



Australian Government

UEENEEP023A HV Flexible Cables and Plugs

Release 2

UEENEEP023A HV Flexible Cables and Plugs

Modification History

Unit Descriptor

Unit Descriptor

1) Scope:

1.1) Descriptor

This unit covers attach flexible cords, cable(s) and plug(s), including trailing and feeder cables, to HV electrical equipment connected to a supply exceeding 1,000 volts a.c. or 1,500 volts d.c. This may be incidental to or a primary and regular function of work related to a principle function in the workplace – typically mining. It encompasses working safely, identifying plug configurations, selecting and using testing and measuring devices, terminating and connecting HV flexible cables, plugs and conductors, safety testing and reporting.

Application of the Unit

Application of the Unit 2)

This unit applies to any formal recognition for this standard at the aligned AQF 3 level or higher.

Licensing/Regulatory Information

License to practice 3)

The skills and knowledge described in this unit may require a license to practice in the workplace subject to regulations for undertaking of electrical work. Practice in workplace and during training is also subject to regulations directly related to occupational health and safety and where applicable contracts of training such as apprenticeships.

Pre-Requisites

Prerequisite Unit(s) 4)

Competencies 4.1)

Granting competency in this unit shall be made only after competency in the following unit(s) has/have been confirmed.

UEENEEE1 01A Apply Occupational Health and Safety regulations, codes and practices in the workplace

UEENEEP02 5A Attach cords and plugs to electrical equipment for connection to a single phase 230 Volt supply

UEENEEP02 5A Attach cords, cables and plugs to electrical equipment for connection to 1000 V a.c. or 1500 V d.c. supply

Literacy and numeracy skills 4.2)

Participants are best equipped to achieve this unit if they have reading, writing and numeracy skills indicated by the following scales. Description of each scale is given in Volume 2, Part 3 'Literacy and Numeracy'

Reading 3 Writing 3 Numeracy 3

Employability Skills Information

Employability Skills 5)

This unit contains Employability Skills

The required outcomes described in this unit of competency contain applicable facets of Employability Skills. The Employability Skills Summary of the qualification in which this unit of competency is packaged will assist in identifying Employability Skill requirements.

Elements and Performance Criteria Pre-Content

6) Elements describe the essential outcomes of a competency standard unit
 Performance Criteria describe the required performance needed to demonstrate achievement of the element.
 Assessment of performance is to be consistent with the Evidence Guide.

Elements and Performance Criteria

ELEMENT	PERFORMANCE CRITERIA
1 Plan and prepare to attach flexible cable(s) and plug(s)	1.1 Work is planned and prepared to ensure OHS policies and procedures are followed, and the work is appropriately sequenced in accordance with requirements.
	1.2 Condition and ratings under which the flexible cable(s) and plug(s) is to operate is determined from requirements and in consultation with appropriate personnel followed by written instruction.
	1.3 Flexible cable(s) and plug(s) are selected to comply with standards and requirements for the condition and rating to be determined.
	1.4 Materials necessary to complete the work are obtained in accordance with established procedures and checked against job requirements.
	1.5 Tools, equipment and testing devices needed to carry out the work are obtained in accordance with established procedures and checked for correct operation and safety.
2 Attach flexible cable(s) and plug(s)	2.1 OHS policies and procedures are followed.
	2.2 Flexible cable(s) is prepared without damage to insulation and conductors and in accordance with requirements.
	2.3 Equipment is earthed in accordance with requirements and as confirmed as de-energised.

ELEMENT	PERFORMANCE CRITERIA
	2.4 Visual checks of the electrical equipment and associated wiring are carried out in accordance with established procedures to detect any abnormal or obvious damage or fault.
	2.5 Approval is obtained in accordance with established procedures from appropriate personnel, before any contingencies are implemented.
	2.6 The integrity of insulated equipment is maintained in accordance with requirements.
	2.7 Conductors are connected to terminals in accordance with requirements to ensure the required polarity is affected.
3 Test equipment for operation and safety	3.1 Appropriate tests are conducted of the electrical equipment high voltage to ensure safe installation and operation.
	3.2 Approval is obtained from authorised personnel to confirm completion of work is in accordance with established procedures before supply is connected.
4 Provide status report(s)	4.1 Status report(s) are completed and notified in accordance with established procedures.

Required Skills and Knowledge

REQUIRED SKILLS AND KNOWLEDGE

8) This describes the essential skills and knowledge and their level, required for this unit.

Evidence shall show that knowledge has been acquired of safe working practices and attaching flexible cables and plugs to electrical equipment connected to a HV supply.

All knowledge and skills detailed in this unit should be contextualised to current industry practices and technologies.

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HV Flexible Cables and Plugs

Evidence shall show an understanding of attaching flexible cables and plugs to electrical equipment connected to a HV supply (i.e. exceeding 1000 V a.c. and 1,500 V d.c.) to an extent indicated by the following aspects

T1 Flexible cords/cables and plugs to suit given H.V applications, encompassing:

- Flexible cables and plugs to suit given H.V applications
- Types of multiphase plug H.V for a specific load and IP rating requirements.

T2 Safety of a H.V electrical apparatus (including basic principles of its operation non-mathematical and control) of an appliance for connection to the supply, encompassing:

- Appropriate test equipment to check that apparatus is safe.
- Procedures to be followed to ensure the correct use of test equipment.
- Basic principles of operation and control of apparatus supplied by the flexible cables and plug.
- Test results that show apparatus is unsafe.

T3 Connection of flexible cables and plugs to multiphase appliances, encompassing:

- Preparation of flexible cables for connection to H.V apparatus.
- Connection of flexible cables to H.V. apparatus.
- Connection of a HV plug to a flexible cable.

T4 Safety of flexible cable and plug assembly, encompassing:

- Plug and cord testing procedures.
- Safe operation of apparatus supplied by HV cable and plug assembly

Evidence Guide

EVIDENCE GUIDE

9) The evidence guide provides advice on assessment and must be read in conjunction with the Performance Criteria, Required Skills and Knowledge, the Range Statement and the Assessment Guidelines for this Training Package.

The Evidence Guide forms an integral part of this Unit and shall be used in conjunction with all components parts of this unit and performed in accordance with the Assessment Guidelines of this Training Package.

Overview of Assessment 9.1)

Longitudinal competency development approaches to assessment, such as Profiling, require data to be reliably gathered in a form that can be consistently interpreted over time. This approach is best utilised in Apprenticeship programs and reduces assessment intervention. It is the industry-preferred model for apprenticeships. However, where summative (or final) assessment is used it is to include the application of the competency in the normal work environment or, at a minimum, the application of the competency in a realistically simulated work environment. In some circumstances, assessment in part or full can occur outside the workplace. However, it must be in accordance with industry and regulatory policy.

Methods chosen for a particular assessment will be influenced by various factors. These include the extent of the assessment, the most effective locations for the assessment activities to take place, access to physical resources, additional safety measures that may be required and the critical nature of the competencies being assessed.

The critical safety issues inherent in working with electricity, electrical equipment, gas or any other hazardous substance/material present a challenge for those determining competence. Sources of evidence need to be 'rich' in nature to minimise error in judgment.

Activities associated with normal everyday work influence decisions about how/much the data gathered will contribute to its 'richness'. Some skills are more critical to safety and operational requirements while the same skills may be more or less frequently practised. These points are raised for the assessors to consider when choosing an assessment method and developing assessment instruments. Sample assessment instruments are included for Assessors in the Assessment Guidelines of this

Training Package.

**Critical aspects
of evidence
required to
demonstrate
competency in
this unit** 9.2)

Before the critical aspects of evidence are considered all prerequisites shall be met.

Evidence for competence in this unit shall be considered holistically. Each element and associated performance criteria shall be demonstrated on at least two occasions in accordance with the 'Assessment Guidelines – UEE11'. Evidence shall also comprise:

- A representative body of work performance demonstrated within the timeframes typically expected of the discipline, work function and industrial environment. In particular this shall incorporate evidence that shows a candidate is able to:
 - Implement Occupational Health and Safety workplace procedures and practices including the use of risk control measures as specified in the performance criteria and range statement
 - Apply sustainable energy principles and practices as specified in the performance criteria and range statement
 - Demonstrate an understanding of the essential knowledge and associated skills as described in this unit. It may be required by some jurisdictions that RTOs provide a percentile graded result for the purpose of regulatory or licensing requirements.
 - Demonstrate an appropriate level of skills enabling employment
 - Conduct work observing the relevant Anti Discrimination legislation, regulations, policies and workplace procedures
- Demonstrated consistent performance across a representative range of contexts from the prescribed items below:
 - Attach flexible cables and plugs to electrical equipment connected to a high voltage supply as described in 8) and including:
 - a. Planning and preparing to attach flexible cable(s) and plug(s) connected to HV electrical equipment
 - b. Attaching, replacing and repairing flexible cable(s) and plug(s) connected to HV electrical equipment

- c. Testing flexible cable(s), plug(s) and electrical equipment connected to HV electrical equipment for operation and safety
- d. Providing status report(s)
- e. Dealing with unplanned events by drawing on essential knowledge and skills to provide appropriate solutions incorporated in a holistic assessment with the above listed items

Note:

Successful completion of relevant vendor training may be used to contribute to evidence on which competency is deemed. In these cases the alignment of outcomes of vendor training with performance criteria and critical aspects of evidence shall be clearly identified.

**Context of and
specific
resources for
assessment** **9.3)**

This unit should be assessed as it relates to normal work practice using procedures, information and resources typical of a workplace. This should include:

- OHS policy and work procedures and instructions.
- Suitable work environment, facilities, equipment and materials to undertake actual work as prescribed by this unit.
- Workplace evidence to be produced in an industry/regulator approved recording system (logbook) confirming skills development under appropriate supervision

These should be part of the formal learning/assessment environment.

Note:

Where simulation is considered a suitable strategy for assessment, conditions must be authentic and as far as possible reproduce and replicate the workplace and be consistent with the approved industry simulation policy.

The resources used for assessment should reflect current industry practices in relation to attaching flexible cables and plugs to electrical equipment connected to a HV supply.

**Method of
assessment****9.4)**

This unit shall be assessed by methods given in Volume 1, Part 3 'Assessment Guidelines'.

Note:

Competent performance with inherent safe working practices is expected in the Industry to which this unit applies. This requires assessment in a structured environment which is intended primarily for learning/assessment and incorporates all necessary equipment and facilities for learners to develop and demonstrate the essential knowledge and skills described in this unit.

**Concurrent
assessment and
relationship with
other units****9.5)**

There are no concurrent assessment recommendations for this unit.

Range Statement

RANGE STATEMENT

10) This relates to the unit as a whole providing the range of contexts and conditions to which the performance criteria apply. It allows for different work environments and situations that will affect performance.

This unit shall be demonstrated in relation to flexible cables and plugs for connecting equipment intended to operate at HV.

Note:

Limitations of this unit. This unit does not cover the knowledge and skills necessary for work:

- a. Where high fault currents are possible,
- b. On complex electrical work;
- c. Nor competencies associated with fixed wiring

Safe Working. Safe procedures for working within in the scope of this unit shall be in accordance with AS/NZS 4836 'Safe working on low-voltage electrical installations.'

Generic terms used throughout this Vocational Standard shall be regarded as part of the Range Statement in which competency is demonstrated. The definition of these and other terms that apply are given in Volume 2, Part 2.1.

Unit Sector(s)

Not applicable.

Competency Field

Competency Field **11)**

Restricted and Specialisations