

## ENGINEERING SOLUTIONS

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Vibration & Torque Measurements, Power-Plant Health-Check, Strain Gauge Application, Multi-Body & FEM-Simulations

The machine and plant engineering in the primary industry, the power generation and the transport facilities are characterised by extreme requirements regarding reliability and safety. A solution to minimise the risk of failure at capital-intensive, highly loaded plant components is a condition-based maintenance strategy combined with condition monitoring equipment. Moreover the increasing demands towards productivity and quality require the continuous development of the process control.

However disasters cannot be completely excluded. Moreover the design of new plant generations or the increase of the production can not be supported entirely by computer simulations. In such cases empirical methods are required.

Machine and process monitoring systems are required for the continuous screening of the plant and process conditions. If required, operational measurements and trouble-shooting actions are carried out on industrial machines and plants.

Especially heavy equipment and large machinery require great experience and extensive know-how. In particular when the machine diagnosis includes the process technology.

The ACIDA-TorqControl GmbH has specialised in operational measurements and field services. Our strength is strain gauging and the multi-channel, long-term data acquisition at high sampling rates. We have adequate equipment and software tools at our disposal, thus being able to respond rapidly to national and international inquiries.



The ACIDA-TorqControl GmbH has references, which prove our capability to operate worldwide and under demanding service conditions, for example (s. figures):

- Operational measurement at the world largest hydraulic bucket excavator with the installation of more than 50 strain gauge channels. The structural stress, hydraulic data, the travel of the hydraulic cylinders and motor data was recorded continuously over period of several weeks. As a special feature the excavating operation was documented on video clips stored parallel to the signals. The order included the classification of load collectives and fatigue analysis to determine the limits of a future increase of productivity.
- The stress of the frame and the torque of the main drives have been measured at a roller press in a turkish cement plant. The aim was to acquire detailed, well-founded knowledge for designing new machine generations.

- In In one of the most highly performing rolling mills for hot strip in Asia, the roll stand vibrations have been investigated. Torque transducers had been installed at the main drive spindles and triaxial vibration sensors had been placed onto the mill housing. The signals were recorded continuously together with additional plant and process data. Together with computed simulations the operational measurements helped to resolve a vibration problem and to further improve the performance of the mill.

In general, the diagnostics and technological-scientific engineering of solutions are part of our contract. The consulting work of our interdisciplinary team of engineers is based on sound expertise, on our close co-operation with the regional institutes of the University of Aachen and most of all on the long-time experience of our staff.

