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Eight new LOVSUNS EPB-TBMs for Metro Tunnels in Istanbul

Huge Demand on TBM Tunnelling in Turkey

Istanbul (TR)/Toronto (CDN)/Liaoyang (CN), September 2017.

Istanbul is one of the most vibrant Metropol Cities of the world, connecting the European with the Asian Continent. With more than 14 Mio. residents, solutions for urban transportation are urgently needed and building tunnels with Tunnel Boring Machines is the first choice. After first prosperous projects for wastewater and Metro tunnels the Canadian-Chinese LOVSUNS Tunneling Canada Ltd. is again successful to deliver eight more Tunnel Boring Machines for two Metro Line projects in Istanbul.

Actually the whole Metro and urban transportation system in Istanbul comprises more than 230 km in operation and additional around 30 to 40 km under construction. Only in 2017 there is a demand of more than 20 Tunnel Boring Machines for the extension of the Metro tunnel system on the European and Asian side of Istanbul. Starting with two successful proceeded projects, LOVSUNS won the order of altogether eight more Earth Pressure Balance (EPB) TBMs for the Alarko-Cengiz and the Makyol/Ictas/Kalyon/Astor joint ventures.

Kaynarca-Pendik-Tuzla Metro Line Project

On the Asian side of Istanbul, 19.78 km double line tunnels are planned for the extension of the Metro Line M4 with the Kaynarca and Pendik stations and the connection of the M4 Kaynarca station with the Tuzla station of the B2 Line. The Alarko-Cengiz joint venture will drive 2 TBMs from the C cross section to Kaynarca station (2 x 3.2 km) and 2 TBMs from the C cross section to Tuzla station (2 x 3.3 km). For two further TBM drives from the Pendik to the Hastane station (2 x 3.39 km) there is one LOVSUNS TBM with pending order and an existing TBM is planned to use. The launch date for the TBMs is planned for February 2018.

For the ground conditions mixed geology with soft to hard and abrasive to very abrasive rock formations (quartzite, limestone, sand stone, mud stone, some abrasive quartzite, dayks and more), also some short sections with alivium are expected.

Kirazli-Halkali Metro Line Project

On the European side of Istanbul, 13.20 km double line tunnels are planned for the connection of the Metro Line M3(M1A) with Halkali station and M1B with Kirazli Bagcilar station, crossing the M9 Metro Line at Mimar Sinan station. The Makyol/Ictas/Kalyon/Astor joint venture will drive 2 TBMs from the Mimar Sinan to Kirazli Bagcilar station (2 x 2.7 km) and 2 TBMs from the planned Fatih to the Yarimburgaz station (2 x 3.9 km). The launch date for the TBMs is planned for April 2018.

For the ground conditions mixed geology with generally soft rock, mud stone, sand stone, marn, alivium and filled material are expected.

TBM specifications

Both joint ventures ordered 4 TBMs each with mixed face cutterhead, 1,200 KW main drive power, high power, torque and advance rates, unique wear protection on cuttinghead and screw conveyor as well as high screw conveyor output.

LOVSUNS Tunneling Canada Ltd.

LOVSUNS, former Lovat which was sold to Caterpillar, carried on the Tunnel Boring Business as the wholly owned subsidiary of Liaoning Censcience Industry Co. Ltd. – LNSS only one month after the Caterpillar Tunneling assets were sold to the Chinese LNSS in November 2014 with the order of the 3.9 m diameter EPB TBM to bore two wastewater tunnels in Istanbul, Turkey. Further TBM orders for several drives of the new Metro Line extensions followed. "We designed and engineered tailormade TBMs for Istanbul in Toronto and completely produced the TBMs in the facility in Liaoyang China. That means that we very successfully united the best practice, knowledge and technology of both companies for the highest advantage of our customers", explains Hongyu Xue, Managing Director of LOVSUNS Tunneling Canada Ltd.

Further information you may find on
www.lovsuns.com

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Figures:

Figure 1:



Figure 2:



Figure 1: Overview of the Urban Transportation and Metro system - European and Asian Side - in Istanbul/Turkey

Figure 2: Eight TBMs of this same TBM type for Alarko in the workshop in Toronto were sold for the extension of the Metro system in Istanbul

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