



INTRINSIC / ELECTRONIC GRADE CVD DIAMOND

Ultra-pure low-stress diamond substrates in laser-cut, semi-polished or fine-polished form, for use in various sensitive thermal and optical applications, including synchrotrons.

- > High-quality undoped single crystal CVD substrates
- > Available at scale to exact customer sizing and polish requirements
- > Bulk Material or Epitaxial Film / Coating per customer specifications

MATERIAL SPECIFICATIONS	
Thermal Conductivity	2200 W/(m·K)
Hardness	>8 MPa·m
Crystal Structure	Cubic
Lattice Constant	3.567 Å
Density	3.51 ± 0.01 g/cm ³
Refractive Index	2.418 (at 500 nm)
¹³ C Fraction	1.1%
Orientation	Primary: (100)
	Secondary: (100) or (110)
Dimensions	Square and round
	Up to 10mm (<i>length, width</i>)
	0.300-2.5mm (<i>thickness</i>) (<i>other values available upon request</i>)
Roughness, Ra	Laser Cut, Optical Polish (<20nm Ra), Epi-Ready Polish (<5nm Ra), Fine Polish (<2nm Ra)
Appearance	Clear / White
Raman Peak FWHM	1.7cm ⁻¹ typical at the 1332 ⁻¹ peak
Impurities	ppb N ₂ and Boron

All diamond substrates are grown at the WD Advanced Materials facility in the United States. For custom requests and to discuss capabilities outside of the specifications noted here, please reach out to your account management team at the Hi-Rel Group.