

# CUSTOM HOLOGRAM GUIDE

Avansia Printer

MUCH MORE THAN CARD PRINTERS



Signature pads



Software



Card printers



Accessories



Services



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# 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 to the cards to fight forgeries.

The purpose of this document is to help our customers to better understand the Hologram Industry and to help them to develop and launch a hologram ribbon solution with the Evolis Card Printers.

Each hologram ribbon solution is unique and involves a number of decisions to be taken before full implementation. That is the reason why you will find hereafter information about the hologram itself, the elements that a hologram can contain, the Evolis ribbon offer and some indications to have a design adapted to your needs.

## 2. THE HOLOGRAM INDUSTRY

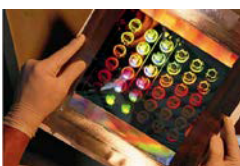
### A BIT OF HISTORY



Holography dates back to 1947, when British/Hungarian scientist Dennis Gabor developed the theory of holography while he was working on improving the resolution of an electron microscope. Dennis Gabor coined the term hologram from the Greek words "holos", meaning "whole", and "gramma", meaning "message".

The development of laser technology in 1960 made of holography a reality.

### WHAT IS A HOLOGRAM?

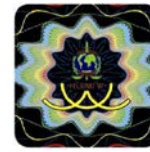


A hologram is a three-dimensional image, created with photographic projection. Unlike 3D or virtual reality on a two-dimensional computer display, a hologram is a truly three-dimensional and free-standing image that does not simulate spatial depth or require a special viewing device.

To reproduce the image of an object, the hologram is illuminated by coherent light, ideally the original reference beam. The hologram produces two sets of diffracted waves; one set forms a virtual image coinciding with the original object position and the other set forms a real image on the other side of the plate. Both are three-dimensional.

A hologram is an optical device which produces an image:

- Which exhibits variable colours (rainbow)
- With variable image content
- Which can be animated
- Which appears as stereoscopic



National ID cards, driving licenses and other official documents require very high security standards to fight forgeries and wear. Plastic cards are therefore the ideal solution for any official document that comes with a credit card size.

## WHY USE A HOLOGRAM AS A SECURITY FEATURE?

- A hologram is impossible to duplicate with a scanner or a colour copier.
- It is not possible to imitate with standard printing technologies.
- The initial levels of visual security can be used to integrate additional levels of control for a card.
- The optical images of the ribbons are shiny, very high definition, 3D animated and with very high resistance against counterfeiting.
- Ribbons are used to seal the information contained on the plastic cards. The information is therefore authenticated and protected from falsification or substitution.

## WHAT IS A SECURITY HOLOGRAM?

A combination of:

- A holographic image
- A carrier to support the image and manufacturing process (hot stamping foil, laminate, self-adhesive label...)
- A device produced in a secure environment and under strict security procedures.

## THE TARGETED MARKETS

- **Protection of fiduciary documents:** Banknotes, checks, credit cards, tickets...
- **Protection of identity documents:** Passports, identity cards, visas, driving licenses, event badges
- **Authentication of brand products:** Luxury goods, industrial spare parts, sportswear...



## THE CUSTOMERS

- **Government organizations:** Central banks, Ministries of Interior, Ministries of Finance, Ministries of Foreign Affairs, Ministries of Transport, National Elections Authorities...
- **Integrators:** Security printers, credit cards manufacturers, packaging companies...
- **Industry Suppliers:** Consultants, machine manufacturers...
- **Brand Owners:** Automobiles, Perfumes, Jewellery, Watches, Industrial Parts, Sportswear...



## 3. THE EVOLIS CUSTOM HOLOGRAM

Adding security to your badge can require designing a custom hologram film. Managed as a special project at Evolis, this film will be designed according to your company requirements. This is the guarantee that it will not be sold by anyone else.

Customized hologram will help you to reach a significant security level thanks to its unique and registered design to protect the data against falsification. Any attempt of falsification will therefore become very obvious and visible.

To create your own Custom Hologram, you have to consider several elements such as the type of ribbon, the level of security and features.

To help you in your choices, this is a description of the Evolis offer on Avansia:

### 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.

## 4. AVAILABLE HOLOGRAM FEATURES

Please consider the security level that you need:

Overt Security

Covert Security

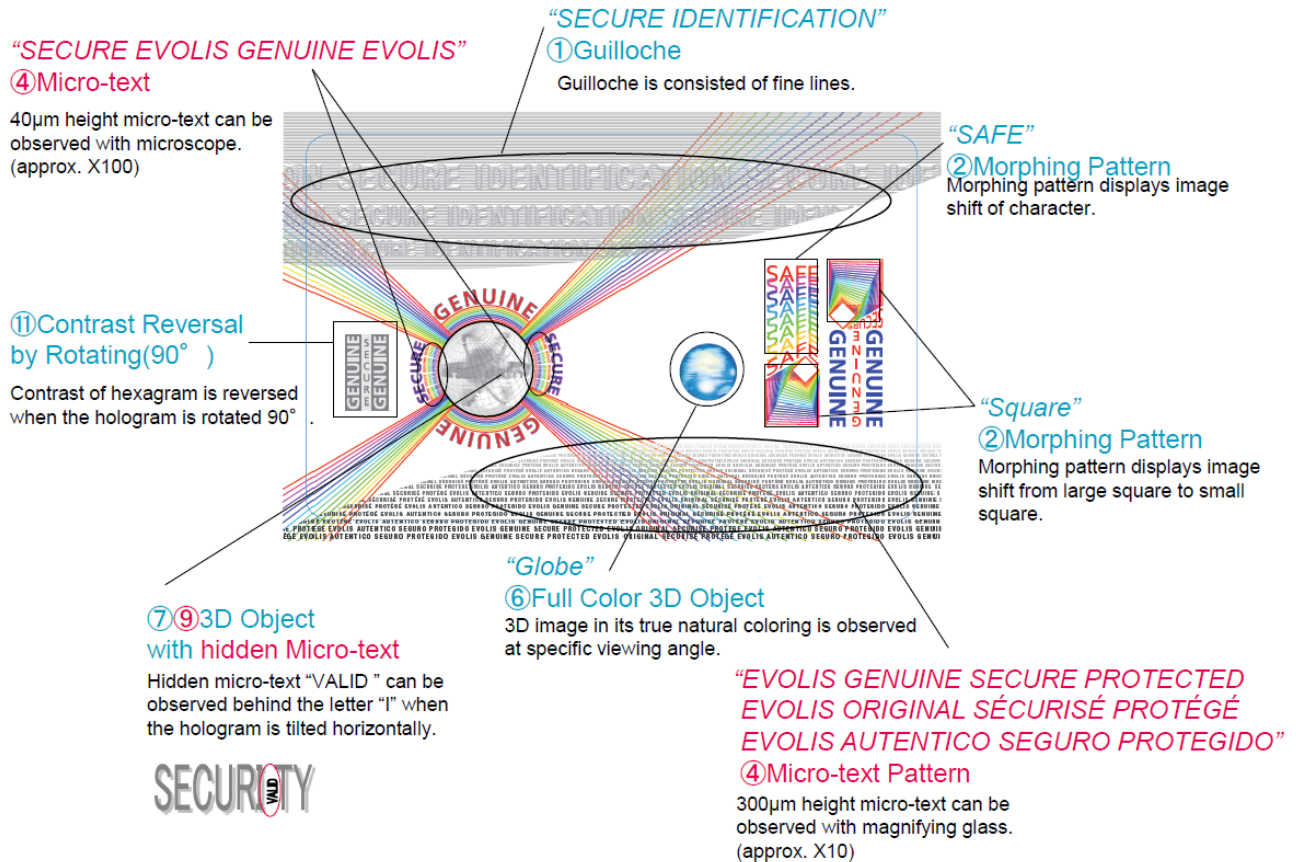
N°	Security features	Instrument	Security level	K*	V**
1	Guilloche (Fine Line Pattern)		1	✓	
2	Morphing Pattern		1	✓	
3	Flipping Images		1	✓	
4	Micro-text	Magnifying Glass (approx.. X10)	1	✓	
5	Nano-text	Microscope (approx.. X1000)	2	✓	
6	Full-Color 3D-CG Object		3		✓
7	3D-CG Object		3		✓
8	3D-Micro-text (CG)	Magnifying Glass (approx.. X10)	3		✓
9	Hidden Micro-text (CG)	Magnifying Glass (approx.. X10)	3		✓
10	Laser Reconstruction (1 image)	Laser pointer (red laser beam)	3	✓	
11	Contrast Reversal by rotating (90°)		3	✓	
12	Coloring (RGB)		1	✓	
13	Hidden Moire Pattern	Viewing Film	2	✓	
14	Laser Reconstruction (2 images)	Laser pointer (red laser beam) Laser viewer	3	✓	
15	Contrast Reversal by rotating (180°)		3	✓	
16	High-brightness Image		3	✓	✓
17	Hidden LED pattern	LED Point Light Source	3	✓	

K\*: KALEIDOGram (bright & precise 2D images)

V\*\*: VERTUREGRAM (3D computer-generated images at ultrahigh resolution)

You can find pictures and explanations of the available security features Appendix 1 p9.

Below is the Evolis Generic Retransfer Hologram:



## 5. ORDERING PROCESS

### ORDERING YOUR CUSTOM HOLOGRAM

- Fill in the Evolis custom hologram order form attached with the following information
  - The type of image(s) you want to use as custom hologram,
  - The security level you want to apply and which type of features,
- Design artwork (in Adobe Illustrator format) and submit it for analysis and review.

### ARTWORK APPROVAL PROCESS

- Evolis will review artwork, submit a quotation (set-up fee depends on the features and security levels required) and provide customer/reseller with a PDF file representing the custom hologram. 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.
- Reseller will obtain end-users approval and return signed artwork 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 18 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 8 weeks
- In case of request for registration to the HIR, the process may be longer (1 week if there is no specific match, more if some modifications are necessary).



# APPENDIX 1

## OVERT FEATURES

- **Guilloche (Fine Line Pattern)**

2D guilloche pattern with high resolution and high brightness



- **Morphing pattern**

“Evolution” morphing pattern displays image shift from monkey to human depending on viewing angle

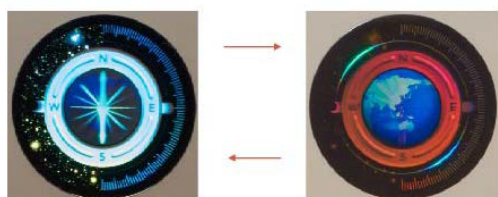
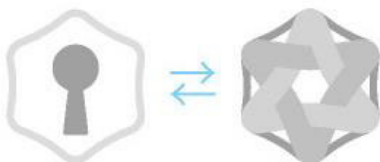


Other example:



- **Flipping image**

Different images flip depending on viewing angle



- **Coloring (RGB)**

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



- **Full-color 3D-CG Object**

3D image in its true natural coloring is observed at specific viewing angle



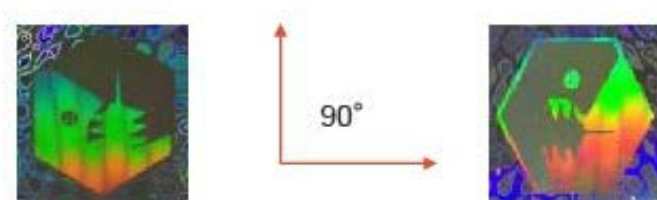
- **3D-CG Object**

3D image



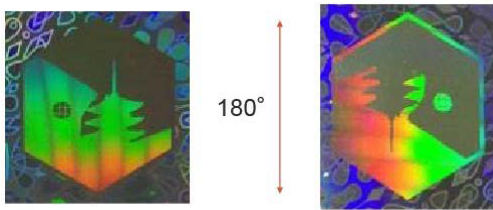
- **Contrast reversal by rotating (90°)**

Contrast of pagoda is reversed when the hologram is rotated 90°



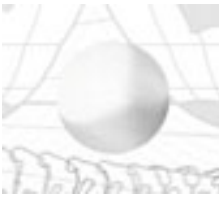
- **Contrast reversal by rotating (180°)**

Contrast is reversed when the hologram is rotated 180°



- **High-brightness Image**

Light reflection seems to flow on the surface of the sphere



## COVERT FEATURES

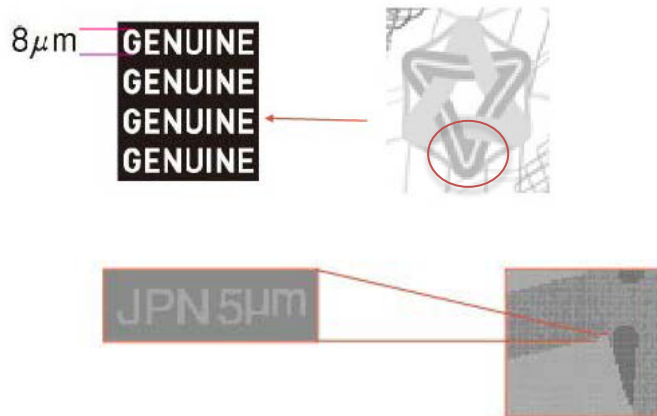
- **Micro-text**

300µm height micro-text can be observed with magnifying glass (approx. X10)



- **Nano-text**

5/8/10µm height nano-text can be observed with microscope (approx. X1000)



- **3D-Micro-text (CG)**

3D micro-text can be observed with magnifying glass (approx. X10)



- **Hidden Micro-text (CG)**

Hidden micro-text "VALID" can be observed behind the letter "I" when the hologram is tilted horizontally



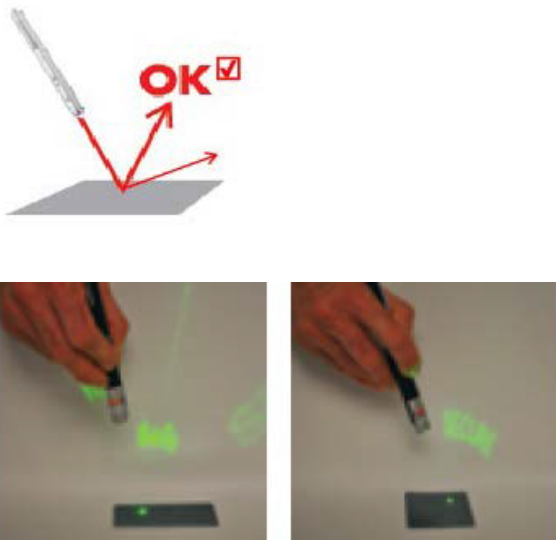
- **Laser reconstruction (1 image)**

Laser reconstruction image is retrieved by red laser beam



- **Laser reconstruction (2 images)**

Laser reconstruction image is retrieved by red laser beam

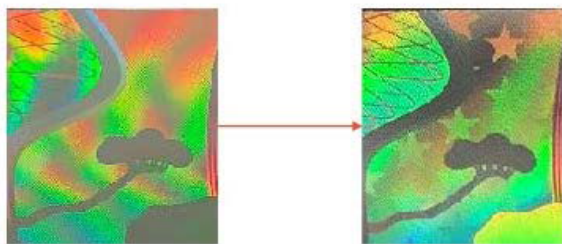
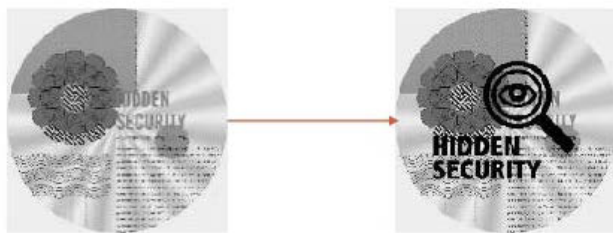


- **Hidden Moire Pattern**

Hidden text "VALID" is a moire pattern which cannot be detected by naked eye and only visible with decode film



Other examples:



- **Hidden LED pattern**

Hidden letter "JAPAN" appears under LED point light

