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Shearers

Shearers have been evolving in the mining sector very intensively over the last fifteen years. Shearers are the one of different means which provides higher cutting speeds to complement the increased cutting power in the ranging arms. New levels of automation have a variety of cutting sequences which control shearing speeds at different positions along the face and at specified times. One of the main elements of shearers is the development of heavy duty mainframes that sit on four «legs» and two down drives onto the haulage components; this structure may incorporate a roll steering arrangement. The ranging arms contain the gear train to transmit the power to the cutting drum. The important features of this part of the machine are the following:

- ability to allow the drums to reach out into the tailgate;
- structural strength capable of withstanding and transmitting the cutting forces back to the body of the machine;
- location hydraulic ranging cylinders to cause minimum restriction to the body of the machine;
- location hydraulic ranging cylinders to cause minimum restriction to the coal flow onto the conveyor.

One of main shortage in using shearers is no ability to control the plow for power seizure. The shearers are inspected prior to the end of each longwall block and especially during the mining of the first longwall.

In recent years many cutting options and features have been developed that resulted in the increase of production rate. Mine`s management keeps update on these technological improvements.

The cutting cycle options available were bi-directional or uni-directional cutting employed on the retreat longwall extraction method. Nothing is gained by remaining with the same old system, when alternatives are available and may prove efficient and cost effective. Changing the cutting system may provide the solution, or at least another alternative, to maximize productivity, and improve the environmental and face management practices. Technology has changed the way the industry can manage longwalls.

Today, mines commonly use bi-directional cutting with a backward, forward or reverse snake, depending on geological, environmental or management conditions. Mines have been looking at the half web system and variations on this method as an alternative to the old systems.