

MONITORING SPHERICAL LNG TANK SLOSHING

Improve membrane tank safety



LIGHT STRUCTURES
Passion for Monitoring

Sloshing, which is defined as the violent movement of LNG inside partially filled membrane tanks, poses a unique threat to the structural integrity of LNG carriers.

Particularly under specific sea states or uneven loading conditions, Sloshing can exert powerful, localised forces on containment walls, pump towers, and the vessel's inner hull. Sloshing incidents can also lead to deformation, costly repairs, or in worst cases, cargo loss. Traditional monitoring solutions often rely on basic counters, capturing frequency without context or force measurement. This approach can result in overly conservative maintenance cycles, unnecessary inspections, and avoidable downtime, all of which increase lifecycle costs.

Understanding the Effects of LNG Motion

SENSFIB™ offers a more intelligent method than traditional impact counting based systems. Installed at critical impact zones within LNG tanks, such as upper corners and lower fill regions, its fiber optic sensors measure not just the occurrence of sloshing events, but their precise magnitude.

This real-time, high-resolution stress data is processed through the SENSFIB™ software suite, providing alerts when thresholds are exceeded and tracking cumulative fatigue over time.

The shift from event logging to structural analysis enables LNG vessel operators to make informed decisions, supported by robust data, on when and where to inspect tanks. Instead of reacting to sloshing effects, operators gain foresight.



Acquire. Analyze. Act.

Acquire precise structural stress and fatigue data



Analyze acquired data & deliver to any digital platforms



Act on insight from reliable structural monitoring data



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Strategic LNG Tank Lifecycle Management

The SENSFIB™ LNG Sloshing system helps to identify the conditions that cause damage to flexible membrane and semi-membrane tanks. For instance, resonant sloshing, triggered by partial loading and certain wave patterns, can now be detected and contextualised.

Data from SENSFIB™ supports Risk-Based Inspection (RBI) strategies and facilitates more productive discussions with class societies. As fleets push for inspection flexibility and condition-based maintenance, SENSFIB becomes a key enabler.

Beyond Safety to Operational Efficiency

SENSFIB™ is more than a safety system. It's a lifecycle tool. By transforming sloshing from a hidden risk into a quantifiable parameter, operators gain a competitive edge through increased asset availability, reduced OPEX, extended tank component life, and optimised survey planning.

In a market where LNG carriers are increasing in size and complexity, real-time structural intelligence on the condition of LNG is as essential for safe and efficient marine operations as dependable weather data and up-to-date navigational charts.



Total solutions for complete structural integrity at sea

As a total solutions provider in maritime and energy sectors, Light Structures tailors solutions to each customer's needs. Choosing SENSFIB™ to increase safety and efficiency aboard LNG carriers is an investment with a proveable return, as a well as a commitment to operational safety and sustainability.

SENSFIB™ sensors & solutions optimize the lifecycle maintenance costs of your LNG ships and fleet

Contact Light Structures to find out how our Sloshing Monitoring system can help protect your tankers from the dangers of LNG motion at sea

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SCAN ME

