

Press Release

New method to monitor pressure pulsation in gas turbines

Rovsing Dynamics has launched a new, cost-effective method to detect combustion pressure pulsation in gas turbines. This new feature of the OPENpredictor™ monitoring system helps prevent fatigue, damage and unplanned shutdowns of power plants.

Copenhagen, June 6, 2006. At the recent international Power-Gen Europe exhibition in Cologne Rovsing Dynamics, a global supplier of condition monitoring systems, introduced a new cost-effective, practical and precise way to detect critical combustion pressure pulsations in gas turbines.

Pressure pulsation is a critical phenomenon which can occur in gas turbines e.g. with low NO_x burners, where turbulent combustion may excite the acoustical modes in the combustor transition part and turbine cavities. If undetected, pressure pulsation can lead to excessive dynamic loading of combustor liners and power turbine blades, and result in efficiency loss as well as fatigue and failure of critical gas turbine components.

OPENpredictor provides precise, online measuring of pulsations in the gas turbine's combustion chamber. The practical system to monitor combustion pressure pulsation is easily installed and can be retrofitted. Whereas traditional pressure sensors typically are mounted inside the combustion chamber, the OPENpredictor uses accelerometers mounted on the outside of the combustor. The system's advanced signal processing method is very precise and helps avoid unplanned, unjustified shutdowns. All in all, the system increases reliability of operations and allows power plant operators to move from 'trial and error' to a more precise and objective assessment of pressure pulsations in order to reach the optimum balance of the combustion process.

The unique feature of the automated detection, warning and diagnosis enables process operators to change fuel flow and load conditions to avoid excessive pressure pulsation, leading to potential damage. Instant warnings are issued when pulsations exceed acceptable levels, accompanied by diagnostic information to help identify the pulsation cause.

"We have developed this new OPENpredictor feature in response to customers' demand for a simple, cost-effective tool with precise measurements to detect critical pressure pulsation in gas turbines", says Rovsing Dynamics CEO Thea Larsen. "The overall objective of our condition and performance monitoring system is to support the power generation industry in its efforts to optimize operations, reduce downtime and maintenance costs, and meet stringent criteria for emission levels."

OPENpredictor can be expanded to also monitor the exhaust temperature distribution of a gas turbine. The purpose is to identify temperature deviations e.g. from blocked nozzles, potentially leading to blade fatigue, combustor deformation and shutdown.

Monitoring of combustion pressure pulsation and temperature distribution are just some of the many features of the OPENpredictor system. Other modules provide monitoring of the condition, performance and reliability of a wide variety of critical rotating and reciprocating machinery.

OPENpredictor is a trademark of Rovsing Dynamics A/S, Denmark.

Contacts

For further information, please contact CEO Thea Larsen, tel +45 4690 7200, e-mail thl@rovsing-dynamics.com

If you require high resolution photos, please contact Marketing Manager Annette Risberg, tel. +45 4690 7243, e-mail ari@rovsing-dynamics.com.

Company backgrounder & photos on page 2

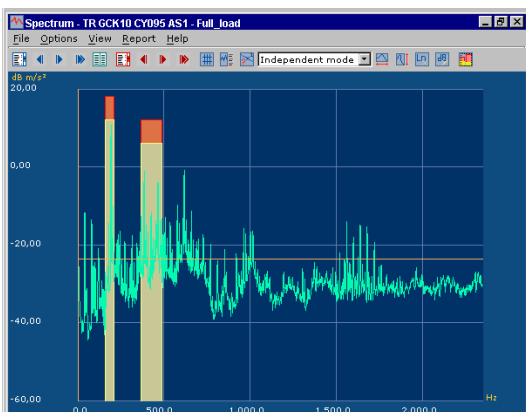
About Rovsing Dynamics A/S

Rovsing Dynamics is a global supplier of advanced systems for the monitoring of condition and performance of critical machinery. The systems enable customers within the power generation, maritime, oil & gas, petrochemical and other heavy process industries to increase revenue, whilst decreasing operation and maintenance costs. The company develops, installs and provides know-how, training and other services for its range of online predictive maintenance information systems. These are based on the company's own proprietary technology, OPENpredictor™, originally developed on the basis of know-how and experience acquired through the development of advanced condition monitoring of critical equipment at nuclear power plants and within the space industry. Since it was first commercialised in 2001, OPENpredictor™ has demonstrated its value at numerous power plants, off-shore platforms etc., increasing revenue significantly by predicting faults and avoiding down time.

Rovsing Dynamics offers its condition monitoring systems and services worldwide from its head office in Copenhagen, Denmark, and sales offices in the Netherlands, the United Kingdom and the United States as well as through partners and agents in Europe, Russia, North and South America, the Middle East, Asia and Japan.

The company was established in 1997 and today employs 35 people. The shareholders of Rovsing Dynamics include globally recognized corporations such as [3i Group](#), [ABN AMRO](#), [Nordic Venture Partners](#), [Marubeni Corporation](#) and the Danish venture capital companies [LD Pension](#), [Dansk Erhvervsinvestering](#) and [Vaekstfonden](#). For more information, visit www.rovsing-dynamics.com.

Press Release Photos: "New method to monitor pressure pulsation in gas turbines"



(Caption – Blue graph)

Instantaneous Autodiagnosis™ reveals significant changes in the combustor pulsation level. When pulsation frequency exceeds the predefined level (see graph), an alarm message is immediately sent to the operator.



(Caption - Photo of accelerometer on combustor)

Accelerometers mounted on the outside of the gas turbine's combustion chamber measure the vibrations to detect pressure pulsation at an early stage.

(Image caption – Rotor photo)

The new Combustion Pressure Pulsation Monitoring feature of OPENpredictor™ helps prevent fatigue and failure of critical components of gas turbines e.g. rotor blades, liners and isolation tiles.



High resolution photos

If you require high resolution photos, please contact Marketing Manager Annette Risberg, tel. +45 4690 7243 e-mail ari@rovsing-dynamics.com.