

## Sedrun tunnel, lot 360, AlpTransit, Gotthard Base Tunnel



### SHORT DESCRIPTION

Construction of two parallel single-track railway tunnels using blasting, and construction of a multi-function station.

### THE PROJECT

- Context: [The Gotthard Base Tunnel](#) (GBT; German: Gotthard-Basistunnel, Italian: Galleria di base del San Gottardo, Romansh: Tunnel da basa dal Son Gottard) is a railway tunnel through the Alps in Switzerland. It opened on 1 June 2016, and full service began on 11 December 2016. With a route length of 57.09 km (35.5 mi), it is the world's longest railway and deepest traffic tunnel and the first flat, low-level route through the Alps.
- Railway tunnel with two single-track tunnel tubes, each approx. 9.0 km long, excavation cross-sections 60–134 m<sup>2</sup> (full excavation), cross-passages every 312 m.
- Multi-function station (MFS) with longitudinal and transverse caverns, four tunnel changeover expansions (excavation cross-section up to 230 m<sup>2</sup>), tunnel changeover connections, side tunnels, ventilation tunnels and 14 ventilation shafts, 4 maintenance halls.
- Access via tunnel, length approx. 1 km, and two shafts with a depth of approx. 800 m. Challenge: highly complex

installations.

## SERVICES IN DETAIL

- Blasting, securing with shotcrete, anchors, netting.
- Special heading in squeezing rock zones (northern part of the Tavetsch intermediate massif), securing with deformable steel structures, anchors, shotcrete, solid stabilisation of the working face.
- In-situ concrete tunnel lining.
- Shaft II: raise drill with subsequent expansion using shaft boring machine (diameter 7 m).

## CHALLENGES

- Clavaniev zone (CZ), Tavetsch intermediate massif (TZM)
- Urseren Garvera zone (UGZ), Gotthard massif

## FURTHER INFORMATION

- Special heading under tough geological conditions (squeezing rock, radial convergences of up to 70 cm).
- Challenging logistics: Supplying the construction site via an approx. 1000-metre-long access tunnel and two approx. 800-metre-deep blind shafts.
- Reusing and processing the excavated material for producing the concrete (in-situ concrete approx. 328,500 m<sup>3</sup> and shotcrete approx. 222,500 m<sup>3</sup>).
- Total excavation volume 3,700,000 m<sup>3</sup>, total weight of arch structures approx. 20,000 tonnes of steel.

## FACTS

<b>Location</b>	Sedrun , Switzerland
<b>Status</b>	completed
<b>Construction volume (value of our services)</b>	1.51 B CHF
<b>Start of construction</b>	December 2001
<b>Completion</b>	January 2014
<b>Building owner</b>	AlpTransit Gotthard AG, Luzern
<b>Contracting entity</b>	Analog Bauherr
<b>Project designer</b>	Ingenieurgesellschaft Gotthard Basistunnel Süd, c/o Lombardi AG, Minusio
<b>Construction management</b>	Analog Projektverfasser
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<b>TBM Tunnelling</b>	✓

## SERVICES

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Tunnelling

Transport tunnels

Service tunnels

Caverns, shafts



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<https://implenia.com/en/references/detail/ref/sedrun-tunnel-lot-360-alptransit-gotthard-base-tunnel/>

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