



Clear window concept with thin white high opaque polycarbonate films.

**Makrofol® ID**



## Clear window technology

The identification document market is influenced by continuously improving security features, increasing safety and being highly tamper resistant. One market trend is the integration of clear window technology into ID document constructions as new security features.

Covestro offers two material solutions for clear windows. Conventional clear window technology requires a thick

transparent film (plug) which fills punched holes inside the core of the document. The narrow strips are available in width starting at 25mm. In addition to narrow strips, Covestro provides an innovative new solution for clear window manufacturing: thin white high opaque specialty films.

## Thin white high opaque

Covestro developed a very thin polycarbonate film with extremely high opacity, particularly suitable for clear window applications. A punched window inside a polycarbonate card or passport data page does not need to be filled with additional material while using this special film.

During the lamination process, the transparent layers merge and the thin hole is filled without any irregularities on the document's surface. This innovative construction offers more space for transparent layers and for the integration of additional security features. The reduced thickness of the white high opaque polycarbonate film results in shorter lamination cycles.

### Key benefits:

- Easier construction of transparent windows in polycarbonate ID documents
- More space for the integration of additional security features
- Reduced cycle time: faster lamination process due to thinner film layers

Product	Product code/thickness
Thin white high opaque films	<b>Makrofol® ID 4-4 160016</b> in 30 µm and 50 µm
Thick transparent films in narrow strips	<b>Makrofol® ID 6-2 000000</b> from 480 µm up to 520 µm



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