

# SCHOTT AS 87 neo

## Specification physical and chemical properties

### Ultra-thin with broad thickness variety

The high-performance AS 87 neo is crafted using a unique manufacturing process. With exceptional impact, bending, and scratch resistance after processing, along with superior transparency, this ultra strong glass excels in every aspect. Ready for chemical strengthening, the ultra-thin glass is ideal for demanding applications in foldable displays and protective glass in smartphones. Non-toleranced numerical values are reference values of a typical production quality.

Optical properties			Transmittance values		
Refractive indices	$n_g$	1.5151	Thickness 0.33 mm	wavelength	$\tau$ ( $\lambda$ ) in %
Pretreatment of samples	$n_F$	1.5109		at 254 nm	31.1
Condition as supplied [„as drawn“]	$n_F$	1.5104		at 380 nm	91.6
	$n_e$	1.5065		at 632.8 nm	92.2
	$n_d$	1.5044		at 1064 nm	92.4
	$n_D$	$1.5043 \pm 0.0015$	Edge wavelength	thickness in mm	wavelength in nm
	$n_C$	1.5022	$\lambda_c$ ( $\tau = 0.46$ )	0.075	230
	$n_C$	1.5017		0.33	266
Abbe value	$\nu_e$	57.7	Luminous transmittance	0.33	92
Photoelastic constant C [nm/(cm*MPa)]		29.0	$\tau_{VD65}$ in %		

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## Mechanical properties

Density  $\rho$  (annealed at 40 °C/h) 2.46 g/cm<sup>3</sup>

Chemical Strengthening	thickness in mm	0.075	0.33
		temperature / in °C	380
	time <i>t</i> in min	40	50
	compressive stress (CS) in MPa	> 900	>1000
	depth of layer (DoL) in $\mu$ m	>10	>12

Young's modulus *E* 71.9 kN/mm<sup>2</sup>

Poisson's ratio  $\mu$  0.216

Torsion modulus *G* 29.6 kN/mm<sup>2</sup>

Knoop hardness *HK*<sub>0,1/20</sub> 490

Vickers hardness *HV*<sub>0,2/25</sub> 560

## Electrical properties

Dielectric constant $\epsilon_r$ (at $\vartheta = 25^\circ\text{C}$ )	at 1 MHz	8.4
	at 1 GHz	7.6
	at 5 GHz	7.5

Dissipation factor $\tan \delta$ (at $\vartheta = 25^\circ\text{C}$ )	at 1 MHz	$252 \cdot 10^{-4}$
	at 1 GHz	$176 \cdot 10^{-4}$
	at 5 GHz	$217 \cdot 10^{-4}$

Conductivity (at $\vartheta = 25^\circ\text{C}$ )	in S/cm direct current	$160 \cdot 10^{-12}$
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## Thermal properties

Coefficient of thermal expansion (CTE)  $\alpha_{(20-300^\circ\text{C})}$   $9.2 \cdot 10^{-6} \text{ K}^{-1}$

Mean specific heat capacity  $C_p(20-100^\circ\text{C})$  0.87 J/(g·K)

Transformation temperature *T<sub>g</sub>* 598 °C

Viscosities	Viscosity in $\eta$ in dPas	Temperature in °C
Strain point	14.5	577
Annealing point	13.0	616
Softening point	7.6	855

## Chemical properties

### Hydrolytic resistance acc. to DIN ISO 719

Class	HGB 2
Equivalent of alkali per gram of glass grains [ $\mu$ g/g]	56

### Acid resistance acc. to DIN 12 116

Class	S 4
Half surface weight loss after 6 hours [mg/dm <sup>2</sup> ]	61

### Alkali resistance acc. to ISO 695

Class	A 1
Surface weight loss after 3 hours [mg/dm <sup>2</sup> ]	66

## Spectral transmittance ( $\lambda = 200 \text{ nm to } 3200 \text{ nm}$ and $\lambda = 200 \text{ nm to } 450 \text{ nm}$ )

