



PLANT PURCHASING SPECIFICATION BHOPAL

BP 25181

REV NO. 02

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POLYESTER FILM BACKED RESIN POOR EPOXY MICA PAPER TAPE

SUPERSEDES
BP 25181 Rev.01

1. GENERAL

This specification governs the quality requirements of epoxy resin bonded polyester film backed mica paper tape suitable for resin poor (VPI) insulation system. The epoxy binder and accelerator in the tape should be compatible with Bisphenol-A and Diglycidylether based epoxy resin and acid anhydride hardener based VPI impregnation system. The mica paper shall be uncalcined muscovite grade. Material shall be free from cracks & folds. Polyester film shall have a shrinkage of 3% (maximum) as per DIN 40634 Gr F1510. The coils insulated with these tapes shall undergo VPI process with the above mentioned solvent less epoxy resin and hardener mix and shall have a temperature index of at least 155. The material shall be supplied in blue/ pink colour based on Sudan Black/ Sudan Red or equivalent dye.

2. APPLICATION

Used for main insulation of stator coils of electrical machines with VPI system.

3. COMPLIANCE WITH NATIONAL STANDARDS

There is no Indian Standard covering this material.

4. DIMENSIONS AND TOLERANCES

4.1 Sizes

The thickness, width and length shall be as stated on the order.

4.2 Standard thickness

0.14 mm $\pm$ 0.02 mm

4.3 Standard width

25 mm $\pm$ 0.5 mm

4.4 Standard Length/ Roll

50 m (55 mm bobbin ID)/ 80 m (25 mm bobbin ID)

However, for special applications, any other length may be ordered.

Revision:

Reviewed & Brought up to date.

Cl. 1, 4.4, 8.1, 12 modified.

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5. SHELF LIFE AND STORAGE

$\leq 5^{\circ}\text{C}$: 24 months minimum from the date of delivery

> 5 to $\leq 25^{\circ}\text{C}$: 12 months minimum from the date of delivery

6. TEST METHODS

Unless otherwise specified, all the tests shall be conducted as per the relevant methods of IEC: 60371 - 2.

7. SAMPLE FOR TESTS

Two rolls of tape shall be sent to TSD for testing from every consignment.

8. PROPERTIES

8.1 Composition

When tested as per conventional method, composition shall be as given below:

Total substance : $221 \pm 18 \text{ gm/m}^2$

Mica Paper : $160 \pm 13 \text{ gm/m}^2$

Bond Content : $19 \pm 3 \text{ gm/m}^2$

Polyester Film : $42 \pm 2 \text{ gm/m}^2$

8.2 Accelerator Content (For information only)

13% on Nominal Bond

8.3 Volatile Content

1% Max.

8.4 Tensile Strength at 3 % Elongation

30 N/cm width (minimum)

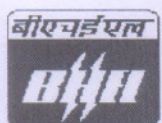
8.5 Stiffness (IEC : 60626 - 2)

70 N/m (maximum)

During test mica shall be on top side.

8.6 Electric Strength (BDV) in air at Room Temperature IS:2584

6.0 kV (Minimum)



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9. OVERLAP INDICATION (For hand taping rolls only)

A centre line shall be marked throughout the length of tape to indicate half overlap.

10. JOINTS

The material shall be supplied in continuous lengths as stated on the order. Rolls having joint shall be packed separately and appropriately marked. 90% of the consignment shall be without joints. Material used for jointing shall not adversely affect the properties of the cured insulation. If the material used for jointing is not compatible with the insulation, the supplier shall notify accordingly. Per roll, maximum only one joint is permitted.

11. TEST CERTIFICATE

Unless otherwise specified, three copies of test certificates shall be supplied.

In addition, the supplier shall ensure to enclose one copy of the test certificate along with their dispatch documents to facilitate quick clearance of the material.

The test certificate shall bear the following information:

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BHEL Order No.

Manufacturer's / Supplier's Name

Batch No. / Lot No.

Date of Manufacture

Test results obtained for the properties and dimensional tolerances as per the specification

12. PACKING AND MARKING

i) Bobbin for hand taping

The tape shall be supplied wound tightly on rigid plastic bobbins with rounded inner edges with ID-55 mm as shown in "Sketch-A".

ii) Bobbin for machine taping

The tape is to be supplied on plastic bobbin (as shown in the "Sketch B"). The bobbin should have dimensions as follows:

Inner Diameter of Bobbin: $25 + 0.2 / - 0.0$ mm

Outer Diameter of Bobbin: 30 mm

Material of Bobbin: Plastic

Notches: 4 numbers equally distributed 0.5 deep 10 wide

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Mica paper shall be on top side. The rolls shall be kept in a Polythene bag, which in turn shall be packed in polystyrene container to avoid damage during transit/ storage. Each container shall be marked with the following:

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BHEL Order No.

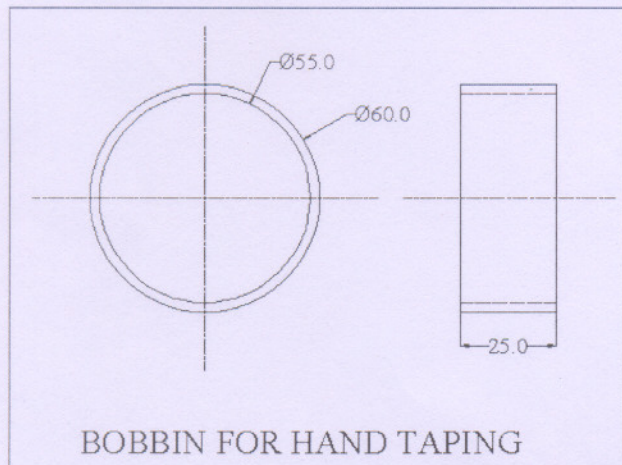
Manufacturer's Name

Batch No. / Lot No.

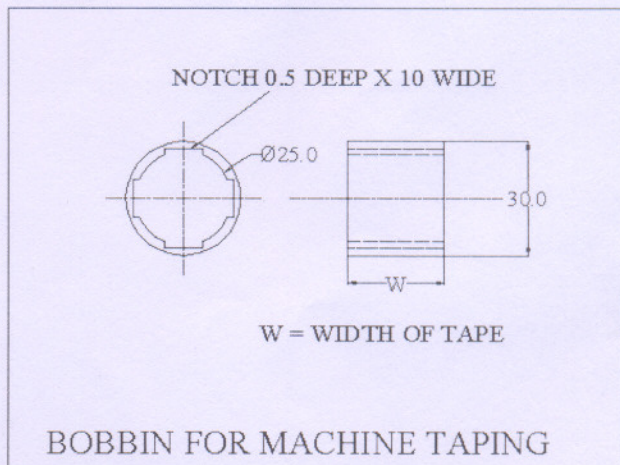
Date of Manufacture

Note:

1. Each roll shall be marked with "USE BEFORE....." (Date of Expiry)
2. "Sketch-A" & "Sketch-B" are appended below



SKETCH-A



SKETCH-B