

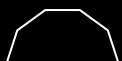
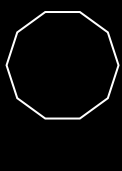
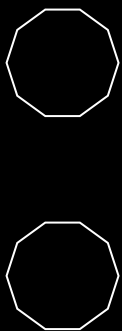
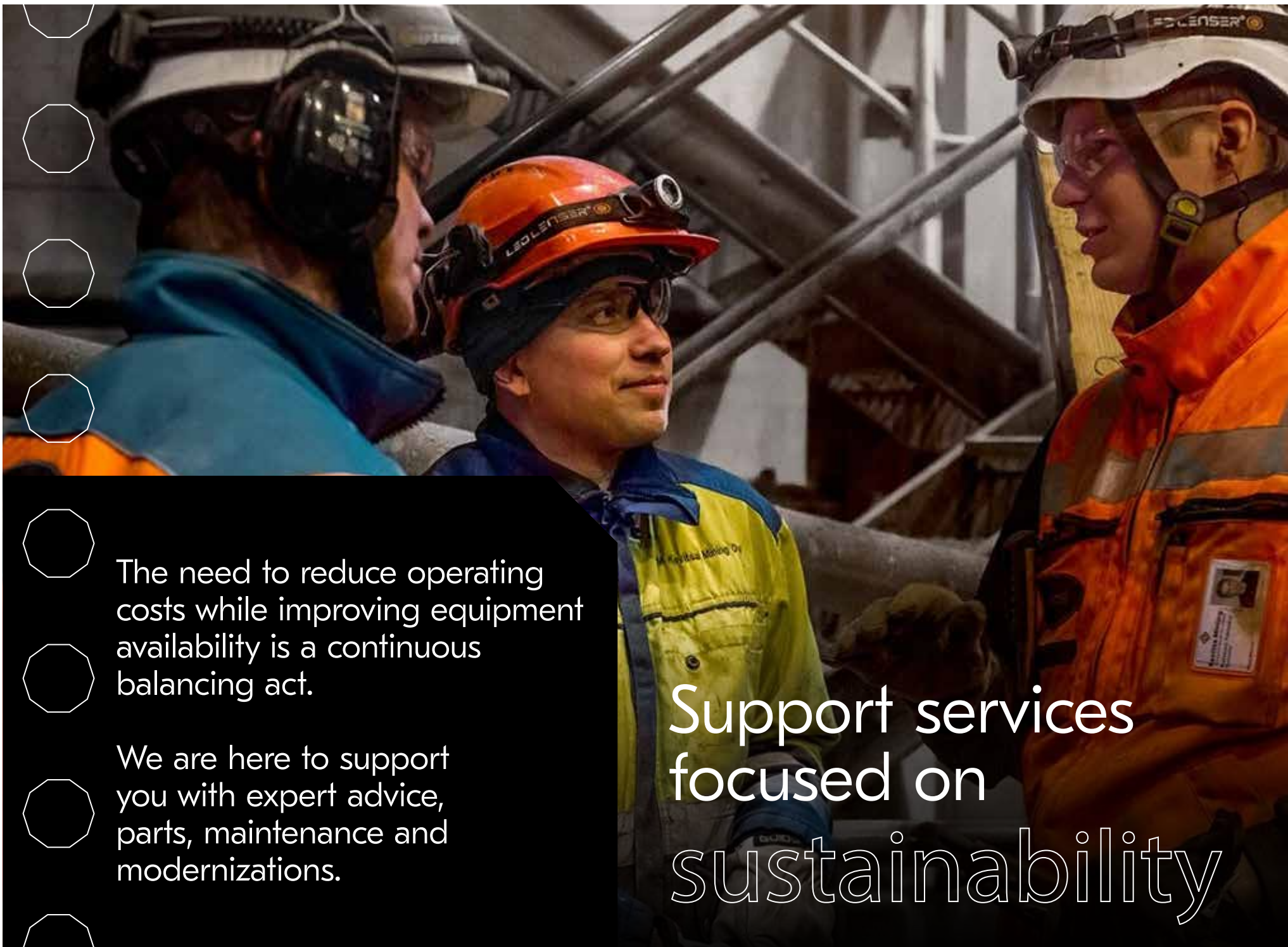
A photograph of an industrial facility, likely a metal refining plant, featuring large, curved, metallic pipes and machinery. The scene is set in a large, open hall with a high ceiling and structural beams. The lighting is bright, highlighting the metallic surfaces. The image is overlaid with a red-to-yellow gradient on the left side.

Metso:Outotec

Metals refining services

Straight Grate Pelletizing Plant Services

Optimize availability &
performance with minimal
interruption to production



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 Outotec 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 Outotec 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 worldwide 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 Outotec 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 process are designed to increase capacity, reduce fuel & power consumption, extend lifetime and performance and cut maintenance costs.

Help with your pelletizing plants

- 60 years experience of 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 EPC deliveries
- Expert support over complete plant lifecycle

Services at a glance

Metso Outotec provides expert services for the key process areas in iron ore beneficiation and pelletizing plants, as the furnace, pelletizing drums or disks, roller screens, but also 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 reduce 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 the equipment performance, reliability, uptime, safety, and maintenance costs.



Specialized training

Improve technical knowledge, improve 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 inspection of the travelling grate is often followed by an alignment during the next shut-down in order to correct the identified and diagnosed 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 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 up-grades, 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 shut-down 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 during next shut-down
- Planning, management and execution of travelling grate alignment



Lower maintenance costs Decreasing wear of parts and thereby maintenance costs



Longer lifetime: within tolerances, component are preserved and lifetime increases



Increased reliability prevent unplanned shutdowns due to failures of stressed components



Increased availability healthy components offer longer service intervals and shorter standstill



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

Maintenance and shutdown support

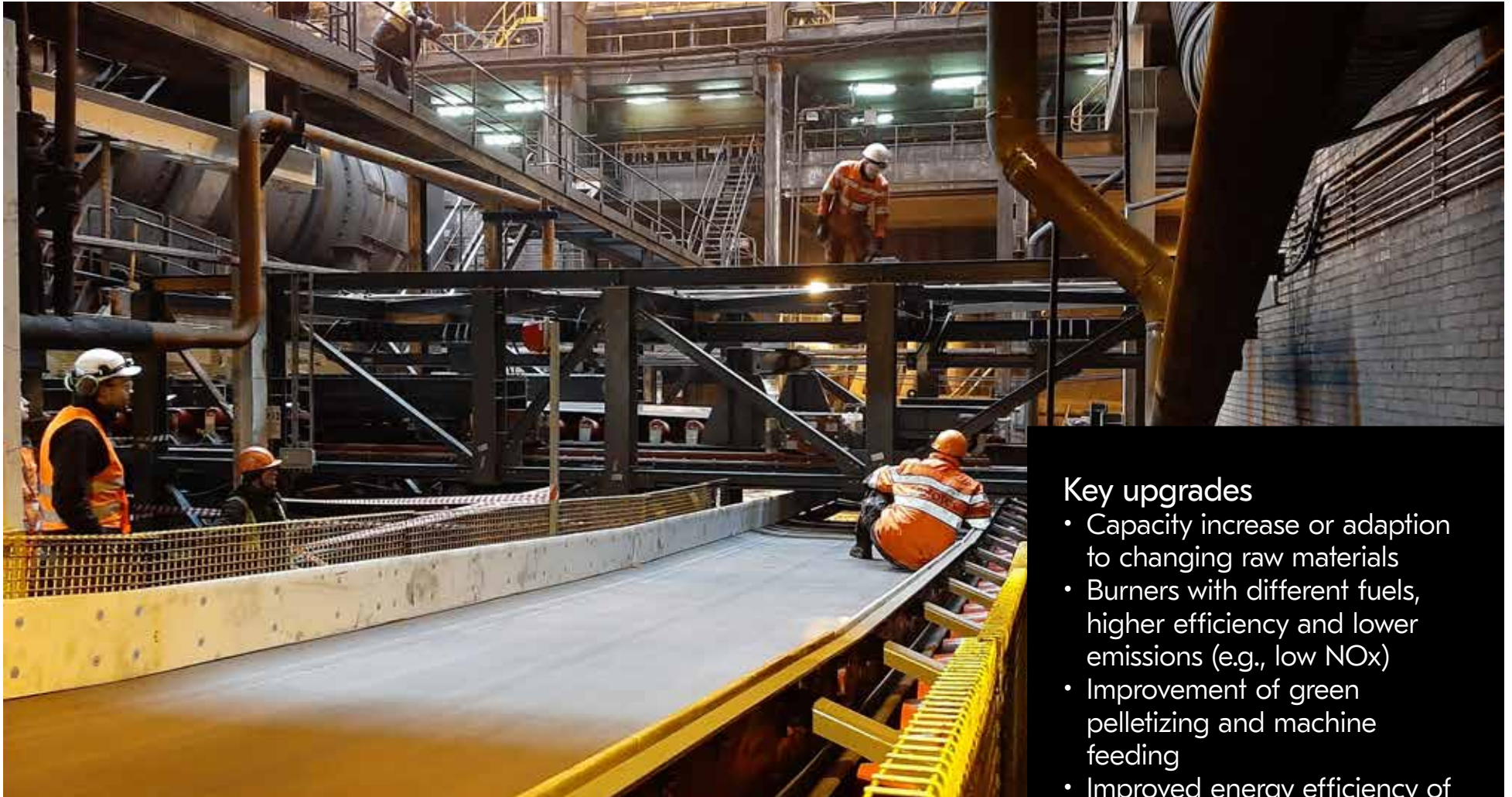
The planned major plant shutdowns are extremely challenging events and paramount for Plant Reliability and Management. Installation and construction during the shutdown is also a critical phase for the success of a modernization project.

Based on our project execution experiences, an own furnace shut-down service team and proprietary planning and management procedures and tools, Metso Outotec can support you to execute maintenance and modernization activities and minimize the required production stoppage.

As per your specific requirements, we provide shut-down planning and scheduling, shut-down 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, the own research and test facilities, the access to the OEM drawings and specifications, own 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 energy efficiency of furnace with new cooling air concept
- Improved process control and automation

Digital solutions

As market leader for sinter and pelletizing plants since the very beginning of this technologies, Metso:Outotec is continuously developing products to improve the performance and the longevity of our process equipment.

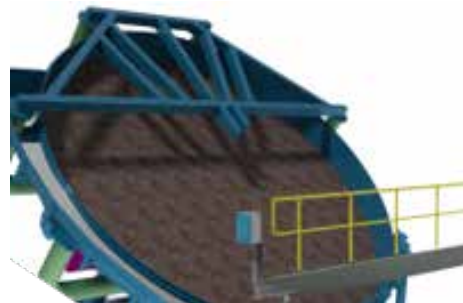
Pretium process advisor optimus



Optimizing Control System OCS® and Pretium Optimus® are proven cost-and-time-effective for continuously improving plant performance and energy consumption. By online modelling and automatic set point optimization based on simulations and testwork they ensure consistency through operating shifts.

Metso Outotec 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 Outotec has more than 20 systems in operation, with proven results of a 3.6% improvement in target size and a 16.4% reduction 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 thus clear criteria for service intervals, MO 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, MO can offer a dynamic, interactive and realistic training solution, accessible via cloud.

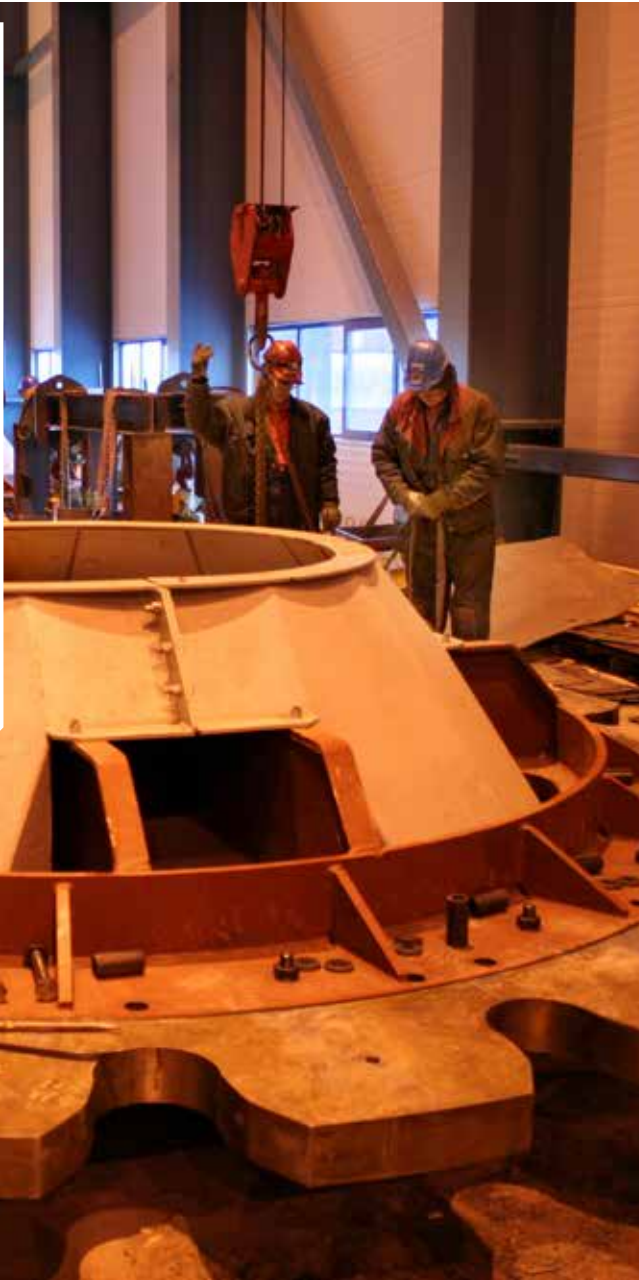
Operators can learn plant behavior in a safe environment, the reaction in emergency situations and the consequences of their actions. It is possible to combine this with Optimus or to a remote monitoring system. Support is available through the Metso Outotec Support Center.

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 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 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 & drums
- Burners & 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 the continuous improvement of the pelletizing process and plant upgrades considering both, technology and long-term economic performance in our R&D centers. In order 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 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 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 Outotec'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 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 bundles 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.

