

Kerntech machine condition monitoring system (CMS)

Systems and services for condition-based maintenance

Our promise – your benefit

A well-implemented condition monitoring system (CMS) leads to better availability, appropriate maintenance, and a better overall condition of machines. Bringing together hardware, software, and services we offer you custom-made CMS-solutions. We promise you a combination of service and technology which provides your engineer in-charge with exactly the information he needs about the machine.

Benefits: For budget und security

- After maintenance work a CMS will deliver information already during the first test run. Hence, you will know immediately if the maintenance task was successful.
- Creeping decay and slow wear will be detected before serious machine failure occurs. Therefore, you can plan your maintenance activities in advance.
- Sudden failure and downtime of safety-critical or high-availability machines can often be avoided.
- Meaningful values about machine condition allow for adequate maintenance
- Condition-based maintenance and CMS especially help you service ball bearings. In contrast, a purely periodical maintenance regime wastes money and remaining life of bearings.
- Longterm, dedicated measurements provide important details to the cause of the problem in case of irregularities of a machine. You will receive meaning-

ful CMS-data and Powerpoint®-ready figures to help you decide on corrective actions.

Custom-made to your needs

We will develop your CMS according to your technical and organizational requirements. We are prepared to realize your special requests. No matter if you want to control a single process value or implement a monitoring concept for a whole machine pool: we can provide solutions. We will consult you competently in planning your CMS.

Examples of realization

- Huge, multi-stage pumps with floating bearings are continually monitored by a stationary CMS. For this, sensors for shaft displacement and accelerometers are employed. The orbits of shaft vibration are displayed online. Any violation of vibration limits is signaled in a traffic-lights manner. By tracking vibration levels over many years wear and deterioration can be detected early.
- Huge machine pools can be monitored using portable data-loggers. The collected vibration values and calculated machine-health figures are updated and processed monthly in a database. We will assess data regularly according

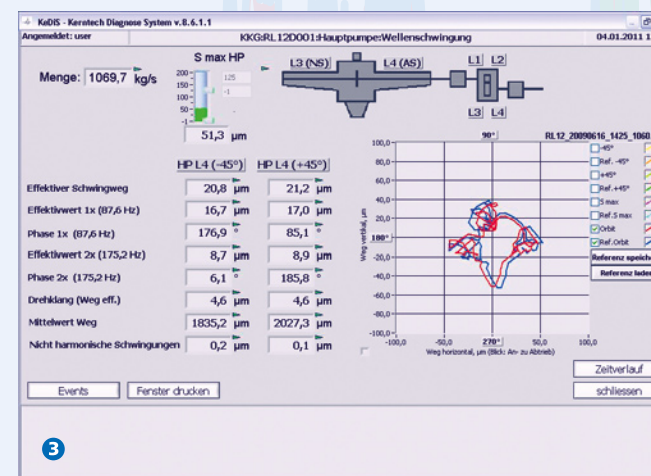
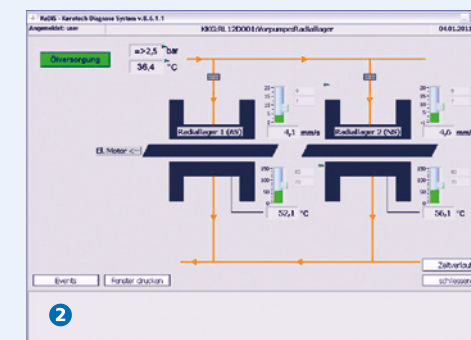


Fig. 2: Clear display of all process values and diagnosis figures. The layout corresponds to the hydraulic system diagram (here: bearing temperatures)

Fig. 3: Monitoring of shaft vibration of major pumps: Orbits of shaft movement and vibration values

to an approved procedure. As a result, only if action needs to be taken we will inform you about a machine.

- Long-term measurements which are designed especially towards a given requirement are very helpful for troubleshooting. With such, root-causes and countermeasures can be found for problems like cavitations, knocking or vibration of pipes, sudden drift of operational parameters, or unfavorable process conditions.
- Acoustic emission techniques can monitor pressure vessels very well with regard to loose parts inside. Furthermore, vibration monitoring in low-frequency yields information about fatigue of the supporting structure.

Our services

We offer all services around implementing and maintaining your CMS and, if appli-

cable, processing measurement data and machine diagnosis. We

- Consult in designing of CMS
- Define limiting-values over the whole lifetime of a CMS: thus, false alarms will be avoided
- Service the condition monitoring system by carrying out periodical system tests
- Place system into operation including installation and commissioning tests
- Conduct trainings and author training material

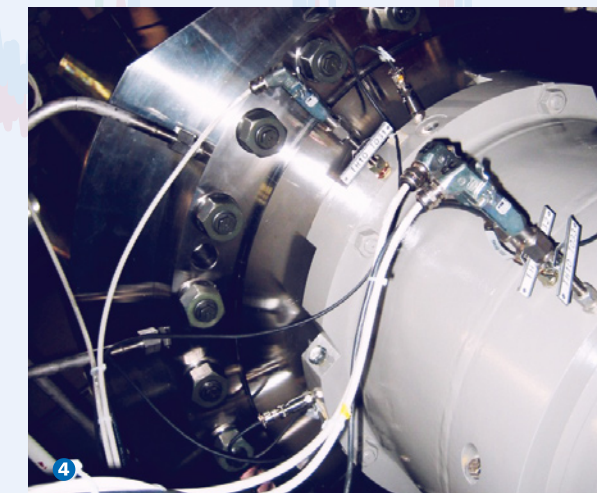


Fig. 4: Instrumentation of a pump with thermometers and vibration sensors/pickups for continuous monitoring

Fig. 5: Signaling unit: Clear display of system state

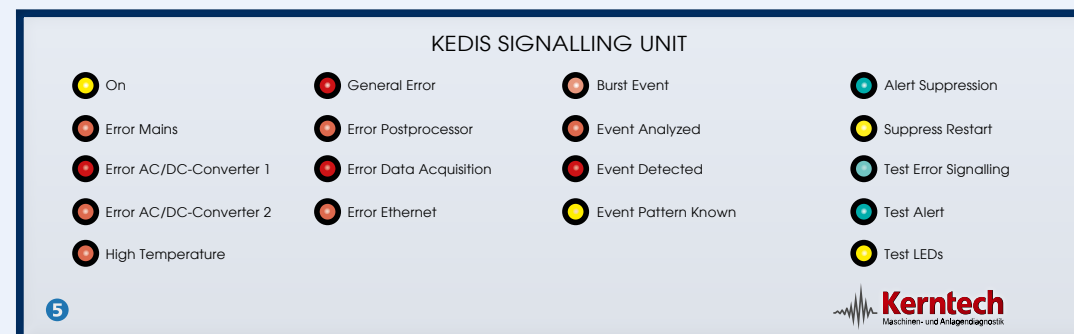


Fig. 1: Realization of an Online-CMS in a power plant

How to find us...



Leave the A2 at the AS Bad Nenndorf exit (38) towards Barsinghausen and follow the B65. Leave the B65 and drive straight ahead following the L391. Turn to your right on Nienstedter Straße (L401) after about 3-4 kilometres. Follow this road for approximately 70 meters before turning left in the street Neue Rehre. Leave the Neue Rehre and turn to your left in the Steinradweg. You find your destination on the right side at the Forsthaus.

Kerntech GmbH

Am Forsthaus 8
D-30890 Barsinghausen
Tel. +49.511. 67 66 88 73
Fax +49.511. 67 66 88 88
Vanity: 0700-KERNTech

E-mail:

fiedler@kerntech.de
hellmich@kerntech.de
runkel@kerntech.de
info@kerntech.de

Executive director:

Dr. Jürgen Fiedler
HRB Hannover 59019

References:

In particular we have many years of work experience with:

E.ON-Kernkraft
E.ON Kraftwerke
Vattenfall
MTU
VW
Sincor
Richter Chemietechnik



Certified according to DIN EN ISO 9001:2008

www.kerntech.de

Shaft Vibration

100

75

50

25

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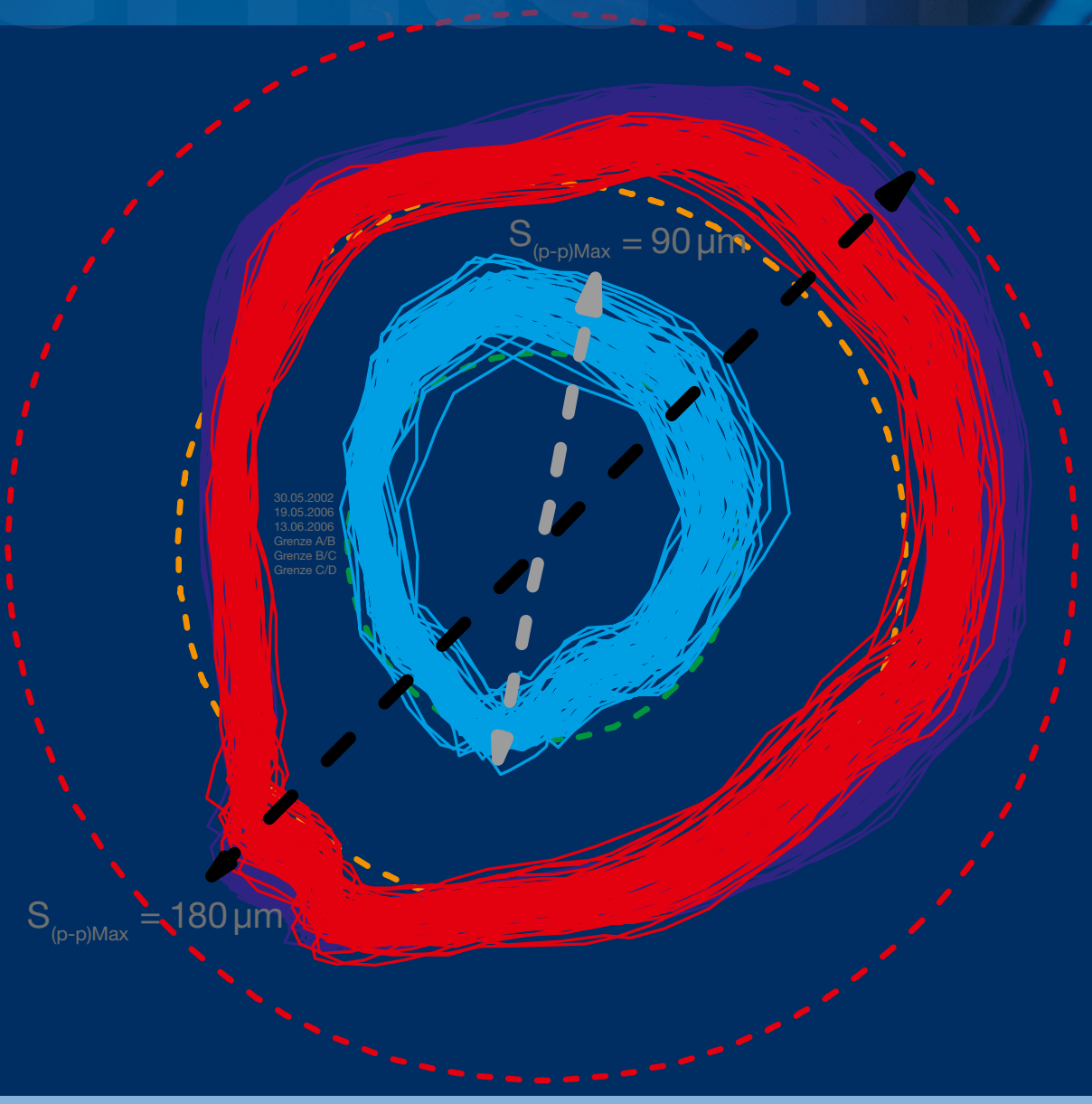
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Layout: Bernd.Schuster@xsdesign.de

Condition Monitoring System

