



Press Release

HERRENKNECHT

Mighty breakthrough for Europe's biggest boring machine

July 17, 2020

Barberino di Mugello (FI), Italy / Schwanau, Germany

In Italy, the largest tunnel boring machine ever used in Europe successfully completed its drive in June. The supersize borer (Earth Pressure Balance Shield, diameter 15.87 meters) made by Herrenknecht in Schwanau, Baden/Southern Germany, dug 7.5 kilometers of highway tunnel through the Apennines. In cooperation with the customer, Herrenknecht designed a new system for the machine, to protect particularly the site crew from the expected methane gas deposits in the ground.

_____ On June 8, 2020, the largest tunnel boring machine (TBM) built and used in Europe crowned its tunnelling mission with a mighty breakthrough. With this project milestone, the machine from the Schwanau TBM manufacturing plant with an XL diameter of 15.87 meters completed 7.5 kilometers of particularly complex tunnelling through the Italian Apennines.

Following the specifications of customer Pavimental S.p.A., Herrenknecht designed and manufactured an EPB machine (Earth Pressure Balance Shield). Working closely with the contractor, the Herrenknecht engineers tailored the tunnel boring machine to the specific requirements of the project. Among other things, they implemented a comprehensive warning and protection system to reliably protect the site crew against potential dangers from the methane gas deposits predicted underground during the advance. This foresight paid off.

The large three-lane "Santa Lucia" tunnel newly excavated by the Herrenknecht EPB Shield is a key project in the expansion of the A1 highway between Bologna and Florence. Thanks to optimized routing on the previously winding highway, the efficient tunnel will reduce the likelihood of accidents as well as travel times and thus the gasoline and diesel consumption of tens of thousands of cars and trucks a day.

Following just 12 months of design and assembly, in August 2016 the EPB Shield was punctually ready at Herrenknecht in Schwanau for formal acceptance by the contractor and representatives of the client, Autostrade per l'Italia S.p.A. After the start of

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tunnelling in July 2017, the Pavimental miners drove up to 122 meters of tunnel per week through the Apennine mountain range with the 4,800 tonne colossus. During the long drive over 7.5 kilometers, the EPB machine with its large diameter of 15.87 meters excavated a total of around 1.5 million cubic meters of soil and rock. This corresponds to almost two thirds of the volume of the Cheops pyramid.

Italian contractors and infrastructure projects are known and respected worldwide for very large tunnel boring profiles and complex tunnel geologies. Herrenknecht is a reliable pioneer partner to them with matching expertise and innovative ability. With the production of the Santa Lucia machine, Herrenknecht beat the existing European record for TBM diameters of 15.55 meters. It had been held since 2010 by the Herrenknecht EPB Shield for the Sparvo tunnel, also for the expansion of the A1 motorway in Italy.

Project data

Santa Lucia

MACHINE / PROJECT DATA S-900 SANTA LUCIA

Machine type: EPB Shield

- › Shield diameter: 15,870mm
 - › Drive power: 8,750kW
 - › Drive length: 7,551m
 - › Geology: limestone, marl, siltstone, shale, sandstone
 - › Client: Autostrade per l'Italia S.p.A.
 - › Contractor: Pavimental S.p.A.
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Photos

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Photo 1

At the acceptance in 2016, Dr.-Ing. E.h. Martin Herrenknecht presented the XL borer to the contractor and representatives of the client.

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**Photo 2**

The largest tunnel borer in Europe measures 15.87 meters in diameter and bored a large road tunnel for the expansion of the Italian Autostrade A1.

**Photo 3**

On June 8, 2020, the Herrenknecht EPB Shield for the Santa Lucia Tunnel successfully completed its tunnelling mission.

For further information: Please contact us.

Herrenknecht AG

Herrenknecht AG 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, technologies for the installation of pipelines, as well as additional equipment and service packages. Herrenknecht also manufactures boring technology for vertical and inclined shafts as well as deep drilling rigs.

In 2019 the Herrenknecht Group achieved total output of 1,145 million euros. The independent family business employs about 5,000 people worldwide, from which circa 200 are trainees. With about 70 domestic and overseas subsidiaries and

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associated companies working in related fields, Herrenknecht provides comprehensive, fast and targeted services close to each project and contractor.

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

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