AF 45

Precision Glass and Optics
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Description:

AF 45 has specific properties and is available in many different thicknesses with tight tolerances which are exceptionally well suited for many applications. This thin glass type can be used without grinding and polishing the surface because of its special fire-polished surface. AF 45 is a modified borosilicate glass with high contents of BaO an Al2O3 and is alkali-free in synthesis. This product features excellent thermal resistance, a low coefficient of thermal expansion, low shrinkage after heat treatment and high light transmission.

Available Thicknesses:

Thickness	Tolerance
0.050mm	± 0.010mm
0.100mm	± 0.015mm
0.200mm	± 0.020mm

Sheet Sizes: 14" x 17".

Thickness	Tolerance
0.300mm	± 0.020mm
0.400mm	± 0.020mm
0.500mm	± 0.050mm

Properties:

Refractive Index: n_d (λ = 588nm) = 1.5255

Transmission: (estimated at 1.1 mm thick)

@ 300nm	10%	@ 345nm	80%
@ 320nm	40%	@380-2600nm	91.7%+

Mechanical and Thermal:

Density	2.72 g/cm^3
Young's Modulus	E= 66 KN/mm^2
Thermal Coefficient of Expansion (0-300°C)	= 45 x 10^{-7}/°C
Strain Point	627°C

Chemical:

Solution	5% Na OH	N/50 Na_2 CO_3	5% HCL
Temp in (°C)	95°	95°	95°
Reaction time (hr)	6	6	24
Loss of Weight (mg/cm^2)	2.2	0.11	5.2

Electrical:

Dielectric Constant (1 MHz):	$\varepsilon r = 6.2$
Dielectric Loss Factor (1 MHz):	$\tan\delta = 9 \times 10^{-4}$

Applications:

LCD (active matrix), electro-luminescent displays, CCD covers, solar cells, hybrid circuits and coating substrates.

Flatness, parallelism, cutting tolerances, roughness, cosmetic defects and visual inspection all conform to the specifications to be agreed upon by Precision Glass & Optics and the customer.

SHEET SIZES AND TOLERANCES

Nominal thickness [mm]	Gross Length [mm]	Gross Width [mm]	Net Width (quality width) [mm]	Parallelism * [%]	Squareness * [%]
0.05	440 ± 10	approx. 420	360 + 10/ -0	-	-
0.10 - 0.50	440 ± 10		360 + 10/ -0	0.5	1.0

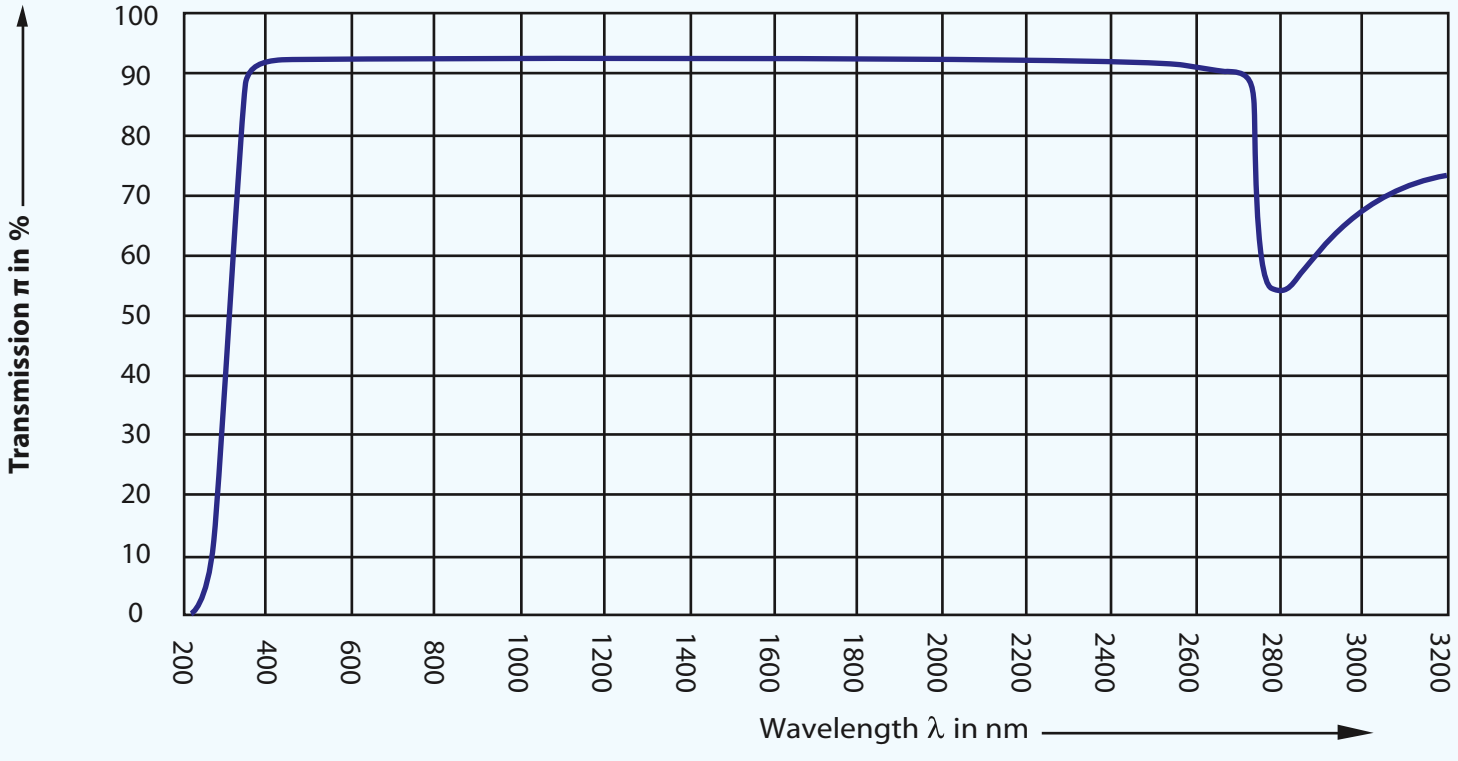
* in % of measured edge length.

STANDARD THICKNESS AND WARP

Nominal thickness **	Thickness tolerance	Thickness variation ΔD (deltaD)	Flatness deviation Warp
	Variation in lot	Within sheet, across draw direction	Reference to standard size
[mm]	[mm]	[µm]	[mm]
0.050	±0.010	≤ 10	Due to the low stiffness, sheet flatness deviation (warp) is not specified
0.100	±0.015	≤ 20	
0.200	±0.020	≤ 20	
0.300	±0.020	≤ 20	≤ 0.6
0.400	±0.020	≤ 20	≤ 0.6
0.500	±0.050	≤ 30	≤ 0.6

** Custom thickness may be manufactured upon request.

TRANSMISSION CURVE (0.5mm)



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