

## *Fläkt Woods Cooling the Tube in London*



Under a contract to upgrade the ventilation systems on the London Tube, Fläkt Woods has been commissioned to produce a mix of bespoke ventilations products that are designed to help improve the airflow on many of the station concourses and in the tunnels.

### ■ FACTS

**Customer:**

London Underground, UK.

**Need:**

A comprehensive upgrade of the existing tunnel and station ventilation fan network.

**Solution:**

Fläkt Woods Large JM Aerofoil Fans.



# “Our engineers found a way to fit a square peg through a round hole”

An old poster claimed that the Bakerloo Line was “the coolest place in hot weather” and at the time it was true. However, as commuters know, these days’ summer temperatures can frequently touch 30°C, and as a result London Underground has started a comprehensive upgrade of the existing tunnel and station ventilation fan network.



Research has identified that around three quarters of the energy used on the network is a result of train operation, which includes the energy required to move the train and losses occurred through friction braking. The rest is accounted for by the operation of the station and tunnel services, which includes lighting and communication. This energy generates a significant amount of heat and subsequently ventilation of the stations and tunnels is essential to help remove this heat and reduce temperatures.

Here, Fläkt Woods’ expertise is crucial, with 100 years experience in the ventilation business the Company knows about all there is to know about moving air.

“Trains moving through the tight deep-level tunnels push air forward through the tunnels” explains Paul Wenden Engineering and Marketing Director of Fläkt Woods “This is called the piston effect. This effect can produce a strong wind blowing through the tunnels and stations but so far it has proven difficult to use this air movement to expel warm air and bring in cooler air to provide sufficient cooling.”

Over the past 3-4 years, a lot of unseen work has been going on. One of the main things was simply cleaning up and repairing the existing ventilation shafts. There are 160 ventilation shafts throughout the underground parts of the system, and Fläkt Woods is currently supplying fans for 8 of these mid Tunnel Ventilation Shafts on the Victoria Line.

In some stations, fans measuring over 2.24 metres have had to fit through service doors no wider than 1 metre. The shafts, like the doors are narrow and extremely restrictive, “No matter what shape we started with; we had to find a way of fitting our fans through” says Paul Wenden “Our engineers have had to go back to the drawing board to find a way of fitting a square peg through a round hole.”

The answer was as complex as it was simple. Fans that can be disassembled into segments, and then reassembled again once engineers have the space to work. Computer modelling of every made-to-order fan has ensured that what is delivered is a practical and energy efficient solution.

## Fläkt Woods Group

Fläkt Woods is a global company providing solutions for ventilation and air treatment for buildings as well as fan solutions for Industry and Infrastructure applications.

By combining their dedicated range of Chilled Beams, Air Handling Units and Air Cooled Chillers, Fläkt Woods has been able to produce some of the most efficient and green indoor air quality (IAQ) solutions currently available within the Building Services Industry.

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