

Top Seven Crusher Operation and Maintenance Tips

Designing and deploying size-reduction systems takes experience. A material processing system is always more than just a collection of parts; they must work together, whether it's an adequately designed chute or an elaborate processing plant. Here are seven places to start.

1 – Recruit a Crusher Captain.

Appoint a person to take ownership of each crusher. They are the historian for the unique operational characteristics of the crusher. The captain will begin with the operation and maintenance manual for the crusher to train staff and establish procedures. Consistent maintenance training is one of the essential elements for reliable, efficient machine operation.



2 – Keep spare parts inventory for normal wear and long lead time parts.



Order replacement spares once installed. Keep a list of your preferred manufacturer-recommended spares with your operation manual.

Avoid running wear parts so long that they become too worn. You might not be able to rotate breaker bars or interchange wear plates, and you will have lost half of the wear and doubled your cost.

3 - Know and record typical real-time horsepower consumption (amperage draw), run-down time, and lubricant temperature changes.

Daily logs should document every shift. If the amperage draw changes from day to day or is exceeding normal levels, it could be a sign of bearing problems, belt slippage, or machine capacity issues. Know how long it takes the machine to come to a complete stop after shutdown. If it starts to shorten, it could indicate a bearing problem. Record oil or bearing temperatures in a variety of operating conditions; this will allow you to notice trends and detect issues before they cause costly downtime or damage.



4 - Regular inspections to predict maintenance.



Inspections will increase the life of components, allow you to schedule change-outs, and help plan the required people and parts for each shutdown. Also, inspect the mill inlets and outlets, liners, breaker plates, rotor breaker bars, wedges, and stop blocks or jack screws for wear. Consider an O.E.M inspection service to supplement your preventative maintenance program.

5 - Create a wear parts replacement schedule and a record of machine settings needed if the product output changes.

For optimal production and wear-part life, breaker bars should be rotated to ensure even wear. As one of the edges gets worn, rotate, or flip the breaker bar to maximize use.



The majority of liners have the same dimensions as other liners in different parts of the housing. Maintenance crews can exchange parts from low-use areas of the crusher to places that experience higher wear use. A worn liner, for example, can be repositioned from within the rotor circle, to outside the rotor circle, thus extending its service life. The aprons that define primary and secondary crushing zones may be reversible to double wear life.

6 - Look for unusual wear patterns on parts to detect feed or discharge problems.



Evenly distribute the feed across the entire rotor face. It is possible to over or under feed a crusher. Maximize efficiency by consistently feeding the crusher at the determined rate for production. The feed needs to enter the crusher at the appropriate angle; it shouldn't initially hit the interior of the rotor directly.

The apron gap settings and rotor speed are critical to achieving accurate product control. The closer the breaker bars are to the aprons, the smaller the final product size. The further the breaker bars are from the aprons, the higher the crusher throughput and larger the product size.

7 – Don't make structural changes to the crusher.

Crusher design engineers have considerable field experience, which helps them as they configure the crusher, bearing loads and clearances. They also establish the most efficient speeds and setting combinations to optimize throughput and the desired product size. Modifications that alter the intended design will likely decrease the effectiveness of the crusher, and you'll have a less productive and reliable system with potential damage and overload.



Operation and maintenance can be the key to success when your needs are defined and understood, and the project team – including all supplier partners, are working together.

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