Regular overhauls on turbine generator units and other components for power generation account for a significant portion of the operating costs for operators of power plants and industrial installations. To reduce costs it is therefore desirable to limit comprehensive inspections to those components exhibiting marked changes in operating behavior in the course of service or which show a sudden change in balance quality. Vibration measurements and other diagnostic methods function as an early warning system providing information on machine condition and possible impending damage to components which can require remedial action ahead of the next scheduled overhaul.

As an OEM of turbines, generators and auxiliaries Siemens possesses an unique expert knowledge which has been integrated into our machine diagnostic concepts for many decades.

Our field service experts perform measurements not only on our own fleet and non-OEM turbine generator units, but also offer these for other machines and components in the most varied industrial installations. The timely diagnosis of component wear levels allows action to be taken to avoid possible severe damage to equipment.

**Our Services**

Siemens offers a comprehensive portfolio of measurement and accompanying services.

- Performance of vibration measurements using mobile equipment with various scopes
- Field balancing of rigid and flexible rotors and complex shaft trains
- Support of expert engineers e.g. in the area of design, rotor dynamics, simulation of imbalances or stiffness calculations
- Evaluation of vibration levels and behavior as well as recommendations for continued operation in line with ISO standards; where applicable also recommendations for overhauls
- Evaluation of deviation from normal behavior with the involvement of the corresponding engineering departments, recommendations for continued operation
- Modal analysis for determining natural frequencies according to pertinent IEC standard, e.g. in generator end windings or bearing structures
- Setup and configuration of permanently-installed vibration diagnostic systems
- Analysis and evaluation of vibration data from permanently-installed diagnostic systems at regular intervals and tailored to customer re-
Vibration monitoring offers significant advantages over other methods for analyzing machine and process parameters. In-depth analysis of the measured values from your systems using our diagnostic tools allows fast and accurate identification of any problems. This means that any repairs and remedial action required can be planned and implemented within a very short time to keep plant downtime to a minimum. We provide you with an independent diagnosis of any vibration problems in your plant. We offer a wide spectrum of service modules for periodic measurements and acquisition of actual value data on the state of your plant to actively support your maintenance efforts.

The diagnostics experts within the Siemens Field Service team have many decades of experience and expertise at their fingertips. Combining specialist vocational training and education with hands-on experience gives our specialists the required knowledge-base to identify and evaluate vibration problems and their causes within a very short time. They are aided by state-of-the-art equipment from well-known suppliers of vibration instrumentation. Digitalization of data on a global scale as practiced today, combined with many years of experience provides the basis for fast and detailed visualization and analysis.

Our Service is only one element in a comprehensive diagnostics chain which starts with Field Service on the project site and, where necessary, is supported by engineering experts in the fields of diagnostics, design, rotor dynamics, imbalance simulation, stiffness calculations and bearing technology.

Siemens also offers a special service in the form of specific training for the technical personnel in the power plants and industrial installations who are assigned to vibration monitoring and analysis work on site. This training explains the theoretical and, on the basis of many concrete examples, also the practical side of vibration monitoring and diagnosis. Training can take place either at Siemens or on the customer’s premises.

Your Benefits
- Vibration monitoring and machinery diagnostics from Siemens provide benefits including the following advantages:
  - Time and cost savings due to the provision of complex services through a single source
  - Experience spanning many decades from projects worldwide
  - Implementation of permanently-installed or mobile instrumentation scaled to your requirements and with a remote-monitoring option.