

OPTAGLIO®

OPTICAL MICROSTRUCTURE TECHNOLOGIES

BRING UNIQUE

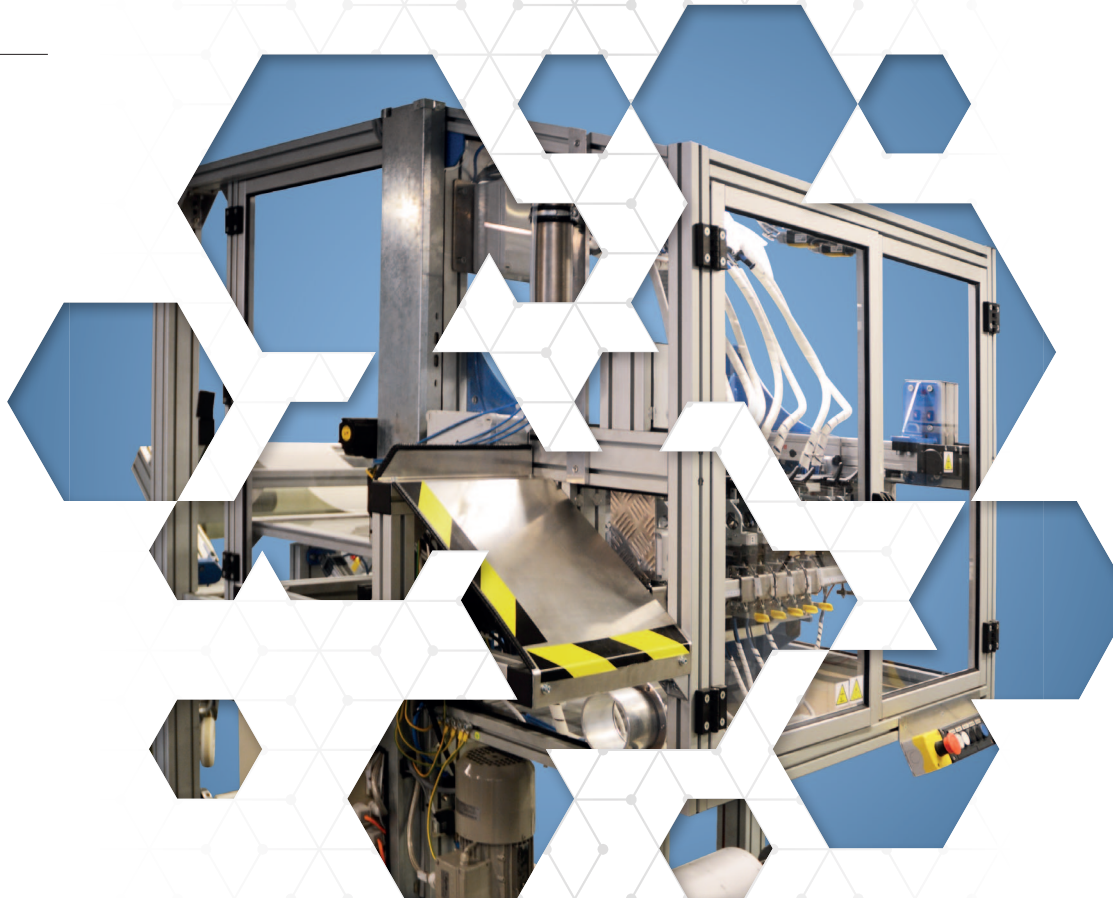
HOLOGRAM

APPLICATION

MACHINES

INTO YOUR

FACILITY



OPTAGLIO
HAS BEEN
IN THE
FOREFRONT OF
DEVELOPMENT OF
TECHNOLOGIES
OF OPTICAL
SECURITY
FOR MORE THAN
20 YEARS.

ABOUT OPTAGLIO

OPTAGLIO is a leading global provider of advanced optical security devices and the market leader in e-beam lithography. During 25 years of our history, we have delivered hundreds of millions of holograms to governments, financial institutions and other organizations in more than 50 countries around the world. Our unique technology has been broadly recognized as the industry standard for optical security.

OPTAGLIO, certified to relevant international standards, operates under strict 24/7 security supervision. Our comprehensive security system covers people, processes, data, and facilities. The company is a member of International Hologram Manufacturers Association (IHMA) through which it registers all its security devices and holograms in the central security register, in London. OPTAGLIO technologies have been used for protection of hundreds of millions of paper-based documents including banknotes, stamps, revenue stamps, certificates, coupons, and securities. We are a proven partner of those who want to keep their technological advantage and make sure that any falsifying attempt is just wasting time and resources.

ABOUT OUR TECHNOLOGY

e-beam lithography is the most advanced technology for creating optical security elements. Optical holographic structures are generated through sophisticated mathematic algorithms which can be brought together neither through reverse engineering nor any other method. Therefore no unauthorized person can produce the same hologram. Thanks to the unrivaled mastering of e-beam lithography, we produce holograms with visual effects that cannot be imitated in a comparable quality. Illusions of gleaming 3D reliefs with changing colors, emerging objects invisible under normal lighting as well as objects optimized for viewing under low light conditions are on the list. Our graphical tools also include animations, fluent moving of objects in different directions, emerging QR codes, bright colors, a dim and a gleaming surface of illusionary objects and many other items.

PP-ID CARD
HOLOGRAM
APPLICATOR
IS THE MOST
HIGH-POWERED
APPLICATION
MACHINE
AVAILABLE IN THE
GLOBAL MARKET.

DECLARE YOUR INDEPENDENCE ON SUBCONTRACTORS

IN-HOUSE APPLICATION OF SECURITY ELEMENTS

Although applied holograms and other security elements are often delivered to the document producers for integration into their products, the own in-house application brings nonnegligible benefits like:

- Security enhancement through consistent control over the entire production process.
- Cost decrease (material, transport, and logistics).
- Seamless process management.
- Higher flexibility of production timing with independence on delivery scheduling.
- Building own machinery center and thus independence on providers.

IN-HOUSE APPLICATION WITH OPTAGLIO TECHNOLOGIES

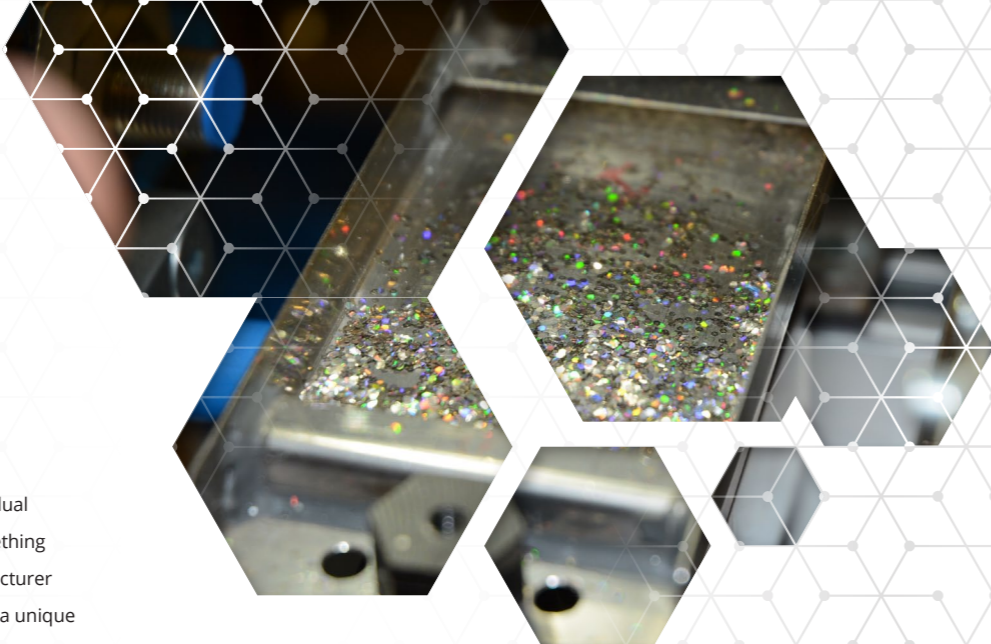
Technological advantage and decades of practical experience enables OPTAGLIO to be an exceptionally good partner for in-house application of security elements.

- Unique techniques that are not offered by anybody else.
- Tailoring application machines to particular clients.
- Easy instalment.
- Undiscerning operation, operators fill feeders and take output away.
- Support from OPTAGLIO during the initiate phase of production.
- Easy reconfiguration for other documents after finishing the production.
- No additional license /mandatory support fees.
- Opportunity to implement OPTAGLIO advanced optical security devices.

MF-ID Card Hologram Applicator

Covering both anti-counterfeit protection and individual documents identification by a single product is something that has been desired by virtually every card manufacturer with a visionary *Image*ination. OPTAGLIO is bringing a unique innovative application technology to meet this requirement.

- > Joining of **anti-counterfeit protection and making each individual document unique** into a single production step.
- > Implementing an **element which can be never ever repeated or reproduced** into each document.
- > Implementing **high-security holographic microparticles**.
- > Creating an ability **to identify each individual document** during its entire lifecycle, including after handing to its holder.
- > The possibility of **installment in any production facility** as the machine is broadly customizable and easy to operate.



PARAMETERS OF MF-ID CARD HOLOGRAM APPLICATOR:

Production capacity:	Up to 8.000 per hour (8 heads option)
Microparticles size:	40 µm – 1000 µm
Number of application heads:	Optional (typically 8 heads)
Web width range:	Optional (typically 300 mm – 600 mm)
Web thickness range:	30 µm – 200 µm
Maximal roll diameter:	600 mm
Dimensions (w x l x h):	2,3 m x 1,4 m x 2,3 m (typically)
Weight:	850 kg (typically)
Electrical requirements:	3 N PE 400 / 230 V / 50 Hz



The architecture of MF-ID Card Hologram Applicator is based on a platform for precise rewinding and positioning of polycarbonate foil equipped with a both-side cleaning system to ensure meeting industrial standards on clean and dust-free production environment.

The application part itself works over the controlled moving polycarbonate film. It consists of vibration containers with holographic microparticles and a number of application heads. Vibrations assure dosing as well as a random distribution of microparticles which are transported and applied on polycarbonate sheet into small predefined areas. The attaching of them is done by special liquid.

INPUT:

Holographic microparticles and roll of polycarbonate film.

OUTPUT:

The polycarbonate film in roll with particles randomly scattered in predefined areas.

Each individual document has its own unique **easy readable and unrepeatable "fingerprint"** created by a random holographic microparticles positioning.

Adhesive-free application technology based on special liquid which incorporates microparticles into polycarbonate surface and then disappears.

A final polycarbonate document contains **microparticles only – no adhesives** or other chemicals are present.

A **clever application** technology satisfying all requirements for polycarbonate documents production.

Full customization of the machine according to particular customer requirements.

The machine operated by **one operator**.



MF-ID Card Hologram Applicator enables to introduce **OPTAGLIO OVIimage technology** into polycarbonate documents

- > The most advanced protection against counterfeiting based on **Microholograms**
- > Each individual **document identification**
- > Various levels of inspection. From document user basic inspection by a naked eye up to **forensic methods**.
- > Technology proved by using on **IDs and Passports** in many countries

PP-ID Card Hologram Applicator



PP-ID Card Hologram Applicator consists of two main moving sections intersecting above an application table. An automatic sheet feed system working along the lengthwise axis transports polycarbonate sheets from the container onto the application table and further into final sheets container. The application heads working along lateral axis pick up and apply holographic security elements onto polycarbonate sheet according to predefined layout (positions on sheets). Application heads consist of suction gripper and polycarbonate welding unit. This architecture enables to grab various type of security elements carried on polycarbonate film fairly and fixate them on polycarbonate sheets with welded fringes. Applied elements are supplied on rolls. Such rolls provide a sufficient number for long production periods and do not require a frequent intervention of operating staff.

For *Smart* manufacturers of polycarbonate documents, OPTAGLIO has developed a **unique adhesive-free high capacity technology** for application of polycarbonate-based holographic security elements into polycarbonate substrate. The applicator brings significant **advantages in managing large government projects** for national ID cards, passports, driving licenses etc. as well as considerable **cost reductions**.

- > Effective **adhesive-free implementation** of polycarbonate-based holographic security elements into polycarbonate documents.
- > **Full control over entire production process** with only a negligible dependence on subcontractors.
- > **A significant decrease in costs** for production of huge batches of documents.
- > Ability to apply **the most advanced anti-counterfeit holographic protection in-house**.

INPUT:
Polycarbonate sheets and
holograms on rolls.

OUTPUT:
Polycarbonate sheets with security holograms
applied on the predefined positions.

Our **adhesive-free** welding technology guarantees the seamless quality of laminated documents. The technology is based on lamination properties of polycarbonate itself, no heterogeneous element is added.

Full control over application process enhances **flexibility in managing** new production batches. Dependence on an element supplier is mitigated.

Delivery of applied elements in rolls instead of the whole polycarbonate stacks results in a **significant saving** in transportation costs.

Just **one operator** required.

PARAMETERS OF PP-ID CARD HOLOGRAM APPLICATOR:

Production capacity:	Up to 3000 holograms/hour (8 heads option)
Feeding tape capacity:	Up to 50.000 pcs per roll
Number of application heads:	Optional (typically 8 heads)
Polycarbonate sheet dimensions:	Optional (typically up to 600 mm x 600 mm)
Maximal size of applied elements:	35 mm x 35 mm
Polycarbonate sheet thickness range:	100 um – 250 um
Sheet feeder capacity:	800 sheets
Dimensions (w x l x h):	1,6 m x 2,6 m x 1,8 m (typically)
Electrical requirements:	230 V / 50 Hz / 16 A



PP-ID Card Hologram Applicator enables to introduce OPTAGLIO OVMesh Smart technology into polycarbonate documents

- > The most advanced **holographic security features**
- > **Excellent incorporating** into document body to make sure that removing is absolutely impossible
- > Extensive **graphical options**



MP-ID Card Hologram Applicator



The MP-ID Card Hologram Applicator comprises four main parts: a sheet feeder, a hologram feeder, an application table and a final sheets container. The application table is equipped with a robotic application head.

The machine puts polycarbonate sheets on the application table. Robotic application heads take holograms from the feeders and apply them on the sheets according to the predefined layout. As soon as all holograms are applied to the required positions, the sheet is moved to the final sheets container.

INPUT:

Metallic holograms and polycarbonate sheets.

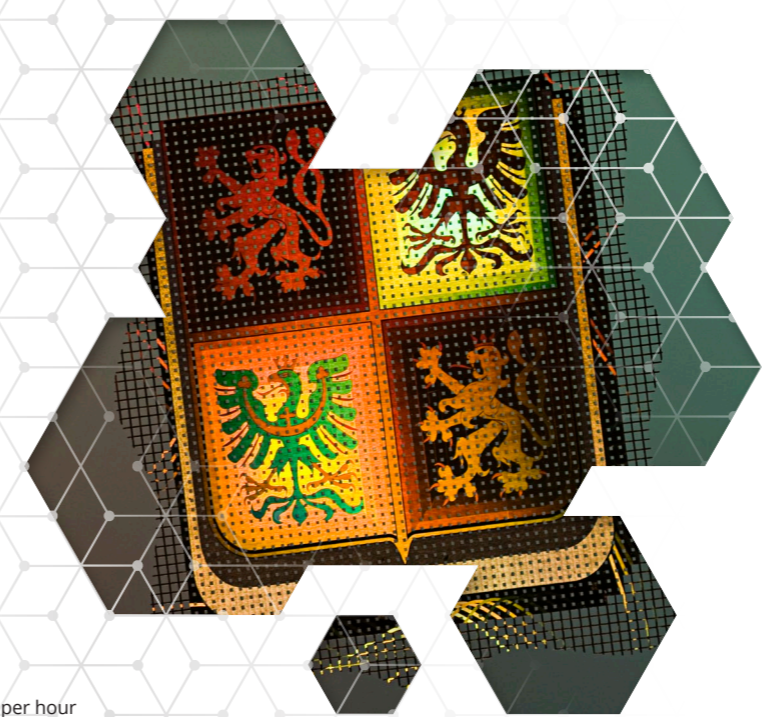
OUTPUT:

The polycarbonate sheets with holograms applied at the predefined positions.



For **Exclusive** producers of polycarbonate documents such as ID cards, driving licenses and passports, OPTAGLIO developed technology enables producers to integrate **metallic security holograms** into their products in-house. This technology ensures a seamless **adhesive-free** integration of security holograms into the card.

- > In-house **adhesive-free** application of **advanced security holograms**.
- > **Cost cutting solution** even for small production batches.
- > **Full in-house control** over the production process.
- > Sustaining **standard card lamination process**.
- > **Full customization of the applicator** in line with the customers' existing production line.



PARAMETERS OF MP-ID CARD HOLOGRAM APPLICATOR:

Production capacity:	Up to 1000 holograms per hour
Size of applied holograms:	Up to 30 mm x 30 mm
Maximal polycarbonate sheet dimensions:	Optional (typically 500 mm x 600 mm)
Polycarbonate sheet thickness range:	80 um – 150 um
Sheet feeder capacity:	500 sheets
Dimensions (w x l x h):	1,6 m x 2,6 m x 1,8 m
Electrical requirements:	230 V / 50 Hz/ 16 A

MP-ID Card Hologram Applicator enables to introduce OPTAGLIO OVMesh Exclusive technology into polycarbonate documents

- > The most advanced holographic **anti-counterfeit features**
- > **High brightness** metallic holograms
- > **Ultimate coalescence** with polycarbonate documents
- > **High durability** and aging resistance

Adhesive-free application – metallic holograms are attached with a special liquid which disappears before subsequent production processes.

The adhesion of polycarbonate layers in the final product is based on **polycarbonate lamination properties only**.

There are **no limitations for hologram positions** on the sheet as robotic application head cover the whole sheet area.

The application machine can be **easily reconfigured** to another card layout after the previous project is finished.

The operating of the machine itself is done by **one operator** who can satisfy all necessary actions like material feeding, quality control, evidence, packing of final sheets etc.

The applicator requires **initial setting done by technologist only** when new project start.



MM Security Substrate Hologram Applicator

Supplementing the base substrate with security elements is the easiest and most effective way of securing documents. OPTAGLIO developed technology enables manufacturers in security industry to produce various high-security substrates protected even at a microscopic level.

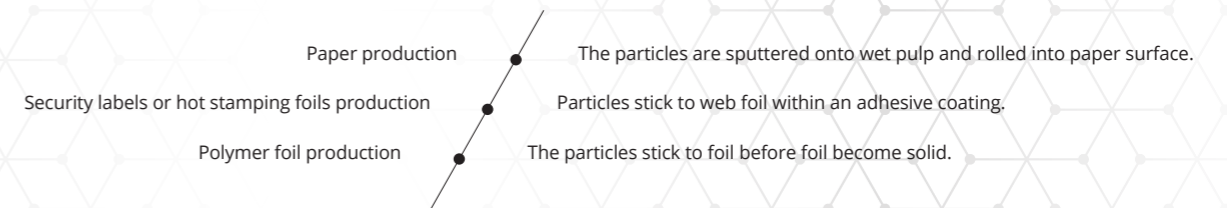
- > In-house production of substrates secured by **security holographic microparticles**.
- > Technology applicable in **various segments of security industry**:
 - > Security paper mills
 - > Security printing houses
 - > Security labels and foils producers
 - > Polymer foil production facilities
 - ...
- > Technology offers **improvement for all current security products**



MM Security Substrate Hologram Applicator is a standalone module (sputtering unit) that can be connected to almost any production machine to implement microparticles during the right phase of the substrate production process. The sputtering unit doses microscopic security elements and transports them into to sputter jets through flexible hoses. Sputtering jets evenly distribute the holographic micro particles above running web substrate and falling particles continually cover the substrate. This application system enables to connect technology to any standard production unit with very small space requirements and with no delay in the production process.



MECHANISM OF FIRM FASTENING OF MICROPARTICLES TO THE SUBSTRATE IS DEPENDENT ON PARTICULAR WEB SUBSTRATE.



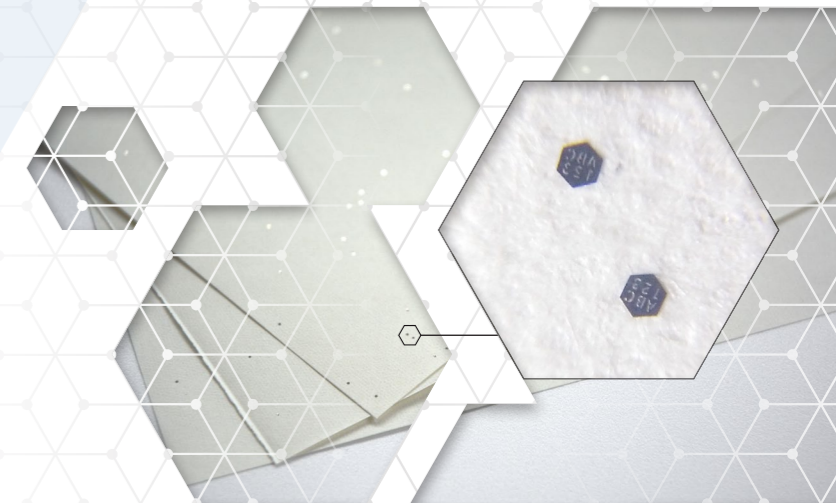
- > EASY TO OPERATE AND WITHOUT AN IMPACT ON THE CURRENT PRODUCTION.
- > ABILITY TO IMPLEMENT THE MOST ADVANCED SECURITY ELEMENTS INTO CURRENT PRODUCTS.

PARAMETERS OF MM SECURITY SUBSTRATE HOLOGRAM APPLICATOR:

Applied holographic microparticle size range:	40 μm – 1000 μm
Number of sputter jets	2 – 16 pcs.
Length of hoses:	2 m – 8 m
Unit dimensions (w x l x h):	0,8 m x 1,2 m x 1,5 m
Unit weight:	80 kg
Electrical requirements:	3 N PE 400 / 230 V / 50 Hz

MM Security Substrate Hologram Applicator enables to enhance current product portfolio by *Microholograms*

- > Microscopic **holographic security elements** patented by OPTAGLIO.
- > The most advanced security solution satisfying the highest protection requirements for **government documents/ banknotes production**.
- > Various levels of inspection from a user basic inspection up to **forensic methods**.



ARE YOU REQUIRED TO DELIVER

ULTIMATE PROTECTION AND PRODUCTION FLEXIBILITY?

OUR TECHNOLOGY IS A PROVEN WAY TO ACHIEVE IT.

IS IT POSSIBLE TO BE ALWAYS

STEP AHEAD IN TECHNOLOGY

AND PERFORM A STRICT IN-HOUSE CONTROL?

YES, WITH OPTAGLIO APPLICATORS IT IS POSSIBLE AND ATTAINABLE.



OPTAGLIO®
OPTICAL MICROSTRUCTURE TECHNOLOGIES

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