Outotec MillSense™ provides mill operators with the most advanced online analysis of the mill charge. This enables them to optimize performance and decrease disturbances in the mill. The system measures the mill’s toe angle by a sensor attached wirelessly on the mill shell. Together with Outotec’s advanced process controls, MillSense helps to stabilize and optimize grinding processes for reliable operation and increased throughput.

**BENEFITS**

- Higher mill availability and less unexpected shut downs
- Improved throughput and energy efficiency with optimal mill charge
- Reduced maintenance by protecting the mill liners
- Stable process regardless of changes in ore hardness
The mill charge volume has a great impact on grinding efficiency. For efficient grinding, the autogenous (AG) and semi-autogenous (SAG) mills need to be operated with the correct charge maximizing their throughput while avoiding overloading. Outotec MillSense gives a precise indication of the mill charge volume.

The mill charge is calculated based on the online measurement for the toe position in the mill through strain gauge and acceleration sensors attached on the mill shell. The sensor unit is powered by an inductive power source outside the mill shell and uses wireless technology to transfer data to the process control system. The sensor technology is based on robust direct contact measurement of the toe position and does not require calibration.

**Complementary Outotec technologies**
- Outotec Advanced Process Control (ACT)
- Outotec RockSense sensor system
- Outotec PSI particle size analyzers
- Outotec MillMapper for mill liner condition monitoring and modelling
- Outotec life-cycle services for grinding mills

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**Figure 1.** MillSense helps achieve optimum mill charge, reducing liner damage and inefficient grinding.

**Figure 2.** The sensor unit has an inductive power source and uses wireless technology to transfer data.

**Figure 3.** Together with Outotec’s advanced process controls, MillSense helps to stabilize and optimize grinding processes.