# framatome

# I-LPMS

Industrial Acoustic Monitoring for Damage Prevention

Fully automated monitoring and classification of structure-borne sounds to limit shutdown time caused by loose parts

#### Challenge

Loose parts in complex systems (e.g. transportation systems, steam generators and turbines) pose a threat to the operational safety of the system.

Noises created by malfunctions (e.g. loose parts, shafting rubbing or blockages) are often masked by operational noises from the surrounding area and are therefore often left undetected. Unnoticed errors within machines can quickly manifest in the form of major damage to the system, leading to unplanned outages of the plant and requiring repairs.

#### Solution

The compact I-LPMS monitors and records structure-borne noises, precisely locates them and classifies them in event classes. Based on sophisticated online pattern evaluation functions, a sensitive detection of structure-borne noise events is possible, even if the operational background noise is 1,000 times higher than the burst signal.

The event classification system recognizes the event as either a minor problem, to which an alert in the control system is displayed or in the case of a major problem, an alarm is sounded.

The monitoring system's automatic event classification feature provides fast and effective decision making, to ensure malfunctions in complex systems are easily and quickly identified to prevent further damages.

## **Customer benefits**

- Sensitive detection of structure-borne noises and effective identification to prevent repairs
- Customizable and robust system with a wide range of applications for various complex systems even in harsh environments

Your performance is our everyday commitment



3D CFD computing cluster for acoustic wave propagation simulation

#### **Technical information**

- Structure-borne noise detection through using multiple sensors for real-time analysis
- Event classification and pattern recognition for the precise identification of errors
- Alert and alarm function
- Adaptive, teach-in system, graphical event analysis, digital signal processing functions
- Long term storage function of event data
- Automatic shutdown function of the monitored devices for damage prevention

## **Key figures**

Detection, even if the operational background noise is **1,000** times higher than the burst signal

Installed in over **100** power plants worldwide

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