

TUnIS.moving station

TUnIS.moving station is an assistance system that enhances a laser and target-based navigation system in large diameter tunnelling. With TUnIS.moving station, the total station is not mounted on the tunnel wall, but travels on the gantry of the TBM.

Three prisms installed on the tunnel wall and an active electronic laser target in the shield of the TBM are used for exact determination of position. In the first step, the exact current position of the total station is determined using the prisms. In the second step, the current position of the laser target is determined and thus the position of the TBM.

During ring building, the system determines the coordinates of the total station (free stationing).

The total station is moving during the advance. In this phase, the TBM position is determined with the help of the assistance system **TUnIS.track assistant**.

If the total station moves too far away from the rearmost prism installed on the tunnel wall, this is removed by the site personnel and moved forwards ahead of the other prisms. As there are still three prisms present with their positions precisely determined, the system can automatically remeasure the prism moved. No surveyor is required for this. With continuing advance, this process is repeated cyclically.



Benefits

Efficient use of specialist labour

The surveyor no longer has to continuously accompany the advance on the machine, as the recurring modification of total station and console is no longer necessary. This leaves more time for working on other activities.

Material-saving tunnelling

Since heavy total station consoles are no longer required, the segments remain undamaged. The prisms can be attached quickly and easily.

Everything in view, regardless of radius

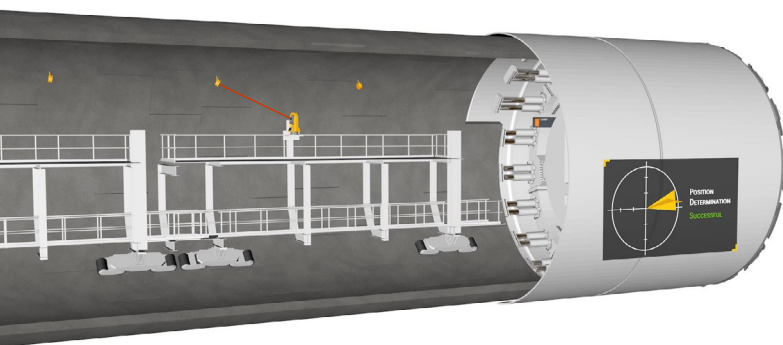
Because the total station is permanently mounted on the gantry, tight curves can be driven – without loss of sight.

Increased occupational health and safety

Simplified assembly, remote control of the tachymeter via mobile app and reduced danger of looking into the laser beam all ensure better occupational health and safety.

Optimal flexibility

Switching between TUnIS “main system” and “moving station” navigation modes is quick and easy.

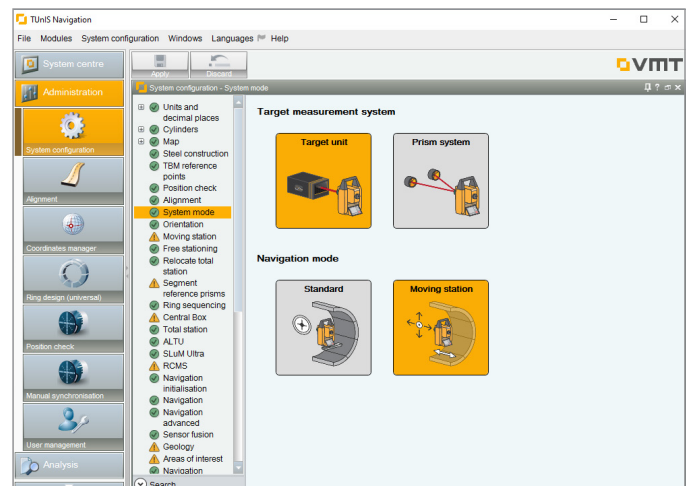
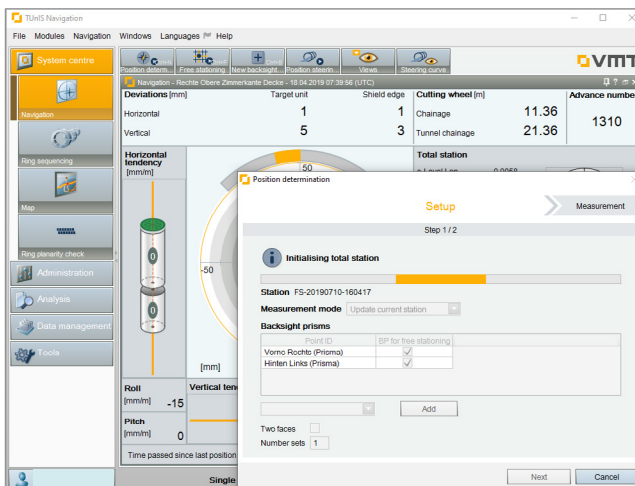
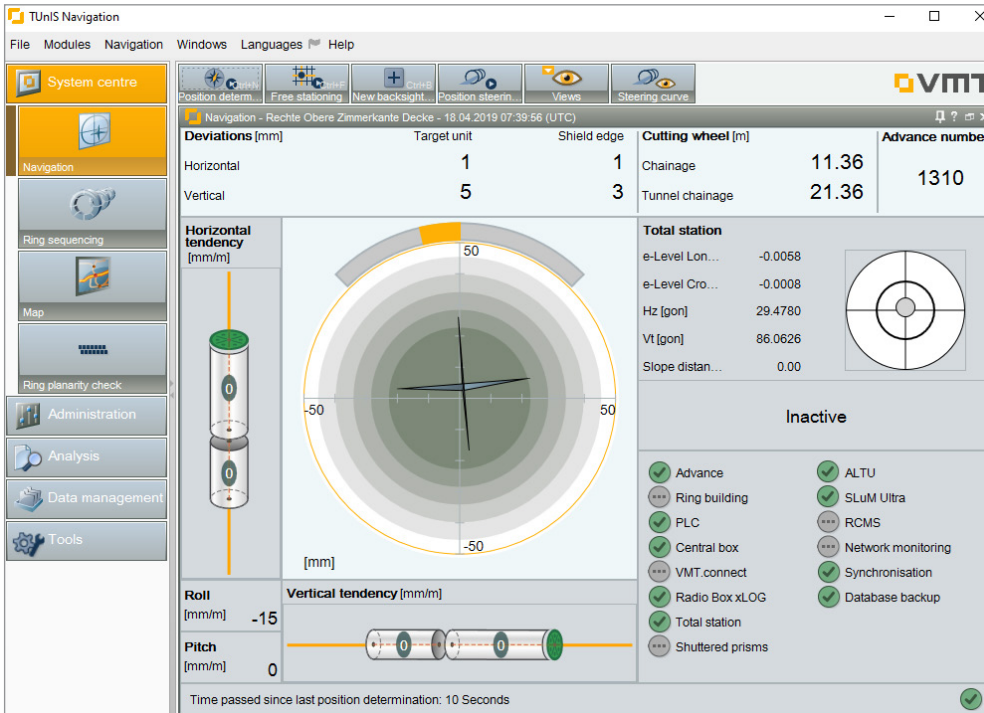


For more information, please click here:
www.vmt-innovations.com

TUnIS.moving station determines and calculates all data and information that is necessary for navigating the TBM along a tunnel axis. The high information content of the data displayed ensures optimum control of the machine position and thus helps to maintain 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.

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Screenshots of TUnIS Navigation – the common software platform for all VMT navigation systems



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- ▣ Total station at the front of first gantry
- ▣ Mounted on top of self-leveling tribach
- ▣ Short distance to laser target and shield



- ▣ Prisms glued on the segment
- ▣ No need for drilling and no risk of damages



- ▣ Easy handling of TUnIS Navigation system thanks to smart-phone TUnIS.mobile app
- ▣ Measurement of new backsight prism from a safe place next to the total station



- ▣ View against direction of drive
- ▣ Total station at the front of the first gantry inside the laser window

VMT | Your partner in tunnel building



*Navigation and supplementary systems
Large Diameter Tunnelling*



Navigation systems Microtunnelling



Deformation monitoring system



*Modular production and
logistics management system*



Process data management



Industrial measurement solutions

With its guidance systems and services, VMT has been one of the leading suppliers in tunnel construction and industrial measurement for more than 25 years. Approximately 2,400 tunnel projects throughout the world bear witness to the efficiency and innovative strength of the VMT product portfolio in the fields of navigation technology, production and logistics management, deformation and process monitoring as well as data management.

As a driving technological force, VMT has the experience, the capacities and the know-how to cope with the toughest project requirements:

Using innovative system and product solutions developed by VMT, construction companies build tunnels and shafts of every size for ever more complex infrastructure projects: the navigation systems for driving equipment, the production and logistics management system for segment production and innovative system solutions for safety, information and monitoring all play key roles here. The individual modules can be

combined into efficient, modern, networked solutions that ensure streamlined processes and seamless quality assurance for every tunnel project.

In industrial measurement, VMT develops concepts and supplies measurement equipment as well as services for manufacturing processes that have to meet the most stringent precision requirements.

Worldwide, the VMT Group employs approximately 220 members of staff – at the headquarters in Bruchsal (Germany), in its subsidiaries in Shanghai, Seattle, Melbourne and Saint Petersburg as well as in its representations in Singapore and New Delhi. VMT is part of the Herrenknecht Group, the world market leader in mechanical tunnel driving technology.

VMT Germany | Headquarters
t +49 7251 9699 0
info@vmt-gmbh.de
www.vmt-gmbh.de

VMT China | t +86 21 50750276 | info@vmt-china.com | www.vmt-china.com
VMT Australia | t +61 1300 553 905 | info@vmt-tg.com.au
VMT USA | t +1 253 447 2399 | info@vmt-us.com
VMT Russia | t +7 812 677 79 74 | info@vmt-iiit.ru
VMT Singapore | t +65 659 057 19 | info@vmt-singapore.com
VMT India | t +91 987 129 22 00 | info@vmt-india.com

