

## TUNNEL HEADING GUIDANCE WITH MOTOR LASER SYSTEM

A motor laser system is an automatic, geodetic measuring system, which independently processes different measuring tasks throughout the tunnel drive. Dibit MLS consists of a total station (Leica series 1200) with automatic target detection and reflectorless distance measurement. The electricity supply occurs about a power pack (t-box), where different communication solutions (W-LAN, radio modem, serial

interface) can be attached to enable the remote control of the total station. The operation is carried out by a small field computer (Toughbook Panasonic), where the software for the motor laser is installed. The Toughbook communicates with the total station via W-LAN junction and is easily controlled.



### APPLICATIONS

#### Advance Stakeout / Survey

- stakeout and display of survey points for single bores and drilling patterns
- visualization and stakeout of the actual profile
- visualization and stakeout of lattice girder
- visualization and stakeout of pipe umbrella



#### Profile Check

- check of excavation profile
- check of position of lattice girder
- check of shotcrete profile



#### Device Positioning and Equipment Guiding

- drilling vehicle / drilling beam
- tunnel scanner
- shotcrete mobile
- tunnel saw
- road header



### DIBIT SOFTWARE

- automatic allocation of the total station to the respective drive
- automatic orientation check
- automatic assignment of roadhead or construction arch stationing
- automatic calculation of tracing data based on the defined tunnel geometry
- menu-driven user guidance
- predefined steps for different applications
- logging of measuring data and stakeout coordinates

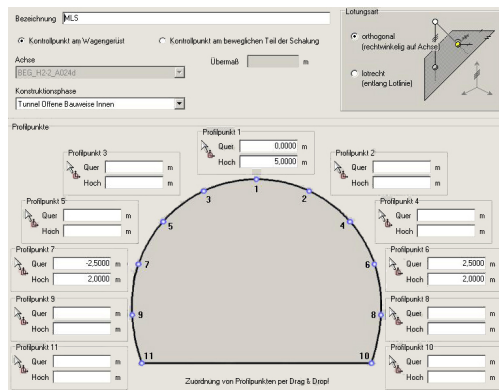
### HARDWARE

- application of total stations with high precision, e.g., Leica TCRA 1205
- t-box power pack with clearly arranged selection
- operation with a sturdy industrial PC, e.g. Toughbook Panasonic
- ergonomic user interface by means of a touchpad
- console for total station mounting
- electricity supply 220 V or 110 V



## OPERATION PROCEDURE - SETUP CONSTRUCTION ARCH

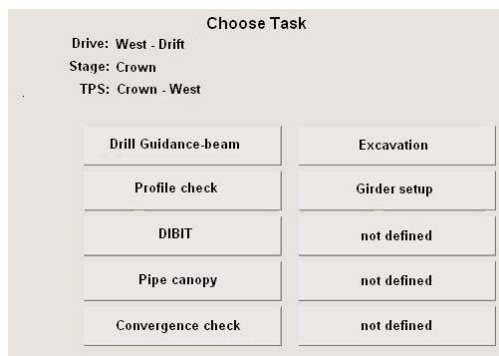
Stakeout - Setup - Profile Check



### Select Survey Task

The software MLS is installed on the field computer and enables the user to select from predefined survey tasks.

The required functions for advance definition, allocation of geometry, system configuration and USER authorization is provided by the office module MLS. The office module MLS defines display, trace and check of relevant compulsory points (e.g. arch joints) for the respective survey task.



### Implement Survey Task

After the survey task is selected, the user is automatically guided through the menu.

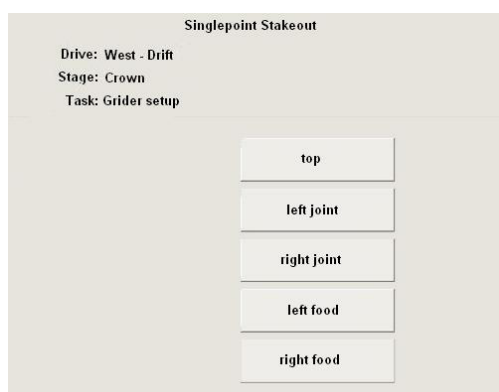
For example: Setup construction arch

First the actual stationing of the arch is defined. Afterwards the control points are calculated and the operator can start with visualization and stakeout of the control points.



### Advantages

- Easily + Simply Operable  
Big symbols on the Touchpad of the field computer enable an easy operation also with protective gloves
- Precision  
by automatic orientation check
- Cost saving  
The simple operability allows excavation foremen to implement predefined survey tasks at any time. The surveyor only implements setup and daily check of the MLS.



### System Components

- total station
- radio modem / bluetooth
- toughbook

