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CUTTING TECHNOLOGY WITH POINT ATTACK PICKS ON ROADHEADERS AND ITS CHALLENGES

The presentation devoted to the cutting technology with point attack picks; it demonstrates typical cutting units and cutting machines. Hereby the criteria for a succesful setup of such a mining system are explained. Also the presentation keeps the focus on the assessment and check of cuttability. It describes measurement methods to identify important rock parameters and to evaluate the tool's perfomance on special test equipment. The assessment of a complete cutting system's performance is shown by means of on site measurements.

Презентация посвящена технологии обработки металлов резанием с точками максимального разрушения; демонстрируются типовые резательные инструменты и машины. Обосновываются критерии выбора таких добывающих систем. Также в презентации сделан акцент на оценке и проверке режущей способности. Описываются методы измерения для определения важных параметров породы и для оценки производительности установки на специальном испытательном оборудовании. Применение локальных измерений позволяет производить оценку производительности всей резательной установки.

Mechanical rock excavation comprises a wide field of applications like drilling and blasting, impact demolition and cutting. Cutting itself is mainly performed with radial cutting tools, point attack picks and roller type cutters. The main industrial application for cutting with point attack tools can be found at roadheaders and drum miners in medium hard rock conditions to exploit soft mineral resources like coal and salt and to develop drifts to mineral deposits, for instance in ore mines. Furthermore this kind of mechanical excavation is increasingly used in tunneling application with medium hard rock conditions.

To define the applicability of this mining system on different rock formation it is necessary to assess the «cuttability» of the rock. It is mainly depending on rock parameters like uniaxial compressive strength, material's abrasivity and stability of the rock mass. To ensure a meaningful and economical operation of the roadheader it is necessary to keep these parameters within certain limits. Therefore hazards like high consumption of cutting tools or loss of the mining system's stability can be avoided.

The presentation gives an introduction to the cutting technology with point attack picks; it demonstrates typical cutting units and cutting machines. Hereby the criteria for a successful setup of such a mining system are explained.

The second part of the presentation keeps the focus on the assessment and check of cuttability. It describes measurement methods to identify important rock parameters and to evaluate the tool's performance on special testing equipment. The assessment of a complete cutting system's performance is shown by means of on site measurements.

A final overview about the current limits in cutting technology and directions of new development gives a picture about the expectations for the near future.