

An industry conversation between **FLABEG, MARPOSS** and **OLYMPIAS** - PART 1 - **SMART GLASS** **FORUM 2024**

**FLABEG
AUTOMOTIVE
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**A trajectory of high
visibility in automotive
smart glass**

In the rapidly evolving automotive industry, Flabeg already stands out as a leader in smart glass technology. With over 140 years of experience and production sites in Germany, Hungary, and China, the company's expertise and innovation in glass applications has been conspicuous for some time now. Here Flabeg's focus on 3D Freeform Display Cover Glasses underscores its commitment to shaping the future of both automotive design and functionality.

**Versatility in glass
applications**

Owing to its exceptional properties, glass is an ideal material for a wide range of automotive applications. Technically speaking, automotive glass is valued



Moderating on May 8 at the Automotive Smart Glass Forum at E-Tech Europe 2024 in Bologna, Glass Technology International was happy to hear key insights from Drs Matthias Schiller, CTO at FLABEG Germany, Luca Bruni, Automotive Glass, Group Industry Manager at MARPOSS and Agamemnon Varonos, CEO of OLYMPIAS as the trio discussed how their latest smart windshield innovations are impacting the automotive industry. In this first of our series of three parts dedicated to the event, we specifically cover the presentation of Flabeg's Dr Schiller.



a critical role in exterior and interior mirrors, instrument glass, headlights and ambient lighting. The advent of 3D Freeform Display Cover Glasses is particularly noteworthy, given that it opens up new possibilities for display technologies within vehicles.

Precision glass forming techniques

Flabeg utilises several advanced techniques to process glass for automotive applications, including grinding and polishing, glass moulding and sag bending. Indeed grinding and polishing are essential for creating prismatic interior mirrors and decora-

for being scratch-resistant, durable, UV stable, easy to coat and possessing a high E-module. However, glass also has emotional appeal, conveying purity and high quality - all while enhancing the overall aesthetic and feel of a vehicle. That said, glass is not limited to traditional uses like windscreens, side windows and roofs in the automotive sector. It also plays





tive parts. Glass moulding, too, which includes classical and high-precision methods, allows for the creation of complex shapes and forms.

Sag bending

Sag bending, a high-precision moulding process, involves heating glass to temperatures between 650 and 750 °C, allowing it to sag into a mould under the influence of gravity and optional vacuum support. This method is crucial for producing large freeform mirrors required in AR-HUD systems - achieving global deviations of less than 50 µm and angular deviations under 1 mrad.

Advantages of glass in automotive displays

The use of glass in automo-

tive displays offers significant advantages over traditional materials like plastics. For instance, a cover glass with a thickness of only 1.1 mm is stiff enough to support two displays. In contrast, a plastic cover would need to be 2 to 3 mm thick, resulting in greater weight and less optimal display positioning. This makes glass a superior choice for creating lightweight, high-performance display systems.

A future in automotive HMI design

The integration of 3D Freeform Display Cover Glasses points to an innovative future for Human-Machine Interface (HMI) design in vehicles. These displays offer flexible graphical repre-

sentation of functions and smartphone-like operation with touch surfaces. All said, there are challenges though - such as the risk of overloading drivers with functions and reduced eye-hand coordination due to the lack of tactile feedback.

Regulatory and safety considerations

Current regulations, such as those outlined in § 23, section 1a of the German Road Traffic Regulations (StVO), stipulate that the use of integrated touch screens in vehicles is only permitted under specific conditions. These include the use of voice control and brief glances adapted to driving conditions to minimise distraction. Recognizing the safety risks as-

sociated with touchscreen controls, the European New Car Assessment Programme (Euro NCAP) has called for a return to physical controls by 2026. This initiative aims to reduce distraction-related accidents by encouraging car manufacturers to incorporate intuitive physical controls for basic functions, ensuring drivers spend less time with their eyes off the road.

Flabeg's vision for smart glass

Flabeg's leadership in smart glass technology is evident in its innovative use of 3D capacitive films and high-precision freeform glass techniques. The company's extensive experience and global presence position it at the forefront of both automotive and non-automotive glass applications. As the automotive industry continues to evolve, Flabeg's advanced smart glass solutions will undoubtedly play a crucial role in enhancing vehicle safety, functionality and design.



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