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Comminution Concerns

In today's economic environment, with sky rocketing oil prices and increased environmental pressures, the case for the use of belt conveyors is clearly convincing. The push for 'greener' operations is driving the mining industry to explore how to accomplish both cost efficiency and minimisation of the environmental cost. IPCC (in-pit crushing and conveying) is a prime example of how technological advances in belt conveying can help achieve these goals.

In-pit crushers reduce the mined rock to a conveyable size, but with their high efficiency and low maintenance costs, belt conveyors generate the lion's share of benefits in an IPCC installation. Advances in the conveying systems such as DSI Snake, now facilitate a direct high angle path to the surface, up pit walls, without additional unproductive excavation. The low energy consumption of the high-angle elevating system is in stark contrast to the high energy, high petroleum consumption of the typical truck-only haulage system. The most important part of the IPCC system, the high angle conveyor, demonstrated its suitability for coarse ore elevating duties directly up the pit wall. Studies and other installations across the industry have demonstrated the cost savings with DSI Snakes. DSI Snake installations continue to demonstrate their suitability for elevating mined products at mine perimeters and in facilities -imposing a minimal foot print and consuming minimal energy.

Another approach, in smaller operations, may be a mobile crusher such as a Rubble Master RM80 compact crusher, the first machine of its type on the market. With rising diesel costs and increasing maintenance and unreliability of the existing equipment, the producer had either to replace the existing configuration or find a more efficient solution. The only concern was whether the Rubble Master could cope with the density of the material and the volume. It has proved more productive than anticipated, and the mobility of the unit allows processing the material according to grade, directly into different bays. Terex Pegson points out the fuel economy benefits of its X400S series mobile jaw crusher. The X400S series comprises high performance, primary jaw crushing plants that are easy to set up and versatile.

Over the past few years, major advances have been made in wear protection technologies that have been applied to the roll surfaces and have reduced wear significantly making it more attractive for hard rock mining applications.

However some drawbacks should be considered with HPGR - capital costs can sometimes be higher depending on the application, dust control is an issue, and the technology is not suitable for wet and sticky ores. It is estimated that energy savings of up to 20% can be reached and from 10 to 20 percent savings in operating costs are possible depending on the ore type and application.