



## QUANTUM GRADE CVD DIAMOND

Single crystal diamond bulk substrates or epitaxial films featuring nitrogen vacancy (NV) centers, for use in next-gen quantum research, advanced technologies, and emerging applications.

- > Available in both Mixed Isotope and Isotopically Pure forms
- > NV Center activation / irradiation upon request
- > 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 <sup>3</sup>
<sup>13</sup> C Fraction	1.1% for mixed isotope diamond
	<0.01% for isotopically pure diamond
Orientation	Primary: (100)
	Secondary: (100) or (110)
Dimensions	Square and round
	Up to 10mm ( <i>length, width</i> )
	0.300-9mm bulk; 0.100-0.750mm film ( <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	White to Pink
NV Density	1-5ppm ( <i>other values available upon request</i> )

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.