

OUTER SHEET

**SPECIFICATION FOR
IRREVERSIBLE TEMPERATURE STRIPS FOR
TYPE-A (35 °C to 70 °C) & TYPE-B (70 °C to 140 °C)
Of THREE PHASE TRACTION MOTOR TYPE 6FRA-6068**

APPROVED BY

CEE/TM

**Dinesh
Prasad Sah**

Digitally signed by
Dinesh Prasad Sah
Date: 2026.01.13
17:25:32 +05'30'

SPECIFICATION FOR IRREVERSIBLE TEMPERATURE STRIPS FOR TYPE-A (35 °C to 70 °C) & TYPE-B (70 °C to 140 °C) of THREE PHASE TRACTION MOTOR TYPE 6FRA-6068	CHITTARANJAN LOCOMOTIVE WORKS WEST BENGAL , INDIA NO. 4TMS.096.106
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(Prepared & checked by) SSE/TMDO	BARID BORON KABIRAJ Digitally signed by BARID BORON KABIRAJ Date: 2026.01.13 11:00:28 +05'30'	(Reviewed by) Dy.CEE/ TMD	SHRAVAN KUMAR VERMA Digitally signed by SHRAVAN KUMAR VERMA Date: 2026.01.13 11:56:55 +05'30'
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Alteration Sheet				
Alt. No	Description of modification	Authority	Signature	Date

IRREVERSIBLE TEMPERATURE STRIPS FOR TYPE-A (35 °C to 70 °C) & TYPE-B (70 °C to 140 °C) of THREE PHASE TRACTION MOTOR TYPE 6FRA-6068	CHITTARANJAN LOCOMOTIVE WORKS WEST BENGAL , INDIA NO. 4TMS.096.106
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(Prepared & checked by)	BARID BORON KABIRAJ Digitally signed by BARID BORON KABIRAJ Date: 2026.01.13 11:00:50 +05'30'	(Reviewed by)	SHRAVAN KUMAR VERMA Digitally signed by SHRAVAN KUMAR VERMA Date: 2026.01.13 11:57:18 +05'30'
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1.1 **SCOPE:**

This specification generally covers the technical requirement of **IRREVERSIBLE TEMPERATURE STRIPS** suitable for application on the test surface or suitable surface on three phase traction motor type 6FRA-6068 of electric locomotives. **IRREVERSIBLE TEMPERATURE STRIPS** are used to adhere at DE & NDE side of Traction Motor. It is use to affix at the base material.

1.2 **REFERENCE:** Vide Railway Board letter's No.2023/Elect(TRS)/440/18(TM) dated 07.04.2025.

2.0 **PRIMARY ELEMENTS OF IRREVERSIBLE TEMPERATURE STRIPS :**

The material is made polyester for carrier & covering film and acrylic for adhesive type.

3.0 **SPECIFIC APPLICATION:**

This **IRREVERSIBLE TEMPERATURE STRIPS** are used for 3 Ph. TM type 6FRA-6068 with Polyester as a carrier with covering film Polyester with Acrylic adhesive with a purpose to monitor the highest temperature at which TM operates during run.
Firm should submit Declaration along with offer in specified format as per **Annexure-I**.

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4.0 REQUIREMENTS:**4.1 GENERAL PROPERTIES:**

- i) **Visual:** Should be clean, smooth & free from other foreign material.
- ii) **Physical Properties:** Surface(Carrier)-Polyester, Covering Film-Polyester, Adhesive Tape-Acrylic
- iii) **Colour Change material:** Nontoxic, White crystalline solid on black absorbent backing, adhered with acrylic adhesive.
- iv) **Temperature 8 Level range type-A:** 35 °C to 70 °C
- v) **Temperature 8 Level type-B:** 70 °C to 140 °C
- vi) **Orientation:** Horizontal
- vii) **Response Time :** 4-10 Seconds
- viii) **Accuracy and Tolerances of Label :** 1% ± 1°C accuracy
- ix) **Size:** 52mm (Tolerance ±2%) x 18mm (Tolerance ±10%)
- x) **Pull out strength:** Not less than 0.75 N/mm

4.2 PROCEDURE OF TEST:

Remove label from sheet. Adhere to a clean surface .Press firmly and ensure that there is a full contact With the test surface. Heat/run through procedure that is being tested. The grey/white temperature Sensitive elements will turn black as the rated temperature is reached. Allow to cool to the touch before slowly peeling the label off the test surface to avoid leaving adhesive residue.

5.0 TEST:

- 5.1 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 any Extra cost. If any testing facility is not available at firm's premises, the test has to be done from any Govt. approved NABL accredited laboratory at own (Firm's) cost, risk & arrangement.
- 5.2 Inspection authority must check traceability like original Challan /invoice of raw material etc.
- 5.3 The firm must produce original TC, WC etc. from OEM to the Inspection authority.
- 5.4 The manufacturer shall provide all the necessary facilities at their works/premises for Prototype as well as Routine inspection.

6.0 BULK MANUFACTURE:

- 6.1 Only after clear written approval of the results of the tests on the prototype sample of 6Sets samples (i.e.12 Nos for TM) is communicated by the Dy. CEE/TMD. to the manufacturer, the firm shall take-up bulk manufacture of the **irreversible temperature strips.**

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- 6.2 Any testing and approval by the purchaser of the design, specification and prototype shall in no way absolve the supplier of his responsibilities under the terms and conditions of the contract.

7. SHELF LIFE:

When stored in its original unopened container, these materials shall meet the requirements of this specification for a minimum shelf life of 24months from the date of supply.

Store in a cool, dry place; below 40°C.

7.1 WARRANTY:30 months.

8. PACKING:

- 8.1 Irreversible temperature strips shall be suitably packaged to protect them from damage during shipment & storage under normal conditions.
- 8.2 Standard Label per package (12 Pieces).

9. MARKING:

Unless otherwise agreed upon by the manufacturer & the purchaser, the following product information (as a minimum) shall be legibly marked on the outside of each unit package:

- i) AWS specification & classification designation (year of issue may be excluded)
- ii) Supplier's name & trade designation.
- iii) Lot, control or batch number.
- iv) Date of manufacture.

- 9.1 The appropriate precautionary information as given in (as a minimum) or its equivalent shall be Prominently displayed in legible print on all packages of irreversible temperature strips including individual unit packages enclosed within a large package. Any testing and approval by the purchaser of the design, specification and prototype shall in no way absolve the supplier of his responsibilities under the terms and conditions of the contract.

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ANNEXURE-1.**Declaration by Firm/tenderer**

"The offered material i.e. **IRREVERSIBLE TEMPERATURE STRIPS** are strictly suitable for three phase traction motor type 6FRA- 6068 of electric locomotives.

This is in reference to CLW's Tender No.....
Closing date.....

Signature of Tendered
Name:
Designation:
Firm's Name:
Firm's Address:
Date:

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(Prepared & checked by)	BARID BORON KABIRAJ Digitally signed by BARID BORON KABIRAJ Date: 2026.01.13 11:01:56 +05'30'	(Reviewed by)	SHRAVAN KUMAR VERMA Digitally signed by SHRAVAN KUMAR VERMA Date: 2026.01.13 11:58:15 +05'30'
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