NPS/100/001 – Technical Specification for Electrical Insulating Matting

1. Purpose

The purpose of this document is to detail the specific technical requirements for insulating matting for use when testing or working on Low Voltage switchboards on Northern Powergrid networks.

This document supersedes the following documents, all copies of which should be destroyed.

Reference	Version	Date	Title
NPS/100/001	2.0	April 2016	Technical Specification for Electrical Insulating Matting

2. Scope

This document describes Northern Powergrid requirements for insulating matting to be used adjacent to LV switchboards.

2.1. Contents

3. Requirements

3.1. General

The overall specification must comply with BS EN 61111:2009 – "Live working – Electrical insulating matting".

This International Standard is applicable to electrical insulating matting made of elastomer for use as a floor covering for the electrical protection of workers on electrical installations, where circumstances involve the possibility of direct contact with conductors whose voltage does not exceed 650V r.m.s. to earth.

3.2. Classification

The electrical insulating matting covered by this specification shall be designated as:

- Electrical Class 0 (1000v AC (r.m.s) / 1500v D.C maximum)
- Standard resistance to ambient temperature between –25 °C and +55 °C
- as defined in Annex A and B of BS EN 61111:2009

3.3. Composition

The mats shall be manufactured of elastomer (As described in BS EN 61111:2009, Section 4.3.1)

3.4. Construction

The mats shall be solid and not perforated. The upper surface shall be ribbed / fluted or other suitable patterned surface. Both sides of the electrical insulating matting shall be slip resistant. The slip resistance may be achieved with surface such as corrugated or diamond design.

Any insert shall not affect adversely the dielectric characteristics of the electrical insulating matting.

3.5. Dimensions and Tolerances

The thickness of the mat shall be 8.5mm.

The overall dimensions of the mat shall be in accordance with Northern Powergrid preference of typically 2800mm length x 900mm width x 8.5mm thickness.

These dimensions for matting shall be within a tolerance of ± 2 % of the stated dimensions.

Matting can be cut to suit the application in which they are to be used where appropriate.

Any matting which has been cut to suit shall be checked to ensure it contains the detailed embossing as required by clause 3.8 (Marking).

3.6. Workmanship & Finish

The mats shall be, free from blisters, pin holes, embedded foreign matter and physical defects on both sides (As described in BS EN 61111:2009 section 4.3.4)

3.7. Performance Requirements

The mats shall meet requirements for Insulation value, Mechanical strength – comprising of tensile stress – strain properties and compression set.

3.8. Marking

The mats shall be clearly marked at intervals with;

- The name of the manufacturer

- Symbol according to Annex C of BS EN 61111:2009 suitable for live working double triangle
- BS EN 61111:2009 (Section 4.6)
- The date of manufacture month and year
- The manufacturers identification mark
- The class designation and / or the words “1000V maximum”

3.9. Certification

A certificate of conformity with test data shall be available for every roll.

3.10. Periodic Inspection and Testing

- No electrical insulating matting, even those held in storage, should be used unless they have been inspected and/or electrically tested within the previous 12 months.
- All mats shall be inspected as part of annual substation inspections. All inspections shall be logged on the annual substation inspection record form.
- Any defective matting should be replaced.
- All users should carry out a visual inspection of the mat prior to use.

4. References

The products described within this specification shall comply with all current versions of the relevant International Standards, British Standard Specifications and all relevant Energy Networks Association Technical Specifications (ENATS) current at the time of supply

4.1. External Documentation

Reference	Title
BS EN 61111:2009	Live working — Electrical insulating matting

4.2. Internal Documentation

Reference	Title
None	

4.3. Amendments from Previous Version

Reference	Description
Clause 3.5	The description of the thickness aligned with NPG requirement
Clause 3.8	Reference standard updated

5. Definitions

Reference	Title
r.m.s.	Root Mean Squared

6. Authority for Issue

6.1. CDS Assurance

I sign to confirm that I have completed and checked this document and I am satisfied with its content and submit it for approval and authorisation.

		Date
Liz Beat	Governance Administrator	19/04/2023

6.2. Author

I sign to confirm that I have completed and checked this document and I am satisfied with its content and submit it for approval and authorisation.

Review Period - This document should be reviewed within the following time period.

Standard CDS review of 3 years	Non Standard Review Period & Reason	
No	Period: 5 Years	Reason: Update will be dictated by contract renewal date or any significant changes in the specification or documents referenced

		Date
Aaron Chung	Policy & Standards Engineer	20/04/2023

6.3. Technical Assurance

I sign to confirm that I am satisfied with all aspects of the content and preparation of this document and submit it for approval and authorisation.

		Date
Steve Salkeld	Policy & Standards Engineer	19/04/2023
Joe Helm	Policy & Standards Manager	21/04/2023

6.4. Authorisation

Authorisation is granted for publication of this document.

		Date
Paul Black	Head of System Engineering	25/04/2023

Appendix 1 – Schedule of Requirements

Requirements	Northern Powergrid Commodity Code
RUBBER FLUTED SWITCHBOARD MATTING SIZE 2.8M X 900MM (8FT 6IN X 3FT)	326696