



Upgrade brought lower operating costs and reduced noise levels

**Fertilizer plant,
Western Europe**

Substantial savings in power consumption as well as reduced noise and vibration levels were the results when the fans, motors and transmissions of a 60-cell system of air-cooled heat exchangers in a European fertilizer plant were upgraded. Alfa Laval Olmi's service organization handled the entire upgrade from initial planning to installation.

Stricter demands on noise and vibrations

A leading chemicals producer has operated a fertilizer plant in Western Europe since the 1970s. The plant's air-cooler system had not undergone any major upgrades since it was built and was causing noise and vibrations that affected nearby residential areas.

When stricter legislation was introduced, the plant managers had to find a way to lower the noise level to be allowed to continue operations.

A tough challenge

Engineers from the plant contacted Alfa Laval Olmi's team of air-cooling experts in Suisio, Italy to discuss a way to reduce noise and vibrations. The solution was to upgrade the fans, motors and transmissions on the system's 60 cooling cells. The rest of the system was to be kept intact to save costs. To maintain the cooling capacity in the plant, the air flow through the system had to be as high as before, despite the reduction in noise level.

A new solution

The engineers from Alfa Laval Olmi completely redesigned the fan system. The new fan blades allowed for a lower rotating speed, which lowers noise and vibration levels. As an added bonus, this also leads to a substantial reduction in power consumption and mechanical wear.

The system's safety features were also upgraded to meet modern standards.

Since the cooling system operates in a highly corrosive environment, the Alfa Laval Olmi team suggested the use of stainless materials and protective coatings to increase the lifespan of the new equipment. This solution, which would reduce future maintenance needs and minimize total lifecycle costs, was accepted by the customer.

Full support from start to finish

Alfa Laval handled the entire revamping process from start to finish:

- All engineering work.
- Manufacturing and sourcing of all parts.
- Pre-installation testing of components.
- Removal of existing fans.
- Installation of new anti-corrosive fans, transmissions, motors and fan protection in all 60 cells.
- Testing of the complete system.
- Certification by a third-party organization.

Excellent results

The project was a great success. Measurements performed on one of the cells showed the noise level had been reduced by 10 dB, representing a halving of the perceived sound level. Furthermore, the measurements showed vibrations were reduced by 65% and the power consumption in the cell was cut by roughly 30%.

The team at the fertilizer plant was completely satisfied with the results and the way the project was handled. Shortly afterwards the company contacted Alfa Laval Olmi to discuss a new service project.



The new fan blades enabled a lower rotating speed, resulting in lower noise levels and reduced power consumption.

Fast facts

The plant

A fertilizer plant in Western Europe.

The challenge

To reduce noise and vibration levels in order to comply with new, stricter legislation.

The solution

An upgrade with specially designed fans, new transmissions and motors.

The benefits

- Halving of the perceived sound level.
- 65% lower vibration levels.
- Substantial power savings.
- Less mechanical wear.
- Longer service life thanks to the use of stainless steel and protective coatings.



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