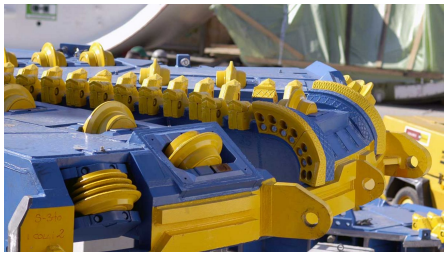
Malmö Citytunnel Lot E201



SHORT DESCRIPTION

The Citytunnel Malmö is part of the in total 17 km long railway infrastructure project to improve connections of the Swedish railway network across the Öresund Bridge to Denmark and the European high speed railway network.

THE PROJECT

Lot E201 **Citytunnel Malmö** is the largest section of the entire project and is made up of a 4.6 km long double tube railway tunnel, a 280 m long cavern to serve as a new underground station including two shafts for the access structure known as the “Triangeln” Station, an 800 m long entry ramp built in the open-cut method in Holma, 13 cross-passages, four pressure equalisation shafts and two emergency exit shafts as well as an 88 m long and 12 m wide roadway bridge over the ramp area with a span of 40 m.

See also this **description**.

CHALLENGES

Construction of the main tunnels was done by two Earth Pressure Balance (EPB) tunnel boring machines (diameter: 8.93

m). The tubes are inter-connected by 12 cross passages constructed in the shotcrete method. The tunnels have been lined with 35 cm thick and 1.80 meter wide pre-cast reinforced concrete segments.

The underground "Triangeln" Station was excavated as a 280 x 28 x 12 meter large (300 m^2) rock cavern using the shotcrete method. The drive was done with two roadheader machines as a 3-part cross cut with a preliminary pylon gallery made up of 29 self-compacting concrete pylons and two subsequently built side tubes. Each of these sections were again sub-divided into a crown and bend drive. The groundwater was temporarily lowered during the excavation works of the station, whereby most of it was re-infiltrated. The permanent structure was built with waterproof concrete. The contract also included various concrete structures for the new underground station as well as the preliminary and final design.

SUSTAINABILITY

The strict Swedish legislation to protect the environment and the population played a major role in this project. As a result, all chemical products that were used during the construction phases were subject to special testing procedures.

FURTHER INFORMATION

Key Figures

- Realization 2005 - 2009
- Total length 2 x 4,600 m
- Excav. cross section 63 m2
- Geology "Bryozoan Limestone"
- Limestone, artificial filling with sand and moraines, also sand and gravel deposits, crack water-bearing

Implenia on site
Implenia Construction GmbH,
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Landsberger Straße 290 a, D-80687 Munich

Scope of works
Tunneling and structural works

Performed services
Technical and commercial management
Participation on the consortium 50 %

Construction methods

- Railway tunnel, single-track, double tubed
- Earth Pressure Balance (EPB) TBM 2 x 4,600 m with 2 parallel TBM Ø = 8.93 m
- Single layer segmental lining (Øi = 7.90 m) and EPDM sealing
- 13 cross-passages
- Underground "Triangeln" Station excavated as a 280 x 28 x 12 meter large rock cavern using the shotcrete method
- Concrete structures at the train station
- 4 pressure equalisation shafts
- 2 emergency exit shafts
- 800 m cut and cover method

Project Participants

Client
Projektorganisation Citytunneln, Banverket

Planner
Implenia AG, Ramböll, Niras

Consortium
MCG, Malmö Citytunnel Group HB

FACTS

Location	Malmö , Sweden
Status	completed
Construction volume (value of our services)	325 M EUR
Start of construction	December 2004
Completion	December 2008
TBM Tunnelling	✓

SERVICES

- Tunnelling
- Transport tunnels
- Service tunnels

https://implenia.com/en/references/detail/ref/malmoe-citytunnel-lot-e201/

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