



# Robotic Boiler Inspection System

Hibot's new robotic system for inspection of industrial boilers.

Conventional boilers have one head drum, which is the starting point of several water pipes. Since those pipes are continuously exposed to high temperatures and hazardous gases on the outside, they must be inspected regularly. The most common cause of failure is corrosion, so it is important to monitor the thickness of all water pipe.

The Robotic Boiler Inspection System consists of three main components:

- A snake-like module that enters the head drum and moves inside it, until reaching the pipe to be inspected;
- The sensor module, which is inserted in each pipe and scans the entire surface of the pipe from inside, making use of a 24-channel UT sensor;
- A reel module, used to control the tether of the sensor and maintain its speed and tension.

With the Robotic Boiler Inspection System, the pipes can be scanned continuously from inside. The result of the inspection is a 2D map of the pipe indicating the wall thickness by color. Areas where the wall thickness falls under pre-defined limits are clearly visible, making repair works much more efficient and faster.

In addition, since there is no need to cut pipes or to approach pipes from outside, the time needed for preparation is

greatly reduced. The use of scaffolding can be reduced or even eliminated in some cases, helping to slash costs and downtime.

The Robotic Boiler Inspection System is fully compatible with HiBox, and benefits from its data management and processing modules. With HiBox, data processing and report generation happen on the site, providing invaluable information for asset managers. Furthermore, by comparing data from previous inspections, it becomes possible to predict where the pipes may require maintenance in the future.

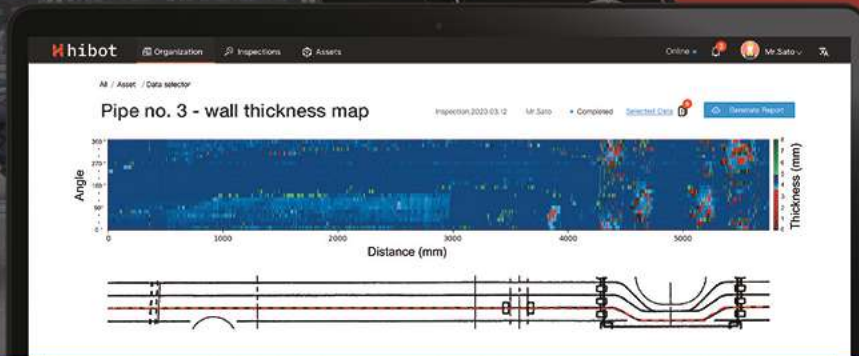
Smart societies require smart solutions to inspect and maintain their infrastructure. Squid is hibot's contribution to keep boilers healthy and running!







# Technical Specifications

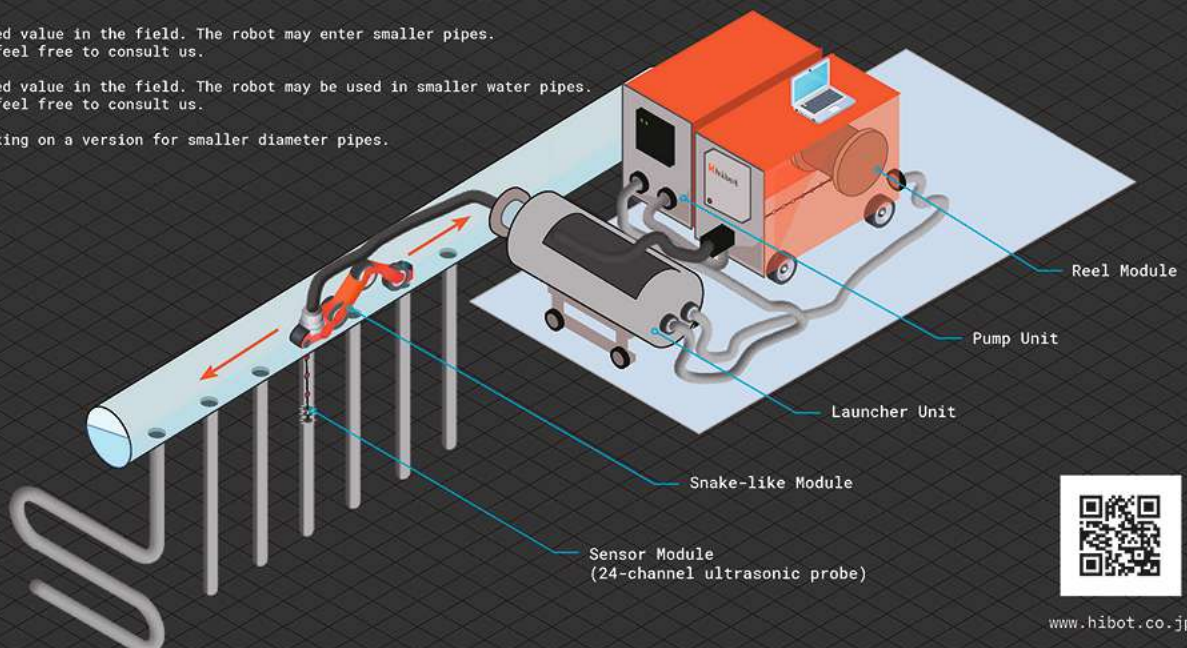


UT Sensor	Inspection speed	up to 100mm/s
	Inspection pitch	from 5mm
	Number of channels	24
	Resolution of circumferential direction	15°
	Maximum inspection distance	40m
Header	Internal diameter of header	179.9mm ~ 185mm
	Internal diameter of pipe for robot entrance	min. 102.3mm (*1)
	Pipe length for robot entrance	up to 400mm
	Distance between robot entrance and water pipe	125mm ~ 2320mm
Water Pipe	Internal diameter of water pipe	50mm ~ 68.2mm (*2, *3)
	Acceptable bends	from 1D R45
	Length	up to 45m
Environment	Power Supply	100V/240V AC
Others	Header and water pipes must be filled with pure water	

\*1: Confirmed value in the field. The robot may enter smaller pipes. Please feel free to consult us.

\*2: Confirmed value in the field. The robot may be used in smaller water pipes. Please feel free to consult us.

\*3: Now working on a version for smaller diameter pipes.



[www.hibot.co.jp](http://www.hibot.co.jp)