



TURBO MACHINERY ANALYSIS

“Get your operational gas and steam turbine’s health assessed and precisely maintain them with IMMUSCO”

IMMUSCO’s specialists can provide the following services for your turbines which cannot be performed through the standard turbine protection systems:

Fault Diagnosis

- Root cause analysis of turbine trip
- Transient analysis

Acceptance Testing

- Start up
- Coast down
- Production state monitoring

Internal Inspection

- Videoscope inspection

Rotor Dynamic Analysis

- ODS (Operational deflection shape)
- Critical speed identification
- Field Balancing

Turbine Oil Health Analysis

- RPVOT (Rotating pressure vessel oxidation test)
- Oil viscosity analysis
- Wear metal analysis

State of the Art Technologies



Videoscope



Oil Health Monitoring Unit



Multi-Channel Transient Vibration Analyzer



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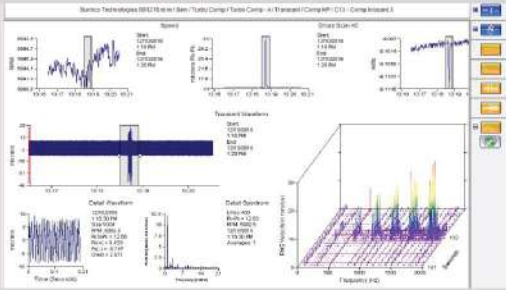
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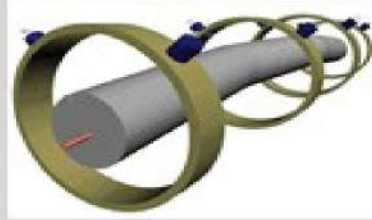
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Analysis Capabilities

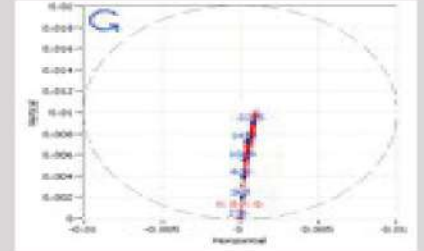
Shaft Animation / ODS

Analysis of your turbine's shaft alignment through live 3D ODS (Operating Deflection Shape)



Shaft Center-line Analysis

Transient data captured continuously allows shaft centerline position at various turbine speeds



Process Overview

Step 1 – Data collection

- Vibration data is recorded through portable 24- Channel online analyzer connected to turbine's existing data interface system while the turbine is operational.
- For offline turbine unit, internal parts' condition is recorded through in-situ videoscope.
- Samples of turbine's in-service oil are also collected and sent to IMMUSCO's laboratory for analysis.

Step 2 – Analysis

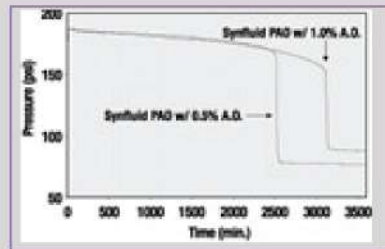
The recorded data is analyzed utilizing computer software, specialized knowledge and experience.

Step 3 – Reporting

A report is accordingly prepared describing your unit's health condition and recommendations.

RPVOT (Rotating pressure vessel oxidation test)

For identifying oxidation stability decay of in-service turbine oils



Videoscope Inspection

To monitor internal parts for wear and tear, without having to dismantle the turbines



Your Problem

Cannot identify the root cause of turbine trip or failure

You wish to verify the condition of a new or repaired turbine unit before acceptance

Cannot determine remaining life of turbine's in-service oil

Our Solution

to identify the root cause such as unbalance, misalignment, IMMUSCO can monitor and record vibration data from your turbine from 24 channels simultaneously, continuously and unattended. Turbine behavior immediately before any trip events can also be captured for thorough study. The recorded data is used bearing rub, etc.

IMMUSCO can determine your turbine unit's internal parts condition, its vibration behavior and confirm the critical speed of resonance, when it's at workshop after repair, when received on site, before installation or after commissioning

As turbine's in-service lubrication oils get oxidized over time, their anti-oxidant levels reduce as part of the deterioration process. We can measure the current anti-oxidant levels in your turbine's in-service oil through the RPVOT test



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