

Metso

Metrics Monitoring

What you can measure, you can manage

Metso
PLUS



Informed decisions at the right time

Metso Metrics is a cloud-based analytics platform that hosts our remote monitoring services. By connecting innovation and expertise to each machine, Metrics Monitoring service helps keep your equipment performing at optimal efficiency.

Connected equipment

Track data using advanced built-in and custom-designed sensors. These sensors are often integrated within the equipment, allowing for continuous monitoring and preventive maintenance.

Metso Metrics is a cloud-based analytics platform that hosts our remote services. Metrics produces records of process and machine parameters, as well as equipment health and performance information.

Cybersecure solutions

Information gathered from the equipment is sent to the cloud using the highest level of cybersecurity. The connectivity options are discussed with your experts in order to meet your needs.

Performance Centers

With remote access to your equipment data, it will be as if an expert is right there with you — even though they are actually hundreds of miles away, providing a proactive way of identifying problems before they cause costly equipment failure, unplanned downtime and productivity losses.

Metso experts are trained to recognize abnormal trends and alarms, interpret the data and proactively suggest ways to improve efficiency. If problems occur, our experts are there to quickly identify the root cause of your issue.

Equipment covered by Metso Metrics Monitoring services includes Courier Analyzers, MP, HP and PG crushers, PF Filters and Horizontal Mills, other offers continually being added.



Metso Performance Centers

Metrics Monitoring is provided by the Metso Performance Centers, who conduct expert monitoring and data analytics services using the data collected into Metrics. Working together, we can support you in improving equipment reliability as well as optimizing operational performance. Metso Performance Centers work with your team to analyze your data and identify potential areas for improvement, as well as catch developing issues before they lead to failures.

Metso Metrics Monitoring responds to various challenges that operations are facing, such as:

Remote locations lead to greater safety concerns

Modern mines have to go further and deeper. This increases safety and access concerns. Having higher production rates and larger, more powerful equipment can also increase risks. With remote monitoring and more autonomous processes, these serious challenges become less prevalent with site personnel needing to spend less service time in the production zone.

Difficult operating environments and decreasing ore grades

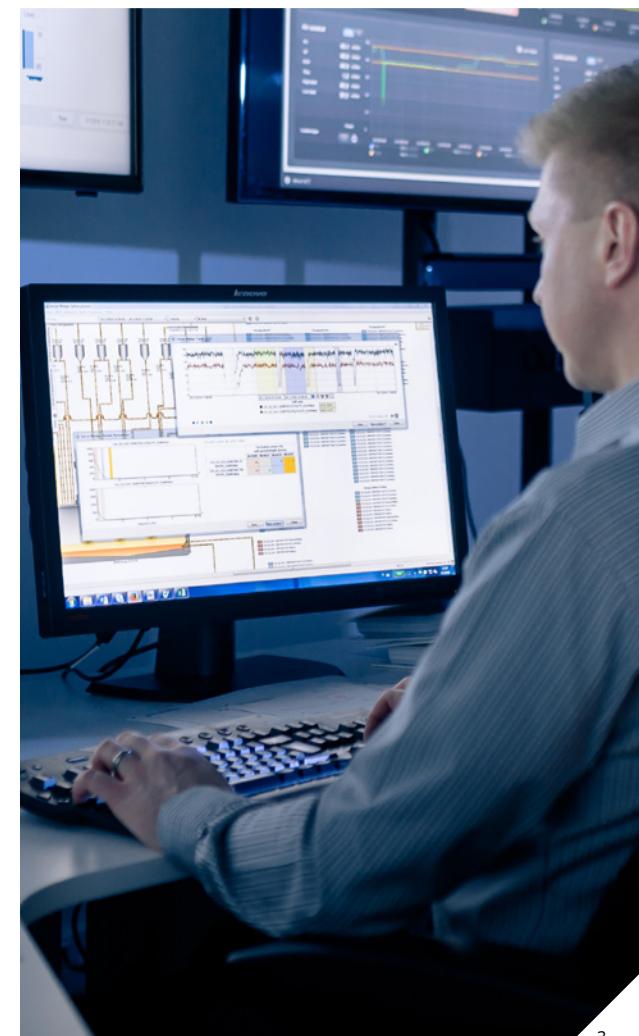
With decreasing ore grades, mines need to process more to produce the same final concentrate. Before considering the addition of new equipment, Metrics Monitoring helps shift the focus to optimizing your existing assets under challenging operating conditions.

Access to skilled labor and consistent knowledge

With such a broad range of equipment at most sites, it can be challenging to have the right in-house expertise. Metrics Monitoring – along with support from our Performance Center experts – connect local teams with our global resources, giving you access to the right expertise when you need it; for best results.

Unscheduled downtime

Unexpected downtime is one of the largest contributors to lost production and can be up to 5 times more costly than scheduled service stops. With Metrics Monitoring, you have advanced warning on upcoming service issues and potential problems before they bring your operation to a halt.



Three levels of insight



Level 1: Real-time visibility*

Monitor the health of your equipment at all times. Your data is analyzed and visualized to give you the knowledge you need to make preventive maintenance and operating adjustments.

- Remote connectivity to equipment
- Online dashboards to monitor your equipment
- Notifications warn of impending issues
- Remote calibrations for analyzers
- Vibration monitoring for mills



Level 2: Expert monitoring & recommendations*

Working with your team, our global Performance Center experts provide you with remote monitoring, expert analytics, connected troubleshooting, maintenance suggestions and prompt plans for problem prevention and resolution.

- Remote connectivity to equipment
- Support and suggestions to maintain or improve equipment performance
- Provides expertise not available at site
- Remote calibrations for analyzers
- Vibration monitoring for mills



Level 3: Sustainable process optimization*

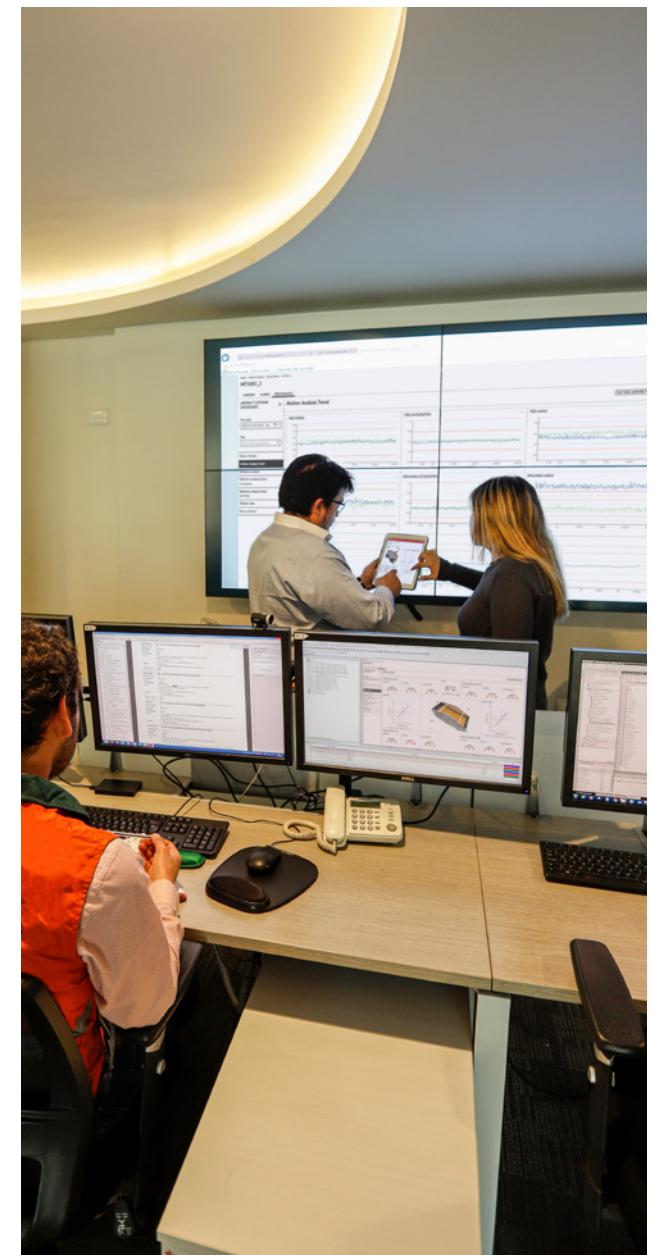
Optimizing your plant performance for targeted KPIs using data-based, in-depth expert assessments. You can expect increased process efficiency, safety, sustainability and stability.

Access to:

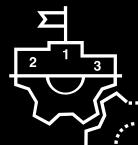
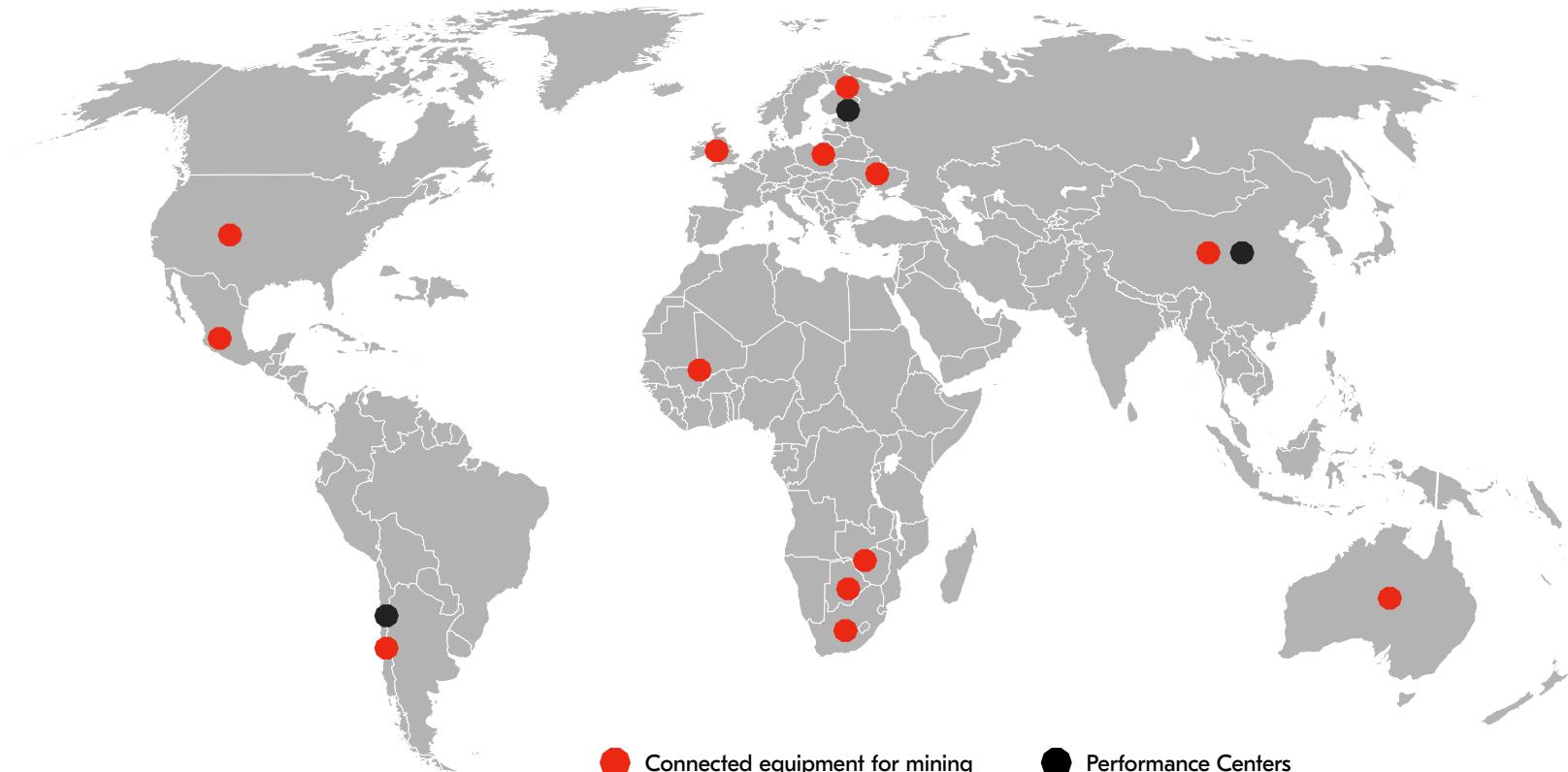
- Maintenance and reliability planning engineers
- Process optimization experts
- Laboratory services

* The availability and exact content of the service levels is subject to the type of equipment being connected.

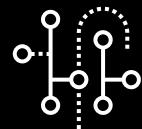
Please check with your Metso contact person for details.



Our connected installed base



3
Performance
Centers



>100
connected
equipment in
mining



>1,500
of connected
assets across
industries

Stay ahead of reliability and performance issues

Changing ore conditions can lead to potentially harmful power spikes, loss of throughput, and ultimately, lost production due to unplanned downtime. Suboptimal crushing operation can result in higher energy usage, increased wear rates and reduced utilization. You can build better efficiency with the right information to make decisions with Metso Metrics Monitoring.



Safety

Improve safety by preventing failures, reducing unplanned maintenance, identifying training needs, expanding remote support capabilities and increasing situational awareness.



Sustainability

Improve sustainability by monitoring power draw to reach optimal equipment design life. Remote monitoring reduces the need to travel to site to inspect and resolve problems.



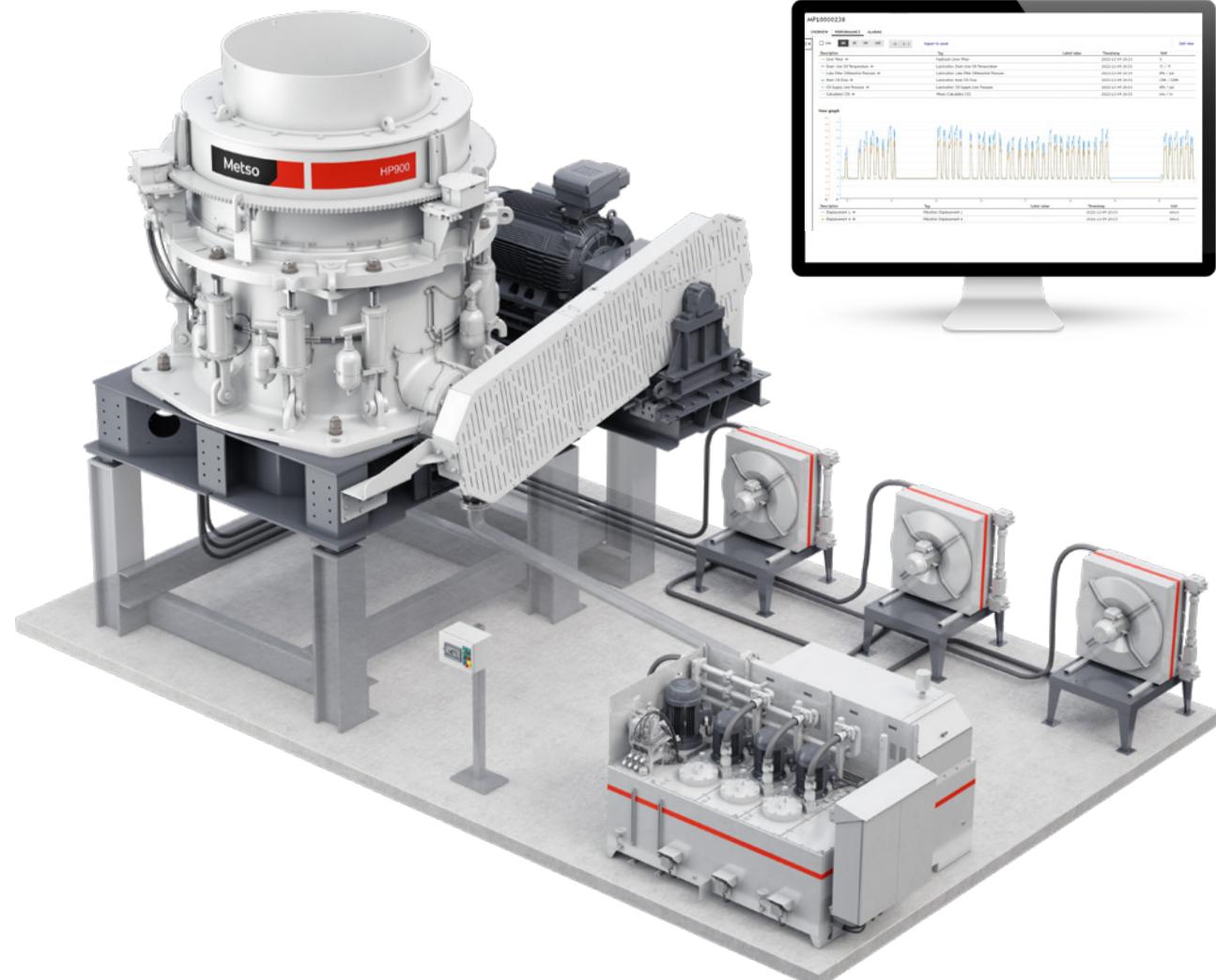
Optimization

Get the most out of your operation and equipment by monitoring the changes in feed properties, process flow, liner performance, CSS (closed side setting) and chamber profile.



Availability

Defect lubrication issues early to stay ahead of the most common cause of crusher failure. Metrics Monitoring detects overload (power draw) events, and notifies when ring bounce, uncrushable events, bushing wear and eccentric rotation occur.



Improve reliability and operational performance

Having up-to-date data on your mill's production trends, performance KPIs, as well as service alarms, gives you the knowledge to both identify improvement opportunities as well as uncover issues before they occur. Monitoring operational performance also allows you to adjust and optimize as ore or operating conditions change.



Safety

Remote support experts help prevent failures, reduce unplanned downtime and identify training needs to improve the practices and situational awareness of your personnel.



Sustainability

Continuous improvement through remote monitoring and proactive maintenance results in increased energy efficiency, increased asset lifetime and reduces the need for travel to conduct inspections and repairs.



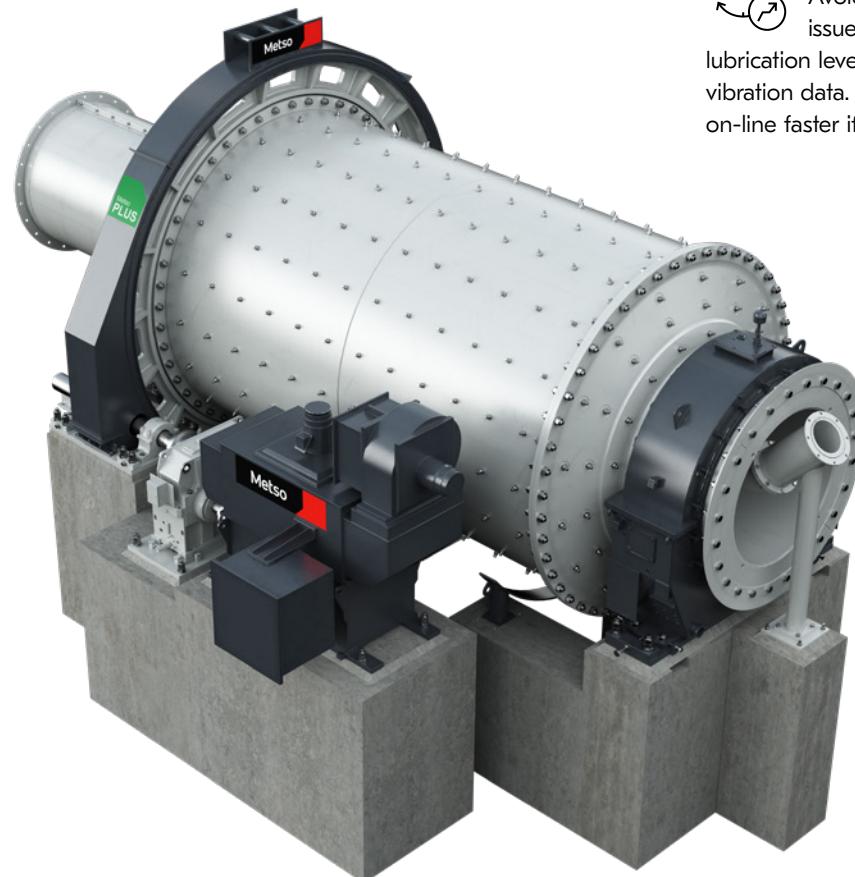
Optimization

Detect efficiency losses and receive recommendations for continuous improvement actions through ongoing monitoring and analysis of data, alarms and KPIs for efficient operations.



Availability

Avoid unplanned downtime and developing issues through detailed analysis of mill lubrication levels, temperatures, pressure, and optional vibration data. Proactive troubleshooting gets equipment on-line faster if failures occur.



Consistent measurement accuracy and availability

Courier measurement accuracy is key to efficient recovery, as poor accuracy can lead to sanding and recovery losses in flotation. Metso Metrics Monitoring provides the solution to keep your Courier available and your data accuracy high.



Safety

Remote support for analyzing and reporting Courier safety events to improve situational awareness and to stay ahead of unexpected issues.



Sustainability

Optimized recovery and analyzer lifetime with continuous OEM support. Remote capabilities reduce the need for travel to conduct inspections and repairs.



High Courier availability

Data analytics can improve equipment availability by identifying issues such as sample line blockages and other failures. The Performance Centers can provide services such as run time analysis of the Courier, sampling streams, multiplexers and probes, stream bypass durations, and any active alarms and warnings. This allows you to monitor trends in flow rates, temperatures and access remote troubleshooting.



Performance and accuracy

Optional analysis of laboratory and Courier results can assist in keeping the error rate in your Courier data to <5%. If the agreed threshold is exceeded, the Performance Centers rapidly compile a calibration change report explaining the recommended formula change. Upon approval, the calibration formula is updated remotely.



Metrics Monitoring for PF Filters

Optimize your filtration cycles

Monitoring hundreds of data points enables us to provide you with data analytics and expert recommendations. This allows you to optimize and benchmark your filter's reliability, operating parameters and practices, as well as production filtration cycles. Based on the data, our experts can recommend changes to the filter recipe, slurry pump speed and air-drying pressures, among others.



Safety

By analyzing and reporting safety events, we can remotely support you in achieving situational awareness of the performance and health of your filter to stay ahead of unexpected issues.



Sustainability

Optimize resource efficiency through remote monitoring and proactive maintenance. This maximizes the life of the filter and its components, and reduces the need for travel to conduct inspections and repairs.



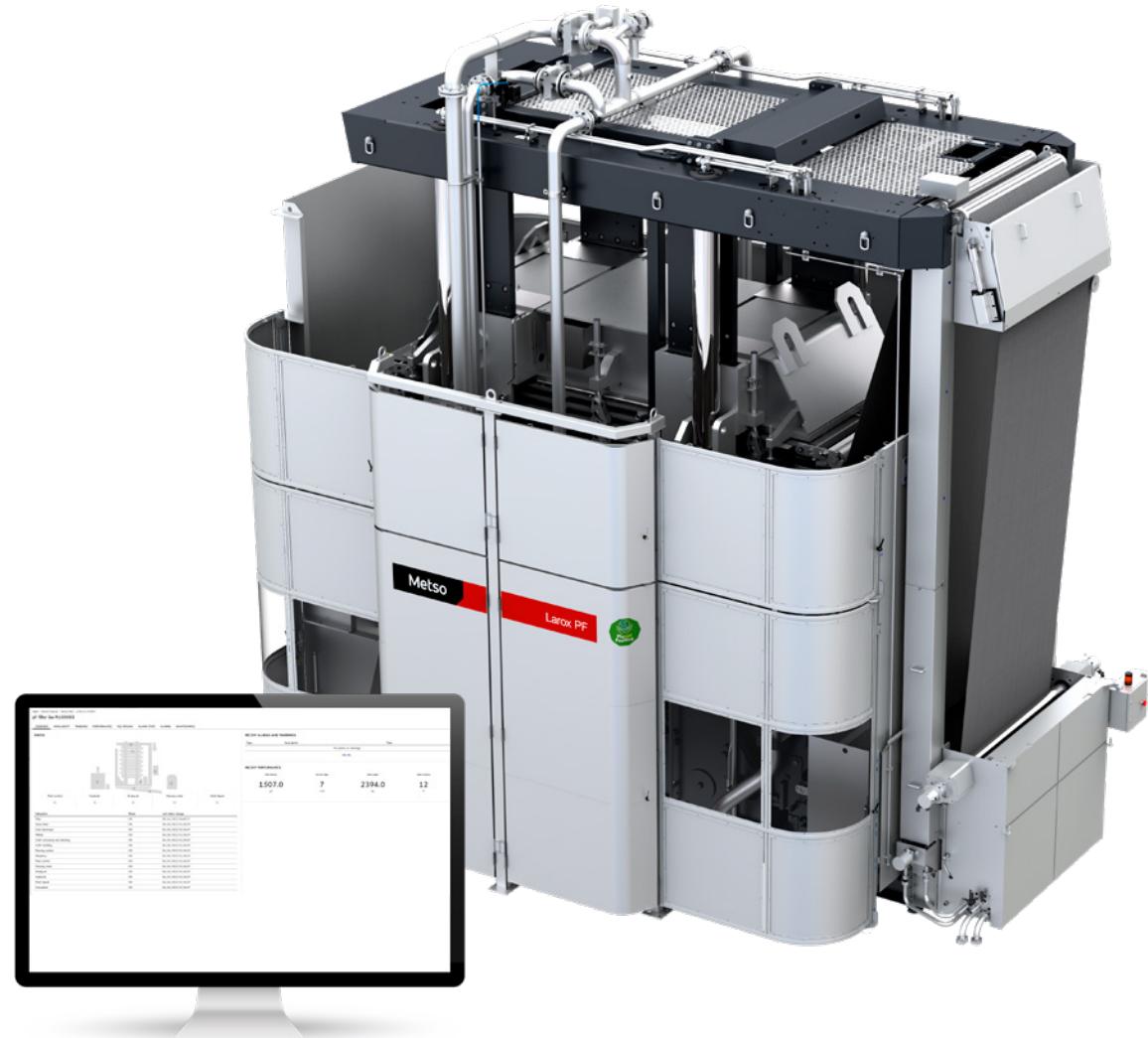
Optimization

Improve filtration rate and cake moisture level through ongoing monitoring and analysis of filter production, successful cycles, and overall performance. Reach your equipment's production benchmark through our expert recommendations based on analytics.



Availability

Proactive monitoring reduces downtime compared to traditional reactive troubleshooting. Metrics monitoring tracks availability and triggers alarm investigations for the filter, filter cloth and auxiliaries, and in addition, provides recommendations for maximized uptime.



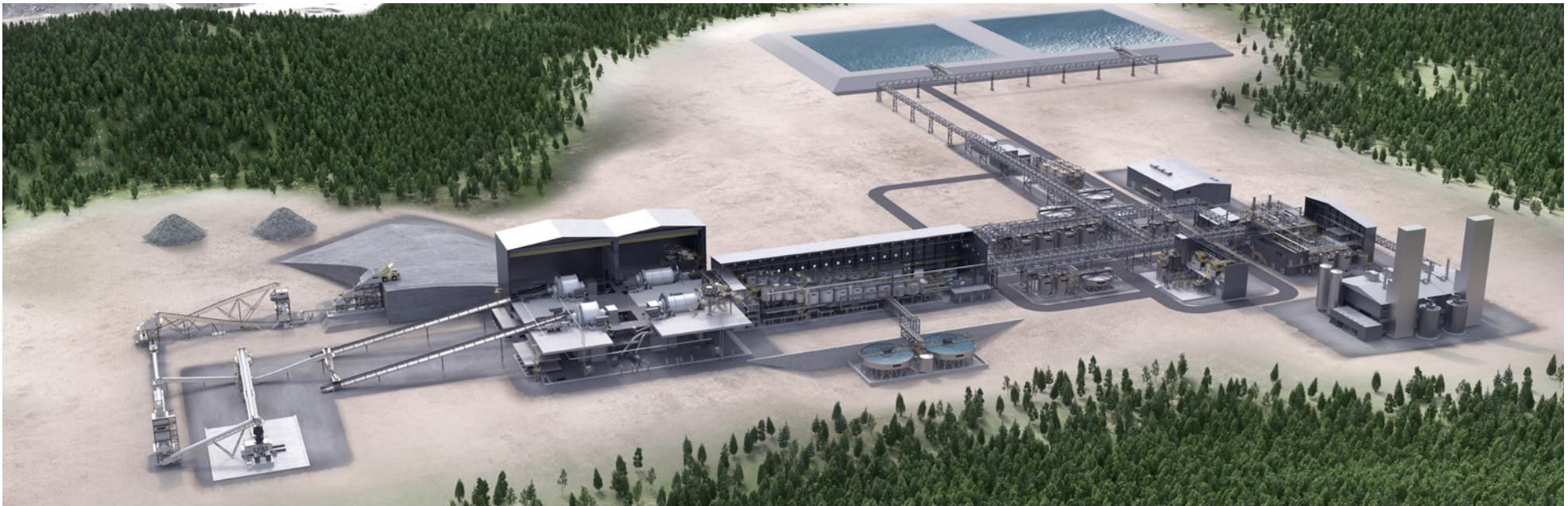


Metso Plus

While society continues to ask more of our industry, as technology providers, we need to enable our customers to deliver more – more efficiently, more profitably and more sustainably. The comprehensive Metso Plus portfolio of equipment, parts and expert services has been designed to deliver just that – more performance to where it's most needed.

Metso Plus offering helps our customers cut their CO₂ emissions and achieve their other sustainability priorities such as reducing pollution. In addition to direct emissions reductions, Metso Plus products can decrease the carbon emitted in manufacturing and delivering products and they offer potential for recycling materials. Metso Plus services can improve our customers' processes during modernizations and upgrades, as well as optimize existing production processes.

In the long run, such cumulative gains can be very significant. Metso Plus demonstrates our commitment to our customers and towards more sustainable filtration and dewatering practices. It emphasizes the change where we can make the biggest difference. Metso Plus enables both cost and resource efficiencies to our customers and is built on our extensive expertise and the reliability of our products plus our excellent service.



Our dedicated approach to sustainability

At Metso, we can create positive change through empowering our mining customers. We know that as a leading supplier of equipment and services, our approach to technology and innovation really matters.

We operate efficiently and in a responsible manner, and take into consideration the environment, safety and the well-being of people and the planet. We create value for our customers with our sustainable offering and contribute by working towards a more circular and carbon-neutral economy.

Central to Metso's sustainability efforts is our Metso Plus offering – products that are demonstrably more energy or water efficient than the market standard, or help our customer achieve other priorities such as circularity and safety, as well as services that help our customers improve their productivity. Our Metso Plus portfolio already includes over 100 products and our aim is to keep expanding and improving this offering by continuously innovating.



Metso is a frontrunner in sustainable technologies, end-to-end solutions and services for the aggregates, minerals processing and metals refining industries globally. We improve our customers' energy and water efficiency, increase their productivity, and reduce environmental risks with our product and service expertise. We are the **partner for positive change**.

metso.com