GE Energy

Bently Nevada* Reciprocating Machinery
Condition Monitoring and Diagnostics

System 1®
Optimization and
Diagnostic Platform

application package

This is an advanced on-line management and diagnostic software package for critical reciprocating machinery. It is specifically designed to work with Bently Nevada's hardware protection systems, collecting both static and dynamic data including: cylinder pressure, crosshead vibration, frame vibration, rod position, speed, temperature, and more. The Reciprocating Machinery application package allows operators and maintenance personnel to correlate machinery related information with other operational information. Available Decision Support* RulePaks compliment the Turbo Machinery package by adding asset specific diagnostics for "around the clock" event detection and sophisticated data analysis.
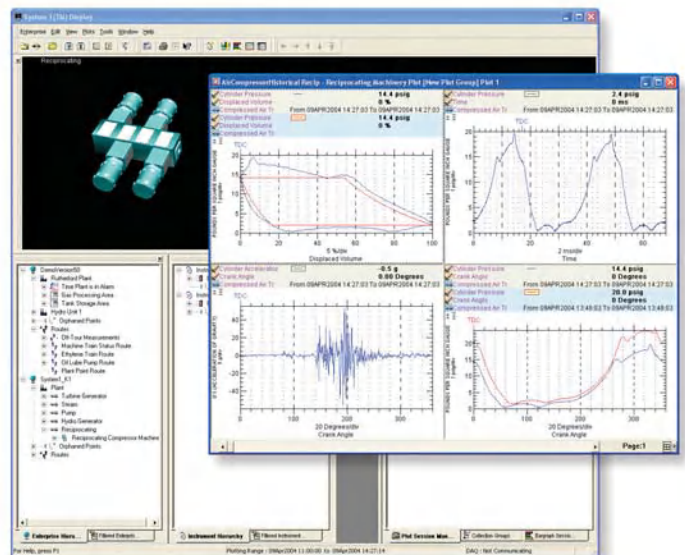
Focused on Increasing Profitability

Reciprocating machinery can be used in a broad range of functions, but does suffer one very serious drawback: higher maintenance costs. In fact, compared to centrifugal machines of similar size and application, recips can consume as much as five times the amount of maintenance dollars. A continuous monitoring and diagnostic system, designed to cover the most frequent causes of failure and routine wear can help close that gap. For many facilities employing reciprocating equipment, the machines occupy a critical role in the overall process flow – loss of a compressor, for instance, often means a significant reduction in or loss of plant output. That lost production translates to very expensive downtime. Implementing a monitoring and diagnostic system improves the productivity of a plant by minimizing the unplanned production losses and repair costs.

Benefits

- Maximize plant production

- Minimize maintenance costs and risk

- Early event detection

- Monitoring of developing problems

- Real-time condition status

- Proactive decision making

Capabilities

- High resolution data acquisition

- Trending

- Sophisticated alarming

- Exception reporting

- User notification

Improving Asset Reliability and Productivity

Avoiding Unplanned Outages

Early detection of equipment degradation or impending failure helps to reduce maintenance costs. Changes in a machine's operating characteristics can be seen before significant damage occurs, allowing operators time to react and prevent more expensive repairs or catastrophic failure. Limiting unplanned failures or significant degradation leads to increased productivity.

Reduction of Outage Duration

A thorough understanding of equipment condition allows for more efficient outages. Unnecessary inspections and maintenance can be eliminated if an asset's operating characteristics show little or no degradation. Precious maintenance resources can be focused on performing work that is actually required.

Continued Operation of Degraded Equipment

Advanced asset management tools allow for continued operation of damaged or degraded equipment by giving the operators a continuous view of the operating condition. Continuous critical observation of the asset means that continued production is still possible while the necessary repairs are planned. Performing repairs at more convenient times minimizes production losses and increases profitability.

Sophisticated Diagnostics Using Bently Nevada Machinery Protection Systems

The Bently Nevada Reciprocating Machinery Condition Monitoring and Diagnostics Package is a critical System 1* Software Application Package made possible by connecting System 1, GE Energy's Optimization and Diagnostic Platform, to Bently Nevada Machinery Protection Systems such as 3500 with special reciprocating equipment monitors. The 3500 rack can provided such capabilities as Triple Redundant Modular (TMR) monitors, high-speed data capture, transient, steady-state or static-only data capture, and the ability to view real-time high resolution data before and after an event. Bently Nevada also supplies specialized monitors for reciprocating applications: cylinder pressure, rod position and impulse/velocity monitoring.

Optimizing with Decision Support

Decision Support functionality, built into every application package, allows machinery engineers or other personnel to automate the analysis of machinery condition and configure targeted advisories of equipment degradation or malfunction. Rules derived from the experience of plant engineers and operators can be used to continuously evaluate equipment condition. Additionally, targeted RulePaks for many types of equipment are available, allowing for more rapid implementation of this critical functionality. Utilizing Decision Support enables machinery engineers to spend more of their time resolving problems and optimizing the operation of assets.

Levels of Support

Installation, training, and support services are recommended to help you achieve the most value from this application package. We offer 3 distinct levels of support that include the following:

Bronze	24/7 Tech support from our outstanding team of professionals the latest software upgrades available
Silver	remote software optimization and machinery diagnostics
Gold	onsite asset care