

# SCHOTT SUPREMAX<sup>®</sup> 33

Multifunctional rolled borosilicate glass  
for unlimited applications



**SCHOTT**  
glass made of ideas

# SUPREMAX<sup>®</sup> 33

## Rolled Borosilicate Glass

SUPREMAX<sup>®</sup> 33 is a rolled borosilicate glass available in sheet form with a chemical composition identical to SCHOTT's floated borosilicate glass BOROFLOAT<sup>®</sup> 33.

The outstanding physical and chemical properties of SUPREMAX<sup>®</sup> 33 offer the benefits of low thermal expansion, high thermal resistance, excellent light transmission and impressive chemical durability. SUPREMAX<sup>®</sup> 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 (up to 66.7 mm), makes SUPREMAX<sup>®</sup> 33 a highly versatile material suitable for an unlimited array of applications.

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

SUPREMAX<sup>®</sup> 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.

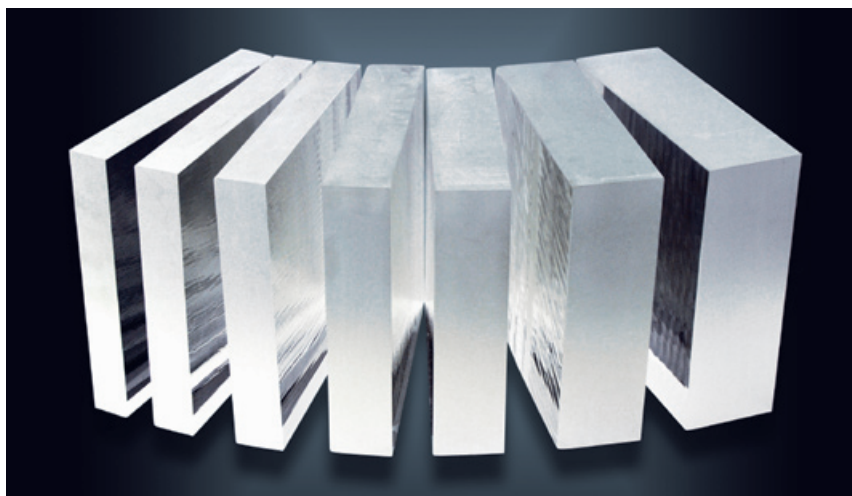


SUPREMAX<sup>®</sup> 33 is available in large sheet sizes

### Sheet Sizes and Tolerances

#### Standard Sheet size

Gross Dimensions in mm (inch): 1,200 x 1,500 (47.24 x 59.06)  
 Net Dimensions in mm (inch): 1,000 x 1,500 (39.37 x 59.06)



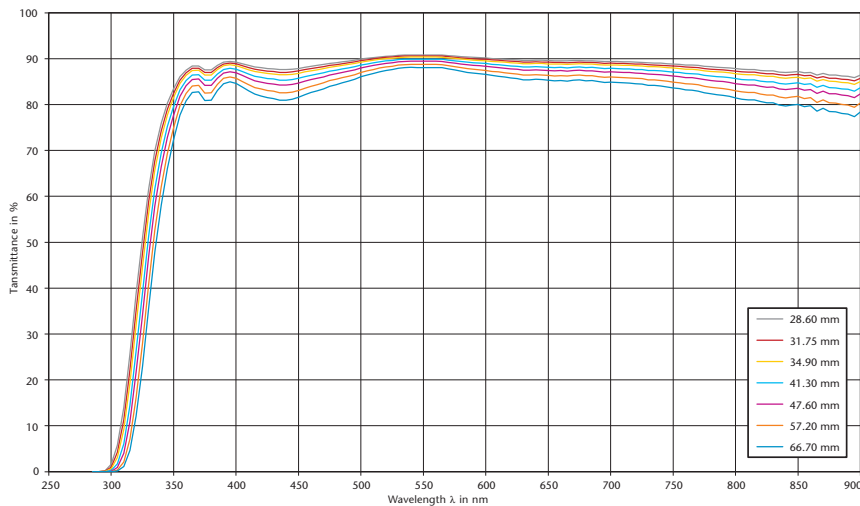
SUPREMAX<sup>®</sup> 33 is available in a broad thickness range

#### Available Thicknesses

Thicknesses in mm (inch)	Tolerances in mm (inch)
28.60 (1 1/8)	± 1.0 (± 0.040)
31.75 (1 1/4)	± 1.0 (± 0.040)
34.90 (1 3/8)	± 1.6 (± 0.064)
41.30 (1 5/8)	± 1.6 (± 0.064)
47.60 (1 7/8)	± 3.2 (± 1.125)
57.20 (2 1/4)	± 6.4 (± 0.250)
66.70 (2 5/8)	± 8.3 (± 0.325)

SUPREMAX<sup>®</sup> 33 rolled borosilicate glass can be cut to size within the standard sizes.

## Technical Properties



Spectral Transmittance



SUPREMAX® 33 ultra thick borosilicate glass

### Optical Properties

Refractive Index $n_d$ [ $\lambda$ 587.6 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 °C/68-572 °F]	$3.25 \times 10^{-6} \text{ K}^{-1}$
Specific Heat Capacity $C_p$ [20-100 °C/68-212 °F]	0.83 kJ/(kg x K)
Thermal Conductivity $\lambda$ [90 °C/194 °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

### Chemical Durability

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

### Electrical Properties

Dielectric Constant $\epsilon_r$ [at 25 °C and 1MHz]	4.6
Loss Tangent $\tan \delta$ [at 25 °C and 1MHz]	$37 \times 10^{-4}$
Specific Electric Volume Resistivity	
$I_g \rho$ 250 °C	$8.0 \Omega \times \text{cm}$
$I_g \rho$ 350 °C	$6.5 \Omega \times \text{cm}$
$t_{k100}$	250 °C/482 °F

### Mechanical Properties

Density	2.23 g/cm <sup>3</sup>
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

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