process is carried out in accordance with industry practice, current regulations and standards and according to manufacturer's instructions where applicable.
- 4.3 Completed joint is tested for continuity and insulation resistance and measured values are at least as good as those of the original cable.

Registration Data

Subfield:	Electrical Engineering
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