MANAGE
Information

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.

TUnIS Ring Sequencing

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 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.

VMT

TUnIS Ring Sequencing

The calculated optimal ring sequence will be visualized graphically and numerically. The selective criteria special for the next ring to build are shown and explained graphically to the user.

Advantages

- Anticipatory calculation of ring sequence considering many parameters
- "Inbuilt learning system" which incorporates automatically the experiences, already gained
- Relief of work as intelligence is in software
- Minimization of risks
- Consideration of loading sequences
- No delay between advance and ring building process

Features

- Field of application: TUnIS Navigation Systems for tunnelling with segmental lining
- Automatic ring sequencing calculation considering many parameters
- Generation of several ring reports
- Process optimization by ring selection before end of advance
- Manual selection of several rings in series
- Creation of ring reports
- High precise determination of all built ring positions

The combination of TUnIS Navigation System 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 of the ring position is guaranteed.