EFFICIENCY OF USING A PLATE SUPPLY IN A CONE CRUSHER IN THE METALLURGY INDUSTRY

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The modern metallurgical industry is based on complex and continuous technological processes. In such industries, the initial processing stage of raw materials crushing is a crucial part of production. Among crushing equipment, cone crushers stand out for their high efficiency and ability to turn hard materials into fine particles. In ensuring the smooth and stable operation of this process, plate feeders play a critical role.

Cone crushers are designed to reduce hard and medium-hard materials into smaller particles. The main working component is the moving cone, which performs an eccentric rotational movement relative to the stationary outer cone. As a result, the material is compressed and crushed between the cones. Cone crushers are particularly effective for crushing rocks with high mechanical strength, such as iron ore, limestone, and granite [1].

A plate feeder is a moving plate conveyor used to deliver material to the crusher continuously and in a controlled manner. It is mainly composed of the following parts:

Moving plate conveyor (chain or belt-driven), electric motor and reducers, support frame and hopper.

Feeders typically transfer material from the ore storage or transport bunker to the crusher, and this process can be controlled either mechanically or automatically [2, 3].

The use of plate feeders offers several advantages, such as ensuring the continuous flow of raw material into the cone crusher, maintaining a consistent load on the crusher, which prolongs its service life, adjusting the material amount precisely to avoid overloading, and reducing the required energy for crushing through stable operation [4].

Many large metallurgical plants, such as Olmalyk MMC and Navoi MMC, integrate plate feeders with cone crushers. These systems have become an essential part of the ore crushing and beneficiation process. Proper adjustment of these systems has increased production capacity, reduced service costs, and significantly reduced technological downtimes.

The use of plate feeders in cone crushers plays a crucial role in improving production stability, ensuring technological efficiency, and conserving energy resources in the metallurgical industry. These systems are an indispensable part of modern production, and by connecting them to automated control systems, the competitiveness of metallurgical enterprises can be significantly enhanced.

References

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