

Underground Metro gets its first tunnel digger

TUNNELLING TO BEGIN IN OCTOBER The Tunnel Boring Machine, which is imported from China, will be assembled in the next 45 days and then deployed from a Mahim launching shaft

HT Correspondent
 #htmetro@hindustantimes.com

MUMBAI: The Mumbai Metro Rail Corporation has received the first Tunnel Boring Machine (TBM) that would be used to drill twin tunnels for the 33.5km Colaba-Bandra-SEEPZ Metro-3 line. Sixteen more highly-mechanised TBMs will arrive in the city in the period of next two years to drill 51km of tunnels.

Procured from German major Herrenknecht AG, from its manufacturing facility in China, the TBM will be lowered from launching shaft in Naya Nagar, Mahim using cranes with heavy gantry of capacity of 135 tonnes.

According to MMRC, the TBM will be assembled in the next 45 days and then deployed for construction of 6.08-km twin tunnels between Siddhivinayak and Dharavi. The tunnelling is expected to start in October. The Earth Pressure Balance device will be used to construct tunnels in circular cross section around 20-25m below the surface.

"With the arrival of our first TBM, we have kicked off our tunnelling activity. In the next two years, 17 TBMs will be deployed for constructing the 33.5 km twin tunnels" said Ashwini Bhide, Managing Director, MMRC.

The TBM operator will sit in a cubicle within the machine, which reportedly has a toilet and sanitation system. S K Gupta, director (projects), MMRC, said, "Barring a few technical changes that are done based on geology, these machines are similar to what we see around the world," Gupta said.

He added that the tunnelling will start by October-end. The TBM will drive through Shitaladevi Metro Station and will be retrieved at the proposed Dadar Metro station a year later.

17 BORING MACHINES WILL BE USED FOR THE TUNNEL

The heavily-mechanised Tunnel Boring Machine (TBM), which weighs around 700-800 tonnes, will be transported to the launching site in different pieces.

It is divided in parts — front shield, middle shield, cutter head, erector, screw conveyor and tail-skin shield

17 TBMs will be deployed for tunnelling. The twin tunnels between stations will have a diameter of 5.8 m each.

A total of 51 km of tunnelling will be carried out for this project. For this, about 2.8 lakh tunnel segments will be erected.

PROCESS OF TUNNELLING

After the machine is lowered this month, it will be assembled. This process takes about 45 days. For the assembly, TBM parts such as front shield, middle shield, cutter head, erector, screw conveyor and tail-skin shield will be lowered in the shaft.

Other equipment will be assembled on surface, but would be lowered inside the shaft in stages as the TBM moves further inside the ground.

The TBM is expected to start its boring operation in the last week of October.

This TBM will drive through Shitaladevi Metro Station and will be retrieved at the proposed Dadar Metro station.

Similarly, a second TBM will be launched in the shaft for second twin tunnel after about a month.

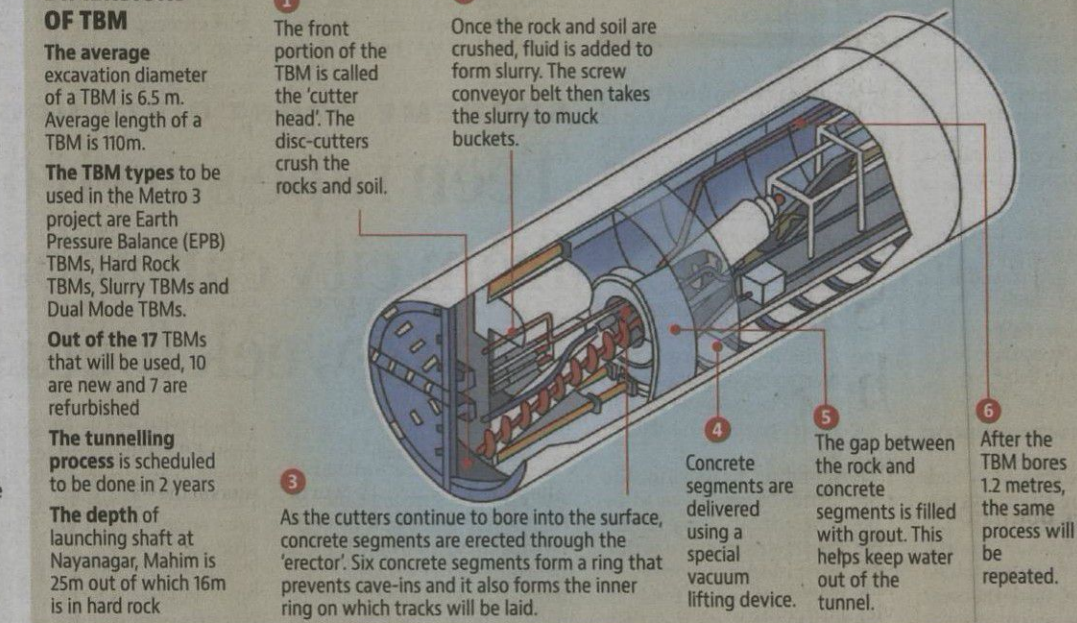
The TBM will take around a year to complete this drive

The operators working on the TBM will spend their shifts in a cubicle inside the machine. To return overground, the operators will have to hitch a ride on the wagon—that is used for transportation on narrow gauge track.

The TBM is self-sufficient, with a toilet and its own sanitation system.



■ The first TBM arrives at Mumbai Port.



TUNNEL VISION

Tunnelling work on Mumbai's most significant metro line, the Colaba-Bandra-SEEPZ Metro 3 corridor, is expected to start at various locations in Mumbai by October, after the monsoon is over. Nineteen buildings in Girgaum-Kalbadevi belt that are coming in the way of the alignment will be demolished and rebuilt nearby

METRO-3
 Colaba-Bandra-SEEPZ
33.5km
₹23,136cr
Deadline: 2020

