

II-VI

SAPPHIRE
BOULES

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II-VI Optical Systems world-class material experts and growth operation produce A-plane, C-plane, R-plane, M-plane sapphire utilizing a method that provides extraordinary mechanical strength, high optical transmission and low Transmitted Wavefront Distortion (TWF). These attributes make sapphire boules a preferred material choice for many dome or windows defense and aerospace applications.

II-VI Optical Systems utilizes a vertically integrated sapphire product line, and has control of growth, window processing, rods, domes, coating and assembly.

II-VI Optical Systems has demonstrated sapphire characteristics consistent with known industry values, and has material experts on staff to answer any technical questions you may have.

MATERIAL SPECIFICATIONS

Coefficient of Thermal Expansion (a-plane & c-plane) (-75°C to 200°C)	5 - 7 ppm/°C
Euibiaxial Flexure Strength*: (Tested in Ring-On-Ring Configuration)	68.7 ksi [68,700 psi, 480 MPa]
Modulus of Elasticity: (Tested per ASTM C1259)	54E + 06 psi [372 GPa]
Knoop Hardness: (a-plane & c-plane) (Tested per ASTM C730)	1500 - 1800
Absorption: (1.064 µm)	35 ± 2 ppm/cm
BRDF, BTDF (1.064 µm)	< 10 ⁻³ /sr (0 - 60° AOI)

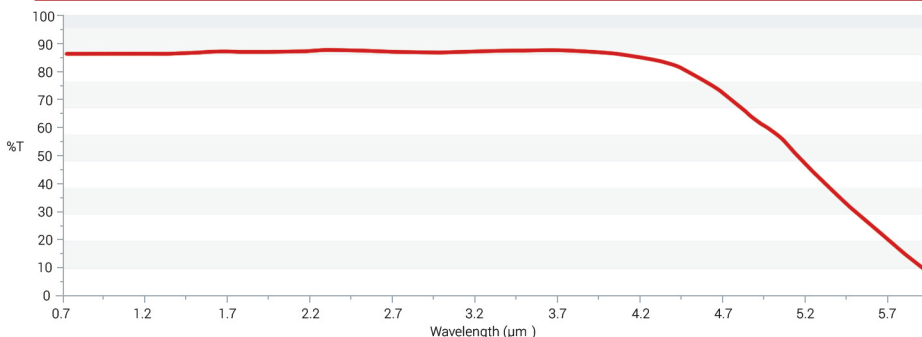
SIZES AVAILABLE

A-plane:
Up to:
330mm Diameter x 150mm
Thickness

C-plane, R-plane, M-plane:
Up to: 330mm x 150mm x 10mm
Thicker blanks possible with
smaller cross-section

*Average strength value for testing is in accordance with ASTM C1499. Value is representative of samples prepared via II-VI Optical Systems fabrication process

%T - A-PLANE SAPPHIRE - 0.220" THICK



TYPICAL MEASURED VALUES

Transmission: (0.22" thickness) Index of Refraction

λ	T	λ	n
0.70 µm	86.0%	0.70 µm	1.7627
1.06 µm	86.3%	1.06 µm	1.7543
1.57 µm	86.5%	1.57 µm	1.7455
3.00 µm	87.8%	3.00 µm	1.7121
4.00 µm	87.1%	4.00 µm	1.6751
5.00 µm	57.0%	5.00 µm	1.6240

II-VI OPTICAL SYSTEMS

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