
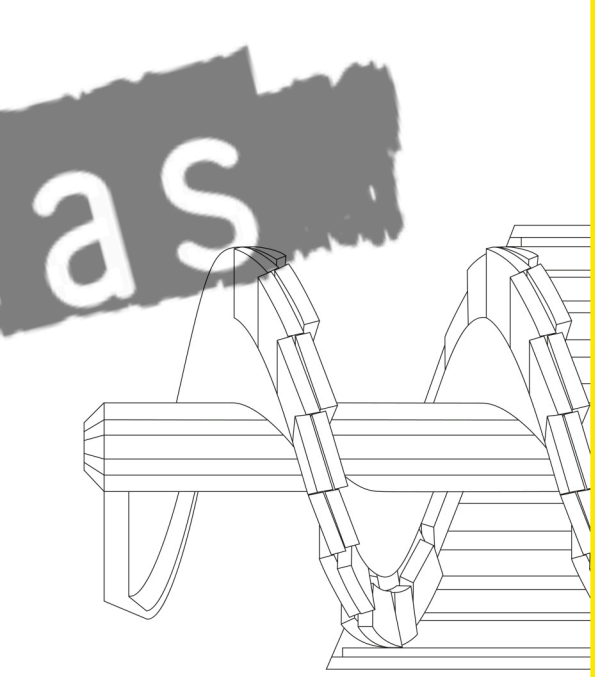




MADRID | SPAIN

TUNNEL PROJECT	MACHINE DATA	CONTRACTORS
 Madrid: road "Freeway M-30" Tunnel length: 3,650 m Geology: peñuelas and gypsum, massive gypsum, peñuelas green and grey	S-300, EPB Shield Diameter: 15,200 mm Cutterhead power: 12,000 kW + 2,000 kW	Neco Entrecanales Cubiertas S.A. Ferrovial-Agroman S.A.



# MEGA MACHINE FOR MADRID.

Never before has a larger tunnelling machine been built: with an excavation diameter of 15.20m, the Herrenknecht S-300 Earth Pressure Balance Shield for Madrid breaks all size records for mechanical tunnelling. The Spanish construction companies Neco Entrecanales Cubiertas S.A. and Ferrovial-Agroman S.A. ordered this machine in June 2004 to drive the 3,650m north tunnel for the M-30 inner city freeway. After a construction time of only twelve months, our customers were able to give final approval for the ultimate XXL-TBM at Herrenknecht in June 2005.

**W**ith a torque of 125,268 kNm, this machine really is a TBM Titan. This force would theoretically be enough to lift a fully loaded 410t Boeing 747 with a 30m long lever. That means this mega machine has the greatest torque ever installed in a TBM. In

order to maintain control of the largest drilling diameter in the world in high friction ground conditions Herrenknecht engineers have come up with a specially developed and unique cutting wheel concept for this project. It consists of an inner cutting wheel with a diameter of 7m and an outer cutting wheel working on the same plane, with a maximum drilling diameter of 15.20m.

**T**hree screw conveyors are integrated into the shield to guarantee controlled excavation and secure support at the tunnel face – another world first. From August to October 2005, this drilling giant was assembled in the launch shaft in downtown Madrid. The mega machine began tunnelling in November of this year. The total planned construction time for this pioneering Spanish project is 30 months.

For further information on the M-30 Project, visit [www.roadtraffic-technology.com/projects/m30\\_madrid](http://www.roadtraffic-technology.com/projects/m30_madrid) or order our information brochure and the M-30 animation.