

JIMT/TERRATEC EPBM DELIVERED FOR TAOYUAN MRT GREEN LINE



As the subcontractor of JIMT, TERRATEC delivers a EPBM that will be used by DAIHO Corporation for the underground works on Taiwan Taoyuan Mass Rapid Transit (MRT) Green Line GC02.

On behalf of JIM Technology (JIMT), TERRATEC is pleased to announce the delivery of the 6.24m diameter Earth Pressure Balance Tunnel Boring Machine (EPBM) that will be used by BES-DAIHO-OKUMURA JV for its underground works contract on Taoyuan MRT Green Line Contract GC02, in Taoyuan city of Taiwan for the Department of Rapid Transit Systems, Taoyuan.

TERRATEC is a member of JIMT

Group since 2018, which is the company created by three Japanese industrial giants: IHI Corporation, Mitsubishi Heavy Industries and JFE Engineering Corp. to merge their TBM divisions, thus combining their technology and experience of over 4,000 TBMs delivered since 1939 of every type and size up to 16 metre in diameter, for both Japan and Overseas projects.

TBM was produced in

TERRATEC factory, with key components coming from Japan. The performance and quality have been evaluated as equal as made in Japan by DAIHO Corporation, Japanese contractor. In addition, TERRATEC factory complies with the requirements of Japan's Official Development Assistance (ODA) policy that Japanese technologies and/or equipment are substantially utilized. Taoyuan MRT Green Line is a rapid transit line of the

Taoyuan Metro which consists of 6 lines. The MRT Green Line has a total of 21 stations (10 underground stations and 11 stereoscopic stations), with a total length of 27.8km. Contract GC02 includes 4 underground stations with two drives of 5.4km of tunnels. The TBM initial drive is about 80 meter and will be excavating from Mayuan station to Da'nán station.

The versatile EPBM has robust spoke type with outer ring cutterheads designed to work effectively in the geology which includes sandy gravel, sandstone and mudstone that is expected on this contract at pressures of up to 2.5 bar. It is designed to smoothly discharge large boulders through the

ribbon-type screw conveyor. As the TBM progresses, they will install 1,200mm wide reinforced concrete lining rings, which consist of five segments plus a key. Muck cars will be used.

Taoyuan MRT Green Line is anticipated to complete in 2025. The City government plans to connect the Taoyuan Airport Line, the MRT Green Line, the Green Line to Zhongli, the MRT Brown Line, the Sanying Extension Line to extend the Bade section, and the underground Taoyuan Railway to form a ring-shaped track system. Through connecting the six lines, the City MRT system will provide a mass, fast and convenient travel service for the overall urban redevelopment.



TERRATEC 2ND OPEN TBM DELIVERED FOR MUMBAI'S WATER TUNNEL PROJECT

TERRATEC is pleased to announce the delivery of an Open TBM for the Municipal Corporation of Greater Mumbai's (MCGM) Amar Mahal I Tunnel Project in Maharashtra, following successful Factory Acceptance Test (FAT). The machine is now ready to be shipped to the site where contractor Soma Enterprise Limited will complete a water transfer tunnel in Mumbai, India. The first machine delivered last year is already working on the Amar Mahal II Tunnel Project and it is progressing smoothly. TERRATEC is committed to delivering TBMs on time even during tough times.

Representatives of MCGM and Soma Enterprise Limited have witnessed the FAT remotely. "I convey my thanks to TERRATEC for FAT on 17.6.21. Our Client also attended FAT virtual demonstration and conveyed thanks to team TERRATEC." says Mr. A. K. Bose, Senior General Manager of Soma Enterprise Limited.

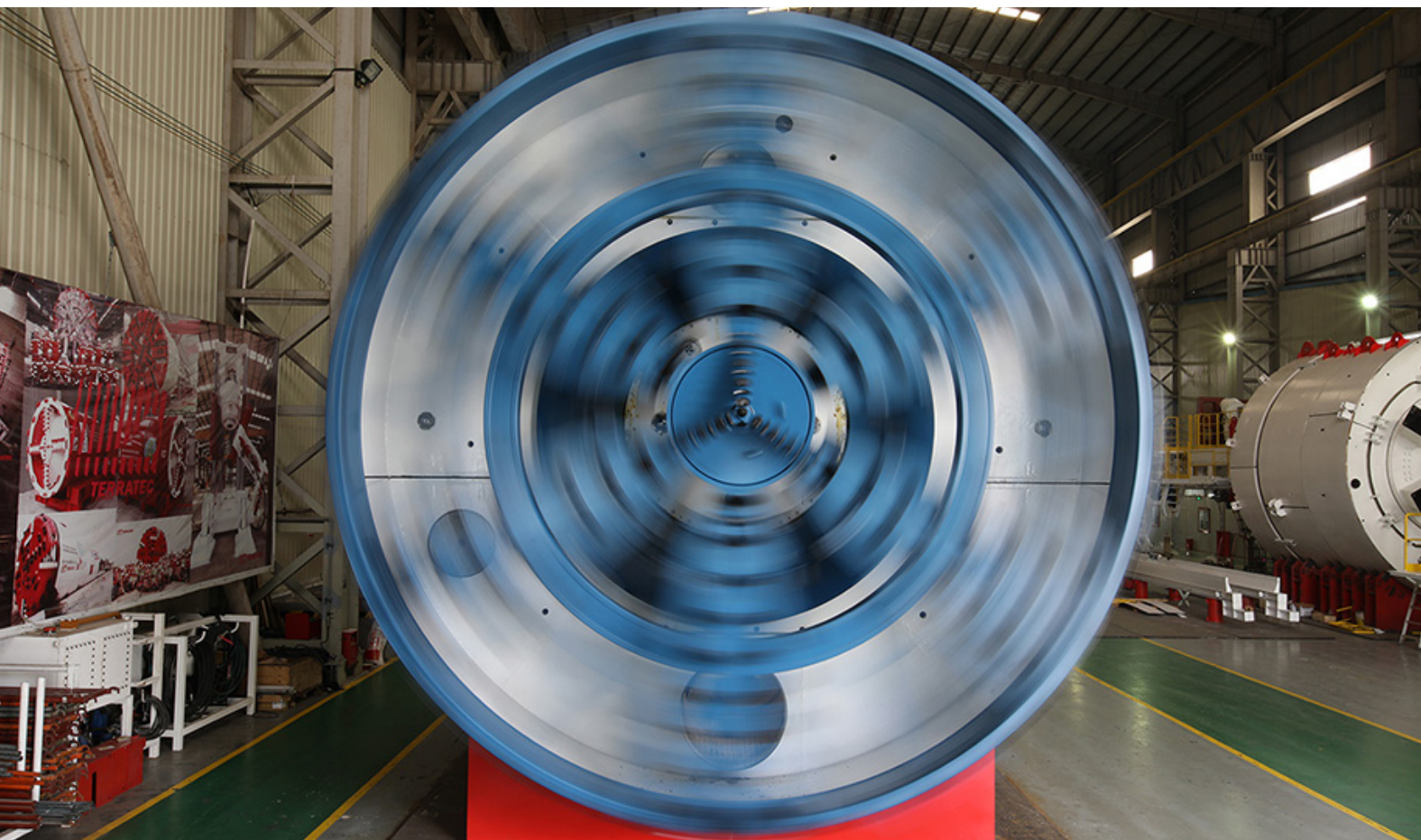
This machine is a 3.2m Diameter Open TBM designed to work efficiently in the geology expected along the project alignment. The project requires the TBM to have a modular design that allows it to be launched and potentially

received via shafts (or alternately disassembled inside the tunnel). The robust CutterHead is equipped with 18 heavy-duty back-loading disc cutters. The VFD controlled electric motors enabling the cutter head to rotate at over 10rpm with optimum torque.

To allow safe tunnelling through all the sections of the alignment, the machine has been designed with very efficient ground supporting equipment which includes a fixed probe drilling unit, two rock bolting drills, shotcrete pump and a steel arch erector.

The 3.2m diameter TERRATEC

TERRATEC delivers the new 3.2m dia. Open TBM that will be used by Contractor Soma Enterprise Limited to complete two drives for Amar Mahal I water transfer tunnel contract in Mumbai, India.





Open TBM will be deployed by contractor Soma Enterprise Limited, on the AMT-I tunnel which is one of a number of projects presently being carried out by the Municipal Corporation of Greater Mumbai (MCGM) to augment and improve its water distribution system in order to meet increased demand and ensure reliable supply.

MCGM has taken up several projects for augmentation of water sources, improvement of the distribution system and management of demand and supply. MCGM has encountered problems with leakages, contamination, encroachments, inaccessibility and several trunk distribution mains in the city are being replaced by constructing tunnels as long term solutions. The project will consist of two TBM drives totalling 9,683m in length between three shafts.

Major challenge is to assemble the TBM in a depth of 110m and the space inside the tail tunnel and the jobsite is extremely tight. The first drive runs from Hedgewar Udyan to Pratiksha Nagar and the second drive runs from Pratiksha Nagar to Parel at an average depth of 80 to 90m for water transfer.

One of the special features of the TBM is that it has been designed to be disassembled with all components being removed through the completed tunnel. The largest part is the cutterhead and this is designed with a flange that allows the cutterhead to be removed in two pieces.

TBM operation will be assisted at all times by TERRATEC's highly-experienced Field Service staff, providing quality after-sales support to ensure optimum performance and successful

project completion.

In recent years, TERRATEC has emerged as the leading TBM supplier in the Indian market. TERRATEC's continuous successes on projects such as Phase III of the Delhi Metro, Lucknow Metro, Ahmadabad Metro, Mumbai Metro and Pune Metro have been the results of outstanding tailor-made robust TBM design, prompt onsite assistance, readily available stock of TBM spares and specialised TBM support throughout the tunnelling operation.

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