Vibro-Consult AG

May 2021

Hydro, Gas and Steam Turbines Vibration Expert

Company Presentation



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1. The Company - ISP

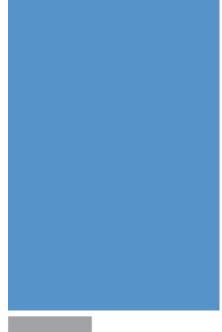
1.1 About Us

Vibro-Consult AG was founded in 1988 as an **Independent Service Provider**, with extensive knowledge and experience in the **area of measurement and vibration-technology**.

From small industries, power companies to international corporations, our customers operate gas & steam power plants, hydro power plants, thermal power plants, large industry machinery & others.

The extensive know-how of **Vibro-Consult** makes us a valuable and trusted partner in the field of vibration analysis, assessment of machine vibrations, rotor balancing, implementation of turnkey vibration monitoring systems and consultancy for condition monitoring strategies.







2.1 Gas and Steam Turbines

We have built unparalleled expertise over the years in analyzing a broad range of Gas & Steam Turbines including Generators.

<u>Gas Turbine:</u>

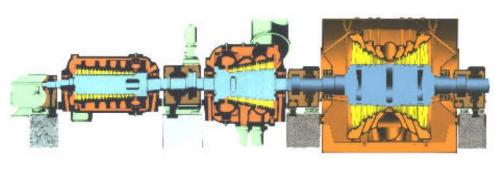
- GT8 (GT8C, GT8C2)
- GT11(GT11N, GT11NM, GT11N2)
- GT13E (E1 and E2 all rating, included MXL upgrades)
- GT24 all rating
- GT26 all rating

Steam Turbine:

• Combined Cycle, Coal, Nuclear and Industrial applications

Generator:

- Air-cooled
- Hydrogen-cooled







2.2 Hydro Turbines

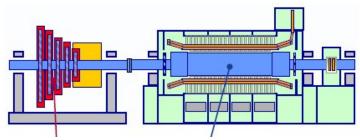
We have also built-up excellent knowledge with regards to analysis of Hydro Turbines.

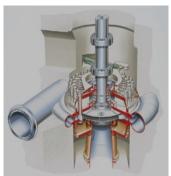
<u>Turbine (horizontal and vertical):</u>

- Pelton Turbine: single and double wheels
- Francis Turbine: all kinds of versions
- Kaplan Turbine: all ratings
- Tube Turbine: all ratings

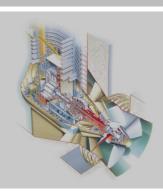
Generator:

- Air-cooled
- Water-cooled











2.3 Services

At Vibro-Consult we provide a broad range of professional services tailored to customer specific needs. All services are aimed to minimize the efforts required, to ensure a safe machine operation.

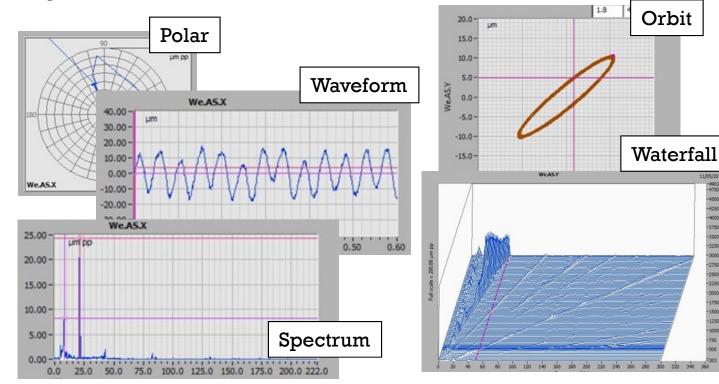
These services are offered on-site or remotely:

- Vibration measurements and analysis
- Multiplane rotor-balancing
- Vibration diagnostic analysis: Monitor any vibration change as indicators of malfunctions in the rotating equipment.
- Root-Cause Analysis (RCA) for complex vibration issues
- Commissioning, Start-up and supervision/witnessing
- Consultancy for, machineries condition, monitorings & diagnostics



2.4 High Quality Analysis

The extensive Know-How, combined with state-of-the-art vibration diagnostic equipment, allows us to deliver high quality vibration analysis. Here some analysis examples which feed into our machine diagnostics assessment:

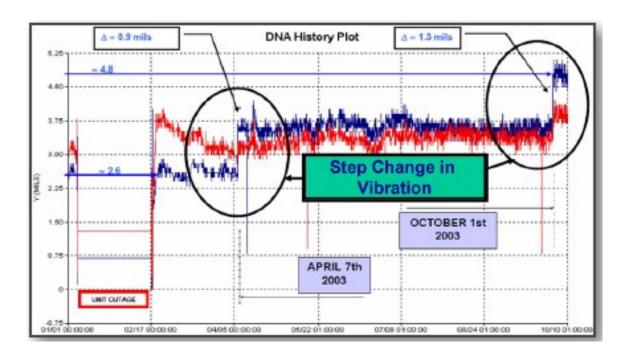






2.5 Technical Consultancy

<u>Technical consultancy</u>: Showing steep increase in vibration levels on the generator rotor bringing these close to alarm levels. In this example, On-line measurements showed that the steep change in vibration was due to degradation of the rotor winding insulation causing short circuits between turns.





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3. Customer Benefits

3.1 Overview

As an independent partner we deliver first class diagnostics analysis and services ensuring customer satisfaction. With us, customers benefits from:

- A faster return to operation/production of machines after Major Inspection or Machine event (damage)
- Reduced downtime during balancing exercise (minimized number of extra runs)
- Preventive risk mitigation through a temporary or ongoing machinery vibration assessment
- Optimization of maintenance costs through an efficient longterm condition monitoring and diagnostics strategy
- Maximization of operation time between Major Inspections based on online condition monitoring and diagnostics



4. Contact Us Service

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