TERRATEC EPBMS ARE READY FOR INDIA'S FIRST REGIONAL RAPID TRANSIT SYSTEM

TERRATEC is pleased to announce the delivery of three (3) new 7.51m diameter Earth Pressure Balance Tunnel Boring Machines (EPBMs) for India's first Regional Rapid Transit System Project to connect Delhi-Ghaziabad-Meerut.

The three (3) TBMs will be used by contractor Afcons Infrastructure Ltd. to complete the tunnelling works for Package-8, Brahampuri down ramp to Begumpul up ramp section of the Delhi-Meerut Regional Rapid Transit system Project. Package 8 is consisted of a 7.12 km underground tunnel and three underground stations.

Following successful Factory Acceptance Tests at TERRATEC's facility, the TBMs will now be transported to India. Then the TBMs will be reassembled on site with the help of TERRATEC field service team.

In early 2022, the first two machines will be launched from Bhaisali station where they will pass beneath the densely residential areas and commercial buildings. Then the third TBM, will travel through an extreme right radius towards the Begampul station. The geological conditions along the tunnel alignments will be sand, silt and clay.

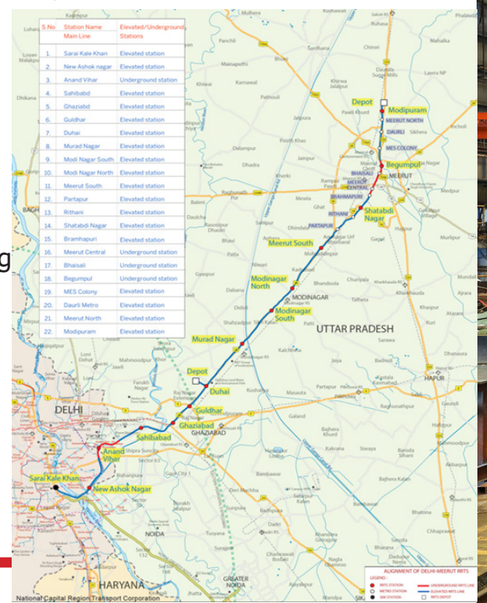
For the geological conditions expected, the contractor selected three Ø7.51m EPB Tunnel Boring Machines equipped with Dome-Type CutterHeads. For added versatility, TERRATEC has designed the CutterHead to allow the cutting tools to be exchangeable for 17" disc cutters, allowing the TBM to be able to bore through the

Afcons Infrastructure Ltd. gets ready to commence tunnelling on the Delhi–Ghaziabad-Meerut RRTS project in India.

D-walls and cope with the presence of any unexpected obstacle on its way, such as old wells or foundations.

As the TBMs progress, they will install 300mm thick x 1500mm long, reinforced concrete Universal-style, pre-cast lining rings – comprising six segments + key. Muck removal, segment transport and logistics supply will be via rolling stock using five number 45t battery locomotives (also supplied by TERRATEC).
The Regional Rapid Transit System is different from metro as it caters to passengers who are looking to travel longer distance with fewer stops and at higher speed.

The Delhi–Meerut Regional Rapid Transit System (Delhi–Meerut RRTS) is an 82.15 km long, under-construction, semi-high speed rail corridor connecting Delhi, Ghaziabad, and Meerut. With maximum speed of 180 km/h, the distance between Delhi and Meerut will be covered in less than 60 minutes. Operation of Delhi-Ghaziabad-Meerut RRTS Corridor is expected to shift the mode split in favour of public transport from 37% to 63% in the region, which eventually helps in reducing pollution. The entire 82 km long Delhi-Ghaziabad-Meerut RRTS corridor is anticipated to be operational by 2025.
TERRATEC's continuing success on projects such as Phase III of the Delhi Metro, Lucknow Metro, Pune Metro, Kanpur 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.



TERRATEC Newsletter - Q1, 2022

TERRATEC DELIVERS TWO TBMS FOR **KANPUR METRO IN INDIA**

On JuTwo 6.52m diameter TERRATEC Earth Pressure Balance (EPB) Tunnel Boring Machines have been delivered for Uttar Pradesh Metro Rail Corporation (UPMRC) for the Corridor-1 of Kanpur MRTS Project (KNPCC-05) in India.

The TBMs will be utilised by the Gulermak-Sam India JV for the execution of the tunnelling works on the first underground tunneling package (KNPCC-05) of the 32.4 km Kanpur Metro Phase 1 project's 8.6 km underground section.
Following successful Factory Acceptance Tests at TERRATEC's facilities, the TBMs will now be transported to Kanpur and reassembled for the package of the 23.8 km Orange Line-1 connecting IIT Kanpur to Naubasta which has a length of 3619 meters and includes four stations.

The contract was awarded to Gulermak-Sam India JV in Sept 2020, also includes the construction of the four new underground stations at Chunniganj, Naveen Market, Bada Chauraha and Nayaganj each 215 meters long (see map below).
The first of the two TERRATEC machines is due to be delivered to the Bada chauraha station site in early 2022, with the second TBM expected to arrive on site in March. The machines will initially be launched on twin 989.5m drives towards Naya Ganj, where they will bore through local geology consisting of soil, clay, silt and sandy silt.

For the geological conditions expected, the JV selected two Ø6.52m EPB Tunnel Boring Machines equipped with a Spoke-Type Type CutterHead

Gulermak/Sam India JV gets ready to commence tunnelling on the Corridor-1 of Kanpur MRTS Project in India.

with 57% opening ratios, which had been proven to be very efficient excavating this type of soil. For added versatility, TERRATEC has designed the CutterHead to allow the cutting tools to be exchangeable for 17" disc cutters, allowing the TBM to be able to bore through the D-walls and cope with the presence of any unexpected obstacle on its way, such as old wells or foundations.

Following the initial drives from Bada Chauraha station to Naya Ganj station– where the machines will pass beneath the densely populated areas and buildings – the machines will return to the shaft at C&C Tunnel and be deployed on their next drive towards Chunniganj. From there, the TBMs will be dragged through the station excavation for

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171 Davey Street, Hobart, Tasmania 7000, AUSTRALIA | Tel +61 362233282
11F Wharf T&T Centre, 7 Canton Road, Kowloon, HONG KONG
| Tel +852 31693660
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215m and will continue on a further drive to Naveen Market station. The TBMs will be dragged again for 215m and start their final drives to Bada Chauraha station.
As the drives progress, the machines will install 275mm thick x 1500mm long, reinforced concrete Universal-style, pre-cast lining rings – comprising five segments + key.
Kanpur is a metropolitan city in the state of Uttar Pradesh in India. The city is experiencing major traffic congestion, which is hampering the development and prosperity of the city area. The new metro will contribute to making Kanpur safer and more business-friendly. The project will contribute to climate change mitigation, by promoting a shift from road to rail while reducing greenhouse gas emissions, and speeding up social and economic infrastructure & urban development.

TERRATEC Newsletter - Q1, 2022

TERRATEC DELIVERS LARGE RAISE BORER TO INDIA

Recently, TERRATEC successfully completed the Factory Acceptance Testing of a custom TR3000C Raise Boring Machine (RBM). The event was held in the Company's workshop in Tasmania, Australia.

The destination of the machine is India. After extensive research and analysis, TERRATEC was chosen to supply this first large Raise Borer to the Indian region. "This is an important milestone that the Indian mining industry has been looking forward to for many years. To see simultaneous increases in safety and productivity through the use Raise Boring Machines for the excavation of vertical ventilation shafts, it is for many a dream come true." said Managing Director of TERRATEC India, Gulshan Gill.

Being the leading Tunnel Boring Machine manufacturer in India, TERRATEC is now expanding into the Raising Boring mining business in the country.

Manufactured at TERRATEC's workshop in Tasmania, the TR3000C Raise Boring Machine is a highly robust piece of equipment, designed for ease of operation and maintenance, providing a high level of reliability. The unit has a nominal boring size of 3.0m in diameter and 400m in depth and has a standard pilot hole diameter of 311mm.
The machine has been designed in a modular form that makes disassembly of the major components, for inspection, transport or repair very easy to achieve.

The Derrick Configuration

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.

includes a powerful near-ground loading pipe loader that results in a very low profile in relation to drill string length. Rotation is powered by a hollow shaft hydraulic motor, affording protection to the drill string when operating at near maximum capacity, as well as unrestricted flow of flushing water through the drive train into the drill pipe.

Custom features incorporated on this machine also include an upgraded proprietary gearbox design, which allows for some flexibility in alignment when raise boring and adding drill pipe.

Dip angle adjustment (0°-30° from vertical) is powered from the hydraulic power pack and can be achieved by using the layback cylinders on the diesel-powered crawler/erector assembly.

TERRATEC has numerous Raise Boring Machines currently around the world, in Australia, China, India and many countries in both North and South America. These include the company's range of Raise Boring Machines, Down-Reaming Drills and Box Holing Rigs, as well as combination of those in the form of Universal Boring Machines, all of which have been recognised for their innovative high-performance design.

TERRATEC's experienced Engineering and Field Service Teams assist mines and contractors from the planning stage, including the selection of suitable Raise Boring Machine, support for the set up and operation of the drill on site, and lifetime servicing and maintenance support through its network of regional offices.

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WATCH US ON YouTube

A video featuring TERRATEC's Annual Review in 2021.

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info@terratec.co

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