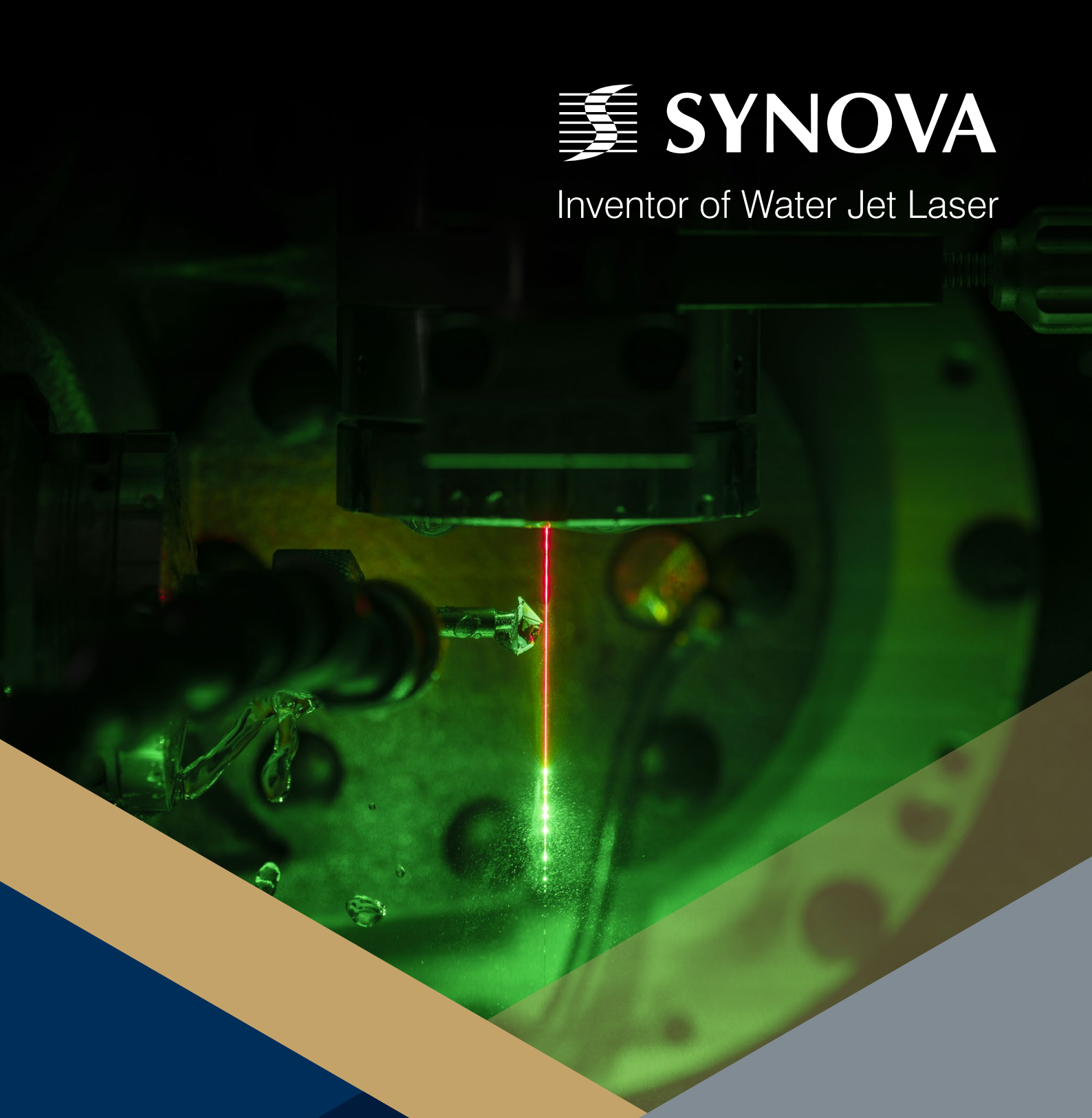
SYNOVA

Inventor of Water Jet Laser

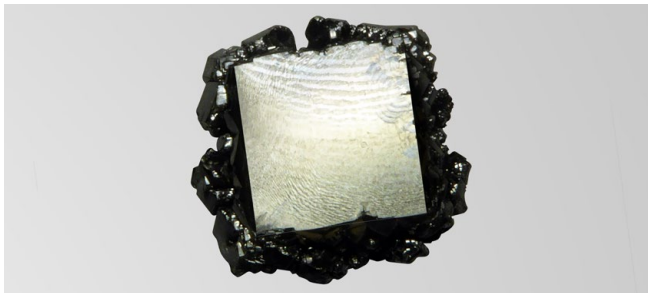


Laser MicroJet®
for Laboratory-Grown **Diamonds**

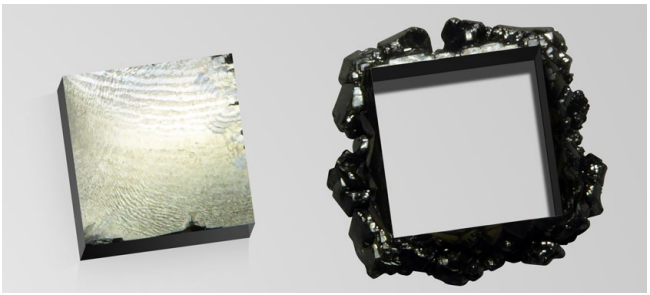
synova.ch

Coring CVD Diamond Crystals

Removing graphite around single crystal core or grown clusters with multiple crystals



Grown CVD crystal



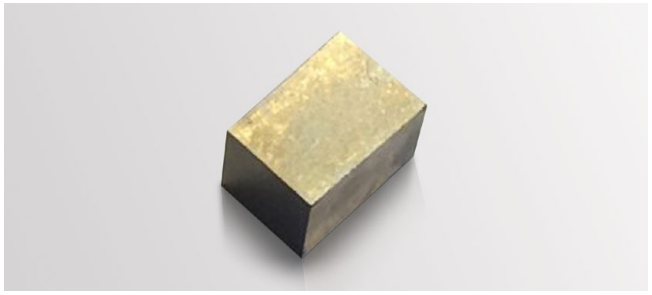
CVD block after coring process

Key benefits

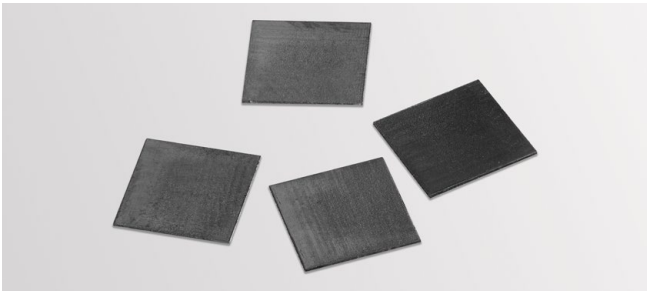
- Specific shapes and dimensions according to core structure
- Faster cutting process compared to conventional lasers (typically 2x faster)
- Straight side walls with clean and smooth cutting surfaces
- Cores ready to use for slicing

Slicing CVD and HPHT Diamond

Creating CVD seeds for new diamond growth



Initial CVD block



CVD slices

Key benefits

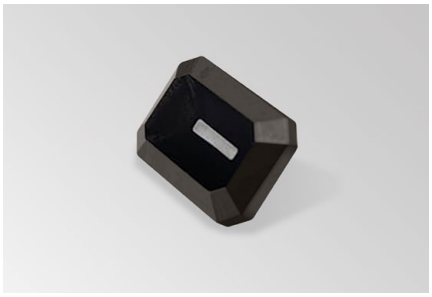
- Very thin slices (≥100 microns, up to size 30x30 mm)
- Clean and smooth side walls (Roughness Ra 0.3 microns)
- Any crystalline orientation (±0.1°)
- Up to 5x smaller cut kerf than with conventional lasers (50 microns for 7x7 mm slice)
- Fast cutting process (10 min/slice for size 7x7 mm)

Automated Shaping of CVD and HPHT Diamond

3D shaping out of cubic crystals

Coning

57-facet round brilliant shapes



Fancy and custom shapes

Key benefits

- Completely automated laser shaping process
- Full-faceting of a round brilliant in a single operation
- All types of fancy or custom shapes (emerald, heart…)
- Greatly reduced manufacturing time
- Only final smoothing step necessary to remove thin black carbon layer

Our Diamond Cutting Machines

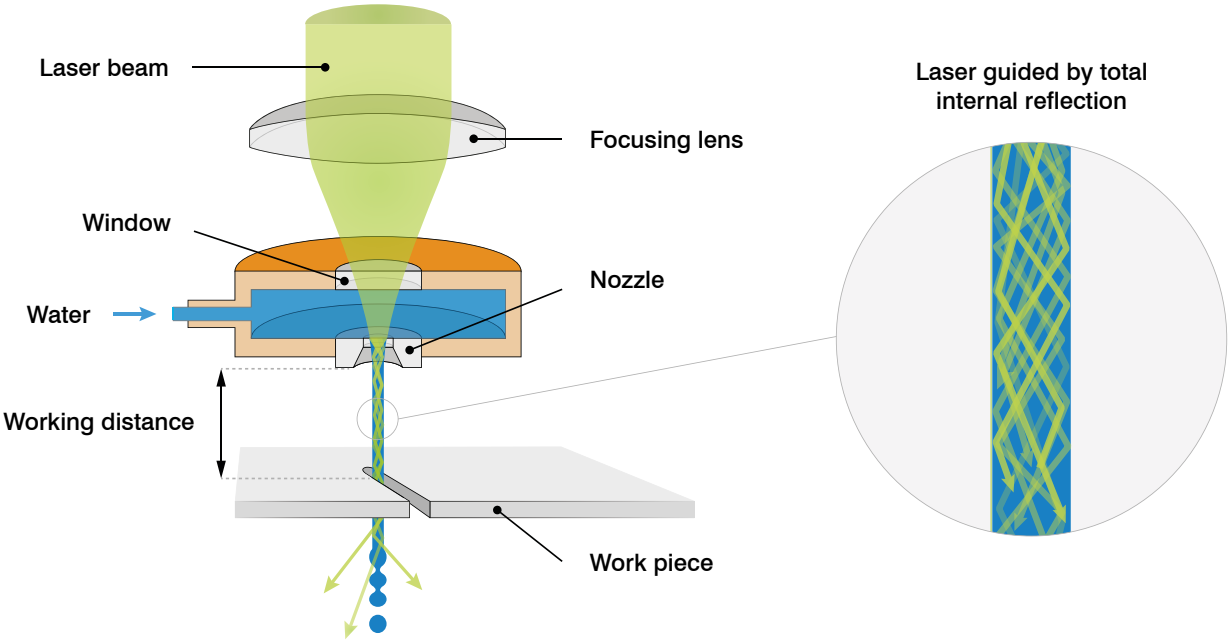
DCS 150
for coring and slicing

DCS 303
for coring and slicing

DaVinci Diamond Factory®
for 3D shaping

Laser MicroJet® Technology

The LMJ technology is a hybrid method combining a green laser (532 nm wavelength) with a “hair-thin” water jet that precisely guides the laser beam by means of total internal reflection at the water-air interface. The water jet continually cools the cutting zone and efficiently removes debris.



LMJ Advantages

- Smooth cutting surfaces and sharp edges
- Cylindrical laser beam resulting in parallel kerfs (no V-shape)
- Virtually no heat impact thanks to water jet cooling capability
- Minimal weight loss resulting in higher yields
- Low risk of breakage, especially in tension stones

SYNOVA

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Contact information available at: www.synova.ch

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