

The Gotthard Base Tunnel

ABB solutions for a once-in-a-century structure

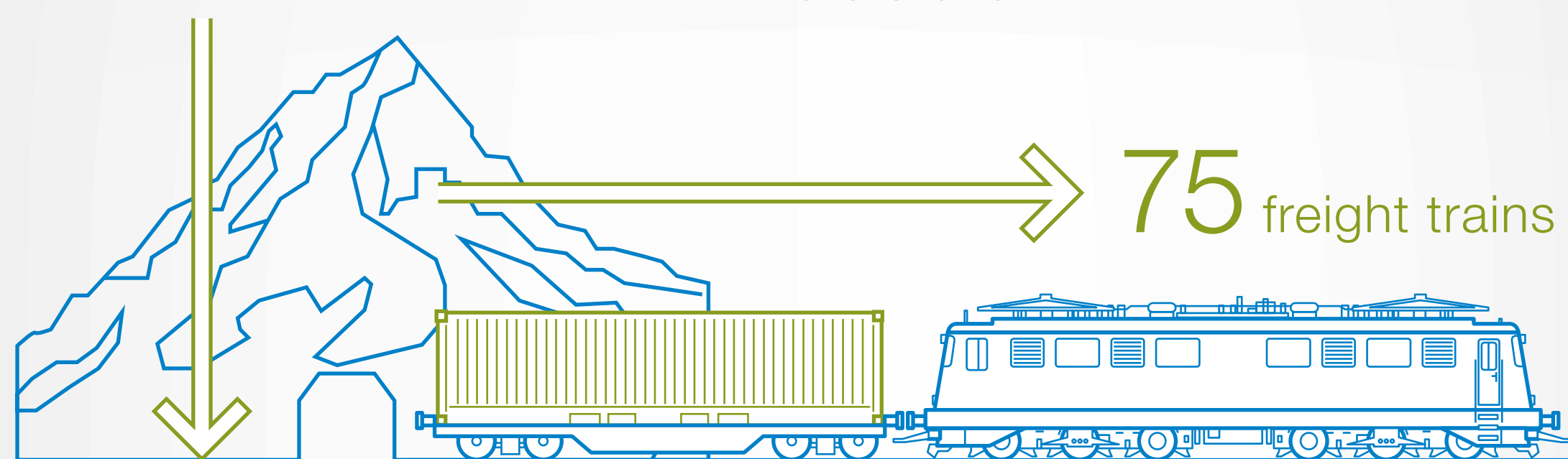
The longest and deepest railway tunnel in the world

2,300 meters

At its deepest point, the Gotthard Base Tunnel runs more than 2 kilometers below the Piz Vatgira.

57 kilometers

The tunnel extends from Erstfeld to Biasca. It is approximately the same length as 75 freight trains lined up one after another.



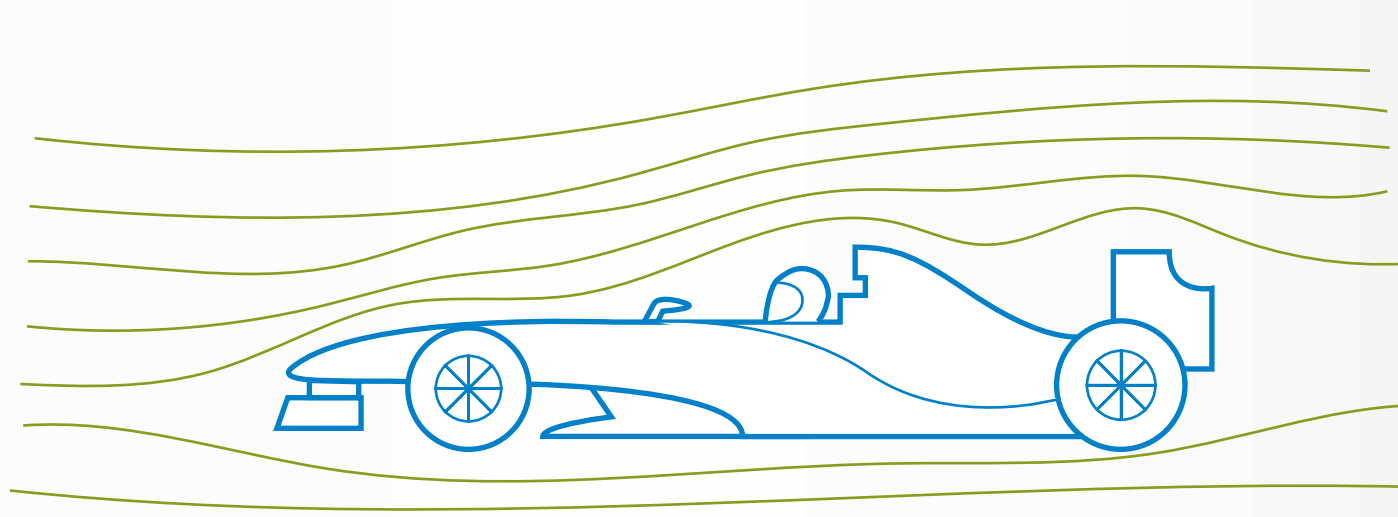
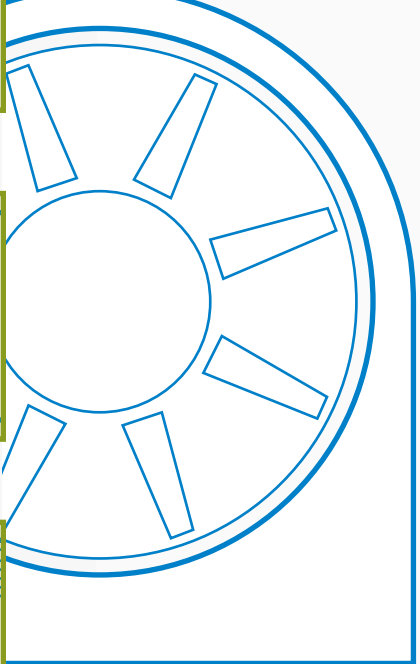
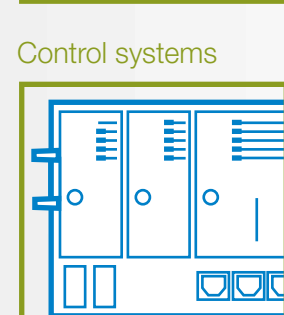
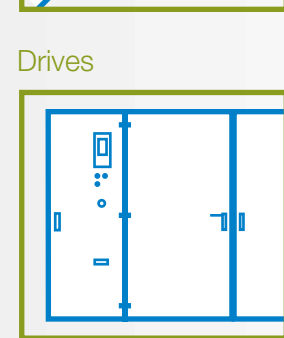
260 freight trains

Higher capacity for rail traffic

A total of up to 260 freight and 65 passenger trains can pass through the tunnel each day. The tunnel thus contributes to the shift of traffic from road to rail.

Installed ABB systems

Power supply



15.6 MW

ABB solutions for the world's strongest ventilation system

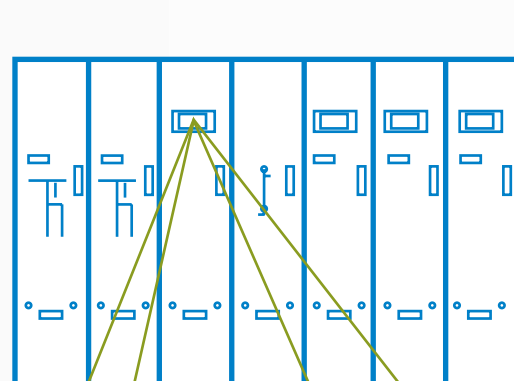
The power of around 80 Formula-E race cars

ABB ensures that there is air in the tunnel: Among other things, the company provided the power supply and drive systems for the strongest ventilation system in the world with a power rating of 15.6 MW.

The entire ventilation control system also comes from ABB. It comprises the activation and control units for the fans and the tunnel sensors, as well as the fire location detection. A scenario manager regulates the airways as required for a variety of predefined events.

899

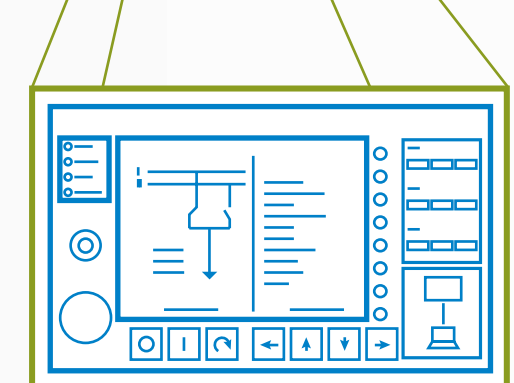
medium-voltage cubicles



Over

500

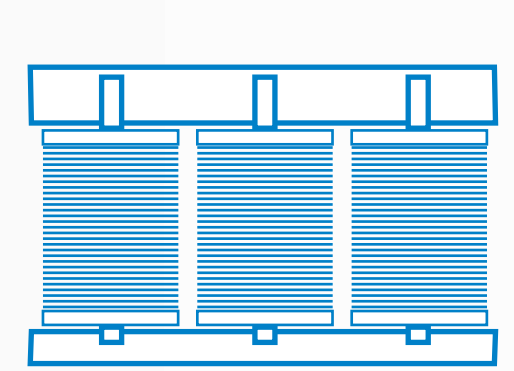
protection and control units



Over

300

transformers



More than

21 kilometers

of cable-protection solutions

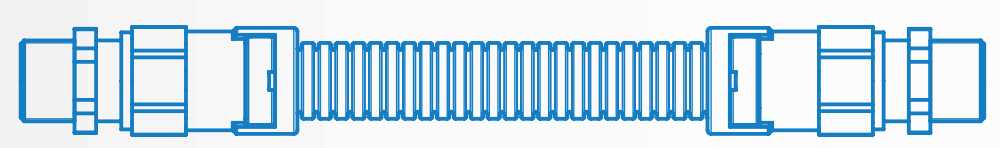


ABB ensures the power supply

In order to supply power to the infrastructure of the tunnel, such as lighting, signaling technology and safety doors, ABB supplied 899 medium-voltage cubicles, more than 500 protection and control units and over 300 transformers. The company also installed more than 21 kilometers of cable-protection systems for the lines powering the orientation and escape-route lighting.

All the elements are adapted to the conditions in the tunnel – such as the high temperatures, relative humidity, particulate matter or the enormous pressure fluctuations that occur when trains pass through the tunnel at speeds of up to 250 km/h.

Tunnel maintenance is provided by two maintenance and intervention centers located in Biasca and Erstfeld. At both facilities, ABB systems for an uninterrupted power supply assure that there is always electric energy available on the premises.

ABB competence within the railway sector



Over 100 years of experience



Centers of excellence

The ABB centers of excellence for the rail sector are located in Geneva (traction transformers), Lenzburg (semiconductors), Turgi (traction converters), Baden (traction substations and turbochargers), Wettingen (surge arresters), Uster (cable-protection systems), Quartino (uninterruptible power supply systems) and Zuzwil (medium-voltage equipment for railroad infrastructure).



Long-term partnership

Over 100 years of collaboration between SBB and ABB

Sources

- ABB-internal data and calculations
- SBB AG

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