

TUnIS Positioning Shutter

TUnIS Positioning Shutter is a new solution for automatic, real-time positioning of vault and full round tunnel shutters. The system enables monitoring of the shutter position even during pouring and curing. The measurement is based on camera sensor units.

TUnIS is a VMT proprietary software platform that forms the basis for various measurement and navigation systems. In combination with our self-developed hardware components, TUnIS provides high performance system solutions that have proven their reliable functioning and user benefits for nearly 3 decades.

Precise and up-to-date. On vault or full round shutters, TUnIS Positioning Shutter determines the current position of the shutter compared to the designed block axis highly precise and in real-time. To this end the system uses camera sensor units installed at the frame connected to the shutter cap. The precise position information in real-time ensures optimum control of the machine position. Additionally, it offers a monitoring function during pouring and curing: the position and roll are continuously displayed to the operator. This allows an exact vertical and horizontal set-up that can be easily and precisely controlled.



Benefits

Accelerated workflow

No setup of total station or other iterative measuring process needed. As soon as the shutter is close to the block join all correction values required will be calculated and displayed.

Digitalisation

No paperwork or rework in the office needed. The final shutter position will be stored in the TUnIS database and can be exported and reported in digital format anywhere and any time.

Automated surveying

Almost every positioning task is automated: the system can be used as a basis for automated alignment of the shutter, which will make the positioning process even faster, of higher quality and safer in the future.



Features

- Full automatic position determination in relation to designed tunnel axis
- Real-time position determination due to camera technology
- Easy-to-understand display of the correction values for different dimensions (chainage, hz., vt., roll/cross section slope)
- Monitoring during pouring and curing phase possible
- Digital reports of final shutter position
- Available for pouring modes row (one shutter) and gap (2 or more shutters)
- Obtainable for different types of shutters (vault and full-round)



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New positioning system for vault shutter, full round shutter in sequence or miss and hit method.



Case study: Greenwich Tunnel | Thames Tideway

Measurable Added Value

Programme savings | 1 hour > 8 min

Considering the roll of the shutters, traditional setting without the VMT system proved to be difficult, taking up to one hour per shutter.

Labour savings | 1 surveyor less per shift

Surveyors on call only, doing regular checks of the setting of the shutters, not part of the cycle anymore.

Quality improvement

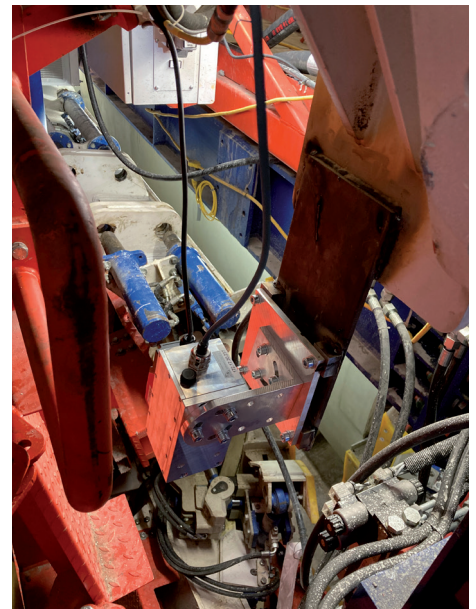
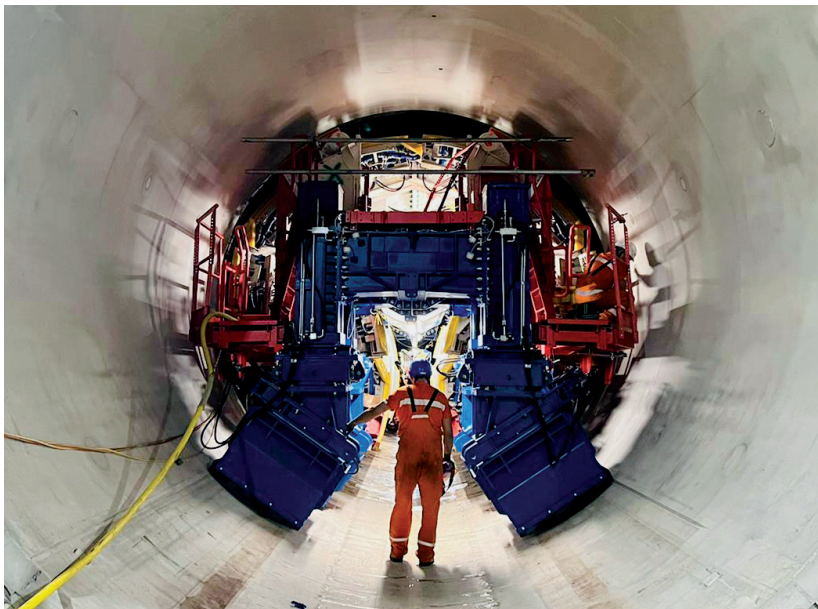
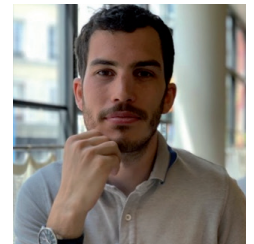
With the continuous monitoring, the position of the shutters can be checked at all times, thus improving the accuracy of the setting.



“The team is really satisfied with the system with great improvement on the programme, quality of the secondary lining, and resources required to set the shutters”

Antoine Remy

Antoine Remy, Secondary Lining Manager, CVB (Costain | Vinci | Bachy Soletanche)
Project: Thames Tideway, Greenwich Tunnel



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 Singapore | t +65 659 057 19 | info@vmt-singapore.com
VMT India | t +91 987 129 22 00 | info@vmt-india.com
VMT Spain | t +34 91 359 8008 | info@vmt-spain.com


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