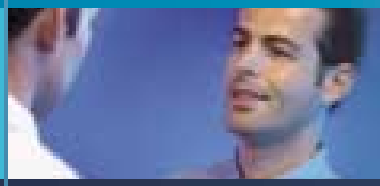
Services

SNR INDUSTRY

Services



Exclusive methods for deciphering the future of each bearing

An objective and global approach

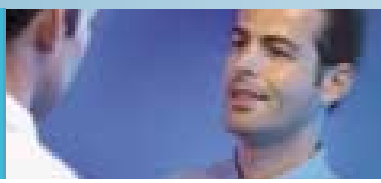
Maintenance must take into account all the mechanical environment because the interactions between the bearing and other elements generate invaluable indices.

This global approached, defined thanks to experience of multiple applications, is nevertheless strongly linked to objective data which guarantees the neutrality of the diagnosis.

This is why SNR calls upon specialised partners, in particular 01dB Acoustics & Vibration. This collaboration enables us to propose many different modes of monitoring and in particular the vibratory analysis which is very effective in the field of rotating machines.

Proximity and flexibility for an adapted service

Via its worldwide network of distributors, SNR bases its "Maintenance Services" expertise on the same values as its manufacturer policy: flexibility, responsiveness and proximity. SNR focuses as much on its customers as it does on its bearings.



Monitoring and vibration expertise

Our shaft alignment and vibration expertise services will allow customers to define:
- **monitoring methods and test/inspection means,**
- **test/inspection intervals,**
- **the organisation to be implemented,**
- **formal presentation of results and performance of technical/economic analyses.**

Vibration Monitoring and Analysis: On-site services*

• Installation and start-up of portable (Off-line) vibration monitoring systems

- System installation,
- Monitoring database parameter setting: definition of control procedures, measurement points, monitoring parameters, thresholds, etc.,
- Analysis of measurements and zero state report.

• Installation, start-up and maintenance of continuous (On-line) vibration monitoring systems

- Installation of systems with, possibly, management of service providers for positioning of sensors, wiring and channel grouping units,
- System parameter setting: definition of control procedures, monitoring parameters, thresholds, etc.
- Preventive and corrective maintenance of all our systems in the context of guarantees and maintenance contracts.

• Periodic monitoring of your equipment

- Initialisation of monitoring,
- Data management,
- Periodic acquisition of data by the collector,
- Data analysis and provision of a monitoring report describing preventive and corrective actions to be performed.

* Works realized by our partner 01dB Acoustics & Vibration

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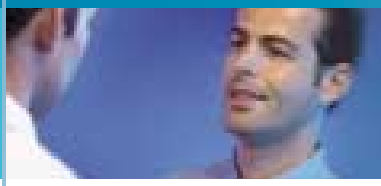
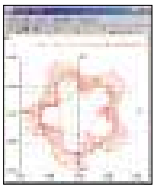


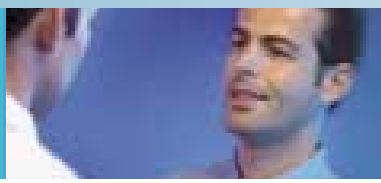
Monitoring and vibration expertise



• Expert analyses and occasional interventions

There is a complete range of services available to allow monitoring of equipment from commissioning up until decommissioning and to ensure optimum availability.

- Acceptance testing of machines, ensuring compliance, settlement of discrepancies and disputes,
- Control procedures acknowledged and recognised by machine constructors and inspection organisations. They allow assessment of equipment quality with respect to standards in effect and design specification: critical speed, separation margin, susceptibility to imbalance, stability margin, etc.
- Occasional expert analysis of mechanical problems.
- Use of advanced analysis techniques to characterise machines in stationary and transient modes and to perform structure analyses. Control hardware and software fitted with efficient analysis tools such as: acyclism analysis for gear box, "ellipse" Bode analysis to establish critical speed, the "sliding statistics" to detect pulse phenomena, experimental modal analysis and calculation of modal distortion to resolve machine-structure coupling problems.
- Assistance with design, enhancing reliability of installations, reduction of nuisances, modelling, design. (Working with our partner Metravib RDS).
- On site Balancing of rotating machines (without removing the rotor).



Monitoring and vibration expertise

Vibration Monitoring and Analysis: remote services

From telephone services to complete responsibility for your conditional maintenance tools, our objective is to guarantee you optimum cost efficiency.

Data is transferred automatically by:
- Modem: exchanges between our On-line monitoring systems (Moviscan) and our remote monitoring centre,
- E- mail: measurements taken with our data collectors by you or, by a local service provider that we select together.

• Assistance with implementing our equipment and our software

Configuration of IT systems, undertaking and updating of firmware and software, database parameter setting.

• Off-line remote monitoring by data collector

- Initialisation of periodic monitoring program: database parameter setting,
- Periodic equipment trouble-shooting.

• On-line remote monitoring

Automatic continuous monitoring of your equipment performed by our Moviscan monitoring systems installed in a fixed station on your site. Alarm information is instantly transmitted to our remote monitoring centre for analysis.

Systems designed for severe environments and for monitoring equipment with specific operating modes: variable load and speed, cycle operation.

In the context of this service, we:
- Install and start-up of Moviscan,
- Set monitoring parameters,
- Perform periodic and on-alarm diagnosis,
- Perform system maintenance.

• Remote expert analyses

Diagnosis of your equipment, occasionally and on request.
Access to your data by interacting with your application or by e-mail, using our software's export functions.

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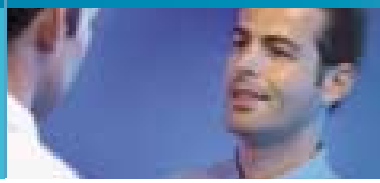
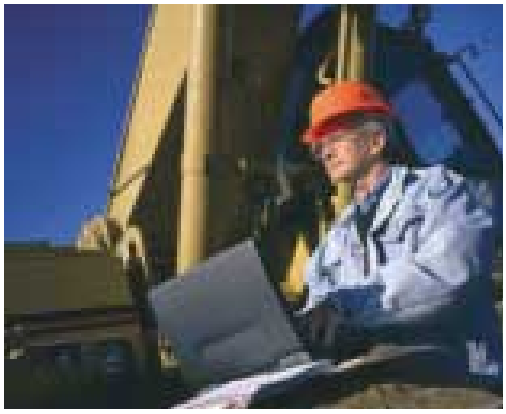


Fitting - dismounting, shaft alignment

Fitting or dismounting of bearings



Bearing fitting or extraction is not an innocuous operation.

If you do not possess suitable means, or if you lack the time or availability, SNR is there to help you.

Especially trained by SNR with these operations, our teams are competent and professional. They are effective, responsive and available worldwide.

Our technicians will supervise these operations, or even perform the entire operation for you.

For specific cases, they will call on our specialised partners. These services guarantee impeccable fitting and ensure the durability of your installations.

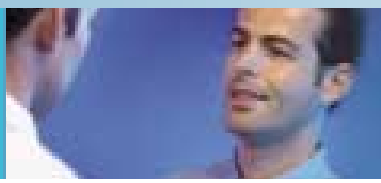
These services are adapted to each type of application and each branch of industry: paper mill, iron and steel industry, quarry, cement factory, food and beverage, ski lifts, etc.

Shaft alignment

50% of rotating machine failures are caused by incorrect shaft alignment.

Misalignment entails stress loading and vibrations that give rise to premature deterioration of bearings, and also couplings, packings and sealings, etc. Abnormal stress loading associated with misalignment also entails increased energy consumption. Misalignment has a direct impact on maintenance costs and the availability of your production tool.

By entrusting your shaft alignment operations to the teams of SNR experts, you will guarantee the precision of alignment and will ensure the quality of your rotating machines elements.

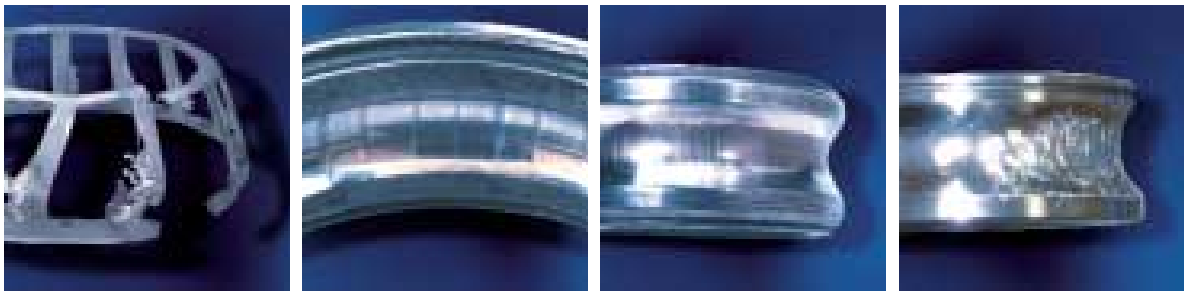


Expertise and After-Sales Service

Even the best maintenance cannot totally eliminate failure.

A manufacturer must be able to perform precise analyses.

Bearing expert analysis: identifying the causes



• A bearing is damaged or operating abnormally?

It is vital to discover why in order to avoid reoccurrence of the failure after a short period. The same cause will inevitably produce the same effects. Our experts are available to examine the effective bearing and can travel to your site if necessary.

Upon conclusion of this expert analysis, you will be provided with a report explaining the causes of damage.

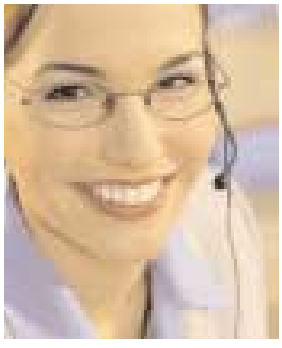
This report will also include advice to prevent this type of problem in the future.

• The procedure to be followed

The bearing should be sent to us without being cleaned. An expert analysis must be requested using a special form available from your SNR contact or our distributor.

Please ensure that you provide with this form as much information as possible concerning equipment environment and operating conditions to allow us to analyse possible causes of failure as precisely as possible.

Maintenance tools: After-sales Service and guarantees



Our teams are available to assist you with any problems encountered when using our maintenance products. In the event of failure, replacement equipment will be rapidly shipped to you for the duration of the repair that will be made as quickly as possible.

All of our products are accompanied by a guarantee that varies depending on product type. Do not hesitate to contact your SNR contact or our distributor for more information.

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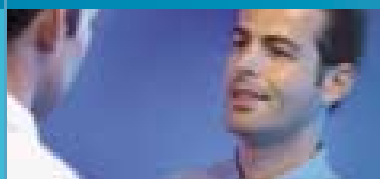


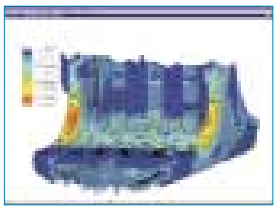
Modular training courses

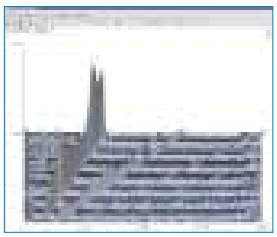
The key to efficient maintenance

Even maintenance requires continuous maintenance: in other words, training is essential to ensure that your teams are able to act swiftly and with foresight within a technological universe in constant evolution.
Training courses developed by SNR and its partners enable optimisation of maintenance techniques and tools in order to control all parameters that could affect a bearing.

• Extremely comprehensive content, customised services

SNR applies the same high quality standards to its training courses that it applies to its products. Approved by official organisations, course content is complete, thorough and continuously updated. The most recent maintenance methods are dealt with in detail. Training modules cover:

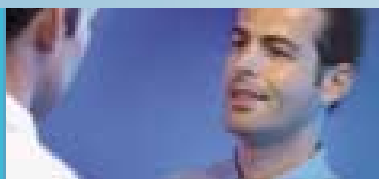




- Bearings and/or self aligning bearings: Initiation - Advanced courses.
- Fitting - extraction
- Lubrication
- Shaft alignment
- Vibration analysis
  - Rotating machines: Initiation - Advanced courses
  - Electrical engines
  - Turbomachines
  - Reduction gears
  - Structure analysis

• Objective: operational efficiency

These modules, of which there are different levels (I - II - III), include a routine assessment at the end of the course. Focused on real objectives, they make use of varied and complementary teaching techniques: lectures, group work, hands-on work, plant visits. Furthermore, upon completion of the training sessions, the content of the training course is available to your teams on CD-Rom and DVD, including demonstration films. An effective support medium that may be referred to at anytime.



Technical assistance and logistics

On a daily basis SNR technicians are attentive to your needs

Outside maintenance interventions, your teams may need precise technical information. Teams of engineers, technicians and SNR distributors are there to provide answers. Furthermore, SNR can provide you with documentation suited to your sector of activity.

SNR logistics: proximity and availability

Efficient maintenance must go hand in hand with responsive logistics in order to minimise production stoppages. SNR's extremely extensive distribution network guarantees rapid and emergency part availability and that parts will be delivered in immaculate condition, at a competitive cost.

With its European Distribution Center, SNR ensures a 95% availability rate of the parts and a 98% service rate. That is to say, the error rate is 5 in 10000 delivered lines, a result seldom observed in industry.