Metso Pelletization Solutions

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Expect results

Straight grate
and
Grate-Kiln
system

Metso Pelletization Solutions

Boosting production capacity and quality

Pelletizing is the process of transforming iron ore fines into spherical pellets through agglomeration and induration to be used as feed to a blast furnace or direct reduction systems to produce iron. Metso is the only OEM in the world to offer both Straight Grate and Grate-Kiln technologies, therefore ensuring our customers get the best technology fit for their specific ore and product requirements.

With strength and expertise in both Straight Grate and Grate-Kiln technologies, Metso's equipment, parts and services for pelletizing process are designed to increase capacity, reduce fuel & power consumption, and cut maintenance costs.

Cutting-edge technology offering fuel efficiency and sustainability

Increasing the economic value of ores and minerals with pelletizing

As high-grade iron ore deposits become more limited, it is necessary to upgrade lower quality iron ore resources through concentration. The ground iron ore must be pelletized prior to feeding into a blast furnace or DRI plant. Our pelletizing equipment is designed to produce pellets of highest quality at the lowest cost.

Metso engineering experts work closely with customers to enhance mechanical and process parameters for all equipment systems for improving reliability and ease of maintenance.

Highest quality pellets at the lowest cost

Our extensive range of solutions

Straight grate
High output, lower capital cost

Grate-Kiln system
Consistent quality, lower operating costs

Ancillary equipment
High capacity agglomeration

Straight grate systems

Maximizing output, minimizing capital cost

The Straight grate induration machine is a continuous flow of pallet cars that move through drying, preheating, indurating, and cooling without intermediate transfers. The objective is to transform the pelletized concentrate into hardened pellets that can be used as blast furnace feed or direct reduction furnace feed.

Metso has redesigned pallet car components to increase strength, stability and improved air flow through the bed. Independent control of multiple burners allows process flexibility to adjust to changes in concentrate feed.

- **46** Straight Grate pellet plants designed
- Over **131 MTPA** production capacity
- **60+** years of experience
- Capacities ranging from **0.6 MTPA** to **9 MTPA** in a single system
- Approx. **50 kWh/ton** power consumption
- Ultra-low NOx induration machine installations
- Reduced downtime due to offline maintenance of pallet cars

Metso is one of the original technology suppliers for straight grate systems

Read more:

metso.com/straight-grate

Grate-Kiln system

Consistent pellet quality, lowest operating costs

The Grate-Kiln induration machine is composed of three separate pieces of equipment; the Traveling Grate, the Rotary Kiln, and the Annular Cooler. Independent variable speed control of drying/preheating, induration, and cooling allows process flexibility to adjust to changes in concentrate feed.

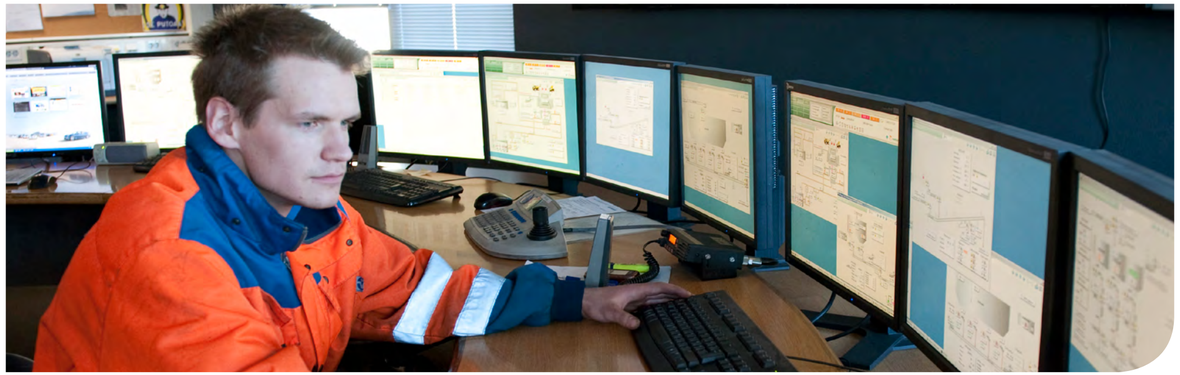
The traveling grate is used primarily to dry and preheat green balls for feeding into the rotary kiln, where they are indurated. Since the induration occurs in the rotary kiln, the pellets produced in a Grate-Kiln system are uniformly high quality. Hot pellets from the rotary kiln are discharged directly to the annular cooler where they are leveled to a uniform bed depth and conveyed over the primary and final cooling zones.

- **46** Grate-Kin systems with over **119 MTPA** capacity installed worldwide
- **60+** years of experience
- Capacities ranging from **3 MTPA** to **7 MTPA** in a single system
- Approx. **42 kWh/ton** power consumption
- **≥50%** reduction in fuel and CO2 emissions with Metso induration machine system retrofits
- Patented **Superdeal®** and **Goodeal®** seals to reduce air leakage
- Higher grade alloys in the traveling grate for longer life

Metso has designed and supplied the most modern and largest Grate-Kiln systems in the world

Read more:

metso.com/grate-kiln



Advanced automation and control systems

Optimizing Control System

OCS® is among the most cost-and-time-effective proven tools for improving metallurgic plant performance, energy consumption, continuously maximizing throughput and optimizing production cost. It provides automatic set point optimization throughout the plant to allow consistency through operating shifts while also utilizing deep process knowledge and expertise.

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

VisioPellet™ technology

VisioPellet™ is a continuous real-time expert level process assessment that optimizes pellet size distribution and feed rate.

Metso has 21 systems in operation, with proven results of a 3.6% improvement in target size and a 16.4% reduction in target size standard deviation.

Promising results

Delivering world class pelletization plants to Jindal Steel and Power Ltd.(JSPL), India

Challenge

As one of its growth initiatives, the company wanted to improve the availability and efficiency of its iron ore pellet plants, which provide the raw material for its steel mills across the country and even outside India

Solution

To meet the desired quality parameters and running the facility at its optimum level, Metso delivered two pellet plants having capacity of 4.5 million tonnes each

Result

The pellet plants are running at full capacity with 100% load and 99% availability. The indurating machines consume less power and furnace oil and run for extended periods non-stop

Read more:

metso.com/pellet-plant-jspl

The Metso Way -

Making the big difference to our customers

Everything we do is based on deep industry knowledge and expertise that makes the big difference to our customers. Decades of close customer collaboration and adaption to our customers' ever-changing needs have transformed us into a knowledge company.

Through our knowledge and experience, we work with our customers to create solutions that enable them to attain their objectives. We call this **The Metso Way**, which focuses on creating value to our customers. The Metso Way is built upon knowledge, people and solutions.

Knowledge -

We have deep knowledge about our custmers' business environment, processes and challenges

People -

Our committed and highly competent people make the difference to our customers

Solutions -

We create the technology and services required to meet our customer needs

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Metso Inc.,
www.metso.com/mining