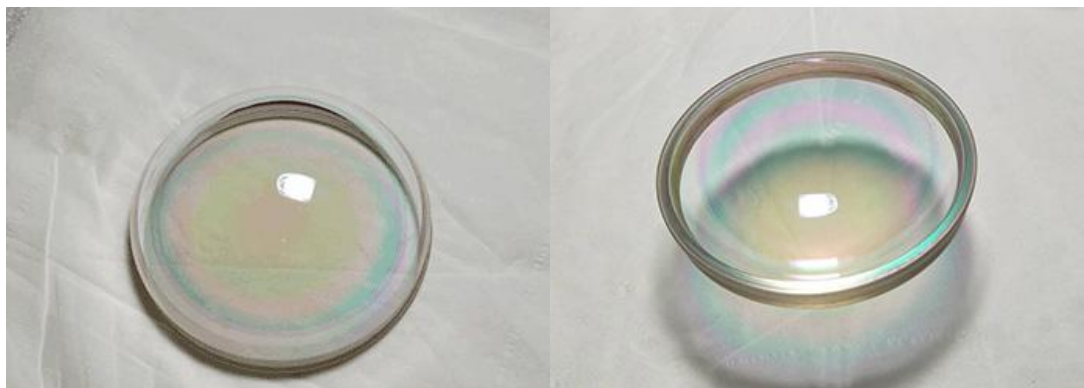


sapphire domes

- **Good transmission from UV to Mid-Infrared**
- **Extreme Surface Hardness and Chemical Resistance**

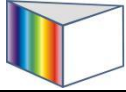
Domes need both high transmission as well as durability, sapphire is an excellent selection for its good mechanical properties and good transmission from UV to MWIR of 3-5 microns, it is suitable for multi-spectral and high-speed applications. Hangzhou Shalom EO provides the aerospace and defense industry with critical infrared, multi-spectral, and visible domes, and the domes used in missile and reconnaissance & surveillance applications.



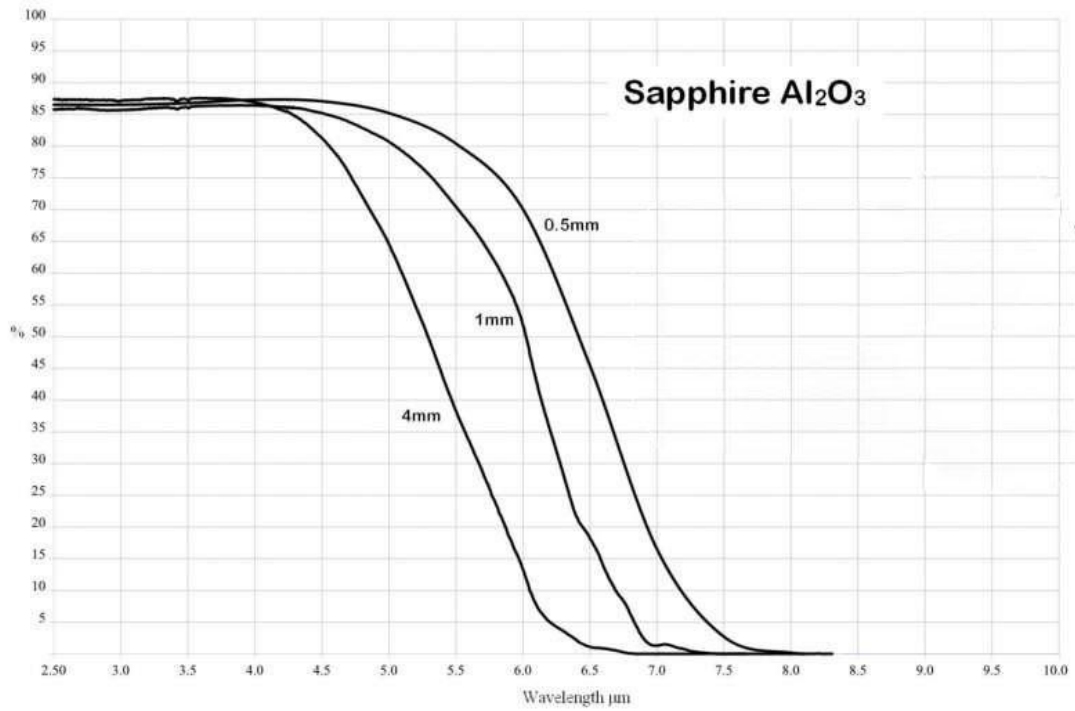
SPECIFICATIONS

Specifications	
Materials	Optical grade sapphire crystals (Al ₂ O ₃)
Diameter range	10~ 380mm
Thickness Tolerance	+/-0.2mm (Optional: +/-0.1mm and +/-0.05mm)
Surface Quality	60/40 to 40/20 S/D
Frings (N)	customized
Irregularity (delta N)	customized
Chamfer	0.1~0.3mmx45degree

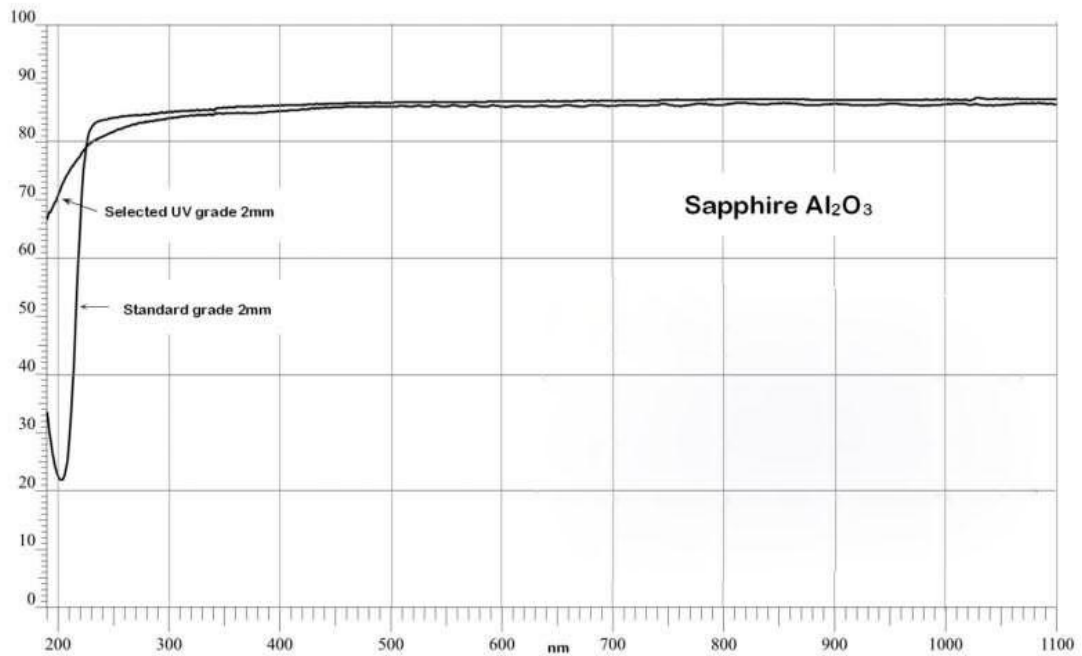
Note: the domes of other specifications is available upon customer's request.

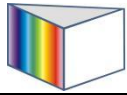


1. Transmission of Sapphire at Infrared wavelength range (no coating)



2. Transmission of Sapphire at UV wavelength range (no coating)





Basic Properties

Physical and optical properties	
Transmission Range	0.17 to 5.5 μm
Refractive Index	No 1.75449; Ne 1.74663 at 1.06 μm (1)
Reflection Loss	14% at 1.06 μm
Absorption Coefficient	$0.3 \times 10^{-3} \text{ cm}^{-1}$ at 2.4 μm (2)
Reststrahlen Peak	13.5 μm
dn/dT	13.1×10^{-6} at 0.546 μm (3)
$dn/d\mu = 0$	1.5 μm
Density	3.97 g/cc
Melting Point	2040°C
Thermal Conductivity	27.21 W m ⁻¹ K ⁻¹ at 300K
Thermal Expansion	5.6 (para) & 5.0 (perp) $\times 10^{-6}/\text{K}$ *
Hardness	Knoop 2000 with 2000g indenter
Specific Heat Capacity	763 J Kg ⁻¹ K ⁻¹ at 293K (4)
Dielectric Constant	11.5 (para) 9.4 (perp) at 1MHz
Youngs Modulus (E)	335 GPa
Shear Modulus (G)	148.1 GPa
Bulk Modulus (K)	240 GPa
Elastic Coefficients	C11=496 C12=164 C13=115 C33=498 C44=148
Apparent Elastic Limit	300 MPa (45,000 psi)
Poisson Ratio	0.25
Solubility	98×10^{-6} g/100g water
Molecular Weight	101.96
Class/Structure	Trigonal (hex), R3c