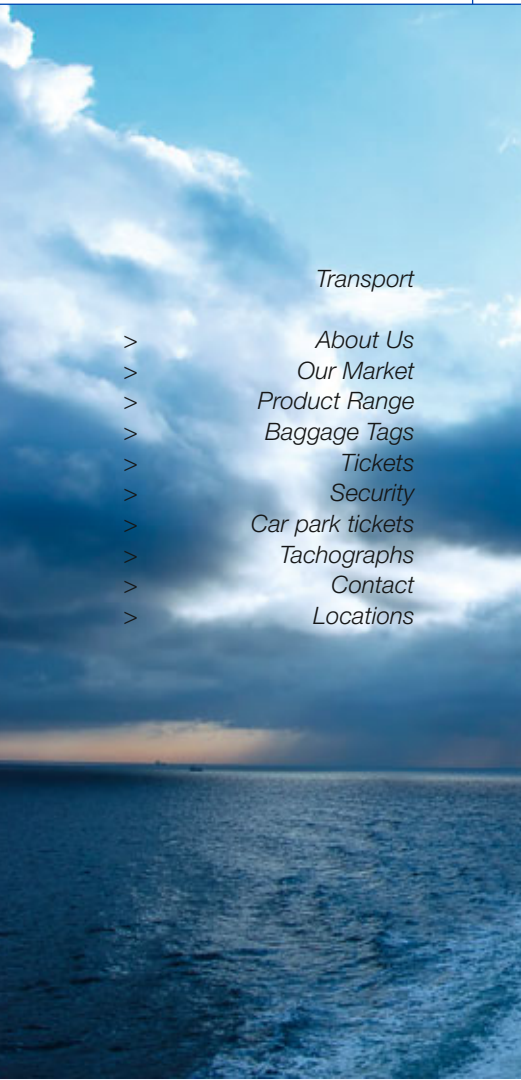


**Innovation for daily life | Transport**

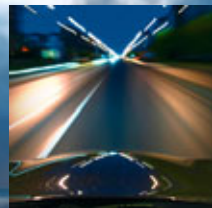




Air



Water



Road



Rail

- > Transport
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- > Our Market
- > Product Range
- > Baggage Tags
- > Tickets
- > Security
- > Car park tickets
- > Tachographs
- > Contact
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## Flensburg – Paris – Tokyo.

We live in a mobile world. Yesterday's vision is today's reality. We travel by plane, ferry, train, or car. We travel to different countries and continents – ever more quickly and more comfortably.

Today's population really gets around. And so do the products from Mitsubishi HiTec Paper; as an airline ticket or baggage tag, as a ticket for a bus, a train, or a ferry, as a car park ticket or the receipt from a tollbooth.

Documents used in the transportation industry must satisfy the most rigorous requirements. Excellent printability, the greatest possible security, extreme stability, and durability are the standards to which we work.

Rely on a special paper manufacturer at home in the international markets for these high-quality products. Rely on a company whose products are used by long-standing, satisfied customers worldwide: Rely on Mitsubishi HiTec Paper.



## The future of thermal paper.

Even in the age of “paperless travel”, nothing moves without thermal paper. Installed at airports in particular, but also at other central arrival and departure terminals for rail, ferry, or bus, these kiosks, or self-service terminals are designed to facilitate and accelerate ticketing. Almost all of these devices are equipped with thermal printers. The traveller receives his “electronic ticket”, printed out on thermal paper according to the booking number and customer card or credit card.

Today, in addition to ticket envelopes, thermal paper tickets are being used at an ever-increasing rate. The demand is for a wide variety of paper grades in card or roll format, depending on quality and security requirements. Likewise the increasing trend toward 2D barcodes as information carriers and away from magnetic strips also imposes the most rigorous requirements on paper quality. An exciting market is developing for Mitsubishi HiTec Paper in this area. After all, we have extensive experience, and a carefully thought-out and richly varied product line that covers the demand for different thermal papers in the transportation industry with outstanding efficiency.

*“Today magnetic strips are rarely used to communicate information. They are being replaced by 2D barcode solutions. As opposed to the better-known linear barcodes, the 2D barcode enables storage of considerably greater quantities of information. In addition, use of the 2D barcode is significantly cheaper compared to the magnetic strips version. An important criterion for paper quality is the legibility of the 2D barcode – consequently Mitsubishi HiTec Paper has developed special grades of thermal paper for this application.”*

*Dr. Bernd Gerecht, General Manager, Marketing & Strategy*



We are  
taking off:  
Mitsubishi HiTec  
Paper dominates  
the market for  
thermal papers  
in the  
transportation  
industry.



## Well-thought out versatility for all applications.

Only a company who can deliver the best paper for every situation will be successful in this market.

Mitsubishi HiTec Paper has established itself in the transportation industry because its papers are developed and produced to precisely meet increasing demands and a constant flow of new quality and security requirements.

The product line ranges from 170 gram topcoat paper for the magnetic strip imprint or for magnetic coating, to 170 gram paper without topcoat, and 120 gram paper for wallets and tickets with magnetic strip, and/or 2D barcode capability, and also includes 80 gram topcoat products and simple 80 and 55 gram standard grades. The latter are usually offered in heavier grades as zigzag fold, and in thinner grades on the roll.

The decision to use a specific paper ultimately depends on the thermal printer installed. For example, faster printers require particularly sensitive papers. The printed image must be absolutely sharp and rich in contrast, in spite of the faster printer. Optimal processing – for example the cutting behaviour – is also a crucial factor. Consequently each of our newly developed products is subjected to multiple rigorous tests. In addition the suitability of our product is strictly tested in cooperation with device manufacturers.



## Attached travel companions.

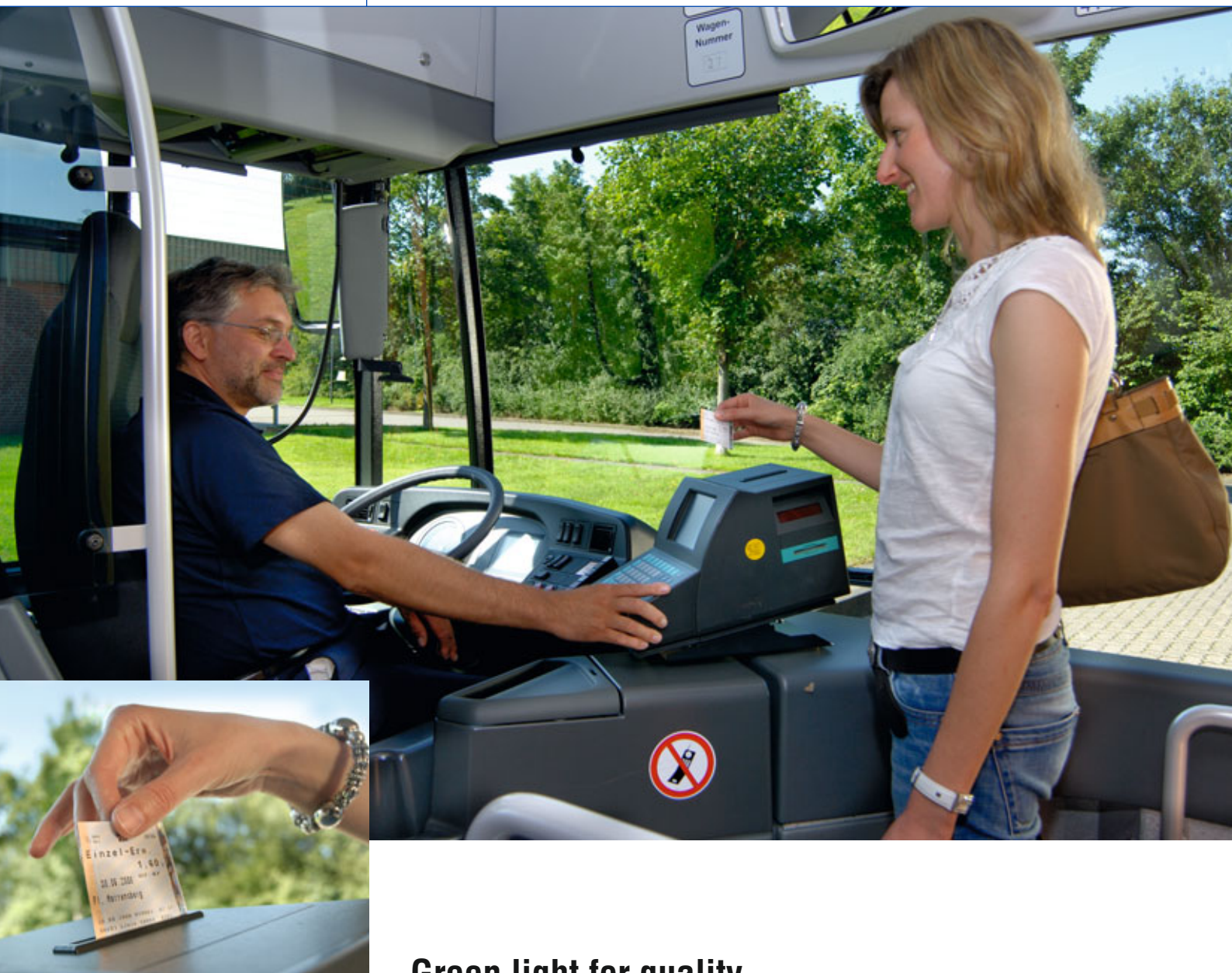
Baggage labels may appear to be a mere detail, but they are indispensable when travelling: The label fastened to your suitcase ensures that you can reclaim your luggage at the destination airport after a flight of several hours. The barcode that identifies the destination of each piece of luggage makes it possible. RFID tags (wireless antennas) also ensure additional locating security.

You should keep the counterpart, the baggage tag, until you have collected your suitcase at your destination. The baggage tag is used to identify your luggage; it verifies that you have checked it in, and it helps you locate your baggage, should it get lost.

Thermal papers are increasingly used for the baggage label as well as for the baggage tag. Thermo print technology enables absolutely sharp and contrast-rich print in fast devices. Special papers guarantee optimal legibility as well as durability. A Mitsubishi special paper with a special back-barrier coat is suitable for the imprint of the barcode. If a magnetic strip is laminated, then paper with particularly good bonding characteristics, specially developed for this application would be used.



*Radio Frequency Identification (RFID) is a process for automatic identification of objects, human beings, and animals, using electromagnetic waves. An RFID system consists of a transponder that is located on or in the object, person or animal, which identifies that object, person, or animal, along with a device that reads the transponder ID.*



## Green light for quality.

The transition to direct thermal technology has also already been completed in the area of bus, rail, and ferry travel. For bus transportation, in addition to stability, functionality and the running characteristics in the printers also play important roles. The close collaboration between Mitsubishi HiTec Paper and manufacturers of ticketing machines guarantees the trouble-free functioning of the thermoscript grades in this application.

Valuable tickets such as monthly or annual passes must be extremely stable and durable. Specially protected topcoat thermal papers are used for this application. One of the most important requirements for such papers is resistance to softening agents.

After all, it must be assumed that these tickets are kept in wallets or in appropriate protective sleeves. The softeners contained in wallets, purses and protective sleeves can destroy the thermal print if the paper grades are not suitable. The information becomes illegible and the ticket has no value. Thanks to ingenious special coatings, our thermal papers are protected against such undesired chemical reactions.

## High-quality workmanship allows for cancellation.

Transportation tickets must be cancelled. Usually this is not a problem. However it becomes a challenge for paper technology experts if particularly durable, so-called topcoat thermal papers, are used. A normal topcoat ticket reacts to normal stamp pad ink the same way a foil reacts to normal stamp pad ink. The stamp print can be easily wiped off, and important information may be lost.

Mitsubishi HiTec Paper resolved the issue of topcoat paper and its capability for cancellation years ago at the request of the French National Railway (SNCF). Through intensive laboratory work in the research and development department, and by modifying the protective coating, we were able to develop the first thermal paper that fully satisfied the railway company's special requirements. Since then Mitsubishi HiTec Paper has been the most important supplier to the SNCF.



## Authenticity guaranteed.

Counterfeited articles account for more than five percent of the entire world trade volume (source - IMI Conference, Mesa, 2008). This involves more than counterfeited T-shirts or sunglasses. Tickets for public commuter traffic are frequently counterfeited. In Germany alone, damages of hundreds of millions of Euros were reported in 2007. This fact has resulted in intensive study in the area of protection against counterfeiting on the part of our scientists and technicians.

Our product line includes special papers with safety characteristics, such as fluorescent fibres or water marks, however it also includes materials that can be detected with recognition devices. We have developed thermal formulations that are extremely stable and for this reason alone they are very difficult to counterfeit. Combined with security characteristics that are applied by the printer, these papers cannot even be manipulated by specialists.

Additional information is available in our brochure "Paper & Security" that can be downloaded as a PDF file at [www.mitsubishi-paper.com](http://www.mitsubishi-paper.com).

*"Watermarks are produced in the wet section of the paper machine. For thermal papers this process usually causes the thermal layer (and thus the printed image) to become non-uniform.*

*However our scientists have succeeded in finding a technological solution that is absolutely satisfying, and it has already been tested".*

*Dr. Wolfgang Wagner,  
General Manager Technology*



## This car park ticket stays cool.

Anyone who drives their own car, taxi, or truck will be familiar with the thermal papers from Mitsubishi HiTec paper. Rental car documents, printouts of routes, taxi receipts, toll documents, car park tickets, speeding tickets, and even tachograph papers for trucks demonstrate the variety of applications for these special papers.

Car park tickets, for example, are placed behind the windscreen where, if the car is parked outdoors in summer, temperatures in excess of 80°C can occur. Under such conditions, standard thermal papers quickly become black and illegible, making them worthless. Heat-resistant thermal papers must be used in these situations. Mitsubishi HiTec Paper has developed the optimal formula. This special paper grade ensures that the car park ticket will still be legible, even at the end of a hot sunny day.

Here again, the advantage for our customers is evident: Base papers are manufactured in-house by Mitsubishi HiTec Paper Flensburg, which is not the case for many competitors. This means that the papers can be precisely matched to the subsequent refining process, the pre-coat and thermal coat.

This is more than just an economic advantage, unnecessary transportation is also avoided. This service also offers the possibility of precisely matching the papers to the conditions of further internal and external processing.



## Strong paper for strong performance.

Tachographs for truck drivers represent a new application area for thermal paper from Flensburg. All newly-licensed trucks over 3.5 tons are equipped with digital tachographs. They replace the tachodisk, work with a personal chip card for the driver, and are equipped with a small roll of thermal paper for the “occasional” print out.

This small roll of thermal paper is the key. In this case legislation requires a special thermal paper that must be particularly resistant to high temperatures, fuel and lubricants. Compatibility with the tachographs on the market must be ensured.

The R&D department at Mitsubishi HiTec Paper successfully developed the suitable paper. The thermal paper specially tailored to this requirement has now received approval in accordance with the EU Directive and it dominates the market.

### **In Brief**

#### **Thermal paper In the transportation industry:**

- > Rental car documents
- > Taxi receipts
- > Toll receipts
- > Route printouts
- > Tachograph papers
- > Car park tickets
- > Tickets
- > Baggage tags
- > Baggage labels
- > Airline ticket envelopes

# Transport



## Talk to us.

Our customers challenge us. They don't want standard products, they want individual solutions.

At Mitsubishi HiTec Paper the staff in R&D, marketing and sales work together with the engineers and papermakers to develop the right grade for every application.

Mitsubishi HiTec Paper stands for top quality and international service. Long-standing business relationships with customers all over the world confirm that Mitsubishi HiTec Paper is on the right track.

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## Imprint

Coordination:	Mitsubishi HiTec Paper Flensburg GmbH
Text   Design:	büro 3
Date:	October 2008



#### EUROPE

**Albania, Bosnia, Croatia, Macedonia,**

**Slovenia, Yugoslavia**

Herr Iztok Naraks

**Baltic States, Russia**

Oy MPB HiTec Paper Ab

**Belgium, France, Switzerland**

Mitsubishi HiTec Paper Flensburg GmbH

**Bulgaria**

ICOMM

**Germany, Netherlands, Denmark**

media - X - pert

**Finland**

Oy MPB HiTec Paper Ab

**Greece**

Paper Care Hellas A.E.

**United Kingdom**

Mitsubishi Corporation (UK)

**Ireland**

Réalt Paper Limited

**Italy, Malta, Austria**

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**Poland**

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**Portugal, Spain**

Ballesta Paris, S.L.

**Rumania, Ukraine**

ICOMM

**Sweden**

Oy MPB HiTec Paper Ab

**Czech Republic, Slovakia**

Pavco s.r.o.

**Turkey**

Melka International

**Hungary**

MPB HiTec Paper ME

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Mitsubishi Corporation Cairo Liaison Office

**Algeria, Morocco, Tunisia**

Mitsubishi HiTec Paper Flensburg GmbH

**Israel**

Moshe Paper International Incorp.

**Saudi Arabia**

Mitsubishi Corporation

**South Africa**

Mitsubishi Corporation, Johannesburg Branch

**U.A.E.**

Mitsubishi Corporation

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**New Zealand**

Mitsubishi New Zealand Limited

**South Korea**

Hansa Industrial Corporation

Mitsubishi Corporation (Korea) Limited

**Taiwan**

Mitsubishi Corporation (Taiwan) Limited

**Thailand**

Thai Mitsubishi Corporation

*thermoscript*

... all over the world.

Being an internationally active company, Mitsubishi HiTec Paper Flensburg GmbH is present all over the world.

More details about our agencies are available at:

[www.mitsubishi-paper.com](http://www.mitsubishi-paper.com)



*thermoscript*

**Thermal papers for**

- > Fax/POS
- > Label
- > Entertainment
- > Transport
- > Gaming
- > Banking
- > Medical

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