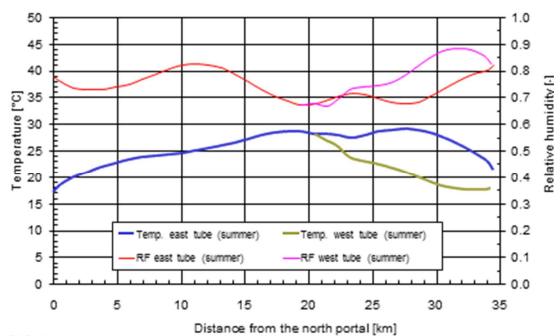


Lötschberg Base Tunnel (CH) – Schematic



Summer temperature and relative humidity in both tunnel tubes



Single track tunnel: eastern tube

Description

The purpose of NEAT (the new Alpine railway transversal) is to shift a large part of the trans-Alpine passenger and freight traffic from road to rail. The Lötschberg Base Tunnel is part of this concept. With a length of 35 km, it connects Frutigen and Raron. The maximum rock cover is 2.000 m. During construction, rock temperatures of up to 45 ° C were observed along the tunnel. Once the Lötschberg Base Tunnel is completed, it will consist of two separate directional tubes. The two access tunnels Mitholz and Ferden were used during the construction phase as intermediate points. During operation, they are to be used for ventilation. Natural ventilation in tunnel can be provided by taking advantage of the piston effect. To minimize capital and operating costs, natural ventilation will be utilized to the greatest possible extent. Therefore, additional aerodynamic and thermodynamic simulations were required during tunnel design.

Services

For the design of ventilation and safety concept the following services were provided by HBI Haerter:

- Detailed aerodynamic and thermodynamic simulations, taking into account all relevant parameters
- Simulation of different operating conditions (normal, fire, maintenance) and definition of the tunnel ventilation concept
- Evaluation of required air volumes
- Ventilation equipment selection
- Optimal utilization of natural ventilation as part of the ventilation concept for reduction of investment and operating costs
- Simulation for sufficient natural ventilation of the final lay-out of the tunnel system
- Development of a ventilation concept with maximum flexibility requiring minimal capital and operating costs