

6C Tools AG

CH - Carbon and CBN - Cutting of Ceramics and Carbide

About

Who we are

The 6C Tools AG is a Swiss tool manufacturer located in Zurich. Founded in 2015 as **Spinoff** **ETH zürich** of the Institute of Machine Tools and Manufacturing (IWF), we sell our products to the high-tech markets in Europe.

What we do

Hard, harder, 6C Tools! We develop, produce and sell tools with geometrically defined cutting edges made out of solid polycrystalline diamond (PCD) to open new manufacturing possibilities in hard materials such as ceramics and carbide.

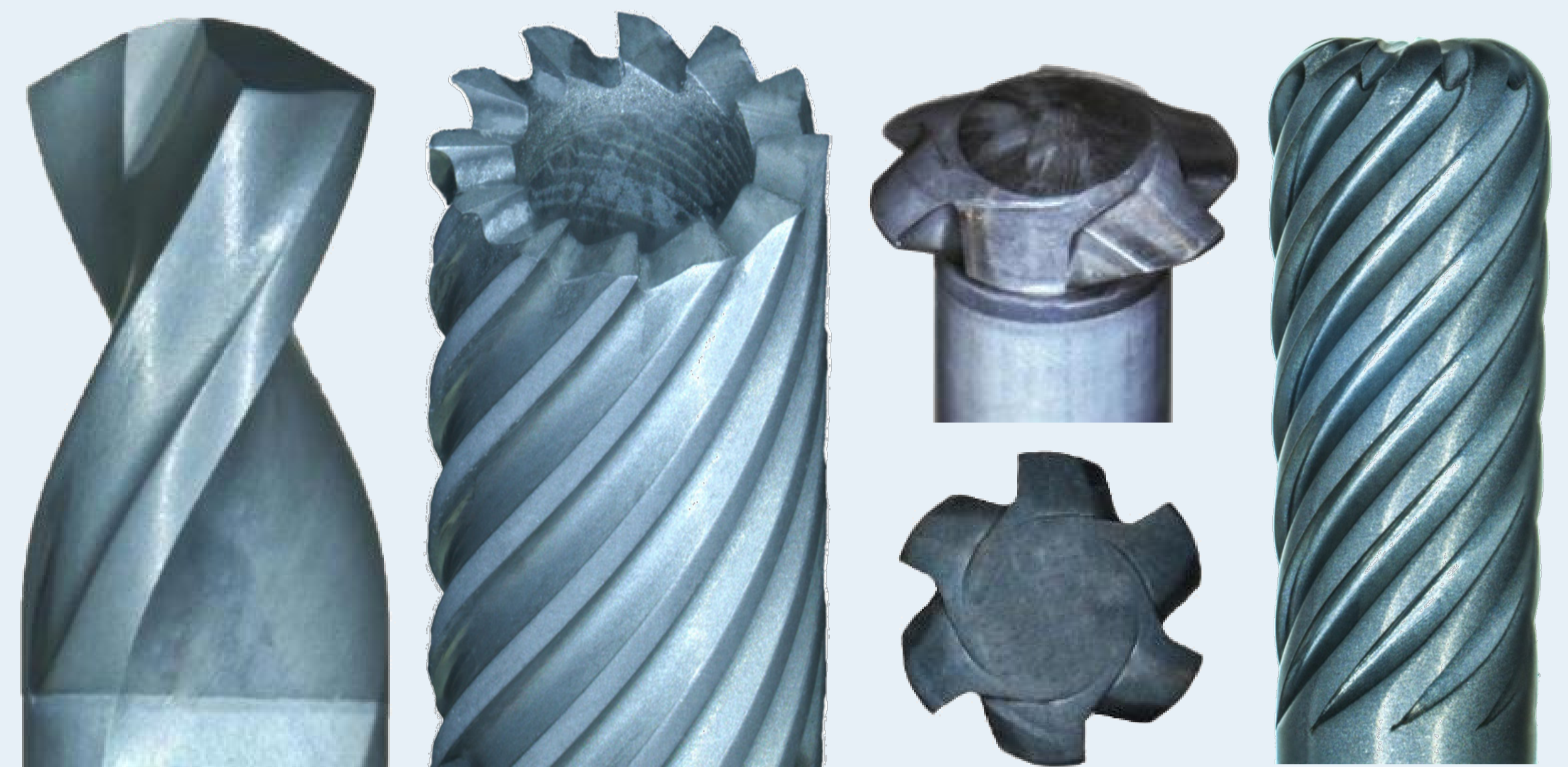
Offer

In addition to a range of standard drilling and milling tools, we offer custom tool developments and research projects in cooperation with ETH institutes and the inspire AG.

Products

6C Tools offers a big range of standardised drilling and milling tools for non-ferro-materials. For example ceramics and tungsten carbide.

Additional to the broad selection of standard products, 6C Tools offers tailored PCD and PCBN tools for your application.



Drill

Core drill

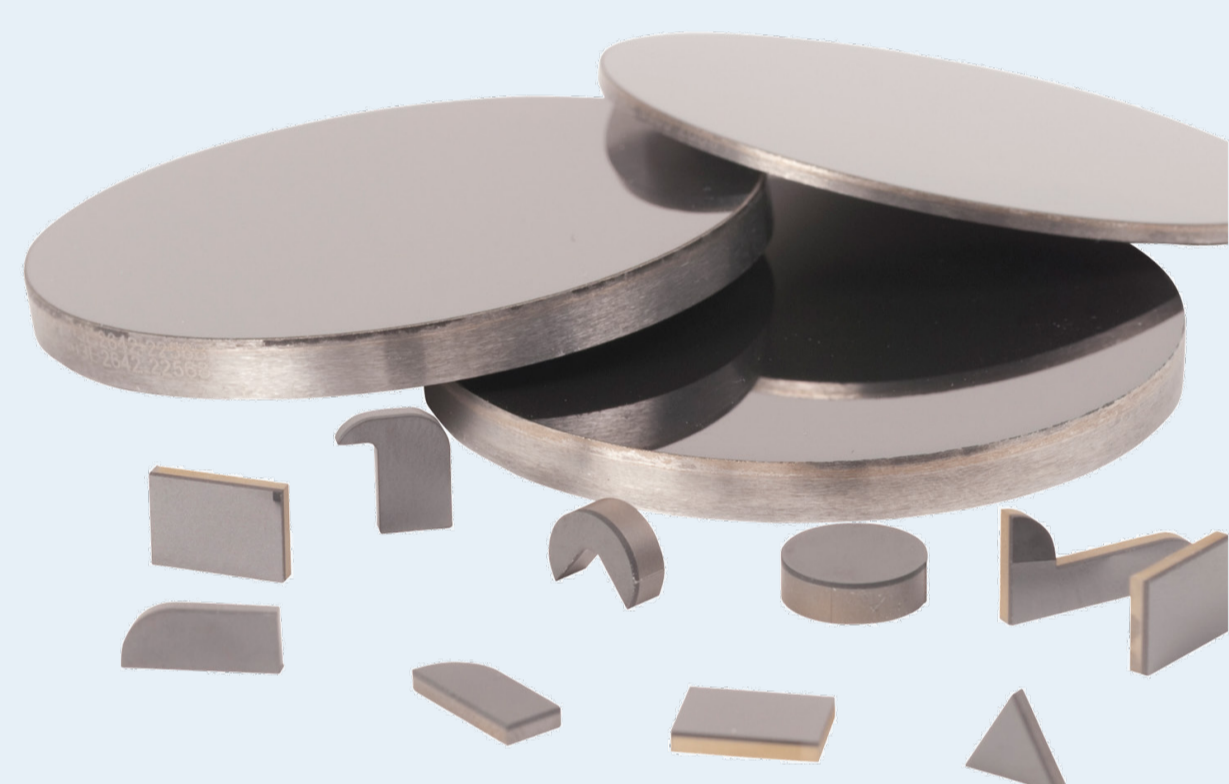
Thread mill

Mill

Materials and Technology

Polycrystalline diamond PCD

- Composite material
 - Diamond
 - Cobalt
- Hard and ductile



Source: Sandvik

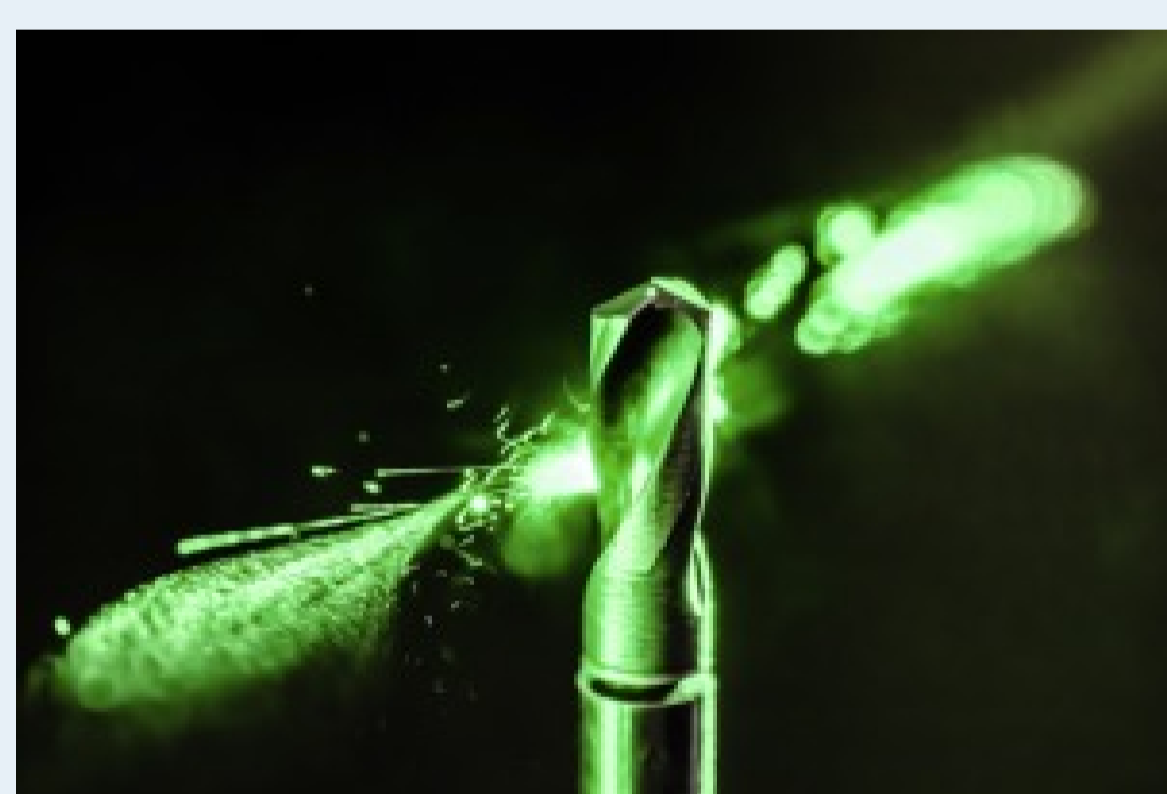
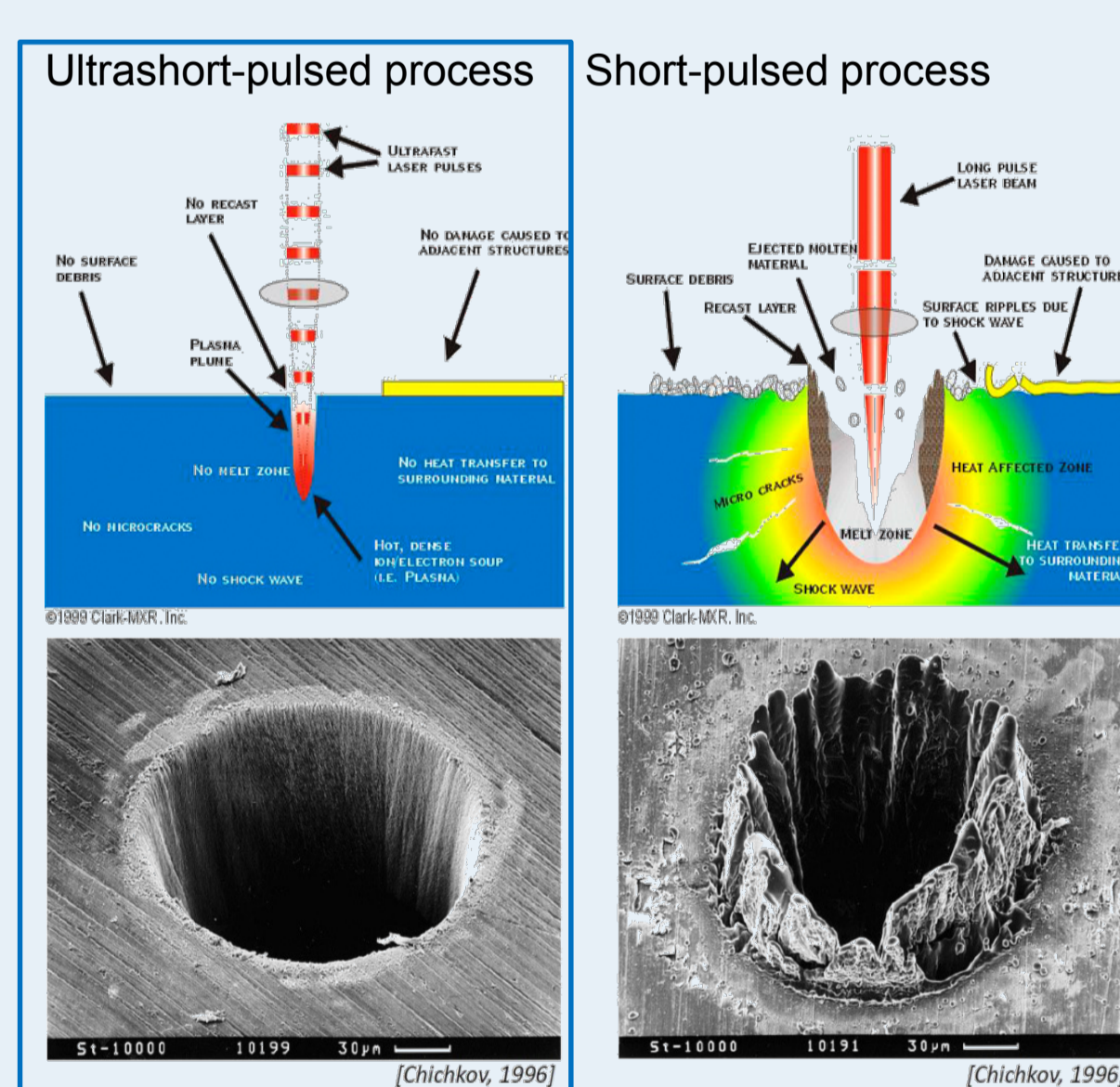
The ideal tool material, but the challenges are ...

- Shaping of the cutting edge
- Material damage during processing

6C Tools solution: Ultrashort-pulsed laser ablation

Thanks to innovative laser technology, 6C tools exploits the full potential of PCD materials

- No damage of PCD structure
- Free choice of PCD grade
- Optimized 3D tools geometries
- Efficient tool manufacturing



Advantage

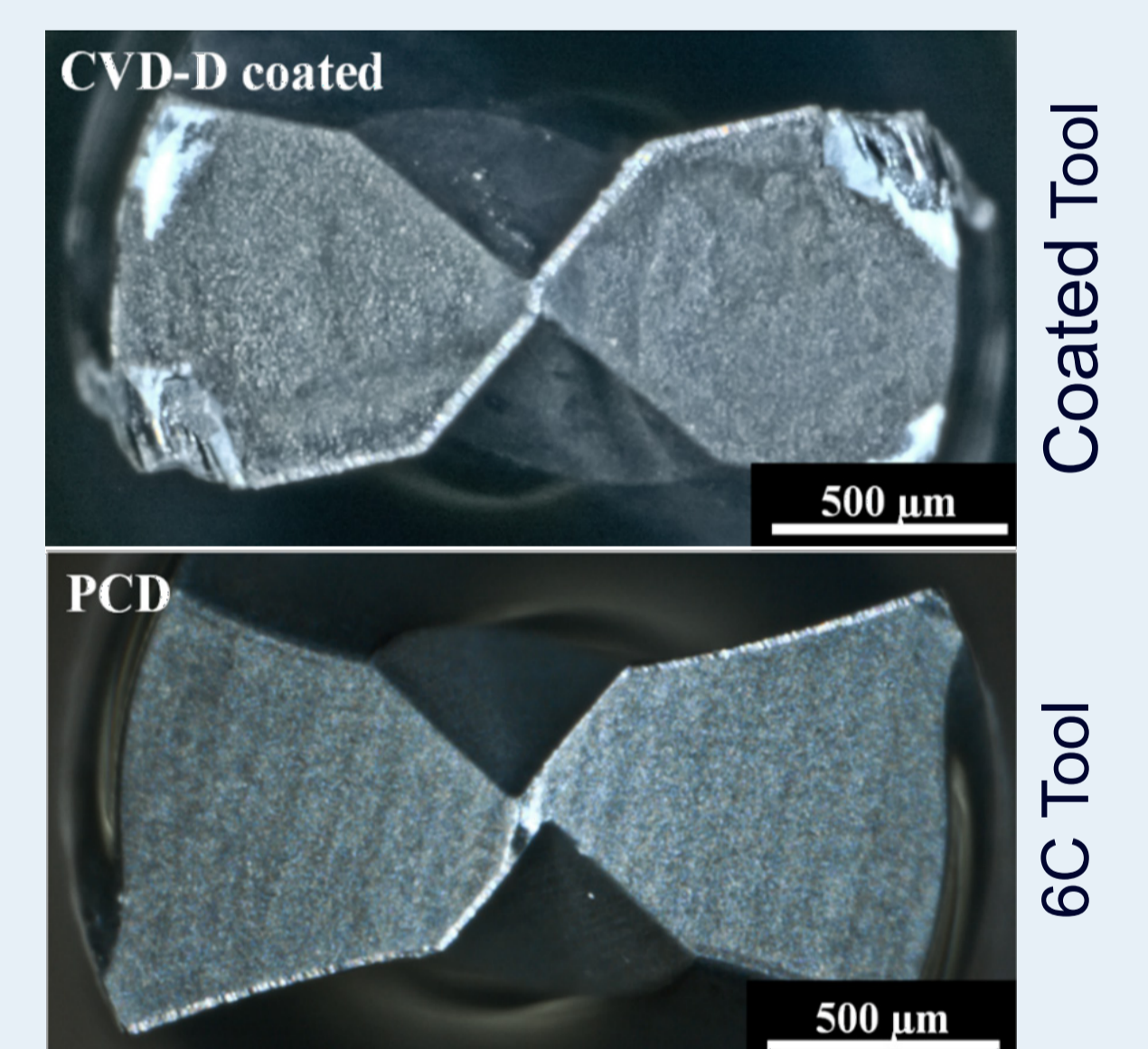
Drilling ZrO₂

Market: Diamond coated tools

- High wear
- Low tool life time
- + Established process

6C Tools: Solid PCD tools

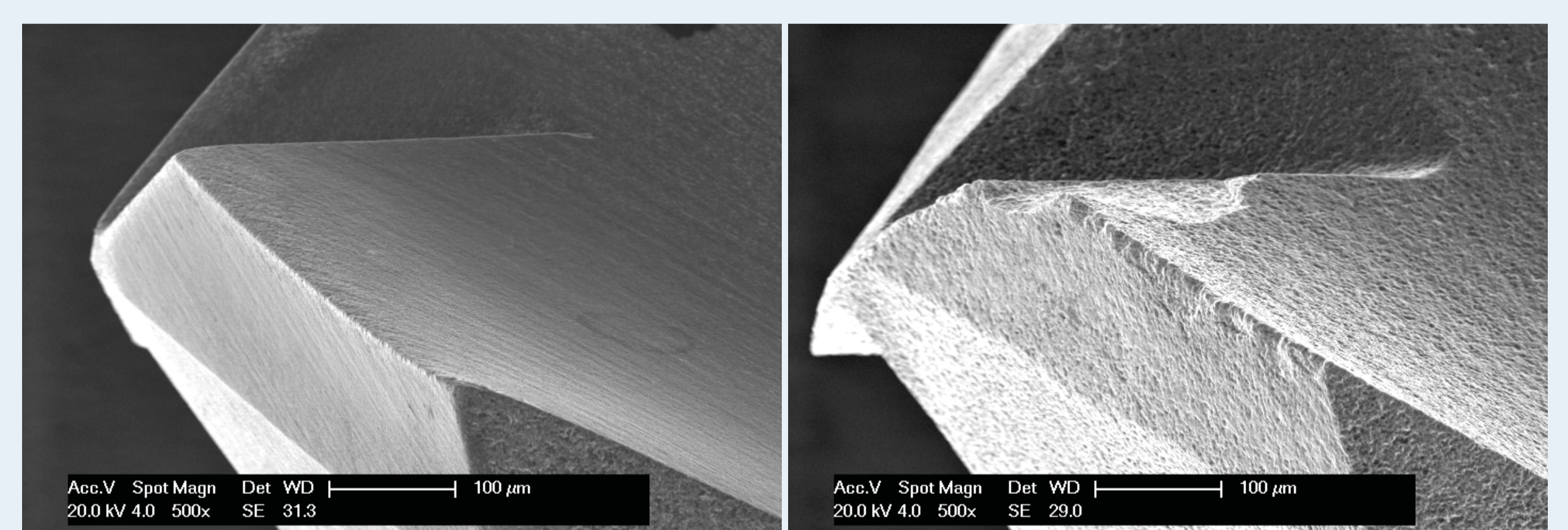
- + 5 -10x higher tool life time
- + Precision
- + Process stability



Tool state after 15 bores

Drilling Ceramic-Matrix Composites

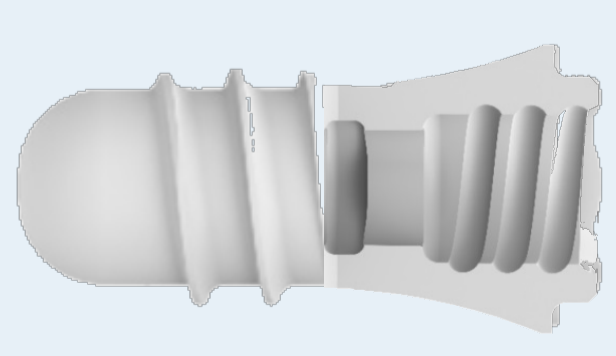
Tool state after 300 bores



6C Tool

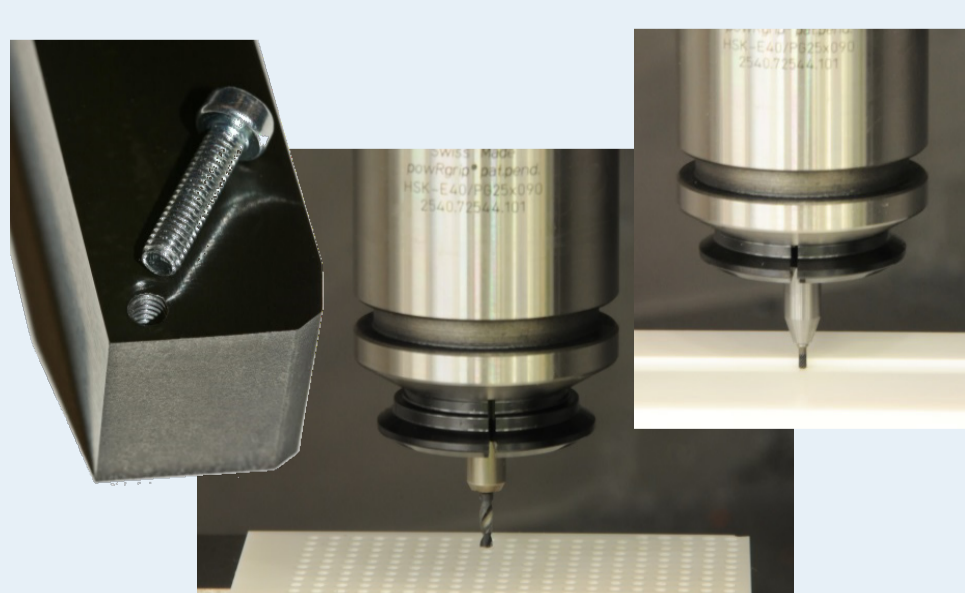
Spark-eroded tool

Applications



Source: Zeramex

Dental implant ZrO₂



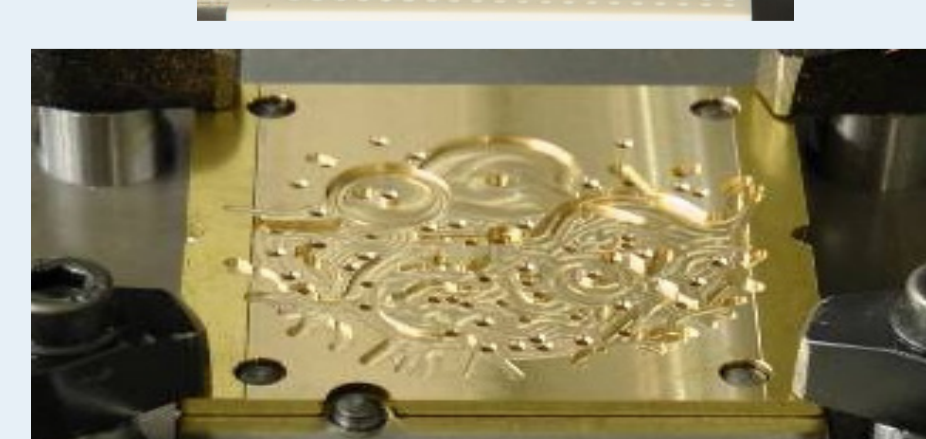
Source: empfabrik GmbH

Die sinking electrode WCu



Source: WZR

Watch case ZrO₂



Watch plates brass



Source: Cebr, Bräm

Mold - Tungsten carbide

Contact

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Nature's hardest helical tools

