

# Metso

Metals refining services

## Straight grate pelletizing plant services







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

We are here to support you with expert advice, parts, maintenance and modernizations.

Support services  
focused on  
sustainability





## OEM knowledge and parts

- Fit for function
- Safety
- Warranty
- Access to expertise
- Lower total cost of ownership (TOC)

# Maintain optimal operational performance

## The Metso advantage

Our traveling grate pelletizing is the industry's leading induration technology for iron ore pellets. Based on the experience of the technology leader, our world-class R&D and the track record of more than 80 plants designed and delivered worldwide, it ensures high performance and quality, low investment and operating costs, and reduced energy consumption and emissions over the complete lifecycle of your asset.

### Help with your pelletizing plants

Metso offers end-to-end services for pelletizing plants as well as burner systems, grinding, beneficiation, filtration and material handling equipment. Our experience in servicing dozens of installations world wide gives us the know-how to help you achieve your business goals, cost effectively, with minimal interruption to your production..

### Unique experience in [pelletizing

Metso is the only OEM in the world to offer both straight grate and grate kiln technologies. With this strength and expertise, Metso's equipment, parts and services for pelletizing processing are designed to increase capacity, reduce fuel and power consumption, extend lifetime and performance and cut maintenance costs.

### Help with your pelletizing plant

- 60 years of experience as the original inventors of the pelletizing process.
- Continuous improvement of process and equipment through 80 plant deliveries
- Own R&D center and test facilities
- Global project execution capability from technology packages to full ECP deliveries
- Expert support over complete plant lifecycle

# Services at a glance

Metso provides expert services for the key process areas in iron ore beneficiation and pelletizing plants, such as the furnace, pelletizing drums or disks, roller screens, as well as mills, flotation cells, thickeners, filters or 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.



## Maintenance & shutdown support

From replacement services to full rebuilds of large components, we have many options to reduce the risk of equipment failure and minimize shutdown time.



## 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.



## Digital solutions

Data transfer and automatization of processes allows you to make informed decisions that help you improve availability, reliability, and performance with end-to-end operational visibility backed up by expert support.



## Spare & wear parts supply

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



## Specialized training

Improve technical knowledge, increase safety and productivity of your operation with our specialized training services.

## Expect results

Technology and services designed with your goals in mind.



- Reduce maintenance costs
- Lower fuel costs
- Reduce emissions
- Extend equipment life
- Long term performance improvements



# Inspections and alignment

The traveling grate inspection is often followed by an alignment during the next shutdown to correct the identified and diagnosed issues before they develop into major problems.

## Inspections by certified experts

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

## Proper alignment is critical

It is essential that the traveling 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.

## Our offering

- Standardized equipment inspections by certified experts
- Planning support of maintenance activities during next shutdown
- Planning, management and execution of traveling grate alignment



Regular inspections  
and proper alignment  
pay off



Lower maintenance costs: Decreased parts wear saves maintenance costs



Longer lifetime: Components are preserved to extend lifetime within tolerances



Increased reliability: Prevent unplanned shutdowns due to stressed component failures



Increased availability: Healthy components offer longer service intervals and shorter downtime



Lower power consumption: Aligned machine, sealing and lubrication decreases energy for process gas fans



# Maintenance and shutdown support

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

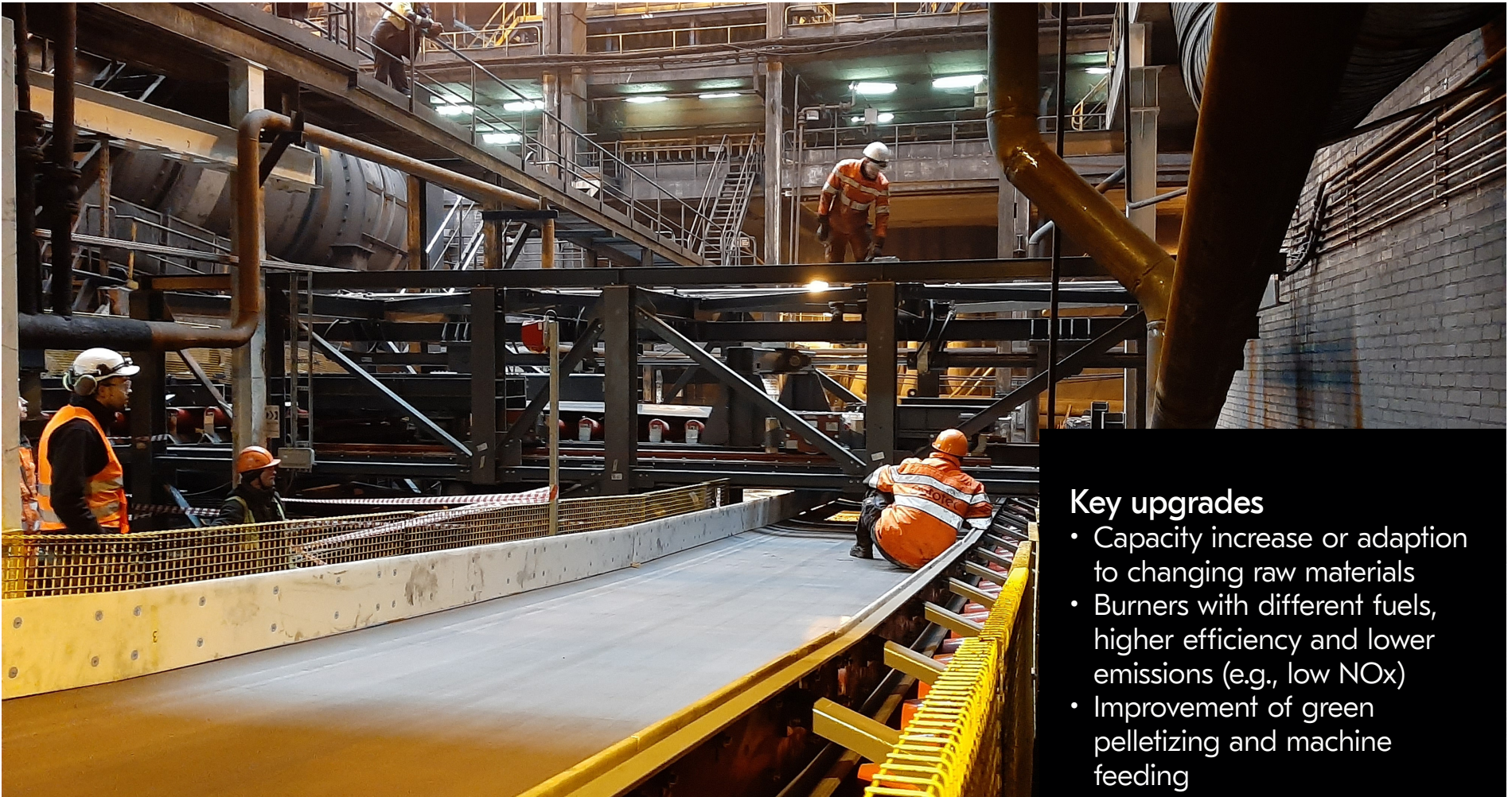
Based on our project execution experience, our furnace shutdown service team and proprietary planning and management procedures and tools, Metso can support you to execute maintenance and modernization activities and minimize the required production stoppage.

As per your specific requirements, we provide shutdown planning and scheduling, shutdown and construction management, site supervision or complete implementation and execution.





# 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.

Our unique process expertise, research and test facilities, access to the OEM drawings and specifications, design engineering and project execution capabilities give you the guarantee that any 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 NOx)
- Improvement of green pelletizing and machine feeding
- Improved furnace energy efficiency with new cooling air concept
- Improved process control and automation



# Digital solutions

As a market leader in sintering and pelletizing plants since the beginning of these technologies, Metso is continuously developing products to improve the performance and longevity of our process equipment.

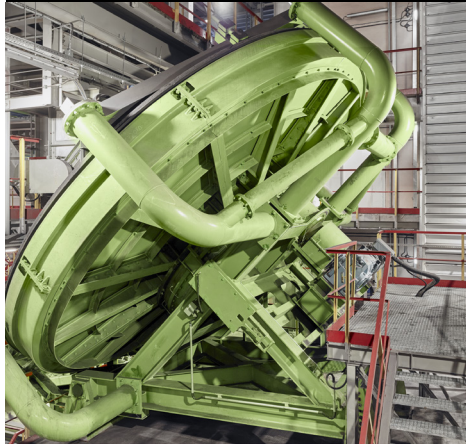
## Process advisor optimus



Optimizing Control System and Optimus are proven and cost- and time-effective for continuously improving plant performance and energy consumption. By online modeling and automatic set point optimization based on simulations and test work, they ensure consistency through operating shifts.

Metso has 14 systems in operation, with proven results of a 2-5% production increase, 3-9% energy decrease and 20-40% decrease in quality standard deviation

## Green pellet size control system



The green pellet size measurement system VisioPellet™ is a continuous real-time expert level process assessment that optimizes pellet size distribution and feed rate. This is the basis for a real pellet size control loop, optimizing disc speed and inclination, water addition and feed rate.

Metso has more than 20 systems in operation, with proven results of a 3.6% improvement in target size standard deviation.

## Pallet car condition monitoring



The pallet car condition is crucial for plant availability, process performance and maintenance costs.

To provide accurate real-time information about the pallet condition during operation and clear criteria for service intervals, Metso has developed its condition monitoring system consisting of a pallet car identification system via optical cameras or RFID and a sag monitoring for the pallet bodies with contactless sensors.

## Virtual training and remote support



Based on virtual twins of the core plants and a first principles model, Metso can offer a dynamic, interactive and realistic training solution accessible via cloud.

Operators can learn plant behavior in a safe environment, the reaction in emergency situations and the consequences of their action. It is possible to combine this with Optimus or to a remote monitoring system. Support is available through the Metso support center.

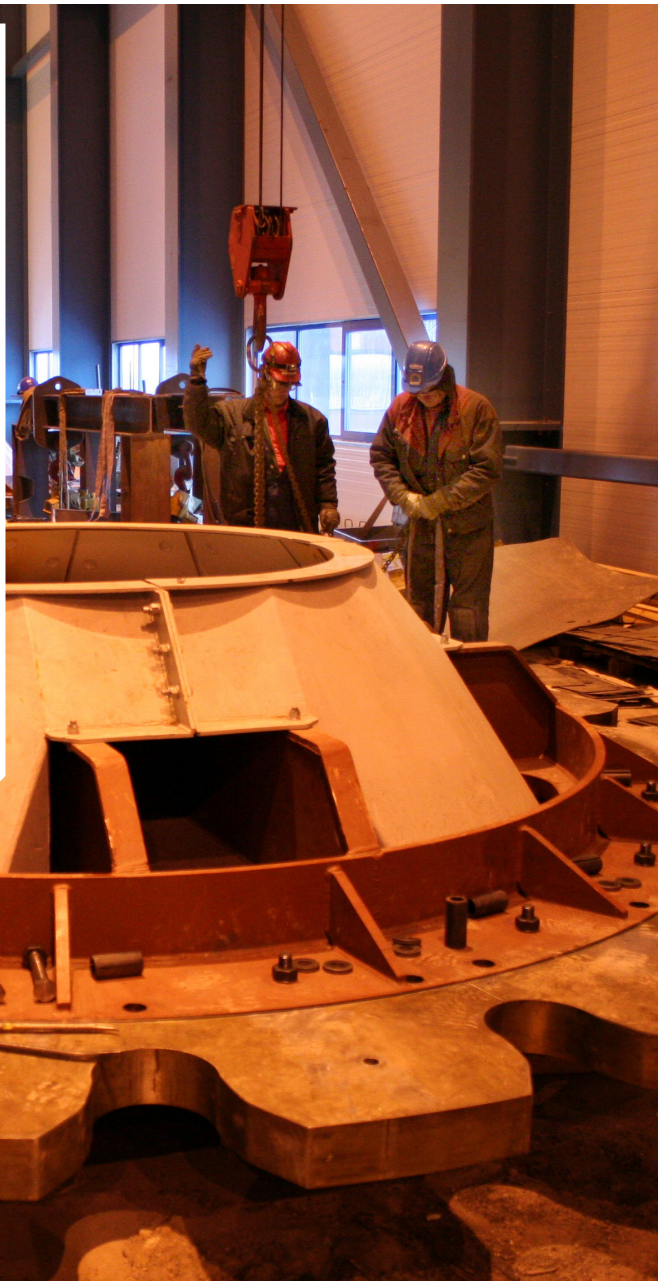


# Spare parts and component supply

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, 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 to the original material specifications and tolerances including:



- Complete pallet cars or their components
- Sprockets (gear rims)
- Curved rails, run and slide rails
- Spares for roller screens, pelletizing discs and drums
- Burners and components, etc.



## World-class R&D optimizes your investment and operating costs

Our innovations focus on improving plant performance and reliability, while reducing capital investment and lifetime operating costs. We have carried out extensive research and testing with a wide range of raw materials and process parameters and are continuously developing and improving the mechanical design and process automation of our technology.

We have the capability to carry out in-depth testing programs to support continuous pelletizing process improvement and plant upgrades considering both technology and long-term economic performance in our R&D centers. To optimize the entire process from run-of-mine ore through to fired pellets, our laboratories can carry out pellet tests in conjunction with comminution and beneficiation testing.





# Why partner with Metso?

Metso'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 experts can 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 of experts.

Consult Metso's Ferrous process and equipment experts for:

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

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

Metso offers additional services to help you extend equipment life:



Life Cycle Services (LCS)

Life Cycle Services take the entire range of Metso services and conveniently bundles them into tailored, and easy-to-manage packages. These can range from basic services to more complete solution, 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 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 proprietary and process equipment for pelletizing, filtration, crushing, grinding and material handling equipment.



