

OUTOTEC OPEN ENDED DISCHARGE GRINDING MILL

The Outotec® Open Ended Discharge Grinding Mill (OED Mill) is a large grinding mill solution that enables innovative and efficient high-capacity circuit designs through the removal of pulp lifters from the discharge arrangement. This facilitates significant reductions in both CAPEX and OPEX.

BENEFITS

- Highest possible discharge capacity through elimination of pulp lifters
- Maximized slurry transport and impact energy with lowest possible slurry pool level
- Reduced CAPEX with novel high-capacity circuit designs
- Minimized OPEX through the reduction or elimination of grinding media
- Optimized serviceability and availability with novel discharge wear package

IMPROVE PROFITABILITY WITH INNOVATIVE HIGH-THROUGHPUT CIRCUIT DESIGNS

With decreasing ore grade quality and operating cost pressures driving the need to process higher tonnages and improve processing efficiencies, high-throughput circuits based on very large grinding mills are becoming an increasingly attractive option in mineral concentration applications.

Highest possible discharge capacity

The OED Mill delivers the highest possible discharge capacity by eliminating the need for pulp lifters; instead, material is discharged directly through the grates, solving the throughput bottleneck problem often associated with comminution circuit design. The pursuit of high-efficiency pulp discharge systems by mill and liner suppliers is a testament to the potential upside of open-ended milling.

Maximized slurry transport and lowest possible slurry pooling

The OED Mill has been designed to maximize slurry transport and minimize slurry pooling. This increases throughput capacity and improves grinding efficiency due to increased impact energy. Slurry pooling minimization in the OED Mill is facilitated by a novel grate-supporting spider.

The Outotec spider design is conical and mounted to the discharge-end shell flange. This improves structural stiffness and ensures the mill is open all the way to the shell diameter. Hydrostatic pressure is highest at the locations furthest from the mill centerline, so preserving this open area is critical for high-throughput performance.

Reduced CAPEX and OPEX

The high-throughput capacity made possible by this innovation creates opportunities for novel circuit designs with significantly reduced equipment requirements and therefore lower CAPEX.

This approach can also contribute to lower OPEX by reducing the consumption of grinding media – or even eliminating the need for it entirely. This can in turn reduce the environmental impact associated with grinding media

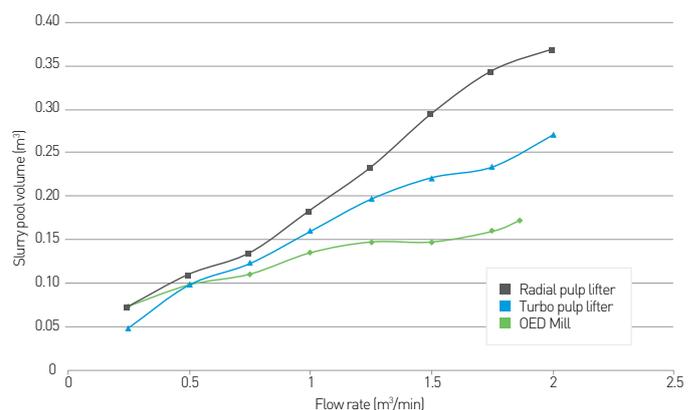
consumption. In addition, eliminating grinding media in a fully autogenous grinding circuit can reduce oxidation of sulfide minerals and the impact on slurry redox potential (Eh), thereby improving flotation response and reducing reagent consumption.

Optimized serviceability and maximized availability

The OED Mill incorporates innovative wear-part solutions that enable timely and safe servicing. Unlike a traditional grate discharge grinding mill, the Outotec OED Mill is fitted with innovative outboard mounted grate panels which can be removed from the outside of the mill using a jib or overhead crane. Furthermore, the spider and discharge cone are segmented and removable. Together these solutions minimize the time and cost associated with mill relining and discharge-end servicing.

Optimized discharge-end serviceability is particularly important for an open-ended mill as the grate design is the primary mechanism to control the slurry pool level. Therefore, the ability to easily iterate grate configurations is imperative for process performance optimization, especially during early operation or when there are significant changes in process or feed characteristics.

The OED Mill has been designed with industry-leading analysis methods and is supplied with proprietary technologies such as the Outotec Polymer HSB, which offers proven performance under even the toughest conditions to maximize mill availability.



Pilot mill discharge efficiency test results