



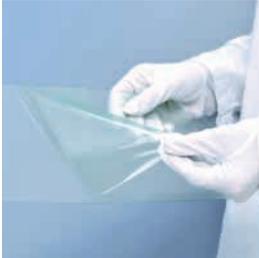
**Makrofol® ID**

**CREATE MAXIMUM  
ID SECURITY WITH A MINIMUM  
IN FILM THICKNESS.  
WHY NOT?**



# Makrofol® ID superlaser – minimum thickness, high laser reactivity and maximum contrast

**Core benefits of Makrofol® ID superlaser**

<p>Highest laser engraving personalization</p>	
	<p>Reduction of thickness to an absolute minimum of 60 µm</p>
<p>Integration of forensic security features due to additional space</p>	
	<p>Enormous cost savings due to less material consumption and extremely high laser reactivity</p>
<p>Three-layer structure with different laser reactivities as unique forensic safety feature</p>	
	<p>Excellent clarity of transparent windows with accurate image resolution</p>

Makrofol® ID superlaser film with its highly improved properties is well suited for the production of forgery-proof ID cards and documents, which must meet extremely high security requirements.

Makrofol® ID superlaser's unique three-layer structure creates a "laser-engraved" forensic dataset. By using this highly specialized film it can be verified if the present document has been subject of counterfeiting attempts. Once laminated under increased temperature and pressure, Makrofol® ID layers are inseparably bonded without requiring any adhesives. Therefore, it is not possible to manipulate the inside of the card without causing obvious damage. Due to the extremely high laser reactivity of Makrofol® ID superlaser film, the contrasts achieved through laser engraving are remarkable in terms of sharpness and efficiency.

High contrasts obtained by using Makrofol® ID superlaser are so far not achievable with existing technology. Even the use of a transparent laser-reactive film on top of a white core film for high contrasting effects becomes obsolete by using Makrofol® ID superlaser films. Therefore, Makrofol® ID superlaser has an excellent performance in transparent window applications with accurate image contrast resolution.

The laser-reactive layers are ultra sensitive to laser radiation and require less energy in comparison to standard laser-reactive films. Therefore, Makrofol® ID superlaser enables time savings during the production process of at least 20 percent.

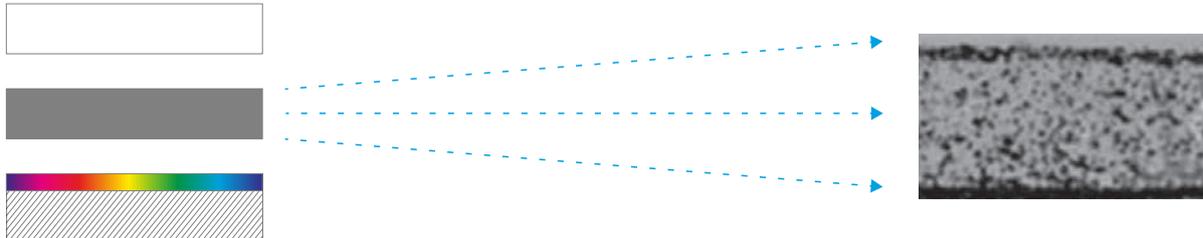
Makrofol® ID superlaser enhances applications for high resolution and contrast printed laser personalization in an extreme thin layer.

Due to Covestro's innovative state-of-the-art technology, the layer of Makrofol® ID superlaser provides equivalent contrast to six times standard laser films.

## Superlaser product facts

The extremely sharp contrast of laser engraving **Makrofol® ID superlaser transparent** is possible due to a three-layer structure with different laser reactivities in every layer. 50 percent of a personalized picture is engraved in only 10 µm layer. There-

fore this thin layer is nearly impossible to manipulate. Because of this unique forensic safety feature every security document produced with Makrofol® ID superlaser transparent provides extremely high protection against fraud attempts.



By using **Makrofol® ID superlaser white**, the white core section of a document allows a thinner construction by still being highly laser-reactive on both sides. This benefits in more space for overlay films and simplifies the integration of security features like chips or antennas.

**Makrofol® ID superlaser white and antidust** comprises a special anti dust formulation which reduces contamination by dust particles and leads to a substantially better homogeneity in printing ink application.

## Superlaser product range

SUPERLASER GRADE	THICKNESS (µm)	COMMON APPLICATION
ID332 6-2 740006 Transparent	60 and 100 µm	• ID, passport, driver's license
ID332 4-4 140014 White	100 µm, other thickness on demand	• ID, passport, driver's license
ID332 4-4 140013 White + Antidust	100 µm, other thickness on demand	• ID, passport, driver's license



### Key facts about Makrofol® ID superlaser:

- better contrast
- faster laser personalization
- improved yield



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1) Please see the "Guidance on Use of Covestro Products in a Medical Application" document.]

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