



Brazil

TBM breaks through Sao Paulo's Line 4

The first stage of construction of the Yellow Line 4 of the São Paulo metro is concentrated in six stations (Luz, República, Paulista, Faria Lima, Pinheiros and Butantã), the initial construction of five stations (Higienópolis, Oscar Freire, Fradique Coutinho, São Paulo-Morumbi and Vila Sônia), the 12.8 km tunnel as well as the Vila Sonia maintenance depot.

The Faria Lima and Paulista stations will be operation in the first quarter of 2010. In the second quarter, the Butantã, República and Luz stations will follow and then the Pinheiros station in the second semester next year.

The second stage of the opening (Higienópolis, Oscar Freire, Fradique Coutinho, São Paulo-Morumbi and Vila Sônia) will be operational in 2012.

Once Line 4 is finished, it will extend 17 km along 14 stations. It will account for a probable demand of almost one million passengers daily. The financial resources for construction of Line 4 have been partially guaranteed by a loan from the World Bank and by a pool of Japanese banks led by the Japan Bank for International Cooperation (JBIC).

Consórcio Via Amarela, a consortium of constructors formed by Odebrecht, OAS, Queiroz Galvao, Camargo Correa and Andrade Gutierrez, is in charge of the works that comprise the executive project, infrastructure, raw construction, completion and complete track laying.

SELI assisted the consortium for the entire TBM equipment, which includes an earth pressure balance shield, the back-up system, the rolling stock and the tunnel conveyor. The TBM was manufactured by **Herrenknecht** under SELI specifications while the back-up and the

rolling stock will be manufactured in SELI. The tunnel conveyor was supplied by **Marti Technik**.

Building began in the second semester of 2006. The €30 million EPB shield equipment, capable of pressurising the subsoil and installing concrete rings at the same time, commenced in to dig in 2007 and made its final breakthrough on 14 August into Luz station. It built the 7.5 km tunnel between the stations of Faria Lima, Fradique Coutinho, Oscar Freire, Paulista, Higienópolis-Mackenzie, República and Luz. The shield machine utilised in the construction of Line 4 is the largest to be operated in Latin America. It has 9.3 metres of diameter and weighs 2,000 tonnes. It was operated in depths that vary between 20 and 40 metres.



Herrenknecht's EPB shield completes its São Paulo metro tunnel.

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