Your Identity is Secure with Us

Holographic and Printed Security Features
Document Security Begins with Expert Design

Beyond being attractive and displaying important personal details, identity documents must address the unique authentication needs of disparate users—border guards, government institutions, banks, retail establishments, etc. In most cases, a combination of overt, covert, and forensic security features is required for simple verification as well as more complex validation using simple to highly complex technical tools. The development and integration of these features into a document’s design requires skillful planning to deliver a meaningful, cohesive, and effective security document. This is where we shine.

Document Security Experts
ITW Security Division’s document security experts are highly skilled in ascertaining document security threats, identifying material and technology weaknesses, and developing innovative solutions to safeguard against counterfeiting and alteration. Technologically, we offer the industry’s broadest range of holographic and printed security features for the protection and authentication of government and personal ID documents, including passports, national IDs, driving licenses, healthcare and voting cards, birth and marriage certificates, and many other forms of identification.

Innovation and Development
As an independently operated division of Illinois Tool Works Inc. (ITW), a Fortune 200 company, we have the financial resources necessary to continually invest in new technology, research, and development.

Reputation for Excellence
Our Covid® and Fasver® brands have developed a global reputation for producing some of the industry’s most advanced security solutions with overt, covert, and forensic security features. Integrating the technologies of these brands enables us to offer our clients custom solutions with a highly differentiated set of security features incorporating Covid® holographic and non-holographic optical devices, and Fasver® proprietary print and coating technologies. The resulting product offering includes some of the industry’s most secure features designed to prevent counterfeiting and aid the authentication of genuine documents.

Solutions for Every Substrate
Whether the project involves paper, PVC, polycarbonate (PC), synthetic paper, or one of many other available substrates, we produce holographic and printed security features that can be incorporated into the document to ensure its security and reliable authentication.

Using this Guide
This brochure provides an initial outline for your document security project. While it is by no means a comprehensive guide, it should provide you with a good basis for identifying the security elements you would like to include in your document program. Of course, we are available to assist you at any stage in the process.
Level 1
Overt Features

Easily seen by the naked eye, overt features—consisting of images, lines, and/or text—provide a quick means of visual authentication.
Holographic 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. This highly-valued feature enables the viewer to authenticate the image by observing the switching images in a defined area.

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. Used in combination with dot matrix elements, this feature provides a powerful barrier to counterfeiting because the ability to combine these two types of images requires a very high level of skill.

3D Object Hologram

The 3D object hologram visually replicates the exact size and shape of a 3D model with excellent depth, clarity, and perspective, making it highly realistic and easy to authenticate. Without access to the original model, angle, and lighting, it cannot be reliably duplicated. This makes it one of the most secure holographic features available.

3D Stereogram

The 3D stereogram is an optical illusion of depth and movement created from one or more flat, two-dimensional images or three-dimensional models. Stereograms require intricate design to perform well in a hologram, though, if successful, provide a significant barrier to counterfeiting and a visually powerful authentication device.

90° Switch Effect

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

Achrogram

Aehrograms are colorless images with positive and negative components that swap when viewed at a 90° angle. Colorless images are not easy to replicate or simulate on standard commercially available origination equipment.

Achromatic Image

Composed of neutral gray, white, or black, achromatic images, lines, and text have no color refraction. When placed within a highly diffractive image, this non-diffractive element is easily located and verified by the trained eye. Very few originators are capable of creating achromatic elements, making them extremely difficult to counterfeit.
Embossed Effect

A highly diffractive, surface-oriented grating can be applied to images, text or lines in a hologram, generating the optical illusion of relief or embossing. This highly sophisticated feature is easy to verify, difficult to replicate, and highly effective when applied to national symbols and other well-known images.

Fine Line Guilloche Patterns

Fine line guilloche patterns, common in banknotes, 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. Such designs are impossible to replicate without the original software.

High Resolution Lines with Kinetic Effect

High resolution lines with kinetic effect are fine lines that light up sequentially when viewed at different angles, generating the appearance of movement.

Latent Effect

Latent images, lines and characters are designed to refract light at a very acute angle.

Letter Lens Effect

Created 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. Its appearance remains unchanged, regardless of the viewing angle.

True Coloring

Images refract their true colors only when viewed at a very specific angle. Holograms, which refract the seven colors of the spectrum (red, orange, yellow, green, blue, indigo, and violet), can be used to display the true colors of an image, such as a national flag (it is not possible to specify Pantone colors). As the viewing angle is tilted, the colors sequence through the color spectrum, making this an easily authenticated device.

Wireframing

Created with highly complex security print software, wireframed (outlined) words and objects can be combined with other effects to create more complex images.
Printed Features

Complex Shape
Shaped patterns are easily recognizable by sight and/or touch, especially in cases of attempted forgery, and cannot be reproduced using a printer, scanner or photocopier.

Metallization
Printing with highly reflective opaque inks helps accentuate other optically variable devices. Metallization cannot be reproduced using a printer, scanner or photocopier.

OV Tek®
OV Tek® is an easily authenticated security feature employing proprietary Fasver® technology to create a printed pattern composed of two separate graphics with colors that swap instantly based on the angle of view.

Tactile Pattern
Raised tactile patterns are easily identifiable by touch and cannot be reproduced using a printer, scanner or photocopier.

Thermochromic Printing
Thermochromic features become transparent when a specific temperature is applied (e.g., rubbing with a finger) and reappear after several minutes, making them easy to authenticate.

Traceability
Serialization through a variety of means, including laser engraving, printing and bar coding is available to work with most document personalization systems.

Imagram®
Imagram® is a diffractive variable photographic image, created with proprietary Fasver® technology, which combines excellent color rendering with exceptional transparency for easy authentication and secure, unobtrusive placement over variable data.

Matte/Shiny™
This patented Fasver® technology combines matte and shiny patterns in select laminate areas, making it impossible to recompose after an attempted forgery using an inauthentic plastic film.

Frangible Area
Areas of the laminate can be designed to break apart if removed from the document, preventing alteration of the biographical data.

Tamper-Evident: Tamper-evident features are clearly identifiable following attempted alterations or attacks.

Security Division
Invisible to the naked eye, covert features require the use of a simple tool—magnifying glass, flashlight, UV light, IR light, or laser pen—to be verified.
Holographic Features

**Animated CLR**

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.

**Dual Axis CLR**

While similar to the Single Axis CLR, the Dual Axis CLR projects two different images at 90° angles from one another. Because it's more complex and difficult to create than the Single Axis CLR, the Dual Axis CLR is considered more secure. Yet, with both images occupying the same space within the hologram, the projected images may appear a little less bright in the Dual Axis CLR. We recommend using a hand held reader with an integral screen for viewing this feature.

**Micro Imagery**

True color micro images or photographs, as small as three square millimeters, require the use of a loupe or magnifying glass to authenticate.

**Micro Text**

Diffractive or non-diffractive micro text, that can be as small as 175 microns high, is clearly viewed only with an eye loupe or magnifying glass with 10x to 20x magnification. ITW Security Division's origination equipment is capable of producing perfectly formed text that is far beyond the capability of standard, commercially available holographic equipment.

**Single Axis CLR**

Covert Laser Retrievable (CLR) images and characters, which are invisible to the human eye, can be viewed only by illuminating the coded area with a laser device and looking at the refracted light projected onto a screen made of paper held at right angles to the hologram; or with a special, hand-held laser reader with an integral screen. This is an excellent covert feature, but does require the use of additional equipment for interrogation.
Printed Features

Gradient UV Printing

Imaprotek®

Imaprotek® is a polychromatic image, derived from a photograph, using proprietary Fasver® technology. It is invisible under daylight yet vibrantly visible when exposed to UV light.

Photochromic Printing

Photochromic printing becomes visible with the naked eye after activation by daylight or a flashlight. It disappears after a few minutes when no longer exposed to light.

Gradient UV security printing (text and images), which is invisible under daylight, is clearly visible under a UV light source (short 254µm or long 365µm). Gradient UV printing can incorporate any color in the spectrum, including white. ITW Security Division is the only company to use UVC inks in security laminates, making duplication nearly impossible.
Level 3
Forensic Features

Discernable only with complex laboratory equipment, forensic features require a high level of skill and expertise to authenticate. They are the ultimate tool for identifying counterfeit documents.
Holographic Features

Brick Matrix Manipulation

Brick Matrix is a Covid® holographic origination technique. We deliberately manipulate the brick optical structures in predefined and undisclosed areas of a hologram, generating unique fingerprints that can be used to positively verify a document’s authenticity.

Nano Imagery

Nano imagery provides excellent clarity and definition when viewed under a highly sophisticated, high-powered microscope.

Nano Text

Viewable only through a high-powered microscope, 40 to 175 micron nano text can be diffractive or non-diffractive.
Multi-level features combine the authentication properties of two or more feature types—overt, covert, and forensic—creating unique, highly secure authentication devices.
Holographic Features

Line Width Modulation (LWM)

Various image and text effects can be created by mathematically manipulating line width, length, and height.

Printed Features

Alexagram®

Utilizing ITW Security Division’s proprietary technology, Alexagram® consists of an overt holographic image superimposed in perfect registration over a covert Imaprotek® feature simulating a full color photograph. When printed with solvent reactive inks, Alexagram® delivers three levels of security in a single feature.

Solvent Sensitive Printing

Solvent reactive inks can be employed with a variety of security features (visible printing, Gradient UV, Imaprotek®) to expose attempted chemical alterations.

Tamper-Evident: Tamper-evident features are clearly identifiable following attempted alterations or attacks.
## Security Feature Pricing Categories

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Design Studio Capabilities

When designing an effective security device, there are many issues to consider. The experts at ITW Security Division are here to help you assess your needs and develop a solution that best achieves your goals.

Risk Analysis
The first step in determining the appropriate document security level is to conduct a risk analysis. It is important to understand the types of threats the security features must protect against. Are you at risk from the casual counterfeiter, the professional counterfeiter, or, in the extreme case, state-sponsored counterfeiting or terrorism? Even if you do not know exactly how your security may be compromised, we can advise you on an appropriate means to gather the information. Based on your response, we will provide you with an expert opinion.

Design with Authentication in Mind
The second step in determining the necessary level of security is to develop a full understanding of how the document will be inspected and authenticated. The general public typically accepts the physical presence of a visual or tactile security feature as proof of authenticity. But if further authentication beyond the general public is required, you should consider the tools that may be on hand and the level of training that may be available. If your security device has the potential to be used as evidence in a court of law, it is advisable to use several forensic features that can be validated by an expert witness.

Security through Complexity
The greater the complexity of the holographic origination or security print devices, the more difficult the end result will be to simulate or duplicate. At ITW Security Division, we are able to combine a variety of origination processes—brick matrix, dot matrix, e-beam, and traditional table—into a single origination, using our proprietary optical micro-grafting (OMG) technique. We can add printed features as well to create some of the most secure, counterfeit-resistant document solutions available today.

Exclusive Technology
We employ an origination technology that is available only to members of the International Hologram Manufacturers Association (IHMA) and not available for purchase on the open market. The system is capable of originating a wide range of features which otherwise would need to be produced as separate items, created using multiple holographic techniques. A distinct advantage of our origination system is the ability to create and combine Level 1, 2, and 3 security features into a single image. This cannot be accomplished with commercially available systems. The complexity and sophistication of images we produce far exceeds the reproduction and simulation capabilities of potential counterfeiters.

Custom Security Designs
All document security solutions start with a basic artistic design. Whether you are starting with no design idea, a basic concept, or a completed design, our art department will work with you to create a custom design that integrates with the document’s background artwork and personalized data. The end result will be a cohesive design that is attractive, unique, easy to authenticate, and highly secure.

Your Artwork Files
Keep in mind that security features are high-resolution devices. Therefore, if you are providing artwork, it is advisable to obtain art that has a resolution between 500 dpi and 20,000 dpi. Vector-based files will, in most cases, provide the best results.

Getting Started
To begin your design project, contact one of our security experts at government@itwsecuritydivision.com or security@itwsecuritydivision.com. We will help you determine the level of support you need and create a plan for developing the security solution—holographic and/or printed security laminate, PC security layer, or hot stamp hologram—that best satisfies your needs.
Secure Facilities

At ITW Security Division, we understand that the foundation for secure materials starts with highly secure manufacturing sites where materials are tightly controlled. We manufacture products from start to finish in one of our secure facilities, enabling us to satisfy the "under-one-roof" production requirement stipulated by many government tenders. To further our commitment to manufacturing facility security, our operations are independently audited yearly against the industry’s most stringent physical security standards and regularly audited by our government customers.

Certifications and Memberships

Between the Covid®, Fasver®, and Imagedata™ brands, New Jersey, Montpellier, and Essex facilities, we are members of some of the industry’s most important organizations and have achieved highly revered certifications and/or compliance with others.

Location-Specific Certifications

**Covid®**
Cranbury, NJ, United States of America
Covid® is ISO 14298 and NASPO Level 2 certified; a member of DSA, IHMA, and NASPO; and manufactures security solutions that are ICAO compliant.

**Fasver®**
Montpellier, France
Fasver® is ISO 9001 and 14001 certified; is a member of IHMA; and manufactures security solutions that are ICAO compliant.

**Imagedata™**
Brantham, Essex, United Kingdom
Imagedata™ is ISO 9001 and 14001 certified.