

Metso:Outotec

Services for Straight Grate Sinter Plants

Optimize
availability &
performance
with minimal
interruption to
production





Metso:Outotec

Service focused on
sustainability

The need to reduce operating costs while improving equipment availability is a continuous balancing act.

We are here to support you, from expert advice to parts supply, from maintenance support to modernizations.



OEM knowlege and parts

- Fit and functionality
- Safety
- Warranty
- Access to expertise
- Lower total cost of ownership (TCO)

Keeping your plant running at its best

The Metso Outotec advantage

Our Traveling Grate Sintering is based on more of a century of extensive experience and continuous R&D in fine ore preparation and agglomeration. Our innovative technologies and comprehensive service offering, including industry-leading process automation solutions, ensure high performance and quality, low investment and operating costs, as well as reduced energy consumption and emissions.

Pelletizing plant support

Metso Outotec offers end-to-end services for sinter plants, burner systems, coke and additive grinding, and material handling equipment. Our experience in servicing dozens of installations worldwide gives us the know-how to help you achieve your business goals, cost-effectively, with minimal interruption to your production.

Unique sintering experience

Metso Outotec is the only OEM in the world to offer Straight Grate technologies for both, iron ore sintering and pelletizing plants. Our strength and expertise in equipment, parts and services for the sintering process are designed to increase capacity, reduce fuel and power consumption, extend lifetime, performance and cut maintenance costs.

Benefits for sinter plant operators

- 120 years experience of the original inventors of the sinter process
- Continuous improvement of process and equipment through several hundred plant deliveries
- In-house R&D center and test facilities
- Global project execution capability from technology packages to full EPC deliveries

Services at a glance

Metso Outotec provides expert services for the key process areas in raw material preparation of sintering plants, ignition furnaces, travelling grate sinter equipment, sinter coolers, and material handling equipment. Our comprehensive service portfolio is supported by deep technical knowledge, experienced people, and specialized tools.



Inspections & alignment

Regular and standardized inspections provide a sound picture of your assets condition and the basis for optimized maintenance and plant reliability. Our expert support for planning and executing the re-alignment of the travelling grate and the sinter cooler improves equipment life, process performance and total cost of ownership.



Maintenance & shutdown support

From replacement services to full rebuilds of large components, we offer various options to reduce the risk of equipment failure and reduce shut-down time.

Our proven pallet car condition monitoring improves plant performance, component lifetime and maintenance.



Upgrades & modernizations

As your production goals evolve, so should your equipment. We offer a wide portfolio of modernization solutions to ensure that you continuously achieve the highest production and quality levels. Whether your challenge concerns the overall plant capacity, the ignition furnace, optimization of mixing or granulation, sinter cooling, or gas treatment, we are able to help.



Spare & wear parts supply

Reliable original parts for perfect fit and function are a key part of optimizing the equipment performance, reliability, uptime, safety, and maintenance costs.

The ongoing development of our process and proprietary equipment increases the quality and lifetime of our spare parts.

Expect results

Technology and services designed with your goals in mind.



- Reduce maintenance costs
- Extend equipment life
- Capacity increase
- Long-term plant performance
- Reduce energy consumption
- Reduce emissions

Inspections and alignment

The inspection of the travelling grate is often followed by alignment to be conducted at the next shut-down to correct the identified issues before they develop into major problems.

Inspections by certified experts

Metso Outotec offers standardized inspections for the main process equipment of your pellet plant. The detailed report provides a description of the condition of the equipment and a root cause analysis for damage and extraordinary wear. Recommendations are provided for operation, maintenance and alignment, required repairs and replacements, possibilities for upgrades or modernizations and capacity enhancement as well as for spare part stock holding.

Proper alignment is critical

It is essential that the travelling grate system, consisting of rails, sprockets, sealing and pallet cars is sufficiently aligned for efficient and cost-effective operation. Alignment is also a key factor in extending the lifetime of equipment and optimizing maintenance costs. Scheduled inspections well before the next major plant shutdown provides the basis for adequate planning of component sourcing and maintenance activities.

Regular inspections and proper alignment pays off



Our offering

- Standardized equipment inspections by certified experts
- Planning support of maintenance activities for the next shut-down
- Planning, management and execution of travelling grate alignment



Lower maintenance costs due to decreased wear of parts and maintenance costs



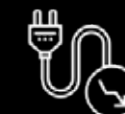
Longer lifetime: within tolerances, components are preserved and the lifetime is prolonged



Increased reliability prevents unplanned shutdowns due to failures of stressed components



Increased availability quality components offer longer service intervals and shorter shutdowns



Decreased power consumption due to aligned equipment and proper sealing and lubrication of process gas fans

Maintenance and shutdown support

Planned, major plant shutdowns are extremely challenging events and of paramount importance for plant reliability and management. Installation and construction during shutdowns is also a critical phase for the success of a modernization project.

Based on our project execution experience of furnace shutdown service teams, proprietary planning, management procedures and tools, we can support you with the execution of maintenance and modernization activities and minimize the required production stoppage.

We provide shutdown planning and scheduling, shutdown and construction management, site supervision or complete implementation and execution according to your requirements.



Upgrades and retrofits



Upgrades and retrofits are a great way to get new life out of your plants and equipment, allowing you to achieve modern-day performance. Our experts help you select and develop the best solution for your operations, develop the modernization project and plan the shutdown.

Our unique process expertise and in-house research and test facilities, provides access to the OEM drawings and specifications. Our design engineering and project execution capabilities guarantees that our upgrades will be planned and executed to the highest standards within the agreed cost budget and schedule.

Key upgrades

- Capacity increase or adaption to changing raw materials
- Burners with different fuels, higher efficiency and lower emissions (e.g., low NO_x)
- Improvement of green pelletizing and machine feeding
- Improved energy efficiency of furnace with a new cooling air concept
- Improved process control and automation

Emission Optimized Sintering - EOS™

A more sustainable future for sintering

As environmental regulations become increasingly strict, steel plant operators are under pressure to reduce the impact of their sinter plants. The Metso Outotec Emission and Energy Optimized Sintering (EOS) process delivers a complete recirculation of the sinter off-gases. This is achieved on sinter equipment which is covered with a hood, significantly reducing the off-gas volumes.

The EOS process also assists in reducing operational costs by enabling a substantial reduction in coke consumption. The investment required for retrofit projects to adapt the existing sintering process is offset by the significant reduction in fuel costs and the savings for secondary gas cleaning of the reduced off-gas stream.

Key benefits

- Reduced SO_x and NO_x emissions after primary gas cleaning
- Off-gas volume is reduced by up to 50%, which in turn reduces the CAPEX required for secondary gas cleaning equipment (DeSO_x, DeNO_x)
- The use of post-combusted carbon monoxide from the recirculated off-gas reduces the consumption of solid fuel
- Can be retrofitted on existing sinter plants to ensure compliance with plant operation requirements

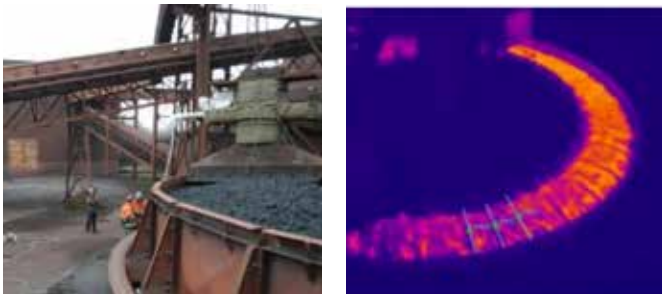


Cooler upgrades

In many sinter plants the sinter cooler over decades of operation is the cause of the bottleneck in terms of plant productivity as well as noise and dust emissions. The solution for a retrofit of the sinter cooler may be a combination of different elements:

- Increasing the effective volume:
 - Widening of the cooler troughs or increasing the height of the cooler walls
- Improving cooling efficiency:
 - Improve stationary sealing system
 - Improve charging chute to optimize particle size segregation
- Increase cooling air volume:
 - Optimize working point of fans
 - Retrofit, replace or add fan(s)
- Process optimization:
 - Holistic optimization in conjunction with the sinter process (burn-through point)

Each capacity increase of a sinter cooler is specific and should be evaluated according the aspects above to achieve productivity (capacity and availability) and simultaneously minimize the time invested, cost and shutdown period for installation.



We perform a comprehensive study, aligned to the specific needs of the plant operator:

- Measurement of temperature, air volume and dust of cooler off-gas using a mobile measuring hood on the cooler
- Concept development for cooler efficiency improvement and capacity increase
- Concepts for waste heat recovery for site specific energy requirements if requested



World-class R&D

Optimize your investment and operating costs

Our focus has always been on improving plant performance and reliability, while reducing capital investment and lifetime operating costs. We have conducted extensive research and testing with a wide range of raw materials and process parameters and continuously develop and improve the mechanical design and process automation of our technology.



We have the capability to conduct in-depth test programs to support the continuous improvement of the pelletizing process and plant upgrades considering both, technology and long-term economic performance. Pellet tests in conjunction with comminution and beneficiation tests are conducted to optimize the entire process from run-of-mine ore through to fired pellets.

Spare parts and component supply

Without proper parts, equipment cannot function optimally. While often seen as a simple transaction where all parts look the same, the truth is that parts are critical and can greatly impact production and profitability.

With Metso Outotec, critical doesn't mean complicated.

Development is a focus to improve design, maintenance, or ease of installation. All of our parts are held to stringent OEM standards by our quality assurance group, and we stand behind what we supply 100%.



Spare parts with original material specifications and tolerances including:



- Complete pallet cars or their components
- Sprockets (gear rims)
- Curved rails and run rails
- Slide rails and sealing components
- Sinter cooler components, rails, wheels, side walls
- Double cone valves etc.

Why partner with Metso Outotec?

Metso Outotec's experienced field service engineers use standardized inspection and maintenance procedures, equipment and tools to efficiently and safely service and install equipment, components and systems in the field.



Metso Outotec experts find the root cause of problems, provide expert options for time and cost-savings, and recommend solutions to help you get more out of your equipment. All service activities are backed by a global network.

Consult Metso Outotec's Ferrous process and equipment experts for:

- One source for parts and technical service
- Access to specialized knowledge and tools
- Minimized interruption of production
- Improved availability and productivity
- Troubleshooting know-how
- Safe working practices
- Lower risk of failure
- Easier maintenance planning

The Metso Outotec team offers rapid response, on-time delivery, quality control, and emergency support.

Metso Outotec offer additional services to help you extend equipment life:



Life Cycle Services (LCS)

Life Cycle Services take the entire range of Metso Outotec services and conveniently bundle them into tailored, and easy-to-manage packages. These can range from basic services to more complete solutions, depending on the scale of your needs. Packages are equipped to cover single-event shutdowns or span multiple years, measured against strict KPIs.



Field Services

Metso Outotec offers comprehensive field services to help meet your maintenance, repair, installation and refurbishment needs. Each service is fully customizable to your exact requirements. Our highly specialized services cover all Metso Outotec proprietary and process equipment for pelletizing, filtration, crushing, grinding and material handling equipment.

We offer sustainable products and services to our customers. This means that we do things efficiently and responsibly in terms of the environment, safety and the wellbeing of people and the economy. These dimensions are critical throughout our value chain – from procurement to end product. By innovating new and better technologies and changing the current ways of operating, we help to create a more sustainable future.

Partner for positive change