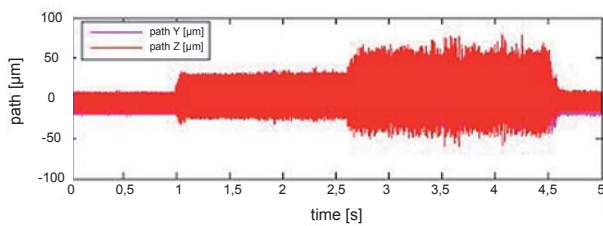


Condition Monitoring & Structural Health Monitoring

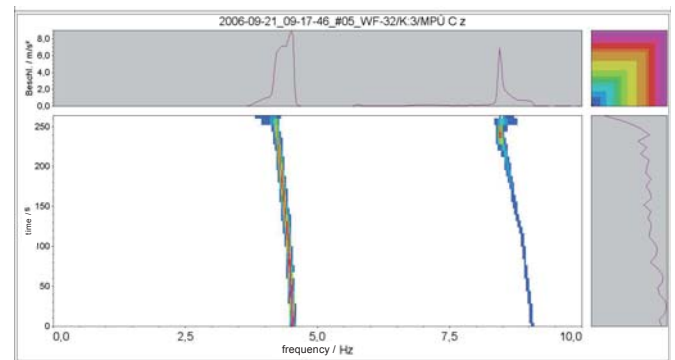


Detection of chattering at HSC machine

In technology vibrations are unwanted in most instances.

With regard to machinery, vibrations affect the functional performance, reduce the product quality, increase the energy requirement or lead to permanent damage and thus finally to an increase of cost expenditure. Therefore, vibrations count among the most important parameters that are verified by structural health monitoring or condition monitoring, CMS, respectively.

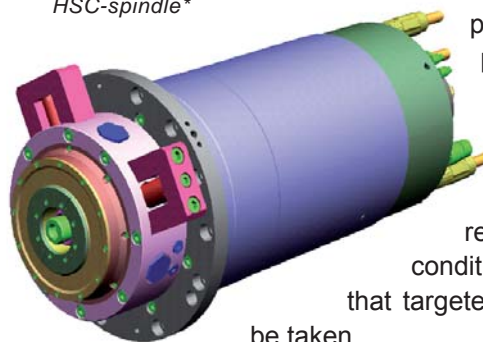
On the other hand, the evaluation of vibration data provides information on the structural health of a machine and thus allows for counter-measures that can be taken, e. g. a modification of the operation mode or active vibration reduction. For vibration problems in the area of mechanical engineering, Wölfel develops solutions based on CMS-methods: e. g. an actively damped milling spindle, with a special chatter control algorithm (CCA) for the suppression of the instabilities due to chatter.



Development of fissure at weld

With regard to Structural Health Monitoring (SHM), besides other sources also the information content of the vibration data is used to draw conclusions on the structural integrity of wind energy plants, piping systems in chemical plants and power plants or aircrafts. E. g. material strains are continuously monitored and automatically evaluated. When reaching critical operating conditions alarm is actuated, so that targeted remedial measures can be taken.

HSC-spindle*



Within the framework of various R & D projects Wölfel in co-operation with its partners develops methods based on Structural Health Monitoring, e. g. at wind energy plants, piping systems and aircraft components.

*courtesy of Weiss Spindeltechnologie GmbH