*messtechnik*

OPTICAL 3D DISPLACEMENT MONITORING

Optical 3D displacement monitoring is a geodetic measuring method, which defines the absolute, spatial position of strategically placed targets, which are firmly connected to the structure to be monitored. By repeated measurements of the 3D measuring points, time dependent diagrams can be produced, which desribe the deformation behavior of the structure measuring points with precision. The method was developed for geotechnical measurements (GTM) of rock behavior in tunnelling. The dibit GTM system consists of hardware and software components which allows precise, quick and easy measurement and data evaluation of the 3D measuring points.
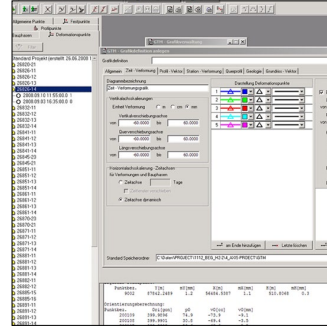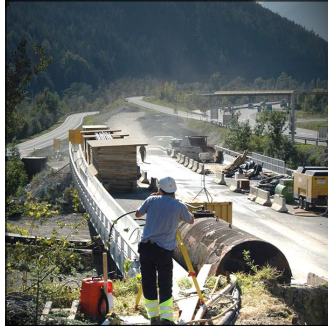
APPLICATIONS

Tunnel

- ☐ rock deformation
- ☐ subsidence
- ☐ deformation rates

Excavations, Shafts and Slope Movements

- ☐ monitoring of bulkheads, drilling pile-walls diaphragm walls and shotcrete retaining walls
- ☐ monitoring of shafts
- ☐ monitoring of buildings and structures in the area of potential settlements due to excavation

Civil and Industrial Construction

- ☐ monitoring of bridge fender units, bridge piers and base plates
- ☐ monitoring of retaining structures
- ☐ monitoring of walls, ceilings, beams and tower constructions


DIBIT SOFTWARE

- ☐ automated data transfer of trigonometric data to GTM-Software
- ☐ calculation of point coordinates
- ☐ supports chain evaluation of linked total-station-standpoints and calculation of new points
- ☐ data base - supported administration of data points, cross sections and projects
- ☐ user friendly handling
- ☐ various visualizations of data and construction progress

HARDWARE

- ☐ use of total stations with high precision, e.g., Leica TCA 1201
- ☐ adapter mounting for dowels or rock bolts
- ☐ bireflex targets and glass prisms targets with highest accuracy
- ☐ target mounting on adaptors with predetermined breaking point

RESULT REPRESENTATION
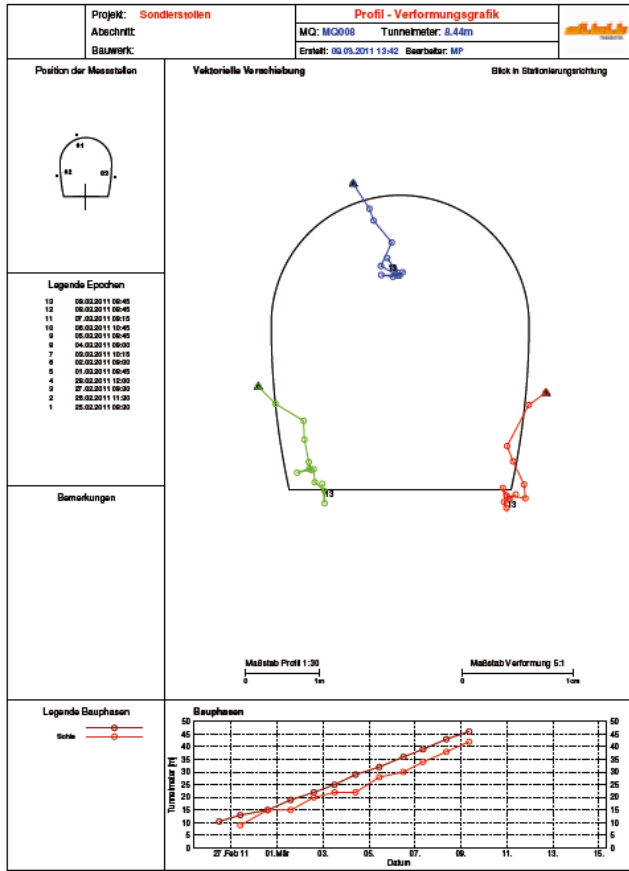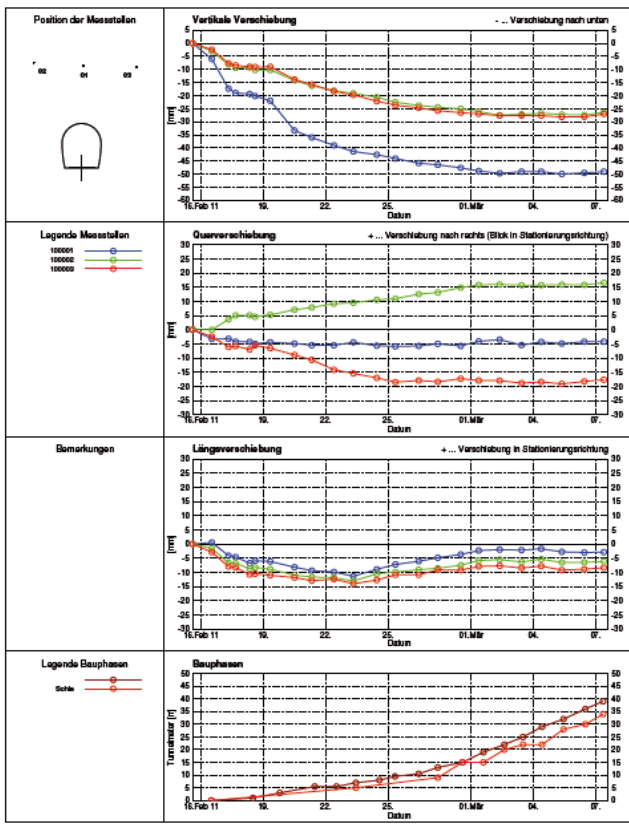

Cross Section - Related Representation

The cross section representation, including a time-displacement-diagram for multiple 3D measuring points, displays the deformation behavior of 3D measuring points in a defined cross section. The deformations are shown as vector diagrams for each 3D measuring point in different colors. Coordinated with construction phases, improved interpretation of the measurement is possible.

Time-Dependent Representation

The displacement-time-diagram for multiple 3D measuring points displays the deformations of 3D measuring points over time. The deformations are shown as deformation lines for each 3D measuring point in different colors along the time axis.

Advantages

☐ fast measuring sequence:
minimal disturbance of the mining crew

☐ simple data evaluation

☐ precise results:
attainable accuracy under optimal conditions
+/-1 mm

☐ various depiction possibilities:
facilitate the interpretation of the measuring results by the expert engineer

Marking Material

www.dibit.at