



Solutions Case Studies Crystal Steering Wheel

A pioneering steering wheel with operable crystals from Swarovski Mobility

A collaborative project by KURZ, Swarovski Mobility, and PolyIC

The challenge

There are fewer and fewer real switches, buttons, or controllers in the interior of modern vehicles. The trend is toward closed, homogeneous surfaces, where the underlying features and functions only become apparent at second glance. However, if special controls are used that are not integrated into the user interface, they must immediately stand out as real eye-catchers. Transparency as a visual statement is also on the rise. Light and airy designs that exude elegance and luxury are in demand. Transparent touch elements are highly popular in modern vehicle interiors – especially on the steering wheel. The overarching theme is: smart technology meets elegant design.

The goal

In cooperation with Swarovski Mobility and the sensor specialist PolyIC, KURZ has set itself the goal of designing a futuristic steering wheel that reflects all the aforementioned trends. Grewus, a manufacturer of acoustic beacons and haptic actuators, supported this project. The concept aimed to showcase the amazing possibilities of innovative technologies and also provide an outlook on future developments in automotive interior design.

In terms of design, the aim was to create a concept that represents the perfect symbiosis of elegance and luxury with a sporty look and attracts everyone's attention. The crystals from Swarovski Mobility were to form the basis for this design. These not only serve as a decorative element but also as a functional component that sets new standards in the interior and exterior design of premium and luxury vehicles. Using the most advanced sensor technology, functions for operating the vehicle were to be integrated into the crystals while maintaining absolute transparency. Triggering these functions had to work as if by magic via cables that were also completely transparent. At the same time, users needed to be given haptic feedback on the registration of their input commands.

The solution

Combined expertise led to the success of this project. KURZ's international, interdisciplinary design team has in-depth expertise in the field of functional and decorative surfaces and has been intensively involved in the design elaboration of the Crystal Steering Wheel. The special anti-scratch coating for the transparent plastic components of the steering wheel also comes from KURZ. Three Swarovski crystals are integrated on each side of the central display. Made in Austria, the solid-cut crystals by Swarovski Mobility have an incomparable depth effect and set breathtaking visual accents.

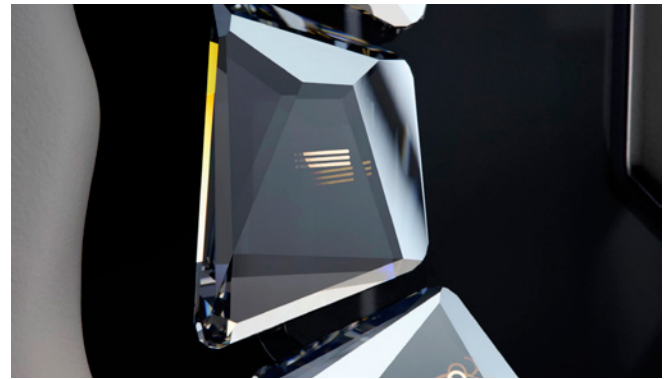
Thanks to wafer-thin, transparent, and conductive PolyTC® foils from the KURZ subsidiary PolyIC, the crystals only reveal their smart functionality when touched by the user. This 'magic' is made possible by a special coating. The pretreatment makes the transparent crystals conductive, so that signals are transferred up to the completely invisible touch sensor surfaces on the PolyTC® foils in the background. The LEDs for illuminating the crystals are attached to the PolyTC® foil and are supplied with power via transparent PolyTC® cables. What's more, the crystals are scratch-resistant and easy to clean. The robust and durable PolyTC® sensors can be assigned various functions and flexibly adapted to a wide range of component geometries.

Finally, Grewus is responsible for the haptic feedback, which is now a must-have for future-oriented operating components. The Hamburg-based company's haptic exciters and actuators are used in an increasing number of touch panels in the automotive sector and are usually hidden deep within products. They only become active when you touch the crystals on the Crystal Steering Wheel, noticeably acknowledging the input and breathing life into the steering wheel, so to speak.



Why KURZ is the right technology partner:

- KURZ offers extensive expertise and in-depth experience in the automotive sector in compliance with high industry standards
- Through a network of subsidiaries and strong partners such as Swarovski Mobility and Grewus, KURZ bundles a great deal of expertise in various areas
- KURZ is actively shaping change in the automotive industry through innovative and sustainable technologies
- The company develops innovative decorations that don't impair the recyclability of components, as well as durable components with self-healing surfaces
- KURZ continuously develops its processes and has more than 3,100 patented and patent-pending technologies
- KURZ is the world leader in surface finishing and produces under uniform quality and environmental standards in Europe, Asia, and the USA
- The combination of modern processes leads to design and functional solutions for series production
- As a 360° solution partner, KURZ delivers machines, tools, processes, technologies, and innovative designs from a single source



Conclusion

The specially prepared Swarovski crystals and the futuristic design with bright colors and transparent surfaces transform a previously purely functional element – the steering wheel – into a special highlight that enhances the vehicle interior with a touch of luxury. Together with the invisible touch control, the result is a sophisticated overall concept in which design and functionality merge. While the steering wheel demonstrating device is primarily intended to provide inspiration and show what is already possible now and in the future in terms of automotive interior design, KURZ is already working on specific projects with renowned manufacturers to implement the technologies shown in the Crystal Steering Wheel in series production.



Our partners

SWAROVSKI Mobility

