Outotec offers unrivalled solutions and services for processing minerals and metals. Our processes for sintering and pelletizing have been the world’s leading solutions for iron ore sinter and pellet production for over 50 years. The main feature is a traveling grate consisting of an endless chain of pallet cars. This heavy-duty equipment is exposed to extreme conditions and material wear from thermal and mechanical stress. Thus, Outotec® Pallet Cars have a robust design for an extended service life and allow for reliable and safe operation to ensure highest process availability.

**Benefits**

- Technology leadership with more than 18,000 units delivered in the last 50 years
- Proven robust design for reliable operation and long service life
- Customized solutions to meet specific customer process requirements
- Leading process and engineering expertise coupled with global supply capabilities
- Life-cycle services, including new units, spare parts, inspections and modernizations
Robust technology for your sintering needs

A process steeped in tradition
Sintering is the agglomeration of fine-grained ores. With solid fuel added to the feedstock, the mix is heated to its softening temperature. The process combines locally confined melting, diffusion of the grain boundaries and recrystallization to produce sinter. After surface ignition on the sintering machine’s travelling grate, air is induced through the ignited layer and the process continues in the vertical direction of the material bed. The sinter is discharged at the tipping station, where the pallet cars are lowered from the upper strand to the return track by gear rims and curved rails.

Long-lasting insulated pallet car bodies
The pallet car for sintering features a 1-piece body design of nodular cast iron for enhanced cost efficiency. Suspensible insulating pieces protect the pallet car from excessive heat transfer and reduce the body temperature by 100 - 150 °C. Track wheels and pressure rollers are equipped with anti-friction bearings and sealings which make lubrification during operation unnecessary. Bearing designs, which allow for frequent relubrication, are also available. Wear-resistant, spring-loaded sealing elements with 2-component material slide bars prevent false air suction between the pallet car and windboxes. Overlapping sidewalls ensure that the feedstock remains on the pallet car. Sinter bed heights up to 730 mm can be realized.

Outotec’s pallet cars are used in sintering machines with reaction areas up to 600 m² and with a maximum production rate of 45 tonnes of sinter per day and m².

Outotec® Pallet Car for sintering

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Optimized design for pelletizing

**A landmark process**
Pelletizing is a process for the agglomeration of very fine-grained ores. Outotec’s process involves two stages: the forming of moist globules (green pellets) and then a hardening phase. Pellet hardening occurs through crystallization processes, grain growth and structural changes. Hardening requires burning the pellets in an oxidizing atmosphere at temperatures below the raw material’s softening temperature (1,200 - 1,350 °C). Green pellets are transported on the traveling grate through a furnace where they are dried, pre-heated, burned and then cooled.

**Durable reversible center castings**
The pallet car for pelletizing features a 3-piece body design of cast steel for an extended lifetime. The center and end castings, where the roller sets and the side walls are mounted, are joined with bolts. The center casting is symmetrical and can be reversed for extended use. The roller sets and sealing elements are designed for reliable operation and low maintenance (see the description of the pallet car for sintering). The split sidewall design allows for an easy exchange of the high-alloyed upper sidewall, which is exposed to hood temperatures up to 1,350 °C. Pellet bed heights up to 550 mm can be realized.

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**Outotec® Pallet Car for pelletizing**

- **Upper sidewall**: From high-alloyed heat-resistant steel
- **Lower sidewall**: Holds the pellets on the pallet car
- **Grate bar holder**: Locks the grate bars
- **Grate bar**: From high-alloyed heat-resistant steel
- **Center casting**: Reversible design
- **Front plate**: For docking with the adjacent pallet car and for sealing purposes
- **End casting**: To mount pallet car body, side walls, sealing elements, roller sets
- **Sealing element and slide bar**: Prevents false air suction

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**Standard dimensions**

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Factoring productivity and availability

Why select Outotec?
Pallet cars are subject to high stress resulting from carrying loads and thermal loads due to the high temperatures in the furnace and the cooling down temperatures from ambient air on the return track, as well as abrasion during discharge.

Outotec’s solution not only provides the highest plant availability, but it also ensures the highest levels of safety, reliability and maintainability. The proven, robust and maintenance-friendly design minimizes wear during operation and facilitates servicing to ensure a long lifetime of the equipment.

Innovation through research and partnering
Outotec’s continuous pursuit of in-house research and development as well as technology partnerships with prominent plant operators around the world allow us to develop leading technologies which create value for our customers. Based on accurate measurements with special thermo cars and simulation using the finite element method (FEM) analysis, Outotec’s pallet car design has been optimized to meet your process requirements.

Trusted service provider
Outotec services are based on a peerless combination of process know-how, engineering expertise and global supply capabilities. Our service portfolio includes:
- Pallet cars for sintering and pelletizing
- Components and spare part packages
- Customized engineering for many pallet car designs on the market
- Width extension for sinter plant capacity increase
- Inspections and maintenance services

Design features
- Insulated pallet car body for sintering
- Reversible center casting for pelletizing
- Exchangeable front plates
- Long-lasting grate bars from high-alloyed heat-resistant cast steel
- Split and overlapping sidewalls
- Extremely durable sealing elements
- Permanently lubricated bearings (optional)

Outotec develops and provides technology solutions for the sustainable use of Earth’s natural resources. As the global leader in minerals and metals processing technology, Outotec has developed over decades several breakthrough technologies. The company also offers innovative solutions for the chemical industry, industrial water treatment and the utilization of alternative energy sources. Outotec shares are listed on the NASDAQ OMX Helsinki.

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