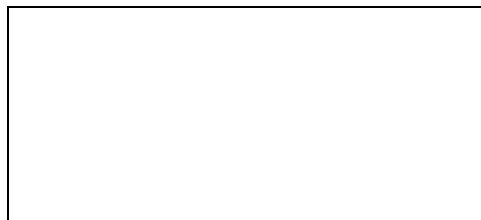


# **SPECIFICATION FOR 'MICA GLASS FABRIC TAPE'**

APPROVED BY

CEE/TM



SPECIFICATION FOR 'MICA GLASS FABRIC TAPE' FOR 3-PHASE TRACTION MOTOR	CHITTARANJAN LOCOMOTIVE WORKS WEST BENGAL , INDIA No. 4TMS.096.098 First Issued on: 04.11.2022
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(Prepared & checked by)  SSE/TMDO		(Reviewed by)  Dy.CEE/ TMD	
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**ALTERATION SHEET**

<b>Alt.No</b>	<b>Description of modification</b>	<b>Authority</b>	<b>Signature</b>	<b>Date</b>

SPECIFICATION FOR  
 'MICA GLASS FABRIC TAPE'  
 FOR 3-PHASE TRACTION MOTOR

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 WEST BENGAL , INDIA  
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## 1.0 **General:**

### 1.1 **Scope :**

This specification covers the manufacture and supply of 'Mica Glass Fabric Tape' used in 3-Phase Traction Motor type 6 FRA 6068 & 6FXA 7059. Mica Glass Fabric Tape is used in insulation of Coil during stator coil manufacturing, neutral ring and phase connecting ring..

### 1.2 **Reference:**

In the preparation of this specification assistance has been taken from ABB Delivery Instruction HZN 02354.

## 2.0 **Constructional Requirements:**

2.1 Mica Glass Fabric Tape is a semi finished product of Mi/Gl Gwb 18.

2.2 Mi/Gl Gwb 18 is a dry, flexible and 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 **Source of Raw Material:**

The tenderer shall use raw material from any reputed source who can supply the raw material strictly as per specification as well as submit documentary proof regarding quantity of raw material during inspection.

## 4.0 **QAP:**

The tenderer shall submit the process of manufacturing in the form of QAP which includes quality plan from the stage of raw material procurement, through in process and final tests. The tenderer must submit their QAP along with tender.

After getting order, QAP shall be duly approved by the competent authority before going of prototype inspection.

## 5.0 **Size :**

0.12 mm x 15 mm ( in roll of 30 m)

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**6.0 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	$\text{g/m}^2$		IEC 371-2 section 6 (ii)
	Glass Fabric <sup>(iii)</sup>		$32 \pm 3$	
	Mica Paper		$113 \pm 8$	
	Binder <sup>(iv)</sup>		$12 \pm 4$	IEC 371-2 (section 6.4)
	Aromatic polyamide fibres		$7 \pm 3$	
04	Mass per unit area	$\text{g/m}^2$	$164 \pm 10$	IEC 371-2 (section 6.2)
05	Thread Count (Glass fabric)	$\text{cm}^{-1}$	$\pm$	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	$\text{N/cm}^2$		GMN 14338
	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° C		24	

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- (i) Measured with a test pressure of 5 N on a measuring area of 0.5 cm<sup>2</sup>
- (ii) Determine following extraction by quantitative manual separation
- (iii) The glass fabric is size free with a residual size content of  $\leq 0.2$  %.
- (iv) The binder is a hardener-free silicon resin.
- (v) Glass fabric on the tension side
- (vi) Permissible storage time until expiry date (see section 9.0).

### 6.1 Additional requirements:

1. Material must not include any foreign bodies.
2. The tapes or widths must not stick to each other so strongly when rolled that mica paper is torn off when unrolling.
3. Each roll must consist of one continuous length of tape. Adhesive joints within in a roll are not permitted.

### 7.0 TEST:

- 7.1 All the test specified in the specification shall be carried out preferably at manufacturer's works. The manufacturer shall arrange all the necessary machinery, apparatus, labour and assistance required for conducting the tests without Extra cost. If any testing facility is not available at firm's premises, the test has to be done from any NABL lab at own (Firm's) cost.
- 7.2 Inspection authority must check original Challan/invoice of raw material. Quantity of Raw material consumed against P.O under Inspection must be endorsed on Challan/Invoice.
- 7.3 In case of import, the firm must produce original TC,GC & imported document to the Inspection authority. TC should not be older more than one year at the time of Inspection.

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## 8.0 Bulk Manufacture:

- 8.1 Only after clear written approval of the results of the tests on the prototype is communicated by the Dy. CEE/TMD, to the manufacture, shall he take-up bulk manufacture of the Mica Glass Fabric Tape which shall be strictly with the same material and process as adopted for the prototype.
- 8.2 Any testing and approval by the purchaser of the design, drawing and prototype shall in no way absolve the supplier of his responsibilities under the terms and conditions of the contract.

## 9.0 Marking:

Each roll shall be legibly marked at both ends with the following information:-

- (a) Manufacture's name or trademark.
- (b) Purchase order reference and date.
- (c) Item Name, size, Quality, batch no. of mfg. and date of expiry.

## 10 Packing :

The material shall be supplied in 30 m roll wound on a hard tubular core / spools with an inside diameter of  $55 \pm 0.5$  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.

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