Valmet DNA Machine Monitoring

Online condition monitoring system for pulp mills

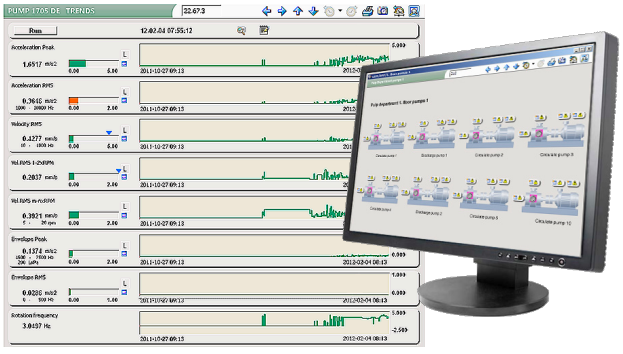
Valmet DNA Machine Monitoring measures and analyzes the mechanical condition and performance of machines, based on vibration measurements and other machine parameters. DNA Machine Monitoring provides both protection and diagnostics tools for critical machinery, as well as condition monitoring and analyzing tools for predictive maintenance use. Online machine condition monitoring enables 24/7 monitoring, thus providing the fastest possible way to act on problems to secure plant availability, protect assets, provide information for maintenance planning and increase working environment safety.

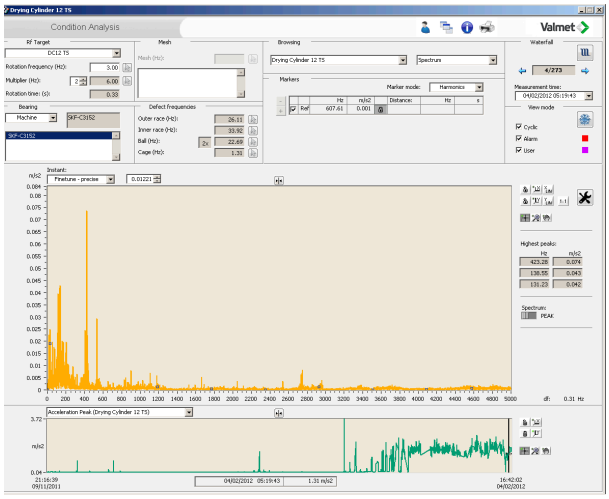
DNA Machine Monitoring can work as a fully integrated application in the Valmet DNA automation platform or as a stand-alone system.



Online machine condition monitoring is based on fixed installed sensors on the machinery, cabled into I/O stations where measurement data is collected and analyzed. Alarms are generated when preset alarm limits are exceeded. Fault diagnostic is performed with comprehensive signal analyzing tools. Defect development is monitored by tracking history trends, thereby providing the tools for predictive maintenance for scheduling services and action planning. **Machine condition monitoring** enables the detection of machines that do not perform properly or have mechanical faults, such as:

- bearing wear and instabilities
- lubrication problems
- unbalance
- misalignment
- thrust bearing wear
- shaft defects
- wear and looseness
- gear mesh problems
- resonances or impacts
- cavitation.





Layered user interface from overall view into detailed analysis tools suits both for operator's and predictive maintenance person's use.

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Machine protection and condition monitoring

The applications provide alarm handling, history trending and analysis tools for fault diagnostics. Analysis tools include for example time signals, spectrums, enveloped acceleration signals and spectrums, orbit plots, history trends and Bode and Nyquist diagrams, depending on the type and construction of the machine being monitored.

The system can provide online machine protection in accordance with the API670 standard. For machine diagnostic it supports both online and cyclic measurement principle depending on the criticality of the machines.

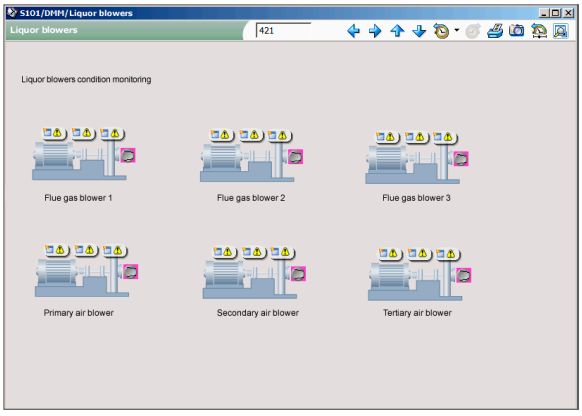
Both stand-alone and control system integrated

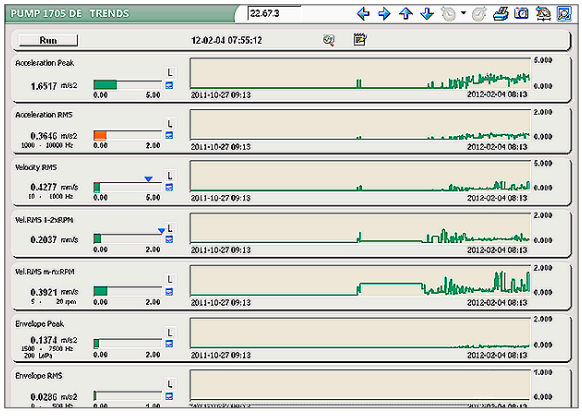
DNA Machine Monitoring can work as a dedicated stand-alone condition monitoring system, or it can be integrated as a part of the Valmet DNA machine or plant control system. Utilizing networks sensors and I/O units can be distributed according to machine locations and plant layout. The operators and maintenance personnel can monitor rotating machinery condition data directly on their workstations, both in control rooms and in maintenance and production offices.

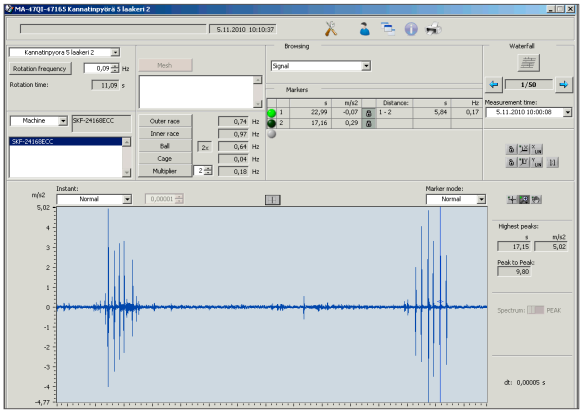
The most important vibration characteristic values are shown directly in the process pictures. Alarms will bring attention to the machinery in question. For the predictive maintenance tasks the system provides advanced tools for more detailed analysis of machine faults.

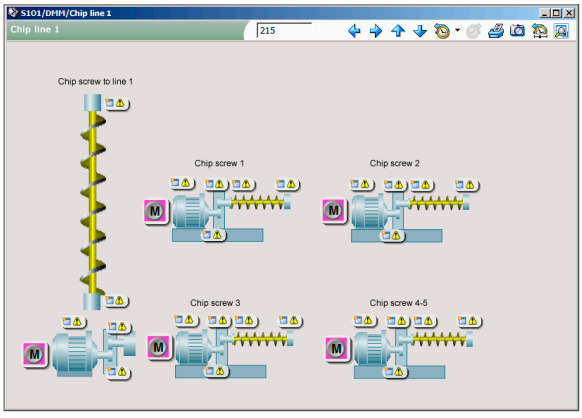
Remote diagnostics

The remote connection to the Valmet DNA system ensures rapid support in problem situations. Specialized expert services are available for both mechanical condition monitoring and system maintenance.









Alarming, trending and analyzing tools of the system enable proper maintenance planning to maximize plant availability.

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One-stop supplier offers all components needed

Valmet is a one-stop supplier for vibration-based condition monitoring, offering everything from sensors, system hardware, application software, engineering and start-up services to training, system maintenance and condition analyzing and reporting services.



Solutions for complete range of machines in pulp mill

For the pulp production specific needs Valmet can provide a total range of applications tailored to the machine types of each process. Applications cover monitoring of general type of machines like electric motors, pumps and gearboxes. And with the Valmet background, being both a machine supplier and a condition monitoring supplier, we can adapt the system to include applications for the specific needs for the machines in pulp production covering all the processes from wood handling through fiber line to the recovery line.

DNA Machine Monitoring components



ACN processing units for both centralized and field installation



I/O groups and analog I/O units for vibration measurements, and digital units for trigger and status signal measurements

Sensors for process industry

Reliability of the measurement data is ensured with sensors, connectors and cables designed for heavy and demanding industrial environments.



RVT-105, acceleration sensor, low profile



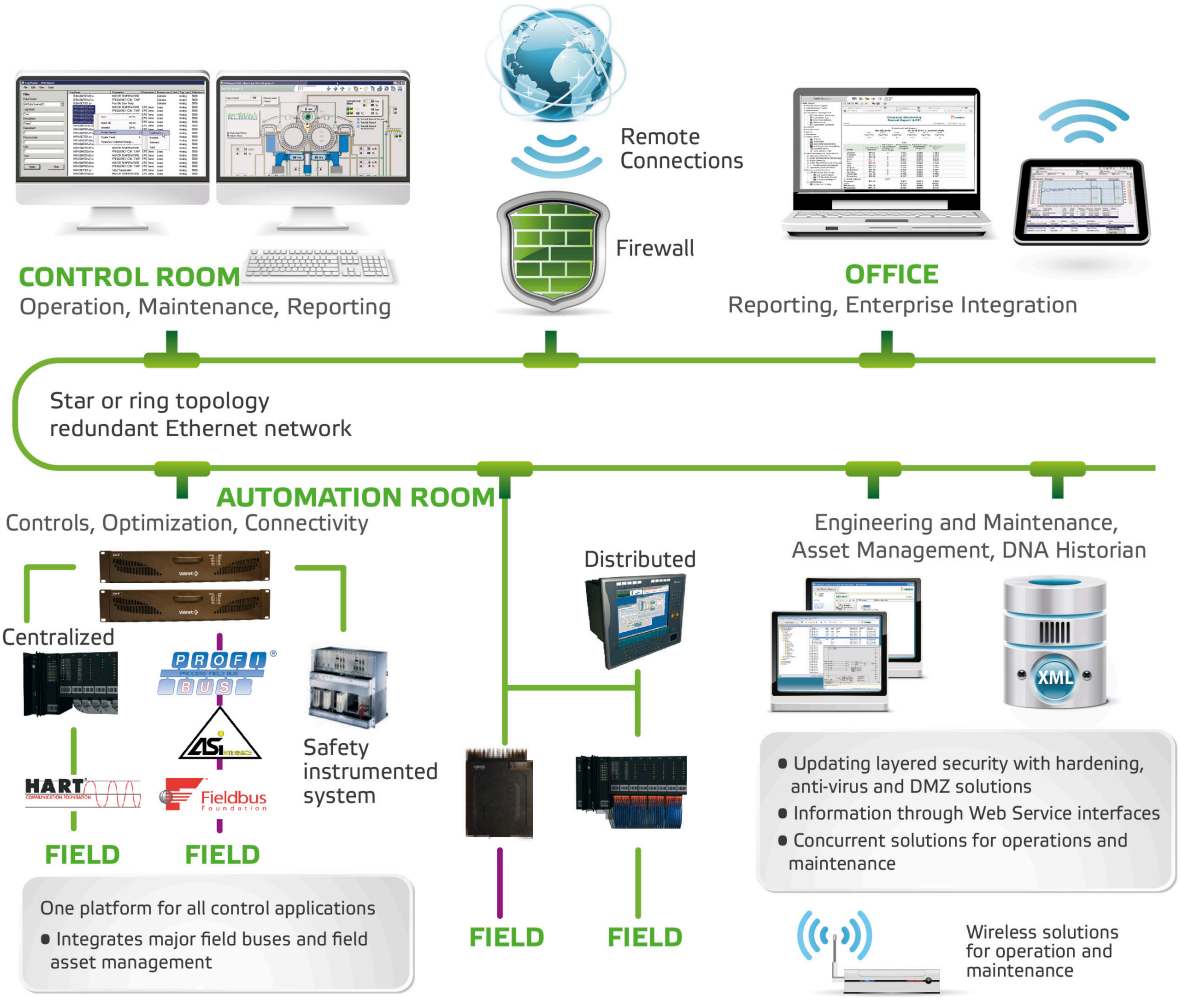
RVT-120, acceleration sensor, top exit



RTS-227, magnetic trigger sensor

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Valmet DNA pulp mill automation – total offering from Valmet



System integration brings cost benefits

An integrated solution allows shared system resources to be utilized for control and condition monitoring applications. The same operator workstations, history databases, system networks and engineering tools can be used by all applications.

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