

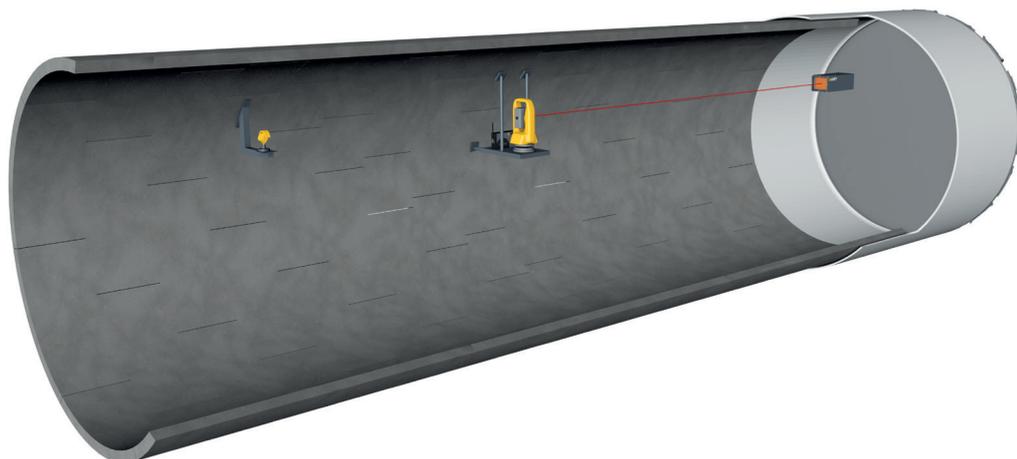
TUnIS Navigation TBM^{Laser}

TUnIS Navigation TBM^{Laser} is the solution for navigating tunnel boring machines (TBM) independent of whether it is for EPB, mixed shield or hard rock TBM and for all geometry types.

The name TUnIS stands for Tunnel and Underground Integrated Software Structure and is a software platform that forms the basis for various measurement and navigation systems from VMT. In combination with hardware components proven on the construction sites, TUnIS supplies perfect system solutions that have proved their worth for 25 years.

Precise and up-to-date. On single shield TBMs, the well-proven VMT system solution, TUnIS Navigation TBM^{Laser} determines the current advance position compared to the planned tunnel

axis with millimetre accuracy and in real time using a total station and an active laser target installed in the shield. The precise position information in real time ensures optimum control of the machine position and thus a uniform shield run with small deviations from the tunnel axis. The position and tendencies are continuously displayed to the shield operator. This allows vertical or horizontal curves to be easily and precisely controlled.



Benefits

Increased productivity

- ▣ Precise determination of position
- ▣ Reliability with the Track Assistant
- ▣ Robust hardware
- ▣ Simple operation with a clear interface design
- ▣ Software routines to make your work easier, e.g. for relocating the total station, orientation, calibration of segment reference prisms

Data storage and display

- ▣ Complete data storage in a database
- ▣ Data security with automatic backups
- ▣ Various modules for preparing data (reports, track charts, navigation history, etc.)

Self-monitoring system

- ▣ Automatic direction check of the total station
- ▣ Status of individual system components
- ▣ Monitoring of various parameters (total station level, exceeding TBM tolerance, etc.)
- ▣ Alarm using messages

Future-proof with modularity and scalability

- ▣ Project-specific solutions
- ▣ Simple adaptation of the system scope

TUnIS Navigation TBM^{Laser}

Navigation system for EPB, mixed shield and hard rock TBMs

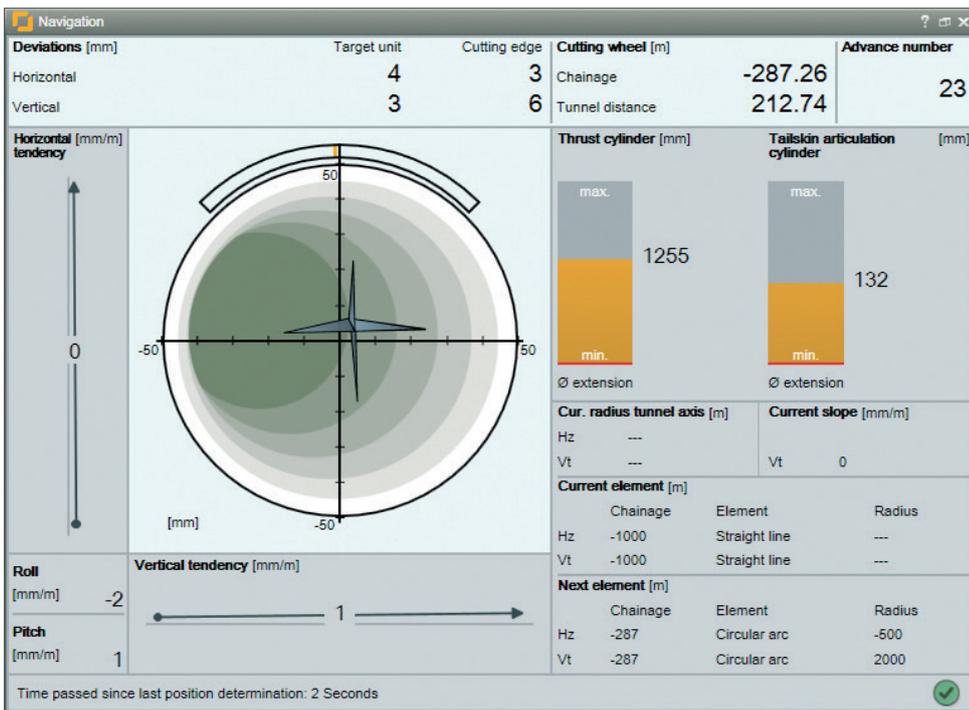


Features

- Calculation of a correction curve in the case of inaccurate driving and display of the TBM deviation to that curve
- Monitoring of segment reference prisms parallel to the advance
- User-specific display of the navigation screen
- Support for various PLC types
- Modular, easily adaptable and scalable system
- Conforms to IP65 for harsh operating conditions below ground
- Comprehensive advice and worldwide service from VMT

Redundancy with the assistance system

With the use of a Track Assistant that is automatically activated and uses complex algorithms to process the data from various sensors, it is possible for the TBM to temporarily navigate precisely without the main system, consisting of total station and laser target. Particularly for machines with limited or small laser windows, or when moving through small curve radii, this procedure is a great advantage, as even when the laser beam is temporarily interrupted, the position is continuously calculated and the total station does not have to be relocated immediately.



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