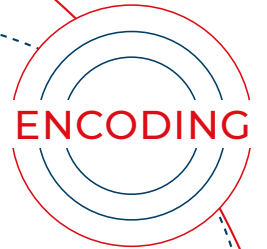




Identify what matters

Personalized Secure Card Solutions



SECURITY



ID Cards That Meet Today's Security Challenges

Identification cards can be sensitive items depending on the data they contain and/or the rights they afford. ID cards may include:

- ⊙ National ID cards
- ⊙ Driver's licenses
- ⊙ Social security cards
- ⊙ Voter registration cards
- ⊙ Employee badges
- ⊙ Access control badges
- ⊙ Student cards

These cards must be protected against identity theft and any unauthorized access to confidential sites or data. Potential risks are divided into two categories:

- **Human risks:** from personal security threats to terrorist threats at a national or international level
- **Financial risks:** theft of assets or data (industrial espionage), embezzlement (unauthorized granting of allowances and bonuses).

The security level of ID cards must be consistent with, or above, the potential risk(s) involved. Making a card secure means:

- Making it impossible to clone by integrating non-replicable elements
- Making it inalterable.

Card-issuing institutions face four challenges:



1

Security:

guaranteeing the level of security required for the cards



2

Personalization:

integrating personal data, which may be highly sensitive, into the cards



3

Costs:

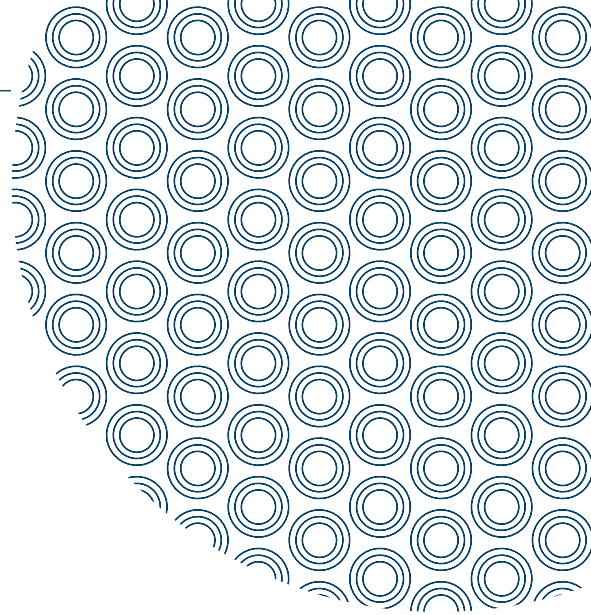
managing card production and identification process costs



4

Ease of control:

avoiding overly complex control systems.



Printing Security Elements with D2T2 or Retransfer

Graphic Customization

Printed graphical elements, particularly color photos, allow the card holder to be identified at a glance, creating a first level of security.

Corporate logos, additional text and barcodes can also be printed on the plastic cards thanks to the following technologies:

- **Direct-to-card printing (D2T2):** Apteo, Zenius, Primacy, Primacy Lamination
- **Retransfer (reverse transfer) for higher definition printing:** Avansia, Avansia Lamination.

Printing High-Resolution Elements

The Evolis Avansia and Avansia Lamination retransfer systems can generate additional security elements in high resolution:

- **Micro-text:** invisible to the naked eye, high-definition micro-text appears when carefully examined with a magnifying lens.
- **Guilloches:** generated by a mathematical algorithm, guilloches are extremely difficult to reproduce and counterfeit.





◎ Printing Advanced 2D Codes

The amount of information contained in the 2D codes depends on print resolution. All Evolis systems can print 2D codes, but the Avansia and Avansia Lamination systems generate high-definition 2D codes that integrate a larger amount of information.

The encrypted information can easily be read with the appropriate equipment, such as a mobile phone.

Main benefits of high-definition 2D codes are:

- Information redundancy to minimize the risk of alteration of part of the code
- High level of security ensured by the encryption quality of the printed data.

◎ Printing UV Elements

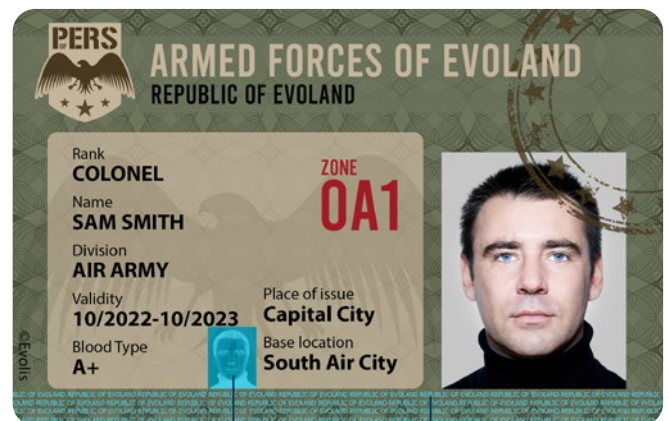
Ultra violet (UV) printing with the Avansia and Avansia Lamination systems makes cards more secure. Completely invisible to the naked eye in normal light, the elements printed in UV ink – whether it be photos, logos or text – become visible under UV light.

This technology has two major advantages:

- It is easy to apply to cards
- Cards can be checked quickly and inexpensively with a simple UV lamp.



2D code



Security image

Security text

The cardPresso software lets you match fixed UV data (included on all cards) to variable data (individual to each card) to increase the intrinsic security of each document.



Encoding Personal Information On Cards

🕒 Encoding Technologies

Encoding consists of adding data to ID cards by integrating it on a magnetic stripe or a contact/contactless chip. These electronic interfaces enhance identification card security as they contain invisible secure information. A combination of various encoding technologies further increases the card's level of security. Magnetic stripes and chips can be reprogrammed if information needs to be added, deleted or amended.

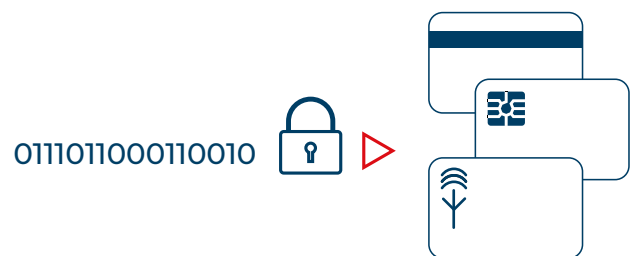
- **Encoding on magnetic stripes:** Evolis offers a variety of magnetic stripe encoders that comply with ISO and JIS2 standards. To improve the durability of encoded data, high-coercivity cards (HiCo) should be chosen over low-coercivity cards (LoCo).
- **Encoding contact or contactless smartcards (RFID):** The microprocessor chip on a card offers greater capacity than the magnetic stripe. Contact or contactless chips can hold a variety of information, including the card holder's biometric data:
 - Digital fingerprints
 - Iris
 - Signature

A contactless chip enables the information to be read from a distance determined by the technology used. It is the perfect option for applications requiring management of people flow (transport, events). Information can be validated quickly, thus increasing the level of security of the overall system.

🕒 Encryption: a Key Element

For all types of encoding, the encryption of data plays a crucial role in guaranteeing the security level of a card. In this context, the protocols that are in place in your organization must be in line with the required security level.

Evolis offers a range of encoding modules, some of which have space for SAM (Secure Access Module) cards and come with the option to integrate proprietary encoders into the systems. Encoders can easily be installed on printers in the factory or on site.



🕒 Secure Communication

Evolis systems enable you to secure the flow of data between the PC and the card printer: simple encryption (via SDK) on Zenius, Primacy and Primacy Lamination, IPSEC on Avansia, and other encryption systems on card printers with embedded PCs.



Card Security with Holograms

A hologram is an optical feature that creates an image with various colors (rainbow), evolving motifs, and it can be animated or appear raised. Holograms offer various levels of security based on client need and the project budget.

Holograms protect cards against counterfeiting as:

- ⦿ They are extremely difficult to replicate
- ⦿ A simple glance is enough to identify any attempts at counterfeiting.

Generic or Customized Holograms

Evolis offers generic holographic designs that contain various security elements. However, you may add a new level of security to your badge with a custom holographic design.

Customized holograms provide a higher level of security by integrating your logo and additional elements compared to generic holograms. Evolis can create a tailored-made hologram based on your project requirements and guarantees that this holographic ribbon is unique.

Apply the Hologram with a Varnish or a Laminate Ribbon

Depending on the level of security and durability you need for your identification cards, you may choose:

- **A varnish ribbon:** a thin layer is applied to the entire surface of the card (edge-to-edge). This is recommended for applications requiring a lower durability level and minimal tamper resistance. With a varnish ribbon, the hologram can be continuous or registered. A registered image is a picture in card format and is applied in exactly the same position on each card. A continuous image is a wallpaper pattern.
- **A laminate ribbon (patch):** this ribbon is made of patches and is available in 0.6mil and 1.0mil thickness. It is recommended for applications requiring a medium to high durability and high tamper resistance. Patches do not cover the entire card surface (near-to-edge). Evolis lamination patches can be standard, with identical patches on the ribbon, or alternated (for dual-sided lamination with different patterns on the front and back side and/or to ensure a compatibility with mag and chip encoding).





Hologram features are classified by their authentication method:

- **Overt:** easily seen by naked eye (image, lines, text)
- **Covert:** invisible to the naked eye, require the use of a simple tool to be verified
- **Forensic:** discernible only with complex laboratory equipment
- **Multi-level:** individual features that operate at 2 or more technical levels (eg. exhibit both Overt and Forensic characteristics) to create unique and highly secure authentication cards.

Card printing systems can apply holograms in two ways:

- Using a printer equipped with a laminator station to apply holographic varnish films or patches on the card (the most common mode)
- Using a dedicated holographic varnish film (dye-diffusion thermal transfer printer) or a special holographic retransfer film (retransfer printer).

		GENERIC HOLOGRAMS		CUSTOMIZED HOLOGRAMS
		Direct printing or lamination	Retransfer	Direct printing or lamination
Fine guilloche motifs	OVERT	⊙	⊙	⊙
Evolving motifs	OVERT	⊙	⊙	⊙
Color 3D holographic objects	OVERT		⊙	⊙
Switched images	OVERT			⊙
Reversed contrast effect when turned	OVERT		⊙	⊙
Micro-text	COVERT	⊙	⊙	⊙
3D holographic objects with hidden micro-text	COVERT		⊙	⊙
Personalized 3D micro-text	COVERT			⊙
Personalized nano-text	FORENSIC			⊙
Hidden personalized micro-text	FORENSIC			⊙



Card Security Systems: Comparison of Features

Combining various security elements on one card significantly increases its overall level of security. The process of making cards more secure must be part of an integrated approach to securing all the links in the system.



Apteo



Zenius



Avansia



Avansia Lamination

The ultra-compact card printer for single cards or small runs

The compact, versatile card printer, for single cards or small/medium runs

The Retransfer printer for high-definition cards with perfect edge-to-edge printing

The Retransfer system for printing and laminating high definition cards

PRINT TECHNOLOGY	• Direct-to-card printing	• Direct-to-card printing	• Retransfer printing	• Retransfer printing with lamination
PRINTED SIDES	• Single-sided	• Single-sided	• Single and Double-sided	• Single and Double-sided
FEEDER/HOPPER	• 25 cards/25 cards	• 50 cards/20 cards	• 250 cards/250 cards	• 250 cards/250 cards

SECURITY FEATURES

COLOR PHOTO	○	○	○	○
BASIC 2D CODES	○	○	○	○
ENCODING ON MAGNETIC STRIPE		○ ¹	○	○
ENCODING ON CHIP (CONTACT OR CONTACTLESS)		○ ¹	○	○
HOLOGRAMS (STANDARD OR CUSTOMIZED)		○	○ ²	○
LAMINATION				○
MICRO-TEXT			○	○
ADVANCED 2D CODES			○	○
UV PERSONALIZATION			○	○

¹ Expert version / ² Standard hologram only

Customized Solutions

Our Custom Projects team will ensure that your solution satisfies your every need:

- Prototype development and testing
- Integration of third-party equipment into the printer
- Implementation and follow-up
- Customization of software, development of firmware and specific drivers adapted to different environments
- Assistance in integrating into the existing infrastructure via software development kits (SDKs).



Primacy



Primacy Lamination



Primacy 2



Primacy 2 Lamination

The fast, multi-purpose card printer, for medium or large runs

The ideal system for personalizing and laminating cards

Packed with high-tech features, for today and tomorrow

Packed with high-tech features and lamination, for today and tomorrow

• Direct-to-card printing

• Direct-to-card printing with lamination

• Direct-to-card printing

• Direct-to-card printing with lamination

PRINT TECHNOLOGY

• Single or Double-sided

• Single or Double-sided

• Single or Double-sided

• Single or Double-sided

PRINTED SIDES

• 100 cards/100 cards

• 100 cards/100 cards

• 100 cards/100 cards

• 200 cards feeder option

• 100 cards/100 cards

• 200 cards feeder option

FEEDER/HOPPER

SECURITY FEATURES



COLOR PHOTO



BASIC 2D CODES



ENCODING ON MAGNETIC STRIPE



ENCODING ON CHIP (CONTACT OR CONTACTLESS)



HOLOGRAMS (STANDARD OR CUSTOMIZED)



LAMINATION

MICRO-TEXT

ADVANCED 2D CODES



UV PERSONALIZATION



evolIS

Identify what matters

A GLOBAL PROVIDER OF IDENTIFICATION SOLUTIONS

- © **Worldwide leader** in card personalization systems for decentralized issuance
- © **International expertise and local support** through a network of 400 distributors in 140 countries
- © A unique ability to meet specific customer requirements with a **Project department dedicated to design and construction of tailor-made solutions**
- © **Evolis is ISO 9001 certified**, which reflects our comprehensive approach, both in terms of quality and continuous improvement

www.evolis.com

HQ / EUROPE - MIDDLE-EAST - AFRICA

Evolis - 14 avenue de la Fontaine - ZI Angers-Beaucouzé
49070 - Beaucouzé - FRANCE
T +33 (0) 241 367 606 - F +33 (0) 241 367 612 - info@evolis.com

USA - CANADA

Evolis Inc. - Providence - RI - USA - evolisinc@evolis.com

LATIN AMERICA

Evolis Inc. - Fort Lauderdale - FL - USA - evolisinc@evolis.com

ASIA - PACIFIC

Evolis Asia Pte Ltd - Singapore - evolisasia@evolis.com

CHINA

Evolis China - Shanghai - evolischina@evolis.com

INDIA

Evolis India - Mumbai - evolisindia@evolis.com