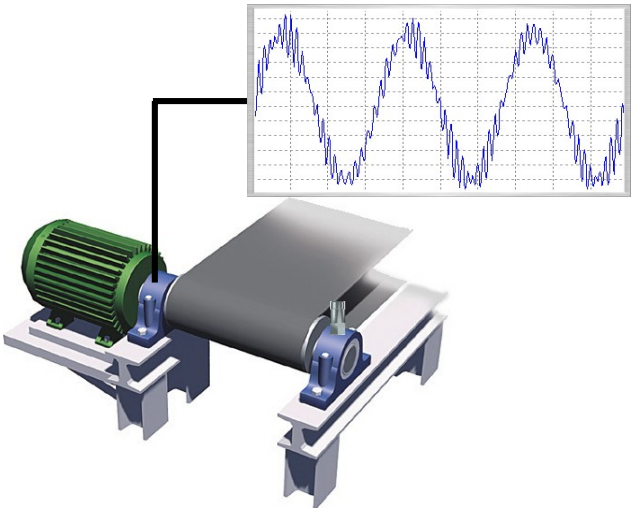
Turbogen Power Services

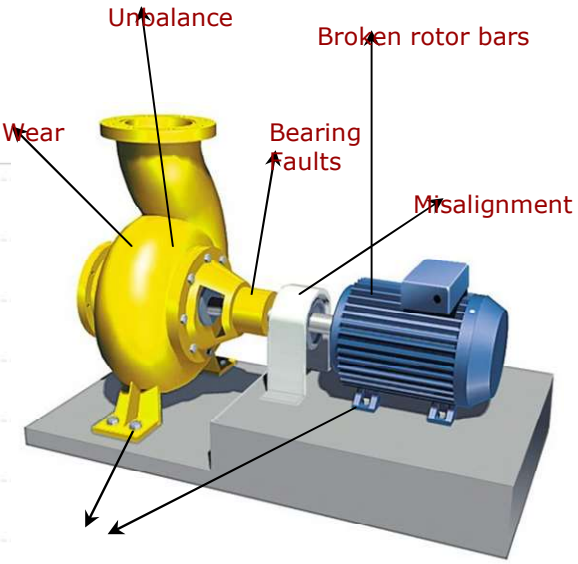
Changing Maintenance from Reactive to Proactive



TGPS offers its services and consultancy in the following domains

- Noise and vibration measurement and analysis of rotating machinery
- Acceptance Testing of Machines
- Diagnostics and Trouble shooting of machinery
- On-site dynamic balancing of rotors, fans, blowers, motors, machine tool spindles etc.,
- Ground Vibration Study
- Condition Monitoring of rotating machines
- Blade natural frequency measurements of turbine rotors
- Structural Dynamics
- Product Benchmarking
- Vibration isolation solutions
- Compressor and Piping Vibration measurement, analysis and rectification
- Rotor Dynamic analysis of rotating machines

Normal *Marginal* *Critical*



Why Vibration Analysis?

Provides the broadest indication of rotating machine problems including imbalance, misalignment, looseness, bearing and gear defects, lubrication problems, resonance, and cavitations among others.

TGPS engineers are highly skilled and experienced in vibration diagnostics and can apply sophisticated techniques including frequent monitoring to identify and

Vibration Analysis provides the reality of identifying and correcting potential problems before they become actual problems. We collect and process data with your equipment operating in its normal environment with no equipment shutdown or disassembly.

Establishing a Vibration Program

- Identify critical machines
- Create database and collection route
- Collect data and scan for exceptions/Alarms
- Diagnose developing machine faults
- Project time until failure
- Document machine fault & generate report

Vibration measurements and trouble shooting of 2 X 2.5 MW Hydro TG set assembly at Srilanka

Vibration measurements and on-site balancing of 25 MW turbine-generator assemblies at a sugar mill

One of the corrections mass added on the 25 MW generator fan assembly during on-site balancing

Condition Monitoring

T G P S undertakes condition monitoring of machines for predictive maintenance. We not only undertake condition monitoring assignments but also help and train industry in implementing it.

Vibration levels and signatures from the machines are periodically measured and trended to assess their condition. Any change in the vibration levels/pattern is identified and diagnosed. Based on this corrective actions are suggested to put the machine back in to operation.

Vibration studies on 12.5 MW generator assembly at a paper mill in Philippines

On-Site Balancing

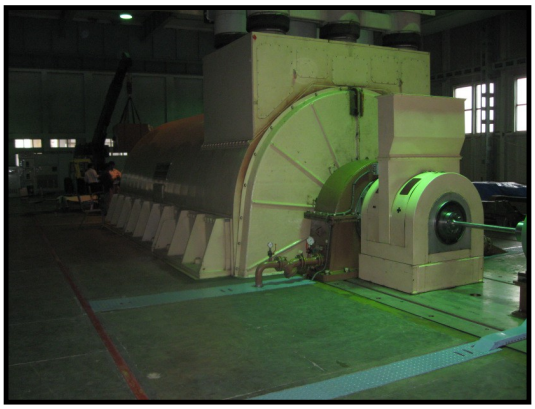
TGPS provide on site balancing ofrotors of a variety of equipment. Rotors of the most of the installed equipment develop unbalance due to various reasons. Re balancing them on balancingmachines is often time consuming and some time impossible. Our on-site balancing service is an answer to such situations. DE has so far carried out balancing of hundreds of rotors of different kinds of machinery and equipment. These include

- Grinding Spindles, Gun drilling Spindles, high speed spindles (operating speeds up to 50,000 rpm), Machine tool spindles and fixtures
- Rotors of Electrical machinery – Motors, Alternators (weighting up to 25 tons)
- Impellers of Fans, blowers, compressors and pumps
- Flywheels, couplings and many more

Vibration studies and on-site balancing of 60 MW hydro generator (112 tons) at Sabarigiri hydro power station,

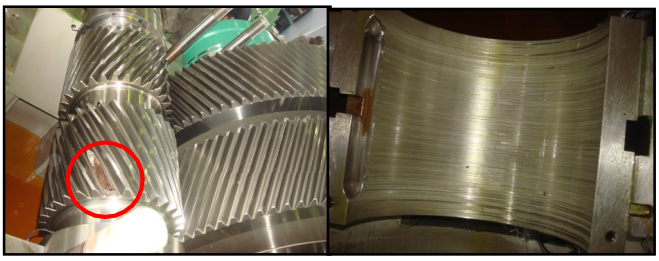
Vibration measurements and on-site balancing of high speed spindle assembly (25000 rpm)

Identification of turbine front bearing failure on an 8 MW TG set at one of the sugar mill



Vibration studies and on-site balancing of 2300 KW motor assembly (Alstom make) coupled to 54 ton generator assembly

Vibration studies and on-site balancing of motor-generator-flywheel assembly. Weight of the flywheel was 16 tons and runs at 1500/1800 rpm. This machine was first of its kind developed in India for short circuit testing and analysis.



Gearbox tooth and bearing failure identification on a 35 MW TG set in one of the sugar mill

Natural frequency studies on 61.5 MW turbine rotor blades at Abhijeet Power site