CASE STUDY | Paper

Condair Teams up with AstenJohnson to Implement a Cost-Effective Humidification Solution for Manufacturing

DR Series | MLP RO 500 & Princess-2

- Consistent Humidity Control
- Energy Savings
- Reduced ESD
- Employee Health

AstenJohnson

condair

With a goal of reducing humidity control costs in their manufacturing plant, AstenJohnson turns to Condair and local representative Longhill Energy to optimize conditions suitable for paper product component production.

Customer: AstenJohnson
Website: www.astenjohnson.com
Location: Kanata, Ontario, Canada
Facility Size: 100,000

Application: Manufacturing (Paper Product Components)

Product: MLP RO 500 & 13 Princess-2 Commercial Humidifiers

Condair Agent: Longhill Energy Products
Website: www.longhill.ca

The benefits of choosing Condair

- Precise relative humidity control, ideal for sensitive operating environments
- Mitigation of electrostatic discharge risks to protect employees and equipment
- Reliability-driven product engineering, designed for ease of use
- Reduced long-term operating costs via energy efficient design and reduced maintenance needs
- A healthier, more comfortable work environment for employees

Abstract

With a legacy of innovation in the industry stretching as far back as 1790, AstenJohnson is a driving force for quality products used in the manufacturing of paper goods. With a reputation for excellence and a customer base of papermakers in 56 countries, a more cost-effective indoor humidity control solution for their manufacturing plant was critical to their operations. Dominique Gravel, Engineering Team Leader, has been actively searching for an ideal system, subsequently turning to Condair and it's local agent, Longhill Energy Products, to ensure a reliable, efficient and cost effective humidification solution is installed in the facility.

Challenge

The facility in question is over 100,000 square feet in size and had been utilizing an electrode steam humidification system that had long-since proven inadequate for AstenJohnson's operational needs.

"The original steam generators were all positioned on perimeter walls due to their size, so we couldn't get them close enough to spaces in the plant where proper humidification was essential," says Dominique. "What made matters worse was that

the layout is pretty much wide open – the only form of area separation indoors is a single wall that splits the plant in two halves."

The goal was to achieve and maintain 40 percent relative humidity throughout the plant, and at a much lower cost than the current ineffective system. However, with the sheer size and openness of the facility combined with outdated, unreliable existing systems currently in place, the need to start fresh was clear. What's more, a solution was required that could ensure operations were protected against electrostatic discharges.

> ESD in manufacturing can cause reduced productivity, and an increase in product waste.

"Aside from a need for operating cost reduction, that was the biggest concern for us. Before, the existing steam generators were very expensive to operate and not reliable, with 30 to 40 percent of the units being out of commission at a given time," Dominique said. "The potential for ESD was huge since products worked on in the space happen to be made of polyester strands. Our conveyor belts were acting as static electricity generators."

Solution

After careful evaluation of alternatives, the ideal solution materialized: A Condair 1,000 lbs/hr direct-room high pressure system with an integrated reverse osmosis water treatment to reduce maintenance and eliminate mineral dusting. The system is configured with thirteen Princess 2 humidifiers, 80 lbs/hr each, in two zones configuration. Remote humidity sensors in each zone are tied to a central programmable logic controller. Any time the relative humidity (RH) in a zone falls below the AstenJohnson's target set point of 40% the PLC triggers the Princess units which produce a cool mist of micron size, easily-absorbed droplets until the target RH is re-established. This enabled Dominique and the team to achieve consistent RH throughout the plant at desired, sustainable levels, eliminating the risk of electrostatic discharges.

Combined with the energy efficient nature of this specialized system, the project also delivered greater value in terms of reduced maintenance requirements, increased operation reliability and performance efficiency.

Condair assumed turnkey responsibility for the project. From system design and equipment layout through system installation, testing and training of AstenJohnson's operation and maintenance personnel.

AstenJohnson now has an annual energy savings of $60,000 (CAD) as well has a more comfortable work environement for employees.

Results

“The difference is night and day,” says Dominique. “We’re seeing annual savings of approximately $60,000 (CAD) as well as a more comfortable work environment for employees.”

These are tremendous figures, and the Condair/ Longhill Energy team is proud of the results rendered by the project. AstenJohnson now benefits from proper humidity control where it is required for their process free of electrostatic buildup to keep employees and equipment safe. In addition to improved comfort and cost savings, it also enables the plant to operate with consistent indoor relative humidity and regulated conditions.

“It’s a far cry from the previous generators we had that were very expensive to operate,” Dominique added. “We likely would have never seen these savings.”

About Condair

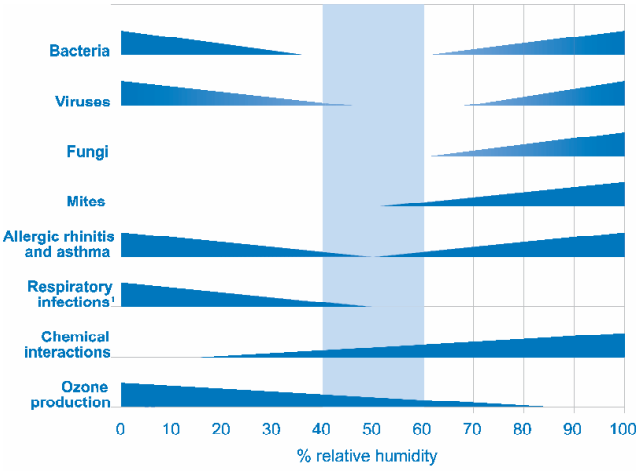
With 600 employees, the Condair Group is the world’s leading manufacturer of commercial and industrial humidification systems, setting standards globally for energy-efficient and hygienic solutions through its main Condair brand. Condair is represented in 16 countries by its own sales and service organisations and is supported by distribution partners in a further 50 countries. Condair operates production sites in Europe, North America and China.

> A minimum indoor relative humidity of 40% RH is benificial to manufacturing processes and employee health.

The Sterling Chart

The Sterling Chart illustrates how relative humidity affects health and well being and shows that the optimal air humidity level for humans is between 40 to 60% RH. This optimal humidity zone minimises risks to human health from biological contaminants and pathogens.

Colds, viruses, respiratory infections, dry eyes, itchy and cracked skin are all symptoms that are usually prevalent in the cold dry months of the winter when the indoor RH is at its lowest.



[1]Insufficient data about 50% RH.

E.M. Sterling, Criteria for Human Exposure to Humidity in Occupied Buildings, 1985 ASHRAE.

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