

# SCHOTT AS 87 eco

SCHOTT AS 87 eco is an aluminosilicate glass suited for chemical strengthening (via an ion exchange treatment) that offers a high level of mechanical impact resistance and bending strength, as well as high resistance to scratches.

## Applications

- Protective cover glass
- CIS (Camera imaging)
- FPS (Fingerprint sensor)
- Touch panel glass
- Automotive interior

### Technical Properties

Formats in mm x mm <sup>1)</sup>	500 x 400 440 x 360
Thickness in $\mu\text{m}$	70, 100, 145, 175, 210, 250, 330
Thickness tolerance in $\mu\text{m}$	$\pm 20$
TTV <sup>2)</sup> in $\mu\text{m}$	$\leq 20$
Warp <sup>2)</sup> in $\mu\text{m}$	$\leq 100 - \leq 1000$
Roughness in nm	$< 0.5$

### Thermal Properties

CTE (Coefficient of thermal expansion) $\alpha$ in $10^{-6} \cdot \text{K}^{-1}$ (20 °C; 300 °C)	8.7
Mean specific heat capacity $cp$ in $\text{J}/(\text{g} \cdot \text{K})$ (20 °C to 100 °C)	0.84
Transformation temperature $T_g$ in °C	621

### Viscosity $\lg \eta$ in $\text{dPa} \cdot \text{s}$      Temperature in °C

Strain point 14.5	594
Annealing point 13.0	633
Softening point 7.6	872

### Electrical Properties

Dielectric constant $\epsilon_r$ (at $\vartheta = 25$ °C)	at 1 MHz	7.7
	at 1 GHz	7.3
	at 5 GHz	7.2
Dissipation factor $\tan \delta$ (at $\vartheta = 25$ °C)	at 1 MHz	$138 \cdot 10^{-4}$
	at 1 GHz	$133 \cdot 10^{-4}$
	at 5 GHz	$172 \cdot 10^{-4}$
Conductivity (at $\vartheta = 25$ °C, direct current)	in S/cm	$5.6 \cdot 10^{-12}$

<sup>1)</sup> other formats upon request

<sup>2)</sup> depending on thicknesses

<sup>3)</sup> strengthening parameters depend on applications and glass thicknesses; for more professional advices, please consult SCHOTT

<sup>4)</sup> hardness measured at chemical strengthened condition

### Chemical Strengthening<sup>3)</sup>

Capability of Compressive Stresses (CS) in MPa	$> 850$
Capability of Depth of Layer (DoL) in $\mu\text{m}$	$> 50$

### Chemical Properties

Hydrolytic resistance class	HGB 2
Acid resistance class	S 4
Alkali resistance class	A 1

### Mechanical Properties

Density $\rho$ in $\text{g}/\text{cm}^3$ (annealed at 40 °C/h)	2.46
Young's modulus $E$ in $\text{kN}/\text{mm}^2$	73.3
Torsion $G$ modulus in $\text{kN}/\text{mm}^2$	30.1
Poisson's ratio $\mu$	0.216
Knoop hardness HK 0.1/20	500 (560 <sup>4)</sup> )
Vickers hardness HV 0.2/25	550 (630 <sup>4)</sup> )
Photoelastic constant $C$ in $(\text{nm}/\text{cm})/\text{MPa}$	29.0

### Optical Properties

Refractive index (as drawn) $n_D$	$1.5040 \pm 0.0015$
Abbe value $v_e$	59.5

### Transmittance values $\tau(\lambda)$ in %, thickness 0.175 mm

254 nm	46.3
380 nm	91.5
632.8 nm	92.1
1064 nm	92.2

### Spectral Transmittance ( $\lambda = 200 \text{ nm} - 3200 \text{ nm}$ )

