



MsS Permanent Monitoring System (PIMS)

Overview

The MsS permanent monitoring system (PIMS) is designed for ongoing structural health monitoring (SHM) for pipelines. It uses Magnetostrictive Sensors (MsS) to generate and detect ultrasonic guided waves, which help identify defects such as corrosion and cracks by reflecting off anomalies in the structure.

Key Features

- **Continuous Monitoring:** The system is installed permanently, with a connection box allowing for easy accessibility and real-time assessment without frequent manual inspections.
- **System Composition:** The system uses a thin ferromagnetic strip (typically 0.004 inches thick) bonded with epoxy and MsS coils within a protective coating. Determined center frequencies sets (e.g., 32 kHz to 250 kHz) may be configured to target various defect sizes, offering flexibility and providing structural health monitoring (SHM) not commonly highlighted in standard monitoring systems.
- **Harsh Environment Suitability:** It works well in challenging conditions, such as buried pipelines or high-temperature areas, which are often inaccessible, to generate and propagate ultrasonic guided waves along structures like pipelines and plates to reveal defects such as corrosion, cracks, or wall thickness loss.

Benefits

- **Buried Pipelines:** Ideal for monitoring pipelines underground, where visual inspections are impossible.
- **High-Temperature Environments:** Capable of operating at extreme temperatures, ensuring safety and reliability in industrial settings.
- **Inaccessible Areas:** Useful for high-elevation pipelines or structures in remote locations, reducing the need for costly access equipment.



MsS PIMS Guided Wave Monitoring