In-pit crushing and conveying systems

Tailormade solutions for all kinds of mining operations
In-pit crushing and conveying systems

Crushing plant

The crushing plant reduces the mined material to a conveyable size. thyssenkrupp Industrial Solutions offers a wide range of crushing units to fulfill every task. No matter if overburden, coal, ore or waste rock must be handled, we have integrated solutions for your mine. For the selection of the right crushing unit our experts are able to perform material tests with our in-house developed point-load testing method. The crushing plant can be either stationary, semi-mobile (transportable by means of transport crawlers) or of mobile type on crawlers. Semi-mobile crushing plants can be fed either directly or by apron feeder. Via discharge conveyor the crushed product will be transported to the conveyor system.

Conveyor system

The conveyor system transports the crushed material to the dumping site or the processing plant. Conveyors can be designed stationary, relocatable or shiftable for bench and dumping operations. In particular open pit applications including high-incline and curved conveyor systems can be offered by thyssenkrupp in conjunction with the in-pit crushing plant. Conveyors are designed by an in-house developed software, which ensures the most realistic dynamic conveyor simulation. Furthermore for smooth operation material transfer points are designed by DEM-Analysis to ensure a proper flow of material and high system availability.

Mine planning

IPCC vs. Truck & Shovel: Our mine planning group performs feasibility studies for continuous IPCC systems for ore and waste handling over conventional truck & shovel operations. The investigation of TCO and the features of IPCC are often part of an early project phase involvement in order to select the appropriate equipment, evaluate the mine progress and calculate the right capacity levels for the best integration of our system into your mine.

Advantages of IPCC systems
- High system availability
- Less operational expenditures (OPEX)
- Electrically driven for low CO₂ footprint
- Tailor-made solutions according to open pit design and material characteristics
- thyssenkrupp installed IPCC systems with capacities exceeding 14,000 t/h

Spreader with tripper car

On the dumping side waste material will be transferred from the bench conveyor to the spreader via tripper car. Tripper cars can drive on rails to the bench conveyor structure or can be mounted on crawlers for better manoeuvrability. The spreader has a receiving and a discharge boom. Its dimensions are designed mainly according to required capacities and the dump size. Typical boom lengths are between 50 to 80 m. Thus the crawler tracks are in the right distance to the dump edge for safe operation. In addition the crawler tracks will be designed according to the allowed ground pressures. Due to its long range the spreader also allows for selective dumping of materials to build a safe and defined dump.
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