

# Glass made of ideas

*Everyone knows glass, but only a few actually know the possibilities glass enables. One of the worldwide leading experts in the field is SCHOTT AG. Based and with its headquarters in Mainz, Germany, SCHOTT is a leading international technology group in the areas of specialty glass and glass-ceramics and related high-tech materials. The company is an innovative enabler for many industries, including the home appliance, pharmaceutical, electronics, optics, automotive and aviation industries. In October 2019, SCHOTT was honoured as “Best Partner” by leading Chinese chip manufacturer Phograin and was one of the few overseas companies to receive this distinguished award.*

SCHOTT has more than 135 years of outstanding development, materials and technology expertise and offers a broad portfolio of high-quality products and intelligent solutions. With all this experience in house, the company is an innovative partner to many industries, including the home appliance, pharma, electronics, optics, life sciences, automotive and aviation industries.

SCHOTT has a global presence with production sites and sales offices in 34 countries. In the 2017/2018 fiscal year, the group generated sales of EUR 2.08 billion with over 15,500 employees.

The Carl Zeiss Foundation is the sole shareholder of SCHOTT AG and Carl Zeiss AG. It is one of the oldest and most well-known company-affiliated foundations in Germany. Their main tasks are the long-

term securing of the future of the two foundation companies and the promotion of science with the help of dividends. The foundation may not sell the shares of its two companies - as it is defined in the Foundation Statute. With this special constellation, SCHOTT and ZEISS have a unique corporate model. With the dividends of SCHOTT AG and Carl Zeiss AG, the Carl Zeiss Foundation supports the natural sciences, engineering, mathematics and computer science at universities in Baden-Württemberg, Rhineland-Palatinate and Thuringia. These are the federal states in which the foundation and the foundation companies have their headquarters. The Carl Zeiss Foundation was founded in 1889 in Jena by the physicist and entrepreneur Ernst Abbe with the

SCHOTT main  
building in Mainz



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support of SCHOTT founder Otto Schott. A stand-out name in SCHOTT's product portfolio is SCHOTT CERAN® glass-ceramic for cooktop panels. "We were the first to introduce black glass-ceramic as a material for cooktops. Since 1971, we have sold more than 150.000.000 CERAN® glass-ceramic cooktop panels worldwide and we keep improving this product further and further. Our newest member in the SCHOTT CERAN® portfolio is our award-winning lighting portfolio CERAN EXCITE®, which enables clear visual feedback and more joy in the kitchen," says SCHOTT's spokesperson. CERAN EXCITE® uses special materials and coatings that allow LED light sources mounted under the cooktop to shine through clearly and brightly, so that coloured lighting of the control panels and cooking zones is possible. With CERAN glass-ceramic, SCHOTT not only invented the black glass-ceramic cooktop panel but also ushered into a new era of modern cooking which is constantly being further developed. While SCHOTT is one of the worldwide leading international technology companies in the field of glass and glass ceramics the company believes that there is still high potential for further

innovation. More than 6,000 scientists and engineers at SCHOTT are constantly tearing new secrets from the material. Whether at home, in the health sector, in digitization and networking or even in space: Together with its customers the company is constantly exceeding existing technological, but also creative boundaries. Its long lasting expertise in the field of glass and enormous product diversity is therefore a clear competitive advantage. Glass is a high-tech material that can be used everywhere. "Of course, our diversity is something you have to manage in a clear strategic manner. We achieve this by structuring our large number of products into different strategic business fields. This approach allows us a deep understanding of the different sub-markets, a close customer proximity and a flexibility to respond to changes," SCHOTT's spokesperson explains. Looking at the future, SCHOTT sees various new generation applications in which glass can play a crucial role. In digitization, for example: exciting fields of development include augmented reality, autonomous driving, high speed on the data highway, bendable displays and new battery technologies for the

mobility of tomorrow. "With our 6000 researchers and scientists, we observe the market and future trends very carefully. With our Otto Schott Research Center, we have one of the world's leading glass research institutions and are constantly checking how we can improve the material further," SCHOTT's spokesperson explains. SCHOTT is convinced that special glass makes the new 5G mobile communications standard usable because special glass-ceramic glass has the demanding electrical properties and thermal expansion required for the new 5G high-speed technology. As early as 2017, the world's largest antenna manufacturer Kathrein presented the prototype of an antenna array together with SCHOTT. In addition, this special glass can already be found today in electrical antennas that are used for communication from vehicle to vehicle, or in GNSS antennas in aircraft for high-precision navigation during take-off and landing. With these empirical values and developments, SCHOTT is well positioned for the future with 5G and has the solution for the new technology and increasingly larger mobile data volumes. In October 2019, SCHOTT was honoured

as “Best Partner” by leading Chinese chip manufacturer Phograin. It intends to strengthen this partnership with the high-tech Chinese company that develops and manufactures optical photodiodes, chips, and optical sensors. SCHOTT will also support their optical components used in 5G telecommunication with high-speed TO packaging products. With the emergence of “Made in China 2025” and other national strategies, a new generation of information technology – such as edge computing, IoT, and Intelligent Mobile terminals – is rapidly developing in China. The optoelectronics industry has gained unprecedented market opportunity due to its important supporting role in these initiatives, and its industry scale continues to expand. In China, domestic chip manufacturers also have strong support from the government.

SCHOTT’s spokesperson adds: “China is currently SCHOTT’s number 3 sales region worldwide. However, our expectations are to make China our number 1 sales region in 2025. We have had continuous growth in China, with the latest figures showing a yearly average increase from 2015 to 2018 of +7.2% and

we expect further similar growth. As China is our #1 growth opportunity, we invest a lot of effort and energy into this very attractive market. We want to position SCHOTT as a “glocal” company, a global corporation with a strong local structure. We aim to produce in China to serve the Chinese market directly but also other international markets. This means for China, that we are currently working on expanding our production capabilities in the country.”

In October 2017, SCHOTT opened a new production facility in the Chinese province of Zhejiang, where it will produce 2 billion pharmaceutical packagings annually, according to the latest standards, primarily for the Chinese market. Furthermore, the Company is currently significantly investing into a tubing Greenfield site for the production of FIOLAX® pharmaceutical tubing in Jinyun County, Zhejiang Province.

“One of our major challenges is to constantly strive for innovation,” says SCHOTT’s spokesperson. “We must react quickly and flexibly to changes that occur in our different markets. We are on a daily journey to challenge and re-invent glass to provide solutions for the major

megatrends of our time. We see great opportunities and growth potential not exclusively in China but in the whole Asian market. When it comes to opportunities in particular for the material glass we believe that the opportunities are numerous since glass offers innovative solutions for a huge number of ideas and projects. It enjoys having the most versatile properties imaginable, which can be changed and adapted as is required. There is a high potential for innovation, which can lead to entirely new application areas coming into use. It is what makes glass one of the most versatile materials for the future.”



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