Touch screens increasingly permeate our modern way of living – be it in automobiles or at the local supermarket. Innovative display glass is therefore a topic featured at glasstec 2018 in Düsseldorf, 23 – 26 October 2018, as well as at the expert conference "Function meets Glass".

New Display Glass on the Advance

Practically everyone is familiar with touch screens – primarily thanks to smartphones. These sheer yet extremely scratch-resistant glass surfaces, sometimes featuring rounded edges, are increasingly becoming design elements for modern communication devices. Glass boasts outstanding dielectric properties and ensures low energy losses especially with the high signal frequencies applied in the LTE mobile telephony standard or in the future radar systems for autonomous driving. In contrast to polymer materials glass does not change in quality, it practically does not age and can additionally protect electronic micro components against environmental influences. At glasstec 2018 in Düsseldorf exhibitors will present intriguing developments in the display glass segment. This theme is also addressed in a very special way by the expert conference "Function meets Glass" on 22 and 23 October.

Over the coming years ultra-thin glass sheets will assert themselves especially in consumer electronics. Smartphones only mark the beginning here. Touch screens in a wide variety of applications can already be found almost everywhere. ATMs, slot machines or ticket vending machines have already been equipped with touch screens for a long time now. And these monitors are now also making inroads in department stores and shopping centres, for example. As large-format info boards they give guidance to shoppers because plenty of data can be retrieved via these monitors. Displays are also gaining ground on DIY and supermarket store shelves. They allow store operators to change prices or provide shoppers with additional, current product information at the touch of a button.

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However, touch screens are also used to control machinery in industrial manufacturing. The benefit is self-evident: smooth glass surfaces are less susceptible to soiling than keyboards. And glass boasts a key advantage: it is highly scratch-resistant and therefore glass surfaces are rarely damaged.

This is clearly an advantage over the so-called ITO films fitted with an indium tin oxide coating. There are also more applications for touch screens in medical device technology because absolute sterility is a must especially in ORs. Here large and smooth user interfaces without any joints or parts that stand proud and potentially accumulate material residues, are a special challenge.

Most touch screens are laminated with a transparent metal oxide coated film. Alternating current applied to the edges of the lamination generates a constant, even electrical field. Each touch generates a charge, which is measured during the discharge cycle in the shape of current at the edges. The processor integrated into the device processes this information and basically provides the user with the desired content in a visible way.

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Chemical Properties

Most of the ultra-thin glass used in mobile devices as a protective glass for fingerprint sensors is borosilicate or aluminium silicate glass, which can be tempered chemically. The next milestone will definitely be the large-scale introduction of display glass in the automotive world. Buttons, knobs and switches will disappear – the display will control everything in future. Here ultimate reliability and quality are called for. Especially against the background of autonomous driving vehicles which will become “complex processors on wheels”. It will basically be possible to control nearly all tasks and functions in vehicles via displays. First prototypes and concept cars already show today where developments will take us over the coming years.

Requirements made on displays naturally change depending on the given applications. For smartphones high resolution is a must as this is the only way to picture a complete keyboard. If a bigger user interface is

available as in a car or on ticket vending machines at stations, for example, fewer but larger pixels are required. After all, the display must respond to user “commands” regardless of whether their hands are big or small, with or without gloves. The same also applies to building façades where display glass is used. According to Schott ultra-thin glass below 250 micrometres is of particular interest to the automotive industry since glass in this thickness is both lightweight and extremely robust. So as to consume as little fuel as possible while driving cars must not become too heavy. In other words: every gram counts. Furthermore, this glass type allows convex and concave geometries just as it does for curved D shapes.

Other Technical Characteristics

When valuable displays are to be protected and undesired reflections to be minimised at the same time, Schott offers an anti-reflective glass with anti-interference coating on one or both sides. The special coating design of this glass type prevents optical reflections as caused by sunlight or artificial light. Such a contrast-enhancing characteristic has a particularly positive impact on display boards and other high-resolution displays.

Visible fingerprints are a nuisance with touch screens time and again. The glass automatically appears unhygienic and does not necessarily invite users to touch it. However, manufacturers have also come up with innovative solutions here. There is a coating that permanently combines anti-reflective and oleophobic properties – meaning it repels the greasiness of the skin.

Monitors with glass surfaces are also used to convey advertising messages and information visually and dynamically in stores or malls – referred to as Digital Signage by experts. Here Pilkington offers a product that can be used equally well in both commercial and private buildings. When switched off the information screen looks like a simple mirror. But as soon as it is activated the image is projected through the glass. This glass, which can also be equipped with a touch functionality, is very easy to handle, transport and process, by the vendor’s accounts. Due to the

resilience of its pyrolytic coating it does not lose its functionality over time either, thereby giving the product unlimited durability.

Technical Conference Function meets Glass

Proving a highlight at this year's trade fair will definitely be the 2-day expert conference Function meets Glass, which already kicks off on 22 October at CCD Ost and will be continued in Hall 10 on 23 October. This exclusive technology forum is designed first and foremost to address the persons responsible for research and product developments at companies. With this Forum Messe Düsseldorf deliberately bridges the gap between theory and practice because the technologies presented in theory can be experienced live just a few metres away in the exhibition halls.

A line-up of high-calibre speakers will present technical innovations, properties and areas of application for glass. These areas of application will not only open up new markets but also call for high-precision adapted glass finishing technologies. The speakers representing the required systems technology as well as functional glass finishing will be available for the equally high-calibre expert audience to answer questions.

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Even concrete products will be presented to the audience in these lectures. Dr. Wilma Dewald of Volkswagen will be talking about surface technologies for the control elements of tomorrow's cars.
The last technical conference in 2016 was attended by over 120 delegates from 22 countries. This year organisers expect an even higher turnout. With this conference Messe Düsseldorf underscores not only the high international attendance of glasstec 2018 but also the paramount importance of glass as a material used in many different industries such as the automotive, communications or also entertainment industries.

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Bildunterschriften/Captions
(Pilkington_1.jpg und Pilkington_2.jpg)
Information screens today offer many new possibilities for entering into dialogue with customers.
Photos: Pilkington GmbH

(Schott_1.jpg und Schott_2.jpg)
Anti-reflective and fat-repellent – just two must-have properties for display glass.
Photos: Schott AG

(Function meets glass.jpg)
Joachim Schäfer, Managing Director at Messe Düsseldorf GmbH, on the occasion of the "Function meets Glass" conference 2016.
Photo: Messe Düsseldorf

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glasstec, 23 – 26 October 2018 in Düsseldorf

International Trade Fair for Glass – Production, Processing, Products

From 23 – 26 October the world's leading trade fair for glass, glasstec 2018, will be held at Messe Düsseldorf. At glasstec 2018 the focus in the flat glass segment will be on interactive glass and in the container glass segment on energy-efficient and emission-reducing technologies for glass production.

The last edition of glasstec held in 2016 registered **40,105 visitors from 121 countries** who came to see the latest products, machinery, developments and visions from the **1,237 exhibitors from 52 countries**. Making the trade fair particularly attractive for exhibitors is the high number of decision-makers among trade visitors. Three quarters of them come from executive to top management and attend glasstec with concrete investment intentions or come on a quest for new suppliers. To trade visitors the high-quality contacts, pooled demonstration of innovative power and visionary outlook on future developments and lines of business are most important.

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Synonymous with all this is the special show **glass technology live** in Hall 11, which is being organised by a cluster of universities for the first time now. These include the Technical Universities of Darmstadt, Delft, Dresden and Dortmund. Innovative solutions complete with forward-looking technologies are presented here under the focal headings Interactive Façades / Display Glass, Energy and Performance, Structural Glass (solid glass / thin glass). In Hall 10 the conferences pooled under the umbrella brand of **glasstec conference** will link theory with practice.

The Author

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