

Rovsing DYNAMICS PROFILE

**Rovsing Dynamics -
a leading supplier of
condition and performance
monitoring systems and
associated services**



WHO IS ROVSING DYNAMICS?

2

Rovsing Dynamics A/S is a leading supplier of Condition and Performance Monitoring Systems and associated services to the Power Generation, the Oil & Gas and the Maritime industries. Through our products and services we enable our customers to increase revenue while decreasing operation and maintenance costs. Rovsing Dynamics A/S brings you a revolutionary tool with highly advanced vibration analysis and condition monitoring to maximize the reliability and profitability of your production facilities and vessels. Our product OPENpredictor™, is unique and highly in demand with the world market today.

OPENpredictor™ can increase the availability of critical plant machinery and thereby maximize power output as well as decrease costs for machine overhauls and maintenance activities.

Through continuous mechanical health assessment of critical machines and monitoring of machine performance, we provide essential information to our customers, for their planning and execution of plant operation and maintenance activities.

The name Rovsing has been associated with the space era since its inception. Rovsing has

developed and delivered cutting-edge technology solutions for the European and American space programs.

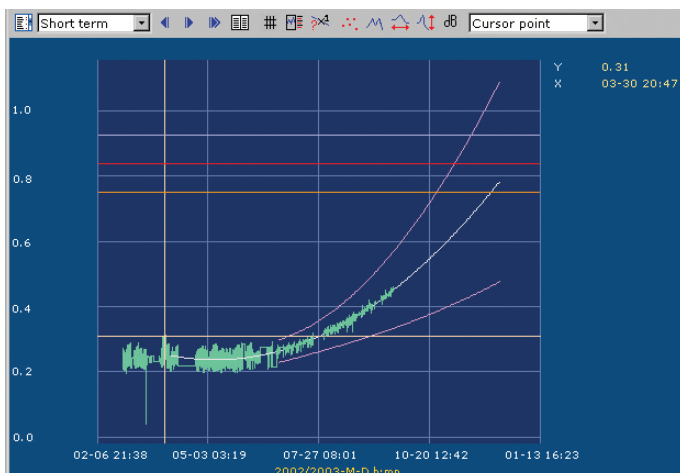
An essential component of any product for the space industry is the development of reliable solutions to complex problems as well as the application of stringent design and quality assurance.

The OPENpredictor™ technology was initially developed for use within the space industry. In the early nineties, Rovsing's technology was selected to perform the final production test for the mechanical health of assembled engines used as boosters for satellite launchers. Mechanical health assessment of critical components in these engines is conducted during a short run-up and run-down on a test bench. Today, the Rovsing solution is still in use for go/no-go testing of the main engine of Europe's Ariane 5 satellite launcher.

For over a decade, we have committed several hundred man-years in Research & Development with the aim of expanding this technology to cover health assessment of almost any type of rotating machine in any industry.

Many of Rovsing Dynamics' staff members are internationally acclaimed experts in the disciplines of vibration analysis and health assessment of mechanical components. Intensive research activities form the basis for the development of the OPENpredictor™ system.

World-class excellence in vibration analysis and mechanical health assessment as well as proprietary technologies form the platform on which OPENpredictor™ is built. The product is built on proprietary technologies and remains unavailable to other vendors on the world market today.



OPENpredictor™ provides early warning about machine faults with prediction of future development and time to inspection



Rovsing Dynamics also possess highly sought after skills in performance monitoring of rotating machinery. Our products in this area are based on true aero-thermal models, which we have developed for different categories of machinery i.e. one, two and three shaft gas turbines and multi-shaft steam turbines.

We are constantly expanding our technology platform to incorporate new disciplines that are of importance to the service we provide to our customers. This is in line with our corporate mission of aggressive innovation with new technology.

Global Financial and Technological Strength

Our shareholders include globally recognized corporations, providing Rovsing Dynamics a strong, financial platform:

- **3i Group Plc**, Europe’s leading venture capital company
- **ABN AMRO Nordic Ventures N.V.**, part of one of the leading European banking groups, which is also among the largest foreign banks in the USA
- **Lønmodtagernes Dyrtidsfond**, Denmark’s leading pension fund
- **A/S Dansk Erhvervsinvestering**, a leading Danish industrial venture capital company
- **Nordic Venture Partners**, a Nordic technology venture capital fund
- **Marubeni Corporation**, a leading Japanese general trading house, founded in 1858 and ranked as the 25th largest company in the 2002 Global 500 by Fortune Magazine
- **Sunstone Capital**, a Nordic venture capital company

Rovsing Dynamics’ Organization

Rovsing Dynamics’ Corporate Headquarters are located in Herlev (Copenhagen), Denmark. Our International sales and service network includes offices in Europe, America and Asia. A sales and customer service team located at our Headquarters cooperate closely with a number of national distributors and Service Centers.

Our diagnostic center provides support for customers in implementing improvements in operation and maintenance activities as well as in periodic health assessment of critical plant machinery. We also assist customers in troubleshooting of machine faults that cannot be easily diagnosed.



PRODUCTS AND SERVICES

4

Rovsing Dynamics' key focus is to supply systems and services that allow our customers to increase revenue and reliability while simultaneously decreasing operation and maintenance costs.

Rovsing Dynamics' products are focused at supplying:

- Advanced On-Line machinery monitoring - OPENpredictor™ System
- Performance Monitoring
- Reliability Monitoring
- Automatic fault diagnosis and forecasting
- Related services

Uniqueness of OPENpredictor™

The OPENpredictor™ Condition and Performance Monitoring System represents unrivaled features in fault detection and

automatic diagnosis for most faults that may occur in rotating and reciprocating machinery. OPENpredictor™ is based on proprietary technologies developed by Rovsing Dynamics A/S over more than a decade. According to internationally recognized experts the OPENpredictor™ technology is unique.

OPENpredictor™ technology is based on the application of mathematical and physical laws, versus other competitive offerings that are based on "experience" or general conclusions based on empirical findings. Furthermore, the analysis capability is based on the use of a larger number of fault detection principles. Therefore, the fault identification, diagnosis

capability, and projections are rendered highly reliable as several diagnostic signatures will determine a fault in a specific component at a given machine state.

Some of the key elements are:

- On-line, continuous monitoring using the most comprehensive suite of analytical methods & signatures to ensure the earliest, most reliable assessment of machine condition, 24 hrs/day.
- Provides automatic diagnosis and prediction, specific to each machine component and customizable to each machine's operating state.
- Employs multiple monitoring strategies to optimize equipment condition information.

- Centralized and highly scalable with easy networking for simple use throughout the organization.

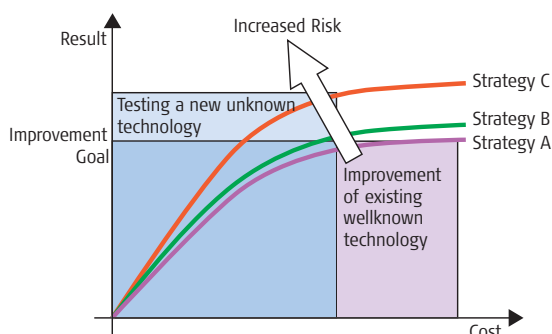
Simple retrofitting

Most OPENpredictor™ installations are retrofit installations on machinery. Signals used by OPENpredictor™ are normally already available.



A typical example of the mounting of sensors onto a machine

Typically only accelerometers picking up casing vibration signals at bearings need to



A goal for the performance improvement you aim to achieve within a certain cost centre is set. The example shows 3 different strategies for achieving this goal A, B and C. Strategy A involves the lowest risk but also shows the lowest benefit/cost ratio. An example of strategy A could be to invest in a new MMIS (Maintenance Management Information System). Strategy B involves a little higher risk but the same result as for strategy A but can be achieved with a much lower investment. An example of strategy B could be to use in-house personnel to improve the existing MMIS. Strategy C shows substantially better results - above the goal - for the same investment as for strategy B but with a substantially higher risk. An example of strategy C could be an investment in a Condition and Performance Monitoring System.



be installed. It is also easily integrated to DCS, data historian, CMMS, and other monitoring systems.

Performance Assessment

Variations in operating conditions can have an influence of more than 20% on the apparent performance and efficiency of a machine. Therefore, to get an immediate indication of deviation from base line and/or optimal performance, it requires a thermodynamic model of the process and a set of thermodynamic measurements to provide information for real-time assessment of the true performance. The Gas and Steam Turbine Performance Monitoring Application Package is based on demanding iterative solutions to non-linear equations. The measurement data is generally available from the control systems and, rather than adding new sensors, the parameter signals can be duplicated either hardwired in the marshalling racks or

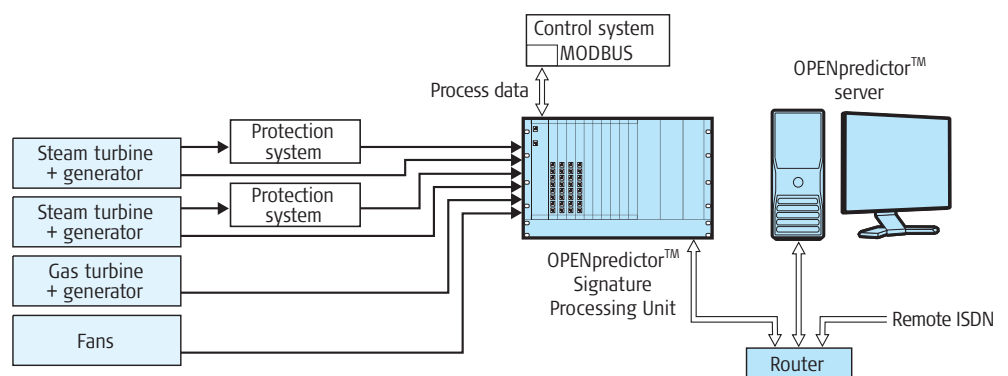
soft-wired via serial link to the control system. The Performance Monitoring Application in conjunction with the mechanical assessment capabilities of OPENpredictor™ provide a thorough understanding of a machine's overall condition.

Rapid pay-back on investments

The economical benefits that may be gained by installing the OPENpredictor™ system at a power plant are important. That's why Rovsing Dynamics, with the co-operation of a leading global accounting firm, has developed a economic assessment model for analyzing projected payback times on

investments related to implementing a condition monitoring system. Based upon plant specific operating, maintenance, and business data, we can make an in-depth assessment of the potential economical benefits that may be achieved at any given plant. A final report is delivered, allowing the plant to assess ROI figures based on the investment made for the installation of the OPENpredictor™. Equally important, the report serves as a platform for verifying, that calculated improvements are captured and documented after installation of the system. We provide this service under a Non-Disclosure Agreement.

Below: A typical example of an OPENpredictor™ installation at a power plant. In this case a plant where steam and gas turbines, generators and fans, are incorporated in a predictive maintenance strategy and monitored with the OPENpredictor™ system.





WHY DO BUSINESS WITH ROVSING DYNAMICS?

The goals for market liberalization and deregulation are clear:

First, the cost of production and operation must be minimized to stay competitive. This means in-depth examination of traditional maintenance and operating costs as well as examining ways to increase plant availability.

Second, production facilities may have new roles in the new market place. They may no longer operate around the clock or may have much faster start-up requirements. Forced outages that occur when product market prices are high are very costly. Production facilities are treated as individual assets with a focus on optimizing their individual performance and the performance of the broader asset portfolio. New strategies for operation and maintenance will be required. These strategy changes will require a sweeping assessment of existing processes, technologies, and workforce skill levels. Easily accessible information on asset performance and health will be required in order to make timely

decisions on operational issues that may affect bottom-line profitability. There will be less time available for conducting time-consuming data analysis and inspections. New tools will be required for providing readily accessible information for day-to-day as well as long term planning. OPENpredictor™ has been developed to fulfill these demands and uniquely provide information needed for optimal decision making in relation to overall plant asset management, operation and process optimization.

Rovsing Dynamics makes a difference in realized profitability and plant reliability

Globalization increases the demand for enterprise wide solutions. Technical and performance experts will only be available at central locations and they will require tools with remote access capabilities in order that they from a centralized location can perform an in-depth assessment of plant operation, maintenance and performance issues. In this respect OPENpredictor™ provides outstanding capabilities.

The OPENpredictor™ Condition and Performance Monitoring System provides unique features in early fault detection, automatic fault diagnosis and prediction of residual operating times for faulty components as well as performance assessment of critical machines. OPENpredictor™ assures optimal return on your plant's assets.

Rovsing Dynamics possesses skills and expertise in all elements of plant operation and maintenance. Working with leading conglomerates worldwide on a daily basis our staff members are always on top of the latest achievements within asset management.

As a leading company in mechanical health assessment of critical rotating and reciprocating machines, Rovsing Dynamics provides complementary services

which assures our customers dependable support with trouble shooting of tough mechanical problems including root-cause analysis, periodic overall health assessment of plant assets and planning of overhaul and maintenance activities.

Our global organization assures the best service for global players in heavy industry.

The table (right) shows a listing of OPENpredictor™ users.





Name of Site/vessel	Conglomerate/Contractor	Country	Type of plant/vessel	Fuel	Capacity (MW etc.)	Contract Year
Olympia & Antarctica	Euronav	FR	VLCC's	Heavy Fuel	318,000 dwt	2008
P43 FPSO	Petrobras	BR	Floating Production Storage and Offloading unit		150,000 barrels oil & 6 million m3 gas/day	2008
8 new offshore supply vessels	Trico Marine Services	USA	Multi-purpose vessels	Heavy Fuel	1,115 ft3 bulk 2,900 dwt	2008
Yan An Refinery	China Yanchang Petroleum Group Co.	CHN	Refinery	Oil	8 million ton crude oil	2008
Mao Ming Power Plant	Guangdong Electric Power Development Co.	CHN	Fossil power plant	Coal	800	2008
Zhanjiang Power Plant	Guangdong Electric Group Co.	CHN	Fossil power plant	Coal	1,200	2008
Lamadien Power Plant	Daqing Petroleum Administration	CHN	Combined cycle power plant	Gas	100	2008
8 new build vessels	PRISCO	RUS	2 Suezmax crude carriers	Heavy fuel	2 x 166,000 dwt	2008
8 new vessels	Reederei Laeisz GmbH	D	6 Aframax tankers	heavy fuel	6 x 100,000 dwt	2008
2 new vessels	Enzian Ship Management	CH	Car carriers	heavy fuel	8 x 11,760 dwt	2008
6 new vessels	Hapag-Lloyd	D	Multipurpose vessels	Heavy fuel	2 x 18,000 dwt	2008
Harbin No.1 pp Heilongjiang	China Datang Corporation	CHN	Container vessels	Heavy fuel	8,750 teu each	2008
4 new vessels	Millenia Maritime	GR	Fossil power plant	Coal	1200 MW	2008
Overseas Silvermar	OSG	UK	Oil & chemical tankers	Heavy fuel	2 x 51,000 & 2 x 40,000 dwt	2008
Zhujiang	Guangzhou Dev. Industry (Holdings) Co., Ltd	CHN	Oil tanker	Heavy fuel	69,600 dwt	2007
Qitaihe	Datang Power Group	CHN	Fossil power plant	Coal	1200 MW	2007
APL Amazonite & Almandine	APL/Neptun Orient Lines	SNG	Fossil power plant	Coal	1,200 MW	2007
Oil tanker	Torm	DK	2 container vessels	Heavy fuel	3,800 teu	2007
Dexter, Dayton, Dale	Hapag Lloyd (CP Ships)	DE	Oil tanker	Heavy fuel	73 dwt	2007
White shark	CMA/CGM	FR	3 container vessels	Heavy fuel	4,000 teu	2007
Container vessel	Safmarine Pty Ltd	ZA	Container vessel	Heavy fuel	5,000 teu	2007
APL Alexandrite	APL/Neptun Orient Lines	SNG	Container vessel	Heavy fuel	4,000 teu	2007
M/F Prinsesse Benedikte	Scandlines	DK	Container vessel	Heavy fuel	3,800 teu	2007
Shajiao Power Plant	Guangdong Yudean Group Co. Ltd.	CHN	Container vessel	Heavy fuel	3,800 teu	2007
Ocean-going freighter	Confidential	CHN	Passenger, Car & Train Ferry	Diesel	1,140 pass.	2006
Al Taweelah B New Extension	Fisia Italmipianti	UAE	Fossil PP	Coal	1,200	2006
Huizhou	Alstom Hydraulique	CHN	Supply Vessel	Heavy Fuel		2006
Bailianhe	Alstom Hydraulique	CHN	Power and Desalination Plant	Gas	2,000 + 160 migd	2006
EDF Plant	Electricité de France (EDF)	FR	Hydro PP	Water	2400	2006
Shaoguan Power Plant	Guangdong Electric Power Dev. Co., Ltd.	CHN	Hydro PP	Water	1,200	2006
Meixian Power Plant	Guangdong Electric Power Dev. Co., Ltd.	CHN	Thermal PP	Coal	-	2006
Hamma Power Station	Sonelgaz	ALG	Fossil PP	Coal	-	2006
Seven Container Vessels	Confidential	DK	Single Cycle PP	Gas	675	2006
M/S Emma Maersk	A.P. Moller - Maersk Group	DK	Container Vessel	Heavy Fuel	209	2006
Container Vessel	Confidential	DK	Container Vessels	Heavy Fuel	11,000 teu	2006
Balakovo Nuclear Power Plant	Rosenergoatom	RUS	Container Vessel	Heavy Fuel	2006 teu	2006
Al Taweelah B Plant	Abu Dhabi Water & Electricity Authority (ADWEA)	UAE	Nuclear PP	Nuclear	3,800	2006
Emery Generating Station	Alliant Energy (Wood Group IPS)	US	Power and Desalination Plant	Gas	2,000 + 160 migd	2005
Rinkai Power Plant	Hitachi Ltd., Power and Industrial Systems	JP	Combined Cycle PP	Gas	340	2005
Herning	DONG Energy (former Elsam A/S)	DK	Combined Cycle PP	Oil	106	2005
EDF E-monitoring Center, w.w.support, Grenoble	Electricité de France (EDF)	FR	Fossil PP	Gas	89	2005
Hitachi Katsuta Plant	Hitachi Ltd., Power and Industrial Systems	JP	E-monitoring Center	-	-	2005
P15-D	BP Netherlands (today Abu Dhabi Nat. Energy Co. - TAQA)	NL	Combined Cycle PP	Oil	204	2004
Øresundsbron	Øresundsbro Konsortiet	SV	Gas processing platform in the Dutch North Sea	-	-	2004
EDF E-monitoring Center, w.w.support, Grenoble	Electricité de France (EDF)	FR	Cable-stayed bridge	-	-	2004
EDF R&D Knowledge Center, w.w.support, Paris	Electricité de France (EDF)	FR	E-monitoring Center	-	-	2004
Meirama (ES)	Union Fenosa	ES	R&D Knowledge Center	-	-	2004
Sines	Electricidade de Portugal (EDP)	P	Fossil PP	Coal/lignite	563	2004
Frankfurt Airport	Mainova AG	D	Fossil PP	Coal	1,190	2004
Chicoasen	Alstom Hydraulique	MX	Major refrigeration system	-	24	2004
Norte Fluminense	Electricité de France (EDF)	BR	Hydro PP	Water	2,430	2004
Damhead Creek	Scottish Power	UK	Hydro PP	Water	780	2004
Neubrandenburger SW* (D)	Alstom Power	D	Combined Cycle PP	Gas	800	2003
Port Said East Power Station	Electricité de France (EDF)	EG	Combined Cycle PP	Gas	800	2003
Seabank Power	Scottish & Southern and British Gas	UK	Combined Cycle & Co-generation PP	Oil and Gas	77	2003
Smolensk	Italfrend srl	RUS	Fossil PP	Natural Gas	682	2003
Suez Gulf Power Station	Electricité de France (EDF)	EG	Combined Cycle PP	Gas	1,140	2003
Göteborg Energy	Göteborg Energy	S	Nuclear PP	Nuclear	2,775	2003
Machu Picchu	Alstom Hydraulique	PE	Fossil PP	Natural Gas	682	2003
Bielefeld	Stadtwerke Bielefeld	D	Heat pumping plant	Electricity	261	2002
Richland	First Energy Corp.	US	Hydro PP	Water	100	2002
Compostilla	Endesa S.A.	ES	Combined Cycle PP	Gas	69	2001
La Robla	Cementos La Robla S.A.	ES	Hydro PP	Water	330	2001
Dniprodzerzhinsk	Alstom Hydraulique	UKR	Hydro PP	Water	1,312	2001
Kakhovka	Alstom Hydraulique	UKR	Hydro PP	Water	-	2001
Kiev	Alstom Hydraulique	UKR	Hydro PP	Water	392	2000
Kremenchuk	Alstom Hydraulique	UKR	Hydro PP	Water	228	2000
Vestforbrænding	I/S Vestforbrænding	DK	Hydro PP	Water	440	2000
Viborg	Viborg Kraftvarme	DK	Hydro PP	Water	696	2000
Chernobyl	Westinghouse	UKR	Combined Cycle Heat & Power Plant	Waste	22	2000
Skaerbaek	DONG Energy (former Elsam A/S)	DK	Combined Cycle Waste-to-energy PP	Natural Gas	57	2000
Vuosaari B	Helsinki Energy	FIN	Nuclear PP	Nuclear	1,000	1999
Ignalina	Ignalina Nuclear Power Plant	LT	Nuclear PP	Nuclear	400	1999
			Combine Cycle PP	Natural Gas	470	1998
			Nuclear PP	Nuclear	1,500	1997

Rovsing Dynamics A/S
Marielundvej 41
DK-2730 Herlev
Denmark
Tel +45 4690 7200
Fax +45 4484 6040
info@Rovsing-dynamics.com
www.Rovsing-dynamics.com

About Rovsing Dynamics

Rovsing Dynamics is a global supplier of online solutions for the monitoring of condition, performance and reliability of critical rotating and reciprocating machinery. These are based on the proprietary OPENpredictor™ technology. The predictive maintenance information system has demonstrated its value at numerous maritime vessels, power plants, off-shore platforms etc. increasing revenue and availability significantly by predicting faults and lead time to inspection. Our customers include some of the world's leading shipping, power generation, and oil & gas companies.

We serve our customers worldwide from our head office in Copenhagen, Denmark, and sales offices in the Netherlands and the United Kingdom, and through partners and agents in Europe, Russia, North and South America, the Middle East, China, Asia and Japan.

Copyright©2009. All rights, title and interest in software, hardware and services detailed in this document and all copyrights, patents, trademarks, service marks or other intellectual property or proprietary rights relating thereto belong exclusively to Rovsing Dynamics A/S.

Company Profile_10_GB_Feb10.09