TUnIS Ring Sequencing

If pre-fabricated concrete segments are used for the tunnel lining, not only the determination of the current TBM position is important but the room available in the tail skin and the optimal orientation for the most appropriate ring type must be defined as well as the expected shield drive for the advance.

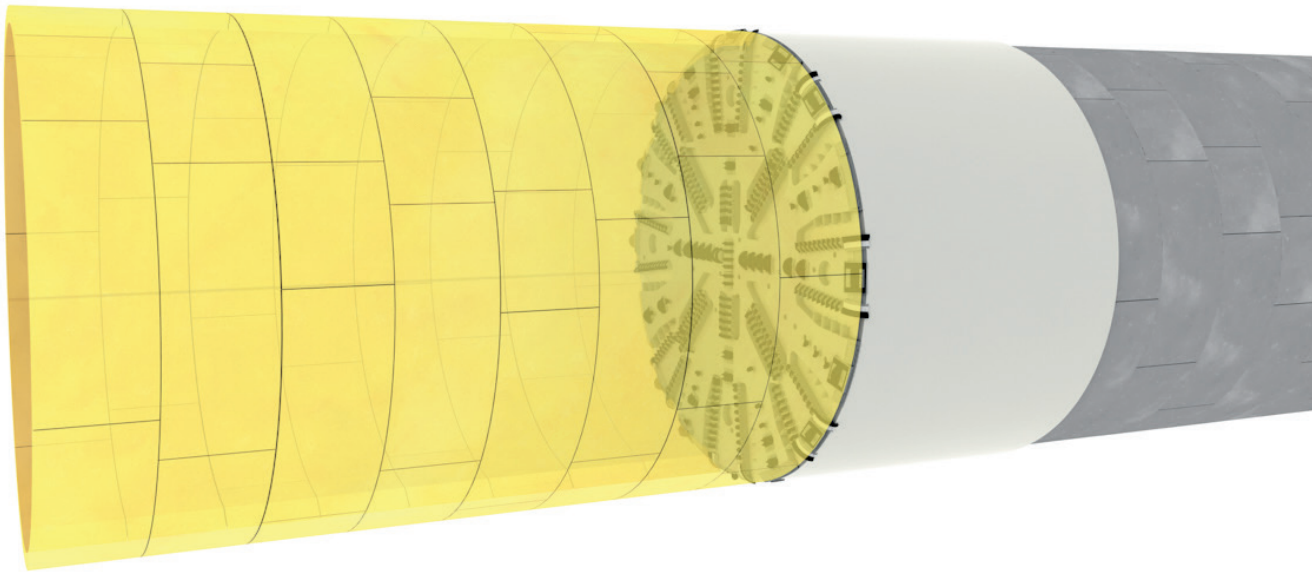
This is even more important using tapered rings which are most suitable for alternating curved and straight tunnel alignments. The optimal ring positioning is a decisive part of the tunnel boring process. Depending on the selected ring rotation, the next ring will have a specific build direction which should ideally follow the shield axis to avoid damage to the inner and outer side of the concrete segments.

Based on the ring position TUnIS Ring Sequencing provides an anticipatory calculation of ring sequencing, taking into account the actual TBM position.

In addition to the TBM position the ring sequencing calculation has to consider further influencing factors such as the course actually driven by the TBM, main shove ram extensions and tail skin clearance values. The TUnIS Ring Sequencing manages these requirements in two ways: First of all the system has an inbuilt learning system to incorporate the experiences, already gained during the construction progress, into future calculations. Secondly it is possible to establish terms that will influence the result of the calculations by flexible configurations. This considers not only the planned project preconditions but also unexpected events.

Benefits

- Calculation of optimum ring orientation in advance ensures that the ring sits as centrically as possible in the tailskin, **preventing serious damage** to tailskin and segments
- The system ensures that the thrust cylinders are evenly extended and that there is **no excessive strain** on and resulting damage to the segments
- By calculating several rings in advance expensive **incorrect deliveries can be avoided**, especially in case of complex ring designs with different ring types
- As ring orientation is already calculated before the end of tunnelling, the ring can be constructed **without loss of time**



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The optimum ring sequence calculated is visualised in the module both graphically and numerically. The user is also given a graphical illustration and justification for the selection criteria specially for the next ring to be built.

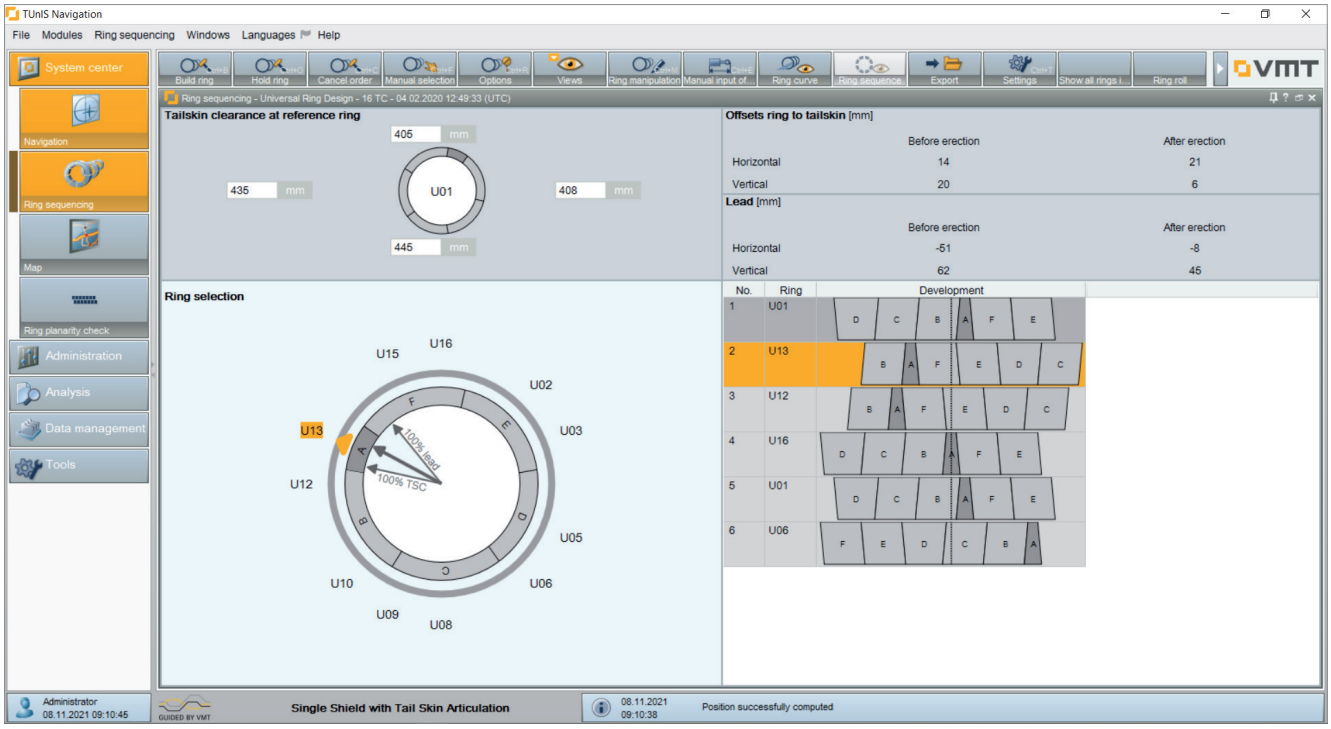
The combination of TUnIS Navigation Systems and TUnIS Ring Sequencing enables a definite calculation of the ring build position. In spite of more complex machine geometry the precise acquisition of tail skin axis as well as of the ring position is guaranteed.

Advice and competence from VMT

You won't be alone in the configuration and operation of TUnIS Ring Sequencing. We offer competent and continual support, with over 25 years' experience and more than 2,400 tunnelling projects successfully completed worldwide.

Features

- Field of application:
  TUnIS Navigation Systems for tunnelling with segmental lining
- Automatic and forward-looking ring sequence (max. 10) calculation, taking into account current machine and advance parameters (such as TBM position, cylinder performance, tail skin clearance)
- Specification of installation position of next ring, taking into account the current TBM journey



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