



A HERRENKNECHT GIANT REACHES ITS TARGET.

“Martina”, the largest tunnel boring machine manufactured by Herrenknecht so far, finished her large-scale project in Italy with final breakthrough. The EPB Shield with a diameter of 15.55 meters produced the shell of the twin-bore Sparvo Tunnel between Bologna and Florence in about two years. This will relieve Autostrada A1 considerably from traffic in the future.

Sparvo, Italy / Schwanau, Germany, September 6, 2013. The Herrenknecht tunnel boring machine needed about two years to construct the Sparvo Tunnel with its two parallel tubes of around 2.4 kilometers in length each. On July 29, 2013, the construction company TOTO Costruzioni Generali S.p.A. celebrated the final tunnel breakthrough with leading Italian politicians and numerous other guests. This meant that the Herrenknecht Earth Pressure Balance Shield “Martina”, with its shield diameter of 15.55 meters, is the largest tunnel boring machine in the world to successfully complete a project.

Since the start of tunnelling in August 2011, the entire world of tunnel construction has kept a close eye on the continuous project progress. In July 2012, contractor and client celebrated breakthrough of the first tube. Following a 180 degree turn of the TBM, including its back-up systems, “Martina” started the second drive at full steam at the beginning of December 2012. The tunnelling team was able to even outperform the good tunnelling performances of the first drive, completing the second tube in a construction time of only 8 months. The Herrenknecht machine showed top performances of 24 meters a day and 126 meters a week of driven and lined tunnel.

In view of the expected mine gases, designers had equipped the machine with explosion protection. Together with the client, local authorities and universities a sophisticated safety system had been developed. The entire belt conveyor on the tunnel boring machine has a double-walled housing and is pressurized so that the excavated material containing methane can be removed from the tunnel safely. In addition, fresh air was permanently fed into all areas of the TBM using an efficient ventilation system. Both the tightness of this casing and the gas concentration were monitored continuously.

The ring segments with their width of 2 meters and length of more than 4 meters were transported with an explosion-protected 24-wheel special vehicle from the Herrenknecht subsidiary Techni-Métal Systèmes. With a triple superstructure and a width of 2.5 meters, the multi-service vehicle is able to load a complete set of 10 segments. This provided the optimum supply of ring segments to the TBM with only one drive per segment ring.

The about 2.4 kilometer long twin-bore Sparvo tunnel will accommodate two lanes each, including a third emergency lane. As part of the “Variante di Valico” extension project, a busy section of the A1 highway between Bologna and Florence is being extended. This alternative will significantly reduce the travel time for up to 90,000 vehicles a day.

Photo 1:



The tunnellers celebrated final breakthrough by the record TBM on July 29, 2013.

Photo 2:



Target reached: "Martina" completed her mission in Italy's Emilia-Romagna region after less than 24 months.

Information on Herrenknecht AG

As the only company worldwide, Herrenknecht AG delivers tunnel boring machines for all ground conditions and in all diameters – ranging from 0.10 to 19 meters. The product range includes tailor-made machines for transport tunnels, supply and disposal tunnels and additional equipment and service packages. Furthermore, Herrenknecht manufactures drilling rigs for vertical and inclined shafts as well as deep drilling rigs. In the year 2012, the Herrenknecht Group achieved a total output of 1,135 million euros. The Herrenknecht Group employs around 5,000 members of staff worldwide, among them 200 trainees. With 78 subsidiaries and associated companies working in related fields in Germany and abroad, Herrenknecht provides a comprehensive range of services close to the respective project and customer.

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