CONSULTANCY SOLUTIONS

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What we do?

DIAGNOSTIC ENGINEERING (DiEg) SOLUTION

- **Vibration Diagnosis – *testing, measurement, analysis***
- **Shaft Power, Torque & Torsional Vibration Measurement** of Engine. Propeller Shafting system, Gear boxes etc
- **Infrared Thermography** *of Electrical, Thermo-Mechanical System.*
- **Ultrasonic testing and survey**
- **Electrical Machine Diagnostics Study**
- **Power Quality Analysis** – ***transient and harmonic study.***
- **Assessment of Root Cause Failure Analysis**
- **Scheduled (periodical) machinery auditing**
- **Implementation of proactive maintenance**
- **Human Comfort Measurement**
  - ⊕ **Vibration assessment** as per ISO 6954,
  - ⊕ **(Hand Arm Vibration (HAV) / WBV – Whole Body Vibration)**
  - ⊕ **Noise monitoring** as per IMO Resolution A.468 (XII)

    Comfort measurements are generally performed during ship building stage, sea trials or in service including whenever the ship undergoes repairs, modifications or refitting

CORRECTIVE SERVICES

- **In-situ Dynamic Balancing – *rigid & flexible rotor***
- **Multi-plane Rigid &Flexible Rotor Dynamic Balancing***
- **Precision Optical Laser Alignment -** ***– cold / hot state condition***
- **Bore / Flatness / Straightness measurement**
- **Geometry / Dimensional Survey**

VIBRATION DIAGNOSIS:

- **Vibration Measurement, Monitoring, Test, Trouble Shooting,** ***Fault diagnosis of rotating / reciprocating machineries, Propulsion Shaft, structures, piping, building & ground***
- **Identify Natural Frequency (resonance states)** *of entire machinery or machinery components by* **Impact (Bump Test) / Transient analysis during start-up / coast down etc**
- **ODS – Operational Deflection Shape / Modal Analysis**

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OTHER CONDITION MONITORING TECHNIQUES

- **Infrared Thermography Study** - ***identification of thermal anomaly***
- **Acoustic & Ultrasonic Study** ***friction, arching, turbulent phenomena***
- **Electrical Signature Analysis** - ***identify stator & rotor, air gap related failures***
- **Power Quality Analysis** – ***transient & harmonic study***
- **Partial Discharge Analysis of High Voltage Electrical System**

FAILURE AVOIDANCE / ANALYSIS

- **Structural Design Modification –** ***shifting natural frequency***
- **Fatigue & Life Estimation of the Critical Components**
- **Analytical Design Review on System Integrity**
- **Simulation of Faults and Dynamic Response Study**
- **Failure Cause & Impact Analysis**
- **Damage Assessment – Mechanical & Electrical Machineries**

SIMULATION / PREDICTION STUDIES

- **FMEA Studies – Operational / Maintenance issues**
- **Power Harmonics Simulation & Predictions**
- **Comfort study –** ***comply with HAV / WBV analysis***
- **Noise & Vibration Predictions & Simulation**
- **Torsional Vibration & Power Studies, Predictions**
- **Flow Measurement / Surge Studies**

APPLICATION SKILL TRAINING

- **Implementation of PdM – Predictive Maintenance Strategies**
- **Interactive Multimedia Training Package**
- **Technological Training on PdM techniques such** *as Vibration Diagnosis, InfraRED Thermography, Ultrasonic Study, Electrical Signature Analysis, Electrical Machinery Fault Diagnosis etc*

RESEARCH & DEVELOPMENTS

- **Application Specific Research** *on Electrical / Mechanical Systems*
- **Design and develop – Test Rig** *for Engines / Motors, Pumps etc*
- **Wireless / Remote Condition Monitoring ….**
- **Alternate Energy Studies**

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