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**SCHOTT**  
glass made of ideas

## BOROFLOAT®

The world's first floated  
borosilicate glass –  
Made in Germany with IQ



SCHOTT is an international technology group with 130 years of experience in the areas of specialty glasses and materials and advanced technologies. With our high-quality products and intelligent solutions, we contribute to our customers' success and make SCHOTT part of everyone's life.

More than 20 years ago, SCHOTT set up the first microfloat production line for the manufacture of what would soon become one of the most influential specialty glass materials. The result was BOROFLOAT® – the world's first floated borosilicate glass. With high-quality German engineering at its core, BOROFLOAT® quickly became an outstanding example of what seamless interaction between advanced know-how, innovative technology and professional curiosity – all in combination with the developmental drive of our team of experts – can deliver. The long-standing international success of BOROFLOAT® is what drives us to continuously improve. We work closely with our customers to offer high-quality solutions that help to unlock new markets and meet even the most technologically demanding material requirements. With BOROFLOAT® the key to it all!

BOROFLOAT® enables the production of many highly specialized products.

BOROFLOAT® – The world's first floated borosilicate glass – Made in Germany with IQ

BOROFLOAT® – The sum of its properties is what makes it unique!

- Outstanding thermal resistance
- Exceptionally high transparency
- High chemical durability
- Excellent mechanical strength



## BOROFLOAT® – More than just glass

### A material with unlimited potential

#### Versatility has a name

Whether it be as an oven door window or a biochip used in modern medical technology, or as a component utilized in theater spotlights, film projectors or diving robots, few glass types can claim to be as versatile as BOROFLOAT®. Even space exploration has adopted the material as a key component in research telescopes, enabling scientists to view fascinating, new dimensions.

#### Abiding success

It is the unique sum of its properties that defines the success of our specialty float glass. Over the years BOROFLOAT® has made possible a multitude of innovative products across a broad spectrum of applications in research and industry. Its timeless versatility makes it one of the most attractive specialty glasses available. And there really is no end in sight as BOROFLOAT® continues to support customers in their relentless pursuit for technological breakthroughs.

#### The ideal material for new ideas

Our goal is to be the most professional and reliable partner for our customers to most effectively support the design and implementation of their ideas and innovations. BOROFLOAT® offers the ideal material requirements to achieve this. Its reliable and consistent quality, coupled with an outstanding versatility to address the demands of even the most sophisticated applications, make BOROFLOAT® a perfect specialty glass solution.

#### Maintaining dialogue is the key to understanding

We place particular importance on maintaining a high level of dialogue with our customers to ensure that BOROFLOAT® continues to evolve in-line with their specific requirements and those of existing and emerging application fields. The ideas generated, and challenges faced, by our customers are what drive us. Just as the unique qualities of our borosilicate glass inspire them to explore new pathways.

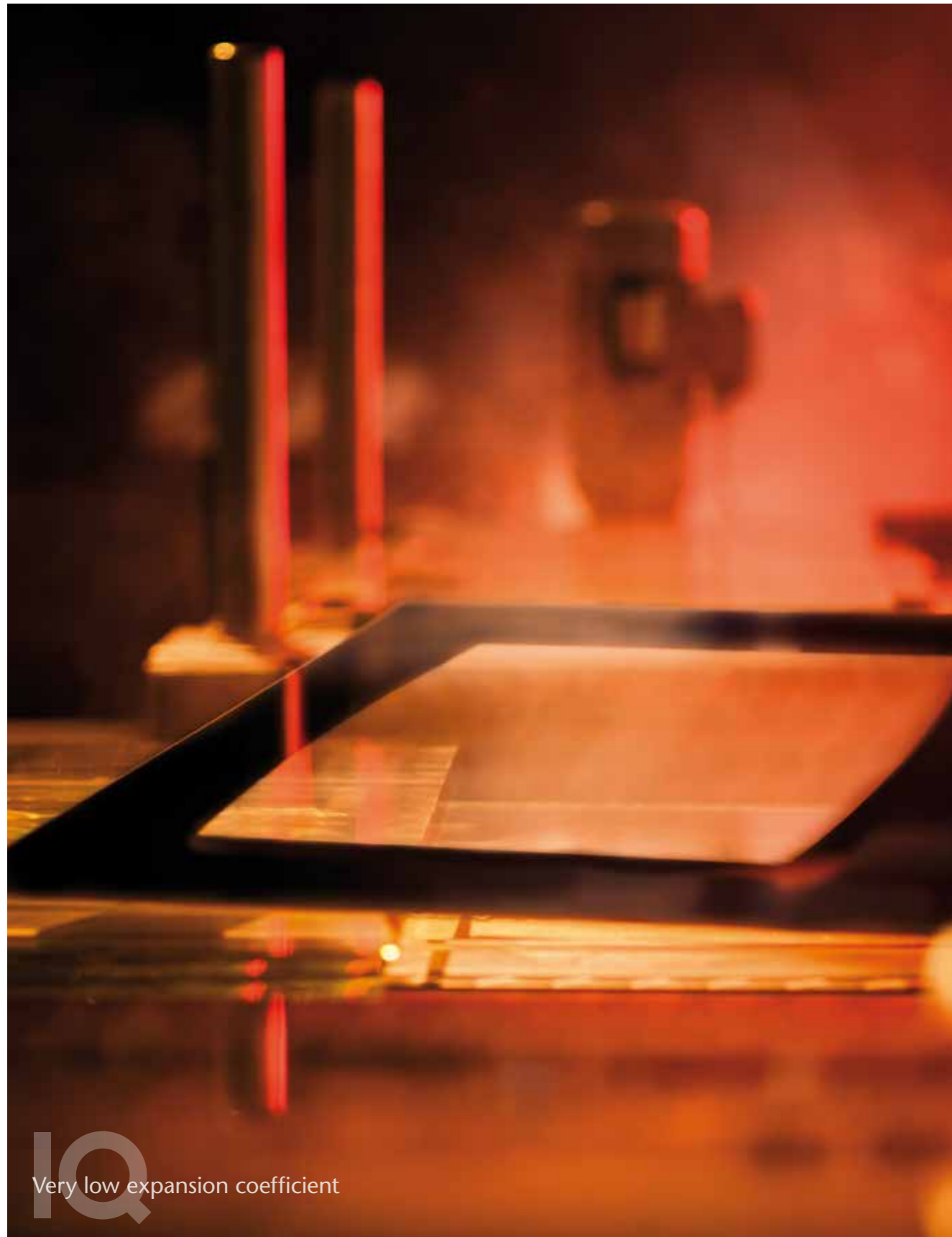
#### BOROFLOAT® – Inspiration through Quality

BOROFLOAT® – the ideal material for traditional and innovative applications.

BOROFLOAT® – The world's first floated borosilicate glass – Made in Germany with IQ



BOROFLOAT® – Outstanding thermal resistance



**IQ**  
Very low expansion coefficient

## BOROFLOAT® – Making all the difference

BOROFLOAT® is the glass that specialists rely on when working with high fluctuations in temperature. Temperatures as high as 450 degrees Celsius pose no problem whatsoever for our specialty float glass. Not even in the case of unexpected cooling.

Mathieu Schalck was on the lookout for a heat-resistant glass that was clear, scratch resistant, and easy to clean. He found it with BOROFLOAT®.

“Our ovens operate at temperatures of over 450 degrees Celsius. At these temperatures we need reliable and thermally resistant glass,” says Schalck, Director of Sales & Marketing at SCHOTT VTF in France.

### Only the temperature fluctuates

A particularly low coefficient of thermal expansion is what makes BOROFLOAT® remarkably resistant to high temperature levels. Our borosilicate glass is proven to stand up to high and fluctuating temperatures typical of applications such as high-performance lamps, cinema projectors and inspection panels for chemical reactors. Even with applications where rapid cooling down from higher temperatures is the requirement, BOROFLOAT® easily passes the test. For example, the temperature difference between a hot panel center and a cold panel edge.

Know-how makes all the difference.

Please see our technical data sheets for further information.



Exchanging information helps develop BOROFLOAT® know-how.

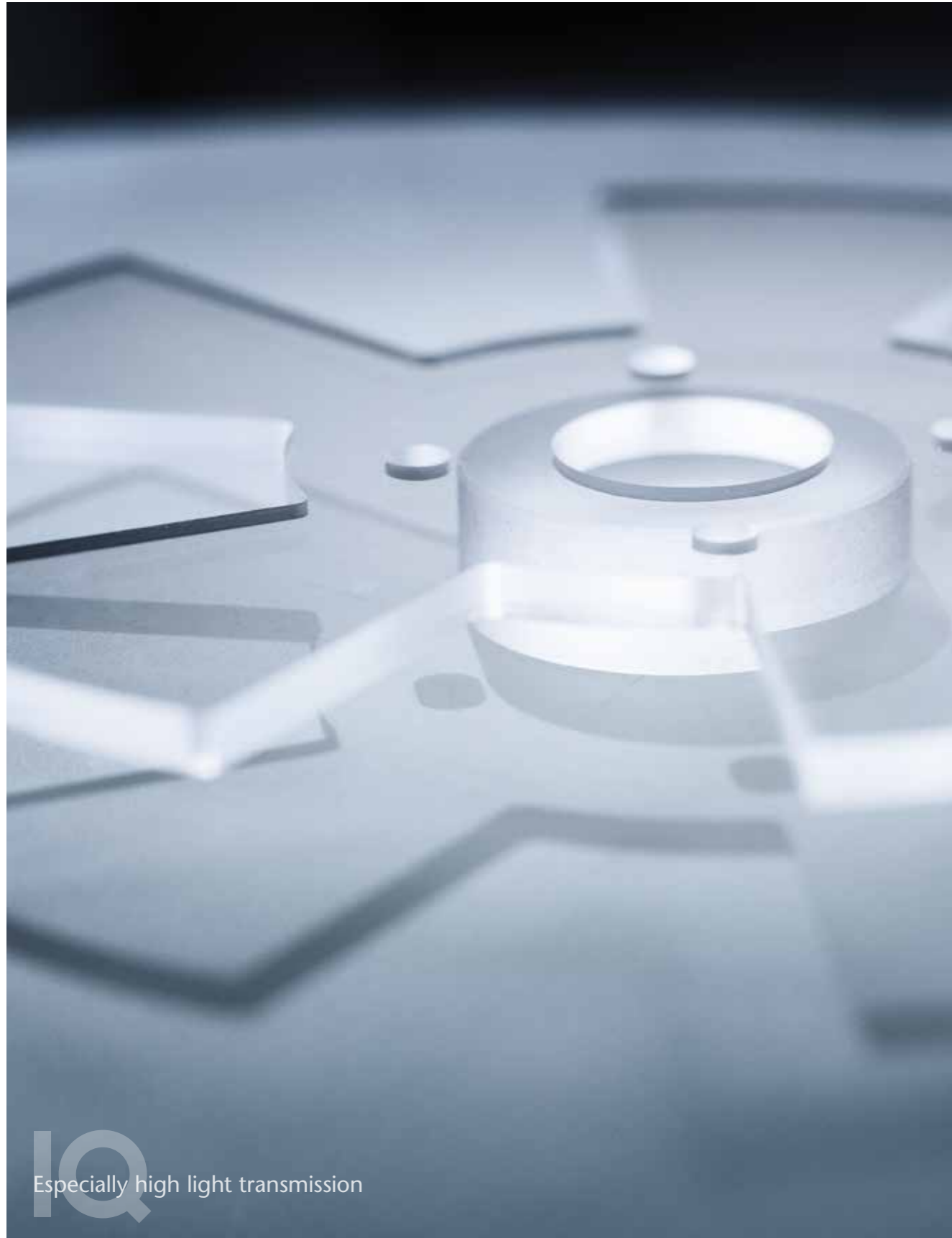


BOROFLOAT® is ideal for cutting and processing.



Perfection is our goal. An oven door window made of BOROFLOAT®.

BOROFLOAT® – Exceptionally high transparency



**IQ**  
Especially high light transmission

## BOROFLOAT® – Light's best friend

BOROFLOAT®'s exceptionally high transparency makes it a key material of choice for optical applications in research and industry. Its unique light transmission over a wide spectrum offers customers a vast wealth of new possibilities.

Controlling light in high-precision specialty lenses, for example in laser technology, is the core business of Hellma Optics in Jena, Germany.

"The visual quality of BOROFLOAT® is nothing short of first-rate. That's why we use the material for the manufacture of our specialty lenses," says Dieter Taudte, part of the production team.

### Let there be light!

One key strength of BOROFLOAT® is that it allows light to pass through freely without distortion. Due to the purity of its ingredients and unique material structure, our specialty float glass offers excellent light transmission in the visible wavelength range.

Its high transparency in the near IR and UV range also means that BOROFLOAT® is the perfect specialty glass for high precision components and solutions used in the fields of optics, photonics and opto-electronics.

Please see our technical data sheets for further information.



BOROFLOAT® – the ideal raw material for specialty lenses.

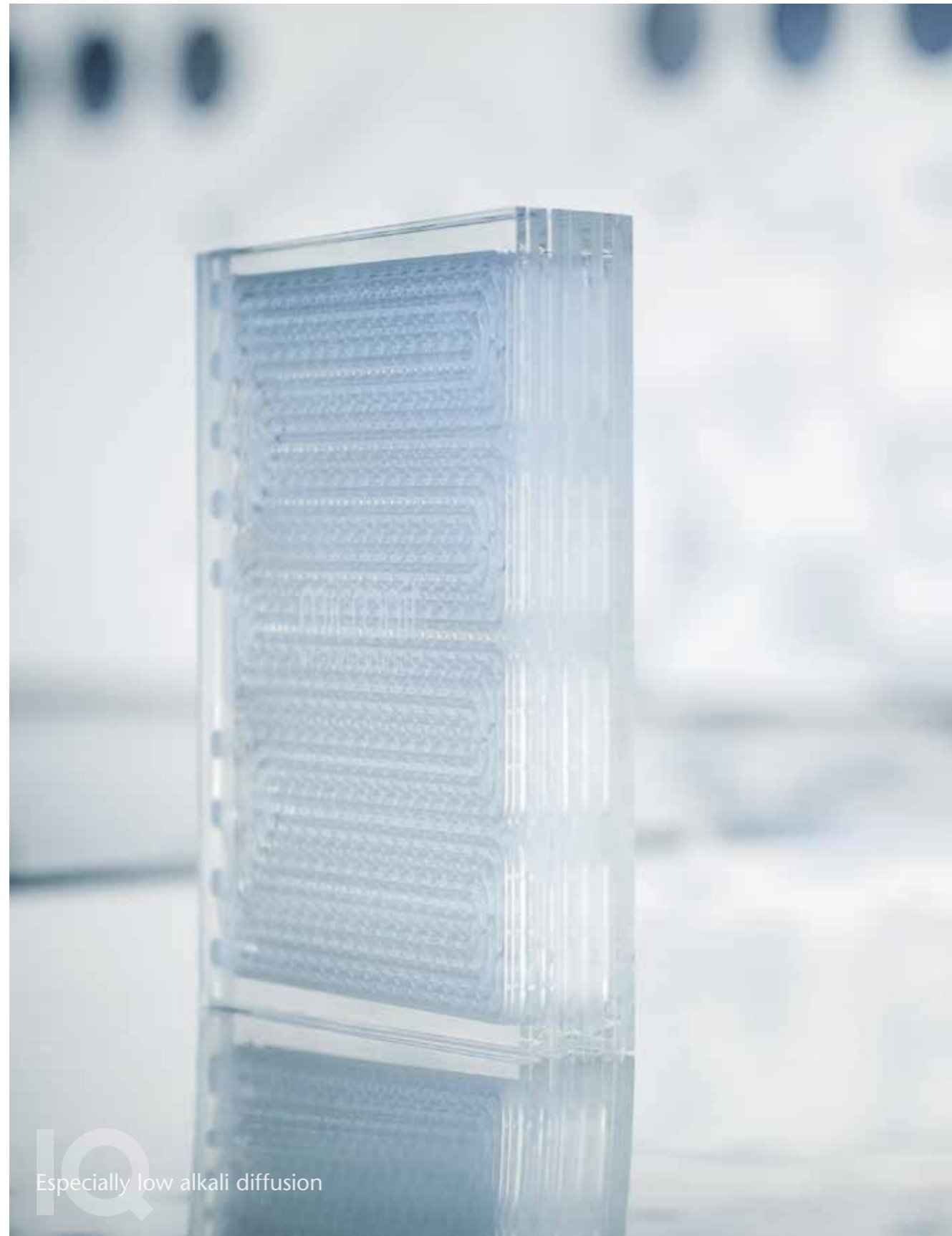


With the highest precision – polishing a lens made of BOROFLOAT®.



BOROFLOAT® is suitable for specialty lenses in all sizes and formats.

BOROFLOAT® – High chemical durability



**IQ**  
Especially low alkali diffusion

## BOROFLOAT® – Finding the right chemistry

High chemical stability is another key feature that differentiates BOROFLOAT® from other materials. Neither acids, alkalis nor other types of fluid can impair the performance of our special float glass, making it an ideal enabling material for the chemical industry, as well as for use in medical and analytic technology.

Ronny van 't Oever is an expert in the field of microfluidics. His company specializes in the manufacture of high precision bio-chips.

“Chemical stability is the decisive factor in choosing the right glass for our microfluidic products” says the managing director and co-founder of Micro-nit Microfluidics in the Netherlands.

### High resistance right down the line

Acids, alkalis and organic substances have virtually no negative impact on BOROFLOAT®. Its high resistance to water is another important performance benefit for many industrial applications. Highly sensitive measuring instruments used, for example, in medical and analytical technologies to provide accurate, and at times critical, readings can be negatively influenced if not adequately protected. The outstanding hydrolytic stability of BOROFLOAT® has cemented its position as the specialty glass of choice for laboratories everywhere, including in the chemical industry.

### At home in high-tech industries

In complex products such as bio-chips, DNA- sequencers and inspection panels for reaction tanks, the superior powers of resistance of BOROFLOAT® have become indispensable in research and industry. Its low yet extremely stable alkali content make it the ideal material for hi-tech, technically challenging applications – the chemistry simply has to be right!

Please see our technical data sheets for further information.



The reliability of BOROFLOAT® supports the most sensitive production processes.



BOROFLOAT® as a high-tech glass is right at home in the laboratory world.



BOROFLOAT® quality in mass production.

BOROFLOAT® – Excellent mechanical strength



**IQ**  
Superior bending strength

## BOROFLOAT® – Lightweight resistance

Specialty glass must be able to withstand a number of challenging factors. Particularly when used in some of the most technically challenging fields. A study conducted by the renowned Fraunhofer Institute has proven that BOROFLOAT® has higher mechanical strength than other specialty glass types – and it is even lighter!\*

Roth & Rau AG develops state-of-the-art technologies for surface coating using plasma and ion irradiation facilities.

“Inspection windows in our modern facilities require maximum strength” says Dr. Dirk Rost, Director of Engineering and Development, BU MicroSystems at Roth & Rau AG.

### Strength through stability

Abrasion and scratch resistance, in combination with bending strength, are the basic foundations of the mechanical stability of BOROFLOAT®. These properties are particularly critical when high pressure and mechanical loads play an important role. The material’s low inherent weight makes it ideal for lightweight glazing and applications in modern high-tech facilities. In addition to safety and functionality, the weight of specialty glass components used in such facilities is critical. BOROFLOAT® – delivering lightweight resistance!

\* 2007 Study. Fraunhofer Institute for Applied Optics and Precision Engineering: “Study and Analysis of the Scratch and Abrasion Resistance of Optical Glass Types”.

Please see our technical data sheets for further information.



BOROFLOAT® performance requirements are discussed in detail.



BOROFLOAT® is transparent, resistant and light.



BOROFLOAT® – for use in plasma and ion irradiation facilities.

## BOROFLOAT® – In touch with the future

The success story of BOROFLOAT® is marked by its versatility and unique combination of material properties that help make this borosilicate glass superior. A fascinating story has been written but new and interesting chapters are still to come. In consultation with our customers, we will continue to develop solutions to meet tomorrow's challenges.

### From A as in AR filter to Z as in zoom lens

The versatility and flexibility of BOROFLOAT® are unmatched. Its unique combination of product features without equal. Achieving this market-leading position has always been our goal. And today, our customers and collaborators worldwide are able to benefit from this revolutionary and unique specialty glass material. They can guarantee their customers in both research and industry outstanding quality products with BOROFLOAT® as the foundation, offering an unprecedented level of quality, reliability and performance. This has been the case for more than 20 years. The functional versatility and outstanding performance characteristics of BOROFLOAT® have made it the material of choice among engineers, designers and developers everywhere.

Furthermore, the broad range of thicknesses that our specialty glass is available in ensures that it is also an ideal enabling material for new and innovative ideas. Inspiring generations and creating success stories everywhere.

### What we mean by quality

SCHOTT prides itself on being one of the most reliable and established suppliers in the industry, alongside offering first class customer support and a high level of flexibility. We deliver standard and customized solutions to our customers, resulting in BOROFLOAT® becoming an almost indispensable component for many traditional as well as new and highly sophisticated applications, such as AR-filters and zoom lenses. We are proud that many of the world's most interesting and technically challenging

technological developments have been inspired by BOROFLOAT® - solving customer problems in ways other materials simply cannot and ultimately changing people's lives for the better.

### We listen carefully

Engaging in open dialogue with our customers enables us to learn about the future challenges they may encounter. And together we search for answers. Working closely with them, and combining SCHOTT's wealth of expertise with that of our customers and collaborators, is what motivates us. Times change, technology advances. Innovative products and new solutions are what are needed. What will these be? What forces will drive the market? These are questions we discuss in close consultation with our customers. BOROFLOAT® has the answers. Today and in the future.

## BOROFLOAT® – Inspiration through Quality



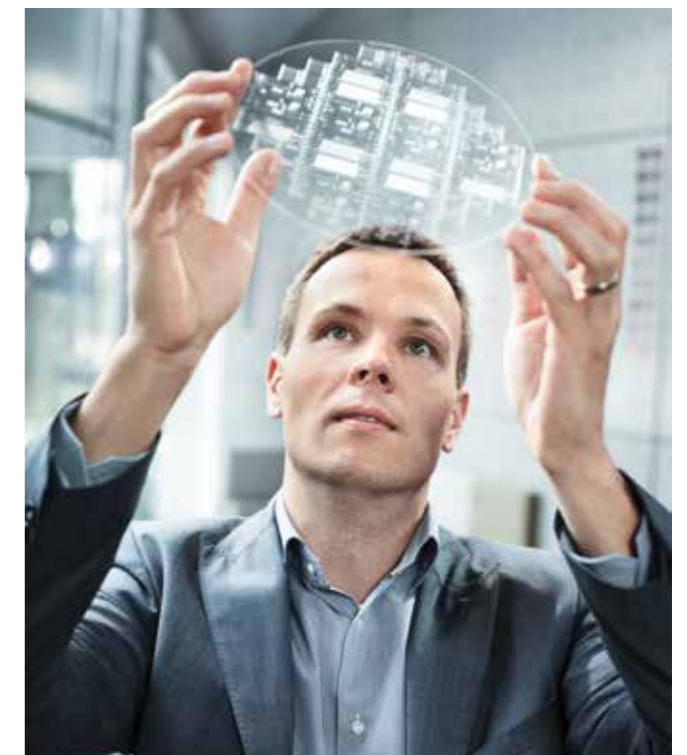
Mathieu Schalck, Director Sales & Marketing, SCHOTT VTF  
 "Temperature resistant and transparent, ideal for oven doors!"



Dieter Taudte, Produktion, Hellma Optics GmbH  
 "BOROFLOAT® is an excellent starting material for processing optical products!"



Dr. Dirk Rost, Director Engineering & Development, Roth & Rau AG  
 "Tough and yet highly transparent – Fits our requirements precisely!"



Ronny van 't Oever, Managing Director & Co-Founder, Micronit Microfluidics  
 "Simply the best glass for our microfluidic products!"