A New Tunnel Under the Thames
Providing ventilation during installation of automated tunnelling equipment

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About the tunnel

- The deepest pipe jack tunnel under the Thames
- Tunnelling completed in 24 days
- Part of London's £1b infrastructure upgrade

The challenge

During phase one of the project, an efficient and cost-effective method of ventilation was required for the 30-metre-deep shaft, in order to maintain a regular temperature and ensure conditions were suitable for operatives while tunnelling materials and equipment were installed.

As part of a £1 billion programme to upgrade London's ageing gas distribution infrastructure, a new tunnel has been constructed under the Thames. Two 30-metre shafts were sunk – one in the grounds of the Royal Hospital Chelsea, and the other in Battersea Park – to facilitate the tunnelling phase of the project, which was completed by Barhale in just 24 days. A micro

Tunnel Boring Machine (TBM), remotely controlled by an operator above ground, excavated 4,500 square metres of material and carved out a tunnel 330 metres long and 1.8 metres in diameter. At 15 metres below the river bed, it's the deepest pipe jack tunnel to have been built under the Thames, and it will carry the pipeline for gas distribution company Cadent.

The whole project was a highly complex undertaking, posing major logistical challenges to the fifteen organisations involved: twenty separate permissions had to be secured before building work could start; arrangements were needed to prevent disruption to scheduled high-profile events, such as the Chelsea Flower Show; and existing and planned services, including the Thames Tideway Tunnel, had to be worked around.

Prior to tunnelling under the river, workers installed excavation and pipe jacking equipment in the deep shafts, so ventilation was a crucial issue for the safety of construction workers and equipment operatives.

Key benefits

- Powerful and continuous ventilation
- Airflow rating of 20,500m /hr free air
- Can be used with long lengths of flexible ducting
- Ideal for large spaces that require greater airflows

" We went to RVT because we needed to ensure adequate ventilation in the deep shafts during tunnel construction. They came up with a cost-effective solution and were proactive and responsive throughout the project. The Ventex ventilation equipment they provided was compact, efficient and compliant with Health & Safety requirements."

Ian McGrady,
Project Manager,
Barhale

The RVT solution

RVT installed the VENTEX FA450CF centrifugal fan, a powerful fan that is particularly suited to providing large airflows for the ventilation of tunnels and large top-down basement projects. It delivered an impressive 20,500 m3 per hour of free air through ducting running to the base of the shafts, creating a safe environment for the workers there who were installing the automated Tunnel Boring Machine that would be used to tunnel under the Thames.