

# Metso

Enabling optimization through sense

## RockSense 3D™





# Enabling optimization through sense with RockSense 3D™

Metso RockSense 3D™ provides continuous online measurement of the particle size distribution on a running conveyor belt, based on a laser scanner analysis. RockSense 3D™ smart monitoring technology can be used on SAG/AG mill feed as a feedforward measurement or on a crusher discharge to improve grinding/crushing circuit efficiency and plant availability.

## Smart monitoring

- Proven online measurement of particle size distribution on a running conveyor belt
- Volume measurement
- Identification of ore size changes
- Versatile usage for crushers or mills
- Based on image analysis technology

## Improving performance

- Production deviation detection
- Oversize and foreign object detection using AI technics
- Enabled crushing and grinding circuits optimization
- Large rock detection tool, will give you the number of large rocks in a customizable time frame



# Intelligent mining solutions

At Metso we offer frontrunning automation and digital solutions that help redefine and digitalize the mining industry. The 3D imaging of RockSense 3D™ system, formerly known as RockSense™, is an essential part of our intelligent mining solutions.

Comminution efficiency is very dependent on the ore hardness. It varies in time based on the part of the deposit processed. Changes in ore hardness can be detected based on the ore size during and after the crushing stage. Controlling the crushing performance enables a smoother and more performant downstream process. Keeping an eye on the grinding feed allows a proactive mill control: by anticipating and smoothing the disturbances, the desired grind size, essential for the separation process, is maintained, and the throughput is maximized.

Monitoring the particle size on a conveyor belt is traditionally possible with manual and punctual sampling followed by laboratory analysis. Although the accuracy is very high, it is time consuming and needs production to stop. The technique is not appropriate for control purpose which requires continuous monitoring of the material on the running belt in order to detect the size deviation as early as possible. For these reasons, online particle size analysis has become a corner stone in comminution control.

# Monitoring the particle size distribution from the top layer

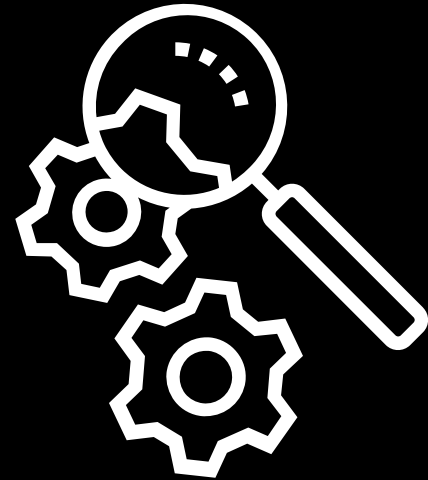
RockSense 3D™ enables smart monitoring through 3D imaging analysis allowing high accurate particles size measurement.

RockSense 3D™ identifies the 3D shape of the coarse particles visible from the top layer. The algorithms then reconstruct the entire size distribution considering the volume of material on the belt. It provides cumulative and individual distribution with customizable sieves, as well as the deciles, including the P80 (80% passing) and P50 (50% passing) which may be considered as control set points.

Thanks to its high analysis rate, RockSense 3D™ can accurately detect the deviation in the particle size in real time, which and allows to take action and, for instance, adjust the crusher gap setting or anticipate a mill overload.

RockSense 3D™ has the capability to recognize foreign objects and detect oversized lumps during the process through AI and deep learning.

RockSense 3D™ as an imager unit consist of a 3D-scanner with a laser beam. It can scan the material on top of the conveyor in a running belt, give accurate cumulative flow estimation and particle size measurement.



## Valuable input for optimization

The online measurements of the P80 provide valuable inputs for optimization of crushing and grinding circuits. RockSense 3D™ brings the most benefits when it is combined with an Advanced Process Control system deployed by Metso process control experts.

# Robust hardware system

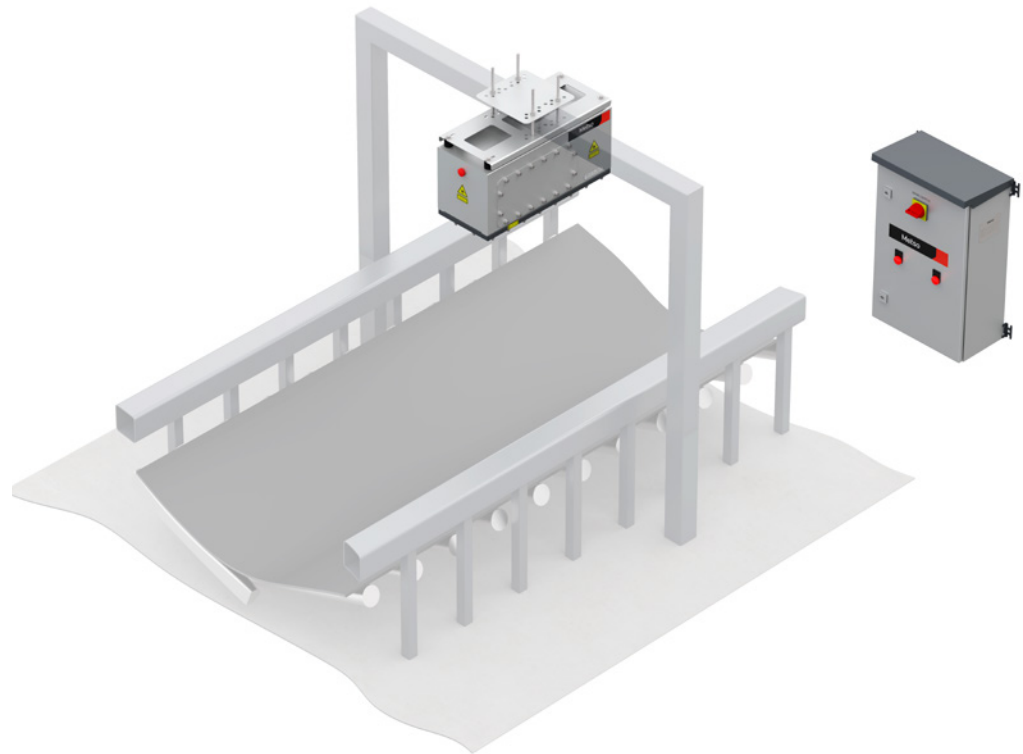
RockSense 3D™ connection cabinet supports one camera, along with fiber-optic and copper media connections to a centralized computer installed in a server room. The system also supports any network topology, including star and ring configurations.

The RockSense 3D™ laser is designed according to the radiation safety regulations, and together with the laser safety switch brings a safe system to work with.

## **Simple start up and easy maintenance.**

RockSense 3D™ can be installed above any type of conveyor. The present and licensed analysis software included in the cabinet with embedded computer version makes the installation even easier.

Our renewed, dynamic and user-friendly interface gives a better understanding of the material that is passing through the conveyor in real time. It also allows a better analysis which makes the reaction time shorter.







## Key technical specifications

Camera	
IP rating	IP65 / NEMA4
Operating temperature	0...+40°C The cooling option is available for higher ambient temperatures, and heating option for lower temperatures.
Minimum visible size	10 mm
Connection cabinet	
IP rating	IP66 / NEMA4X
Power	110/230 VAC, 50/60 Hz
Maximum number of measurement assemblies per cabinet	1

## Choose the RockSense 3D™

RockSense 3D™ is a high accurate solution for online particle size analysis on conveyor. It detects the size deviation and opens opportunities for crushing and grinding optimization that can increase plant availability, uptime and production.



# RockSense 3D™ joins the Planet Positive Portfolio

RockSense 3D™ is a part of our Planet Positive portfolio. The Planet Positive portfolio focuses on the most environmentally efficient technologies (> 100) in our current portfolio.

Sustainability is at the core of Metso's offering and operations. We are the net positive partner for change, with our handprint significantly bigger than our footprint. We are committed to limiting global warming to 1.5°C with Science Based Targets.

Find out more at [metso.com/sustainability](https://metso.com/sustainability)



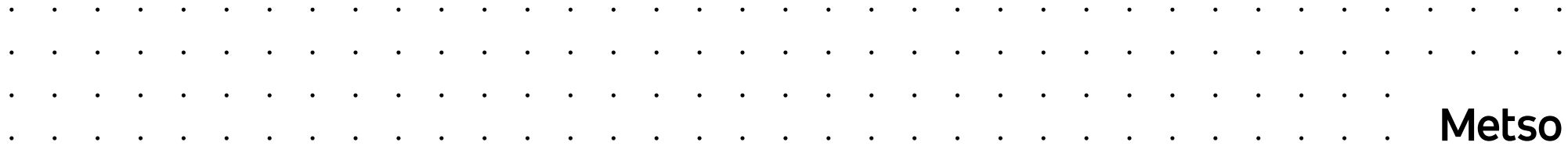
## A lifetime of service

Metso provides services for the entire lifecycle of your asset, from single pieces of equipment to entire plants, via a global network of service centers. Metso services cover everything from spare parts and maintenance to plant evaluations and upgrades, as well as project management and training.

Contact Metso experts to find out how RockSense 3D™ can benefit your operation at [metso.com/portfolio/rocksense](https://metso.com/portfolio/rocksense)

Metso is a frontrunner in providing sustainable technologies, end-to-end solutions and services for the aggregates, minerals processing and metals refining industries globally. By helping our customers increase their productivity, improve their energy and water efficiency and environmental performance with our process and product expertise, we are the **partner for positive change**.

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