

## GIMOS

### Leakage Monitoring and Detection System for Glass-Fiber Reinforced Plastic Pipes

The combination of an early warning leakage detection system with glass-fiber reinforced plastic pipes (GRP) offers a reliable, maintenance-free and cost-effective solution for safe transportation of liquids.

#### Challenge

Power plants cooled with sea or river water require major outage work and time for maintenance of the safety-related water intake systems. Due to the corrosive nature of sea or river water, these safety-classified systems are often made of rubber-lined steel piping, and regular inspection is highly recommended. Even during outages at least one system has to be operational. However, water intake systems have seen a series of corrosion-induced failures and even ruptures in the past. These failures caused by cracked rubber lining and corrosion underneath the lining required huge repair and maintenance efforts.

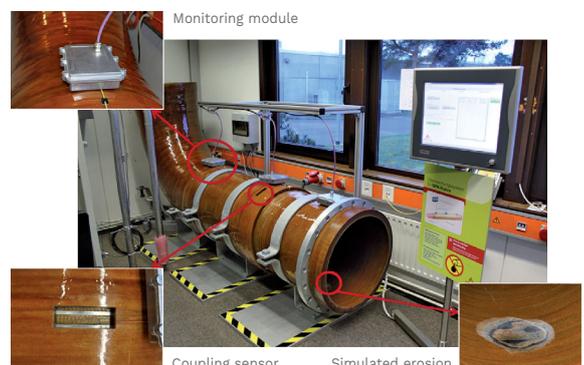
#### Solution

GIMOS is a reliable solution for the safe transport of liquids by combining GRP pipes with an early warning leakage detection system for new-build construction or backfitting in operating plants. Continuous status testing of the GRP pipe wall thickness identifies and locates emerging failures or damage at an early stage. Cyclic analysis and transmission of the measured data enable monitoring of the components independent of their location. Consequently, GIMOS prevents leaks before they occur.

#### Customer benefits

- Increased system reliability and availability (corrosion-resistant pipe material)
- Reduced maintenance effort (no inspection or repair work is required as long as the pre-leakage monitoring system does not issue an alarm)
- Optimized spare parts management
  - Reduction of spare parts to be kept in stock
  - Database with master data of each pipe segment facilitates spare parts ordering process
- Reduced effort during outage
  - Reduced service personnel and outage time
  - Less cleaning required except for regular flushing and draining

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is **our** everyday **commitment**



Pre-series demonstration

#### Technical information

Conductive sensor layers are integrated during the GRP manufacturing process. Using these layers as capacitors makes leakages detectable and pre-leakage alarm signaling. A connection to the outside of the pipe for every layer is made using a metal bolt. The bolts provide electric connections to the pipe for diagnostic electronics. The metal box housing of the diagnostics contains a power supply, a microprocessor controlled measurement system and a bus controller for communication with the central monitoring unit. Additional accelerometers and temperature sensors may be used to obtain further information for aging and fatigue monitoring.

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