

Liaoning, China

Back-up system for Gripper TBM with Tunnel Belt



Tunnel portal

About the project

The structure is a part of an 80 km-long drift which interconnects two reservoirs with water supply dams in Liaoning Province (in the north-east of China).



Assembly cavern

Project data

Country	China
Start of construction work	2004
Contract awarded to Rowa by	Wirth GmbH, Erkelenz
Function of the follow-on installation	Supply and disposal functions for a high-performance TBM driving operation with tunnel belt
Driving method	Gripper TBM
Driving length	8,365 m
Excavation diameter	8.03 m
Lining method	Shotcrete
Inclination	< 0.5 %



Rowa's order

On 30 March 2004, Rowa was awarded the contract for manufacture and supply of a back-up installation for a gripper TBM with tunnel belt from the Wirth GmbH company, subject to the proviso that the heavy steel structure be manufactured in China.

Liaoning, China



Shotcrete robot

Concept

As a logical consequence, Rowa's design was based on Chinese steel construction sections. The entire installation was assembled at the works in China before being transported to the construction site over 2000 km away for final assembly.

Supply and removal logistics

The excavated muck is transferred via a conveyor belt directly onto the tunnel belt. Supply material and material subject to wear is transported by rail to the tail of the TBM and, from there, using a special crane, to the storage location on the material transloading bridge or directly to the installation point on the TBM.



Shotcrete installation

Scope of delivery

The back-up installation consists of a 150 m-long steel structure supported on auxiliary rails. The rock is consolidated in the L2 zone by means of two independent shotcrete systems, consisting of 2 shotcrete robots, delivery pumps and handling systems.

Special aspects

Assembly work was performed in an assembly cavern accessed via an over 2 km-long access drift and was completed on 31 January 2005 as regular operation commenced.



Ventilation reservoir / high-voltage drum

Technical data

length of the back-up installation	150 m
Covering diameter	7'400 mm
Weight of the back-up installation	approx. 400 metric tons
Connected electrical load	approx. 200 kW
Driving time	24 hours per working day
Removal by	tunnel belt
Supply	rail