



Solutions for the monitoring of pipelines and tunnels

Case Studies

Discover how we are revolutionizing inspections
and maintenance in the hydropower industry

Penstocks & Pipelines

CHALLENGES

Penstocks, especially in aging hydropower plants, suffer from corrosion, weakening their integrity. Penstocks are often located in confined environments, making inspection challenging. Structural failures can lead to costly, unexpected downtime and affect electricity production.

SOLUTION

The DDS3 offers precise wall thickness and corrosion analysis in confined spaces, enabling early defect detection for proactive maintenance. With multiple UT scanners providing detailed data, and an optional 3D lidar scanner for full penstock mapping, it helps reduce unplanned downtime and maintenance costs.



BENEFITS

1 Increase Safety and Efficiency:

Operators can reduce the need for personnel to enter hazardous or steep areas, making inspections faster, safer, and less disruptive. Additionally, operators can avoid the costly and time-consuming process of dewatering the penstocks.

2 Increase the safety of maintenance personnel

Operators gain access to more detailed and comprehensive data, allowing for early detection of damage or corrosion. This enables proactive maintenance planning, minimizing unexpected failures and reducing costs.

Key features

The robot handles steep slopes up to 60 degrees without requiring dewatering. It provides real-time data and it's easy to transport and deploy.

- 7 dirty water cameras for full vision coverage
- 4 UT sensors for precise thickness measurements and defects identification
- Actuated mechanism for adapting to any slope and environment



A 3D sensor is capable of mapping and scanning dry infrastructures



360° view inside pipelines thanks to the underwater camera suite



Live thickness measurements with A-scans and tuning options

Tunnels & Waterways

CHALLENGES



Tunnels, especially older ones, face erosion, cracking, and water ingress, which are hard to detect without detailed inspections. Legacy methods of draining and manned inspections are risky and time-consuming, with the potential for missed defects leading to costly repairs.

SOLUTION



Even from a small manhole, the Shark modular robot platform can be inserted into any submerged tunnel and shaft, providing an entire suite of live data. The SeaHorse software processes inspection data, generating detailed reports that help prioritize repairs. Operators can plan interventions based on real-time data, reducing safety risks and optimizing budgets.



BENEFITS



1

Improved Structural Integrity Monitoring:

Pinpoint structural issues with high precision to ensure targeted repairs preventing long-term damage.

2

Enhanced Safety for Operations:

Accurate defect data supports informed maintenance planning, improving operations safety and efficiency.

3

Optimized Maintenance Scheduling:

Fewer emergency repairs, unplanned downtimes, and optimized maintenance reduce overall operational costs.



Key features

The robot navigates long distances and complex geometries, offering 360° analysis.

- Cracks and deformations detection
- Fiber-optic umbilical for live control and high rate data transfer
- High maneuverability to overcome obstacles such as rocks, roots, and branches

