



### Industry

Heating, ventilation, and air conditioning (HVAC) is the use of various technologies to control the temperature, humidity, and purity of the air in an enclosed space. Its goal is to provide thermal comfort and acceptable indoor air quality.



### Company

Based in the heart of Leeds, West Yorkshire, Sovereign Air Movement is an independent family-run business staffed with technical experts that supply a comprehensive range of specialized air movement products.



### Application

Commercial ventilation systems play a key role to maintain healthy and comfortable indoor air quality (IAQ) in almost all buildings. At the heart of the system, you have an air handling unit and inside a heat exchanger for heat recovery.

# CASE STUDY

with [Sovereign Air Movement](#), United Kingdom

## Introduction

Sovereign Air Movement supplies efficient air handling units for commercial ventilation applications across the UK. A dedicated design engineering team uses software to develop air-handling equipment that reflects current environmental and engineering standards such as the Energy related Product (ErP) Directive and BS EN 1886:2007.

Sovereign Air Movement provides a complete tailor-made package that meets customers' precise requirements and provides a low-cost, energy-efficient solution bespoke to their varying needs and expectations.

An air-to-air heat exchanger will utilize the temperature difference between the supply and exhaust air to increase the overall system efficiency and both recover the waste energy and save a considerable amount of energy usage.

Heatex offers numerous design variables and options for each product, enabling perfect fit and performance in every AHU, which was one key factor when Sovereign Air Movement decided to use Heatex rotary heat exchangers in their air handling units.

"Heatex has great technical expertise and experience"

Ashley Eaton, AHU Design Engineer at Sovereign Air Movement.

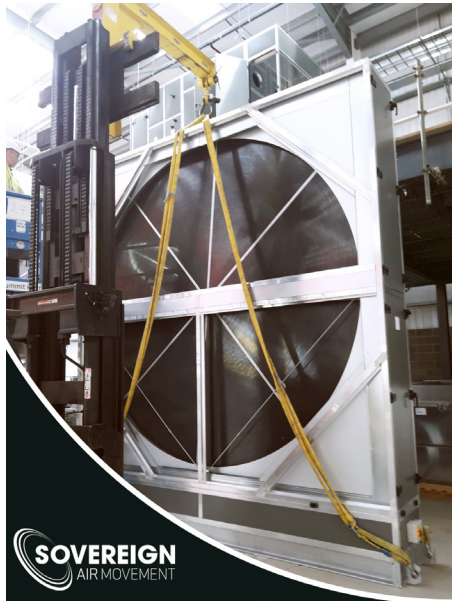
## General Problems

1. High pressure drop of the internal components lowering efficiency bonuses.
2. Limited space availability demanding compact but accessible air handling units.
3. Corrosive environments with a high degree of humidity or corrosive substances.
4. Large buildings requiring large airflow capabilities.

## Challenges

Sovereign Air Movement needed a large rotary heat exchanger for a sizable air handling unit, destined for an 80.000-square-foot facility.

The whole AHU needed to be delivered in sections for on-site assembly. Total dimensions were 7095 x 5250 x 4150 mm (L x H x W).



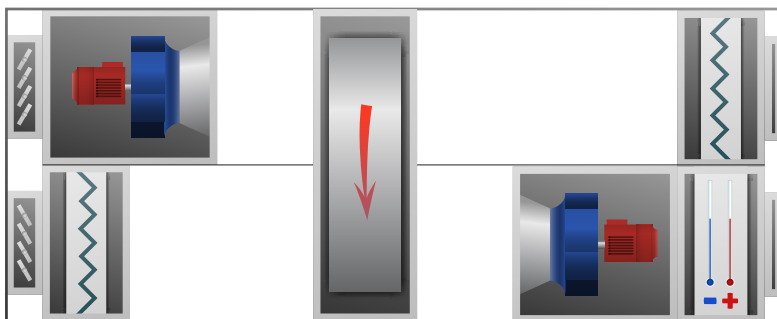
The rotor requirements were:

- High efficiency matrix
- Low pressure drop
- Large airflow capabilities (approx. 20 m<sup>3</sup>/s)
- Segmented wheel and casing
- Cost optimized (not oversized)
- Advanced drive and control equipment

## Solution

Sovereign Air Movement found Heatex's Model EQ rotary heat exchanger to fit their needs. Engineers from both companies worked together to optimize efficiency by lowering pressure drop, maximizing the size (3800mm), and choosing the perfect well height (1.8mm) to accommodate the large airflows required by the end customer.

Once manufactured, the rotor was fitted into a compact casing adding just 140 mm in size. Both rotor and casing were segmented for easy on-site assembly.



Principle drawing



## Results

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. Location London, England.

### Installed Power Reduction

# 535 kW

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

### Energy Savings

# 1 283 023 kWh

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

### Return on Investment

# <1 month

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

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

**Ask an Expert**



# HEATEX