

News Release

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Joy 4FCT Continuous Haulage Systems Deliver Significant Safety & Productivity Advances

Warrendale, Pennsylvania – March 2013 – With seven installations of the Joy Flexible Conveyor Train (Joy 4FCT) globally – all operating in room and pillar extraction and an upcoming installation in longwall entry development – more and more operations are reporting significant advances in safety and productivity through the use of continuous haulage technology. The Joy 4FCT is a single-operator, continuous haulage system that conveys product from the face to the panel belt, while simultaneously tramming and following the continuous miner through multiple drive sequences. From this *truly continuous mining* method, operations are greatly enhancing zero harm initiatives while realizing a considerable increase in tonnage output when compared to their previous use of typical batch haulage methods.

Continuous Haulage Advantages

The Joy 4FCT improves safety by combining all haulage into a single system operating at a low tram speed and following a fixed path of travel, while requiring only one operator using remote control. This reduction in the total number of mobile machines in the section reduces visibility concerns as well as dust generation from multiple travelways. Due to a chain traction system distributed along the entire length of the machine, the 4FCT offers greater traction and a lower ground bearing pressure over that of conventional haulage machinery. Also, the 4FCT's integral continuous mining power cable management reduces trailing cable damage.

The Joy 4FCT delivers improved productivity through its ability to more than double tonnage output per miner personnel when compared to batch haulage applications – first by eliminating the bottlenecks and car wait times typically associated with batch haulage – and next through a number of design innovations. The Joy 4FCT incorporates an integrated inby lumpbreaker which eliminates the need for a separate feeder-breaker in the section. The system also offers belt advance automation as well as automated retreat mining capabilities, made possible by the inclusion of a Dynamic Move-Up Unit (DMU). Acting as an interface between the Joy 4FCT and the mine's panel belt, the DMU and Joy 4FCT are available in two configurations – a side discharge for low seam heights and wide entries; or an over-the-top unit (OTT) suited to higher seams and restricted widths. Note that the OTT system is a self-advancing unit with remote controlled panel belt move-ups; and can also be designed for retreat mining. The side discharge design must be advanced using the continuous miner to pull up.

Productivity Data from the Field

The first Australian installation of the Joy 4FCT began in 2010. This Australian installation is the first 4FCT system with retreat mining capability and dual-function radio remote control.

Depending upon the panel layout and entry dimensions, mines such as the one in Australia may realize up to 75 percent additional utilization of reserves when using the retreat mining method.

A room and pillar installation in the US Illinois Basin operates in a seam height of 8 feet (2.4m) and has reported a best month of 200,914 tons (182,300 tonnes). Its best day, consisting of two nine-hour production shifts, is recorded at a 1,355 -feet (413m) advancement totaling 11,300 short tons (10,250 tonnes). Also significant is that the continuous miner in front of the Joy 4FCT was a Joy 12CM27 that had already recorded 3.5 million tons (3.1 tonnes).

Continuous haulage methods deliver an average of 30 percent more productivity over batch haulage methods. The Joy 4FCT increases the safety and productivity of mining operations by eliminating car waiting times, decreasing the amount of section equipment and the number of section personnel required, easing the management of cable systems and equipment proximities, and boosting production through automated belt advancement and retreat mining capabilities.



Caption: Joy Flexible Conveyor Train (Joy 4FCT)

About Joy Global

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