HEATEX

Industrial Ventilation

Spray Paint Booths

Industry

Industrial manufacturing faces significant challenges to reduce major environmental contributions from the production lines and improve sustainability. An important and often critical area is the need for efficient HVAC solutions.

Company

The KI-Group, has been key player in the Hungarian surface treatment industry since 1990 and has now grown into an organization of companies covering all branches of the surface treatment industry.

Application

Paint spray booth applications require well-functioning ventilation. This often leads to a large volume of high-temperature air, which requires high amounts of energy that, if not recovered, is lost as waste heat.

CASE STUDY

with Kematechnik Innomontage Kft.

”Heatex provides high-quality heat recovery units and reliable technical support.”

Fábics Mihály, Project Leader Engineer at Kematechnik.

Introduction

The climate challenges and the UN goals for 2030 play key roles when manufacturers worldwide seek to implement increasingly important sustainable production solutions and methods. E.g. the surface treatment industry faces challenges in reducing significant environmental contributions from the production lines and improving sustainability. An essential and often critical area is the need for efficient HVAC solutions, where future requirements grow rapidly and makes the green technology race spiral with the implementation of continuously greener solutions.

As a specialist provider within the industry, Kematechnik Innomontage Kft. always seek to offer surface treatment technology and technical solutions that best satisfy the requirements of their partners by custom designing the equipment. As a sole provider of end-to-end surface treatment technologies, Kematechnik Innomontage Kft. demands OEM’s to be just as flexible as they are.

Today a significant part of the thermal energy of the high-temperature air and water leaving the equipment of the surface treatment line is recovered with air-to-air heat exchangers and fed back to the input points that require heating. This energy was once considered waste heat.

Problem

Depending on the setup, a single car can take a day or two for priming, water-based application, drying, clear-coating, and polishing. A paint booth’s efficiency can differ between three and six cars daily, making an energy recovery solution that encompasses all the below vital for constant output efficiency.

- Strict environmental regulation regarding air pollution and worker health
- High energy costs
- Maintenance costs
- Filter service costs
- Overall booth cleanliness

Challenges

Kematechnik Innomontage Kft. required highly customizable, efficient and compact heat exchangers that were suited to:

- Temperatures of -5°C up to 25°C in the winter time and 35°C down to 25°C in the summer time
- Different influences, such as a wide variety of paint and humidity levels
- Different locations, such as indoors and outdoors
- Material restrictions, such as silicone.

Solution

By using the recovered thermal energy to heat the incoming or circulated air, cycle times are shortened, and significant heating energy costs are saved.

After consulting with Heatex's application engineers Kematechnik Innomontage Kft. decided to use Heatex's air-to-air Model H and H2 cross flow heat exchangers.

Compared to liquid-to-air heat exchanges, air-to-air heat exchangers are simpler to install, easier to maintain, and more economical to purchase and operate. In addition, the stability and open plate design of Heatex's plate heat exchangers allow for good cleaning possibilities of built-up paint contamination.

These heat recovery units, which usually pay for themselves quickly, can be retrofitted into almost any system which was a requirement by Kematechnik Innomontage Kft.

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 a consultation.

heatex.com

Results

Based on the geographical position of Budapest, Hungary and totally 2000 hours of service yearly.

Installed Power Reduction

186 kW

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

Energy Savings

86111 kWh

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

CO_2 Reduction

27993 kg

of CO_2 prevented from being released versus not using an air-to-air heat exchanger.

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