

With Xensation® α, SCHOTT is entering the competition for the best smartphone cover glass in the world.

# Cover glass redefined

Smartphones are an essential part of our everyday lives. Always on board is advanced cover glass. Whether as an extremely strong front or back cover or a flexible display of a foldable device, specialty glass from SCHOTT makes unprecedented designs and functionalities in the premium segment possible.

When Apple introduced the first generation of its iPhone back in 2007, a glass cover protected the novel touch display from the daily challenges of life for the first time. Where protective plastic covers were once used, glass now fills users with pride. Since then, glass has become the standard material to secure smartphone or tablet screens. SCHOTT has produced its Xensation® cover glass product range since 2010.

The story of SCHOTT's cover glass innovations continues in 2021 with a completely new glass type. SCHOTT unveiled Xensation® α (Alpha), a chemically strengthened lithium alu-

mino-borosilicate (LABS) cover glass that is formulated and manufactured to compete with the best smartphone cover glasses in the world.

The new LABS glass innovation contains the semimetal boron in addition to industry-standard ingredients lithium and aluminum. The resulting advantages produce an extremely strong high-end cover glass for smartphones. The product's key advantages include significantly improved drop resistance especially on rough grounds, as well as improved scratch performance.

## UTG

### Ultra-Thin Glass

is mass-produced in the exact thicknesses required by the industry

#### Optimized for chemical strengthening

A deeper chemical strengthening augments the glass and protects it in case of drops, a result made possible by an improved ion exchange capability as compared with lithium aluminosilicate (LAS) glass. Added to this are the advantages of the element boron, which also improve scratch performance. The result is a significantly improved drop resistance from double the height\* (also "set drop performance" or "drop performance") compared with other LAS-based premium cover glasses – especially on impact with rugged or sharp-edged, rough surfaces. Additionally, the new cover glass is less susceptible to scratches than the commercially available aluminosilicate (AS) and LAS cover glass types, as Knoop-diamond indenter lab tests show.

A special side fact: vivo's flagship phones will be the first to feature the new Xensation® α cover glass.

#### Flexible glass for foldable phones

In addition to extremely strong cover glass, SCHOTT also produces a type of glass used for display covers that is completely different in structure and appearance, and is becoming increasingly relevant in consumer electronics: ultra-thin, flexible glass that can be chemically strengthened. This highly specialized, bendable glass enables a bending radius of less than two millimeters after proper post-processing, and has been selected as a cover component for foldable smartphones (also known as foldables). The specialty glass from the Ultra-Thin Glass (UTG) family, called Xensation® Flex, is used in premium smartphones with flexible screens, such as Samsung devices.

SCHOTT has produced UTG since the 1990s using a down-draw production process. There are several different types of ultra-thin glass. With continuous development, a UTG thickness of 16 µm has already been achieved in the laboratory. By comparison, one red blood cell is 8 µm thick! SCHOTT is thus working on the edge of what is physically possible with its ultra-thin glass.

One unique aspect of SCHOTT's proprietary production process is that it can produce UTG that does not have to be slimmed down before it reaches the device. Competitors have to shave their glass down to reach the appropriate thickness, which costs valuable time and money, and threatens the integrity of the glass itself. Many of these companies use high volumes of hydrofluoric acid – an extremely harmful substance – to slim thicker glass to the desired thinness. These process steps are unnecessary with Xensation® Flex, which is an important advantage in bringing this foldable, new device category to the mass market through competitive pricing.

In 2022, Samsung could be followed by other major brands with their own foldable devices. SCHOTT is optimistic that it will continue to play a fundamental role in this high-tech area of glass production – being part of future models and concepts.



Sophisticated cover glass from SCHOTT makes unprecedented designs and functionalities possible.

\* This testing process, which is designed to reflect the everyday use of smartphones, uses a smartphone dummy dropped from increasing heights onto a hard surface covered in sandpaper. Xensation® α can survive drops without breaking from up to twice the maximum height as compared to LAS cover glass.