

SPECIFICATION FOR THERMAL TICKET MATERIAL FOR USE IN THE PORTABLE TICKETING DEVICES (PITix)

1. GENERAL

1.1. INTRODUCTION

This document calls for the supply of thermal ticket material to Metrorail. The material will be used in Portable Ticketing Devices (PITix) currently in service with Metrorail.

2. SCOPE OF SPECIFICATION

2.1 This specification sets out the requirements of Metrorail for ticket material, supplied in continuous rolls, for use in the Portable Ticketing Devices (PITix).

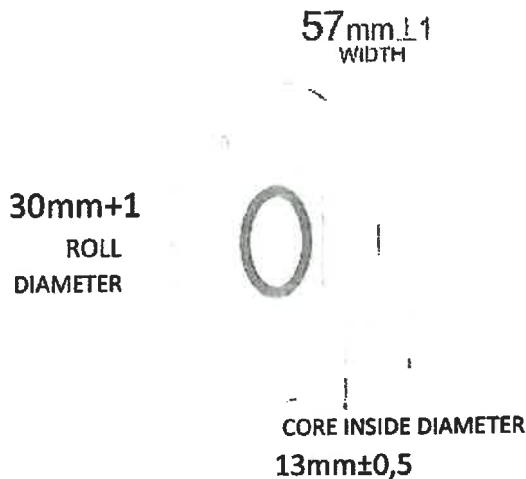
2.2 This specification sets out the requirements for thermal material.



3. MATERIAL IN ROLLS

3.1. The material shall be supplied in continuous rolls, without joints, splices or breaks, and wound onto a central circular core.

3.2. The inner core of the roll shall have the following dimensions:



- Inner diameter: 13 mm ± 0,5 mm.
- External diameter: 16 mm ± 0,5mm.
- Width: 57 mm +0, 1 mm; - 0,

3.3. The core of the roll shall preferably be made of a synthetic material suitable for the purpose and shall not be deformed or collapse under normal conditions of transport or storage.

3.4. The material shall be wound evenly on the core and with sufficient tension, so as to prevent telescoping with normal handling.

3.5. The ticket material shall be wound to the inner core in the following direction:

With the roll resting on a horizontal surface, and viewed from the top, the tape shall be wound in a clockwise direction with the printing face facing outward or thermal coating on outside of roll. The security printing shall be orientated such that is read from the outer end of the material, when the outer end of the roll is held upwards..

3.2 The external diameter of a fully wound PITix roll shall be 30 mm ± 0,1 mm.

Tenderers are to state the length of material contained on a roll.

3.2 The width of the ticket shall be 57 mm ± 0,1 mm. The width to be measured by an optical method.

3.2 Unless otherwise specified, the colour of the material is to be white



4 THERMAL MATERIAL FOR PITix ROLLS

The ticket material supplied by the tenderer for use in the Portable Ticketing Devices (PITix) on all the Metrorail regions must comply (firm requirement) to the following specifications:

- **Material:** Durable Thermal Paper Roll.
- **Thickness:** 100mic Standard as per Tappi T-4111
- **Thermal coating:** Shall meet or exceed the ANSI 3. 11 specification
- **Smoothness:** Max. 75 Sheffield units
- **Top coating:** The thermo-sensitive surface of the ticket stock must be top coated
- **Preprint:** Tickets can be pre-printed on one, or both sides
- **Ink for thermo-sensitive side:** Laser printer approved ink without whiteners
- **Ink for rear side:** Offset ink

Tenderers to State the meterage on each roll.

END OF THE PITix THERMAL SPECIFICATION

5 PACKING AND LABELLING OF MATERIAL

5.1 The supplier shall be entirely responsible to PRASA Rail for all the material until it is accepted by Metrorail and an acceptance certificate was issued.

5.2 PITix rolls shall be packed upright with rolls laid flat and each roll individually shrink wrapped in moisture proof wrapping in quantities of hundred and forty four in suitable corrugated carboard containers.

5.3 All PITix rolls shall be packed as to prevent damage in transit or storage.

5.4 Each carboard carton shall be permanently marked on at least two opposite sides with the following information

5.4.1 Contents

5.4.2 Quantity

5.4.3 Sequence numbering

5.4.4 Batch Number

5.4.5 Order Number

5.5 All PITix rolls packed into a container shall be identical.

SPECIFICATION OF THE SCOPE OF WORK

5.1.1 ITix TICKET MATERIAL

5.1.1.1 DIMENSION OF TICKET MATERIALS

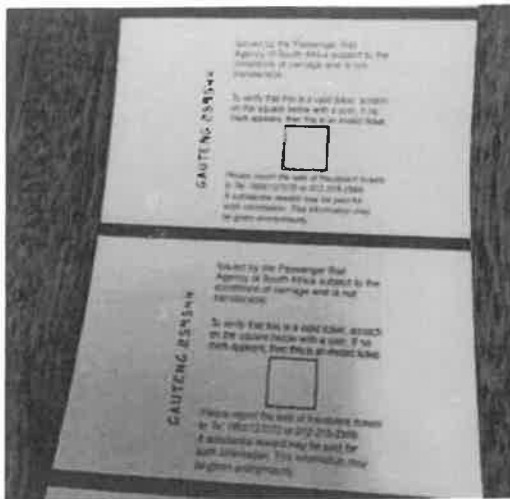
- Dimension of ticket material on roll for use on the PRINTRONIX SL/T4M printers.
- The paper ticket material will be supplied in continuous roll, without joints, splice or breaks and wound onto a central circular core.

5.1.1.2 CORE DIMENSIONS

- The inner core of the roll will have the following dimension:
 - Inner dimension :76mm
 - Core thickness :5mm
 - External diameter :86mm
 - Width :86.5mm
- The core of the roll will preferably be made of cardboard material suitable for the purpose and must not be deformed or collapse under normal condition of transport or storage
- The material must not be attached with sticky tape to the inner core, no attachment will be allowed between the core and paper.

5.1.1.3 Ticket Material Roll Dimension

- The material will be wound evenly on the core and with sufficient tension, so as to prevent telescoping with normal handling.
- The ticket material will be wound on to the inner core in the following direction:
 - The roll resting on a horizontal surface, and viewed from the top, the material will be wound in a clockwise direction with the conditions of transport facing to the inside (reverse side) and the printing surface facing outward.
 - A black line of 3 mm must be printed across the width of the ticket material every 54mm.



- The thickness of the ticket material will be $0,250\text{mm} \pm 0,025\text{mm}$. The thickness should be measured as per BS3983 part 2 of 1982 (ISO 534 1980).
- The mass of the material will be $-220\text{g/m}^2 \pm 10 \text{ g/m}^2$.

5.1.1.4 Roll Dimensions

- The external diameter of a fully wound roll will be $203\text{mm} \pm 1\text{mm}$
- The length of the material on a roll will be 100 meters.
- The width of the ticket material roll must be 86.5mm

Note: the width of the ticket will be $54\text{mm} \pm 0,4\text{mm}$

- The length of ticket will be $86,5\text{mm} \pm 0,7\text{mm}$.

5.1.1.5 GENERAL DESCRIPTION OF ITIX TICKET MATERIAL

5.1.1.5.1 Construction

- The ticket may be either of a single or multiple layer construction and will comply with the specifications as prescribed in the Annexure D to E to this document. Where multiple layers are used, the layers will not separate under normal use.
- The face and reverse side of the ticket will be suitable for accepting printed information.
- Both sides of the ticket may be required to carry pre-printed information and/or background printing.
- The material will be supplied in continuous roll, without joints, splices or breaks and wound onto a central circular core
- The final acceptability of the material will be determined by the performance of the tickets in service, subjected to sampling for quality purposes.

5.1.1.5.2 Quality of Material

- The base material will be free of holes, electrically, magnetically and thermally conductive particles, loose dust, loose power, fuzz, residue chemicals and slime spots likely to damage or impede the operation of the printing machines or readers.
- The base material will be free of joints, cracks, high spots, burrs, splinters, sharp edges and dents.
- The base material will be free of any other defects not listed above, which might detract from the magnetic printing, general performance or appearance of the final product.
- The base material will be free of any translucent areas or spots that could affect the operation of optical sensors.
- The material will be free of any wrinkles or creases.
- The ticket materials will not cause injury either by contract inhalation or ingestion.
- The characteristics of the material should be such that dirt accumulation and wear of the machines should be restricted to a minimum: hence the material must be capable of being cleanly cut without forming dust or burring.
- The material should be treated to prevent the generation of static electricity sufficient to impair its serviceability.
- The ticket material will be unaffected by magnetic fields and will retain no detectable residual magnetism.
- The quality of the material will be such so as to ensure uninterrupted operation of the ticket issuing device, and allow good quality print, using both thermal and impact type printers, but predominantly for thermal printing.
- The printing on the ticket material must last for at least 5 weeks and should not fade.

5.1.1.5.3 Quality Control (applicable to all specifications of ticketing material).

- Quality of ticket material is very important. The successful bidder will always be responsible for the quality of ticket material.
- The successful bidder should present material data sheet to prove compliance to the required specification.
- Consistency of ticket material presented during bidding should be sustained throughout contract duration.

5.1.1.5.4 Printing Surface

- The entire face of the ticket is defined as the “printing surface” and will conform to the following requirements.

5.1.1.5.5 Resolution

- The quality of the printing surface will provide adequate resolution of printed characters and graphics when using a thermal printing head with a line density of six dots per millimetre.

5.1.1.5.6 Absorbability

- The printing surface will be sufficiently absorbent to ensure proper keying of the thermal transfer ink while remaining dimensionally stable within the specified humidity range.
- The printed characters will not smear when wipe over by a felt pad one second after being printed by the machine, under service conditions.

5.1.1.5.7 Durability

- It must not be possible to erase printed characters without damaging the surface of the ticket.

5.1.1.5.8 Security Background

- A security background needs to be printed on the printing surface of ticket material. The purpose of the security background is impeded forging of tickets and to assist with the identification of forged material and tickets.

5.1.1.5.9 Quality of Security Background

- Security background printing will not affect printing qualities of the ticket material. It will not affect the ability of material to accept printing. Simultaneously, security background printing may not affect the ticket issuing machine in any way.

5.1.1.5.10 Number of Security Background Colours

- It is a requirement that security background colours be changed on a regular basis. Tenders are to provide the option to provide security background in 6 different colours.

5.1.1.5.11 Colours Used for Security Background

- Tenders are required to suggest colours to be utilised in printing the security background.

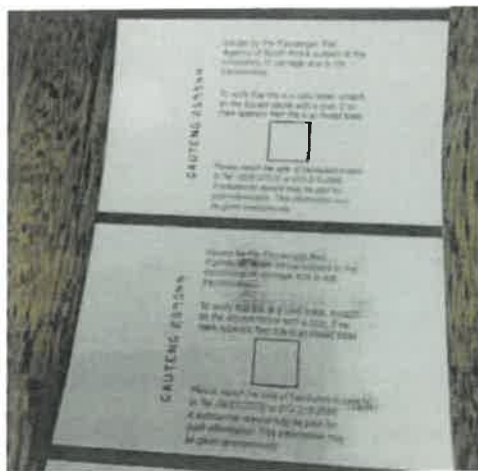
- It must be difficult to make acceptable photocopies or electronic scanning of security background printing.
- Amongst others, tenders should investigate using neon or metallic inks. Only one colour to be used at the time.

5.1.1.5.12 Description of Security Background Printing for Metrorail

- Viewing a ticket from the printing face side of a ticket in the portrait orientation, background security printing will be printed at an angle of 45 degrees, from the lower-left hand to upper right-hand side.
- Security background printing will consist of the word METRORAIL printing in the official font.
- The word will be repeated and spaced such that orientation of words between lines does not coincide. Full details will be furnished to the successful tender.

5.1.1.5.13 Printing the Metrorail Conditions of Sale on Reverse Side of Ticket

- A statement referring to the general conditions of the sale will be printed on the Reverse side of a ticket. Message to be supplied on order.



➤ **Orientation of Printing**

For the purpose of describing printing on the reverse side of ticket material, a ticket will be viewed in the landscape orientation.

➤ **Printing of Messages**

Provision must be made to print short messages on the reverse side tickets of which the following is an example:

5.1.1.5.14 Condition of Sales

- The condition of sale must be printed on the reverse side of the ticket. The following text is required:

“Issued by the Passenger Rail Agency of South Africa subject to the conditions contained in its Metro Services Book which are obtainable on request”.

The note will be printed such that:

- A minimum clearance of 2 mm is maintained between the notice and the edge of the ticket.
- Regardless of the registration of the edge of the ticket with regards to the beginning of a notice, at least one complete notice will be displayed on any ticket.

5.1.1.5.15 Changes to Text

- It is probable that Metrorail will require changes to the “Conditions of Sale” text from time to time. The changes will be negotiated with the successful bidder.
- It is expected when requests are reasonable, financial implications to Metrorail will be negligible.

5.1.1.5.16 Advertising Space

- The reverse side of the ticket will be used for advertising.
- An advert of 35mm X 25mm will be printed on the reverse side of the ticket which will be discussed with the successful bidder who must be able to print colour adverts.

5.1.1.5.17 Regional Name and Numbering of Metrorail Ticket Material

- Viewing a ticket from the printing face side of a ticket in the portrait orientation with the outer end pointing upwards, the regional name and roll numbering shall be printed at an angle of 90 degrees, on the right-hand side of the ticket.

- The printing of the regional name and roll numbers shall consist of alpha and numeric digits at a font size of 7 or 8 (letter size).
- Regardless of the registration of cutting position with regards to the beginning of a regional name and roll number, at least one complete regional name and roll number shall be displayed on any ticket.
- The printing of the regional name and roll numbers shall consist of alpha and numeric digits at a font size of 7 or 8 (letter size).
- Full details will be furnished to the successful bidder.

5.1.1.5.18. *Additional Security Features on Ticket Material*

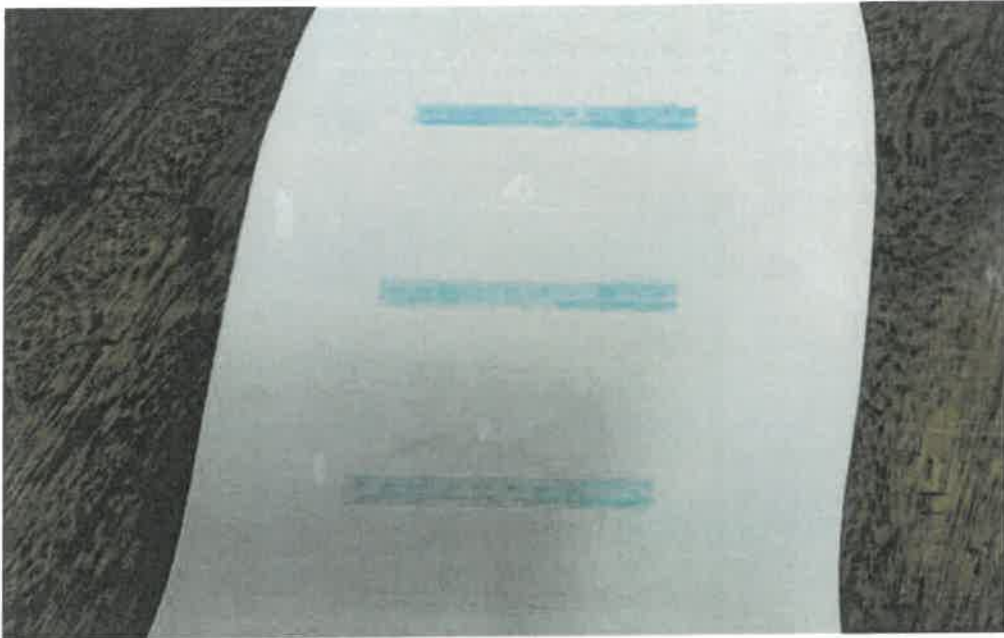
- Bidders are requested to comment and quote separately on the following additional features per ITiX and PTiX rolls:
 - Fixed offset metallic inks;
 - Coin reactive inks;
 - Fixed Offset Fluorescent inks; and
 - Copy protection via Oyster Cover ink.

5.1.1.5.19 *PACKING AND LABELLING OF MATERIAL:*

- The supplier shall be entirely responsible to PRASA Rail for all the material until it is accepted by Metrorail and an acceptance certificate will be issued.
- ITiX rolls shall be packed upright with rolls laid flat and each roll individually shrink wrapped in moisture proof wrapping in quantities of 3 rolls in suitable corrugated cardboard containers.
- All ITiX rolls shall be packed as to prevent damage in transit or storage.
- Each cardboard carton shall be permanently marked on at least two opposite sides with the following information:
 - Contents
 - Quantity
 - Sequence numbering

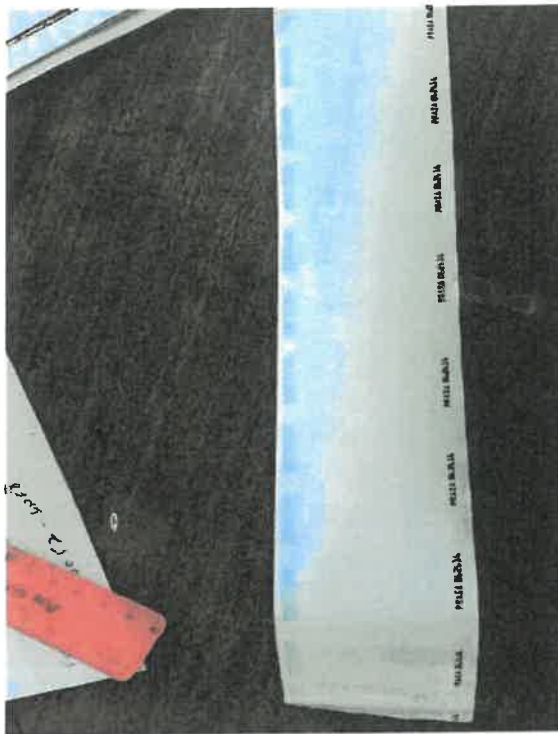
- Batch Number
- Order Number

➤ All ITix rolls packed into a container shall be identical except roll number.



End of specification for ITIX roll.

On the roll



Front of the Roll (Where ticket print)

- 2) With the roll resting on a horizontal surface, and viewed from the top,
- The security printing shall be orientated such that is read from the outer end of the material, when the outer end of the roll is held upwards..
 - On the Right side the roll number (From side to top of the number (4.5mm) and on the left side an image of a train (From side to top of the train image (8mm).
 - Between Train and number must be a gap off 44mm
 - A Red line (5mm wide) for 500mm from end of roll the line must be in the middle of the roll.

3) On the Back of the roll

- A message must be printed.
- The message must be on the full length of the roll.
- Each paragraph must be 8mm long.
- Between each paragraph a 4mm gap.



- e. The message will be updated as and when needed before the order is placed to be printed.
- f. The current message to be on the back of the roll is.

This ticket is issued by the Passenger Rail Agency of South Africa subject to the Conditions of Carriage and is not transferable.

Please report any fraudulent activity or Theft/Vandalism to the PRASA Joc 011 013 0052 Johannesburg 011 013 0055 Pretoria. Call Centre 0800 800 015.

6 Roll Must be Preprint

Each roll must have the following information on it.

1) On the front

- a. A unique number on the front of the roll (20mm long) (12 Digits long) the number must be continues 18mm apart, each roll must have its own unique number. The numbers must run in sequence. The 1st number to be used will be given when the order is placed.

