



**Solution:** Ewon Flexy

**Country:** Sweden

**Company:** SWATAB

### The effects

- Online access to the water cleaning process. The data is stored and can be used for process analysis and continual improvements.
- Problems can be spotted before they occur as filter operation times, water flows etc. are tracked. Alarms can be sent whenever certain thresholds are reached.
- Troubleshooting and programming can be done remotely – less travelling.



*“The Ewon remote access technology from HMS has been very important for us. We can store all historical data and use this to draw conclusions and improve our processes.”*

**Per Hansson**  
CTO, SWATAB

## Saving the World. And keeping track of it online.

“We’re not hiding what we want to do. We want to help save the World,” says Per Hansson, CTO at Scandinavian Water Technology AB in Malmö, Sweden. And he just may be on to something. Just imagine the environmental effects if everybody in the world could wash their clothes without chemical detergents – in cold water. HMS technology is used to connect the revolutionary cleaning process to the Internet enabling instant troubleshooting and process improvement.

Scandinavian Water Technology AB, or SWATAB, is a Swedish start-up that has recently gained a lot of attention with their product DIRO<sup>®</sup> – a water-cleaning cabinet that enables washing machines to wash on water alone, without the use of any detergents. Miele and Podab are already pioneering the new technology in their washing machines but any washing machine can be programmed for the DIRO process.

### Major environmental implications

The effects of this invention could be vast, above all from a sustainability point-of-view as detergents and softeners are a major problem for the world’s ecosystems today. In fact, the majority of the chemicals flushed out in our wastewater come from household cleaning products such as washing and rinsing agents.

### How it works

Per Hansson, CTO at SWATAB, and inventor of the first DIRO system explains how DIRO works: “Basically, we remove everything from the water, except the water itself – minerals, salt, bacteria – everything except the H<sub>2</sub>O. The result is ultra-clean, deionized water which does not conduct electricity.”

“When this water comes into contact with the textiles in the washing machine, the dirt comes loose from the fibers in the fabric. The unwanted particles are transported away with the rinsing water, leaving the fabric clean and free of chemicals. As the filtered water contains no lime or other minerals, the fabric stays soft without the use of a chemical softener.”



**Talk2M**



**How it works:** The Ewon Flexy gathers data from the different pumps, filters, sensors etc. in the DIRO cabinet. The data is sent via the cellular GSM network to the Ewon Talk2M data service where the data is stored and accessed. Via an API, SWATAB has built a graphical dashboard where all data is displayed in easy-to-understand way.

### Ewon Flexy keeps track of the process remotely

Very few people enjoy watching washing machines do their thing (no matter how fascinating the water-cleaning is). Therefore, SWATAB had an Ewon Flexy installed in their cabinet from the very beginning. The Flexy basically connects the DIRO cabinet to the Internet allowing SWATAB to monitor the entire process remotely.

The Flexy communicates with the DIRO system and sends data via the GSM cellular network to the Ewon Talk2M data service where data is stored and accessed.

“We track everything,” says Per Hansson. “Temperatures, water status, water flows, filter operation times, the quality after each step, you name it. The Ewon Flexy allows us to keep track of all parameters and we can also get the data presented in a nice, graphical dashboard. With the remote access functionality, our service technicians can also access the cabinets remotely to do troubleshooting.”

“The Ewon remote access technology from HMS has been very important for us,” says Per Hansson. “We can store all historical data and use this to draw conclusions and improve our processes. The data and the knowledge gained from the field helps us automate and improve the process even further.”

### Vast energy gains

Ridding the washing process from chemicals could have major implications for the environment worldwide. But it also has a positive effect on CO2 emissions as the making of detergents is an extremely CO2-intensive process. Moreover, the SWATAB washing process works just as well with cold water.

“Yes, most things can be washed without heating the water at all,” says Per Hansson. “One of our customers is

a fast food restaurant. Their floor mops are more or less drenched in grease after use, but become perfectly clean, even with unheated water. This is of course another energy saver. According to our calculations, 1 kilo of CO2 emissions is spared for each wash. A hotel in Southern Sweden has estimated that they saved 18 ton of CO2 by using the DIRO washing process.”

### Bright future ahead

Indeed washing machines is just one of the applications for the ultra-clean water from SWATAB. Window washing, car cleaning, carpet cleaning and much more has the potential to use Swatab technology. The future for DIRO certainly looks bright and clean.



The DIRO cabinet to the left cleans the water before it is used by a regular washing machine.