



**COMBINING ANALOG AND
DIGITAL INSTRUMENT CLUSTERS
WITH ONLY ONE FILM.
WHY NOT?**

Makrofol® LM



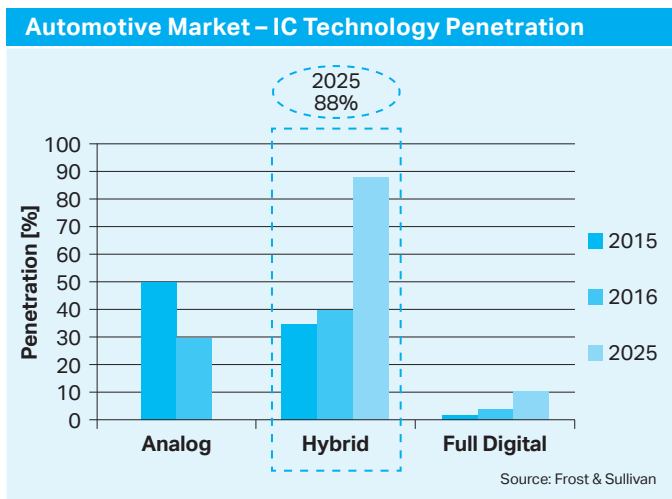
New solution combining analog and digital instrument clusters

Hybrid-Speedometers bridge the gap between analog applications and digital, pioneering technologies. The development from analog speedometers up to full digital solutions requires an interim solution, connecting both technologies. Hybrid-Speedometers offer a perfect application for Black-Panel effects with integrated fade effects and precisely controlled light functions.



Seamless surface and 3D design

Makrofol® LM polycarbonate is suitable for diverse display and light management applications. The film combines 3D design and function integration of analog and display elements. The polycarbonate film is made by high pressure forming (HPF). Due to this manufacturing process, several grades of transmissions can be realized.



Hybrid-Speedometer technology

In many studies such as "Automotive market – IC Technology Penetration" from Frost & Sullivan, the future of Hybrid-Speedometer technologies becomes apparent. According to this study, until 2025 Hybrid-Speedometers will penetrate 88% of the whole automotive market worldwide. The polycarbonate film Makrofol® LM enables the combination of analog and digital elements within one instrument cluster.

Advantages and properties of Hybrid-Speedometers

- Combination of analog/digital elements within instrument cluster
- 3D formed polycarbonate film
- Seamless surface with backlit symbols
- Freedom of design
- 2nd surface and/or 1st surface decoration
- Black-Panel effect

Type	Special Characteristics	Thickness
Makrofol® LM	Light transmission (Black-Panel effect)	500 µm



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