Electricity Distribution

nationalgrid

Company Directive

ENGINEERING EQUIPMENT SPECIFICATION

EE: 148

LV Pole Mounted Cut-Outs

Summary: This Specification covers the design, construction, performance and test requirements for LV Pole Mounted Cut-outs and associated fittings.

Author: **Mike Chapman**

Implementation Date: **December 2022**

Approved by

Carl Ketley-Lowe
Engineering Policy Manager

Date: **1st December 2022**

Target Staff Group	**Applicable Staff include, Network Services Teams and their contractors involved in OH Pole Construction, Refurbishment / Reconductoring or Installations / Replacement of new or existing poles, Purchasing, Logistics, Specifier, Senior Nominated persons, manufacturers and suppliers.**
Impact of Change	**Green – The changes have no impact on Network Services personnel as such no briefing is required.** **The document shall be used by Engineering Policy and Purchasing during the "Goods In" contract tendering process or when purchasing non stocked products for specific projects.**
Planned Assurance checks	**Engineering Policy and Purchasing shall undertake where when deemed necessary factory visits and witness product testing**

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IMPLEMENTATION PLAN

Introduction

This Specification covers the design, construction, performance and test requirements for LV Pole Mounted Cut-outs and associated fittings.

Main Changes

New Specification.

Impact of Changes

The new specification attempts to resolve many of the issues reported by the business over the last few years.

Implementation Actions

During tender negotiations purchasing should issue this Technical Specification to all interested parties.

Implementation Timetable

This specification will come into force at the start of the next tender process anticipated to be January 2023.

REVISION HISTORY

Document Revision & Review Table		
Date	**Comments**	**Author**
December 2022	• New Specification	Mike Chapman

Contents

1.0 Scope

This Specification covers the design, construction, performance and test requirements for LV Pole Mounted Cut-outs and associated fittings.

2.0 Specifications

LV Overhead Line Pole Mounted Cut-outs shall be manufactured and tested in accordance with this specification.

It should be noted that this specification brings additions to or replaces some of the requirements of BS 7656.

If there is not a specific requirement for a particular product within this document then the item shall meet wherever reasonably practicable the ENA TS or BS EN standards or other equivalent standard.

Where there is any conflict / ambiguity between this specification, the provisions of the ENA, or the national / international standards, the order of precedence for resolution shall be as follows:

1. EE148 LV Overhead Pole Mounted Cut-outs

2. BS 7656 Low-voltage pole-mounting fuses (cut-outs) — 315 A rating

3. Other Standards e.g. BS EN 60947-1

3.0 General Requirements

LV Pole Mounted Cut-outs shall:

a) Be rated at 400A

b) Because they may be operating in environments which may be subject to harsh salt pollution environments and / or solar radiation be suitable for operation in Pollution degree 4 environments.

c) Be capable of being fixed to flat or curved surfaces.

d) Be capable of receiving copper or aluminium cables having a cross sectional area up to 185mm.

e) Allow for single point front mounting of the above sized cables via a compressed lug onto an M12 stud. The bottom of the lug shall be a minimum of 25mm inside the fuse mount.

f) Have a fixing arrangement which is sufficiently secure and robust to prevent movement during cable installation of the above size cable and fuse-carrier removal and insertion.

g) When mounted for multiphase application at 300mm vertical spacing's between fixing points, there shall be sufficient access for safe insertion and removal of all fuse carriers.

h) Designed to accommodate standard wedge 'J' type fuse / links to BS 88 with 82mm fixing centres.

i) Have fuse carrier contacts fabricated from brass.

j) Have an opening that is suitable for accepting the variety of connectors used for connecting generator leads.

k) Have a torque required to tighten the thumbscrew of the fuse carrier when a fuse / link is inserted not greater than 1.5Nm and with both thumbscrews tightened sufficient clamping force should be placed on the fuse carrier / link contact terminals on the fuse mount contact terminals such that a 150Kg weight cannot dislodge the fuse carrier.

l) Preferably have a complete thumbscrew torque system i.e. includes the bolt and mechanism that has a minimum rating of 12Nm. The supplier shall declare the torque rating of their products at time of tender.

m) Have grommets which are easy to install with the full range of cables.

n) The fully assembled cut-out shall have a minimum IP Rating of 43, the supplier shall declare the IP rating of their products at time of tender.

o) The Ground Operated fuse carrier tool should be designed to be attached to a set of standard hollow operating rods, hold the fuse carrier securely and limit the maximum torque applied such that it does not over torque and damage the thumbscrews during the installation and removal process. The nominal toque should be set at 3Nm and be bi-directional so that wing nuts can be both tightened and loosened.

4.0 Testing

Type Testing shall be carried out in accordance with BS 7656 and, if required, witnessed by a NGED engineer.

At time of tender the supplier shall provide information relating to what routine and sample testing and quality checks are carried out before items are dispatched.

If testing to this standard has not been carried out it shall be clearly indicated and alternative equivalent test standards detailed. Where other tests have been made their deviation from BS 7656 must be highlighted.

In addition to the above Type Tests the following tests relating to the capability of the thumbscrew and final assembly of the fuse carrier in the cut-out shall also be carried out on 6 units to ascertain:-

a) The force required to tighten the wing nuts to ensure the fuse carrier is clamped to the cut-out busbar sufficiently.

b) Following the temperature rise test the force required to remove the fuse carrier from the cut-out with both wing nuts tightened as above.

c) The maximum torque that can be applied to complete thumbscrew system before failure. This is during both the install and removal process.

5.0 Marking

All fittings shall be clearly and indelibly marked with the manufacturers name or logo, batch and part number.

6.0 Sustainability

At times of tender the supplier shall provide information in relation to the carbon foot print of the products being offered and what actions they are taking so as to move to Net Zero. As part of this information the supplier / manufacturer will be expected to provide details of the Scope 1, 2 & 3 emissions associated with their products.

For environmental reasons NGEDs preference is to move away from the use of unrecyclable packaging as such suppliers shall at the time of tender or supply provide details as to how they package and supply the products supplied.

7.0 Provision of Information

At time of tender potential suppliers shall

a) Provide the six samples for evaluation at NGED’s training centres.

b) Provide all drawings, data sheets specific to all their products.

c) Provide the type test reports and other test information outlined in 3 above

d) They shall review the requirements of this specification and clearly identify in the 'Schedule of Requirement in Appendix A. below', together with all other information whether their products meet or where they do not meet the requirements and the reasons why.

e) Provide a list of UK references of **companies** together with **contact** details where they have supplied more than 1000 pieces of an item within the last five last years.

f) Provide information as to where the items are manufactured.

g) Provide details of any warranty for the items supplied and what this covers.

h) Provide details on how products are marked including batch related information.

i) Where a supplier is unable to supply a particular item this should be clearly indicated on NGEDs Schedule of Requirement in Appendix A.

Note: Failure to provide this information and the samples required within the deadline particularly where items are subsequently found not to meet NGED requirements may exclude the supplier from the next stage of the tender process.

APPENDIX A

SCHEDULE OF REQUIREMENT

Item No.	Description	Sample Required	Able to supply Y / N	Supplier Part No.	Meets NGED Requirements if not give reasons why	Warranty Period	Further Comments / Information
1	Pole Mounted Cut-out including Fuse Carrier and Coach Bolt	Yes					
2	Fuse Carrier for Pole Mounted Cut-out	No					
3	Service Cable Adapter for Pole Mounted Cut-out	Yes					
4	Wedge Type Insulated Dummy Link	Yes					
5	Ground Operated Fuse Carrier installation / Removal Tool	Yes					

APPENDIX B

SUPERSEDED DOCUMENTATION

This is a new document and no document is superseded by its issue.

APPENDIX C

POLICY FEEDBACK

Policy Feedback Comments Sheet

APPENDIX D

KEY WORDS

Pole Mounted, Cut out