



TM 11509

Rev 01

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## 1.0 Scope:

This specification covers the manufacture and supply of 'Mica Glass Fabric Tape' used in Traction Machines. Mica Glass Fabric Tape is used in insulation of Coil and other insulation of winding.

## 2.0 Constructional requirement:

Mica glass fabric is a dry, flexible impregnable insulating material in the form of tapes 0.12 mm thick. It consists of aromatic polyamide fibres added mica paper (Muskovit) and glass fabric backing lightly glued together. A hardener –free silicon resin serves as a binder.

### 3.0 Dimensions/Size:

As mentioned in purchase order.

#### 4.0 Delivery Documents, Destination for Delivery:




As mentioned in purchase order.

## 5.0 Acceptance of New Products:

Attainment of the properties listed below is not in itself sufficient for the acceptance of new previously unaccepted products. Only if after particular experiments, practical service tests if necessary, other considerations have been taken into account, it appears that the new products is acceptable & interchangeable, may we decide to convert to it.

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## 6.0 Requirements

### 6.1 Properties

SN	Size, Term	Unit	Values	Test Method
01	Thickness	mm	$0.12 \pm 0.02$	IEC 371-2 section 3 (i)
02	Width	mm	$15 \pm 5\%$	
03	Composition	g/m <sup>2</sup>		IEC 371-2 section 6 (ii)
	Glass Fabric <sup>(iii)</sup>		$32 \pm 3$	
	Mica Paper		$113 \pm 8$	
	Binder <sup>(iv)</sup>		$12 \pm 4$	
	Aromatic polyamide fibres		$7 \pm 3$	IEC 371-2 (section 6.4)
04	Mass per unit area	g/m <sup>2</sup>	$164 \pm 10$	IEC 371-2 (section 6.2)
05	Thread Count (Glass fabric)	cm <sup>-1</sup>		DIN 53853
	Warp		$24 \pm 2$	
	Weft		$11 \pm 1$	
06	Rupture strength per 1 cm of tape width in machine direction	N	$\geq 100$	IEC 371-2 (section 7)
07	Edge tearing strength	N	$\geq 12$	IEC 394-2 (section 8)
08	Bending Stiffness in <sup>(v)</sup> machine direction	N/m	$\leq 65$	IEC 371-2 (section 10)
09	Layer bonding	N/ cm <sup>2</sup>		-
	Individual values		$\geq 0.70$	
	Average value		$\geq 1.0$	
10	Permeability to air Individual values	s/100 ml	$\leq 3500$	ISO 3687 (ASTM D 726)
11	Storage life from delivery date, in original container <sup>(vi)</sup>	Months		-
	At room temperature ( $\leq 25^\circ\text{C}$ )		12	
	At $0-5^\circ\text{C}$		24	
12	Break Down Voltage (BDV)	kV	Avg. $\geq 2.0$ Min. $\geq 1.8$	IS:2584 Average of 5 values

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<div><div>COPYRIGHT AND CONFIDENTIAL</div><div>The information on this document is the property of BHARAT HEAVY ELECTRICALS LTD. It must not be used directly or indirectly in any way detrimental to the interest of the company</div></div>	<div><div><div>(i) Measured with a test pressure of 5 N on a measuring area of 0.5 cm<sup>2</sup></div><div>(ii) Determine following extraction by quantitative manual separation</div><div>(iii) The glass fabric is size free with a residual size content of ≤ 0.2 %.</div><div>(iv) The binder is a hardener-free silicon resin.</div><div>(v) Glass fabric on the tension side</div><div>(vi) Permissible storage time until expiry date (see section 8.0).</div></div><div><div>7.0 Additional Requirements</div><div><div>1. Material must not include any foreign bodies.</div><div>2. The tapes or widths must not stick to each other so strongly when rolled that mica paper is torn off when unrolling.</div><div>3. Each roll must consist of one continuous length of tape. Adhesive joints within in a roll are not permitted.</div></div><div><div>8.0 Marking</div><div><div>Each roll shall be legibly marked at both ends with the following information:</div><div><div>(a) Manufacture’s name or trademark.</div><div>(b) Purchase order reference and date.</div><div>(c) Item Name, size, Quality, batch no. of mfg. and date of expiry.</div></div></div><div><div>9.0 Packing</div><div><div>The material shall be supplied in 30 m roll wound on a hard tubular core / spools with an inside diameter of 55 ± 0.5 mm and outside diameter of the roll 95-100 mm and also sufficient tension to form a compact roll without deforming the construction of the tape. The tape shall wound tightly over the core such that the edges are not uneven and shall not get loosened when dropped over a floor from one-meter height. The inner edge of the spool should be curved edge. The mica paper of the tape should be outside of the roll. Each roll of the material shall be suitably packed (paper separator between two rolls) so that no damage can arise during transportation and it can be unloaded easily.</div></div><div>*****</div></div></div></div></div>	