

Press Release

HERRENKNECHT

TBM quartet for Norway: second of four Double Shields completed

April 8, 2016
Schwanau / Oslo

Herrenknecht supplies four large-diameter Double Shield TBMs for Norway's biggest infrastructure project. The order is one of the biggest in Herrenknecht's history and at the same time an advance of mechanized tunnelling technology into a country where conventional tunnelling traditionally dominates.

Over the next few days the acceptance of a recently completed Double Shield TBM (\varnothing 9,900 mm) for Norway's largest infrastructure project, the Follo Line, is taking place at the Herrenknecht plant in Schwanau. While next door two more high-speed tunnel borers are still in assembly, a fourth machine is being disassembled again ready for transportation.

At the official workshop acceptance of the first completed machine on March 10, 2016, Anne Kathrine Kalager, Project Manager with client Jernbaneverket, said: "We are impressed by the TBM production. This first TBM is ready in less than one year since the contract was signed. We are looking forward to our further cooperation."

Fernando Vara, Project Director at contractor Acciona Ghella Joint Venture, is also pleased with the cooperation: "The collaboration between Herrenknecht, Jernbaneverket and AGJV has been very good, which is reflected in a delivery ahead of schedule, with good quality."

The order for the four hard rock machines S-980 to S-983 is one of the biggest in Herrenknecht's history. And at the same time an advance of mechanized tunnelling technology into a country where conventional tunnelling traditionally dominates. Anne Kathrine Kalager commented: „We are quite good in drill & blast technology and proud of it. But for this project TBM-technology was considered the best solution due to the environment and the fact that we have access to one large rig area for the total TBM tunnel construction work.”

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Double Shield TBMs are among the most technically sophisticated tunnel boring machines. They combine the functional principles of Gripper and Single Shield TBMs in one machine. In stable geological conditions, combining these methods permits the installation of concrete segments parallel to the drive, resulting in very high performance rates. This powerful technology is ideal for the construction of the future longest tunnel in Scandinavia.

Each of the four Follo Line TBMs will work its way through 9.5 kilometers of Norwegian granite with up to 350 MPa. Starting from the installation site in Åsland, two will tunnel northward toward Oslo, the other two will head south toward Ski.

The Follo Line Project is currently the largest transport project in Norway. The project consists of a 22 km new double track railway line between Oslo Central Station and the new station at Ski, south of Oslo. It will form the core part of InterCity development south of Oslo and is commissioned by the Norwegian National Railway Administration (Jernbaneverket).

Acciona Ghella Joint Venture will construct the main part of the 20 km long tunnel, which will be Scandinavia's longest when it is finalised at the end 2021. The construction of the line will cut the travel time between Oslo and Ski by about half to just 11 minutes.

› **Further information on Jernbaneverket and AGJV:**

<http://www.jernbaneverket.no/en/startpage1/Projects/New-double-track-Oslo-Ski/>
<http://agjv.no/news>

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Project data TBM quartet for Norway

MACHINE DATA S-980 / S-981 / S-982 / S-983

Machine type: 4 x Double Shield TBM

› Diameter: 9,900 mm

› Cutterhead power: 4,550 kW

› Torque: 11,115 kNm

› Length of TBM: 150 m

› Weight of TBM: 2,400 to

PROJECT DATA

Project

› Follo Line

Client

› Jernbaneverket, the Norwegian government's agency for railway services

Contractor

› Acciona Infraestructuras / Ghella Joint Venture

Application

› Railway

Geology

› Hard rock, Gneiss

Tunnelling length:

› 4 x 9,500 m

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Photos TBM quartet for Norway

Bild 1

In the Herrenknecht main workshop in Schwanau Germany, there are currently four machines in progress for Norway's largest infrastructure project, the Follo Line. The order is one of the biggest in Herrenknecht's history.



Bild 3

Dr. Gerhard Wehrmeyer (Herrenknecht), Anne Kathrine Kalager (Jernbaneverket) and Fernando Vara (Acciona Ghella Joint Venture) at the official workshop acceptance for the first of four large diameter hard rock machines on March 10, 2016.

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For further information: Please contact us.

Herrenknecht AG

Herrenknecht is the only company worldwide to deliver tunnel boring machines for all geologies and in all diameters – ranging from 0.10 to 19 meters. The product range comprises tailor-made machines for traffic, supply and disposal tunnels as well as additional equipment and service packages. Herrenknecht also manufactures drilling rigs for vertical and inclined shafts as well as deep drilling rigs.

In 2014, the Herrenknecht Group achieved total revenue of 1.082 billion euros. The Herrenknecht Group employs around 5,000 people worldwide, including more than 150 trainees. With over 75 domestic and overseas subsidiaries and associated companies working in related fields, Herrenknecht provides comprehensive services close to each project and customer.

› <http://www.herrenknecht.com/en/references>

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