



# Fraunhofer

## ADAPTRONIK

FRAUNHOFER ADAPTRONICS ALLIANCE



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

## VIBRATIONAL SYSTEMS TO INCREASE PRODUCTIVITY IN MACHINING

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#### 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 % (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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