



## Brenner Base Tunnel (AUT) PregROUTing, Exploratory Drillings

**Employer**

Galeria di Base del Brennero – Brenner Basistunnel BBT SE

**Client**

ARGE H53 Brenner Basistunnel

(Porr Bau GmbH, Marti GmbH Austria, Marti Tunnel AG Switzerland)

Renesco GmbH Abt. Marti Geotechnik

**Execution of works**

March 2024 – March 2025

**Construction Period**

900.000€

**Contract Sum (injection only)**

## Project Description

The Brenner Base Tunnel runs between Innsbruck (Austria) and Franzensfeste (Italy) and will have a total length of 64 km. It consists of two 8,1 m wide tunnel tubes running at a distance of 40-70 m apart. They will be equipped with a single track so that trains can travel through the two tunnels in one direction. Cross passages connect the two tubes at intervals of 333 m. These cross passages serve as escape routes in emergency situations. Lot H53 comprises the two single-track main tunnel tubes with a total length of 25,2 km and around 3,6 km of exploration and cross-passage tunnel sections. In addition to conventional tunnel excavation, two tunnel boring machines with a diameter of 10,37 m will also be used.

## Scope of work

When passing through the Hochstegen marble and the Olperer fault system, significant water flow was to be expected. Restrictions applied to drilling in these areas, prohibiting the lowering of the shallow groundwater level in protected regions (Natura 2000 area Valsertal). If water ingress was detected in the preliminary exploratory drilling, preliminary injections had to be carried out until control drilling showed only minor water ingress.

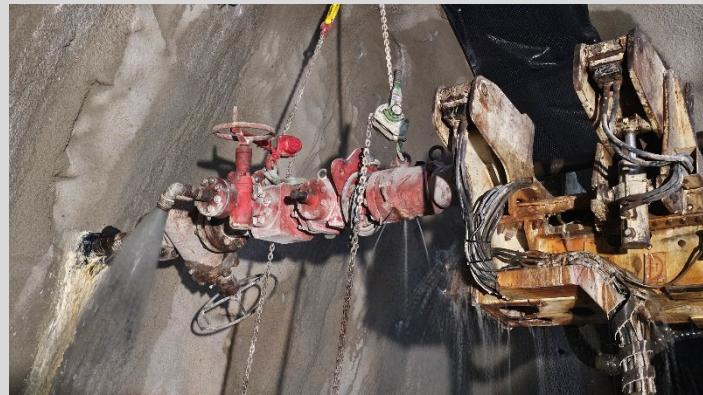
## Quantities

Standpipes L= 4 / 8 m:	65 pcs.
Preventer drill holes:	65 pcs.
Drill holes:	3,900 m
to a depth of 175 m with recording of drilling data	
PU injection:	5,000 litres
Cement injection:	31,000 litres
Fine cement injection:	16,000 litres
Ultra-fine cement injection:	4,000 litres

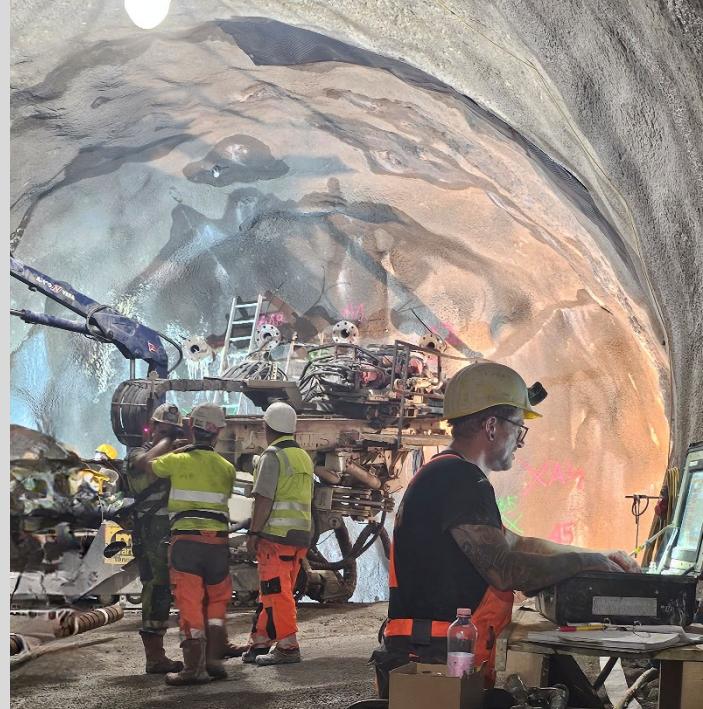
## Particularities

Due to the high overburden, water pressures of up to 100 bar were to be expected. To prevent water and soil material from entering, preventers designed for a water pressure of 100 bar were used during drilling. These were mounted on standpipes that had been set in advance to a depth of 8 metres and grouted with PU resin. The boreholes were drilled to a depth of 170 metres using water-powered down-the-hole hammers.

The cement injection pumps were able to perform grouting at pressures of up to 150 bar.



1



2



3

Front: Installation standpipe L= 8 m

1. Drilling preventer for water pressures up to 100 bar
2. Standpipe grouting
3. Injection system for pump pressures up to 150 bar