



Tunnel network Kirchenwald / Lopper



Kirchenwald smoke damper



Jet fan installation in a ceiling niche Kirchenwald



Isolation damper in ventilation ducts between west- and eastbound tunnels Kirchenwald

Description

The tunnel Kirchenwald (KWT) forms part of a highway bifurcation. This road tunnel network includes the KWT north and south tube, the portal structure Hergiswil, the underground connection of highways A2/A8 and the tunnel Lopper with the tunnel connection of highways A8/A2. The KWT, the connection A2/A8 and the portal structure Hergiswil are new projects. The tunnel Lopper is an existing tunnel to be upgraded and integrated into the network. All tunnels, with the exception of tunnel Lopper, are uni-directional tunnels.

Each tube of the KWT has a length of 1.6 km. The tunnel connection A2/A8 is 2.0 km long, the tunnel Lopper 1.6 km.

In terms of ventilation, the individual tunnel sections affect each other. This is of special importance for the design of the tunnel ventilation control system. The tunnel network has been opened for traffic in several stages. For each stage, the ventilation control system had to be implemented and tested in order to ensure safe operation of the tunnels. Implementation and testing of the final stage was a special challenge, as the tunnel Lopper and the eastbound tube KWT were already in operation.

Services

- Tunnel ventilation design and ventilation control system functional description for normal and emergency operation
- Control system validation tests in several stages of implementation
- Cold smoke tests of emergency ventilation
- Hot smoke test of emergency ventilation

Design, site supervision and commissioning:

- 4 axial exhaust fans \varnothing 2.5 m
- 2 axial exhaust fans \varnothing 2.0 m
- 26 jet fans \varnothing 1.25 m
- 30 jet fans \varnothing 0.71 m
- 61 smoke dampers
- 3 isolation dampers for ventilation ducts
- 5 ventilation units for emergency egress
- Substation air-conditioning systems