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## KO | BRINGING QUALITY INTO FOCUS

### Sapphire Windows for Airborne LiDAR Systems

**Knight Optical** offer a range of [Stock Sapphire Windows](#), and custom for use within Airborne LiDAR Systems. These are systems used in surveying for topographical measurements. The data accumulated can be used to generate a Digital Terrain Model or a Digital Elevation Model which are 3D representations of terrain.

Sapphire ( $Al_2O_3$ ) is one of the hardest minerals and optical materials available for use in the range from UV up to  $5\mu m$ . Making it ideal as a protective window for airborne systems which may be utilised in harsh environment or against birds!

Sapphire is grown by various methods from seed samples. Sapphire can be polished to a high standard, but as it is the second hardest mineral on Earth it must be subject to high forces to polish. Therefore, windows made from Sapphire must have a thickness to diameter ratio of at least 10:1, that is, greater

For more information read PDF....

than 10mm thick for a 100mm diameter disk. Sapphire is inert and resistant to attack from most processing environments, such as hydrofluoric acid. Sapphire has a melting point over  $2000^{\circ}C$  with a high thermal conductivity makes it suitable for use in harsh environments.

**We hold a large inventory of [Random Cut](#) and [C-Cut Sapphire Windows](#).**

- Stock sizes from 5mm to 150mm diameter; between 0.5mm – 15mm thick.
- Custom shapes and sizes available to quotation.
- Edging down to smaller diameters, square and rectangular apertures.

#### Typical specs:

<b>Material:</b>	Sapphire ( $Al_2O_3$ ) Random or C-Cut grades
<b>Diameter Tolerance:</b>	+0.0/-0.20 mm
<b>Length/Width Tolerance:</b>	+/- 0.10mm
<b>Thickness Tolerance:</b>	+/-0.10mm
<b>Wavelength Range:</b>	0.17 – $5.5\mu m$
<b>Transmission:</b>	Tavg=85% dependant on substrate thickness
<b>Surface quality:</b>	<40-20 scratch/dig
<b>Coatings:</b>	AR coating options to meet your wavelength requirements

**All our Sapphire Windows are fully inspected on their quality in our ISO 9001 certified, state-of-the-art Metrology laboratory**, using our FIBSA, and Trioptic Prism Master. This allows us to work to the highest [QA standards](#) and meet the tolerance specifications on these **precision components**.

[Contact our technical sales team](#) to discover how Knight Optical's high quality sapphire window and superior service can improve your instrumentation and supply chain experience.

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- View our [QA and metrology information](#)