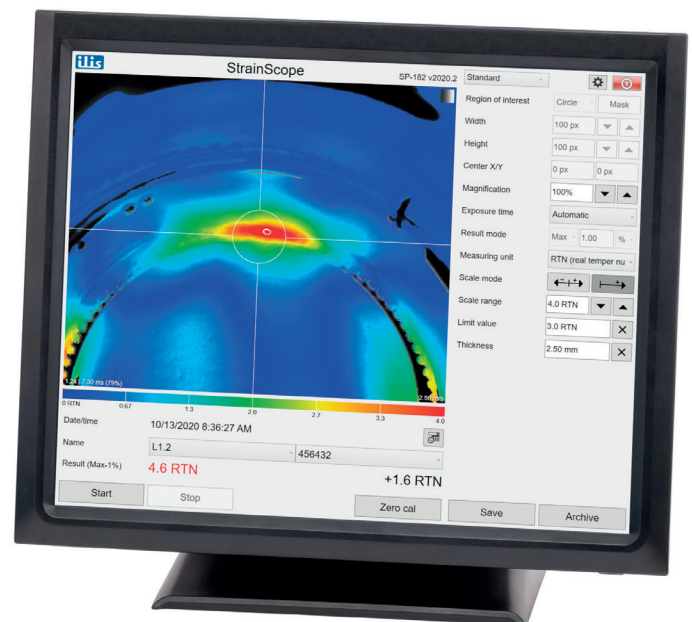


ILIS

Precision - and beyond



Founded more than 20 years ago, ilis focusses on stress and colour measurements, as well as batch calculation. With the glass industry as one of its target markets, the company develops software and equipment to provide essential information to its clients during production, also with customized solutions and seminars.





Henning Katte, CEO at Ilis

Ilis gmbh was founded 1998, and is based in Erlangen, Germany. Its equipment is used by the glass industry, optics and photonics, automotive, aerospace, pharma, with applications that include container glass, flat glass, tableware, tube and laboratory glass, pharmaceutical packaging, optical materials and components, transparent plastics.

PRODUCT RANGE

BatchMaker®

BatchMaker® for batch calculation and glass development, provides easy and fast calculation and correction of batch recipes for glass production. Other important features regard the convenient management and editing, raw materials and analyses, calculation of major batch and glass properties, configurable reports, integrated raw material usage and glass property calculator. Last but not least, it is equipped with a modern user interface with integrated database.

Chroma™

Chroma™ is for colour measurement (not only) for the glass industry, with Chromaticity/Helmholtz values, CIELAB, etc., architectural and automotive glazing parameters, spectral redox determination ($\text{Fe}^{2+}/\text{Fe}^{3+}$ ratio), simulation of the colour effect of oxide-coloured glasses, customer-specific calculations. It is equipped with integrated data management and trend analysis, direct con-

trol of numerous spectrometer models, and workflow-based user interface.

StrainScope®

StrainScope® provides imaging measurement of residual stresses and accurate and reproducible measurement of the stress distribution in real time. Available in diverse variants, especially adapted to the respective measurement task.

StrainScope® Flex

StrainScope® Flex is a modular real time polarimeter with a flexible and compact design. It is a versatile solution for varying measuring tasks in research, development and process automation, and is fully compatible with StrainScope software.

The StrainCam® SDK (Software Development Kit) makes it possible to seamlessly integrate the measurement into customers' own applications.

StrainScanner®

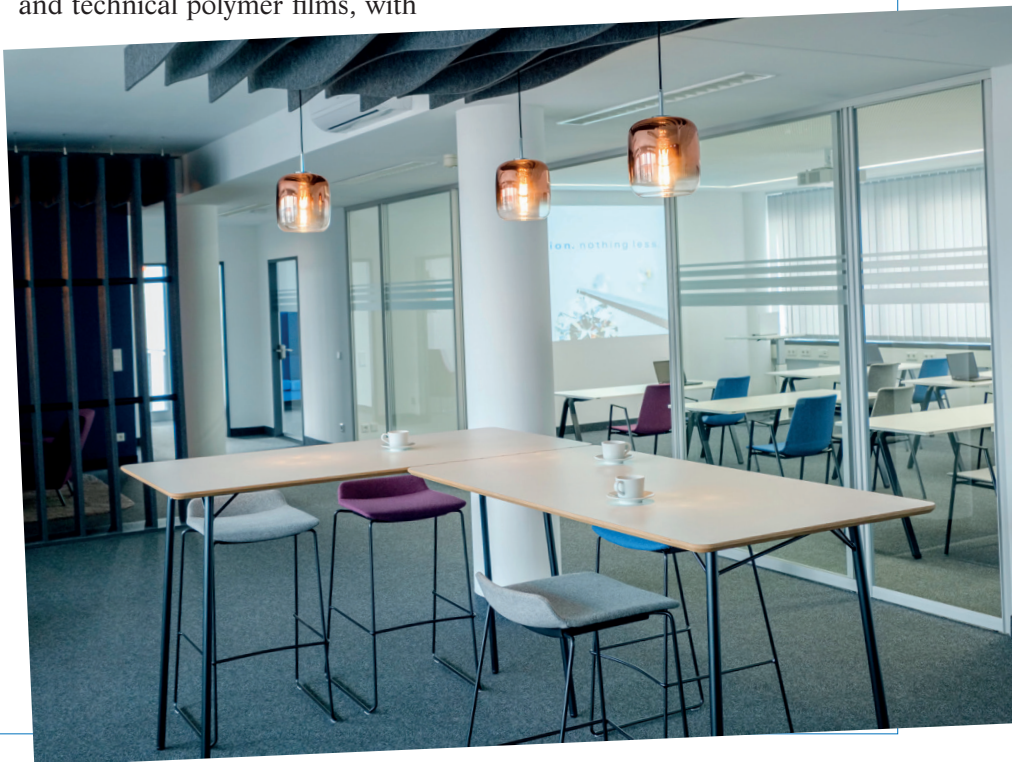
StrainScanner® is an imaging inline polarimeter for process control. It carries out inline measurement of flat glass (architectural glass, display glass, etc.) and technical polymer films, with

100 per cent production monitoring or spot checking. Available as application-specific and customized solutions.

Automatic, imaging polarimeters simplify the measurement of residual stresses in container glass compared to conventional measuring methods (visual polariscope or polarizing microscope). Measurement in real time enables a quick, simple and above all objective assessment of quality, while specially adapted solutions are available for different measuring tasks.

SPEAKING TO HENNING KATTE, CEO AT ILIS

Glass Machinery Plants & Accessories (GMP&A): The present global situation is continuing to create difficulties for the majority of industrial sectors – but not specialist glass manufacturers, and, in turn, companies involved in the more technological aspects of glass manufacturing. Have your production processes and marketing changed in any way, and how do you work with clients with regards to installation and service?



ilis: Of course, the pandemic situation changed the way we interact with our customers. The lack of trade fairs and face-to-face meetings with customers made it necessary to adapt our marketing strategies. We have intensified the use of video conferencing to stay in touch with customers and we put emphasis on the production of high-quality videos to demonstrate our products. The circumstances also accelerated a total overhaul of our product portfolio. Our existing product lines for measuring residual stress were sometimes confusing for new customers because we sometimes offered different versions for the same application. That is why we phased out the StrainMatic product line and each of the new StrainScope variants is now dedicated to one specific measuring task, for example, the StrainScope Cord Tester to measure cord stress in container glass or the StrainScope Annealing Tester to measure annealing stress. In terms of installation and service,

we benefit from the fact that our products are designed to be user-friendly and delivered ready-to-use, so that in most cases no real on-site installation is required. However, on-site regular maintenance is challenging and many customers send us the instrument for maintenance or skip a service.

GMP&A: Your company profile mentions seminars and workshops; how are you organizing these meetings?

ilis: In the first half of 2020, we added a seminar centre to our premises. The idea for the 'ilis academy' was not only to train small groups of customers in the efficient use of our products, but also to impart technological knowledge – in respect to the measuring task, but also in relation to the physics behind the scenes. However, as it is simply impossible to offer a hands-on workshop online, we have postponed the opening of the ilis academy until later this year or early next year when physical meetings become possible again. But we have started to produce videos showing the application of our products to specific measuring tasks. The first videos will be available shortly.

GMP&A: Your company was founded in 1998, so you now have more than 20 years of experience in your sectors.

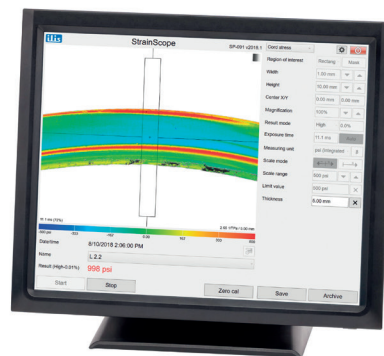
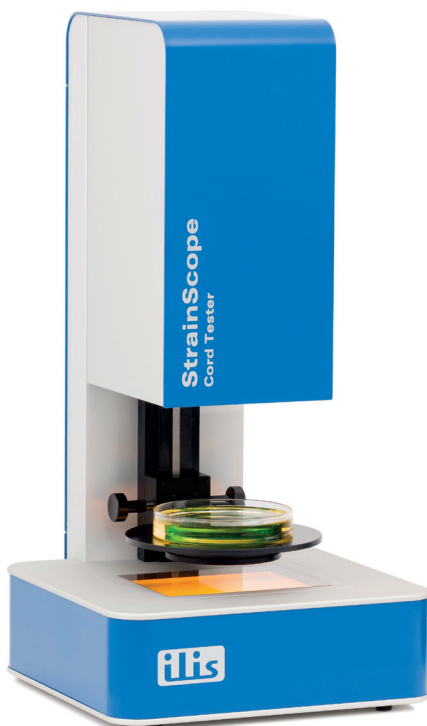
How has the company changed since the beginnings with regards to employees, turnover, location, production?

ilis: Well, almost everything has changed. The company is still relatively small in terms of staff size, but has shifted its focus from pure software products to measurement systems over the years. But of course, software is still an important part of our metrology products, and part of my job is to ensure the perfect combination of both software and hardware to create the best possible user experience. Production also changed a lot. We started with built-to-order and a relatively small number of projects and deliveries. With a growing customer base, we switched to series production, which requires longer-term planning and a higher degree of sustainability. This enabled us to cut the average price of certain measuring systems in half, allowing a larger number of customers to benefit from technological advances. The number of deliveries increased significantly over the years while the team has remained manageable, flexible and innovative.

GMP&A: Who are your products aimed at? Are we speaking only about large glassmaking companies or can smaller glassmakers also benefit from their use?

ilis: The majority of our customers belong to larger glass manufacturing groups, but we also target smaller glassmakers with affordable solutions. This makes it necessary to increase the number of systems sold in order to better spread the development effort and lower the prices. We are currently working hard on this topic, not alone, but with a growing network of successful distributors.

GMP&A: Which products are for hollow glass manufacturers





and how do they help maintain quality levels?

ilis: The main products for hollow glass market are the already mentioned StrainScope Annealing Tester and StrainScope Cord Tester. Both of them help our customers to maintain the quality level in respect to residual stresses and to react early and quickly in case of quality problems. But many customers in the container and flat glass industry know us from our software products Chroma and BatchMaker, which make a smaller share of our sales, but are still being further developed and supported. Chroma is used to measure, monitor and predict the colour of glass. BatchMaker is used to calculate batch recipes and predict glass properties. As you can see, we offer products for all stages of glass production, from mixing of raw materials to quality control of the final product.

GMP&A: How do you see the future for hollow glass manufacturers, and how will stress measurement evolve in the near future?

ilis: I believe in glass as a healthy, reusable packaging material for high quality beverages and food. When it comes to plastic, 'recycling' unfortunately

often means down-cycling or, worse still, 'thermal recycling', while glass bottles often consist of 80 per cent old glass bottles. In terms of sustainability and zero-waste discussion, this is a clear competitive advantage for the glass industry, even though there is still room for improvement in terms of energy use and emissions. So, I generally see the future of the high-glass industry as positive, even if the opportunities for growth are not infinite. Monitoring residual stress in glass is and stays important. We assume that conventional polariscopes, polarimeters and polarization microscopes will be replaced by advanced digital solutions like the ones we offer.

GMP&A: Are there any new products in the pipeline?

ilis: Yes, of course. We have just introduced the StrainScope Pharma Tester specifically for testing the residual stress of pharmaceutical primary packaging. Due to the increased need for syringes, vials and ampoules, this product has been very well received by the market and contributes, albeit modestly, to the fight against the corona pandemic. And besides the aforementioned renewal of our existing product portfolio, we are

working on metrology solutions for other measurement tasks. We also revived an early project for laboratory data management called 'GlassLAB' in the context of Industry 4.0. Many, if not most of our customers still manage their operational lab data in spreadsheet programs, with all the positive and negative consequences. Our goal is to offer an enterprise-scale solution, that combines the flexibility and handiness of a spreadsheet with the data integrity and analysis capabilities of a relational database. This development links back to the beginnings of ilis, if you consider the fact that the company name 'ilis' was short for 'integrated laboratory information systems'. ■



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