



SENTINEL AUTOMATION TECHNOLOGY CASE STUDY: HEAT EXCHANGER CLEANING COMPLETED IN 4 HOURS



Sentinel
AUTOMATION TECHNOLOGY BY **STONEAGE**

“The key problem was that the head had a depth of 0.9 m and we had to jet with hot water, resulting in zero visibility.”

The movement towards automation and robotic solutions in industrial cleaning ensures the safety of those performing industrial cleaning applications and drives operational efficiencies.

OVERVIEW

Hylle Pol of Reym, an industrial services provider in the Netherlands, used the Sentinel-enabled AutoBox 3L alongside a standard ABX-3L in cleaning two identical heat exchangers, each containing 540 tubes coated in palm oil residue with some likely leaking.

“The key problem was that the head had a depth of 0.9 m and we had to jet with hot water, resulting in zero visibility,” Hylle described.

Limited visibility when cleaning heat exchanger tubes causes the pump to be powered down until sight is improved. Powering the pump off and on requires extra time, fuel, and causes added wear on parts like a pump’s pressure valves. Additionally, the challenge to accurately index a standard tractor is intensified by factors such as debris and operator fatigue.

CHALLENGES

Cleaning heat exchanger tubes has historically been a time-consuming, tedious, and often dangerous process that requires operators have advanced training to ensure adequate performance.

01

LIMITED VISIBILITY

Steam inside a long channel head made it impossible to index accurately without turning off the pump.

02

OPERATOR TRAINING

Challenging conditions required skilled operators to run equipment at top efficiency.

03

OPERATOR FATIGUE

The length and difficulty of the job required repeated operator shift changes.

SOLUTION

The customer's first crew used a standard StoneAge ABX-3L to clean their bundle, while the second crew used the Sentinel-converted AutoBox 3L.

01

The traditional method followed by trained members of Crew 1 involves shutting down the pump and waiting to proceed with cleaning until adequate visibility returns to the work area.

02

Mitigating pump shutdowns due to limited visibility, Crew 2 used the Sentinel-enabled pitch setting to operate the automated cleaning application as intended from the Sentinel controller.

RESULTS

Crew 1 needed to shut down their pump after cleaning approximately every three tubes throughout the duration of the operation. The crew's attempts to find the following three tubes "blind" as well as to improve visibility using suction and blowing air were unsuccessful.

Crew 2 experienced infrequent pump shutdowns. The crew monitored the automated operation to know which direction they needed to steer the equipment. Novice operators used the controller for a short time before cleaning at the same confidence and productivity levels as other crew members.

"It normally takes us 16 hours to clean one bundle. Now, with the Sentinel, this bundle was fully cleaned within 4 hours," Hylle concluded.

"It normally takes us 16 hours to clean one bundle. Now, with the Sentinel, this bundle was fully cleaned within 4 hours."

"We had to clean two heat exchanger bundles, which were likely to include leaking tubes. The key problem was that the head had a depth of 0.9 m and we had to jet with hot water, resulting in zero visibility. After consulting our StoneAge rep, we used an ABX-3L for the first bundle, and the Sentinel for the second bundle.

It normally takes us 16 hours to clean one bundle. Now, with the Sentinel, the entire bundle was fully cleaned within 4 hours. After finishing the first bundle, we decided to remove the ABX-3L and set up the Sentinel-enabled AutoBox 3L in its place because of the great results.

StoneAge equipment is reliable, and constantly improved. After using nozzles, similar to the Banshee or Badger, from other suppliers a couple of times I've learned that at present there is no other supplier who can match StoneAge's cleaning power."

HYLLE POL
Reym, NL

Learn more about Sentinel Automation Technology by requesting a virtual overview with a StoneAge rep:

[STONEAGETOOLS.COM/SENTINEL](https://stoneagetools.com/sentinel)

