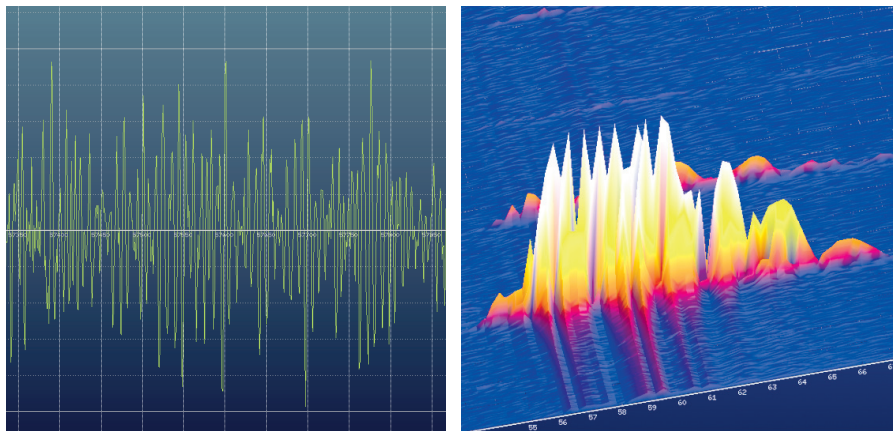# Waste Reduction For Straightening Processes

## Upper images

**Left:** Conventional structure-borne sound analysis, during a straightening process, in detail on the axes time and amplitude. The signals of real cracks are hard to distinguish from background emissions and perturbations.
**Right:** Crack detection with QASS Optimizer4D-CiS.02 – structure-borne sound signals of a perturbation that have been identified as a crack by other detection devices. Optimizer4D-CiS.02 recognizes with the help of the frequency analysis that the signal actually is just a perturbation.
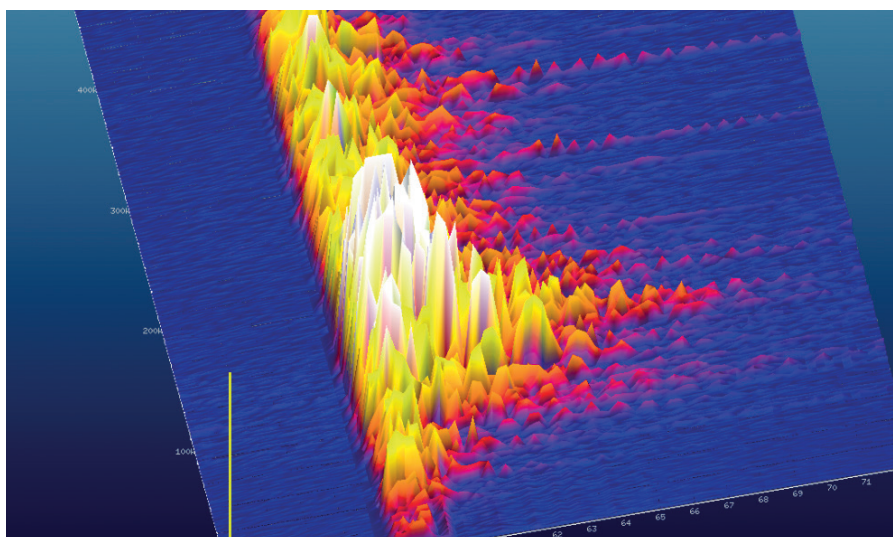
## Lower images

**Crack Detection** Crack detection with QASS Optimizer4D-CiS.02: The innovative crack detection system uses the three axes time, amplitude, and frequency to display the structure-borne sound emissions. Cracks, which occur inside the component during the straightening process, show a sharp rise at the beginning, a steady running down and portions in the high-frequency area.

## Crack detection 2.0 - less waste, higher quality

QASS is world market leader in the area of crack detection during straightening processes. As of now, especially for straightening machines, we recommend our new, innovative crack detection system: Optimizer4D-CiS.02 uses a new analysis concept and **reduces pseudo waste, which until now had been inevitable**. This waste occurs when systems recognize perturbations as cracks.

Conventional crack detection systems analyse intensity and energy developments of structure-borne sound. Optimizer4D-CiS.02 adds a **third dimension to the analysis: Frequency**.

With 25,000 spectroscopic analyses per second Optimizer4D-CiS.02 reveals every detail of the straightening process. This way a **differentiation between real cracks and perturbations** can be made.

# QASS

Process Optimization

# Optimizer4D

Cognitive Signal Analysis

Detection of tool wear

Quality Assurance

100% In-Process

High Frequency Impulse Measurement

Product Quality

Tool Monitoring

Documenting Process Quality

Real-Time

Technology Leap

Reduction of reject rate

HFIM

Crack Detection

Increasing production speed

Process

Evaluation

200kHz