

Press Release

Industrial Solutions

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thyssenkrupp presents new steep-angle material transportation concept for quarries and medium capacity open-pit mines at MINExpo INTERNATIONAL® 2016

Energy-balanced “Skip Way System” lowers operating and manpower costs; reduces carbon footprint

The Industrial Solutions business area of thyssenkrupp, a leading partner for planning, construction and service of industrial plants and systems, unveils a new, energy-balanced, steep-angle “Skip Way System” conveying system at MINExpo INTERNATIONAL® 2016 in Las Vegas. The system makes it possible to transport hard rock, ore or overburden from the lower level of the mine, to higher elevations by the shortest and most direct route possible, reducing the mine’s carbon footprint.

The Skip Way System, for which thyssenkrupp has filed patents, is based on proven cable crane technology from thyssenkrupp, and aims to reduce truck traffic within mines. This concept uses two alternating skips loaded one at a time with uncrushed rock at two truck unloading stations at the bottom of the mine. With a handling capacity of up to 2,000 mtph, the skips are fitted with wear plates and slide rails. The skips are suspended from two parallel track ropes, one set for each direction, in vibration-dampening support frames and carriage assemblies. Using a rope system to dispatch ore, building materials, minerals or coal, the Skip Way System reduces operating costs and carbon dioxide emissions by reducing the number of haul trucks in operation. The deadweight of the skips is fully counterbalanced at all times, so energy only needs to be expended to raise the minerals to the top of the mine.

The thyssenkrupp Skip Way System is highly adaptable to the terrain of a mine and can also be used in rough weather conditions when truck haulage would typically be suspended. The system also complements thyssenkrupp’s “Integrated Skip Conveying and Crushing System,” which has handling rates of up to 5,000 mtph for uncrushed ore or overburden. Here, skips run in opposite directions on a steel track over a steep slope and can either empty their payloads of up to 250 mt into the feed hopper of a semi-mobile crusher or re-load ore or overburden into mine trucks at a bin with an apron conveyor discharge.

Case Study: A Tandem Skip Way System for kimberlite

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In a case study presented, uncrushed kimberlite with a density of 2.5 t/m³ is transported by a tandem Skip Way System over a vertical distance of 410 meters along a slope with an average incline of 45 degrees. The mine trucks have a maximum payload capacity of 42 mt, so the skips were designed for a capacity of 22 m³ or 45 mt maximum, with a conveying distance of 580 meters and a chosen travel rope speed of 12 m/s, resulting in 11.2 travel cycles per hour and the selection of a rope system with a handling capacity of 1,000 mtph. Based on an average trucking speed of 15 to 20 km/h (10 to 12 mph), a roundtrip for a truck can take almost an hour, so the steep-angle conveying system in the example can substitute for 11 trucks at a time.

Demonstrations of the Skip Way System and the Integrated Skip Conveying and Crushing System are taking place at the thyssenkrupp booth (North Hall, #3051) at MINExpo 2016.

About thyssenkrupp Industrial Solutions:

The Industrial Solutions business area of thyssenkrupp is a leading partner for the engineering, construction and service of industrial plants and systems. In addition to mining, ore processing and port handling equipment, its portfolio also includes chemical, coke, refinery, cement and other industrial plants, along with corresponding services. In the naval sector, thyssenkrupp is a leading global system supplier for submarines and surface vessels. As an important system partner to our customers in the automotive, aerospace and battery industries the company optimizes the value chain and improves performance. In collaboration with its customers, thyssenkrupp develops top-quality solutions and delivers efficiency, reliability and sustainability over the entire life cycle. Around 19,000 employees at over 70 locations form a global network with a technology portfolio that guarantees maximum productivity and cost-efficiency.

For more information visit: www.thyssenkrupp-industrial-solutions.com.

About thyssenkrupp in North America:

thyssenkrupp North America, Inc. oversees more than 400 facilities in the United States, Canada and México. In fiscal year 2014/2015, thyssenkrupp generated sales of approximately €9.8 billion (\$11.25 billion) in the region, accounting for almost 23 percent of the Group's total sales. This makes the region the Group's biggest sales market after Germany and other member countries of the European Union.

For more information visit: www.thyssenkrupp-north-america.com

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