

CUSTOMER EXPERIENCE FEEDBACK

EVALUATION OVER 5 YEARS



Installer: DALKIA EAST

Client: VYV MGEN Group ([video discovery of the site here](#))

Application : Replacement of 6 softeners - anti-limescale treatment

Unit: HydroFLOW S38, C45, P60 & P100

Installation date : February 2016

Inspection date: February 2021

1. Brief explanation

The MGEN establishments for follow-up care and rehabilitation aim to take over from hospital facilities after serious medical care (medicine, surgery, obstetrics).

They implement, with the help of the patient, the strategies adapted for a return to ordinary life.

The TROIS-EPIS SSR establishment is located in the heart of the health resort, supplied by Colmar water **TH = 33.2 ° f** (approx 330ppm)

Population 206 beds



2. Site problem



With very hard water above 33 ° F, the entire site is equipped with numerous softeners to prevent scaling of the domestic hot water production systems. These softeners require significant salt replacements (1m³ of water = 1kg of salt), consume large amounts of water for their resin regeneration (1m³ of water = 40L of water lost) and reach the end of their life (in 15/20 years) which requires replacement of their resins.

MGEN management commissioned its operator to replace these softeners and the HydroFLOW solution was proposed in order to promote a more economical and more ecological approach.

Until February 2016, a few peaks of Legionella not exceeding the regulatory thresholds had also been observed annually. Given the age of the domestic hot water network, this is not abnormal.

3. Proposed solution

With a particular focus on finding solutions that are more respectful of the environment while looking to optimize operating costs (OPEX) and the costs of replacing resins (CAPEX), the management of MGEN has turned towards the HydroFLOW solution for the following reasons:

- Investment budget lower than the cost of replacing resins
- Lower operating budget than the softener

Comparative table Softener / HydroFLOW technology
(Reported on a basis of 1000m³ of produced water)

Salt softener CAPEX investment approx. 5000 €		HydroFLOW C45 + S38 CAPEX investment € 2,500	
Regeneration (75m ³ at 3.5 € / m ³)	€ 250.00	No regeneration	0.00 €
Maintenance	€ 500.00	No maintenance	0.00 €
1000 kg of salt (0.5 € / kg)	€ 500.00	15Wh of electricity (0.35 € / kWh)	50.00 €
Annual cost	1250.00 €	Annual cost	50.00 €
Cost over 15 years OPEX	18 750.00 €	Cost over 15 years OPEX	750.00 €

In summary: CAPEX = 50% savings OPEX = 95% savings

It was necessary to run a trial over a fairly long and representative period (minimum 2 years) to validate this new approach with MGEN maintenance staff as well as with the operator who considered HydroFLOW to be an unconventional technology.

HydroFLOW does not remove limescale from the water but prevents it from adhering to the heating bodies and pipes.

The objectives set at the start of the trial were as follows:

- Validate the (lack of) maintenance in operational conditions of equipment
- Improve energy performance over time
 - Scaling progressively reduces the energy performance of the exchangers until the next descaling operation
- Reduce the number of annual exchanger descaling operations
- Maintain a good level of satisfaction with cleaning staff

4. Results

Potability of domestic hot water

The domestic hot water is no longer softened - it is now drinkable

To treat Domestic Cold Water or Domestic Hot Water, a water treatment process must comply with articles R1321-48 and R1321-50 of the Public Health Code. This is the case with the HydroFLOW system for the following reasons:

- non-intrusive device, therefore no contact with the water to be treated
- from a macroscopic point of view, there is no impact on the quality of the treated water, in other words no significant modification of the physico-chemical characteristics of the water upstream and downstream of the treatment.

Cleaning, staff feedback

The cleaning staff are delighted with the results, the lime is very easy to clean

After stopping the softener, the amount of scale that precipitates is greater because the water is harder. However, unlike operation with a softener where a small amount of limescale was formed but it was very difficult to clean (using chemicals), since the installation of HydroFLOW, the quantity of scale is greater but in the form of a non-adherent powder. The limescale is now easily cleaned with a simple cloth and without acid products.

Bacteriology

No more alerts related to Legionella on the ECS network

Whereas previously the establishment recorded a few Legionella alerts per year, since the installation of HydroFLOW no alert has been detected on the domestic hot water network. The installed HydroFLOW P range has laboratory validations for a destruction rate of Legionella pneumophilla of 99.7% after a 1 hour exposure to a looped DHW network circulating at 5m / s. (Study available on request)

Repairs

Number of interventions related to pipe clogging in 5 years: 0 (zero)

For 5 years now, DALKIA teams have not observed anywhere in the establishment that a domestic hot water pipe had become blocked due to scaling. Instead, particles of scale were found in the aerators during the first months, a sign of the progressive descaling of the DHW networks thanks to the descaling action of HydroFLOW (generation of CO₂).

Energy and maintenance savings

Limescale-related maintenance has not been reduced... it has been completely eliminated!

With a total of 2550 kW of DHW production on the site, mainly composed of plate exchangers with a high delta T (12/60 ° C) for water with a TH of more than 33 ° f and a fairly slow flow, the maintenance teams did not detect any variation in the delta T of the exchangers. **Their production has not suffered any decrease in energy performance**, which indicates **a total absence of scaling in 5 years**.

On March 1, 2021, one of the main plate exchangers was completely dismantled for inspection. No trace of limescale was detected in any plate of the entire exchanger (photo of the exchanger after several years of operation without any descaling below, photo Richard GRIGNE - DALKIA)



Implementation and deployment

To replace the 6 softeners on the site it only took 1 day

The installation, connection and commissioning of the 12 devices was done without any water cut-off and without stopping the installations in a single day. At no time were the staff of the hospital center disturbed by this installation, which required neither a fire permit nor the handling of heavy elements (a HydroFLOW device weighs approximately 7kg)

Photo folder:



The 3 DHW production exchangers totalling 1450 kW of DHW production before installation



200kW Leisure Exchanger



Main substation equipped



Roseraie 300kW exchanger



200kW Balneo exchanger



Villa PFLEGER boiler



DHW tank Villa OLRy



DHW tank Villa des CHENES



DHW tank Villa EXCELSIOR

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