

Industrial Solutions

Continuous mining systems

Taylor-made solutions for all kinds of mining operations



thyssenkrupp



Bucket wheel excavator

The bucket wheel excavator is the most powerful tool for mining in unconsolidated and soft rock and a precondition for a real continuous mining system. The bucket wheel excavator combines three parts of the mining process in one machine: Extraction, Loading and Transportation to the conveyor. Bucket wheel excavators today mostly work in soft and medium-hard rock with compressive strengths up to 20 MPa. With its innovations in milling bucket wheel technology, excavators built by thyssenkrupp are even able to mine rock with a UCS of up to 50 MPa in favorable conditions. thyssenkrupp is capable of offering bucket wheel excavators with a wide range in capacity and size to be able to ensure optimal implementation to the most varied operating conditions and open pit mining plans.



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In-pit conveyor system

The conveyor system transports the excavated material to the dumping site or the stockpile. 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 continuous mining operation with bucket wheel excavators. Conveyors are designed by an in-house developed software, which ensures the most realistic dynamic conveyor simulation. Furthermore for smooth operation every transfer point is analyzed by DEM-Analysis to ensure a proper flow of material and high system availability.

Mine planning

Our mine planning group performs feasibility studies for continuous mining systems with detailed calculations, equipment design and operational working plans. The investigation of TCO and the features of the continuous mining system 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.



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Compact bucket wheel excavator

To suit open pit mines and earthmoving operations with small to medium production rates the compact excavator series was developed. Due to its size this kind of equipment is also a great tool for narrow mines. Compact bucket wheel excavators are able to dig block heights up to 20 m and theoretical outputs up to 3,000 m³/h. The compact bucket wheel excavator has low capital expenditures (CAPEX) compared to production rate due to the short boom and low positioned counterweight. To extend the range and minimize shifting intervals an additional mobile transfer conveyor can be added.

Advantages of continuous mining 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
- Capacities up to 240,000 m³/d

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 of the bench conveyor modules or more flexible on crawlers. 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.

- 1 Full-size bucket wheel excavator
- 2 Compact bucket wheel excavator
- 3 Compact bucket wheel excavator in combination with a mobile transfer conveyor
- 4 In-pit conveyor line to spreader
- 5 Continuous mining system
- 6 Spreader

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