

**TECHNICAL SPECIFICATIONS & GUARANTEED TECHNICAL PARTICULARS**  
**of Niwar Tape**

**Niwar Tape of Best quality for Electrical use in repairing of Transformer, material cotton, Heat resistant (duly packed in roll) Size 30mm x 30-40 mtr. Long and as per specification & relevant IS**

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|-----------------------------|--|
| <b>1. NAME OF ITEM</b>      | <b>: NIWAR TAPE</b>                                  |
| <b>2. RELEVANT IS: 1923</b> | <b>: 2003 (with latest Amendment if any)</b>         |
| <b>3. SIZE</b>              | <b>: 30mm x 30-40 Mtr Long (duly packed in roll)</b> |

**4. MANUFACTURE:**

**4.1 Yarn**

The cotton yarn used both in warp and weft for the manufacture of tapes shall be reasonably free from naps, slubs, knots, kinks, etc. It shall be unsized.

**4.2 Weave**

The tapes shall be woven in Plain weave or Herring bone twill (W and V Twill) weave with uniform selvedge. The tapes of Plain weave shall be calendared and those of Twill weave shall not be calendared.

**4.3 Locking Thread**

For Type 2 tapes, the picks shall be interlocked at or near the selvedge opposite the one from which weft is inserted, thus preventing unravelling of the selvedge during use. The method of interlacing shall be such that the thread cannot be pulled out of the body of the tape.

**4.4 Centre Marking**

**Centre line/markings of any colour may be provided by weaving a coloured warp thread into the centre of the tape, if specified by the buyer.**

**4.5 Identification of Types of Tapes**

**Tapes shall be identified according to types as follows:**

- a) Type 1 - A single coloured warp thread positioned in such a manner so as to indicate the centre line of the tape.**

**5 REQUIREMENTS**

**5.1 Thickness** The nominal thickness measured between the selvedge of the tape shall comply with the values given in Table 1. Thickness, when measured at the selvedge, shall not exceed the thickness between the selvedge by more than 0.03 mm. The thickness of tapes shall be determined by the method prescribed in IS 5352 (Part 2).

**Table 1 Thickness and Tolerance**

(Clause 5.1)

All dimensions in millimetres.

Type of Weave	Nominal Thickness	Minimum Thickness	Maximum Thickness
(1)	(2)	(3)	(4)
Plain Weave	0.18	0.16	0.23
	0.20	0.18	0.25
	0.25	0.22	0.30
	0.30	0.25	0.35
Twill weave	0.25	0.23	0.30
	0.28	0.24	0.35
	0.40	0.38	0.45
	0.50	0.45	0.60

**5.2 Width**

The nominal width of the tape shall be 30 mm.

The following tolerances shall be permitted on nominal width:

	Nominal Width	Tolerance
mm	mm	
Up to and including 25		$\pm 1.0$
Above 25		$\pm 1.50$

The width of tapes shall be determined in accordance with the method given in IS 5352 (Part 2).

**5.3 Length**

Unless otherwise specified, the tape shall be supplied on rolls in 40 m length.

**5.3.1** In case of roll with joints, the tape pieces shall be butted and joined up by a strip of coloured gummed tape which shall show on the edge of roll to indicate the presence of joints. Pins or other metal fasteners shall not be used for securing the ends of rolls or for joining the tapes.

**5.3.2** In any consignment, the number of rolls having joints shall not exceed by more than 10 percent.

**5.3.3 Other Requirements**

The tapes shall also conform to the physical and chemical requirements as given in Table 2 and Table 3.

**6 PACKING****6.1 Winding**

This shall be as agreed to between the manufacturer and the buyer. However the recommended method of winding shall be as under:

The tape shall be wound on a hard tubular core with sufficient tension to form a compact roll but without deforming the construction of the tape. The internal diameter of core construction of the tape shall not be less than 10 mm and not more than 13 mm and its width shall be approximately the same as the width of the tape but shall not exceed it. The roll shall not get loosened when dropped on floor from a height of one metre. Alternatively individual core having a diameter of 55 mm is also permitted.

The tapes shall be wound in an anti-clockwise spiral when the roll is viewed from the locking thread, as shown in Fig. 1.

**FIG.1 VIEW OF ROLL FROM LOCKING THREAD SIDE****7 MARKING**

**7.1** Outer end of tapes of each roll shall be tied the label bearing the following information:

- Type of tape;
- Length of roll in m;
- Nominal thickness and width of tape in mm;
- Manufacturer's name, initials or trade-mark, if any; and
- Year of manufacture.

**7.1.1** Each roll may also be marked with the Standard Mark.

**7.1.1.1** The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standard Act, 1986* and the Rules and Regulations made thereunder. The details of conditions under which the licence for use of the Standard Mark may be granted to manufacturers or producers may be obtained from the Bureau of Indian Standards.

**7.2** Package containing number of rolls as agreed to between the buyer and the seller shall be marked with the following:

- Number of rolls in the package;

**Table 2 Physical Requirements for Tapes**  
(Clause 5.4)

Sl. No.	Characteristics	Nominal Thickness mm	Type of Weave	Requirement of Type 1 and Type 2	Method of Test Ref to CI of IS
(1)	(2)	(3)	(4)	(5)	(6)
i)	Ends/cm, Min	≤ 0.28	Twill	≥ 26	3.1 of 5352 (Part 2)
		≥ 0.28	Twill	≥ 32	
ii)	Picks/cm, Min	≤ 0.28	Twill	≥ 12	3.2 of 5352 (Part 2)
		≥ 0.28	Twill	≥ 10	
iii)	Tensile Strength, Min (Kg/mm)	0.25	Twill	1.000	3.6 of 5352 (Part 2)
		0.28	Twill	1.120	
		0.40	Twill	1.550	
		0.50	Twill	1.750	

NOTE — For tapes woven on shuttle less looms, finer counts with locking threads maybe used.

- b) Type of tape;
- c) Length of roll in m;
- d) Nominal thickness and width of tapes in mm;
- e) Manufacturer's name, initials or trade-mark, if any; and
- f) Year of manufacture.

## 8 SAMPLING

### 8.1 Lot

The quantity of tape of one definite type delivered to one buyer against one despatch note shall constitute a lot.

**8.2** The conformity of a lot to the requirements of this standard shall be determined on the basis of test carried out on rolls of tape selected from the lot.

**8.3** Unless otherwise specified, the number of rolls of tape to be selected at random from a lot shall be as given in Table 4.

**8.4** For evaluating width, length, ends per centimeter, picks per centimeter and thickness, the number of rolls selected in COI2 of Table 4 shall constitute the test sample.

**8.5** For evaluating tensile strength, the number of rolls selected in CO14 of Table 4 shall constitute the test sample. The rolls shall be selected at random from those drawn for the purpose of 8.4. The required test specimens shall be drawn from each of the rolls and subjected to corresponding tests.

### 8.6 Criteria for Conformity

The lot shall be considered as conforming to the requirements of the standard if the following conditions are satisfied:

- a) The number of rolls found defective for any one or more of the characteristics mentioned in 8.4 does not exceed the corresponding number given in CO13 of Table 4.
- b) None of the test samples fails to meet the specified requirement in respect of the characteristics mentioned in **8.5**.

**Table 3 Chemical Requirements for Tapes**  
(Clause 5.4)

S1 No. (1)	Characteristic (2)	Requirements (3)	Method of Test, Ref to (4)
i)	Scouring loss, Max	5% for grey and 2% for scoured tape	IS 1383
ii)	Conductivity of aqueous extract, Max	50 micro-mhos/cm	Cl 7 of IS 4420
iii)	pH value	6.0- 8.5	IS1390
iv)	Chloride content, Max	10 ppm	IS 4202

**Table 4 Sample Size and Criteria for Conformity**  
(Clauses 8.3,8.4,8.5 and 8.6)

Lot Size (Number of Rolls)  (1)	Sample Size  (2)	Permissible Number of Defective Rolls  (3)	Sub-sample Size  (4)
upto 100	5	0	2
101 to 300	13	0	3
301 to 500	20	1	5
501to 1000	32	2	8
1001 and above	50	3	8

**Note:-**

1. All specification and Testing should be as per relevant IS with latest amendment.
2. If facility of any acceptance test of above material is not available at firm's premises, then inspecting authority will send a sealed sample of the above material to NABL lab for such test and mentioned lot will be accepted only when it successfully pass in acceptance test. The cost of such test (s) shall be borne by the supplier firm.