

Case story | Aeris Group

Danfoss **powers** Aeris Group's **energy-saving** humidification systems with **“plug & spray” simplicity**

75%less electricity to
achieve similar
humidification
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Innovative humidification system helps fabric producers

Fabric producers rely on humidification systems to increase productivity, ensure quality, prevent electrostatic discharges, and improve employee working environments. And many of them worldwide depend on Italy's Aeris Group to keep humidity levels just right. Together with Danfoss, Aeris Group has developed an innovative humidification solution for textiles and non-wovens that radically reduces energy and water consumption while reliably ensuring ultra-clean humidity.



The challenge:

Provide clean humidity with absolute **reliability** – and radically **reduce energy and water consumption**

Aeris Group's two companies that provide humidity solutions for fabric producers, Mazziniici and AlenANW, serve customers around the world. Although all customers have different requirements, they share the need for reliable, clean humidity to keep production running around the clock.

“Modern fabric production relies on optimal humidity conditions,” says Luca Caffi, project manager at Aeris, “and producers rely on our humidification systems to run 24/7/365. Unexpected pump malfunction – and even planned pump maintenance – means the entire plant must stop production, so reliability is key. In addition, as in so many other industries, our customers are constantly looking for ways to reduce costs and, increasingly, lessen their environmental impact.”

Aeris engineers thus began to look for alternatives to plunger pumps for its high-pressure needs. In addition to their higher energy costs, the routine maintenance these traditional plunger pumps require decreased overall productivity.

The solution:

Aeris's **innovative** "Induction Humidification System", powered by **efficient Danfoss PAH pumps** integrated with Danfoss controls, **all in one plug-and-spray unit**

After consultations with Danfoss engineers, the Aeris R & D department selected the Danfoss PAH pump as the heart of the new solution, the "Induction Humidification System" (IHS), an ambitious new patented humidification approach that radically reduces electricity and water consumption while providing optimal humidification.

Danfoss's all-stainless-steel PAH high-pressure pump, which uses only water to lubricate moving parts, was selected both for its energy efficiency and for its exceptional reliability. To improve operational efficiencies – and to simplify installation and logistics – Aeris and Danfoss engineers integrated the high-pressure PAH pump with a range of other Danfoss products including pressure relief valves, check valves, solenoid valves, pressure and temperature sensors, and variable speed drives.

"We were very familiar with Danfoss's PAH technology from previous projects," explains Caffi. "With service intervals of 8,000 hours, these pumps are unrivaled in their reliability. This was a key selling point for us. These dependable pumps enable our customers to significantly reduce production downtime due to maintenance and to maintain optimal humidity levels.



This productivity boost, coupled with extremely good energy and water usage efficiencies, are benefits that go right to our customers' "triple bottom line", with a healthy impact on their financial, environmental, and social results."



The result:

Happy customers, worldwide sales, and an EU award for energy and water efficiency

Aeris's innovative IHS has received funding from the European Union's Horizon 2020 research and innovation program under grant agreement no. 811349, and was awarded the Green Label in July 2019 for its radically improved environmental impact. Compared to other systems, the IHS uses 50% less water and 75% less electricity to achieve similar humidification results. It is the only humidification system for textiles and non-wovens that complies with VDI 6022 standards.

Aeris Group has enjoyed strong sales of IHS through its Mazziniici (for woven textiles) and AlenANW (for nonwovens) companies.

"With multiple installations in Europe and the Far East, the reliability of our IHS is absolutely essential. Worldwide, our customers often run 24/7/365, so a production stop due to a pump failure is not acceptable. Just as our customers rely on our humidity to help them maintain productivity, we rely on Danfoss for energy-efficient high-pressure pumps to power the humidification process."

About Aeris Group:

Aeris Group comprises four clean tech companies dedicated to innovative solutions that save energy and water and reduce CO2 emissions. Mazziniici develops and markets air filtration and humidification systems for the textile industry. AlenANW does the same for non-wovens. Edenya develops and markets evaporative cooling systems. Aeris provides engineering, procurement and construction services for ventilation, air conditioning, anti-pollution and heat recovery systems.

For more information: www.aerisgroup.it

Danfoss A/S High Pressure Pumps . Nordborgvej 81 . DK-6430 Nordborg, Denmark

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