

CUSTOM
HOLOGRAM
RIBBON GUIDE
-
D2T2

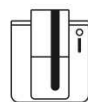
MUCH MORE THAN CARD PRINTERS



Signature pads



Software



Card printers



Accessories



Services

1. INTRODUCTION

National ID Cards, driving licences and other official documents require very high security standards. In those cases, it is important to add security and durability to the cards to prevent forgeries.

Each hologram ribbon solution is unique and involves a number of decisions to be made before full implementation. You will find hereafter information about the Evolis ribbon offer, the elements that a hologram can contain, and some indications to design a custom hologram adapted to your needs.

2. THE EVOLIS CUSTOM HOLOGRAM

There are two ways to apply holograms with Evolis printers:

- Using a printer equipped with a laminator station, such as Primacy Lamination, to apply varnish films or patches (with or without hologram)
- Using a dye-diffusion thermal transfer printer such as Primacy or Zenius, to apply a varnish film (with or without hologram)

A card protected with a hologram ribbon will be very resistant. Any attempt of falsification will therefore become very obvious and visible. The durability will depend on the type of ribbon you choose.

Adding security to your badge can require designing a custom hologram film. In addition to the standard holographic films, Evolis can create totally personalized holograms to take card security to a higher level. Hologram customization is carried out as part of a made-to order request, in line with your design specifications. The film is created exclusively for your organization and cannot be used by anyone else.

Custom hologram for plastic cards must meet two fundamental requirements:

- Protect the data against abrasion and other physical and chemical aggressions (type of ribbon)
- Protect the data against falsification (security features)

THE HOLOGRAM IMAGE REGISTER (HIR)

The Hologram Image Register (HIR) is a secure registry of holographic images, established by the IHMA (International Hologram Manufacturers Association) to safeguard hologram copyright.

As a member of IHMA, our laminate supplier is able to ask for the registration of any new designs created, if required. In that case a research is conducted in the HIR to help to prevent the accidental copying of an image already registered.

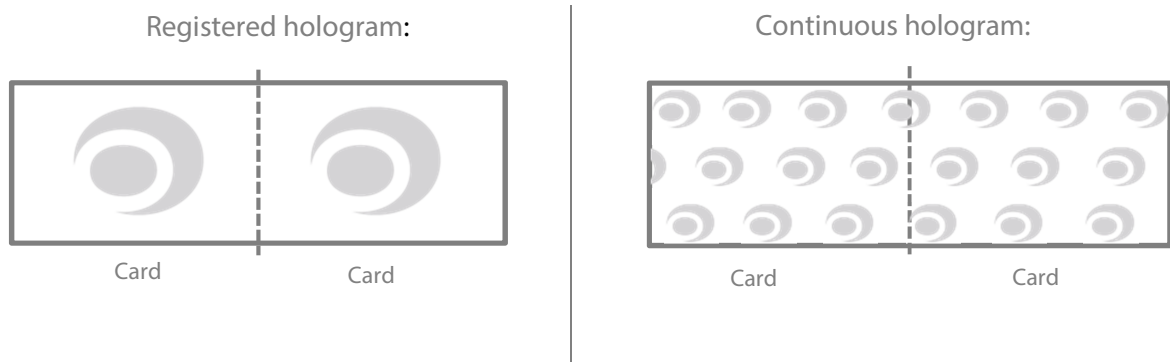
To date, the HIR has helped to uncover and prevent several cases of attempted counterfeiting.

3. HOW TO MAKE YOUR CHOICE?

THE TYPE OF RIBBON

- **Varnish ribbon:** This ribbon applies a thin layer to the entire surface of the card (edge-to-edge). It is recommended for applications requiring a low durability and a minimal temper resistance. With a varnish ribbon the hologram can be continuous or registered.

A registered image can be described as a discreet (separate) picture and is applied in exactly the same position on each card. A continuous image is a wallpaper pattern.



- **Laminate Ribbon (patch):** This ribbon is made of patches and is available in 0.6mil and 1.0mil thickness. Recommended for applications requiring a medium to high durability and high tamper resistance. The patches do not cover the entire card surface (near-to-edge).

Our lamination patches can be standard, with identical patches on the ribbon, or alternated (for dual-sided lamination).

Multiple design layouts can be combined to match different requirements:



Patch on the full surface of the card (near to edge)



Layout for cards with a magnetic stripe



Layout for contact smart cards

Both types of film can be clear or can incorporate a hologram (personalized or not) to provide an additional layer of security.

TYPE OF RIBBON COMPARATIVE CHART

The type of ribbon choice depends on the card itself and the level of durability expected.

RIBBON	THICKNESS	TABOR CYCLE*	DURABILITY (Up to)	CARD COVERING	CARD TYPE*			HOLOGRAM	PRINTER	COST/ print***
					mag	smart contact	RFID			
VARNISH	3 microns	140	2/3 years	Edge-to-edge	No	No	Yes	Continuous	– Primacy Lamination – Primacy or Zenius	* **
								Registered	– Primacy Lamination	**
PATCH 0.6 mil	15 microns	≥ 2,000	3/5 years	Near-to-edge	Yes	Yes	Yes	Registered	– Primacy Lamination	***
PATCH 1.0 mil	25 microns	≥ 5,000	5/10 years	Near-to-edge	Yes	Yes	Yes	Registered	– Primacy Lamination	****

* Taber cycle is a quantitative measure to represent the abrasion resistance of films.

** Varnish and Patch are compatible with PVC, composite PVC, PET and PC.

*** Cost per print based on the clear ribbon cost only

THE LEVEL OF SECURITY AND FEATURES

Once you have chosen the type of ribbon, you have to take the security level into consideration, depending on your needs:

- What type of threats the security features must protect against? (security level)
- How the document will be inspected and authenticated?

HOLOGRAM FEATURES CATEGORIES

The hologram features are classified by the way you can authenticate them.

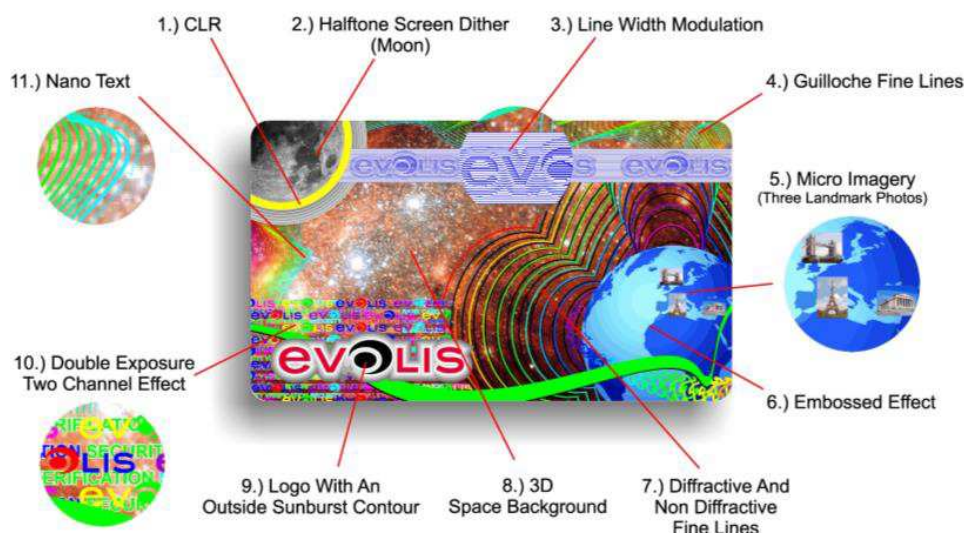
FEATURES CAT.	AUTHENTICATION	DETAILS
OVERT	Naked eye	Easily seen by naked eye (image, lines, text) – provide a quick means of visual authentication.
COVERT	Simple tools	Invisible to the naked eye – require the use of a simple tool (magnifying glass, flashlight, UV light, IR light, or laser pen) to be verified
FORENSIC	Complex laboratory tools	Discernible only with complex laboratory equipment - require a high level of skill and expertise to authenticate.
MULTI-LEVEL	Complex laboratory tools	Individual features that operate at 2 or more technical levels (eg. exhibit both Overt & Forensic characteristics) to create unique and highly secure authentication devices.

HOLOGRAM SECURITY LEVEL

The security level of your design does not affect the price of the holographic ribbons – it only affects the (one-off) price of the origination. The security level of the overall design (affecting origination price level) is defined as the highest security level from which any single feature is selected.

SECURITY LEVEL	FEATURES	FEATURES CAT.
LEVEL 1	2D/3D Multi-Plane Effect, Fine Line Guilloche Patterns, Matte Finish, Rainbow Coloring, Wireframing, High Resolution Lines with Kinetic Effect	OVERT
LEVEL 2	2 or 3-channel (Switch) Effect, 90° Viewable Element, Embossed effect, Latent effect, True coloring, Morphing Geometric Shapes	OVERT
	Single Axis CLR(Covert Laser Retrievable), Dual Axis CLR, Micro Text,	COVERT
	Achrogram	OVERT
LEVEL 3	Micro Imagery, Holographic Watermark,	COVERT
	Brick Matrix Manipulation, Nano Text	FORENSIC
	Line width Modulation (LWM)	MULTI-LEVEL
LEVEL 4	Achromatic Image, Letter Lens Effect, 3D Object Hologram, 3D Stereogram, 90° Switch Effect	OVERT
	Animated CLR	COVERT
	Nano Imagery	FORENSIC

Example of a personalized secure card:



You can find pictures and explanations of the available security features Appendix 1

4. ORDERING PROCESS

ORDERING YOUR CUSTOM HOLOGRAM

- Fill in the Evolis custom hologram order form with the following information
 - Ribbon type (varnish, patch, with or without layout)
 - Hologram type
 - The level of security (features)
 - The type of image you want to use as custom hologram.
- Design artwork and submit it along with the order form.

ARTWORK APPROVAL PROCESS

- Evolis will review artwork, confirm origination fees (depending on the security level required) and provide customer with an artwork proof of custom image. This proof will only show accurate size of images and dimensions and card layout. It shows the graphical elements but the effects will not be available at this stage.
- A shadow box can be requested for approval with extra fee and process lead time.
- Reseller will obtain end-users approval and return signed artwork proof of Evolis.
- Reseller to send back signed proof to Evolis for process to continue.

PRODUCTION OF MATERIALS

- Origination fees payment. Production of your material will begin upon receipt of approved artwork.

TIMEFRAME

- The complete process to get custom holograms takes about 10-12 weeks, assuming that approvals occur according to schedule. Evolis will up to date you on the expected shipping date once the artwork is agreed.
- Repeat orders: about 7 weeks
- Recombination (moving an existing hologram design from a legacy printer model): about 9 weeks

APPENDIX 1: SECURITY FEATURES

OVERT FEATURES

2 or 3-Channel (Switch) Effect



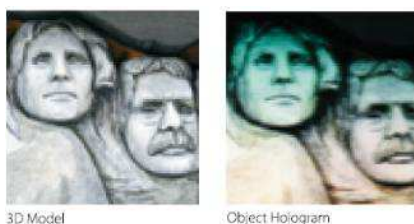
Two or more distinct images can occupy the same area of a hologram, shifting from one to the other when viewed at different angles.

2D/3D Multi-Plane Effect



2D/3D multi-plane images, lines, and text are composed of elements that exist on different planes (surface plane, above the surface plane, and below the surface plane), exhibiting a sense of depth and parallax (the apparent displacement of an observed object due to a change in the position of the observer).

3D Object Hologram



The 3D object hologram visually replicates the exact size and shape of a 3D model with excellent depth, clarity and perspective.

90° Switch Effect



90° switch effect text and imagery is invisible when viewed at normal position and clearly visible when viewed at a 90° angle.

90° Viewable Element



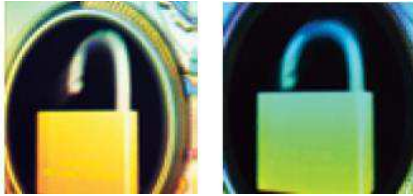
This text and/or imagery is faintly viewable at a normal position and clearly viewable when viewed at a 90° angle.

Achrogram



A design that switches black areas to become white, and vice versa, when viewed at a 90° angle.

3D Stereogram



An optical illusion of depth and movement created from one or more flat, two-dimensional images or three-dimensional models.

Embossed effect



Optical illusion of relief or embossing created by a highly diffractive, surface-oriented grating that can be applied to images, text or lines in a hologram.

Fine Line Guilloche Patterns



Comprise a series of high resolution lines, curves, rosettes, or a combination of these elements generated by highly sophisticated software. Each element can be assigned a predetermined color shift, creating the illusion of synchronous animation.

High Resolution Lines with Kinetic Effect



Fines lines that light up sequentially when viewed at different angles, generating the appearance of movement.

Achromatic Image



Images, lines or characters that have no color refraction, but are composed of black, white or neutral variations of gray.

Latent Effect



Images, lines or characters that are designed to refract light at a very acute angle.

Letter Lens Effect



Crated to resemble characters viewed under a magnifying lens, these letters appear and move when viewed under a point light source.

Matte Finish



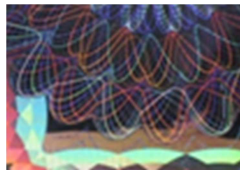
An excellent contrast to the surrounding, colorful holography, the semi-opaque, non-diffractive matte finish is easy to identify and authenticate.

True Coloring



Images refract their true colors only when viewed at a very specific angle.

Rainbow Coloring



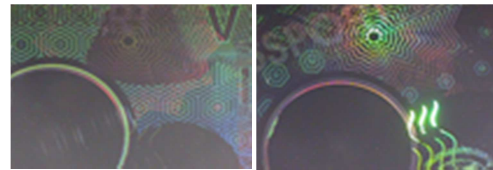
Images, lines or characters that refract light using the full color spectrum. The color changes as viewing angle changes.

Wireframing



Outlined words and objects (created with specific software) that can be combined with other effects to create more complex images.

Morphing Geometric Shapes



Geometric shapes that morph color as they are rotated.

COVERT FEATURES

Single Axis CLR(Covert Laser Retrievable)



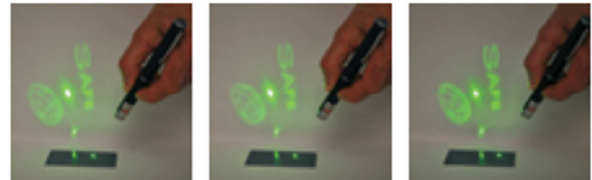
Images or characters that are invisible to the human eye, they can be viewed only by illuminating the coded area with a laser device and looking at the refracted light projected onto a screen at right angles to the hologram.

Dual Axis CLR(Covert Laser Retrievable)



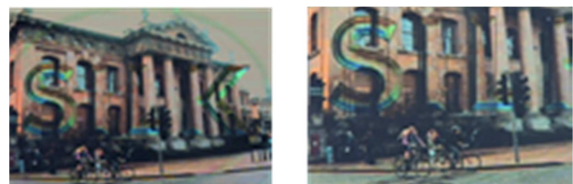
Similar to Single Axis CLR, Dual Axis CLR projects two different images at 90° angles from one another.

Animated CLR (Covert Laser Retrievable)



Multiple images are slightly and sequentially rotated, giving the appearance of animation when holding an ID document stationary and moving a laser across the CLR.

Holographic Watermark



A translucent relief of an image or text that causes some part of the image or text to appear convex.

Micro Imagery



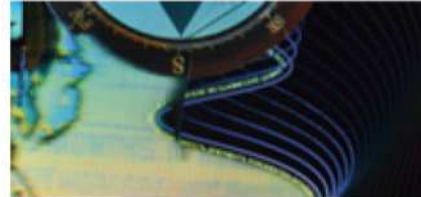
Enlarged Image



Actual Size

True color images or photographs that are reduced in size to three square millimeters, and require the use of a loupe or magnifying glass to authenticate.

Micro Text



Diffractive or non-diffractive text that can be as small as 175 microns high, and require the use of a loupe or magnifying glass to be clearly viewed.

FORENSIC FEATURES

Nano Text



Diffractive or non-diffractive text, from 40 to 175 microns, that can be clearly viewed only through a microscope.

Brick Matrix Manipulation



To manipulate the size/shape of each brick, in order to make more complex shapes in a small (previously specified) sector of the design. These tiny features can only be found using a microscope with prior knowledge of their existence.

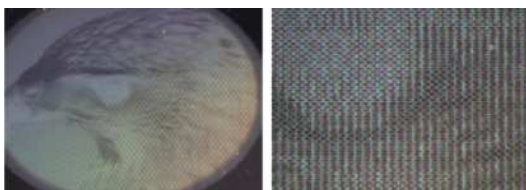
Nano Imagery



Image that can be clearly viewed only through a microscope.

MULTI-LEVEL FEATURES

Line width Modulation (LWM)



Various image and text effects that can be created by the mathematical manipulation of width, length and height of lines.