

Packed with performance webinar
17th November 2020

Welcome to Packed with performance webinar



Packed with performance – webinar purpose



1

To stay connected and share know-how

2

For all aggregates customers: both technical and business audiences

3

Content: tips, launches, keynote presentations

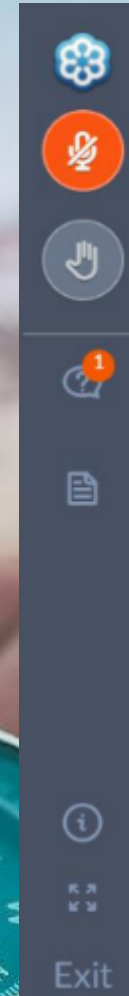
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Our goal: to help you perform to your best

Key information



- Webinar will be recorded
- Use the question box for all questions you have during the presentation
- If you require any assistance during the presentation, please write into the question box as well. The moderator will be monitoring throughout the presentation
- Recording will be distributed post-webinar
- Questions not answered during the webinar will be answered post-webinar by email



Toni Peltomäki, Product manager, Aggregate automation

Introducing the speaker

Toni Peltomäki has more than 10 years of experience in aggregates automation in different roles from product management and engineering.

His current role is product manager for automation in aggregates crushers. He has Master of Engineering degree from Tampere University of Applied Sciences.



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How to get the most of your crushing process and improve safety with Metso IC crushing automation

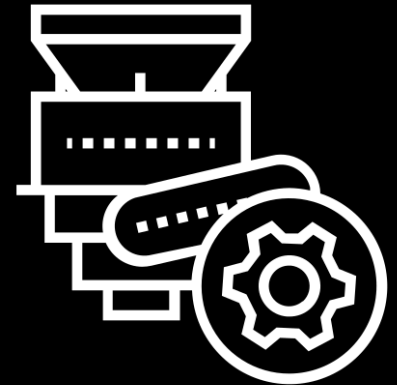
Toni Peltomäki, Product manager, Aggregate automation

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webinar



Crushing monitoring and control

What is automation on crushing plants?

What is automation on crushing plants?



Safety



Monitoring



Control



Optimization

Maximized uptime and consistent performance

What is automation on crushing plants?



Safety



Monitoring



Control



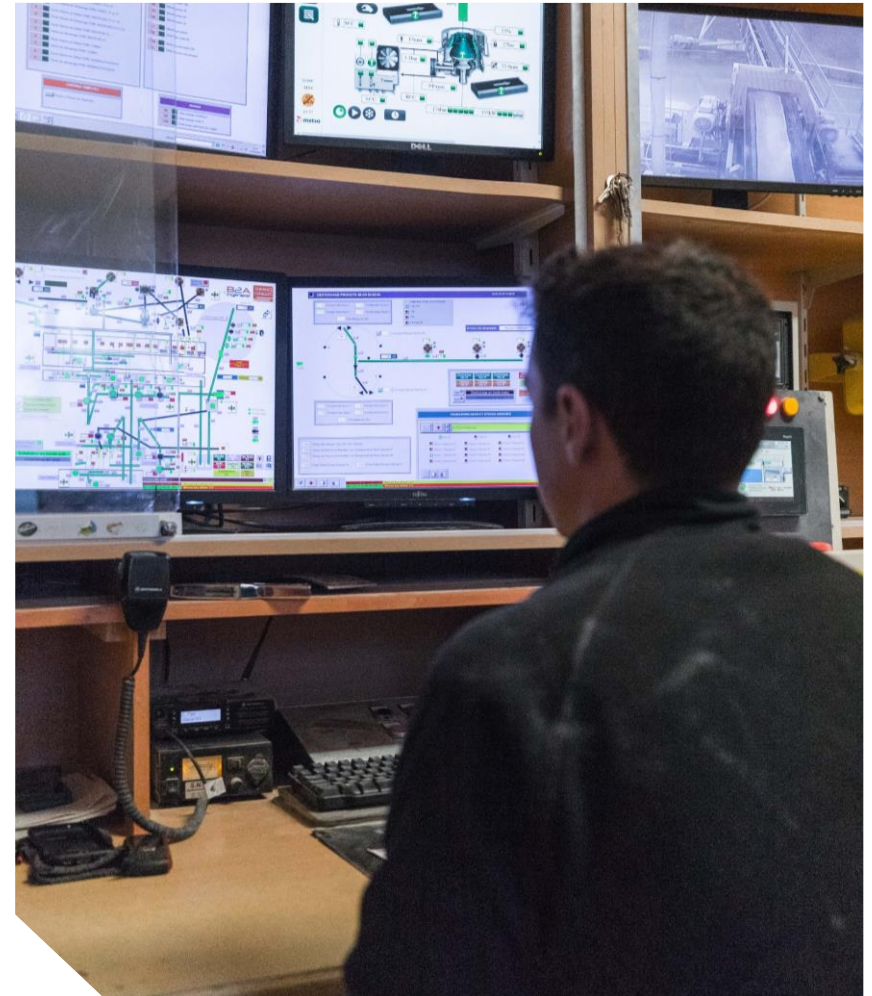
Optimization

Maximized
uptime and
consistent
performance

Improved safety



- Remote control from safe and comfort room
- Interlockings to prevent unintended operations
- Prevent materials build-up and overflow and reduce manual work to remove blockage
- Functional safety for maintenance functions and access to inspection doors



What is automation on crushing plants?



Safety



Monitoring



Control



Optimization

Maximized
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Monitoring and protection 1/2



- Continuously monitoring equipment health, such as
 - Crusher condition
 - Lubrication unit condition
 - Process and auxiliary device monitoring
 - Warning and alarming prior to subsequent shutdown of equipment



Monitoring and protection 2/2



- Monitor process parameters and maintenance cycle
 - Monitor liner lifetime and prepare for next change
 - Reminder to change parts based on running hours like filters
 - Production monitoring by power draw, tonnage and product size distribution



What is automation on crushing plants?



Safety



Monitoring



Control



Optimization

Maximized
uptime and
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performance

Crusher control



- Starting and stopping equipment in correct sequence
- Full lubrication unit control including oil heating, cooling and circulation
- Adjust Closed-Side Setting (CSS) from automation display
- Control feeding and regulate feed rate



What is automation on crushing plants?



Safety



Monitoring



Control



Optimization

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Parameters for crushing control



FEED MATERIAL CHARACTERISTICS

- Adjustable variables:**
- CSS
 - Feed rate
 - RPM



- Measured variables:**
- Crusher load
 - Massflow
 - Feed material level
 - Product size distribution
 - etc

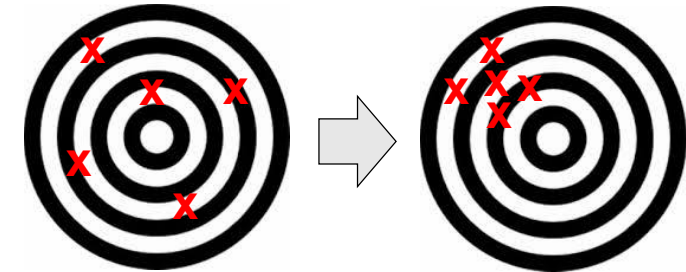
END-PRODUCT CHARACTERISTICS

Regulation is first step towards optimization



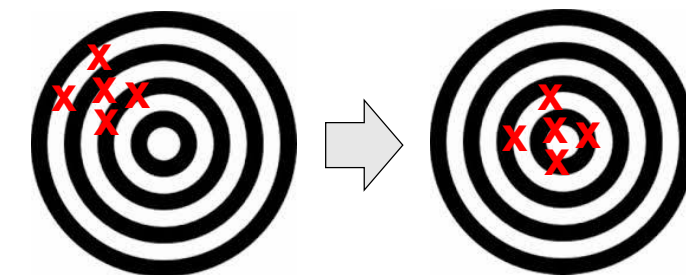
Stabilized feed material level and CSS adjustment.
Less variation → higher average performance.

Regulatory control



Optimize desired end-product yield and minimize energy & wear consumption

Optimization



Automation helps to improve efficiency



Safety



Monitoring



Control



Optimization

Maximized
uptime and
consistent
performance

Maximized uptime and consistent performance

Advantages of automated crushing plants



- Keep equipment in operating condition at all times and have early warnings of maintenance needs
- Automated sequences for starting and stopping, prevent mistakes and prewarn people around
- Remote controls, less traffic on site, keep people safe
- Stable process with automated feed controls and wear compensation
- Improved awareness, equipment data available at all times where needed

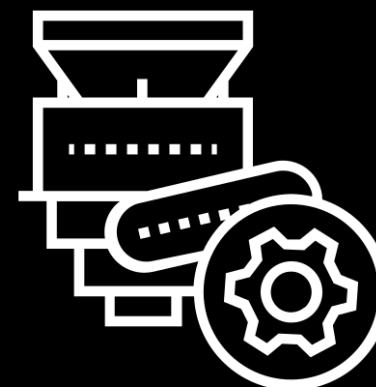




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Crushing monitoring and control

IC Series automation solutions



All different applications covered



Track mounted mobile plants



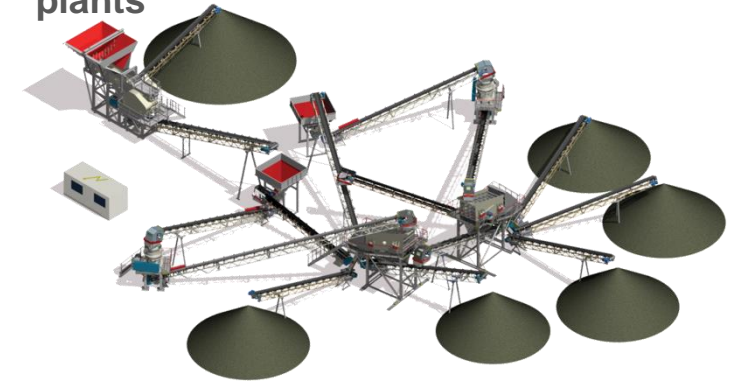
ICx00

Wheel mounted mobile plants



ICx0C

Stationary crushers and plants



Automation on Lokotrack solutions

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IC series automation for Lokotrack solutions:

- Controls the whole machine including full process control, engine & power transmission
- Hydraulically or electrically driven process devices
- Single button sequences for starting and stopping
- Number of optional devices
- Automated feed rate control
- Link to downstream and upstream machines for interlocking
- Fleet management solution **Metso Metrics** is installed by default on every machine.

Options:

- **Metso ICr™** wireless information and control system

Automation on stationary and portable equipment



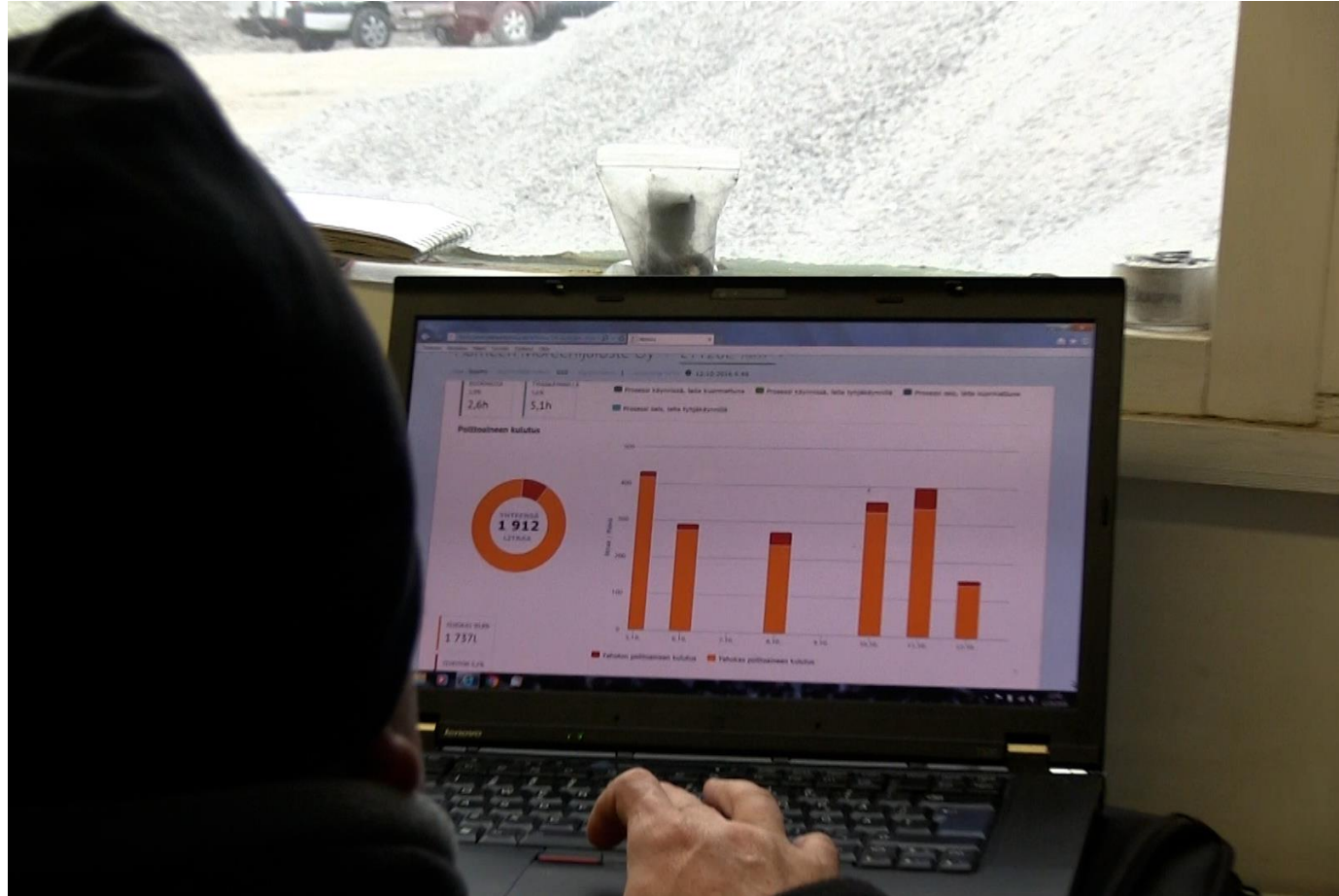
IC series automation for stationary and wheel-mounted crushers:

- Full crusher monitoring and control, including lubrication unit and hydraulics
- Single button sequences for starting and stopping
- Standalone crusher control or optionally control the whole crushing stage with a screen and all related conveyors
- Automated feed rate control based on cavity level and equipment load
- Crushing modes, metal-to-metal contact calibration and wear compensation (cones)

Options:

- Communication options to SCADA and DCS controls systems
- Remote user-interface
- **Metso Metrics**

Metso Metrics for Aggregates



Metso Metrics provides data of crusher usage, performance and energy consumption together with maintenance schedule. Portal available online 24/7.

Automation on stationary plant

The path to process full efficiency



Full plant control system for Aggregates and Mining operations. Increase production efficiency using Metso:Outotec expertise.

Main advantages:

- * Centralized control of all crushing and screening operations from control room
- * Regulative control loops and optimization to achieve stabilized process
- * Easy to control automatically, manually and locally

Features:

- * Centralized system brings all information to operator fluently
- * Production reporting
- * Provides a real-time details of events, alarms and fault
- * Real time and data historical data for diagnostics
- * Supports worldwide brands (Siemens, Schneider)
- * Interfaces to other existing DCS or SCADA systems
- * Plant electrification optionally in scope of supply

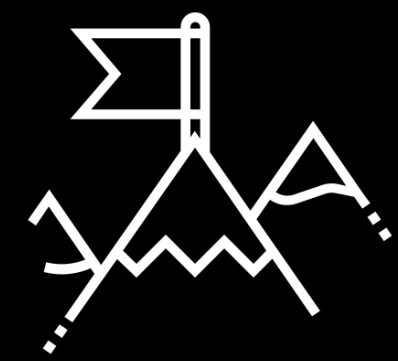




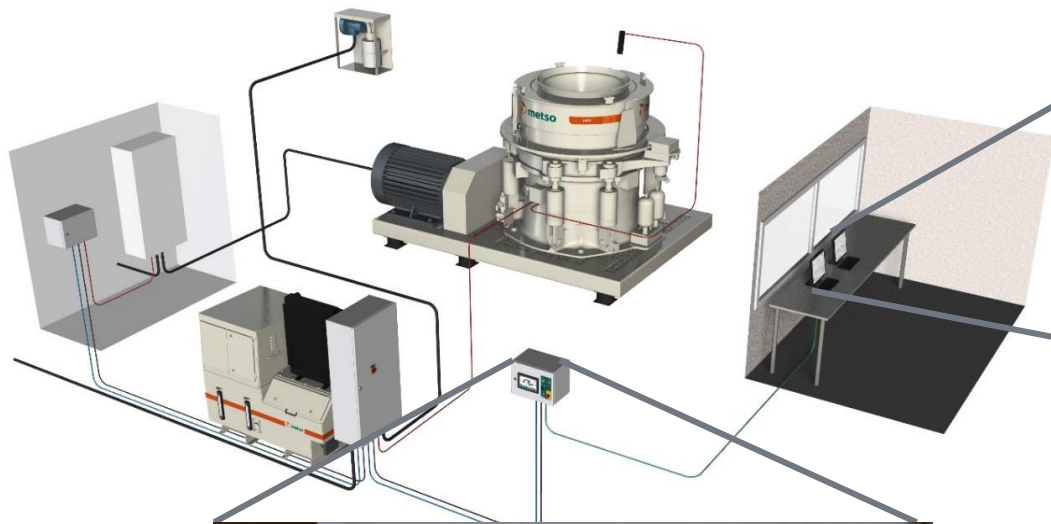
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Crushing monitoring and control

Solution example



Safer and more comfortable operation for stationary and semi-mobile plants



IC controls routine tasks in field. Remote control enables full control of equipment easily from control room.

1. Minimizes moving around the quarry in traffic and dust.
2. Brings information to centralized location for better situation awareness.
3. Similar displays locally and remotely improves usability



Summary

- Automation can continuously monitor and adjust routine tasks
- Deliver information to operator when and where it's needed
- Reduce moving around the quarry, keep people in safe and comfortable location
- You can only optimize what you can measure. Stability prior to optimization.

Questions?

Thank you all for joining!



- Webinar recording will be emailed post-webinar
- Unanswered questions from the chat will be replied to via email
- Please fill in the survey after the webinar with five questions
- Still have a question? Please reach out to **aggregates.webinars@mogroup.com** and we will get back to you!
- Follow all our social media channels to stay up to date with Metso Outotec
- ***Make sure to check our Aggregates Webinar Series calendar for upcoming webinars at www.metso.com/aggregateswebinars***

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