

Herrenknecht EPB Shields

Fast tunnelling technology with a broad application range.

Earth Pressure Balance Shields (EPB) are a preferred option for soft, cohesive soils with high clay and silt contents and low water permeability. EPB Shields use the excavated soil directly as support medium. A rotating cutting wheel equipped with tools is pressed onto the tunnel face and excavates the material. The soil enters the excavation chamber through openings, where it mixes with the soil paste already there. Mixing arms on the cutting wheel and bulkhead mix the paste until it has the required texture. The bulkhead transfers the pressure of the thrust cylinders to the pliable soil paste. When

the pressure of the soil paste in the excavation chamber equals the pressure of the surrounding soil and groundwater, the necessary balance has been achieved. A screw conveyor transports the excavated material from the base of the excavation chamber onto a belt conveyor. The interaction between the screw conveyor's throughput and the TBM's advance rate ensure that the support pressure of the soil paste can be controlled precisely. The tunnel is lined with precise precast concrete segments. A remote-controlled, movable vacuum manipulator (erector) positions the segments during ring building.

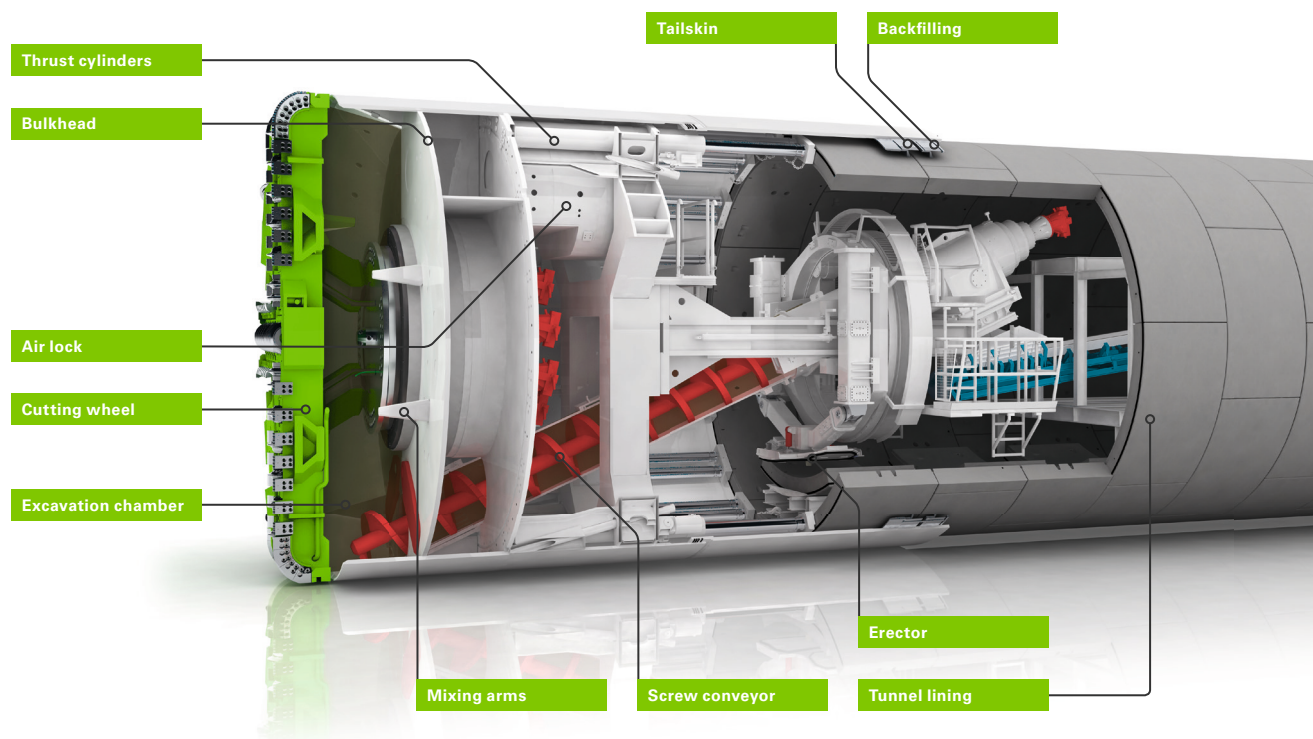
ADVANTAGES

Very high and consistent advance rates possible in cohesive soils with high clay or silt content.

Geological range of application can be enhanced by soil conditioning.

No additional support medium required.

A range of special solutions available for heterogeneous soil conditions.



EXCAVATION DIAMETERS



GEOLOGY

○ Soft ground (clay, silt, loam, low water permeability)

**PIONEERING
UNDERGROUND
TOGETHER**

