



Hull Monitoring System

HMC's Hull Monitoring System

Real time strain information

HMC's Hull Monitoring System is a real-time measuring system monitoring fluctuations in strain on a vessel's hull.

HMC's Hull Monitoring System can be used either as stand-alone monitoring system, or integrated in a bridge information system. The system includes an alarm system for the crew in case the pre-defined design and operational strain limits are exceeded. The system processes and displays the information to the officers of the vessel for operational purposes. The information displayed to the bridge includes:

- Constructional strain, stress and fatigue
- Motion Fluctuations

Optional:

- Translation to stress & bending moment
- Check with maximum allowable bending moment

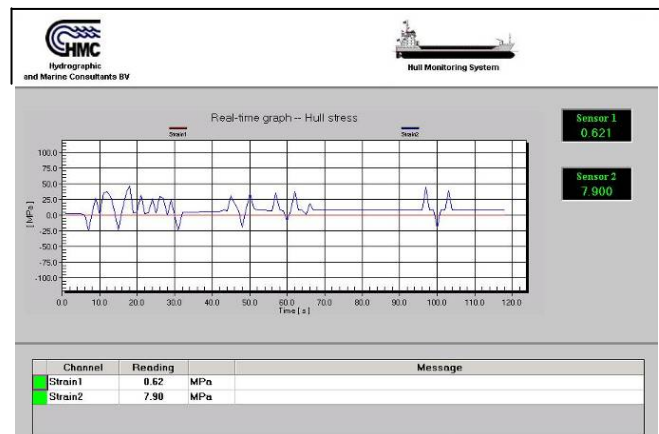
Modules

HMC's Hull Monitoring System consists of four modules that act independently under an overarching program. These modules are:

1. The Strain Analysis Module (SAM) monitors the strain on critical positions in the vessel via intelligent strain gauges, which are integrated with a microcontroller.
2. The Ship Motion Analyser (SMA) monitors and analyses the vessel's motions.
3. The Fatigue Analysis Module (FAM) uses the input from the strain sensors to analyse the fatigue in critical positions on the vessel.
4. The Fatigue Analysis Monitoring Online (FAMON) system enables the bridge to monitor the actual rate of accumulative fatigue damage directly influenced by speed and heading of the ship in real time.

As an alternative to on-site fatigue monitoring, HMC also offers services to analyze the strain data manually. This will provide you with:

- Maximum strain values, stress and complete fatigue life over a specific time
- An interpretation of the data, instead of raw strain data
- Visualized report regarding fatigue life of your vessel
- Consultancy and advise on improvements or answers on specific questions



Read out of the Hull Monitoring System-sensors

Hull Monitoring System and ISM Regulations

HMC's Hull Monitoring System supports the implementation of the ISM regulations, such as:

- Ensuring safe operation as per article 1.2 of the ISM-code.
- Chapter 5 on master's responsibility and authority is supported by different log-in levels ensuring authorities to be clearly stated and carried out.
- Chapter 7 as the Hull Monitoring System can be used to ensure safe loading of the vessels.
- HMC's Hull Monitoring System is built according to rules for classification of ships (DNV) and can be certified.





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References

Among others, HMC's Hull Monitoring System has been installed on the Dockwise (former Fairstar) Fjord and Fjell. These two semi submersible heavy cargo transport ships deal with extreme hull stress and deformation. Data is used as real-time measurement of seaworthiness as well as proof included in safety reports to customers and third parties.

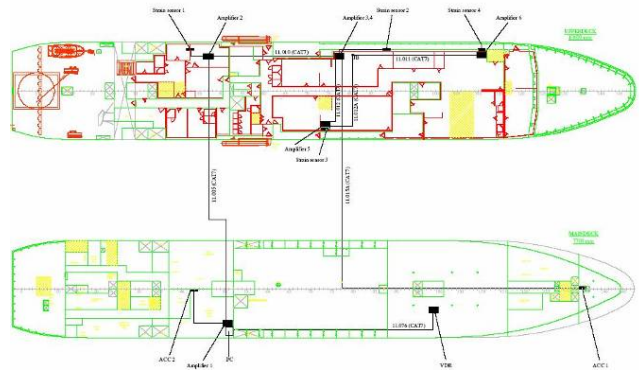


HMC's Hull Monitoring System is installed onboard of the semi submersible heavy cargo vessel Dockwise Fjord and Fjell.

Advantages

HMC's Hull Monitoring System offers the following advantages:

- It offers the possibility of reducing hull repairs and the risk of damaging cargo.
- It provides data to plan ship maintenance, minimising condition-based maintenance and supporting the classification process.
- Empirical measurement results of the system may result in the optimization possibilities for ship constructions and the reduction of costs.
- The system promotes the safety of vessel, cargo, passengers and crew by allowing the officers to reduce hull strain and increase the durability of the hull.
- The system enables the officer to operate the vessel prudently.
- The system provides data to estimate the fatigue life of the hull; more over, this data can be used to improve the design of new vessels.
- Finally, the system acts as a recorder, which enables owners to monitor the handling of their vessel.



Example of sensor location plan

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