

## Dual Designs in Film Insert Molding Technology

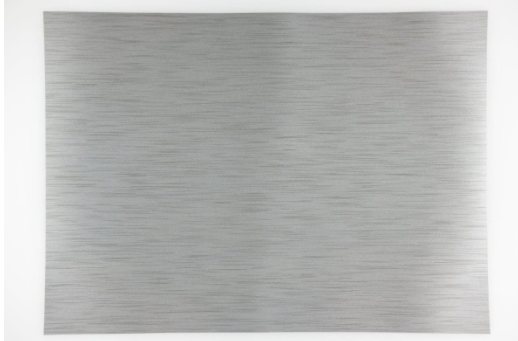
Formerly, IMD/FIM technology was screen printing on second surface, forming, trimming and back molding of decorated standard or hard coated PC films.



Picture 1: conventional IMD/FIM process, HVAC Mercedes Benz E-Class

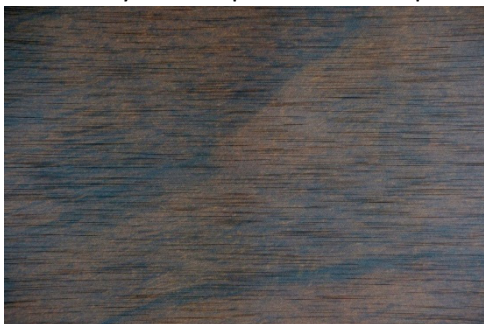
Nowadays, due to the development of chemically and abrasion resistant dual-cure screen printing lacquers, the films can be decorated from both sides, e.g. for creating matt/gloss or 3D effects or special dual designs.

Dual design means, that a transparent PC film is first surface decorated, for example with a haptic aluminum brush effect. Realized, first with a semi-transparent silver layer and then overprinted with a thick line structure of the highly resistant Norilux® DC dual-cure lacquer.



Picture 2: printed haptic aluminum brush effect

The second surface of the film can be decorated e.g. with a photo-realistic wood or stone image, realized by 4-color process screen printing with the new NoriCure® IMS UV-curing inks.



Picture 3: 4-color process screen printing with NoriCure® IMS

But, the first ink layer on the second surface is a semi-transparent black, to prevent a shine through of the image. The wood image is then back printed with a white tinted adhesion promoter of the NORIPHAN® IMD/FIM ink range.

The decorated PC film is then 3D formed and back molded with a transparent polycarbonate.



Picture 4: back molded HVAC

When back lighting the HVAC, the 4 color wood image is visible, otherwise the silver haptic brush effect.



Picture 5: backlit HVAC

In future, those IMD/FIM parts can include night design with symbols and can be functional due to the integration of printed electronics.

Contact:  
Pröll KG  
Stefan Zäh  
Manager Marketing Communication  
Tel.: +49-9141-906-20  
E-mail: [stefan.zaeh@proell.de](mailto:stefan.zaeh@proell.de)  
[www.proell.de](http://www.proell.de)