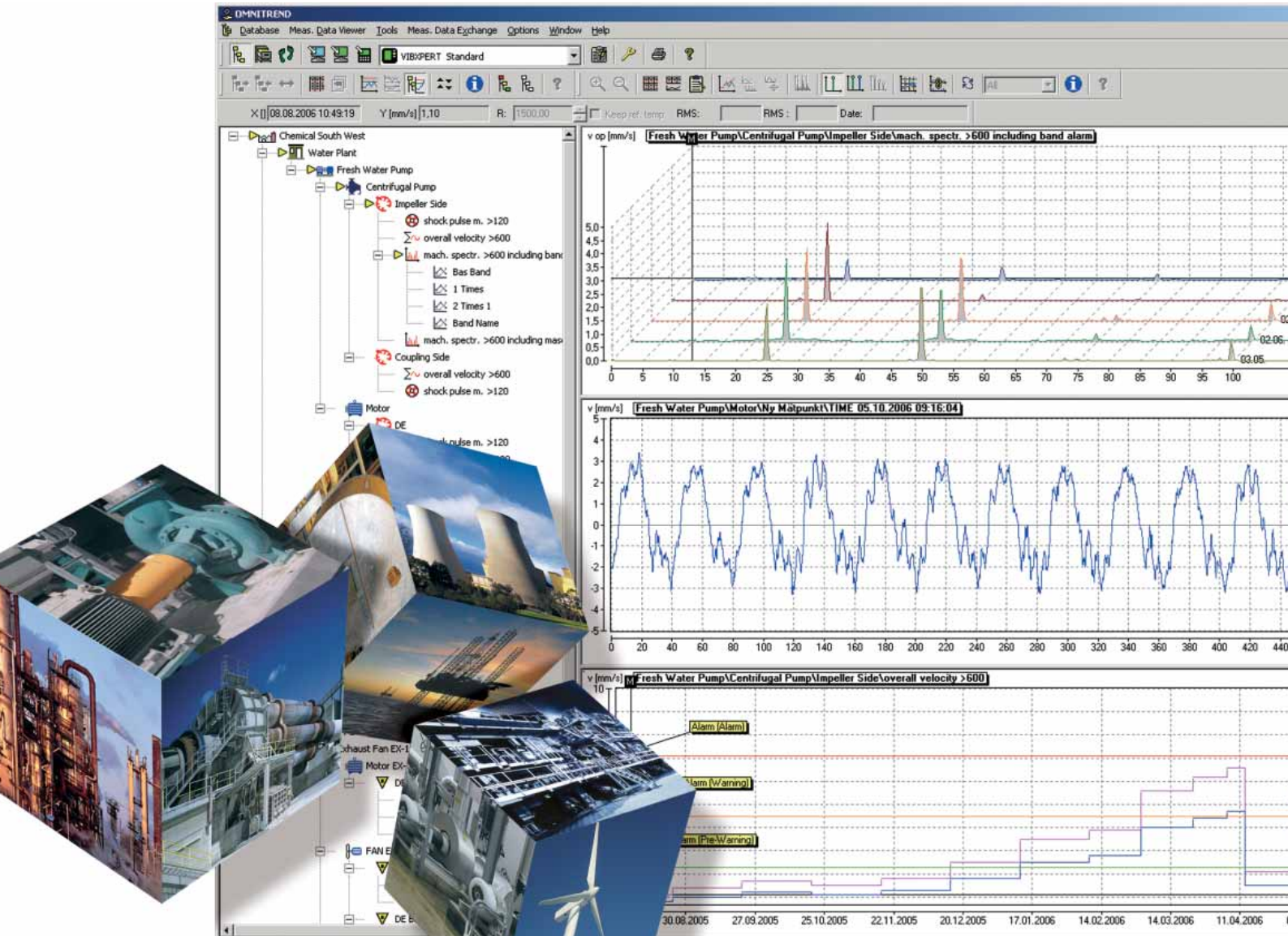
PRÜFTECHNIK

OMNITREND®

Maximizing system availability
Optimizing production processes



OMNITREND® – Condition Monitoring Software

Maintenance: a profit center
Machine maintenance has become a major cost factor. Its main task is to track machine conditions and process quality and to keep them at an optimal level. Invaluable for this task are appropriate measurement instruments. These can be simple hand-held devices that are used on machines at regular intervals. They can also be more or less complex online monitoring systems that monitor machines around the clock. Whatever type of instrument is used, the maintenance technician – or the service provider – will want to get the most out of the time spent monitoring the machines by collecting, evaluating, processing and archiving the machine data with a suitable program. A program like OMNITREND®.

- **Easy to use**
- **Powerful**
- **Modular**
- **Supports web services**
- **Multilingual**

OMNITREND®
– flexible and efficient –
with great customer value

Multi-device software
A single software means less learning because it can be used with multiple device types (data collector, online system). Also, costs per device type are low and all measured data are under one roof.

Multiuser software
The basic application can be installed on any number of computers without generating additional licensing costs. A free update and support service is included.

Many database formats
High flexibility and simple integration in existing database systems enables compatibility with Microsoft Access, ORACLE and the Microsoft SQL Server.

User-friendly, Windows-based design
The familiar Windows user interface makes getting started with OMNITREND quick and easy, minimizing the learning curve. A clear tree view of the measurement locations and functions such as 'Copy & Paste' and 'Drag & Drop' are, of course, included.

OMNITREND® is communicative

Client PC wi
OMNITREND

... in a network ...
OMNITREND® can be readily integrated into an existing network. The database is stored on a server that an unlimited number of clients can access. Standard protocols are used as the communication language.

PRÜFTECHNIK data collectors

... a shared modular PC software for all PRÜFTECHNIK systems ....

OMNITREND® does it with them all

... that is, with all PRÜFTECHNIK Condition Monitoring Systems – with hand-held measurement devices, data collectors and permanently installed online systems. The modular OMNITREND® software package is the heart of a modern, condition-oriented maintenance system.

th
® Online View

Online server with
OMNITREND® database

CMMS
web services

Ethernet (LAN / WAN)

OMNITREND®
offline client
(database, eMail)

Direct
(RS232, USB)

PRÜFTECHNIK
online systems

Modbus TCP (OPC)
process data server

PCS
Status info,
overall values,
process data

Clever data management that meets all your requirements

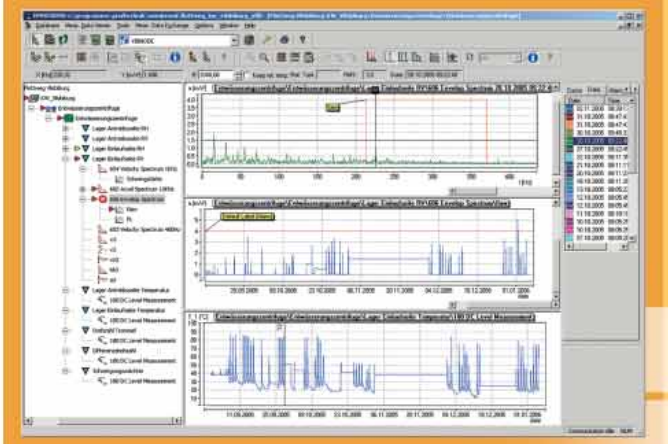
OMNITREND® is a database-driven maintenance software that can be adapted to individual needs by adding a large variety of program extensions. Apart from the basic functions for data processing and communication, there are add-on modules for exchanging data, emailing measurements and creating reports. On the basis of web services, virtually all information from the database can be prepared and visualized as you require.

Collecting data

Offline **Online**

Collect or automatically record machine data and read into the OMNITREND® database.

Preparing, visualizing, archiving and exchanging data



OMNITREND® database

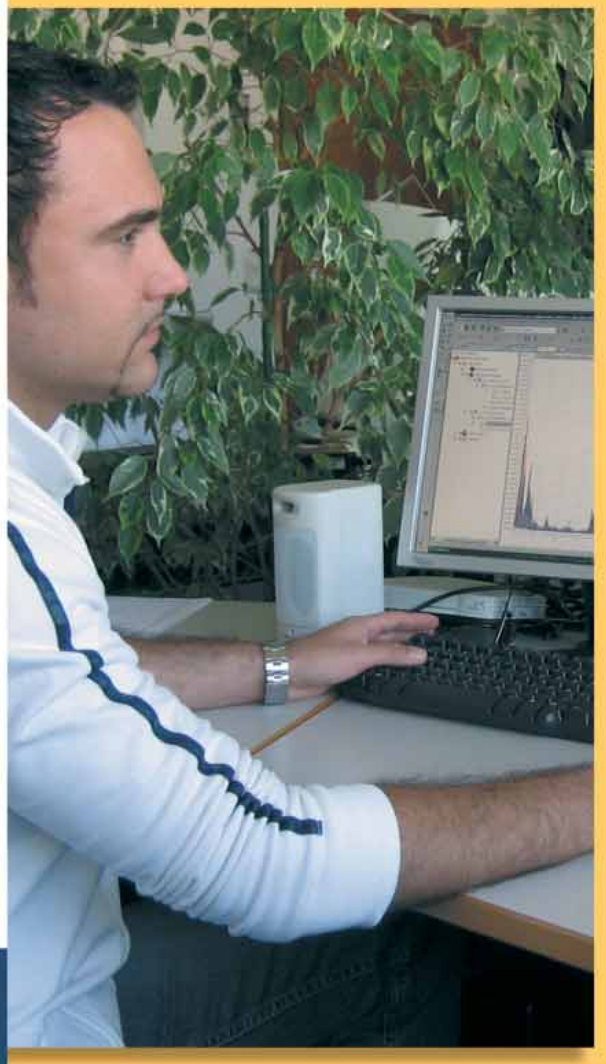
MS Access – MS SQL – ORACLE

Processing and visualizing data
in diagrams, reports and 'live' displays (online system). Practical editors help in creating alarm thresholds, routes and measurement tasks. The representation of the machine park in a tree structure simplifies the administration of measurement locations.

Archiving and exchanging data
via eMail between distributed systems – a great convenience to service partners. The bidirectional data exchange with higher order systems (e.g. CMMS) is possible via SAP / IBIP, other freely definable text formats and web services.

Using data

The right information for each user at the right time



Maintenance manager
- Alarm status report
- Problem reports

Control room
- Alarm status

Maintenance
- Alarm status report
- Measurement data report
- Work instructions
- Alarm status
- Measurement data evaluation (level 1)

Administration
- User administration
- Measurement location administration
- Parameterization / configuration

Diagnosis specialist
- Alarm status
- Measurement data evaluation (level 2)
- 'Live' analysis
- In-depth diagnosis

Service partner (online systems)
- Status reports via eMail
- Measurement data as an attachment

PCS – Process control system
- Status info
- Process data
- Overall values

CMMS – higher order systems
(SAP, asset management systems,...)
- Master data import
- Event reports
- Problem reports
- Work instructions

Data Viewer

Data Manager

Standard Report

Web Report

Online View

SAP / IBIP

Web services

OPC gateway

eMail Center

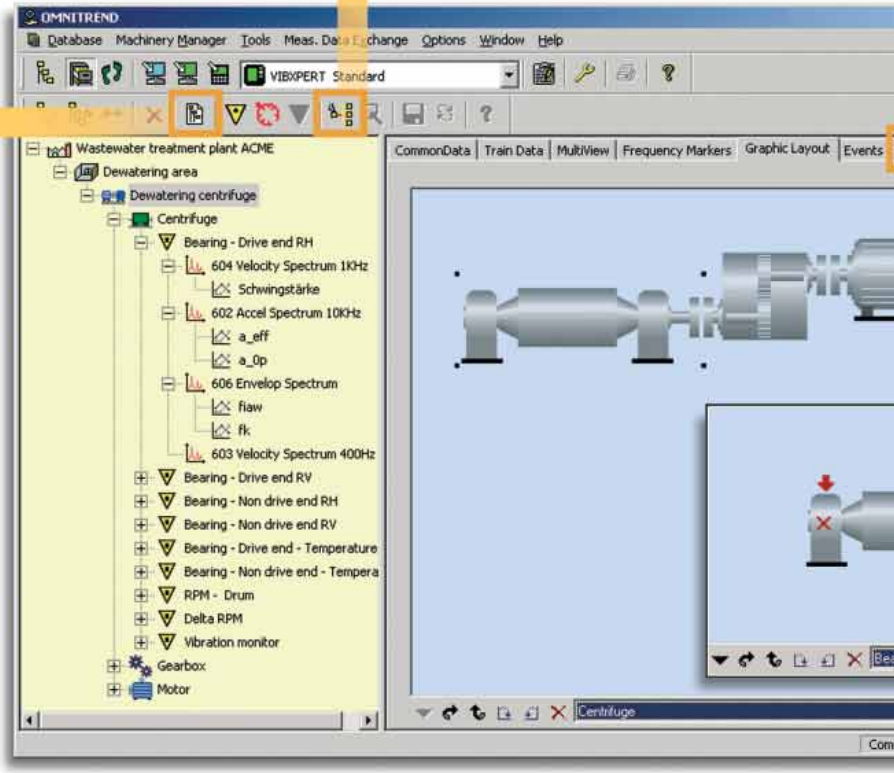
You decide which data are made accessible to which user groups. You determine which data are transferred from the PCS or CMMS to OMNITREND®.

Convenient operation with clever software tools

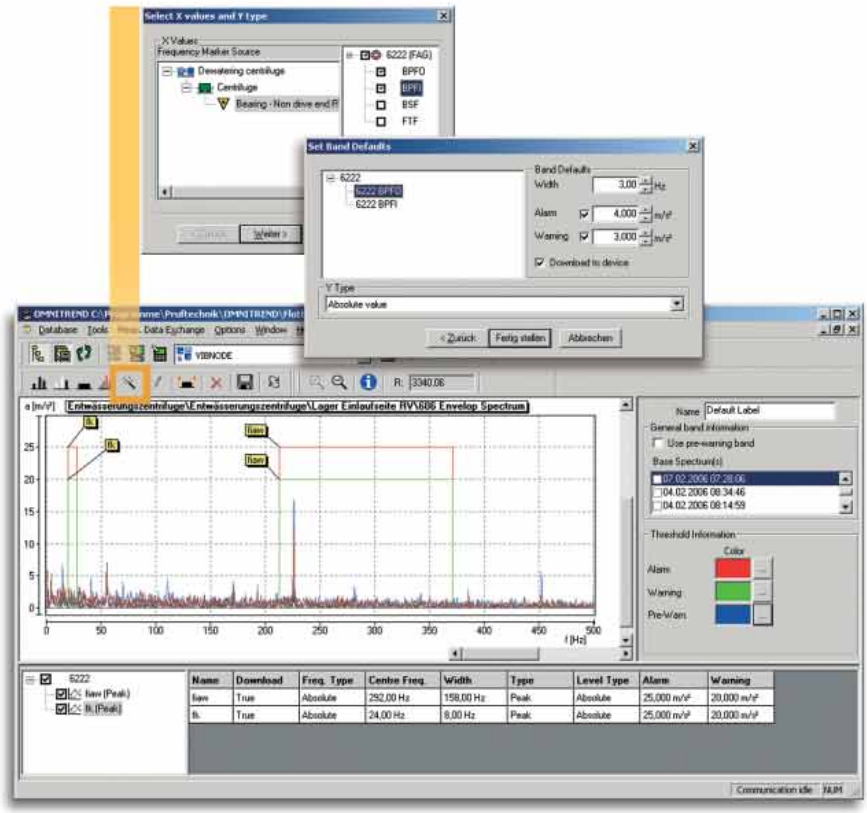
OMNITREND® will win you over with its well-designed operating concept: its straightforward machine park display, the intuitive method of entering parameters and its practical editor functions make it extremely efficient to use.

Short changeover times
Changes to a measurement location setup can be applied **at once** to several locations. This is very convenient when a sensor has been replaced by another type, making it ideal for the maintenance of large databases.

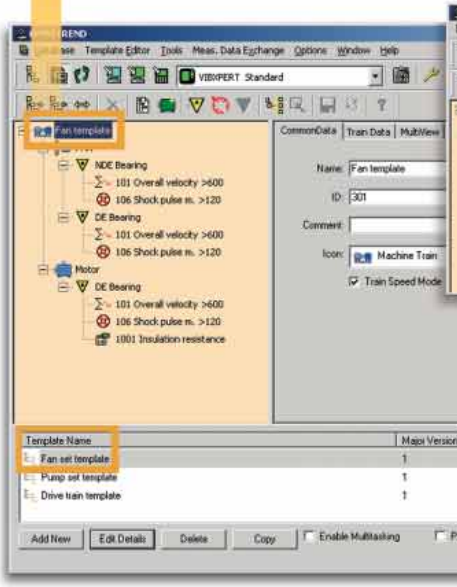
Setup made easy
An intelligent **Task Wizard** guides you through the steps of creating measurement tasks. Predefined setups and the selection of sensors from the database keep setup times to a minimum.



Keeping alarms within limits
Setting up threshold values is intuitive and simple. Just a few clicks in the integrated **Alarm Wizard** and you have set up even the most complex, RPM-based alarm masks.



Two true time-savers
1) Machine templates
- Rapid configuration of machine parks with the same machines
- Fast changing of parameters over the entire database
- Ideal for repeat measurements during service calls or machine acceptance



Useful additional infos
Data sheets, machine drawings and information used in the evaluation of data are easy to integrate and can be called up at any time.

Machinery manager
for managing machine and measurement parameters

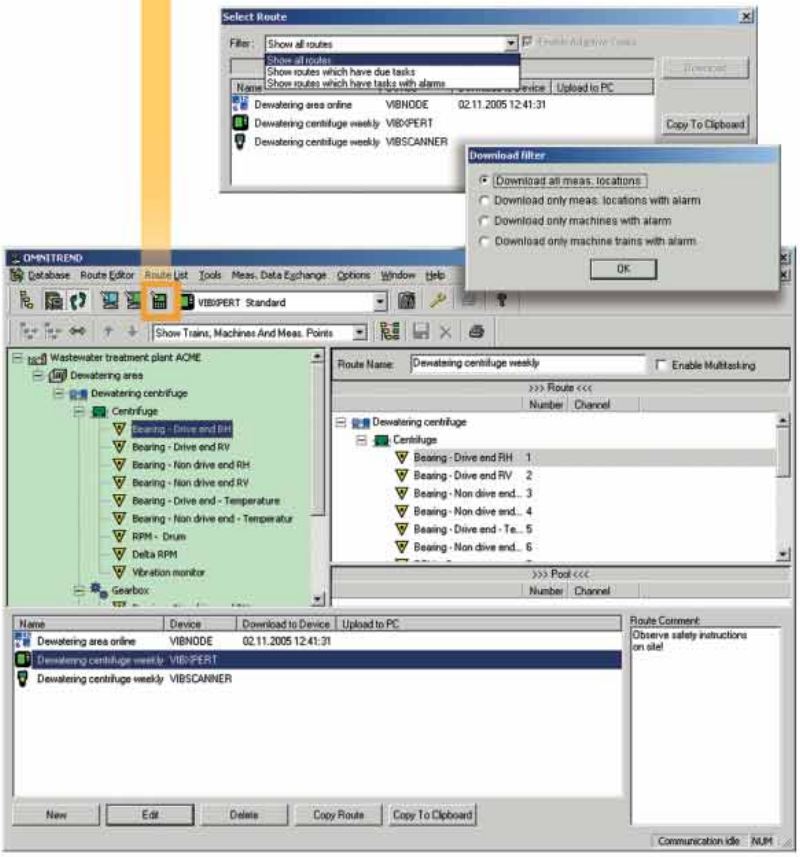
Routes with routine

The creation of regular measurement routes with the data collector is particularly easy using the OMNITREND® route function:

- Creation of a route via 'Drag & Drop'
- Optimization of paths by changing the sequence of the route
- The adaptive route automatically adjusts to the current machine condition on-site
- A graphic display of the route shows the machine, the measurement locations and the measurement direction, thus preventing mix-ups
- Vibration measurements with the VIBCODE® sensor system run virtually on their own since the coded measurement locations are recognized automatically.

Route management
takes over your routine. Reliably.

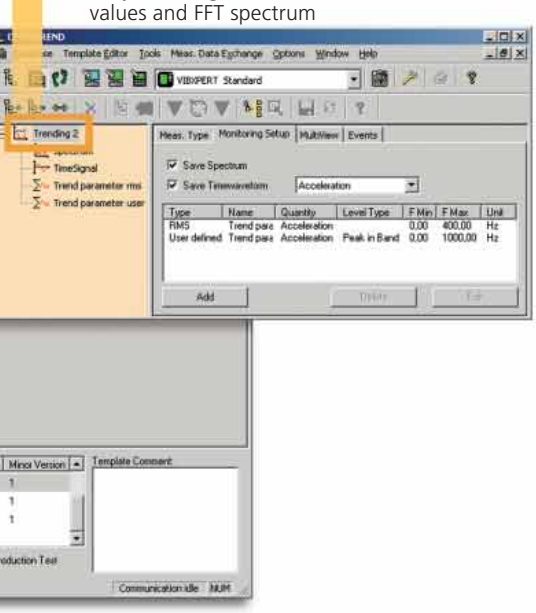
- Notifies you of 'due' routes
- Checks imported measurement data for alarm violations
- Arranges all measurement locations that cause an alarm message to form a new alarm route.



Route Editor
for managing and creating routes

2) Trending spectra

- Measurements can be taken up to 3x faster
- Only one signal for overall values and FFT spectrum

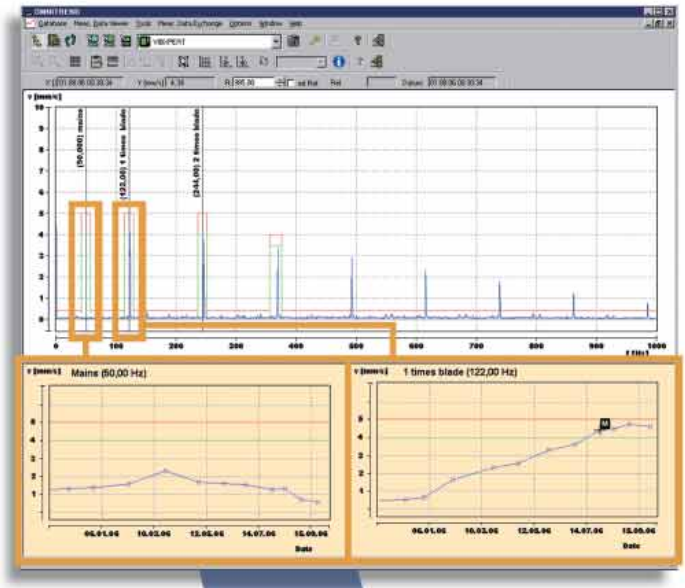


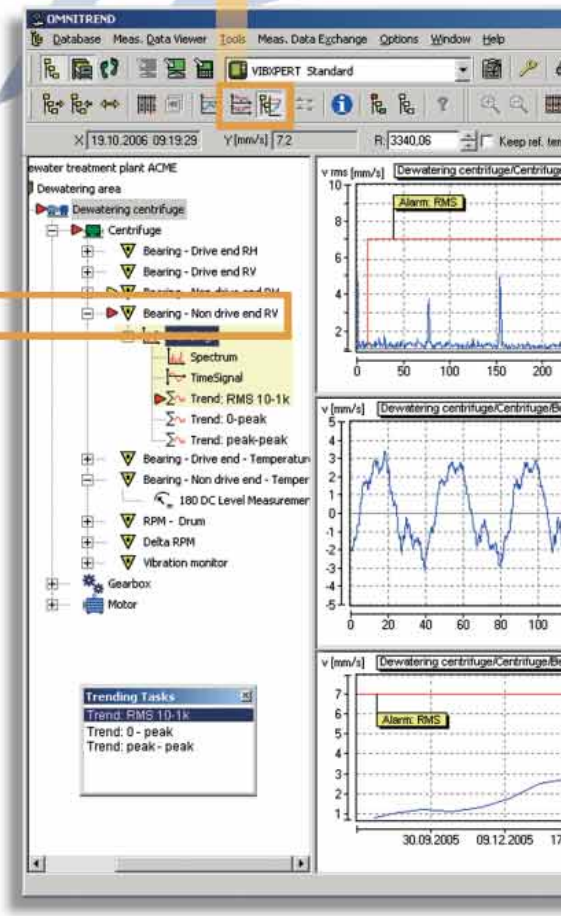
Machine analysis – simple & practical

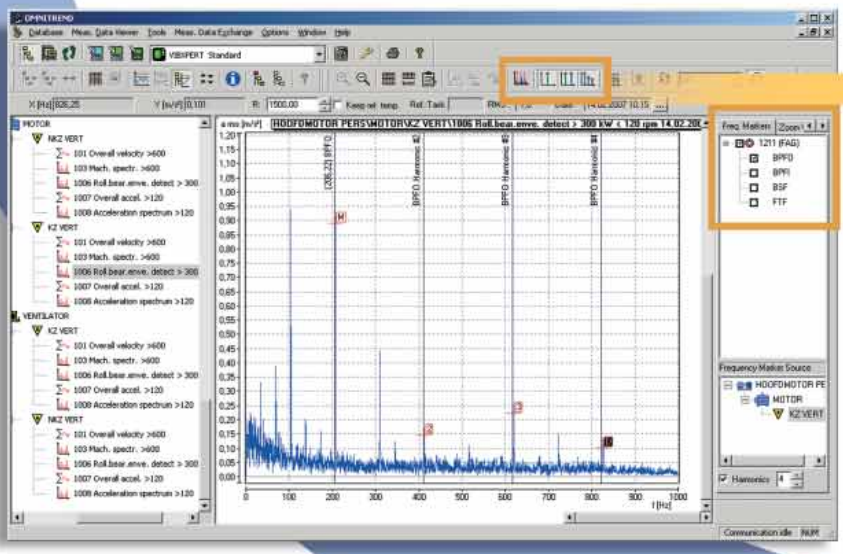
Reliable diagnoses
What is the reason for increased vibration, and what component triggered an alarm message? Answers to these questions can be found in the amplitude trend of selected frequency bands. Damage to a component can be identified by specific frequency patterns in a spectrum. If the trend in the monitored bands rises, the user can immediately identify which component is affected and what damage mechanisms are at work. Frequency-selective monitoring can even be used on machines that operate at variable speeds or variable load conditions.

A clear view
The entire machine park is clearly arranged in a hierarchical tree structure. OMNITREND® employs a **traffic light symbol** to automatically mark machines that exhibit excessively high measurement values or that have exceeded a threshold value. Thus, you always have a full view of the overall status of the system and can focus on the 'critical' machines.

Browsing convenience
A simple click on a tree node will open a corresponding diagram in the right-hand pane of the window, letting you quickly browse the measurement data. Spectra and time signals can be displayed individually or as a **MultiView diagram**.



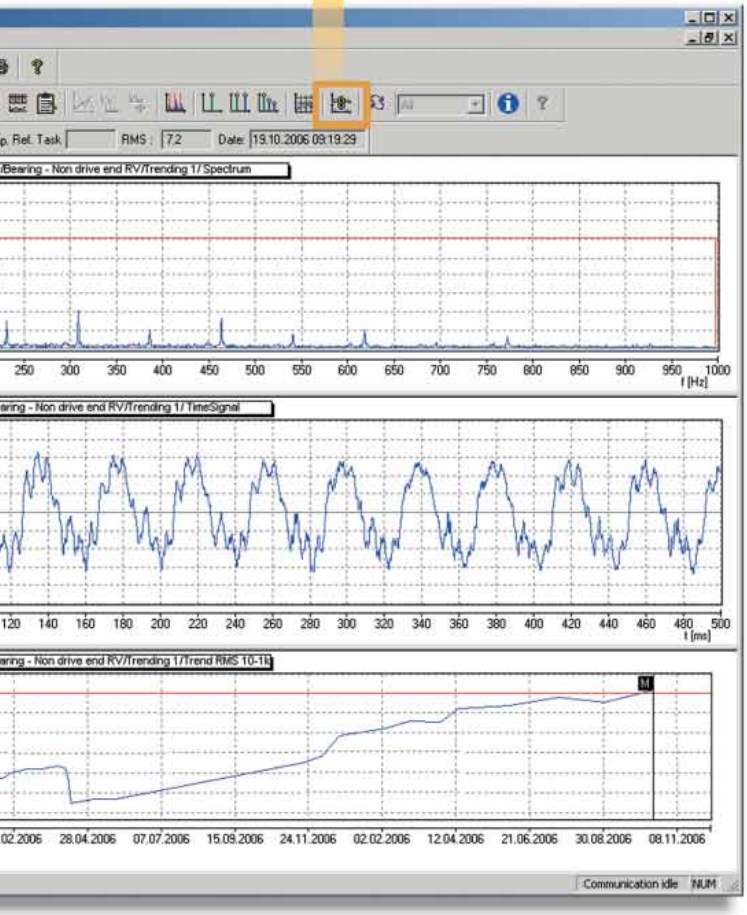




Including roller bearing frequency catalog

Expert analysis
For an in-depth analysis of vibration signals, cursor and zoom functions are available as well as an extensive database with **characteristic damage frequencies**. By superimposing the characteristic frequencies on the measured spectrum, the problem machine components can be readily identified.

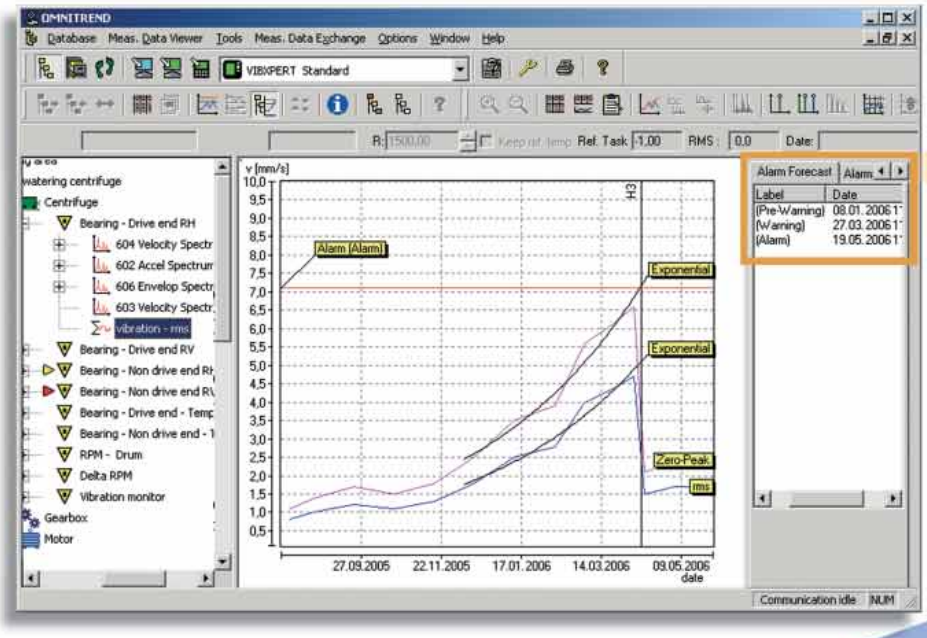
Comparisons pay off
To be able to conveniently compare measurement data, diagrams can be linked with each other. Also, diagrams from other machines can be integrated via 'Drag & Drop'.



Getting the full picture

The following display types are available in OMNITREND® for data analysis:

- Amplitude trend I: broadband overall value over time
- Amplitude trend II: narrow band overall value over time
- Coast-down / run-up test for natural resonance analysis: amplitude / phase as Nyquist or Bode diagram
- Shock pulse trend for evaluating the roller bearing condition as a carpet or maximum value over time
- Amplitude spectrum incl. RMS value and conversion of the overall values
- Envelope spectrum incl. RMS value and conversion of overall values
- Cascade diagram for spectra over speed for resonance analysis
- Time signal with calculation of FFT spectrum
- Shaft orbit as a polar plot or X/Y diagram
- Cepstra for evaluating gear vibrations
- Balancing result as a polar plot

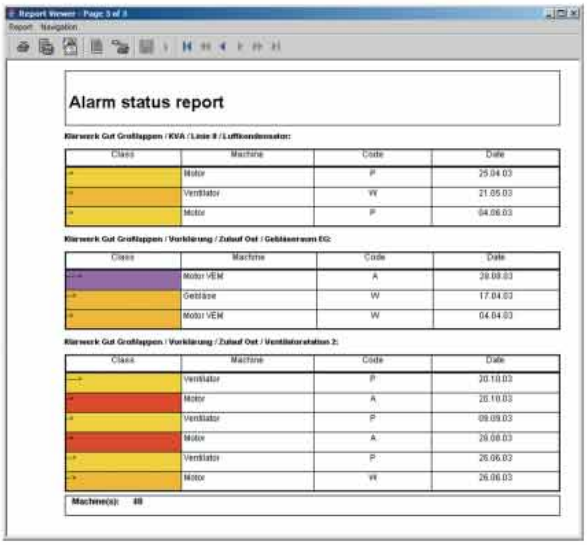


A look into the future
Trend diagrams show the development of a machine's condition over a long period. A rise in the curve can be extrapolated to predict at what time a threshold value will be exceeded. Maintenance measures can then be planned before machine damage results.

The current machine condition at a glance

Standard reports

The information saved in the database can be sorted according to specific criteria and presented in a report. Various data filters organize the information into the report types most common in system maintenance and management:



Alarm status report with color coding of alarm classes

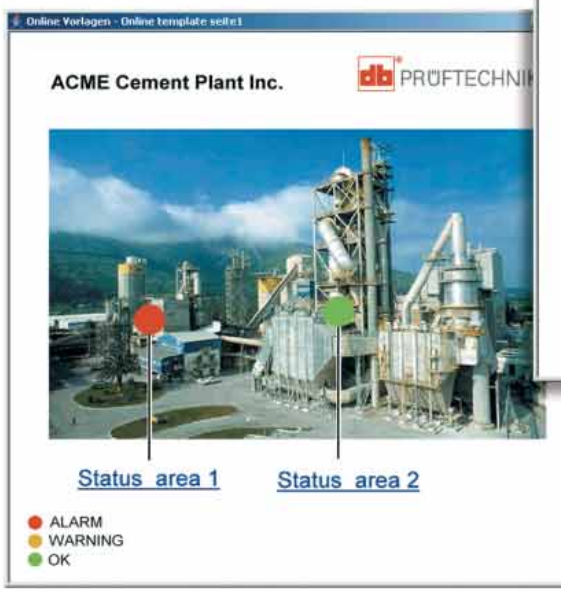
- **Alarm status report**
  Lists all machines in which there is a threshold violation
- **Overview report – last measurement**
  Lists the measurement values and the alarm status of individual measurement locations. The various alarm classes are color-coded
- **Differential report**
  Shows the differences between the measurement values from the last two measurements
- **Event report**
  Filters the events from the database
- **Problem report**
  Documents critical conditions on machines and the corresponding countermeasures
- **Compliance report**
  Documents the measurement tasks on a route and evaluates them statistically

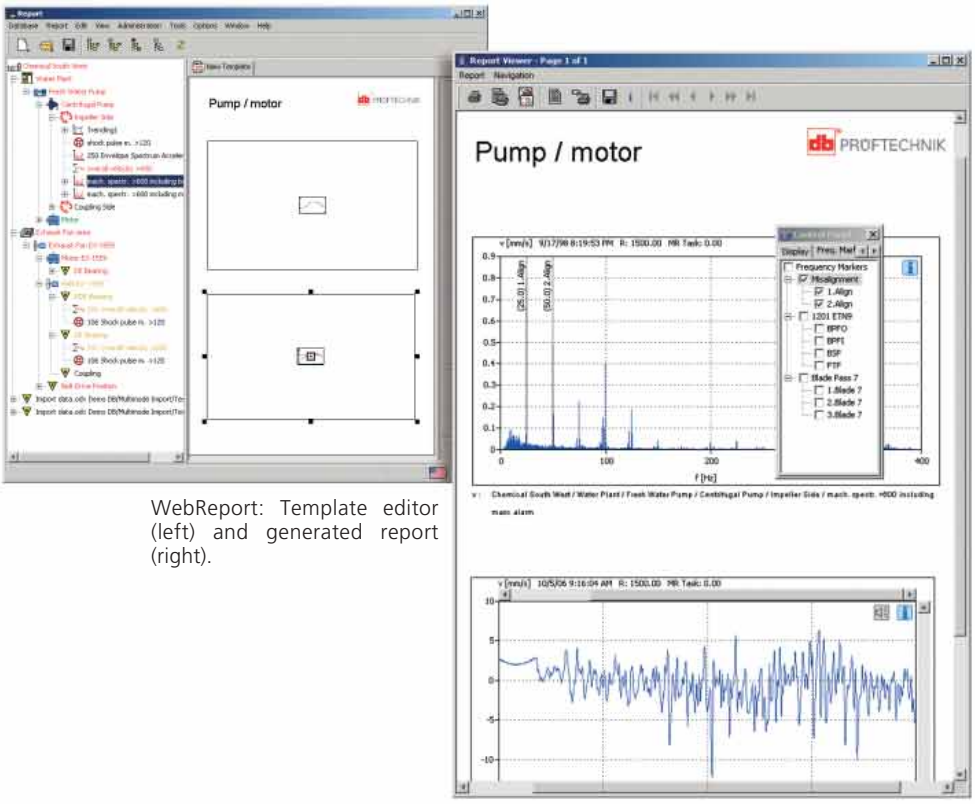
You can save and print the reports or export them as PDFs.

Online View

This add-on module lets you check the condition of your system at any time:
An editor is available to configure an Online View template.

- **Traffic light symbols** highlight the system and machine status.
- Actual **machine photos** ease orientation.
- Important **characteristic and process variables** are displayed digitally. If threshold values are exceeded, the background color of the display changes.
- **Trend diagrams** with measurement values that are current or up to six days old simplify the evaluation of machine conditions.
- **Current threshold violations** are listed. When an alarm occurs, you either hear a signal tone on the PC or a message appears on the screen.





WebReport: Template editor (left) and generated report (right).

Evaluation of the measurement data in the report with the cursor and zoom functions. Signals can be output on loudspeakers.

WebReport

The optional WebReport module offers an extended scope of functions used in creating, setting up and evaluating reports:

- You can generate reports on the basis of customized **templates.**
- You can apply reports **selectively** to the entire machine park or to individual sections.
- Reports always contain the **latest** measurement data from the database.
- You can make information available to every **user** that is relevant to that specific user's needs.
- You can evaluate reports using the **cursor** and **zoom functions**.

WebReport features

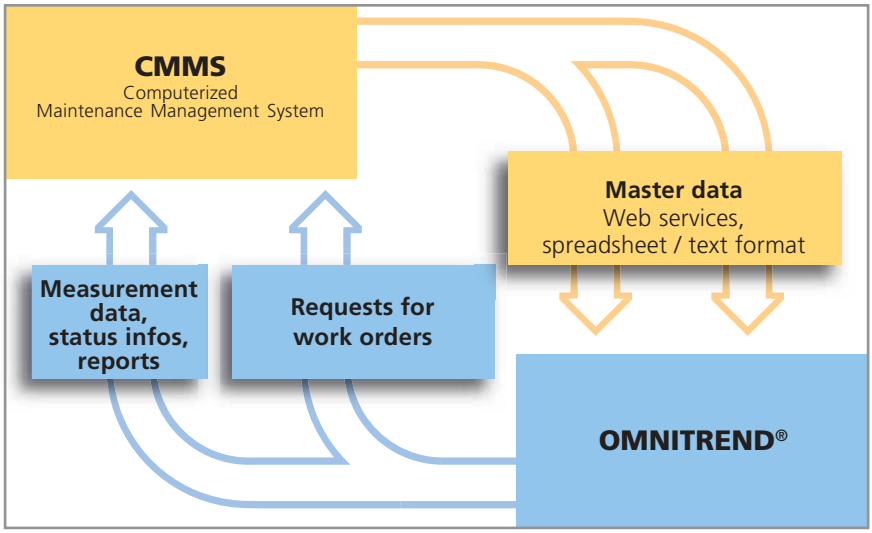
- Network-capable database system with a central database server and web service interface (client-server only)
- Data exchange between databases and third-party systems
- Simultaneous user access to one or more OMNITREND® databases (client-server only)
- Installation of the server software on a PC located in a LAN or on the Internet
- Automatic update and start of the client software with **Java Web Start** (client-server only)
- Password protection
- Individual user rights
- Group rights
- User-specific saving of settings
- Multiuser license system
- Client-server or single workstation versions.

Data exchange

Interfaces to higher order systems like an asset management system enable the exchange of data between platforms.

For example, the tree structure of the OMNITREND® database can be generated automatically from the master data of a system. The data transfer takes place via freely definable text formats, spread sheets or web services. Conversely, the OMNITREND® database can be used to export measurement data, status infos, queries for job orders and reports.

Data exchange between OMNITREND® and CMMS

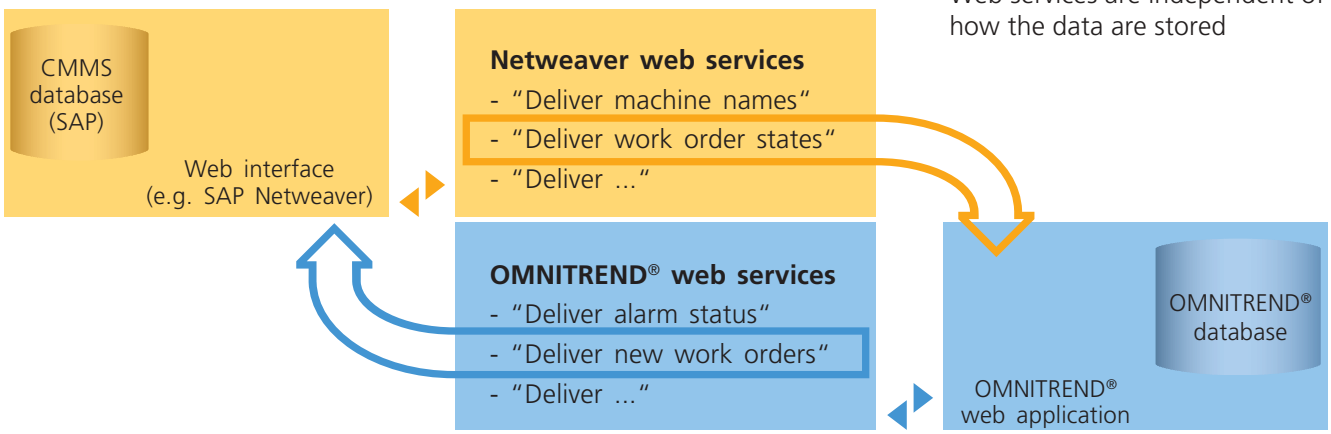


Web services in industrial maintenance

In simple terms, a web service can be described as a 'machine readable' website. Much like a surfer in the web who calls up a page to obtain specific information, an application can access a web service to call up data that it wants to process.

What makes web services particularly useful?

- System-independent communications platform
- Linking of different databases and services via existing networks
- Web services are independent of how the data are stored



'Smart web services are to the Information Age what interchangeable parts were to the Industrial Age'
Scott McNealy (CEO SUN)

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Productive maintenance technology