



- 1 Total system in use
- 2 Exploded view of the sensor system
- 3 Direct piezoelectric effect

## TOOL WITH INTEGRATED MEASUREMENT OF CUTTING FORCE AND TEMPERATURE

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### Challenges

Modern manufacturing processes are characterized by an increasing degree of complexity. Smallest deviations of individual parameters can lead to destabilization of the whole process. In order to adapt the process parameters, in-process sensors are required which are currently not available on the market.

### Innovation

- Piezoelectric layers as a force sensor in direct vicinity to the indexable insert of the milling tool
- Measurement data acquisition and data preprocessing directly on the tool
- Wireless data transfer and power transmission between tool and machine

### Advantages

- Sensor layers can be integrated more easily due to small layer thickness
- Wide measuring range from a few newton up to 3 kilonewton
- Highly dynamic in-process measurement system
- No impact on the stiffness of tool and seat
- Wireless data transfer and power transmission
- Filtering and digitization directly on the tool

### Our service offer

Development of wireless in-process measurement systems for customer specific applications