



## CMS – The future under control.

**Condition Monitoring Systems (CMS) enable you to identify early damages at components, aggregates and technical systems with the help of online diagnostic procedures based on time and frequency. Our experts in the diagnostic center analyse every critical change in the condition immediately.**

In this way, appropriate counteraction is taken immediately giving you enough time to prevent damages, which can lead to high costs for repair. Strategies for preventive maintenance can be planned in time. Based on longstanding experience, our highly sensitive and flexible systems are well prepared

for the increasing requirements in the age of industry 4.0. Apart from our standard software and systems, we develop tailored diagnostic systems, starting with the definition of the problem and ending with the creation of customized solutions. Moreover, you can benefit from our big data management, which enables us to adjust established algorithms perfectly to your environment.

If you benefit from our expertise you can prevent serious damage, which could be a threat for safety, and ensure economical operation.

### About TÜV Rheinland

TÜV Rheinland is a worldwide leading independent testing, inspection and certification company with a tradition of more than 140 years. Our experts verify technical facilities, products and services, accompany projects and design processes for companies. Since 2006, we have been member of the United Nation's Global Compact for more sustainability and against corruption.

With more than 20 years of experience, TÜV Rheinland ISTec GmbH Institut für Sicherheitstechnologie (Institute for Safety Technology) is among the leading providers of diagnostic and safety technology in the most diverse industries. With our certified diagnostic center, we are the right partner at your side to monitor and detect condition changes at relevant elements or components. This helps you to plan inspections and maintenance at the right time. So you can avoid unexpected outages and associated costs.

### Your benefits at a glance.

#### Everything from one source:

- Internally developed hardware and software as well as algorithms
- Use of high quality industrial components based on longstanding experience in machine diagnostics (industry, railway, nuclear power, gas caverns, wind energy)
- Monitoring Body certified according to GL 2013
- Direct personal contact
- Numerous product certifications
- Flexible, small company within an international group



## Wind

Our condition monitoring systems (WKA Comos series) enable you to monitor reliably online sensitive machinery components according to your needs. Our Monitoring Body, which is also certified, provides you with detailed reports and continuous system support. Alternatively, our mobile WKA CC8 gives you the possibility to do spot checks on your own!



## Gas Caverns

With our ta-COMOS, you can evaluate facility's condition more efficiently with the help of acoustical detection. During this procedure, changes of signals in the surroundings of machine groups and leakage sounds (boilers, pipes, etc.) are detected. To this end, we use scenarios of the Fuzzy Technology.



## Industry

The tf-COMOS combines the specific CMS machine analyses with the traditional structure health monitoring into one system. Therefore, it is perfectly suited to analyze not only vibrations of machines with constant or variable rotation speed.



## Railway

Our on board condition monitoring systems (ÜDF and ADF COMOS) enable you to monitor reliably vehicle components that are essential for safety and availability. Alternatively, our mobile diagnostic device (RSL-D) provides a clear identification of damaged components.



## Buildings and Construction

Buildings and engineering works such as tunnels and bridges are subject to constant monitoring in order to detect condition changes at an early stage. Highly resolved sensors adapted to the corresponding application record the building's condition. So, the system warns the owner/operator of the building immediately if there are changes that are a threat for safety or if there are inadmissible loads.



## High-temperature energy systems

The stability of components in power plants and chemical plants is exposed to high loads. Our sensor systems, which were developed and adapted to your needs, record the changes of critical components and are monitored online. With the help of this methodology you can provide proof that operation is safe and determine the remaining lifetime of these critical components.

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Precisely Right.