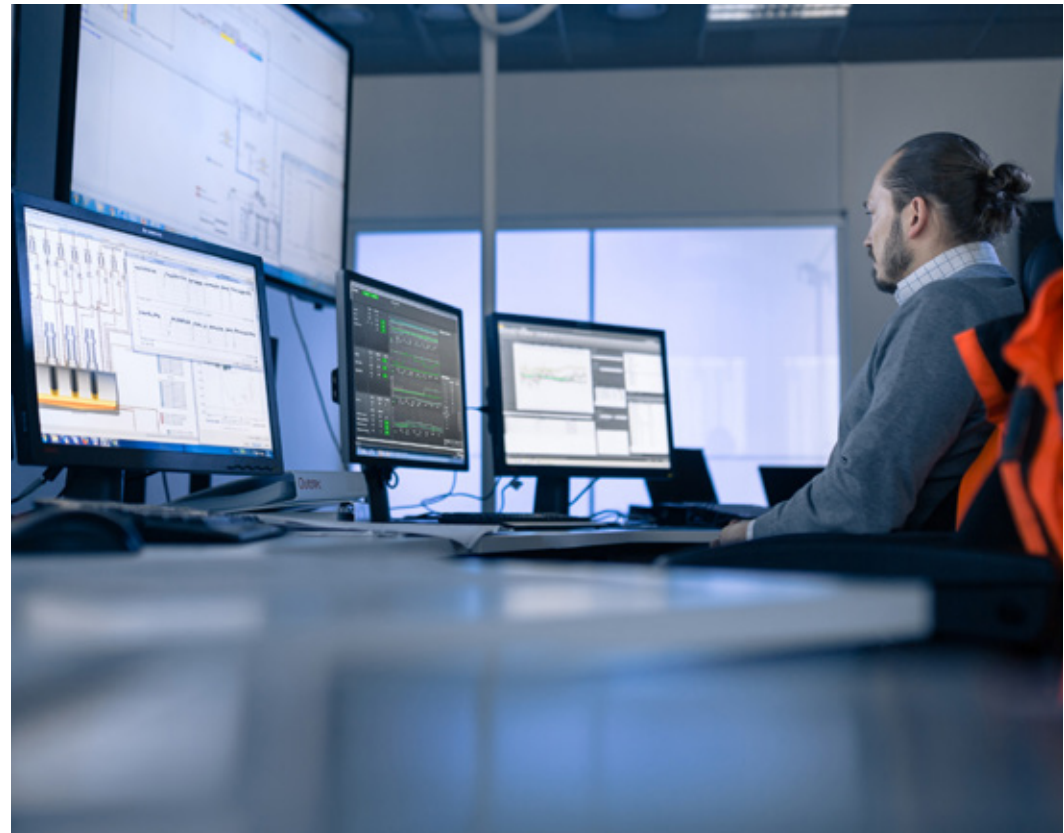


Metso:Outotec

Roaster Optimizer

Benefits

- Increases roaster plant capacity
- Enhances operational stability and reduces process fluctuations
- Provides control over parameters that affect product quality
- Avoids high off-gas temperatures
- Ensures plant emissions remain within environmental limits
- Improves treatment of difficult residues
- Alerts operator to abnormal physical and metallurgical conditions

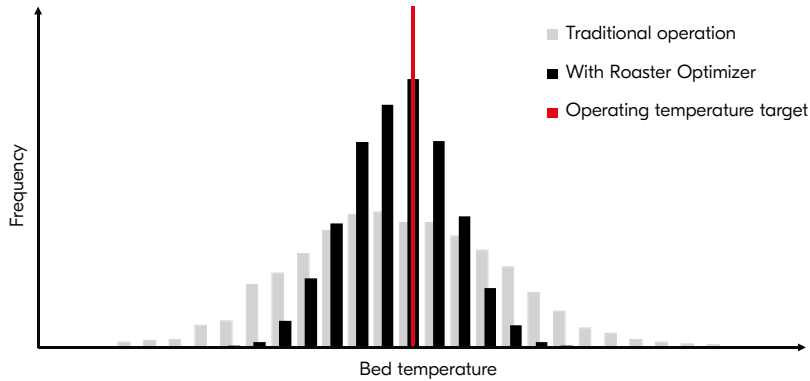


The Metso Outotec® Roaster Optimizer combines real-time plant measurements with our unrivaled process know-how to ensure operational stability and automatically detect and correct detrimental process fluctuations, keeping your plant running at optimum efficiency and increasing its capacity.

Stabilize and optimize plant operation

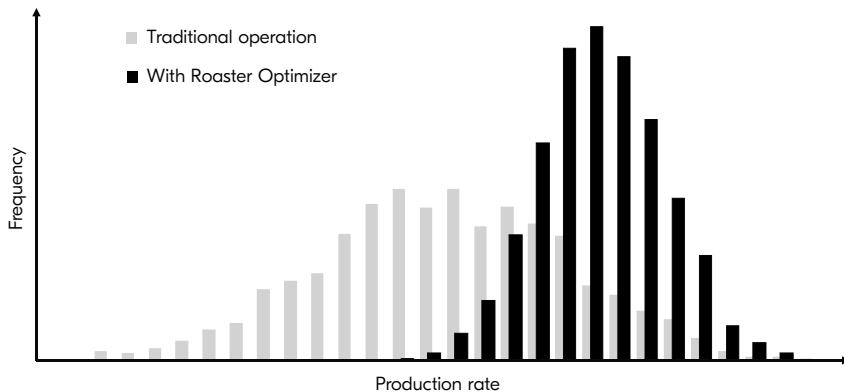
The Metso Outotec Roaster Optimizer is our digital solution to your specific process challenges. It helps you achieve optimal operational conditions for your production process and reduce costs by ensuring that the roaster bed and off-gas temperatures are maintained within preset limits.

The tool is based on over 50 years of experience in the roasting business and several decades of expertise in sustainable metals and chemicals processing.



Improved bed temperature control and reduced process fluctuations

The tool keeps track of various process variables and automatically monitors all relevant process parameters, taking into account how they affect each other. By doing so the system identifies the optimal operating conditions for the whole roasting plant and not just for standalone process values.

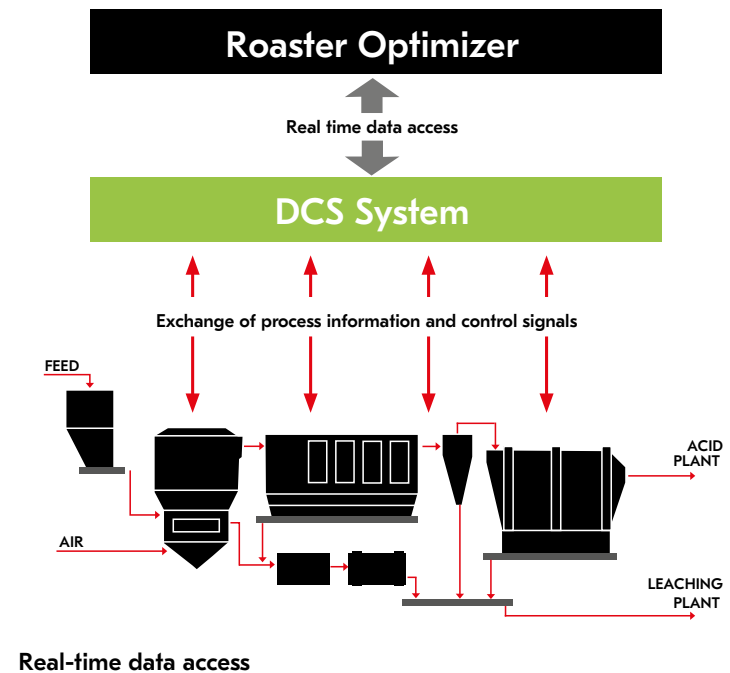


Increased production rate and less variation

Furthermore, parameters of the downstream process steps that are directly connected to the roaster are taken into account during the process optimization.

An added benefit of having a stabilized and optimized production process is increased plant availability due to reduced process fluctuations, which in turn enables an increase in optimized annual production levels and further increases your plant's profitability.

The Metso Outotec Roaster Optimizer provides operators, shift leaders, and managers with real-time analysis of process parameters for internal reporting purposes, customized according to your requirements. Automated reports can be enhanced with our process expert views, helping you to identify plant bottlenecks and maximize your plant's potential.



How it works

The Metso Outotec Roaster Optimizer is connected to your plant's distributed control system (DCS) and monitors all relevant process variables in real time. In combination with feed material characteristics and production targets, it uses our process know-how and heat and mass balances to calculate the optimized process operation modes and set points.

Compared to traditional manual operation via the DCS, the tool helps you to operate the plant more efficiently. The tool exchanges information with your plant's DCS and provides real-time assessment of the process every few seconds, helping to drastically reduce the workload while ensuring safe operation. The tool's operator interface is located in the control room and allows operators to quickly and easily adjust high-level process parameters, limits, and production targets.

Process improvements

The Metso Outotec Roaster Optimizer significantly improves the productivity of your plant and ensures it is operating optimally around the clock.

With the tool in place you can typically expect:

- >5% increase in annual throughput
- approximate 5% increase in plant efficiency*
- 25% improvement in end-product (e.g. sulfide-sulfur) quality
- Ensured consistency of end-product quality

Moreover, the Metso Outotec Roaster Optimizer ensures that your plant emission levels, particularly for sulfur dioxide, remain within the limits set by the relevant environmental legislation.

*Metso Outotec's rating for plant performance efficiency

Metso Outotec Roaster Optimizer vs. Traditional manual DCS operation

	MANUAL DCS OPERATION	METSO OUTOTEC ROASTER OPTIMIZER
Way of working	Operator responsible for process operation and observation of abnormal plant behavior	Assessment of complete process plant operation, automated monitoring and optimization of most relevant process parameters
Process operation	Manual operation and traditional controls for single variables	Assessment of complete process plant enables optimized operation
Alarm handling	Safety functions for single variables, range checks, etc.	DCS alarms and safety functions are not affected; high-level monitoring system combines all process information
Feed material and product quality	Daily laboratory analysis	Taken into account during optimization based on metallurgical know-how
Operator interface	DCS screen displays all plant variables; operator responsible for identifying relevant information	Operators can focus on the most important operational parameters using a dedicated screen in the control room

Metso Outotec is a frontrunner in sustainable technologies, end-to-end solutions and services for the aggregates, minerals processing and metals refining industries globally. By improving our customers' energy and water efficiency, increasing their productivity, and reducing environmental risks with our product and process expertise, we are the **partner for positive change**.