

## Online Condition Monitoring of pumps

### Pumps

In almost all areas of industry pumps are essential for conveying liquid and solid materials and for generating specific pressure conditions.

These industry sectors include:

- Chemical and petrochemical industry
- Power generation
- Water supply, waste water management
- Steel production
- Automotive industry
- Mining

### Process assurance and availability

High pump availability is essential in many industrial applications. Often the failure of a non-redundant pumping system will bring an entire plant complex to a standstill.

Online Condition Monitoring helps avoid malfunctions, aids in recognizing wear processes and bearing damage early on, and promotes the optimal utilization of component service life.

DMT-Online Condition Monitoring System PlantSafe® can monitor any of a wide variety of pump units and detects unacceptable operating states and spots damage as it develops.

Intermediate coolant pumps in the water circuit of 800 MW brown coal power plant



Centrifugal pump 1P451B  
Ruhrpumpen SVN-4X13



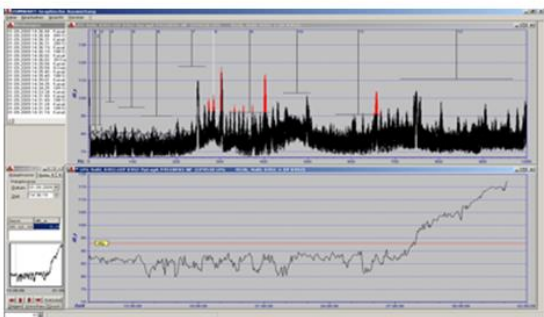
## Online Condition Monitoring System

### PlantSafe®

In order to ensure early detection of damage to the pump and its components, vibrations are recorded and analysed at defined intervals by the PlantSafe® Online Condition Monitoring System.

PlantSafe® collects structure-borne noise data in real time and processes the signals, averages, defines the parameters and displays information about the current state of wear of the pump and its components. The information is based on the measurement of structure-borne noise, vibrations and shock pulses by means of special sensors and on simultaneous acquisition of operating data in addition.

Structure-borne noise spectra with monitoring thresholds and development of bearing damage.



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Cavitation damage at an axial piston pump



### PlantSafe® reports:

- Bearing damage
- Lack of balance
- Toothing damage
- Coupling damage
- Damages at blades
- Impending mixed friction
- Assembly alignment errors
- Impermissible operating states

### PlantSafe® helps:

- to recognise wear early
- to reduce unplanned downtime
- to increase availability
- to avoid secondary damage
- to reduce maintenance costs
- to reduce revision times
- to plan maintenance and revisions based on objective data
- to extend revision cycles in combination with other measures