

Performance analysis of new and regenerated boring crowns

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The copper ore extraction technology in KGHM mines utilizes explosives inserted in blast holes drilled in the face of the longwall, in accordance with a defined metric. In the process of drilling the blast holes, boring crowns with diameter between 48 to 64 millimeters are used. When hardness of the rock exceeds 150 MPa, tools deteriorate at a fast pace. This creates a problem related to real-time monitoring of deterioration of the boring crowns during the working shift, in order to find the optimal point to replace the part in question. Using the crown past that point drastically reduces the efficiency of drilling, as well as rendering it unable to be sharpened back (regenerated) to usable shape. Based on the data from KGHM company, we are going to analyze the efficiency of new and regenerated boring crowns. The results can be used to optimize current procedures concerning the management of drilling tools. We are going to consider parameters such as the average amount of drilled blast holes, average duration of a single drilling and feed pressure of the tool in use. The research will allow to verify whether regeneration of worn crowns is an economically viable option, and to identify any habits of the operators that might influence the process.