



## Case Study Copenhagen Central Station

**ebmpapst**

### Ingenious ventilation solution at Copenhagen Central Station

The shops and restaurants at Copenhagen Central Station cut power consumption by two thirds by installing new energy-efficient fans from ebmpapst in the old system.

It takes a good deal of creativity to save energy in a modern shopping centre housed in a listed 100-year-old concourse such as the Copenhagen Central Station. The job can't be done simply by adding insulation or closing off doors.

As a result, the search for energy savings quickly fell on improving ventilation in the shops and restaurants. Fitting a modern ventilation system into the cramped, old equipment rooms was impossible, thus leading to the decision to modernise the existing ones.

The old AC fans were replaced with ebmpapst EC fans and energy consumption measurements conducted before and after the refitting showed savings equal to what a new facility would have provided – at a lower price. The investment paid for itself in less than a year.

#### As good as new

“The ebmpapst solution at the Central Station is ingenious,” says Property Manager Kim Jensen, who works for the company Steen & Strøm, which operates 16 shopping centres in Denmark, including the Central Station Shopping Centre with its approximately 20 shops and restaurants.



*It took just two days to install the new EC fans in the old system at Copenhagen Central Station. The investment paid for itself in under a year.*



“Many suppliers of finished ventilation systems could have achieved similar savings, but the limited amount of space in the old equipment rooms under the station make installing a completely new ventilation system down there impossible,” explains Kim Jensen, continuing, “This is what makes the ebmpapst solution so brilliant. What’s a ventilation system really made of? Just cabinets – and when you put new fans in the old cabinets, the result is in fact a completely new ventilation system.”

**Quick, easy and inexpensive**

Five fans were replaced at the Central Station in two days by three workers from the firm Energy & Environmental Engineering, which has done similar rebuilds elsewhere, e.g. at Hillerød Hospital. Switching from AC to EC fans has led to direct energy savings of 66%, which means the investment paid for itself in less than a year.

What’s more, an additional 10-15% in savings were gained by reviewing and adapting the individual systems to the actual needs; some were merged and others could be completely removed from use.

All restaurants and shops are ventilated from two equipment rooms, one of which achieved a savings of at least 78% and the other of about 40%.

Renovating the ventilation system by combining the old and the new won yet another victory at the Central Station. The advantages can definitely be felt when it’s time to read the electricity meter.



*There was no space for a new system in the old equipment rooms under Copenhagen Central Station, but a retrofit with new EC fans achieved the same savings.*

**Savings in numbers**

|  | Annual savings |
|--|----------------|
| Energy consumption                             | 110,110 kWh    |
| 0.13 ¢ / kWh                                   | 11,839 EUR     |
| Energy reimbursement first year (0.05 ¢ / kWh) | 5,180 EUR      |
| Payback period                                 | 1 year         |

