

# CASE STUDY

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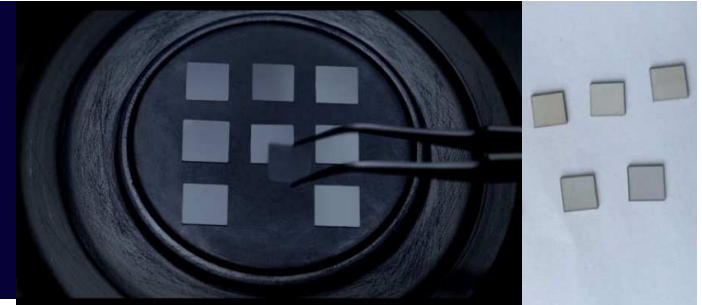
## PRODUCT

### CVD diamond seeds

The company produces chemical vapor deposition (CVD) diamonds for industry and jewelry. The process happens in microwave plasma reactors and requires diamond seed crystals from which the diamonds grow layer by layer. The very thin seeds are sliced from CVD blocks.

LMJ used for:

- Coring
- Seeding
- Slicing



## CHALLENGE

### Replacing the state-of-the-art dry laser slicing process

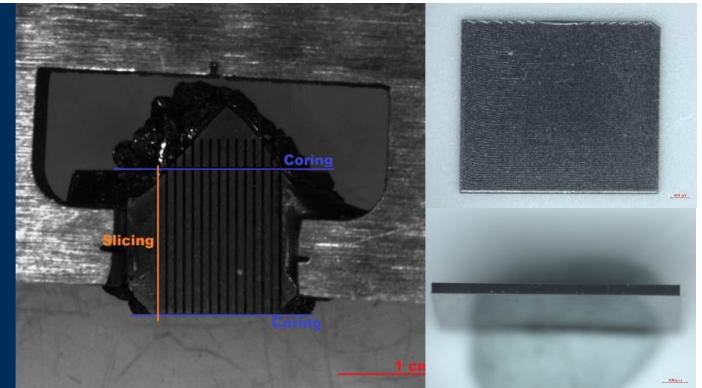
The challenge was to improve yield, straightness, smoothness, cracks, and throughput

Main processing criteria:

- 40 – 50% more seeds per block
- Perfect vertical cut, no V-shape
- Low roughness
- Less carbon layer
- All process steps in one set up
- Narrow tolerances
- Thinner seeds

Machining technologies able to reach these criteria:

- Dry laser
- Laser MicroJet (LMJ) - water jet guided laser



## SOLUTION

### Improvements in any regard

LMJ advantages versus dry laser:

- 2x faster
- Production-proven
- Low consumables
- High stability
- Much higher yield

Installed machine type:

- 1 x LCS 303
- 100 W green laser



LCS 303

