

Performance Management

FOR THE MARITIME INDUSTRY



Propulsion Analytics

About Us

Propulsion Analytics is an innovative company in the area of performance management and energy efficiency optimization for the maritime industry and has been set up with the vision to apply state-of-the-art technology to the world shipping community.

The company offers products and services focusing on engine and vessel performance management and has pioneered the use of thermodynamic simulation models in conjunction with machine learning techniques, for performance assessment, fault diagnosis and optimisation in service.

Propulsion Analytics is the partner of choice for Winterthur Gas & Diesel Ltd. in the development of their Engine Diagnostics System (EDS) for all 2-stroke diesel and dual-fuel engines.

Extract meaning from your data

Analyzing data collected from the vessels, we extract and display meaningful information (KPIs Graphs/Trends, Faults/Alarms) regarding the status of your fleet's engines and we provide diagnostics, prognostics, optimisation recommendations and information towards better planning of your maintenance based on condition assessment.

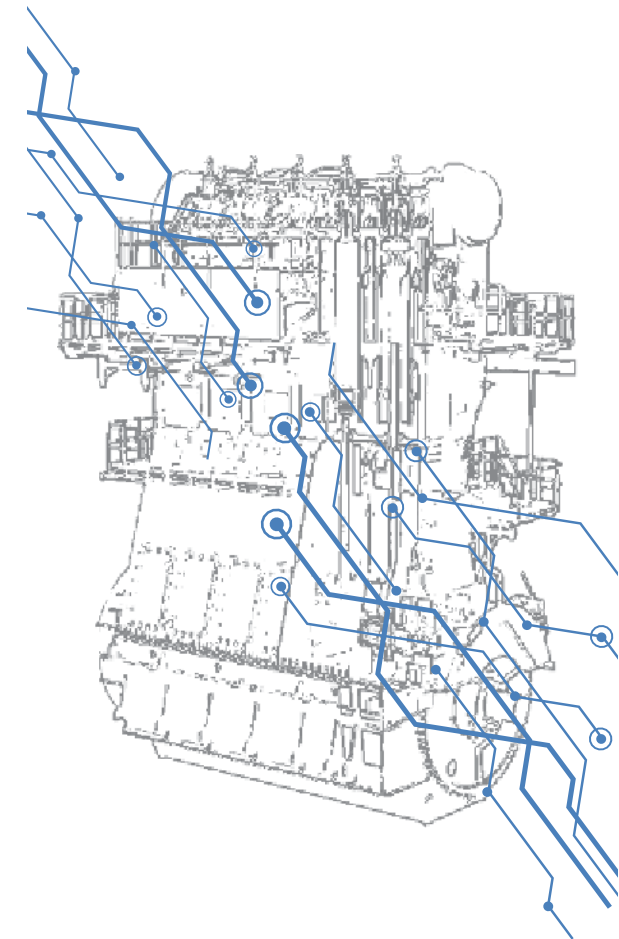


Digital Twin in action

We have pioneered the use of thermodynamic simulation models in conjunction with machine learning techniques in order to generate the Digital Twins of your engines.

The Digital Twin is tuned to be an exact replica of your actual engine in operation, reflecting the physical relationships of all primary parameters (temperatures, pressures, rpm) and resultant performance values (torque, fuel consumption and emissions) and how these are influenced by ambient conditions, load, speed and fuel type at any operating point.

The Engine Hyper Cube[®] software, by comparing operational engine measurements to the digital twin, can then reliably provide a detailed engine status assessment and optimization guidelines.



For any engine

The Engine Hyper Cube[®] can be used in any marine engine, whether conventional or electronic, 2 or 4 stroke, Diesel, Gas or dual-fuel.

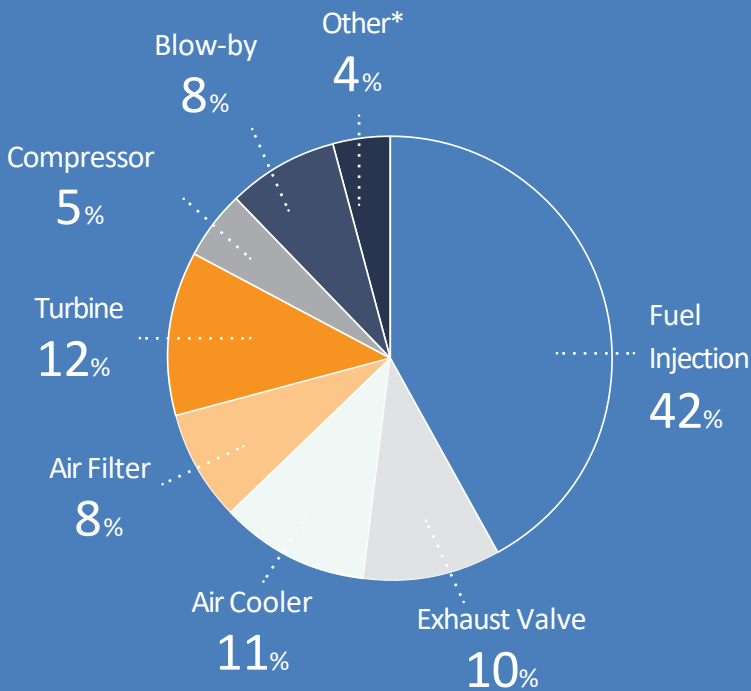
No additional H/W requirement

There are no requirements for installation of specialized H/W equipment onboard.

Actionable Diagnostics



Through advanced engineering rulesets, detailed fault simulation techniques and engine designer guidelines, the Engine Hyper Cube[®] provides specific diagnostic findings along with actionable recommendation steps for each fault identified.



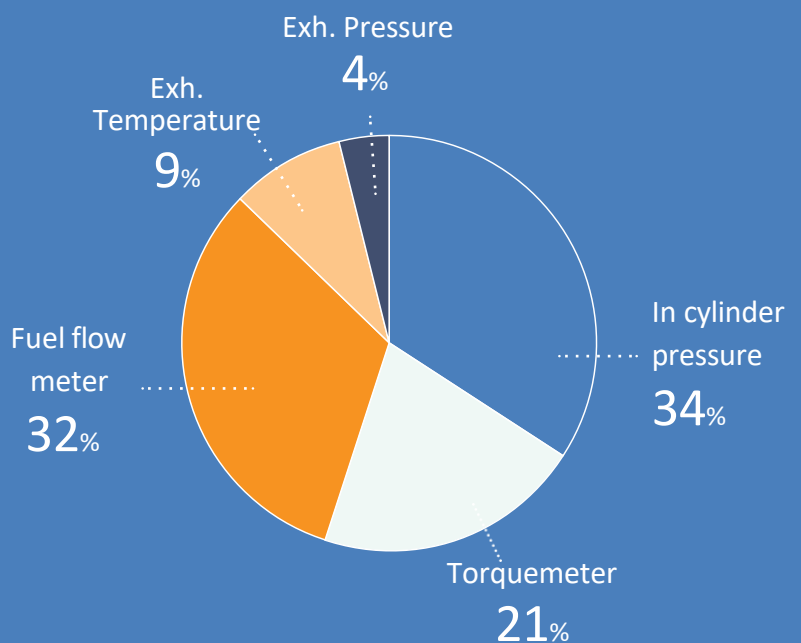
Most Frequent Engine Faults

Faults in the Main Engine are considered to be the most frequent and the most expensive damage in vessels. Engine Hyper Cube[®] is able to identify all the major engine issues and many more...

** Other: Valve timing error, increased backpressure, insufficient air supply, engine overload*

Most Frequent Sensor Faults

The Engine Hyper Cube[®] also identifies problematic measurements and faulty/non-calibrated sensors, like issues with torque meters, flow meters, in-cylinder pressure measuring devices etc.



The above percentages are based on Propulsion Analytics' real customer data



Look after your fleet

The Engine Hyper Cube® is a valuable status assessment and decision making software to be used by the management and the technical/engineering teams. It can prove to be a great tool towards immediate identification of faults and better planning of engine maintenance based on condition assessment. The software offers:

- Dashboard view of overall vessel/engine condition
- Component health and efficiency KPIs
- Detailed diagnostics of possible faults (engine & sensors) and recommended actions
- Financial and environmental impact of faults identified
- Timeline analysis for a number of engine parameters
- Sister vessel/engine comparison

We adapt to your preferences

We typically deliver the Engine Hyper Cube® software to the shipping company to be used by internal staff. However, we also offer an engine performance management service, where our experts perform the monitoring and analysis for you and provide all the support you need to resolve engine faults and optimize the operation of your engines. This allows internal staff to focus on problem resolution, while we focus on the data analysis.

Performance Management that guarantees



Minimum unexpected downtime



Increased operational efficiency



Optimization of maintenance

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15-17 Chatzikiriakou Ave. 185 37 Piraeus, Greece. Tel: +30 210 45 35 382
E-mail: info@propulsionanalytics.com