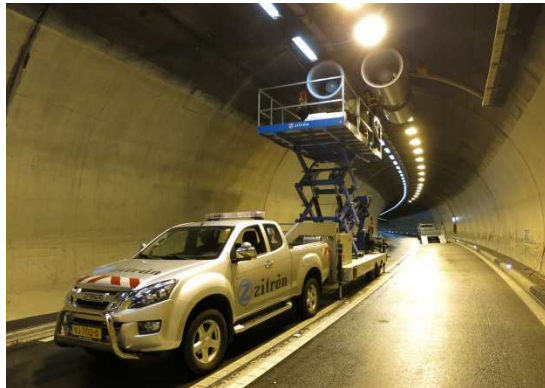




Northern portal with open gallery



Jet fan after heat test



Jet fan installation



Measurement grid installed for tests and calibration of air velocity monitors

Description

The Viamala tunnel is 724 m long. It is connected to a 37 m open gallery at the northern portal. The tunnel is designed for bi-directional traffic. The longitudinal gradient is rather high at 5.3%. Prior to the refurbishment, the tunnel was equipped with four jet fans 630 mm. The tunnel ventilation was used only in normal operation for air quality reasons. In case of a tunnel fire, the jet fans were switched off.

The project aims at an increase of the tunnel safety. The safety level of the tunnel shall meet the requirements of the current OFROU guidelines. In addition to the ventilation upgrade, a parallel safety gallery will be constructed. The project schedule required immediate measures to improve safety. Therefore, the tunnel ventilation was replaced. Further refurbishment of safety installations will follow with the construction of the safety gallery.

All installation work had to take place during night time closures of the tunnel. During the day, the tunnel was open to traffic while the initial safety level was maintained at all times.

Currently, the Viamala tunnel is equipped with a longitudinal ventilation system consisting of eight jet fans 800 mm. The jet fans are controlled by variable speed drives. In emergency operation, the ventilation is used to control the longitudinal air flow to a defined set-point speed.

Services

HBI Haerter Consulting Engineers was responsible for:

- Risk analysis for evaluation of the distance between egress passages
- Tunnel ventilation concept design
- Tunnel ventilation detailed design
- Functional description of tunnel ventilation control system
- Jet fan specifications
- Evaluation of supplier's submissions, recommendation for equipment selection
- Jet fan factory acceptance test
- Site supervision of installation work during night-time closures of the tunnel
- Jet fans site acceptance test
- Coordination of aerodynamic measurements in the tunnel