

HOLOGRAM RIBBON Information Guide

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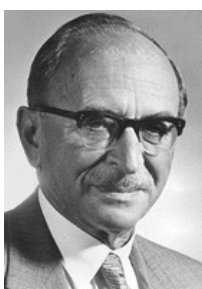
Introduction

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 Solution with the Evolis Card Printers.

Each Hologram Solution is unique and involves a number of decisions to be taken before full implementation. This is the reason why you will find hereafter information about the Hologram itself, the targeted markets, how it works with the Evolis printers and some other useful links about Hologram and Hologram Solutions.

The Hologram Industry

■ A bit of History

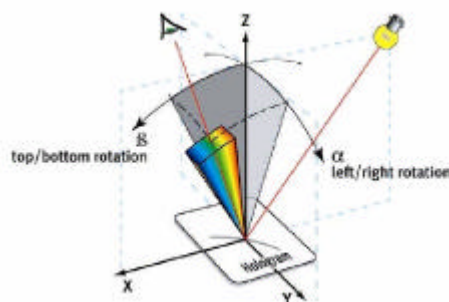


Holography dates back to 1947, when British/Hungarian scientist Dennis Gabor developed the theory of holography while he was working on improving the resolution of an electron microscope. Dennis Gabor coined the term hologram from the Greek words “holos”, meaning “whole”, and “gramma”, meaning “message”.

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

■ What is a Hologram?

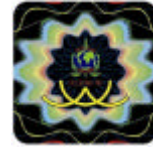
A hologram is a three-dimensional image, created with photographic projection. Unlike 3D or virtual reality on a two-dimensional computer display, a hologram is a truly three-dimensional and free-standing image that does not simulate spatial depth or require a special viewing device.



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



■ Why use a Hologram as a security feature?

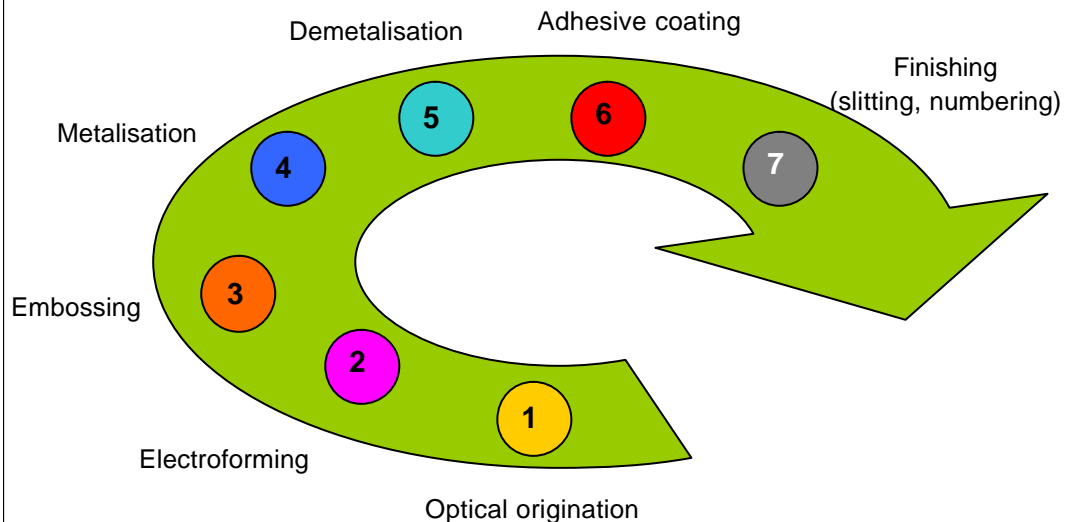
- A hologram is impossible to duplicate with a scanner or a colour copier
- It is not possible to imitate with standard printing technologies
- The primary (first level) visual security features can be used to integrate second or third level control features

■ What is a security hologram?

A combination of:

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

■ Hologram Ribbon Manufacturing Process



■ The targeted markets

- **Protection of fiduciary documents:**
Banknotes, checks, credit cards, tickets...
- **Protection of identity documents:**
Passports, identity cards, visas,
driving licences, 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...



The Evolis Hologram Ribbon

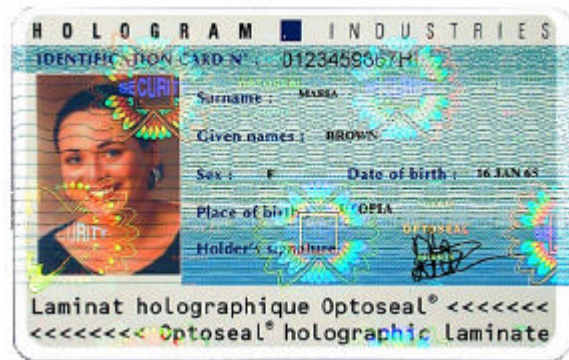
Evolis offers two Hologram Solutions:

- **A generic Optoseal® Hologram Ribbon** (P/N: R4001)
- **A Custom Hologram Solution** when a specific design is required. For further information on this specific product, please contact Evolis at the following email address: dbidaud@evolis.com

■ Optoseal® Hologram Ribbon description

- The Optoseal® ribbons proposed by Evolis are totally transparent ribbons comprising holographic and optical images.
- The optical images of the Optoseal® ribbons are shiny, very high definition, 3D animated and with very high resistance against counterfeiting.
- Optoseal® ribbons are used to seal the information contained on the plastic cards. The information is therefore authenticated and protected from falsification or substitution.

- The total transparency of the Optoseal® ribbons is obtained from the use of a specific induction technique named HRI (High Refractive Index).



Card sample printed with the Evolis generic Optoseal® hologram ribbon.

▪ Optoseal® Hologram Ribbon specification

The Optoseal® films for plastic cards must meet two fundamental requirements:

- Protect the data against falsification.
- Protect the document and data against abrasion and other physical and chemical aggressions.

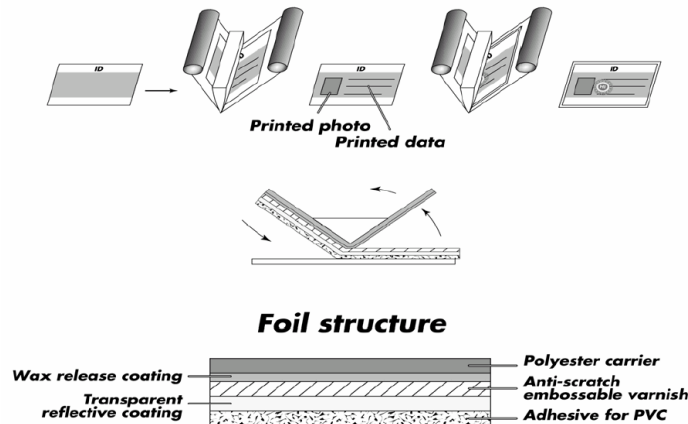
A card protected with a Hologram ribbon will be very resistant. Any attempt of falsification will therefore become very obvious and visible.

An Optoseal® ribbon is made of a polyester ribbon of 19µ including a layer of transferable varnish of about 4µ.

Physicochemical resistance:

- The layer which is transferred on the card is designed to be resistant to abrasion and common physicochemical such as:
 - Alcohol
 - Hot water
 - Inflection
 - UV Rays
 - Domestic detergents
 - Sodas
- However, the varnish deposited on the card being very slim, this resistance does not allow applications where cards will be frequently inserted in readers as in this case, the lifespan would not exceed one year.

■ **Optoseal® Hologram Ribbon structure**



■ **The Evolis Hologram Ribbon: how does it work?**

The Evolis Color Card Printers enable card personalisation with hologram ribbons as these printers are capable of printing edge-to-edge hologram layers on the card in one go. These card personalisation systems provide flexibility and enable to obtain within a few minutes a finished card-in-hand with Hologram. **Note that the hologram will always be printed full edge-to-edge.**



NOTE!

On the Pebble and New Pebble Card Printer Range: **Firmware Version 0228** or higher and **Windows Drivers Version 4.5** or higher must be installed with these printers to be able to support 100% the Hologram Ribbon.

These Firmware and Driver versions or higher can be downloaded from the Evolis Web Site at www.evolis.com on the Support & Services section.

To print hologram on your plastic cards using the Evolis Color Card Printer, proceed as explained below.

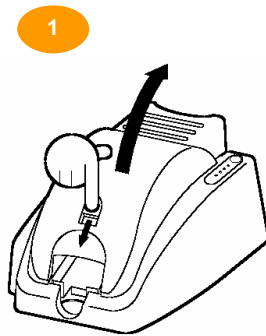
Note that the following procedure is valid for all the Evolis color card printer.



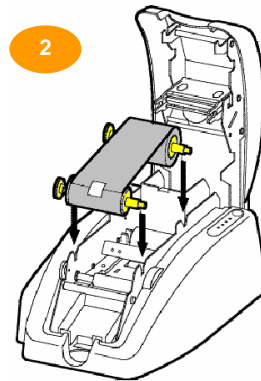
NOTE!

The cards can be blank or previously printed (color and/or monochrome). Printing Hologram on top of an Overlay (O) from the Evolis multi-panel ribbons (YMCKO, KO, ½ YMCKO) will not affect the printing quality.

1. Install the ribbon printer



CAUTION!
KEEP PRINTER
SWITCHED ON

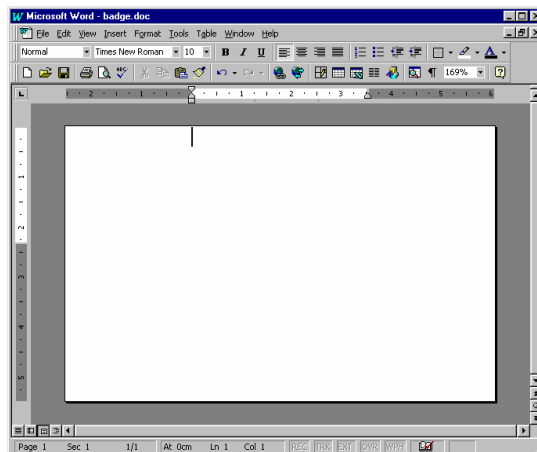


CAUTION!
AT THIS STAGE,
DO NOT CLOSE PRINTER COVER

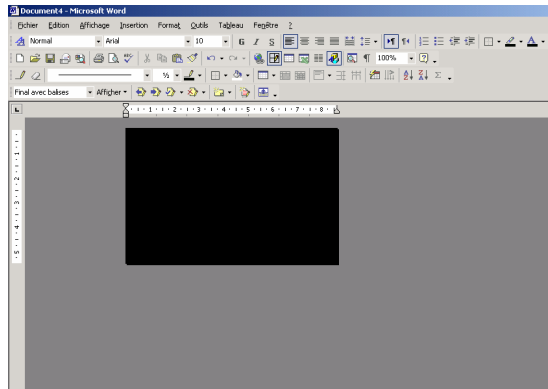
2. Set printing in Microsoft® Word

After having previously registered your Evolis printer model as the default printer, proceed as described below:

1. Run Word and in **File** click on **Page Setup**
2. The dialog box displays:
 - **Paper Format**, select **Youn Card**
 - **Orientation**, select **Landscape**
3. The **Margins** dialog box displays **Printing margins**. Select 0 cm
4. Click on **OK** button to validate the window.
5. Your Word window should now appear like this:

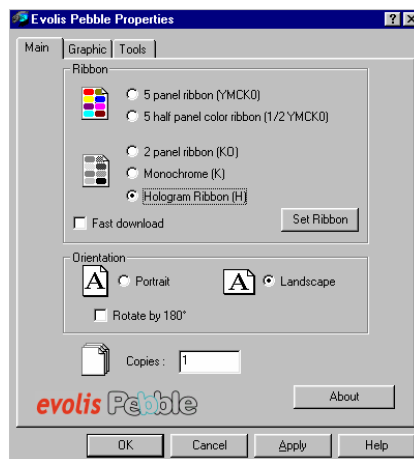


- Using the Drawing Tool bar, draw an edge-to-edge black rectangle as shown:



3. Set the ribbon from the driver Properties

- Click on the Menu bar and point to **File** and select **Print**;
- The dialog box shows you that your Evolis printer is selected.
- Then, click on **Properties**.
- The dialog box of the **your Evolis Printer** driver opens
- In the Main tab, select the **Hologram Ribbon** and click on the **Set Ribbon** button as shown below:



- Close the printer cover
- On returning to the main window, click on **OK** to start printing

USEFUL LINKS

HOLOGRAPHY NEWS

www.reconnaissanceintl.com/HolographyNews/main.html Holography News is the only newsletter for and about the hologram industry. Published by Reconnaissance, the experts in holography, it brings you a combination of news, analysis and commentaries in ten issues per year, giving you the inside track on all the latest developments in this highly-specialised and fast-moving industry and how these can benefit your business.

IHMA

www.ihma.org/MemberArticles/IHMA_Newsletter.html

IHMA is the International Hologram Manufacturers Association. The IHMA is made up of more than 60 of the world's leading hologram manufacturers. This site is dedicated to promote the interests of these quality hologram manufacturers worldwide and to help customers to achieve their security, packaging, graphic and other objectives through the efficient use of holography.

HOLOGRAM UNIVERSE

www.hmt.com/holography/universe

The Hologram Universe is dedicated to staying on the forefront of the newest developments in the holographic industry and making those advancements available.



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