

Profile checks

date: 06/2008

HIGHLIGHTS

- Application of state-of-the-art profile measuring systems, matched to the project-specific requirements
- Discrete or area-wide determination of various profile surfaces, utilising flexible measurement arrangements
- Online results, or quick availability of the results by way of problem-oriented displays and visualisations
- All components of the software system under one roof
- Cost savings through targeted measuring system applications



Permanent profil checks guarantee an optimised excavation profile for all construction phases

Field of Application

Tunnel and underground construction

Through various profile measuring systems, GEODATA offers flexible possibilities for carrying out profile checks in tunnel construction. These systems deliver discrete points or area-spanning surveys for comparing planned against actual conditions. The results can be displayed for quick checks of profile shape work on site, or on measurements accompanying construction work to control and monitor individual construction phases, comparing them against each other (e.g. measurements of thickness), or checks on adherence to specified dimensional allowances.

Our motor laser system can already be used for tunnel heading control to perform profile measurements for accurate set-up of the supporting arches and for documentation. By means of profile measurement data on surfaces, the manufacture of the inner concrete shell can, for instance, be optimised to achieve enormous cost savings.

In combination with Construction and driving surveying, valuable synergies can be achieved.

Profile checks

Applications on surface

Mainly laser scanner measurements are deployed here, which we use to survey quarries and landfills of all types for instance, for monitoring and control purposes. The surveys are used mainly to compute masses and for cubature calculations.

As a service, GEODATA offers profile measurements matched to the specific project situation and offers all the required components.



Scanner-measurements in a gravel pit

Description of Services

The 3-dimensional coordinates in discrete form (theodolite measurements), or as a cloud of 3D points (scanner measurements on a grid of 1 cm x 1 cm or larger), are determined using state-of-the-art and flexible methods on a variety of surfaces, in an absolute reference system (project system).

This is achieved by recording a number of reference points which are considered stable in the survey. The measuring instrument is positioned to provide the best possible lines of sight to the target points or target surfaces, using the free stationing principle.

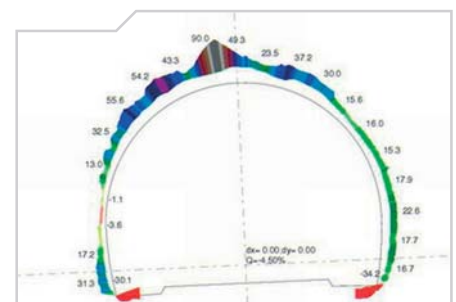
The captured measured values are displayed either online (KRIOS system), or transferred to an analysis computer and processed using the EUPALINOS software (theodolite measurements) or DEDALOS (scanner measurements). The results (profile plots, tunnel tapes, optimisations etc.) are presented in diagrammatic or tabular form.



An accurate excavation profile avoids additional costs for concrete work

User Advantage

- Capturing from discrete points to clouds of 3-D points in the project coordinate system, with the ability to capture and manage large volumes of data at high information densities
- Representation of graphs as profile sections or as tunnel tape surfaces as the essential basis for monitoring and controlling the construction process
- Short measuring times through deployment of cutting edge technologies and experienced staff
- Possibility to adapt the visualisation to cater for project-specific particularities



Display of the comparison between raw-excaation and shotcrete shell as a result from scanner measurements

Profile checks

Scope of Services and Delivery

The scope of our services includes the execution of profile measurements using our own staff together with other services or as only service, in each case either in parallel with the construction or at intervals to cater for different construction phases. With major international projects in particular, hardware, software and key staff are often provided. The implementation could then follow after appropriate training of staff made available by the customer.

The following other data sheets are associated with this data sheet.

Software: *EUPALINOS Surveying Software*
Systems: *KRIOS Online Setting-Out and Profile Measurement System*
 TALOS III Motor Laser System
 ORTHOS Laser Tunnel Scanner