Sealys Passport Datapage

Security, quality and innovation you can trust

High-security travel documents are taking on ever-greater importance with the introduction of new travel document standards, steadily growing travel numbers and rising expectations on the part of both the general public and authorities.

At the core of a trustworthy passport lies the datapage—the most important component of the document by virtue of the personal data it holds.
Privacy protection to ensure trustworthy passports

The datapage is the most important component of a trustworthy passport because it holds the bearer’s personal data. In today’s climate of identity theft, government agencies and national printers have a keen interest in building relationships with global technology partners capable of delivering durability, security, innovation and performance. That’s why it’s crucial to partner with a vendor offering extensive experience and a global footprint in manufacturing.

An experienced and trusted partner

Gemalto has 150 years of experience in security printing and passport booklet manufacturing, 30 years of experience in secure embedded software development, certification and personalization, issuance solutions and services, and over 20 years of experience in polycarbonate datapage production.

The company currently contributes to over 30 electronic passport programs around the world. More specifically, Gemalto has worked in partnership with the passport-issuing authorities of Algeria, Azerbaijan, Belgium, Ivory Coast, Estonia, Denmark, France, Korea, Latvia, Malta, Moldova, Morocco, Norway, Portugal, Singapore, South Africa, Sweden, Turkey and the United States.

The “Sealys” brand name derives from the verb “to seal”, an allusion to the official stamp of authenticity the range offers.

Security

Gemalto offers a range of secure electronic components fully compliant with ICAO specifications, with a strong set of optical security features that are both easy to verify and difficult to reproduce. When designing security datapages, our main objective is always to achieve indisputably trusted authenticity. We do this by using technologies that make the passport exceptionally difficult to copy, falsify or counterfeit. We combine multiple technologies (optical, tactile) meeting the highest compliance standards achievable. We also use highly specialized manufacturing processes and technologically advanced materials with limited availability.

We focus on protecting both the document and the citizen’s data. Security is built into the datapage design and manufacturing, as well as into the personalization process. We aim to duplicate the same elements (usually the bearer’s photo and document number) within security features of varying security levels and using a range of techniques to reproduce all of them.
Long life due to superior durability
Sealys ePassport components sustain the real-world stress of stringent day-to-day use and thus have a lifetime in the field lasting more than 10 years. This is ensured by rigorous durability requirements exceeding ICAO standards.

Secure and reliable manufacturing
Gemalto operates several state-of-the-art manufacturing sites worldwide. Business continuity is ensured through dual sourcing of key components. By leveraging large volumes and efficient supply of materials, Gemalto can offer optimized lead times for unexpected peak demand.

Secure and interoperable software
Sealys eTravel is one of the fastest products on the market, 20% faster than the average reading time.

This means faster personalization at time of issuance and faster verification at time of border crossing.

A continually upgraded platform for increasingly enhanced performance
Gemalto’s secure embedded software is available on several silicon platforms, offering interchangeable microprocessor sources for guaranteed delivery, transparency at personalization and at usage level. Chip platforms are upgraded on a regular basis, with performance improvement and constant security enhancement. Gemalto’s participation in standardization bodies enables rapid integration of the latest technologies and regulations, such as SAC and the forthcoming LDS2 for speedy time-to-market. This enables you to benefit from the latest products at the earliest opportunity with the lowest possible risk.

SECURITY TRUST PERFORMANCE DURABILITY RELIABILITY
Sealys Datapage overview

Datapage portfolio

The Gemalto Datapage portfolio of products suits configurations with the chip module in the cover or in the data-page:

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>NAME</th>
<th>DESCRIPTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Paper</td>
<td>Sealys Paper Datapage</td>
<td>The paper datapage includes a range of printed security features such as multi-tone watermark, security thread and security fibers. A security laminate is usually applied to seal the personal data.</td>
</tr>
<tr>
<td>Polycarbonate</td>
<td>Sealys Datapage 400</td>
<td>A very flexible polycarbonate datapage for ePassports. The microprocessor is embedded in the back or front cover of the passport.</td>
</tr>
<tr>
<td>Polycarbonate</td>
<td>Sealys Datapage 600e</td>
<td>The world’s thinnest polycarbonate datapage with integrated microprocessor module.</td>
</tr>
<tr>
<td>Polycarbonate</td>
<td>Sealys Datapage 800e</td>
<td>A field-proven polycarbonate datapage with integrated microprocessor module.</td>
</tr>
</tbody>
</table>

Gemalto Datapage can be supplied with or without a chip module, depending on customer preference and the passport design selected.

Polycarbonate datapage for high-end security and durability

We offer polycarbonate datapages for the highest level of security and the use of innovative security measures combining electronic, optical and visual features. Made of 100% polycarbonate, Sealys Datapage offers a long lifespan ensured by fused polycarbonate material with an integrated hinge and tamper-resistant laser engraving personalization. Built-in, leading-edge security features further reduce the risk of falsification.

We manufacture polycarbonate datapages for several customers, including the governments of Azerbaijan, Denmark, Hong Kong, Latvia, Norway, Singapore, South Africa and Sweden. High durability and resistance to fraud are the chief reasons why authorities have placed their trust in our technology.

Sealys Hinge

Gemalto Sealys Hinge is durable and made of woven fabric, securely integrated into the polycarbonate body. It is irreversibly and securely attached to the datapage and booklet. Gemalto Hinge is highly robust and flexible; the booklet stays open and closes completely.

Gemalto Hinge leaves visible marks following any attempt to tamper with the booklet, providing the ultimate protection against attacks:

> Removal of the datapage for integration into another booklet
> Attempts to use the hinge to alter document holder data

Gemalto Hinge offers innovative security features like VisiFab PRINT (printed fabric visible under daylight or UV light) or VisiFab UV (fabric with interwoven fibers visible under UV light) that provide verifiable evidence of tampering.

Field-proven since 2006, Gemalto hinge has been deployed in Azerbaijan, the Czech Republic, Hong Kong, Lithuania, Macau, Malaysia, Montenegro, South Africa, Sudan and the African Union.

Designed for excellence in laser engraving personalization

All datapage products are designed for high-quality personalization by means of true grayscale laser engraving with equipment from leading suppliers. Laser personalization enables strong protection against document falsification and fraud:

> Laser-induced carbonization takes place inside the datapage body
> Personalized tactile elements help to reveal unauthorized manipulation of overlays

South Africa electronic passport integrates Swiss innovation
Strong security to win the fight against fraud

Security features

- Security printing features such as micro lettering, guilloche and rainbow printing
- OVI® – Optically Variable Ink
- DOVID – Diffractive Optically Variable Image Device
  - Embedded metallized Kinegram®
  - Embedded transparent Kinegram® or DID®
- Optically variable elements:
  - LFI® – Latent Filter Image
  - Dynaprint® provides excellent protection for the document against reproduction and duplication by combining the CLI/MLI lens with customer-specific constant information. The image-changing effect becomes apparent when tilting the document from one angle to another.
- IR and UV printing
- Tactile micro-lettering and other surface elements
- Sealys Window is a visually attractive first-line security element. It can be incorporated as a standalone element or in combination with additional security features.
- Sealys Window Lock [see below]
- Sealys True Window [see below]
- Sealys 3D Surface [see below]

Personalization features

- True grayscale laser engraving
- Color laser engraving
- Tactile laser engraving
- MLI/CLI based on lenticular structures
- PhotoLock™ – integrated photo security element
- Mechanical or laser perforation
- Laser perforation of variable data (secondary image)
- IPI™ – Invisible Personalized Information

Mechanical features

- Fused datapage Sealys hinge for document robustness
- Sealys VisiFab Hinge – visible proof on binding if datapage is switched by fraudster
- Highly flexible binding for user convenience
- Encapsulated electronics with embedded chip module and wired antenna
- Compliance with ISO/IEC 18745-1

Production features

- Designed for booklet production and personalization with all established manufacturing systems
- Flat passport booklet owing to flexible binding
- Single-step sewing with low wear on production tools

The Swedish polycarbonate datapage under UV light
Six exciting innovations from Gemalto and Trüb

Extensive experience in manufacturing polycarbonate-based identity and travel documents has enabled Gemalto and Trüb to explore exciting new ways to increase their security and durability.

1. Sealys Color in PC - Indisputable proof of identity now in high-definition color for cards and passports

The security printing industry has long endeavored to unite the benefits of laser-personalized polycarbonate ID with the detail and richness of color photography. Color photos protected with an overlay resulted in compromised card integrity, while personalization at the time of manufacturing made issuance entirely inflexible. Now Gemalto makes it possible to print a high-resolution color photo directly inside the card body using post-production technology.

Sealys Color in PC is the first laser printing solution to deliver an unalterable color image combined with the high security and exceptional durability of polycarbonate.

2. Sealys 3D surface - Authenticity you can see and feel

Surface relief structure is a specific lamination process that most often takes the form of a security pattern, such as guilloche etching. The surface relief can be seen when tilting the card and felt with fingertips. It can also be combined with personalization for increased security impact. Gemalto has further developed this elegant feature, enabling strong tactile effects close to the photo area and CLI/MLI and preventing photo substitution done by adding a thin overlay with a photo over the existing one.

Sealys 3D Surface
Embedded into the polycarbonate document’s surface, Sealys 3D Surface offers perceptible features such as surface embossing or braille, with unmatched accuracy.
3. Sealys True Vision – Now you can see

Sealys True Vision is a design and security element for polycarbonate documents. Engineered in Switzerland by Trüb, now part of Gemalto, Sealys True Vision implements images invisible under normal daylight that turn into brilliant true-color images with excellent color reproduction at under 365 nm UV exposure. The high-resolution images comprise UV fluorescent inks with advanced color separation and half-tone printing.

Customer-specified true-color UV images can be integrated into the document design, such as the skyline of a city. Here, we see Macau at night.

4. Sealys Window Lock - A new dimension in photo protection

Sealys Window Lock prevents the bearer’s portrait from being tampered with after issuance. This patented feature comprises a secondary portrait image known as a ghost image. It is personalized using a metallic foil by means of laser ablation, whereby the metallic foil is integrated into a window inside the polycarbonate card body.

**Sealys Window Lock benefits**

- Delivers unique inverse personalized ghost image stamped into metal foil and integrated into a transparent window
- It is not possible to add further dark image information through subsequent laser personalization after it has been issued
- Prevents simultaneous tampering of primary and secondary image
- Generates high-resolution metal ablation personalization with standard laser engraving equipment
- Creates an easy-to-verify first-line security feature

**INSPIRATION**

**VISION**

**INNOVATION**

**EFFICIENCY**

**TECHNOLOGY**
5. Sealys Edge Sealer - At the cutting edge of document security

Sealys Edge Sealer provides strong protection against delamination, tampering and cutting attempts. Laser-engraved marking on the polycarbonate datapage edge is performed using a specially designed machine. It is impossible to copy (using a photocopier or scanner) and very difficult to mimic or reproduce due to the special expertise and technology required. The markings are visible to the naked eye (Level 1 security feature) and details can be verified with a magnifying glass (Level 2 security feature).

6. Sealys Datapage 600e - The world’s thinnest datapage with a chip

Highly flexible datapage body

Sealys Datapage 600e is characterized by unsurpassed mechanical flexibility. Accordingly, passport booklets with a datapage 600e also prove to be very flexible in mechanical terms. Sealys datapage 600e construction is based on a dedicated multilayer polycarbonate structure with an embedded state-of-the-art chip module with reduced thickness.

Superior passport handling characteristics

Document handling characteristics depend, among other things, on the properties of the polycarbonate document body and the hinge used for binding the datapage with the booklet. The hinge construction of Gemalto’s flexible datapages is designed to keep up with a high frequency of usage. As a result, the passport booklet stays open when presented to border control officers and remains flat after closing. Document bearers and border control officers experience superior booklet handling qualities, such as:

- Unsurpassed datapage mechanical flexibility
- Mechanically flexible passport booklet
- Paper-like opening and closing of the booklets
- Robust and durable travel document

Gemalto manufactures the world’s thinnest polycarbonate datapage with integrated electronics. With a thickness close to 600 micrometers, the datapage, designed in Switzerland by Trüb, is thinner than other state-of-the-art products and significantly thinner than the maximum value of 900 micrometers specified by the ICAO.
Digital security

Sealys Datapage 600e and 800e contain an embedded chip module featuring Gemalto Sealys eTravel, our ICAO-compliant secure embedded software, which offers the highest level of performance and interoperability in the market.

Security, interoperability and performance

The secure embedded software must strike a perfect balance between security, interoperability and performance. Gemalto’s in-house developed embedded software has a strong set of Common Criteria Evaluation ratings (EAL 5+ for SAC and EAC) and supports a wide range of algorithms and long key lengths. Sealys eTravel is one of the fastest products on the market, according to recent international test sessions, where it is 20% faster than the average reading time. The main interest of performance is faster personalization at time of issuance and faster verification at time of border crossing. It is also among the most interoperable products. No issues have been reported to date by the 30 customers who have used our products for the last decade.

A continually upgraded platform for increasingly enhanced performance

Gemalto’s secure embedded software is available on several silicon platforms, offering interchangeable microprocessor sources for guaranteed delivery, transparent at personalization and at usage level. Chip platforms are upgraded on a regular basis, with performance improvement and constant security enhancement such as improved mechanism for antieavesdropping. Gemalto’s participation in standard bodies enables to rapidly integrate the latest technologies, such as SAC and the forthcoming LDS2 for speedy time-to-market, thus providing you the latest products at the earliest opportunity with the lowest risk.

Gemalto has been delivering its secure embedded software to 30 national ePassport programs.
Unique designs that bring out the best of security and creativity

At Gemalto, we believe in taking a comprehensive approach to security. That’s why we strive to provide secure, durable and innovative solutions. Our pursuit of excellence in security is rivaled only by our creativity—a unique combination that we believe can lead to superior results.

We offer extensive experience and support enabling our customers to meet their design expectations for distinctive passports as secure as they are attractive.

Collaboration with our customers lies at the heart of our process. We’re proud to have succeeded in designing some of the most secure and attractive passports to appear in recent years.

We believe in incorporating both technological expertise and creativity into our value chain.

We help our customers deliver unique travel documents that become works of art and symbols of pride in the hands of millions.

Fusing together security and design, the Malaysian passport is a work of art

A key component of the new generation of Malaysian ePassports is the polycarbonate datapage supplied by Gemalto. The datapage meets the highest demands for security and complies fully with current ICAO standards.

The new polycarbonate datapage features a variety of built-in security elements including groundbreaking true-color UV security elements based on Gemalto's innovative Sealys True Vision solution.

It offers high-resolution UV images with a keen sheen and outstanding color reproduction for images like the spectacular skyline of Kuala Lumpur. It expands new design possibilities and protects the document against duplication and reproduction.

Kuala Lumpur at night

SECURITY  CREATIVITY
PRIDE   DESIGN
PASSION
About Gemalto and Trüb

Gemalto is the world leader in digital security, with 2014 revenues of €2.5 billion.

In the public sector, Gemalto provides secure documents, robust identity solutions and services for governments, national printers and integrators serving the needs of citizens. The company’s products and solutions are deployed in more than 100 government programs worldwide.

As pioneers in polycarbonate technology, Gemalto and Trüb are now joining forces to offer unparalleled experience and expert knowledge in this area.

Created in 1859, Trüb is synonymous with quality, precision and security for high-end polycarbonate documents. Trüb is also known for its innovation in unique security elements, designed in Switzerland by its talented engineers.
Gemalto’s business is focused on identity and security. The Gemalto “SECURITY TO BE FREE” corporate slogan echoes the values at the heart of a sustainable digital society.

In fact, it is essential that we redefine security in the digital world.

Security means providing ourselves as human individuals with the power to be more creative in promoting our well-being whilst also limiting the effects of uncertainty as best we can. Security therefore is not something that constrains, limits or restricts us. Instead, it is the very thing that opens up new possibilities for us, providing us with the reassurance we need to take full advantage of the benefits of human development.

With stronger reassurances and better security, we can then do more, in a more effective way, to bring about the changes which will shape our future.