

CASE STUDY



Carroy, China

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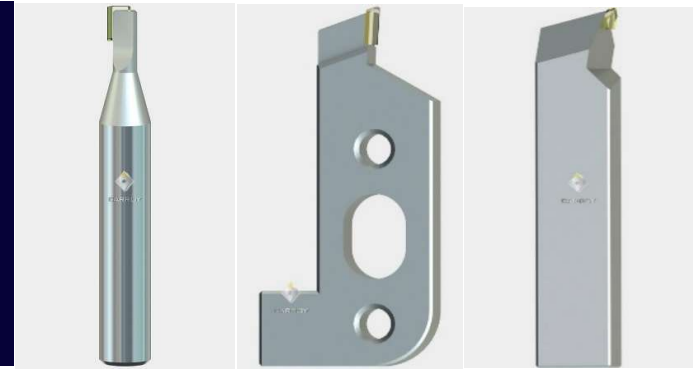
PRODUCT

Diamond tool inserts

HPHT diamonds: it is possible to recreate the pressure and temperature conditions, causing carbon to form diamond in the earth, using a press that squeeze a carbon source, graphite, inside a chamber; this will then be heated at a high temperature. This technique — high pressure, high temperature, or HPHT — is still the most common method used today. HPHT diamonds are used mainly for cutting tools.

LMJ used for:

- Pre-cutting of diamond inserts



CHALLENGE

Perfect cut on the hardest material on earth

The challenge was to remove 99% of the diamond material at high speed before a final polishing step

Main processing criteria:

- Straight walls
- No HAZ
- Little carbonization
- No cracks
- Low roughness
- Narrow tolerances
- High speed

Machining technologies able to reach these criteria:

- Grinding
- Laser MicroJet (LMJ) - water jet guided laser technology



SOLUTION

Higher productivity thanks to combined laser-polishing process

LMJ advantages versus grinding:

- Much faster
- High flexibility
- Low consumables
- No mechanical damages

Installed machine type:

- 1 x LCS 50
- 50 W green laser

