

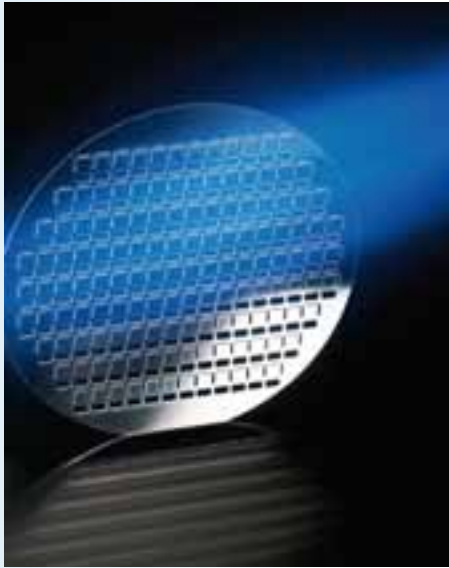
Glass Wafer from SCHOTT

precisely polished and structured substrates



SCHOTT
glass made of ideas

Polished and structured Wafer made of glass from SCHOTT – your choice for specific substrate needs with special requirements!



Choosing the material is the first step to design the right wafer for your application. As a speciality glass manufacturer SCHOTT offers glass types in different chemical compositions manufactured by various hot forming methods.

Standard materials for the Wafer from SCHOTT are:

Down draw glass types (fire polished surface):

- AF 32™ eco
- AF 45™
- D 263™ T eco

Other glass types with surface treatment:

- Fused silica components Lithosil®
- Borofloat® 33
- B 270™

Main characteristics of AF 32™ eco:

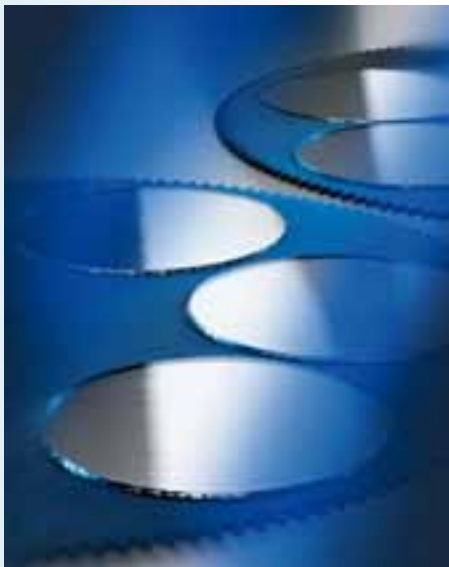
- Coefficient of mean linear thermal expansion
 $\alpha (20\text{ °C}; 300\text{ °C}) = 3.2 \cdot 10^{-6}\text{ K}^{-1}$
- Alkali-free in synthesis
- Excellent transmission
- High thermal resistance
- Available in very thin thicknesses from 0.1 mm to 1.1 mm

Main characteristics of AF 45™:

- Coefficient of mean linear thermal expansion
 $\alpha (20\text{ °C}; 300\text{ °C}) = 4.5 \cdot 10^{-6}\text{ K}^{-1}$
- Alkali-free in synthesis
- Excellent transmission
- High thermal resistance
- Available in very thin thicknesses from 0.1 mm to 0.5 mm

Main characteristics of D 263™ T eco:

- Coefficient of mean linear thermal expansion
 $\alpha (20\text{ °C}; 300\text{ °C}) = 7.2 \cdot 10^{-6}\text{ K}^{-1}$
- Excellent transmission
- High chemical resistance
- Available in many thicknesses from 0.05 mm to 1.1 mm





Main characteristics of Lithosil®:

- High laser durability
- Excellent transmission
- Low fluorescence
- High resistance to chemical solvents
- Bubbles and inclusions 1/1 x 0.063 (according to ISO 10110-3)

Main characteristics of Borofloat® 33:

- Coefficient of mean linear thermal expansion
 $\alpha (20\text{ °C}; 300\text{ °C}) = 3.25 \cdot 10^{-6}\text{ K}^{-1}$
- Excellent transmission
- High thermal resistance
- High resistance to chemical solvents
- Available in various thicknesses: 0.7 mm; 1.1 mm to 3 mm

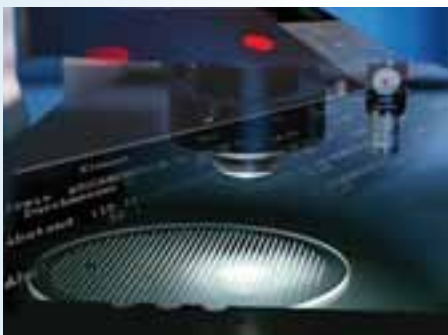
Main characteristics of B 270™:

- Coefficient of mean linear thermal expansion
 $\alpha (20\text{ °C}; 300\text{ °C}) = 9.4 \cdot 10^{-6}\text{ K}^{-1}$
- Excellent transmission
- High solarization stability
- Available in many thicknesses from 0.8 mm to 3 mm

SCHOTT provides its Wafer in standard sizes of 4" to 12" in various shapes (round, squares) with thicknesses from 0.05 mm to 3.0 mm (depending on material). In case of requests differing to these standard dimensions, please contact our sales team, we are encouraged to fulfill your specific inquiry!

Our production lines have integrated all **capabilities** for the processing of Wafer:

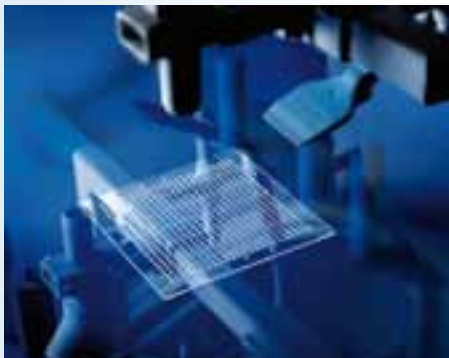
- Cutting
- Edge treatment, alternative with flat or notch according to SEMI-standards
- Grinding
- Lapping
- Polishing
- Structuring
- Metrology
- US-Washing
- Clean Room Inspection (according to MIL-PRF 13830B)
- Clean Room Packaging



Our **expertise in polishing** makes our products unique!

Properties	Fire Polishing	Standard Polishing	Advanced Polishing
Materials	AF 32™ eco, AF 45™, D 263™ T eco	AF 32™ eco, AF 45™, D 263™ T eco, Fused silica components Lithosil®, Borofloat® 33, B 270™	AF 32™ eco, AF 45™, D 263™ T eco, Fused silica components Lithosil®, Borofloat® 33, B 270™
Edge Grinding	cut, C-Shape, facet	C-Shape, facet	C-Shape, facet
Notch	possible	possible	SEMI
TTV	≤ 5 μm	< 10 μm	< 2 μm to 5 μm
Flatness (Warp)	depending on raw material	≥ 20 μm	10 μm to 20 μm
Roughness (Ra)	< 0.8 nm	< 2 nm	< 1 nm
Surface defects (Scratch/Digs) according to MIL-PRF 13830B	≥ 5/1 to 10/5 (cut 40/10)	≥ 10/5 to 20/10	≥ 5/1 to 10/5 (> 3 μm to 5 μm visible)

Further information upon request



Expertise in Structuring!

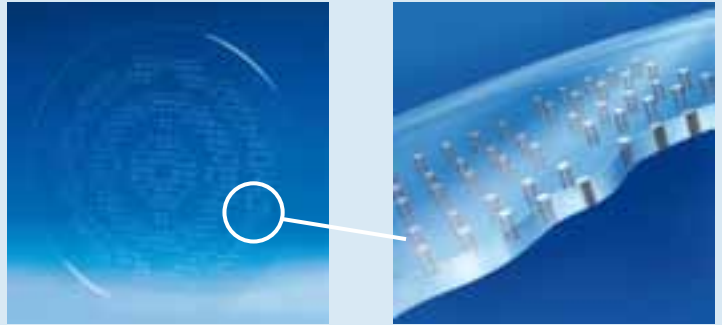
With the **Powder blasting** technology and the **Ultrasonic lapping** process SCHOTT has established a variety of capabilities to provide specific solutions for structured Glass Wafer.

	Ultrasonic lapping	Powder blasting
Size	100 mm to 150 mm	max. 400 mm x 400 mm
Thickness range	0.4 mm up to 3 mm	0.05 mm up to 3 mm
Different hole configurations	round holes	round, rectangular holes and caverns
Positioning tolerance	± 65 μm*	± 65 μm*
Min. hole diameter	0.4 mm	0.1 mm

* Tightened tolerances upon request

SCHOTT HermeS™

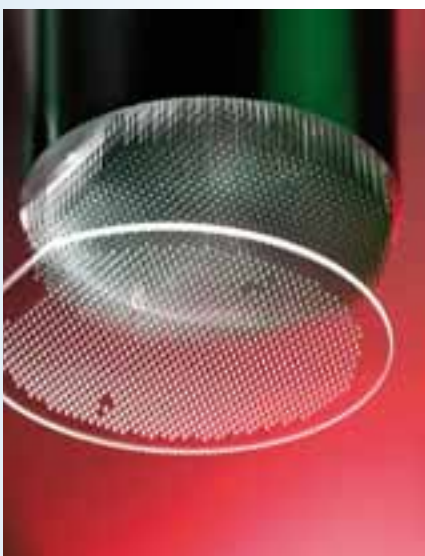
SCHOTT HermeS™ is a glass substrate with hermetically sealed solid metal vias. Specially designed for use in Micro-Electro-Mechanical Systems (MEMS), HermeS™ is suitable for state-of-the-art wafer-scale bonding assembly (e.g. anodic, glass frit and solder). It offers superior electrical, thermal and mechanical properties, and is the ideal aid to the integrated, miniaturized designs of MEMS.



Zero defect quality can be realised and guaranteed with high qualified measuring equipment such as 3D-coordinate measuring machine, Interferometer, etc.

We have the capability of clean room production and wafers can be inspected under clean room conditions (class 100) and packed in professional wafer boxes. The quality control is realised according to **ISO 9001:2008**.

Choose from any dimensions listed in this datasheet or specify your requirements. We are focussed on a **customer oriented production** and our sales department will provide you all additionally needed information.



Benefits

- Application specific usage of glass material (AF 32™ eco, AF 45™, D 263™ T eco, Fused silica components Lithosil®, Borofloat® 33, B 270™, ...)
- Expertise in polishing, unique surface qualities
- Clean room compatible packaging of ready-to-use substrates
- Structured wafer with excellent tolerances
- Customer specific products meeting all requirements and industry standards (e.g. SEMI)
- Integrated production steps corresponding to all requirements of ISO 9001:2008

Applications

Polished wafer are used for

- MicroOptics
- MEMS (pressure sensors, accelerometers, optical MEMS, ...)
- Wafer Level Packaging (Image Sensor packaging, ...)
- Biotechnology (microfluids, DNA analysis, ...)
- and many other customer specific applications

Advanced Materials
SCHOTT AG
Hüttenstrasse 1
31073 Grünenplan
Germany
Phone: +49 (0)5187/771-549
Fax: +49 (0)3641/2847-034
info.glasswafer@schott.com
www.schott.com

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1075-26/01/09-S ENGLISH Printed in Germany