

NAVIGATE Tunnelling

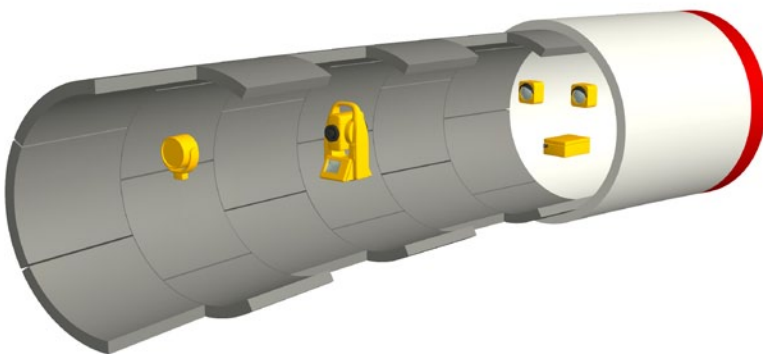
TUnIS Navigation TBM^{Prism} is a navigation system that is designed for use with EPB, mixed shield, and hard rock as well as for gripper TBMs. It determines and calculates all data and information that is necessary for navigating the TBM along a tunnel axis. Based on a total station, and two shuttered prisms that are installed in the TBM shield, with on an external dual-axis inclinometer, TUnIS Navigation TBM^{Prism} determines the current advance position.

TUnIS Navigation TBM^{Prism}

*TUnIS Navigation
TBM^{Prism} schematic*

Moreover, the system provides complete documentation of the shield run in a database. Based on this information, data may be prepared, for

example in the form of reports, data exports (CSV, XLSX) and others. All hardware components are designed for the demanding use in the tunnel. The high information content of the data displayed ensures optimum control of the machine position and thus helps to maintain a uniform shield drive with small deviations from the tunnel axis. The position and tendencies are continuously displayed to the shield operator. This allows easy and precise control of vertical or horizontal curves.



TUnIS Navigation TBM^{Prism}

A software routine provides substantial assistance in automating and reporting the relocation of the total station.

After the fully automated measuring cycle has been completed, in which the two shuttered prisms are measured and the external dual-axis inclinometer is read, the deviations and tendencies of the TBM are numerically and graphically displayed.

Features

- Field of application: Large tunnel construction using TBMs (mixed shields, EPB shields, and hard rock TBMs)
- Precise automatic calculation of the TBM position
- Display of the position data after successful completion of the measuring cycle
- Software routine for total station relocation
- PLC-connection to various types/producers

Advantages

- Cyclic position determination
- Easy relocation of the total station eliminates continuous presence of a surveyor

Options

- TUnIS Ring Sequencing
- TUnIS Navigation Office
- IRIS.tunnel Information System
- Ring Convergence Measurement System RCMS
- Ring Documentation System SDS
- Semi-automatic Tailskin Clearance Measurement System GAPtrix
- Automatic Tailskin Clearance Measurement System SLuM
- Grout Pressure Sensor System GPSS
- Telecommunication System TCS

