

TWO MORE JIMT/TERRATEC EPBMS DELIVERED FOR TAIWAN'S TAOYUAN MRT GREEN LINE

On behalf of JIM Technology (JIMT), TERRATEC is proud to announce the delivery of two of the four, 6.24m diameter Earth Pressure Balance Tunnel Boring Machines (EPBMs) that will be used by FUTSU-OBAYASHI-CEC JV for its underground works contract on Taoyuan MRT Green Line Contract GC03, in Taoyuan city of Taiwan for the Department of Rapid Transit Systems, Taoyuan.

Japanese contractor, Obayashi Corporation has purchased a total of Four Earth Pressure

Balance Tunnel Boring Machines (EPBMs) from JIMT for Contract GC03. These first two 6.24m diameter EPBMs have been completed their Factory Acceptance Test (FAT). The remaining Two 8.38m diameter EPBMs will be delivered next year.

Earlier in April, a 6.24m diameter Earth Pressure Balance Tunnel Boring Machine (EPBM) was delivered to BES-DAIHO-OKUMURA JV for its underground works contract on Taoyuan MRT Green Line Contract GC02. A total of two

6.24m diameter EPBMs will be delivered for this contract.

Since 2018, TERRATEC is a member of JIMT Group 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.

On behalf of its group company, JIMT, TERRATEC delivers the first two of four EPBMs that will be used by Obayashi Corporation for the underground works on Taiwan Taoyuan Mass Rapid Transit (MRT) Green Line GC03.





TERRATEC TBM BEGINS WORK FOR DELHI METRO PHASE 4

On July 22, 2021, TERRATEC joined officials from Maharashtra Metro Rail Corporation Limited and workers from Gulermak-TATA Projects Joint Venture to celebrate the final breakthrough of a 6.61m diameter TERRATEC Earth Pressure Balance (EPB) Machine, named 'Mula', at Pune Metro Rail Project, in Maharashtra, India. The machine holed through into the underground Budhwar Peth Station on Pune Metro's 16.56 km Line-1 (Purple Line).

Gulermak-TATA Projects JV complete one of the twin-tube tunnels between the Civil Court Station to Budhwar Peth Station down line which is 724.6 meters in length. TERRATEC Earth Pressure Balance (EPB) Machine S79 has successfully crossed the river Mutha which was the major challenge of the project. This is the third metro project where TERRATEC TBMs have crossed a river. Last year, TERRATEC TBMs deployed by J. Kumar in Mumbai Metro Line-3 achieved a similar feat. Terratec field service team was present at the time to assist the JV to

cross the river.

In Sept. & Nov. 2020, the two 6.61m diameter TERRATEC Earth Pressure Balance (EPB) Machines, the S78 TBM named 'Mutha' and the S79 TBM named 'Mula' (named after the river Mutha and the river Mula), have broken through at the northern end of a 155-meter scissor crossover, built by the NATM at the start of Civil Court Station launched from near the College of Agriculture at the end of 2019, completing their second drives of the project. It was a great achievement

The major milestone has seen

Gulermak-TATA Projects JV celebrates TBM breakthrough on the underground works for the package UG-01 of Line 1 of the Pune Metro, in India.

Both TBMs were produced in TERRATEC factory, with key components coming from Japan. The performance and quality have been evaluated as equal as made in Japan by Obayashi 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

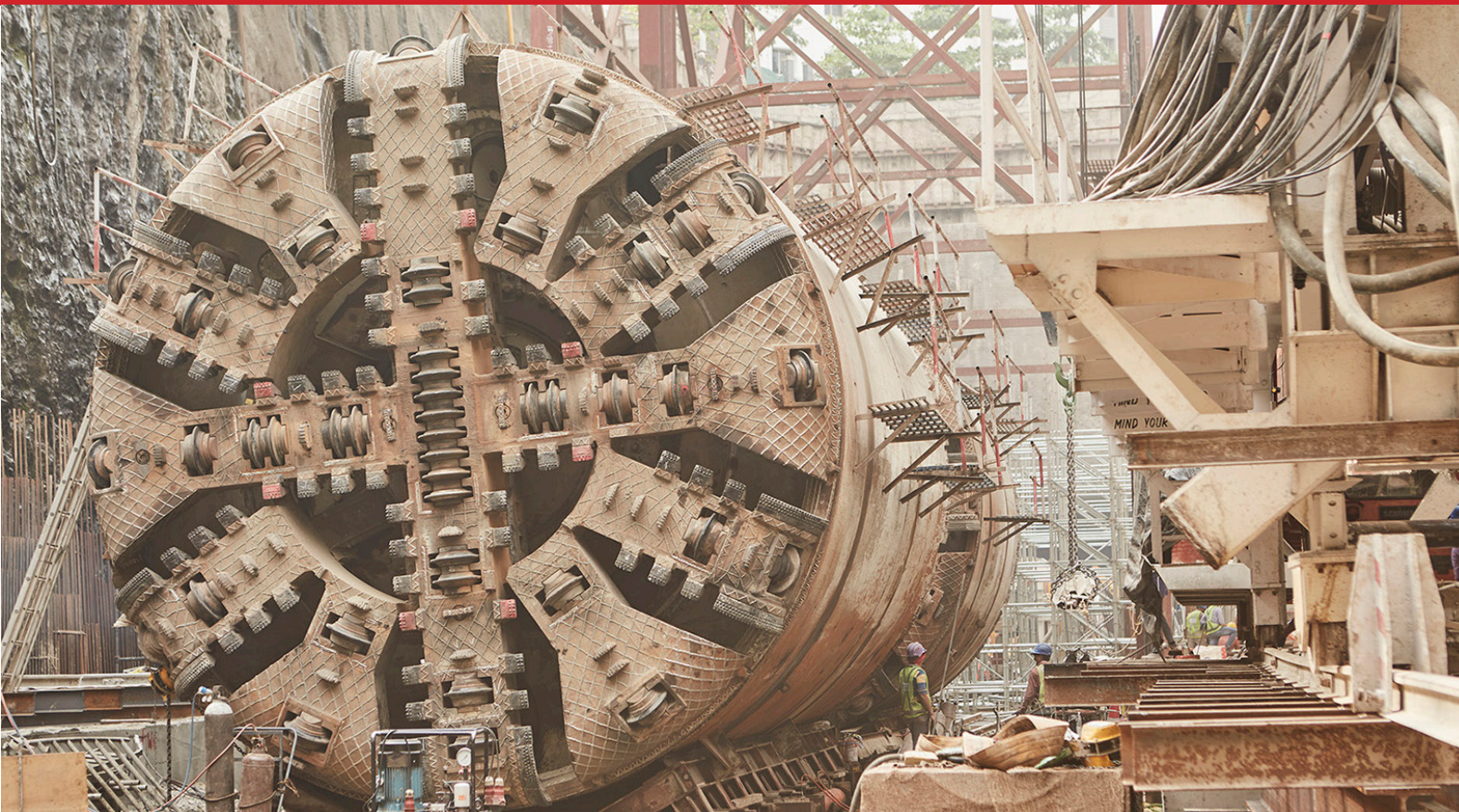
27.8km. Contract GC03 includes 3 underground stations with two drives of 2.3km of Up & down tunnels. The main drive is planned from the launch shaft and both TBMs will excavate from North end to Daxing West Road Intersection Station (G10) through Taoyuan P. Arts Center Station (G11) & Nankan Bus Station (G12). Work will start in October 2021.

The versatile EPBM has robust spoke type with outer ring cutterheads designed to work effectively in the geology which includes sandstone and boulder that is expected on this contract. It is designed to smoothly discharge large boulders through the ribbon-type screw conveyor. As the

TBM progresses, they will install 1,200mm wide by 250mm thick 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.





considering the hard rock condition and being in a densely populated area.

In 2019, Maharashtra Metro Rail Corporation Limited (MahaMetro) announced that the joint venture had won both of the twin-tube tunnel packages Line 1 and Line 2 on the new 16.56km-long north-south metro corridor. The 5km underground section – which runs from the College of Agriculture in Shivajinagar to Swargate and has five stations – is considered the most challenging portion of the line, as it passes under the densely populated areas of Kasba Peth, Budhwar Peth and Mandai market. TERRATEC was selected by Gulermak-Tata Projects JV to deliver 3 TBMs for the underground works for both packages of the new

Pune Metro Rail Project, in Maharashtra, India.

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The TERRATEC EPBMs feature robust mixed-face dome-style cutterheads designed to work effectively in the compact Basalt that is expected on these contracts with water pressures expected of up to 4 bar. As the TBMs progress, 1,400mm wide by 275mm thick pre-cast concrete lining rings will be installed, which consist of five segments plus a key.

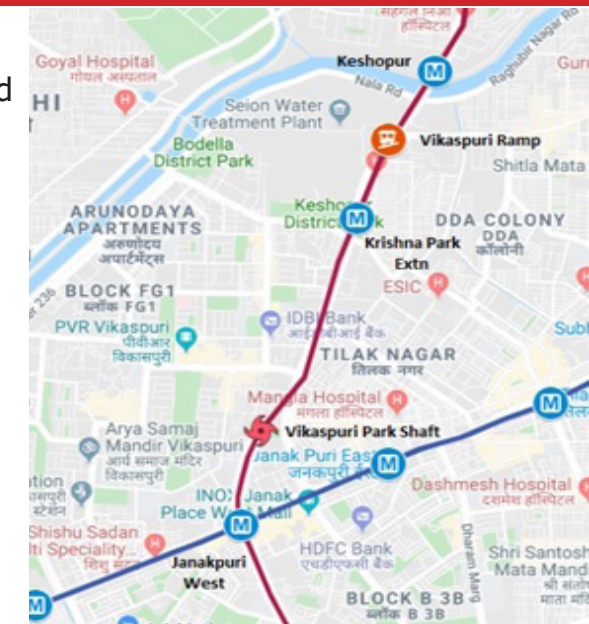
The S79 TBM named 'Mula' excavated a total distance of 84 meters below the river Mutha with approximately 10 meters cover above the tunnel crown. Earlier, both the TBMs S78 & S79 broke through in a scissor crossover cavern 155 meters in length. The TBMs were dragged and then moved to the other end of the Civil Court Station

using hydraulic jacks over a distance of 280 meters.

Meanwhile, the city's third TBM S81 has performed a site acceptance test for Pune Metro Line 1 UG-02 earlier in March at Swargate Station and will breakthrough into Mandai Station in the next weeks. Along with TBM S81, TBM S79 will then be transferred to work on package Line 1 UG-02.

TERRATEC's continuing success on projects such as Phase III

of the Delhi Metro, Lucknow Metro, Pune Metro, Ahmadabad Metro and Mumbai Metro is a result of tailor-made robust TBM design, prompt onsite assistance, readily available stock of TBM spares and highly-skilled specialised TBM support throughout tunnelling operations.



WATCH US ON YouTube

TERRATEC's S78 final breakthrough on Pune Metro Line 1 - UG-01



TERRATEC's S79 final breakthrough on Pune Metro Line 1 - UG-01



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