



Slim Borehole Scanner

Monitoring of the Borehole Wall for Structural & Geotechnical Analysis

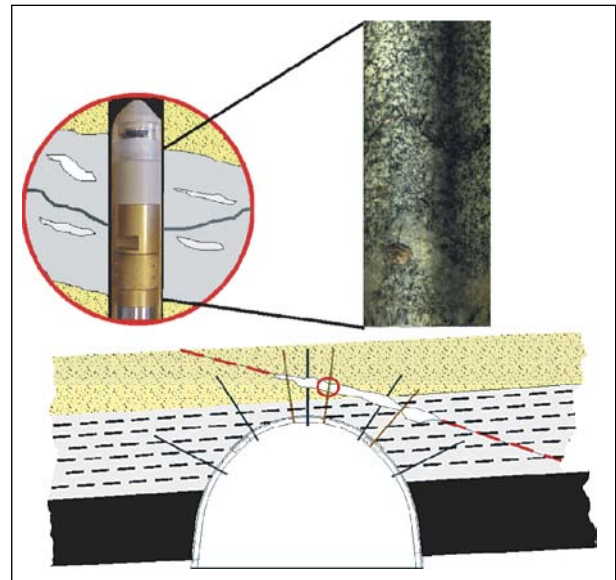
The Slim Borehole Scanner produces an optical image of the anchor borehole wall. This provides an objective information that can be also used for future comparisons. With an integrated orientation device, the borehole images can be oriented in 3D-space and be used for digital documentation of the rock conditions. With DMT analysis software, the pictures can be used for geological structure analysis of bedding, foliation, joints, faults and veins. The structures can be identified, oriented in space, statistically analysed and finally be used for an update of the geological-geotechnical model during the construction phase of a tunnel.



The digital video module

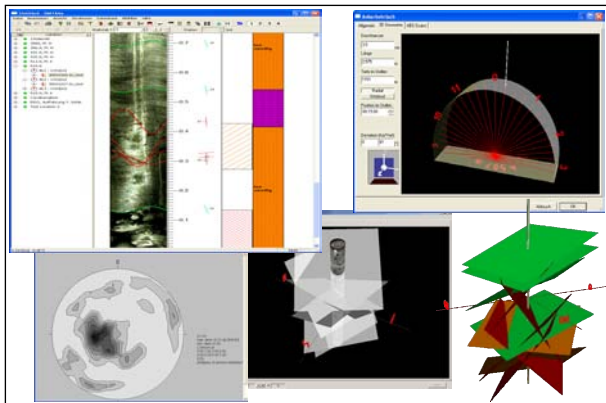
Tool characteristics

- Diameter: 23 mm, length: 120 cm
- Stand-alone system
- 360° optical scanning in short and slim drill holes
- Digital image storing for objective comparisons
- Oriented acquisition of discontinuities from anchor boreholes
- Mobile monitoring tool for the determination of fracture widths
- Software for statistical and quantitative analysis
- Intrinsically safe for application e.g. in coal mining [I M1 EEx ia I]

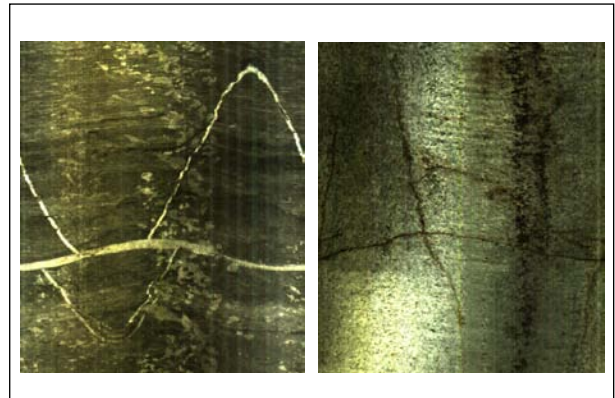


Inspection of the roof rocks with the Slim Borehole Scanner





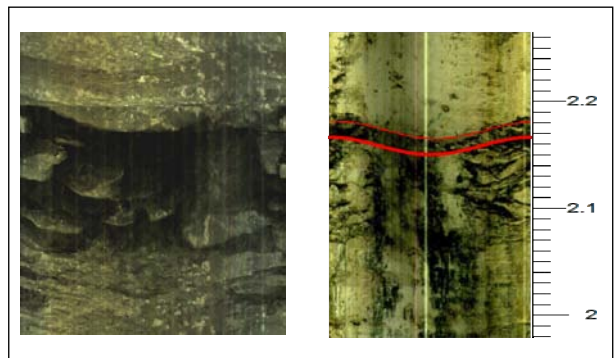
Borehole image analysis with DMT analysis software



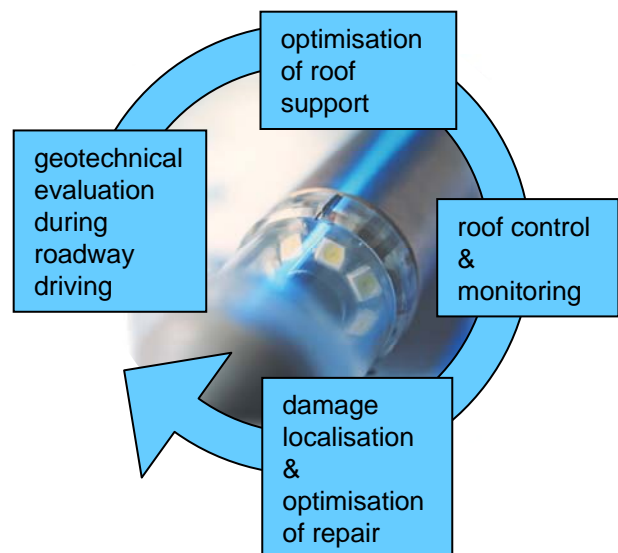
Borehole images of mineralized (left) and open (right) joints

Advantages of application for roof control

- Determination of the orientation of discontinuities for the calculation of potential sliding wedges
- Optimal roof bolt pattern according to the exact structural fabric
- Monitoring during the roadway driving; thereby optimal adjustment of the roof bolt pattern according to occurred changes
- Determination of the opening width of discontinuities
- Supervision of the roadway roof and monitoring of the loosening of the roof rocks for the convergence control and the investigation of damages
- Documentation of temporal changes of openings by comparison of repeated measurements
- The digital image storing and the integration into a database with DMT analysis software allow a reinterpretation of the data at any time
- Objective geological documentation of the on-site situation for a supplementary management



Borehole image of a shatter zones



Benefits of the Slim Borehole Scanner during the lifetime of a roadway