



Jet fans at southern tunnel portal



Exhaust fans for normal and emergency operation



Ventilation duct with remotely controlled dampers

Description

The Giswil tunnel consists of a single tube with two-directional traffic. The tunnel length is 2'066 m with a gradient of 2.5% north to south. The tunnel includes a parallel egress tunnel with seven cross-passages to the carriageway and two air locks at the portals.

The ventilation system is characterized by the following features. For normal operation, a longitudinal ventilation with central air extraction of 80 m³/s has been installed. During emergencies, remotely controlled dampers are used for local smoke extraction (>150 m³/s). The longitudinal flow in the tunnel is controlled by four jet fans. The emergency egress tunnel is pressurised.

The Giswil Tunnel was opened for traffic on 27th October 2004.

Services

HBI Haerter Consulting Engineers provided the following services:

- Air dispersion calculation: Long time measurement of wind velocity, calculation of vehicle emissions, tunnel air dispersion calculation, section "Air Quality" of Environmental Impact Statement
- Tunnel ventilation design: concept design, ventilation design for normal and emergency operation, detailed studies of ventilation control system for normal and emergency operation applying a dynamic modelling, ventilation control system design, tender for jet fans, axial fans and smoke dampers, comparison of bids and recommendation for equipment selection, factory acceptance tests, construction supervision, ventilation consulting during final design, check of civil drawings, aerodynamic measurements, commissioning of ventilation equipment, planning of fire tests in the tunnel
- Ventilation of emergency egress tunnel: concept and detailed design, tender, comparison of bids, recommendation for equipment selection, site supervision, aerodynamic measurements, commissioning