SCHOTT SUPREMAX® 33
Multifunctional rolled borosilicate glass for unlimited applications
SUPREMAX® 33 is a rolled borosilicate glass available in sheet form with a chemical composition identical to SCHOTT’s floated borosilicate glass BOROFLOAT® 33.

The outstanding physical and chemical properties of SUPREMAX® 33 offer the benefits of low thermal expansion, high thermal resistance, excellent light transmission and impressive chemical durability. SUPREMAX® 33 is also a low density glass that is 12% lighter than soda lime glass. This, in combination with the availability of a broad thickness range, makes SUPREMAX® 33 a highly versatile material suitable for an unlimited array of applications.

SUPREMAX® 33 is a borosilicate glass type 3.3 as specified in the international standard ISO 3585. The quality of SUPREMAX® 33 is guaranteed by our ISO 9001 certified quality assurance system.

SUPREMAX® 33 is environmentally friendly and made of non-hazardous inorganic and natural raw materials. The glass can be recycled several times and disposed of without difficulties.

Sheet Sizes and Tolerances

<table>
<thead>
<tr>
<th>Standard Sheet size</th>
<th>Available Thicknesses</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gross Dimensions in mm (inch): 1,200 x 1,500 (47.24 x 59.06)</td>
<td>Thicknesses in mm (inch):</td>
</tr>
<tr>
<td>Net Dimensions in mm (inch): 1,000 x 1,500 (39.37 x 59.06)</td>
<td>Tolerances in mm (inch):</td>
</tr>
<tr>
<td>28.60 (1 1/8)</td>
<td>± 1.0 (± 0.040)</td>
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<tr>
<td>31.75 (1 1/4)</td>
<td>± 1.0 (± 0.040)</td>
</tr>
<tr>
<td>34.90 (1 3/8)</td>
<td>± 1.6 (± 0.064)</td>
</tr>
<tr>
<td>41.30 (1 5/8)</td>
<td>± 1.6 (± 0.064)</td>
</tr>
<tr>
<td>47.60 (1 7/8)</td>
<td>± 3.2 (± 1.125)</td>
</tr>
<tr>
<td>57.20 (2 1/4)</td>
<td>± 6.4 (± 0.250)</td>
</tr>
</tbody>
</table>

SUPREMAX® 33 rolled borosilicate glass can be cut to size within the standard sizes.
**Technical Properties**

**Optical Properties**

- Refractive Index $n_d [\lambda = 587.6 \text{ nm}]$: 1.472
- Stress Optical Coefficient $[K]$: $4.0 \times 10^{-6} \text{ mm}^2 \text{ N}^{-1}$
- Dispersion $(n_f - n_c)$: $71.9 \times 10^{-4}$

**Thermal Properties**

- Coefficient of Thermal Expansion $\alpha [20-300 \degree \text{ C/68-572 \degree F}]$: $3.25 \times 10^{-6} \text{ K}^{-1}$
- Specific Heat Capacity $C_p [20-100 \degree \text{ C/68-212 \degree F}]$: 0.83 kJ/(kg x K)
- Thermal Conductivity $\lambda [90 \degree \text{ C/194 \degree F}]$: 1.2 W/(m x K)
- Softening Point [107.6 dPas]: 820 °C/1508 °F
- Annealing Point [1013 dPas]: 560 °C/1040 °F
- Strain Point [1014.5 dPas]: 518 °C/964 °F
- Transformation Temperature $T_g$: 530 °C/986 °F

**Electrical Properties**

- Dielectric Constant $\varepsilon_r$: [at 25 °C and 1MHz] 4.6
- Loss Tangent $\tan \delta$: [at 25 °C and 1MHz] $37 \times 10^{-4}$
- Specific Electric Volume Resistivity
  - $\lg \rho\ 250 \degree \text{ C}$: $8.0 \ \Omega \times \text{ cm}$
  - $\lg \rho\ 350 \degree \text{ C}$: $6.5 \ \Omega \times \text{ cm}$
  - $\lg \rho\ 570 \degree \text{ C}$: $250 \degree \text{ C}/482 \degree \text{ F}$

**Chemical Durability**

- Acid Resistance [ISO 1776]: 1
- Alkali Resistance [ISO 695]: A2
- Hydrolytic Class [ISO 719]: HGB 1
- [ISO 720]: HGA 1

**Mechanical Properties**

- Density: 2.23 g/cm³
- Young’s Modulus [E]: 64 GPa
- Poisson’s Ratio: 0.2
- Shear Modulus: 27 GPa
- Vickers Hardness [0.2/15]: 568
- Knoop Hardness [0.1/20]: 480