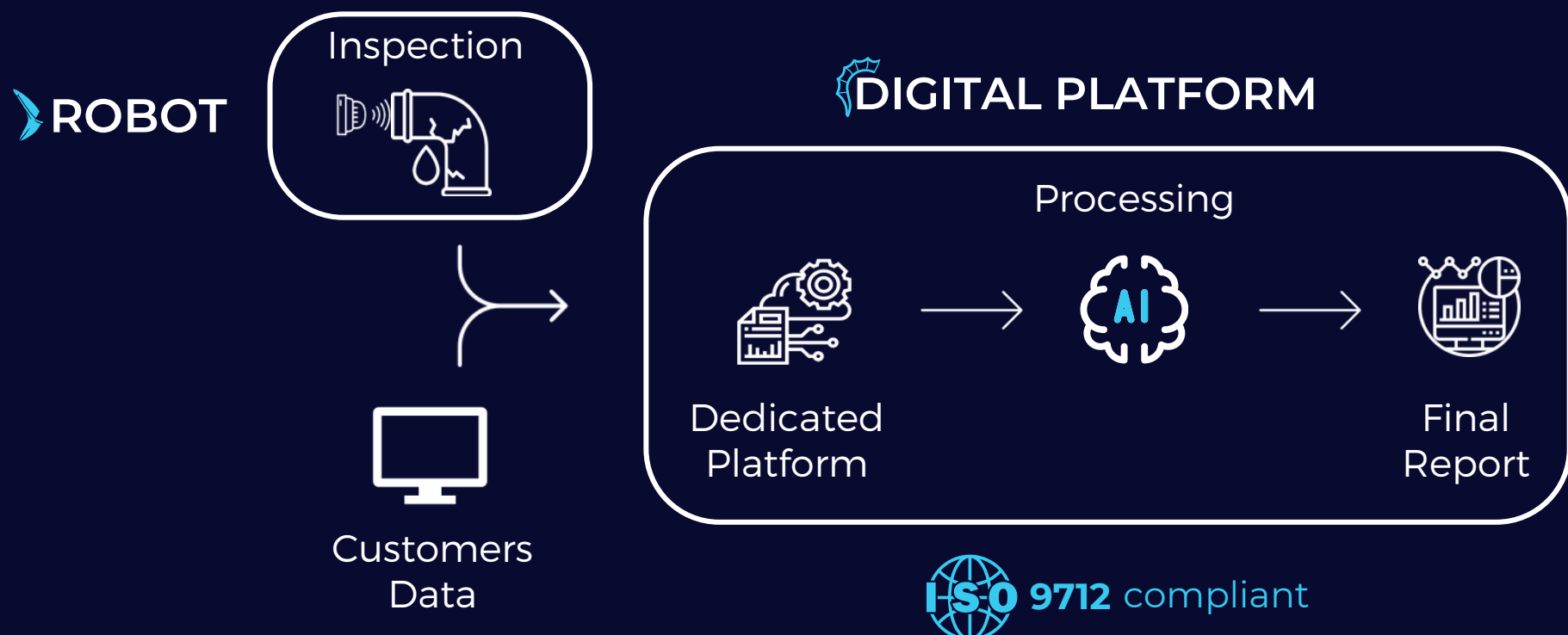


Deep Diagnostic System 3

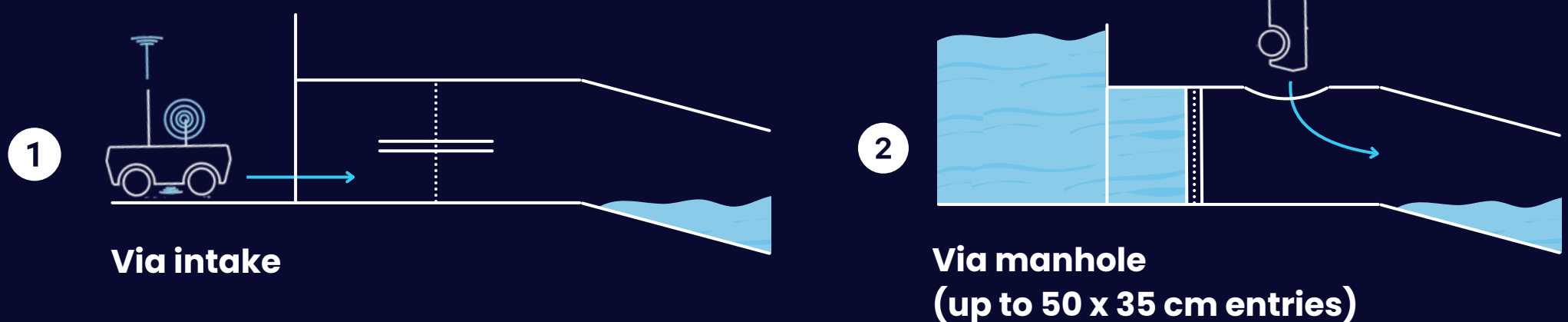
The **Deep Diagnostic System 3 (DDS3)** combines a **modular robot** and a **digital platform** to perform internal measurements and manage maintenance data, integrating inspections into a **predictive model** that reduces operational and maintenance costs.

How it works:



The robot is inserted into the pipes and carries out the inspections. The inspection data is then aggregated with the existing maintenance data (e.g., diameter, nominal thickness, etc.) through the digital platform. A dataset is created, processed, and a report is provided, containing the risk of failure for each inspected segment.

Insertion Method



Platform Features

➤ Efficient data management

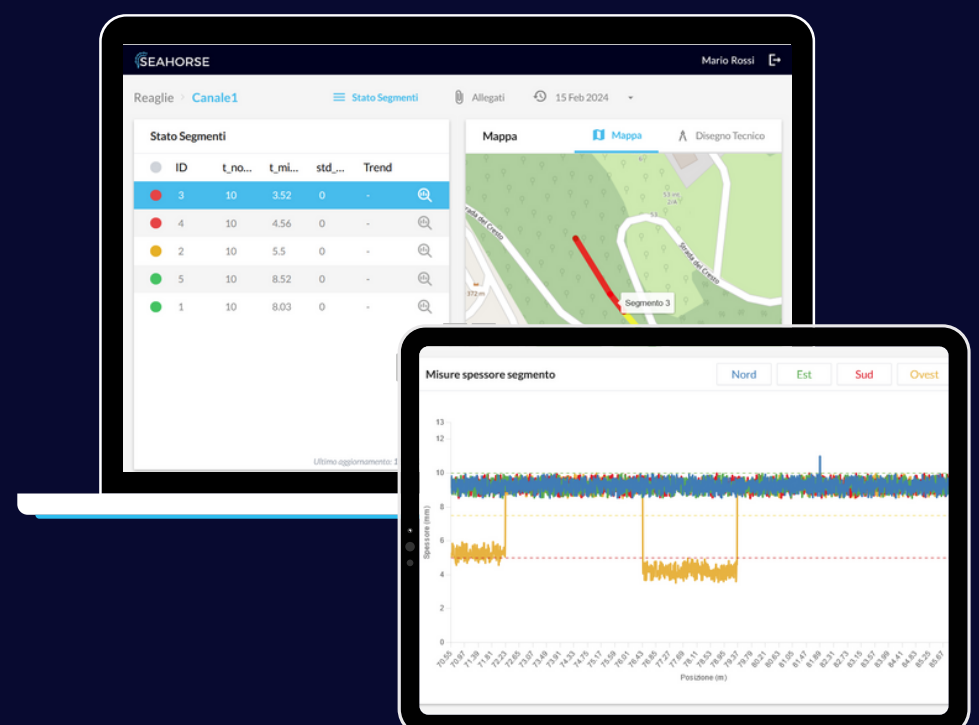
The digital platform allows for the efficient management of data related to the inspected infrastructures, including previous surveys, images, videos, and comments.

➤ Pipeline segmentation

Segmentation divides the pipeline into sections for targeted monitoring, improving problem detection and maintenance while reducing downtime and costs.

➤ Data Analysis and Failure prediction

The platform allows for the creation of detailed reports from the collected data, enhancing the efficiency in communicating results and supporting decision-making processes.



TECHNICAL SPECIFICATIONS

Deep Diagnostic System 3



Robot Specifications

Robot

Maximum Rated Pressure	60 bar
Dimensions	100 x 40 x 30 cm (L,W,H)
Weight in air	60 kg
Max motor speed	0.2 m/s
Max motor torque	52 Nm
Runtime at normal use	8 hours
Operating diameter	500-2500 mm*
Memory Storage	1.5 TB

Camera

Number of sensors	7
Field of view	360°
Murky water optimization	Yes
Video max resolution	FHD: 1920 x 1080 p
Video type	MP4

Ultrasonic (UT)

Number of sensors	4
Thickness range	4 - 100 mm
Resolution	0.1 mm
Type of data	A-Scan 10 Mbit, Thickness
Adjustable gates	Yes
Live B-Scan read	Yes
Certification	ISO 9712

Profiling Sonar

Frequency	1.25 MHz
Range	0.3 - 40 m
Accuracy	0.1 mm
Beam Angle	1° Conical
Scan Angle	360° or sector scan

Laser Scanner

Scan range	0.4 - 2.5 m
Point per line	2064
Profile rate	35 Hz
Accuracy (X,Y,Z)	< 1.5 mm
Scan Angle	360° or sector scan

Safety Winch Specifications

Cable type	4.5 mm Dynema
Breaking strenght	700 kg
Power	220V - 1.5 Kw
Assembled weight	60 kg
Assemblable on site	Yes



Battery Pack

Nominal Voltage	29 V
Nominal Capacity	48 Ah
Nominal Energy	1392 Wh

LED Lights

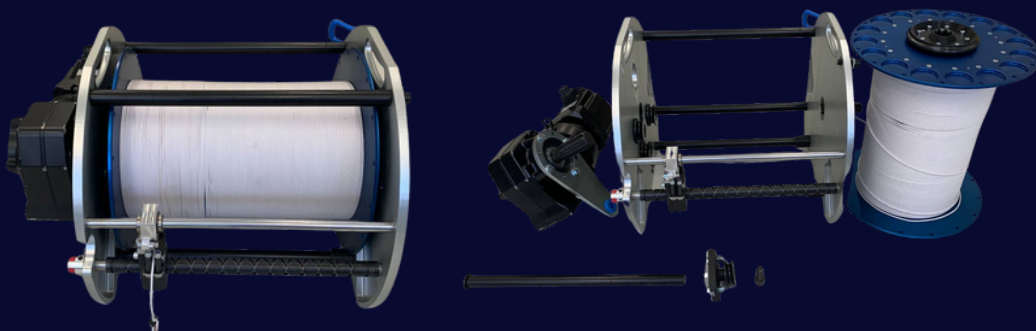
Number of lights	7
Max Luminous flux	10500 lm
Colour temperature	5700K
Adjustable dimming	Yes

Tether

Number of cables	2 fiber optic strands
Size	2 x 125 µm
Weight in water	1kg / km
Lenght	800 m - 5 km
Breaking strenght	80 kg

Mapping Sensors

IMU	3 axis gyro & accelerometer & magnetometer
Accuracy	Roll, pitch 0.5 deg RMS Yaw/heading 2 deg RMS
Encoder linear resolution	1 mm



*Inspection of larger pipeline diameters is possible upon request.