GE
Measurement & Control

Machine Performance

Condition Monitoring and Diagnostics

Machine Performance extends the functionality of GE Energy's System 1* platform to include collection, trending, storage, and display of online thermodynamic performance information for machinery and fixed assets. Tightly integrated with the System 1 database, display, and Decision Support* modules, the Machine Performance Application Package provides you with comprehensive information on both asset mechanical condition and thermodynamic performance—and in combined formats. With System 1 and Machine Performance, you can now make critical decisions to maximize the efficiency and profitability of your equipment with the best available data.

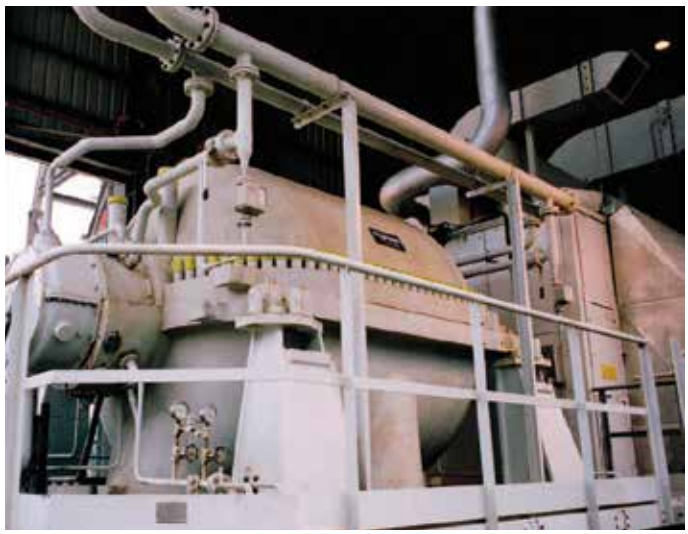
System 1 and Machine Performance help you manage conditions that involve both performance and machinery behavior indicators such as compressor surge with a common database and display. By correlating thermodynamic performance and mechanical condition information, you can make decisions such as taking an asset out of service or extending planned outage intervals with a higher degree of confidence. Trending the results of thermodynamic performance-related calculations also enables continuous performance tracking. With this information, performance degradation can be monitored—and corrective measures such as compressor wash cycles or heat exchanger tube cleaning can be planned and scheduled to minimize production losses and unscheduled downtime.

Benefits

- Maximized production throughput
- Controlled costs through optimized maintenance activities
- Improved diagnostics and decision making
- Automated data analysis and advisories
- Fast and easy combustion problem diagnostics

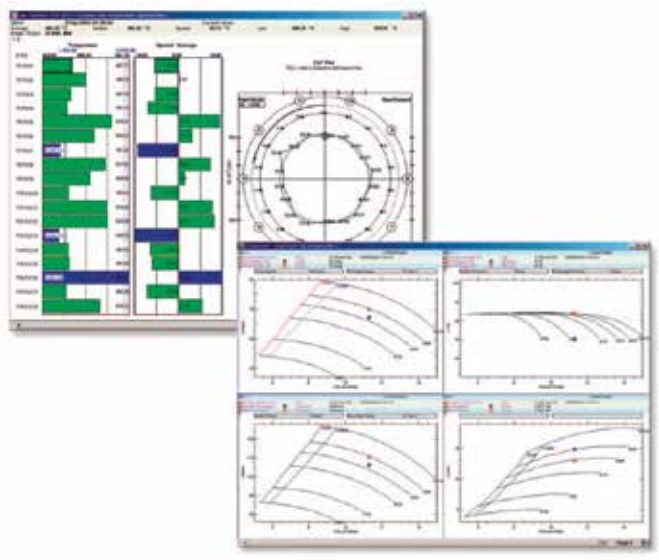
Capabilities Using Bently Performance*

- Gas turbine modeling – single/multi-shaft/aeroderivates
- Steam turbine modeling – condensing, non-condensing, with/without extraction, and with/without induction
- Compressors/pumps – air/process/side stream compressors
- Generators
- Accurate real gas calculations – using extensive library of gas properties and Equations of State
- Detection of inconsistent measurements
- SI/English units



Pre-engineered calculation templates are available for machines (such as gas turbines, compressors, pumps, and steam turbine generators) and fixed assets (such as condensers and heat exchangers) when you select the optional Bently Performance calculation engine as part of your performance monitoring solution. Or, if you already have calculation capability, you can use your own thermodynamic performance calculation software tools and bring the data into System 1 for storage, trending, and display. All performance data can be viewed from any System 1 display. System 1 utilizes a uniquely designed GUI which includes compressor maps; performance maps; pump maps; generator D curves; exhaust gas temperature spread; and multi-variable trend plots that compare expected vs. actual machine performance.

Intelligent alarms and notifications are enabled through tight integration with System 1 and Decision Support that includes the RuleDesk* application to customize knowledge-based rules. Proactive operator "smart" advisories can be enabled on a 24/7 basis. And because Machine Performance co-resides on the System 1 server, it enjoys identical capabilities for networking and remote access as other System 1 software application packages.



Applications

- Process compressors
- Gas turbines
- Steam turbines
- Generators
- Pumps
- Feed heaters
- Condensers
- Chillers
- Heat exchangers
- Turbo-expanders
- Reciprocating gas compressors
- Heat exchangers
- LNG turbines
- And many others

Custom Asset types available (contact your GE Energy representative)

Displays/Plots

- Standard bargraphs/list view
- Compressor/performance/pump maps
- Generator D curve (reactive capability)
- Exhaust gas temperature spread
- Multi-variable plots/trend plots
- Train diagrams
- And many others

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