



Makrofol® Makrolon®

OVERHEAD CONTROL PANEL (OHCP)

COMBINE ULTRA-SLIM LIGHTWEIGHT DESIGN
WITH INTEGRATED ELECTRONICS. WHY NOT?



MAKROFOL® AND MAKROLON® ENABLE A NEW ULTRA-SLIM, SEAMLESS AND LIGHT-WEIGHT DESIGN

Overhead control panel (OHCP) – Overview

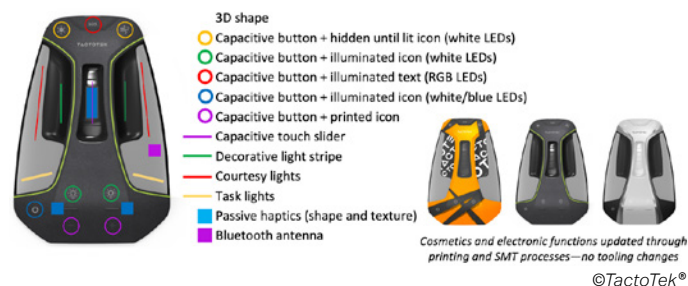
The automotive overhead console is produced by combining Film Insert Molding (FIM) technology with Injection Molded Structural Electronics (IMSE™)*. This creates a lightweight, thin, 3-dimensional, smart molded structure with sophisticated electronic functions. The scratch-resistant, hard-coated and 3D formable Makrofol® HF312 and the printable Makrofol® DE polycarbonate films enables a significant reduction up to 90 % in thickness and up to 58 % in weight of the finished part. The OHCP features integrated printed circuits, touch control, antenna and LEDs.

*IMSE™: Trademark by TactoTek®

Materials and processes – key benefits:

- Space-saving solutions: High level of function integration at smallest space for automotive interior control panel design
- Complex geometrics combined with high mechanical stability
- Increased design freedom
- Lightweight and significantly reduced part thickness
- Seamless design enabled by individual screen-printed surface decoration

TactoTek® IMSE™ Technology Demonstrator



Two-in-one FIM

For the demonstrator, Covestro supplied hard coated Makrofol® HF312 for the top surface, and uncoated Makrofol® DE 1-1 for the rear side. PCS resin Makrolon® Ai2217 was provided for the injection molding. The hard coated, UV curable film offers a highly scratch-resistant and chemical resistant surface, excellent printability through screen-printing on the rear side plus 3D formability in High Pressure Forming (HPF).

Makrofol® DE1-1 provides a formable carrier for the electronics. Molding with Makrolon® Ai2217 (high melt flow index) in between the films results in a lightweight part with high stiffness and embedded function integration.

Potential applications:



Automotive/mobility



Appliances/smart home



Consumer electronics



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Product characteristics:

- Produced by two-in-one FIM (Film Insert Molding)
- Scratch and chemical resistant film surfaces
- Injection Molded Structural Electronics (IMSE™)
- Lightweight seamless 3D formed design
- Integrated capacitive-touch & LED illumination

Covestro – TactoTek® collaboration

The overhead control panel (OHCP) is a joint project of TactoTek®, Oulunsalo, Finland (tactotek.com) and Covestro as technology partners using Makrofol® films and Makrolon® resin. The part was implemented by direct integration of electronic components like LED via TactoTek®'s proprietary IMSE™ technology, a special FIM process. Printing is used to create the conductive structure and the decoration.



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