HEATEX
Industrial Ventilation
Dehumidification

Industry

Many industries face significant challenges ensuring worker safety, hygiene compliance, energy, and production efficiency. For example, an important and often critical area is the need for efficient air drying and dehumidification.

Company

Air in Motion B.V. has developed solutions for managing the moisture load in cold stores and cold storage for many years, developing in-house customized solutions specific to their client's needs for industrial air drying.

Application

Industrial dehumidification, combined with heat recovery, leads to less energy consumption and a shorter return on the investment period. As a result, the system as a whole is more cost effective and attractive to purchase.

CASE STUDY

with Air in Motion B.V

"The goal is to transfer as much heat as possible from the exhaust air to the supply air."
Kris Van de Rijt, CEO of Air In Motion B.V.

Introduction

Particularly in industrial warehousing and food processing, operators are often confronted with a pressing need to control air humidity between spaces. The colder the climate, the more critical it is to control moisture.

Traditional strip curtains and high-speed doors result in energy loss and create significant hurdles to transport.

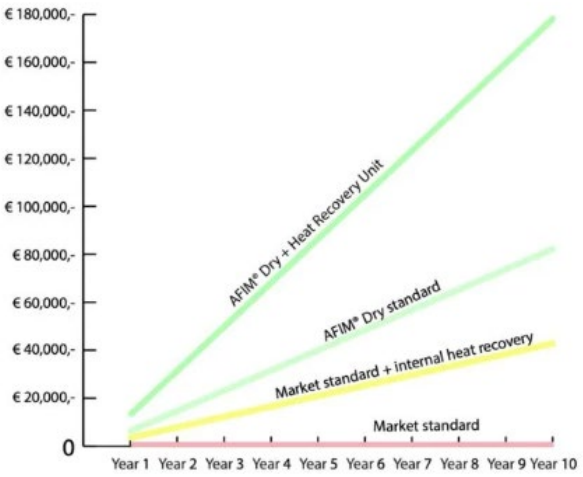
Due to market demand, Air In Motion has, in recent years, specialized in temperature separations of doorways to freezer rooms.

As a specialist supplier of industrial dehumidifiers and air doors for over 20 years, Air in Motion B.V. always seeks to provide technical solutions that best satisfy its customers' needs, putting the same kind of demands on their OEMs to be just as focused on their customers as they are.

Combining an industrial dehumidifer with a heat recovery unit is a perfect example of a win-win solution for solving the problems while significantly reducing energy consumption.

Problem

1. Moisture enters the cold store from outside through the open passage (natural heat transfer).
2. Moisture is removed via the outlet of the evaporators.
3. Evaporators lose their capacity to remove large amounts of moisture if not frequently defrosted.
4. Depending on the method defrosting takes time and energy.
5. While moisture enters the cold store, it creates slippery floors, mold, corrosion, electrical malfunction, and product quality deterioration.



Challenges

The primary challenge was to ensure that as much heat as possible was transferred from the exhaust air to the supply air, meaning heat recovery efficiency demands were well above 80%.

In addition, Air in Motion B.V. required customizable and compact heat exchangers suitable for heavy industrial environments & food/pharma applications with:

- Low maintenance requirements
- Long lifespan (>15 years)
- Limited pressure drop (< 500 Pa)
- Corrosion resistance
- Fast return on investment

Solution

By implementing a heat recovery unit, heat from the regeneration process is fed back and reused for the regeneration process of the dehumidifier. The heat transfer takes place without moisture transfer. As a result, heat remains in the regeneration process of the dehumidifier, keeping energy consumption for the dehumidification process to a minimum.

Air in Motion dehumidifiers uses approximately 50% less energy than standard market products by perfectly coordinating the heat recovery unit with the air handling unit.

Air in Motion choose Heatex's Model H2 which is a lightweight construction with slim frames, and an optimized plate pattern. It delivers superior efficiency while keeping pressure drop low. Also, it is simple to install, easy to maintain, and economical to operate, resulting in a long lifespan and a fast return on investment.

Ask an Expert

Heatex's skilled and experienced application engineers support you throughout the development process, finding the right solution for your unique needs. Ask our experts for more information

Or visit heatex.com and airinmotion.world.

Results

Note, this is for the heat exchanger only, not for the system as a whole. Based on 24 hours of service, 7 days a week, all year around.

Installed Power Reduction

33 kW

of heating power saved versus not using an air-to-air heat exchanger.

Energy Savings

165 000 kWh

of energy saved versus not using an air-to-air heat exchanger.

Return on Investment

3 months

of operation will cover the costs of the heaat exchanger in this particular case.

HEATEX