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www.aganova.es

Nautilus©
System

Innovative and efficient solution for leak detection in big diameter pipelines

www.sistemanautilus.es

Aganova presents the Nautilus System for leak detection in big diameter pipelines

Nautilus consists of a small diameter sphere that is inserted into the network where it travels freely through the pipeline, driven by the water speed. The sound generated by a leak, an air pocket or an anomaly has specific characteristics and Nautilus captures the sound of these from the inside of the pipeline. Once the sphere is extracted, a software developed by **Aganova** processes the compiled information using a mathematical algorithm showing the exact localization of the leaks, air pockets and anomalies encountered.

Nautilus is used for

LEAK DETECTION: giving information on the exact location of a leak when a client has noticed an increase in water consumption.

NETWORK DIAGNOSIS: giving important information during the decision making process on pipeline renewal.

LEAK PREVENTION: periodical revisions offer information on the evolution of a leak and allow to make preventive decisions.

Nautilus© System

The work process of the Nautilus System is as follows:

Insertion

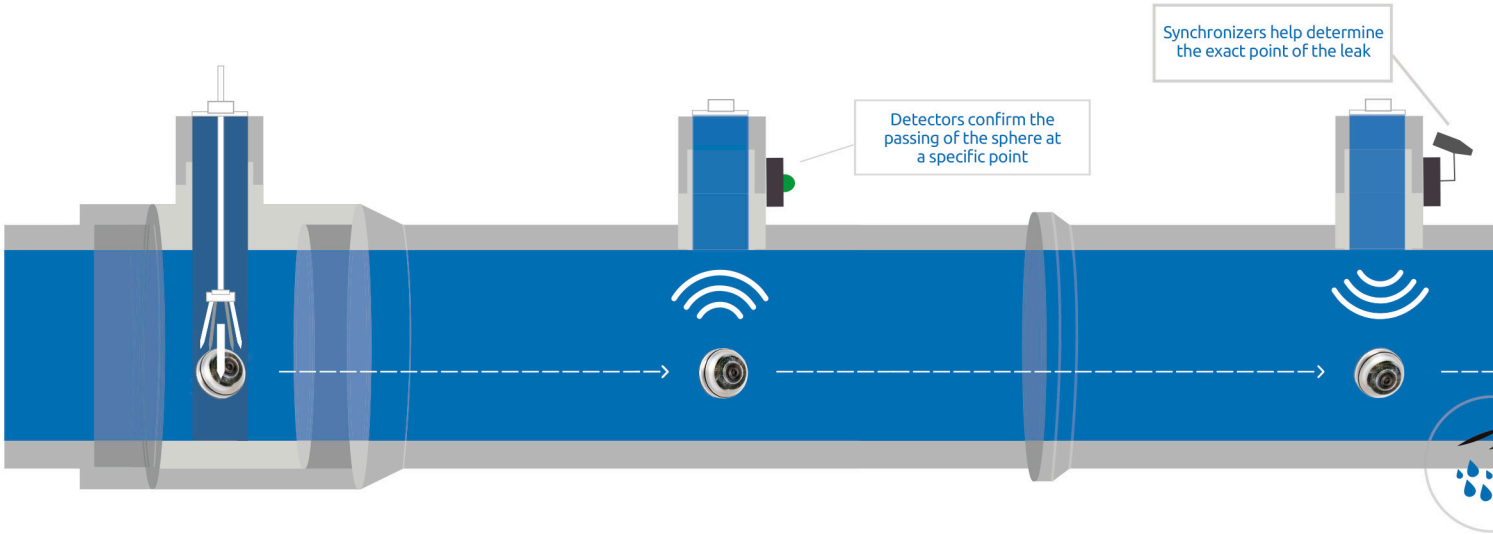
The sphere is inserted into the pipeline using an insertion system and a pressure valve. This system is used to assure that insertion through 100 or 150 millimeter valves is done correctly. The system consist of a number of elements designed to place the sphere inside the pipeline and to assure that its navigation has initiated.

Synchronization and pass detectors

The synchronizers and pass detectors are placed along the pipeline to be inspected at accessible points like air valves, drains, wash-outs, etc. The synchronizers serve to obtain maximum precision when positioning the leaks, air pockets and anomalies. The pass detectors serve to determine in what sections of the pipeline the sphere is travelling, confirming that the programmed journey is being covered.

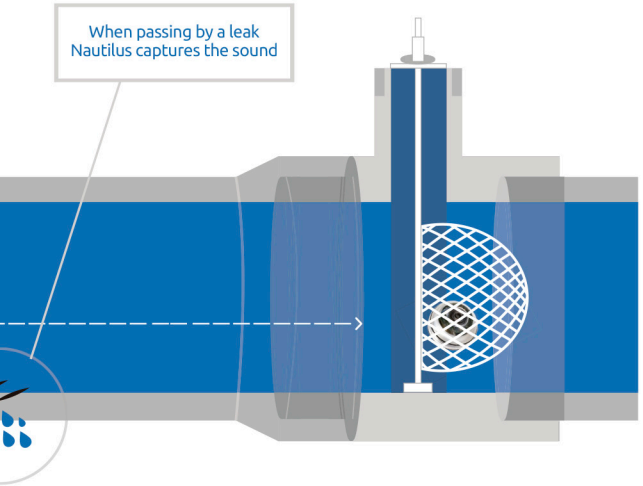
Extraction

The sphere is captured and extracted at the end of the pipeline with a net, which is also inserted into the pipeline through an existing air valve. The extraction system is extensible and consists of interchangeable strips, adapted to the diameter of the pipeline at the point of extraction. This system is equipped with a camera and an alert system indicating the arrival of the sphere.



Results

The results of the inspection and the detected incidents are described in the final report, indicating the leaks, air pockets, occluded air and not identified anomalies. The final report includes information on the frequency, exact localization, type of incident, colorimetry, audio file with the detected sounds, as well as other observations and recommendations.



Benefits Nautilus System

FAST
Nautilus caninspect around 3 kilometers per hour and up to 35 kilometers in one inspection.

EFFICIENT
As the sphere travels freely, driven by the water speed, the system avoids obstacles like sediments, sand, butterfly valves, etc.

PRECISION
With the use of synchronizers, the error margin is reduced to minimum.

EFFECTIVENESS
Nautilus can detect leaks as small as 0, 01 liters per second.

EFFICACY
Nautilus can be used in all types of materials and in pipelines at any depth.

COST EFFECTIVENESS
Nautilus is the most cost effective system for leak detection in big diameter pipelines in the market. The more kilometers in one inspection or one contract, the lower the price per kilometer.

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Aganova is a business group dedicated to the technological innovation for the analysis and control of pipelines, specialized in leak detection in distribution and transport networks.

Aganova has developed the Nautilus System: an in-line, freely swimming, neutrally buoyant technology for leak detection in big diameter pipelines.

Aganova´s mission is to provide the market with assumable and effective solutions through a recurrent-use model that helps reduce the Non-Revenue Water in the world.

Aganova is part of the following associations:

WssTP The European Water Platform

SWAN THE SMART WATER NETWORKS FORUM

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