

Hyclean Automation System

Controls Legionella by use of high temperatures and circulation

Municipality Moss, Norway

Orkerød sykehjem

Hovedinngang

Varelevering

Skogbrynet
dagsenter

Storkjøkkenet
Moss kommune

Successful installations at
Orkerød nursing home and
Peer Gynt Hospital

„We sought an integral solution, not just one for the water intake.“



Moss municipality was recently able to put two new systems into operation that will reduce the risk of Legionella or other unwanted bacteria occurring within the hot water supply. This solution will ensure that the system will be regulated at all times and that its operation will be documented.

The municipality has installed a system that automatically ensures a consistently high temperature and regular water replacement throughout the hot water supply system at both the Peer Gynt Health Center and at Orkerød Nursing Home. Combined with the prior mapping of the pipe system and its usage, as well as regular water sampling, this minimizes the formation of biofilms, which are the breeding grounds for Legionella and other unwanted bacteria. In addition, the facility's operations will be documented for all subsections.

Present everywhere

Legionella bacteria can be found everywhere, but they thrive in pipe systems with low water replacement and temperatures between 20 and 50 degrees Celsius. The bacterium is particularly known to spread via shower heads, and may cause serious illness and death when the elderly and those with impaired health are exposed to it. There have been several fatal outbreaks over the last few years, and it is suspected that unreported numbers in healthcare institutions are high.

– We had systems in place for the prevention of Legionella through the use of chemical water treatments in both institutions. We were not entirely happy with the solutions, due to the size of the facilities and the number of side branches. We sought an integral solution, not just one for the water intake. With this new solution we've gained control of the temperature and circulation throughout the entire system as well as in each subsection, full documentation through logging, and not least lower operating costs, says Daniel Mothes at Moss Kommunale Eiendomsselskap.

The driver

Daniel Mothes was the driver behind the purchase and had the professional responsibility for the successful completion of the projects. The chosen solution is called the Hycleen Automation System (HAS) it is sold and implemented by Armaturjonsson and are invented and manufactured by Georg Fischer, which is a modern water re-circulation system that automatically regulates/balances the water quantities in the system and the temperature, based on temperature measurements at several locations throughout the system itself.



Daniel Mothes of the Moss Kommunale Eiendomsselskap (Moss Municipal Real-estate Company) has been the driver behind the installation of the system.



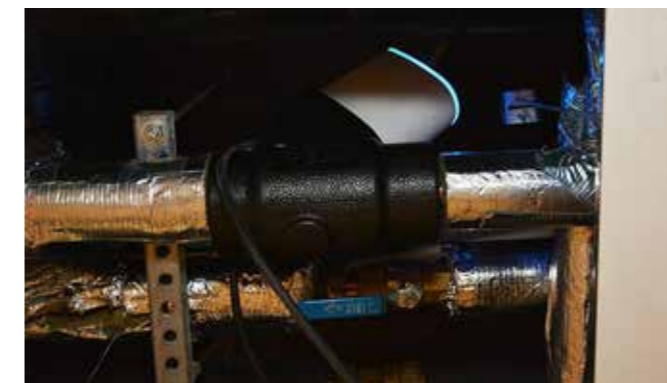
Sensors/valves have been installed on each hot water routing at Orkerød Nursing Home, shown here in the control room. On the right is the touch screen for the system.



The sanitary fitters Roland Haubold and Ken Mothes from GK Pipes in Moss installed both systems here in the Orkerød Nursing Home.



Peer Gynt Hospital



The sensors were installed on the existing plumbing, here shown in a picture of the ceiling.



Pipe fitter and installer Roland Haubold from GK rør Moss, shows the app that controls the system, in this case at Peer Gynt Nursing Home.

The principle behind Hycleen is that valves are installed with integrated temperature sensors, which document the temperature of the hot water throughout the circulation pipe. The valves are placed out across the building, or alternatively on a distributor in the technical room, which in that case is placed at the end of the circulation pipe. One can thus be certain that the entire system is at the right temperature, as the endpoint is checked before the water is returned to the boiler. This makes it possible to ensure that one always operates at a temperature that is unfavorable to Legionella.

Sensors and valves

At the Peer Gynt Health Center, hot water circulation pipes were already in place to supply hot water to each department, and in this case Hycleen has been installed by fitting sensors/valves on the return end of each of the 12 circuits. There is additionally a sensor placed at the boiler output; this reads the output temperature in order to verify that the output temperature is what it should be, as well as providing a warning if the temperature is wrong.

Mapping

In addition to the installation of the systems, a prior mapping of the hot water systems was carried out with the help of the users, followed by the removal of branches and dead-end pipes that were seldom used and which thus reduced the circulation and regular flushing of the pipes. The sanitation fixtures were also moved in such a way as to ensure the regular use of outlets. The operation will be followed up on by regular water analyses in a similar way to other buildings.

– In order to obtain a good overview and in order to ensure good water hygiene, we have chosen to take water samples once per quarter in all health and care facilities. The mapping of the pre-existing plumbing and usage patterns is key to which water treatment/monitoring system to choose, in order for it to be adapted to the building/facility.

Stable

The circulation pump that is used can be set to run with constant pressure, constant water volume or constant temperature. We have chosen to use the temperature as our reference point, as this is in accordance with Hycleen's mode of operation. It is important to note that the speed in the hot water pipe should be approx. 0.3 m/s to 0.5 m/s.

– The systems seem to be operating steadily and reliably. Both Armaturjonsson and GK rør in Moss have been good partners with regard to the planning and execution of the projects. However, the mapping of pipe systems and dimensioning are important in ensuring good water hygiene in existing buildings. The construction of sanitation facilities that avoid dead ends, replace the water in the pipes and ensure that circulation occurs as close to the outlets as possible will henceforth be an important responsibility for the industry, says Daniel Mothes at Moss Kommunale Eiendomsselskap.



Service manager Ole Adrian Pedersen of GK rør Moss and Daniel Mothes are pleased by both the partnership and the result.

Main advantages for the customer

- **Optimized Drinking Water Hygiene**
- **Digital proof of the critical system parameters at the push of a button**
- **Convenient: Warm water is immediately available**
- **Better energy efficiency: minimized warm water preparation temperature, lower hot water requirements for thermal disinfection**
- **Uncomplicated installation and intuitive user interface**
- **Time savings during planning, installation, maintenance and operation**

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