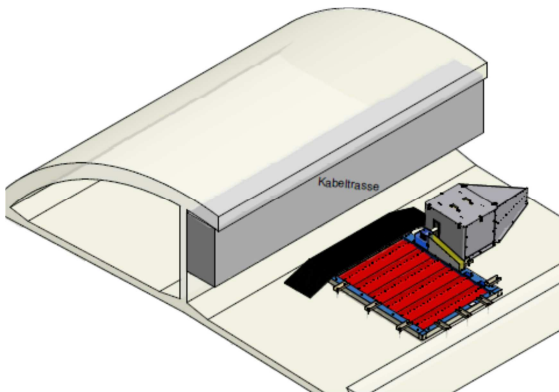




Installation of axial fans used for smoke extraction



Schematic of smoke exhaust damper



Axial fans in exhaust ventilation station

Description

The Heslach Tunnel is a 2.3 km long two-lane road tunnel in the south of Stuttgart. As part of the German federal road B14, it serves as a connection between the Stuttgart city centre and a main highway. It includes an underground intersection dividing the tunnel into two main sections. With a daily traffic volume of 48.000 vehicles, the Heslach Tunnel is one of the most important bi-directional tunnels in Europe. The safety requirements of RABT-2006 led to an upgrade of the tunnel's safety installations.

The air ducts of the old semi-transverse ventilation have been equipped with 38 new remote controlled smoke dampers. The secondary openings have been closed. The axial fans had to be replaced in order to achieve the air flow rates required.

In normal operation, jet fans along the carriageway are used to ensure an acceptable air quality and visibility for the tunnel users. The polluted tunnel air is extracted through the ventilation station and the main ventilation outlet. The new ventilation concept results in significant energy savings.

Services

HBI Haerter is responsible for the tunnel ventilation from concept and detailed design until commissioning of the new installations and call for tenders up to site supervision.

A special challenge was that the refurbishment work had to be carried out while the tunnel was open to traffic. Only a limited number of night-time closures were accepted. As the ventilation installation defined the critical path on the time frame, the detailed installation schedule was developed in the early design stages.

A detailed tunnel ventilation control system (TVCS) functional description was developed for the final tunnel equipment as well as for the various refurbishment periods. Refurbishment stages included a step-wise replacement of the control equipment as well as the ventilation components.

With the participation of HBI fire tests were successfully performed. Ventilation optimisation took place during operation.