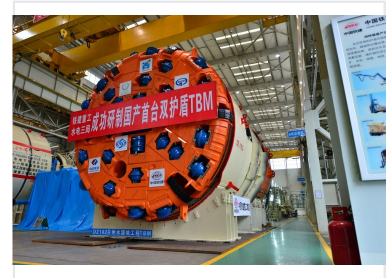


# Double Shield Tunnel Boring Machine

Double shield TBMs ensure efficient and safe tunneling in various rock conditions. These machines combine the functions of open-type gripper TBMs and single shield TBMs, enabling simultaneous segment installation and excavation in stable rock.



## ADDITIONAL IMAGES



## Overview

### High-Efficiency Double Shield TBM

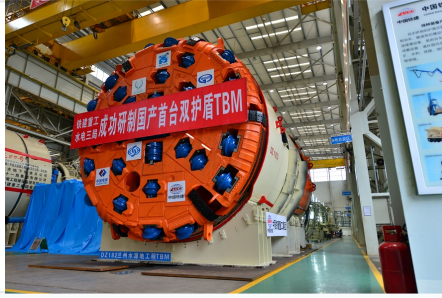
This double shield Tunnel Boring Machine (TBM) is engineered for fast and safe tunneling in both stable and unstable rock conditions. By integrating the functions of open-type gripper and single shield TBMs, it allows for simultaneous excavation and segment installation in stable geology, significantly increasing project speed. It is an ideal solution for boring long tunnels in hard rock, offering versatility through its dual-mode operation for fractured or weak ground.

## Operational Principles

### Operational Modes

- Stable Rock Mode: Simultaneous excavation and segment installation using gripper shoes.
- Fracture Zone Mode: Retracted telescopic shield acting as a single shield TBM.
- Auxiliary Thrust: Advances by pushing against segment rings in weak ground.

## Technical Features

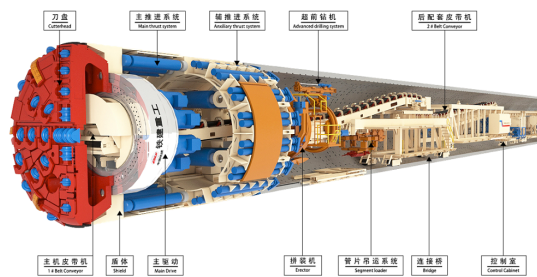


The main drive and shield assembly of a large-diameter TBM.

### Key Technical Features

- Advanced drilling system for real-time geologic mapping.
- High wear-resistant cutterhead made of Hardox or composite chromium-carbide plates.
- Double row cylindrical roller thrust bearings for long service life.
- PLC control system for real-time monitoring and data collection.
- Innovative transport system for segments and construction consumables.
- Modular shield structure for easy in-situ assembly and disassembly.

## Core Components

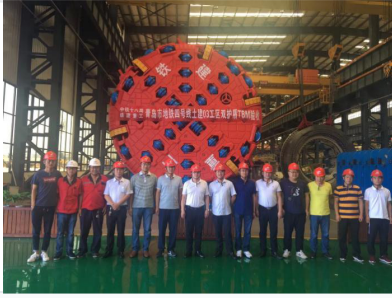


Detailed layout of the TBM including cutterhead, thrust systems, and segment handling equipment.

### Main Machine Components

Cutterhead, Main Bearing, Telescopic Shield, Gripper Shield, Auxiliary Thrust Cylinders, Segment Erector, Belt Conveyor, Control Cabinet

## Project References



Double shield TBM prepared for urban subway excavation.



Successful breakthrough of a double shield TBM on a major metro line project.

### Excavation Diameters

**6470 mm**

Max Diameter

**4030 mm**

Min Diameter

### Project Track Record

Project Type	Diameter (mm)	Units Used
Lanzhou water diversion	5490	1
Southwestern China water diversion	5560	2
Middle East water diversion	5270	1
Qingdao Metro	6300	3
Shenzhen Metro Line 8	6470	3
Gansu urban/rural water supply	4030	2
Kaliwa Dam (Philippines)	4800	1

## Applications

### Primary Applications

Subway Construction • Railway Tunnels • Water Diversion • Hard Rock Boring • Urban Infrastructure