

## 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<sup>2</sup>) 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 m<sup>2</sup>
- Geology "Bryozoan Limestone"
- Limestone, artificial filling with sand and moraines, also sand and gravel deposits, crack water-bearing

### **Implenia on site**

Implenia Construction GmbH,  
Civil Engineering  
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

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

## SERVICES

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Tunnelling
Transport tunnels
Service tunnels



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

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