

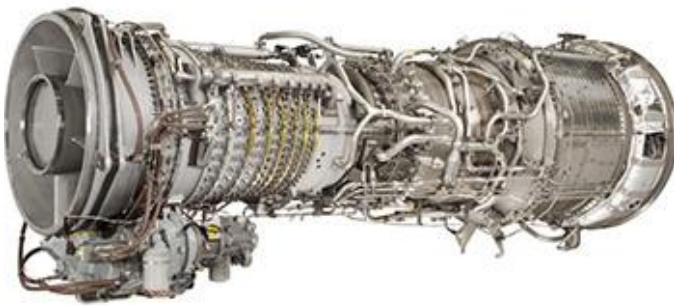
Aero Derivatives - Data Analytics

Reliability & Thermal Performance Analysis

Aero Derivatives

Aero Derivative Gas turbines are used in various places where high operational flexibility and efficiency are required. Aero Derivatives like LM2500, LM6000 etc. are extensively used in Oil & Gas industry and also in mission critical areas like ship propulsion.

Our **ProcDNA** software has the capability to analyze both critical aspects of Aero Derivatives – **Reliability & Thermal Performance**



GE – LM2500+G4 Gas turbine

Process Modelling

Real time Data Analytics

Remote Monitoring

Diagnostics

Alerts & Notifications

Offline Simulation

Historian Implementation

Reports & Automation

Reliability

ProcDNA can monitor the health of various critical components of industries in real time. A combination of **Artificial Intelligence, Statistical methods** and **Thermodynamics** are used for this purpose. Examples of systems in which anomalies can be detected in Gas turbine units -

- Bearing vibrations, Temperatures
- Exhaust Temperatures (combustion related anomalies)
- Disc cavity/Wheelspace temperatures (cooling flow related anomalies)
- Anomalies in Compressors, Turbines
- Anomalies in Major Fans & Motors
- Anomalies in Heat exchangers (lube oil, cooling water)
- Anomalies Generators and Transformers
- Process Anomalies (bleed valve leaks etc.)

Thermal Performance

ProcDNA uses **SimTech's IPSEpro** thermodynamic engine to analyze thermal performance of Aero Derivatives and associated components in real time. Some components that can be analyzed are -

- Compressors
- Turbine sections – HP/LP
- Combustors
- Heat Exchangers
- Condensers
- Cooling Towers
- Major Pumps
- Generators

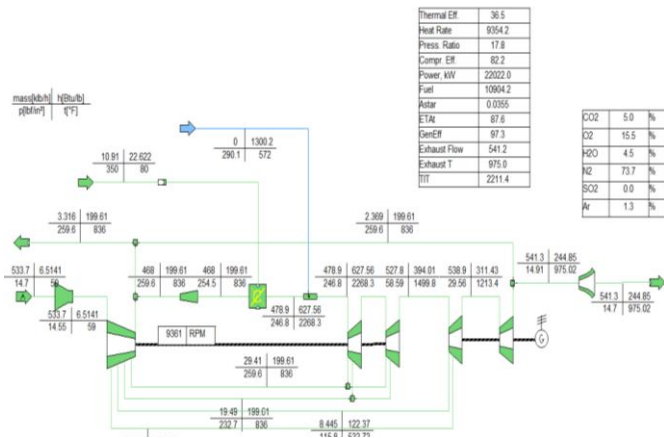


Thermal Performance Analysis

Using SimTech's IPSEpro

Thermal performance model of a LM2500 Gas turbine built using [SimTech's IPSEpro](#).

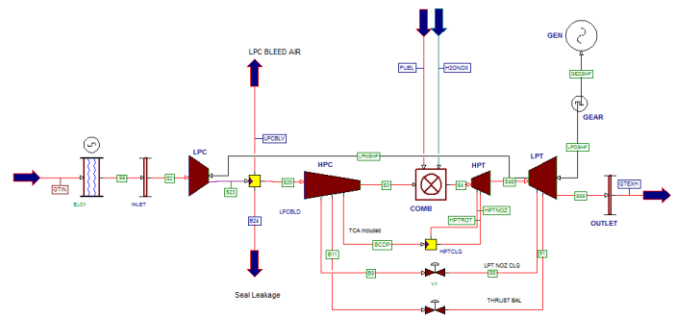
IPSEpro uses an open equation architecture and all engineering calculations are visible to the end users!



Using GE's GateCycle

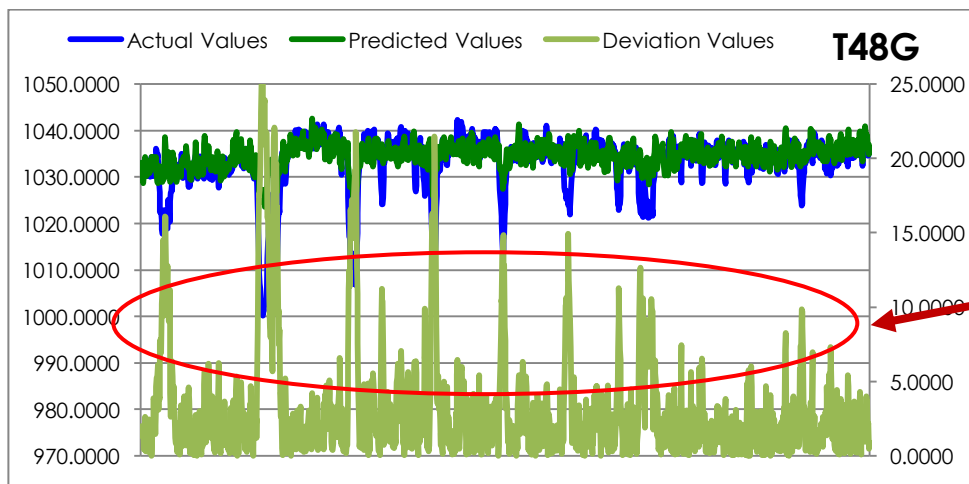
For customers using OSI PI and GE's GateCycle software, our ExcelLANCE™ software can be used to setup a real time performance analysis solution very quickly.

Thermal performance model of a LM6000 Gas turbine built using GE's GateCycle software.



Anomaly Detection

Exhaust temperature anomaly of a LM2500 Gas turbine detected by Seal models using Artificial Intelligence



High and consistent deviation between measured and predicted values indicates anomalous behavior

To know more about our software and solutions, please visit www.patsimo.com or write to us at "info@patsimo.com"

