

OUTOTEC ROCKSENSE

The Outotec RockSense™ system is an on-line particle size analyzer system for ores moving on a conveyor belt. The system uses a high-performance 3D laser imaging technology which is robust towards the changes in external lighting conditions.

The measurement info can be used to gain a better understanding and control both the grinding circuit and the upstream processes to achieve improved stability and efficiency.

BENEFITS

- Consistent information
- Stabilizes autogenous (AG) and semiautogenous (SAG) mills with consistent online ore feed measurements
- Maximizes process throughput and efficiency with stable and optimized grinding
- Improves grinding circuit analytics with cumulative volume flow estimation

OUTOTEC ROCKSENSE FEATURES

The grinding process is extremely energy-intensive and is often the bottleneck of a plant's capacity. Grinding is therefore considered an important process to target for optimization. It is critical to achieve a suitable ore feed size distribution to reach high grinding efficiency and throughput, especially in grinding circuits involving autogenous (AG) or semi autogenous (SAG) mills.

RockSense analyzes the rock particles during normal belt movement, without affecting the capacity of the conveyor belt. The high-resolution 3D laser scanner is combined with a rotary encoder to offer a realistic scale without the need for manual calibration.

RockSense is a tool for rock size measurement, providing the following analyses:

- Particle size distribution
- User-definable F-values
- Total volumetric flow

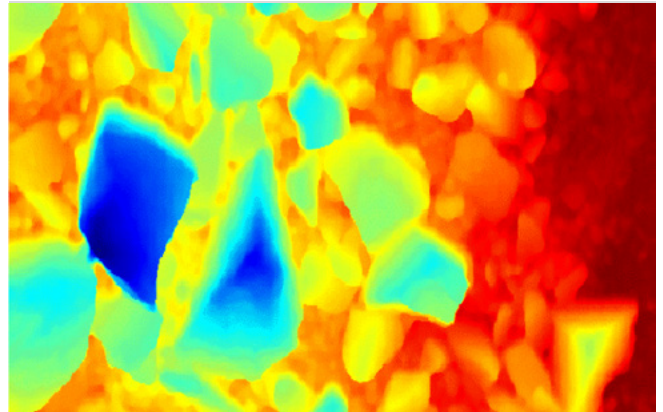
The RockSense integrates seamlessly with the Outotec ACT mill control application, providing valuable and continuous input for optimizing grinding circuit performance.

The Outotec ACT grinding optimization system ensures stable conditions within the grinding circuit, optimal particle size for subsequent processes, increased throughput, and energy efficiency.

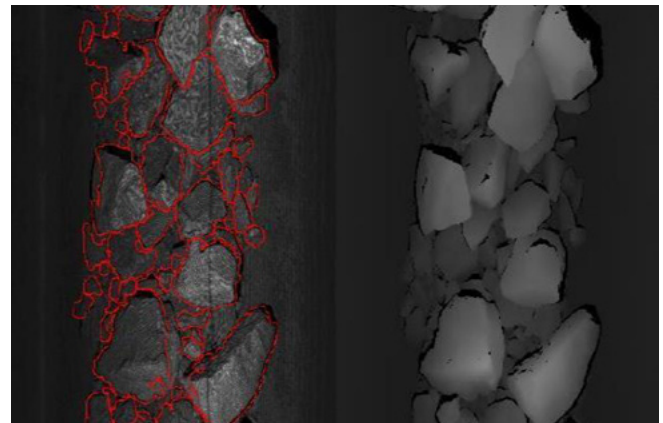
Main advantages of RockSense are:

- Powerful software
- Easy installation
- No need for calibration

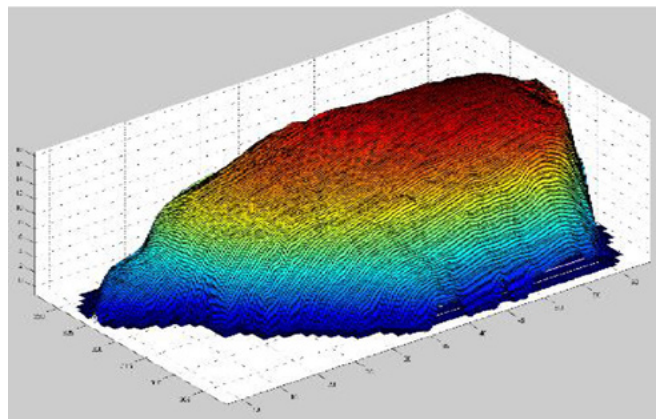
One of the benefits of RockSense is the ability to store historical data, complete with the scanner's images. This makes RockSense valuable for process development purposes.



3D Image



Segmented image



3D sieve size estimation for individual particles

OUTOTEC ROCKSENSE SPECIFICATIONS

IMAGER ASSEMBLY (IA)	
Main power	Feed from the connection cabinet
Dimensions (W x H x D)	605 x 309 x 235 mm
IP rating	IP65 / NEMA4
Materials	Stainless steel (AISI 316)
Mounting	The structure enables universal installation
Maximum measurement area width	1550 mm
Installation height	Required installation height depends on the belt width. A 1500 mm wide belt requires an installation height of 1230 mm.
Maximum installation angle compared to the horizontal level	30°
Ambient temperature	0 ... 40°C (cooling and heating option available)
Relative humidity	< 85%
Shock	15 G equivalent / 11 ms
Vibrations	5 G / 58-150 Hz
Weight	Approximately 20 kg
Power Consumption	7 W
CONNECTION CABINET (CC)	
Main power	240 VAC, 50 Hz / 110 VAC, 60 Hz +- 10%
Power consumption	Max 500W
Dimensions (W x H x D)	600 x 1027 x 250 mm
IP rating	IP66 x NEMA4X
Materials	Sheet steel, powder coated
Mounting	Wall mounting
Standard cable distance from scanner	10 m
Ambient temperature	0 ... +55°C (heating option available)
Relative humidity	< 85%
Shock	20 G equivalent / 11 ms
Vibrations	1 G / 5-500 Hz
Recommended fuse size	25 A

Outotec RockSense operational package

- Imager Assembly
- Connection Cabinet
- RockSense Server
- Rotary encoder (optional)

Key figures

- Belt speed up to 5 m/s
- Maximum measurement width 1550 mm
- Minimum particle size detected 10 mm

A lifetime of service

Outotec provides services for the entire lifecycle of your asset, from single pieces of equipment to entire plants. We offer services through a global network of service centers that are committed to providing support whenever needed.

Our services are designed to optimize our customers' plants, equipment and processes. We cover everything from spare parts and maintenance to plant evaluations and upgrades, as well as project management and training.



Outotec

Outotec develops leading technologies and services for the sustainable use of Earth's natural resources. Our 4,000 top experts are driven by each customer's unique challenges across the world. Outotec's comprehensive offering creates the best value for our customers in the mining, metal, and chemical industries. Outotec had sales of approximately EUR 1.2 billion in 2019, and its shares are listed on NASDAQ Helsinki.

www.outotec.com