FRAUNHOFER ADAPTRONICS ALLIANCE

VIBRATIONAL SYSTEMS TO INCREASE PRODUCTIVITY IN MACHINING

Challenge

The massive tool wear during the machining of fiber composites and hard materials (C/C-SiC) attracts a low productivity and high costs. Even long and difficult to extract chips when machining ductile materials limit the efficiency of the cutting processes.

Innovation

High performance machining with vibrational assistance by means of tool excitation with ultrasonic vibration.

Example of use

Universal and robust vibrational systems like tool holders for machining.

Advantages

- Increase of machining quality and productivity
- At 60 percent reduced process forces
- Increase of part quality by avoiding fibre pull-out, delamination and burr formation
- Increase of tool life of about 50 percent
- Reduction of machining time by 50 percent (hard materials)
- Avoiding formation of built-up edges
- Optimization of chip removal

Our service offer

Development, design, computation, process development, characterization, specific instrumentation, user specific application development.

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1 Ultrasonic vibrational system model with piezoelectrical ring actuators, heatshrink and HSK63 fitting.