



EUPALINOS

TUNNEL SURVEYING SOFTWARE

HIGHLIGHTS:

- Highly Sophisticated Surveying Solution
- Offers All Necessary Computations for Underground Construction
- User-friendly and Clear Menu Structure
- Extensive Graphic Functions
- Management of Planning Data

FIELD OF APPLICATION:

The EUPALINOS software package offers a high-performance tool for the solution of all geodetic tasks in the fields of tunnel construction and geotechnics.

EUPALINOS has many functions for management and processing of project, measurement and point data and enables, via fully implemented data flow starting from registered observations, the fast and simple compilation of different analyses such as profile controls, geotechnical displacement diagrams, setting-out data, etc.

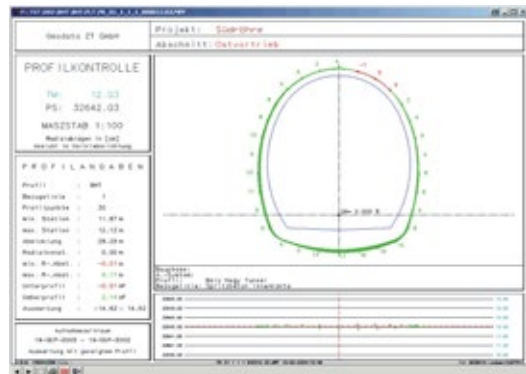
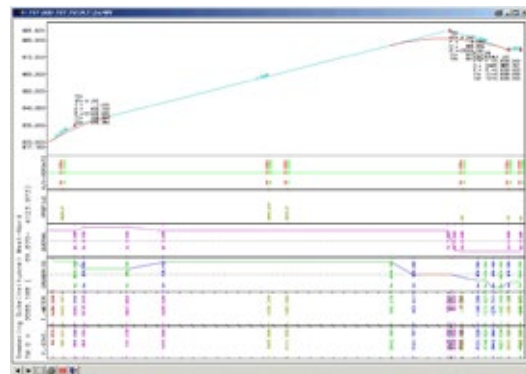
The analyses, diagrams, protocols and calculations created in this way form the basis for tunnel heading surveys, control measurements and geotechnical interpretation of the rock mass behaviour.

The integration of the wide range of functionalities in the system deserves special recognition. All the EUPALINOS functions are available at all times, which significantly increases the flexibility of various applications.



PROGRAM DESCRIPTION:

- Project-related data organisation
- Arrangement of all functions in clear structure
- Implementation of the functions via user-friendly dialogues
- Numerous ASCII interfaces for data input and output
- Management of all design data (axes, standard cross sections etc.) and parameters
- Testing the design data (axis elements) for consistency
- Visualisation of the design data (profiles and axes)
- Checking of the axes data via integrated alignment calculations
- High-performance functions for handling of standard cross sections (interpolation, profile offset, etc.)
- Preparation of all graphics (displacement diagrams, profile checks, etc.) via meta files (-> placing on-site networks or dispatch via e-mail), in WMF or PDF format
- Easy and simple analysis of trigonometric and levelling observations
- Automatic allocation of point numbers during analysis to facilitate and speed up surveying work
- Analysis and graphical preparation of profile checks, including cubature calculations
- Extensive setting-out functions for excavation and inner lining (e.g. conventional laser cut-off, block gap calculation, 3D setting-out of profile related points)
- Analysis of geotechnical measurements with respect to time vs cross-section and tunnel advance



DATA MANAGEMENT:

- Differentiated management of points according to their purpose
- Extensive management functions for reference, object and profile control points
- ASCII data interfaces for input and output of large quantities of data
- 2D and 3D transformations
- Transfer of points from and to the total station for direct setting-out



ANALYSIS:

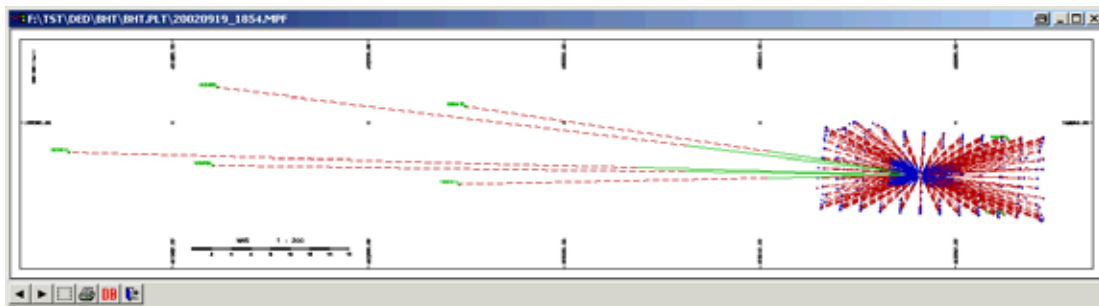
- Fully automatic analysis of tachymetric measurements and levelling by means of a special coding system
- Automatic allocation of point numbers (not necessary to enter the correct point numbers of the reference points)
- Differentiated treatment of position and/or fixed elevation points with respect to their accuracy, in the course of the analysis
- Determination of the locations through free stationing (1D, 2D or 3D)
- Analysis of complex geotechnical measuring arrangements with several instrument positions via strict compensation for position and elevation
- Graphical representation of observation configurations (network plots with error ellipses)
- Detailed protocols of the calculations
- Fully automated storage of the results in the database through allocation of corresponding measuring codes
- Powerful equalisation module for the calculation of position and/or elevation networks with automatic computation of approximation coordinates and error finding algorithms for correction of allocation errors (point number confusions, etc.)
- Extensive possibilities for net datum through transformation and "soft positioning" and differentiated weight approaches
- Combination of trigonometric and levelling networks, incorporating gyroscope azimuths and plumbing, for strict net adjustments of net sections above and below ground (shafts)





TUNNEL HEADING CONTROL:

- Profile recording manually (without reflector or with profiled disk), program controlled via total station or online via an industrialised control computer
- Strict orthogonal profile recording for expansion sections
- Use of arbitrary reference lines within a profile
- Automatic consideration of lay-by sections through profile interpolation
- Calculation of over and underexcavation (cubature)
- Graphical output via meta plot files or PDF (for e-mail dispatch)
- Interface to KRONOS monitoring database



BENEFITS:

- ▲ Management of all necessary design data such as axes in the ground plan and vertical projection, standard cross sections, profile points, etc.
- ▲ Powerful equalisation module for the calculation of position and/or elevation networks with automatic computation of approximation coordinates and error finding algorithms for correction of allocation errors (point number confusions, etc.)
- ▲ Extensive possibilities for net datum through transformation and "soft positioning" and differentiated weighting approaches

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